

UTS - B00 SEMINAR

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D. Escoffery
G. Bryan

- I. Introduction
- II. Preliminary Topics
- III. General Description: Multiprogrammed Batch
- IV. File Maintenance Improvements
- V. Performance and Reliability Modifications
- VI. Various Discussions on Real-Time Operations
- VII. Configuration Guidelines
- VIII. Questions

UTS - A01

- 7232 SWAPPER, MIXED FILE AND SWAPPING RADs
- MULTIPLE 7611, UP TO 255 LINES
- 2741 TERMINAL HANDLERS
- FULL-DUPLEX TERMINAL PAPER TAPE
- HGP RECONSTRUCT
- DELTA-ANALYZE INTERFACE
- EXPANDED PCL

UTS - A03

- SCHEDULER IMPROVEMENTS
- TERMINAL AUTOMATIC TIMEOUT
- BANNER FOR TERMINAL PRINTER OUTPUT
- REDUCED CORE FOR OVERLAYED PROGRAMS

UTS - B00

- F00 and F01 FILE MANAGEMENT
- SIGMA 9 CAPABILITY
- TYPEAHEAD AND HALF-DUPLEX TERMINAL SERVICES
- NEW LOAD MODULE FORMAT FOR 64K SYSTEMS } *Run + SYSGEN in 64K systems*
- MULTIPROGRAMMED BATCH PROCESSING
- EXPANDED FILE DATING AND AUTOMATIC FILE PURGE
- PERFORMANCE AND RELIABILITY IMPROVEMENTS
- DYNAMIC SHARED PROCESSOR REPLACEMENT AND GHOST JOBS
- NEW MAP OPTION FOR LOAD *sort by name*
- PRIVATE PACK ACCESS FROM ON-LINE TERMINALS

BATCH MULTIPROGRAMMING

UP TO 16 LOGICAL PARTITIONS

DBM COMPATIBLE

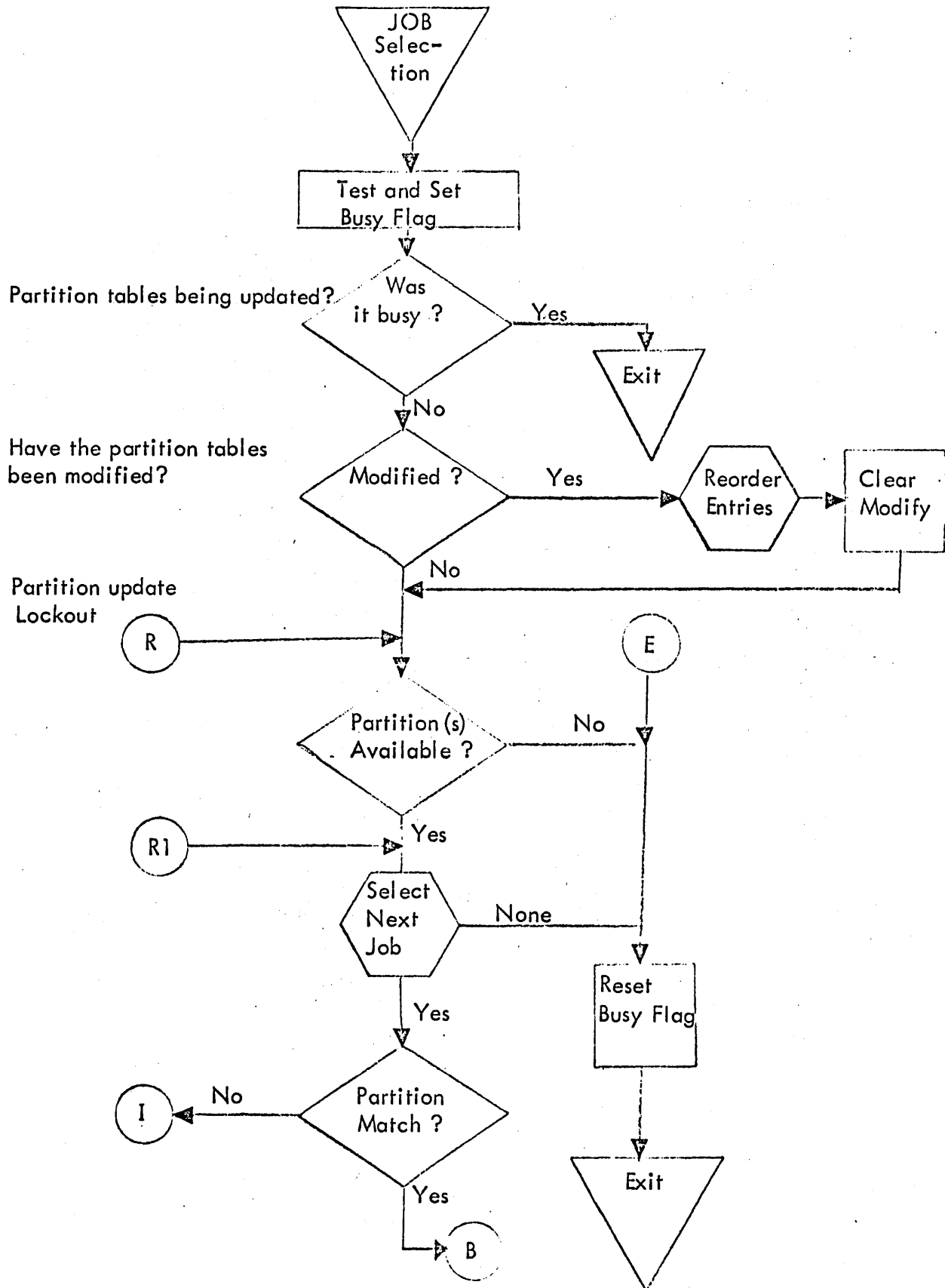
INTERNAL JOB STEP CONTROL

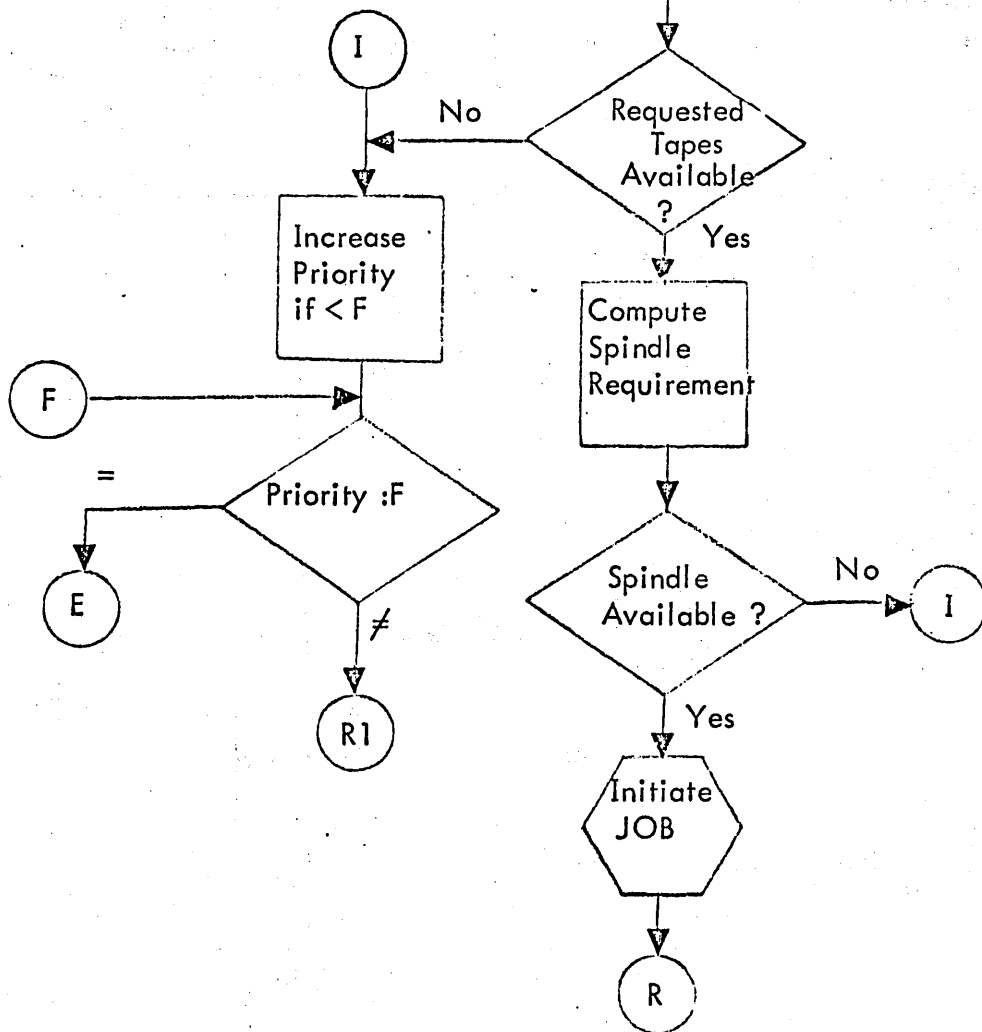
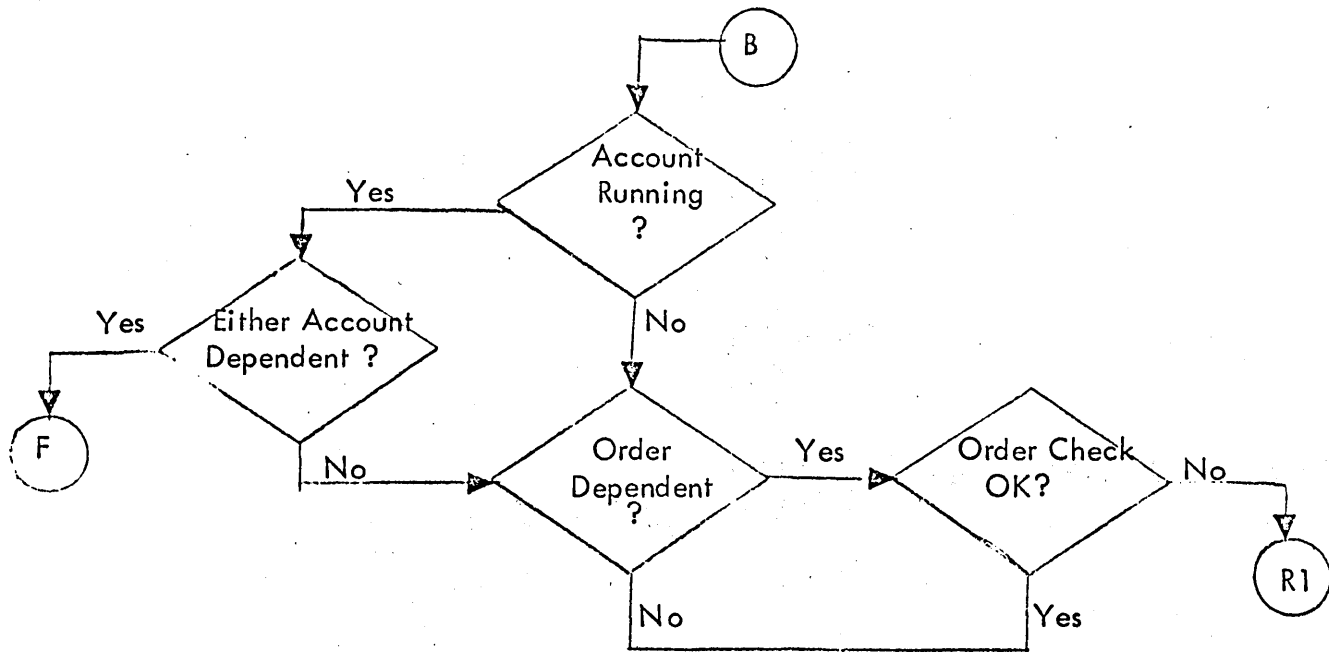
EXTENSIVE MANAGEMENT CONTROL

PARTITION PARAMETERS

CORE	Core Limits
TIME	Time Limits
QUAN	Quantum Size
9T	Nine Track Tapes
7T	Seven Track Tapes
DP	Disk Pack Spindles
PBLK	Locks From Further Use
PUNB	Unlocks Partition
HOLD	Hold Partition In Core
REL	Allow Partition To Be Swapped

MULTI-BATCH JOB SELECTION





EXTENDED FILE DATING

CREATION DATE	(x'0E')
EXPIRATION DATE	(x'04')
BACKUP DATE	(x'10')
MODIFICATION DATE	(x'0A')
ACCESS DATE	(x'0F')

AUTOMATIC FILE PURGE

- DELETION OF EXPIRED FILES
- BACKUP BY ACCESS DATE
- BACKUP BY MODIFICATION DATE
- TRIGGERED BY FILE DEVICE SATURATION

B00 - PCL

- REVIEW COMMAND
- COPYALL EXTENSIONS
OUTPUT TO ANY OUTPUT DEVICE
FROM/TO RANGE
COPY BY ORGANIZATION
WRITE/READ ACCOUNTS
- EXTENDED ATTRIBUTES
- BETTER MEMORY UTILIZATION

ACCOUNTING

11:27 JAN 07,'72 ID= 1A7
ELAPSED JOB TIME
PARTITION NUMBER
CHARGE UNITS
TOTAL CPU TIME
 PROCESSOR EXECUTION TIME
 PROCESSOR SERVICE TIME
 USER EXECUTION TIME
 USER SERVICE TIME
CARDS: CARDS READ
 CARDS PUNCHED
PAGES: PROCESSOR PAGES
 USER PAGES
 DIAGNOSTIC PAGES
TAPES: TAPES MOUNTED
 DRIVES ALLOCATED
 SCRATCH TAPES USED
 SAVE TAPES USED
PACKS: PACKS MOUNTED
 SPINDLES ALLOCATED
CORE: PEAK CORE (PAGES)
 PAGE: MILLISECS
I/O: OPERATIONS
 CALC
FILE SPACE
 RAD USAGES: PEAK TEMPORARY
 NET PERMANENT
 AVLBL PERMANENT
 DISK USAGES: PEAK TEMPORARY
 NET PERMANENT
 AVLBL PERMANENT

- NEW LOG SHEET
- EXITS TO INSTALLATION ROUTINES
- PRIVATE STORAGE INFORMATION
- EXTENDED ACCOUNTING FIELD

PERFORMANCE AND RELIABILITY

- FASTER READ AND WRITE LOGIC
- NON-RESIDENT HGP_s
- DYNAMIC SYMBIONT BUFFER ALLOCATION
- FASTER OPEN AND CLOSE LOGIC
- SCHEDULER IMPROVEMENTS

SCHEDULER IMPROVEMENTS

- SWAP QUANTUM
- GUARANTEED QMIN
- ANTICIPATING OUT SWAP
- MULTIPLE USER SWAP PREFERENCE
- SIMPLIFIED SWAP SCHEDULING
 - No swap schedule on I/O in progress report
 - No swap schedule on symbiont I/O complete
 - No calculation of time remaining on QMIN interrupt
 - Memory of swap selection failure
 - Recoding for speed and simplicity

EXAMPLE I: 50K Machine

MULTIPLE USER SWAP PREFERENCE

Compute Queue (SCOM)

A 20K, out

B 20K, in

Typing Queue (STI)

C 10K, in

D 10K, in

E 10K, in

EXAMPLE II: 50K Machine

SWAP QUANTUM

I/O Complete Queue (SIOC)

A 50K, out

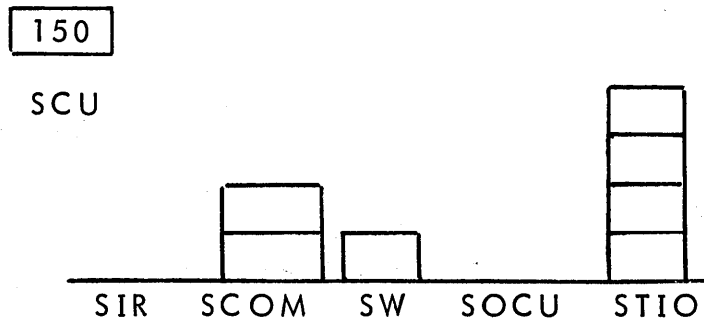
B 50K, in

UTS SCHEDULING

- BASED ON ³²~~29~~ STATES
- EVENT DRIVEN
- PREEMPTIVE PRIORITY SELECTION

EXAMPLE III:

SL:QUAN 40
SL:QMIN 400
SL:SQUAN 100

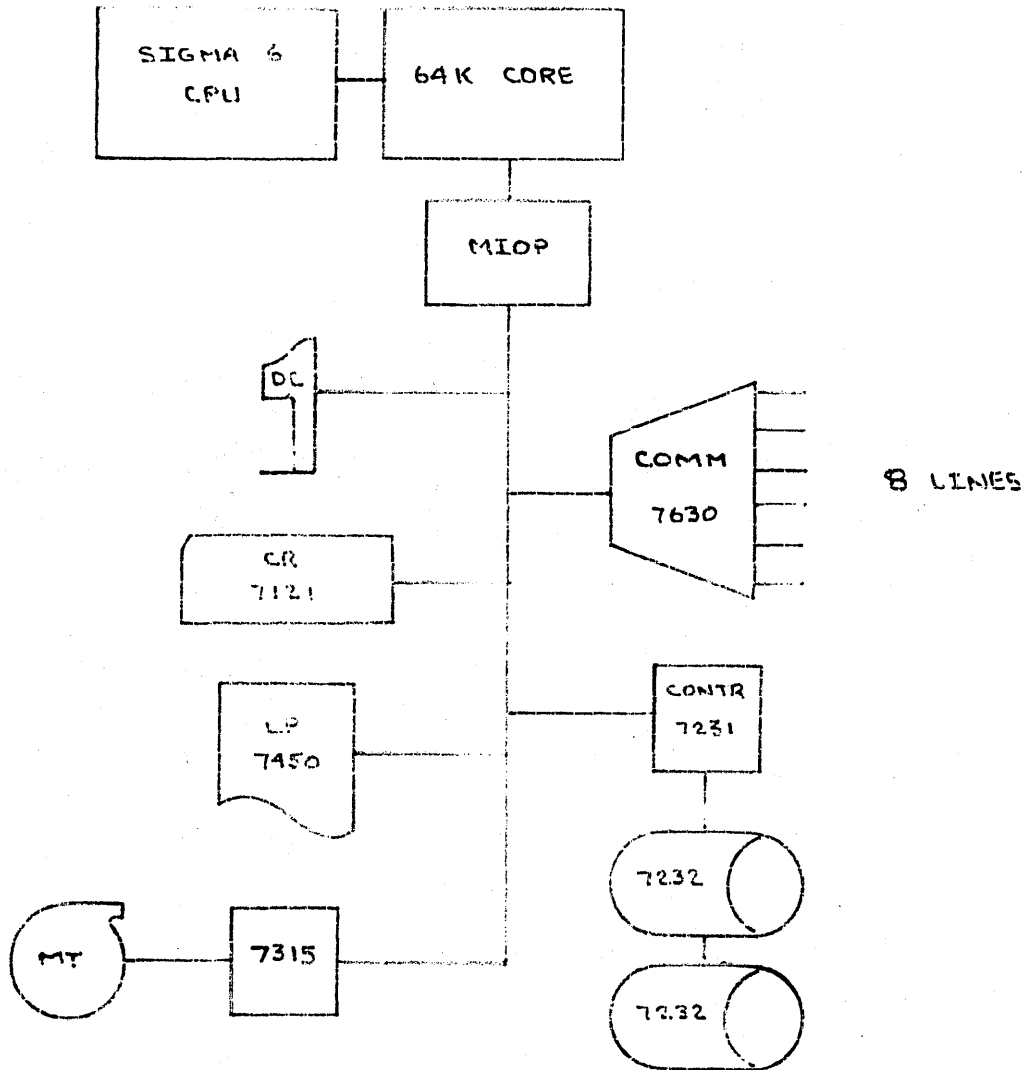


- User in STIO hits CR
- COC reports event E:CIC
- SSS moves user to SIR, schedules him to be swapped into core
- At swap completion (if still highest priority) current user will be placed on top of SCOM remembering how long he has executed, and SIR user will begin computing

3 KINDS OF USERS

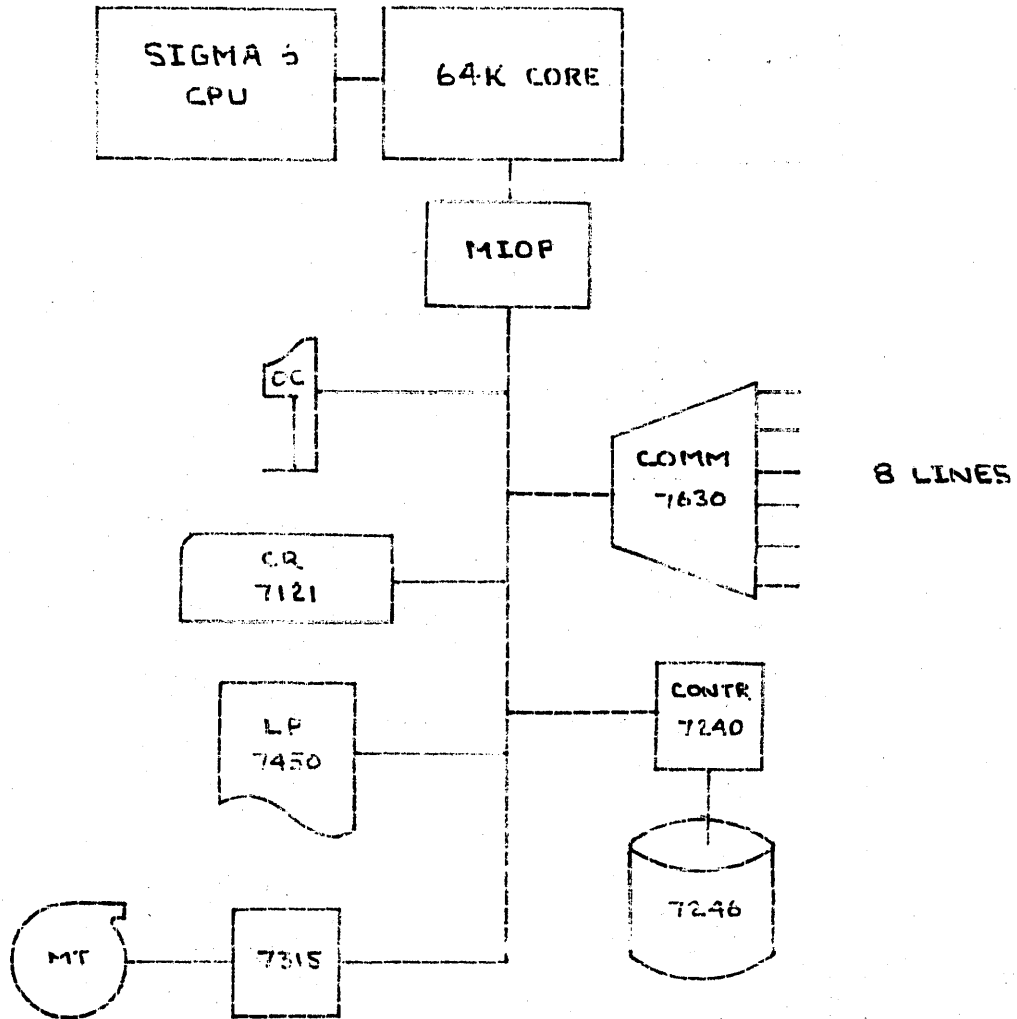
- ON-LINE
- BATCH
- GHOST

MINIMAL UTS-B00 CONFIGURATION



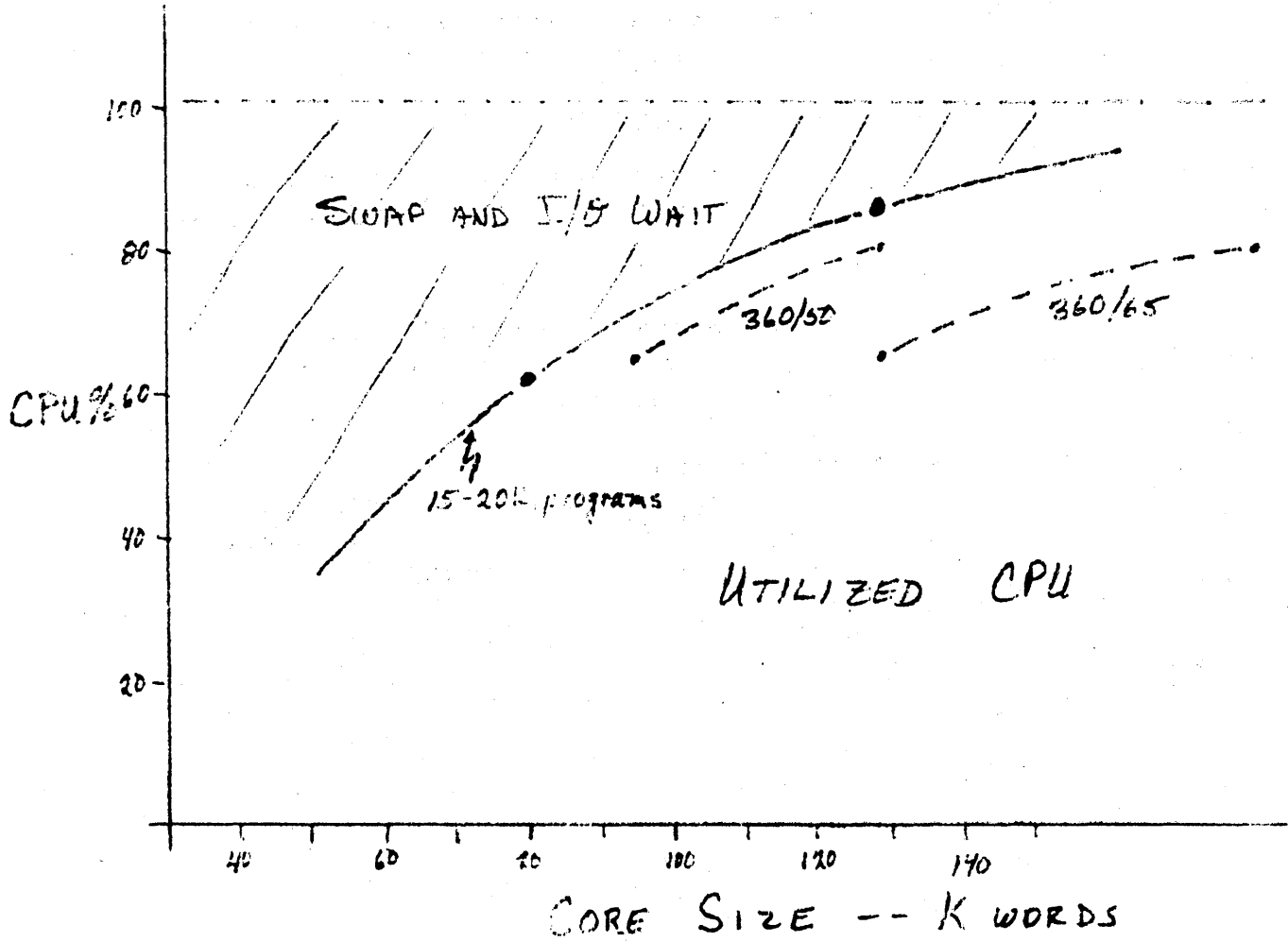
MINIMAL DISK-ONLY UTS CONFIGURATION

(Not Available in UTS-B00)



TUNING PARAMETERS

- QMIN 40-100 ms
 - fine control on response time
 - reduce monitor service at expense of response
- QUAN 2000-5000 ms
 - controls monitor service and swap wait for CPU bound jobs
- SQUAN 100-500 ms
 - controls number of swaps and swap wait at expense of response time
- Batch Partition Parameters
 - quanta for each partition
 - controls relation of batch and on-line throughput



UTS CPU UTILIZATION

CORE

128

112

96

80

64

10

20

30

40

50

60

70

80

90

100

USERS

HEAVY USE

LIGHT USE

