60459370

CONTROL DATA CORPORATION

NOS VERSION 2 SYSTEM PROGRAMMER'S INSTANT

CDC® COMPUTER SYSTEMS:

CYBER 180

CYBER 170

CYBER 70

MODELS 71, 72, 73, 74

6000

REVISION RECORD

Revision	Description
A (07-19-82)	Manual released. Reflects NOS Version 2 at PSR level 562.
B (11-18-83)	Manual revised. Reflects NOS Version 2 at PSR level 596. This revision incorporates the following features: enhanced system security; service class assignment by users; a multihost network; equipment status table expansion; project prologues and epilogues; and SCOPE 2 station. This edition obsoletes all previous editions.
C (09-13-85)	Manual revised at NOS 2.4.1 PSR level 630. New features include support of the CC634B console, CYBER 180 Computer Systems, 834 Disk Storage Subsystems, 895 Disk Storage Subsystems, 639 Magnetic Tape Units, 5870 printers, the L-display utility SDSPLAY, and the Mass Storage Archival Subsystem. This edition obsoletes all previous editions.
D (09-30-86)	Manual revised at NOS 2.5.1 PSR level 664. New features include support of CYBER 180 model 990, 836 Disk Storage Subsystems, CDCNET network devices, Printer Support Utility, CYBER 180 multimainframe link devices, concurrent channels and concurrent peripheral processors, and disk management enhancements.
E (04-23-87)	Manual revised at NOS 2.5.2 PSR level 678. New features include support of 698 Magnetic Tape Units, 585 printers, Tape Management System, EST Channel reorganization, and extended memory enhancements.

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Revision letters I, O, Q, S, X, and Z are not used.

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REVISION RECORD

Revision	Description
F (11-13-87)	This manual reflects NOS 2.5.3 at PSR level 688. New features include support of Display Disk File (DDF) utility, and magnetic tape as an alternate storage medium for permanent files, ISHARE, and link between seven mainframe clusters. This revision drops the documentation of the mass storage subsystem (MSS).
G (12-07-88)	This manual reflects NOS 2.7.1 at PSR level 716. New features include support of 960 and 994 mainframe, PC Console CC598B, Scheduler Enhancements, and support of 9853 Disk Storage Subsystems. This revision also includes miscellaneous technical and editorial corrections.

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LIST OF EFFECTIVE PAGES

New features, as well as changes, deletions, and additions to information in this manual, are indicated by bars in the margins or by a dot near the page number if the entire page is affected. A bar by the page number indicates pagination rather than content has changed.

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PREFACE

This manual contains information necessary to establish and control the operation of a CONTROL DATA® Network Operating System (NOS) Version 2. NOS was developed by Control Data Corporation to provide network capabilities for interactive and transaction processing in addition to local and remote batch processing.

NOS 2 can operate on the following computer systems:

- CDC® CYBER 180 Computer Systems Models 810, 830, 835, 840, 845, 850, 855, 860, 870, 960, 990, 994, and 995
- CDC CYBER 170 Computer Systems Models 171, 172, 173, 174, 175, 176, 720, 730, 740, 750, 760, 815, 825, 835, 845, 855, 865, and 875
- CDC CYBER 70 Computer Systems Models 71, 72, 73, and 74
- 6000 Computer Systems

AUDIENCE

This manual provides condensed descriptions of console commands; systems-oriented commands; central memory tables; and function requests for analysts, programmers, and operators. The user of this manual should have a thorough knowledge of NOS.

CONVENTIONS

This manual uses several conventions primarily to make reading easier. These conventions follow:

- The term carriage return is used throughout this manual. It refers to the CR key on the CC545 console and the NEXT key on the CC634B console and the Enter/Return key on the CC598B console.
- Some of the CYBER 170 Computer Systems share many of the functional and architectural attributes of the CYBER 180 Computer Systems.

Specifically, CYBER 170 Models 815, 825, 835, 845, and 855 fall into this category. It is sometimes convenient to refer to the CYBER 180 models and these CYBER 170 models collectively. This manual uses the term CYBER 180-class models or mainframes to refer to this collection.

Extended memory for the CYBER 180-class machines and models 865 and 875 is unified extended memory (UEM) and may also include extended core storage (ECS), extended semiconductor memory (ESM), or STORNET. Estended memory for model 176 is large central memory extended (LCME) and may also include ECS, ESM, or STORNET. Extended memory for all other NOS computer systems is either ECS, ESM, or STORNET.

In this manual, ECS refers to ECS, ESM, and STORNET. Extended memory refers to all forms of extended memory unless otherwise noted. ECS, ESM, and STORNET are the only forms of extended memory that can be shared in ECS multimainframe complex and can be accessed by a Distributive Data Path (DDP) or Low Speed Port (LSP). For CYBER 180-class machines, only UEM may be accessed directly from CPU programs as extended field length; similarly on the model 176, only LCME may be accessed directly from CPU programs. The other forms of extended memory are supported only as mass storage devices on these machines.

Programming information for the various forms of extended memory can be found in the COMPASS Reference Manual and in the appropriate computer system hardware reference manual. Hardware descriptions of the various forms of extended memory can be found in the following manuals:

Control Data Publication	Publication Number
Extended Semiconductor Memory Hardware Reference Manual	60455990
Extended Core Storage Reference Manual	60347100
Extended Core Storage II and Distributive Data Path Reference Manual	60430000

RELATED PUBLICATIONS

Descriptions of NOS commands and character sets are contained in the NOS Version 2 Reference Set, Volume 3, publication number 60459680.

The following manuals provide more detailed descriptions of some of the subjects described in this manual.

Control Data Publication	Publication Number
COMPASS Version 3 Reference Manual	60492610
CYBER 70/Model 71 Computer System Hardware Reference Manual	60453300
CYBER 70 Model 72 Computer System Reference Manual	60347000
CYBER 70 Model 73 Computer System Reference Manual	60347200
CYBER 70 Model 74 Computer System Reference Manual	60347400
CYBER 170 Computer System Codes	60420010
CYBER 170 Computer Systems Models 720, 730, 740, 750, 760, and 176 (Level B/C) Hardware Reference Manual	60456100
CYBER 170 Computer Systems Models 171 through 175 (Levels A, B, C) and Model 176 (Level A) Hardware Reference Manual	60420000
CYBER 170/180 Computer System Models 815 and 825 Hardware Reference Manual	60469350
CYBER 170/180 Computer System Model 835, 840, 845, 850, 855, and 860 Hardware Reference Manual	60469290
CYBER 180 Models 810 and 830 (CYBER 170 State) Hardware Reference Manual	60469420
CYBER 180 Models 810 and 830 (Virtual State) Hardware Reference Manual Volume 1	60469680

Control Data Publication	Publication Number
CYBER 70 Computer System 7030 Extended Core Storage Reference Manual	60347100
NOS Version 2 Reference Set, Volume 3, System Commands	60459680
NOS Version 2 Reference Set, Volume 4, Program Interface	60459690
NOS Version 2 Security Administrator's Handbook	60460410
NOS Version 2 Analysis Handbook	60459300
Extended Semiconductor Memory (ESM) Hardware Reference Manual	60455990
3000 Series Computer Systems Peripheral Equipment Codes Manual	60113400
6000 Series CYBER 70 Series Models 71, 72, 73, 74 Computer Systems Codes Manual	60141900
6000 Series Computer Systems Hardware Reference Manual	60100000
NOS Version 2 Operations Handbook	60459310

You might also want to consult the NOS System Information Manual. It is an online manual that includes brief descriptions of all NOS and NOS product manuals. You can access this manual by logging into NOS and simply entering the command EXPLAIN.

DISCLAIMER

This product is intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or undefined parameters.

SUBMITTING COMMENTS

The last page of this manual is a comment sheet. Use the comment sheet to suggest specific improvements for the manual and to report any errors. If the comment sheet has already been used, write your comments on another sheet of paper and mail them to:

Control Data
Technical Publications ARH219
4201 Lexington Avenue North
St. Paul, MN 55126-6198

If you have access to SOLVER, an online problem reporting facility, you can use it to submit comments about the manual. When prompted for a product identifier, use NS2.

If you have questions about the packaging and/or distribution of a printed manual, write to:

Control Data
Literature and Distribution Services
308 North Dale Street
St. Paul, Minnesota 55103-2495

Or call (612) 292-2101. If you are a Control Data employee, call (612) 292-2100 or Controlnet 243-2100.

CYBER SOFTWARE SUPPORT HOTLINE

Control Data's CYBER Software Support maintains a hotline to assist you if you have trouble using our products. If you need help beyond that provided in the documentation or find that the product does not perform as described, call us at one of the following numbers and a support analyst will work with you.

From the USA and Canada: (800) 245-9903

From other countries: (612) 851-4131

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CHOOSING A LEFT, RIGHT, OR DUAL SCREEN DISPLAY

The following chart lists parameters for choosing a left, right, or dual screen display.

CC545	CC598B	CC634B	Function
N/A	F1	F1	Toggle top to bottom of page for left screen.
PCS-left position†	F2	F2	Select left screen display.
PCS-middle position†	F3	F3	Select split screen display.
PCS-right position†	F4	F4	Select right screen display.
N/A	F5	F5	Toggle top to bottom of page for right screen.
N/A	F6	F6	Toggle between NOS/VE and NOS operations.
N/A	F7	F7	Toggle between MDD and system console.
N/A	HOME	HELP	Present on menu of special keys.

†Presentation Control Switch.

SYSTEM DISPLAY (DSD) COMMANDS

DSD DESCRIPTION

DSD is an interpretive display driver; when a console operator is typing a command, DSD completes the command as soon as it recognizes enough characters to establish the uniqueness of the command. DSD does not accept or display invalid characters. A description of the display selection and commands follows.

DISPLAY SELECTION

The system displays are selected by the console command

xy. (CR)

where x and y represent the letter designations of the displays; x appears on the left screen and y appears on the right screen. If x and y are identical, both screens display the same information, except for the B, E, and K displays when using the CC598B or CC634B console.

Letter Designation	Description
A	Dayfile display. Chronological history of system operations; includes the system display (A,. or A.), the account display (A,ACCOUNT FILE.), the error log display (A,ERROR LOG.), the operator message display (A,OPERATOR.), and the job dayfile display (DAYFILE,jsn.).
B	System status display. Current status of all jobs assigned to control points; includes the system status displays (B,OPERATOR. and B,ANALYST.).
C,D	Central memory display. Portions of the contents of central memory in five groups of four octal digits and their display code equivalents.
E	Equipment status display. Status of peripheral devices; includes the equipment status table display (E,. or E,A.), the disk configuration display (E,C.), the disk error display (E,E.), the family status display (E,F.), the disk thresholds display (E,H.), the disk status display (E,M.), the resource requests display (E,P.), and the tape status display (E,T.).
F,G	Central memory display. Portions of the contents of central memory in four groups of five octal digits and the display code equivalents.
H	System file name table display (FNT). System FNT entries for the system (SY) file and fast attach (FA) files. Local FNT entries of the job with a specified job sequence name (jsn).
I	BIO status display. Status of central site unit record devices.

Letter Designation	Description
J	Individual job status display. Status of the specified job sequence name (JSN).
K	CPU programmable display. Dynamic operator/CPU program communication.
L	CMR buffer interface programmable display. System utility interface communication.
M	Extended memory display. Contents of extended memory.
O	Transaction status display. Status of transaction subsystem (TAF); includes the task library directories (O,TLD.) display, the transaction status table (O,TST.) display, and the subcontrol point status (O,SCP.) display.
P	PP and CPP (concurrent peripheral processor) registers display. Current contents of PP and CPP input and output registers.
Q	Queue status display. Status of active input and output queue in the queued file table; includes all queues (Q.), input queue (Q,IN.), plot queue (Q,PL.), print queue (Q,PR.), punch queue (Q,PU.) or wait queue (Q,WT.).
R	Rollout status display. Current status of all executing jobs including those that the system has rolled out.
S	System control information display. Parameters used to control job flow.
T	Interactive status display (IAF). Status of interactive users.
W	System information display. Status of the system; includes memory allocation (W,A.), channel status (W,C.), system pointer (W,P), request queues (W,Q.), resource information (W,R.), and miscellaneous parameters (W,M.).
Y	Monitor functions display. List of all monitor function mnemonics and codes.
Z	Directory display. List of the letter designations and descriptions of all DSD displays.

SPECIAL FIRST CHARACTER ENTRIES

CC545	CC598B	CC634B	Initiated
*†	*†	□†	Alternates display control between DSD and DIS each time the key is pressed.
+	Down Arrow or + or grey +	+	Advances the left screen display to the next screen of information when more than one screen of information is available.
-	Up Arrow or - or grey -	-	Sets the left screen display back to the previous or first screen of information.
(	PgDn or (	FWD or (	Advances the right screen display as described for + (plus) character.
)	PgUp or)	BKW or)	Changes the right screen display as described for - (minus) character.
CR†	Enter/ Return†	NEXT†	Initiates processing of a command. If a carriage return is pressed before the entire command is entered, the message REPEAT ENTRY is displayed on the error message line of the left screen. The next command entered is processed but not erased. It is repeatedly processed each time a carriage return is pressed. To exit the repeat entry mode, press the clear function key.
Left blank	Esc†	← or ERASE	Clears current keyboard entry and any error messages.
Right blank†	Tab	(forward arrow)†	Advances the left screen display sequence established by the DSD SET command (refer to chapter 4).

†If you enter additional characters after this key is entered but before input is completely processed, some of the additional characters may be lost.

CONTROL CHARACTERS

CC545	CC598B	CC634B	Initiated
BKSP	Back Space	←	Deletes last character and clears any error message.
/	/	/	Advances the left screen display by the value specified for the C, D, F, G, or M display. Displays alternate data fields on the left screen for the B, A, and H displays.
=	=	=	Advances the right screen display by the value specified for the C, D, F, G, or M display. Displays alternate data fields on the right screen for the B, A, and H displays.

SYSTEM DISPLAY COMMANDS

m,jsn.

Sets display m (C, D, F, G, H, J, K, M, or P) to display only information for job with job sequence name jsn.†

xz,addr.

x Letter designation of a storage display (C, D, F, G, or M).

z Type of display modification:

z	Description
0-n	Changes the specified word group to display the 8 words beginning at location addr ($1 \leq n \leq 3$).
4	Changes the entire display to display the memory contents beginning at location addr.

† On a secured system, the console must be in security unlock status when the C, D, F, G, or M form of this command is entered.

z	Description
5	Increments the display by addr locations.
6	Decrements the display by addr locations.

addr Location parameter (eight digits).

SET,screen.

Preselects left screen display sequence.

screen Letters designating any four DSD displays. Pressing the right blank key (CC545 console) or the ⟶| key (CC634B console) or the Tab key (CC598B console) after SET is entered causes each display to appear on the left console screen in the sequence specified by screen.

DAYFILE COMMANDS

A.

Resets the A display to the beginning of the dayfile buffer.

A,.

Resets the A display to the system dayfile when the error log, account dayfile, or a job dayfile is currently being displayed.

A,ACCOUNT FILE.

Displays the account dayfile buffer on the left console screen.

A,ERROR LOG.

Displays the error log buffer on the left console screen.

A,OPERATOR.

Displays system messages to the operator.

DAYFILE,jsn.

Displays the dayfile buffer for the job with job sequence name jsn.

LOG,ord.

Clears message ord from the A,OPERATOR display.

JOB PROCESSING CONTROL COMMANDS

CKP,jsn.

Requests checkpoint of job with job sequence name jsn.

CLASS,ot,sc_1,sc_2,...,sc_n.

Defines valid service classes for origin type ot.

ot	Origin Type
BC	Batch.
IA	Interactive.
RB	Remote batch.

sc_i	Service Class
BC	Local batch.
CT	Communication task.
DI	Detached interactive.
In	Installation-defined class n ($0 \leq n \leq 3$).
MA	Maintenance.
NS	Network supervisor.
RB	Remote batch.
SY	System.
TS	Interactive.
ALL	All service classes except subsystem (SS) and deadstart (DS).
NUL	Clears all service classes.

DELAY,p_1,p_2,...,p_n.

Changes system delay parameters:

Pi	Delay
ARn	PP auto recall interval in milliseconds (n=1 to 7777_8).
CIxxxx	CPU priorities of jobs in the CPU wait queue will be incremented every xxxx milliseconds (0-7777B).
CRn	CPU recall period in milliseconds (n=1 to 7777_8).
JQn	Input scheduling delay in 2^n seconds (n=1 to 12_8).
JSn	Job scheduler interval in seconds (n=1 to 7777_8).
MPxxx	xxx is the memory padding factor (0-777B) expressed as 100B word blocks.

n must not be set to zero for any parameter.

DROP,jsn,qt,ujn.

Drops job with job sequence name jsn or user job name ujn in queue qt. If neither jsn nor ujn is specified, drops all jobs in queue qt. DROP command cannot drop a subsystem.

qt	Queue
ALL	All queues.
EX	Executing queue (default if qt is not specified).
IN	Input queue.
PL	Plot queue.
PR	Print queue.
PU	Punch queue.
WT	Wait queue.

ENPR,jsn,pr.

Adjusts a job's CPU priority. To adjust the CPU priority to a nonchanging value, enter the ENPR command specifying a value of 60_8 (minimum) to 70_8 (maximum). Entering ENPR,jsn,* sets the CPU priority to a nondecrementing value of 60_8.

ENQP,jsn,pr.

Enters a queue priority of pr for a queued file with job sequence name jsn.

KILL,jsn.

Drops the job having job sequence name jsn with no exit processing. Does not drop subsystems.

OVERRIDE,jsn.

Drops job with job sequence name jsn, regardless of job's queue priority. (This command may leave interlocks set.) The console keyboard must be unlocked.

PCLASS,sc_0,sc_1,...,sc_7.

Selects service class sc_n to be associated with each priority level n ($0 \leq n \leq 7$).

sc_i	Service Class
BC	Local batch.
CT	Communication task.
DI	Detached interactive.
In	Installation-defined class n ($0 \leq n \leq 3$).
MA	Maintenance.
NS	Network Supervisor.
RB	Remote batch.
SY	System.
TS	Interactive.

QUEUE,sc,qt,qp_1,qp_2,...,qp_n.

Alters the priorities associated with the input, output, and executing queues.

sc	Service Class
BC	Local batch.
CT	Communication task.
DI	Detached interactive.
In	Installation class n ($0 \leq n \leq 3$).
MA	Maintenance.

sc	Service Class
NS	Network supervisor.
RB	Remote batch.
SS	Subsystem.
SY	System.
TS	Interactive.

qt	Job Queue Type
EX	Executing.
IN	Input.
OT	Output.

qPi	Priority
ILpr	Priority assigned to a job for an initial time slice ($0-7777_8$).
IPpr	Original priority associated with the job when it initially enters the specified queue ($0-7777_8$).
LPpr	Lowest priority any file can have in the specified queue ($0-7777_8$).
UPpr	Highest priority a file can reach in the specified queue; aging stops when this priority is reached ($0-7777_8$).
WFwf	Weighting factor for priority calculations (wf must be a power of 2 from 1 to 4000_8).

RERUN,jsn.

Terminates job with job sequence name jsn, then reruns the job from the beginning. The RERUN command will be rejected if NORERUN control is set for job jsn.

ROLLIN,jsn,L.

Allows job with job sequence name jsn to be scheduled to a control point. L is optional; if omitted, the job can be selected by the scheduler for rollout.

ROLLOUT,jsn.

Causes job with job sequence name jsn to be rolled out and remain rolled out until the operator rolls the job in via the ROLLIN command or terminates it via the DROP, KILL, or OVERRIDE command.

ROLLOUT,jsn,n.

Causes job with job sequence name jsn to be rolled out and remain rolled out for n scheduler cycles. When n scheduler cycles have elapsed, the job becomes eligible for scheduling.

SERVICE,sc,p_1,p_2,...p_n.

Alters the service limits associated with each service class.

sc	Service Class
BC	Local batch.
CT	Communication task.
DI	Detached interactive.
In	Installation-defined class n ($0 \leq n \leq 3$).
MA	Maintenance.
NS	Network supervisor.
RB	Remote batch.
SS	Subsystem.
SY	System.
TS	Interactive.

Pi	Service Limits
AMfl	Maximum field length/100_8 for all jobs of specified service class (0-777777_8).
CBlpup	lp is the lower bound CPU priority (2-77B). up is the upper bound CPU priority (2-77B).
CMts†	Central memory time slice in seconds (1-7777_8).
CTts	Control point time slice in seconds (0-7777B).

†Only the last 4 digits entered are used.

Pi	Service Limits
CPpr	Control point time slice priority (0-7777B). The specified priority must be such that LP≤pr≤UP where LP and UP are the lower and upper bound execution queue scheduling priorities.
CSv	Cumulative size in PRUs allowed for all indirect access permanent files:

v	Limit Value††
0	Unlimited
1	1000
2	5000
3	50000
4	100000
5	200000
6	400000
7	Unlimited

DSv — Size in PRUs allowed for individual direct access permanent files:

v	Limit Value††
0	Unlimited
1	1000
2	5000
3	50000
4	100000
5	200000
6	400000
7	Unlimited

DTsc — Detached service class for interactive jobs. Default for sc is DI (detached interactive).

ECfl† — Maximum extended memory/1000_8 for any job of the specified service class ($0-7777_8$).

EMfl† — Maximum extended memory/1000_8 for all jobs of the specified service class ($0-7777_8$).

†Only the last 4 digits entered are used.
††All values are octal.

Pi	Service Limits

FCv Number of permanent files allowed:

v	Limit Value†
0	Unlimited
1	10
2	40
3	100
4	200
5	1000
6	4000
7	Unlimited

FLf1†† Maximum field length/100_8 for any job of the specified service class (0-7777_8).

FSv Size in PRUs allowed for individual indirect access permanent files:

v	Limit Value†
0	Unlimited
1	10
2	30
3	100
4	300
5	1000
6	2000
7	Unlimited

NJn†† Maximum number of executing jobs of the specified service class (0-7777_8).

TDs Suspension timeout delay in seconds/10_8 (0-7777_8).

TPpr Priority assigned to interactive jobs following I/O completion (2-7777_8).

CFO,jsn.cc...c.

Allows the operator to send message cc...c (36 characters maximum) to job with job sequence name jsn.

†All values are octal.
††Only the last 4 digits entered are used.

COMMENT,jsn.cc...c

Enters comment cc...c (49 characters maximum) in the dayfile for job with job sequence name jsn.

DIAL,jsn,cc...c.

Sends message cc...c (48 characters maximum) to terminal currently assigned to job with job sequence name jsn.

GO,jsn.

Clears the pause and status flags for job with job sequence name jsn.

OFFSW,jsn,s_1,s_2,...,s_6.

Turns off sense switches s_i ($1 \leq s_i \leq 6$) for job with job sequence name jsn.

ONSW,jsn,s_1,s_2,...,s_6.

Turns on (sets) sense switches s_i ($1 \leq s_i \leq 6$) for job with job sequence name jsn.

PAUSE,jsn.

Sets the pause flag and clears the status flag of job with job sequence name jsn.

The following job control commands apply only to interactive service class jobs. The IAF subsystem must be active at control point 1.

SDnnnn

Specifies the CPU job switch delay (for example, CPU slice) at the service class level. nnnn is the maximum CPU job switch delay (0-7777B).

SRST,t.

Changes secondary rollout sector threshold to t ($0-7777_8$).

WARN.

Clears message entered by the WARN,cc...c. command.

WARN,cc...c.

Sends message ccc...ccc (48 characters maximum) to all interactive users currently logged into the system and to all new interactive users as they log in.

EQUIPMENT CONTROL COMMANDS†

ASSIGN,jsn,est.

Assigns device with EST ordinal est to job with job sequence name jsn.

BKSP,est,rr.

Backspaces print file on EST ordinal est, rr logical records. If rr is omitted, the default is one logical record.

BKSPF,est,ff.

Backspaces print file on EST ordinal est, ff files. If ff is omitted, the default is one file.

BKSPRU,est,ss.

Backspaces print file on EST ordinal est, ss sectors.

CONTINUE,est.

Resumes printing on EST ordinal est.

DOWN,CH=cc,EQ=est. or
DOWN,CCH=cc,EQ=est. or
DOWN,MCH=cc,EQ=est.

Discontinues use of channel cc for the equipment specified by EST ordinal est. If channel cc is the only channel available to a mass storage device, its use is discontinued only if the device is down. If the EQ=est parameter is omitted, channel cc is discontinued for all equipment in the EST. MCH=cc specifies mux channel cc. CCH=cc specifies concurrent channel cc.

†Does not apply to 533, 536, 537, or 585 printers.

DOWN,EQ=est.

Discontinues use of device with EST ordinal est for all channels.

END,est,rc.

Terminates current operation on EST ordinal est; if specified, rc is subtracted from the repeat count specified for that equipment. If rc is greater than the current repeat count, the repeat count is cleared.

FORM,est,fc.

Assigns forms code fc to the line printer or card punch identified by EST ordinal est. Forms code consists of two alphanumeric characters or null entry.

ID,est,id.

Assigns identifier id ($0\text{-}67_8$) to the card punch, card reader, or printer identified by EST ordinal est.

IDLE,EQ=est.

Inhibits creating files on the disk storage device specified by EST ordinal est unless no suitable alternative exists. This command provides an alternative to setting a device OFF or DOWN and may be useful if the device is failing only occasionally. The IDLE command is used in conjunction with the THRESHOLD command.

INITIALIZE,op,est_1,est_2,...,est_n.

Toggles initialize option op for mass storage devices with EST ordinals est_i (maximum of five). This command is not valid if local unload status is set for any of devices est_i.

op	Level of Initialization
AF	Initialize inactive account dayfile.
AL	Totally initialize all preserved files.
DF	Initialize inactive system dayfile.
EF	Initialize inactive error log.
FP	Format pending (initialization does not occur until format pending is cleared).
FT	Totally initialize a full-track device.
HT	Totally initialize a half-track device.
MF	Initialize inactive binary maintenance log.
PF	Initialize permanent files.
QF	Initialize inactive queued files.

The following parameters can be altered for devices est$_i$ by activating the K display after entering the INITIALIZE command.

Device Definition Option	Description
DM=dm	3-digit device mask (0 to 377_8). This option cannot be entered if TY=X is specified.
DN=dn	2-digit device number (1 to 77_8) that uniquely identifies the device in its permanent file family.
EQ=eq	EST ordinal of device to be initialized.
FM=fm PN=pn	1- to 7-character family name; if TY=X, 1- to 7-character pack name.
LA=la	Lower limit for the access level of the device.
NC=nc	Octal number of catalog tracks (power of 2).
NP=np	Number of physical units to be included in a multispindle device; default is 1.

Device Definition Option	Description
SM=sm	3-digit secondary mask (0 to 377_8). This option cannot be entered if TY=X is specified.
TY=F	Initialized device is a family device.
TY=X	Initialized device is an auxiliary device.
UA=ua	Upper limit for the access level of the device.
UN=un	1- to 7-character user name (to clear user name, use UN=NULL).

Track Flawing Option	Description
SPF	Sets the track reservation table (TRT) entry for the specified physical block in extended memory or on disk.
CPF	Clears the TRT flaw entry for the specified physical address in extended memory or on disk.
SLF	Sets the TRT flaw entry for the specified logical track.
CLF	Clears the TRT flaw entry for the specified logical track.

After all necessary parameters have been entered for a specific device, the K.GO. command is entered to begin initialization.

LOAD,est,id.

Requests that a job be loaded from device with EST ordinal est. Job is assigned identifier id ($0-67_8$).

MOUNT,est,P.

Clears local and global unload status for mass storage device with EST ordinal est and reactivates the device. P, if specified, causes the system to preset the specified device if it is an independent shared device in a multimainframe environment.

MSAL,t=est_1,est_2,...est_n.

Toggles mass storage allocation to control which files go to each nonremovable mass storage device (limit of one file type per entry with multiple device ordinals permitted).

t	File Type
B	LGO.
D	Job dayfile.
I	Input.
L	Local.
O	Output.
P	Primary.
R	Rollout.
S	Secondary rollout.
T	Temporary.

est_i = EST ordinal of a nonremovable mass storage device ($est \leq 57_8$). If a file type is specified without assigning a device ordinal, the system assigns the file type to an existing temporary device with a t=T attribute.

NEXTREEL,est.

Tells the system not to reissue the *CHECK AND MOUNT* *E,P* display error message for the tape request on tape unit est. This command should only be entered after the operator has visually verified that the next tape assigned to the current job is the tape being requested by that job. This command is also used in response to a *RING CONFLICT* on the first reel of an unlabeled tape request; used to avoid subsequent *CHECK AND MOUNT* message from occurring. *NEXTREEL,est.* is only applicable if *COMSMTX* installation parameter *PONR* = 1.

OFF,EQ=est.

Logically turns off device with EST ordinal est. For mass storage devices, when the device state is OFF, no user access is permitted.

ON,EQ=est.

Logically turns on device with EST ordinal est.

PRSIZE,est,ps.

Sets the paper status PS to short (S) or long (L) paper for the printer with EST ordinal est.

REDEFINE,est.

Requests reconfiguration of disk device with EST ordinal est. The operator enters the REDEFINE command for each device to be reconfigured and then assigns the K display. If the user decides not to reconfigure the device specified, reconfiguration status can be cleared by entering K.CLEAR.

Reconfiguration Parameter	Description
CH=	One or two channel numbers to be used under new device definition.
EQ=	EST ordinal to which following parameters apply.
UL=	Unit list for new configuration (unit numbers are separated by commas); UL=. deletes current configuration.
UR=	EST ordinal of device to be recabled.

REPEAT,jsnn,rc.

Alters the repeat count for the queue file specified by job sequence name jsnn. If the file is still in the queue, the repeat count for the file is set to rc. If the file is already being processed by BIO, the remaining repeat count for the file is increased by rc. The maximum value that can be entered for rc is 77_8. The default value for rc is one.

REPRINT,est,pr.

Terminates current operation on device with EST ordinal est and, if pr is specified, reenters the job in the print queue with priority pr.

REPUNCH,est,pr.

Terminates current operation on punch with EST ordinal est and, if pr is specified, reenters the job in the punch queue with priority pr.

RETRY,est.

Reissues the tape operation on the magnetic tape unit defined by EST ordinal est that previously aborted with a load point error.

SCHEDULE.

Enables job scheduling without automatically starting any jobs or subsystems.

SCRATCH,est.

Indicates that EST ordinal est may be used to satisfy a request for a scratch VSN tape. The VSN is displayed as SCRATCH although the original VSN is used when the tape is assigned. If the tape is written, the original VSN is retained.

SECUREQ,est,LA=lowerlevel,UA=upperlevel.

Changes equipment access level limits for unit record equipment with EST ordinal est. On a secured system, the security administrator must place the console in security unlock status before this command is entered.

SKIP,est,rr.

Skips forward rr logical records on print file on device with EST ordinal est. Default is one logical record.

SKIPF,est,ff.

Skips forward ff files on print file on device with EST ordinal est. Default is one file.

SKIPRU,est,ss.

Skips forward ss sectors on print file on device with EST ordinal est. ss is limited to 10_8 sectors (current buffer size) plus number of sectors remaining in buffer (that is, if buffer is full, ss$\leq 20_8$).

SPINUP,est.†

Spins up the 834 or 836 disk storage device defined by EST ordinal est.

SPINDOWN,est.†

Spins down the 834 or 836 disk storage device defined by EST ordinal est.

STOP,est.

Suspends printing on the BIO equipment defined by EST ordinal est. Enter CONTINUE,est. to resume printing.

†The console must be unlocked to enter this command (refer to UNLOCK command).

TRACE,SET,at,addr$_1$,addr$_2$.

Permits specification of the addresses of the data to be recorded when one of the functions specified in a TRACE,PPU or TRACE,MTR command is processed.

at	Description
ABS	addr$_1$ and addr$_2$ are absolute addresses of data.
CPA	addr$_1$ and addr$_2$ are the relative addresses of data within the control point area.

TRACE,type,F1,F2,...,Fn.

Permits specification of the monitor functions and other system data to be traced.

type	Description
PPU	Functions F_i are pool PP monitor functions.
MTR	Functions F_i are MTR to CPUMTR functions.

F_i

Up to five functions may be specified using their symbolic names. If F_i=*, trace all PPU or MTR functions.

CAUTION

Use of the TRACE command can have a severe impact on system performance.

NOTE

The console must be unlocked, SYSTEM DEBUG MODE must be enabled, and the system must have been deadstarted with the ENABLE,TRACE command in the IPRDECK in order to use the TRACE command.

TRAP,type,parameters.

Immediately halts the system upon detection of a specific condition.

type	Description
NFL	Check for incorrect data in negative field length of executing jobs.
MCT	Check for incorrect data in the memory control table.
EJT	Check for incorrect data in the executing job table.
DJB	Check for dead jobs that are no longer executing but are failing to advance.

No parameters may be specified for any of the above types. The following formats support parameter specifications as indicated:

type	Description
CPA	Check the specified address and field within each control point area and pseudo-control point area for a given value.
MEM	Check the specified absolute address and field for a given value.

The parameters associated with the above two types indicate the field to be checked and the value to be checked for. These parameters must be specified in the indicated order.

parameters	Description
W	Absolute address (type=MEM) or offset (type=CPA).
V	Value (octal) to check for. If V is *N*, any nonzero value will halt the system.
H	Leftmost bit of field (decimal ranging from 0 [rightmost bit in word] to 59 [leftmost bit in word]).
L	Rightmost bit of field (decimal ranging from 0 [rightmost bit in word] to 59 [leftmost bit in word]).

CAUTION

Use of the TRAP command can have a severe impact on system performance.

NOTE

The console must be unlocked, SYSTEM DEBUG MODE must be enabled, and the system must have been deadstarted with the IPRDECK directive ENABLE, TRACE in order to use the TRAP command.

TRAIN,est,t.

Assigns or changes print train identification of line printer with EST ordinal est. t field represents print train number.

t	Print Train
0,1	595-1/596-1 (CDC graphic 63/64-character set).
2,3	Reserved for future use (default to 595-1/596-1).
4	595-6/596-6 (ASCII graphic 63/64-character set or ASCII graphic 95-character set.)
5	595-6/596-6 (ASCII graphic 63/64-character set).
6	595-6/596-6 (ASCII graphic 95-character set).
7	595-6/596-6 (ASCII graphic 63/64-character set or ASCII graphic 95-character set).

UNLOAD,est.

Physically unloads the magnetic tape on EST ordinal est or logically removes the removable mass storage device on EST ordinal est from the operating environment while the operator dismounts a tape or disk pack. This command is invalid if entered from a machine with initialize pending for the specified mass storage device.

UP,CH=cc,EQ=est. or
UP,CCH=cc,EQ=est. or
UP,MCH=cc,EQ=est.

Reverses effect of DOWN command for channel cc and resumes normal use of the channel for all tape and mass storage I/O operations. If EQ=est is specified, channel cc is made available only to mass storage device with EST ordinal est. MCH=cc specifies CYBER 176 mux channel cc, and CCH=cc specifies a concurrent channel.

VALIDATE,est.

Causes validation of mass storage tables associated with EST ordinal est. The device must be available, it must be a mass storage device, and the MS VALIDATION option must have been selected at deadstart.

VSN,est.

Clears current VSN for tape unit with EST ordinal est and checks if a VSN is specified on that tape; valid only if the unit is not currently assigned.

VSN,est,vsn.

Assigns 1- to 6-character VSN vsn to magnetic tape unit with EST ordinal est.

VSN,est,.

Assigns a scratch VSN to magnetic tape unit with EST ordinal est. The VSN is displayed as SCRATCH, and if the tape is written, the VSN in the VOL1 label is written as a scratch VSN destroying any previous VSN.

PSU commands are valid only for a 533, 536, 537, or 585 printer and can be entered by using the K display.

BANNERS,pn,nb.

Sets the number of banners (nb) to be printed on the printer pn. You can specify the values 0, 1, or 2.

BKSPRU,pn,nn.

Backspaces nn physical record units (PRUs) on printer pn. If the printer is in STOP state when the command is entered, it returns to the ACTIVE state.

CONTINU,pn.

Resumes printing on printer pn.

DOWN,pn.

Removes the printer pn from the K display. A printer removed from the K display with a DOWN command may be returned to the K display with an ON or OFF command.

END,pn,nn.

Terminates the current file printing on printer pn. nn specifies the number of copies to drop. For example, if the file has a repeat count of 5 (the file would be printed six times), entering a value of 4 for nn would only permit the file to be printed twice.

FORM,pn,fc.

Assigns the form code fc to printer pn. If * is specified for fc, the default form code is assumed (the one in effect when the last SAVE command was entered). If null is specified for fc, the form code is cleared (no form code is in effect).

ID,pn,id.

Assigns logical identifier id to the printer pn. The range of allowable values for id is 0-67B. After this command is entered, the printer prints only those files routed with an identifier of id. Use this command, for example, to distinguish between two printers with different size paper or to distinquish PSU printers from batch input/output (BIO) printers.

MAXIMUM,pn,nn.

Ignores lengthy listings on printer pn. nn specifies the maximum number of PRUs.

OFF,pn.

Turns the printer pn OFF. The file currently being printed continues to print. To terminate the current file use the END command.

ON,pn.

Turns printer pn ON.

PRSIZE,pn,sd.

Changes the form size and default density of printer pn. The system is released supporting standard 11-inch paper. The size and density parameter (sd) can be one of the following combinations:

sd	Paper Size	Density
EL6	12-inch paper	6 lines-per-inch
EL8	12-inch paper	8 lines-per-inch
L6	11-inch paper	6 lines-per-inch
L8	11-inch paper	8 lines-per-inch
S6	8.5-inch paper	6 lines-per-inch
S8	8.5-inch paper	8 lines-per-inch

REPEAT,pn,nn.

Repeats the printing of the file in progress on printer pn. nn specifies the number of copies.

REPRINT,pn.

Reprints a file that is currently printing on printer pn. The file currently being printed is terminated and returned to the queue. When printing resumes, PSU prints the smallest size file first.

SAVE.

Saves the current configuration of PSU; that is, specifications you have made with the commands BANNERS, FORM, ID, MAXIMUM, OFF, ON, and PRSIZE will be effective for all subsequent startups of PSU.

SELECT,pn,jsn.

Selects the next job to be printed on printer pn. Selecting a second file before the first is printed overrides the first file selected. jsn is the job sequence name of the job.

SKIPRU,pn,nn.

Skips a portion of the file while the file is printing (state may be ACTIVE or STOP) on printer pn. nn specifies the number of PRUs to be skipped. If the state is STOP when this command is entered, it returns to ACTIVE.

STOP,pn.

Temporarily stops printing a file on printer pn. CONTINU command resumes printing.

SUPPRES,pn.

Suppresses automatic printer carriage control on the printer pn. This command stops the page eject function on the printer to provide a continuous listing for the current job.

TRAIN,pn,tr.

Assigns or changes the print train identifier tr to the printer pn. This command sets a train of 64 or 95, which corresponds to the character band on the printer pn.

BIO.

Initiates BIO subsystem. Control options are:

Entry	Response
ONSW,BIO,1.	Lines producing printer errors are not flagged or retried.
ONSW,BIO,2.	Lines producing printer errors are flagged and retried. Printer halts until CONTINUE,est. is entered; then line reprints and printing continues.

CDCffff.†

Initiates the CYBER Database Control System (CDCS).

IAFffff.†

Initiates the Interactive Facility (IAF) subsystem at control point 1. Control options are as follows:

Entry	Response
ONSW,IAF,1.	When IAF is initialized, leaves detached users in recoverable state.
ONSW,IAF,2.	Releases the output file to the output queue.
ONSW,IAF,3.	Aborts IAF on all abnormal conditions.
ONSW,IAF,4.	Enables dump on normal termination.
ONSW,IAF,5.	Calls DMD, which dumps information to OUTPUT, and releases OUTPUT after IAF subsystem is dropped or aborted (default).
ONSW,IAF,6.	Releases OUTPUT file containing dump information written after IAF subsystem is dropped or aborted.

†Characters ffff are optional; if required, each site must supply the necessary 1 to 4 alphanumeric characters.

IDLE.

Disables job scheduling until a SCHEDULE,AUTO or MAINTENANCE command is entered.

IDLE,sub.

Requests graceful termination of subsystem sub.

MAGffff.†

Initiates the Magnetic Tape Subsystem.

MAPffff.†

Initiates the Matrix Algorithm Processor (MAP III).

MCSffff.†

Initiates the Message Control System.

MSEffff.†

Initiates the 7990 Mass Storage Archival Subsystem.

NAMffff.†

Initiates the Network Access Method Subsystem (NAM).

PLAffff.

Initiates the PLATO Subsystem.

†Characters ffff are optional; if required, each site must supply the necessary 1 to 4 alphanumeric characters.

RDFffff.†

Initiates the Remote Diagnostic Facility (RDF) at control point 1.

RHFffff.†

Initiates the Remote Host Facility (RHF).

SMFffff.†

Initiates the Screen Management Facility (SMF).

SSFffff.†

Initiates the SCOPE 2 Station Facility (SSF).

STMffff.†

Initiates Stimulator Subsystem at last control point.

STOP,sub.

Drops (terminates) subsystem sub.

TAFffff.†

Initiates the Transaction Facility (TAF) Subsystem. Control options are as follows:

Entry	Response
ONSW,TAF,3.	Attempts recovery after TAF is dropped or aborted.
ONSW,TAF,4.	Automatically restarts TAF after a recovery.
ONSW,TAF,5.	Dumps entire field length and releases OUTPUT after TAF is dropped or aborted.
ONSW,TAF,6.	Prints job dayfile upon termination.

† Characters ffff are optional; if required, each site must supply the necessary 1 to 4 alphanumeric characters.

AUTO.

Initiates all currently enabled subsystems to control points and initiates automatic job processing.

CHECK POINT SYSTEM.

Rolls out all jobs and transfers contents of central memory tables to mass storage (console keyboard must be unlocked).

DATE.yy/mm/dd.†

Changes current system date (console keyboard must be unlocked):

yy	Year (00-99).
mm	Month (01-12).
dd	Day (01 through number of days in month).

DEBUG.†

Toggles the current status of debug mode; debug mode provides system origin privilege to validated users and allows modifications to be made to the running system for nonsystem origin jobs (console keyboard must be unlocked).

DIS,jsn.†

Initiates job display package (DIS) to job with job sequence name jsn.

†On a secured system, the console must be in security unlock status when this command is entered.

ENABLE,op. or
DISABLE,op.

Enables or disables one of the following options.

op	Result
AUTO-RESTART	Enables or disables automatic restart when an error condition causes an environmental shutdown.
CARTRIDGE PF STAGING	Enables or disables staging of MSE-resident permanent files to disk.
CM RESET	Enables or disables control module reset on the driver startup.
DDP ROLL-OUT PATH	Enables or disables the use of the DDP or PP path to UEM for job rollout and rollin.
ENGR†	Enables or disables engineering mode.
FLEXIBLE PARTITIONS	Enables or disables the allocation of memory to jobs in excess of service class memory partitioning restraints.
LOGGING	Enables or disables logging of special analyst dayfile messages.
MASTER MSE	Enables or disables master mainframe mode for 7990 Mass Storage Subsystem processing.
MS VALIDA-TION	Enables or disables automatic verification of mass storage tables.
PF VALIDA-TION	Enables or disables verification of BOI/EOI on preserved files.
PRIVILEGED ANALYST MODE	Enables or disables privileged analyst mode operations. If enabled, a user validated with AW=CPAM is permitted to read status information (such as the system dayfile, account file, and error log) using a non-SYOT job.
PRIVILEGED RDF	Enables or disables the privileged mode of the Remote Diagnostic Facility Subsystem. Privileged mode allows you to perform any maintenance or system functions available at your site. Unprivileged mode restricts the commands available to you.

†On a secured system, the console must be in security unlock status when this command is entered.

op	Result
REMOVABLE PACKS	Enables or disables automatic label checking for mass storage devices defined as removable.
RESIDENT RDF	Enables or disables resident mode of Remote Diagnostic Facility Subsystem.
SECONDARY USER COMMANDS	Enables or disables use of more than one USER command in a job stream (console keyboard must be unlocked).
SPINDOWN	Enables or disables the spinning down of 834, 836, 887, and 9853 disk storage devices during a system checkpoint.
SYSTEM DEBUG	Places the system in a state known as system debug mode. In this mode, the system is less tolerant than normal of system errors and is more likely to hang upon experiencing errors.
TAPE PF STAGING	Enables or disables staging of tape alternate storage-resident permanent files to disk.
USER EXTENDED MEMORY	Enables or disables the scheduling of jobs that access the user area of extended memory (console must be unlocked).

IDLE.

Prevents any jobs from being scheduled to a control point (including jobs rolled out), but does not terminate currently assigned jobs.

IDLEFAMILY,est.

If the family is active, all new jobs and USER commands for the family on the equipment specified by EST ordinal est are rejected. If the family is inactive, jobs are allowed to access the family on the device specified by EST ordinal est.

K.messagetext. or L.messagetext.

Allows entry of data messagetext in user- or system-defined CPU buffer for control when K display or L display is active.

LOCK.

Locks the console keyboard. Both unlock and security unlock status, if set, are cleared.

MAINTENANCE.

Performs the same function as the AUTO command but also initiates several maintenance service class jobs to perform on-line hardware checkout.

STEP.

Sets monitor in step mode; stops all central memory I/O operations and prevents the system from processing PP requests when the next monitor function is encountered.

STEP,,ff,b,v. or
STEP,jsn,ff,b,v.

Sets monitor in step mode for job with job sequence name jsn. If ff is present, step mode is set for monitor function ff. If b is present, step mode is set for monitor function ff with byte b (0-4) equal to value v ($0\text{-}7777_8$).

TIME.hh.mm.ss.†

Changes current system time (console must be unlocked):

hh Hour (00-23).

mm Minute (00-59).

ss Second (00-59).

† On a secured system, these commands require the system console to be in security unlock status.

UNLOCK.

Unlocks the console keyboard; keyboard must be unlocked for the following commands:

- All channel control commands.
- All memory entry commands.†
- All breakpoint package commands.† (Refer to Breakpoint Package commands, later in this chapter.)
- All STEP commands.
- All TRACE and TRAP commands.
- CHECK POINT SYSTEM.
- DATE.yy/mm/dd.
- DEBUG.
- DISABLE,PRIVILEGED ANALYST MODE.††
- DISABLE,SECONDARY USER COMMANDS.
- DISABLE,SYSTEM DEBUG.
- ENABLE,ENGR.
- ENABLE,PRIVILEGED ANALYST MODE.††
- ENABLE,SECONDARY USER COMMANDS.
- ENABLE,SYSTEM DEBUG.
- OVERRIDE,jsn.
- QDSPLAY,jsn.
- SPINDOWN,est.
- SPINUP,est.
- STOP,sub. (applies to subsystems only)
- TIME.hh.mm.ss.
- UNLOAD,est. (applies to nonremovable devices only)
- UNSTEP.

†On a secured system, these commands require the system console to be in security unlock status.
††This command is invalid on a secured system.

UNSTEP.

Clears step mode (console must be unlocked).

X.MDD(d,p)†

Initiates the monitor display driver (MDD). MDD is a PP program and is independent of the operating system.

d Time-out parameter. If d is 0 (zero), MDD waits 15 minutes for a terminal to be connected. If d is nonzero, MDD waits indefinitely. Default is 0.

p Port number parameter. If p is 1, the first port is connected. If p is 2, the second port is connected. If p is omitted, the second port is connected.

X.name. or
X.name(parameters) or
X.name,fl.

Calls a system program or utility specified by name to an available control point. Second form is used if parameters are to be passed. Third form is used if a field length, fl, different from the default is required.

99.

Disables or enables syntax overlay processing.

†CYBER 180-class models only.

OQSH=levelname.

Causes files whose access levels are at or above levelname to remain in the output queue until released by the operator. If levelname equals zero, no files are held.

RELEASE,jsn.

Allows output file jsn, which has been held in the output queue because of its access level (refer to OQSH command), to be released from the output queue and be processed by BIO.

SECURES,ot,LA=lowerlevel,UA=upperlevel.

Sets upper and lower access level limits for jobs of origin type ot.

UNLOCK,username,password.

Unlocks the console keyboard (refer to UNLOCK. command). The user name and password specified must belong to a security administrator. This command puts the system console in security unlock status, which allows the following commands to be entered:

- DATE.yy/mm/dd.
- DEBUG.
- DIS,jsn.
- ENABLE,ENGR.
- QDSPLAY,jsn.
- SECUREQ,est,LA=lowerlevel,UA=upperlevel.
- SECURES,ot,LA=lowerlevel,UA=upperlevel.
- TIME.hh.mm.ss.
- All memory entry commands.
- All memory displays other than CMR.
- All breakpoint package commands.

MEMORY ENTRY COMMANDS

These commands can only be entered when the location to be changed is currently displayed on the left screen. If the memory display is absolute, the location specified is an absolute address; if the memory display is relative to the job's RA, the location specified is a relative address. These commands require the console to be unlocked; on a secured system, the console must be in security unlock status.

loc,val.† or
loc±val.†

Changes contents of absolute central memory location loc to val (20 digits).††

loc,b,val.† or
loc±b,val.†

Changes contents of byte b at absolute central memory location loc to val.†† †††

loc,Dchrs.† or
loc±Dchrs.†

Changes contents of absolute central memory location loc to display code characters chrs (left-justified, zero-filled).††

Eloc,val.†††† or
Eloc±val.††††

Changes contents of extended memory location loc to val (20 digits).††

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†For CYBER 170 Models 815, 825, 835, 845, 855, 865, and 875 the absolute memory location loc is 7 digits, compared to 6 digits for other models.

†† The second form of the command is used when it is necessary to change successive memory locations. + or - increments or decrements loc by 1.

††† Each memory location consists of five 12-bit bytes, numbered 0 through 4 from left.

†††† For JSN-oriented displays, addresses are relative to jobs RA. For other displays, addresses are absolute.

Eloc,b,val.† or
Eloc+b,val.†

Changes contents of byte b at extended memory location loc to val.††††

Eloc,Dchrs.† or
Eloc+Dchrs.†

Changes contents of extended memory location loc to display code characters chrs (left-justified, zero-filled).

EXTENDED MEMORY FLAG REGISTER COMMANDS

CFR,bb.

Clears extended memory flag register bit bb.

SFR,bb.

Sets extended memory flag register bit bb.

BREAKPOINT PACKAGE COMMANDS

The breakpoint package consists of a set of DSD commands that controls PP breakpoint processing and CPUMTR breakpoint processing.

PP Breakpoint Commands††††

Command	Description
BKP.	Clears an existing PP breakpoint.
BKP,prog,cp.	Sets breakpoint for PP program prog at control point cp. The control point parameter cp is optional.

†For JSN-oriented displays, addresses are relative to jobs RA. For other displays, addresses are absolute.

††Each memory location consists of five 12-bit bytes, numbered 0 through 4 from left.

†††The second form of the command is used when it is necessary to change successive memory locations. + or - increments or decrements loc by 1.

††††Breakpoint can be set for only one PP program at a time. Before setting breakpoint for another program, it must be cleared on the first program. The console must be unlocked to enter these commands (refer to UNLOCK command). On a secured system, the console must be in security unlock status.

Command	Description
PPnn.A,val.	Sets the A register to the value val for PP number nn. Up to 18 bits can be specified for the value parameter val.
PPnn.C,addr.	Causes the V display for PP number nn to display 100_8 bytes of PP memory, starting at base address addr, as the C block.
PPnn.C,addr,val.	Changes the contents of PP memory word addr for PP number nn to value val.
PPnn.D,addr.	Causes the V display for PP number nn to display 100_8 bytes of PP memory, starting at base address addr, as the D block.
PPnn.D,addr,val.	Changes the contents of PP memory word addr for PP number nn to value val.
PPnn.EXR.	Resumes execution in PP number nn with a breakpoint set in the PP-resident subroutine EXR.
PPnn.FTN.	Resumes execution in PP number nn with a breakpoint set in the PP-resident subroutine FTN+1 (to trap the next monitor function before it is issued to MTR/CPUMTR).
PPnn.G.	Resumes normal PP program execution for PP number nn with no breakpoint set.
PPnn.G,addr.	Resumes PP program execution for PP number nn with a breakpoint set at address addr.
PPnn.P,addr.	Resets the P register to address addr for PP number nn.
PPnn.S.	Steps the PP program one instruction for PP number nn. Indexed jump instructions, channel jump instructions, and instructions that jump to the current program address or current program address minus one cannot be stepped.

Command	Description
PPnn.SX.	Steps the PP program one instruction for PP number nn. This command performs the same function as the PPnn.S. command except that if an RJM instruction is encountered, a breakpoint is set to the instruction after the RJM and the entire subroutine is executed.
V,nn.	Brings up the DSD V display for PP number nn.
V,HNG.	Brings up the DSD V display for a hung PP.
V,PS	Brings up the DSD V display for the pseudo PP.

PP Breakpoint Precautions

- The breakpoint must be set in executable code and must lie on a PP instruction boundary.
- When a breakpoint is set, two words of PP memory are replaced with the following:

  RJM BKP

  When the breakpoint is hit, the two replaced words are immediately restored. 16-bit instructions are not restored properly since they revert to 12-bit instructions.
- The PP breakpoint package uses PP locations 7500_8 through 7777_8. If these locations are altered by the running PP, the system will probably fail.
- If the PP program being breakpointed encounters a mass storage error, the mass storage driver's error processor will overlay the PP breakpoint code, and will probably crash the operating system.
- If the PP program being breakpointed performs code modification on the instruction at the address at which the breakpoint has been set, unpredictable results may occur.

- The PP breakpoint package cannot be used on DIS or 026. However, it can be used on other PPs at the same control point as DIS or 026.

- The PP breakpoint information (BKP,prog) remains set until BKP is entered or a SYSEDIT or any level of deadstart is performed.

CPUMTR Breakpoint Commands†

Command	Description
CPB,BKP,addr.	Sets breakpoint at absolute address addr.
CPB,BKP,//addr.	Sets breakpoint at CPUMTR relative address addr.
CPB,BKP,/bbbb/addr.	Sets breakpoint at address addr in CPUMTR block bbbb.
CPB,DSP.	Causes the memory block in the C display to begin at the breakpoint address.
CPB,DSP,addr.	Causes the memory block in the C display to begin at absolute address addr.
CPB,DSP,//addr.	Causes the memory block in the C display to begin at CPUMTR relative address addr.
CPB,DSP,/bbbb/addr.	Causes the memory block in the C display to begin at address addr in CPUMTR block bbbb.
CPB,DSP+	Advances each of the memory block addresses by 10_8.
CPB,DSP-	Decrements each of the memory block addresses by 10_8.

†Only one CPUMTR breakpoint can be set at a time. Any existing breakpoint is cleared when you enter a CPB,BKP,... command. The console must be unlocked to enter these commands (refer to UNLOCK command). On a secured system, the console must be in security unlock status.

Command	Description
CPB,GO.	Clears any breakpoint that is set and allows CPUMTR to restore its registers and continue execution.
CPB,P+	Sets breakpoint at the address following the current breakpoint address.
CPB,P-	Sets breakpoint at the address preceeding the current breakpoint address.

CPUMTR Breakpoint Precautions

- The breakpoint must be set in executable code.
- When a breakpoint is set, DSD stores RJ BKP at the specified address. When the breakpoint address is hit, CPUMTR saves all of the registers in the display area, clears the breakpoint, then waits to receive a GO.
- From the time the breakpoint is hit until the CPU continues, the system clock stops. Reset the system clock (with the DSD TIME command) after you finish breakpoint processing.
- A CPUMTR breakpoint can be set in monitor mode or program mode. Alternating between the modes is not advised. Going from monitor to program mode is probably safe, but going from program to monitor mode is almost certain to fail, causing CPUMTR to abort.
- Changing displays is allowed (before the breakpoint is hit) because you can always return to the C display. From the time the breakpoint is hit until the CPU continues, CPUMTR is hung. The DSD request that requires the monitor function is not processed.
- The C display retains the last addresses displayed.

FOTD,outfile,op. or
FOTD,L=outfile,LO=op.

Displays each family name known to the system and the corresponding family ordinal. Parameter outfile is the name of the output file. Default is OUTPUT. Display option is selected by op.

op	Description
D	L display format (default if outfile not specified).
L	List file format (default if outfile specified).

LDISopt.

Displays user-defined L display utility LDISopt (opt is 1 to 3 characters, which follow LDIS to form utility name).

LIDOU.
LIDOU,I=infile,L=outfile.

Displays the logical identifier table (LDT) and allows changes to be made to LDT entries. Entering L.HELP while this display is active causes the directives for the LIDOU utility to be listed. Entering L.BACK toggles back to the LID display. The second command can be entered under DIS control or by a system origin batch job. If so, the I and L parameters must be specified.

QDSPLAY,jsn.

Displays the contents of the queued file with job sequence name jsn. Entering L.HELP while this display is active causes the directives for the QDSPLAY utility to be listed. On a secured system, the console must be in security unlock status when this command is entered.

SCTD,outfile,op. or
SCTD,L=outfile,LO=op.

Displays the service class control table (SCT). Outfile is the name of the output file. Default is OUTPUT. Display option is selected by op.

op	Description
D	L display format (default if outfile not specified).
L	List file format (default if outfile specified).

SDSPLAY,outfile,op.
SDSPLAY,L=outfile,LO=op.

Displays system values used to control job flow. Parameter outfile is the name of the output file. Default is OUTPUT. Display option is selected by op.

op	Description
D	L-display format (default if outfile not specified).
L	List file format (default if outfile specified).

SUBSYST,outfile,op. or
SUBSYST,L=outfile,LO=op.

Displays information about all subsystems supported by NOS. Parameter outfile is the name of the output file. Default is OUTPUT. Display option is selected by op.

op	Description
D	L-display format (default if outfile not specified).
L	List file format (default if outfile specified).

CHANNEL CONTROL COMMANDS

The console must be unlocked to enter these commands.

ACN,cc.

Activates channel cc.

DCH,cc.

Drops channel cc.

DCN,cc.

Deactivates channel cc.

FCN,cc,func.

Outputs function code func to channel cc. If func is not specified, this command outputs a zero function code (no activity) to channel cc.

IAN,cc.

Inputs to pseudo A register from channel cc.

LDC,nnnn.

Loads pseudo A register with nnnn (normally a peripheral equipment function code).

MCH,cc.

Master clears and removes all 3000-series peripheral equipment selections on channel cc (6681 function code 1700_8 is issued).

OAN,cc.

Outputs contents of pseudo A register to channel cc.

KEYBOARD MESSAGES

COMMAND TOO LONG.†

Command consisting of more than 60 characters was entered.

DISK BUSY.†

DSD is waiting for an overlay to be loaded from a mass storage device.

INCORRECT ENTRY.†

Command is not accepted by DSD. Operator must either correct or reenter the command.

MTR BUSY.†

DSD is waiting for a system response.

PP BUSY.†

DSD is waiting for a PP to be assigned so that it can process a command.

†If preceded by LOG - , the command has been executed but has not been logged in the system dayfile and/or error log.

JOB DISPLAY (DIS) COMMANDS

DIS DESCRIPTION

Unlike DSD, DIS is not interpretive. The operator must complete every entry manually and signal DIS to act upon the message by pressing the carriage return key.

DIS is initiated by any of the following methods:

- Command in the form DIS.
- Operator call to DIS by typing DIS,jsn. for the job with job sequence name jsn. On a secured system, the console must be in security unlock status when this command is entered.
- Operator call to DIS by typing X.DIS,fl. (fl is desired field length) or X.DIS.

DISPLAY SELECTION

DIS displays are selected by the console command

xy. (CR)

where x and y represent the letter designations of the displays; x appears on the left screen and y appears on the right screen. If x and y are identical, both screens display the same information.

Letter Designation	Description
A	Job dayfile. Messages and files attached to job.
B	Job status. Individual job status, equipment assigned, current messages, and command buffer.
C,D†	Central memory display. Five groups of four octal digits per group with display code translation.
F†	Central memory display. Four groups of five octal digits with display code translation.

†These displays can only display the field length (and negative field length) assigned to the job.

Letter Designation	Description
G†	Central memory display. Four groups of five octal digits per group with COMPASS mnemonic translation.
H	File status. Local file name table entries for this job.
M†	Extended memory display. Five groups of four octal digits per group with display code translation.
T,U†	Text display. Displays text from central memory in coded lines.
V†	CM buffer display. Displays words directly from central memory.
X	Exchange package. Breakpoint address and exchange package.
Y	Monitor functions display. Displays mnemonics and values of all monitor functions.
Z	Directory display. Lists DIS directory.

OTHER SYSTEM DISPLAY COMMANDS

m,loc. or
mz,loc.

If m is one of the letters C, D, F, G, or M, loc is the bias address for the managed table display. z, if present, modifies the display:

z	Description
0-3	Displays 8 words beginning at location loc.
4	Displays two or four contiguous 8-word groups beginning at location loc.
5	Advances display by loc locations.
6	Decrements display by loc locations.

†These displays can only display the field length (and negative field length) assigned to the job.

SET,screen.

Sets the left screen display sequence; screen consists of one to four display identifiers. The sequence is toggled by the right blank key. (CC545 console) or ⟶| key (CC634B console) or Tab key (CC598B console).

SPECIAL FIRST CHARACTER ENTRIES

CC545	CC598B	CC634B	Description
8	8	8	Advances left screen managed table pointer.
9	9	9	Decrements left screen managed table pointer.
*	*	□	If DSD has relinquished the main display console to DIS, * acts as a quick hold, and DIS drops the display channel so that DSD can use it.
+	Down Arrow or + or grey +	+	Advances memory displays (C,D,F,G,M,T, and U) by 40_8.
-	Up Arrow or - or grey -	-	Decrements memory displays (C,D,F,G,M,T, and U) by 40_8.
(	Pg Dn or (	FWD or (	Breakpoint program to (P+1).
)	Pg Up or)	BKW or)	Breakpoint program to (P-1).
/	/	/	Advances left screen memory display by the value in lower 18 bits of first word displayed for C, D, F, G, or M displays. Displays alternate data fields on left screen for B,A display.

CC545	CC598B	CC634B	Description
=	=	=	Advances right screen memory display by value in lower 18 bits of first word displayed for C, D, F, G, or M displays. Displays alternate data fields on right screen for B,A display.
.	.	.	Reads command buffer automatically and executes until completion or an error is detected (same as RCS command).
,	,	,	Calls the 026 file editor.
(CR)	Enter/ Return	NEXT	Carriage return key. Sets repeat entry flag. The subsequent entry is processed but not erased after completion.

CONTROL CHARACTERS

CC545	CC598B	CC634B	Description
Left blank (erase)	Esc	← or ERASE	Clears current keyboard entry and any resultant error messages.
BKSP (back-space)	Back Space	←	Deletes last character entered and clears error message if one exists.
ⓒR	Enter/ Return	NEXT	Initiates processing of command entered.
Right blank (display)	Tab	→	Advances left screen display sequence established by SET command.

GENERAL DIS COMMANDS

BEGIN,pname,pfile.

Sets auto mode and calls procedure pname on file pfile.

BKP,addr.

Breakpoints to address addr. Central processor execution begins at current value of P and stops when P=addr, and DIS is the only PP active at the control point.

BKPA,addr.

Breakpoints to address addr. Central processor execution begins at current value of P and stops when P=addr.

DCP.

Drops central processor and displays exchange package on the X display.

DIS.

Reloads main DIS overlay.

CP.

Drops central processor and displays exchange package on the X display.

DF.

Calls the display disk file (DDF) utility to the control point.

IS.

Reloads main DIS overlay.

ROP.

Drops DIS; does not drop the job if there are commands remaining in the buffer unless the error flag is set.

LS.command.

Enters command in the command buffer after the last command, if there is space. ELS should not be used during program execution because this produces unpredictable results. This command is invalid when auto mode is set.

NAi,addr.

Sets register Ai=addr in the exchange package area.

NBi,addr.

Sets register Bi=addr in the exchange package area.

ENEM,m.

Sets CPU program exit mode to m ($0 \leq m \leq 7$).

ENFL,fl.

Sets CM field length to fl. fl $\geq 10000_8$ if user extended memory is assigned.

ENFLE,fle.

Sets extended memory field length (FLE) to fle000. If fle>0, fl, set by ENFL, must be $\geq 10000_8$.

ENP,addr.

Sets P=addr (next instruction address).

ENPR,pr.

Sets job CPU priority to pr ($2 \leq pr \leq 70_8$).

ENS.cmnd.

Allows entry of cmnd as the next unprocessed command in the command buffer. ENS clears command buffer of previous commands; ENS should not be used during program execution because this produces unpredictable results. This command is invalid when auto mode is set.

ENTER./command1./command2./

Allows entry of commands command1 and command2 from the keyboard and sets auto mode (periods after command1 and command2 and slash after command2 are optional).

ENTL,timlmt.

Sets the job time limit to timlmt. 77777_8 is defined as infinite.

ENXi,value.

Sets register Xi=value in the exchange package area.

ENXi,b,value.

Sets byte b of register Xi to value.

ENXi,Dchars.

Sets register Xi to chars (display code characters).

ENXi,Lvalue.

Sets register Xi to value (left-justified).

ERR.

Sets error flag, terminates execution, and clears AUTO mode, if set.

GO.

Restarts a paused program.

HOLD.

DIS relinquishes the display console, but the job is held at the present status.

M.commandstring.

Enters commandstring as a program command. Data is stored at RA+CCDR.

N.

Sets DIRECT CPU INPUT mode. Characters entered from the keyboard are passed one character at a time, right-justified, directly into central memory at RA+CCDR. The operator terminates this mode by pressing the left blank or Esc or ← key twice.

OFFSWs.

Turns off sense switch s for the job ($1 \leq s \leq 6$).

ONSWs.

Turns on sense switch s for the job ($1 \leq s \leq 6$).

O26.

Calls file editor 026 to the control point.

RCP.

Requests central processor. Execution begins at the address specified by the P register, depending on job CPU priority.

RCS.

Sets AUTO mode and initiates automatic command processing.

RNS.

Reads and processes the next command in the DIS command buffer.

ROLLOUT.

Causes the job to be rolled out until the job scheduler rolls it in.

ROLLOUT,xxxx.

Causes the job to be rolled out for xxxx job scheduler delay intervals; job is automatically rolled back in after this time period.

RSS.

Reads the next command and stops prior to CPU execution.

RSS,command.

Reads command and stops before execution.

SCS.

Clears AUTO mode and stops automatic command processing.

SUI,userindex.

Allows access to user index userindex on a system without multilevel security.

T,addr.

Changes the T display to start at address addr.

U,addr.

Changes the U display to start at address addr.

UCC=c

Sets the uppercase character to c.

V,addr.

Changes the V display to start at address addr.

X.commandstring.

Processes commandstring as the next command.

* commandstring.

If an asterisk followed by a blank and commandstring is encountered during automatic command processing, commandstring is interpreted as a direct DIS command rather than a system command.

commandstring.

commandstring is processed as a system command if it is not a recognizable DIS command.

xz,addr.

Refer to description under System Display Commands earlier in this section.

MEMORY ENTRY COMMANDS

loc,val. or
loc+val.

Changes contents of central memory word at loc (relative to its RA) to val. Leading zeros may be dropped.†

loc,b,val. or
loc+b,val.

Changes contents of byte b at central memory location loc to val. Each location consists of five 12-bit bytes, numbered 0 through 4 from the left.†

†The second form of the command performs the same function but leaves the address at loc+1, allowing immediate entry for the next memory location.

loc,Dchrs. or
loc+Dchrs.

Changes contents of central memory location loc to display code characters chrs (left-justified, zero-filled).†

loc,Lval. or
loc+Lval.

Changes contents of central memory location loc, left-justified, to val.†

loc,In,val. or
loc+In,val.

Changes contents of instruction n (0 through 3 from left) at central memory location loc to val; val may be 15- or 30-bit instruction.†

Eloc,val. or
Eloc+val.

Changes contents of the extended memory word at loc (relative to its RAE) to val. Leading zeros may be dropped.†

Eloc,b,val. or
Eloc+b,val.

Changes contents of byte b at extended memory location loc to val. Each location consists of five 12-bit bytes, numbered 0 through 4 from the left.†

Eloc,Dchrs. or
Eloc+Dchrs.

Changes contents of extended memory location loc to display code characters val (left-justified, zero-filled).†

† The second form of the command performs the same function but leaves the address at loc+1, allowing immediate entry for the next memory location.

PP CALL COMMANDS

Keyboard Entry	Description	Format of PP Call Initiated
prg.	Calls PP program prg to control point n, to which DIS is assigned.	18/3Lprg,6/n,36/0
prg.p1.	Calls PP program prg to control point n, to which DIS is assigned. p1 is a parameter required by prg.	18/3Lprg,6/n,18/0, 18/p1
pprg.p1,p2.	Calls PP program prg to control point n, to which DIS is assigned. p1 and p2 are parameters that prg requires.	18/3Lprg,6/n, 18,p1,18/p2

KEYBOARD MESSAGES

AUTO MODE.

Command buffer is read automatically. Automatic command processing is selected by the RCS command or by entering a period.

COMMAND BUFFER FULL.

ELS command has been entered and there is insufficient room in the command buffer to add requested characters.

COMMAND TOO LONG.

Command entered is too long.

COMMANDS ON FILE.

ELS command has been entered and commands are currently located in a file instead of in a command buffer. It is not possible to add command to the file.

DIRECT CPU INPUT.

N.command has been entered, and all data entered from the keyboard is passed directly to central memory.

DISK BUSY.

DIS is waiting for an overlay to be loaded from a mass storage device.

EXTENDED MEMORY NOT AVAILABLE.

ENFLE command was entered, but the user extended memory was not defined.

INCORRECT ENTRY.

Command cannot be processed.

INCORRECT FL REQUEST.

ENFL comand was entered to set the field length ($10000_8 \leq fl \leq 377700_8$).

INCORRECT PRIORITY.

Incorrect priority was entered using the ENPR command ($2 \leq$ cpu priority $\leq 70_8$).

INSUFFICIENT FIELD LENGTH.

Field length is not long enough to support either extended memory or 026.

JOB ACTIVE.

Previous request was not completed.

OUT OF RANGE.

Memory entry address is greater than the field length.

PP BUSY.

DIS is waiting for a PP to be assigned in order to process a keyboard entry.

REPEAT ENTRY.

Command in command buffer is repeated each time CR or NEXT is pressed; cleared by left blank or Esc or ← key.

REQUEST EXCEEDS MAXIMUM FLE.

Requested more extended memory than the system can support.

STORAGE NOT AVAILABLE.

Amount of central memory requested by ENFL command or required by 026 file editor is not available.

WAITING FOR EXTENDED MEMORY.

DIS is waiting for extended memory after the ENFLE command has been entered.

WAITING FOR STORAGE

DIS is waiting for central memory after ENFL or 026 command has been entered.

026 FILE EDITOR COMMANDS

026 DESCRIPTION

026 enables the user to create or edit a file from the console. A central memory buffer is used to store and edit the display code lines before writing the file. Like DSD, 026 is interpretive.

SPECIAL FIRST CHARACTER ENTRIES

CC545	CC598B	CC634B	Description
0	0	0	Sets insert marker at 1st line.
1	1	1	Sets insert marker at 4th line on screen.
2	2	2	Sets insert marker at 8th line on screen.
3	3	3	Sets insert marker at 12th line on screen.
4	4	4	Sets insert marker at 16th line on screen.
5	5	5	Sets insert marker at 20th line on screen.
6	6	6	Sets insert marker at 24th line on screen.

CC545	CC598B	CC634B	Description
7	7	7	Sets insert marker at 32nd line on screen.
8	8	8	Sets insert marker 8 at insert line.
9	9	9	Sets insert marker 9 at insert line.
+	Down Arrow or + or grey +	+	Displays next page.
-	Up Arrow or - or grey -	-	Backs up 18 lines or to start of buffer.
*	*	□	Holds display and returns control to DSD. When * is entered under DSD, control returns to 026.
(	Pg Dn or (	FWD or (	Advances insert marker by one line.
)	Pg Up or)	BKW or)	Decrements insert marker by one line.
/	/	/	Starts or stops roll.
=	=	=	Clears insert flag.
,	,	,	Finds insert line and starts display at insert marker.
.	.	.	Deletes the line following the insert marker.
ⓒR	Enter/ Return	NEXT	Carriage return key. Sets REPEAT ENTRY flag.
space	space	space	Sets the characters P. into buffer.
right blank	Tab	⟶|	Sequences scan tabs.
left blank	Esc	|⟵ or ERASE	Erases current input line and clears input mode. Also terminates search commands (GET, GETR, and GTR).

LEFT SCREEN HEADER

026 displays the following information at top of left screen:

```
026.  FILE=file  *  ss.  RS=ww.  **  CM=cm.
```

file	Name of edit file.
*	Present if write interlock is set for edit file.
ss	CIO status of file.
ww	Number of words in CM buffer.
**	Present if modification to CM buffer has changed record's original PRU length.
cm	Amount of CM currently used by 026.

MESSAGES

DATA OVERFLOW

The line to be entered in the buffer or block to be moved or copied does not fit into the remaining field length or is larger than 7777_8 CM words. Use ENFL command to increase scratch space.

DISK BUSY.

Waiting for 026 overlay.

FILE NOT ON MASS STORAGE.

File residence does not support random processing.

FORMAT ERROR.

Format error has been detected during entry translation.

INCORRECT COMMAND.

Invalid user access detected.

INCORRECT FL REQUEST.

Requested field length was greater than 376500_8 or less than 10000_8 if extended memory is assigned.

INDEX NOT FOUND.

File directory (OPLD record) was not found.

INSERT 8 OR 9 NOT SET.

Command entered requires that both the insert 8 marker and the insert 9 marker be set.

LINE NOT FOUND.

Line containing the string specified was not found.

LINE OVERFLOW.

Replace command increased line length to greater than maximum buffer size of 90 characters.

LIST.

026 is generating a directory list for the file.

NO RANDOM ACCESS.

File is not random access.

NOT IN LINE.

Character string not found by the replace character commands.

OUT OF RANGE.

Edit line number not in buffer.

PP BUSY.

Request ignored by system.

PRU SIZE MODIFIED.

Rewrite request cannot be performed because original PRU size of record was modified.

RECORD NOT FOUND.

Requested record was not found on the file. The record was not found after the current file position for sequential record search.

RECORD TOO LONG.

Record read did not fit into buffer.

REPEAT ENTRY.

Entry is not cleared after execution.

SEARCH / ccccccc.

026 is searching sequential record ccccccc.

SEARCH.

026 is searching a random record.

STORAGE NOT AVAILABLE

Requested field length is currently unavailable.

WAITING FOR STORAGE.

026 is waiting for the requested field length to be assigned.

WRITE ON READ-ONLY FILE.

Write is not allowed on the edit file.

026 SYSTEM COMMANDS

DIS.

Writes the current buffer, rewinds the file, and transfers control back to DIS.

DROP.

Writes the current buffer, rewinds the file, and releases the display equipment.

ERR.

Sets error flag at control point.

GO.

Clears pause flag.

HOLD.

Releases display to DSD. File being edited should be written to disk if edit changes are to be saved.

XDIS.

Transfers control back to DIS. Buffer is not written, and file is not rewound.

XDROP.

Drops display unit; does not write file.

026 FILE COMMANDS†

BKSP.lfn.

Backspaces file lfn one logical record. If lfn is missing, previously specified file is used.

†For these commands, if lfn is missing and no file was previously specified, INPUT is used.

BKSPRU,x.

Backspaces current file x physical records.

BKSPRU.lfn.

Backspaces file lfn one PRU. If lfn is missing, previously specified file is used.

FILE.lfn.

Changes name of current file to lfn.

RC.lfn.

Reads compile file. Rewinds, reads, and rewinds file lfn. If lfn is missing, set file name to COMPILE. Set scan tab to 6.

READ.lfn.

Clears buffer and rewinds, reads, and rewinds lfn. If lfn is missing, previously specified file is used.

READI.lfn.

Skips to end-of-information, backspaces twice, and reads last logical record of information on lfn. If lfn is missing, previously specified file is used.

READN.lfn.

Reads file lfn with no rewind. If lfn is missing, previously specified file is used; stops read on buffer full or end-of-record encountered.

READNS.lfn.

Reads file lfn nonstop with no rewind. If lfn is missing, previously specified file is used; stops read on buffer full or end-of-file encountered.

RETURN.lfn.

Returns file lfn. If lfn is missing, previously specified file is returned to system.

REWIND.lfn.

Rewinds file lfn. If lfn is missing, previously specified file is used.

RFR.lfn.

Clears buffer and rewinds and reads file lfn. If lfn is missing, previously specified file is used.

RI.lfn.

Rewinds, reads, and rewinds file lfn. If lfn is missing, file INPUT is read.

RLR.lfn.

Clears buffer and reads last record on file lfn. If lfn is missing, previously specified file is used.

RNR.lfn.

Clears buffer and reads next record on file lfn. If lfn is missing, previously specified file is used.

RO.lfn.

Clears buffer and rewinds, reads, and rewinds file lfn. If lfn is missing, file OUTPUT is used. Sets word scan to words 4, 8, and 12.

RPR.lfn.

Reads previous record from file lfn (that is, backspaces twice and reads).

RWRITE.

Rewrites current record in place; valid only if last operation was a read.

SKIPEI.lfn.

Skips to end-of-information on lfn. If lfn is missing, previously specified file is used.

UNLOAD.lfn.

Unloads file specified by lfn. If lfn is missing, previously specified file is unloaded.

WRITE.lfn.

Writes buffer on file lfn and places an EOR mark after the data written. If lfn is missing, previously specified file is used.

WRITEF.lfn.

Writes buffer on file lfn and places an EOF mark after the data written. If lfn is missing, previously specified file is used.

WRITEW.lfn.

Writes data from start of buffer up to insert line on file lfn and places an EOR mark after the data written. If lfn is missing, previously specified file is used.

LINE ENTRY AND DATA MOVE

Commands that read a subsequent line for character merging (A., L., M., and N.) save that line in the DUP buffer. This line can be referenced at a later time with the D. command.

A.cc...c

Merges specified characters with the line following insert marker except for tabbed or spaced-over area up to carriage return.

C.cc...c

Enters specified characters into buffer; cc...c may consist of up to 88 characters.

COPY.

Copies data block starting at insert 8 marker and ending at insert 9 marker into block at insert marker.

DEL.

Deletes all lines after insert marker. If insert is not set, deletes all lines.

D,*

Deletes block from insert 8 marker through insert 9 marker.

D.cc...c

Merges line from DUP buffer with characters cc...c of keyboard buffer. Tab rules for A. command apply.

E.cc...c

Merges characters cc...c with remainder of characters in DUP buffer except for tabbed or spaced-over area.

L.cc...c

Merges characters cc...c with remainder of following line except for tabbed or spaced-over area.

M.cc...c

Merges characters cc...c with remainder of following line.

MOVE.

Moves data starting at insert 8 marker and ending at insert 9 marker into block starting at insert marker.

N.cc...c

Merges characters cc...c with following line except for tabbed area.

P.cc...c

Enters characters cc...c into buffer (up to 88 characters). User can set data entry mode by typing P. or by typing a space.

DISPLAY, TAB, SCAN CONTROL COMMANDS

DFL.

Displays first line.

DLL.

Displays last part of file.

DS,

Displays number of lines in file (module 10000_8).

DS,.

Displays first line.

SCAN,x,y,...,z

Sets word scan to x,y,...,z. If x equals zero, the command clears scan.

TAB,x,y,...,z

Sets tabs x,y,...,z. If x equals zero, the command clears all tabs. Default is TAB, 11, 18, 30, 73.

LINE SEARCH COMMANDS

F.charstring

Searches for matching field in line. Search is end-around. Spaces tabbed over using right blank key or backspaced over are not compared.

S.charstring

Starting with the first line displayed, searches for a line beginning with the characters charstring. Search is end-around. Spaces tabbed over using the right blank key or backspaced over are compared.

RECORD SEARCH COMMANDS

GET,lfn.rname.

Searches file lfn for record rname. If lfn is missing, previously specified file is used.

GET.rname.

Clears buffer and searches current file for record rname.†

GETR,lfn.rname.

Reads random file lfn for TEXT record rname. If lfn is missing, previously specified file is used.

GETR.rname.

Reads random TEXT record rname from current file.

---

†This command does not locate PROC type records.

GTR,lfn.rname.

Reads random file lfn for record rname (record type is ignored). If lfn is missing, previously specified file is used.

GTR.rname.

Reads random TEXT record rname from current file; if no such record exists, reads record rname of any type.

LIST.

Lists current file directory.

LIST,lfn.

Lists file lfn directory. If lfn is missing, previously specified file is used.

REPLACE COMMANDS

RC,x,c.

Replaces character position x of line following insert marker with character c (extend line if necessary).

RM/aa...a/bb...b/

Replaces multiple occurrences of character string aa...a, works the same way as RS command, but if a replacement took place and REPEAT ENTRY is set, this command does not advance to next line. The / can be any delimiting character.

RS/aa...a/bb...b/

Replaces character string aa...a from the following line with character string bb...b. The / can be any delimiting character.

R,x./aa...a/bb...b/

Replaces character string aa...a from the following line starting with character position x with character string bb...b. The / can be any delimiting character.

MISCELLANEOUS COMMANDS

ENFL.

Sets field length to buffer size plus 1000_8.

ENFL,flsize.

Sets field length to $flsize_8$.

IGNORE.

Ignores record too long condition. Record can be written, but it is truncated.

UCC=c

Sets uppercase control character to c. If c is missing, clears the uppercase control character. To enter a character that has been previously specified as the uppercase control character, enter that character twice. Uppercase control character is retainad unless changed by DIS and remains in effect during subsequent calls to 026.

To enter: ASCII	CDC	Display code value (octal)	Type uppercase control character and:
$	$	53	S
#	≡	60	0
[	[	61	1
]	]	62	2
%†	%†	63	3
"	≠	64	4
_	→	65	5
!	^	66	6
&	^	67	7
'	↑	70	Q
?	↓	71	W
<	<	72	E
>	>	73	R
@	≤	74	T
\	≥	75	Y
~	>	76	U
;	;	77	I
"	≠	64	=
&	^	67	A
<	<	72	(
>	>	73	)
@	≤	74	+
\	≥	75	-
;	;	77	,
:††	:††	00	Z

†Percent sign (%) in the 64-character set; colon (:) in the 63-character set.
††Colon (:) in the 64-character set; invalid in the 63-character set.

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ACPD

ACPD,P_1,P_2,...,P_n.

Analyzes collected performance data (part of TRACER). ACPD reads the data file (multifile) produced by CPD and generates a data summary for further analysis. The data file must be attached before ACPD is called. If ICPD is called with M=A or M=M, the data file can be accessed while CPD is still active.

P_i	Description
BD=yymmdd	Beginning date (yymmdd) from which data is to be reported. If omitted, beginning date is the date on the sample data file.
BT=hhmmss	Beginning time (hhmmss) on date specified by BD parameter from which data is to be reported. Default is BT=0.
ED=yymmdd	Ending date (yymmdd) to which data is to be reported. Default is BD if ET is specified; otherwise, ACPD terminates when number of files specified by N parameter have been processed.
ET=hhmmss	Ending time (hhmmss) on date specified by ED parameter to which data is to be reported. Default is ET=0.
FN=datafile	Data file name. Default is SAMPLE.
IC=nn	Allows selection of report intervals of less than one minute, where nn is the number of CPD data records per interval. Either IC or IN parameter can be specified, but not both.

Pi	Description
IN=nn	Summary interval time in minutes. Default is 6 min.
L=outfile	Output file name. Default is OUTPUT.
LO=Z	List data items having a value of zero. Default is not to list zero data items.
N=nn	Number of files within data file to process. Default is one file. If N=0 or N is specified, all files are processed to EOI.
S=sumfile	Summary file name. Default is SUMMARY.

AFD

```
AFD,listfile,string,op,pd,pl,infile.
or
AFD,L=listfile,FR=string,OP=op,PD=pd,PL=pl,I=infile.
```

Dumps all or selected portions of the account dayfile.

Parameter	Description
L=listfile	File to which dayfile dump is to be written. Default is OUTPUT.
FR=string	Search string for selective dumping. If selected, AFD searches for string in starting position of field specified by OP parameter.

Parameter	Description
OP=op	Dump option.

op	Description
F	Full dayfile dump. (Default for nonterminal output files.)
I	Incremental dump. AFD does not process this option within a job with system origin privileges unless the job is system origin. (Default for terminal output files.)
J	Job sequence name field in dayfile is searched for string specified by FR=string. Dump begins from that point.
M	Message name field in dayfile is searched for string specified by FR=string. Dump begins from that point. (Default if FR is specified, but OP is not.)
P	Incremental dump starting from point of last dayfile dump with same job name.
T	Time field in dayfile is searched for string specified by FR=string. Dump begins from that point.

PD=pd	Print density in lines per inch (3, 4, 6, or 8). Default is 6.
PL=pl	Page length in lines per page. Default is 30 for PD=3, 40 for PD=4, 60 for PD=6, and 80 for PD=8.
I=infile	Attached, terminated dayfile to be used for input. If omitted, active dayfile is used.

DDF

The Display Disk File (DDF) utility allows the analyst to read, display, change, and print the contents of physical disk sectors. It is used when working on system problems that involve data stored on mass storage devices.

CAUTION

Changing disk table contents should be done carefully and only by analysts who understand the effects of the changes. Unless extreme care is exercised, using DDF can lead to system hangs or loss of permanent files.

KEYBOARD INPUT

Use the following keys to interact with the DDF display.

Key	Action Initiated
+	Reads the next sector. If the position in the sector chain is at EOI or the end of the track, the current sector is reread.
-	Reads the previous sector. If the position in the sector chain is at the beginning of the track, the current sector is reread.
.	Advances to the track specified in the control bytes and sets the sector to 0. If the control bytes do not contain a track link, the current sector is reread.
,	Advances to the next track in the TRT chain. The sector number is not changed. If the position in the sector chain is at the last track, the current sector is reread.

Key	Action Initiated
=	Reads the next sector, continuing past EOI. If the position in the sector chain is at the end of an EOI track, the current sector is reread.
(CR) or NEXT	Initiates processing of an entered command. This key also sets REPEAT ENTRY if a complete command has not been entered.
Space bar	Reads the current sector into the buffer. The current sector is the sector to which the current EST ordinal, track, and sector values point.
*	Toggles between DSD and DDF.
8	Increments the track number by one and reads the sector.
9	Decrements the track number by one and reads the sector.
Right blank or ⟶|	Changes the right screen displays on the CC545 console. This function is done with the tab key on the CC634B console and CC598B console.
/	Toggles or increments the sector displays on the right screen.
BKSP or ←	Deletes the previous character typed on the CC545 console. This function is done with the back arrow key on the CC634B console, and the Esc key on the CC598B console.
Left blank or |←	Deletes the line being entered on the CC545 console. This function is done with the back tab key on the CC634B console, and Esc key on the CC598B console.

All DDF commands are displayed on the bottom of the left screen as they are entered. The command must be followed by a carriage return.

Command	Description
AUTOREAD.nnnn.	Reads the sector every nnnn seconds.
BLDEOI.	Creates an EOI sector in the buffer.
BOT.nnnn.	Backs up one track.
CTB.	Clears the track interlock bit for the current track and equipment. The keyboard must be unlocked to use this command.
DEP.	Disables error processing for calls to the mass storage driver to read or write a sector. (By default, error processing is disabled.)
DIS.	Drops the DDF display and calls DIS to the control point.
DROP.	Drops the DDF display and PP.
DTK.	Drops tracks to the end of the chain starting with the current track. The keyboard must be unlocked to use this command.
DTK.ssss.	Drops tracks starting with the current track and sets the EOI sector in the TRT to the value ssss. The keyboard must be unlocked to use this command.
EEP.	Enables error processing for calls to the mass storage driver to read or write a sector. (By default, error processing is disabled.)
EJT.ejt.	Enters the disk address from EJT ordinal ejt.
EST.est.	Enters the EST ordinal est.
FAMILY.familyname.	Uses permanent file family familyname.

The following FIND commands scan the catalog track, starting at the current position, and search for the specified catalog entry. The EST ordinal and track number of the catalog track must first be set using appropriate commands (FAMILY, PACKNAM, UI, etc.). The first sector of the catalog track must also be read by entering the space bar before the FIND command.

Command	Description
FIND.pfn.userindex.	Searches for permanent file pfn with user index userindex.
FIND.pfn..	Searches for a permanent file pfn with a zero user index (i.e., a hole).
FIND.pfn.	Searches for a permanent file pfn with any nonzero user index.
FIND..userindex.	Searches for any permanent file with user index userindex. The file name is ignored.
FIND...	Searches for any permanent file with a zero user index. The file name is ignored (i.e., search for any hole).
FINDISS.userindex.	Checks each sector, starting at the current position, and searches for the next system sector with user index userindex on the chain. If userindex is not specified, the user index is not checked and the next system sector is displayed. This command is to be used on the indirect access permanent file chain.
FINDO.octalnum.	Searches from the current position for the octal number specified.

Command	Description
FINDS.string.	Searches from the current position for the string of characters specified.
FINDSS.userindex.	Checks the first sector of each track, starting from the current track, and searches to the end of the TRT. Finds and displays the next system sector with user index userindex. If userindex is not specified, the user index is not checked.
FNT.fnt.	Enters disk information from the system FNT ordinal fnt.
FNTL.fnt.	Enters the disk address from the local FNT ordinal fnt.
FNTLC.fnt.	Enters the disk address from the local FNT ordinal fnt. The equipment EST ordinal, track, and sector are set to the current position of the file.
GETTRT.nnnn.	Reads the sector that contains the checkpoint TRT information for track number nnnn and displays the byte number within the sector for that track. The equipment EST ordinal and track must be set for the label track before the command is used.
HOLD.	Drops the display and waits for the operator to reassign the display.
LOAD.c.	Reloads the EST ordinal, track, sector, and display selection from scratch area c. The scratch area is specified by a single alphabetic character. Valid characters are A through F. (Refer to the STORE command.)
PACKNAM.packname.	Uses permanent file pack packname.

Command	Description
PREAD.	Reads the current sector using the read protected sector function. This command must be used instead of the space bar when reading protected sectors. The keyboard must be unlocked to use this command.
PTK.nnnn.	Enters the protected track number nnnn. This command works the same as the TK command except the track number entered is not checked and the keyboard must be unlocked.
PWRITE.	Writes the current sector using the write protected sector function. This command must be used instead of the WRITE command when writing protected sectors. The keyboard must be unlocked to use this command.
QFT.qft.	Enters the disk address from QFT ordinal qft.
RANDOM.nnnn.addr.	Sets the track and sector for random address addr using number nnnn as the first track.
RANDOM..addr.	Sets the track and sector for random address addr using the current track as the first track.
RANDOM.c.addr.	Sets the track and sector for random address addr using the track specified by scratch area c as the first track. The scratch area is specified by a single alphabet character. Valid characters are A through F. (Refer to the STORE command.)
SC.nnnn.	Enters the sector number nnnn.

Command	Description
SC.*.	Enters the sector number of the last sector on the track.
SCAN.	Scans from the current position until the EOI control bytes are encountered. Scanning stops if, at some point, the control bytes are incorrect or the track is not reserved.
SCAN.*.	Scans from the current position until the end of information indicated in the TRT is reached.
SHOWPF.	Enters the disk address of the permanent file whose catalog entry is currently displayed.
SKIPEI.	Sets the track and sector to EOI based on the current position and information in the TRT. The number of sectors skipped is displayed on the left screen.
SKIPF.	Reads the file starting at the current position until an EOF is encountered.
SKIPR.	Reads the file starting at the current position until an EOR or EOF is encountered.
STB.	Sets the track interlock bit for the current track. The keyboard must be unlocked to use this command.

Command	Description
STORE.c.comment	Stores the current EST ordinal, track, sector, and display selection into scratch area c. The scratch area is specified by a single alphabet character (valid characters are A through F). The comment is copied to the scratch area and displayed on the left screen. The comment is for convenience only and is truncated after 10 characters. The EST ordinal, track, sector, and display selection can be reloaded from the scratch area using the LOAD command.
TK.nnnn.	Enters the track number nnnn.
UI.userindex.	Sets the EST ordinal and track for the catalog entries for user index userindex.
WRITE.	Writes the contents of the buffer to the sector currently displayed. The keyboard must be unlocked to use this command.

PRINT SECTOR DATA

The following commands are used to print the contents of the disk sector and manipulate the listing file.

Command	Description
LISTING.filename.	Sets the listing file name to filename. The default listing file name is OUTPUT.
OUT.	Releases the listing file to the output queue.
PRINT.	Prints the current equipment type, track, sector, TRT information, and the contents of the sector.

Command	Description
PRINT.num.	Prints the next num (octal) sectors starting with the current sector.
RETURN.	Returns the listing file.
REWIND.	Rewinds the listing file.
SETID.id.	Sets the identifier for the listing file to id.
SKIPL.	Advances from the current position of the listing file to the end of the file.

CHANGE SECTOR DATA

The following commands are used to change the data in the current sector. If the comma (,) is replaced by a plus (+), the byte number xxxx is incremented after the entry is processed. The actual data on the disk is not changed until you enter the WRITE command.

Command	Description
xxxx,yyyy.	Enter value yyyy into byte number xxxx.
xxxx,Dcc.	Enter display code characters cc into byte number xxxx.

PACK RECOVERY COMMANDS

These commands are used to rebuild the label track and TRT of a device that has lost them. Note that these commands do not necessarily recover the device correctly. All of these commands require that the keyboard be unlocked. Refer to NOS 2 Analysis Handbook for more information on pack recovery.

Command	Description
BEGINR.	Begins track recovery for the current selected equipment by reserving and clearing the central memory (CM) recovery tables.

Command	Description
BLDSL.	Builds a label sector image in the data buffer from data in the CM recovery table.
BLDSTRT.	Builds the next sector of the TRT data for the label track.
BLDSTRT.nnnn.	Builds sector number nnnn of the TRT data for the label track. (nnnn $\geq$ 1).
NEXTAT.	Locates the next available track on the current equipment and reads the first sector of that track.
NEXTSS.	Locates the next track in the recovery table that begins with a system sector.
RECOVER.	Recovers tracks starting at the first track of the device.
RECOVER.c.	Continues the recovery operation by scanning from the current position (c can be any character) to the EOI.
SETRW.b.nnnn.	Changes byte b of the current track recovery word to number nnnn.
SETTP.nnnn.	Sets the recovery track pointer for the RECOVER, NEXTAT, NEXTSS, and SETRW commands to track number nnnn.

P_1	Description
	ptloc — Description
	P — Cartridge or cubicle is to be put into the pool. PT=P is valid only with OP=AB, OP=AM, or OP=RM. PT=P is not valid if PK=P is specified.
	R — Cubicle is to be put into the reserved area of the CSU. PT=R is valid only with OP=AB.
PT	Same as PT=P.
PT omitted	Same as PT=P.
SB=sub	Subfamily to/from which ASLABEL adds/removes a cartridge or CSU; $0 \leq sub \leq 7$. With OP=FX this parameter specifies the subfamily to which the cartridge was assigned.
SB	Same as SB=0.
SB omitted	Same as SB=0.
V=vsn	Volume serial number of the cartridge to be added, removed, or repaired; not valid if PK=pkloc is specified. If V=vsn is specified, N=1 must be specified.
V	Volume serial number of the cartridge is not specified.
V omitted	Same as V.

Pi	Description
XI=x_1	Column of the CSU to be added or removed; $0 \leq x_1 \leq 57$ and $x_1 \neq 30$; valid only with OP=AB or OP=RB.
YI=y_1	Row of the CSU to be added or removed; $0 \leq y_1 \leq 36$ and $y_1 \neq 18$; valid only with OP=AB or OP=RB.
XI=x_1, YI=y_1	X and Y coordinates of the cubicle to be added or removed; valid only with OP=AB or OP=RB.
XI=x_1, YI=y_1, XF=x_2, YF=y_2	Rectangle of cubicles to be added or removed; cubicles with X coordinates between x_1 and x_2 and Y coordinates between y_1 and y_2 are included; valid only with OP=AB or OP=RB. At most, 100 cubicles can be included in the rectangle. x_1, $x_2 \leq 57$; x_1, $x_2 \neq 30$; y_1, $y_2 < 36$; y_1, $y_2 \neq 18$; $x_1 < x_2$; $y_1 < y_2$. XF and YF must both be specified, if either is specified. XF and YF must not be specified unless both XI and YI are specified.
XI and YI omitted	With OP=AB the next available cubicle closest to top (for assignment to a family) or the bottom (for assignment to the pool) is to be selected. With OP=RB the first empty assigned cubicle is to be selected.

NOTES

- MSSEXEC must be running when ASLABEL is run.
- Only one copy of ASLABEL can be run at a time.
- ASLABEL, ASVAL, and ASDEBUG cannot be run at the same time.

ASMOVE

ASMOVE,P_1,P_2,...,P_n.

Determines which files should be resident on disk, on MSF, or on both.

P_i	Description
FM=family	Family to be used by ASMOVE.
FM	Same as FM=system default family.
FM omitted	Same as FM=system default family.
L=lfn	File on which listable output is to be written.
L	Same as L=OUTPUT.
L=0	No output file is to be generated.
L omitted	Same as L=OUTPUT.
NW	ASMOVE does not wait for completion of destage and release processing by MSSEXEC.
NW omitted	ASMOVE waits for completion of destage and release processing by MSSEXEC.
RD=yymmdd	Last access date. All files not accessed after day yymmdd are to be released from disk.
RD omitted	No files are to be released.
RO	Report only. ASMOVE does not release files from disk and does not send requests to MSSEXEC to destage or destage/release files.

Pi	Description
RO omitted	Disk space is to be released and requests are to be sent to MSSEXEC, if appropriate.
RT=hhmmss	Last access time. All files not accessed after time hhmmss of the day specified by the RD parameter are to be released.
RT	Same as RT=000000 (midnight).
RT omitted	Same as RT=000000 (midnight).
TM=mode	Deselects or selects test mode.

mode	Description
N	Deselect test mode. Clears pseudo release flag and releases disk images for all files from the selected family that were previously pseudo. Performs normal release processing for all files selected for release by this ASMOVE run.
Y	Select test mode. Performs pseudo release for all files selected for release by this ASMOVE run.

TM omitted	Normal release processing is to be performed for files that do not have the pseudo release flag set. Files with the pseudo release flag set are treated as if they have been released.
UI=n	Destage and release processing is restricted to files having user index n.

Pi	Description
UI=0	Processes all user indexes.
UI omitted	Processes all user indexes.

The following options for ASMOVE redefine the values of the weight factors (installation parameters) used in the algorithms that select files to be destaged or released. Unless otherwise stated, for each of these options the installation-defined value is multiplied by the integer value n, $n \leq 0$.

Option	Description
DB=n	n times the installation-defined DB weight factor is to be used as the preferred residence value for destage decisions for files with a PR=M attribute.†
DB	Same as DB=1.
DB omitted	Same as DB=1.
DC=n	n times the installation-defined weight factor is to be used as the preferred residence value for destage decisions for files with a PR=N attribute.†
DC	Same as DC=1.
DC omitted	Same as DC=1.
DL=n	n times the installation-defined length weight factor is to be used as the length weight factor for destage decisions.
DL	Same as DL=1.

† The file owner specifies the preferred residence attribute via the PR parameter and the backup requirement via the BR parameter on the DEFINE or CHANGE command (refer to Volume 3 of the NOS 2 Reference Set).

Option	Description
DL omitted	Same as DL=1.
DT=n	n times the installation-defined time weight factor is to be used as the time weight factor for destage decisions.
DT	Same as DT=1.
DT omitted	Same as DT=1.
DV=n	n times the installation-defined destage control value is to be used as the destage control value.
DV	Same as DV=1.
DV omitted	Same as DV=1.
MN=n	n times the installation-defined minimum length threshold is to be used as the minimum allowable size in disk PRUs (64 words) for MSF files.
MN	Same as MN=1.
MN omitted	Same as MN=1.
MX=n	n times the installation-defined maximum length threshold is to be used as the maximum allowable size in disk PRUs for MSF files.
MX	Same as MX=1.
MX omitted	Same as MX=1.

ASUSE

ASUSE generates the following reports:

Report	Contents
Basic usage report	Lists general information about the use of each CSU in a subfamily.
Optional report A	Identifies cartridges with a specified number of streams available for assignment.†
Optional report B	Identifies cartridges with flags set in the MSF catalog.
Optional report C	Lists the contents of a CSU as described in the CSU map.
Optional report D	Lists detailed cartridge status information on each entry in the MSF catalog.
Optional report E	Lists detailed cartridge and stream status information on each entry in the MSF catalog.

ASUSE,P_1,P_2,...,P_n.

Produces reports on the availability of space on MSF cartridges and the allocation of cubicle space within a CSU.

Pi	Description
CS=id	CSU identifier of the CSU to be used. Up to 13 CSUs can be selected by the letters A through M (for example, CS=ACJG selects CSU A, C, G, and J).
CS	Same as CS=ABCDEFGHIJKLM.

† A cartridge that has the lost cartridge flag, inhibit allocation flag, or excessive write parity errors flag set is considered as having zero streams available for allocation regardless of the number of unallocated streams on the cartridge.

P_i	Description
CS omitted	Same as CS=ABCDEFGHIJKLM.
FM=family	Family to be reported on.
FM	Same as FM=system default family.
FM omitted	Same as FM=system default family.
L=lfn	File on which listable output is to be written.
L	Same as L=OUTPUT.
L=0	No output file is to be generated.
L omitted	Same as L=OUTPUT.
OP=op	Type of report to be produced. Multiple options can be specified (for example, OP=AB).

op	Description
A	Optional report A and basic usage report.
B	Optional report B and basic usage report.
C	Optional report C and basic usage report.
D	Optional report D and basic usage report.
E	Optional report E and basic usage report.

OP	Basic usage report only is to be produced.

P_i	Description
OP omitted	Same as OP.
SB=sub	Subfamily to be reported on. Up to eight subfamilies can be selected by the numbers 0 through 7 (for example, SB=0273 selects subfamilies 0, 2, 3, and 7).
SB	Same as SB=01234567.
SB omitted	Same as SB=01234567.
SL=n	Minimum number of streams available for assignment; valid only with optional report A. Cartridges with n or more streams available are reported. $0 \leq n \leq 16$, $n \leq m$ (refer to SU=m).
SL	Same as SL=0.
SL omitted	Same as SL=0.
SU=m	Maximum number of streams available for assignment; valid only with optional report A. Cartridges with m or less streams available are reported. $0 \leq m \leq 16$, $n \leq m$ (refer to SL=n).
SU	Same as SU=16.
SU omitted	Same as SU=16.

ASVAL

ASVAL,P_1,P_2,...,P_n.

Performs release processing and reports problems with the current MSS system files.

P_i	Description
AM	CSU map for CSU specified by CS parameter is to be analyzed in addition to the MSF catalogs; not valid if RF=lfn or RF is specified.
AM=	Same as AM.
AM omitted	CSU maps are not to be analyzed.
CS=id	CSU identifier of CSU to be used. Up to 13 CSUs can be selected by letters A through M (for example, CS=ACJG selects CSU A, C, G, and J).
CS	Same as CS=ABCDEFGHIJKLM.
CS omitted	Same as CS=ABCDEFGHIJKLM.
FM=family	Family to be analyzed; not valid if the RF option is specified.
FM	Same as FM=system default family; not valid if the RF option is specified.
FM omitted	Same as FM=system default family, if the RF option is not specified. The family on the release data file is used, if the RF option is specified.
FX=n	Error threshold. If the total error count is greater than n, neither release processing nor problem fixing is performed.
FX	Same as FX=0.
FX omitted	Same as FX=0.

NOTE

Pages 2-14 through 2-25 are deleted.

DFD

```
DFD,listfile,string,op,pd,pl,infile.
or
DFD,L=listfile,FR=string,OP=op,PD=pd,PL=pl,I=infile.
```

Dumps all or selected portions of the system dayfile.

Parameter	Description
L=listfile	File to which dayfile dump is to be written. Default is OUTPUT.
FR=string	Search string for selective dumping. If selected, DFD searches for string in starting position of field specified by OP parameter.
OP=op	Dump option.

op	Description
F	Full dayfile dump. (Default for nonterminal output files).
I	Incremental dump. (Default for terminal output files.)
J	Job sequence name field in dayfile is searched for string specified by FR=string. Dump begins from that point.

Parameter	Description
	op — Description
	M — Message name field in dayfile is searched for string specified by FR=string. Dump begins from that point. (Default if FR is specified, but OP is not.)
	P — Incremental dump starting from point of last dayfile dump with same job name.
	T — Time field in dayfile is searched for string specified by FR=string. Dump begins from that point.
PD=pd	Print density in lines per inch (3, 4, 6, or 8). Default is 6.
PL=pl	Page length in lines per page. Default is 30 for PD=3, 40 for PD=4, 60 for PD=6, and 80 for PD=8.
I=infile	Attached, terminated dayfile to be used for input. If omitted, active dayfile is used.

DFLIST

DFLIST.

Catalogs all dayfiles that have been made permanent by the DFTERM utility.

DFTERM

DFTERM,P_1,P_2,...,P_n.

Terminates an active or inactive dayfile and retains it as a direct access permanent file.

Pi	Description
DN=device or FM=family	Device or family of devices on which the inactive dayfile resides or on which the new dayfile resides if the active dayfile is terminated. Default is the device on which the current dayfile resides. A 2-digit logical device number (1 to 77_8), or 1- to 7-character family name.
FT=filetype	Type of dayfile to be terminated by DFTERM:

filetype	Description
ACCOUNT	Account dayfile.
DAYFILE	System dayfile.
ERRLOG	Error log.
MAINLOG	Binary maintenance log.

This entry also causes the FM and DN options to be updated to reflect the current family and device number of the dayfile specified by FT. Default is DAYFILE.

Pi	Description
L=listfile	1- to 7-character file name to receive output. Default is OUTPUT.
NM=name	1- to 5-character name of direct access file on which the terminated dayfile is written. DFTERM adds a 2-character prefix indicating the type of dayfile being terminated (DF, AC, ER, ML). If omitted, DFTERM supplies the name.
OP=option	Specifies whether active or inactive dayfiles are to be terminated. Default is OP=A.

option	Description
A	Active dayfiles.
I	Inactive dayfiles.

The following specifications alter DFTERM processing (they appear only on the command):

Pi	Description
I=lfn	Specifies name of alternate input file containing K-display utility commands and/or option parameters. Its directives are processed after the command parameters.
PO=N	Suppresses K display.

DLFP

DLFP,P_1,P_2,...,P_n.

Calls the debug log file processor.

Pi	Description
B=infile	Read debug log file from file infile. Default is ZZZZZDN.
D	Stop processing current directive record if it contains errors and skip to next record. If D is omitted, the job aborts when a directive record error is detected.
I=dirfile	Read directives from file dirfile. Default is INPUT.
I=0	No directives are to be input.
L=outfile	List output is written on file outfile. Default is OUTPUT.
N=newfile	Creates new debug log file newfile with records selected from the old file or ZZZZZDN according to directives governing record selection for the output file. If this option is selected, no debug log file data is written on the output file. If N is omitted, no new debug log file is created.

DLFP processes the following input directives:

Directive	Description
B	Specifies that only messages with the user break flag set in the application block header are output.
BD=yymmdd	Only messages logged on or after the specified date (yymmdd) are to be output.
BT=hhmmss	Only messages logged on or after the specified time (hhmmss) are to be output.

Directive	Description
C	Only messages with the CANCEL flag set in the application block header are to be output.
CN=n	Only synchronous and asynchronous supervisory messages and data blocks relating to connection number n (decimal) are to be output. $1 \leq n \leq 255$.
DN=	For system use only.
E	Only messages with the error bit set in the supervisory message are to be output.
ED=yymmdd	Messages logged on or after the specified date (yymmdd) are not to be output.
ET=hhmmss	Messages logged on or after the specified time (hhmmss) are not to be output. If the debug log file contains more than one day's messages, searching terminates after the first occurrence of the time specified.
F	Only messages with the no format effector flag set in the application block header are to be output.
LE=n	Specifies the maximum length in CM words of each message to be output. $1 \leq n \leq 410$. Default is 10.
N	Specifies that only network messages are output. Messages generated by applications for the debug log file are ignored.

Directive	Description
NM=n	Specifies a maximum of n messages are to be output. $0 \leq n \leq 1000000$.
P	Only messages with the parity error flag set in the application block header are to be output.
PF=hh	Only supervisory messages with PFC equal to hh are to be output. hh is 2 hexadecimal digits ($00 \leq hh \leq FF$).
PS=hhxx	Only supervisory messages with PFC/SFC equal to hhxx are to be output. hhxx is 4 hexadecimal digits ($0000 \leq hhxx \leq FFFF$).
R	Only messages with the response bit set in the supervisory message are to be output.
SM=n	No messages are to be output until after the n^{th} message is found which satisfies all the other directive options. $0 \leq n \leq 1000000$.
SN=	For system use only.
T	Specifies that only messages with the truncated data flag set in the application block header are output.
U	Only messages with the input block undeliverable flag set in the application block header are to be output.
X	Only messages with the transparent data flag set in the application block header are to be output.

DSDI

DSDI,P_1,P_2,...,P_n.

Calls the deadstart dump interpreter.

Pi	Description
B=lfn	BML maintenance register messages are written to file lfn. If omitted, lfn is not created.
D	Create random dump file. If D is omitted, no random dump file is created.
DMB	Analyze binary dump file created by DMB or LOADBC command. If omitted, analyze express deadstart dump (EDD) file. If specified, DSDI uses directives as though job were running at control point 1. The following directives select portions of memory to be dumped:

Directive	Area Dumped
CP/1	Exchange package.
RAC,1/C,fwa,lwa	Central memory, C format.
RAC,1/D,fwa,lwa	Central memory, D format.
RA,0/EC/C,fwa,lwa	Extended memory, C format.
RA,0/EC/D,fwa,lwa	Extended memory, D format.

F=dumpfile	Read express dump from file dumpfile. Default is DUMP.
I=infile	Read directives from file infile. Default is INPUT.
L=outfile	List output is written on file outfile. Default is OUTPUT.
NR	EDD file is not rewound before processing. If omitted, EDD file is rewound before processing.

Pi	Description
P	Use CMR pointers from running system. If omitted, use CMR pointers from EDD file.
PD=n	Print density is n lines per inch, where n may be 3, 4, 6, or 8. If this parameter is omitted, default is n=6. If only the keyword PD is specified, default is n=8.
Z	DSDI command contains input directives; I option is ignored. If Z is omitted, use I option.

DSDI processes the following input directives:

File Control Directives	Description
DISPOSE,un.	Dispose alternate output to user name un. If un is omitted, dispose to central site printer.
OUTPUT,lfn.	Begin alternate output. If lfn is omitted, use file ALTRNT.
READ,lfn, rec,*.	Read alternate input from record rec on file lfn. If rec is omitted, read to EOR. If * is specified, read to EOF or to first empty record.
REWIND,lfn.	Rewind file lfn.

File Print Directives	Description
EJ,nn.	Forces page eject if fewer than nn lines remain on the current page. If nn is omitted, page eject is forced.
EJOFF.	Turns off auto page eject.
EJON.	Turns on auto page eject.
PD,n.	Presets print line density (3, 4, 6, or 8).
*,cc...c	Enters subtitle comment.

Hardware Register Dump Directives	Description
SC.	CDC CYBER 170 status/control (S/C) register.
XP.	Deadstart exchange package.

Buffer Controller Memory Dump Directives	Description
BCDUMP/ops. or BCDUMP,c_1,c_2, ...,c_n. or BCDUMP,c_1/ops_1, c_2/ops_2, ...,c_n/ops_n.	Buffer controllers for channels c_i. ops_i is a 2-character entry. First character is H (hexadecimal) or O (octal). Second character is A (ASCII) or D (display code). Default is HD.

Maintenance Register Directives†	Description
FMFREG.	Dumps A, K, P, and Q PP register contents.
IOUCR.	Format 1 processes all concurrent PP channel registers.
IOUCR,c_1,c_2, ..., c_n.	Format 2 processes the registers of the concurrent PP channels specified. This directive dumps the channel number, channel type, IOU status register, T-register, fault status mask, and test mode operand generator (test seed) for the channels specified. The channel number and type are printed in octal, all other data in hexadecimal.
IOUMR,first, last.	Starting with register first and ending with register last, dumps the IOU maintenance registers. DSDI dumps all registers if no parameters are specified.

†CYBER 180-class models only. Refer to the applicable hardware reference manual.

Maintenance Register Directives †	Description
MEMMR,first, last.	Starting with register first and ending with register last, dumps the memory maintenance registers. DSDI dumps all registers if no parameters are specified.
PROCA,first, last.	Starting with register first and ending with register last, dumps the POC record contents according to the first and last word number parameters specified (model 990 or 995 only). If no parameters are specified, the first word number defaults to zero, and the last word number defaults to FFF(4095).
PROCW.	Dumps processor controlware part number and revision level.
PROMR,first, last.	Starting with register first and ending with register last, dumps the processor maintenance registers. DSDI dumps all registers if no parameters are specified.
PROPM.	Dumps the entire contents of the PPM record (model 990 or 995 only).
PRORF.	Dumps the entire contents of the PRF, PIS, PRG, and PRH records (model 990 or 995 only).
PRORF,first, last.	Starting with register first and ending with register last, dumps all processor registers. DSDI dumps the entire register file if no parameters are specified.
PROSM.	Dumps the entire contents of the PSM record (model 990 or 995 only).
PROXP.	Dumps the processor exchange package.

†CYBER 180-class models only. Refer to the applicable hardware reference manual.

Maintenance Register Directives†	Description
SETCPU,n.	Sets up the CYBER 180-class model (with dual CPU) pointers for the processor specified by n. The default is CPU 0.
SETIOU.	Set PP size to 4096 12-bit words and PP type to nonconcurrent PP.
SETIOU,option.	Sets PP size and type.

option	Description
C	Sets PP size to 8192 16-bit words and PP type to concurrent PP subsystem.
N	Sets PP size to 4096 16-bit words and PP type to nonconcurrent PP subsystem.

SETJPS, address.	Sets the pseudo register named job process state (JPS) to a value different from the value of the JPS register found in the dump.
SETRMA, address.	Displays the translated real memory address (RMA) for a process virtual address (PVA).

†CYBER 180-class models only. Refer to the applicable hardware reference manual.

Maintenance Register Directives†	Description
SETVEP, address,length mask,mps.	Sets the following parameters to do an analysis of a NOS/VE dump tape:

Parameter	Description
address	Specifies the beginning address of the page table as a hexadecimal number from 1 to 6 digits.
length	Specifies the length of the page table as a hexadecimal number from 1 to 6 digits.
mask	Specifies the value of the page size mask as a hexadecimal number from 1 to 6 digits.
mps	Specifies the contents of the pseudo register named monitor process state (MPS) as a hexadecimal number from 1 to 6 digits.

TRACEBK, address.	Performs a traceback on an exchange package at the specified address.

Memory Dump Directives	Description
ALLMEM.	Enables central memory dumps to extend past the central memory boundary on machines with central memory extension.
AP,n_1,n_2, ...,n_n.	Analyzes PP number n_i.

†CYBER 180-class models only. Refer to the applicable hardware reference manual.

Memory Dump Directives	Description
C,fwa,lwa+1.	Dumps memory in instruction parcel format (four groups of five octal digits formatted for terminals).†
CM.	Specifies central memory dump.
D,fwa,lwa+1.	Dumps memory in byte format (five groups of four octal digits formatted for terminals).†
EC.	Specifies extended memory dump.
EC,fwa.	Specifies unified extended memory (UEM) dump (models 865 and 875 and CYBER 180-class models only, starting at fwa x 1000_8).
EC,emid,fwa.	Specifies type of extended memory for model 865 and 875. emid can equal ESM or UEM. Default is UEM. fwa if specified, starts at fwa x 1000_8.
E,fwa,lwa+1.	Dumps memory in word format (4 words per line).
MPP.	Dumps correct logical PP if the logical position of PP0 has been changed prior to full dump to tape.
MPP,n.	Dumps correct logical PP if the logical position of PP0 was moved to PPn via a deadstart panel program.
P,n_1,n_2,...,n_n.	Dumps PP n_i in block format.
PF,n_1,n_2,...,n_n.	Dumps first level PP n_i in block format.

†Produces output suitable for listing at an interactive terminal.

Memory Dump Directives	Description
PMS,n.	Reads S/C register dump to determine the current value of PP memory select switches and correct logical PP to be dumped if PP0 position has been changed prior to full dump to tape. This directive is ignored if n equals the current value of the select switch setting in the S/C register ($0 \leq n \leq 11_8$).
Q,n,fwa,lwa+1.	Dumps PPn in line format for terminals.
Q,n_1,n_2, ...,n_n.	Dumps PPn_i in line format.
QF,n_1,n_1, ...,n_n.	Dumps first level PP n_i in line format.
RA,addr.	Specifies that subsequent C, D, and E directives will dump memory locations relative to reference address addr.
RAC,n.	Specifies that subsequent C, D, and E directives will dump memory locations relative to reference address of control point n.
UEC,fwa.	Specifies user-access extended memory dump beginning at fwa x 1000_8. If fwa is omitted, dump begins at address determined by CMR pointer to user-access extended memory.

Memory Dump Directives (CYBER 180-class models only)	Description
I,fba,lba,ei.	Starting at byte fba and ending at lba+1, dumps the 64-bit memory. DSDI dumps the memory in 16-bit parcels. If ei is 1, fba and lba specify byte addresses relative to byte 0 of the environment interface. If ei is omitted, fba and lba specify absolute byte addresses.

Memory Dump Directives (CYBER 180-class models only)	Description
LPVA,address.	Loads PVA from memory at the address specified.
PO,n_1,n_2, ...,n_m.	Dumps the 16-bit PPn_i memory in octal block format.
PX,n_1,n_2, ...,n_m.	Dumps the 16-bit PPn_i memory in hexadecimal block format.
QOA,n_1,n_2, ...,n_m.	Dumps the PPn_i memory in octal/ASCII line format.
QOA,n,fwa, lwa+1,R.	Dumps the PPn memory in octal/ASCII line format for terminals. The R parameter causes DSDI to display the PP's R register along with the other specified words of memory.
QOD,n_1,n_2, ...,n_m.	Dumps the PPn_i memory in octal/display code line format.
QOD,n,fwa, lwa+1,R.	Dumps the PPn memory in line format for terminals with octal/display code interpretation. The R parameter causes DSDI to display the PP's R register along with the other specified words of memory.
QXA,n_1,n_2, ...,n_m.	Dumps the PPn_i memory inline format with hexadecimal/ASCII interpretation.
QXA,n,fwa, lwa+1,R.	Dumps the PPn memory in line format with hexadecimal/ASCII interpretation for terminals.† The R parameter causes DSDI to display the PP's R register along with the the other specified words of memory.

† Produces output suitable for listing at an interactive terminal.

Memory Dump Directives (CYBER 180-class models only)	Description
QXD,n_1,n_2, ...,n_m.	Dumps the PPn$_i$ memory in line format with hexadecimal/display code interpretation.
QXD,n,fwa, lwa+1,R.	Dumps the PPn memory in line format with hexadecimal/display code interpretation for terminals.† The R parameter causes DSDI to display the PP's R register along with the other specified words of memory.
W,fba,lba,ei.	Starting at byte fba and ending at lba+1, dumps the 64-bit memory in word format. If ei is 1, fba and lba specify byte addresses relative to byte 0 of the environment interface. If ei is omitted, fba and lba specify absolute byte addresses.

CMR Dump Directives	Description
ACCOUNT.	Dumps ACCOUNT dayfile buffer in E format.
CBT,n_1,n_2, ...,n_m.	Dumps control buffer table entries n_i.
CCT,n_1,n_2, ...,n_m.	Dumps channel control table entries n_i.
CP.	Dumps all active control point areas and pseudo-control point areas.
CP,n_1/ops$_1$, n_2/ops$_2$, ...,n_n/ops$_n$.	Causes control point area n_i to be dumped (formatted for terminals).

ops$_i$	Description
A†	Job dayfile buffer (default).
C†	Field length in C format.
D†	Field length in D format.
E†	Field length in E format.

†Produces output suitable for listing at an interactive terminal.

CMR Dump Directives	Description	
	ops_i	Description
	F†	Attached files (default).
	G	Control point area in C format.
	H	Control point area in D format.
	I	Control point area in E format.
	M	User-access extended memory in D format.
	N††	Negative field length in D format.
	P	Attached PPs.
	T	Detailed dump (default).
	X	Exchange package and parameter summary (default).
	Omitted	Selects options A, F, T, and X.
CPO,ops.	Selects new default list options for CP directive as specified by ops.	
CT.	Dumps channel tables in D format.	
DAYFILE.	Dumps system dayfile buffer in E format.	
DB,id,n_1, n_2,...,n_n.	Dumps disk buffers n_i on mainframe id.	
DBW.	Dumps list control words from buffered device table, buffered statistics table, and PP-I/O buffer link table.	

†Produces output suitable for listing at an interactive terminal.

††This option does not dump information for the system control point.

CMR Dump Directives	Description
DDB.	Dumps dayfile dump buffer in D format.
DP.	Dumps dayfile buffer pointers in D format.
EICB.	Dumps the EI communication block with interpretation of the fields. It is dumped in 64-bit I format if the DFT/OS buffer is present.
EJT.	Dumps executing job table in D format.
EPB.	Dumps extended memory/PP buffer in D format.
ERRLOG.	Dumps ERRLOG dayfile buffer in E format.
EST.	Dumps equipment status table in D format.
FNT.	Dumps system file name table in D format.
FOT.	Dumps family ordinal table in D format.
HAT,e_1,e_2, ...,e_n.	Dumps hash table entries e_i; if e_i are not specified, all nonzero hash table entries are dumped.
JC.	Dumps job control area for each service class to be dumped and the service class control table (SCT).
LC.	Dumps contents of CMR.
LDIS.	Dumps L display buffer in C format.

CMR Dump Directives	Description
LIDT.	Dumps logical identifier table in D format.
MAINLOG.	Dumps BML dayfile buffer in E format.
MCT.	Dump the memory control table.
MST.	Dumps mass storage tables.
MST,est_1, est_2,...,est_n.	Dumps mass storage tables on devices with EST ordinals est_i.
MTR.	Dumps CPUMTR in C format.
MTRQUEUE,qu.	Dumps CPUMTR request and recall queues. If qu is omitted, all queues are dumped.

qu	Queue Name
C	CPUCIO request.
P	PP request.
R	Recall.
W	CPU request.

ODIS.	Dumps operator display buffer in C format.
PCP.	Dumps all active pseudo-control point areas.
PCP,n_1/ops_1, n_2/ops_2, ...,n_n/ops_n.	Causes pseudo-control point n to be dumped. See CP directive for explanation of ops_i.
PLD.	Dumps peripheral library directory in D format.
PP.	Dumps PP communication areas (formatted for terminals).
PROBE.	Dumps PROBE data tables in D format.
PST.	Dumps program status table and entry point directory in D format.

CMR Dump Directives	Description
PUT,n_1,n_2, ...,n_m.	Dumps physical unit table entries n_i.
QFT	Dumps queued file table in D format.
RCL.	Dumps resident central library in C format.
RPL.	Dumps resident peripheral library in D format.
SAB.	Dumps system attribute block in D format.
SDA.	Dumps statistical data area. Each word is printed with its NOSTEXT symbol and is split into the appropriate parameter fields.
SECDED.	Dumps SECDED identifier table in D format.
SST.	Dumps subsystem control point table and subsystem assignment table in D format.
TBDUMP,MTR. or TBDUMP,PPU.	Dumps the selected monitor function trace buffer.

Subsystem Dump Directives	Description
BATCHIO,ops. or BIO,ops.	Dumps areas of memory most frequently analyzed when a malfunction within BIO occurs specified by ops. Default is all options.

ops	Description
B	Buffer points.
N	Negative field length of BIO control point.
P	lCD, lIO, DSP, QAC, and QAP.

Subsystem Dump Directives	Description
IAF,ops.	Dumps areas of memory most frequently analyzed when a malfunction occurs within the Interactive Facility (IAF) as specified by ops. Default is all options except C.

ops	Description
C	Command table.
E	Reentry table.
L	Pot link table and pots.
P	IAF-related PPs.
T	Terminal tables.

MAGNET,ops. or MAG,ops.	Dumps areas of memory most frequently analyzed when a malfunction within MAG occurs specified by ops. Default is all options.

ops	Description
P	1MT.
Q	Queue table.
S	Staging tables.
U	Unit descriptor tables (UDT).

RHF,ops.	Dumps areas of central and/or PP memory most frequently analyzed when RHF malfunctions. Default is all options.

ops	Description
A	RHF dayfile buffer.
C	RHF field length.
P	Memory of all PPs associated with control point.

ELD

```
ELD,listfile,string,op,pd,pl,infile.
or
ELD,L=listfile,FR=string,OP=op,PD=pd,PL=pl,I=infile.
```

Dumps all or selected portions of the error log.

Parameter	Description
L=listfile	File to which dayfile dump is to be written. Default is OUTPUT.
FR=string	Search string for selective dumping. If selected, ELD searches for string in starting position of field specified by OP parameter.
OP=op	Dump option.

op	Description
F	Full dayfile dump. (Default for nonterminal output files.)
I	Incremental dump. (Default for terminal output files.)
J	Job sequence name field in dayfile is searched for string specified by FR=string. Dump begins from that point.

Parameter	Description
	OP — **Description** M — Message name field in dayfile is searched for string specified by FR=string. Dump begins from that point. (Default if FR is specified, but OP is not.) P — Incremental dump starting from point of last dayfile dump with same job name. T — Time field in dayfile is searched for string specified by FR=string. Dump begins from that point.
PD=pd	Print density in lines per inch (3, 4, 6, or 8). Default is 6.
PL=pl	Page length in lines per page. Default is 30 for PD=3, 40 for D=4, 60 for PD=6, and 80 for PD=8.
I=infile	Attached, terminated dayfile to be used for input. If omitted, active dayfile is used.

ENDCPD

ENDCPD.

Terminates all active copies of CPD.

FAMILY

FAMILY,family.

Changes the family name associated with the job; family is a 1- to 7-character name of a family of permanent file devices. If omitted, the default family name is assumed. An alternate family introduced into the system without a VALIDUs file can be specified with 0 for family name (for system origin jobs on unsecured systems only).

GETLOG

```
GETLOG,errfile,op,termfile,binfile,estfile.
or
GETLOG,L=errfile,OP=op,I=termfile,B=binfile,E=estfile.
```

Prepares files for maintenance software routines NORM and HPA using information on ERRLOG and BML files. Files estfile, binfile, errfile, and/or termfile are not rewound before or after the operation.

Parameter	Description
L=errfile	File to which ERRLOG is to be written. Default is L=ERR. If L=0 is specified, no ERRLOG file is written.
OP=op	Dump option.

op	Description
F	Full ERRLOG and BML dump (default option.)
I	Incremental dump. ERRLOG and BML are dumped starting from point of last GETLOG call.

I=termfile	Terminated BML file to be used instead of active BML file. If not specified, GETLOG dumps active BML file.
B=binfile	File to which GETLOG writes Binary Maintenance Log (BML). Default is B=BML. If B=0 is specified, no BML file is written.
E=estfile	File to which EST information is to be written. Default is E=EST. If E=0 is specified, no EST file is written.

ICPD

ICPD,P_1,P_2,...P_n.

Initializes collection of performance data (part of TRACER). ICPD defines a data file for CPD and activates CPD.

Pi	Description
FL=fl	Fast loop sampling frequency in milliseconds. Default is 5 ms.
FN=datafile	Data file name. Default is SAMPLE.
FW=fw	Snapshot loop sampling frequency in seconds. Default is 5 s.
M=mode	Permanent file access mode for data file. Default is M=WRITE. If the data file is attached in write mode, it cannot be accessed by ACPD until ENDCPD has been run. If the sample data file is attached in append or modify mode by ICPD, the file can then be attached in read/allow modify (RM) mode for ACPD. The advantage of attaching the file in write mode is that there is less system overhead involved in interlocking and writing the data file than if the file is attached in modify or append modes.

mode	Description
APPEND	Data file attached in append mode.
MODIFY	Data file attached in modify mode.
WRITE	Data file attached in write mode.

ML=ml	Medium loop sampling frequency in milliseconds. Default is 100 ms.
SL=sl	Slow loop sampling frequency in milliseconds. Default is 1000 ms.

INSTALL

INSTALL,lfn,EQest.

Installs running system or user-specified deadstart file from mass storage onto RMS deadstart device.

lfn	Name of file (assigned to the job) to be installed as system deadstart file (SDF). Default file name is SYSTEM. File name lfn cannot be SDF. Calling job must be system origin or validated for system origin privileges.
est	EST ordinal of RMS device on which lfn is to be installed.

ISF

ISF,op,FM=family,SJ=jobfile,SP=procfile.

Initializes the fast-attach system files VALIDUs, PROFILa, RSXDId, and RSXVid. Must be entered from a system origin job.

Parameter	Description
op	File to be intialized or released.

op	Description
E=filename	System file to be initialized. If E=0 or neither E nor R is specified, all files in ISF table are initialized.
R=filename	System file to be released from fast-attach status. If R=0, all files in ISF table for specified family are released. Family must be in idle status if this parameter is specified.

FM=family	Family of devices affected. Default is calling job's current family.
SJ=jobfile	Job file that ISF submits as a system origin job. Must be an indirect access file stored under system user index. If SJ=0 is specified, no job is submitted; if SJ is specified with no file name, ISF assumes SJ=SYSJOB.
SP=procfile	Procedure file that ISF calls with system origin. Must be an indirect access file stored under system user index 377777_8. If SP=0 is specified, no procedure is called; if SP is specified with no file name, ISF assumes SP=SYSPROC.

LDLIST

LDLIST,P_1,P_2,...,P_n.

Lists all queued files present on a QDUMP dump tape.

Pi	Description
BC=dt	Disposition type of queued files destined for local batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
SF	Installation-defined special files.
WT	Queued files with wait disposition.

Pi	Description
DA=date	Processing date, in form yymmdd or ALL. If omitted, queued files created within 5 days of current date are processed.
DD=dd	Specifies device to which queued files are to be moved.
DF=family	Specifies family to which queued files are to be moved.
FC=formscode	Forms code of files to be listed. Default is ALL.

forms code	Description
fc or $fc_1/fc_2/fc_3$ or fc_1-fc_3	Two alphanumeric characters.
*	All forms codes from AG to 99.
**	Null forms code.
ALL	All forms codes.

FN=filename	File name of dump or load file. If not specified, default is FN=QFILES.
FS=filesize	File size range in PRUs.
FU=family	Family name under which queued files were created.
I=infile	File infile contains input data. Default is INPUT.

Pi	Description
ID=identifier	2-digit octal identifier (0 through 67_8) indicating that only queued files assigned that identifier are to be processed.
L=listfile	1- to 7-character file name to receive output. Default is OUTPUT.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).
LD=lid	3-character logical identifier of the mainframe with which the file is associated. LD=0 specifies all files without LIDs.
MI=id	2-character machine identifier of the mainframe on which the queued files to be processed reside. MI=ALL selects queued files on any mainframe.
NF=number	Decimal number of media files to skip. Default value is 0.
RB=dt	Disposition type of queued files destined for remote batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.
LS	580-16 printer files.
LT	580-20 printer files.

Pi	Description

dt	Description
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
SF	Installation-defined special files.
WT	Queued files with wait disposition.

SC=number	Decimal number of queued files to skip during LDLIST before beginning the list operation. If not specified, no files are skipped.
TUI=u or TUI=ui_1-ui_2	Destination terminal user index for output file. ui_1-ui_2 indicates a range of user indexes. Default is TUI=0 (no user index specified).
UA=level	1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).
UI=user index	User index under which the queued file was created.

LISTPPM

LISTPPM,B=lfnb,L=lfno.

Converts all available peripheral interface package (PIP) dump binary records on PIP PP memory dump file into report to be listed in byte format.

lfnb	Local file name of PIP PP memory dump file. Default is ZZZZZPP.
lfno	Local file name of output file. Default is OUTPUT.

LOADBC

LOADBC,p_1,p_2,...,p_n.

Loads disk or NAD controlware.

Pi	Description
C=cc	Octal number of channel from which disk or NAD controlware is to be loaded (parameter required).
D=lfn_2	File to which controller memory is to be dumped before controlware reload. The dump capability is available for 7155/7165/7255 controllers only. Default is no dump.
EQ=ord	Control module EST ordinal. To be used when a control module controlware reload is desired.
F=lfn_1	File from which controlware is to be loaded. If omitted, controlware is loaded from the system library. For NAD controlware, the controlware specified by TY parameter is read from the system library if this parameter is omitted.

The following parameters apply only when loading remote NAD (380-170, 380-370, or 380-110) controlware.

Pi	Description
AC=aaaa	4-digit hexadecimal access code of remote NAD. Default is AC=0000.
LT=$t_0t_1t_2t_3$	4-digit binary bit pattern specifying local trunk control units (TCUs) that are enabled. At least one TCU must be enabled for loading remote NAD controlware. t_n=1 enables TCU_n.
ND=nd	2-digit hexadecimal logical trunk address of remote NAD (parameter required).
TY=type	Type of controlware to be loaded.

type	Description
170	CYBER 170 controlware (380-170).
IBM	IBM controlware (380-370).
MIN	Minicomputer controlware (380-110).

Default is TY=170.

MAINLOG

```
MAINLOG,,string,op,,,infile,binfile.
or
MAINLOG,FR=string,OP=op,I=infile,B=binfile.
```

Dumps all or selected portions of the Binary Maintenance Log (BML).

Parameter	Description
FR=string	Search string for selective dumping. If selected, MAINLOG searches for string in starting field position specified by OP parameter.
OP=op	Dump option.

op	Description
F	Full dayfile dump. (Default for nonterminal output files.)
I	Incremental dump. (Default for terminal output files.)
J	Job sequence name field in dayfile is searched for string specified by FR=string. Dump begins from that point.
P	Incremental dump starting from point of last dayfile dump with same job name.
T	Time field in dayfile is searched for string specified by FR=string. Dump begins from that point.

I=infile	Attached, terminated dayfile to be used for input. If omitted, active dayfile is used.
B=binfile	File to which MAINLOG writes Binary Maintenance Log. Default is B=BML.

MODVAL

MODVAL,P_1,P_2,...,P_n.

Creates, modifies, or queries VALIDUs file.

Pi	Description
CV=co	Specifies conversion option for converting a pre-NOS 2 validation file. All options are used with OP=C.

co	Description
A	Converts file to a NOS 2.5.1 validation file. The input directive identifier TC=STANDARD is converted to TC=NORMAL during the creation run.
C	Converts file to a NOS 2.5.1 validation file. The input directive parameter AW=CNRD validates all users for charge and project numbers other than the defaults during the creation run.
D	Converts file to a NOS 2.5.1 validation file. The input directive parameter AW=COPR validates all users for passwords without randomization during the creation run.
F	Converts file to a NOS 2.5.1 validation file. The input directive identifier AW=NUL is converted to AW=NUL,AW=CSAF to force setting of the alternate family permission during the creation run.
G	Converts file to a NOS 2.5.1 validation file. During the creation run, the input directive AW=COPI is automatically inserted. Thus, you

Pi	Description
	need not enter a personal identification during interactive login.
H	Converts file to a NOS 2.5.1 validation file. During the creation run, the input directive AW=CACA is automatically inserted. This allows you to log in to more than one terminal at a time.
D	No abort on directive errors.
FA†	Forces attach of VALIDUs and VALINDs (SYOT only).
FM=familyname†	Indicates family name user wishes MODVAL to access (SYOT only).
I=infile	File containing input data. Default is INPUT.
L=outfile	File to receive list output. Default is OUTPUT.
LO	E and N options.
LO=A	Sorts by user name; used with OP=L.
LO=AL	A and L options.
LO=E	Lists errors; used with OP=C, OP=U, or OP=Z.
LO=EN	E and N options.
LO=L	Catalog file oldfile instead of VALIDUs; used with OP=L.
LO=N	Sorts by user index; used with OP=L.
LO=NL	L and N options.
N=newfile	Specifies interim file that becomes newly created validation file. Default is NEWVAL.

†On a secured system, requires security administrator privileges.

Pi	Description
OP=C	Specifies create option.
OP=K	K display option.
OP=L	Reads the validation file, sorts the copy by user name, and writes it to the output file.
OP=R	Reformats the validation file and purges all permanent files of each deleted user.
OP=S	Specifies a source run that returns the validation file specified by the P parameter on the file specified by the S parameter.
OP=U	Specifies update option.
OP=Z	Statement update option.
P=oldfile	Specifies old validation file that is to be updated. Default is VALIDUs.
RP	Passwords not specified on create run.
S=sourcefile	File to receive source data for each user name. Default is SOURCE.
SI	Source input for create (should not be used when initially creating validation file for a secured system).
U=userfile	File containing the available user indexes for the current VALIDUs file. Default is VALINDs.

MODVAL input directives have the following format:

/username,dir_1=$data_1$,dir_2=$data_2$,...,dir_n= $data_n$

All data in directives is assumed to be decimal unless followed by a B suffix.

dir_i	Description
AL=al	Application access level.
AP=appl	Application bits in application validation word (each bit has a meaning).
AW=perm	Permission bits in access word (each bit has a meaning).
CC=cc	Index to maximum number of batch commands.
CM=cm	Index to maximum CM.
CN=chrgnum	1- to 10-alphanumeric character charge number.
CP=cp	Index to number of punched cards allowed.
DB=db	Index to maximum number of deferred and/or queued jobs.
DF=df	Index to maximum number of MESSAGE requests.
DT=dt	Index to maximum number of detached jobs.
EB=password	14-digit octal encrypted batch password.
EC=ec	Index to maximum extended memory.
EI=password	14-digit octal encrypted interactive password.
FUI=userindex	User index.
LP=lp	Index to number of printed lines allowed.
MS=ms	Index to maximum number mass storage PRUs.
MT=mt	Number of magnetic tapes allowed.

dir_i	Description
PB=password	1- to 7-character batch password.
PI=password	1- to 7-character interactive password.
PID=personal id	0- to 20-alphanumeric character personal identification.
PN=projnum	1- to 20-alphanumeric character project number.
PT=pt	Index to number of plot units allowed.
PW=passwrd	1- to 7-character password.
RL=ALL	Resource limits.
RP=rp	Number of removable packs allowed.
SAC=category	Sets security access category.

category	Description
CATnn	Sets category CATnn ($00 \leq nn \leq 31$).
ALL	Sets all access categories.
NUL	Clears all access categories.

SAL=level	Security access level.

level	Description
LVLn	Sets level LVLn ($0 \leq n \leq 7$).
ALL	Sets all access levels.
NUL	Clears all access levels.

SAV=privilege	Privilege bits in security validation word (each of bits 59-48 has a meaning).

dir_i	Description
SC=sc	Security count.
SH=sh	Shell program name.
SL=sl	Index to SRU limit.
SO=option	Shell program option.
SP=sp	2-digit octal permanent file index of system prologue.
TL=tl	Index to maximum CPU time.
UC=otsc	Specifies user default service class sc for jobs of origin type ot.
UI=userindex	User index to be assigned to user.
UP=prologue	User prologue file name.
VM=sc	Allows user to select service class sc. sc may also be ALL (enables all service classes) or NUL (clears all service classes).
XB=yymmdd	Expiration date for batch password.†
XD=yymmdd	Expiration date for batch and interactive passwords.†
XI=yymmdd	Expiration date for interactive passwords.†
XT=term	Expiration term, in days (0-4095) from current date, for batch and interactive passwords.†
XTB=term	Expiration term, in days (0-4095) from current date, for batch password.†
XTI=term	Expiration term, in days (0-4095) from current date, for interactive password.†

†A value of * sets the password as nonexpiring.

The following directives can be used only in update and K display options:

dir_i	Description
DAC=username	Deletes user name from VALIDUs file.
FUI=userindex	Forces user index.

The following directives control permanent file access for the individual user:

dir_i	Description
CS=cs	Cumulative size of all indirect access permanent files.
DS=ds	Size allowed for single direct access file.
FC=fc	Maximum number of permanent files.
FS=fs	Maximum size allowed for a single indirect access permanent file.

The following directives manipulate fields describing the user's terminal:

dir_i	Description
IS=subsy	Initial subsystem.
PA=prty	Terminal parity.†
PX=tran	Transmission mode.†
RO=ro	Rubout count.†
TC=chset	Terminal character set.
TT=term	Terminal type.†

†Used with Remote Diagnostic Facility.

NDA

NDA,p_1,p_2,...,p_n.

Network Dump Analyzer analyzes and lists network processor unit (NPU) dumps.

Pi	Description
BA=addr	1- to 6-digit hexadecimal address within the NPU macro-memory at which to begin the dump report. Default is the actual beginning of the dump.
EA=addr	1- to 6-digit hexadecimal address within the NPU macro-memory at which to end the dump report. Default is the actual end of the dump.
I=infile	1- to 7-character name of input directive file. I=0 must be specified if there is no input directive file. Default is I=INPUT.
L=outfile	1- to 7-character name of output file. Default is L=OUTPUT.

Pi	Description
LO=opt	One or more listing options as follows:

opt	Description
E	All words in NPU dump record. Redundant lines are not suppressed.
M	List macromemory.
R	List registers.

Default is LO=RM.

NDF=npudump	Local file name of NPU dump file. Default is NDF=NDF.

NDA accepts the following input directives:

dir	Description
0	Add comments.
1	Dump file 1 register.
2	Dump macromemory word.
3	Dump contiguous block data structures.
4	Dump circular buffers in chronological order.
7	Dump page registers.
8	Dump all file 1 registers in hexadecimal format.
9	Dump all macromemory words.
A	Dump line control blocks with associated terminal control blocks or cluster control blocks.
B	Dump port tables with associated multiplex line control blocks.

PFATC

PFATC,p_1,p_2,...,p_n.

Catalogs permanent file archive file(s).

Pi	Description
AD=yymmdd	Date to be used with A, C, M, or T option. Selects files whose corresponding dates are after the specified date. Default is current date.
AT=hhmmss	Time to be used with A, C, M, or T option. Selects files whose corresponding times are after the specified time. Default is midnight.
BD=yymmdd	Date to be used with A, C, M, or T option. Selects files whose corresponding dates are before the specified date. Default is current date if BT=hhmmss is specified. Otherwise, it is zero (no before date).
BT=hhmmss	Time to be used with A, C, M, or T option. Selects files whose corresponding times are before the specified time. Default is midnight if BD=yymmdd is specified. Otherwise, it is 0 (no before time).
CA=res	Selects files according to residence on cartridge alternate storage.

res	Description
R	Selects files that reside on cartridge alternate storage.
N	Selects files that do not reside on cartridge alternate storage.

Pi	Description
CCA=res	Clears the effect of its corresponding CA parameter. This parameter is intended for K display use.

res	Description
R	Clears the selection of files that reside on cartridge alternate storage.
N	Clears the selection of files that do not reside on cartridge alternate storage.

CPF=filename	Clears the selection of the specified file. If that file is the only file selected for the user index, all files are selected for the user index. To clear all file selections for the user index, use the CUI parameter.
CTA=res	Clears the effect of its corresponding TA parameter. This parameter is intended for K display use.

res	Description
vsn	Clears the selection of files that reside on the VSN specified by vsn.
R	Clears the selection of files that reside on all VSNs.
N	Clears the selection of files that do not reside on tape alternate storage.

CUI=userindex	Clears all file selections for the specified user index. This parameter is assumed octal unless the D radix or a nonoctal digit is specified.
I=filename	1- to 7-character name of the file from which input directives are to be read. Default is INPUT.

Pi	Description
L=lfn	Name of file on which reports are to be written. Default is OUTPUT.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).
LO=opt	Type of output records. Default is 0 (no options selected).

opt	Description
C	Lists all files in catalog image record (CIR).
E	Lists errors.
T	Lists PFC data for all files processed.

LS=size	Lower size limit in sectors. When specified, only files of size greater than or equal to the lower size limit are processed.
N=n	1- or 2-digit number of archive files on an archive tape to process. If set to 0, one file is processed. Default is 1.
OP=op	Options that control the processing of files.

op	Description
A	Makes selection according to time of last access.
C	Makes selection according to time of creation.
D	Selects direct access files only.
I	Selects indirect access files only.

Pi	Description
	op — Description
	K — Specifies that the K display should be brought up if an error is detected when processing input parameters and directives in PFS.
	M — Makes selection according to time of last modification.
	T — Makes selection according to time of last data modification.
PF=pfn	1- to 7-character name of permanent file for which processing is desired. This parameter may be specified more than once. A maximum of 10 file names are allowed. Default is no name.
S=filename	1- to 7-character name of a summary file generated by the permanent file utilities. Default is SUMMARY.
SF=sf	1- or 2-digit number of archive files to skip before processing begins. Default is 0.
SR=recordname	1- to 7-character name of the summary file record generated by the permanent file utilities. Default is the current date in the form yymmdd. The specified record name is written to the prefix table of the record generated.
T=t	1- to 7-character name of the file from which PFATC reads archive files. Default name is TAPE.

Pi	Description
TA=res	Selects files according to residence on the specified tape alternate storage VSN.

res	Description
vsn	Selects tape alternate storage resident files that reside on the VSN specified by vsn.
R	Selects tape alternate storage resident files that reside on all VSNs.
N	Selects files that do not reside on tape alternate storage.

UA=level	1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).
UI=ui	Limits processing to files located under this user index. Default is 0 (no limiting user index).
UN=un	1- to 7-character user name. Default is no name.
US=size	Upper size limit in sectors. When specified, only files of size less than or equal to the upper size limit are processed.

PFCAT

PFCAT,P_1,P_2,...,P_n.

Produces a cataloged directory of file information derived from catalog tracks on a permanent file device.

Pi	Description
AD=yymmdd	Date to be used with A, C, M, or T option. Selects files whose corresponding dates are after the specified date. Default is current date.
AT=hhmmss	Time to be used with A, C, M, or T option. Selects files whose corresponding times are after the specified time. Default is midnight.
BD=yymmdd	Date to be used with A, C, M, or T option. Selects files whose corresponding dates are before the specified date. Default is current date if BT=hhmmss is specified. Otherwise, it is 0 (no before date).
BT=hhmmss	Time to be used with A, C, M, or T option. Selects files whose corresponding times are before the specified time. Default is midnight if BD=yymmdd is specified. Otherwise, it is 0 (no before time).
CA=res	Selects files according to residence on cartridge alternate storage.

res	Description
R	Selects files that reside on cartridge alternate storage.
N	Selects files that do not reside on cartridge alternate storage.

Pi	Description
CCA=res	Clears the effect of its corresponding CA parameter. This parameter is intended for K display use.

res	Description
R	Clears the selection of files that reside on cartridge alternate storage.
N	Clears the selection of files that do not reside on cartridge alternate storage.

CPF=filename	Clears the selection of the specified file. If that file is the only file selected for the user index, all files are selected for the user index. To clear all file selections for the user index, use the CUI parameter.
CTA=res	Clears the effect of its corresponding TA parameter. This parameter is intended for K display use.

res	Description
vsn	Clears the selection of files that reside on the VSN specified by vsn.
R	Clear the selection of files that reside on all VSNs.
N	Clears the selection of files that do not reside on tape alternate storage.

CUI=userindex	Clears all file selections for the specified user index. This parameter is assumed octal unless the D radix or a nonoctal digit is specified.
DN=dn	1- or 2-digit octal number that identifies one specific device within a family to be cataloged.

Pi	Description
FM=fm	1- to 7-character name of the family of permanent file devices to be cataloged. Default is system default family name.
I=filename	1- to 7-character name of the file from which input directives are to be read. Default is INPUT.
L=lfn	Name of file on which reports are to be written. Default is OUTPUT.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).
LO=opt	Type of output records. Default is no output.

opt	Description
E	Lists errors.
S	Lists cumulative statistics.
T	Lists PFC data for all files processed.

LS=size	Lower size limit in sectors. When specified, only files of size greater than or equal to the lower size limit are processed.
OP=op	Options that control the processing of files.

op	Description
A	Makes selection according to time of last access.
C	Makes selection according to time of creation.
D	Selects direct access files only.
I	Selects indirect access files only.

Pi	Description
	op — Description
	K — Specifies that the K display should be brought up if an error is detected when processing input parameters and directives in PFS.
	M — Makes selection according to time of last modification.
	T — Makes selection according to time of last data modification.
PF=pfn	1- to 7-character name of permanent file for which processing is desired. This parameter may be specified more than once. A maximum of 10 file names are allowed. Default is no name.
PN=pn	1- to 7-character name of the auxiliary device to be cataloged. Default is no name.
S=filename	1- to 7-character name of a summary file generated by the permanent file utilities. Default is SUMMARY.
SR=recordname	1- to 7-character name of the summary file record generated by the permanent file utilities. Default is the current date in the form yymmdd. The specified record name is written to the prefix table of the record generated.

Pi	Description
TA=res	Selects files according to residence on the specified tape alternate storage VSN.

res	Description
vsn	Selects tape alternate storage resident files that reside on the VSN specified by vsn.
R	Selects tape alternate storage resident files that reside on all VSNs.
N	Selects files that do not reside on tape alternate storage.

UA=level	1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).
UI=ui	Limits processing to files located under this user index. Default is 0 (no limiting user index).
UN=un	1- to 7-character user name is associated with the PN parameter. Default is no name.
US=size	Upper size limit in sectors. When specified, only files of size less than or equal to the upper size limit are processed.

PFCOPY

PFCOPY,p_1,p_2,...,p_n.

Extracts files from an archive file and copies them to one or more files at a control point.

p_i	Description
AD=yymmdd	Date to be used with A, C, M, or T option. Selects files whose corresponding dates are after the specified date. Default is current date.
AT=hhmmss	Time to be used with A, C, M, or T option. Selects files whose corresponding times are after the specified time. Default is midnight.
BD=yymmdd	Date to be used with A, C, M, or T option. Selects files whose corresponding dates are before the specified date. Default is current date if BT=hhmmss is specified. Otherwise, it is 0 (no before date).
BT=hhmmss	Time to be used with A, C, M, or T option. Selects files whose corresponding times are before the specified time. Default is midnight if BD=yymmdd is specified. Otherwise, it is 0 (no before time).
CA=res	Selects files according to residence on cartridge alternate storage.

res	Description
R	Selects files that reside on cartridge alternate storage.
N	Selects files that do not reside on cartridge alternate storage.

Pi	Description
CCA=res	Clears the effect of its corresponding CA parameter. This parameter is intended for K display use.

res	Description
R	Clears the selection of files that reside on cartridge alternate storage.
N	Clears the selection of files that do not reside on cartridge alternate storage.

CPF=filename	Clears the selection of the specified file. If that file is the only file selected for the user index, all files are selected for the user index. To clear all file selections for the user index, use the CUI parameter.
CTA=res	Clears the effect of its corresponding TA parameter. This parameter is intended for K display use.

res	Description
vsn	Clears the selection of files that reside on the VSN specified by vsn.
R	Clear the selection of files that reside on all VSNs.
N	Clears the selection of files that do not reside on tape alternate storage.

CUI=userindex	Clears all file selections for the specified user index. This parameter is assumed octal unless the D radix or a nonoctal digit is specified.

Pi	Description
I=filename	1- to 7-character name of the file from which input directives are to be read. Default is INPUT.
L=lfn	Name of file on which reports are to be written. Default is OUTPUT.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).
LO=opt	Type of output records. Default is LO=E.

opt	Description
E	Lists errors.
T	Lists PFC data for all files processed.

LS=size	Lower size limit in sectors. When specified, only files of size greater than or equal to the lower size limit are processed.
MF=mf	Specifies that all the files extracted from the archive tape are to be copied to the local file specified by the 1- to 7-character master file name. Default is no name.
N=n	1- or 2-digit number of active files on an archive tape to process. If set to 0, one file is processed. Default is 1.
OP=op	Options that control the processing of files.

op	Description
A	Makes selection according to time of last access.
C	Makes selection according to time of creation.

Pi	Description
	op — Description
	D — Selects direct access files only.
	I — Selects indirect access files only.
	K — Specifies that the K display should be brought up if an error is detected when processing input parameters and directives in PFS.
	M — Makes selection according to time of last modification.
	Q — Files are copied with a record containing the catalog entry (10_8 words) and any permit information (may be empty) preceding the data for the file.
	T — Makes selection according to time of last data modification.
PF=pfn	1- to 7-character name of permanent file for which processing is desired. This parameter may be specified more than once. A maximum of 10 file names are allowed. Default is no name.
S=filename	1- to 7-character name of a summary file generated by the permanent file utilities. Default is SUMMARY.
SF=sf	1- or 2-digit number of archive files to skip before processing begins. Default is 0.

Pi	Description
SR=recordname	1- to 7-character name of the summary file record generated by the permanent file utilities. Default is the current date in the form yymmdd. The specified record name is written to the prefix table of the record generated.
T=t	1- to 7-character name of file used to read archive files. Default is TAPE.
TA=res	Selects files according to residence on the specified tape alternate storage VSN.

res	Description
vsn	Selects tape alternate storage resident files that reside on the VSN specified by vsn.
R	Selects tape alternate storage resident files that reside on all VSNs.
N	Selects files that do not reside on tape alternate storage.

UA=level	1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).
UI=ui	Limits processing to files located under this user index. Default is 0 (no limiting user index).
UN=un	1- to 7-character user name. Default is no name.
US=size	Upper size limit in sectors. When specified, only files of size less than or equal to the upper size limit are processed.

PFDUMP

PFDUMP,P_1,P_2,...,P_n.

Copies permanent files to backup storage (an archive file).

Pi	Description
AD=yymmdd	Date to be used with A, C, M, or T option. Selects files whose corresponding dates are after the specified date. Default is current date.
AT=hhmmss	Time to be used with A, C, M, or T option. Selects files whose corresponding times are after the specified time. Default is midnight.
BD=yymmdd	Date to be used with A, C, M, or T option. Selects files whose corresponding dates are before the specified date. Default is current date if BT=hhmmss is specified. Otherwise, it is 0 (no before date).
BT=hhmmss	Time to be used with A, C, M, or T option. Selects files whose corresponding times are before the specified time. Default is midnight if BD=yymmdd is specified. Otherwise, it is 0 (no before time).
CA=res	Selects files according to residence on cartridge alternate storage.

res	Description
R	Selects files that reside on cartridge alternate storage.
N	Selects files that do not reside on cartridge alternate storage.

Pi	Description
CCA=res	Clears the effect of its corresponding CA parameter. This parameter is intended for K display use.

res	Description
R	Clears the selection of files that reside on cartridge alternate storage.
N	Clears the selection of files that do not reside on cartridge alternate storage.

COS=size COS=*	PFC only size threshold in sectors. Specifying COS=* sets an unlimited PFC only size threshold (forces a data dump of all files).
CPF=filename	Clears the selection of the specified file. If this file is the only file selected for the user index, all files are selected for the user index. To clear all file selections for the user index, use the CUI parameter.
CTA=res	Clears the effect of its corresponding TA parameter. This parameter is intended for K display use.

res	Description
vsn	Clears the selection of files that reside on the VSN specified by vsn.
R	Clears the selection of files that reside on all VSNs.
N	Clears the selection of files that do not reside on tape alternate storage.

Pi	Description
CUI=userindex	Clears all file selections for the specified user index. This parameter is assumed octal unless the D radix or a nonoctal digit is specified.
DN=dn	Device number identifying a device within a family. If the device is a master device, all files cataloged on the device (regardless of what device they reside on) are dumped. If the device is not a master device, all files residing on the device are dumped. If the DN parameter is omitted, DN=0 is assumed, and all permanent files in the family are dumped.
DT	Destage files to tape. This parameter specifies that PFDUMP will destage the selected files to tape alternate storage.
EO	Does not process a file if mass storage errors are found.
FM=fm	Name of family to be dumped. Default is system default family name.
I=filename	1- to 7-character name of the file from which input directives are to be read. Default is INPUT.
IP	Inhibit processing. This parameter specifies that PFDUMP will generate an output file and/or summary file (as determined by the L, LO, and S parameters) listing the files that would have been processed by that utility without actually dumping files or releasing disk space. Default is that processing is not inhibited.
L=lfn	Name of file on which reports are to be written. Default is OUTPUT.

Pi	Description
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).
LO=opt	Type of output records. Default is no output.

opt	Description
C	Lists all files in CIR.
E	Lists errors.
T	Lists PFC data for all files processed.

LS=size	Lower size limit in sectors. When specified, only files of size greater than or equal to the lower size limit are processed. For PFDUMP, the file size limit is checked before the COS parameter (if COS is specified).
OP=op	Options that control the processing of files.

op	Description
A	Makes selection according to time of last access.
C	Makes selection according to time of creation.
D	Selects direct access files only.
I	Selects indirect access files only.
K	Specifies that the K display should be brought up if an error is detected when processing input parameters and directives in PFS.
M	Makes selection according to time of last modification.

Pi	Description
	op — Description
	P — Purges after dump (system origin jobs only).
	S — Suppress staging of MSE or tape alternate storage resident files to disk for dump.
	T — Makes selection according to time of last data modification.
	Y — Causes all files to be processed the same as files with backup requirement BR=4.
	Z — Clears the cartridge and tape alternate storage information in the PFC entries written to the dump file.
PF=pfn	1- to 7-character name of permanent file for which processing is desired. This parameter may be specified more than once. A maximum of 10 file names are allowed. Default is no name.
PN=pn	Name of pack to be cataloged, dumped, or loaded. Default is no name.
PVSN=vsn	1- to 6-character tape VSN to write into the PVSN field of the archive file. This value, stored in the PFDUMP label of the archive file, is usually the first tape VSN of the archive file.
RD=rdf	1- to 7-character name of the release data file (RDF) to be created by PFDUMP. RDF is used as input to the SSVAL utility. Default is no file written.
S=filename	1- to 7-character name of a summary file generated by the permanent file utility. Default is SUMMARY.

Pi	Description
SD	Set date option. Sets the date and time of the dump in a special sector on the device being dumped. This allows the release of disk space associated with files which are dumped, if copies of the files also exist on the MSE or tape alternate storage.
SF=sf	1- or 2-digit number of archive files to skip before processing begins. Default is 0.
SR=recordname	1- to 7-character name of the summary file record generated by the permanent file utility. Default is the current date in the form yymmdd. The specified record name is written to the prefix table of the record generated.
T=t	1- to 7-character name of the file used to store archive files. Default name is TAPE.
TA=res	Selects files according to residence on the specified tape alternate storage VSN.

res	Description
vsn	Selects tape alternate storage resident files that reside on the VSN specified by vsn.
R	Selects tape alternate storage resident files that reside on all VSNs.
N	Selects files that do not reside on tape alternate storage.

TD=tdn	Device number tdn identifying a device within a family. All files residing on the device are dumped. All files cataloged on the device, but residing on another device are also dumped. If the TD parameter is omitted, TD=0 is assumed, and all permanent files in the family are dumped.

Pi	Description
UA=level	1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).
UI=ui	Limits processing to files located under this user index. Default is 0 (no limiting user index).
UN=un	1- to 7-character user name associated with the packname parameter. Default is no name.
US=size	Upper size limit in sectors. When specified, only files of size less than or equal to the upper size limit are processed. For PFDUMP, the file size limit is checked before the COS parameter (if COS is specified).
VF=vf	1- to 7-character name of file on which PFDUMP stores a duplicate of the archive file it creates. Default is no duplicate file.

PFLOAD

PFLOAD,P_1,P_2,...,P_n.

Archive files produced by the PFDUMP utility can be loaded back onto the permanent file system with this utility.

Pi	Description
AD=yymmdd	Date to be used with A, C, M, or T option. Selects files whose corresponding dates are after the specified date. Default is current date.
AT=hhmmss	Time to be used with A, C, M, or T option. Selects files whose corresponding times are after the specified time. Default is midnight.
BD=yymmdd	Date to be used with A, C, M, or T option. Selects files whose corresponding dates are before the specified date. Default is current date if BT=hhmmss is specified. Otherwise, it is 0 (no before date).
BT=hhmmss	Time to be used with A, C, M, or T option. Selects files whose corresponding times are before the specified time. Default is midnight if BD=yymmdd is specified. Otherwise, it is no before time.
CA=res	Selects files according to residence on cartridge alternate storage.

res	Description
R	Selects files that reside on cartridge alternate storage.
N	Selects files that do not reside on cartridge alternate storage.

Pi	Description
CCA=res	Clears the effect of its corresponding CA parameter. This parameter is intended for K display use.

res	Description
R	Clears the selection of files that reside on cartridge alternate storage.
N	Clears the selection of files that do not reside on cartridge alternate storage.

CPF=filename	Clears the selection of the specified file. If that file is the only file selected for the user index, all files are selected for the user index. To clear all file selections for the user index, use the CUI parameter.
CTA=res	Clears the effect of its corresponding TA parameter. This parameter is intended for K display use.

res	Description
vsn	Clears the selection of files that reside on the VSN specified by vsn.
R	Clears the selection of files that reside on all VSNs.
N	Clears the selection of files that do not reside on tape alternate storage.

CUI=userindex	Clears all file selections for the specified user index. This parameter is assumed octal unless the D radix or a nonoctal digit is specified.

Pi	Description
DD=dd	Number of device where files are to be loaded when their original device is no longer defined in the system. Default is 0.
DI=di	All files being processed by PFLOAD are loaded to this user index. Default is 0 (no destination index).
DN=dn	Device number identifying a device within a family. If the device is a master device, all files cataloged on the device (regardless of what device they reside on) are loaded. If the device is not a master device, all files residing on the device are loaded. Default is DN=0, and all permanent files in the family are loaded.
EO	Does not process file if mass storage errors are found.
FM=fm	Name of family to be loaded. Default is system default family name.
I=filename	1- to 7-character name of the file from which input directives are to be read. Default is INPUT.
L=lfn	Name of file on which reports are to be written. Default is OUTPUT.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).

Pi	Description
LO=opt	Type of output records. Default is no output.

opt	Description
C	Lists all files in CIR.
E	Lists errors.
T	Lists PFC data for all files processed.

LS=size	Lower size limit in sectors. When specified, only files of size greater than or equal to the lower size limit are processed.
N=n	1- or 2-digit number of archive files on an archive tape to process. If set to 0, one file is processed. Default is 1.
OP=op	Options that control the processing of files.

op	Description
A	Makes selection according to time of last access.
C	Makes selection according to time of creation.
D	Selects direct access files only.
E	Extracts CIR only.
I	Selects indirect access files only.
K	Specifies that the K display should be brought up if an error is detected when processing input parameters and directives in PFS.
L	Load each direct access file to device with most available space ignoring previous file residence.

Pi	Description
	op — Description
	M — Makes selection according to time of last modification.
	O — Omits CIR processing. PFLOAD skips the CIR for the specified archive file and performs a normal load (nonincremental).
	R — Selects replace option. Files being loaded from an archive tape replace files in the permanent file system for which there is a matching file name (system origin jobs only).
	T — Makes selection according to time of last data modification.
	Z — Clears the alternate storage address of the file being loaded. Normally used when loading individual files from backup.
PF=pfn	1- to 7-character name of permanent file for which processing is desired. This parameter may be specified more than once. A maximum of 10 file names are allowed. Default is no name.
PN=pn	Name of pack to be loaded. Default is no name.
S=filename	1- to 7-character name of a summary file generated by the permanent file utilities. Default is SUMMARY.
SF=sf	1- or 2-digit number of archive files to skip before processing begins. Default is 0.

Pi	Description
SR=recordname	1- to 7-character name of the summary file record generated by the permanent file utilities. Default is the current date in the form yymmdd. The specified record name is written to the prefix table of the record generated.
T=t	1- to 7-character name of the file used to read archive files. Default is TAPE.
TA=res	Selects files according to residence on the specified tape alternate storage VSN.

res	Description
vsn	Selects tape alternate storage resident files that reside on the VSN specified by vsn.
R	Selects tape alternate storage resident files that reside on all VSNs.
N	Selects files that do not reside on tape alternate storage.

TD=tdn	Device number identifying a device within a family. All files residing on the device are loaded. All files cataloged on the device, but residing on another device are also loaded. If the TD parameter is omitted, TD=0 is assumed, and all permanent files in the family are loaded.
UA=level	1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).

Pi	Description
UD	Sets the utility control date and time for the file being loaded. This ensures the file is included in the next incremental dump. Normally used when loading individual files from backup.
UI=ui	Limits processing to files located under this user index. Default is 0 (no limiting user index).
UN=un	1- to 7-character user name associated with the PN parameter.
US=size	Upper size limit in sectors. When specified, only files of size less than or equal to the upper size limit are processed.

PFREL

PFREL,p_1,p_2,...,p_n.

Releases disk space of the files that reside on MSE or tape alternate storage.

Pi	Description
AD=yymmdd	Date to be used with A, C, M, or T option. Selects files whose corresponding dates are after the specified date. Default is current date.
AT=hhmmss	Time to be used with A, C, M, or T option. Selects files whose corresponding times are after the specified time. Default is midnight.
BD=yymmdd	Date to be used with A, C, M, or T option. Selects files whose corresponding dates are before the specified date. Default is current date if BT=hhmmss is specified. Otherwise, it is 0 (no before date).
BT=hhmmss	Time to be used with A, C, M, or T option. Selects files whose corresponding times are before the specified time. Default is midnight if BD=yymmdd is specified. Otherwise, it is no before time.
CA=res	Selects files according to residence on cartridge alternate storage.

res	Description
R	Selects files that reside on cartridge alternate storage.
N	Selects files that do not reside on cartridge alternate storage.

P1	Description
CCA=res	Clears the effect of its corresponding CA parameter. This parameter is intended for K display use.

res	Description
R	Clears the selection of files that reside on cartridge alternate storage.
N	Clears the selection of files that do not reside on cartridge alternate storage.

CPF=filename	Clears the selection of the specified file. If this file is the only file selected for the user index, all files are selected for the user index. To clear all file selections for the user index, use the CUI parameter.
CTA=res	Clears the effect of its corresponding TA parameter. This parameter is intended for K display use.

res	Description
vsn	Clears the selection of files that reside on the VSN specified by vsn.
R	Clears the selection of files that reside on all VSNs.
N	Clears the selection of files that do not reside on tape alternate storage.

CUI=userindex	Clears all file selections for the specified user index. This parameter is assumed octal unless the D radix or a nonoctal digit is specified.

Pi	Description
DN=dn	Device number identifying a device within a family. If the device is a master device, all files cataloged on the device (regardless of what device they may reside on) are dumped. If the device is not a master device, all files residing on the device are dumped. If the DN parameter is omitted, DN=0 is assumed, and all permanent files in the family are dumped.
FM=fm	Name of family to be dumped. Default is system default family name.
I=filename	1- to 7-character name of the file from which input directives are to be read. Default is INPUT.
IP	Inhibits processing. This parameter specifies that PFREL will generate an output file and/or summary file (as determined by the L, LO, and S parameters) listing the files that would have been processed by that utility without actually dumping files or releasing disk space. Default is that processing is not inhibited.
L=lfn	Name of file on which reports are to be written. Default is OUPUT.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).
LO=opt	Type of output records. Default is no output.

opt	Description
E	Lists errors.
T	Lists PFC data for all files processed.

Pi	Description
LS=size	Lower size limit in sectors. When specified, only files of size greater than or equal to the lower size limit will be processed.
OP=op	Options that control the processing of files.

op	Description
A	Makes selection according to time of last access.
C	Makes selection according to time of creation.
D	Selects direct access files only.
I	Selects indirect access files only.
K	Specifies that the K display should be brought up if an error is detected when processing input parameters and directives in PFS.
M	Makes selection according to time of last modification.
T	Makes selection according to time of last data modification.

PF=pfn	1- to 7-character name of permanent file for which processing is desired. This parameter may be specified more than once. A maximum of 10 file names are allowed. Default is no name.
PN=pn	Name of pack to be cataloged, dumped, or loaded. Default is no name.
S=filename	1- to 7-character name of a summary file generated by the permanent file utility. Default is SUMMARY.

Pi	Description
SR=recordname	1- to 7-character name of the summary file record generated by the permanent file utility. Default is the current date in the form yymmdd. The specified record name is written to the prefix table of the record generated.
TA=res	Selects files according to residence on the specified tape alternate storage VSN.

res	Description
vsn	Selects tape alternate storage resident files that reside on the VSN specified by vsn.
R	Selects files that reside on all VSNs.
N	Selects tape alternate storage resident files that do not reside on tape alternate storage.

TD=tdn	Device number identifying a device within a family. All files residing on the device are dumped. All files cataloged on the device, but residing on another device, are also dumped. If the TD parameter is omitted, TD=0 is assumed, and all permanent files in the family are dumped.
UA=level	1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).
UI=ui	Limits processing to files located under this user index. Default is 0 (no limiting user index).
UN=un	1- to 7-character user name associated with the packname parameter. Default is no name.

Pi	Description
US=size	Upper size limit in sectors. When specified, only files of size less than or equal to the upper size limit are processed.

PROBE

PROBE,P_1,P_2,...,P_n.

Analyzes data from either system tables or from a previous PROBE run and generates a report. PROBE must be enabled with an IPRDECK entry for performance statistics to be accumulated by the system.

Pi	Description
B=readfile	Binary file to be read. Default is STATS.
L=outfile	Report file. Default is OUTPUT.
L=0	No report is to be generated.
LO=opt	Sort option for PP program load information.

opt	Description
A	Sort data in alphabetical order.
F	Sort data by frequency of loads (default value).
R	Sort data by location and frequency of loads.

Pi	Description
OP=opt	Processing option.

opt	Description
C	Perform R processing option and clear system tables after they are read.
P	Generate report from binary files specified by the B parameter (default value).
R	Read system tables. Write binary file and report file as specified.

P=writefile	Binary file to be written. Default is STATS.
P=0	No binary file is to be written.
R	Rewind binary files before and after operation. Default is no rewind.

NOTE

The file names must be unique. If the OP parameter is C or R, the P parameter must not be zero.

PROFILE

PROFILE,p_1,p_2,...,p_n.

Creates, updates, and inquires about a project profile file.

Pi	Description
CN=cnum	Charge number inquire (OP=I).
CV	Build source file from NOS 2.3 PROFILC, suppress project prologue and epilogue directives (OP=S).
FM=family	Indicates the family name the user wishes PROFILE to access.
I=infile	File infile contains input data. Default is INPUT.
L=outfile	File outfile receives output. Default is OUTPUT.
LO=C	Specifies all PROFILa file charge numbers.
LO=CM	Lists charge numbers accessible by master user.
LO=F	Specifies all PROFILa file data.
LO=FM	PROFILa file data accessible by master user. This is the default for a nonsystem origin job if the LO=op parameter is omitted.
LO=P	Specifies all PROFILa file and project numbers.
LO=PM	Lists project numbers accessible by master user.

P_i	Description
OP=C	Create option.
OP=I	Inquire option.
OP=K	K display option.
OP=L	List option (used with LO).
OP=R	Restructure run.
OP=S	Source run.
OP=T	Interactive update.
OP=U	Updates project profile file. Default is U if OP is omitted.
P=profile	File profile is project profile file (must not be a fast-attach file). Default is PROFILa.
PN=pnum	Project number inquire (OP=I).
S=sourcefile	File sourcefile receives PROFILE source data for OP=S. Default is SOURCE.

Directives used in the following format add or update information on each charge number.

/chargenum,dir_1,dir_2,...,dir_n

Specifies PROFILE directives dir_i for charge number chargenum.

dir_i	Description
ACN=cn	Adds or activates charge number.
AD=n	Index for SRU constant.
APN=pn	Adds or activates project number.
ARn=x	Current number of resource units the project has used for each installation accumulator n ($1 \leq n \leq 8$).

dir_i	Description
AUN=un	Adds user name.
CEX=yymmdd.	Charge number expiration date.
/cn	Specifies the charge number cn to which the following directives apply. The slant (/) must begin in column position 1.
CN=cn	Charge number (same as /chargenum).
DCN=cn	Deactivates charge number.
DPN=pn	Deactivates project number.
DUN=un	Deletes user name.
EFN=efn	Epilogue file name. Null value indicates no project epilogue program defined.
EPW=epw	Epilogue file password. Null value indicates no password.
EUN=eun	Epilogue file user name. Null value indicates that file is accessed from user's catalog.
IRn=x	Index for default value of installation limit register n ($1 \leq n \leq 8$).
ISL=x	Index for default value of the SRU installation limit register.
ISV=x	Index for SRU validation limit.
LRn=x	Maximum number of resource units the project can use for each installation limit register n ($1 \leq n \leq 8$).
MU=mun	Master user name.
M1=n	Index to SRU multiplier to weight calculated system resources.
M2=n	Index to SRU multiplier to weight input/output usage.
M3=n	Index to SRU multiplier to weight central memory field length usage.

dir_i	Description
M4=n	Index to SRU multiplier to weight extended memory field length usage.
PCL=pcl	Project count limit.
PCR=pcr	Prologue charge required option.

pcr	Description
A	Charge-required flag is set only if project prologue aborts.
U	Charge-required flag is set unconditionally on project prologue termination.
NULL	Charge-required flag is not set (default).

PEX=yymmdd.	Project number expiration date.
PFN=pfn	Prologue file name. Null value indicates no project prologue program defined.
PN=pn	Project number.
PPW=ppw	Prologue file password. Null value indicates no password.
PUN=pun	Prologue file user name. Null value indicates that file is accessed from user's catalog.
SIA=sia	SRU installation accumulator.
SIL=sil	SRU installation limit register.
SMA=sma	SRU master user accumulator.
SML=sml	SRU master user limit register.
TI=ti	Time of day before which user may not use project number.
TO=to	Time of day after which user may not use project number.

QALTER

QALTER,P_1,P_2,...,P_n.

Alters routing of active queued output files; purges active queued I/O files.

The first group of parameters listed specifies the selection criteria for the files to be altered; the second group specifies the changes to be made and the output desired.

Pi	Description
BC=dt	Disposition type of queued files destined for local batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
WT	Queued files with wait disposition.

Pi	Description
DF=family	Family name of the destination remote batch site to which the files are destined.
DN=dn	Device number of device containing the files (0 to 77_8); must follow FM parameter.
FC=fc	Forms code of the files.

fc	Description
$fc_1/fc_2/fc_3$	One to three specific forms codes (two alphanumeric characters each).
**	Null forms code.
fc_1-fc_2	Range of forms codes; $fc_1 \leq fc_2$; ** is lowest possible value.
ALL	All forms codes.

FM=family	Family of devices containing the files.
ID=id_1 or ID=id_1-id_2	2-digit octal identifier ($0-67_8$) or range of identifiers of the files.
JSN=jsn	4-character job sequence name (JSN). (This parameter can be entered up to five times to select different JSNs.) If omitted, files having any JSN are processed.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).

Pi	Description
LD=lid	3-character logical identifier of mainframe with which file is associated. LD=0 means process all files without LIDs. Default is to process all queued files regardless of LID.
NAL=level	New access level to assign to queued file (security administrator privileges required).
RB=dt	Disposition type of queued files destined for remote batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
SF	Installation-defined special files.
WT	Queued files with wait disposition.

UA=level	1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).

Pi	Description
UJN=ujn	1- to 7-character user job name of the files. If omitted, files having any ujn are processed.
UN=un	User name of user logged on at the remote site specified by the DF parameter.

The following parameters specify the changes to be made and the output desired:

Pi	Description
L=outfile	1- to 7-character name of the output file. Default is OUTPUT.
LO=lop	Listing option.

lop	Description
F	Full listing.
S	Condensed listing.

NDC=dt — New disposition type for print file.

dt	Description
LP, PR	Any printer.
LR	580-12 printer.
LS	580-16 printer.
LT	580-20 printer.
LX	5870 printer.
NONE	No disposition code.
P2	512 printer.

NDF=new destination family — New destination family name associated with selected remote batch output files.

Pi	Description
NEC=ex	New external characteristics code for file. For print files: ex — Description A4† — ASCII graphic 48-character set. A6 — ASCII graphic 63/64-character set. A9 — ASCII graphic 95-character set. B4† — CDC graphic 48-character set. B6 — CDC graphic 63/64-character set. For punch files: ex — Description AS — ASCII. PB — System binary. PH — 026 mode. P8 — 80-column binary. P9 — 029 mode. For plot files: ex — Description T6 — Transparent 6-bit plotter. T8 — Transparent 8-bit plotter.
NFC=new forms code	Alters forms code of print or punch file. New forms code can be two alphanumeric characters or ** (the null forms code).

†Not supported. Provided for NOS/BE compatibility.

Pi	Description
NID=new file id	Alters file identifier of local batch files. The new id must be between 0 and 67_8.
NLD=lid	3-character logical identifier associated with selected files. NLD=0 removes LID from selected files. Default is no change in logical identifier.
NPR=new queue priority	Alters file priority; new priority is a 1- to 4-digit octal number.
NRC=c	Alters file repeat count; new repeat count is a 1- or 2-digit number (0 through 77_8).
NUN=new user name	New destination user name associated with selected remote batch output files.
OP=option	Alters the file destination or purges the selected queued files.

option	Description
BC	Change to local batch.
NC	No change.
PR	Purge files.
RB	Change to remote batch.

Default is OP=NC.

PO=opt Processing option.

opt	Description
E	Toggle errored file processing status.
F	Make entries in FOT for inactive families and queue files.
L	Make entries in LIDT for inactive LIDs and queue files.
N	Process only command directives.
U	Unconditionally select all files for processing.

QDUMP

QDUMP,P_1,P_2,...,P_n.

Dumps selected I/O queued files from a single device, a family of devices, or all devices on the system.

P_i	Description
BC=dt	Disposition type of queued files destined for local batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
SF	Installation-defined special files.
WT	Queued files with wait disposition.

Pi	Description
DA=yymmdd	Processing date, in the form yymmdd or ALL. If omitted, queued files created 5 days prior to the current date are processed.
DN=device number	2-digit logical device number (0 to 77_8). FM option must precede the DN option. Default is all devices.
FC=fc	Forms code for printed or punched output. Default is ALL.

fc	Description
$fc_1/fc_2/fc_3$	One to three specific forms codes (two alphanumeric characters each).
**	Null forms code.
fc_1-fc_2	Range of forms codes; $fc_1 \leq fc_2$; ** is lowest possible value.
ALL	All forms codes.

FC=family	Processing is restricted to queued files in specified family. If omitted, queued files on all devices in all families are processed.
FN=filename	File name of dump file. Default is QFILES.
FS=filesize	File size range in PRUs.
FU=family	Family name under which the queued files to be processed were created. If omitted, queued files created by users in all families are processed.
I=lfn	Name of alternate input file containing K display utility commands and/or option parameters. Its directives are processed after the command parameters.

Pi	Description
ID=identifier	2-digit octal identifier (0 to 67_8) indicating that only I/O queued files assigned that identifier are processed. If omitted, queued files having any identifier are processed.
JSN=jsn	4-character job sequence name (JSN) of queued files (this parameter can be entered up to five times to select different JSNs). If omitted, files having any JSN are processed.
L=outfile	1- to 7-character file of name to receive output. If omitted, this information is written to file OUTPUT.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).
LD=lid	3-character logical identifier of mainframe with which file is associated. LD=0 means process all files without LIDs. Default is to process all queued files regardless of LID.
MI=machineid	2-character machine identifier indicating the mainframe under which the queued files to be processed were created. Default is current machine id.
NF=number	Decimal number of media files to skip. Default is 0.

Pi	Description
PO=opt	Processing option.

opt	Description
E	Toggles errored file processing status.
F	Makes entries in FOT for inactive families and queue files.
L	Makes entries in LIDT for inactive LIDs and queue files.
N	Processes only command directives.
R	Rewinds dump or load file before processing.
U	Unconditionally selects all files for processing (within device security access-limits).

RB=dt — Disposition type of queued files destined for remote batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.

Pi	Description

dt	Description
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
SF	Installation-defined special files.
WT	Queued files with wait disposition.

TF=family — Family name of remote batch files to be selected. Does not exclude local batch files.

TP=type — Indicates type of files to dump. Default is ALL.

type	Description
A	Active files.
I	Inactive files.
ALL	Both active and inactive files.

TUI=ui or TUI=ui_1-ui_2 — Destination terminal user index for remote batch output files. ui_1-ui_2 indicates a range of user indexes. Default is TUI=0 (no user index specified).

UA=level — 1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).

UI=user index — User index under which I/O queued files were created. If omitted, queued files having any user index are processed.

QFTLIST

QFTLIST,P_1,P_2,•••,P_n.

Displays/lists active queued files.

Pi	Description
BC=dt	Disposition type of queued files destined for local batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
WT	Queued files with wait disposition.

DF=family	Family name of the destination batch site to which the files are destined.

Pi	Description
DN=dn	Logical device number of device containing the files (0 to 77_8).
FC=fc	Forms code of the files.

fc	Description
$fc_1/fc_2/fc_3$	One to three specific forms codes (two alphanumeric characters each).
**	Null forms code.
fc_1-fc_2	Range of forms codes; $fc_1 \leq fc_2$; ** is lowest possible value.
ALL	All forms codes.

FM=family	Family of devices containing the files.
ID=id_1 or ID=id_1-id_2	2-digit octal identifier (0-67_8) or range of identifiers of the files.
JSN=jsn	4-character job sequence name of the queued files (this parameter can be entered up to five times to select different JSNs).
L=outfile	1- to 7-character name of the output file. Default is OUTPUT.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).

Pi	Description
LD=lid	3-character logical identifier of mainframe with which file is associated. LD=0 means process all files without LIDs. Default is to process all queued files regardless of LID.
LO=lop	Listing option.

lop	Description
F	Full listing.
S	Condensed listing.

PO=opt Processing option.

opt	Description
E	Toggles errored file processing status.
F	Makes entries in FOT for inactive families and queue files.
L	Makes entries in LIDT for inactive LIDs and queue files.
N	Processes only command directives.
U	Unconditionally selects all files for processing.

RB=dt Disposition type of queued files destined for remote batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.

Pi	Description

dt	Description
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
WT	Queued files with wait disposition.

UA=level — 1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).

UJN=ujn — 1- to 7-character user job name of the queued files. If omitted, queued files having any UJN are processed.

UN=un — User name to be associated with files at remote batch site specified by DF parameter.

QLIST

QLIST,P_1,P_2,...,P_n.

Lists inactive queued files.

Pi	Description
BC=dt	Disposition type of queued files destined for local batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
SF	Installation-defined special files.
WT	Queued files with wait disposition.

Pi	Description
DA=yymmdd	Processing date, in form yymmdd or ALL. If omitted, all inactive queued files are listed.
DN=device number	2-digit logical device number (0 to 77_8). FM option must be entered and must precede the DN option. Default is all devices.
FC=fc	Forms code of the files.

fc	Description
$fc_1/fc_2/fc_3$	One to three specific forms codes (two alphanumeric characters each).
**	Null forms code.
fc_1-fc_2	Range of forms codes; $fc_1 \leq fc_2$; ** is lowest possible value.
ALL	All forms codes.

FM=family	Processing is restricted to queued files in specified family. If omitted, queued files on all devices in all families are processed.
FS=filesize	File size range in PRUs.
FU=family	Family name under which the queued files to be processed were created. If omitted, queued files created by users in all families are processed.
I=infile	File infile contains input data. Default is INPUT.
ID=identifier	2-digit octal identifier (0 to 67_8) indicating that only queued files assigned that identifier are processed. If omitted, queued files having any identifier are processed.
JSN=jsn	4-character job sequence name of queued files (this parameter can be entered up to five times to select different JSNs). If omitted, queued files having any JSN are processed.

Pi	Description
L=outfile	1- to 7-character file name to receive output. Default is OUTPUT.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).
LD=lid	3-character logical identifier of mainframe with which file is associated. LD=0 means process all files without LIDs. Default is to process all queued files regardless of LID.
MI=machineid	2-character machine identifier indicating the mainframe under which the queued files to be processed were created. Default is current machine identifier.
PO=opt	Processing option.

opt	Description
E	Toggles errored file processing status.
F	Makes entries in FOT for inactive families and queue files.
L	Makes entries in LIDT for inactive LIDs and queue files.
N	Processes only command directives.
U	Unconditionally selects all files for processing.

RB=dt — Disposition type of queued files destined for remote batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.

Pi	Description	
	dt	Description
	LR	580-12 printer files.
	LS	580-16 printer files.
	LT	580-20 printer files.
	LX	5870 printer files.
	NONE	No files.
	PH, PU	Punch files.
	PL	Plot files.
	PR	Files that can print on any printer.
	PRINT	All printer files.
	P2	512 printer files.
	SF	Installation-defined special files.
	WT	Queued files with wait disposition.

TUI=ui
or
TUI=ui_1-ui_2 — Destination terminal user index for remote batch output files. ui_1-ui_2 indicates a range of user indexes.

UA=level — 1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).

UI=userindex — User index under which queued files were created. If omitted, queued files having any user index are processed.

QLOAD

QLOAD,P_1,P_2,...,P_n.

Processes dump files generated by QDUMP or other utilities using same format.

Pi	Description
BC=dt	Disposition type of queued files destined for local batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
SF	Installation-defined special files.
WT	Queued files with wait disposition.

Pi	Description
DA=yymmdd	Processing date, in form yymmdd or ALL. If omitted, queued files created 5 days prior to current date are processed.
DD=dd	Specifies device to which to load queues. DF parameter must be specified before entering DD parameter.
DF=family	Specifies which family of devices to load.
FC=fc	Forms code of the files.

fc	Description
$fc_1/fc_2/fc_3$	One to three specific forms codes (two alphanumeric characters each).
**	Null forms code.
fc_1-fc_2	Range of forms codes; $fc_1 \leq fc_2$; ** is lowest possible value.
ALL	All forms codes.

FN=filename	File name of dump or load file. Default is QFILES.
FS=filesize	File size range in PRUs.
FU=family	Family name under which the queued files to be processed were created. If omitted, queued files created by users in all families are processed.

Pi	Description
ID=identifier	2-digit octal identifier (0 to 67_8) indicating that only queued files assigned that identifier are processed. If omitted, queued files having any identifier are processed.
JSN=jsn	4-character job sequence name of queued files. If omitted, files having any JSN are processed.
I=infile	File infile contains input data. Default is INPUT.
L=outfile	Name of file to receive output. Default is OUTPUT.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).
LD=id	3-character logical identifier of mainframe with which file is associated. LD=0 means process all files without LIDs. Default is to process all queued files regardless of LID.
MI=machineid	2-character machine identifier indicating the mainframe under which the queued files were created. If not specified, the default is current machine identifier.
NF=number	Decimal number of media files to skip. Default is 0.

Pi	Description
OP=opt	Specifies whether the loaded queues are to be active or inactive. Default is OP=A.

opt	Description
A	Active queues are specified.
I	Inactive queues are specified.

PO=opt — Processing option.

opt	Description
E	Toggles errored file processing status.
F	Makes entries in FOT for inactive families and queue files.
L	Makes entries in LIDT for inactive LIDs and queue files.
N	Processes only command directives.
R	Rewinds load file before processing.
U	Unconditionally selects all files for processing.

RB=dt — Disposition type of queued files destined for remote batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.

Pi	Description

dt	Description
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
SF	Installation-defined special files.
WT	Queued files with wait disposition.

SC=number	Decimal number of queued files to skip before beginning the queue selection.
TF=family	Family name of remote batch files to be selected. Does not exclude local batch files.
TUI=ui or TUI=ui_1-ui_2	Destination terminal user index for remote batch output files. ui_1-ui_2 indicates a range of user indexes. Default is TUI=0 (no user index specified).
UA=level	1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).
UI=userindex	User index under which queued files were created. If omitted, queued files having any user index are processed.

QMOVE

QMOVE,P_1,P_2,...,P_n.

Moves queued files from one mass storage device to another.

Pi	Description
BC=dt	Disposition type of queued files destined for local batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
SF	Installation-defined special files.
WT	Queued files with wait disposition.

DA=yymmdd	Processing date, in form yymmdd or ALL. If omitted, queued files created 5 days prior to current date are processed.
DD=dd	Specifies device to which queued files are to be moved. DF option must be entered and must precede DD option.

P_i	Description
DF=family	Specifies family to which queued files are to be moved (must be specified). .
DN=device	2-digit logical device number (0 to 77_8). FM option must be entered and must precede DN option. Default is all devices.
FC=fc	Forms code of the files.

fc	Description
$fc_1/fc_2/fc_3$	One to three specific forms codes (two alphanumeric characters each).
**	Null forms code.
fc_1-fc_2	Range of forms codes; $fc_1 \leq fc_2$; ** is lowest possible value.
ALL	All forms codes.

FM=family	Processing is restricted to queued files in specified family. If omitted, queued files on all devices in all families are processed.
FS=filesize	File size range in PRUs.
FU=family	Family name under which the queued files were created. If omitted, queued files created by users in all families are processed.
ID=identifier	2-digit octal identifier (0 to 67_8) indicating that only queued files assigned that identifier are processed. If omitted, queued files having any identifier are processed.
I=infile	File infile contains input data. Default is INPUT.
JSN=jsn	4-character job sequence name of the queued files. If omitted, files having any JSN are processed.

Pi	Description
L=outfile	Name of file to receive output. Default is OUTPUT.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).
LD=lid	3-character logical identifier of mainframe with which file is associated. LD=0 means process all files without LIDs. Default is to process all queued files regardless of LID.
MI=machineid	2-character machine identifier indicating the mainframe under which queued files were created. If not specified, the default is current machine identifier.
OP=option	Specifies whether the queued files to be moved are to be active or inactive. Default is OP=A.

option	Description
A	Active queued files are specified.
I	Inactive queued files are specified.

PO=U	Processing option. Unconditionally selects all files for processing.
RB=dt	Disposition type of queued files destined for remote batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.

P_i	Description

dt	Description
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT'	All printer files.
P2	512 printer files.
SF	Installation-defined special files.
WT	Queued files with wait disposition.

TF=family — Family name of remote batch files to be selected. Does not exclude local batch files.

TP=type — Type of files to move. Default is ALL.

type	Description
A	Active files.
I	Inactive files.
ALL	Both active and inactive files.

TUI=ui or TUI=ui_1-ui_2 — Destination terminal user index for remote batch output files. ui_1-ui_2 indicates a range of user indexes. Default is TUI=0 (no user index specified).

UA=level — 1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).

UI=userindex — User index under which the queued files were created. If omitted, queued files having any user index are processed.

QREC

QREC,P_1,P_2,...,P_n.

Deactivates or activates selected queued files; purges inactive queued files.

Pi	Description
BC=dt	Disposition type of queued files destined for local batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
SF	Installation-defined special files.
WT	Queued files with wait disposition.

DA=yymmdd	Processing date, in form yymmdd or ALL. If omitted, queued files created 5 days prior to current date are processed.

Pi	Description
DN=device	2-digit logical device number (0 to 77_8). FM option must be entered and must precede the DN option. Default is ALL.
FC=fc	Forms code for printed or punched output. Default is ALL.

fc	Description
$fc_1/fc_2/fc_3$	One to three specific forms codes (two alphanumeric characters each).
**	Null forms code.
fc_1-fc_2	Range of forms codes; $fc_1 \leq fc_2$; ** is lowest possible value.
ALL	All forms codes.

FM=family	Processing is restricted to queued files in specified family. If omitted, queued files on all devices in all families are processed.
FS=filesize	File size range in PRUs.
FU=family	Family name under which the queued files were created. If omitted, queued files created by users in all families are processed.
I=infile	File infile contains input data. Default is INPUT.
ID=identifier	2-digit octal identifier (0 to 67_8) indicating that only queued files assigned that identifier are processed. If omitted, queued files having any identifier are processed.

Pi	Description
JSN=jsn	4-character job sequence name of queued files. If omitted, queued files having any JSN are processed.
L=listfile	Name of file to receive output. Default is OUTPUT.
LA=level	1- to 7-character name that specifies the lower limit of the range of access levels to process (UA parameter must also be specified).
LD=lid	3-character logical identifier of mainframe with which file is associated. LD=0 means process all files without LIDs. Default is to process all queued files regardless of LID.
MI=machineid	2-character machine identifier indicating the mainframe under which queued files were created. If not specified, the default is current machine identifier.
OP=option	Processing option. Default is OP=RI.

option	Description
DI	Selected active queued files are made inactive and remaining active queued files are ignored.
PI	Purges selected inactive queued files and ignores remaining inactive queued files.

Pi	Description
option	Description
RI	Activates (requeues) selected inactive queued files and ignores remaining inactive queued files.
RP	Activates (requeues) selected inactive queued files and purges remaining inactive queued files.

PO=opt Processing option.

opt	Description
E	Toggles errored file processing status.
F	Makes entries in FOT for inactive families and queue files.
L	Makes entries in LIDT for inactive LIDs and queue files.
N	Processes only command directives.
U	Unconditionally selects all files for processing.

RB=dt Disposition type of queued files destined for remote batch devices to be selected for processing.

dt	Description
ALL	Files of all disposition types.
IN	Input files.
LR	580-12 printer files.

Pi	Description

dt	Description
LS	580-16 printer files.
LT	580-20 printer files.
LX	5870 printer files.
NONE	No files.
PH, PU	Punch files.
PL	Plot files.
PR	Files that can print on any printer.
PRINT	All printer files.
P2	512 printer files.
SF	Installation-defined special files.
WT	Queued files with wait disposition.

TF=family	Family name of remote batch files to be selected. Does not exclude local batch files.
TUI=ui or TUI=ui_1-ui_2	Destination terminal user index for remote batch output files. ui_1-ui_2 indicates a range of user indexes. Default is TUI=0 (no user index specified).
UA=level	1- to 7-character name that specifies the upper limit of the range of access levels to process (LA parameter must also be specified).
UI=userindex	User index under which I/O queue files were created. If omitted, queue files having any user index are processed.

SSALTER

Displays the current 7990 hardware configuration and allows you to change the status of certain elements in the 7990 configuration. SSALTER aborts if SSEXEC is not executing.

SSBLD

SSBLD, CF=confile, BF=bldfile.

Reads a specified direct access permanent file that contains SSBLD statements. Generates a direct access permanent file that SSEXEC uses as its unit device table (UDT).

Parameter	Description
CF=confile	Configuration file on which SSBLD statements are written under user index 377760_8.
CF	Same as CF=SUDT.
CF omitted	Same as CF=SUDT.
BF=bldfile	Build file on which SSBLD generates the UDT for SSEXEC. The build file is under user index 377760_8.
BF	Same as BF=BUDT.
BF omitted	Same as BF=BUDT.

SSDEBUG

SSDEBUG,p_1,p_2,p_3.

Resolves inconsistencies reported by the SSVAL utility by updating appropriate entries in the SM maps and/or 7990 catalogs and copies data from selected 7990 files or cartridges to disk.

p_i	Description
I=lfn	File containing directives to SSDEBUG.
I	Same as I=INPUT.
I omitted	Same as I=INPUT.
L=lfn	File on which listable output is to be written.
L	Same as L=OUTPUT.
L=0	No output file is to be generated.
L omitted	Same as L=OUTPUT.
Z	Directives are contained in the SSDEBUG command. The I parameter is ignored.
Z omitted	Directives are contained on the file specified by the I parameter.

Directive statements must be specified on separate lines in a directive file. Directive statements are of the following form:

OP=directive,p_1,p_2,...,p_n.

When the Z parameter is used each directive statement must be preceded by a separator (/) and terminated by a period as follows:

SSDEBUG,Z./directive statement$_1$./directive statement$_2$.

Directive	Description
CF	Sets or clears flags in the SM map or 7990 catalog. FL and ON or OF parameters indicate flag type and action to be taken.
RC	Removes a SM map entry selected by SM, XI, and ZI parameters that do not have a corresponding FCT entry.
RF	Reads the file for which the alternate storage address is specified by the FO, SB, SM, and ST parameters. The file is written to the file specified by the PF parameter.
RL	Removes an 7990 catalog entry selected by FO, SB, and SM parameters that is not linked properly to the SM map.
RP	Clears flags in the 7990 catalog and releases 7990 space for the chain with alternate storage address specified by the FO, SB, SM, and ST parameters.
RS	Reads selected streams of a cartridge in a specified drawer or identified by its CSN or X-Z coordinates. The SM parameter specifies the SM where the cartridge resides. The range of streams to be read is specified by the SL and SU parameters. The streams are written to the file specified by the PF parameter.

The SSDEBUG directive parameters follow:

Pi	Description
CM=A-	Cartridge manufacturer code is A-; indicating IBM.
CM	Same as CM=A-.
CM omitted	Same as CM=A-.
CN=csn	Cartridge serial number of the cartridge to be used; not valid for OP=RS if YI and ZI specified; and not valid for OP=CF if FO, YI and ZI specified.
CN omitted	YI and ZI must be specified for OP=RS. IO, YI and ZI must be specified for OP=CF.
FL=flag	Name of flag in SM map or 7990 catalog to be set or cleared (valid only for OP=CF).

flag	Description
AC	AU conflict flag.
EW	Excessive write parity error flag.
FC	Frozen chain flag.
FE	Linkage error flag (in 7990 catalog FCT).
IB	Inhibit allocation flag.
LC	Lost cartridge flag.
ME	Linkage error flag (in SM map).
SF	Start of fragment flag.

FL omitted	FL=flag must be specified for OP=CF.
FM=family	Family to be processed.
FM	Same as FM=system default family.
FM omitted	Same as FM=system default family.

Pi	Description
FO=ord	7990 catalog ordinal indicating the file to be read or the chain whose space is to be released. Not valid for OP=CF, if CN=csn, YI=y, or ZI=z is specified.
FO omitted	FO=ord must be specified for OP=RF, OP=RP, and OP=RL. CN=csn or YI=y and ZI=z must be specified for OP=CF.
OF	Flag specified by FL=flag is to be cleared (valid only for OP=CF).
ON	Flag specified by FL=flag is to be set (valid only for OP=CF).
PF=pfn	File to which the 7990 image (streams or file) is to be copied. Each stream copied is separated by an end-of-record. This file is defined under user's current family and user index.
PF	Same as PF=ZZZZBUG.
PF omitted	Same as PF=ZZZZBUG.
SB=sub	Subfamily to be used; 0≤sub≤7.
SB	Same as SB=0.
SB omitted	Same as SB=0.
SL=i	Stream where OP=RS begins copying or OP=CF begins changing flags; 1≤i≤1931; i≤j (refer to SU=j).
SL	Same as SL=1.
SL omitted	Same as SL=1.
SM=id	SM identifier of the SM to be used by SSDEBUG; id is a letter from A to H.
SM	Same as SM=A.
SM omitted	Same as SM=A.

Pi	Description
ST=s	Stream where OP=RF begins reading or OP=RP begins releasing. For OP=CF, indicates a single stream detail to be changed and takes precedence over SL and SU parameters.
ST omitted	ST=s must be specified for OP=RF and OP=RP.
SU=j	Stream where OP=RS ends copying or OP=CF ends changing flags; $1 \leq j \leq 1931$; $i \leq j$ (refer to SL=i).
SU	Same as SU=1.
SU omitted	Same as SU=1.
YI=y	y coordinate of the cubicle where the cartridge to be read resides; $0 \leq y \leq 21$. ZI=z must also be specified. CN=csn must not be specified with OP=RS. FO=ord or CN=csn must not be specified with OP=CF.
YI omitted	CN=csn must be specified for OP=RS. FO=ord or CN=csn must be specified for OP=CF. YI=y and ZI=z must be specified for OP=RC.
ZI=z	z coordinate of the cubicle where the cartridge to be read resides; $0 \leq z \leq 15$ and $z \neq 6$. YI=y must also be specified. CN=csn must not be specified with OP=RS. FO=ord or CN=csn must not be specified with OP=CF.
ZI omitted	CN=csn must be specified for OP=RS. FO=ord or CN=csn must be specified for OP=CF. YI=y and ZI=z must be specified for OP=RC.

NOTES

- SSEXEC must be running when SSDEBUG is run.
- Only one copy of SSDEBUG can be run at one time.
- SSDEBUG, SSLABEL, and SSVAL cannot be run at the same time.

SSDEF

SSDEF,P_1,P_2.

Creates system files (SM maps and 7990 catalogs) necessary for MSE processing.

Pi	Description
FM=family	Family for which 7990 catalogs are to be created, one catalog for each subfamily.
FM	Same as FM=system default family.
FM omitted	No 7990 catalogs are to be created. SM=id or SM must be specified.
SM=id	SM identifier of the SM for which a SM map is to be created (id=A to H).
SM	Same as SM=A.
SM omitted	No SM map is to be created. FM=family or FM must be specified.

SSLABEL

SSLABEL,P_1,P_2.

Manages cartridge assignment and cubicle allocation in an SM.

Pi	Description
I=lfn	File containing directives to SSLABEL.
I	Same as I=INPUT.
I omitted	Same as I=INPUT.
L=lfn	File on which listable output is to be written.
L	Same as L=OUTPUT.
L=0	No output file is to be generated.
L omitted	Same as L=OUTPUT.
Z	Directives are contained on the SSLABEL command. The I parameter is ignored.
Z omitted	Directives are contained on the file specified by the I parameter.

Directive statements must be specified on separate lines in a directive file. Directive statements are of the following form:

OP=directive,P_1,P_2,...,P_n.

When the Z parameter is used, each directive statement must be preceded by a separator (/) and terminated by a period as follows:

SSLABEL,Z./directive statement$_1$./directive statement$_2$.

Directive	Description
AS	Adds an SM to a subfamily.
AB	Adds a cubicle to a subfamily, the pool, or the reserved area.
AM	Adds a cartridge to a subfamily or pool.
FC	Sets or clears the free cartridge flag in the 7990 catalog entry for the specified cartridge.
FX	Writes a scratch label on a cartridge and adds the cartridge to the pool.
IB	Sets or clears the inhibit allocation flag in the 7990 catalog entry for the specified cartridge.
RB	Removes a cubicle from a subfamily, the pool, or the reserved area.
RC	Restores a cartridge to its proper cubicle.
RM	Removes a cartridge from a subfamily to a pool or exit tray; or removes a cartridge from a pool to the exit tray.
RS	Removes an SM from a subfamily.

The SSLABEL directive parameters follow:

Pi	Description
B=n	Number of AUs on this cartridge to be used to store small files. The remaining AUs (1931-n) are reserved for large files. B=n is valid only with OP=AM.
B omitted	Same as B=600.

Pi	Description
CC=loc	Location into which the cartridge is to be stored; A(0,0), B(0,15). Any other value is not accepted.
CM=A-	Cartridge manufacture code is A-; indicating IBM.
CM	Same as CM=A-.
CM omitted	Same as CM=A-.
CN=csn	Cartridge serial number of the cartridge to be added, removed, or repaired; not valid if PK=pkloc is specified. n must be 1 of N=n is specified.
CN	Cartridge serial number of the cartridge is not specified.
CN omitted	Same as CN.
FM=family	Family to which SSLABEL adds or from which it removes a cartridge or SM.
FM=family	With OP=FX, this parameter specifies the family to which the cartridge is assigned.
FM	Same as FM=system default family.
FM omitted	Same as FM=system default family.
GR=n	Group to which SSLABEL adds or from which it removes a cartridge; $1 \leq n \leq 20$. With OP=AM, this parameter is ignored if PT=P is specified. Valid only with OP=AM or OP=RM.
GR	Not permitted.
GR omitted	Default groups are chosen sequentially.
LT	SM map and 7990 catalog entries are to be updated, even though the cartridge is lost and its label cannot be updated; valid only with OP=RM.

P_i	Description
LT omitted	If the cartridge is lost, and OP=RM is specified, an error message is issued, and SSLABEL aborts.
N=n	Number of cartridges or cubicles to be added, removed, or repaired $1 \leq n \leq 100$; not valid if PT=R is specified. If CN=csn is specified, n must be 1.
N	Same as N=1.
N omitted	Same as N=1.
OF	Inhibit allocation flag in the 7990 catalog is to be cleared; valid only with OP=IB or OP=FC.
ON	Inhibit allocation flag in the 7900 catalog is to be set; valid only with OP=IB or OP=FC.
PK=pkloc	Location from which the cartridge or cubicle is to be picked; not valid if CN=csn is specified.

pkloc	Description
D	Cartridge is to be picked from the specified input tray. PK=D is valid only with OP=AM, OP=FX, or OP=RC.
F	Cartridge or cubicle is to be picked from the specified family (FM=family) and subfamily (SB=sub). PK=F is valid only with OP=RM or OP=RB.
P	Cartridge or cubicle is to be picked from the pool. PK=P is valid only with OP=AM, OP=RB, or OP=RM. PK=P is not valid if PT=P is specified.
R	Cubicle is to be picked from the reserved area of the SM. PK=R is valid only with OP=RB.

Pi	Description
PK	Same as PK=P.
PK omitted	Same as PK=P.
PT=ptloc	Location into which the cartridge or cubicle is to be put.

ptloc	Description
D	Cartridge is to be put into the exit tray. PT=D is valid only with OP=RM.
F	Cartridge or cubicle is to be put into the specified family (FM=family) and subfamily (SB=sub). PT=F is valid only with OP=AB or OP=AM.
P	Cartridge or cubicle is to be put into the pool. PT=P is valid only with OP=AB, OP=AM, or OP=RM. PT=P is not valid if PK=P is specified.
R	Cubicle is to be put into the reserved area of the SM. PT=R is valid only with OP=AB.

PT	Same as PT=P.
PT omitted	Same as PT=P.
SB=sub	Subfamily to which SSLABEL adds or from which it removes a cartridge or SM; $0 \leq sub \leq 7$. With OP=FX this parameter specifies the subfamily to which the cartridge was assigned.
SB	Same as SB=0.
SB omitted	Same as SB=0.
SM=id	SM identifier of the SM to be used by SSLABEL (id=A to H).
SM	Same as SM=A.
SM omitted	Same as SM=A.

P_i	Description
$YI=y_1$	Row of the SM to be added or removed; $0 \leq y_1 \leq 21$; valid only with OP=AB or OP=RB.
$ZI=z_1$	Column of the SM to be added or removed; $0 \leq z_1 \leq 15$; valid only with OP=AB or OP=RB.
$YI=y_1$, $ZI=z_1$	Y and Z coordinates of the cubicle to be added or removed; valid only with OP=AB or OP=RB.
$YI=y_1$, $ZI=z_1$, $YF=y_2$, $ZF=z_2$	Rectangle of cubicles to be added or removed; cubicles with Y coordinates between $y=_1$ and y_2 and Z coordinates between z_1 and z_2 are included; valid only with with OP=AB or OP=RB. At most, 100 cubicles can be included in the rectangle. YF and ZF must both be specified, if either is specified. YF and ZF must not be specified unless both YI and ZI are specified.
YI and ZI omitted	With OP=AB the next available cubicle closest to top (for assignment to a family) or the bottom (for assignment to the pool) is to be selected. With OP=RB the first empty assigned cubicle is to be selected.

NOTES

- SSEXEC must be running when SSLABEL is run.
- Only one copy of SSLABEL can be run at a time.
- SSLABEL, SSVAL, and SSDEBUG cannot be run at the same time.

SSMOVE

SSMOVE,P_1,P_2,...,P_n.

Determines which files should be resident on disk, on 7990, or on both.

Pi	Description
DN=device	Device number of the only disk from which files are to be destaged/released.
DN	SSMOVE destages and releases files from all devices in a specified family.
DN omitted	Same as DN.
FM=family	Family to be used by SSMOVE.
FM	Same as FM=system default family.
FM omitted	Same as FM=system default family.
I=lfn	File containing the directives to SSMOVE.
I	Same as I=INPUT.
I=0	No input directives file exists. SSMOVE uses the default parameters.
I omitted	Same as I=INPUT.
L=lfn	File on which listable output is to be written.
L	Same as L=OUTPUT.
L=0	No output file is to be generated.
L omitted	Same as L=OUTPUT.
LB=n	Large file boundary is used when sorting files for destaging. All files smaller than n PRUs are small files.
LB	Same as LB=365.
LB omitted	Same as LB=365.
LO=F	All files selected for staging, destaging, or releasing are to be included in the report file.

Pi	Description
LO=P	Only files actually processed are listed in the report file. Refer to the PX parameter.
LO	Individual files are not to be listed in the report file.
LO omitted	Same as LO.
NW	SSMOVE does not wait for completion of destaging and release processing by SSEXEC.
NW omitted	SSMOVE waits for completion of destaging and release processing by SSEXEC.
PX=xxx	xxx is a character string that specifies which types of SSMOVE processing should not be done.

xxx	Description
A	Exclude file archieving or releasing disk space.
B	Exclude creating a backup copy by destaging a file from disk to the 7990.
D	Exclude direct access files.
F	Exclude freeing a file from the 7990 by clearing its asa value from the file's PFC entry.
I	Exclude indirect access files.
S	Exclude staging a file from the 7990 to disk.

PX	All selected SSMOVE processing is to be done.
PX omitted	Save as PX.
UI=n	Destaging and release processing is restricted to files having user index n.
UI	Processes all user indexes.

Pi	Description
UI=0	Processes all user indexes.
UI omitted	Processes all user indexes.

Directives must be specified on separate lines in a directive file. Three types of input directives comment directive, specific file directive, and the value specifier directive can be in an SSMOVE directive file.

Comment directives have an asterisk (*) in the first column followed by any message.

Specific file directives.

SF,FN=filename,UI=userindex,PO=process.

Parameter	Description
FN=filename	Permanent file name.
UI=userindex	User index of the file.
PO=process	Processing action to be performed on the file.

Process	Description
A	Archive file.
B	Create a backup file.
F	Free the file.
S	Stage the file.

Value specifier directives redefine the the values of the weight factors (installation parameters) used in the algorithms that select files to be destaged or released.

directive,qualifier(s),parameter(s).

Directive	Description
BR	Backup requirement.
FR	File requirement.
PR	Preferred residence.
SM	Site management.
WA	Weight adder.
WM	Weight multiplier.

Qualifier(s)	Description
IA	Indirect access files.
DA	Direct access files.
DS	Destage decision.
RL	Release decisions.

Parameter(s)	Description

BR Directive

Parameter	Description
N=wf	Weight factor to be used as backup requirement value for decisions involving files with a BR=N attribute (no backup).†
Y=wf	Weight factor to be used as backup requirement value for decisions involving files with a BR=Y attribute (tape backup).†
MD=wf	Weight factor to be used as backup requirement value for decision involving files with a BR=MD attribute (media dependent, tape, or 7990 backup).†

FR Directive

Parameter	Description
MN=min	Minimum file size in PRUs.
MX=max	Maximum file size in PRUs.
DD=dd	Number of days since the file was last accessed or updated.
TH=th	Destage or release threshold.

† The file owner specifies the backup requirement attribute using the BR parameter on the DEFINE or CHANGE command (refer to the NOS 2 Reference Set, Volume 3).

Parameter(s)	Description

PR Directive

Parameter	Description
L=wf	Weight factor to be used as the preferred residence value for decisions involving files with a PR=L attribute (locked to disk preference).†
D=wf	Weight factor to be used as the preferred residence value for decisions involving files with a PR=D attribute (disk preference).†
M=wf	Weight factor to be used as the preferred residence value for decisions involving files with a PR=M attribute (7990 preference).†
N=wf	Weight factor to be used as the preferred residence value for decisions involving files with a PR=N attribute (no preference).†

SM Directive

Parameter	Description
MG=mg	Master goal specifying the percent of master device disk space not to be exceeded.
SG=sg	Secondary goal specifying the percent of secondary device disk space not to be exceeded.
P1	Available for site use.
P2	Available for site use.

†The file owner specifies the preferred residence attribute using the PR parameter on the DEFINE or CHANGE command (refer to the NOS 2 Reference Set, Volume 3).

Parameter(s)	Description

WA Directive

Parameter	Description
AG=wa	Weight adder to be added to the weighted file age.
LN=wa	Weight adder to be added to the weighted file length.
AC=wa	Weight adder to be added to the weighted file access count.
DV=sf	Scaling factor given to the divisor when calculating to destage and release values.

WM Directive

Parameter	Description
AG=wf	Weight factor given to the file age.
LN=wf	Weight factor given to the file length.
AC=wf	Weight factor given to the file access count.

NOTES

- Only one copy of SSMOVE per family can be run at a time. A second SSMOVE aborts if the first one has not completed.
- SSMOVE and PFDUMP should not be run at the same time. The concurrent execution of PFDUMP and SSMOVE to destage files may result in errors in the PFC entries.

SSUSE

SSUSE generates the following reports:

Report	Contents
Basic usage report	Lists general information about the use of each SM in a subfamily.
Optional report A	Lists the contents of an SM as described in the SM map.
Optional report B	Lists general status information for each cartridge entry in the 7990 catalog. The report identifies the available AUs and flags set for each cartridge in the 7990 catalog.
Optional report C	Lists detailed cartridge usage information for each cartridge entry in the 7990 catalog.
Optional report D	Lists detailed AU status report that lists AU status information for each entry in the 7990 catalog plus cartridge usage information.

SSUSE,P_1,P_2,...,P_n.

Produces reports on the availability of space on 7990 cartridges and the allocation of cubicle space within an SM.

P_i	Description
CM=A-	Cartridge manufacturer code is A-; indicating IBM.
CM	Same as CM=A-.
CM omitted	Same as CM=A-.
CN=csn	Cartridge serial number of a specific cartridge; valid only with OP=D.
CN	Cartridge serial number is not specified.
CN omitted	Same as CN.
FM=family	Family to be reported on.
FM	Same as FM=system default family.

Pi	Description
FM omitted	Same as FM=system default family.
L=lfn	File on which listable output is to be written.
L	Same as L=OUTPUT.
L=0	No output file is to be generated.
L omitted	Same as L=OUTPUT.
OP=op	Type of report to be produced. Multiple options can be specified (for example, OP=AB).

op	Description
A	Optional report A and basic usage report.
B	Optional report B and basic usage report.
C	Optional report C and basic usage report.
D	Optional report D and basic usage report.

OP	Basic usage report only is to be produced.
OP omitted	Same as OP.
SB=sub	Subfamily to be reported on. Up to eight subfamilies can be selected by the numbers 0 through 7 (for example, SB=0273 selects subfamilies 0, 2, 3, and 7).
SB	Same as SB=01234567.
SB omitted	Same as SB=01234567.
SM=id	SM identifier of the SM to be used. Up to eight SMs can be selected by the letters A through H (for example, SM=AGC selects SM A, C, and G).
SM	Same as SM=A.
SM omitted	Same as SM=A.

SSVAL

SSVAL,p_1,p_2,...,p_n.

Performs release processing or reports problems with the current MSE system files.

Pi	Description
AM	SM map for SM specified by SM=id parameter is to be analyzed in addition to the 7990 catalogs; not valid if RF=lfn or RF is specified.
AM omitted	SM maps are not to be analyzed.
FM=family	Family to be analyzed; not valid if the RF option is specified.
FM	Same as FM=system default family; not valid if the RF option is specified.
FM omitted	Same as FM=system default family if the RF option is not specified. The family on the release data file is used if the RF option is specified.
FX=n	Error threshold. If the total error count is greater than n, neither release processing nor problem fixing is performed.
FX	Same as FX=0.
FX omitted	Same as FX=0.
L=lfn	File on which listable output is to be written.
L	Same as L=OUTPUT.

Pi	Description
L=0	No output file is to be generated.
L omitted	Same as L=OUTPUT.
RF=lfn	File which contains the release data file.
RF	Same as RF=ZZZZRDF.
RF omitted	Current versions of the 7990 catalogs are to be analyzed.
RL	Release processing is to be performed; valid only if the RF option is specified.
RL omitted	No release processing is to be performed.
SB=subs	Subfamilies to be processed. Up to eight subfamilies can be selected by the numbers 0 through 7 (for example, SB=723 selects subfamilies 2, 3, and 7).
SB	Same as SB=01234567.
SB omitted	Same as SB=01234567.
ST=n	Scattered file criterion. Files are indicated as scattered if they are contained on at least n more cartridges than the minimum number needed to contain them.
ST	Same as ST=1. That is, files are scattered if they are contained on more than the minimum number of cartridges needed to contain them.
ST omitted	Same as ST=1.

SYSEDIT

SYSEDIT,P_1,P_2,...,P_n.

Performs modifications to the system library. On a secured system, SYSEDIT can be entered only from system origin jobs with security administrator privileges.

Pi	Description
B=infile	Replacement records are on file infile. Default is LGO.
B=0	No replacement file.
C	Checkpoints the system following SYSEDIT.
I=dirfile	Directive input is on file dirfile. Default is INPUT.
I=0	No directive input.
L=outfile	List output is on file outfile. Default is OUTPUT.
L=0	No output file.
NA	No abort is taken if system file is busy.
R	Restores to initial deadstart system.
R=n	Restores to copy n of the system.
R=0	No system file restoration.
Z	SYSEDIT command contains input directives. I option is ignored.

SYSEDIT processes the following input directives:

Directive	Description
*AD,nn,ty_1/rec_1,ty_2/rec_1,...,ty_n/rec_n	Specifies alternate device to be used instead of the system device(s) for storing ABS, OVL, REL, and PP type routines. nn is either EST ordinal 5 through 37 or a device type.
*CM,ty_1/rec_1,ty_2/rec_2,...,ty_n/rec_n	Defines records rec_i of types ty_i as being central memory resident.
*MS,ty_1/rec_1,ty_2/rec_2,...,ty_n/rec_n	Defines records rec_i of types ty_i as being mass storage resident.
*DELETE,ty_1/rec_1,ty_2/rec_2,...,ty_n/rec_n	Deletes records rec_i of types ty_i from system library. Type ty_i=ULIB is ignored. User libraries cannot be deleted. *DELETE can be shortened to *D.
*FILE,lfn,NR	Defines file lfn as a file containing system changes. If NR is not present, lfn is rewound before processing.
*FL,ty_1/rec_1-fl_1,ty_2/rec_2-fl_2,..., ty_n/rec_n-fl_n	Loads rec_i of types ty_i with field lengths of fl_i where fl_i is $FL/100_8$.
*IGNORE,ty_1/rec_1,ty_2/rec_2,...,ty_n/rec_n	Do not process records rec_i of types ty_i when they appear on the system change file.
*PROC,rec_1,rec_2,...,rec_n	Defines records rec_i of type TEXT or PROC as procedure files.
*PPSYN,nam/nam_1,nam_2,...,nam_n	Adds entries to system library to provide synonyms nam_i for PP program nam.
*SC,ty_1/rec_1,ty_2/rec_2,...,ty_n/rec_n	Defines records rec_i of types ty_i as product set format commands.
*/comment	Specifies comment line to be copied to list output.

The following record types may be specified in SYSEDIT directives:

Type	Description
ABS	Multiple entry point overlay.
CAP	Fast dynamic load capsule.
OPL	Modify old program library deck.
OPLC	Modify old program library common deck.
OPLD	Modify old program library directory.
OVL	Central processor overlay.
PP	Peripheral processor program.
PPL	16-bit PP program.
PPU	First-level peripheral processor program, controlware, and so on.
PROC	Procedure file.
REL	Relocatable central processor program.
TEXT	Unrecognizable as a program (for example, CMRDECKS).
ULIB	User library.

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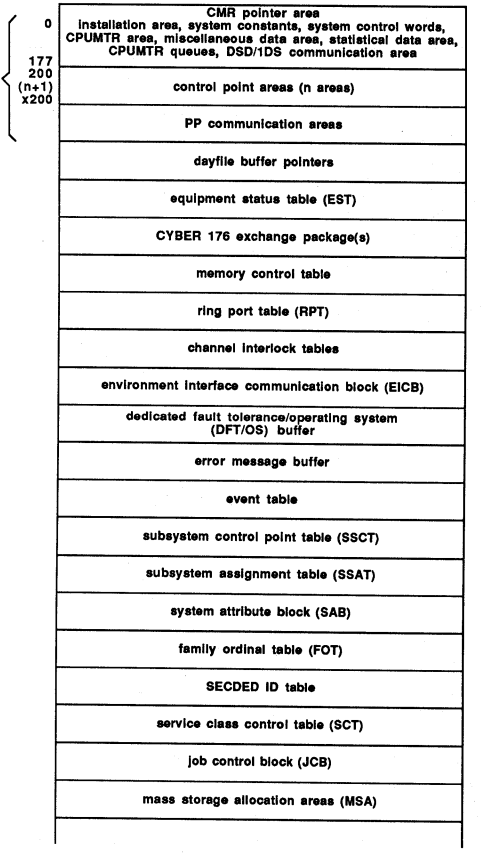
CENTRAL MEMORY RESIDENT

Central memory resident (CMR) occupies the low end of central memory. It is reserved by NOS and provides the major coordination area for system operation. CMR contains pointers, tables, CPU monitor (CPUMTR), libraries, and library directories. The length of CMR depends on the number of peripheral processors, the number of control points, the number of mass storage devices, and other factors. This section gives an overview of the layout of CMR indicating the relative positions of the various parts of CMR. This section also describes other system-defined tables, symbols, and codes.

The layout of CMR must conform to the following restrictions:

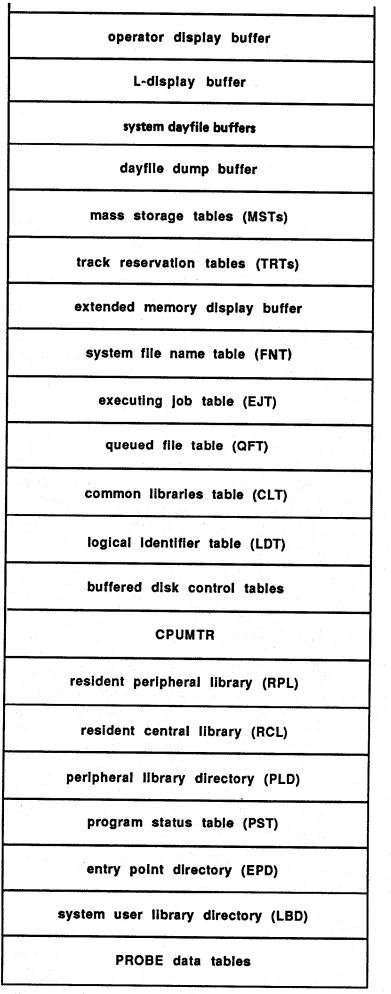
- The control point areas and the PP communication area must reside below address 10000_8.
- The CYBER 176 exchange package(s) must begin on a 1000_8-word boundary whose address is less than or equal to 17000_8.
- The first word address of the last MST must not be beyond 77770_8.

There is no restriction on the location of the remaining tables in CMR.



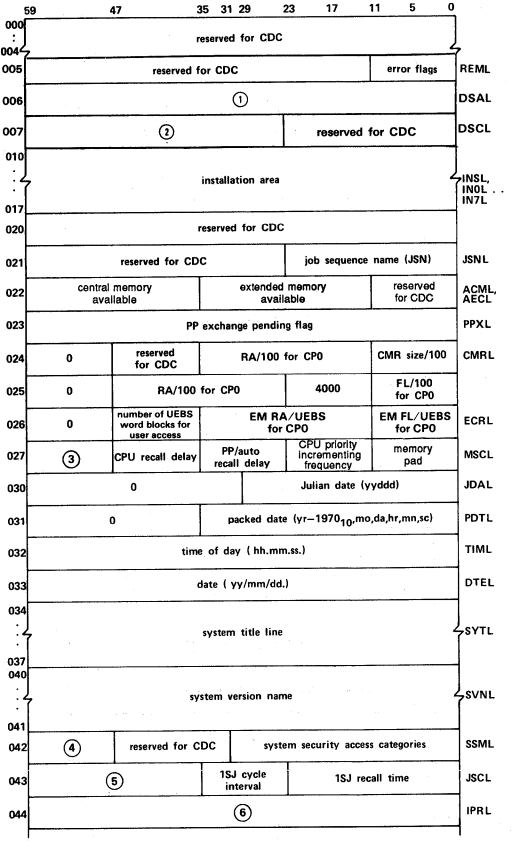
† Must fit below 10000_8

M03032

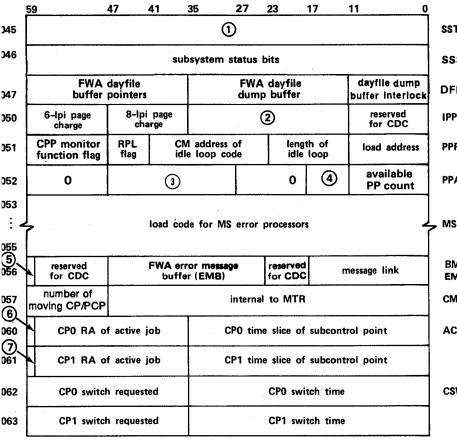

operator display buffer
L-display buffer
system dayfile buffers
dayfile dump buffer
mass storage tables (MSTs)
track reservation tables (TRTs)
extended memory display buffer
system file name table (FNT)
executing job table (EJT)
queued file table (QFT)
common libraries table (CLT)
logical identifier table (LDT)
buffered disk control tables
CPUMTR
resident peripheral library (RPL)
resident central library (RCL)
peripheral library directory (PLD)
program status table (PST)
entry point directory (EPD)
system user library directory (LBD)
PROBE data tables

NOTE

Locations 0-17 are destroyed by all levels of recovery. Any data in this area must be restored after a deadstart.

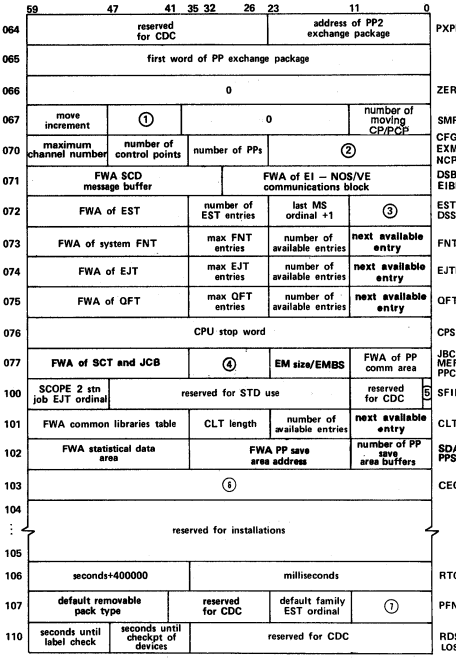


Ref	Bit(s)	Description
(1)	59-48	Deadstart alternate PP number.
	47-36	System console driver.
	35-24	Reserved for CDC.
	23-12	Critical error log.
	11-6	Deadstart disk equipment and unit.
	5-0	Deadstart disk channel.
(2)	59	Deadstart assistant active flag.
	58-54	Reserved for CDC.
	53-48	Communication channel.
	47-36	Date/time entry status (0 = not entered).
	35-24	MTR active status (0 = inactive)
(3)	59-48	Recall delay reduction limit.
(4)	59-57	Reserved for CDC.
	56-54	Output queue special handling level.
	53-51	Reserved for CDC.
	50-48	Operating system security mode. 0 Unsecured. 1 Console commands can lower or raise access levels. 2 Console commands can raise access levels. 3 Cannot change system access level.
(5)	59	1SJ active flag.
	58-48	Reserved for CDC.
	47-36	Input file scheduling cycle (power of 2).
(6)	59-54	Index for CPU1 multiplier.
	53-48	Index for CPU0 multiplier.
	47-36	Secondary rollout sector threshold.
	35	Keypunch mode (0=026, 1=029).
	34-25	Reserved for CDC.
	24	System character set mode (0=63-character set, 1=64-character set).
	23-12	Default conversion mode (2=ASCII/USCII, 3=EBCDIC).
	11-6	Default nine-track tape density (3=800, 4=1600, 5=6250 cpi).
	5	Default tape type (0=seven-track, 1=nine-track).
	4-0	Default seven-track density (1=200, 2=556, 3=800 cpi).



Ref	Bit(s)	Description
①	59	Disable autorestart.
	58	Disable memory clearing.
	57	Security unlock status (0=locked).
	56	Console lock status (0=locked).
	55	Disable MSSEXEC master mode.
	54	Disable cartridge PF staging.
	53	Disable user extended memory.
	52	Disable PF validation.
	51-50	Disable MS validation.
	49	Disable MSE executive master mode.
	48	Disable spindown.
	47	Disable control module reset.
	46-45	Reserved for CDC.
	44	Disable hardware fault injection.
	43	Disable tape PF staging
	42	Disable removable device checking.
	41	Disable disk validation.
	40	Disable secondary USER commands.
	39	Disable SCP facility.
	38-36	Reserved for CDC.

Ref	Bit(s)	Description
(1)	35	Disable subcontrol points.
	34-31	Reserved for CDC.
	30	Disable PROBE.
	29	Disable TRACE/TRAP.
	28-25	Reserved for CDC.
	24	Disable TMS.
	23	VE entry not entered at deadstart.
	22	Disable flexible memory partitioning.
	21	Disable DDP Rollout path.
	20	Disable resident RDF.
	19	Disable privileged RDF.
	18	Disable privileged analyst mode.
	17	Disable extended stack purging (CYBER 180-class models).
	16	Disable logging.
	15	Disable simulated SCR.
	14	Disable engineering.
	13	Disable system debug mode.
	12	Debug switch.
	11-0	Reserved for installation use (local).
(2)	35-32	Reserved for CDC.
	31-28	System print density.
	27-20	System page size.
	19-12	System page width.
(3)	47-38	Free PPs (PP00-PP11).
	37-28	Free PPs (PP31-PP20).
(4)	17-12	Available CPP count.
(5)	59	Deadstart flag.
(6)	59	CP0 off.
(7)	59	CP1 off.



Ref	Bit(s)	Description
①	47-45	Previous CPU status.
	46-40	Reserved for CDC.
	39	EM error during storage move.
	38	EM error during EM storage move.
②	23	Reserved for CDC.
	22	Hardware ECS(0)/ESM(1) mode.
	21	7255 subsystem present.
	20	834 and 836 devices only.
	19-18	Reserved for CDC.
	17-12	Number of physically present CPPs and CCHs.
	11-9	Reserved for CDC.
	8-0	Extended memory accessed by CPU.

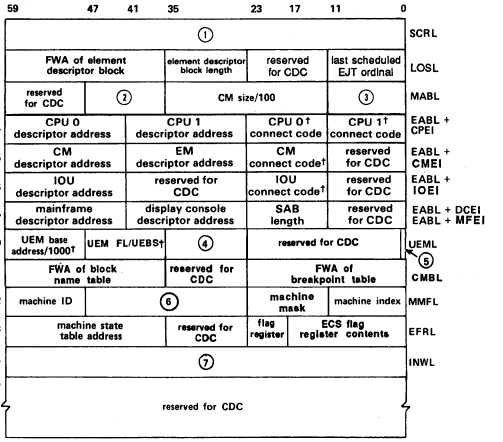
Ref	Bit(s)	Description
(3)	11-6	LIBDECK number.
	5-4	Reserved for CDC.
	3	Microcode/EI verified (1=Not verified).
	2	Deadstart in progress.
	1-0	Recovery level.
(4)	35-33	User extended memory shift count:

Value	UEBS
0	1000_8
1	2000_8
2	4000_8
3	10000_8

	32	Reserved for CDC.
	31	Expanded addressing flag: 1 Expanded 0 Standard
	30-29	Extended memory shift count:

Value	EMBS	Track Size
0	1000_8	208
1	2000_8	408
2	4000_8	1008
3	10000_8	2008

	28-24	Reserved.
(5)	0	SCOPE 2 station interlock bit.
(6)	59-48	Uncorrected processor error counter.
	47-36	CPU0 corrected error counter.
	35-24	CPU1 corrected error counter.
	23-12	CM corrected single bit error counter.
	11-0	LCME corrected single bit error counter.
(7)	11-0	CPU transfer threshold for indirect files.

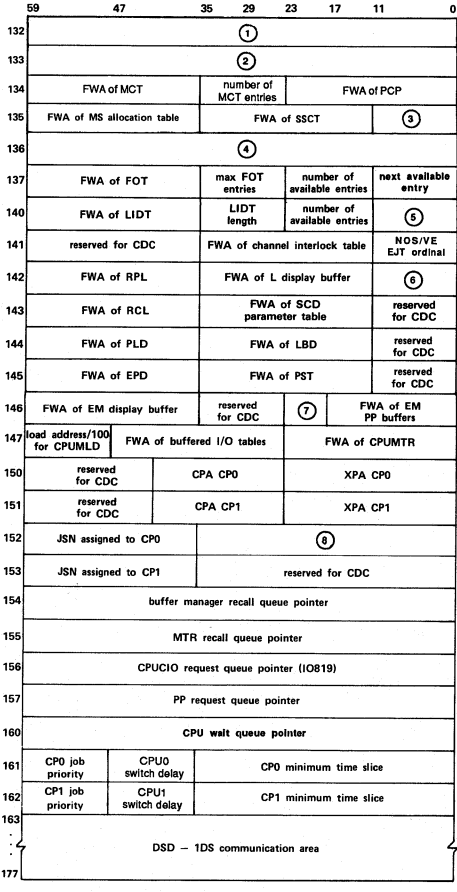


†CYBER 180—class models only.

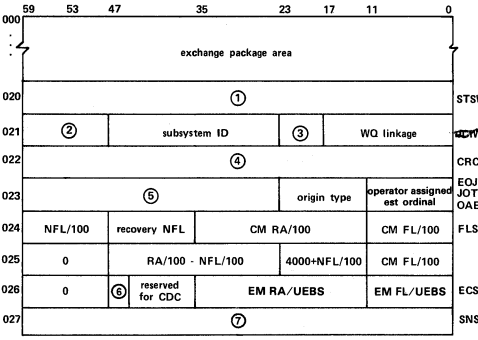
Ref	Bit(s)	Description
(1)	59	Set to inhibit status/control register error processing.
	58	Set if error processing ignored at deadstart.
	57	Set to allow MTR to accept DSRM function for emergency step from 1MB, and to prevent DSD from allowing UNSTEP command to be entered.
	56	Set to indicate MTR has set step mode on request from 1MB (emergency step).
	55	Operator entered a STEP command.
	54	Reserved for CDC.
	53-36	FWA of SECDED ID table.
	35-24	1CK IR address when called by 1MB.
	23-12	CM single-bit SECDED error count.
	11-0	LCME single-bit SECDED error count.
(2)	47	Not a CYBER 180-class model.
	46-45	7000-type CPU designator. 0 Not a 7000-type CPU. 1 CYBER 76 Model A. 2 CYBER 76 Model B. 3 Model 176.

Ref	Bit(s)	Description
(2)	44	Not a model 720, 730, 740, 750, or 760.
	43	Interlock register unavailable.
	42	SCR unavailable.
	41	Reserved for CDC.
	40	No instruction stack.
	39	CMU unavailable.
	38	If 865/875 mainframe, 1=875, 0=865.
	37	CP1 unavailable.
	36	CP0 unavailable.
(3)	11-0	PP speed: 0 1x 1 2x 2 4x 3-7 Reserved
(4)	35-33	Reserved for CDC.
	32-24	EST ordinal of the user-accessible extended memory.
(5)	1	UEM present (CYBER 180-class machines only).
	0	Reserved for CDC.
(6)	47	Independent shared devices present.
	46	Set when link device can only be accessed via the LSP.
	45	Reserved for CDC.
	44-36	EST ordinal of link device (EMEQ).
	35	Set if this machine has DATI recovery interlock.
	34-33	Reserved for CDC.
	32-24	Count of devices with initialize pending that have not been checkpointed.

Ref	Bit(s)	Description
(7)	59-53	Reserved for MDD.
	52	MDD in dedicated mode.
	51	MDD central memory write command.
	50	MDD Maintenance register write command.
	49	Two-port mux channel hung.
	48	Maintenance channel hung.
	47-24	Reserved for CDC.
	23-18	Active MREC count.
	17-16	Reserved for CDC.
	15	Deadstart sequence job flag.
	14	System access limits change flag.
	13	Disable job scheduling.
	12-6	Reserved for CDC.
	5	MCH error in progress flag.
	4	Checkpoint in progress flag.
	3	CTI clock update active.
	2	CPD drop flag.
	1	Fatal mainframe error.
	0	Subsystem abort interlock.

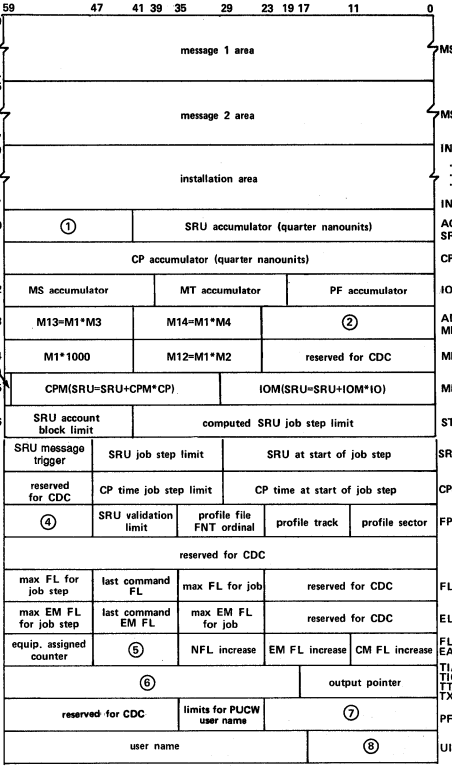

59
47
35
29
23
17
11
0
132
1
PRBP
133
2
EVTP
INBP
134
FWA of MCT
number of MCT entries
FWA of PCP
MCTP
PCPP
135
FWA of MS allocation table
FWA of SSCT
3
MSAP
SSCP
TFML
136
4
OPRL
137
FWA of FOT
max FOT entries
number of available entries
next available entry
FOTP
140
FWA of LIDT
LIDT length
number of available entries
5
LIDP
141
reserved for CDC
FWA of channel interlock table
NOS/VE EJT ordinal
CHTP
NVOL
142
FWA of RPL
FWA of L display buffer
6
LDSP
RPLP
VEBL
143
FWA of RCL
FWA of SCD parameter table
reserved for CDC
RCLP
SCDP
144
FWA of PLD
FWA of LBD
reserved for CDC
LBDP
PLDP
145
FWA of EPD
FWA of PST
reserved for CDC
EPDP
PSTP
146
FWA of EM display buffer
reserved for CDC
7
FWA of EM PP buffers
EDBP
EPBP
147
load address/100 for CPUMLD
FWA of buffered I/O tables
FWA of CPUMTR
BIOL
150
reserved for CDC
CPA CP0
XPA CP0
CPAL
151
reserved for CDC
CPA CP1
XPA CP1
152
JSN assigned to CP0
8
FPLL
CPJL
153
JSN assigned to CP1
reserved for CDC
154
buffer manager recall queue pointer
BQRL
155
MTR recall queue pointer
RQRL
156
CPUCIO request queue pointer (IO819)
CQRL
157
PP request queue pointer
PQRL
160
CPU wait queue pointer
WQRL
161
CP0 job priority
CPU0 switch delay
CP0 minimum time slice
TSCL
162
CP1 job priority
CPU1 switch delay
CP1 minimum time slice
163
DSD – 1DS communication area
DSDL
177

Ref	Bit(s)	Description
(1)	59	PROBE table interlock.
	58-42	Reserved for CDC.
	41-24	Length of PROBE table area.
	23-0	FWA of PROBE table area.
(2)	59-36	FWA event table.
	35-12	FWA installation block (INB).
	11-0	Length of installation block (INB).
(3)	11	Reserved for TMS.
	10	To=F for non-SYOT.
	9	To=F for SYOT.
	8	To=E for non-SYOT.
	7	To=E for SYOT.
	6-0	Reserved for TMS.
(4)	59	Operator message present.
	58-48	Reserved for CDC.
	47-36	Reserved for installation.
	35-14	Reserved for CDC.
	13	TMS tape catalog status problem.
	12	Low space threshold.
	11	Error log alert.
	10	Channel downed.
	9	User EM disabled.
	8	Track limit.
	7	Binary maintenance log length exceeded.
	6	Account file length exceeded.
	5	Error log length exceeded.
	4	Dayfile length exceeded.
	3	EJT full.
	2	QFT full.
	1	FNT full.
	0	FOT full.
(5)	11-1	Reserved for CDC.
	0	LDT interlock.
(6)	11-0	NOS/VE exchange bypass limit.
(7)	23-18	Number of EM PP buffers.
(8)	35-30	CPUMTR preprocessor table length.
	29-24	CPUMTR fast PP loader table length.
	23-0	CPUMTR fast PP loader table FWA.



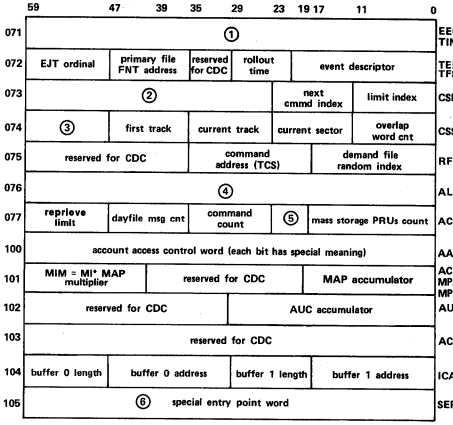
Ref	Bit(s)	Description
①	59-57	CPU status: 0 Null status. 1 A status (active in CP0). 2 B status (active in CP1). 3 Not used. 4 W status (waiting for CPU). 5 X status (waiting for recall). 6 I status (in auto recall). 7 Not used.
	56	CPU subcontrol point active status.
	55-53	Reserved for CDC.
	52-48	Number of PPs assigned to the job.
	47-36	Error flags. (Refer to the Error Flags section in this chapter).
	35-33	Reserved for CDC.
	32	Compound rollout required.
	31	Pseudo-rollout in progress.
	30	Suspension flag.
	29	SCP rollout requested.
	28	Disable flag.
	27	Timed/event rollout requested.
	26	Reserved for CDC.
	25	CPU status present at rollout.
	24	Rollout requested.
	23-12	Input register address of assigned PP (PCP only).
	11-8	Number in recall inhibiting rollout.
	7-4	Number of recall entries.
	3-0	Index of next available recall slot.

Ref	Bit(s)	Description
(2)	59-58	Zero.
	57	CPU priority larger than LSCS.
	56	CPU priority at least LFCS.
	55	CPU recall.
	54-48	CPU priority. ≥ 56-51
	47-40	Reserved for CDC.
	39	CPUPFM active.
	38	CPUMTR/MTR JCIW interlock.
	37-36	CPU selection: 0 Either. 1 CPU 0. 2 CPU 1.
(3)	23	Inhibit job advance.
	22	Preserve FLE across job termination.
	21	DIS flag.
	20	Return private user files.
	19	Set privacy file status on new files.
	18	Preserve extended memory over job steps.
(4)		Word 22 uses two different formats: X status and W status.
		X status:
	59-48	Recall criterion number.
	47-12	Recall criterion parameters.
	11-0	Next recall stack entry.
		W status:
	59-48	Reserved for CDC.
	47-24	Control point area address.
	23-0	Exchange package address.
(5)	59-57	Job termination option.
	56-54	Queue file disposition.
	53-33	Reserved for CDC.
	32-30	Prologue/epilogue charge required option.
	29-24	CCL nesting level to set charge required.
(6)	47	ECXM storage move interlock.
(7)	59	Reserved for CDC.
	58	026/029 punch mode.
	57	Set if OVERRIDE required to drop job.
	56-36	Reserved for CDC.
	35-24	Reserved for installation use.
	23-16	Reserved for pause flags.
	15	Subsystem idle down flag.
	14	CFO flag.
	13	Status flag.
	12	PP pause flag.
	11-6	Sense switches.
	5-1	Reserved for CDC.
	0	IAF request flag.



Ref	Bit(s)	Description
①	59	Time validation limit.
	58	Time limit.
	57	SRU validation limit.
	56	SRU limit.
	55	Initial command limit.
	54	Initial message limit.
	53	Ignore resource limits.
	52-49	Reserved for CDC.
	48	AUC accumulator overflow flag.

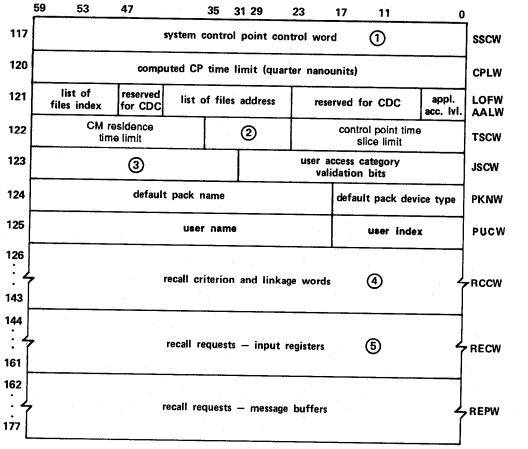
Ref	Bit(s)	Description
(1)	47	MP accumulator overflow flag.
	46	MS accumulator overflow flag.
	45	MT accumulator overflow flag.
	44	PF accumulator overflow flag.
	43	Adder accumulator overflow flag.
	42	Reserved for CDC.
	41	SRU accumulator overflow flag.
(2)	23-20	Reserved for CDC.
	19-0	Adder accumulator.
(3)	59	Disable SRU accumulation.
(4)		Family profile file information.
	59	Set when first charge processed.
	58	Set if second entry in level 3 block.
	57	Application accounting in process flag.
	56	Application accounting validation flag.
	55-48	Reserved for CDC.
(5)	47-38	Reserved for CDC.
	37	Set if scheduler rejects extended memory FL increase.
	36	Set if scheduler rejects CM FL increase.
(6)	59-54	Interactive subsystem.
	53-48	Reserved for CDC.
	47-36	Terminal number.
	35-18	Terminal interrupt address. (Previous error flag value in bits 35-24 if bit 58 set in word EECW indicating extended RPV mode.)
(7)	23-12	EST ordinal of family device.
	11-9	Limit for size of direct access files.
	8-6	Limit for number of permanent files.
	5-3	Limit for cumulative size of indirect access files.
	2-0	Limit for size of indirect access files.
(8)	17	Reserved for CDC.
	16-0	User index.



Ref	Bit(s)	Description
①		Word EECW uses two different formats: extended reprieve and normal.
		Normal format:
	59	No exit flag.
	58-49	Reserved for CDC.
	48	Time limit extended.
	47	Set if bits 46-36 are error flag instead of reprieve error option.
	46-36	Error flag or reprieve error option.
	35-18	Terminal input pointer.
	17	Job reprieve flag.
	16-0	Error exit return address.
		Extended reprieve format:
	59	No exit flag.
	58	Set to indicate extended RPV mode.
	57	Interrupt handler in progress flag.
	56	Set if one-time error previously entered.
	55	Set if time/SRU limit previously entered.
	54-49	Reserved for CDC.
	48	Time limit extended.
	47-36	Mask bits.
	35-18	Terminal input pointer.
	17-0	RPV parameter block address.

Ref	Bit(s)	Description
(2)	59-54	Reserved for CDC.
	53	Suppress 1RO terminal error message.
	52	Reserved for CDC.
	51	Project epilogue pending.
	50	CHARGE command required.
	49	Primary USER command processed.
	48	Inhibit command limit decrement.
	47	Set if EOR on command file.
	46-24	Command count.
(3)	59	Set if information is for file INPUT.
	58	Skip to EXIT flag.
	57	Reserved for CDC.
	56-48	EST ordinal.
	59-54	Original index for maximum SRU limit allowed.
	53-48	Index for maximum plotted units allowed.
(4)	47-45	Index for maximum magnetic tapes allowed.
	44-42	Index for maximum removable packs allowed.
	41-39	Index for maximum deferred batch jobs allowed.
	38-36	Reserved for CDC.
	35-30	Index for maximum time limit allowed.
	29-24	Index for maximum SRU limit allowed.
	23-18	Index for maximum field length allowed.
	17-12	Index for maximum extended memory field length allowed.
	11-6	Index for maximum lines printed allowed.
	5-0	Index for maximum cards punched allowed.

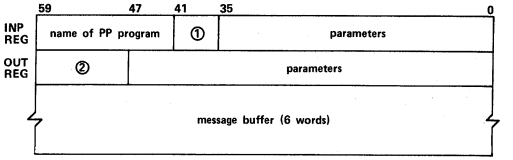
Ref	Bit(s)	Description
(5)	23-18	Maximum detached jobs allowed.
(6)	59	Set indicates presence of entry points.
	58-57	Reserved for CDC.
	56	Set if UTL= entry point present.
	55	Set if LDR= entry point present.
	54	Set if CLB= entry point present.
	53	Set if ARG= entry point present.
	52	Set if DMP= entry point present.
	51	Set if SDM= entry point present.
	50	Set if SSJ= entry point present.
	49	Set if VAL= entry point present.
	48	Set if SSM= entry point present.
	47	DPA=entry point present.
	37-46	Reserved for CDC.
	36	Enable SSJ= Flag.
	35	Restart flag.
	34	Set override required status.
	33	Suppress DMP= if entered as a command.
	32	Create DM* file only flag.
	31	Disable resource limits.
	30	Leave DM* file unlocked.
	29-18	DMP= $FL/100_8$ (if field is 0, dump entire FL).
	17-0	SSJ= parameter block address.



Ref	Bit(s)	Description
①	59-54	Subsystem index.
	53	Unused.
	52	Rollout allowable flag.
	51-48	Connection/wait response.
	47-42	Subsystem index.
	41	Unused.
	40	Rollout allowable flag.
	39-36	Connection/wait response.
	35-30	Subsystem index.
	29	Unused.
	28	Rollout allowable flag.
	27-24	Connection/wait response.
	23-18	Subsystem index.
	17	Unused.
	16	Rollout allowable flag.
	15-12	Connection/wait response.
	11-6	Subsystem index.
	5	Unused.
	4	Rollout allowable flag.
	3-0	Connection/wait response.

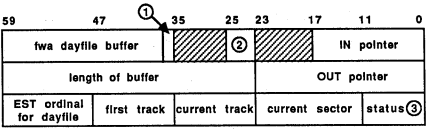
Ref	Bit(s)	Description
(2)	35-31	Reserved for CDC.
	30	Set if initial slice has occurred.
	29-24	Reserved for CDC.
(3)	59	Security administrator.
	58	May execute on-line diagnostics.
	57	May assign user password expiration date.
	56	May assign PF password expiration date.
	55	May lower job access level.
	54	May lower file access level.
	53	May write to lower level.
	52	May write unlabeled tapes.
	51-48	Reserved for CDC.
	47-45	Current job access level.
	44	Reserved for CDC.
	43-36	Access level validation bits.
	35-33	Job access level limit.
	32	Reserved for CDC.
(4)	59-48	PTMF.
	47-12	Clock time to exit recall.
	11-0	Next entry (RQRL).
or	59-48	PTRF.
	47-12	Clock time to exit recall.
	11-0	Next entry (RQRL).
or	59-48	PBMF.
	47-12	Buffer number.
	11-0	Next entry (BQRL).
or	59-12	Zero.
	11-0	Next entry (PQRL, CQRL).
or	59-36	Zero.
	35-18	Requesting PP.
	17-0	Next entry (PQRL).
(5)	59-42	PP name.
	41-36	Reserved for CDC.
	35-0	PP input register parameters.

PP COMMUNICATION AREA



Ref	Bit(s)	Description
①	41	Set if called with auto recall.
	40-36	Control point assignment.
②	59	Reissue monitor function.
	58	Set if CPUMTR is processing a program mode request.
	57	MTR function step flag.
	56	Storage move allowed.
	55	Reserved.
	54-48	Function code.

DAYFILE BUFFER POINTERS



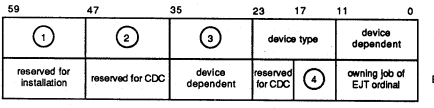
Ref	Bit(s)	Description
(1)	35	Messages lost flag (1= messages lost).
(2)	26-24	Dayfile length threshold increment.
(3)	11-6	Index for system dayfiles. Values are as follows:

Value	Description
00	Not a system dayfile.
01	System dayfile (COMSIOQ symbol SDAY).
02	Account dayfile (COMSIOQ symbol ACCF).
03	Error log (COMSIOQ symbol ERLF).
04	Binary Maintenance Log (COMSIOQ symbol BMLF).

5	Message discarded because buffer is full and suppress messages option is set.
4-3	Zero.
2	IDD called flag.
1	Interlock (0= interlocked).
0	Busy (0= busy).

Equipment Status Table (EST) Formats

Up to 512 EST entries are allowed. Up to 200 entries can be used for mass storage devices. Each entry has the following general format:

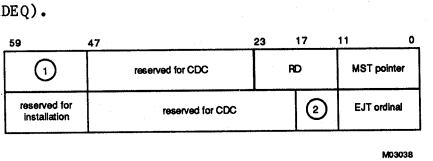


Ref	Bit(s)	Description
1	59	Mass storage flag: 0 Nonmass storage. 1 Mass storage.
	58-50	Device-dependent flags.
	49-48	Device status: 0 On. 1 Idle. 2 Off. 3 Down.
2		Channel 1 data:
	47	Access path status: 0 Access path disabled or not present. 1 Access path enabled.
	46-45	Channel state: 0 Up. 1 Idle. 2 (Unused). 3 Down.
	44	Controller type (mass storage devices only): 0 Full-track. 1 Half-track.
	43	Concurrent channel port number: 0 Port A. 1 Port B.
	42	Reserved for CDC.
	41	Concurrent flag channel flag: 0 Nonconcurrent channel. 1 Concurrent channel.
	40-36	Channel number.

Ref	Bit(s)	Description
③	35	Channel 2 data: Access path status: 0 Access path is disabled or not present. 1 Access path is enabled.
	34-33	Channel state: 0 Up. 1 Idle. 2 (Unused). 3 Down.
	32	Controller type (mass storage devices only): 0 Full-track. 1 Half-track.
	31	Concurrent channel port number: 0 Port A. 1 Port B.
	30	Reserved for CDC.
	29	Concurrent channel flag: 0 Nonconcurrent channel. 1 Concurrent channel.
	28-24	Channel number.
④	17-15	Device access level lower limit.
	14-12	Device access level upper limit.

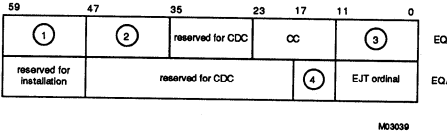
Reconfiguration (RD) Pseudoequipment

This pseudoequipment has an EST ordinal of 0 (symbol RDEQ).



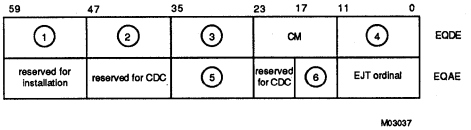
Ref	Bit(s)	Description
①	59	Zero (nonmass storage device).
	58	Zero (nonallocatable device).
	57-50	Reserved for CDC.
	49-48	Device status.
②	17-15	Device access level lower limit.
	14-12	Device access level upper limit.

Satellite Coupler (CC)

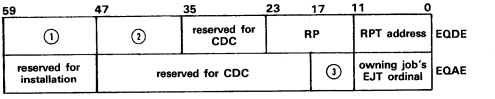


Ref	Bit(s)	Description
1	59	Zero (nonmass storage device).
	58	One (allocatable device).
	57-50	Reserved for CDC.
	49-48	Device status.
2		Channel 1 data:
	47	Set if access path is enabled.
	46-45	Channel state.
	44-42	Reserved for CDC.
	41	Concurrent channel flag.
	40-36	Channel number.
3	11-9	Equipment (controller) number.
	8-0	Unused.
4	17-15	Device access level lower limit.
	14-12	Device access level upper limit.

Control Module (CM)



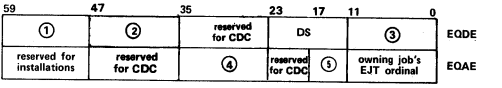
Ref	Bit(s)	Description
1	59	Zero (nonmass storage device).
	58	Zero (nonallocatable device).
	57-50	Reserved for CDC.
	49-48	Device status.
2		Channel 1 data:
	47	Set if access path is enabled.
	46-45	Channel state.
	44-42	Reserved for CDC.
	41	Concurrent channel flag.
	40-36	Channel number.
3		Channel 2 data:
	35	Set if access path is enabled.
	34-33	Channel state.
	32-30	Reserved for CDC.
	29	Concurrent channel flag.
	28-24	Channel number.
4	11-9	Equipment (controller) number.
	8-0	Unused.
5	35	Controlware load request.
	34	Controlware is currently being loaded.
	33	Controlware reload channel access flag.
	32-30	Number of times controlware is loaded.
	29	Controlware noload option.
	28-24	Controlware type.
6	17-15	Device access level lower limit.
	14-12	Device access level upper limit.



Ref	Bit(s)	Description
①	59	Zero (nonmass storage device).
	58	Zero (nonallocatable device).
	57-50	Reserved for CDC.
	49-48	Device status.
②		Channel data:
	47	Set if access path is enabled.
	46-45	Channel state.
	44-41	Reserved for CDC.
	40-36	Channel number.
③	17-12	Access levels (presently not checked).

System Console (DS)

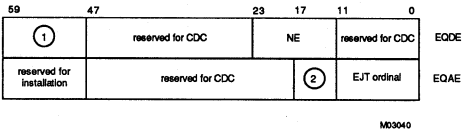
The system console's EST ordinal has a value of 1 (symbol DSEQ).



Ref	Bit(s)	Description
①	59	Zero (nonmass storage device).
	58	Zero (nonallocatable device).
	57-50	Reserved for CDC.
	49-48	Device status.
②		Channel data:
	47	Set if access path is enabled.
	46-45	Channel state.
	44-42	Reserved for CDC.
	41	Concurrent channel flag.
	40-36	Channel number.
③	11-9	Controller number.
	8-3	Reserved for CDC.
	2-0	Unit number or port number (CC634B and CC598B only).
④	35-24	Console type: 0 CC545 1 CC634B or CC598B
⑤	17-12	Access levels (presently not checked).

Null Equipment (NE) Pseudoequipment

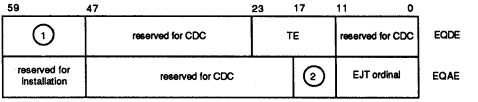
This pseudoequipment has an EST ordinal of 2 (symbol NEEQ).



Ref	Bit(s)	Description
(1)	59	Zero (nonmass storage device).
	58	One (allocatable device).
	57-50	Reserved for CDC.
	49-48	Device status.
(2)	17-15	Device access level lower limit.
	14-12	Device access level upper limit.

Tape Assignment (TE) Pseudoequipment

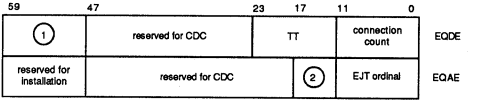
This pseudoequipment has an EST ordinal of 3 (symbol TEEQ).



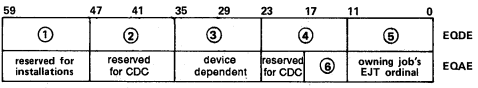
Ref	Bit(s)	Description
1	59	Zero (nonmass storage device).
	58	One (allocatable device).
	57-50	Reserved for CDC.
	49-48	Device status.
2	17-15	Device access level lower limit.
	14-12	Device access level upper limit.

Terminal (TT) Pseudoequipment

This pseudoequipment has an EST ordinal of 4 (symbol TTEQ).

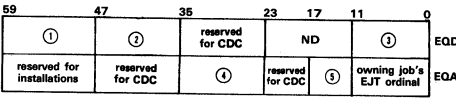


Ref	Bit(s)	Description
1	59	Zero (nonmass storage device).
	58	One (allocatable device).
	57-50	Reserved for CDC.
	49-48	Device status.
2	17-15	Device access level lower limit.
	14-12	Device access level upper limit.

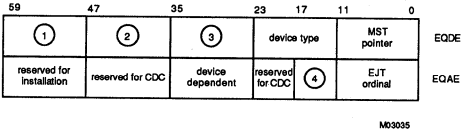


Ref	Bit(s)	Description
①	59	Zero (nonmass storage device).
	58	Zero (nonallocatable device).
	57	Reserved for CDC.
	56	Set if device is 66x (MTS) drive.
	55	Set if device is 67x (ATS) or FSC drive or 639 tape drive.
	54	Set if device is FSC drive.
	53	Reserved for CDC.
	52	Set if device has Group-Coded Recording (GCR) capability (67x only).
	51	Device is 639 tape drive.
	50	Device is 698 tape drive.
	49-48	Device status.
②		Channel 1 data:
	47	Set if access path is enabled.
	46-45	Channel state.
	44-42	Reserved for CDC.
	41	Concurrent channel flag.
	40-36	Channel number.
③		Channel 2 data:
	35	Set if access path is enabled.
	34-33	Channel state.
	32-30	Reserved for CDC.
	29	Concurrent channel flag.
	28-24	Channel number.
④	23-12	Device type (MT or NT).
⑤	11-9	Controller number.
	8-4	Reserved for CDC.
	3-0	Unit number.
⑥	17-15	Device access level lower limit.
	14-12	Device access level upper limit.

CDCNET Mainframe Device Interface (MDI) or Mainframe Terminal Interface (MTI)



Ref	Bit(s)	Description
①	59	Zero (nonmass storage device).
	58	Zero (nonallocatable device).
	57	If set, load interlock flag.
	56-50	Reserved for CDC.
	49-48	Device status.
②		Channel data:
	47	Set if access path is enabled.
	46-45	Channel state.
	44-41	Reserved for CDC.
	40-36	Channel number.
③	11-9	Controller number.
	8	Reserved for CDC.
	7-0	Coupler node number.
④	35-33	PIP index (1 to 4).
	32	Reserved for CDC.
	31-24	Node number.
⑤	17-15	Device access level lower limit.
	14-12	Device access level upper limit.



Ref	Bit(s)	Description
1	59	One (mass storage device).
	58	Set if device contains file SYSTEM.
	57	Set if device is shared in MMF complex.
	56	Set if device is removable.
	55	Set if device is LDAM device.
	54	Set if device is unavailable.
	53	Reserved for CDC.
	52	Set if device is independent shared device.
	51	Set if device is active.
	50	Set if device is checkpoint device.
	49-48	Device status.
2		Channel 1 data:
	47	Set if access path is enabled.
	46-45	Channel state.
	44	Controller type: 0 Full-track. 1 Half-track.
	43	Concurrent channel port number: 0 Port A. 1 Port B.
	42	Reserved for CDC.
	41	Concurrent channel flag.
	40-36	Channel number.
3		Channel 2 data:
	35	Set if access path is enabled.
	34-33	Channel state.
	32	Controller type: 0 Full-track. 1 Half-track.
	31	Concurrent channel port number: 0 Port A. 1 Port B.
	30	Reserved for CDC.
	29	Concurrent channel flag.
	28-24	Channel number.
4	17-15	Device access level lower limit.
	14-12	Device access level upper limit.

Ref	Bit(s)	Description
(3)		Channel 2 data:
	35	Set if access path is enabled.
	34-33	Channel state: 0 Up. 1 Idle. 2 Unused. 3 Down.
	32	Controller type: 0 Full-track. 1 Half-track.
	31	Concurrent channel port number: 0 Port A. 1 Port B.
	30	Reserved for CDC.
	29	Concurrency flag: 0 Nonconcurrent channel. 1 Concurrent channel.
	28-24	Channel number.
(4)	35-24	For LDAM devices: Seek overlap control (SCN 77 for nonshared devices, SCN 75 for shared devices). For ESM: EM shift count (bits 31 and 30). Side door port channel (bits 29 through 24). For 887: Channel 2 port number (bits 35 through 30). Channel 1 port number (bits 29 through 24).
(5)	17-15	Device access level lower limit.
	14-12	Device access level upper limit.

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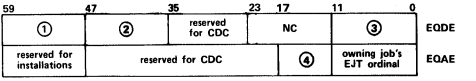
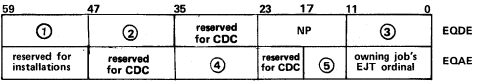
Network Access Device (NAD)

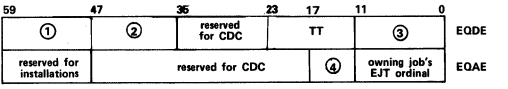


Ref	Bit(s)	Description
①	59	Zero (nonmass storage device).
	58	One (allocatable device).
	57	Set if controlware is not loaded.
	56	Set if NETLOG is active on device.
	55	Set if RHF is active on device.
	54-50	Reserved for CDC.
	49-48	Device status.
②		Channel data:
	47	Set if access path is enabled.
	46-45	Channel state.
	44-41	Reserved for CDC.
	40-36	Channel number.
③	11-8	Reserved for CDC.
	7-0	Hardware-unique identifier.
④	17-12	Access levels (presently not checked).

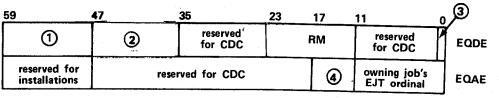


Ref	Bit(s)	Description
①	59	Zero (nonmass storage device).
	58	Zero (nonallocatable device).
	57	Set if Standalone Bootstrap Program Module (SAM) is present.
	56-50	Reserved for CDC.
	49-48	Device status.
②		Channel data:
	47	Set if access path is enabled.
	46-47	Channel state.
	44-41	Reserved for CDC.
	40-36	Channel number.
③	11-9	Controller number.
	8	Reserved for CDC.
	7-0	Node number.
④	35-33	PIP index (1 to 4).
	32-23	Reserved for CDC.
⑤	17-12	Access levels (presently not checked).

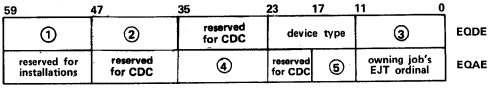
Stimulator Multiplexer (TT)



Ref	Bit(s)	Description
①	59	Zero (nonmass storage device).
	58	One (allocatable device).
	57-50	Reserved for CDC.
	49-48	Device status.
②		Channel data:
	47	Set if access path is enabled.
	46-45	Channel state.
	44-41	Reserved for CDC.
	40-36	Channel number.
③	11-9	Controller number.
	8-0	Port count; 0 is treated as 1000_8.
④	17-15	Device access level lower limit.
	14-12	Device access level upper limit.



Ref	Bit(s)	Description
1	59	Zero (nonmass storage device).
	58	One (allocatable device).
	57	Stimulation mode.
	56-50	Reserved for CDC.
	49-48	Device status.
2		Channel data:
	47	Set if access path is enabled.
	46-45	Channel state.
	44-41	Reserved for CDC.
	40-36	Channel number.
3	0	Port number (0 or 1).
4	17-15	Device access level lower limit.
	14-12	Device access level upper limit.



Ref	Bit(s)	Description
①	59	Zero (nonmass storage device).
	58	Zero (nonallocatable device).
	57	Set if short paper is in use (printer only).
	56	Set if short paper Programmable Forms Control (PFC) is loaded (printer only).
	55	Set if device has Programmable Forms Control (PFC) (printer only).
	54	Set if V carriage control is used (printer only).
	53	Reserved for CDC.
	52	Controlware load requested (5870 only).
	51-50	Reserved for CDC.
	49-48	Device status.
②		Channel data:
	47	Set if access path is enabled.
	46-45	Channel state.
	44-41	Reserved for CDC.
	40-36	Channel number.
③	11-9	Controller number.
	8-6	Print train (printer only).†
	5-0	Device identifier.
④	35-24	Forms code (5870/printer/punch only).
⑤	17-15	Device access level lower limit.
	14-12	Device access level upper limit.

†For 5870, print train is always 7.

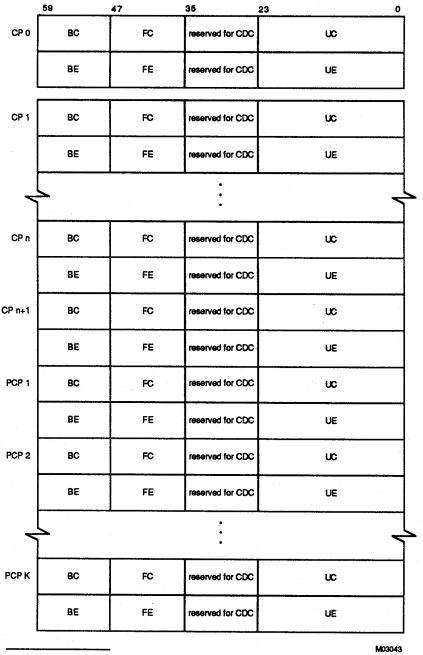
Device Type Codes

Code	Description
CC	Satellite coupler.
CM	Control module.
CP	Card punch (3446/3644-415).
CR	Card reader (3447/3649-405).
DB	Full-track disk storage subsystem (715x-885-42).
DC	Full-track disk storage subsystem (7165-895).
DD	Full-track disk storage subsystem (7255-834).
DE	Extended memory.†
DF	Full-track disk storage subsystem (887; 4K sector).
DG	Full-track disk storage subsystem (7255-836).
DH	Full-track disk storage subsystem (887; 16K sector).
DI	Half-track disk storage subsystem (7x54-844-21).
DJ	Half-track disk storage subsystem (7x5x-844-4x/44).
DK	Full-track disk storage subsystem (7154-844-21).
DL	Full-track disk storage subsystem (715x-844-4x).
DM	Half-track disk storage subsystem (7155-885).
DN	Full-track disk storage subsystem (9853; 2K sector).
DP	Distributive data path to extended memory.

†Extended memory subequipment values exist in associated MST. The values are in word DILL (byte 3) and further define the type of extended memory equipment.

Code	Description
DQ	Full-track disk storage subsystem (7155-885).
DS	Display console.
DV	819 disk storage subsystem (single density).
DW	819 disk storage subsystem (double density).
LQ	Line printer.
LR	Line printer (580-12 or 580-120).
LS	Line printer (580-16 or 580-160).
LT	Line printer (580-20 or 580-200).
LX	5870 nonimpact printer.
MP	MAP III (matrix algorithm processor).
MT	Magnetic tape drive (seven-track).
NC	Network access device (NAD).
ND	CDCNET network mainframe device interface.
NE	Null equipment.
NP	Network processing unit (NPU).
NT	Magnetic tape drive (nine-track).
RD	Reconfiguration pseudoequipment.
RM	Two-port multiplexer.
RP	Ring Port (CYBERPLUS).
SS	7990 Mass Storage Archival Subsystem.
TE	Tape pseudoequipment.
TT	Terminal pseudoequipment.

Memory Control Table (MCT)



MCT must reside within the first 131K of CM.

Word	Field	Bit(s)	Description
0	BC	59-48	Link to CP/PCP with next lower RA.
0	FC	47-36	Link to CP/PCP with next higher RA.
0	UC	23-0	Unassigned CM FL/100B between CP/PCP and the CP/PCP having the next higher RA.
1	BE	59-48	Link to CP/PCP with next lower RAX.
1	FE	47-36	Link to CP/PCP with next higher RAX.
1	UE	23-0	Unassigned XM FL/100B between CP/PCP and the CP/PCP having the next higher RAX.

Channel Interlock Tables

Each of the contiguous channel interlock tables (channel status table, EJT assignment table, and channel controlware table) has the following format:

	59	47	35	23	11 0
addr+0	channel 0	channel 1	channel 2	channel 3	channel 4
addr+1	channel 5	channel 6	channel 7	channel 10	channel 11
addr+2	channel 12	channel 13	channel 14†	channel 15†	channel 16†
addr+3	channel 17†	channel 20	channel 21	channel 22	channel 23
addr+4	channel 24	channel 25	channel 26	channel 27	channel 30
addr+5	channel 31	channel 32	channel 33	channel 34†	channel 35†
addr+6	channel 36†	channel 37†	concurrent channel 0	concurrent channel 1	concurrent channel 2
addr+7	concurrent channel 3	concurrent channel 4	concurrent channel 5	concurrent channel 6	concurrent channel 7
addr+10	concurrent channel 10	concurrent channel 11	reserved for CDC	reserved for CDC	reserved for CDC

† Not used

Channel Status Table Entry

Each 1-byte entry has the following format:

Bit(s)	Description
11	Channel requested flag.
10-7	Reserved for CDC.
6	Channel idled flag.
5	Down channel flag.
4-0	Assigned PP.

EJT Assignment Table Entry

Each 1-byte entry has the following format:

Bit(s)	Description
11-0	EJT ordinal of job to which channel has been assigned (maintenance service class or NOS/VE jobs only).

Channel Controlware Table Entry

During deadstart, each 1-byte entry has the following format:

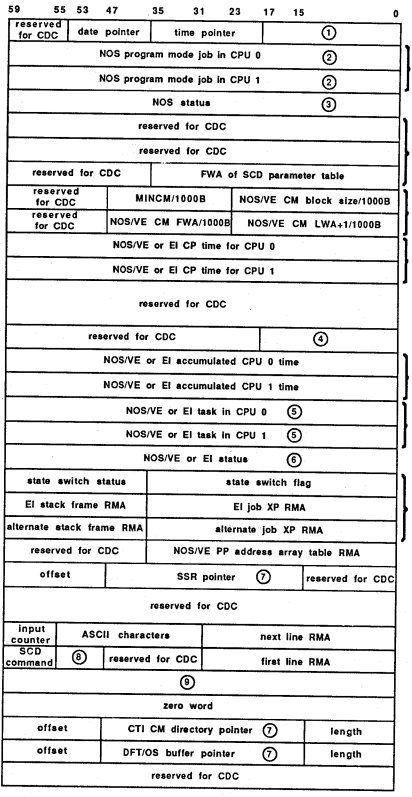
Bit(s)	Description
11-7	Reserved for CDC.
6	Load option specified using LBC command.
5-0	Controlware load option.

During normal operation, each 1-byte entry has the following format:

Bit(s)	Description
11	Controlware load requested.
10	Controlware is currently being loaded.
9	Buffered I/O driver has dropped and must be reloaded when the channel becomes available.
8-6	Number of times controlware loaded.
5	Controlware no-load option.
4-0	Controlware type:
	0 No controlware on channel.
	1 HT (7054/7154/7152).
	2 FT (7154/7152).
	3 FMD (7155).
	4 FSC adapter controlware.
	5 DEMA (7155-401).
	6 ISD Adapter (7255).
	7 895 Controlware (7165).
	10 NAD Controlware.
	11 Control module I controlware.
	12 Control module II controlware.
	13 7990 Controlware.
	14 5870 Controlware.
	15-17 Reserved.

Environment Interface Communication Block (EICB)

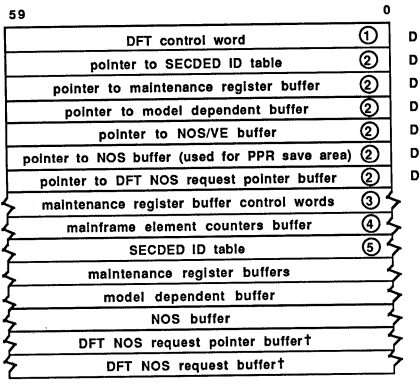
The EICB is the communication block between the CYBER 170 operating system and the CYBER 180 operating system or environment interface (EI).



Ref	Bit(s)	Description
(1)	17-12	170 operating system (1=NOS, 2=NOS/BE).
	11-6	EICB version number.
	5-0	EICB implementation level.
(2)	59-24	Job unique identifier.
	23-16	180 validation.
	15-8	CPU priority.
	7-4	CPU subpriority.
	3-0	CPU quantum.
(3)	59	Operational mode.
	58	Concurrent maintenance mode.
	57	Step mode.
	56-52	Reserved for CDC.
	51	Checkpoint complete.
	50	Checkpoint in progress.
	49-37	Reserved for CDC.
	36	Drop NOS/VE.
	35-18	FWA of MLST.
	17-12	Length of MLST.
	11-0	Reserved for CDC.
(4)	17-12	180 operating system (1=EI, 2=NOS/VE).
	11-6	EICB version number.
	5-0	EICB implementation level number.
(5)	59-16	Reserved for CDC.
	15-8	CPU priority.
	7-4	CPU subpriority.
	3-0	CPU quantum.

Ref	Bit(s)	Description
(6)	59	Operational mode.
	58	Concurrent maintenance mode.
	57	Step mode.
	56-52	Reserved for CDC.
	51	Checkpoint complete.
	50	Checkpoint in progress.
	49-30	Reserved for CDC.
	29-24	SMU logical PP number.
	23-18	Reserved for CDC.
	17-12	MDD logical PP number.
	11-6	System disk channel.
	5-0	System disk PP number.
(7)	47-32	R upper (lower 10 bits).
	31-16	R lower (lower 12 bits).
(8)	55-48	Suspend output flag.
(9)	59	Interlock bit.
	58-56	Reserved for CDC.
	55-48	Mainframe status.
	47-40	Processor 0 error retry count.
	39-32	Processor 0 error code.
	31-24	Processor 1 error retry count.
	23-16	Processor 1 error code.
	15-8	IOU error PP number.
	7-0	IOU error code.

Dedicated Fault Tolerance/Operating System (DFT/OS) Buffer

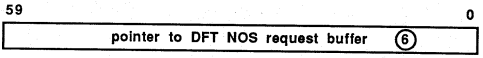


† see following tables

Ref	Bit(s)	Description
(1)	59-56	Header length - control and pointers.
	55-48	Sequence number of next error.
	47-40	Revision level.
	39-32	DFT PP number.
	31-24	M/R buffer length.
	23-16	Number of M/R buffers.
	15-11	Reserved for CDC.
	10	Idle DFT.
	9	Freeze system on corrected error.
	8	Freeze system on uncorrected error.
	7	DFT verification flag.
	6	DFT reject flag.
	5	Zero counters and SECDED ID table flag.
	4	NOS dedicated mode flag.
	3	Logging flag.
	2	Dedicated mode flag.
	1	NOS/VE or EI error flag.
	0	NOS error flag.

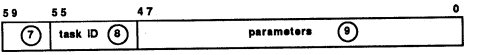
Ref	Bit(s)	Description
(2)	59-48	Offset.
	47-32	R upper (lower 10 bits).
	31-16	R lower (lower 12 bits).
	15-0	Length.
(3)	59-56	Hardware descriptor table index.
	55-48	OS action code.
	47-32	DFT analysis code.
	31-24	Sequence number of this entry.
	23-21	Reserved for CDC.
	20	Threshold exceeded flag.
	19	Logging action flag.
	18	Interlock flag.
	17	NOS/VE or EI valid data flag.
	16	NOS valid data flag.
	15-0	Offset from the start of the M/R buffer.
(4)	59-48	Threshold.
	47-32	Unlogged error counter for the element.
	31-16	Corrected error counter for the element.
	15-0	Uncorrected error counter for the element.
(5)	59-48	Count for this address.
	47-16	Address.
	15-0	Syndrome code.

DFT NOS Request Pointer Buffer



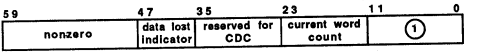
Ref	Bit(s)		Description
(6)	59-48	Offset.	
	47-32	R upper.	
	31-16	R lower.	
	15-0	Status:	
		0	Inactive.
		1	Active.
		2	Interlocked.
		3	Ready.
		4-177777	Reserved for CDC.

DFT NOS Request Buffer



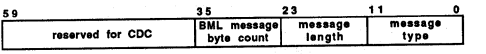
Ref	Bit(s)	Description
(7)	59-56	Reply code: 1 No error. 2 At least one error.
(8)	55-48	Task ID: 1 Update date/time (RQDT) 2 Set DFT error thresholds (RQTH). 3 Increment free-running counter (RQIF).
(9)	47-0	Parameters vary by request.

Error Message Buffer Header Word



Ref	Bit(s)	Description
(1)	11-2	Reserved for CDC.
	1	1MD called flag.
	0	Buffer interlock.

Each block of error message data is preceded by a one-word header with the following format:



Event Table

	59	35	11	① 1 0
addr+0	event 1	event 2	event count	
addr+1	event 3	event 4	reserved	
addr+2	event 5	event 6	reserved	
addr+3	event 7	event 8	reserved	
addr+4	event 9	event 10	reserved	
addr+5	event 11	event 12	reserved	
addr+6	event 13	event 14	reserved	
addr+7	event 15	event 16	reserved	
addr+8	event 17	event 18	reserved	
addr+9	event 19	event 20	reserved	
addr+10	event 21	event 22	reserved	
addr+11	event 23	event 24	reserved	

Ref	Bit	Description
①	0	Table interlock.

Subsystem Tables

Each of the subsystem tables (subsystem control point table and subsystem assignment table) has the following format:

	59	47	35	23	11	0
addr+0	IAF	RHF	reserved for installations	reserved for installations	TAF	
addr+1	MAP III	NAM	NVE	CDCS	MCS	
addr+2	RDF	MSS	RBF	BIO	MAG	
addr+3	stimulator	MSM	SMF	SSF	MSE	
addr+4	TLF	NJF	PLATO	reserved for CDC		

Subsystem Control Point Table (SSCT) Entry

Each 1-byte entry has the following format:

Bit(s)	Description
11	Set if subsystem is accessible.
10-0	Subsystem mandatory control point number.

Subsystem Assignment Table (SSAT) Entry

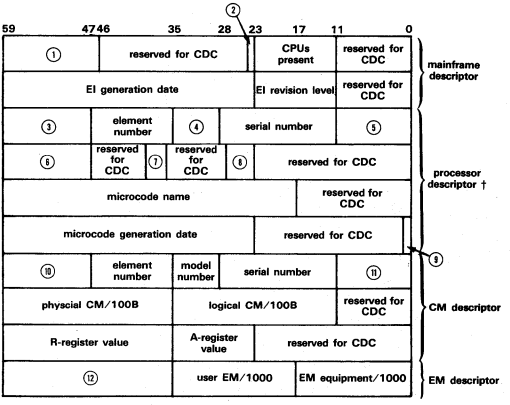
Each 1-byte entry has the following format:

Bit(s)	Description
11-0	EJT ordinal assigned to subsystem.

System Attribute Block

CYBER 180 Computer Systems

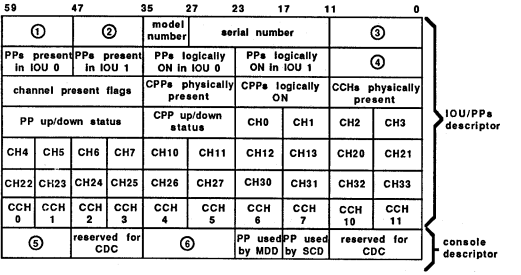
The system attribute block for CYBER 180-class models.



Ref	Bit(s)	Description
(1)	59-54	Descriptor length entry.
	53-48	Descriptor ID.
	47	Central memory extension.
(2)	23	CEM/PEM.
(3)	59-54	Descriptor length entry.
	53-48	Descriptor ID.

† There is one processor descriptor for each CPU present in the mainframe.

Ref	Bit(s)	Description
(4)	28-35	Model number.
(5)	11-8	Maintenance channel port.
	7-4	Reserved for CDC.
	3-0	Maintenance channel type code.
(6)	59-56	Page map enable flags.
	55-54	Segment map enable flags.
	53-52	Reserved for CDC.
	51-48	Cache enable flags.
(7)	38-36	Memory port.
(8)	27	Performance monitoring facility.
	26	C180 state supported.
	25	C170 state supported.
	24	Processor logically on.
(9)	0	Set if microcode not reloaded at last deadstart.
(10)	59-54	Descriptor entry length.
	53-48	Descriptor ID.
(11)	11-8	Maintenance channel port.
	7-4	Reserved for CDC.
	3-0	Maintenance channel type code.
(12)	59-54	Descriptor entry length.
	53-48	Descriptor ID.
	47-45	Reserved for CDC.
	44	Maintenance mode.
	43	User EM not in DE/DP equipment.
	42	ESM mode.
	41-39	EM equipment type: 0 None. 1 ECS I. 2 ECS II. 3 LCME (CYBER 176 only). 4 UEM 5 ESM 6-7 Reserved for CDC.
	38-36	PP Path: 0 No PP path. 1 DC145 (or ESM low speed port). 2 DC135. 3 Reserved for CDC.

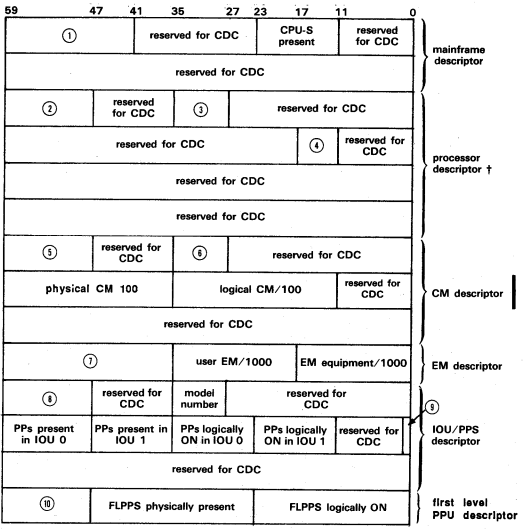


Ref	Bit(s)	Description
①	59-54	Descriptor entry length.
	53-48	Descriptor ID.
②	47-44	Reserved for CDC.
	43-36	Element number.

Ref	Bit(s)	Description
③	11-8	Maintenance channel port.
	7-4	Reserved for CDC.
	3-0	Maintenance channel type code.
④	11-3	Reserved for CDC.
	2-0	PP speed: 0 1x 1 2x 2 4x
⑤	59-54	Descriptor entry length.
	53-48	Descriptor ID.
⑥	36	Console type: 0 CC545 1 CC634B or CC598B
	35-33	Always set to one.
	32-30	Console type: 0 CC545 5 CC634B, CC598B, or TTY
	29-27	Non-CC545 console type: 0 CC634B or CC598B 1 TTY
	26-24	Port number of mux.

Other Computer Systems

The system attribute block is for 6000 Computer Systems, CDC CYBER 70 Systems, and CDC CYBER 170 Computer Systems Models 171, 172, 173, 174, 175, 176, 720, 730, 740, 750, 760, 865, and 875.

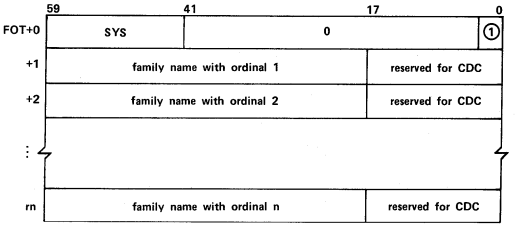


Ref	Bit(s)	Description
①	59-54	Descriptor entry length.
	53-48	Descriptor ID.
	47	Central memory extension.
	46	Reserved for CDC.
	45	CYBER 176.
	44	CYBER 170-700.
	43	Interlock register.
	42	Status and control register.
②	59-54	Descriptor entry length.
	53-48	Descriptor ID.

†There is one processor descriptor for each CPU present in the mainframe.

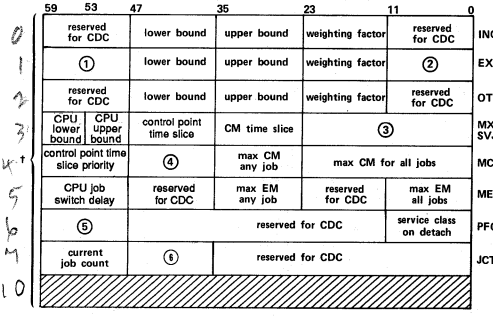
Ref	Bit(s)	Description
(3)	35-28	Model number.
(4)	16	Instruction stack.
	15	Compare move unit.
	14	CEJ/MEJ.
	13	CPU1 available.
	12	CPU0 available.
(5)	59-54	Descriptor entry length.
	53-48	Descriptor ID.
(6)	35-28	Model number.
(7)	59-54	Descriptor entry length.
	53-48	Descriptor ID.
	47-45	Reserved for CDC.
	44	Maintenance mode.
	43	User EM not in DE/DP equipment.
	42	ESM mode.
	41-39	EM equipment type: 0 None. 1 ECS I. 2 ECS II. 3 LCME (CYBER 176 only). 4 UEM. 5 ESM. 6-7 Reserved for CDC.
	38-36	PP Path: 0 No PP path. 1 DC 145 (or ESM low speed port). 2 DC 135. 3-7 Reserved for CDC.
(8)	59-54	Descriptor entry length.
	53-48	Descriptor ID.
(9)	1-0	PP speed: 0 1x 1 2x 2 4x
(10)	59-54	Descriptor entry length.
	53-48	Descriptor ID.

Family Ordinal Table (FOT)



Ref	Bit	Description
(1)	0	Set if table is interlocked.

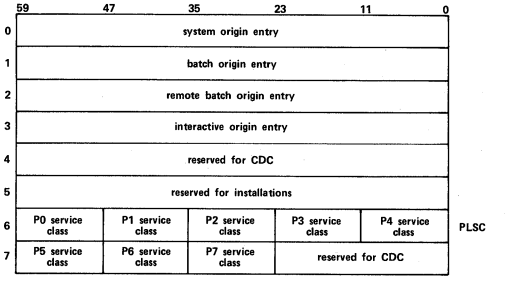
Job Control Block (JCB)



†One for each service class.

Ref	Bit(s)	Description
(1)	59-48	Lower bound priority for initial slice.
(2)	11-0	Initial priority for executing jobs.
(3)	23-12	Maximum number of jobs or users for this service class.
	11-0	Timeout delay (in seconds) for suspended jobs.
(4)	47-36	Base priority for interactive jobs at terminal I/O completion.
(5)	59-57	Index a table of limits for size of each direct access file.
	56-54	Index a table of limits for number of permanent files.
	53-51	Index a table of limits for cumulative size of indirect access files.
	50-48	Index a table of limits for size of each indirect access file.
(6)	47-36	Jobs waiting indicator.

Service Class Control Table (SCT)



The entry for each origin type (words 0 through 3) has the following format:

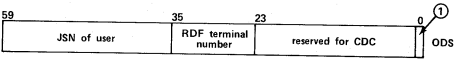
Bit(s)	Description
59-48	Reserved for installations.
47-42	Reserved for CDC.
41-39	Origin type access level lower limit.
38-36	Origin type access level upper limit.
35-0	Service class validation mask.

Mass Storage Allocation (MSA) Area

	59 — 47	0
000	EST ordinal of last temp	temporary devices †
001	EST ordinal of last input	input file devices †
002	EST ordinal of last output	output file devices †
003	EST ordinal of last rollout	rollout file devices †
004	EST ordinal of last dayfile	user dayfile devices †
005	EST ordinal of last primary	primary file devices †
006	EST ordinal of last local	local file devices †
007	EST ordinal of last LGO	LGO file devices †
010	last EST ordinal assigned	secondary rollout file devices
011	reserved for CDC	
012	last EST ordinal assigned	temp file system devices
013	last EST ordinal assigned	temp-nonshared devices

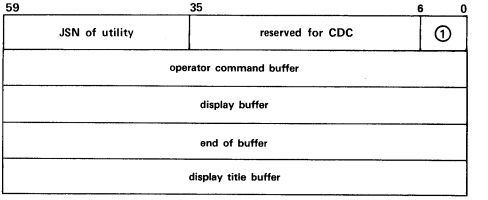
†Bit 47-eq is set for each device with the allocation type selected.

Operator Display Buffer Header Word



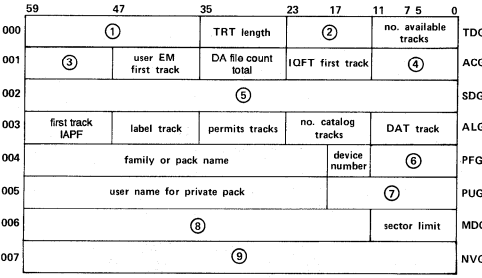
Ref	Bit	Description
(1)	0	Buffer interlock.

L-Display Buffer Control Word



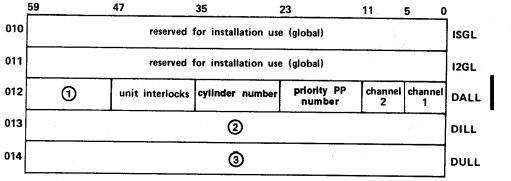
Ref	Bit(s)	Description
(1)	6	Wide line spacing.
	5	Input entered.
	4	Input requested.
	3	L-display data available.
	2	Character size.
	1	Data format bit.
	0	L-display requested.

Mass Storage Table (MST)



Ref	Bit(s)	Description
①	59-48	Number of tracks on device.
	47-46	Reserved.
	45-44	Extended memory track shift.
	43	INSTALL interlock.
	42	Device PF interlock.
	41-36	Device PF activity count.
②	23	NOS format MST.
	22-12	Next available track TRT word pointer.
③	59	CTI present.
	58	System deadstart file present.
	57	Catalog track overflow (O).
	56-48	Reserved.
④	11	Redefinition requested flag.
	10-7	Redefinition reply bits (machine masks).
	6	Set if sector of local areas is present.
	5	Unloaded (all machines).
	4	Device error idle status: 0 No error. 1 Error detected on device.
	3-0	Reserved.
⑤		Format depends on shared status (MSD).
		Nonshared device (NSD):
	59-1	Reserved.
	0	Device MST/TRT interlock.

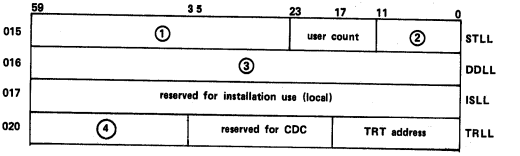
Ref	Bit(s)	Description
		Multimainframe shared device (MSD):
⑤	59	Zero (independent shared device flag).
	58-36	Address of MST on link device.
	35-6	MST/TRT update counter.
	5-1	Index of machine with MST/TRT.
	0	CPUMTR MST/TRT interlock.
		Independent shared device (ISHARE):
	59	1 (independent shared device flag).
	58	Tables current flag.
	57	TRT update flag.
	56	MRT update flag.
	55-36	Reserved.
	35-6	MST/TRT update counter.
	5-1	Index of machine with MST/TRT interlock.
	0	CPUMTR MST/TRT interlock.
⑥	11-9	Device access level lower limit.
	8-6	Device access level upper limit.
	5-3	Relative unit in multiunit device.
	2-0	Number of units minus 1 in multiunit device.
⑦	17	Catalog track contiguous with label track.
	16	Reserved.
	15-8	Direct access file residence mask.
	7-0	Device mask. Catalog entry residence mask.
⑧	59	Removable device (R).
	58	Auxiliary permanent file device (X).
	57	16-word PFC device.
	56	Device last checkpointed on MMF system (in label section only).
	55-48	DAT pointer.
	47	Half-track status (1=half, 0=full).
	46-36	Single unit sector limit.
	35-24	Mass storage driver name (temporary).
	23-18	Reserved for CDC.
	17-12	Mass storage driver index: 0 No index present. 1 6DI. 2 6DP. 3 6DE. 4 6DX. 5-77 Undefined.
⑨	59-48	Track to be flawed when dropped.
	47-8	Reserved for CDC.
	7-0	Each bit is set if the corresponding unit in the list in word DDLL of table is reserved.



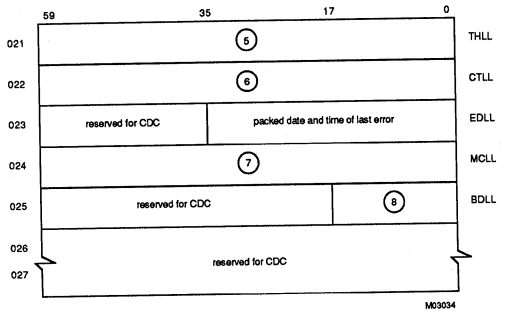
Ref	Bit(s)	Description
①	59-58	Must be zero.
	57-56	Device state: 0 ON. 1 IDLE. 2 OFF. 3 DOWN.
	55	If set, hardware failure is suspected.
	54	If set, new activity is restricted on device.
	53-48	Count of outstanding requests on device.
②	59	Temporary nonshared files allowed.
	58-57	Reserved.
	56	Secondary rollout files allowed.
	55	LGO files allowed.
	54	Local files allowed.
	53	Primary files allowed.
	52	User dayfiles allowed.
	51	Rollout files allowed.
	50	Output files allowed.
	49	Input files allowed.
	48	Temporary files allowed.
	47-36	Reserved for CDC.
	35-24	PUT ordinal of first or only device.
	23	Device supports direct transfer.
	22	Buffered mass storage device.
	21-12	Device-dependent parameters.

The following parameters are for DE- and DP-type equipment only:

Ref	Bit(s)	Description
②	21	Maintenance mode parameter MA.
	20-18	Memory type: 0 Reserved. 1 ECS I. 2 ECS II. 3 LCME. 4 UEM. 5 ESM. 6-7 Reserved.
	17-15	CPU path type: 0 No CPU path. 1 ECS. 2 LCME. 3 ESM mode. 4-7 Reserved.
	14-12	PP path type: 0 No PP path. 1 DC145 parity enhanced DDP or ESM low-speed port. 2 DC135 DDP. 3 ESM mode. 4-7 Reserved.
	11-6	Reserved.
	5-0	Algorithm index for LDAM devices.
③	59-48	Starting sector of second copy of the label.
	47-44	Reserved.
	43	INSTALL interlock.
	42	Device PF interlock.
	41-36	Device PF activity count.
	35-28	Reserved.
	27-24	Machine index minus 1.
	23	Valid checkpoint file flag.
	22-12	System table track.
	11	Family idle down status.
	10-0	Family activity count.



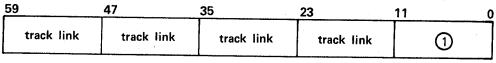
Ref	Bit(s)	Description
①	59	Format pack request pending (844 disk equipment).
	58	Initialize AL (I).
	57	Initialize HT (I).
	56	Initialize FT (I).
	55	Initialize PF (I).
	54	Initialize QF (I).
	53	Initialize pending (I).
	52	Prohibit TRT update for ISDs.
	51	Unloaded in this machine (L).
	50	Checkpoint requested (C).
	49	Unload processed.
	48	Alternate system device (A).
	47	Initialize DF (I).
	46	Initialize AF (I).
	45	Initialize EF (I).
	44	Initialize MF (I).
	43	1MV is active on the device.
	42	Reserved.
	41-36	Error status.
	35-24	2-character machine identification.
②	11-3	Next EST ordinal in chained device.
	2	Device in use.
	1	Local utility interlock.
	0	Local area interlock.
③		Format depends upon the equipment type.
		Nonextended memory device:
	59	Reserved for CDC.
	58	Null equipment indicator.
	57-54	Reserved.
	53-51	Original number of units minus 1 for device.
	50-48	Current number of units minus 1.
	47-0	Unit list, order right to left, 6 bits per unit.
		Extended memory device:
	59-48	Reserved.
	47-24	Field length of extended memory.
	23-0	Reserved.



Ref	Bit(s)	Description
(4)	59-48	Sweep cycling cylinder.
	47-36	Sweep cycling time stamp.
(5)	59-48	Validation algorithm failure threshold.
	47-36	Low space restricted activity threshold.
	35	Low space operator notification threshold.
	34-24	Low space threshold.
	23-12	Recovered error threshold.
	11-0	Unrecovered error threshold.
(6)	59-48	Validation failure count.
	47-24	Reserved for CDC.
	23	Recovered error processed.
	22-12	Recovered error count.
	11	Unrecovered error processed.
	10-0	Unrecovered error count.
(7)		Low Speed Port Multimainframes Devices:
	59-36	Reserved for CDC.
	35	MRT update flag.
	34-20	Reserved for CDC.
	19-0	Outstanding requests bit mask (1 bit for each PP).

Ref	Bit(s)	Description
		Independent Shared Device:
	59-48	IRU output register address.
	47	Long term interlock.
	46-42	Reserved for CDC.
	41-22	Set reissue bit mask (1 bit for each PP).
	21	Reserved for CDC (must be 0).
	20-1	Request in progress bit mask (1 bit for each PP).
	0	Latency activity flag.
(8)	17-12	Default buffer count.
	11-6	Read ahead trigger (shift count).
	5-0	Default read buffer threshold.

Track Reservation Table (TRT)



Ref	Bit(s)	Description
①	11-8	Each bit set indicates corresponding byte (0 through 3; for example, bit 11 indicates byte 0) is first track of a preserved file.
	7-4	Track interlock bits.
	3-0	Track reservation bits (1 = in use, flawed).

Track Link Byte (Format 1)

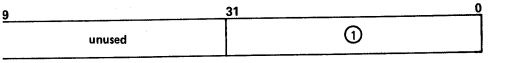
Bit(s)	Contents
11	Set.
10-0	Next track in track chain.
10-2	Word in TRT.
1-0	Byte in word.

Track Link Byte (Format 2)

Bit(s)	Contents
11	Clear.
10-0	End of chain (number of EOI sector in file).

Special Track Link Byte

Value	Description
3777	Special track designation for a flaw, an unused byte, or a CE area.



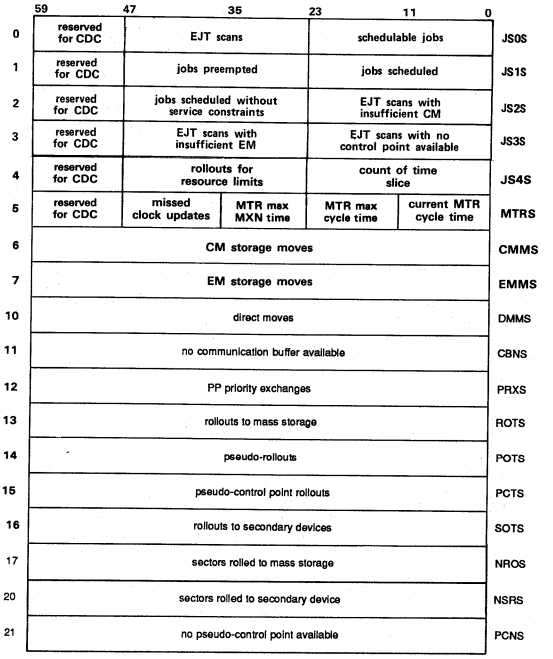
Ref	Bit(s)	Description
1	31-0	Each bit represents one logical track (bits 10 through 5 of the logical track number denote the word number in the MRT and bits 4 through 0 are the bit numbers within the word).

The meaning of the MRT bit depends upon the state of the track interlock bit in the TRT.

Track Interlock Bit	MRT Bit	Description
0	0	Track is not interlocked or it is local to another machine.
0	1	First track of a file is local to this machine.
1	0	Track is interlocked by another machine.
1	1	Track is interlocked by this machine.

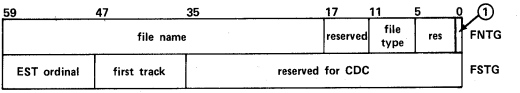
Statistical Data Area (SDA)

The pointer to this area is in word SDAP of the CMR pointer area.

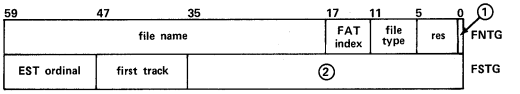


System File Name Table (FNT) Entry

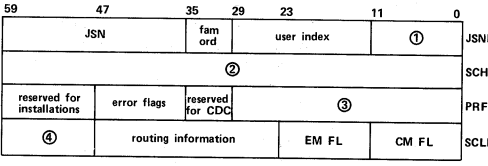
System Files



Fast Attach Permanent Files



Ref	Bit(s)	Description
1	0	Entry interlocked if set.
2	35-24	User count for read allow modify access.
	23-18	User count for read allow append access.
	17-12	User count for read access.
	11-8	Mode of attach: 1 Append. 3 Modify. 7 Write. 10 Update.
	7-2	User count for read allow update access.
	1	Attached with nonrollable option.
	0	Reserved for CDC.



Ref	Bit(s)	Description
①	11	Job connected to a system control point.
	10-7	Connection status.
	6	Job advance flag. Set when job is changing status.
	5-1	Job status.
	0	Entry interlock (1=interlocked).
②	59-48	For jobs in the preinitial or preinitial wait job states, the EST ordinal of the input file. For other jobs, the EST ordinal of the rollout file (zero if job status = *PCJS*). Unused when job is at a control point.
	47-36	For jobs in the preinitial or preinitial wait job states, the first track of the input file. For other jobs, the first track of the rollout file (PCP number if job status = *PCJS*). Unused when job is at a control point.

Ref	Bit(s)	Description
(2)	35	Norerun flag. Set if job can not be rerun.
	34-33	Job termination mode: 0 Job termination not in progress. 1 Normal job termination in progress. 2 Unconditional job termination in progress. 3 Undefined.
	32-30	Reserved for CDC.
	29-0	Scheduling data (refer to EJT scheduling data later in this section).
(3)	29-27	Job access level lower limit.
	26-24	Job access level upper limit.
	23-12	EST ordinal of primary file (except for jobs in preinitial or preinitial wait job states).
	11-0	First track of primary file (except for jobs in preinitial or preinitial wait job states).
(4)	59-54	Service class of job.
	53	Forced rollout.
	52	Forced rollin.
	51-48	Origin type of job.

EJT Connection Status Codes (JSNE Bits 7 Through 10)

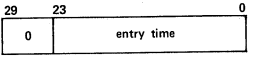
Symbol	Value (Octal)	Description
NICS	0	Not interactive. All batch, remote batch, and system origin jobs are assigned this connection status.
DTCS	1	Detached.
OLCS	2	On-line.
MXCS	3	Maximum connection status+1.
-	3-13	Reserved for LCDC.
-	14-17	Reserved for installations.

EJT Job Status Codes

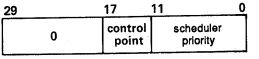
Symbol	Value (Octal)	Description
PRJS	0	Preinitial job step. A job is in this state after it has been assigned to an EJT entry for the first time. A job in this state is available to be scheduled to a control point.
EXJS	1	Executing. The job is currently at a control point.
ROJS	2	Scheduler rollout. The job was rolled out by the job scheduler because the job's scheduling priority is lower than the priority of another rolled out job.
SIJS	3	SCP rollin. An SCP swapin request was issued to roll in the job.
SOJS	4	SCP rollout. The job was rolled out due to an SCP swapout request.
TOJS	5	Timed/event rollout. The job was rolled out due to a timed/event being posted.

Symbol	Value (Octal)	Description
IOJS	6	Interactive rollout. The job rolled out due to interactive I/O processing.
DOJS	7	Disabled rollout. The job was rolled out because it was an interactive job with no further commands to process.
SUJS	10	Suspended rollout. The job was rolled out because it was suspended.
PCJS	11	Pseudo-rollout. The job is in central memory, at a pseudo control point.
ERJS	12	The system encountered a disk error while attempting to roll in a job.
NVJS	13	NVE job status.
PWJS	14	Preinitial wait. The job has not been through job initiation, and its input file resides on an inaccessible device.
SWJS	15	Service class limit wait.
MXJS	16	Maximum job status+1.
	17-30	Reserved for CDC.
	31-37	Reserved for installations.

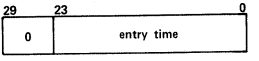
PRJS (Preinitial Job Step)



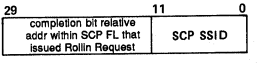
EXJS (Executing)



ROJS (Scheduler Rollout)



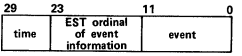
SIJS (SCP Rollin)



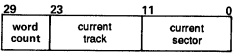
SOJS (SCP Rollout)

Scheduling data field not used.

TOJS (Time/Event Rollout)



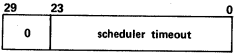
IOJS (Interactive Rollout)



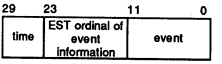
DOJS (Disabled)

Scheduling data field not used.

SUJS (Suspended)



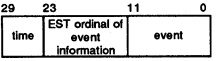
ERJS (Rollout Error)



NVJS (NVE Equipment Assignment EJT)

Scheduling data field not used.

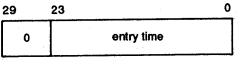
PUJS (Pre-initial Wait)



SUJS (Service Class Memory Wait)

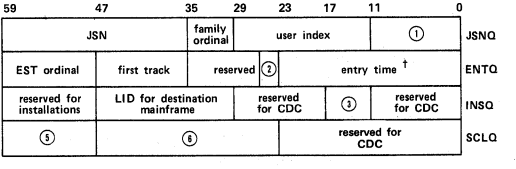
Scheduling data field not used.

PCJS (Pseudo-Rollout)



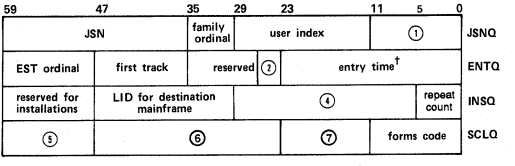
Queued File Table (QFT) Entry

Input File Entry



†If bit 1 of word JSNQ is set, this field contains EJT ordinal of file.

Output File Entry



†If bit 1 of word JSNQ is set, this field contains EJT ordinal of file.

Ref	Bit(s)	Description
(1)	11-6	Disposition type.
	5-1	Status bits.
	5-4	Reserved.
	3	File not queued.
	2	File in creation mode.
	1	File assigned to EJT.
	0	Entry interlock (1=interlocked).
(2)	26-24	File size index.
(3)	17-15	File access level.
	14-12	Job access level upper limit.
(4)	29-19	Reserved for CDC.
	18	Operator has released file.
	17-15	File access level.
	14-6	Reserved for CDC.
(5)	59-54	Service class of file.
	53-48	Origin type of file.
(6)	47-24	Local batch printer ID, or family ordinal and user index.
(7)	23-18	Reserved.
	17-15	External characteristics of file.
	14-12	Internal characteristics of file.

The following queue types, disposition types, job origin types, and service classes are used in many NOS system routines.

Queue Types (upper 3 bits of disposition code)

Type	Value (Octal)	Description
INQT	0	Input.
PHQT	1	Punch.
FRQT	2	Reserved for CDC.
PLQT	3	Plot.
PRQT	4	Print.
WTQT	5	Wait.
SNQT	7	Reserved for installations.
NRQT	10	Number of queue types.

Queue Disposition Types (all 6 bits)

Type	Value (Octal)	Disposition Code	Description
INQF	00	IN	Input.
NOQF	01	NO	Input, no output.
SOQF	06	SO	Input, station output.
TOQF	07	TO	Input, output to wait queue.
PUQF	10	PU/PB/PH/P8/SB	Punch.
PLQF	30	PL	Plot.
LPQF	40	LP/PR	Any printer.
P2QF	42	P2	512 printer.
LRQF	43	LR	580-12 printer.
LSQF	44	LS	580-16 printer.
LTQF	45	LT	580-20 printer.

Type	Value (Octal)	Disposition Code	Description
LXQF	46	LX	5870 printer.
ERQF	50	-	Wait queue, error.
SQQF	56	SS	Wait queue, station output.
TQQF	57	TT/WT	Wait queue.
S1QF	70	-	Reserved for installations.
S2QF	71	-	Reserved for installations.
S3QF	72	-	Reserved for installations.

Job Origin Types

Type	Value (Octal)	Description
SYOT	0	System.
BCOT	1	Local batch.
RBOT	2	Remote batch.
IAOT	3	Interactive.
-	4	Reserved.
-	5	Reserved.
MXOT	6	Maximum number of job origin types.

Service Class Types

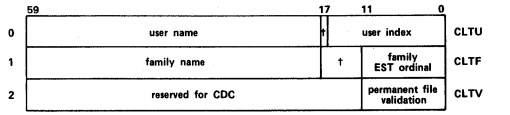
Type	Value (Octal)	Description
SYSC	1	System.
BCSC	2	Batch.
RBSC	3	Remote batch.

Type	Value (Octal)	Description
TSSC	4	Interactive.
DISC	5	Detached interactive.
NSSC	6	Network supervisor.
SSSC	7	Subsystem.
MASC	10	Maintenance.
CTSC	11	Communication task.
IOSC	12	Installation class 0.
I1SC	13	Installation class 1.
I2SC	14	Installation class 2.
I3SC	15	Installation class 3.
DSSC	77	Deadstart sequencing.
MXSC	17	Total number of service classes +1.

Default Service Classes

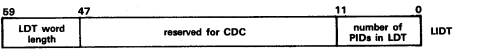
Origin	Default Service Class
BCOT	BCSC
RBOT	RBSC
SYOT	SYSC
IAOT	TSSC

Common Libraries Table (CLT)

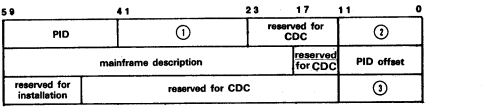


†Reserved for CDC.

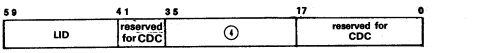
Logical Identifier Table (LDT)



Format of each PID entry:

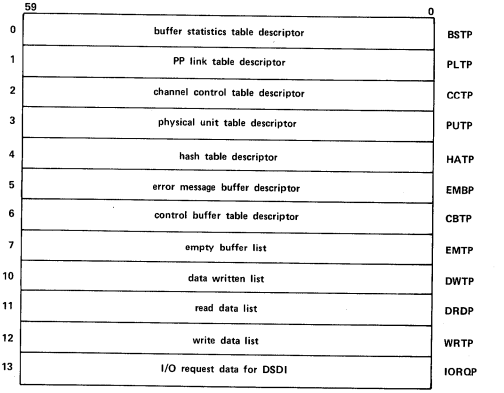


Format of each LID entry:

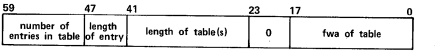


Ref	Bit(s)	Description
(1)	41	Host attribute available.
	40	Attribute enabled.
	39	Prevalidation attribute.
	38	PID no-list attribute.
	37-34	Reserved for CDC.
	33-24	Reserved for installation.
(2)	11-8	SSF status.
	7-4	RHF status.
	3-0	NAM status.
(3)	11-0	Number of LID words following PID.
(4)	35	Enabled flag.
	34	Store and forward mainframe flag.
	33	LID validation attribute.
	32	Loopback flag.
	31	LID no-list attribute.
	30-24	Reserved for CDC.
	23-18	Reserved for installation.

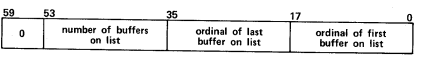
Buffered Device Table (BDT)



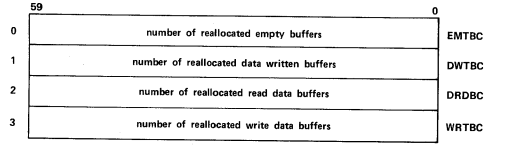
Each descriptor entry (words 0 through 6) has the following format:



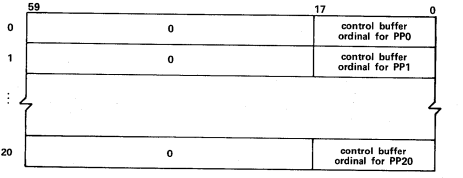
Words 7 through 12 have the following format:



Buffered Statistics Table (BST)



PP Link Table



Channel Control Table (CCT)

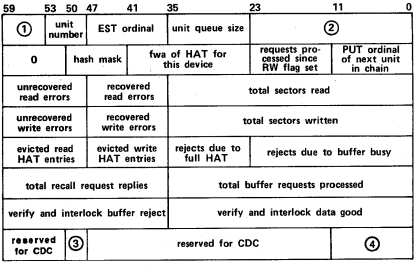
This table contains a 4-word entry for each channel. Each entry has the following format:

	59	47	41	35	23	11	0	
0	①	0		retry request (819 only)	pending request (819 only)	active requests (819 only)		CREQ
1	②	chan2 (819 only)	chan1	total requests processed				CCNT
2	0	PUT ordinal of unit 3 this chan		PUT ordinal of unit 2 this chan	PUT ordinal of unit 1 this chan	PUT ordinal of unit 0 this chan		CUN1
3	0	PUT ordinal of unit 7 this chan		PUT ordinal of unit 6 this chan	PUT ordinal of unit 5 this chan	PUT ordinal of unit 4 this chan		CUN2

Ref	Bit(s)	Description
①	59	Channel busy (transfer in progress).
	58-48	Reserved for CDC.
②	59	Request initiated for unit 0.
	•	•
	•	•
	•	•
	52	Request initiated for unit 7.
	51-48	Reserved for CDC.

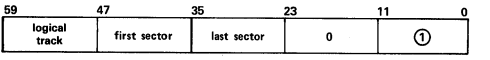
Physical Unit Table (PUT)

This table contains one entry for each 819 or 885-42 mass storage device.



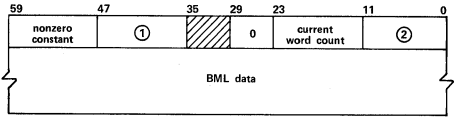
Ref	Bit(s)	Description
①	59	Unit interlock.
	58	Requests waiting flag.
	57	Zero.
	56-54	Read recovery index (819 only).
②	23-12	Ordinal of current control buffer in unit queue.
	11-0	Ordinal of first control buffer in unit queue.
③	50	I/O queue PUT ordinal error.
	49	I/O queue linkage error.
	48	I/O queue size error.
④	11-0	OR address of PP holding the unit interlock.

Hash Table (HAT)



Ref	Bit(s)	Description
①	11-0	Ordinal of first control buffer in chain.

Error Message Buffer (EMB)



Ref	Bit(s)	Description
①	47-37	Reserved for CDC.
	36	Data lost flag.
②	11-2	Zero.
	1	lMD called flag.
	0	Buffer interlock.

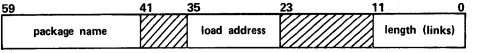
Control Buffer Table (CBT)

	59	53	47	35	29	23	17	11	0	
0	0	unit number	cylinder number	track	sector		(1)	link to next sector		PAD1
1	0	unit number	cylinder number	track	sector		(1)	link to next sector		PAD2
2	0	unit number	cylinder number	track	sector		(1)	link to next sector		PAD3
3	0	unit number	cylinder number	track	sector		(1)	link to next sector		PAD4
4	file status table entry									FSTC
5	(2)		backward link for unit I/O queue	forward link for unit I/O queue		I/O buffer address				IOLK
6	(3)		backward link for hash entry list	forward link for hash entry list			(4)	PUT ordinal of device		HSLK
7	active count		backward link for buffer list	forward link for buffer list		control point	recall entry address			LSLK

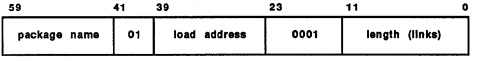
Ref	Bit(s)	Description
(1)	23	First sector does not contain valid data.
	22	Second sector does not contain valid data.
	21-20	Reserved for CDC.
	19-12	Short PRU flags (one per 100_8-word logical sector).
(2)	59	I/O interlock.
	58	Read threshold trigger.
	57	Buffer contains write data.
	56	I/O linkup.
	55	System file data in buffer.
	54	Recovered write buffer.
	53-48	Reserved for CDC.
(3)	59	I/O error recovery in progress.
	58	Forced channel selection.
	57-54	Error code.
	53	Set if concurrent channel.
	52-48	Channel used during error recovery or forced channel selection.
(4)	23-21	Residence of buffer: 1 Empty buffer list. 2 Data written list. 3 Read data list. 4 Write data list.
	20-12	Hash index to entry for this buffer.

Resident PP Library (RPL)

12-bit

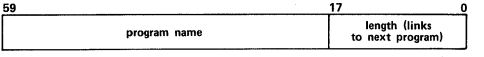


16-bit

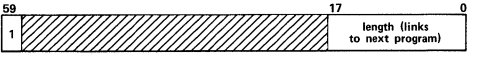


Resident CPU Library (RCL)

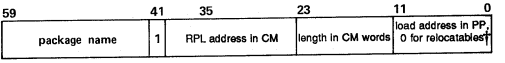
Type OVL



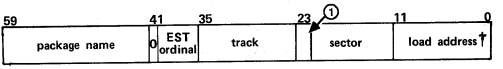
Type ABS



CM Resident



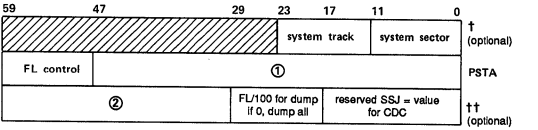
Non-CM Resident



† 16-bit PP load address is modulo 4096.

Ref	Bit(s)	Description
(1)	23	16-bit flag.

Program Status Table (PST) Entry

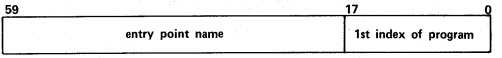


† This word is present only for alternate system residence (ASR) programs and resident CM.
†† This word is present only for programs with special entry points.

Ref	Bit(s)	Description
①	47	ASR resident flag.
	46	CM resident flag.
	45	NOS/BE parameter cracking.
	44	Special entry points present.
	43	54 table present.
	42-41	Reserved for CDC.
	40-36	Record type: 0 Text. 1 PP program. 3 Relocatable subprogram. 4 Overlay. 5 User library. 6 Modify OPL deck. 7 Modify OPL common deck. 10 Modify OPL directory. 11 Absolute program. 12 PPU program. 16 Fast dynamic load capsule. 20 Procedure record.
	35-0	For alternate system residence programs: 35-24 EST ordinal. 23-12 Track. 11-0 Sector. For CM programs, CM address. For other residences: 35-24 Not used. 23-12 Track. 11-0 Sector.

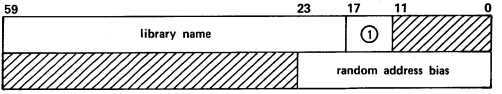
Ref	Bit(s)	Description
(2)	59	Special entry points present.
	58-57	Reserved for CDC.
	56	UTL= entry point present.
	55	LDR= entry point present.
	54	CLB= entry point present.
	53	ARG= entry point present.
	52	DMP= entry point present.
	51	SDM= entry point present.
	50	SSJ= entry point present.
	49	VAL= entry point present.
	48	SSM= entry point present.
	47	DPA= entry point present.
	46-36	Reserved for CDC.
	35	Restart flag.
	34	Set override-required status.
	33	Suppress DMP= on command call.
	32	Create empty DM* file.
	31	Disable resource limits.
	30	Create file DM* as an unlocked file.

Entry Point Directory (EPD) Entry



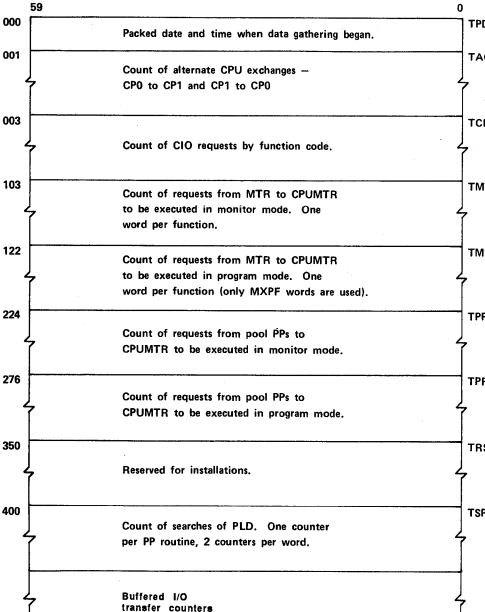
User Library Directory (LBD)

Type ULIB

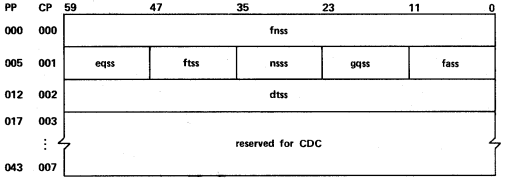


Ref	Bit(s)	Description
(1)	17	Zero (indicates non-CM resident entry).
	16-12	Alternate device or system device equipment.

PROBE Data Area



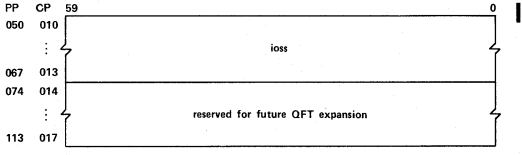
Standard Format



The following apply to all system sectors:

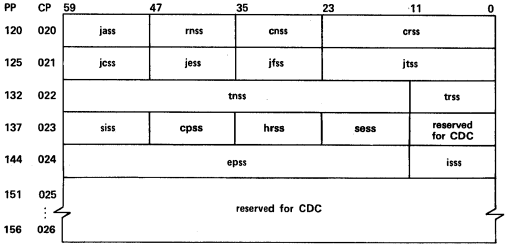
fnss	FNT entry.
eqss	EST ordinal.
ftss	First track.
nsss	Next sector.
gqss	QFT ordinal.
fass	Address of FNT entry.
dtss	Last modification date and time (packed format).

For input and output files:



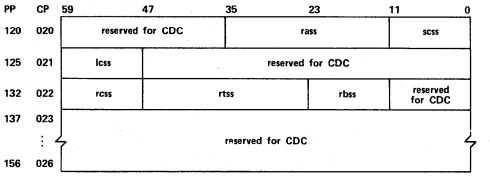
ioss	Copy of QFT entry.

For input files:



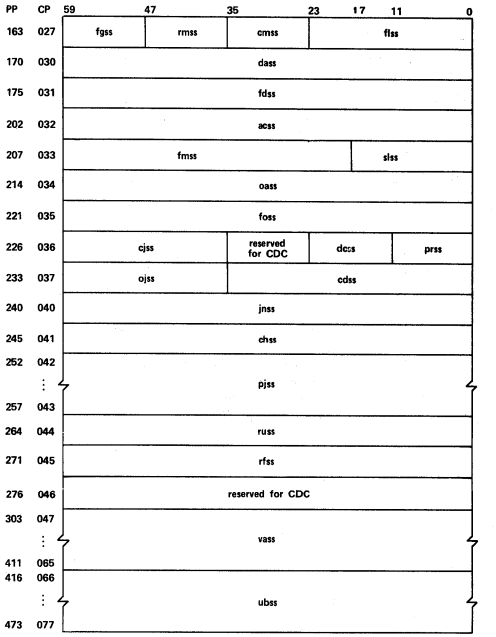
jass	Job abort code.
rnss	Record number of bad card.
cnss	Number of bad card.
crss	Cards read.
jcss	Job CM field length.
jess	Job ECS field length (divided by ECS block length).
jfss	Job flags.
jtss	Job time limit.
tnss	Terminal name.
trss	Terminal number.
siss	Subsystem identifier.
cpss	Control point number.
hrss	Hardware error rerun count.
sess	Software error rerun count.
epss	Encrypted batch password (bits 59 through 18).
isss	Initial interactive subsystem.

For output files:



rass	Random address of dayfile.
scss	Print train image code for 512/580 (bits 9 through 6). Biased by 10B if explicitly specified. Spacing code for 580 PFC support (bits 5 through 0).
lcss	Lines or statement limit index.
rcss	Repeat count.
rtss	Random index.
rbss	Requeue buffer.

For input and output files:



The following apply to input and output files:

fgss Flags.

Bit(s)	Description
59	Data in user data block.
58-50	Reserved for CDC.
49	File in active queue.
48	File placed in queue.

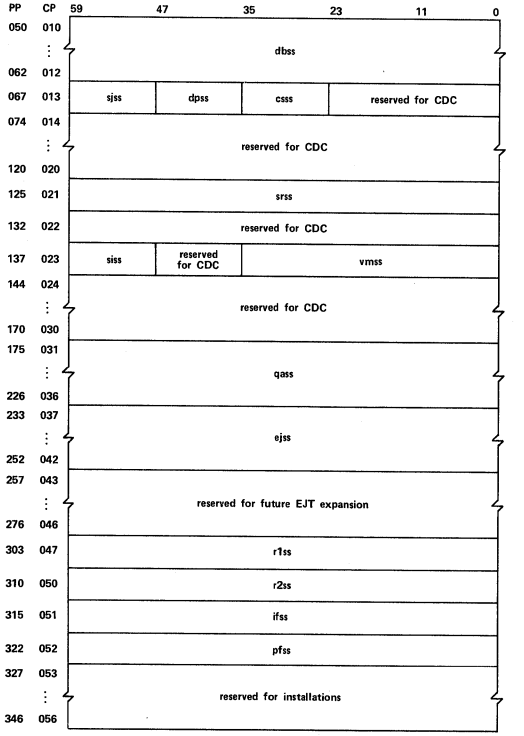
rmss Resident mainframe machine identifier.

cmss Creation mainframe machine identifier.

flss File length in sectors.

dass	Destination user name (bits 59 through 18); reserved for CDC (bits 17 through 0).
fdss	Destination family name (bits 59 through 18); reserved for CDC (bits 17 through 0).
acss	Creation user name (bits 59 through 18); creation user index (bits 17 through 0).
fmss	Creation family name.
slss	Creation system LID.
oass	Owner user name (bits 59 through 18); owner user index (bits 17 through 0).
foss	Owner family name (bits 59 through 18); reserved for CDC (bits 17 through 0).
cjss	Creation JSN.
dcss	Disposition code.
prss	Priority.
ojss	Original JSN.
cdss	Queued file creation date and time.
jnss	User job name (bits 59 through 18); reserved for CDC (bits 17 through 0).
chss	Charge number (output files only).
pjss	Project number (output files only).
russ	Remote user name (bits 59 through 18); reserved for CDC (bits 17 through 0).
rfss	Remote family name (bits 59 through 18); reserved for CDC (bits 17 through 0).
vass	First half of account file validation block.
ubss	User data block.

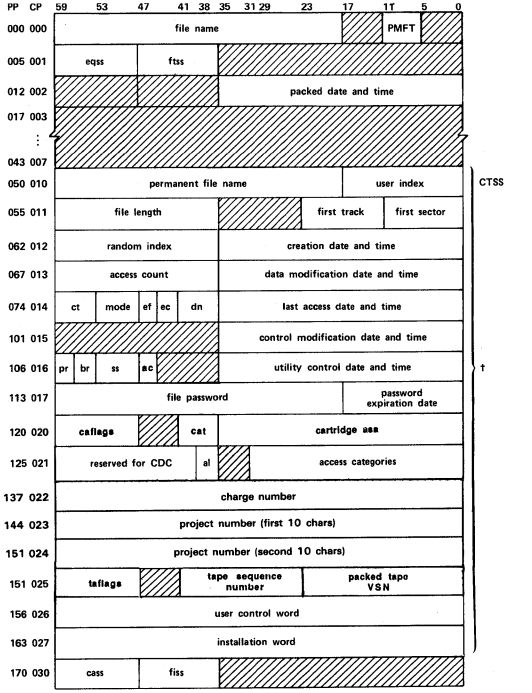
For rollout files:



The following apply to rollout files:

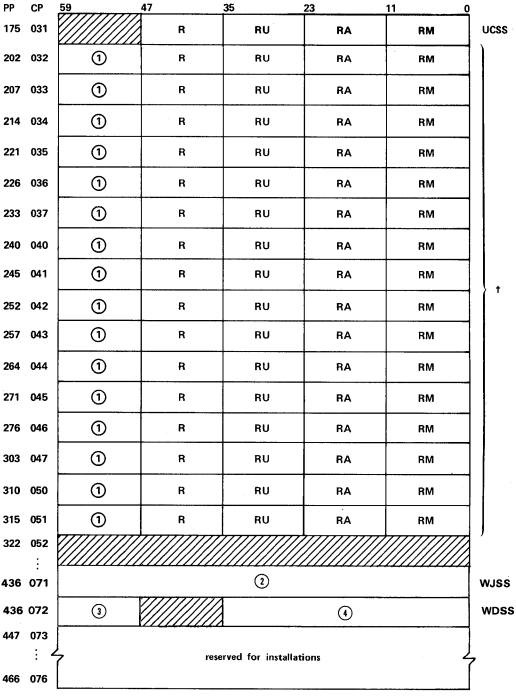
dbss	Dayfile buffer pointers.
sjss	SSJ= flag.
dpss	DMP= CM FL control.
csss	Service class change.
srss	Reserved for CDC (bits 59 through 48); flags (bits 47 through 42); reserved for CDC (bits 41 through 36); time increment (bits 35 through 18); SRU increment (bits 17 through 0).
siss	Subsystem identifier.
vmss	Service class validation mask.
qass	QAC ALTER parameters for lRI.
ejss	EJT entry at time of rollout.
rlss	Word rc1n from job's negative field length.
r2ss	Word rc2n from job's negative field length.
ifss	Input file FST word from local FNT entry.
pfss	Primary file FNT word from local FNT entry.

Direct Access File System Sector Format



† Permanent File Catalog Entry.

eqss	EST ordinal.	
ftss	First track.	
cass	59-56	Reserved.
	55	File attached with nonrollable option (independent shared devices only).
	54	File currently attached by system utility.
	53	File has been purged.
	52	File can be shortened (W mode).
	51	File can be rewritten (W, M, or U mode).
	50	Zero.
	49	File can be extended (W, M, or A mode).
	48	Zero.
fiss	47-36	Fast attach (40xx); upper bit set indicates file is in fast attach mode, lower 6 bits (41 through 36) contain index into fast attach table (FAT) if file is global fast attach. Bit(s) 41 through 36 are zero if file resides on an independent shared device.



†One word for each possible remote mainframe.

ucss User counts:

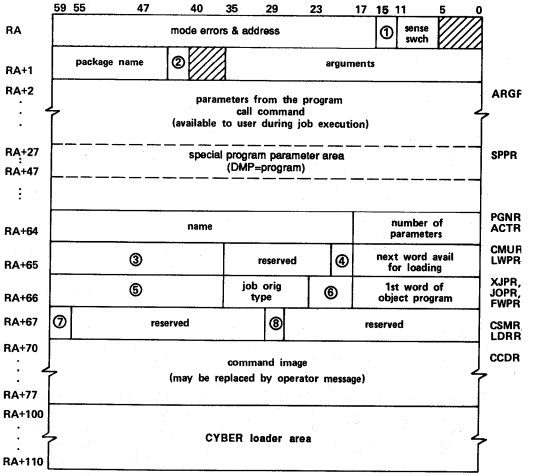
R Read users.

RU Read allow update users.

RA Read allow append users.

RM Read allow modify users.

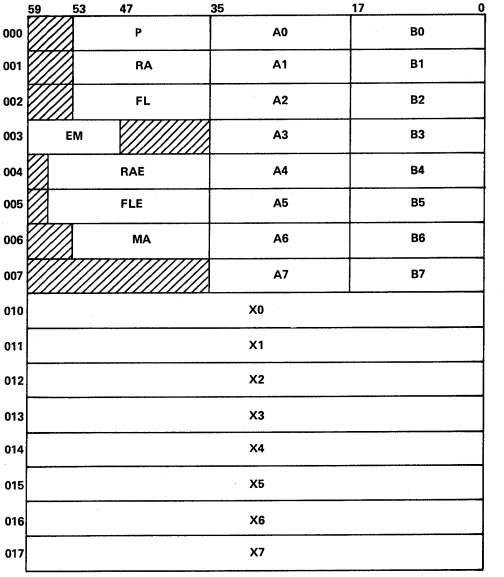
JOB COMMUNICATION AREA



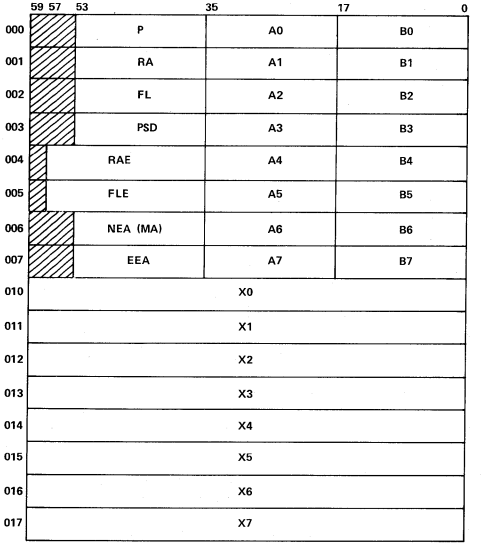
Ref	Bit(s)	Description
①	15	Subsystem idle down flag.
	14	CFO bit if console forced operator command is allowed.
	13	Status flag.
	12	Pause flag.
②	40	Auto recall.
③	59	Set if compare/move unit (CMU) hardware is present.
	58-36	LWA+1 of loadable area in EM (CYBER Loader).
④	18	Set if load from system library.
⑤	59	Set if CEJ/MEJ option is available.
	58-36	FWA of loadable area in EM (CYBER Loader).
⑥	23-20	Reserved.
	19	Set if program called from DIS.
	18	RSS bit.
⑦	59	Set indicates system is in 64-character set mode.
⑧	29	Set if load has completed.

EXCHANGE PACKAGE AREA

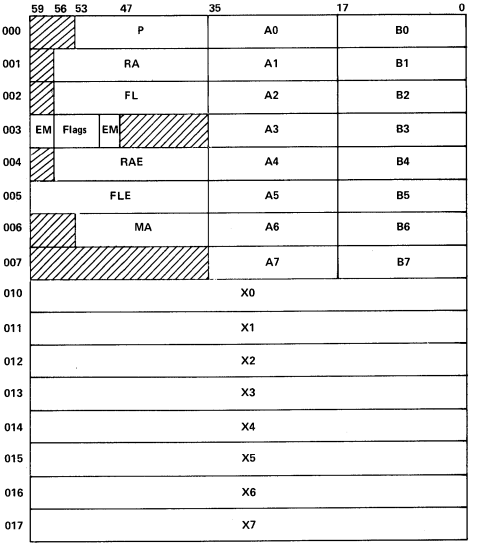
Exchange package area for models 171, 172, 173, 174, 175, 720, 730, 750, and 760; models 71, 72, 73, and 74; and 6000 Computer Systems.



Exchange package area for model 176.



Exchange package area for models 865 and 875 and for CYBER 180-class models.



The exchange package area fields apply to all NOS computer systems unless otherwise noted.

Field	Description
P	Program address.
Ai	Address registers.
Bi	Increment registers.
RA	Reference address for central memory.
FL	Field length for central memory.
EM †	Exit modes. An exit mode is selected by setting the appropriate bit and disabled by clearing the appropriate bit.

Bit(s)	Description
59	CM data error.††
58	CMC input error.††
57	ECS flag register operation parity errors.††
52-51	Hardware error exit status.†††
50	Indefinite operand.
49	Operand out of range.
48	Address out of range.

Flags ††††

Bit	Description
56	UEM enabled.
55	Expanded addressing mode (models 840, 845, 850, 855, 860, 865, 870, 875, 990, and 995).
54	Block copy.
53	CMU interrupted (not used on models 865 and 875).
52	Instruction stack purging.
51	Hardware error exit status (not used on models 865 and 875).

†Does not apply to model 176.
††Models 171, 172, 173, 174, 175, 720, 730, 750, 760, 865, and 875.
†††Model 74 only.
††††Models 865 and 875 and CYBER 180-class machines only. Refer to the hardware reference manual for the individual mainframe for more details.

Field	Description
PSD†	Program status designator (PSD) register.

Bit(s)	Description
53	Exit mode flag.
52	Monitor mode flag.
51	Step mode flag.
50	Indefinite mode flag.
49	Overflow mode flag.
48	Underflow mode flag.
47	LCME (ECS) error condition.
46	CM error condition.
45	LCME block range condition.
44	CM block range condition.
43	LCME direct range condition.
42	CM direct range condition.
41	Program range condition.
40	Not used.
39	Step condition.
38	Indefinite condition.
37	Overflow condition.
36	Underflow condition.

RAE	Reference address for extended memory. RAE/100B if expanded addressing mode.
FLE	Field length for extended memory. FLE/100B if expanded addressing mode.
MA	Monitor address.
NEA	Normal exit address.
EEA	Error exit address.
Xi	Operand registers.

†Model 176 only.

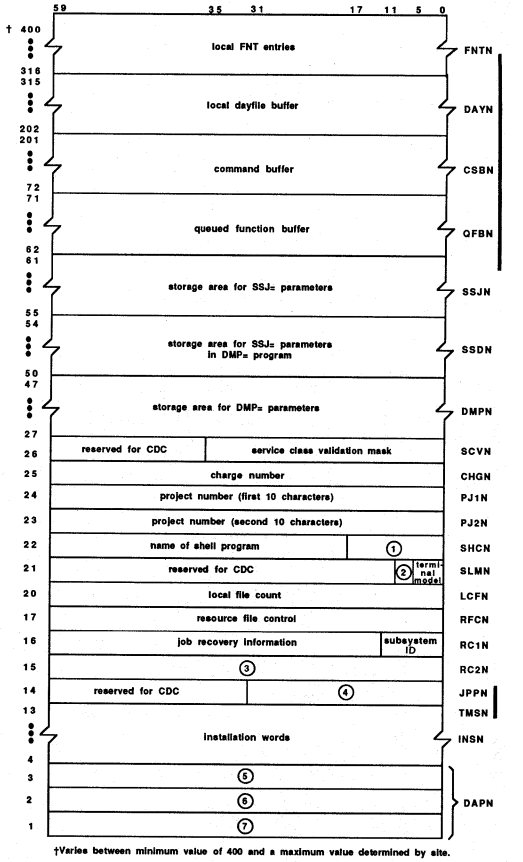
ERROR FLAGS

Error Flag (Octal)	Mnemonic	Description
1	TIET	User break 1.
2	TAET	User break 2.
3	ARET	Arithmetic error.
4	ITET	SCP invalid transfer address.
5	PSET	CPU encountered a program stop.
6	PPET	PP abort. PP program requested that the job be aborted (CIO or PFM, for example).
7	CPET	CPU abort. The job issued an ABT request.
10	PCET	PP call error. The job issued a nonexistent or invalid system request.
11	-	Reserved for installations.
12	-	Reserved for CDC.
13	CLET	Command limit. The job is allowed an additional 64 commands for error processing.
14	MLET	Message limit. The job is allowed an additional 64 messages for error processing.
15	TLET	Time limit. Job is allowed an additional 10 seconds of CPU time for error processing.
16	FLET	File limit. The job attempted to assign more active files to the job than are allowed by the validation parameter.
17	TKET	Track limit. The job requested mass storage space on a device with none available.
20	SRET	SRU limit. The job is allowed an additional 10 SRUs to complete error exit processing.
21	-	Reserved for CDC.
22	FSET	Forced error.
23	RCET	Job hung in auto recall.
24	ODET	The operator dropped the job.
25	IDET	Idle down.

Special error flags (certain operations cannot be terminated unless the value of the error flag is greater than or equal to 26).

Error Flag (Octal)	Mnemonic	Description
26	SPET	Beginning of special errors.
27	STET	Suspension timeout.
30	ECET	Extended memory parity error.
31	RSET	Subsystem recovered during level 3 deadstart.
32	SSET	Subsystem abort.
33	-	Reserved for CDC.
34	RRET	Operator reran job.
35	OKET	Operator killed job.
36	NRET	Beginning of nonreprievable errors.
37	DRET	Deadstart rerun.
40	RAET	Recovery abort.
41	JSET	Job step abort.
42	SVET	Security violation.
43	SYET	System abort.
44	PEET	CPU or CM parity error.
45	SWET	Software error abort.
46	ORET	Override of error condition.
47	MXET	Maximum number of error flags.
48-77	-	Reserved for CDC.

NEGATIVE FIELD LENGTH

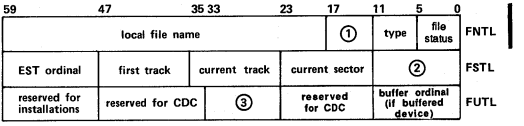


†Varies between minimum value of 400 and a maximum value determined by site.

Ref	Bit(s)	Description
①	17-12	Reserved for CDC.
	11	Shell program executing.
	10-8	Reserved.
	7	Clear control if shell load errors.
	6	Clear control if shell program aborts.
	5	Local file load allowed.
	4	Global library load allowed.
	3	System library load allowed.
	2	Interactive commands monitored.
	1	Batch commands monitored.
	0	Commands from procedures monitored.
②	6	Screen mode flag: 1 Screen mode. 0 Line mode.
③	59-48	Subsystem ID number.
	47-27	Reserved for CDC.
	26-21	Predetached service class.
	20-18	Time Sharing Subsystem from terminal table.
	17-15	Initial character set.
	14-12	Current character set.
	11-10	Reserved for CDC.
	9	Screen mode.
	8	User effect mode.
	7	Text mode.
	6	Terminal control disabled.
	5	Output file type (0=primary, 1=Rollout)
	4	Output available.
	3	Input requested.
	2	Job continuation (job to be reenabled).
	1	Brief mode.
	0	Prompt OFF.
④	31-28	Job print density.
	27-20	Job page length.
	19-12	Job page width.
	11	User defined defaults not in effect.
	10	TO=E.
	9	TO=F.
	8-0	Reserved for CDC.
⑤	59-36	FWA of buffer.
	35-0	IN pointer.
⑥	59-24	Length of buffer.
	23-0	OUT pointer.
⑦	59-48	EST ordinal for dayfile.
	47-36	First track of dayfile.
	35-24	Current track.
	23-12	Current sector.
	11-2	Reserved for CDC.
	1	Buffer interlock (0=interlocked)
	0	Buffer busy (0=busy)

LOCAL FILE NAME TABLE (FNT) ENTRY

For Mass Storage Files:

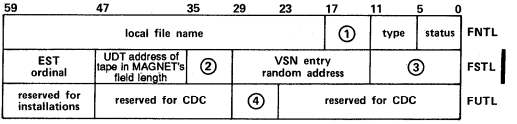


File Type	Value (Octal)	Description
-	0-6	Reserved.
ROFT	7	Rollout (DMP= processing).
LIFT	10	Library.
PTFT	11	Primary terminal.
PMFT	12	Direct access permanent file.
FAFT	13	Fast attach file.
SYFT	14	System.
LOFT	15	Local.
-	16	Reserved.
INFT	17	Input.
QFFT	20	Deferred routed queued file.
MXFT	21	Maximum number of file types.
UPST	1	User file privacy.
SSST	2	SST= file.
CBST	3	CB checkpoint file
CKST	4	CK checkpoint file.
SOST	5	Special output.
AAST	6	Application accounting.
NDST	7	No-auto-drop.

Ref	Bit(s)	Description
(1)	17	Reserved for CDC.
	16	Extend-only file.
	15	Alter-only file.
	14	Execute-only file.
	13	Utility attached file.
	12	Write lockout.
(2)	11	Allow system sector access via CIO.
	10	Set if fast attach file access.
	9	File access interlock (LIFT files only).
	8	File opened.
	7	File written on since last opened.
	6	File written on.
	5-4	Reserved for CDC.
	3-2	Read status:†
		0 Incomplete read.
		1 EOR.
		2 EOF.
		3 EOI.
	1	Last operation was a write.
	0	Busy status (0= busy).
(3)	32-30	File size validation index.
	29-28	Reserved for CDC.
	27	PF Activity incremented (LIFT files only).
	26-24	File access level.

†If last operation was a write or position, bit 2 set indicates operation complete (IN=OUT=FIRST).

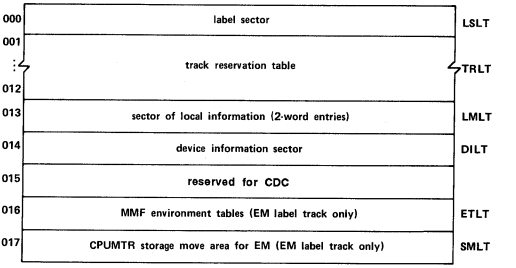
For Tape Files:



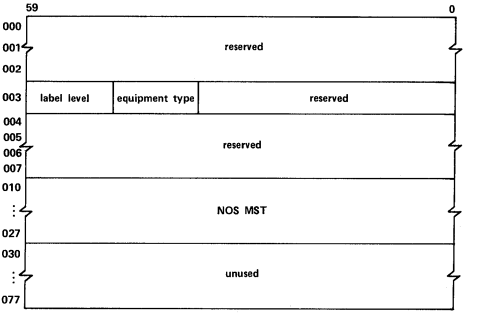
Ref	Bit(s)	Description
①	17	File assigned for CE diagnostics.
	16-14	Reserved for CDC.
	13	File opened.
	12	Write lockout.
②	35-32	Tape format.
	31-30	Reserved for CDC.
③	11	Labeled tape.
	10-1	Reserved for CDC.
	0	Busy status (0= busy).
④	29-27	Reserved for CDC.
	26-24	File access level.

MASS STORAGE LABEL FORMAT

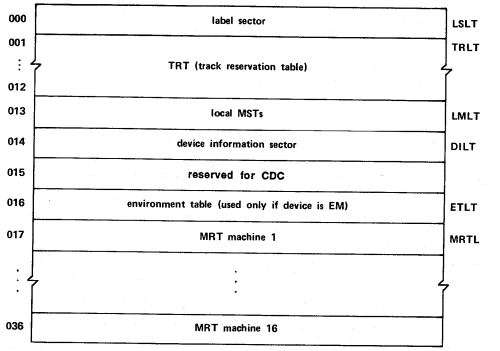
DEVICE LABEL TRACK FORMAT (INDEPENDENT SHARED DEVICE NOT PRESENT)



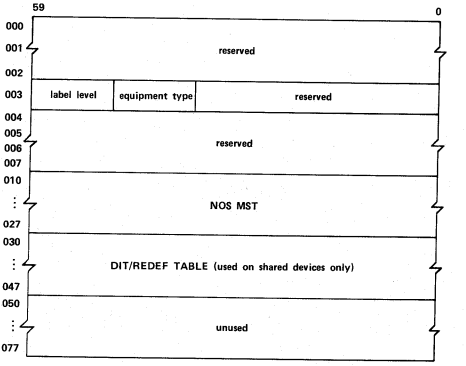
DEVICE LABEL SECTOR FORMAT (INDEPENDENT SHARED DEVICE NOT PRESENT)



DEVICE LABEL TRACK FORMAT (INDEPENDENT SHARED DEVICE PRESENT)



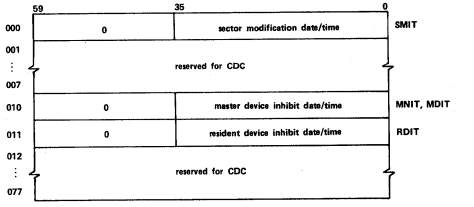
DEVICE LABEL SECTOR FORMAT (INDEPENDENT SHARED DEVICE PRESENT)



MULTIMAINFRAME TABLES

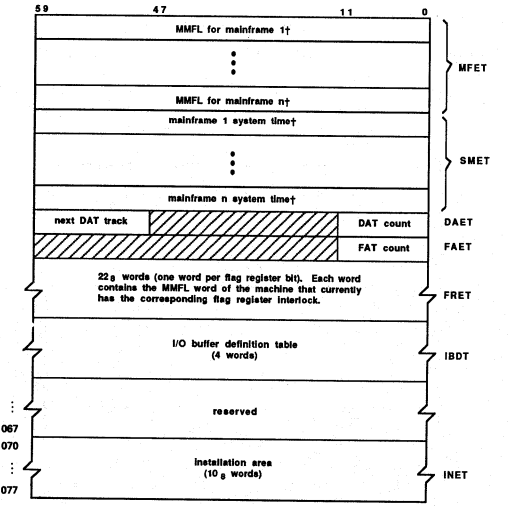
DEVICE INFORMATION SECTOR

Sector 14_8 of the ECS/ESM label track has the following format:



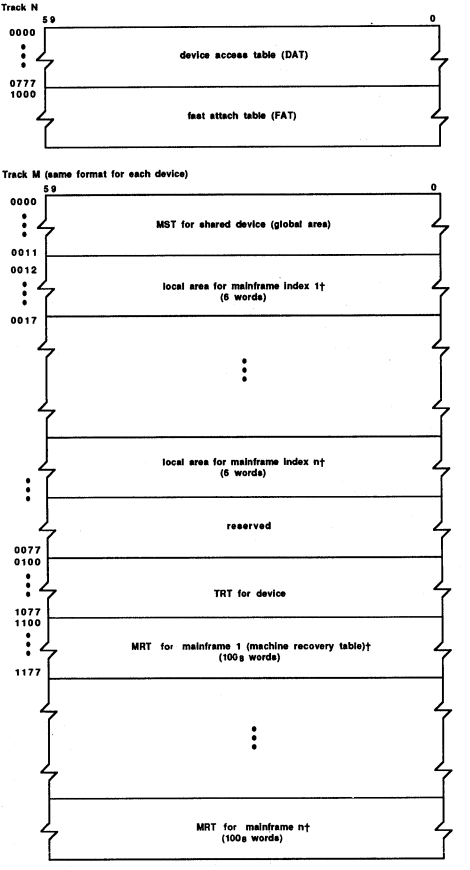
MMF ENVIRONMENT TABLES

Sector 16_8 of the ECS/ESM label track is defined as follows:



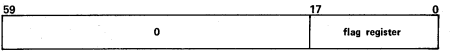
†One word for each mainframe. The number of mainframes is defined by the symbol MXMF in COMSMMF. The released default number is 4.

MMF—DAT TRACK CHAIN (ECS)



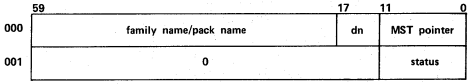
†One entry for each mainframe. The number of mainframes is defined by the symbol MXMF in COMSMMF. The released default number is 4.

MMF—ECS FLAG REGISTER FORMAT



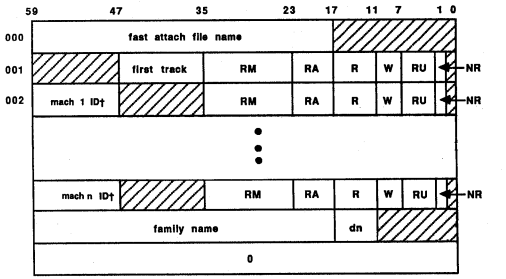
Mnemonic	Bit(s)	Description
-	17-12	Reserved.
COMI	11	CPUMTR intermachine communication request present.
CIRI	10	CPUMTR interlock recovery.
FATI	9	FAT interlock.
IFRI	8	Intermachine function request interlock.
BTRI	7	Block transfer in progress.
PRSI	6	Deadstart ECS preset in progress.
DATI	5	Device access table interlock.
TRTI	4	TRT interlock; machine specified by bits 3 through 0 is requesting a TRT interlock.
-	3-0	Machine mask indicating which machine has TRT interlock bit set.

DEVICE ACCESS TABLE (DAT) ENTRY



dn	Device number.
MST pointer	If zero, device is not shared.
status	Bit 11 is set if recovery is in progress, and bits 10 through 0 are the machine masks of the machines accessing the device.

FAST ATTACH TABLE (FAT) ENTRY—GLOBAL



RM	READMD users.
RA	READAP users.
R	READ users.
W	Write mode: 10 Update. 7 Write. 3 Modify. 1 Append.
RU	READUP users.
NR	Nonrollable.
dn	Device number.

†One entry for each mainframe. The number of mainframes is defined by the symbol MXMF in COMSMMF. The released default number is 4.

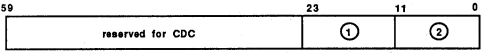
MACHINE STATE TABLE

59 47	11 0	
machine ID	①	②
machine ID	①	②
machine ID	①	②
machine ID	①	②

Ref	Bit(s)	Description
①	47	Independent shared devices present.
	46	Set when link device can only be accessed via the LSP.
	45	Reserved for CDC.
	44-36	EST ordinal of link device (EMEQ).
	35	Set if this machine has DATI recovery interlock.
	34-33	Reserved for CDC.
	32-24	Count of devices with initialize pending that have not been checkpointed.
	23-12	Machine mask.
②	11-0	Current machine state: 0 Down (MFDN). 1 Active (MFAC). 2 Sensed as down for one status internal (MFD1). 3 Sensed as down for two status intervals (MFD2). 4 Acknowledged as down either because in normal MMF mode, or due to DOWN,MID=xx command issued by operator (MFDA). 5 Interlocks are released by either CPUMTR or MTE, then machine is placed in MFCD state (MFCD). 6 1MR function CDV is called to perform additional processing (MFMR).

MTE REQUEST QUEUE

Two requests per PP can exist in the queue. Each entry has the following format:

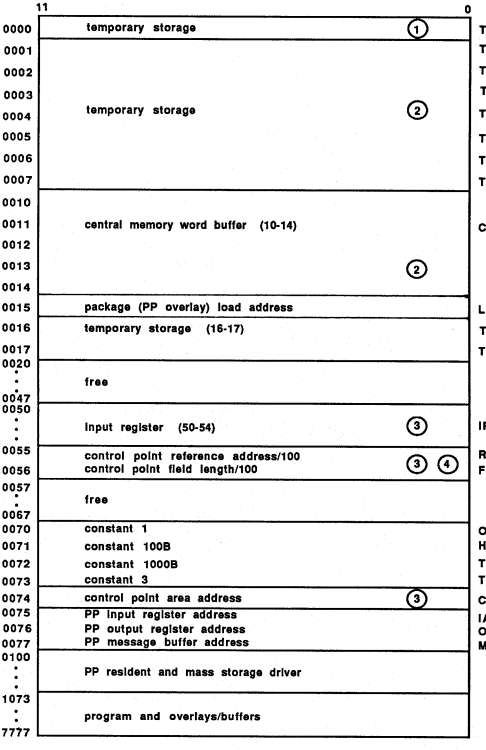


Ref	Bit(s)	Description
1	23-12	Parameters (for both functions): PP output register address. MST address/10B.
2	11	Labeled tape.
	10-3	Reserved for CDC.
	2	ORT demand file error flag.
	1	Reserved for CDC.
	0	Busy status (0=busy).

PP MEMORY LAYOUT

POOL PROCESSORS

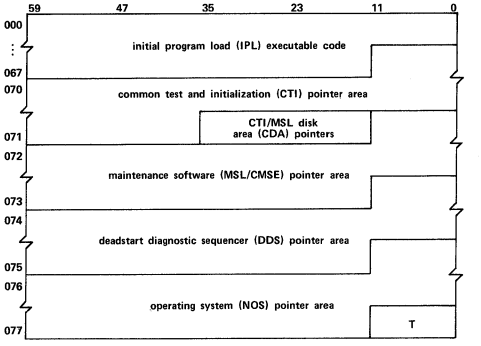
(PP2 through PP11 on 10-PP machines; PP2 through PP11 and PP20 through PP31 on 20-PP machines.)



Ref	Description
(1)	Destroyed by CRM, CWM, IAM, OAM instructions.
(2)	Scratch area for EXR (PP resident entry point for overlay loading).
(3)	Set by PP resident before entry to program.
(4)	Reset after each monitor function.

DEADSTART PANEL SETTINGS AND OPTIONS

DISK DEADSTART SECTOR FORMAT



†T = IPL transfer address − 1 (7420_8)

COLDSTART/WARMSTART FROM CARD READER PANEL SETTINGS FOR 667 OR 669 TAPE UNITS

Word on Panel	Setting†				Octal
0001	111	101	1cc	ccc	75cc
0002	111	111	0cc	ccc	77cc
0003	fff	000	000	000	f000
0004	000	000	000	000	0000
0005	111	111	0cc	ccc	77cc
0006	001	100	000	000	1400

†All CYBER 180-class models. Though not shown, they are in the four leftmost positions and must be set to 0. The corresponding bits in the coldstart program for the models 810, 815, 825, 830 must also be set to 0.

Word on Panel	Setting†				Octal
0007	111	100	0cc	ccc	74cc
0010	111	001	0cc	ccc	71cc
0011	111	110	110	100	7664
0012	000	000	0tt	ttt	00tt
0013	rrr	ppp	xxx	xxx	rpxx
0014	eee	010	11u	uuu	e2uu

COLDSTART FROM TAPE UNIT PANEL SETTINGS FOR 667 OR 669 TAPE UNITS

Word on Panel	Setting†				Octal
0001	111	101	ttt	ttt	75tt
0002	011	110	001	101	3615
0003	001	000	001	100	1014
0004	001	111	000	001	1701
0005	000	101	111	110	0576
0006	111	111	1tt	ttt	77tt
0007	000	000	11u	uuu	00uu
0010††	000	011	000	000	0300

†All CYBER 180-class models. Though not shown, they are in the four leftmost positions and must be set to 0. The corresponding bits in the coldstart program for the models 810, 815, 825, and 830 must also be set to 0.

††The remainder of the panel is not used.

COLDSTART/WARMSTART FROM CARD READER PANEL SETTINGS FOR 844/885 DISK UNITS

Word on Panel	Setting†				Octal
0001	111	101	1cc	ccc	75cc
0002	111	111	0cc	ccc	77cc
0003	fff	000	000	000	f000
0004	000	000	000	000	0000
0005	111	111	0cc	ccc	77cc
0006	001	100	000	000	1400
0007	111	100	0cc	ccc	74cc
0010	111	001	0cc	ccc	71cc
0011	111	110	110	100	7664
0012	000	000	0tt	ttt	00tt
0013	rrr	ppp	xxx	xxx	rpxx
0014	eee	011	uuu	uuu	e3uu

COLDSTART FROM DISK UNIT PANEL SETTINGS FOR 844/885 DISK UNITS

Word on Panel	Setting†				Octal
0001	111	101	1tt	ttt	75cc
0002	111	111	0tt	ttt	77cc
0003	000	001	uuu	uuu	01uu
0004	000	011	000	000	0300

†All CYBER 180-class models. Though not shown, they are in the four leftmost positions and must be set to 0. The corresponding bits in the coldstart program for the models 810, 815, 825, and 830 must also be set to 0.

COLDSTART/WARMSTART FROM DISK UNIT PANEL SETTINGS FOR 844/885 DISK UNITS ON A CHANNEL WITH NO ACTIVE PP

Word on Panel	Setting†				Octal
0001	000	000	000	000	0000
0002	111	101	1tt	ttt	75tt
0003	111	111	0tt	ttt	77tt
0004	eee	001	uuu	uuu	eluu
0005	111	111	0tt	ttt	77tt
0006	eee	011	uuu	uuu	e3uu
0007	111	100	0tt	ttt	74tt
0010	111	001	0tt	ttt	71tt
0011	111	011	000	001	7301
0012	000	000	000	000	0000††
0013	rrr	ppp	xxx	xxx	rpxx
0014	000	000	000	000	0000

COLDSTART FROM DISK UNIT PANEL SETTING FOR 834/836

Refer to appropriate warmstart panel, changing word 6 to 0luu.

†All CYBER 180-class models. Though not shown, they are in the four leftmost positions and must be set to 0. The corresponding bits in the coldstart program for the models 810, 815, 825, and 830 must also be set to 0.

††For CYBER 180 Computer Systems, refer to Setting For Word 12 later in this section.

WARMSTART PANEL SETTINGS FROM CHANNEL WITH ACTIVE PP† (CYBER 170/180 COMPUTER SYSTEMS ONLY)

Word on Panel	Setting††				Octal
0001	001	100	000	010	1402
0002	111	011	0tt	ttt	73tt
0003	000	000	001	111	0017
0004	111	101	1tt	ttt	75tt
0005	111	111	0tt	ttt	77tt
0006	ddd	ddd	ddd	ddd	dddd
0007	111	100	0tt	ttt	74tt
0010	111	001	0tt	ttt	71tt
0011	111	011	000	001	7301
0012	000	000	000	000	0000†††
0013	rrr	ppp	xxx	xxx	rpxx
0014	000	000	000	000	0000
0015	000	000	000	000	0000
0016	000	000	000	000	0000
0017	000	000	000	000	0000
0020	111	001	001	010	7112

†Channels 0, 12, 13, 32, and 33 do not have active PP.

††All CYBER 180-class models. Though not shown, they are in the four leftmost positions and must be set to 0. The corresponding bits in the coldstart program for the models 810, 815, 825, and 830 must also be set to 0.

†††For CYBER 180 Computer Systems, refer to Setting For Word 12 later in this section.

WARMSTART PANEL SETTINGS FROM CHANNEL WITH ACTIVE PP† (6000 AND CYBER 70 COMPUTER SYSTEMS ONLY)

Word on Panel	Setting				Octal
0001	001	100	000	010	1402
0002	111	011	0tt	ttt	73tt
0003	000	000	001	011	0013
0004	111	101	1tt	ttt	75tt
0005	111	111	0tt	ttt	77tt
0006	ddd	ddd	ddd	ddd	dddd
0007	111	100	0tt	ttt	74tt
0010	111	001	0tt	ttt	71tt
0011	111	011	000	001	7301
0012	rrr	ppp	xxx	xxx	rpxx
0013	000	000	000	000	0000
0014	111	001	001	010	7112

†Channels 0, 12, 13, 32, and 33 do not have active PP.

WARMSTART PANEL SETTINGS FROM CHANNELS 0, 12, 13, 32, and 33

Word on Panel	Setting†				Octal
0001	000	000	000	000	0000
0002	000	000	000	000	0000††
0003	000	000	000	000	0000††
0004	111	101	1tt	ttt	75tt††
0005	111	111	0tt	ttt	77tt††
0006	ddd	ddd	ddd	ddd	dddd
0007	111	100	0tt	ttt	74tt
0010	111	001	0tt	ttt	71tt
0011	111	011	000	001	7301
0012	000	000	000	000	0000†††
0013	rrr	ppp	xxx	xxx	rpxx
0014	000	000	000	000	0000

†All CYBER 180-class models. Though not shown, they are in the four leftmost positions and must be set to 0. The corresponding bits in the coldstart program for the models 810, 815, 825, and 830 must also be set to 0.

††If a 6681 data channel converter is the first equipment on the channel or if it precedes the deadstart device controller, words 2, 3, and 4 must be set as follows:

Word	Setting				Octal
0002	111	101	1tt	ttt	75tt
0003	111	111	0tt	ttt	77tt
0004	010	001	000	000	2100

†††For CYBER 180 Computer Systems, refer to Setting for Word 12 later in this section.

KEY TO PANEL SETTINGS

		1	Switch up.
		0	Switch down.
CC	/	ccc ccc	Card reader channel number.
DDDD	/	ddd ddd ddd ddd	Deadstart function; dependent on device type.
E26U	/	010 11u uuu	667/669 tape units.
12U	/	eee 001 01u uuu	67x tape units (800 cpi).
03UU	/	000 011 uuu uuu	834†/836†/844/885 disk units (warmstart).
05UU	/	000 010 uuu uuu	834††/836†† disk units (fast warmstart)
33UU	/	011 011 uuu uuu	895 disk unit (warmstart)
E	/	eee	Tape/disk unit controller number.
F	/	fff	Card reader controller number.
TT	/	ttt ttt	Tape/disk channel number.
U	/	uuu	Tape/disk unit number.

WORD 12 AND/OR 13 OPTIONS†††

R	/	rrr = 0	Level 0 (initial) deadstart; no recovery (all PP and CM confidence tested).
		= 1	Level 1 recovery deadstart; the system, all jobs, all active files, and permanent files are recovered from checkpoint information on mass storage (all PP and CM confidence tested).

†Diagnostics are executed when warmstarting 834/836 disks.

††Diagnostics are not executed when warmstarting 834/836 disks.

†††Word 12 for CYBER 70 and 6000 Computer Systems; word 13 for all other machines.

= 2 Level 2 recovery deadstart; all jobs, active files, and permanent files are recovered from checkpoint information on mass storage; system is loaded from deadstart tape (all PP and CM confidence tested).

= 3 Level 3 recovery deadstart; the system, all jobs, and active files are recovered from central memory tables; permanent files are also recovered (memory confidence testing occurs in PPs only).

P / ppp Bit 8 = Unused.

Bit 7 = 1 Save PP0 in CM during express deadstart dump.

Bit 6 = 1 Display CMRDECK.

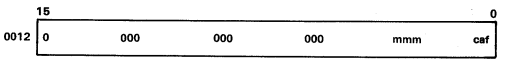
XX / xxx xxx CMRDECK number.

The following deadstart panel setting transfers the contents of PP0 to another PP:

Word on Panel	Setting				Octal
0001	010	000	000	000	2000
0002	111	111	111	110	7776
0003	111	011	ppp	ppp	73pp
0004	000	000	000	000	0000
0005	000	011	000	000	0300

PP / ppp ppp PP to which transfer is to be made.

SETTINGS FOR WORD 12 (MODELS 810, 815, 825, 830, 835, 840, 845, 850, 855, 860, 870, 960, 990, 994, AND 995)



mmm Indicates mainframe model:

Value	Mainframe
001	810, 815, 825, 830
010	835
011	840, 845, 850, 855, 860, 870, 960, 990, 994, and 995

c If set, specifies that the deadstart displays will appear on a CC634B or CC598B console connected to port 0 of models 835, 840, 845, 850, 855, 860, 870, 960, 990, 994, and 995. If c is clear, the deadstart is initiated at the CC545 console.

a If set, specifies that CTI does not initialize the alternate PP.

f Enables or disables the extended deadstart sequence:

Value	Option
1	If the LONG/SHORT DEADSTART SEQUENCE switch is set to the up position,† the system loads and executes the extended deadstart sequence.
0	The extended deadstart sequence does not occur.

†For models 815 and 825, typing L after entering or retrieving the deadstart program takes the place of setting the LONG/SHORT DEADSTART SEQUENCE switch.

MASS STORAGE DATA ORGANIZATION

For the storage subsystems in this section, a sector is defined as follows:

1 sector = 1 PRU = 64 60-bit words.

EXTENDED CORE STORAGE (ECS)

NOS accesses ECS I and ECS II as a single device.

• Equipment type	DE/DP.†	
• Sectors/track	16.	
• Tracks/device	121	125K of ECS I.
	242	250K of ECS I.
	484	500K of ECS I.
	968	1000K of ECS I.
	1937	2000K of ECS I.
	126	131K of ECS II.
	252	262K of ECS II.
	504	524K of ECS II.
	1008	1048K of ECS II.
	2016	2097K of ECS II.
• Words of data/ device	123904	125K of ECS I.
	247808	250K of ECS I.
	495616	500K of ECS I.
	991232	1000K of ECS I.
	1983488	2000K of ECS I.
	129024	131K of ECS II.
	258048	262K of ECS II.
	516096	524K of ECS II.
	1032192	1048K of ECS II.
	2064384	2097K of ECS II.

†ECS subequipment values are in associated MST. The values are in word DILL (byte 3) and further define the type of ECS equipment.

- Maximum data rate: 80K words per second (wps) for PP transfers. 160K wps for 2x PPs.

- Address mapping:

System		Physical	
Unit	Bits	Unit	Bits
Track	0-10	Address	0-20
Sector	0-3		

Formula:

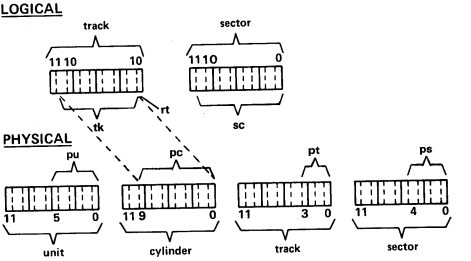
$(T_{0-10} \times 2020_8) + (S_{0-3}) = \text{linkage word}$

$(T_{0-10} \times 2020_8) + 20_8 + (S_{0-3} \times 100_8) = \text{data}$

Concerning this formula, note the following:
1 track = 1024_{10} words data + 16_{10} linkage words.

7255/834 DISK STORAGE SUBSYSTEM

- Equipment type DD-n
- Sectors/track 160 x n ($1 \leq n \leq 8$)
- Tracks/device 1628
- Words/device 16670720
- Maximum data rate 96K wps



int(x) Integer portion of x.
rem Remainder of x divided by y.
(x/y)
tk Logical track.
sc Logical sector.
pu Physical unit number (bits 5 through 0).
pc Physical cylinder number (bits 9 through 0).
pt Physical track number (bits 3 through 0).
ps Physical sector number (bits 4 through 0).
lu Logical unit.
rt Relative track in physical cylinder (bit 0 of logical track).

lu = int($sc/240_8$).

ps = rem[$(rt*240_8 + rem(sc/240_8))/40_8$].

pt = int[$(rt*240_8 + rem(sc/240_8))/40_8$].

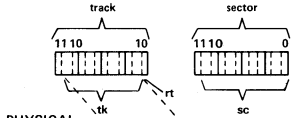
pc = tk(bits 10 through 1).

pu = Obtained from physical unit list in DDLL MST word.

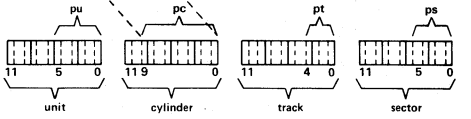
7255/836 DISK STORAGE SUBSYSTEM

- Equipment type DG-n
- Sectors/track 564 x n ($1 \leq n \leq 3$)
- Tracks/device 1628
- Words/device 50462208
- Maximum data rate 122.88K wps

LOGICAL



PHYSICAL



int(x) Integer portion of x.
rem (x/y) Remainder of x divided by y.
tk Logical track.
sc Logical sector.
pu Physical unit number (bits 5 through 0).
pc Physical cylinder number (bits 9 through 0).
pt Physical track number (bits 4 through 0).
ps Physical sector number (bits 5 through 0).
lu Logical unit.
rt Relative track in physical cylinder (bit 0 of logical track).

$lu = int(sc/564_8)$.

$ps = rem[(rt*564_8 + rem(sc/564_8))/47_8]$.

$pt = int[(rt*564_8 + rem(sc/564_8))/47_8]$.

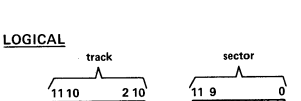
pc = tk(bits 10 through 1).

pu = Obtained from physical unit list in DDLL MST word.

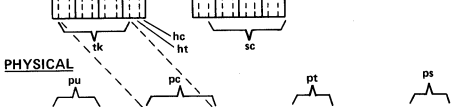
7x5x/844-21 DISK STORAGE SUBSYSTEMS (HALF-TRACK)

- Equipment type DI-n
- Sectors/track 107 x n ($1 \leq n \leq 8$)
- Tracks/device 1632
- Words/device 11175936 x n
- Maximum data rate 46.1K wps

LOGICAL



PHYSICAL



int(x) Integer portion of x.
rem (x/y) Remainder of x divided by y.
tk Logical track.
sc Logical sector.
pu Physical unit number (bits 5 through 0).
pc Physical cylinder number (bits 8 through 0).
pt Physical track number (bits 4 through 0).
ps Physical sector number (bits 4 through 0).
lu Logical unit.
ht Half-track bit (bit 1 of logical track).
hc Half-cylinder bit (bit 0 of logical track).
a Intermediate result.

$lu = int(sc/153_8)$.

$a = ht + 2 * rem(sc/153_8)$.

$ps = rem(a/30_8)$.

$pt = hc * 11_8 + int(a/30_8)$.

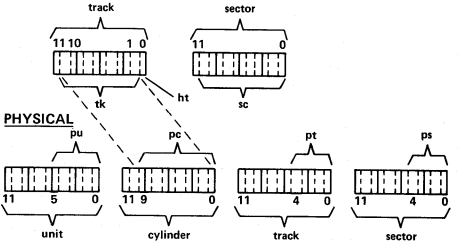
pc = tk(bits 10 through 2).

pu = Obtained from physical unit list in DDLL MST word.

7x5x/844-41/-44 DISK STORAGE SUBSYSTEMS (HALF-TRACK)

- Equipment type DJ-n
- Sectors/track 227 x n ($1 \leq n \leq 8$)
- Tracks/device 1640
- Words/device 23825920 x n
- Maximum data rate 46.1K wps

LOGICAL



int(x) Integer portion of x.
rem (x/y) Remainder of x divided by y.
tk Logical track.
sc Logical sector.
pu Physical unit number (bits 5 through 0).
pc Physical cylinder number (bits 9 through 0).
pt Physical track number (bits 4 through 0).
ps Physical sector number (bits 4 through 0).
lu Logical unit.
ht Half-track bit (bit 0 of logical track).
a Intermediate result.

$lu = int(sc/343_8)$.

$a = ht + 2*rem(sc/343_8)$.

$pt = int(a/30_8)$.

$ps = rem(a/30_8)$.

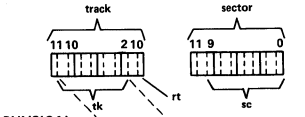
pc = tk(bits 10 through 1).

pu = Obtained from physical unit list in DDLL MST word.

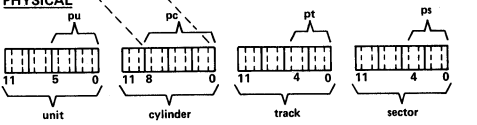
7152/7154/844-21 DISK STORAGE SUBSYSTEMS (FULL-TRACK)

- Equipment type DK-n
- Sectors/track 112 x n ($1 \leq n \leq 8$)
- Tracks/device 1632
- Words/device 11698176 x n
- Maximum data rate 92.16K wps

LOGICAL



PHYSICAL



int(x) Integer portion of x.
rem (x/y) Remainder of x divided by y.
tk Logical track.
sc Logical sector.
pu Physical unit number (bits 5 through 0).
pc Physical cylinder number (bits 8 through 0).
pt Physical track number (bits 4 through 0).
ps Physical sector number (bits 4 through 0).
lu Logical unit.
rt Relative track in physical cylinder (bits 1 and 0 of logical track).

$lu = int(sc/160_8)$.

$ps = rem[(rtx162_8 + rem(sc/160_8))/30_8]$.

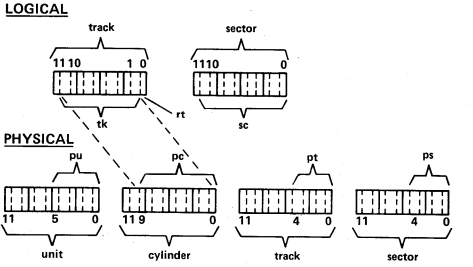
$pt = int[(rtx162_8 + rem(sc/160_8))/30_8]$.

pc = tk(bits 10 through 2).

pu = Obtained from physical unit list in DDLL MST word.

715x/844-41/-44 DISK STORAGE SUBSYSTEMS (FULL-TRACK)

- Equipment type DL-n
- Sectors/track 227 x n ($1 \leq n \leq 8$)
- Tracks/device 1640
- Words/device 23825920 x n
- Maximum data rate 92.16K wps




```
int(x)  Integer portion of x.
rem     Remainder of x divided by y.
(x/y)
tk      Logical track.
sc      Logical sector.
pu      Physical unit number (bits 5 through 0).
pc      Physical cylinder number (bits 9 through 0).
pt      Physical track number (bits 4 through 0).
ps      Physical sector number (bits 4 through 0).
lu      Logical unit.
rt      Relative track in physical cylinder (bit 0 of
        logical track).
```

$lu = int(sc/343_8)$.

$ps = rem[(rt*345_8 + rem(sc/343_8))/30_8]$.

$pt = int[(rt*345_8 + rem(sc/343_8))/30_8]$.

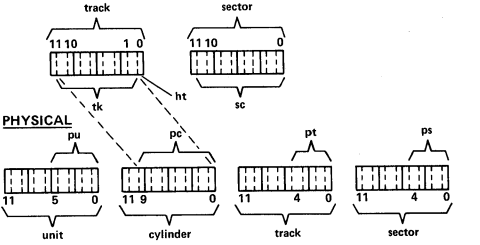
pc = tk(bits 10 through 1).

pu = Obtained from physical unit list in DDLL MST word.

7155/885 DISK STORAGE SUBSYSTEMS (HALF-TRACK)

- Equipment type DM-n
- Sectors/track 640 x n ($1 \leq n \leq 3$)
- Tracks/device 1682
- Words/device 68894720 x n
- Maximum data rate 61.44K wps

LOGICAL



int(x) Integer portion of x.
rem Remainder of x divided by y.
(x/y)
tk Logical track.
sc Logical sector.
pu Physical unit number (bits 5 through 0).
pc Physical cylinder number (bits 9 through 0).
pt Physical track number (bits 4 through 0).
ps Physical sector number (bits 4 through 0).
lu Logical unit.
ht Half-track bit (bit 0 of logical track).

lu = int(sc/1200_8).

pt = int(sc/20_8).

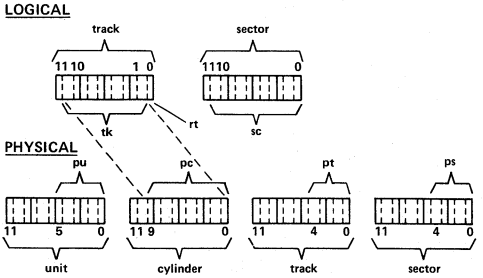
ps = ht + rem(sc/20_8).

pc = tk(bits 10 through 1).

pu = Obtained from physical unit list in DDLL MST word.

7155/885 DISK STORAGE SUBSYSTEMS (FULL-TRACK)

- Equipment type DQ-n
- Sectors/track 640 x n ($1 \leq n \leq 3$)
- Tracks/device 1682
- Words/device 68894720 x n
- Maximum data rate 122.88K wps



int(x) Integer portion of x.
rem Remainder of x divided by y.
(x/y)
tk Logical track.
sc Logical sector.
pu Physical unit number (bits 5 through 0).
pc Physical cylinder number (bits 9 through 0).
pt Physical track number (bits 4 through 0).
ps Physical sector number (bits 4 through 0).
lu Logical unit.
rt Relative track in physical cylinder (bit 0 of logical track).

$lu = int(sc/1200_8)$.

$ps = rem(sc/40_8)$.

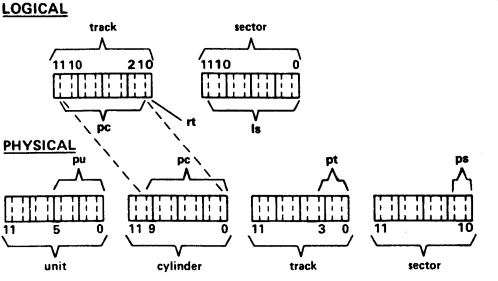
$pt = rt*24_8 + int(sc/40_8)$.

pc = tk(bits 10 through 1).

pu = Obtained from physical unit list in DDLL MST word.

887 DISK STORAGE SUBSYSTEMS

	Equipment type	DF-n (4K sector)	DH-n (16K sector)
•	Sectors/track	608 x n ($1 \leq n \leq 3$)	704 x n $1 \leq n \leq 2$)
•	Tracks/device	1768	1768
•	Words/device	68796416 x n	79659008 x n
•	Maximum data rate	983K wps	1122K wps

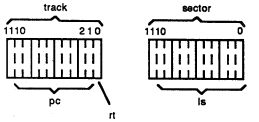



```
lt      Logical track.
ls      Logical sector.
sl      Sector limit (608 for 4K; 704 for 16K)
lu      Logical unit.
rt      Relative logical track (bit 0 of lt).
pc      Physical cylinder number (bits 1-11 of lt).
pt      Physical track.
ps      Physical sector.
pu      Physical unit.
int(x)  Integer portion of x.
rem     Remainder.

lu = int(ls/st).

For 4K format:

pt = int((rt x sl + rem(ls/sl))/460(8)).

ps = rem((rt x sl + rem(ls/sl))/460(8))/10(8).

For 16K format:

pt = int((rt x sl + rem(ls/sl))/540(8)).

ps = rem((rt x sl + rem(ls/sl))/540(8))/40(8).
```

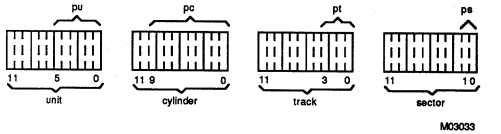
9853 DISK STORAGE SUBSYSTEM

- Equipment type — DN (2K sector)
- Sectors/track — 1120
- Tracks/device — 2007
- Words/device — 143861760
- Maximum data rate — 312K wps

LOGICAL



PHYSICAL

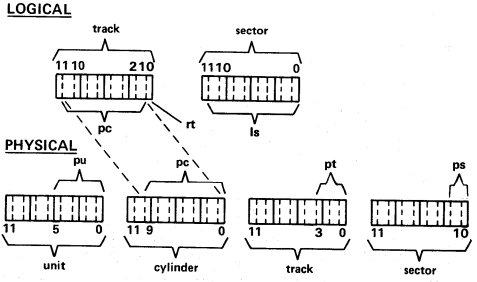


lt	Logical track.
ls	Logical sector.
rt	Relative logical track (bit 0 of lt).
pc	Physical cylinder number (bits 1-11 of lt).
pt	Physical track.
pu	Physical unit.
rs	Relative sector number.
rem	Remainder.
1120=	Sector limit.
399=	Sectors per cylinder.
21=	Sectors per track.

```
rs=    ((lt * 1120 + ls)/40B) * 10B.
pc=    rs/399.
pt=    (rem (rs/399))/21.
ps=    rem ((rem (rs/399))/21.
```

7165/895 DISK STORAGE SUBSYSTEMS

- Equipment type DC-n
- Sectors/track 704 x n ($1 \leq n \leq 2$)
- Tracks/device 1766
- Words/device 79749120 x n
- Maximum data rate 400K wps



rem (x/y)	Remainder of x divided by y.
lt	Logical track.
ls	Logical sector.
sl	Sector limit (1300B).
lu	Logical unit.
rt	Relative logical track (bit 0 of lt).
pc	Physical cylinder number (bits 1 through 10 of lt).
pt	Physical track.
ps	Physical sector.

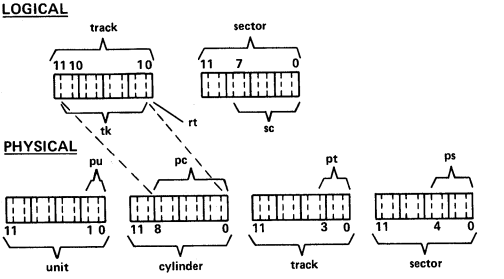
$lu = ls/sl$

$pt = (rt \times sl + rem(ls/sl))/140_8$

$ps = rem((rt \times sl + rem(ls/sl))/140_8)/40_8$

819 DISK STORAGE SUBSYSTEMS (FULL-TRACK, SINGLE DENSITY)

- Equipment type DV
- Sectors/track 800
- Tracks/device 814
- Words/device 41676800
- Maximum data rate 558K wps



int(x) Integer portion of x.
rem Remainder of x divided by y.
(x/y)
tk Logical track.
rt Relative track in physical cylinder (bit 0 of logical track).
sc Logical sector.
pu Physical unit.
pt Physical track.
ps Physical sector.

pu = Obtained from DDLL word of MST.

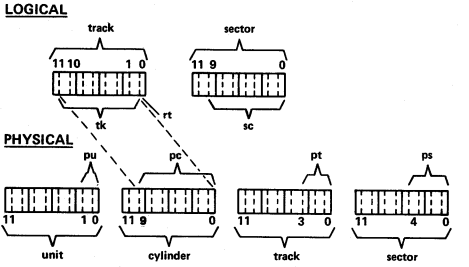
pc = bits 10 through 1 of tk.

pt = rt*s + int($sc/240_8$).

ps = int((rem($sc/240_8$))/10_8).

819 DISK STORAGE SUBSYSTEMS (FULL-TRACK, DOUBLE DENSITY)

- Equipment type DW
- Sectors/track 800
- Tracks/device 1636
- Words/device 83763200
- Maximum data rate 558K wps



int(x) Integer portion of x.
rem (x/y) Remainder of x divided by y.
tk Logical track.
rt Relative track in physical cylinder (bit 0 of logical track).
sc Logical sector.
pu Physical unit.
pt Physical track.
ps Physical sector.

pu = Obtained from DDLL word of MST.

pc = bits 10 through 1 of tk.

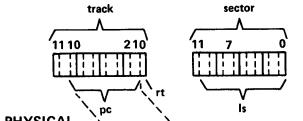
pt = rt*5 + int(sc/240_8).

ps = int((rem(sc/240_8))/10_8).

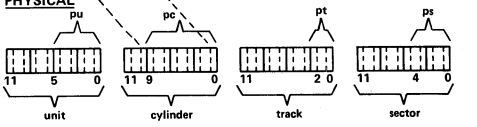
7155-401/885-42 PARALLEL-HEAD DISK STORAGE SUBSYSTEMS

- Equipment type DB-n
- Sectors/track 640 x n ($1 \leq n \leq 3$)
- Tracks/device 1682
- Words/device 68894720 x n
- Maximum data rate 491.52K wps.

LOGICAL



PHYSICAL



rem(x/y)	Remainder of x divided by y.
lt	Logical track.
ls	Logical sector.
lu	Logical unit (obtained from physical unit table).
pu	Physical unit number.
pc	Physical cylinder number (bits 10 through 1 of lt).
pt	Physical track number.
ps	Physical sector.
rt	Relative track in physical cylinder (bit 0 of logical track).
sl	Sector limit (1200_8).

$ls = lu/sl$

$pt = (rt \times sl + rem(ls/sl))/200_8$

$ps = (rem(rt \times sl + rem(ls/sl))/200_8)/4$

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PP FUNCTION REQUESTS

The following list is a quick reference to monitor function mnemonics and the corresponding function codes.

Mnemonic	Code	Mnemonic	Code
ABTM	46	PLFM	66
ACTM	25	PRLM	15
AFAM	26	RCHM	16
ASCM	01	RCLM	67
BFMM	27	RCPM	70
BIOM	47	RCXM	07
BMIM	50	RDCM	37
BOTM	02	RECM	71
CCAM	51	REQM	72
CCHM	03	RJSM	73
CDAM	52	RLMM	74
CDBM	12	ROCM	75
CEFM	53	RPNM	76
CHGM	21	RPPM	77
CKSM	30	RSJM	100
CPRM	54	RSTM	17
CSTM	31	RTCM	40
DCHM	04	SCDM	101
DCPM	55	SCSM	23
DEQM	56	SEQM	20
DFMM	57	SFBM	102
DLKM	32	SFLM	10
DPPM	60	SJCM	103
DRCM	05	SMDM	41
DSRM	06	SPLM	45
DSWM	13	STBM	42
DTKM	33	TDAM	104
EATM	61	TGPM	105
ECSM	34	TIOM	106
ECXM	35	TRCM	107
HLTM	14	TSEM	110
HNGM	22	UADM	111
JACM	62	UTEM	112
LDAM	63	VFLM	113
LMSM	64	VFPM	114
MTRM	65	VMSM	43
MXFM	117	VSAM	115
PIOM	36		

NOTE

All monitor functions should be treated as if a storage move can occur while the request is pending. All PP routines should take this into account. Absolute addresses set before issuing a monitor function must be considered invalid after the function completes.

MONITOR REQUEST TO PPR

MTR or CPUMTR sets one of the PPR function codes in the PP output register to initiate special processing in PP resident. Unlike MTR and CPUMTR functions, the PPR functions have no replies.

01 Avoid Search Call—ASCM

Request:

OR 0001 ccrr rrrr rrrr aaaa

Refer to SPLM reply for information on ccrr rrrr rrrr aaaa.

02 Begin Overlaying Task—BOTM

Request:

OR 0002 aaaa aaaa pppp pppp

aaaa FWA of a three-word bootstrap to be loaded at 7762 in PP memory.

pppp Parameters passed on to the bootstrap program.

PP REQUESTS TO MTR

A PP sets one of the following codes in the output register when a system request to MTR is made. The system replies to the request with a word in the output register as shown.

03 Check Channel—CCHM

Request:

OR 0003 ooaa **** **** ****

aa Channel number where bit 41 is the concurrent channel (CCH) indicator.

0 Nonconcurrent channel.
1 Concurrent channel.

Reply:

OR 0000 cccc 000r **** ****

cccc Channel assigned if r is 1. If down channel is in use by maintenance user, cccc has a value of 0040. The CCH indicator is not returned in cccc when a CCH is assigned.

r 1 Channel assigned.
0 Channel not assigned.

A PP hung condition results if a channel is specified that is not in the configuration.

04 Drop Channel—DCHM

Request:

OR 0004 00ch **** **** ****

ch Channel number where bit 41 is the concurrent channel indicator.

Reply:

OR 0000 0000 0000 0000 0000

A PP hung condition results if an invalid channel number is entered or if the channel is not assigned to the calling PP.

05 Driver Recall CPU—DRCM

Request:

OR 0005 **** **** **** ****

Reply:

OR 0000 0000 0000 0000 0000

06 DSD Request—DSRM

This function is honored only from DSD or, for request subfunction only, if bit 57 of word SCRL is set.

Request:

OR 0006 nnss eeee ffff vvvv

nn Byte number to step (ss=0, 3 only).

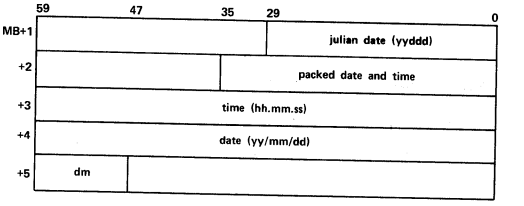
ss Subfunction:
00 Set monitor step (MSP).
01 Advance monitor step (STP).
02 Enter date and time (EDT).
03 Set emergency step (SES).
04 Clear monitor step (CMS).

eeee EJT ordinal to be stepped (ss=0, 3 only); zero if step all monitor functions. Address+1 of PP message buffer (ss=2 only).

ffff Function to step (ss=0, 3 only). Zero if step all functions.

vvvv Byte value to step (ss=0, 3 only).

For ss=2, MB+1 through MB+5 contain the following information:



dm Number of days in current month+1.

Reply:

OR 0000 0000 0000 0000 0000

07 XM Transfer During Rollin/Rollout—RCXM

MTR will process this function by changing it to an ECXM function and passing it on to CPUMTR.

Request:

OR 0007 ffff pppp ttaa aaaa

MB wwww **** cccc eeee eeee

ffff

Bit(s)	Description
47	Set if alternate CP/PCP specified.
46-36	Reserved for CDC.

pppp	35-24	Alternate CP/PCP number if bit 47 is set.
tt	23-19	Reserved for CDC.
	18	Function type. 0 if read request. 1 if write request.
aa..a	17-0	Alternate response address.

wwww Word Count.

cccc Relative CM address $/100_8$ for start of transfer.

ee...e Relative EM address $/100_8$ for start of transfer.

Reply:

OR 0000 0000 0000 0000 0000

ADDR 0000 stat 0000 0000 0000

stat=status.

0 if no error on transfer.

7777 if error on transfer.

10 Set FL Increase Rejected—SFLM

Request:

OR 0010 000f ctlp **** ****

f 1 Set CM increase rejected.
2 Set extended memory increase rejected.

ctlp Control point number.

Reply:

OR 0000 **** **** ****

11 Reserved

12 Check Dayfile Busy—CDBM

Request:

OR 0012 bbbb 00mc ccss aaaa

bbbb Byte count of message.

mc Message control; refer to DFMM message control specifications.

cc Control point.

ss State of delay:
0 Wait until dayfile buffer identified by aaaa is not busy and not interlocked.
1 Wait until PP dump buffer is not busy.

aaaa Address of dayfile buffer pointers.

Reply:

This function is issued only by CPUMTR for delayed processing of DFMM requests. Refer to DFMM reply specifications later in this section.

13 Driver Seek Wait—DSWM

Request:

OR 0013 **** **** ffff ****

MB cccc eeee tttt ssss chrv

MB+1 001u stpu cyla phtr phse

ffff Status flags:

0	Drop channel and release software unit interlock.
1	Request channel without unit interlock.
2	Seek in progress.
4	Storage move wait or unit switch.
10	Hardware drive reserved.
11	Request/select channel, software unit interlock, and system equipment (if bit 5 of chrv is set).
20	Write in progress (834 and 836 only).
2000	Controller reserved.

cccc Channel.

eeee EST ordinal.

tttt Logical track.

ssss Logical sector.

chrv Channel reservation control. If bit 5 is set, system device selection is enabled. Bits 4 through 0 nonzero if channel cccc reserved.

lu Logical unit if ffff≥4.

st Seek type (834 and 836 only).
0 Normal seek.
1 Write seek.
2 Read seek.
3 Check write complete.

pu Physical unit if ffff≥4.

cyla Cylinder address.

phtr Physical track.

phse Physical sector.

Intermediate processing:

OR 0013 rpad 00pn chch cpfg

MB cccc eeee tttt ssss 0001

rpad Reentry processor address.

pn PP number.

chch Channels to request.

cp Control point number (bits 11 through 7).

fg
01 Request for channel and unit on new seek.
02 Seek wait flag.
04 Equipment shared.
10 Seek is outstanding on shared device.
20 Caller-selected channel.
40 834/836 device flag.
100 Write in progress (834 and 836 only).

cccc Channel.

eeee EST ordinal.

tttt Logical track.

ssss Logical sector.

Reply:

OR 0000 rrrr 00gs rprp cccc

MB Same as for request with chrv updated.

MB+1 Same as for request with pu updated.

rrrr 10 Drive release.
20 Operation complete.

gs General status function:
12 or 1 if 834/836 write in progress function.

rprp Return parameter:
rp chrv (channel reservation status) if status is error free.
rp Complement of ec if error detected (ec = disk error code).

cccc Selected channel.

A PP hung condition results if any of the following occurs:

- Invalid status flag (ffff).
- Equipment not mass storage.
- Invalid channel number (ch).
- Channel not assigned to PP when chrv≠0.

14 Halt PP—HLTM

Request:

OR 0014 **** **** **** ****

Reply:

OR 0000 0000 0000 0000 0000

OR 0014 **** **** **** ****

15 Pause for Storage Relocation—PRLM

Request:

OR 0015 **** **** **** ****

Reply:

OR 0000 0000 0000 0000 0000

16 Reserve Channel—RCHM

Request:

OR 0016 00aa 00bb **** ****

aa First channel choice where bit 41 is the concurrent channel indicator.

0 Nonconcurrent channel.
1 Concurrent channel.

bb Second channel choice where bit 29 is the concurrent channel indicator.

0 Nonconcurrent channel.
1 Concurrent channel.

Reply:

OR 0000 00ch **** **** ****

ch Channel assigned.

A PP hung condition results if a channel is specified that is not in the configuration.

17 Request Storage—RSTM

Request:

OR 0017 ffff rrrr pppp ****

ffff Field length request (100_8-word blocks for CM request and UEBS-word blocks for extended memory request).

rrrr Flag bits.

Bit	Description
0	Type of storage request (1=XM).
1-4	Unused.
5	Clear Storage request complete.
6	Set increase in FLIW if not available.
7	Special request (VER only).
8	CM request for negative FL.
9	Set if PCP request.
10	Set if pseudo-rollout request.
11	Set if psendo-rollin request.

pppp PCP number (if bit 9 of rrrr set).

Reply:

OR 0000 xxxx 0000 0000 0000

xxxx If zero, request has been honored; if nonzero, storage is not available.

A PP hung condition results if any of the following occurs:

- Extended memory is requested and user EM is not defined.
- Negative field length is requested for control point zero.
- Field length $>3777_8$ blocks is requested.
- An extended memory request is made for negative FL.
- A special request is made by a PP program other than VER.
- A control point number is requested that is greater than the number of control points in use.

Request:

OR 0020 eeee 00sf pppp qqqq

eeee For subfunctions 14 and 15, control point number (upper bit is set if alternate EJT ordinal is specified in qqqq). EST ordinal for all other subfunctions.

sf Subfunction code:

00	ON equipment (ONES).
01	IDLE equipment (IDES).
02	OFF equipment (OFES).
03	DOWN equipment (DWES).
04	Set byte 0 of EST EQDE word (SB0S).
05	Set byte 1 of EST EQDE word (SB1S).
06	Set byte 2 of EST EQDE word (SB2S).
07	Set byte 3 of EST EQDE word (SB3S).
10	Set byte 4 of EST EQDE word (SB4S).
11	DOWN channel (DNCS).
12	UP channel (UPCS).
13	Reserved.
14	Release channel from maintenance job (CCNS).
15	Assign channel to maintenance job (ICNS).
16,17	Reserved.
20	Set equipment mnemonic (SMNS).
21	Clear suspect flag (CSES).
22	Set suspect flag (SSES).
23	Clear restricted activity flag (CRES).
24	Set restricted activity flag (SRES).
25	Reserved.
26	System checkpoint (CKPS).

pppp Not used for subfunctions 00, 01, 02, 03, 21 and 26; equipment mnemonic for subfunction 20; EST byte mask for subfunctions 04 through 10 (mask must have ones to save data and zeros to change data); channel number for subfunctions 11, 12, 14, and 15 (6/0, 1/c, 5/ch, where c is the concurrent channel flag).

qqqq Not used for subfunctions 00 through 03; new EST byte data for subfunctions 04 through 10 (data position must match mask); mux channel indicator for subfunctions 11 and 12; alternate EJT ordinal of channel for subfunctions 14 and 15 if upper bit of eq is set.

Reply:

OR 0000 xxxx xxxx xxxx xxxx

xx...x Zero for subfunction 11 if channel is not up but activity on channel is not complete; zero for subfunction 12 if a maintenance user is active on channel or no PP is available for calling a buffered device driver or 1 MV. Same data as in request for all other cases.

Zero for subfunctions 00, 01, and 02 if the device is mass storage equipment that is presently down and assigned to a job.

Zero for subfunction 03 if attempting to down the last system device.

A PP hung condition results if one of the following occurs:

- Nonmass storage equipment is specified for subfunction 16.
- The specified channel or alternate EJT ordinal for subfunction 13 is not assigned to the caller.
- For subfunctions 11, and 12, EST entry does not contain channel number.
- For subfunctions 11, 12, 13, and 14, a channel is referenced that is greater than 51B (the last concurrent channel entry).
- For subfunctions 11 and 12, a mux channel and concurrent channel are both selected.

PP REQUESTS TO CPUMTR

A PP sets one of the following codes in the output register when a system request to CPUMTR is made. The system replies to the request with a word in the output register as shown.

21 Conditionally Hang PP—CHGM

Request:

OR 0021 aaaa eeee **** ****

aaaa Address in PP where error condition detected.
eeee Error flag to set at control point or zero.

Reply:

OR 0014 HLTM

OR 0000 0000 0000 0000 0000

22 Hang PP—HNGM

Request:

OR 0022 **** **** **** ****

Reply:

OR 0022 **** **** **** ****

23 Set Channel State — SCSM

Request:

OR 0023 eeee 0CH1 00sf 0CH2

eeee EST ordinal.

ch1 Channel 1 data. Channel number including concurrency flag for subfunctions 0, 1, 3, 4, 6, and 7.

sf Subfunction code:

- 0 Reinstate channel (UPSS).
- 1 Remove channel from system use (DWSS).
- 2 Set channel data (SCMS).
- 3 Set channel state UP (SUCS).
- 4 Set channel state IDLE (SICS).
- 5 Reverse channel in MST (RVCS).
- 6 Disable access path (DAPS).
- 7 Enable access path (EAPS).

ch2 Channel 2 data. Data will be stored in channel 2 EST entry field for subfunction 2.

Reply:

OR 0000 00st **** **** ****

st Reply status.

For subfunction 0:

- EQ If request honored.
- 0 If request rejected due to no pp available for buffered driver or 1 MV.

For subfunction 1:

- EQ If request honored. 4000 bit set if channel is globally down.
- 0 If request rejected due to 1 MV. Active on device or channel specific requests present.

For subfunctions 2, 3, 4, 5, and 7:

- EQ No reject conditions.

For subfunction 6:

- EQ If request honored.
- 0 If request rejected due to no alternate path NON-DOWN device.

Clear SRU accumulators (option ABCS)

Request:

OR 0025 0000 0000 0000 0000

Reply:

OR 0000 0000 0000 0000 0000

Account block begin (option ABBF)

Request:

OR 0025 0001 **** **** ****

MB aaaa bbbb cccc dddd eeee

aaaa SRU M1 multiplier.

bbbb SRU M2 multiplier.

cccc SRU M3 multiplier.

dddd SRU M4 multiplier.

eeee SRU adder.

Reply:

OR 0000 0000 0000 0000 0000

Compute SRU working multipliers (option ABSF)

Request:

OR 0025 0002 **** **** ****

Reply:

OR 0000 0000 0000 0000 0000

Account block change (option ABCF)

Request:

OR 0025 0003 **** **** ****

MB aaaa bbbb cccc dddd eeee

aaaa SRU M1 multiplier.

bbbb SRU M2 multiplier.

cccc SRU M3 multiplier.

dddd SRU M4 multiplier.

eeee SRU adder.

Reply:

OR 0000 0000 0000 0000 0000

Compute and convert elapsed SRUs (option ABEF)

Request:

OR 0025 0004 **** **** ****

MB+0 **** aaaa aaaa aaaa aaaa

MB+1 **** bbbb bbbb bbbb bbbb

aa...a Old SRU value.

bb...b New SRU value.

Reply:

OR 0000 0000 0000 0000 0000

MB cccc cccc cccc cccc cccc

cc...c Display code SRU, F10.3 format.

Compute accounting accumulators (option ABVF)

Request:

OR 0025 0005 **** **** ****

MB+0 **** ssss ssss ssss ssss

MB+1 **** **** **cc cccc cccc

MB+2 iiii iiii iiii iiii iiii

MB+3 **** **** **** *aaa aaaa

ss...s SRU value.

cc...c CPU time.

ii...i I/O accumulators.

aa...a Application adder.

Reply:

MB+0 ssss ssss ssss ssss ssss

MB+1 cccc cccc cccc cccc cccc

MB+2 dddd dddd dddd dddd dddd

MB+3 tttt tttt tttt tttt tttt

MB+4 pppp pppp pppp pppp pppp

MB+5 aaaa aaaa aaaa aaaa aaaa

The following values are in display code, F10.3 format:

ss...s SRU value.

cc...c CPU time.

dd...d Mass storage activity.

tt...t Magnetic tape activity.

pp...p Permanent file activity.

aa...a Application adder activity.

Increment accumulator (option ABIF)

Request:

OR 0025 0006 **** **** **fr

MB+0 **** **** **ii iiii iiii

MB+1 vvvv vvvv vvvv vvvv vvvv

f Operation flag (0=add, 1=subtract).

r Request count (1 through 3).

ii...i Increment to apply.

vv...v Accumulator value.

Reply:

OR 0000 0000 0000 0000 0000

MB+0 **** **** **xx xxxx xxxx

MB+1 **** **** **yy yyyy yyyy

xx...x New value first operation.

yy...y New value second operation.

The SRU accumulator value is first converted to an integer number and then integer addition or subtraction is performed. If the converted accumulator value is less than one, one is used. The upper half of the words containing the increments are preserved in the upper half of the reply.

Application program accumulator (option ABUS)

Request:

OR 0025 0007 **** **** ****

MB+0 **** **** aaaa aaaa aaaa

MB+1 **** **** **bb bbbb bbbb

aa...a CPU time (initial).

bb...b CPU time (ending).

Reply:

OR 0000 0000 0000 0000 0000

MB cccc cccc cccc cccc cccc

cc...c Display code CPU seconds, F10.3 format.

The total CPU time used is calculated, the CPU multiplier is factored out, then the CPU time is converted to a display code number in the F10.3 format.

MAP III and AUC accumulators (option ABOF)

Request:

OR 0025 0010 **** **** ****

MB+0 **** **** **** *aaa aaaa

MB+1 **** **** **bb bbbb bbbb

aa...a Bits 19 through 0: MAP III accumulator.

bb...b Bits 28 through 0: AUC accumulator.

Reply:

OR 0000 0000 0000 0000 0000

MB+0 cccc cccc cccc cccc cccc

MB+1 dddd dddd dddd dddd dddd

cc...c MAP III accumulator in F10.3 format.

dd...d AUC accumulator in F10.3 format.

Request:

OR 0026 feee n0mm 000s fnto

f Flags. Returr if request is for an ISHARED device that is inaccessible (bit 45).

eee EST ordinal. 0 for local fast attach file.

n Nonrollable option. Valid only on writable modes for attach subfunction.

mm Mode of attach.

s Subfunction.
0 Attach file (AFAS).
1 Return file (RFAS).

fnto FNT ordinal of file.

Reply:

OR 0000 ssss 0000 0000 ww0n

ssss Status:
0 Function complete.
1 Function not complete. If bit 45 is set, ISHARED device is inaccessible and the function was not performed. OR still contains the request data, except that byte 0 is zero.

ww Bits 11 through 8: ≠0 if file already attached in a writable mode (attach subfunction only).

n Bit 1: nonrollable flag (attach subfunction only).

A PP hung condition results if any of the following occurs:

- Invalid subfunction code entered.
- Invalid FNT ordinal entered.
- Invalid mode entered.
- File is not fast attach (FAFT).

Request:

OR 0027 nni* ccff ffff opbb

nn Number of additional write buffers to interlock (op=4 only).

i Current buffer interlocked flag (op=4 only).

cc Control point number.

ff...f Local FNT relative address for control point. For op=11, EST ordinal (0=flush all buffered devices).

op Operation code:
0 Read buffer (BMRD).
1 Write buffer (BMWR).
2 Rewrite buffer (BMRW).
3 Validate and interlock buffer (BMVI).
4 Release read buffer, get next buffer (BMRG).
5 Release read buffer (BMRB).
6 Flush buffer (BMFL).
7 Release and flush write buffer (BMRF).
10 Flush all write buffers (BMFW).
11 Drop all buffers (BMDB).

bb For op=0, buffer count for read ahead (default is 4 if bc=0). For op=4, 0=read subfunction, 1 or 2=write subfunction.

FNT+0 0000 0000 0000 0000 0000

FNT+1 0est 0000 tttt ssss 0000

FNT+2 0000 0000 0000 0000 iiii

est EST ordinal.

tttt Current logical track.

ssss Current logical sector.

iiii LCME buffer index (For op=4, 5, 6, or 7 only).

Reply:

OR 0000 0000 0000 iiii ss00

MB bfi5 bfi4 bfi3 bfi2 bfi1

MB+1 bf10 bfi9 bfi8 bfi7 bfi6

iiii LCME buffer index.

ss Status:
Bit 11 LCME buffer recall.
Bit 10 LCME buffer busy.
Bit 9 I/O error.
Bit 8 Inaccessible device.
Bit 7 Address error.

For op=4, bc=1 or 2:

bfi(n) LCME buffer index for nth multiple write buffer reserved (0=nth buffer interlocked).

A PP hung condition results if any of the following occurs:

- Invalid operation code (op).
- Invalid subfunction for op=4.
- Multiple write buffer count>100 for op=4.
- Next track not reserved when needed for a multiple write buffer request.

30 Checksum User Job—CKSM

Request:

OR 0030 **ww wwww **ff ffff

MB Checksum compare value.

ww...w Word count.

ff...f Relative first word address of checksum area.

Reply:

OR 0000 0000 0000 0000 ssss

MB Calculated checksum.

ssss Status:
- 0 Calculated checksum equals specified checksum.
- ≠0 Calculated checksum does not equal specified checksum.

31 Clear Storage—CSTM

Request:

OR 0031 0rww wwww aaaa aaaa

MB+i 0000 00ww wwww 00aa aaaa

MB+n 0000 0000 0000 0000 0000

r	Bit	Description
44	0	Normal request.
	1	Special request for RSTM from MTR.
43	0	FWA specifies a CM address.
	1	FWA specifies an extended memory address.
42	0	FWA specifies an absolute address.
	1	FWA specifies an address relative to a control point.

ww...w Word count.

aa...a First word address (if zero, MB contains list of addresses and word count terminated by a zero word).

NOTE

For extended memory, word count is the number of blocks and the FWA is divided by the block size UEBS. UEBS is defined in PPCOM.

ww...w Word count for area i (i=0 to n-1).

aa...a FWA for area i.

Reply:

OR 0000 0000 0000 0000 0000

32 Delink Tracks—DLKM

Request:

OR 0032 feee tttt nnnn llll

f Flags.
Set checkpoint bit for this device upon function completion (bit 47).
Return if request is for an ISHARED device that is inaccessible (bit 45).

eee EST ordinal.

If bit 11 of the EST ordinal byte is set (4xxx), then the checkpoint bit for this device is set upon function completion.

tttt Track onto which nnnn is linked (bit 11 of tttt must be clear).

nnnn Track to be linked to tttt.

llll Last track in chain to drop.

Reply:

OR 0000 ssss 0000 pppp pppp

ssss Status:
Request complete 0 (zero).
Return if request is for an ISHARED device that is inaccessible (bit 45).

pp...p Number of PRUs returned to the system.

Request:

OR 0033 feee tttt ssss ****

f Flags.
Set checkpoint bit for this device upon function completion (bit 47). Tracks to be dropped are local to another mainframe (bit 46). Return if request is for an ISHARED device that is inaccessible (bit 45).

eee EST ordinal.

If bit 10 is set (2xxx), the tracks to be dropped are local to another mainframe.

If bit 11 is set (4xxx), the checkpoint bit for this device is set upon function completion.

tttt First track.

If bit 11 of tttt is 1, all tracks from tttt to end of chain are dropped.

If bit 11 of tttt is 0, all tracks after tttt are dropped and ssss is inserted in track byte.

ssss Sector number.

Reply:

OR 0000 ssss 0000 nnnn nnnn

ssss Status:
Request complete 0 (zero).
Return if request is for an ISHARED device that is inaccessible (bit 45).

nn...n Number of sectors contained in the tracks dropped.

A PP hung condition results if any of the following occurs:

- Equipment is not mass storage or is not in EST.
- Extended memory address of MST is set when not in multimainframe mode.
- Last sector written≥maximum sector limit.
- Request is to drop tracks not local to the machine.
- Track number is greater than the number of tracks on the device.
- Track is not reserved.

34 Extended Memory Transfer—ECSM

Read/Write Relative User Extended Memory

Request:

OR 0034 wcaa aaaa sppp pppp

wc Word count-1.

aa...a Absolute CM address, relative CM address of buffer $+40000_8$.

s Subfunction:
0 Read relative extended memory (RRES).
1 Write relative extended memory (WRES).

pp...p Relative user extended memory address.

Read/Write Absolute System Extended Memory

Request:

OR 0034 wcaa aaaa sppp pppp

wc — Number of words to transfer minus one.

aa...a — CM transfer address. If the uppermost bit of the field is 0, the address is absolute. If the uppermost bit of the field is 1, the address is relative.

s — Subfunction:
- 2 Read up to 100_8 extended memory words (RECS).
- 3 Write up to 100_8 extended memory words (WECS).

pp...p — Absolute system extended memory transfer address.

Set/Clear Flag Register Bit

Request:

OR 0034 wc** **** s*** ****

wc — Bit position in flag register to be manipulated. A nonzero status is returned in byte 1 of the output register if the function cannot be performed.

s — Subfunction:
- 4 Test and set flag register bit (SFRS).
- 5 Unconditionally clear flag register bit (CFRS).

Process Extended Memory According to List

Request:

OR 0034 eeaa aaaa sf** ****

ee — Number of list entries to process.

aa...a — A list of addresses and word counts is located at aaaaaa. Each word in the list has the following format and the list is terminated by a zero word. (Data is read starting at aaaaaa+20_8.)

0000 wc00 0000 bbbb bbbb

wc — Number of extended memory words to be processed (maximum 60).

bb...b — Extended memory address to be processed.

s — 6 — Process extended memory according to list (PELS).

f — Bit 8: Set to read list of words, clear to write list of words.
Bit 7: Set if list contains user EM addresses, clear if list contains system EM addresses.

Reply (all subfunctions except PELS):

OR 0000 ssss **** aaaa aaaa

ssss — Status (zero if no errors, 7777_8 if extended memory error occurred during the transfer one, if address is beyond relative FLE for RRES and WRES subfunctions).

aa...a — Absolute extended memory address at which the error occurred for subfunctions RRES, WRES, RECS, and WECS.

Reply (subfunction PELS only):

OR Error flags

Each bit set in OR indicates that an error occurred in the corresponding EM word starting at bb...b, if the transfer aborted.

35 Extended Memory Transfer—ECXM

Request:

OR 0035 ffff pppp ttaa aaaa

MB wwww **** cccc eeee eeee

ffff	Bit(s)	Description
	47	Set if alternate CP/PCP specified.
	46-36	Reserved for CDC.
pppp	35-24	Alternate CP/PCP number if bit 47 is set.
tt	23-19	Reserved for CDC.
	18	Function type. 0 if read request. 1 if write request.
aa..a	17-0	Alternate response address.

wwww Word Count.

cccc Relative CM address $/100_8$ for start of transfer.

ee...e Relative EM address $/100_8$ for start of transfer.

Reply:

OR 0000 0000 0000 0000 0000

ADDR 0000 stat 0000 0000 0000

stat=status.

0 if no error on transfer.

7777 if error on transfer.

```
Request:

For ss=0,1,2

    OR   0036 ssff **** **** ****

    MB   t4t4 t5t5 t6t6 t7t7 iiii

For ss=3 with OR bit 38=0

    OR   0036 ssff cccc **aa aaaa

    MB   t4t4 t5t5 t6t6 t7t7 iiii

For ss=3 with OR bit 38=1

    OR   0036 ssff wwww wwaa aaaa

    MB   t4t4 t5t5 t6t6 t7t7 iiii

For ss=4

    OR   0036 ssff cccc **aa aaaa

    MB   t4t4 t5t5 t6t6 t7t7 iiii

    MB+4 0000 0000 0000 0000 PPPP

        pppp  PCP number, if non-zero
              (ss=4 only).

For ss=5

    OR   0036 ss** **** fnto

For ss=6

    OR   0036 ssff wwww wwaa aaaa

    MB   **** **** rrrr rrrr ****

        ss      Subfunction code as
                defined in COMSCPS:
                0   Request extended memory
                    buffer (REBS).
                1   Read sector
                    (RESS).
                2   Write sector (WESS).
                3   Read direct (RDDS).
                4   Write direct (WDDS).
                5   Flush 819 I/O LCME buffers
                    (FLBS).
                6   Load CM resident code (LCRS).
```

ff — Function flags:
- Bit 38: Read to EOR, terminate on any short sector (ss=3 only).
- Bit 37: Last sector buffer flush on write (ss=2 only), write EOI and flush buffer for direct write on buffered device (ss=4 only).
- Bit 36: Rewrite (ss=2 only).

t4t4-t7t7 — PP direct cells.

iiii — Channel reservation indicator:
- Bit 9 — Stream data on PRU read.
- Bit 8 — Direct transfer continuation (0 for initial call).
- Bit 7 — Buffer I/O link set.
- Bit 6 — PP I/O buffer reserved (buffer increment in t4t4).
- Bit 5 — System file request.

cccc — Sector count to be transferred.

aa...a — Relative CM address of transfer.

ww...w — LWA+1 of transfer. If zero, LWA+1 of transfer<FL.

rr...r — Absolute address of CM resident code to be transferred.

fnto — FNT ordinal for FNT needing a buffer flushed.

Reply:

For ss=0,1,2

OR 0000 stst **ee eeee eeee

MB+0 t4t4 t5t5 t6t6 t7t7 iiii

MB+1 Same as OR.

For ss=3 with OR bit 38=0, or ss=4.

OR 0000 stst cccc **aa aaaa

MB+0 t4t4 t5t5 t6t6 t7t7 iiii

MB+1 Same as OR

For ss=3 with OR bit 38=1

OR 0000 stst wwww wwaa aaaa

MB+0 t4t4 t5t5 t6t6 t7t7 iiii

MB+1 Same as OR.

For ss=5

OR 0000 0000 0000 0000 0000

For ss=6

OR 0000 stst wwww wwaa aaaa

MB **** **** **rr rrrr ****

stst Return status:

00ec	I/O error, address error, or inaccessible device. The lower 6 bits (ec) contain an error code: 01 Channel parity. 02 Controller stop. 03 Controller memory. 04 Function timeout. 05 Channel failure. 06 Data transfer. 07 Diagnostic failure. 10 Media. 11 Address. 12 Device status. 13 Seek timeout. 14 ISD write timeout. 15 Logical not ready. 16 Hardware not ready. 17 Drive reserve. 20 Controller reserve.
0400	(IFLS) Insufficient field length for load (ss=3 with OR bit 38=1, or ss=6 only).
4000	(RCLS) Function recall (wait for pending 819 I/O or pause is required ss=0, 1, 2, 3, 4 only).
6000	(REIS) Reissue function (set in MB+1 only).

ee...e EM error address, if EM parity error status is returned. If buffered device error, the following information is returned:

29-24	unit
23-12	cylinder
11-6	track
5-0	sector

cccc Remaining sector count.

aa...a Relative CM address updated to LWA+1 of transfer.

ww...w Same as for request.

t4t4 PP buffer increment, if buffer reserved (ss=0, 1, 2). Number of sectors transferred for ss=3, 4.

t5t5 EST ordinal.

t6t6 Track updated to next track, if necessary, for direct transfer (ss=3, 4). Not advanced past EOI track.

t7t7 Sector. Updated to next sector for direct transfer (ss=3, 4). Not advanced past EOI sector.

ii...i Current reservation status (updated from request).

rr...r Same as for request.

A PP hung condition results if any of the following occurs:

- Invalid subfunction code (ss).
- PP I/O buffer previously reserved (subfunction on 0 only).
- PP I/O buffer not previously reserved (subfunction 1 only).
- Invalid sector specification.
- EOR, EOF, or EOI encountered on direct read with sector count (subfunction 3 only).
- Next track not reserved, when direct transfer attempts to cross logical track boundary.

- LWA+1 load>FL (subfunction 3 with OR bit 38 set and subfunction 6 only).
- Direct transfer of specified number of sectors attempted beyond CPFL.
- EOR read flag set on direct write (subfunction 4 only).
- Bit 6 of iiii set, but buffer interlock does not correspond to this PP.
- Function flag selection is invalid for subfunction.

37 Request Data Conversion—RDCM

Request:

```
OR   0037 00ss 0m0w **** term
```

ss
- 0 Convert integer in MB+0 to F10.3 format.
- 1-6 Convert ss integers to F10.3 format, starting with the value in MB+0. If ss=0, convert value in MB+0.
- 7 Convert integer to F20.3 format (RCDS).
- 10 Increment today's date by specified term (RIDS).
- 11 Encrypt password (RFPS).

m — MB word containing quarter nanounits to be recalculated as milliunits (if ss=0 or ss>6, m is ignored). If m=1, MB+0 is recalculated; if m=2, MB+1 is recalculated, and so forth.

w — MB word containing SRU value to be divided by 10 000 (if ss=0, w is ignored). If w=1, MB+0 is divided; if w=2, MB+1 is divided, and so forth. If ss=7 and w≠0, w is a flag indicating that the quarter nanosecond units are to be converted to model 176 CPU clock cycles.

term — Number of days to add to today's date (ss=10 only).

For ss=0 through 6:

MB+0 nnnn nnnn nnnn nnnn nnnn

MB+1 nnnn nnnn nnnn nnnn nnnn

.
.
.

MB+5 nnnn nnnn nnnn nnnn nnnn

nn...n is a 30-bit or 60-bit integer. If a 30-bit integer, upper 30 bits are ignored.

For ss=7:

MB+0 nnnn nnnn nnnn nnnn nnnn

nn...n is a 60-bit integer.

For ss=11:

MB+0 password

Reply (ss=0 through 6):

OR 0000 0000 0000 0000 0000

MB+0 cccc cccc cccc cccc cccc

MB+1 cccc cccc cccc cccc cccc

.
.
.

MB+5 cccc cccc cccc cccc cccc

cc...c is display code conversion in F10.3 format.

Reply (ss=7):

OR 0000 0000 0000 0000 0000

MB+0 cccc cccc cccc cccc cccc

MB+1 cccc cccc cccc cccc cccc

MB+2 **** **** **** **** ****

.
.
.

MB+5 **** **** **** **** ****

cc...c is display code conversion in F20.3 format.

Reply (ss=10):

OR 0000 0000 0000 0000 0000

MB+0 0000 0000 0000 00dd dddd

dd...d is the new packed date.

Reply (ss=11):

OR 0000 0000 0000 0000 0000

MB+0 encrypted password

A PP hung condition results if c>11, m>6, or w>6.

Request:

OR 0040 feee tttt lass ssss

f Flags.
Set checkpoint bit for this device upon function completion (bit 47). Return if request is for an ISHARED device that is inaccessible (bit 45).

eee EST ordinal. If zero, tttt contains selection parameter.

tttt Current track if est is nonzero; device selection parameter if est is zero as follows:

0	TMPS	Temporary device.
1	INPS	Input file device.
2	OUTS	Output file device.
3	ROLS	Rollout file device.
4	DAYS	Job dayfile device.
5	PRIS	Primary file device.
6	LOCS	Local file device.
7	LGOS	LGO file device.
10	SROS	Secondary rollout file device.
11	R10S	Reserved for CDC.
12	R20S	Reserved for CDC.
13	TNDS	Temporary nonshared file device.

l Access level flag (bit 23).

a Access level.

ss...s Sector count requested (bits 16 through 0). If ss...s=-1 (377776), request all available tracks on device. If ss...s=0, request is for one track.

Reply:

OR 0000 seee tttt ssss ffff

s Status:
If bit 47 is set, no device is assigned.
If bit 45 is set, ISHARED device is inaccessible and the function was not performed. OR still contains the request data, except that byte 0 is zero.

eee EST ordinal assigned.

tttt Track number of EOI sector.

ssss Sector number of EOI sector.

ffff First track assigned. Zero, if reject reply.

Reject reply:

OR 0000 0000 0000 rrrr 0000

rrrr Reason code for rejection:
1 Track limit (no tracks available).
2 No tracks with specified access level available.

A PP hung condition results if any of the following occurs:

- Equipment not mass storage or not in EST.
- Extended memory address of MST set when not multimainframe mode.
- Current track is not reserved or is linked to another track.
- Device selection parameter is out of range.

41 Set MST Data—SMDM

Request:

OR 0041 eeee pppp ssss bbbb

eeee EST ordinal of device to process.

ssss Subfunction (octal):
0 Set local MST bit at STLL (SLBS).
1 Clear local MST bit at STLL (CLBS).
2 Increment user count field (IUCS).
3 Decrement user count field (DUCS).
4 Set error code (SERS).
5 Clear MST error status (CERS).
6 Increment family count in MST (IFCS).
7 Decrement family count in MST (DFCS).
10 Toggle family idle status in MST (TFIS).

11 Update system table track (USTS).
12 Set failing track (SFTS).
13 Clear failing track (CFTS).
14 Set device status bits subfunction (SSTS).
15 Increment error counter (ICTS).
16 Clear "tables current" flag (CTCS).
17 Clear 1RU activity (ClAS).

pppp Parameter depending on subfunction:

ssss	Description
51	Track number.
40-41	Bit number in word.
44	Error code.
45	Error status to clear.
52	Failing track number.
53	Clearing track number.
54	New status bits to set.
55	Byte number.

bbbb Bits to change (subfunction 54 only).

Reply:

OR 0000 ssss **** **** ****

ssss Status:
0 Normal completion.
1 Bit already set (SLBS).
1 SFTS matching track number.
1 CFTS nonmatching track number.
1 PF system interlock set (for PF request).
1 Specified error code is not present (CERS).
pf Bit 42: Set if request set PF interlock. Bits 41 through 36: device PF activity.

CPUMTR performs the corresponding MST/TRT manipulations for the indicated subfunctions:

Subfunction	Manipulation
40-43	Write entire local area to extended memory.

A PP hung condition results if an incorrect subfunction occurs.

Request:

OR feee cest pppp ssss ****

f Flags.
Set checkpoint bit in MST (bit 47). Return if track not reserved (bit 46). Return if request is for ISHARED device that is inaccessible (bit 45).

eee EST ordinal of device to process.

ssss Subfunction (octal):

- 00 Set track flawed status (STFS).
- 01 Clear track flawed status (CTFS).
- 02 Set track interlock bit (STIS).
- 03 Clear track interlock bit (CTIS).
- 04 Set preserved file bit (SPFS).
- 05 Clear preserved file bit (CPFS).
- 06 Update TRT from EM (UTRS).
- 07 Update ISHARED tables (UITS).
- 10 Interlock IQFT track (IIQS).
- 11 Set IQFT track (SIQS).
- 12 Set global MST bit at ACGL (SGBS).
- 13 Clear global MST bit at ACGL (CGBS).
- 14 Increment PF activity count (IPAS).
- 15 Decrement PF activity count (DPAS).
- 16 Set PF system interlock (SPIS).
- 17 Clear PF system interlock (CPIS).
- 20 Set INSTALL interlock (SIIS).
- 21 Clear INSTALL interlock (CIIS).
- 22 Set long term interlock (SLTS).
- 23 Clear device interlock (CDIS).
- 24 Set device interlock (SDIS).

pppp Parameter depending on subfunction:

ssss	Description
00-05	Track number.
11	IQFT track number.
12-13	Bit number in word.

This function performs MST and TRT updates. CPUMTR performs these functions since MST/TRT may reside in extended memory if running in a multimainframe mode; the copies in extended memory also need to be updated.

Reply:

OR 0000 stat **** **** ****

stat Status:

0	Normal completion.
1	Bit already set, (STIS,SPFS, STFS, SGBS).
1	IQFT track previously set (SIQS).
1	No IQFT track or IQFT track previously interlocked (IIQS).
1	PF system interlock set (for PF request).
1	Specified error code is not present (CERS).
n	n= number of PPs updating devices MST/TRT/MRT (IURS, DURS).
pf	Bit 42: set if request set PF interlock; bits 41 through 36: device PF activity.
2	If track not reserved (STIS, SPFS). If bit 45 is set, ISHARED device is inaccessible and the function was not performed. OR still contains the request data, except that byte 0 is zero.

If the function cannot be completed because the MST/TRT is interlocked, bit 59 of OR is set, indicating to PPR to reissue the request.

CPUMTR performs the corresponding MST/TRT manipulations for the indicated subfunctions:

Subfunction	Manipulation
0-13	Read entire TRT and words 0, 1, and 2 of MST from extended memory.
21	Write entire TRT and first 3 words of MST to extended memory.

A PP hung condition results if any of the following occurs:

- Incorrect subfunction.
- Track is not reserved (CTFS, STIS, CTIS, SPFS, CPFS, IIQS).
- Track is not interlocked (CTIS).
- Track is not preserved (CPFS).
- Track is not flawed (CTFS).
- Track information is nonzero (STFS).

43 Validate Mass Storage—VMSM

Request:

```
OR   0043 feee tttt ssss ****
```

f — Flags.
Return if request is for an ISHARED device that is inaccessible (bit 45).

eee — EST ordinal of device to process.

tttt — Track (VTCS subfunction only).

ssss — Subfunction:

- 00 Obtain device interlock and validate mass storage tables (VEIS).
- 01 Validate mass storage tables (VEQS).
- 02 Verify track chain beginning with track tttt (VTCS).

Reply:

OR 0000 ssss **** **** ****

ssss Status:

- 00 No error.
- 01 Track count error (for VTCS subfunction, bad track chain).
- 02 Preserved file count error.
- 04 Error in permits chain.
- 10 Error in catalog chain.
- 20 Error in indirect chain. If bit 45 is set, ISHARED device is inaccessible and the function was not performed. OR still contains the request data, except that byte 0 is zero.

A PP hung condition results if EST ordinal does not specify a mass storage device.

45 Search Peripheral Library—SPLM

Request:

OR 0045 **** *ann nnnn ****

a If bit 30 is set, return PLD address and PP name instead of load parameters.

nn...n PP package name.

Reply:

```
OR   0000 ccrr rrrr rrrr aaaa (general format)
OR   0000 00ee tttt ssss aaaa (12-bit PLD)
OR   0000 01pp pppp gggg aaaa (12-bit RPL)
OR   0000 02nn nnnn gggg aaaa (SFP)
OR   0000 10pp pppp gggg aaaa (16-bit RPL)
OR   0000 14ee tttt ssss aaaa (16-bit PLD or
     any CPP PLD).
OR   0000 01nn nnnn dddd dddd (if bit 30 is
     set for request).
```

cc	Code:
0	12-bit MS resident program (NPP request).
1	12-bit CM resident program (NPP and CPP requests).
2	SFP
10	16-bit CM resident program (NPP and CPP requests).
14	Any MS resident program (CPP request) or a 16-bit MS resident program (NPP request). Note that 16-bit MS resident program load capabilities are not being implemented now.
rr..r	Residence-dependent information.
aaaa	Load address.
ee	EST ordinal (bits 52 through 48). If bit 53 is set, bits 52 through 36 are absolute CM address.
tttt	Track.
ssss	Sector.
aaaa	Load address.
pp..p	Program address.
gggg	Program length.
nn..n	PP package name.
dd..d	PLD address (zero if not found).

A PP hung condition results when a 6xx or 7xx program is not found.

46 Abort Control Point—ABTM

Request:

```
OR   0046 **** **** **** ****
```

Reply:

```
OR   0000 0000 0000 0000 0000
```

47 Buffered I/O Interrupt Handler—BIOM

Request:

```
OR   0047 ffff puto nbnb ecec
```

ffff Subfunction (octal):
- 00 Set unit interlock (SUIS).
- 01 Delink control buffers (DCBS).
- 02 Set error status (SETS).
- 03 Inhibit data streaming (IDSS).
- 04 Clear error status from I/O queue (CETS).

puto PUT ordinal.

nbnb Number of buffers to process. Bit 23=1 if unit interlock is to be cleared.

ecec Error code (subfunction 02 only).

Reply:

```
OR   0000 ssss 0000 0000 0000
```

ssss Status (subfunction 00): Zero indicates interlock was obtained; nonzero indicates interlock is already held by another PP.

Status (subfunction 02): Zero indicates error processing will continue on another channel; nonzero indicates the error recovery attempt failed. The issuing PP must perform all error recovery termination processing, such as issuing dayfile and BML messages.

50 Buffered Memory Invalidation—BMIM

Request:

OR 0050 ssss **** mmmm ****

ssss Subfunction:

1 Invalidate cache memory

mmmm Mode flag:

0 Central Memory
1 UEM

Reply:

OR 0000 0000 0000 0000 0000

A PP hang condition results if an invalid subfunction or mode flag is specified.

51 Change Control Point Assignment—CCAM

Request:

OR 0051 ffff pppp **** ****

ffff Flags:

Bit	Description
47	Set if EJT ordinal at new control point is not required.
46	If set, job advance and interlock flags are set at new control point. (Reject if job interlock already set).

Bit	Description
45	If set, reject change if move flag is set; if not set and move flag is set on the new control point, a PRLM is entered in OR after change.
44	If set, store ejto in word TFSW of control point area.
43	Set if moving to a PCP.
42	Set if moving from a PCP.
41	Set if change is to be made even if job advance is set.
40-36	New control point number. Meaningless if bit 42 or 43 is set.
pppp	EJT ordinal if bit 44 is set. PCP number if bit 42 or 43 is set.

Reply:

OR 0000 mmmm 0000 0000 0000

mmmm	0	Control point changed.
	≠0	Control point not changed.

A PP hung condition results if any of the following occurs:

- Bit 44 is set and pppp=0.
- nn is the number of the current control point or invalid control point.
- Bits 43 and 42 are both set.
- A PCP number which is too small or too large is specified.

52 Check MS Device Activity—CDAM

Request:

OR 0052 esto **** **** ****

esto EST ordinal of the mass storage device.

Reply:

OR 0000 ssss 0000 0000 0000

ssss Outstanding request count from DALL. Zero if esto is an inactive buffered device; one if buffer assignment is in progress.

A PP bring condition results if the equipment is not mass storage.

53 Change Error Flag—CEFM

Request:

OR 0053 cccc ejto nnnn nnnn

cccc If bit 47 is set, change error flag for job specified by ejto; if zero, change error flag at control point to which PP is assigned. Bits 46 through 36: error flag to set.

ejto EJT ordinal of job, if bit 47 is set.

nn...n JSN of job, if bit 47 is set. If no JSN is specified a value of 3 is returned.

Reply:

OR 0000 jsss 0000 0000 0000

Job status from STSW.

j Job status from STSW.

sss Status:
- 0 Error flag set on specified job.
- 1 Job is moving (bit 47=1 only).
- 3 Job specified by ejto was not found.

A PP hung condition results if any of the following occurs:

- Job is at control point with EJT ordinal of zero.
- ejto=0 when bit 47=1.
- ejto>maximum EJT ordinal when bit 47=1.
- Attempt to clear zero error flag.
- Attempt to change error flag at control point zero or system control point.
- Attempt to set an invalid error flag.

54 Process Concurrent PPs—CPRM

Request:

OR 0054 00sf 0000 0000 pppp

MB rrrr rrrr rrrr rrrr rrrr

MB+1 wwww wwww wwww wwww wwww

sf Subfunction code:
00 Assign CPP.
01 Assign and load PPR (CPP).
02 Return CPP (only used by VER).
03 Add CPP to requester's control point (internal only).

pppp CIO barrel from which to assign CPP (subfunctions 00 and 01):
2 Barrel 0 (CPP 0 through 4).
3 Barrel 1 (CPP 5 through 11).

CPP number to idle (subfunction 02).

rr...r Input register for assigned CPP (subfunctions 00 and 01; not used for subfunction 02).

ww...w Parameter word (subfunctions 00 and 01; not used for subfunction 02; byte 4 for subfunction 03).

Reply:

OR 0000 ssss rrrr 0000 0000

ssss Status (subfunctions 00 and 01): Address of the assigned CPP input register; zero if CPP not assigned.

Status (subfunction 02): Zero indicates request completed; one indicates error in request (see response code).

Status (subfunction 03): Address of the assigned CPP input register to be added; zero if CPP not assigned (see response code).

rrrr Response code:

0	CPP assigned.
1	CPP not assigned subfunction 02 only).
2	CPP not present.
3	CPP not available.
4	Invalid CPP number.
5	Invalid CIO barrel number.
6	Maximum number of PPs assigned (NPPCP).
7	Peripheral library locked.
10	CPP program not found in peripheral library.

A PP hung condition results if an invalid subfunction is specified.

55 Drop CPU from Control Point—DCPM

Request:

OR 0055 ***c **** **** ****

c Clear CPU status present at rollout (bit 36).

Reply:

OR 0000 s000 0000 0000 0000

s CPU status from STSW.

56 Drop Equipment—DEQM

Request:

OR 0056 esto **** ejto ****

esto EST ordinal; if bit 47 is set, use EJT ordinal in ejto.

ejto EJT ordinal from which to release equipment.

Reply:

OR 0000 0000 0000 0000 0000

A PP hung condition results if any of the following occurs:

- Invalid EST ordinal.
- Equipment is not assigned to caller (or ejto).

57 Issue Dayfile Message—DFMM

Request:

OR 0057 bbbb **mc **** ****

bbbb Byte count of message. This value must translate to a word count of 5 or less for coded messages, and 6 or less for binary messages. For BMCN the value must translate to a word count less than or equal to 60.

mc Message control:

0 Message to master dayfile, control point dayfile, control point message buffer (MSIW).

1 Normal message with no message at control point area (NMSN).

2 Message to master dayfile only, with job name from message (JNMN).

3 Message to control point dayfile only (CPON).

4 Message to error log only (ERLN).

5 Message to account file only (ACFN).
6 Message to error log only with job name from message (EJNN).
7 Message to account file with job name from message (AJNN).
10 Used internally by CPUMTR to support option 1 (NMSN).
11 Message to control point dayfile only (CDON).
12 User option 1.
13 User option 2.
14 User option 3.
15 Message to binary maintenance log (BMLN).
16 Message to binary maintenance log using alternate buffer (BMCN).

If bit 4 of mc is set, the dayfile buffer is left busy after the message is issued.

If bit 5 of mc is set, the calling PP cannot dump the dayfile buffer.

MB PP message buffer contains the dayfile message to be issued. For BMCN, MB contains the central memory address of the message to be placed in the BML.

Reply: If the message is completed:

OR 0000 bbbb **mc **** 0000

If buffer was set busy and bbbb=0 for request:

OR 0000 **** **** **** 0000

If the dayfile buffer is full:

OR 0000 bbbb 00mc aaaa

bbbb Refer to bbbb description for request.

mc Refer to mc description for request.

Length of mass storage error processor and direct cells which are to be saved by this PP.

aaaa Address of dayfile buffer pointers. This field is nonzero when PPR must call 1DD to dump the dayfile buffer.

60 Drop PP—DPPM

Request:

OR 0060 **** **** **** ****

Reply:

OR 0000 0000 0000 0000 0000

61 Enter/Access System Event Table—EATM

Request:

OR 0061 000f **** *eee eeee

f 0 Enter event.
1 Return event count.

ee...e Event.

Reply:

OR 0000 ssss **** **** **** (f=0)

ssss Zero if event entered.

OR 0000 cccc **** **** **** (f=1)

cccc Present count of events in table.

62 Job Advancement Control—JACM

Request:

OR 0062 ffff pppp **** ****

MB rrrr rrrr rrrr rrrr rrrr

MB+1 pppp pppp pppp pppp pppp

fff Options:

Bit	Description
36	Clear CPA fields associated with clearing control point. If PEET error flag is set, do not clear job advance and interlock flags, EJT entry, or CPA fields.

37	Drop PP upon request completion.
38	Recall and drop PP.
39	Clear job EJT entry.
40	Request CPU to start job.
47	Set if alternate CP/PCP specified.
46-41	Reserved for CDC.
pppp	CP/PCP number if bit 47 is set.

rr...r 1AJ input register to be used if recall is selected.

pp...p Parameter word to be returned to MB on recall.

Reply:

OR 0000 0000 0000 0000 0000

63 Load Disk Address—LDAM

CPUMTR selects the correct algorithm to use for disk address conversion based on the algorithm index contained in the MST of the equipment being processed.

Request:

OR 0063 rdwr **** **** ****

MB **** esto ltlt lsls ****

rdwr Read/write flag (834 and 836 only).

esto EST ordinal.

ltlt Logical track.

lsls Logical sector.

Reply:

```
OR   0000 0000 0000 ffff rsrs

MB   **** esto ltlt lsls ****

MB+1 lulu rwpu pcpc ptpt psps

MB+2 0000 0000 0000 0000 0000
```

ffff Status flags:
- 0004 Storage move request or unit switch needed multiunit device.
- 0011 Request channel if not reserved.
- 7777 Error detected.
- EC EC=NRDE if redefinition. EC=ADDE if address error.

rsrs Remaining sectors in logical track on current physical unit (used internally by driver).

esto EST ordinal.

ltlt Logical track.

lsls Logical sector.

lulu Logical unit.

rw Read/write flag:
- 0 Issue seek only (all except 834/836 device).
- 1 Issue write/seek.
- 2 Issue read/seek.

pu Physical unit.

pcpc Physical cylinder.

ptpt Physical track.

psps Physical sector.

A PP hung condition results if any of the following occurs:

- Invalid algorithm index.
- Algorithm index in MST for equipment is out of range.
- No processor is defined for algorithm index.

64 Load Mass Storage Driver—LMSM

Request:

```
OR    0064 feee **** **wu uuus

MS    **** wdse **** **** ****

MB+1  **** **** **** **dd chrv
```

f — Bit 45 is 16-bit load request flag.

eee — EST ordinal.

w — If bit 17 is set, write error processing buffer is specified. Bits 16-12 are not used.

uuuu — Error processing options.

s — Subfunction:

- 0 — Load driver.
- 1 — Force 6DI load.
- 2 — Force 6DI load, selected channel.
- 3 — System program read.
- 4 — Streamed read.
- 5 — Return status.
- 6 — Channel selected by caller.

wdse — Write error processing buffer address.

dd — Driver index:

- 0 — Undefined.
- 1 — 6DI.
- 2 — 6DP.
- 3 — 6DE.
- 4 — 6DX.

All other values undefined.

chrv — Channel reservation status.

Reply:

OR 0000 00aa aaaa cmcm 0002

MB 0000 wdse 0000 rdct stsa

MB+1 0000 uerr ssss dddd chrv

MB+1 EST entry word EQDE

aa...a Driver address in RPL. Zero, if no load required.

cmcm Length of driver in CM words.

wdse Write error processing buffer address.

rdct Driver reply.

stsa Nonzero if driver preset is not to be executed.

uerr Error processing options.

ssss Sector limit.

dddd It bit 11 is set, subsystem and device is inaccessible. Bits 10-7 are not used. Bit 6 is set if device is inaccessible. Bits 5-0 are driver index.

chrv Channel reservation status.

A PP hung condition results if one of the following occurs:

- An incorrect subfunction code is specified.
- The equipment is neither mass storage nor *RD*.
- The EST ordinal is outside of the EST.
- The request is not from a CPP, and the 16-bit flag is set.
- The request is from a CPP, and the 16-bit flag is not set.

65 Managed Table Request—MTRM

Request:

OR 0065 fpar tabl **** ****

MB ffff ffff ffff ffff ffff

fpar Function parameter. If zero, reserve a pool table entry for use; otherwise, fpar=ordinal of table entry to be returned to pool.

tabl If bit 11=1 and fpar=0, a table entry reserved for system job use is reserved. Bits 0 through 2 identify type of table entry:

1	FOT
2	FNT
3	QFT
4	EJT

ff...f Information to store in first word of table entry if fpar=0.

Reply:

OR 0000 stat **** **aa aaaa

stat Return status. Zero for fpar=ordinal request; zero for fpar=0 request if no table entry available; ordinal of reserved table entry for fpar=0 request if entry was reserved.

aa...a Absolute address of table entry reserved for fpar=0 request.

A PP hung condition results if any of the following occurs:

- Invalid table entry type.
- Invalid ordinal of table entry to be returned to pool.
- Entry to return to pool is not in use (byte 0=0).

66 Process Local FNT Entry—PLFM

Request:

```
OR   0066 **cs **** **** addr

MB   nnnn nnnn nnnn nn** ****
```

c — If bit 5, a special file is created using reserved FNT entry (used only by lRO to build DM* file).

s — Subfunction code:
- 0 — Delete local FNT entry (DLFS).
- 1 — Delete local FNT entry, return file count (DLCS).
- 2 — Create local FNT entry (CRFS).

addr — NFL address of FNT entry (s=0 or 1 only).

nn...n — File name (s=2 only).

Reply:

```
OR   0000 addr **** ffff stat
```

addr — NFL address of FNT entry (s=2 only).

ffff — Number of files remaining on device (s=1 only).

stat — Return status (s=2 only):
- 0 — File created.
- 1 — File already exists.
- 2 — Local file limit (maximum NFL reached).
- 4 — NFL increase needed.

67 Recall CPU—RCLM

Request:

```
OR   0067 **** **** **** ****
```

Reply:

```
OR   0000 0000 0000 0000 0000
```

70 Request CPU—RCPM

Request:

OR 0070 **** **** **** ****

Reply:

OR 0000 0000 0000 0000 0000

A PP hung condition can occur if control point is involved in a storage move or is not in I status.

71 Recall PP—RECM

Request:

OR 0071 dfff cccc cccc cccc

MB rrrr rrrr rrrr rrrr rrrr

MB+1 pppp pppp pppp pppp pppp

d Bit 47: PP drop flag:
0 Drop.
1 No drop.

fff Recall subfunction:
0 Recall for system default time (released default is 1 s).
2 No-rollout timed recall (for use while holding interlocks).
3 Normal timed recall.

cc...c Must contain all zeros for subfunction 0. Contains recall time in milliseconds for subfunction 2 or 3.

rr...r Input register of PP to be recalled.

pp...p Parameter word to be returned to MB on recall. Bit 59 of the parameter word is used by the system to indicate that a request was queued. Programs may not use this bit.

Reply:

OR 0000 **** **** **** ****

A PP hung condition results if any of the following occurs:

- Undefined recall function.
- MB=0 for request.
- No drop option selected when PP is called with auto recall.

72 Request Equipment—REQM

Request:

OR 0072 esto subf ejto ****

esto EST ordinal; if bit 47 is set, EJT ordinal is specified in bits 12 through 23.

subf Subfunction code:
- 0 Request for nonmass storage device (REQS).
- 1 Request for downed mass storage device (RDES).
- 2 Request for active mass storage device (RVES).

ejto EJT ordinal to which equipment is to be assigned.

Reply:

OR 0000 ssss **** **** ****

ssss Status:
- 0 Equipment is not assigned.
- 1 Equipment is assigned.

A PP hung condition results if the EST ordinal is invalid or if the subfunction is invalid.

73 Request Job Sequence Name—RJSM

Request:

```
OR   0073 ***f r**t **** ****

MB   **** **** qqqq qqqq qqqq
```

f — 0 Request QFT entry.
≠0 Get new job sequence name.

r — If r=4, request reserved system entry.

t — Table identifier:
1 FOT (PFOT)
2 FNT (PFNT)
3 QFT (PQFT)
4 EJT (PEJT)

qq...q — QFT entry number.

Reply:

If f=0 for request:

```
OR   0000 tord **** aaaa aaaa
MB   nnnn nnnn qqqq qqqq qqqq
```

If f≠0 for request:

```
OR   0000 000f tttt nnnn nnnn
MB   nnnn nnnn qqqq qqqq qqqq
```

tord — Table ordinal of requested entry.

aaaa — Absolute address of entry.

f — Same as for request.

tttt — Same as for request.

nn...n — Job sequence name.

qq...q — QFT entry number.

74 Request Limit—RLMM

Request:

OR 0074 ssss 0000 00vv vvvv

ssss Subfunction code:

0	Clear overflow flags (RLCO).
1	Increment time limit (RLIT).
2	Increment SRU limit (RLIS).
3	Start job step (RLJS).
4	Set time limit (RLTL).
5	Set SRU limit (RLSL).
6	Increment account block SRU limit (RLIA).

vv...v Value of increment or limit requested.

Reply:

OR 0000 0000 0000 0000 ffff

ffff Flags depending on subfunction:

Subfunction	ffff
0	Bits 11 through 7, zero; 6 through 0 specify overflow flags in SRUW before clearing bits 47 through 41.
1,2	Error flag (zero if no errors).
3,4,5,6	Zero.

A PP hung condition results if an invalid subfunction code is encountered.

Request:

OR 0075 bbbb **cp **** ****

MB **** **** 0+++ 0eee xxxx

bbbb	Bit(s)	Description
	47	If set, roll out job at control point psendo-control point. If zero, roll out control point from PP input register.
	46-41	Not used.
	40	Perform pseudo-rollout on job (ROPR).
	39	Set suspend job flag in STSW (ROSU).
	38	Set SCP rollout flag in STSW (ROSC).
	37	Set disable job flag in STSW (RODS).
	36	Set timed/event rollout flag in STSW (ROTE).
cp		Number of control point to roll out if bit 47=1.
+++		Time (ROTE only).
eee		EST ordinal (ROTE only).
xxxx		event (ROTE only).

Reply:

OR 0000 ssss 0000 0000 0000

ssss	Zero if bit 47=0 for request, or if bit 47=1 and request completed. ssss≠0 if bit 47=1 and request was rejected.

A PP hung condition results if any of the following occurs:

- Invalid connection status in EJT entry.
- Selected rollout option(s) invalid due to job's connection status.

76 Read Program Address/Breakpoint—RPNM

Request:

OR 0076 0000 0000 00nn nnnn

nn...n If nnnnnn is zero, return program address; otherwise, check if PP's control point is executing a breakpoint at this address. Bit 59 of the parameter word is used by the system to indicate that a request was queued. Programs may not use this bit.

Reply:

If nnnnnn is zero:

OR 0000 stsw cccc pppp pppp

stsw CPU status byte from word STSW of control point area.

cccc Address of control point to which CPU is assigned.

pp...p Program address.

If nnnnnn is a breakpoint address:

OR 0000 0000 0000 0000 000r

r
- 0 Breakpoint executing at nnnnnn.
- 1 Breakpoint not executing at nnnnnn.

Request:

OR 0077 **pp **** **** ****

MB Input register of PP

MB+1 Parameter word to be passed to PP identifier in MB (must be zero if making initial call to CIO).

pp Bit 39: If set, assign requested pp to system control point.
Bit 38: If set, special lVP request for partner PPs. Bit 36 must also be set.
Bit 37: If set, drop PP.
Bit 36: If set, PP priority request.

NOTE

The PP priority request is to be used only by PP programs that require knowledge of the PP to which their request was assigned. Use of this request for other purposes seriously degrades performance and may cause system deadlock.

Reply:

OR 0000 ssss iiii **** ****

ssss Address of assigned PPs input register; address of request in recall stack if PP not assigned.

Zero if recall stack full, if priority request and no PP available, or if priority request and rollout requested at control point. One if CIO request processed.

iiii Address of second assigned PP's input register, if partner pair assigned for special lVP request.

A PP hung condition results if MB=0 for request.

100 Request Job Scheduler—RSJM

Request:

```
OR   0100 **** ***s **** ****
```

s — If bit 24 is set, perform QFT/EJT scheduling. If bit 25 is set, reset the recall cycle.

Reply:

```
OR   0000 0000 0000 0000 0000
```

101 Search Central Directory—SCDM

Request:

```
OR   0101 0000 0000 0000 0000

MB   eeee eeee eeee ee00 0000
```

ee...e Entry point name.

Reply:

```
OR   0000 0000 0000 00aa aaaa

MB   eeee eeee eeee ee00 0000
```

aa...a Address of PST entry.

ee...e Entry point name.

102 Set File Busy—SFBM

Request:

```
OR   0102 **** esto **aa aaaa

MB   nnnn nnnn nnnn nn** ****
```

esto — If esto is nonzero and the FST is not set busy, set the EST ordinal field of the FST to esto. This option does not set the FST busy.

aa...a NFL address of FNT entry.

nn...n File name.

Reply:

OR 0000 ssss 0000 0000 0000

ssss
- 0 File was not previously busy.
- 1 File was previously busy.
- 2 Comparison failed.

A PP hung condition results if request address is outside of NFL.

103 Select Job Control Parameters—SJCM

Request:

OR 0103 **sf **** **** parm

sf — Subfunction code:
- 0 Set CPU priority (CPRS).
- 1 Select CPU for job (CPUS).
- 2 Set job control flag(s)(SCTS).
- 3 Clear job control flag(s) (CCTS).
- 4 Set subsystem identification (SSIS).
- 5 Set pp breakpoint (SBKS).
- 6 Clear pp breakpoint (CBKS).
- 7 Set CPUPFM active (SAPS).
- 10 Clear CPUPFM active (CAPS).

parm — For sf=0, CPU priority. For sf=2,3, 6-bit mask for bits 23 through 18 of word JCIW. For sf=4, subsystem identification. For sf=1, CPU selection:
- 0 Use any CPU.
- 1 Use CPU0 only.
- 2 Use CPU1 only.

Reply:

OR 0000 0000 0000 0000 0000

Request:

OR 0104 ooor ssss wwaa aaaa

MB Up to 6 words of data to be sent to or read from job.

r
- 0 Read.
- 1 Write.
- 2 Set completion bit specified at aaaaaa.

ssss Subsystem identification.

ww Number of words to transfer, or reply code if only completion bit is to be set.

aa...a If zero, use subsystem receiving buffer pointer at SSCR ($RA+51_8$); if nonzero, specifies relative address of receiving buffer.

Reply:

OR 0000 ssss ejto jjjj jjjj

ssss
- 0 Operation complete.
- 1 Move in progress.
- 2 Not ready for data.
- 3 Reject (write request to nonzero first word).
- 4 Inactive or job advance set.
- 5 SCP invalid parameters.

ejto EJT ordinal of SEP; if ssss=5.

jj...j JSN of SCP if ssss=5.

105 Process IAF Pot Chain Request—TGPM

Request:

OR 0105 pcln **** **** ****

pcln Pot chain length.

Reply:

OR 0000 pppp 0000 0000 0000

pppp Pot pointer; 7777 if no pot is available, 0 if IAF is inaccessible or error flags are set.

106 Tape I/O Processor—TIOM

Request:

OR 0106 uuuu iiii mmcc cccc

MB 0000 0000 0000 0000 0000

uuuu MAG unit descriptor table address to be cleared.

iiii 1/t, 11/accounting increment.
t=0 for blocks read.
t=1 for blocks written.

mm Accounting multipliers.

cc...c FET completion code.

Reply:

OR 0000 ssss 0000 00uu uuuu

MB **** **** **** **** ****

ssss 0 Operation complete.
1 Function must be reissued, but uu...u must not be reset on reissue.

uu...u Unchanged.

107 Process TRAP/TRACE Request—TRCM

Request:

```
OR    0107 flgs 0000 aaaa aaaa

MB    0000 bbbb bbbb cccc cccc

MB    fff1 fff2 fff3 fff4 fff5

MB    0000 0000 001n 0000 001w

MB+1  vvvv vvvv vvvv vvvv vvvv
```

flgs -

Bit 47 set if TRAP,MEM.
Bit 46 set if TRAP,CPA.
Bit 45 set if TRAP,NFL.
Bit 44 set if TRAP,MCT.
Bit 43 set if TRAP,DJB.
Bit 42 set if TRAP,EJT.
Bit 41 set if trapping on any nonzero value.
Bit 40 set if TRACE,MTR.
Bit 39 set if TRACE,PPU.
Bit 38 set if TRACE,SET,ABS.
Bit 37 set if TRACE,SET,CPA.

aaaa — Absolute address of word to trap on (TRAP,MEM). Address in CPA/PCPA of word to trap on (TRAP,CPA).

bbbb, cccc — Abs or CPA addresses to trace (TRACE,SET).

fff1 - fff5 — Functions to trace for TRACE,MTR/PPU.

ln — Length of field to check for TRAP,MEM/CPA.

lw — Low bit of field to check for TRAP,MEM/CPA.

vvv...vvv — Value to check against for TRAP,MEM/CPA.

110 Process IAF Request—TSEM

Request:

OR 0110 ffff pppp **** ****

ffff	Bits	Description
	47	Set if alternate CP/PCP specified.
	46-36	Reserved for CDC.
pppp		Alternate CP/PCP if bit 47 is set.

Reply:

OR 0000 flag 0000 0000 0000

flag 0 if IAF is inaccessible or error flags are set, 7777 if no queue entry is available; any other value indicates request complete.

111 Update Accounting and Drop PP—UADM

Request:

OR 0111 wwww 000f 0000 0000

MB+0 opop aaaa bbrr 00ii iiii

MB+1 opop aaaa bbrr 00ii iiii

.
.
.

MB+5 opop aaaa bbrr 00ii iiii

wwww Word count of options in MB+0 through MB+5.

f Flags:
Bit 25: Set to recall CPU to control point.
Bit 24: Drop pp flag (0=drop PP, 1=do not drop PP).

opop Options:

00	Increment low core register (LICS).
02	Increment low core register by one (LIOS).
04	Decrement low core register by one (LDOS).
06	Decrement low core register (LDCS).
10_8	Increment control point register (CICS).
12_8	Increment control point register by one (CIOS).
14_8	Decrement control point register by one (CDOS).
16_8	Decrement control point register (CDCS).
20_8	Increment control point accounting register and perform input/output SRU calculation (AISS).
30_8	Increment control point accounting register and perform application accounting SRU calculation (AIAD).
40_8	Increment control point accounting register and perform MP SRU calculation (AIMP).
50_8	Increment control point accounting register and perform AUC SRU calculation (AIAC).
100_8	Set control point register to value iiiiii (SFS).
200_8	Set bit zero of word iiiiii of the control point (SCRS); the control point is specified by the field bbrr for this subfunction only (bbrr=CPA address). The CPU is recalled. This subfunction is intended for DSD only; no further functions in MB-MB+5 are processed. No error indication is returned in the OR; the drop PP option is ignored. The bit is not set if storage move is in progress or job advance is set or if the address is beyond FL.

aaaa Word address of the register (must be within the range of addresses 10_8 through 130_8).

bb Low order bit address of the field to increment or decrement (0 through 59).

rr Width of the register (1 through 59 bits).

ii...i 18-bit signed value of an increment (if the operation is a decrement and the value is negative, the operation is an increment; the reverse applies to increment operations).

Reply:

OR 0000 eeee 0000 0000 0000

MB Unchanged.

eeee Error indication underflow on the register increment or decrement. (Bit 0 set indicates the operation at MB+0 was in error, bit 1 set indicates MB+1 and so on).

A PP hung condition results if any of the following conditions occurs:

- Too many requests.
- For control point update, address not between STSW and CSBW.
- For low core update, address is greater than or equal to CRTL.
- Invalid subfunction.
- Request count is zero, and drop PP option was not selected.

112 Update Table Entry—UTEM

Request:

```
OR    0112 00fn 0000 00aa aaaa

MB+0    iiss bbvv vvvv vvvv vvvv
          .
          .
          .
MB+n-1  iiss bbvv vvvv vvvv vvvv
```

f — Flags:

Bit 41: If zero and n=0, set entry interlock bit (reject if already set or entry not in use). If zero and n≠0, process n requests from message buffer. If one and n=0, clear entry interlock bit. If one and n≠0, set entry interlock bit after processing n requests from message buffer (reject if verify failure from message buffer request or entry interlock bit already set or entry not in use).

Bit 40: If set, job advance check needed on EJT entry (bit 41=1,n=0 only).

n — Number of requests in message buffer.

aa...a — Absolute FWA of table to verify/update.

ii — Bit 59:

0 Store vv...v in specified field of table entry.

1 Verify contents of specified field of table entry with contents of vv...v.

Bits 58-54:
Word index in table of entry to be verified/updated.

ss — Size of field to be verified/updated (1 to 60 bits).

bb — Low order bit position of field to verify/update (0 to 59).

vv...v Value used to verify specified field in table entry (bit 59=1) or to update specified field in table entry (bit 59=0). Rightmost ss bits of vv...v are used if ss≤42; otherwise entire contents of vv...v is used, right-justified, zero-filled.

Reply:

OR 0000 stat 0000 0000 0000

MB+0 iiss bbvv vvvv vvvv vvvv
.
.
.
MB+n-1 iiss bbvv vvvv vvvv vvvv

stat
- 0 Operation complete.
- 1 Interlock already set (OR bit 41=0, n=0 or OR bit 41=1, n=0 requests only).
- 2 Verification failed (n≠0, MB+; bit 59 set requests only). No further requests were processed.
- 3 Entry to interlock is not in use.

ii,ss, bb — Same as for request.

vv...v — Contents of specified field in table entry before update/verify (rightmost 42 bits if ss>42).

A PP hung condition results if any of the following occurs:

- n>6.
- ss=0.
- bb+ss>60.
- Interlock not previously set for clear interlock request.
- Entry not in use for clear interlock request.
- Job advance requested on invalid entry.

113 Verify Field Length—VFLM

Request:

OR 0113 00cp **** **** ****

cp — Control point to verify. If zero, verify the control point to which the PP is assigned. If nonzero, verify the control point cp.

Reply:

OR 0000 ssss **** **** ****

ssss — Status:

- 0 No double-bit errors encountered.
- 1 Job to verify field length failed.
- 2 Field length verification already in progress.

114 Verify FET Parameters—VFPM

Request:

OR 0114 ffvv pppp **aa aaaa

ff	Bit(s)	Description
	47	Set if alternate CP/PCP specified.
	46-42	Reserved for CDC.
vv	41-36	Validation option. 0 = No validation. 1 = Validate FIRST and LIMIT only. 2 or 3 = Validate FIRST, IN, OUT, and LIMIT.
pppp		CP/PCP number.
aa..a		FET address.

Reply:

```
OR   0000 ssss **** **** ****

MB+2 0000   ii iiii OOoo oooo

MB+3 r0f1   ff ffff OOdd dddd
```

ssss Status:
0 No error.
1 Invalid FET address.
2 Buffer argument error.

ii...i IN address, if requested.

oo...o OUT address, if requested.

r Bit 59: set if random access file.

fl FET length minus 5.

ff...f FIRST address, if requested.

dd...d LIMIT address, if requested.

115 Validate Security Access Functions—VSAM

Request:

```
OR   0115 OOsf pppp pppp pppp
```

sf Subfunction code:
0 Set job access level (VJAS).
1 Set file access level (VSFS).
2 Validate access level for equipment (VAES).
3 Validate access level/ categories for job (VAJS).
4 Validate job creation parameters (VJCS).
5 Validate expiration date (VEDS).
6 Validate job access level limits (VJLS).

pp...p Parameters for subfunction.

Subfunction 0 (VJAS)

Request:

OR 0110 0000 **** **** aaaa

aaaa Requested job access level.

Reply:

OR 0000 ssss **** **** ****

ssss Status of request (0 if access level valid).

Subfunction 1 (VSFS)

Request:

OR 0110 0001 **** ffff aaaa

ffff NFL address for file's FNT entry.

aaaa Requested file access level.

Reply:

OR 0000 ssss **** **** ****

ssss Status of request (0 if access level valid).

Subfunction 2 (VAES)

Request:

OR 0110 0002 eeee **** aaaa

eeee EST ordinal for equipment.

aaaa Requested access level.

Reply:

OR 0000 ssss **** **** ****

ssss Status of request (0 if access level valid).

Subfunction 3 (VAJS)

Request:

OR 0110 0003 **** **** ***p

MB **** aaaa *ccc cccc cccc

p Processing option:
1 Access level only.
2 Access categories only.
3 Access level and access categories.

aaaa Access level.

cc...c Access category set.

Reply:

OR 0000 ssss **** **** ****

ssss Status of request (0 if access level and/or categories valid).

Subfunction 4 (VJCS)

Request:

OR 0110 0004 otot uuuu inal

MB **** aaaa *ccc cccc cccc

otot Job's origin type.

uuuu Job access level upper limit (4000_8 for default).

inal Initial job access level.

aaaa Access level validation bits (from VALIDUs file).

cc...c Access category validation bits (from VALIDUs file).

Reply:

OR 0000 ssss aijl rual rlal

MB **** aaaa *ccc cccc cccc

ssss Status of request (0 if job may be created).

aijl Adjusted initial job access level.

rual Restricted upper access level limit.

rlal Restricted lower access level limit.

aaaa Restricted access level bits.

cc...c Restricted access category bits.

Subfunction 5 (VEDS)

Request:

OR 0110 0005 **** **ee eeee

ee...e Expiration date.

Reply:

OR 0000 ssss **** **** ****

ssss Status of request (0 if expiration date not yet reached).

Subfunction 6 (VJLS)

Request:

```
OR   0110 0006 otot ulul aaaa

     otot  Job's origin type.

     ulul  Job access level upper limit.

     aaaa  Job access level lower limit.
```

Reply:

```
0000 ssss **** **** ****

     ssss    Status of request (0 if access
             level limits valid).
```

A PP hung condition results if one of the following occurs:

- Invalid access level is specified (all subfunctions except VEDS).
- Invalid origin type is specified (VJCS, VJLS only).
- Invalid EST ordinal is specified (VAES only).
- File's FNT entry has not been set busy (VSFS only).

116 Reserved

117 Maximum Number of Functions—MXFM

The maximum number of monitor functions is 117_8.

USER (RA + 1) MONITOR CALLS TO CPUMTR

The CPU issues the following requests to the system as needed. These requests are processed directly by CPUMTR.

ABT—ABORT CONTROL POINT

Request:

```
AB T** **** **** ****
```

END—TERMINATE CURRENT CPU PROGRAM

Request:

```
EN D** **** **** ****
```

LDR—REQUEST OVERLAY LOAD

Request:

```
LD R** **** **aa aaaa
```

aa...a Specifies address of parameters for overlay load.

LDV—REQUEST LOADER ACTION

Request:

```
LD V** 0000 0000 0000
```

Request:

```
LD V** **** **aa aaaa
```

aa...a Specifies address of parameters for overlay load.

LOD—REQUEST AUTOLOAD OF RELOCATABLE FILE, FILE NAME IN (RA + 64_8)

Request:

```
LO D** 0000 0000 0000
```

MEM—REQUEST MEMORY

Request:

```
ME M** tttt ttaa aaaa
```

tt...t Type of request:
- 0 CM (abort if not available).
- 1 Extended memory (abort if not available).
- 2 CM (do not abort if not available).
- 3 Extended memory (do not abort if not available).

aa...a Address of request word.

Request word:

```
vvvv vvvv vv** **** **bb
```

vv...v Value of FL request. If zero, return current field length. If negative (-1), return maximum field length. For other values:

Type	Value	Description
CM	>0	Lower 17 bits indicate FL; bit 47 is no-reduce override.
EM	>0	Extended memory FL.
EM	-0	Release all extended memory FL.

bb Status bits **r c*0:
- r Clear CMM status.
- c Indicates CMM type request.

Response:

```
ffff ffff ff00 0000 0001
```

ff...f Field length or maximum FL.

A monitor call error is returned for the following:

- Invalid address.
- Clear CMM status with r=1 and c=0.
- Clear CMM status with r=1 and c=1, and CMM job step status not set.

A CMM error is issued by 1MA if job step CMM status is set and a memory change request is issued that does not have the c bit set.

MSG—SEND MESSAGE TO SYSTEM

Request:

```
MS Gr* aaaa ddff ffff
```

r Bit 40: Auto recall.

aaaa Message option:

0	Master dayfile.
1	Console line 1.
2	Console line 2.
3	Job dayfile.
4	Error log (system origin or SSJ= only).
5	Account log (SSJ= only).
6	Master dayfile.
7	Job dayfile.†
10	CPUMTR internal suboption.
11	Maintenance log (system origin or SSJ= only).

dd Address location:

00	Job FL.
40	Negative FL.

ff...f Address of message.

†Provided for compatibility with NOS/BE.

PFL—SET (P) AND CHANGE FIELD LENGTH

Request:

```
PF L** pppp ppff ffff

    pp...p  New (P).

    ff...f  New FL.
```

RCL—PLACE PROGRAM IN RECALL

To place program in periodic recall until system recall delay has expired:

Request:

```
RC L* **** **** ****
```

To place program in automatic recall until bit 0 is set:

Request:

```
RC LP* **** **aa aaaa

    aa...a  Program is placed in recall
            until bit 0 of aaaaaa is set.
```

RFL—REQUEST FIELD LENGTH

Request:

```
RF L** aaaa aaff ffff

    aa...a  Address of status response.

    ff...f  Bits 17 through 0:  Field
            length; if zero, current field
            length is returned.
            Bit 18: No-reduce override flag.
```

Reply:

```
0000 ffff ff00 0000 0001

    ff...f  Field length.
```

RSB—READ SUBSYSTEM PROGRAM BLOCK

Request:

RS Br0 00ii iiss ssss

r Bit 40: Auto recall.

iiii Subsystem queue identification; if iiii=0, block is read from absolute memory or relative to caller's control point area.

ss...s Address of status word in format.

Status word:

0000 0www aaaa aabb bbbb

www Number of words to be read (maximum of 100_8).

aa...a Address to read from in subsystem, CMR, or control point area. If address is in subsystem, data must be within field length. If address is in CMR, data must be within size of CMR. If address is in control point area, data must be within bounds of control point area. The address(es) can be specified in the buffer for control point area reads.

bb...b Address of buffer to receive data.

First buffer word:

s000 0000 cccc ccdd dddd

s 4 Block read from absolute memory.
0 Read from control point area.

cc...c 1 Block read.
0 Selective read.

dd...d Control point area word to read.

Each subsequent word of the buffer (up to www words or the first zero word) contains the address of another word to read for a selective read.

Reply:

rrrr wwww aaaa aabb bbbb

rrrr	4000	Transfer successfully completed.
	2000	Subsystem not present.
wwww	Number of words to be read.	
aa...a	Address to read from in subsystem.	
bb...b	Address of buffer to receive data.	

SIC—SEND INTERCONTROL POINT BLOCK TO SUBSYSTEM PROGRAM

Request:

SI Cr* bbbb bbss ssss

r	Bit 40: Auto recall.
bb...b	Address of buffer to be transferred to subsystem.
ss...s	Address of status word in format.

Status word:

nnnn nnqq q00 0000 0000

nn...n	Buffer number of subsystem for transfer.
qqqq	Destination subsystem identification.

Reply:

nnnn nnqq qqrr rrrr rrrr

nn...n	Buffer number of subsystem for transfer.
qqqq	Destination subsystem identification.

rr...r	1	Transfer completed successfully.
	3	Destination subsystem is not present in the system.
	5	Subsystem buffer is full, subsystem is being moved, or subsystem job is advancing.†
	7	Block length as specified in first word is larger than that permitted by the subsystem.
	11	Destination buffer is undefined by subsystem.

SPC—PROCESS SPECIAL REQUEST

This function can process special PP requests from system jobs. It provides the following capabilities:

- PP programs with names starting with 1 (such as 1TA) can be called.
- If no PP is available, control is returned to the running program.

Request:

SP C** **** **aa aaaa

aa...a Address of PP request.

Reply:

aa...a is not cleared if no PP is available.

†If auto recall is selected (bit 41 of request word set) and this condition is present, calling program is placed in recall until condition ends.

TIM—REQUEST SYSTEM TIME

Request:

TI M** rrrr **ff ffff

ff...f Address for response.

rrrr Function number.

For rrrr=0, the system replies with the accumulated CPU time as follows:

Reply:

2sss ssss ssss ssss mmmm

ss...s Seconds.

mmmm Milliseconds.

For rrrr=1, the system replies with the current date in display code format as follows:

Reply:

byy/mm/dd.

b Blank character.

yy Year minus 1900.

mm Month.

dd Day.

For rrrr=2, the system replies with the current time of day in display format as follows:

Reply:

bhh.mm.ss.

b Blank character.

hh Hours (00 to 23).

mm Minutes.

ss Seconds.

For rrrr=3, the system replies with the current Julian date as follows:

Reply:

0000 0000 bbyy yydd dddd

bb Blank character.

yyyy Year minus 1900 in display code.

dd...d Day (001 to 365) in display code.

For rrrr=4, the system replies with the real time in the following format:

Reply:

0000 0000 ssss ssss ssss

ss...s Seconds * 4096.

For rrrr=5, the system replies with the elapsed time since deadstart as follows:

Reply:

ssss ssss mmmm mmmm mmmm

ss...s Seconds (biased by 400000_8).

mm...m Milliseconds.

For rrrr=6, the system replies with the current date and time in binary packed format as follows:

Reply:

0000 0000 yymo ddhh mmss

yy Year minus 1970.

mo Month.

dd Day.

hh Hours.

mm Minutes.

ss Seconds.

For rrrr=7, the system replies with the accumulated SRUs as follows:

Reply:

2000 0000 uuuu uuuu uuuu

uu...u SRUs in milliunits.

For rrrr=11_8, the system replies with the number of CPU clock cycles used by the job (model 176 only) as follows:

Reply:

2000 cccc cccc cccc cccc

cc...c Model 176 CPU clock cycles.

If the request is made on a system other than model 176, the system replies as follows:

Reply:

6000 0000 0000 0000 0000

For rrrr=12_8, the system replies with the number of CPU clock cycles since deadstart (model 176 only) as follows:

Reply:

2000 cccc cccc cccc cccc

cc...c Model 176 CPU clock cycles.

If the request is made on a system other than model 176, the system replies as follows:

Reply:

6000 0000 0000 0000 0000

XJP—INITIATE SUBCONTROL POINT

Request:

XJ P00 tttt ttaa aaaa

tt...t CPU time limit (in milliseconds) for subcontrol point.

aa...a Address of subcontrol point exchange package.

Reply:

Register	Bits	Contents
X2	59-0	Quarter-nanounits† of CPU time before control was given to subcontrol point.
X6	59-48	2000_8+ef. ef Error flag set by control point.
X7	59-0	Quarter-nanounits† of CPU time used by subcontrol point.

XJR—PROCESS EXCHANGE JUMP REQUEST

Request:

XJ R** ffff **aa aaaa

ffff Function code:
0 Start job with exchange package at aaaaaa.
1 Save current exchange package at aaaaaa.

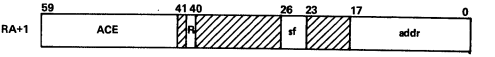
aa...a Address of exchange package.

†Quarter-nanounits = $(1/4 \times 10^{-9})$ CPU multiplier.

ACE—ADVANCE COMMAND

This function is included primarily for compatibility with NOS/BE.

Call:



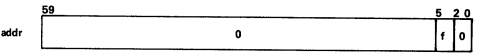
r Auto recall bit (must be set).

sf Special function:

Bit 26 set: Crack parameters in SCOPE 3.4 format.
Bit 24 set: Issue command to dayfile.

addr Address containing function.

Function word format:



f Function (bits 5 through 3):

Value	Description
1	Read next command and advance command pointer.
4	Backspace to previous command.

CIO—COMBINED INPUT/OUTPUT

CIO requests are preprocessed in CPUMTR. Additional processing may be done within CPUMTR, 1MS, or MAG/1MT.

Call:

r Auto recall, if desired.

n Count for skip operations, data pattern selections for overwrite operations.

addr Address of the FET.

FET Format:

lfn Logical file name.

ln Level number ($0 \leq ln \leq 17_8$) for an EOR/EOF operation on the file:

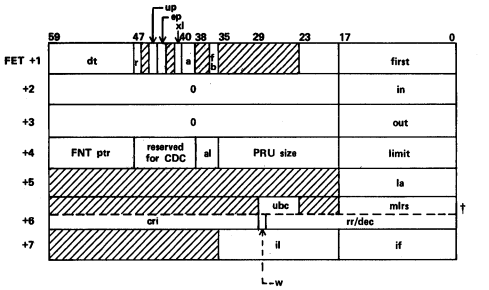
0	EOR operation.
$1\text{-}16_8$	Same as level 0.
17_8	EOF operation.

at Status information returned by CIO:

01	EOI encountered.
02	Device full/end of reel encountered.
04	Parity error.
21	End of multifile set.
22	Fatal error.
23	Random index too large for index buffer on OPEN.

code Request/return code:

4-3	Binary 10 if EOR encountered; binary 11 if EOF encountered.
1	Zero if coded file; one if binary file.
0	Completion bit (set when operation is completed).



† These fields apply only to S and L format tapes.

dt Device type.

r Random processing bit (bit 47). This bit is set if random processing is performed on the mass storage file (r is checked only if ≠0.)

up User processing bit (bit 45). This bit is set if the user processes magnetic tape end-of-reel conditions.

ep Error processing bit (bit 44). This bit is set if the user processes errors; for disk files.

xl Extended label processing (bit 41). (xl is 0 for standard label processing and 1 for extended label processing.)

a This bit is set if the file's access level is to be taken from or returned to FET+4.

fb File flush bit (bit 36).

FET length-5.

first FIRST address of buffer.

in Next input address for buffer.

out Next output address for buffer.

al The file's access level.

limit LIMIT address of buffer.

la — Address of a list of random addresses used with READLS or RPHRLS mass storage operations.

ubc — Unused bit count for S and L format tapes.

mlrs — Maximum logical record size for S and L format tapes.

cri — Current random index (for mass storage files only).

w — Random rewrite request (for mass storage files only).

rr/dec

rr — Random request (for mass storage files only).

If rr≠0, and the request is a read request, rr is the random index.

If rr≠0, w=0, and the request is a write request, rr is the address for return of random index (the write operation is at the current position).

If rr≠0, w=1, and the request is a write request, rr is the random index.

dec — Detail error return code (for mass storage files only):

Code	Type of Error
x001	Parity error.
x002	Address error.
x003	Device status error.
x004	6681 function reject or function code issued to mass storage device timed out with no response.
x005	Device reserved.
x006	Device not ready.
4007	Track limit (device full).

After an error, the file is positioned at the erroneous PRU. If the operation was a read and the system has verified that the proper PRU was read (although it probably contains incorrect data), then x in the code is 0 and the data is placed in the buffer; otherwise, x is 4. If the file is random, the current random index is set as usual.

il Length of random index area (for mass storage files only).

if First word address of random index area (for mass storage files only).

OPEN Functions

Code	Name	Description
100	READNR	Read, no rewind.
104	WRITENR	Write, no rewind.
120	NR	No rewind.
120	ALTERNR	Alter, no rewind.
140	READ	Read and rewind.
144	WRITE	Write and rewind.
160	ALTER	Alter and rewind.
300	REELNR	Read reel, no rewind.
340	REEL	Read reel and rewind.

CLOSE Functions

Code	Name	Description
130	NR	No rewind.
150	REWIND	Rewind.
170	UNLOAD	Rewind and unload.
174	RETURN	Rewind (decrement scheduled tape units).

CLOSER Functions

Code	Name	Description
330	NR	No rewind.
350	default	Rewind.
370	UNLOAD	Rewind and unload.
374	RETURN	Rewind (decrement scheduled tape units).

Read and Write Functions

Code	Name	Description
000	RPHR	Reads physical record.
004	WPHR	Writes physical record.
010	READ	Buffer read.
014	WRITE	Buffer write.
020	READSKP	Reads and skips.
024	WRITER	Writes end of record.
034	WRITEF	Writes end of file.
200	READCW	Nonstop read of PRUs bounded by control words.
204	WRITECW	Nonstop write of PRUs bounded by control words.
210	READLS	Reads nonstop with list (mass storage only).
214	REWRITE	Buffer rewrite in place (mass storage only).
224	REWRITER	End-of-record rewrite in place (mass storage only).
230	RPHRLS	Reads PRUs with list (mass storage only).
234	REWRITEF	End-of-file rewrite in place (mass storage only).
250	READNS	Reads nonstop until buffer is full or EOF or EOI.

Code	Name	Description
260	READN	Reads data from an S or L formatted tape. Reads until buffer full or EOF or EOI.
264	WRITEN	Writes nonstop on S or L formatted tape.
600	READEI	Reads information until buffer full or EOI.

Overwrite Functions

Code	Name	Description
244	OVWRITE	Overwrite file with binary zeros or alternating pattern of ones and zeros.
264	OVWRITE RETURN	Overwrite file and returns file upon completion.

File Positioning Functions

Code	Name	Description
040	BKSP	Backspaces file one logical record.
044	BKSPRU	Backspaces user-specified number of PRUs.
050	REWIND	Rewinds file.
054	REWIND	Rewinds file.
060	UNLOAD	Rewinds and unloads file (if mass storage file, same as RETURN).
070	RETURN	Releases file space and releases file from job control.
110	POSMF	Positions multifile tape set to member of set.

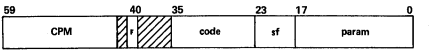
Code	Name	Description
114	EVICT	Releases file space.
240	SKIPF	Skips forward user-specified number of records or files.
240	SKIPFF	Skips forward user-specified number of records or files.
240	SKIPEI	Positions file at EOI.
640	SKIPB	Backspaces file user-specified number of records.
640	SKIPFB	Backspaces file user-specified number of files.

Data Transfer Macros

Name	Function
READC	Reads coded line from I/O buffer to working buffer.
WRITEC	Writes coded line from working buffer to I/O buffer.
READH	Reads coded line with space fill from I/O buffer to working buffer.
WRITEH	Writes coded line, deleting all trailing spaces from working buffer to I/O buffer.
READO	Reads 1 word from I/O buffer to X6.
WRITEO	Writes 1 word from X6 to I/O buffer.
READS	Reads line image to character buffer.
WRITES	Writes line image from character buffer.
READW	Fills working buffer from I/O buffer.
WRITEW	Writes data from working buffer to I/O buffer.

CPM—CONTROL POINT MANAGER

Call:



r	Auto recall bit.
code	CPM function code.
sf	Subfunction code (functions 003 and 017).
param	Parameter for the function.

Functions:

The following CPM functions are processed directly by CPUMTR: 016, 024, 025, 032, 033, 037, 043, 045, 050, 055, 061, 062, 063. The remaining functions are processed by CPM.

Code	Macro	Description
000	-	Reserved.
001	SETPR	Sets job CPU priority.
002	MODE	Sets exit mode flags.
003	SETASL	Sets account block SRU limit.
	SETJSL	Sets job step SRU limit.
	SETTL	Sets CPU time limit for job step.
004	EREXIT	Sets error exit address; when job aborts, control is returned to this address.
005	CONSOLE	Transfers information to/ from console.
006	ROLLOUT	Rolls out job.
007	NOEXIT	Suppresses processing of EXIT statement if job aborts.

Code	Macro	Description
010	SETSSM	Sets secure system memory.
011	ONSW	Sets sense switches for user job.
012	OFFSW	Clears sense switches.
013	GETJN	Gets job sequence name.
014	-	Reserved.
015	GETPR	Gets job CPU priority.
016	GETEM	Gets exit mode control.
017	GETASL	Gets account block SRU limit.
	GETJSL	Gets job step SRU limit.
	GETTL	Gets job step time limit.
020	-	Sets demand file random index (SSJ= only).
021	SETUI	Sets user index (system origin only).
022	SETLC	Sets first loader control word.
023	SETRFL	Sets initial field length for job step.
024	GETJCR	Gets last error flag and job control registers.
025	SETJCR	Sets job control registers.
026	SETSS	Sets subsystem (interactive origin only).
027	GETJO	Gets job origin type code.
030	GETJA	Gets job accounting information.
031	USECPU	Specifies CPU to be used.
032	USERNUM	Returns user name.
033	GETFLC	Reads CM FL control word.

Code	Macro	Description
034	EESET	Enters event in system event table (system origin only).
035	PACKNAM	Writes default pack name in control point area.
036	PACKNAM	Gets pack name from control point area.
037	GETSS	Gets subsystem (interactive origin only).
040	VALID	Validates account number (SSJ= only).
041	ENFAM	Enters family name (system origin only).
042	BEGINAB	Begins account block (SSJ= only).
043	DISSJ	Disables SSJ= (SSJ= only).
044	VERSION	Returns version name.
045	GETLC	Returns first loader control word.
046	GETGLS	Gets global library set.
047	SETGLS	Sets global library set.
050	MACHID	Returns two-character machine ID.
051	GETACT	Returns job activity information.
052	SETMFL	Sets job step maximum field length boundary.
053	DISSR	Disables SRU accumulation (SSJ= only).
	RENSR	Enables SRU accumulation (SSJ= only).
054	-	Reserved.
055	GETFLC	Reads extended memory FL control word.
056	-	Validates user (SSJ= only).

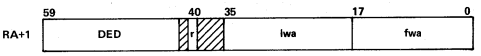
Code	Macro	Description
057	GETPFP	Reads permanent file parameters.
060	SETPFP	Sets permanent file parameters (SSJ= only).
061	GETLOF	Reads list of files address.
062	SETLOF	Sets list of files address.
063	GETEOJS	Returns end-of-job information.
064	SETAUC	Increments application unit accumulator.
065	UTL	Enables/disables access to OFF/suspect devices.
066-072	-	Reserved for CPUMTR.
073	-	Decrements family user count (SYOT only).
074	GETJCI	Reads job control information.
	SETJCI	Sets job control information.
075	PROTECT	Sets/clears extended memory FL preservation over job steps and/ or user file privacy.
076	SETOV	Sets/clears override flag (SSJ= only).
077	-	Initiates application program accounting.
100	FLASH	Sets pause bit so that the message currently in MSIW/MS2W will flash (SSJ= or SYOT only).
101	GETSPS	Returns status of system origin privileges.
102	DSDOUT	Transfers L display data to CMR.
103	DSDINP	Transfers L display command to FL.
104	-	Set prologue/epilogue controls (SSJ= only).

Code	Macro	Description
105	-	Reserved.
106	SETJOB	Sets job characteristics.
107	SETRNR	Allows or inhibits rollout of job (SSJ= only).
110	GETSSID	Reads subsystem ID.
111	GETJOSC	Reads job origin and service class.
112	OPMSG	Sets operator display data.
113	SHELL	Sets shell program controls.
114	DECCNT	Decrements security count (SSJ= required).
115	-	Updates user access words in control point area (SST= only).
116	GETJAL	Returns job access level and access level limits.
117	SETJAL	Sets job access level.
120	GETUSV	Gets user security validation word (SSJ= or SSID required).
121	-	Increments packed date.
122	-	Encrypts password (SSJ= only).
123	GETUSC	Returns valid service classes for specified origin type.
124	SETSC	Changes user service class.
125	-	Reserved for CDC.
126	GETUAB	Returns user account block (SSJ= only).
127	GETPAGE	Returns page size parameters for printed output.

Code	Macro	Description
127	GETPP	Calls GETPAGE and unpacks the parameters.
130	SETPAGE	Sets page size parameters for printed output.
131	GETEP	Returns prologue/epilogue status (SSJ= required).
132	LOGOUT	Processes logout (SSJ= required).
133	GETLVL	Returns PSR level of operating system.
134	GETRI	Returns REPRIEVE information.
135	-	Enables/disables terminal error messages.
136	GETCN	Gets charge number.
137	CSTATUS	Returns console type.
140	-	Assign concurrent PP.
141	-	Check privileged analyst status.
142-150	-	Reserved for CDC.

DED—DUMP EXTENDED MEMORY WITH DISPLAY CODE

Call:



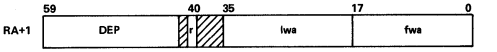
r Auto recall bit.

lwa Address of last word to be dumped.

fwa Address of first word to be dumped.

DEP — DUMP EXTENDED MEMORY

Call:



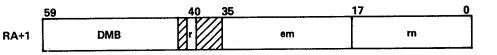
r Auto recall bit.

lwa Address of last word to be dumped.

fwa Address of first word to be dumped.

DMB — BINARY DUMP OF CONTROL POINT MEMORY

Call:

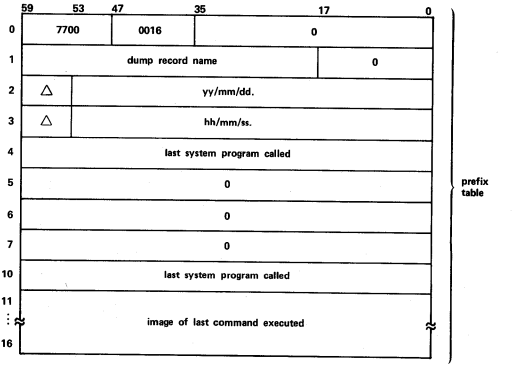


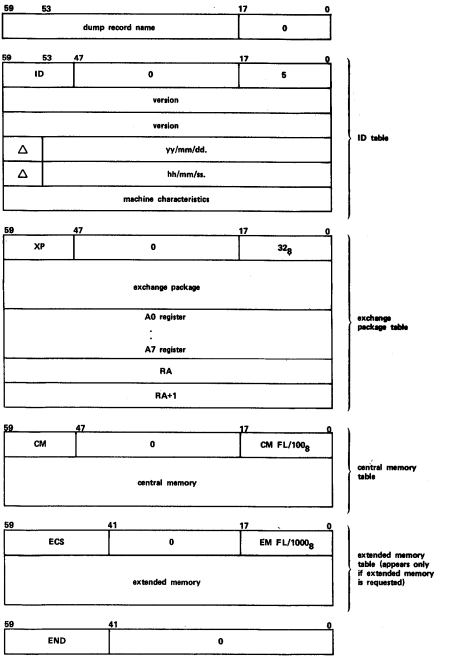
r Auto recall bit.

em If this parameter is nonzero, extended memory is dumped in addition to central memory.

rn The system prefixes the letter D to this number ($0\text{-}777777_8$) to form the dump record name.

The DMB request a logical record on file ZZZZDMB having the following format:



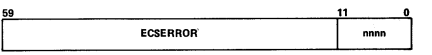


n Octal number of central memory words assigned to the job.

m Octal number of extended memory words assigned to the job.

Δ Space (display code value 55_8).

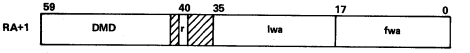
If an extended memory error occurs, the block in error is filled with 400_8 words of the following format:



nnnn Word number within the block (starting with 1).

DMD—DUMP CENTRAL MEMORY WITH DISPLAY CODE

Call:



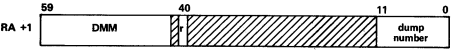
r Auto recall bit.

lwa Address of last word to be dumped.

fwa Address of first word to be dumped.

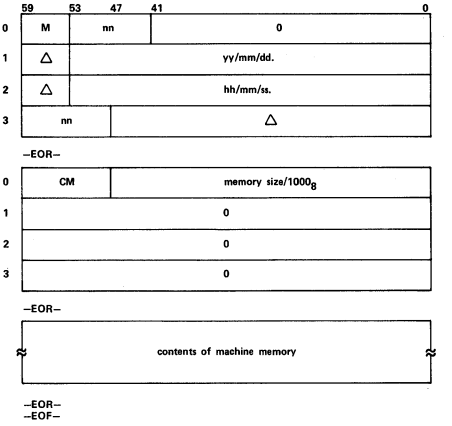
DMM — DUMP MACHINE MEMORY IN DSDI FORMAT

Call:



r Auto recall bit.

The DMM request creates a logical file on file ZZZZDMM having the following format:

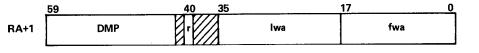


nn Display code value of dump number from request.

△ Space (display code value 55_8).

DMP—DUMP CENTRAL MEMORY

Call:



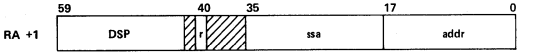
r Auto recall bit.

lwa Address of last word to be dumped.

fwa Address of first word to be dumped.

DSP—DISPOSE PROCESSOR

Call:

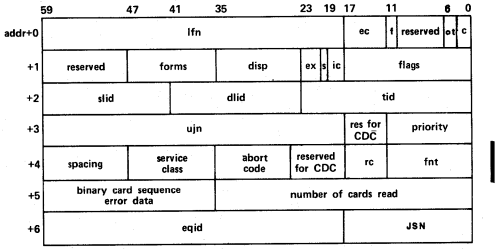


r Auto recall bit.

ssa System sector address (SSJ= and SYOT only).

addr First word address of parameter block.

The user program must define the following parameter block before issuing the DSP call or ROUTE macro:



lfn Local file name of file to be routed.

ec Error code.

f Forced origin flag (system origin only).

ot Forced origin code (system origin only).

c Completion bit.

forms Forms code/input flags:

Bit(s)	Description
47-45	Unused.
44	Send file to output queue with forced abort error code.
43	Send file to input queue even if job command error.
42	Binary card sequence error or incorrect Hollerith code detected in card deck.
41-36	Reserved.

disp Disposition code:

Code	Description
IN	Release file to input queue.
LQ	Print on any printer.
LR	Print on 580-12 printer.
LS	Print on 580-16 printer.
LT	Print on 580-20 printer.
LX	Print on 5870 printer.
NO	Release file to input queue; drop job output files at job completion.
PB	Punch system binary.
PH	Punch coded.
PL	Plotter.
PR	Same as LP.
PU	Same as PH.
P8	Punch 80-column binary.
SB	Same as PB.
SC	Rescind prior routing, change file to LOFT.
TO	Input queue, output to wait queue.
TT	Wait.
WT	Same as TT.

ex External characteristics:

Value	Print File	Punch File	Plot File
0	Default	Default	Default
1	Unused	SB	T6
2	A4†	80COL	T8
3	B4†	Unused	
4	B6	026	
5	A6	029	
6	A9	Unused	
7	Reserved	Reserved	

s Forced service class flag. If set, specified service class is used.

ic Internal characteristics:

Value	Description
0	Display code.
1	ASCII code.
2	Binary.
3	Reserved.

flags Each bit indicates a parameter is specified:

†Not supported. Provided for NOS/BE compatibility.

Bit	Description
17	File name assigned by system is returned to addr+0, bits 59 through 18.
16	Accounting.
15	Spacing code.
14	Repeat count.
13	UJN is specified in addr+3, bits 59 through 18.
12	No dayfile message, return error code to addr+0, bits 17 through 12.
11	Subsystem initiation.
10	Forms code.
9	Priority.
8	Internal characteristics.
7	External characteristics.
6	Extended parameter block.
5	Reserved for installations.
4	Disposition code.
3	SLID/DLID specified.
2	TID.
1	Route to central site.
0	Deferred ROUTE (output files only) or forced JSN flag (input files only).

slid — 3-character alphanumeric LID of file's source mainframe. The following values have special meaning:

Value	Description
0	Get slid from job input file system sector.
1	Set slid to zero.
2	Set slid to physical identifier of mainframe.

dlid — 3-character alphanumeric LID of file's destination mainframe. The following values have special meaning:

Value	Description
0	Set dlid to zero.
1	Set dlid to zero.
2	Set dlid to physical identifier of mainframe.

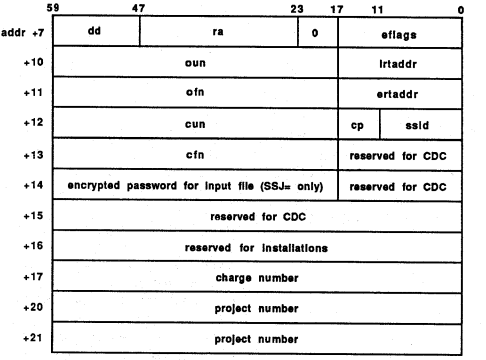
tid	For routing to remote batch queue, contains the complement of the address of a 2-word block specifying family name and user number. Contains an ID code for routing to local batch queue.
ujn	User job name.
priority	Specifies priority for output files if greater than 7760_8.
spacing	Spacing code for output files.
service class	Service class of the routed file.
abort code	If bit 44 of the DSP parameter word 1 is set, the value of this field determines which of the following messages is sent to the dayfile:

Value	Message
0001	Job command error.
0002	Card reader error.
0003	Operator input termination.
0004	Disk full.
0005	Disk parity error.

rc	Repeat count.
fnt	NFL offset of FNT entry.
binary card sequence error data	Used by BIO.
eqid	Equipment identifier in display code. For RBF, terminal name; for BATCHIO, machine ID followed by EST ordinal of card reader; otherwise, EST ordinal of card reader, left-justified with zero-fill.

Extended DSP Parameter Block

By setting bit 6 of the flags field in addr+1, the user program can define an extended DSP parameter block containing the following information:



dd — Data declaration for remote host files:

c6	6-bit character data.
c8	8-bit character data.
us	Undefined data type, structured file.
uu	Undefined data type, unstructured file.

ra — EOI random address of file.

eflags — Flags indicating which parameters are specified in the extended parameter block.

Bit	Description
17-11	Reserved.
10	Charge/project numbers (SSJ= only).
9	Do not validate the service class (SSJ= only).
8	Special requeue operation (SSJ= only).
7	Use encrypted password (SSJ= or subsystem only).
6	Use origin default service class (SSJ= or subsystem only).
5	Control point and subsystem identifier specified.
4	Do not validate password (SSJ= or subsystem only).
3	Subsystem call (SSJ= or subsystem only).
2	Creator user name and/or creator family name, (SSJ= or subsystem only).
1	Owner user name and/or owner family name (SSJ= or subsystem only).
0	Data declaration.

oun — The user name of the file owner (SSJ= entry point only).

irtaddr — The first word address of the block containing the implicit remote text string for the file (SSJ= entry point only). The first word of the block contains the length of the string in characters; the rest of the block contains up to 256 display-code characters.

ofn — The family name of the file owner (SSJ= entry point only).

ertaddr — The first word address of the block containing the explicit remote text string for the file (SSJ= entry point only). The first word of the block contains the length of the string in characters; the rest of the block contains up to 256 display-code characters.

cun — The user name of the file creator (SSJ= or subsystem entry point only).

cp — Control point selection (subsystem initiation).

ssid — Subsystem identifier (subsystem initiation).

cfn — The family name of the file creator (SSJ= or subsystem entry point only).

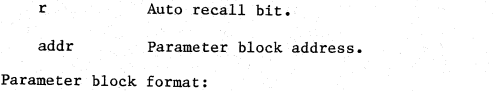
D00—EXTRACT ERROR MESSAGES

Call:

r — Auto recall bit.

addr — Parameter block address.

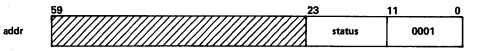
Parameter block format:



†Must be mass storage resident

f — Function:

Value	Description
1	Transfer message to CM buffer.
2	Transfer message to dayfile.
4	Make insertion to message.



status Status of request:

Value	Description
0	Transmittal to dayfile only.
7777_8	Error.
n	Number of words written to CM buffer.

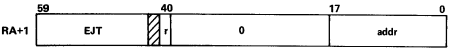
EJT—MANIPULATE EJT ENTRY FOR IAF

These requests are processed by CPUMTR; some are also processed by PP program 1MA.

Functions:

Code	Symbol	Description
1	DTEJ	Detach.
2	ENEJ	Enable.
3	FJEJ	Freeze (rollout nonschedulable).
4	RCEJ	Recover.
5	RSEJ	Restart recovered job.
6	RTEJ	Reset suspension timeout.
7	SAEJ	Set abort flag.
10	TJEJ	Terminate interactive job.

EJT—RA+1 REQUEST (PARAM MACRO)



r — Auto recall bit.

addr — Parameter block address (format of parameter block is shown in with the PARAM macro in OPL deck IAFEX).

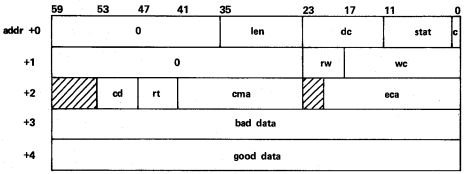
ELM—ERROR LOG MESSAGE PROCESSOR

Call:

r — Auto recall bit.

addr — Address of parameter block for call.

The 5-word parameter block must be defined as follows:



len — Length of error block.

dc — Device code (EC=extended memory).

stat — Status:
1 Dayfile message limit.

c — Completion bit.

rw — Read/write flag:
1 Read.
2 Write.

wc — Word count of block transfer.

cd — Recovery conditions:
0 Block reread recovered.
1 Single word reads recovered.
2 Data not recovered.

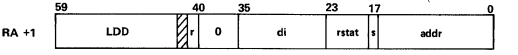
rt — Retry count.

cma — CM address of transfer.

eca — EM address of transfer.

LDD—LOAD FAST DYNAMIC LOAD DIRECTORIES

Call (LOADD macro or RA+1):



r — Auto recall bit.

di — Directory index (LDD recall only).

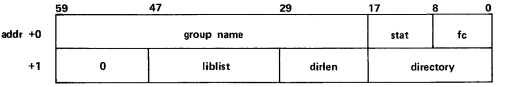
rstat — Recall status bits (LDD recall only).

Bit	Description
19	Local user library offset.
20	Global library set index.

s — LDD recall status.

addr — Address of parameter block.

The parameter block consists of two words in the following format:



group name — Name of group of capsules or CCL procedures.

stat — Status of call:

Value	Description
0	Function complete without error.
1	Invalid function code.
2	Bad directory address or length.
3	Bad liblist address or length.
1x	Unknown liblist entry or file nonmass storage.
2x	Directory space too small.

fc — Function code (bit 0 set upon completion):

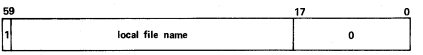
Value	Description
0	Specifies capsule (CAP).
404_8	Specifies procedure (PROC).

liblist — Address of list of libraries to be searched after global library set.

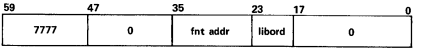
dirlen — Length of area to receive generated directory.

directory — Address of area to receive generated directory.

The generated directory has one of the following formats. For a local file library the format is:



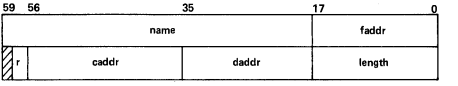
For a system library the format is:



fnt addr — Address of system file FNT entry.

libord — The library ordinal of the library containing the capsule or procedure.

For each capsule or procedure found that belongs to the given group, LDD makes the following entry in the directory:



faddr — Address, relative to the beginning of the directory, of the word containing the file entry associated with this capsule or procedure.

r — Residence of capsule or procedure:
0 Mass storage.
1 Mass storage and CM.
2 Mass storage and EM.

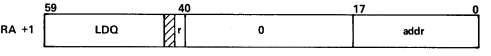
caddr — CM or ECS address of capsule or procedure.

daddr — Disk address (relative PRU) of capsule or procedure.

length — Length of the capsule or procedure, including header, code image, and relocation and linking information, but excluding the prefix table.

LDQ—LOAD QUICKLY

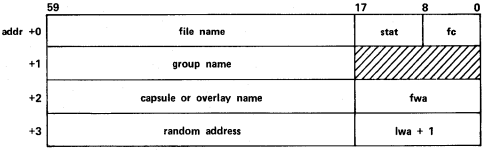
Call (LOADQ macro or RA+1):



r Auto recall bit.

addr Address of parameter block.

The 4-word parameter block must be defined as follows:



file name Name of file containing capsule or overlay.

stat Status of LDQ call (ignored during request). Stat is set to one of the following values on completion of call:

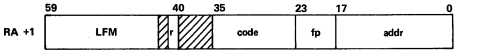
Value	Description
0	Function completed without error.
1	Invalid function code.
2	Bad address (must have fwa $\leq$ lwa+1 $\leq$ field length).
3	Nonexistent file or file not on mass storage.
4	Bad disk address (out of file bounds).
5	Capsule or overlay not found at specified location.
6	Insufficient space provided for capsule or overlay.

If either errors 5 or 6 occur, the contents of the loadable area are undefined.

fc	Function code: 0 Load capsule. 2 Load overlay. LDQ sets bit 0 to one when the request is completed.
group name	Name of capsule group; zero for overlay load.
capsule or overlay name	Name of desired capsule or overlay.
fwa	First word address of the area into which the capsule or overlay is to be read.
random address	Location of capsule or overlay on specified file.
lwa+1	Last word address plus 1 of area for capsule or overlay.

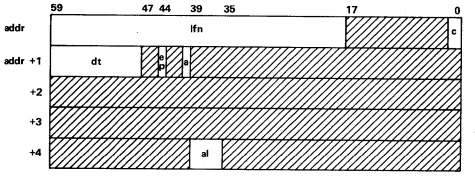
LFM—LOCAL FILE MANAGER

Call:



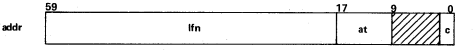
r	Auto recall bit.
code	Function code.
fp	Function parameter.
addr	Address of the FET.

FET format:



lfn	File name.
c	Completion bit.
dt	Device type.
ep	Error processing bit (bit 44).
a	Access level processing bit (bit 39).
al	Access level.

After the request is completed, the first word of the FET contains the following information:



lfn	File name.
at	Abnormal termination code.
c	Completion bit.

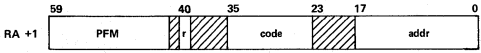
Functions:

Code	Macro	Description
000	RENAME	Renames local file.
001	-	Reserved.
002	-	Reserved.
003	SETFS	Sets file status.
004-6	-	Reserved.
007	SETFAL	Sets file access level.
010	LOCK	Sets write lockout bit for file.
011	UNLOCK	Clears write lockout bit for file.
012	STATUS	Obtains last status of file.
013	STATUS	Returns current position and status of file.
014	REQUEST	Requests operator assignment of equipment to file.
015	REQUEST	Assigns file to user-specified device type or EST ordinal.
016-17	-	Reserved.
020	ASSIGN	Accesses library file or assigns system file.
021	ACCSF	Attaches command file as read-only file (SSJ= only).
022	ENCSF	Replaces the command file.
023	PSCSF	Positions command file.
024	LABEL	Assigns file to tape and processes tape.
025	GETFNT	Returns information from local FNT for selected local files.
026	-	Requests tape assignment (SSJ= only).

Code	Macro	Description
027	-	Enters VSN file entry (SSJ= only).
030	-	Reserved.
031	PRIMARY	Changes primary file.
032	FILINFO	Returns information about a file.
033	SETLFE	Set last file executed (SSJ= only).

PFM—PERMANENT FILE MANAGER

Call:



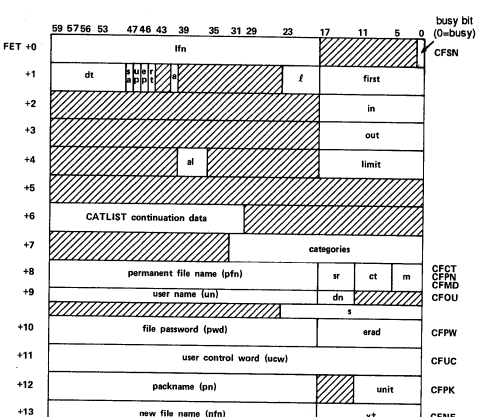
r — Auto recall bit.

code — Function code:

- 1xxx — Use system default family (SSJ= required).
- 2xxx — Ignore pack name.

addr — Address of the FET.

FET format:



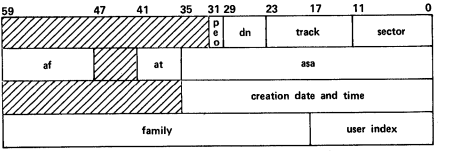
lfn	Local file name.
dt	Device type.
sa	Suppress address on error messages (bit 46).
up	User processing bit (bit 45).
ep	Error processing bit (bit 44).
rt	Real-time parameter bit (bit 43).
a	Access level processing bit (bit 39).
ℓ	FET length minus 5.
first	FIRST parameter for file's circular buffer.
in	IN parameter for file's circular buffer.
out	OUT parameter for file's circular buffer.
al	Access level.

limit	LIMIT parameter for file's circular buffer.
categories	Permanent file access category set (bit i for category i).
pfn	Permanent file name.
sr	Special request subfunction: 1† Force fast attach (SRFA). 2 CATLIST by device number (SRON). 3 Clear error status on CHANGE (SRCE). 4 Force nonfast attach (SRNF). 5† Force master device residency on DEFINE (SRMR). 6† Ignore error idle status (SRIE). 7† Set system sector on ASSIGN (SRSY). 10 Reset charge and project numbers on CHANGE (SRCP).
ct	File category (refer to Permission Modes, File Categories).
m	File access mode (refer to Permission Modes, File Categories).
un	Alternate user name.
dn	Device number for CATLIST option (range is 1 to 77_8).
s	Number of PRUs (octal) desired for the file.
pwd	Optional file password.
erad	Error message return address.
ucw	User control word.
pn	Pack name of auxiliary device.
unit	Number of units on multiunit device.
nfn	New file name.
xt	Password expiration date or term.
pr	Preferred residence for file.
br	Backup requirement for file.

†SSJ= required for this subfunction.

ss	Subsystem.
ac	Alternate CATLIST permission.
srbp	Pointer to special function request block.

Special request block format (used for functions 003, 013-020, 024-027, and 031):



peo	PFC entry ordinal (ordinal of PFC entry within catalog sector).
dn	Device number for master device.
track + sector	Disk address of catalog entry for file.
af	Alternate storage status flags for (SETAF).
at + asa	Alternate storage type and alternate storage address for file.
creation date and time	Packed date and time file was created.
family	Family to which file belongs.
user index	User index under which file is saved.

Function Codes:

Code	Macro	Description
001,CCSV	SAVE	Saves copy of temporary file as indirect access permanent file.
002,CCGT	GET	Generates temporary copy of indirect access permanent file.

Code	Macro	Description
003,CCPG	PURGE†	Removes file from permanent file system.
004,CCCT	CATLIST	Provides catalog information.
005,CCPM	PERMIT	Grants permission to alternate user to access private file.
006,CCRP	REPLACE	Purges old file and saves new file as indirect access permanent file.
007,CCAP	APPEND	Appends contents of working files to indirect access permanent file.
010,CCDF	DEFINE	Specifies file as direct access permanent file.
011,CCAT	ATTACH	Attaches direct access permanent file to user's control point.
012,CCCG	CHANGE	Alters parameters associated with permanent file.
013,CCUA	UATTACH†	Attaches the specified direct access permanent file to user's control point. The utility attach flag is set in the file's system sector.
014,CCSA	SETASA†	Sets alternate storage address into the catalog entry of the specified file.
015,CCAF	SETAF†	Sets alternate storage flags into the catalog entry of the specified file.

†Special request; SSJ= required for this function.

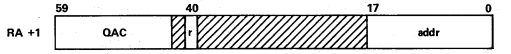
Code	Macro	Description
016,CCSD	SETDA†	Sets disk address of local file into the catalog entry of the specified permanent file. Permanent file may not already reside on disk. Local file must reside on appropriate permanent file device.
017,CCDD	DROPDS†	Drops all disk space associated with the specified file. File must have a valid copy on alternate storage.
020,CCAN	ASSIGNPF†	Assigns a local file to the appropriate direct access permanent file device for the specified family and user index.
021,CCOD	OLD	Generates a primary file type (PTFT) temporary copy of indirect access permanent file.
022,CCAC	SETPFAC	Sets and/or clears access categories for the specified file.
023,CCAL	SETPFAL	Sets access level for the specified file.
024,CCUG	UGET†	Generates a temporary copy of the indirect access permanent file; do not update access date or count in catalog entry.
025,CCUR	UREPLAC†	Copies local file to the indirect access permanent file; do not update access date or count in catalog entry.
026,CCDI	DROPIDS†	Releases the disk space associated with the indirect access permanent file.

†Special request; SSJ= required for this function.

Code	Macro	Description
027,CCDP	--†	Deletes PFC entry for old version of the indirect access permanent file (CPUPFM only).
030,CCRS	--	Returns status to original program caller after CPUPFM execution.
031, CCSP	STAGEPF†	Stage permanent file from alternate storage.

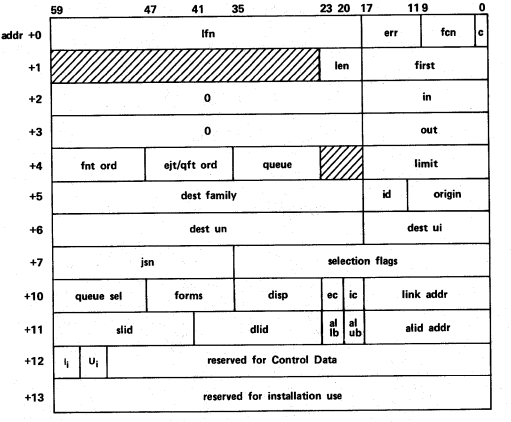
QAC—QUEUE ACCESS INTERFACE

Call:



r Auto recall bit.

addr Address of the QAC parameter block; must be a valid address within job's field length.



†Special request; SSJ= required for this function.

lfn	Local file name to be given to file (GET only).
err	Error code entered by QAC (0=normal completion, $1-35_8$=nonfatal error).
fcn	Function code: 1 ALTER 2 GET 3 PEEK
c	Completion bit.
len	Length of parameter block minus 5: ALTER 14_8 Extended GET 116_8 GET 13_8 PEEK 13_8
first	FIRST address for QAC buffer.
in	IN address for QAC buffer.
out	OUT address for QAC buffer.
fnt ord	FNT ordinal of file returned by QAC (GET only).
ejt/qft ord	QFT or EJT ordinal of file.
queue	Queue in which file was found (GET) or queue in which PEEK request terminated.
limit	Limit address (LWA+1) for QAC buffer.
dest family	Destination family name of file (0=default family).
id	ID code of file.
origin	Origin type of file: Origin — Origin Type 00 — Caller's origin. 01 — SYOT (system). 02 — BCOT (local batch). 03 — RBOT (remote batch). 04 — IAOT (interactive). 05-77 — Reserved.
dest un	Destination user name of file.

dest ui	Destination user index of file is returned by QAC (GET only).	
jsn	Job sequence name of file.	
selection flags	Flags set to limit QAC's search:	
	0	Specific ordinal and queue.
	1	Inhibit duplicate lfn search.
	2	Include priority=0 in selection.
	3	Destination family name and destination user name.
	4	ID code.
	5	Origin type.
	6	JSN.
	7	Forms code.
	8	Disposition code.
	9	Explicit internal characteristics.
	10	Hierarchical external characteristics.
	11	Include ec=0 in selection hierarchy.
	12	Internal characteristics.
	13	Access level (addr+11_8).
	14	Destination LID (addr+11_8).
	15	List of alternate destination LIDs (addr+11_8).
	16	Source LID (addr+11_8).
	17	Include LP disposition code (print files only).
	18	Select only recoverable (detached interactive) jobs.
	19	Reserved for CDC.
	20	File size index range specified.
	21-32	Reserved for CDC.
	33-35	Reserved for installations.
queue sel	Queue or queues QAC is to search:	
	0	Input queue.
	1	Executing job queue.
	2	Print queue.
	3	Punch queue.
	4	Plot queue.
	5	Wait queue.
	6-7	Reserved for CDC.
	8	Reserved for installations.
	9-11	Reserved for CDC.
forms	2-character alphanumeric forms code.	

disp — 2-character disposition code.

ec — External characteristics.

ic — Internal characteristics.

link addr — Address of next QAC parameter block (for linked requests).

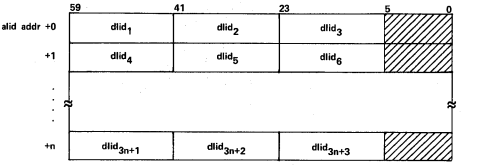
slid — LID of source mainframe.

dlid — LID of destination mainframe.

al lb — Access level lower limit.

al ub — Access level upper limit.

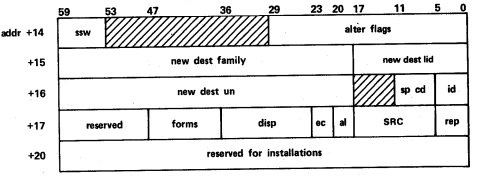
alid addr — Address of list of alternate destination LIDs. This list has the following format (list is terminated by first 18-bit zero field starting at bit 59, 41, or 23):



li — Lower bound for file size index. If li is specified, ui must also be specified ($li \leq ui$).

ui — Upper bound for file size index. If ui is specified, li must also be specified ($ui \geq li$).

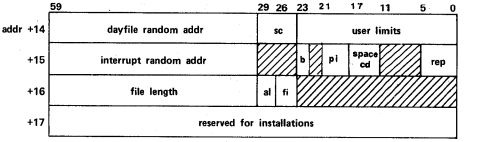
ALTER parameter block:



ssw	Sense switch settings to be altered.
alter flags	Flags used to specify information to be altered: 0 Change remote family name, user name. 1 Change local batch identifier. 2 Reserved for CDC. 3 Alter forms code. 4 Alter spacing code. 5 Alter disposition code. 6 Alter external characteristics. 7 Alter repeat count. 8 Alter access level. 9 Abort job or evict file. 10 Turn sense switches on. 11 Turn sense switches off. 12 Clear pause bit. 13 Send comment to dayfile. 14 Send comment from operator. 15 Indicate message available for aborted job. 16 Set pause bit. 17 Alter destination LID. 18 Kill job. 19 Alter service class. 20-26 Reserved for CDC. 27-29 Reserved for installations.
new dest family	New destination family name.
new dest lid	New destination LID.
new dest un	New destination user name.

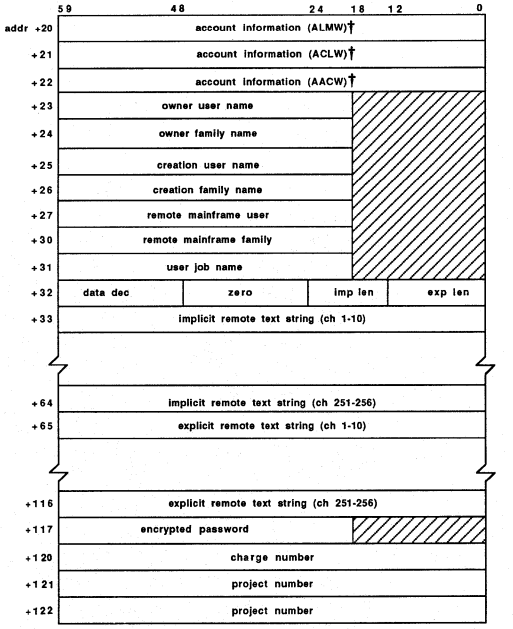
sp cd	New spacing code.
id	Identifier for local batch queue.
forms	New forms code.
disp	New disposition code.
ec	New external characteristics code.
al	New file access level.
src	New service class.
rep	New repeat count.

GET request parameter block:



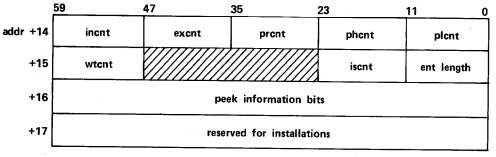
dayfile random addr	Random address of first PRU of file's dayfile (print files only).
sc	File's service class.
user limits	User's resource limit for type of device to which file is routed.
interrupt random addr	File position from previous GET request on file.
b	Batch I/O.
pi	Print image code.
space cd	File's spacing code.
rep	File's repeat count.
file length	File length in PRUs.
al	File's access level.
fi	File size index.

Extended GET parameter block:



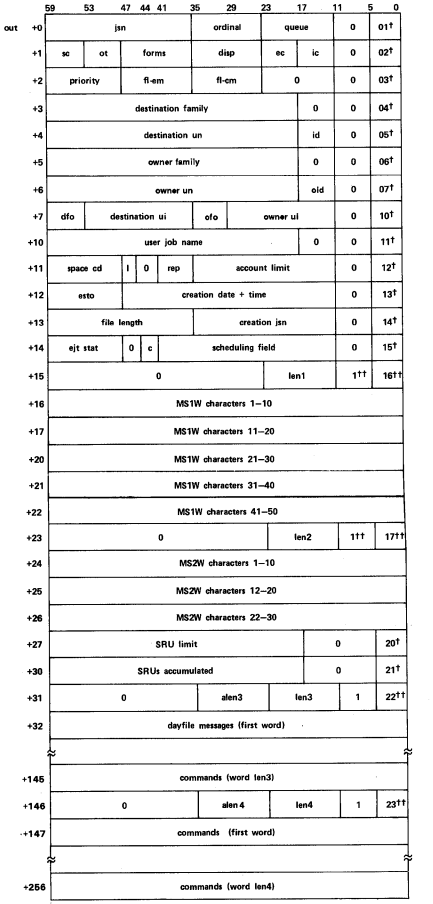
†Refer to Control Point Area in chapter 3 for detailed information.

PEEK request parameter block:

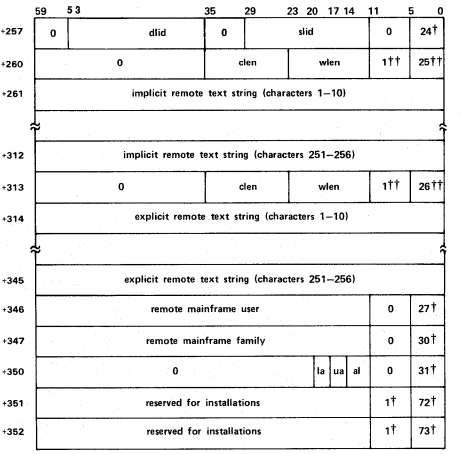


incnt	Number of input queue files eligible for selection, if addr+16_8=0; otherwise zero.
excnt	Number of executing job queue files eligible for selection, if addr+16_8=0; otherwise zero.
prcnt	Number of print queue files eligible for selection, if addr+16_8=0; otherwise zero.
phcnt	Number of punch queue files eligible for selection, if addr+16_8=0; otherwise zero.
plcnt	Number of plot queue files eligible for selection of addr+16_8=0; otherwise zero.
wtcnt	Number of wait queue files eligible for selection, if addr+16_8=0; otherwise zero.
iscnt	Reserved for the installation defined queue.
ent length	QAC returns the length, in words, of the PEEK reply buffer.
peek information bits	Each bit corresponds to the octal number in the lower 6 bits of a word in the PEEK reply block. Setting that bit causes the information for that word of the PEEK reply block to be returned. Bit 14 (16_8) selects MS1W, bit 15 (17_8) selects MS2W, bit 18 (22_8) selects dayfile messages, bit 19 (23_8) selects the command buffer, and bit 24 (30_8) selects the remote text string.

PEEK reply block format:



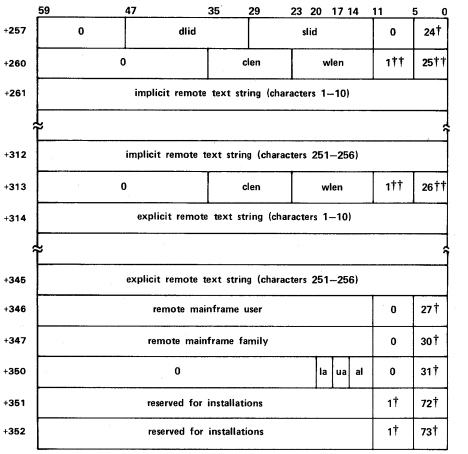
† This field has a value of zero if the rest of the word contains all zeros.
†† This field has a value of zero if the following word contains all zeros.



† This field has a value of zero if the rest of the word contains all zeros.
†† This field has a value of zero if the following word contains all zeros.

jsn	Job sequence name of file.
ordinal	EJT or QFT ordinal of file.
queue	Queue in which file is located.
sc	Service class of file.
ot	Original type of file.
forms	Forms code of file.
disp	Disposition code of file.
ec	External characteristics of file.
ic	Internal characteristics of file.
priority	Priority of file at time of PEEK request or the CPU priority of the executing job.
fl-em	Current extended memory field length (jobs only).

fl-cm	Current central memory field length (jobs only).
destination family	Destination family of file, if file is not routed to a local batch device.
destination un	Destination user name of file, if file is not routed to a local batch device.
id	Destination batch device identifier, if file is routed to a local batch device.
owner family	Family that owns the file.
owner un	User name that owns the file.
oid	Identifier of device that owns the file.
dfo	Destination family ordinal of file.
destination ui	Destination user index of file.
ofo	Owner family ordinal of file.
owner ui	Owner user index of file.
user job name	User job name of the file.
space cd	Spacing code of the file.
I	Set if file is interrupted.
rep	Repeat count for the file.
account limit	User's resource limit for type of device to which file is routed.
esto	EST ordinal of device on which file resides.
creation date+time	Packed date and time when file was first queued.
file length	File length in PRUs.
creation jsn	Job sequence name of job that created the file.
ejt stat	EJT status field (jobs only).



† This field has a value of zero if the rest of the word contains all zeros.
†† This field has a value of zero if the following word contains all zeros.

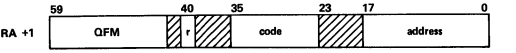
jsn	Job sequence name of file.
ordinal	EJT or QFT ordinal of file.
queue	Queue in which file is located.
sc	Service class of file.
ot	Original type of file.
forms	Forms code of file.
disp	Disposition code of file.
ec	External characteristics of file.
ic	Internal characteristics of file.
priority	Priority of file at time of PEEK request or the CPU priority of the executing job.
fl-em	Current extended memory field length (jobs only).

fl-cm	Current central memory field length (jobs only).
destination family	Destination family of file, if file is not routed to a local batch device.
destination un	Destination user name of file, if file is not routed to a local batch device.
id	Destination batch device identifier, if file is routed to a local batch device.
owner family	Family that owns the file.
owner un	User name that owns the file.
oid	Identifier of device that owns the file.
dfo	Destination family ordinal of file.
destination ui	Destination user index of file.
ofo	Owner family ordinal of file.
owner ui	Owner user index of file.
user job name	User job name of the file.
space cd	Spacing code of the file.
I	Set if file is interrupted.
rep	Repeat count for the file.
account limit	User's resource limit for type of device to which file is routed.
esto	EST ordinal of device on which file resides.
creation date+time	Packed date and time when file was first queued.
file length	File length in PRUs.
creation jsn	Job sequence name of job that created the file.
ejt stat	EJT status field (jobs only).

c	CPU status (jobs only).
scheduling field	EJT scheduling field (jobs only).
len1	Length of MSW1 in words (always 5).
MS1W	Contents of message buffer 1 of control point area (jobs only).
len2	Length of MS2W in words (always 3).
MS2W	Contents of message buffer 2 of control point area (jobs only).
SRU limit	SRU limit (jobs only).
SRUs accumulated	Current number of SRUs accumulated (jobs only).
alen3	Number of nonzero words in dayfile message entry.
len3	Length of dayfile message entry in words (always 114_8).
dayfile messages	Copy of dayfile message buffer in display code format (jobs only).
alen4	Number of nonzero words in commands entry.
len4	Length of commands entry in words (always 110_8).
commands	Copy of command buffer in display code (jobs only).
dlid	File's destination LID.
slid	File's source LID.
clen	Character length of implicit or explicit remote text string.
wlen	Word length of implicit or explicit remote text string.
la	Input file or job's lower access level limit.
ua	Input file or job's upper access level limit.
al	Input file or job's current access level.

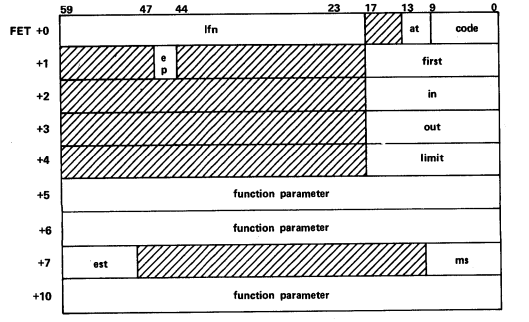
QFM—QUEUED FILE MANAGER

Call:



r	Auto recall bit (must be set).
code	Function code.
addr	Address of FET for the call.

FET format:



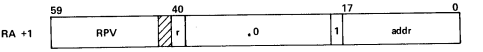
lfn	File name.
at	Abnormal termination code.
code	Completion code.
ep	Error processing bit.
est	EST ordinal.
ms	Mass storage error code.

Functions:

Code	Macro	Description
001	-	Attaches preserved file.
002	-	Detaches preserved file.
003	-	Purges preserved file.
004	-	Sets IQFT file.
005	-	Initializes IQFT file.
006	-	Requeues FNT/FST list.
007	-	Releases FNT/FST list.
010	-	Dequeues list.
011	-	Attaches queued file.
012	-	Reads system sector.
013	-	Attaches inactive queued file.
014	-	Requeues inactive queued file.
015	RERUN	Sets rerun status.
016	NORERUN	Clears rerun status.
017	-	Reserved.
020	-	Set IQFT status.
021	-	Interlocks queued file.
022	-	Centers FOT entry.
023	-	Creates queued file.

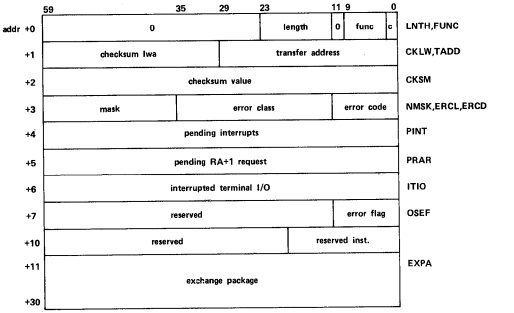
RPV—REPRIEVE PROCESSOR

Call:



r	Auto recall bit (must be set).
addr	First word address of the parameter block.

The format of the parameter block is as follows:



length	Length of the parameter block including the exchange package area (minimum of 25 words).
func	Function code: 1 Setup. 2 Program mode resume. 3 Reset. 4 Interrupt handler mode resume.
c	Completion bit.
checksum lwa	End of area to be checksummed. If 0, no checksum is desired.
transfer address	Address to which control is transferred when an interrupt is processed.

checksum value

Either set to the checksum of the indicated area when RPV is called or compared against the computed checksum (if checksum lwa is specified) when a reprievable error is processed.

mask

Mask bits to be set by call:

Mask	Mnemonic	Description
001	EEMS	CPU error exit.
002	PCMS	PP call error.
004	SRMS	SRU limit.
010	OTMS	Operator termination.
020	PPMS	PP abort.
040	CPMS	CPU abort.
100	NTMS	Normal termination.
200	TIMS	Terminal interrupt.

If the entire mask field is zero, all reprieve processing is cleared.

error class

Set to the value of the mask bit which intercepts the indicated error (that is, if error x is intercepted by mask bit n, bit n in the error class field is set).

Value	Mnemonic	Description
1	EECL	CPU error exit (ARET, PEET, PSET).
2	PCCL	PP call error (PCET, RCET).
4	FLCL	Mass storage limit (FLET, TKET).
4	SRCL	I/O limits (SRET).
4	TLCL	Time limit (TLET).
10	ODCL	Operator drop (ODET, IDET, STET).
10	OKCL	Operator kill (SSET, OKET, ORET, SYET, FSET).
10	RRCL	Operator rerun (RRET).
20	ECCL	EM parity error (ECET).
20	PPCL	PP abort (PPET, MLET, ITET).
40	CPCL	CPU abort (CPET).
100	NTCL	Normal termination.
200	TICL	Terminal interrupt (TIET, TAET).

error code — Octal code indicating error encountered.

Error Code	Mnemonic	Description
0	NTEC	Normal termination.
1	TLEC	Time limit.
2	EEEC	CPU error exit.
3	PPEC	PP abort.
4	CPEC	CPU abort.
5	PCEC	PP call error.
6	ODEC	Operator drop.
7	OKEC	Operator kill.
10	RREC	Operator rerun.
12	ECEC	ECS parity error.
17	MLEC	Mass storage limit.
21	SREC	I/O limits.
40	TIEC	Terminal interrupt.

pending interrupts — Used to queue pending interrupts (that is, the nth error code sets bit n in this field).

pending RA+1 request — Contents of RA+1 at time of interrupt. RA+1 is reset from this field on a resume or reset call.

interrupted terminal I/O — Contains interrupted input request if an interrupt occurs while a input request is pending.

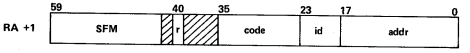
error flag — Value of the operating system error flag at the time of the interrupt (refer to Error Flags, section 3).

reserved inst. — This area is reserved for use by the installation.

exchange package — A copy of the exchange package at the time of the interrupt (unchanged from the executing package at the time of the error). This is the exchange package that is used when the interrupt handler is started.

SFM—SYSTEM FILE MANAGER

Call:



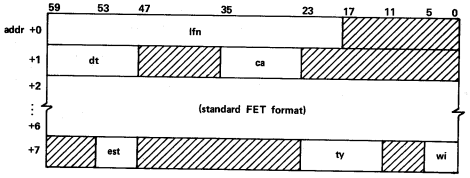
r Auto recall bit.

code Function code.

id File identification number.

addr Address of the FET for the file.

FET format:



lfn File name.

dt Device type.

ca Current attribute.

est EST ordinal.

ty Dayfile type:
1 System dayfile.
2 Account dayfile.
3 Error log.
4 Maintenance log.

wi Word index in sector (SDFF only).

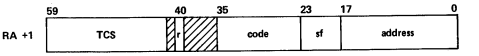
Functions:

Code	Mnemonic	Macro	Description
0	TAFF		Terminate active dayfile (SSJ= only).
1	AMDF	DAYFILE	Access system dayfile.
2	AAFF	DAYFILE	Access account dayfile.
3	AELF	DAYFILE	Access ERRLOG.
4	AMLF	DAYFILE	Access maintenance log.
5	AUDF	DAYFILE	Access job dayfile.
6	RDTF	RDVT	Return device type.
7	PADF		Protect active dayfile (SSJ= only).
10	CDBF		Clear dayfile byte (SSJ= only).
11	EFAF	ENFA	Enter fast attach file (SSJ= only).
12	DFAF	DFAT	Delete fast attach file (SSJ= only).
13	ECFF		Enter *CPD* sample file.
14	ATDF		Attach inactive dayfile.
15	EGFF	ENFA	Enter global fast attach (SSJ= only).
16	ELFF	ENFA	Enter link fast attach (SSJ= only).
17	CDRF		Change DM* file to type ROFT.
20	GDIF	GETDI	Get device information.
21	SDFF	SETDI	Set device information.

Code	Mnemonic	Macro	Description
22	RSDF		Return system data.
	Subfunction	**Mnemonic**	**Description**
	1	RDDF	Return statistical data from local area sector.
	2	SDIF	Statistical data information.
	3	PDAF	PROBE data tables.
	4	PDLF	PROBE data table length.
	5	RFOF	Return FOT data.
	6	RSSF	Return subsystem data.
	7	RSCF	Return SCT data.
23	CSTF		Clear subsystem access flag.
24	SSTF		Set subsystem access flag.
25	SCDF		Set CPD drop flag.
26	CFFF	CFAT	Count fast attach files.
27	MDFF		Dump machine memory.
30	GLAF	GETLIDA	Get LID attributes.
31	GLTF	GETLIDT	Get LID table.
32	GLPF	GETPIDA	Get PID attributes.
33	GSSF	GETSSL	Get system security limits.
34	GEAF	GETEAL	Get equipment access level limits.
35	GSMF	GETSSM	Get system security mode.
36	SPTF	SETPIDA	Set PID attributes.
37	ILTF	SETPIDI	Set PIDs to initial values.
40	GLCF	GETLIDC	Get LID configuration.
41	SUSF		Get subsystem status.

TCS—TRANSLATE CONTROL STATEMENT

Call:



r — Auto recall bit (bit 40).

code — Function code:

Code	Macro
004	CONTROL
005	EXCST

sf — Subfunction code for CONTROL macro; field not used for EXCST macro:

sf	Action
00	Read command, advance pointers.
01	Read command if not local file or global library set call, do not advance pointers.
02	Read command, do not advance pointers. (If local file or global library set call, set bit 17 of RA+64_8.)
4x	Product set format.

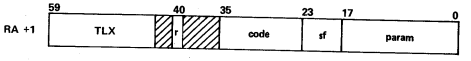
address — FWA of buffer to store or read command.

Functions:

Code	Macro	Description
004	CONTROL	Reads next command in command stream and transfers it to specified address.
005	EXCST	Executes command in specified buffer.

TLX—INTERACTIVE UTILITY PROCESSOR

Call:



r	Auto recall bit.
code	Function code.
sf	Subfunction (functions 12_8 and 15_8 only).
param	Parameter for the function.

Functions:

Code	Macro	Description
0	DISTC	Set interrupt address.
1	DISTC	Clear interrupt address.
2		Clear CHARGE command required bit.
3	CSET	Set character set mode.
4	PARITY	Set parity.
5	TSTATUS	Return terminal status.
6	PROMPT	Set no prompt bit.
7	PROMPT	Clear no prompt bit.
10		Process sort flag change.
11		Recover job.
12		Transfer work file.
13		Set screen mode bit.
14		Clear screen mode bit.
15	SETSLM	Set or return NFL terminal word (SLMN).

Code	Macro	Description
16		Look for typed-ahead input.
17		Detach job.
20	EFFECT	Set format effector mode.
21	EFFECT	Clear format effector mode.
22		Switch applications.
23		Restart loaned connection.

Subfunction Values

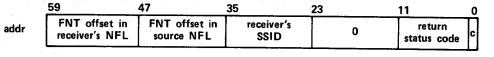
Function Code	Subfunction	Description
12	0	Transfer to subsystem.
	1	Transfer from subsystem.
15	0	Return NFL terminal word.
	1	Set NFL terminal word bits 0 through 6.

Parameter Values

Function Code	Parameter Value	
0,1	Interrupt address.	
2	Not used.	
3	Value	Description
	0	Set normal mode.
	1	Set extended mode.
	2	Restore entry mode.
	10	Set normal mode, reset entry mode.
	11	Set extended mode, reset entry mode.

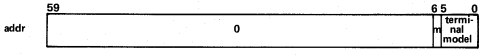
Function Code	Parameter Value
4	Value: 0 = Set even parity. 1 = Set odd parity.
5	Address of terminal status block.
6,7	Not used.
10	Value: 0 = Clear sort flag. 1 = Set sort flag.
11	Job sequence name (bits 23 through 0 of RA+1).
12, 15	Address of parameter word.
13, 14	Not used.

Parameter word for function 12_8:



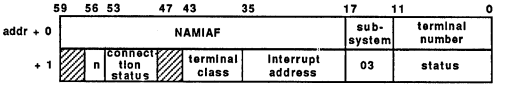
c Completion bit.

Parameter word for function 15_8:



m Screen mode flag:
0 Line mode.
1 Screen mode.

Terminal status block format:



n Network type.

status Status of terminal connection:

Bit(s)	Description
0	Parity (odd if set).
1	Entry characteristics (extended if set).
2	Current characteristics (extended if set).
3	Full duplex.
4	Tape mode.
5	Brief mode.
6	User format effectors.
7-11	Reserved.

If the connection status is not online, the only valid field will be "connection status". All other fields will be zero except "NAMIAF", which will be blank.

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