

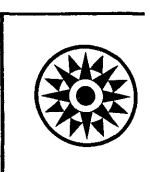
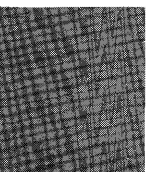
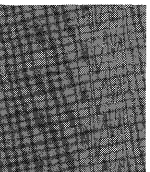
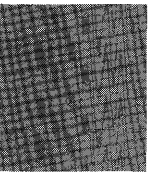
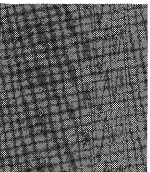
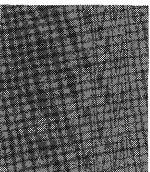
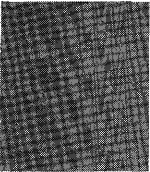
Systems Reference Library

IBM System/360 Operating System

Sort/Merge

Program Number 360S-SM-023

This publication contains specifications for the IBM System/360 Operating System Sort/Merge program, including control statement preparation, program operation, I/O device assignment, and timing estimates. The program has generalized sorting and merging capabilities that can be tailored to the needs of particular installations and applications.



PREFACE

This publication is a guide for users of the System/360 Operating System Sort/Merge program. It contains a general description of the program and specific information about control statement formats, program operation, user-written routines, and efficient use of the program. A description of program-generated messages and timing estimates for over 5,000 sorting applications are also included.

The reader should have a thorough understanding of the material in the publications IBM System/360 Operating System: Introduction, Form C28-6534, and IBM System/360 Operating System: Concepts and Facilities, Form C28-6535.

A working knowledge of general sorting and merging techniques is also assumed. General information about sorting and merging is contained in the IBM publication Sorting Techniques, Form C20-1639.

The following publications, that are referred to throughout this text, also contain pertinent information:

IBM System/360 Operating System: Control Program Services, Form C28-6541

IBM System/360 Operating System: Data Management, Form C28-6537

IBM System/360 Operating System: Job Control Language, Form C28-6539

IBM System/360 Operating System: Linkage Editor, Form C28-6538

IBM System/360 Operating System: Storage Estimates, Form C28-6551

IBM System/360 Operating System: System Generation, Form C28-6554

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This publication contains the reference information needed by a user of the System/360 Operating System Sort/Merge program. The sort/merge program is designed to fulfill the sorting and merging requirements of System/360 installations that use magnetic-tape and direct-access input/output (I/O) devices.

The sort/merge program can order data sets into a predesignated collating sequence. The generalized characteristics of the sort/merge program allow it to perform a variety of sorts and merges. Because of this ability, the sort/merge program can simplify many data processing applications that require the sequential updating of previously created data sets.

REQUIREMENTS

The basic machine requirements for use of the sort/merge program are:

- A System/360 model that is large enough to use System/360 Operating System and provide at least 15,360 bytes of main storage for sort/merge program execution.
- At least one selector or one multiplexor channel.
- At least one direct-access device (which may be the system residence device) or at least three magnetic tape units.

CAPABILITIES

The sort/merge program sequences the logical records of a data set according to the contents of a control word, which can contain from 1 through 12 control fields. Control fields, which occupy the same portion of each logical record in a data set, can be collated into either ascending sequence or descending sequence.

Any data set that can be accessed by the queued sequential access method (QSAM) is acceptable as input to sort/merge program. Input and output units can be any I/O device that operates with QSAM. Input and output records may be blocked or unblocked, fixed-length or variable-length.

The sort/merge program uses sorting and merging techniques that take full advantage of different machine configurations and data set sizes. These techniques are designed to ensure the most efficient operation for users of the sort/merge program. For example, the read backward feature is used to eliminate tape rewind time. The program also uses a specialized technique for processing variable-length records. This technique approaches the efficiency of a fixed-length sort or merge.

The technique used to accomplish a given sort/merge program application depends upon information supplied to the program by the user. This information is supplied through sort/merge control statements. Control statements, which define the application to be performed, can be supplied to the sort/merge program in the operating system input stream or as parameters passed by another program.

The user can write his own routines to perform many functions during a sort/merge program execution. User-written routines are given control by the sort/merge program at sort/merge program exits. These exits, in the sort/merge program, allow a user-written routine to insert, summarize, delete, and alter logical records. Errors that may arise during execution of the sort/merge program can sometimes be corrected by user-written routines.

RELATIONSHIP TO OPERATING SYSTEM/360

The sort/merge program is a member of the System/360 Operating System and operates under the supervisory control of the operating system control program. Execution of the sort/merge program must be initiated according to operating system conventions, and any data sets used by the sort/merge program must be defined according to operating system standards. The checkpoint and label-checking (standard and nonstandard) facilities of the operating system can be used during a sort/merge program execution at the user's option.

The sort/merge program can be tailored to the needs of a particular installation when the operating system for that installation is generated.

SORT/MERGE PROGRAM

The sort/merge program is designed to perform two applications:

- Sort a data set of an unknown order into a predesignated order.
- Merge up to sixteen previously sorted data sets into a single sorted data set.

The sequence into which each record is sorted or merged is based on the contents of its control word. A control word can contain up to 256 bytes of information; it has from 1 through 12 control fields. A control field occupies the same portion of each logical record in a given data set. Each control word, along with the record in which it appears, is ordered into either ascending or descending sequence on the basis of standard IBM System/360 collating sequences.¹

Nonstandard collating can be achieved without physically changing control fields. A routine written by the user can modify one or more control fields each time the sort/merge program collates a logical record. The modified control fields are used for collating purposes only; they do not replace the fields in the logical record. A user-written routine to accom-

¹ The collating sequence for character and binary data is absolute; that is, characters and binary fields are not interpreted as having signs. For packed decimal, zoned decimal, fixed-point, and normalized floating-point data, collating is algebraic; that is, each quantity is interpreted as having an algebraic sign.

plish control field modification is entered at a sort/merge program exit. (Sort/merge program exits are discussed in the section "Program Modification.")

The maximum control field lengths for the various data formats accepted by the sort/merge program are:

- Character, fixed-point, or normalized floating-point (1 through 256 bytes).
- Packed or zoned decimal (1 through 16 bytes).
- Binary (1 bit through 256 bytes).

Note: The first byte of a floating-point field is interpreted as a signed exponent. The rest of the field (1 through 255 bytes of information) is interpreted as the fraction.

Control fields must be contained within the first 4,092 bytes of a logical record.

The sort/merge program will accept control fields that overlap; that is, the end of one control field may share data with the beginning of another control field.

ENVIRONMENTAL REQUIREMENTS

The sort/merge program operates with any level of the operating system that can make at least 15,360 bytes of main storage available for sort/merge program execution.

Main Storage Available for the Sort	Maximum Record Size for Tape Intermediate Storage	Maximum Record Size for Direct-Access Intermediate Storage
15K (minimum)	400 bytes	400 bytes
18K	2K bytes	2K bytes
44K	6.8K bytes	Full track minus 25 bytes
50K	8K bytes	Full track minus 25 bytes
100K	18K bytes	Full track minus 25 bytes
200K (and up)	32K bytes	Full track minus 25 bytes

Figure 1. Estimated Maximum Physical Record Sizes for Input and Output

Variable amounts of intermediate storage (depending upon the size of the input data set) are needed to perform sorting applications. This storage may be allocated on either magnetic-tape or direct-access devices. The program needs at least three magnetic tape units or one direct-access device for intermediate storage.

The amount of main storage available to the sort/merge program affects the maximum size of physical records that the program can handle. Figure 1 is a summary of the maximum physical record size that the sort/merge program will accept for a given amount of main storage.

SORT SPECIFICATIONS

Control fields for a sorting application are defined in a SORT control statement. (This statement is described in the section "Control Statements.") Specifications for the sort are:

- The sort accepts as input a blocked or unblocked sequential data set containing fixed-length or variable-length records.
- Input records can be obtained from and output records recorded on any I/O device that can be used with the queued sequential access method (QSAM).
- Up to 32 tape units or 6 direct-access devices may be used for intermediate storage.
- User-written routines can summarize, insert, delete, lengthen, shorten, or otherwise alter records while they are being sorted.
- Execution of the sort can be initiated by control statements in the operating system input stream, or through the use of ATTACH, LINK, or XCTL macro-instructions by another program.

MERGE SPECIFICATIONS

Control fields for a merging application are defined in a MERGE control statement. (This statement is described in the section "Control Statements.") Merge specifications are:

- The merge accepts as input blocked or unblocked sequential data sets containing fixed-length or variable-length records. All records for a

given application must be of the same format.

- Input data sets may have different blocking factors.
- All I/O is accomplished using QSAM.
- Up to 16 input data sets can be merged in one pass.
- The merge provides exits for user-written routines to summarize, insert, delete, lengthen, shorten, or otherwise alter records as they leave the merge.

ERROR CORRECTION FACILITIES

The sort/merge program allows a user to write routines that can correct error conditions that might arise during execution of the program. These routines are entered from exits in the sort/merge program. (A full explanation of these exits is given in the section "Program Modification.")

Two types of error conditions can be handled at sort/merge program exits:

- I/O errors that cannot be corrected by the operating system.
- Errors that arise by specification of an input data set size that is larger than the intermediate storage capacity calculated by the sort for a given application.

I/O ERRORS

Control is passed to a user-written I/O error routine only when the operating system cannot correct the error condition.

If a permanent read error is encountered, the user-written routine may accept the physical record as it is, attempt to correct the error, skip the record, or request termination.

If an uncorrectable write error is encountered, the user-written routine can perform any necessary abnormal end-of-task operations before the program is terminated.

If user-written routines are not supplied, the program terminates whenever an uncorrectable I/O error occurs.

EXCEEDING INTERMEDIATE STORAGE CAPACITY

The sort/merge program estimates a maximum intermediate storage capacity (Nmax) from the information supplied to it at the beginning of each sort. Using Nmax, the program tries to determine the possibility of exhausting intermediate storage while the program is running. If intermediate storage were exhausted, program termination would occur.

The user has the option of supplying either an actual or estimated input data set size to the program. This is accomplished with a control statement. If the user supplies an actual data set size, and the supplied size is larger than Nmax, the program terminates before starting to sort. If the user supplies an estimate or incorrect (smaller than Nmax) data set size, and the number of records processed while sorting reaches Nmax, the program gives control to a user-written routine, if one is supplied. The user-written routine can take one of the following actions:

- Attempt to sort the entire input data set with available intermediate storage.
- Continue sorting with only part of the input data set.
- Terminate the program.

If a user-written routine is not supplied, the sort continues to process records beyond Nmax. If the intermediate storage capacity is actually sufficient to contain all the records in the input data set, the sort completes normally; when intermediate storage is not sufficient, sort capacity is exceeded and the program terminates.

The sort generates a separate message for each of the three possible error conditions. These messages are:

IER041A N GT NMAX: This message is generated when a user-supplied exact data set size is greater than Nmax.

IER046A SORT CAPACITY EXCEEDED: This message is generated when the sort has used all available intermediate storage while processing.

IER048I NMAX REACHED: This message is generated when the sort has processed Nmax records.

(A full description of all program messages is contained in Appendix A.)

OPERATING SYSTEM FACILITIES

The sort/merge program uses the operating system label-checking and checkpoint facilities. Information about operating system label-checking facilities can be found in the publication IBM System/360 Operating System: Data Management. Information about checkpoints is contained in the publication IBM System/360 Operating System: Control Program Services.

The sort/merge program also makes extensive use of the operating system data management facilities. All data sets necessary for program operation must be defined in data definition statements (DD statements) that appear in the operating system input stream with the sort/merge control statements for a job. (DD statements are described in the publication IBM System/360 Operating System: Job Control Language.)

The sort/merge program needs a definition of the application to be performed before it can operate on the input data supplied to it. This definition includes:

- A general description of the input data.
- Control field specifications.
- A description of modifications to be made by user-written routines.

Sort/merge control statements are used to supply this information.

Each control statement is thoroughly checked for validity before it is acted upon by the sort/merge program. If the program finds an error, it issues a diagnostic message. (Descriptions of these messages can be found in Appendix A.) However, it is impossible to detect all errors or inconsistent combinations of entries. For this reason, accurate preparation of control statements is necessary.

GENERAL DESCRIPTION

Control statement formats for all System/360 sort/merge programs are constant, even though operating environments and data descriptions are different. Compatibility of control statements among System/360 sort/merge programs is discussed later in this section. The five control statements that are acted upon by the operating system sort/merge program are:

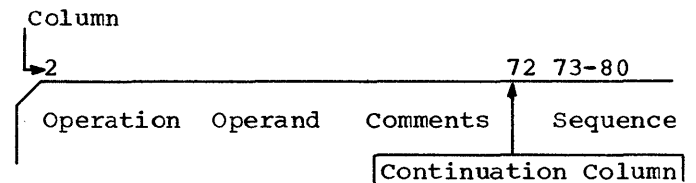
<u>Statement</u>	<u>Definition</u>
SORT	This statement provides information about control fields and data set size. It is required when the program is to perform a sorting application.
MERGE	This statement provides the same information as the SORT control statement. It is required when the program is to perform a merging application.
RECORD	This statement provides record-length and format information to the program. It is required when user-written routines modify record lengths.

MODS This statement associates user-written routines with particular sort/merge program exits. It is required when user-written routines are to be entered at sort/merge program exits.

END This statement signifies the end of a related group of sort/merge control statements. It is required when a group of related sort/merge control statements are not followed immediately by a JOB control statement. (The JOB control statement is discussed in the publication IBM System/360 Operating System: Job Control Language.)

FORMAT

All sort/merge control statements have the same general format:



The control statements are free-form; that is, the operation definer, operand(s), and comments may appear anywhere in a statement, as long as they appear in the proper order, and are separated by one or more blank characters. Column 1 of each control statement must be blank.

The various fields that may appear on a sort/merge control statement are discussed in the following text.

Operation: This field must not extend beyond column 71 of the first card. It contains an operation definer, i.e., a word that identifies the statement type to the sort/merge program. The operation definers recognized by the sort/merge program are: SORT, MERGE, RECORD, MODS, and END. The operation field must be the first field in a statement. In Figure 2, the statement definer SORT is in the operation field of the sample control statement.

Operand: This field must be separated from the operation field by at least one blank

character. If present, this field must begin on the first card of the statement. Operands are used to supply parameters to the sort/merge program. Each operand is made up of an operand definer, or keyword (a group of characters that identifies the operand type to the sort/merge program). Value(s) may be associated with a keyword. The three possible operand formats are:

- keyword=(value₁,value₂,...,value_n)
- keyword=value
- keyword

An example of each of these formats is shown in Figure 2. The operand field is made up of one or more operands separated by commas.

Comments: This field must be separated from the operand field by at least one blank character. It may contain any information desired by the user.

Continuation Column (72): Any character other than a blank in this column specifies that the present statement is continued on the next card. In Figure 2, X is used to specify that the next card contains more information pertaining to this SORT control statement.

Column 73-80: This field may be used for any purpose desired by the user. It may be used for identification, or as shown in Figure 2, for sequencing.

Continuation Cards

The format of the sort/merge continuation card is:

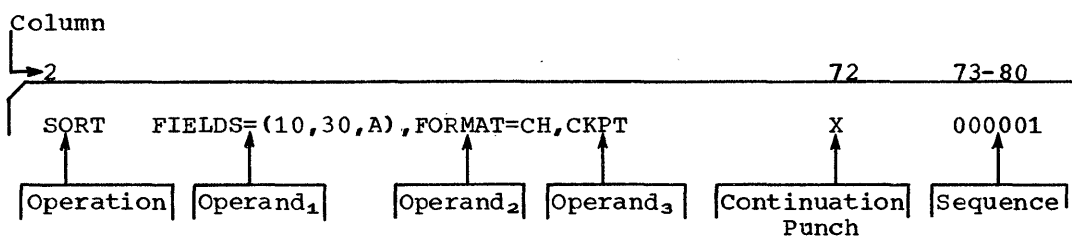
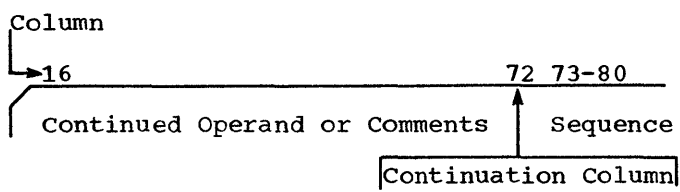


Figure 2. Control Statement Example

The continuation column and columns 73-80 of a continuation card fulfill the same purpose as they do on the first card of a control statement. Columns 1 through 15 of a continuation card must be blank. The maximum number of continuation cards allowed for each type of control statement is shown in the following table:

<u>Control Statement Type</u>	<u>Maximum Number of Continuation Cards</u>
SORT	5
MERGE	5
RECORD	5
MODS	19
END	none allowed

A continuation card is treated as a logical extension of the preceding card. Thus, either an operand or a comments field may begin on one card and continue on the next. The following rules apply to continuing operands or comments fields:

- If there is a continuation of an operand, the next character of the continued operand must appear in column 16 of the continuation card.
- If only comments are continued, column 16 of the first continuation card must be left blank.
- If an operand continues through column 71, the next character of the operand must appear in column 16 of the continuation card.
- An operand may be broken between two cards without filling the first card through column 71 in either of two ways:
 1. At the end of a complete operand followed by a comma and a blank.
 2. At the end of any of the values in an operand of the type: keyword=(value₁,value₂,...,value_n), followed by a comma and a blank.

CONTROL STATEMENT PREPARATION

The following rules apply to control statement preparation:

- Column 1 of each control statement must contain a blank.
- The operation field must be the first field on the first card of a control statement. It may not appear on a continuation card.
- The operand field, if present, must begin on the first card of a control statement. Operands can appear in any order following the blank(s) after the operation field. The last operand in a statement must be followed by at least one blank.
- Embedded blanks are not allowed in operands. Anything following a blank is considered part of the comments field. Thus, all of the following are interpreted as incorrect values:

```

,2 56,
, 256,
,256 ,
, 256 ,
    
```

- Values may be written with a maximum of eight alphanumeric characters.
- Commas, equal signs, parentheses, and blanks are used only as field delimiters. They must not be used in values.
- Each type of control statement may appear only once for each execution of the sort/merge program.
- No more than 25 control statement cards are allowed for a sort/merge program execution.

SORT CONTROL STATEMENT

The SORT control statement is used when a sort is to be performed. It supplies specifications for control fields.

PARAMETERS AND OPTIONS

The format of the SORT control statement is shown in Figure 3. The first field of the statement must be the operation definer SORT.

Parameters

The operand that supplies control field specifications must appear on the SORT control statement. The keyword of this operand is FIELDS.

Two possible formats for the FIELDS operand are shown in Figure 3. The one at the top of the figure is used when control fields containing different data formats are used; the other is used, optionally, when all control fields contain data of the same format.

Four values must be specified for each control field defined. These values are represented by p, m, f, and s in Figure 3.

The major control field is specified first on the SORT control statement, and successive minor control fields are specified following the major control field. Up to 12 control fields can be used. Thus, in Figure 3, p₁,m₁,f₁,s₁ are the specifications for the major control field, and p₂,m₂,f₂,s₂,...p₁₂,m₁₂,f₁₂,s₁₂ are the specifications for the successive minor control fields.

The following text describes the value associated with the FIELDS operand:

p specifies the beginning (high-order location) of a control field, relative to the beginning of a logical record. This value is given in bytes and bits, following these rules:

The byte location relative to the beginning of the logical record is given first, followed by a period; then the bit location relative to the beginning of the byte is given. The resulting notation looks like -- bytes.bits.

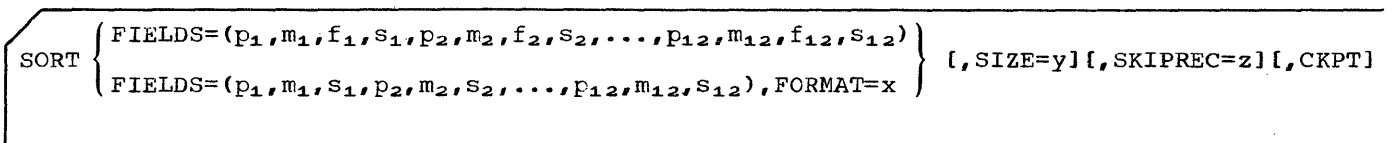


Figure 3. SORT Control Statement Format

The first (high-order) byte in a logical record is byte 1, the second is byte 2, etc.

The first (high-order) bit of a byte is bit 0; the remaining bits are numbered 1 through 7.

Thus, 1.0 represents the beginning of a logical record. A field beginning on the third bit of the third byte of a logical record is represented as 3.2. When the beginning of a field falls on a byte boundary (d bytes from the beginning of a logical record), it may be represented in one of three ways:

- d.0
- d.
- d

All fields (except binary) must begin on a byte boundary.

m

specifies the length of the control field. It is expressed in the notation -- bytes.bits. The number of bits specified must not exceed 7. A control field two bits long would be represented as 0.2. The length of a control field that is a whole number (d) bytes long can be expressed in one of three ways:

- d.0
- d.
- d

All control fields (except binary) must be a whole number of bytes long.

f

specifies the format of the data in the control field. If f is used, it can be any one of the following two-character abbreviations:

- CH -- Character
- ZD -- Zoned decimal
- PD -- Packed decimal
- FI -- Fixed-point
- BI -- Binary
- FL -- Floating-point

If all the control fields contain the same type of data, this parameter may be omitted and the optional FORMAT=x operand is used.

s

specifies whether the control field is to be ordered in ascending or descending sequence, or whether the control field is to be modified by a user-written routine before ordering. One of the following one-character codes must be used:

- A -- Ascending sequence
- D -- Descending sequence
- E -- User modification

If a user-written routine modifies the control field, the sort/merge program orders the field in absolute ascending sequence following the modification. (See Exit E61, described in the section "Program Modification," for further information.)

Options

The following text explains the optional operands that may be used with the SORT control statement.

FORMAT=x: If all the control fields are of the same type, this operand may be used, in place of the f parameter of the FIELDS operand, to specify the data format. If all control fields are not of the same type, the f parameter of the FIELDS operand must be used. The possible values of x for the FORMAT operand are the same as those for the f parameter.

SIZE=y: This operand specifies the number of logical records in the input data set. The value y can be either the actual data set size or an estimate.

If the actual data set size is given, this value is placed in the IN field of message IER047A or IER054I. If the number of records in the input data set does not agree with the value of the SIZE parameter, the sort terminates because of the record count off condition.

When the value of y is an estimate, it must be preceded by an E. If this operand is not present, the program assumes that:

- With tape intermediate storage, the input data set can be contained on one volume at the blocking factor used by the sort. (Approximations of this blocking factor can be found in Appendix B.)
- With direct-access intermediate storage, the input data set will fit into the space allocated.

SKIPREC=z: This operand is used to have the sort/merge program skip z records before starting to process the input data set. This operand may be used if the input data set exceeded storage capacity in a preceding execution of the sort/merge program, and only the remaining portion of the data set is to be sorted. The remainder of the input data set can be sorted by skip-

ping over the logical records sorted during the preceding run. (The number of logical records sorted during a partial run is specified by the sort in a message.) The output from the two sort runs can then be merged to complete the operation. If a user-written routine inserts or deletes records in a run during which sort capacity was exceeded, a user-written routine must be used to reposition the modified data set before the second part of the data set can be sorted.

CKPT: This operand tells the sort/merge program to activate the checkpoint facilities of the operating system.

PROGRAMMING NOTES

The following programming notes apply to the use of the SORT control statement:

- All control fields must be located within the first 4,092 bytes of a logical record.
- All floating-point data must be normalized before the sort/merge program can collate it properly. (A user-written routine may be used to normalize floating-point data at execution time.) The E option for the value s in the FIELDS operand must be specified for the fields that are to be modified.
- The maximum length of a packed decimal or zoned decimal field is 16 bytes.
- The total number of bytes occupied by all control fields must not exceed 256. When calculating this total, a binary field is considered to occupy a byte if it occupies any portion of it. Thus, if a binary field begins on byte 2.6 and is 3 bits long, it is considered to occupy 2 bytes, even though only 3 bits are used.

SORT EXAMPLES

The following text contains examples of SORT control statements. Each example is explained in the text associated with it.

SORT Example A

This example shows a simple SORT control statement:

```

Column
  |
  | 2
  |----->
  |
  | {
  |   SORT FIELDS=(2.0,5.0,CH,A),SIZE=29483
  | }

```

The statement instructs the sort/merge program to perform a sort based on one control field containing character data into ascending order. The control field begins in the second byte of each record and is five bytes long. The size of the input data set is 29,483 logical records.

SORT Example B

This example illustrates a sorting application with five control fields and a data set containing 10,693 logical records. Note that a continuation card is required.

```

Column
  |
  | 2
  |----->
  |
  | {
  |   SORT FIELDS=(7.0,3.0,CH,D,1.0,5.0,FL,A,
  |
  |                                     Column
  |                                     72
  |   }
  |   398.4,7.6,BI,D,99.0,230.2,BI,A,4X
  | }

```

```

Column
  |
  | 16
  |----->
  |
  | {
  |   52.0,8.0,FL,A),SIZE=10693,CKPT
  | }

```

The specifications for each control field, proceeding from major to minor, require the program to:

1. Sort a character field into descending order. It begins on byte 7 and is 3 bytes long.
2. Sort a fixed-point field into ascending order. It begins on byte 1 and is 5 bytes long.
3. Sort a binary control field into descending order. It begins on bit 4 of byte 398 and is 7 bytes and 6 bits long.
4. Sort a binary control field into ascending order. It begins on byte 99 and is 230 bytes and 2 bits long.

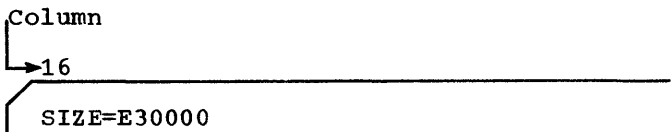
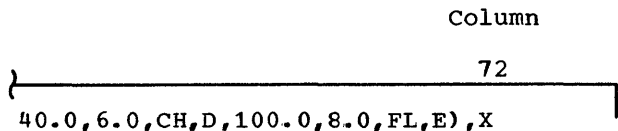
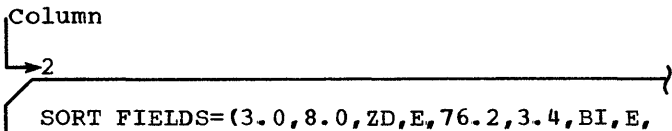
- Sort a normalized floating-point field into ascending order. It begins on byte 452 and is 8 bytes long.

The maximum control word size -- 256 bytes -- is reached in this example. The third control field actually occupies 9 bytes, since bytes 398 and 406 are partially filled by the control field. The fourth control field occupies 231 bytes, since 2 bits of the control field are in byte 330 of each logical record.

This example also specifies checkpoints to be taken by the operating system.

SORT Example C

Three of the control fields in this statement call for a user-written routine at a sort/merge program exit. Note that this example contains a continuation statement.



(See Exit E61 in the section "Program Modification," for information about control field modification.)

Specifications for the control fields tell the program that:

- A user-written routine modifies a zoned decimal field that begins on byte 3 of each record and is 8 bytes long.
- A user-written routine modifies a binary control field that begins on bit 3 of byte 76, and is 3 bytes and 4 bits long. The field passed to the user-written routine will be 4 bytes long, beginning with byte 76.

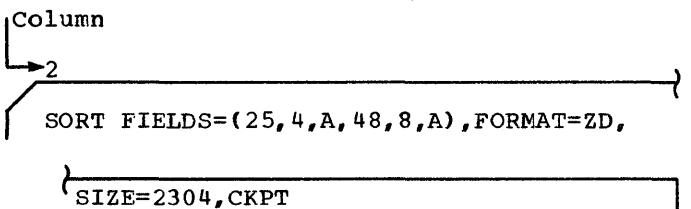
- There is a character control field beginning on byte 40 and containing 6 bytes of information. It is to be sorted in descending order.

- There is an 8-byte field containing unnormalized floating-point information, beginning on byte 100. The user-written routine is required, in this case, to normalize the floating-point information before it is used by the sort.

This example contains an estimate of the number of logical records in the input data set -- 30,000.

SORT Example D

This example shows the use of the FORMAT operand:



Since both control fields contain zoned decimal information, the FORMAT operand may be used. Note that since the fields begin on byte boundaries and are a whole number of bytes long, the period is not necessary.

The input data set, which is 2,304 logical records, is to be sorted into ascending sequence based on the contents of two control fields -- a 4-byte field beginning on byte 25, and an 8-byte field beginning on byte 48. Checkpoints are also specified.

MERGE CONTROL STATEMENT

The MERGE control statement is used when a merge is to be performed. Specifications for control fields are given in the same format as those associated with the SORT control statement.

PARAMETERS AND OPTIONS

The two possible formats for the MERGE control statement are shown in Figure 4.

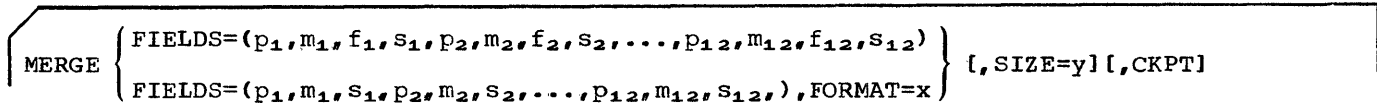


Figure 4. MERGE Control Statement Format

The operation definer -- MERGE -- must be the first field in the statement.

There are two differences between the parameters and options acceptable with the MERGE control statement and those acceptable with the SORT control statement:

- The SKIPREC operand is not used with the MERGE control statement. This operand is ignored if included.
- The value y in the SIZE operand refers to the total number of logical records in all the input data sets.

PROGRAMMING NOTES

The notes given with the explanation of the SORT control statement also apply to the MERGE control statement.

MERGE EXAMPLES

The parameters in the MERGE control statements shown in the following text are similar to those in the SORT control statement examples given earlier in this section.

MERGE Example A

This example contains the same control field definition as SORT Example A:

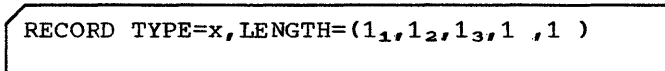
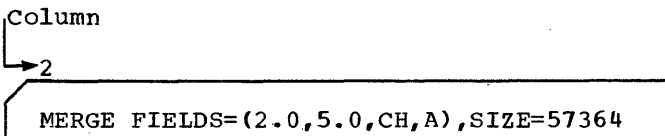
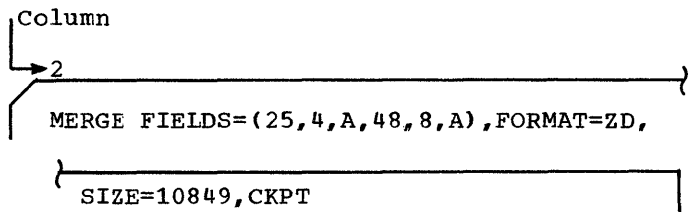


Figure 5. RECORD Control Statement Format

The SIZE value -- 57,364 -- in this example is the total number of records in all the data sets used as input to the merge.

MERGE Example B

This MERGE control statement example contains the same control field information as SORT Example D:



The number of records in all the input data sets to this merging application is 10,849.

RECORD CONTROL STATEMENT

The RECORD control statement provides a definition of the logical records being sorted or merged. It is required only when user-written modification routines change record lengths.

PARAMETERS AND OPTIONS

The format of the RECORD control statement is shown in Figure 5. The first field in the operation must be the statement definer -- RECORD.

If this statement is included, both operands -- TYPE and LENGTH -- must appear in it.

TYPE OPERAND: The TYPE operand specifies whether the input records to the sort/merge program are fixed- or variable-length format. One of the following characters must be substituted for the x value:

F -- If the records are in fixed-length format.

V -- If the records are in variable-length format.

LENGTH OPERAND: The value l₁ in this operand is required if the RECORD control statement is used. The values l₂ and l₃ are used only if user-written routines modify lengths in the sort or final merge phase of the program. (A description of user-written routines and program phases is contained in the section "Program Modification.") The values l₄ and l₅ are used only when variable-length records are being defined.

Fixed-Length Record Definitions

The following describes the LENGTH operand values for fixed-length record definition:

l₁ is the length of each record in the input data set. If the RECORD control statement is included, this value is required. This value should be the same as the value specified in the LRECL subparameter of the DCB parameter of the SORTIN DD statement. If the values are not the same, the value specified on the DD statement is used. (DD statement parameters are discussed in the section "Program Operation.")

l₂ is the length of each record handled by the sort phase. If this value is not given, it is assumed to be equal to l₁. If user-written routines change record lengths in the sort phase of the program, this value must be included. The l₂ value is not used in merging applications.

l₃ is the length of each record in the output data set. If this value is not given, it is assumed to be equal to l₂, if a sort is being done, or l₁, if a merge is being done. If user-written routines change record lengths in the final merge phase of the program, l₃ must be included. This value should be the same as the value specified in the LRECL subparameter of the DCB parameter of the SORTOUT DD statement. If the values are not the

same, the value specified on the DD statement is used. (DD statement parameters are discussed in the section "Program Operation.")

VARIABLE-LENGTH RECORD DEFINITIONS

The following describes the LENGTH operand values for variable-length records:

l₁ is the maximum length of each record in the input data set. This value is required if the RECORD statement is included. This value should be the same as the value specified in the LRECL subparameter of the DCB parameter of the SORTIN DD statement. If the values are not the same, the value specified on the DD statement is used. (DD statement parameters are discussed in the section "Program Operation.")

l₂ is the maximum length of each record handled by the sort phase. If this value is not given, it is assumed to be equal to l₁. If user-written routines change the maximum record length in the sort phase of the program, this value must be included. The l₂ value is not used in merging applications.

l₃ is the maximum length for each record in the output data set. If this value is not given, it is assumed to be equal to l₂, if a sort is being done, or l₁, if a merge is being done. If user-written routines change the maximum record length in the final merge phase of the program, l₃ must be included. This value should be the same as the value specified in the LRECL subparameter of the DCB parameter of the SORTOUT DD statement. If the values are not the same, the value specified on the DD statement is used. (DD statement parameters are discussed in the section "Program Operation.")

l₄ is the minimum length for records in the input data set. If this value is not given, it is assumed to be equal to the minimum record size necessary to contain the control fields defined in the SORT control statement or the minimum physical record length allowed by the operating system, whichever is greater. This value need not be included if a merge is being done.

l₅ is the record length that occurs most frequently in the input data set

(modal length). If this value is not given, it is assumed to be equal to the average of the maximum and minimum record lengths in the input data set.

PROGRAMMING NOTES

The following list of programming notes applies to the use of the RECORD control statement:

- The lengths specified for variable-length records must include the 4-byte count field that the operating system places at the beginning of each record.
- When an IBM 2311 Disk Storage Drive is used for intermediate storage, logical record length cannot exceed the capacity of one track.
- The record format (F or V) must be the same as the format specified in the RECFM subparameter of the DCB parameter of the SORTIN and SORTOUT DD statements. If the formats are not the same, the format specified on the SORTIN DD statement is used. (DD statement parameters are discussed in the section "Program Operation.")
- When an operand of the type, keyword=(value₁,value₂,...,value_n), is used, values may be omitted if they are equal to those assumed by the program. The following rules apply to omitting values from a LENGTH operand:
 - Values can be dropped from right to left. Thus, if all values after value₂ are equal to those assumed by the program, the operand may be written -- keyword=(value₁,value₂).
 - If values are dropped from the middle or from left to right, commas must be used to signify their omission. Thus, if value₂ is equal to the value assumed by the program, the operand may be written -- keyword=(value₁,,value₃).
 - If only the first value of a series is needed, the parentheses are optional. An operand of this type may be written as either keyword=value or keyword=(value).

RECORD EXAMPLES

The following examples illustrate the use of the RECORD control statement.

RECORD Example A

This example shows a fixed-length record definition:

```
Column
└─┬─┘
  └─┬─┘
    RECORD TYPE=F,LENGTH=(60,40,50)
```

The record length is modified in both the sort phase (to 40 bytes) and the final merge phase (to 50 bytes).

RECORD Example B

This example illustrates a variable-length record definition with modifications in both the sort phase and the final merge phase:

```
Column
└─┬─┘
  └─┬─┘
    RECORD TYPE=V,LENGTH=(200,175,180,50,100)
```

The maximum record length in the input data set is 200 bytes. The sort phase modification reduces the maximum record length to 175 bytes. Five bytes are then added to each record in the final merge phase modification, making the maximum record length in the output data set 180 bytes. The minimum record length in the input data set is 50 bytes, and the most frequent record length (modal length) in the input data set is 100.

RECORD Example C

This example shows a RECORD control statement for an application in which record lengths are changed only in the final merge phase:

```
Column
└─┬─┘
  └─┬─┘
    RECORD TYPE=F,LENGTH=(76,,50)
```

The omission of the l₂ value is indicated by two commas. In this case, the

records handled by the sort phase are the same size as those in the input data set.

MODS CONTROL STATEMENT

The MODS control statement tells the sort/merge program which program modification exits, if any, are used by user-written routines. It also associates a particular routine with a particular sort/merge program exit and provides specifications for the modification routine. (Detailed information about sort/merge program exits is contained in the section "Program Modification.")

PARAMETERS AND OPTIONS

The format of the MODS control statement is shown in Figure 6. The statement definer -- MODS -- must be the first field in the statement.

The MODS control statement has only one operand type. The operand definer, signified by "exit" in the format example, may be any of the three-character values used to refer to sort/merge program exits; for example, if the control statement is used to activate exit E28, the operand definer is E28. The values associated with this operand are:

- n is the name of the routine (member name if the routine is in a library).
- m is the amount of main storage, in bytes, that the routine occupies.
- s is either the name of the DD statement in the sort job step that defines the partitioned data set in which the routine is located, or SYSIN if the routine appears in the system input stream.

PROGRAMMING NOTES

The following programming notes apply to the use of the MODS control statement:

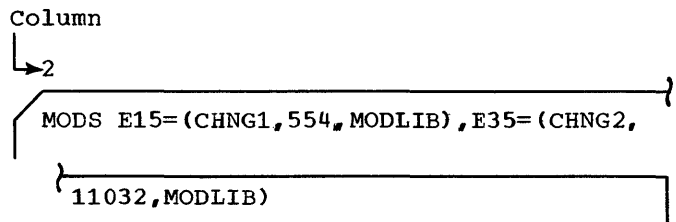
- The amount of main storage needed for the user-written routine should be specified as accurately as possible. If an estimate must be made, it should be high. The sort/merge program must have this information to properly allocate main storage for its own use.
- A separate DD statement is required for each system library that contains user-written routines for execution with the sort/merge program.
- When user-written routines are supplied through the system input stream (SYSIN), they must be arranged in numerical order (E11 before E15).
- Private libraries may also be used to contain user-written routines. (The use of private libraries is described in the publication IBM System/360 Operating System: Job Control Language.)

MODS EXAMPLES

The examples in the following text illustrate the use of the MODS control statement. (Definitions of the exits used in these examples appear in the section "Program Modification.")

MODS Example A

The control statement in this example associates user-written routines with two sort/merge program exits:



CHNG1, a 554-byte routine that is a member of the library defined by the DD statement MODLIB, is associated with sort/merge program exit E15. CHNG2, an 11,032-byte routine found in the same library as CHNG1, is associated with sort/merge program exit E35.

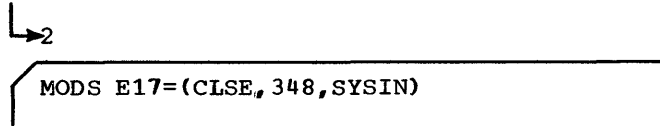
```
MODS exit=(n1,m1,s1) [,exit=(n2,m2,s2),...]
```

Figure 6. MODS Control Statement Format

MODS Example B

In this example, the value s -- SYSIN -- causes the sort/merge program to look for the user-written routine in the system input stream:

Column



The routine -- CLSE -- is included in object form in the input stream with the job step that initiates operation of the sort/merge program.

END CONTROL STATEMENT

The appearance of the END control statement indicates the end of all the control and continuation cards for a sort/merge program application.

PARAMETERS AND OPTIONS

Figure 7 illustrates the format of the end control statement.

PROGRAMMING NOTES

The following programming notes apply to the use of the END control statement:

- The END control statement must be used whenever user-written routines or input

data are included in the system input stream with sort/merge control statements.

- A continuation card following an END control statement is not allowed.

CONTROL STATEMENT COMPATIBILITY

The System/360 Operating System sort/merge program acts upon five of the eight control statement types used by System/360 sort/merge programs -- SORT, MERGE, RECORD, MODS, and END. The three remaining control statement types -- INPFIL, OUTFIL, and OPTION -- are used only by other System/360 sort/merge programs. The operating system sort/merge program recognizes INPFIL, OUTFIL, and OPTION as valid control statement types, but does not act upon them.

The information contained in INPFIL and OUTFIL control statements is supplied to the operating system sort/merge program in DD statements. The information contained in the OPTION statement is specified at system generation time.

The SORT, MERGE, RECORD, and END control statements used by the other System/360 sort/merge programs are acceptable to the operating system sort/merge program. Parameters not recognized by the operating system sort/merge program are ignored. However, because of differences in parameter specification, the MODS control statements used by other System/360 sort/merge programs are not accepted.

Control statements of the operating system sort/merge program may be used with other sort/merge programs; however, operands that are not accepted by the other sort/merge programs are invalid and may cause the program to be terminated.

END

Figure 7. END Control Statement Format

PROGRAM OPERATION

This section tells the user how to assign the data sets necessary for sort/merge program operation and how to initiate execution of the sort/merge program.

ASSIGNING INTERMEDIATE STORAGE

The intermediate storage necessary to perform a sorting application may be assigned on either magnetic-tape or direct-access devices.

All direct-access devices used as intermediate storage for a given application must be of the same type.

IBM 2400 Series Magnetic Tape Units may be used for intermediate storage. The sort can operate with a mixture of 7-track and 9-track tapes. If the sort input data set is on 7-track tape, the intermediate storage and output data sets may be on any combination of 7-track and 9-track tape. However, if any I/O device other than 7-track tape is used for the sort input data set, tape intermediate storage and output data sets must all be 9-track tapes.

Merge input data sets may be on any combination of 7-track and 9-track tapes, and the output may be on either 7-track or 9-track tape.

Variable-length record formats can be handled only when 9-track tape is used.

When 7-track tape units are assigned for use as intermediate storage, the data conversion feature cannot be used.

Either of the following types of direct-access devices may be used as intermediate storage for a sort:

- IBM 2311 Disk Storage Drive.
- IBM 2301 Drum Storage.

INTERMEDIATE STORAGE REQUIREMENTS

The following formulas can be used to calculate the amount of intermediate storage needed for a given application and device type.

Guidelines for assigning the optimum amount of intermediate storage for a given application are contained in the section "Efficient Program Use."

Tape

The following formula can be used to calculate the number of tape intermediate storage data sets (n) necessary to complete a tape sort for a given data set size:

$$n = 2x + 2$$

The variable x represents the number of volumes (when x is greater than 1) required to contain the input data set with a blocking factor equal to that used for intermediate storage by the sort. (An approximate sort blocking can be obtained from the timing estimates in Appendix B.)

When x is equal to 1 (the input data set can fit on one tape volume at sort blocking), the sort requires only three intermediate storage data sets for the application.

To sort a two-volume data set at sort blocking, six tapes are needed for intermediate storage. A three-volume data set requires at least eight tapes.

A maximum of 32 magnetic tape units may be used as intermediate storage. This maximum permits the sorting of a 15-volume data set.

Direct-Access

The following formula can be used to calculate the approximate number of tracks (n) required to complete a direct-access sort for a given data set size.

$$n = a \left(\frac{SL}{T} \right) + .001S$$

a

is a factor that allows for the total area needed to contain the data set, plus the work areas necessary for program operation. This factor varies according to the number of intermediate storage areas available. The possible values for a , given intermediate storage areas of equal size, are:

<u>Number of Areas</u>	<u>Value of "a"</u>
3	1.8
4	1.7
5	1.6
6	1.5

S is the number of records in the input data set.

L is the maximum length of each record (in bytes).

T is the maximum number of bytes that can be written in one block on a track. This quantity varies for different types of direct-access devices.

The quantity .001S is an estimate of the needed directory space.

When intermediate storage areas are not of the same size, the following formula can be used to calculate the value of a:

$$a = 1.3 + \frac{y}{z}$$

Y is the number of tracks in the second-largest intermediate storage area.

Z is the total number of tracks in all intermediate storage areas but the largest.

At least three intermediate storage areas must be made available to the sort. Each of these areas is defined as a separate data set. The smallest area must contain at least three disk tracks. Up to six areas, on up to six separate devices, may be used.

DEFINING DATA SETS

The data sets necessary for sort/merge program operation are defined in the normal manner, following operating system conventions. Standard DD statement names (ddnames) are used to tell the sort/merge program which data sets it may use and what the data sets are to be used for. The ddnames recognized by the sort/merge program are:

<u>DDNAMES</u>	<u>DATA SET USE</u>
SORTIN	used as the input data set for a sorting application.
SORTIN01 - SORTIN16	used as the input data sets for a merging application.
SORTWK01 - SORTWK32	used as the intermediate storage data sets for a sorting application.
SORTOUT	used as the output data set for sort/merge program applications.
SORTMODS	used when user-written routines are included in the input stream.

SORTIN and SORTOUT data sets may be assigned to more than one unit.

DD STATEMENT REQUIREMENTS

The sort/merge program requires that certain parameters be included in the DD statements that define data sets used by the program. These parameters are summarized in Table 1; the parameter, the condition under which it is required by the sort/merge program, a summary of the information contained in the parameter (as it is related to the sort/merge program), and the value assumed if the parameter is not included (default value) are given. The information in Table 1 applies to the DD statement as used to define data sets for use by the sort/merge program; parameters and subparameters which do not apply are not discussed. A full description of other DD statement parameters and subparameters is contained in the publication IBM System/360 Operating System: Job Control Language.

Table 2 is a summary of the DCB subparameters that are required by the sort/merge program if the DCB parameter is used. A more detailed discussion of these and other DCB subparameters is contained in the publication IBM System/360 Operating System: Control Program Services.

Each DD statement type required by the sort/merge program is discussed in the following text. Examples showing the use of required DD statement parameters are given.

Table 1. Summary of DD Statement Parameters Required by the Sort/Merge Program

PARAMETER	CONDITION UNDER WHICH REQUIRED	SUMMARY OF PARAMETER VALUE	DEFAULT VALUE
DSNAME	When the DD statement defines a labeled input data set (e.g., SORTIN), or when the data set being created is to be kept or cataloged (e.g., SORTOUT).	Specifies the fully qualified name or the temporary name of the data set.	If omitted, the system assigns a unique name.
DCB	When the data set is used as the input or output data set (SORTIN or SORTOUT).	Specifies information used to fill the data control block (DCB) associated with the data set.	----
UNIT	When the input data set is neither cataloged nor passed, or when the data set is being created.	Specifies (symbolically or actually) the type and quantity of I/O units required by the data set.	----
SPACE	When the DD statement defines a direct-access data set.	Specifies the amount of space needed to contain the data set.	----
VOLUME	When the input data set is neither cataloged nor passed, or when the output data set is on direct access and is to be kept or cataloged.	Specifies information used to identify the volume or volumes occupied by the data set.	----
LABEL	When the default value is not applicable.	Specifies information about labeling and retention for the data set.	The system assumes standard labeling.
DISP	When the default value is not applicable.	Indicates the status and disposition of the data set.	If omitted, the system assumes a new data set and deletes it after the job step ends.

Table 2. Summary of DCB Subparameters Required by the Sort/Merge Program

SUBPARAMETER	CONDITION UNDER WHICH REQUIRED	SUMMARY OF SUBPARAMETER VALUE
DEN	When the data set is located on a 7-track 2400-series tape unit.	Specifies the density at which the tape was recorded.
TRTCH	When the data set is located on a 7-track 2400-series tape unit.	Specifies the technique used to record 8-bit bytes on a 7-track tape.
RECFM	When the DCB parameter is required.	Specifies the format of the records in the data set.
LRECL	When the DCB parameter is required.	Specifies the maximum length (in bytes) of the logical records in the data set.
BLKSIZE	When the DCB parameter is required and RECFM specifies blocked records.	Specifies the maximum length (in bytes) of the physical records in the data set.

SORTIN DD Statement

For a sort, the SORTIN data set may be a previously created data set that may be cataloged or uncataloged; or it may be inserted by a user-written routine at exit E15 (see the section "Program Modification"). A merge input data set may not be inserted by a user-written routine.

SORTIN Example: This example shows DD statement parameters that could be used to define a previously created input data set:

//SORTIN DD

```
-----
|DSNAME=INPUT,DISP=(OLD,DELETE),|
|DCB=(,RECFM=FB,BLKSIZE=800,LRECL=80)|
|-----
```

These parameters cause the system to search the catalog for a data set named INPUT (DSNAME parameter). When found, the data set is associated with the dname SORTIN and used by the sort/merge program. The control program obtains the unit assignment and volume serial number from the catalog, and types a mounting message to the operator. The DISP parameter (OLD) indicates that the data set is cataloged. DISP also indicates that the data set should be deleted (DELETE) after the current job step. The DCB parameter indicates that the data set contains fixed-length blocked records (RECFM) with a physical block length of 800 bytes (BLKSIZE) and a logical record length of 80 bytes (LRECL). (The DCB parameter is not actually required because the data set is cataloged. The parameter is shown only for the purpose of illustration.)

For a merge, SORTIN01 - 16 are the ddnames used to identify the DD statements that define input data sets. SORTIN01 is the name of the first DD statement; SORTIN02 is the name of the second, etc.

The maximum block size and the maximum record length of all the data sets to be merged must be defined in the DD statement SORTIN01.

Note: The formats of all inputs to a merge must be homogeneous. Mixtures of fixed-length and variable-length records or of blocked and unblocked records are not allowed. Also, fixed-length records must all be of the same length.

SORTOUT DD Statement

The SORTOUT DD statement must define all the characteristics of the output data set. The following example shows DD statement

parameters that could be used to characterize an output data set:

//SORTOUT DD

```
-----
|DSNAME=OUTPT,UNIT=2400,DISP=(NEW,CATLG),|
|DCB=(,RECFM=FB,LRECL=90,BLKSIZE=900)|
|-----
```

The DISP parameter indicates that the data set is unknown to the operating system (NEW) and that it should be cataloged (CATLG) under the name OUTPT (DSNAME parameter). The UNIT parameter specifies that the data set is on a 2400-series tape unit. The DCB parameter specifies a fixed-length blocked data set (RECFM) with a logical record length of 90 bytes (LRECL) and a physical block size of 900 bytes (BLKSIZE).

SORTWK DD Statement

SORTWK data sets may be contained on tape or direct-access units. When direct-access space is assigned, only the primary allocation is used by the sort and it must be contiguous. SORTWK data sets on 7-track tape units cannot use the data conversion feature. The TRTCH subparameter must reflect this.

SORTWK Example A: The following DD statement parameters could be used to define a tape intermediate storage data set:

```
-----
|UNIT=2400,LABEL=(,NL)|
|-----
```

These parameters specify an unlabeled data set on a 2400-series tape unit. Since the DSNAME parameter is omitted, the system assigns a unique name to the data set. The omission of the DISP parameter causes the system to assume that the data set is new and that it should be deleted at the end of the current job step.

SORTWK Example B: The following DD statement parameters could be used to define a direct-access intermediate storage data set:

```
-----
|UNIT=2311,SPACE=(TRK,(200),,CONTIG)|
|-----
```

These parameters specify a disk (2311) data set with a standard label (LABEL parameter default value). The SPACE parameter specifies that the data set is to be allocated 200 contiguous tracks. The system assigns a unique name to the data set and deletes it at the end of the job step.

SORTMODS DD Statement

The SORTMODS statement is required if user-written routines are included in the system input stream. It must not be included if user-written routines are not used. If all user-written routines are located in libraries, DD statements defining the libraries must be included.

The SORTMODS DD statement must define a temporary partitioned data set large enough to contain all the user-written routines that appear in the input stream. The sort/merge program transfers the user-written routines to the SORTMODS data set before they are combined with the sort/merge program by the linkage editor for execution.

The following DD statement parameters could be used to define a SORTMODS data set:

```
UNIT=2311,SPACE=(TRK,(10,,3))
```

These parameters allot 10 tracks of a 2311 disk to the SORTMODS data set. Space for 3 directory entries (there must be one for each routine in the input stream) is also requested.

Shared Data Sets

A single tape unit may be assigned to two sort/merge data sets when the data sets are one of the following pairs:

- The input data set and the first intermediate storage data set (SORTWK01).
- The output data set and an intermediate storage data set. (If this assignment is made, the user cannot specify which physical device is to contain his output data set.)
- The input data set and the output data set.

The pooling facility is used to associate the output data set with an intermediate storage data set.

The parameter in the following example could be used to associate the SORTIN data set with either the SORTWK01 data set or the SORTOUT data set. It appears in the DD statement for SORTWK01 or SORTOUT.

```
UNIT=AFF=SORTIN
```

The AFF subparameter of the UNIT parameter causes the system to place the data set on the unit occupied by the data set associated with the ddname following the subparameter (SORTIN, in this case).

PROGRAMMING NOTES

The following programming notes apply to the assignment of input, intermediate storage, and output data sets to the sort/merge program:

- When input to the sort/merge program is a concatenated data set, all data sets in the concatenation must have identical attributes. If the concatenated data sets do not have identical attributes, records will be lost. This loss causes the sort to terminate if an actual data set size is specified in the SIZE parameter of the SORT control card because of the ensuing record off condition.
- The ddnames for intermediate storage and merge input data sets must be numbered in ascending sequence. SORTIN01 must be first, SORTIN02 second, etc. No numbers may be skipped.
- If user-written routines change logical record lengths, the actual length of the records in the input and output data sets should be specified in the SORTIN and SORTOUT DD statements, and on the RECORD control statement, if the statement is used.

INITIATING PROGRAM EXECUTION

There are two ways to initiate sort/merge program execution:

- By sort/merge control statements and the necessary data definition statements in the system input stream.
- By ATTACH, LINK, or XCTL system macro-instructions issued by another program.

USING THE SYSTEM INPUT STREAM

When sort/merge program execution is initiated by control statements in the input stream, it is treated as any other task being executed under operating system control. Job control language statements -- JOB, EXEC, and DD -- must be used to communicate with the operating system and the sort/merge program.

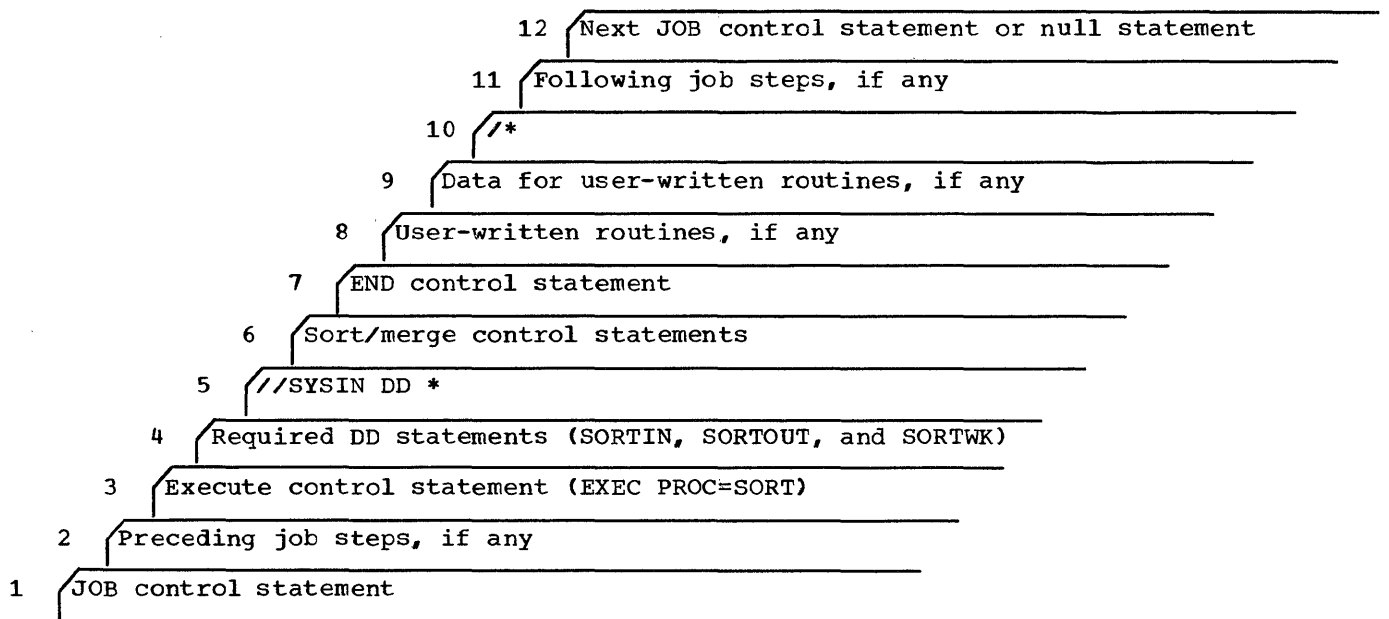


Figure 8. Order of Control Statements and Information

A JOB statement is required when the sort/merge is being executed as a single job step. The EXEC statement is required to initiate execution of the sort/merge program. DD statements are required to define the data sets used by the sort/merge program.

Figure 8 illustrates the order in which control statements and information should be presented in the input stream.

The following list describes the entries in Figure 8. (The numbers in the list correspond to the numbers next to the control statements in the figure.)

1. The JOB control statement must appear first in the input stream. It should contain any information required by the operating system.
2. Preceding job steps might appear here.
3. The EXEC (execute) statement must also appear in the input stream. It is shown in the proper format for either a sorting or merging application. The sort/merge program is a cataloged procedure called SORT, thus, the operand of the EXEC statement is PROC(procedure)=SORT(name of cataloged procedure).
4. The DD statements defining the data sets used by the sort/merge program must appear following the execute statement, as shown. DD statements

that define user-written routines located in system partitioned data sets should also appear here, ordered according to exit number. If the user-written routines are included in the input stream, the SORTMODS DD statement should be included here.

5. A DD statement like the one shown specifies that sort/merge control statements follow. This one statement also specifies that user-written routines or data may appear in the input stream.
6. Sort/merge control statements must follow the DD statement shown in 5.
7. The END control statement is necessary only when user-written routines or data appear in the input stream along with sort/merge control statements.
8. User-written routines, if used, must be ordered according to exit number.
9. Input data (used by user-written routines) must appear last in the input stream.
10. This data delimiter must appear as shown.
11. Any following job steps appear here.
12. The sort/merge application is followed by the JOB control statement for the next job or a NULL statement.

```

//EXAMPLE JOB (A304F69),PROGRAMMER SORT001
//STEP1 EXEC PROC=SORT SORT002
//SORTIN DD DSNAME=INPUT,UNIT=2400, X SORT003
// VOLUME=SER=000010, X SORT004
// DCB=(,DEN=2,RECFM=FB,LRECL=80,BLKSIZE=800) SORT005
//SORTOUT DD DSNAME=OUTRECS, X SORT006
// DISP=(NEW,CATLG), X SORT007
// UNIT=DISK, X SORT008
// VOLUME=SER=000011, X SORT009
// SPACE=(CYL,(6,1)), X SORT010
// DCB=(,RECFM=FB,LRECL=90,BLKSIZE=900) SORT011
//USERLIB DD DSNAME=MODLIB, X SORT012
// DISP=(OLD,KEEP) SORT013
//SORTWK01 DD UNIT=2400,LABEL=(,NL) SORT014
//SORTWK02 DD UNIT=2400,LABEL=(,NL) SORT015
//SORTWK03 DD UNIT=2400,LABEL=(,NL) SORT016
//SORTWK04 DD UNIT=2400,LABEL=(,NL) SORT017
//SYSIN DD * SORT018
SORT FIELDS=(2,5,CH,A),SIZE=E2000 SORT019
RECORD TYPE=F,LENGTH=(80,,90) SORT020
MODS E35=(CHNG1,1021,USERLIB) SORT021
/* SORT022

```

Figure 9. Sample Sorting Application

Input Stream Example

Figure 9 shows the job control language statements and the sort/merge control statements for a sorting application. Each card image in Figure 9 is discussed separately in the following text.

SORT001: The JOB control statement. The account number (A304F69) and programmer name fields are shown.

SORT002: The EXEC control statement that initiates execution of the sort/merge program. The PARM field must not be used.

SORT003: The DD statement defining the input to the sort/merge program. The omission of the DISP parameter causes the data set to be deleted following the current job step. The UNIT parameter indicates that the data set is on a 2400-series tape unit. Omission of the LABEL parameter causes the operating system to assume standard labels.

SORT004: The volume serial number of the input data set is 000010. Using this number and the DSNAME, the system is able to locate the data set and associate it with the ddname SORTIN.

SORT005: The input data set is a high density tape containing blocked fixed-length records. Logical records are 80 bytes long. The size of a physical record is 800 bytes.

SORT006: The DD statement defining the output data set to be created by the

sort/merge program. The name of the data set is OUTRECS.

SORT007: The output data set is a new data set. It will be cataloged.

SORT008: The output data set is on disk.

SORT009: The serial number of the volume on which the output data set is written.

SORT010: Six cylinders of space are to be allotted to the data set; each time the space assignment is depleted, an additional cylinder of space is to be added to the data set.

SORT011: The output data set contains fixed-length blocked records, with a logical record length of 90 bytes and a physical block length of 900 bytes.

SORT012: The DD statement defining a library that contains user-written routines. The name of the library is MODLIB.

SORT013: The library should not be deleted.

SORT014: The DD statement defining the first intermediate storage data set. The data set is on a 2400-series magnetic tape unit. It has no label.

SORT015: The DD statement defining the second intermediate storage data set.

SORT016: The DD statement defining the third intermediate storage data set.

SORT017: The DD statement defining the fourth intermediate storage data set.

SORT018: This DD statement defines the data set -- SYSIN -- that contains the sort/merge control cards for the application.

SORT019: The SORT control statement.

SORT020: The RECORD control statement.

SORT021: The MODS control statement.

SORT022: The delimiter statement signifies the end of the SYSIN data set.

USING ATTACH, LINK, OR XCTL

ATTACH, LINK, and XCTL macro-instructions can be used by a program already in operation to initiate operation of the sort; however, the sort/merge program does not allow a merge to be initiated in this manner. (For a full description of the ATTACH, LINK, and XCTL macro-instructions, see the publication IBM System/360 Operating System: Control Program Services. This publication also contains conventions for the passing of parameters.)

There are two differences between initiating sort operation in the input stream and initiating it by a macro-instruction. Extra DD statements must be supplied by the user when the sort is initiated by a macro-instruction. The information normally contained in sort/merge control statements is communicated to the sort in a parameter list and control statement images in main storage.

Supplying Needed DD Statements

DD statements that are supplied by a cataloged procedure when the sort is executed through the input stream, must appear in the input stream with the job step that issues the macro-instruction that calls the sort.

The ddnames of these DD statements and descriptions of the data sets they define are given in the following list:

SYSPRINT: Used by the linkage editor.

SYSIMOD: Used to contain the output from the linkage editor.

SYSUT1: Used as a work area by the linkage editor.

SYSLIN: Used to contain the input to the linkage editor.

SORTLIB: Contains load modules for the sort/merge program.

SYSOUT: Used as the system output data set.

These DD statements are normally included in the cataloged procedure at system generation. The information that must be included in each statement may be obtained from a list of cataloged procedures produced when the operating system is generated. If the system generation list is not available, a list of the cataloged procedure used by the sort/merge program can be obtained using the SYSLIST utility routine. (The cataloged procedure is named SORT; it is contained in the partitioned data set SYS1.PROCLIB.)

Passing Parameters to the Sort

The parameters passed to the sort consist of two control statement images -- SORT and RECORD -- in main storage, and the entry point addresses of two user-written routines (E15 and E35). The control statement images are required; the user-written routines may be included at the user's option. The address field must contain zeros if the routine is not present.

A pointer to the parameter list must be placed in general register 1 before the control-passing macro-instruction is issued.

The parameter list is four bytes long beginning on a full-word boundary. The high-order bit in the high-order byte must contain a 1, and the rest of the high-order byte must contain zeros (X'80'). The remaining three bytes contain a pointer to a list of addresses used by the sort/merge program. This pointer points to the half-word boundary before the first full-word of the address list. This half-word contains (right adjusted in hexadecimal) the number of bytes in the address list. This is always 18 (hexadecimal), because the address list must always be 24 bytes long.

The first address in the address list must begin on a full-word boundary. Each address is contained in the low-order three bytes of a full word. The format of the address list is as follows:

Unused	X'0018'
Starting address of SORT statement	
Ending address of SORT statement	
Starting address of RECORD statement	
Ending address of RECORD statement	
Address of routine for exit E15	
Address of routine for exit E35	

The starting and ending addresses of the SORT and RECORD control statements are required parameters. The entry-point addresses for the user-written routines are optional. If an entry point address is not used, a word of all zeros must appear in its place in the address list. (The exits are described in the section "Program Modification.")

A continuation character is not necessary if a SORT or RECORD control statement image extends beyond 71 characters; the images may be up to 428 bytes in length. The first byte of each statement image must contain a blank character.

Examples for ATTACH, LINK, and XCTL

The following text contains two examples. The first illustrates the passing of parameters to the sort. The second is an assembler-language coding example.

Example A

Figure 10 illustrates the passing of parameters to the sort.

General register 1 contains a pointer to the parameter list, which is at location 1000. The high-order bit in the word beginning at 1000 contains a 1.

The full word at location 1000 contains a pointer to the half-word preceding the first full word of the address list (location 1006). This half-word contains, right adjusted in hexadecimal, the number of bytes in the address list (24 decimal).

The address list contains a pointer to the starting location (1032) and ending location (1067) of a SORT control statement, and the starting location (1068) and ending location (1093) of a RECORD control statement. (These statements are shown at the bottom left of the figure.)

The last two full-words in the list contain the entry point addresses of a user-written routine for exit E15 (2000) and exit E35 (3000).

The control statement images must be represented in EBCDIC. The symbol b in the figure stands for a blank character.

Example B

The following example shows, in assembler-language coding, how the paramet-

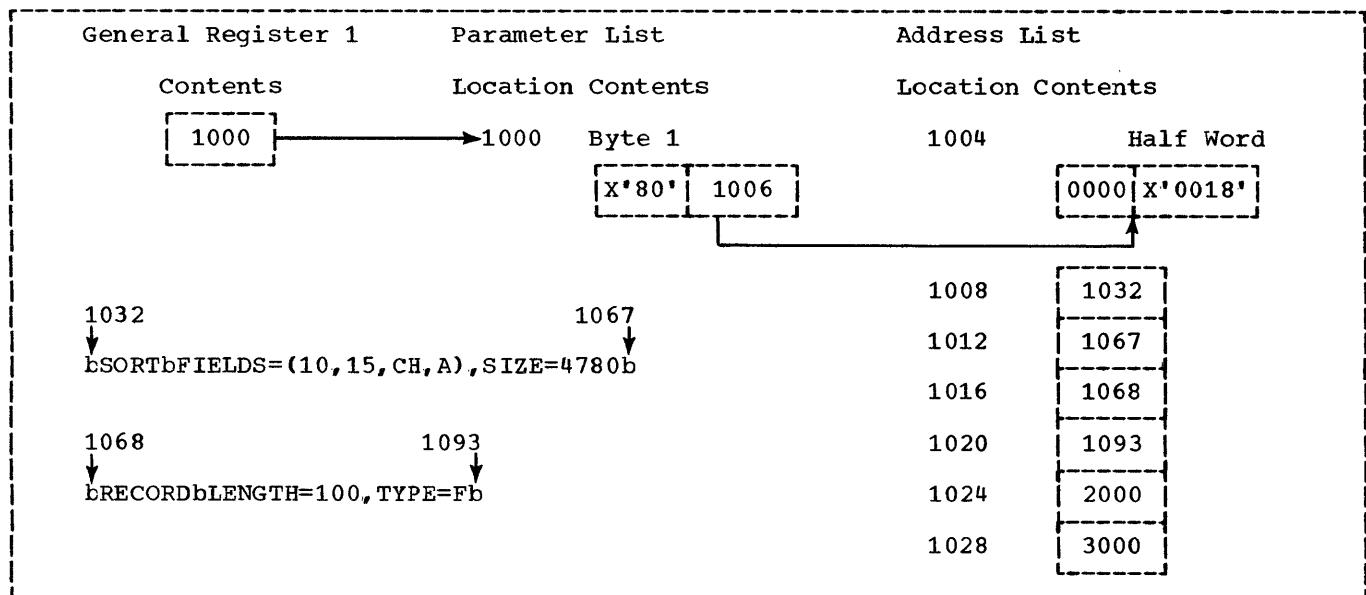


Figure 10. Passing Parameters to the Sort

ers and card images in Example A could be generated and how control can be passed to the sort/merge program.

```

LA      1,PARLST
ATTACH EP=SORT,MF=(E,(1))
.
.
CNOP   0,8
PARLST DC X'80'
DC     AL3(ADLST)
DC     X'0000'
ADLST  DC X'0018'
DC     A(SORTCD)
DC     A(STCDED)
DC     A(RCDCD)
DC     A(RDCDED)
DC     A(MOD1)
DC     A(MOD2)
SORTCD DC C' SORT FIELDS=(10,15,CH,A),'
DC     C'SIZE=4780'
STCDED DC C' '
RCDCD  DC C' RECORD LENGTH=100,TYPE=F'
RDCDED DC C' '
CNOP   0,8
USING  *,15
MOD1   routine for exit E15
.
.
CNOP   0,8
USING  *,15
MOD2   routine for exit E35
    
```

Programming Notes

The following programming notes apply to the use of ATTACH, LINK, and XCTL in initiating sort execution:

- The data sets necessary for sort program operation must be defined by the user, as specified earlier in this section.
- If exit E15 is used, SORTIN is not

opened for input, and an address of zero is passed by the sort the first time the exit is used. If exit E35 is used, SORTOUT is not opened for output. The user must insert records into the sort as input and delete records leaving the merge as output.

- When the sort finishes execution, control is passed back to either the user or the operating system, depending upon how the sort was invoked.

COMPLETION CODES

The sort/merge program returns a completion code to the operating system upon termination. This code may be interrogated by succeeding job steps. The codes are:

- 0 - Successful completion of sort/merge
- 12 - Linkage editor error
- 16 - Unsuccessful completion of sort/merge

Successful Completion: When a sort/merge application has been successfully executed, a completion code of zero is returned to the operating system, and the sort terminates.

Linkage Editor Error: When the linkage editor cannot create a sort/merge program, it terminates and returns to the sort. The sort returns a code of 12 to the operating system and terminates.

Unsuccessful Completion: If the sort, during execution, encounters an error that will not allow it to complete successfully, it returns a completion code of 16 to the operating system and terminates. (Such errors include an out-of-sequence condition or an uncorrectable I/O error.)

PROGRAM MODIFICATION

User-written routines can be executed during a sort/merge program execution to perform a variety of functions, such as deleting, inserting, altering, and summarizing logical records.

Control is passed to user-written routines at predesignated places in the executable code of the sort/merge program called sort/merge program exits.

Because these exits are located in particular program phases (and in one case, in a particular module), a general understanding of how the sort/merge program operates is prerequisite to understanding sort/merge program exits.

PROGRAM DESCRIPTION

The sort/merge program is a segmented program; that is, it is composed of parts that can operate independently. Generally, there are two levels of segmentation:

1. Phases -- large program components that accomplish a certain task.
2. Modules -- the independent routines of which phases are composed.

The sort/merge program is composed of five phases. All five phases are used for sorting applications, but only the first two and the last phases of the program are used for merging applications. The first two phases -- the definition and optimization phases -- are strictly initialization phases. Each of the remaining three phases -- the sort, intermediate merge, and final merge -- is divided into two components:

- An assignment component that initializes for the operation of the phase.
- A running component that performs the actual sorting or merging.

Figure 11 is a phase-level flowchart of the program. Each phase is explained in the following text.

DEFINITION PHASE

The definition phase reads and interprets sort/merge control statements and

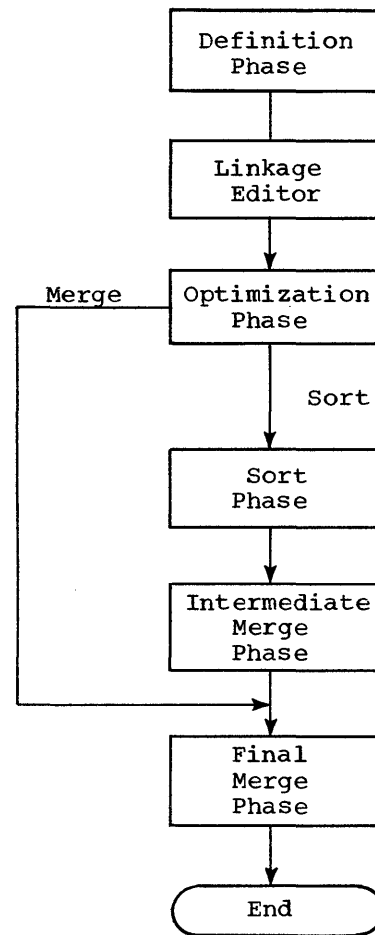


Figure 11. Phase-level Flowchart

decides which phases, and which modules of each phase, should be used. The output from this phase is used as input to the linkage editor.

OPTIMIZATION PHASE

The optimization phase, using information obtained from the operating system and from DD statements, determines the optimum method of using the CPU and I/O configuration available.

If needed, this phase also generates special routines to perform record comparisons. One of two routines -- the equals module or the extract module -- may be generated to make record comparisons.

(Neither routine is used when sorting or merging is based on a single control field containing character data or binary data beginning on a byte boundary.) If one of these routines is used, it remains in main storage throughout execution of the program.

Equals Module

The equals module is used when there is more than one control field and all control fields contain character data or binary data beginning on a byte boundary. It is executed to resolve the collating of records when an equal comparison arises between two major control fields. This is done by comparing successive minor control fields until an unequal compare is made, thus determining the proper order of the two records. If all control fields are equal, the records are taken in the order which requires the least processing time.

Extract Module

The function of the extract module is to extract and group all of the control fields into one field so that a single compare instruction can be executed to collate the record.

The extract module is loaded for one of two reasons:

- If more than one control field is used and the equals module cannot be used to resolve collating.
- If specified by the user in either the SORT or MERGE control statement. (User specification is accomplished by taking the E option for the s parameters of the FIELDS operand. See the section "Control Statements," for further information.)

When the extract module is used, it is executed each time a logical record is processed. This is done to avoid carrying the extracted information with the records, which would increase I/O time and, therefore, total sort or merge time.

SORT PHASE

The job of the sort phase is to order the input data set into sequences and distribute these sequences onto intermedi-

ate storage data sets. The method of distribution is determined by the sorting technique being used.

If tape is being used as intermediate storage, the sequences may be put out in both ascending and descending order. This enables the intermediate merge phase, using the read-backward feature, to merge the sequences without rewinding tapes.

If direct-access intermediate storage is used, the sequences are distributed among the areas assigned to the program so that they may be merged in a minimum number of passes.

INTERMEDIATE MERGE PHASE

The intermediate merge phase is loaded and executed following completion of the sort phase. It performs successive merges of the strings produced by the sort phase. The merges are carried out from intermediate storage device to intermediate storage device, each successive merge decreasing the number of strings and increasing the average string length. When one more merge is required to create one long string (the output data set), control is given to the final merge phase.

FINAL MERGE PHASE

The final merge phase has two uses:

- It makes the final merge pass of a sorting application, thus creating the output data set.
- It merges the input data sets for a merging application to create the output data set.

Output from this phase can be on any output device supported by QSAM. After the execution of this phase, the sort system control component returns control to the operating system via the RETURN macro-instruction.

GENERAL INFORMATION

There are three types of exits available with the sort/merge program.

- Assignment component exits, one each for the sort, intermediate merge, and final merge phases.

- Running component exits, a number of which are associated with the running component of each program phase.
- An extract module exit.

User-written routines at assignment component exits are used to initialize other user-written routines at the exits in a phase's running component. This type of exit may be used to open any data sets needed by the user-written routines in a particular phase. The assignment components and any routines at the assignment component exits are overlaid and used as buffer areas by the running components.

Running component exits are used for a variety of purposes, including the deletion, summarization, insertion, or any other alteration to the logical records coming into or out of the phase. Routines at running component exits can also be used to correct some of the errors that may arise during execution of the sort/merge program, including I/O errors and exceeding sort capacity (Nmax). A running component exit can also allow the user to close any data sets used by the user-written routines in a particular phase.

The extract module exit is used to alter control fields before collating. One use for this exit is the normalization of floating-point control fields.

Figure 12 is a summary of the sort/merge program exits and their uses. The first digit of the exit number represents the phase in which the exit is located -- 1 for sort phase, 2 for intermediate merge phase, and 3 for final merge phase. The second digit represents the type of function that can be performed at the exit.

OPERATING CONSIDERATIONS

Two factors must be weighed when considering the use of sort/merge program exits:

- User-written routines occupy main storage that would otherwise be used for I/O buffers. The loss of buffer space is critical when the sort/merge program is operating in a small amount of main storage. By restricting buffer space, it is possible to make extra intermediate merge phase passes necessary.
- The execution of modification routines adds time to the overall sort/merge program execution time.

When sort/merge program exits are used, user-written routines must be associated

with the appropriate sort/merge program exits, using the MODS control statement. (For further information, see the section "Control Statements.")

Notes: When the smallest linkage editor is used in the minimum amount of main storage, user-written routines are limited to 10 external references.

To provide the greatest flexibility in the use of modification exits, the sort/merge program passes control to the routines executed at these exits. The user, therefore, must assure the accuracy of his modification and the proper use of the exits. In particular, only valid return codes should be used.

LINKAGE CONSIDERATIONS

User-written routines may be placed either in a partitioned data set (library) or in the system input stream. The general assignment phase includes the name and location of user-written routines in the list of modules to be executed during each program phase. The user-written modules are loaded and executed with their associated program phase.

Each user-written routine must be assembled or compiled as a separate program. The same routine may appear at more than one sort/merge program exit, as long as it does not appear twice in any one program phase. In other words, the same read error routine may be used in all three program phases, but it cannot appear at more than one exit in any one phase.

Only one load module is allowed at a program exit. If more than one routine is needed at an exit, the routines must be assembled or compiled as one load module.

User-written routines must save and restore all general registers that are used at the modification exit.

The general registers used by the sort/merge program for linkage and communication of parameters follow operating system conventions. The registers used are:

- General register 1 -- This register is used to communicate the address of a parameter list to the called routine.
- General register 13 -- This register contains the address of an area, set aside by the sort/merge program, in which the user-written routine may save the contents of any general registers it needs for operation.

Possible Use for Exit	Sort						Intermediate Merge					Final Merge					Extract
	E11	E15	E16	E17	E18	E19	E21	E25	E27	E28	E29	E31	E35	E37	E38	E39	E61
Assignment	X						X					X					
Nmax Error			X														
Logical Record Change		X						X					X				
Control Field Change																	X
Opening Data Sets	X						X					X					
Closing Data Sets				X					X					X			
Read Error Routine					X					X					X		
Write Error Routine						X					X					X	
ATTACH, LINK, and XCTL		X											X				

Figure 12. Summary of Functions Permitted at Sort/Merge Program Exits

- General register 14 -- This register contains the address of the sort/merge program return point.
- General register 15 -- This register contains the address of the user-written routine. (It can be used as the base register by the user-written routine.) General register 15 is also used as a return-code register to communicate information to the sort/merge program. (A return code is a special bit structure placed in general register 15 before returning to the sort/merge program.)

The sort/merge program uses a CALL macro-instruction expansion to enter user-written routines; control can be returned to the sort/merge program through the use of the RETURN macro-instruction. The RETURN macro-instruction can also be used to set condition codes when multiple actions are available at an exit. The SAVE macro-instruction can be used to save all general registers that are used by the user-written routine. If used the saved registers must be restored. This may be done using the RETURN macro-instruction.

All user-written routines must contain an entry point defined by an ENTRY or CSECT statement and use the sort/merge program exit number as the name of the entry point to the routine.

Examples

The CALL macro-instruction used by the sort/merge program to link to a user-written routine at the sort phase assignment component exit is written as follows:

```
CALL E11
```

This macro-instruction is expanded to form assembler language instructions and, when executed, places the return address in general register 14 and the user's entry point address in general register 15. The sort/merge program has already placed the register save area address in general register 13.

A user-written routine for the sort-phase assignment component exit could incorporate the following instructions:

```

ENTRY    E11
.
.
.
E11 SAVE    (5,9)
.
.
.
RETURN   (5,9)

```

This coding saves and restores the contents of general registers 5 through 9. The macro-instructions are expanded into the following assembler code:

```

ENTRY    E11
.
.
.
E11 STM    5,9,40(13)
.
.
.
LM      5,9,40(13)
BR      14

```

If multiple actions are available at a sort/merge program exit, the action taken is communicated to the program by the return code set in general register 15. The following macro-instruction could be used to return to the sort/merge program with a return code of 12 in general register 15:

```
RETURN RC=12
```

(A full explanation of linkage conventions and the macro-instructions discussed in this section can be found in the publication IBM System/360 Operating System: Control Program Services.)

ASSIGNMENT COMPONENT EXITS (E11, E21, E31)

The assignment component of each sort/merge program phase has a program exit associated with it. These exits are used to perform other initialization functions for the user-written routines that operate with the running component of the phase.

The assignment component exit numbers assigned to each program phase are:

```

E11 -- Sort phase
E21 -- Intermediate merge phase
E31 -- Final merge phase

```

Linkage Conventions: Linkage conventions for assignment component exits are shown in the following table:

Code Used to Enter User-Written Routine	Code Used to Return to Sort/Merge
CALL E11	ENTRY E11 . . E11 SAVE (5,9) . . RETURN (5,9)

RUNNING COMPONENT EXITS

Each sort/merge program phase has a number of running component exits associated with it. Many of these exits perform the same function in each of the program's three phases. They are explained in the following text according to exit function.

LOGICAL RECORD CHANGE EXITS (E15, E25, E35)

The logical record change exits can be used to insert, delete, alter, or summarize records as they leave a program phase.

Exit E15

Exit E15 is used for inserting, deleting, shortening, lengthening, and otherwise altering records as they enter the program's sort phase. A user-written routine at this exit is executed each time a new record is brought into the phase. The address of a parameter list that contains the address of the new record is placed in general register 1. The parameter list starts on a full-word boundary and is one full-word long. The high-order byte of the word contains zeros. The format of the parameter list is:

00	Address of the New Record
----	---------------------------

When end-of-data set is reached on the input data set, the sort passes an address of zero in the parameter list. If there are no records in the input data set, the sort passes a zero address the first time the exit is used.

The action taken by the sort upon return from the user-written routine is based on the return code set in general register 15. The sort recognizes four such codes:

- 0 -- Alter or no action
- 4 -- Delete record
- 8 -- Do not return
- 12 -- Insert record

No Action: If no action is to be taken, the user-written routine places the address of the current input record in general register 1 and returns to the sort with a return code of 0 (zero).

Alter Records: To lengthen, shorten, or otherwise alter the current input record, the user-written routine must move the record to a work area, perform the modification, load the address of the modified record into general register 1, and return to the sort with a return code of 0 (zero).

Any alterations that change the physical size of a logical record should be communicated to the sort/merge program on a RECORD control statement. (See the section "Control Statements," for further information.)

Delete Records: To delete the current input record, the user-written routine returns to the sort with a return code of 4. Following a record deletion, the sort returns to the user-written routine with a new input record. An address need not be placed in register 1 when the 4 return code is issued.

Do Not Return: The sort keeps returning to the user-written routine until a return code of 8 is passed back to the sort. After this return, the exit is closed and not used again. An address need not be placed in register 1 when the 8 return code is issued.

This return code must be issued following end-of-data set on the input, unless the user is inserting records after end-of-data set.

Insert Records: The address of the record to be inserted before the current input record is placed in general register 1, and the user-written routine returns to the sort with a return code of 12.

Following a record insertion, the sort returns to the user-written routine without getting another input record. This allows the user-written routine to make more insertions if necessary.

Insertions can also be made following the last input record (after the sort places all zeros in the parameter list). The sort keeps returning to the user-written routine for more insertions until a return code of 8 is passed back to the sort.

Linkage Conventions: Linkage conventions for exit E15 are shown in the following table:

Code Used to Enter User-written Routine	Code Used to Return to Sort/Merge
LA 1,param CALL E15 . . param DC A(radrs)	ENTRY E15 . E15 SAVE (5,9) . LA 1,nwrec RETURN (5,9), RC=x
radrs is the record address passed by the sort nwrec is the address returned to the sort x is the return code	

Exit E25

Exit E25 is used for summarizing or deleting records in the program's intermediate merge phase.

The addresses of two records are passed to the user-written routine as CALL macro-instruction parameters. These are addresses for:

- The record leaving the merge, which would normally follow the record in the output area.
- A record in an output area.

The address of a parameter list that contains the addresses of these two records is placed in general register 1. The parameter list starts on a full-word boundary and is two full-words long. The high-order bytes in both words contain zeros. The format of the parameter list is:

00	Address of Record Leaving Merge
00	Address of Record in Output Area

Each time a new intermediate merge output sequence is started, the first record of the sequence is placed in the output area. When the second record of the sequence leaves the merge, its address and the address of the record in the output area are passed to the user-written routine at exit E25. The sort does not allow the deletion of the record in the output area; therefore, the first record in any output sequence cannot be deleted.

If the record leaving the merge is deleted, the sort returns to the user-written routine with a new current record, leaving the same record in the output area. If the record leaving the merge is not deleted, that record takes the place of the record in the output area and the sort returns to the user-written routine with the address of the next record to leave the merge.

The action to be taken by the sort upon return from the user-written routine is based on the return code set in general register 15. The sort recognizes two such codes:

- 0 -- No action
- 4 -- Delete

No Action: If no action is to be taken, the user-written routine must load the address of the record leaving the merge into general register 1 and return to the sort with a return code of 0 (zero).

Delete records: The record leaving the merge can be deleted by returning to the sort with a return code of 4. An address need not be placed in register 1 when a return code of 4 is issued.

Summarize records: Summarization may be accomplished by changing the record in the output area and then deleting the record leaving the merge. When the record leaving the merge is deleted, the sort returns to the user-written routine with a new record (leaving the same record in the output area), so that more summarization can take place. If summarization without deletion is required, it should be performed at exit E35, rather than at E25. In the intermediate merge phase, sequences may be produced in both ascending and descending order; each record may be processed one or more times during the phase.

Linkage Conventions: Linkage conventions for exit E25 are shown in the following table:

Code Used to Enter User-Written Routine	Code Used to Return to Sort/Merge
LA 1,param	ENTRY E25
CALL E25	.
.	.
param DC A(rcara)	E25 SAVE (5,9)
DC A(otara)	.
	LA 1,modrc
	RETURN (5,9),
	RC=x

rcara is the address of the record leaving the merge
otara is the address of the record in the output area
modrc is the address returned to the merge
x is the return code

PROGRAMMING NOTE

This programming note deals with the handling of status information by the user routine.

- The entire intermediate merge phase (including the E25 exit routine) will be reloaded into main storage for each merge pass. Thus, status information may not be retained within the exit routine; it must be carried in the records being merged.
- It may not be possible to summarize or delete all records desired at exit E25.

Exit E35

Exit E35 is used for summarizing, inserting, deleting, lengthening, shortening, and otherwise altering records as they leave the program's final merge phase.

The addresses of two records are passed to the user-written routine as CALL macro-instruction parameters. These are addresses for:

- The record leaving the merge, which would normally follow the record in the output area.
- A record in an output area.

A third parameter, which is used to control sequence checking, is also provided. The address of the parameter list is placed in general register 1. The parameter list starts on a full-word boundary and is three full-words long. The high-order bytes of the first two full-words contain zeros. The format of the parameter list is:

00	Address of Record Leaving Merge		
00	Address of Record in Output Area		
00	00	00	Sequence Check Switch

The address of the record in the output area is zero the first time the user-written routine is entered. At this time, the user can insert records at the beginning of the output data set. The address of the record leaving the merge is zero after the last record in the output data set has been processed. At this time, the user can insert records at the end of the output data set. When there are no records in the input data set, both addresses are zero the first time the user-written routine is entered.

If the record leaving the merge is deleted, the sort returns to the user-written routine with a new record, without placing another record in the output area. If the record leaving the merge is not deleted, it takes the place of the record in the output area and the phase returns to the modification routine with the next record leaving the merge.

The sequence check switch is tested by the final merge phase before performing each sequence check on records being written on the output data set. If the word contains all zeros, the sequence check is performed. If the low-order byte of the word contains a 4, the sequence check is not performed. This switch, which is initially set to zeros, may be set and reset according to the needs of the user-written routine at exit E35. For example, if the user is altering control fields within records which would not collate properly in the output, the sequence check for that record should be eliminated.

The action to be taken by the merge upon return from the user-written routine is

based on the return code set in general register 15. The merge recognizes four such codes:

- 0 -- Alter or no action
- 4 -- Delete record
- 8 -- Do not return
- 12 -- Insert record

No Action: If no action is to be taken, the user-written routine must load the address of the record leaving the merge into general register 1 and return to the merge with a return code of 0 (zero).

Alter Records: To lengthen, shorten, or otherwise alter the record leaving the merge, the user-written routine must move the record to a work area, perform the modification, load the address of the modified record into general register 1, and return to the merge with a return code of 0 (zero).

All record alterations that change the physical size of the logical record should be communicated to the sort/merge program by a RECORD control statement. (For further information, see the section "Control Statements.")

Delete Records: The record leaving the merge can be deleted by returning to the merge with a return code of 4. An address need not be placed in register 1 when a return code of 4 is issued.

Do Not Return: The merge keeps returning to the user-written routine until a return code of 8 is passed back to the merge. After this return, the exit is closed and not used again. An address need not be placed in register 1 when the 8 return code is issued.

This return code must be issued when an address of zero is passed as the address leaving the merge unless the user is inserting records at the end of the output data set.

Insert Records: The address of the record to be inserted is placed in general register 1, and the user-written routine returns to the merge with a return code of 12.

Following a record insertion, the merge returns to the user-written routine without changing the record leaving the merge. This allows the user-written routine to make more insertions, if necessary. The collating sequence of records that are inserted must be maintained by the user. The sort/merge program does not perform a sequence check of records that are insert-

ed. However, when the record leaving the merge is deleted and a new record inserted, the sequence check is performed.

Insertions can also be made following the last output record (to signify the end of the output data set the merge places all zeros in the first address of the parameter list). The merge keeps returning to the user-written routine for more insertions, until a return code of 8 is passed back to the merge.

Summarize Records: Summarization is accomplished by changing the record in the output area and then, if desired, deleting the record leaving the merge. When this is done, the merge returns to the user-written routine with a new record (the same record is left in the output area), so that more summarization can take place. If the record leaving the merge is not deleted, that record takes the place of the record in the output area and the merge returns to the user-written routine with a new record.

Linkage Conventions: Linkage conventions for exit E35 are shown in the following table:

Code Used to Enter User-Written Routine	Code Used to Return to Sort/Merge
LA 1,param CALL E35 . param DC A(rcara) DC A(otara) DC A(0)	ENTRY E35 SAVE (5,9) . E35 MVI 11(1), X'04' . LA 1,nwrec RETURN (5,9), RC=x

rcara is the address of the record leaving the merge
otara is the address of the record in the output area
nwrec is the address returned to the merge
x is the return code

(Nmax) is exceeded during execution of the sort phase. (Nmax is the calculated estimate of the maximum number of input records that the sort can handle in a given amount of main and intermediate storage.)

The user-written routine at this exit may choose among three actions to be taken by the sort:

- Sort the records currently in the sort phase and continue the program with only part of the input data set.
- Continue sorting and attempt to complete the sort with the intermediate storage space which is actually available. (Enough space may be available to allow the program to complete processing. If enough is not available, the program generates a message and terminates.)
- Terminate the program.

The action to be taken is communicated to the sort by one of the following return codes:

- 0 -- Sort current records
- 4 -- Continue with available storage
- 8 -- Terminate the program

Linkage Conventions: Linkage conventions for this exit appear in the following table:

Code Used to Enter User-Written Routine	Code Used to Return to Sort/Merge
CALL E16	ENTRY E16 . E16 RETURN RC=x

x is the return code

EXITS FOR CLOSING DATA SETS (E17, E27, E37)

User-written routines at these exits, which are executed once at the end of the phase with which they are associated, can be used to close any data sets used by other user-written routines that operate

NMAX ERROR EXIT (E16)

A user-written routine at exit E16 is entered when the calculated sort capacity

with the phase. They can also be used to perform any housekeeping functions associated with other user-written routines in the phase.

The phase with which each exit is associated is:

- E17 -- Sort phase
- E27 -- Intermediate merge phase
- E37 -- Final merge phase

Linkage Conventions: The linkage conventions used with these exits appear in the following table:

Code Used to Enter User-Written Routine	Code Used to Return to Sort/Merge
CALL E17	ENTRY E17 . . E17 CLOSE . RETURN

READ/WRITE ERROR ROUTINES

The exits described in the following text may be used to incorporate user-written or installation-provided I/O error correction routines into the sort/merge program. Correction procedures are standard throughout the program. The parameters passed by the sort/merge program to a synchronous error routine when an uncorrectable I/O error is encountered are the same as those passed by QSAM. The information passed to the user's synchronous error routine is given in the following list:

General Register 0: This register always contains X'10' in the high-order byte. The remaining three bytes contain the address of the input/output block (IOB) associated with the error, as follows:

X'10'	IOB address
-------	-------------

General Register 1: The high-order byte of this register always contains zeros. The

remaining three bytes contain the address of the data control block (DCB) associated with the error, as follows:

00	DCB address
----	-------------

General Register 14: This register contains the return address of the sort/merge program.

General Register 15: This register contains the address of the user's synchronous error routine.

The user-written routines that process read or write error conditions may be located at the exits themselves or may reside permanently in main storage as part of the installations standard error handling procedures. The routines at these exits reside in main storage with the running portion of the sort or merge, but are executed once during the assignment portion of the phase. (E28 and E29 are reloaded and executed for each pass of the intermediate merge phase.)

Read Error Exits (E18, E28, E38)

A user-written routine at one of these exits may pass a parameter list containing the specifications for three data control block (DCB) fields -- SYNAD, EXLST, and EROPT -- to the sort/merge program. A user-written routine at exit E18 may pass a fourth DCB field -- EODAD -- to the sort/merge program. Any or all of these fields may be filled by the user-written routine.

The phase with which each exit is associated is:

- E18 -- Sort phase
- E28 -- Intermediate merge phase
- E38 -- Final merge phase

The DCB fields are passed to the sort/merge program in a parameter list, the address of which is placed in general register 1 before the user-written routine returns to the sort/merge program. The parameter list must begin on a full-word boundary and be a whole number of full-words long. The high-order byte of each word contains a character code that identifies the parameter. Any word may be omitted. A word of all zeros signifies the end of the list. The format of the list is:

BYTE 1	BYTE 2	BYTE 3	BYTE 4
1	SYNAD field		
2	EXLST field		
3	0	0	EROPT
4	EODAD field		
0	0	0	0

A full description of these DCB fields can be found in the publication IBM System/360 Operating System: Control Program Services.

These fields are:

SYNAD: The SYNAD field contains the location of a user-written read synchronous error routine. This routine is entered only after the operating system has tried unsuccessfully to correct the error. It should be assembled as part of the user's modification routine at the read error exit.

EXLST: The EXLST field contains the location of a list which contains pointers to various user-written routines for nonstandard label checking and other functions not performed by data management. This list and the routines to which it points should be included in the user's modification routine at the read error exit.

EROPT: The EROPT code allows the user to specify what action should be taken if an uncorrectable input error is encountered. The three possible actions and the codes with which they are associated are:

```
x'80' -- Accept the record (physical
        block)
x'40' -- Skip the record
x'20' -- Terminate the program
```

If this parameter is included, one of these codes must appear in the low-order byte of the word. Bytes 2 and 3 of the word must contain zeros.

EODAD: The EODAD field is the address of user-written end-of-file routine. This parameter may be specified at exit E18 only. If it is included, the end-of-file routine should be included in the user's modification routine at the read error exit.

Linkage Conventions: Linkage conventions for these exits are shown in the following table:

Code Used to Enter User-Written Routine	Code Used to Return to Sort/Merge
CALL E18	ENTRY E18
	.
	E18 LA 1,param
	RETURN
	CNOP 0,4
	parm DC X'01'
	DC AL3(ser)
	DC X'02'
	DC AL3(1st)
	DC X'03'
	DC XL3(x)
	DC A(0)
	.
	.
	ser error routine
	.
	1st address list
	.
	.

ser refers to the read synchronous error routine
1st refers to the EXLST address list
x is EROPT code

Write Error Exits (E19, E29, E39)

A user-written routine at one of these exits may pass a parameter list containing the specifications for two DCB fields -- SYNAD and EXLST.

The phase with which each exit is associated is:

```
E19 -- Sort phase
E29 -- Intermediate merge phase
E39 -- Final merge phase
```

The DCB fields are passed to the sort/merge program in a parameter list, the address of which is placed in general register 1 before the user-written routine returns to the sort/merge program. The parameter list must begin on a full-word boundary and be a whole number of full-words long. The high-order byte of each word contains a character code that identifies the parameter. Either word may be omitted. A word of all zeros signifies the end of the list. The format of the list is:

BYTE 1	BYTE 2	BYTE 3	BYTE 4
1	SYNAD field		
2	EXLST field		
0	0	0	0

A full description of these DCB fields can be found in the publication IBM System/360 Operating System: Control Program Services. These fields are:

SYNAD: The SYNAD field contains the location of a user-written write synchronous error routine. This routine is entered only after the operating system has unsuccessfully tried to correct the error. It should be assembled as part of the user's routine at the write error exit.

EXLST: The EXLST field contains the location of a list that contains pointers to various user-written routines for nonstandard label checking and other functions not performed by data management. This list and the user-written routines to which it points should be included in the user's modification routine at the write error exit.

Linkage Conventions: Linkage conventions for these exits are shown in the following table:

Code Used to Enter User-Written Routine	Code Used to Return to Sort/Merge
CALL E19	ENTRY E19 . . E19 LA 1,parm RETURN CNOB 0,4 parm DC x'01' DC AL3(ser) DC x'02' DC AL3(lst) DC A(0) . . ser error routine . . lst address list
<u>ser</u> refers to the write synchronous error routine	
<u>lst</u> refers to the EXLST address list	

CONTROL FIELD MODIFICATION EXIT (E61)

A user-written routine at this exit can be used to lengthen, shorten, or alter any control field within a logical record. Control fields that are to be altered at this exit must be specified by the E option for the s parameters of the SORT or MERGE control statement. (See the section "Control Statements" for further information.) A user-written routine at exit E61 is entered each time one of the specified control fields is encountered.

This exit is loaded with the running portion of each phase; it is associated with the extract module.

When the control fields are passed to the user-written routine, they have already been moved to an extract area. For all fields except binary, the number of bytes passed to the user-written routine is equal to the final length specified in the m parameters of the SORT or MERGE control statement. The field returned to the sort/merge program must contain the same number of bytes.

All binary fields passed to the user-written routine contain a whole number of bytes. If a binary field does not begin and end on a byte boundary, the bits in the first and/or last byte that are not occupied by the control field are set to zeros in the extracted field.

The parameter list passed to the user-written routine (the address of which is placed in general register 1) begins on a full-word boundary and is two full-words long. It contains the number (in hexadecimal) of the control field in the low-order byte of the first word, and the address of the control field in the three low-order bytes of the second word, as follows:

BYTE 1	BYTE 2	BYTE 3	BYTE 4
00	00	00	01-0C
00	Control Field Address		

The user-written routine operates on the control field while it is in the extract area. When modification is complete, a return is made to the sort/merge program.

The user-written routine cannot physically change the length of the control field. If the length must be increased for collating purposes, the final length

must be specified in the m parameter of the SORT or MERGE control statement. If, for collating purposes, the control field is to be shortened, the field passed back to the sort/merge program must be padded to the specified length before returning.

Upon return from this exit, the modified control field is collated in absolute ascending order.

Linkage Conventions: Linkage conventions for exit E61 are shown in the following table:

Code Used to Enter User-Written Routine	Code Used to Return to Sort/Merge
CALL E61	ENTRY E61
	.
	E61 SAVE (5,9)
	.
	RETURN (5,9)

EFFICIENT PROGRAM USE

This section contains information to aid a user to achieve efficient use of the sort/merge program. The subjects covered are:

- Supplying information that optimizes program operation.
- Executing the sort/merge program in a multiprogrammed environment.
- Assigning intermediate storage.

SUPPLYING INFORMATION TO THE PROGRAM

Information supplied to the sort/merge program by a user aids the first two phases of the program to produce a fast, efficient sort or merge. When information, such as data set size and record format, is not supplied to the program, the first two program phases must make assumptions, which, if incorrect, can lead to inefficiency.

Information may also be supplied to the program at system generation to help increase efficiency.

DATA SET SIZE

The most important information a user can supply to the sort/merge program is an accurate data set size, using the SIZE operand of either the SORT or MERGE control statement. The exact number of records, if known, or a close estimate, should be given.

An accurate data-set size allows the sort/merge program to make most efficient use of both main and intermediate storage.

RECORD FORMAT

When variable-length records are processed, a full description of the records in the input data set should be supplied to the program. This information allows the program to calculate the optimum buffer size for the particular data set.

The maximum length, minimum length, and modal length of a variable-length data set can be specified in a RECORD control statement.

SYSTEM GENERATION OPTIONS AND REQUIREMENTS

When the operating system for an installation is generated, a limit is placed on the amount of main storage that can be used by the sort/merge program. Several sort/merge program options are also available when the system is generated. System generation is described in the publication IBM System/360 Operating System: System Generation.

LIMITING MAIN STORAGE

At system generation, the user should specify the maximum amount of main storage to be used by the sort/merge program. If this specification is not made, the program assumes a maximum of 15,360 bytes of main storage for execution. The sort/merge program requests 12,000 bytes, leaving 3,360 for system functions.

The maximum amount of main storage that can be made available to the sort/merge program can be determined by subtracting the amount of storage required for system functions from the total amount available. The amount of main storage needed for execution of various operating system components is given in the publication IBM System/360 Operating System: Storage Estimates. The formula that may be used to calculate the maximum amount is given in the publication IBM System/360 Operating System: System Generation.

SORT/MERGE PROGRAM OPTIONS

At system generation, the sort/merge program facilities required by an installation can be requested. Selecting only the required program facilities conserves library space. The user should note that an attempt to execute an option not selected causes abnormal termination of the sort/merge program. For example, if only a variable-length record sort has been generated, fixed-length records cannot be sorted.

The following list is a summary of the sort/merge facilities that can be included when the program is generated:

- Sort or merge fixed-length records.
- Sort or merge variable-length records.
- Sort or merge records over 256 bytes long.
- Operate with all allowable intermediate storage devices.
- Sort or merge multiple control fields.
- Use sort/merge program exits.
- Print non-critical program-generated messages.

MULTIPROGRAMMING THE SORT/MERGE PROGRAM

Two factors must be considered when executing the sort/merge program with other programs:

Since the sort/merge program may use many I/O devices for input, output, and intermediate storage, it should be assigned a relatively high priority to assure that devices are assigned and used. Otherwise, I/O devices may be tied up while the sort/merge program is waiting to gain control of the central processing unit.

The sort/merge tends to be I/O limited; therefore, it is better to multiprogram the sort/merge program with programs that are process limited.

INTERMEDIATE STORAGE ASSIGNMENT

The sort/merge program operates efficiently when at least two selector channels are available for intermediate storage. A tape switching device also improves program performance.

When a small amount of intermediate storage is assigned to the program, more intermediate merge phase passes are required because the number of sequences that can be merged at one time is small.

Likewise, when a small amount of main storage is assigned to the program, more intermediate merge phase passes become necessary because the number of records

that can be sorted internally is small, and more sequences are produced. (A similar condition tends to occur when many intermediate storage data sets are assigned to the program, because the buffer space necessary to handle the data sets limits the amount of main storage that can be used for internal sorting.)

ASSIGNING DIRECT-ACCESS INTERMEDIATE STORAGE

Efficient assignment of direct-access intermediate storage may be achieved by following three rules:

- Use as many physical devices as are available. (If more than one data set is placed on one device, the data sets should be located as close together as possible to minimize arm movement.)
- Assign as few data sets as possible.
- Assign data sets of similar sizes.

Assigning more than the minimum number (three) of direct-access intermediate storage data sets decreases program efficiency, unless the data sets are assigned to different physical devices. The sort can handle a larger input data set if the maximum number (six) of direct-access data sets are assigned on six separate devices.

For example, if a 100-track area is available on each of three disk drives, the maximum number of records can be handled by defining six data sets, each 50 tracks long, two on each device. If the size of the input data set permits, efficiency can be gained by defining fewer areas. Maximum efficiency can be achieved by assigning three 100-track data sets, each on a different device.

ASSIGNING TAPE INTERMEDIATE STORAGE

The tables in Appendix B can be used as guide lines for assigning tape intermediate storage.

Each table gives the most efficient number of intermediate storage data sets for a given logical record length and input blocking factor.

The following terms and phrases are defined as they are used in this publication.

ascending sequence: A sequence of records such that the control word of each successive record collates equal to or greater than that of the preceding record.

assignment component: A sort/merge program component that establishes the basic constants needed for program execution and initializes running components for a specific application.

collating sequence: A determined sequence into which data can be sorted or merged.

control field: A group of contiguous data that forms all or part of the control word, within a logical record. These fields are used as the basis for collating that record.

control word: A group of one or more control fields within a logical record.

descending sequence: A sequence of records such that the control word of each successive record collates equal to or less than that of the preceding record.

input data set: The data set (or data sets) used as input to the sort/merge program.

intermediate storage data set: A partially sequenced data set that is either input to or output from an intermediate merge pass.

logical record: A group of contiguous characters which is processed as a unit by the sort/merge program.

major control field: The control field that is most significant in determining the collating sequence of a logical record.

merge: The process used to form one sorted sequence of logical records from two or more previously sorted sequences. Also, a program or routine that performs this function.

merge pass: The passing of all the logical records used as input to the sort/merge through a program phase which merges previously sorted sequences into fewer, longer sequences.

minor control field: A control field which is less significant than the major control field in determining the collating sequence of a logical record. Successive minor control fields are considered to be in decreasing order of significance.

modal length: The record length that occurs most frequently in a variable-length record data set used as input to the sort/merge program.

Nmax: The maximum number of logical records of a given length that can be sorted using a given amount of intermediate storage.

output data set: The sequenced data set which is produced by a sort/merge program execution.

phase: A portion of the sort/merge program that is designed to perform a specific operation on all the logical records used as input to the sort/merge program.

physical record: A group of contiguous data read or recorded by an I/O device as one unit. A physical record may contain one or more logical records.

program exit: A place in the executable code of the sort/merge program component at which a user-written routine may be given control to perform various functions.

running component: A sort/merge program component that performs a sorting or merging operation on the data set used as input to the program. Running components are initialized by assignment components.

sequence: A group of logical records that have been collated into a predesignated order.

sort: The process used to collate the logical records in a data set of unknown order. Also, a program or routine that performs this function.

sort blocking factor: The blocking factor used by the sort/merge program for intermediate storage data set.

user-written routine: A routine written by the user to perform various functions at a sort/merge program exit.

APPENDIX A: PROGRAM-GENERATED MESSAGES

The sort/merge program generates two kinds of messages -- those which result from critical error conditions and those which give information about the program's operation.

At system generation the printing of either all messages or only critical messages may be requested. The option to have messages printed on a printer or at the operator's console is also available.

The sort/merge program analyzes control statements in two stages. The first stage (Stage 1) analyzes the general format of control statements. The second stage (Stage 2) analyzes the information contained in sort/merge control statements and job control language statements. Stage 2 analyzes sort syntax and contents errors. Each statement of one type is scanned for errors and the first error detected stops the scan for that type statement. A message is printed, and the scan continues on successive statement types.

When a critical error is encountered in either stage, the message is printed and the control information analysis continues until the current stage is completed, then the program terminates. (If the error is encountered in Stage 1, termination is at the end of Stage 1; if the error is encountered in Stage 2, termination is at the end of Stage 2.) The action taken by the system upon encountering a critical control information error is described as either "Stage 1 termination" or "Stage 2 termination."

Messages are listed and explained in message code order, from IER001 to IER060. The last character of each message code signifies the severity of the message. One of two characters is used: A, when programmer action is required, or I, when the message serves an informative purpose only. The explanations of all critical messages begin with "Critical."

IER001A - COL 1 OR 1-15 NOT BLANK

Explanation: Critical. Column 1 of a sort/merge control statement is not blank, or columns 1 through 15 of a sort/merge continuation card are not blank.

System Action: Stage 1 termination.

User Response: Check control statements for nonblank characters in column 1, and continuation cards for nonblank characters in columns 1 through 15.

IER002A - EXCESS CARDS

Explanation: Critical. This message is generated for one of four reasons:

- More than 25 control cards are supplied to the sort/merge program.
- Any control statement type is duplicated.
- The control statements passed to the sort/merge program during an ATTACH, LINK, or XCTL operation contain more information than is allowed for the statements passed.
- A control statement contains more than the allowable number of cards.

System Action: Stage 1 termination. All control cards above the 25 limit, or any duplicate type statements, are ignored. If the sort was activated by an ATTACH, LINK, or XCTL, no information is processed.

User Response: Check for too many control cards, duplicate statement types, and, if the sort was activated by an ATTACH, LINK, or XCTL, more information than allowed.

IER003A - NO CONTIN CARD

Explanation: Critical. A continuation card has been indicated by a nonblank character in column 72 of the previous card and no card follows.

System Action: Stage 1 termination.

User Response: Check for a key-punching error, or an overflow of parameters into column 72.

IER004A - ILLEGAL OP DELIMITER

Explanation: Critical. A control statement ends with a comma or other incorrect delimiter.

System Action: Stage 1 termination.

User Response: Check for operands that are incorrectly split between control and continuation cards.

IER005A - STMT DEFINER ERR

Explanation: Critical. A control statement that should contain an operation definer does not contain an acceptable one.

System Action: Stage 1 termination.

User Response: Check all statements for incorrect, misplaced, or misspelled operation definers.

IER006A - OP DEFINER ERR

Explanation: Critical. The first operand of a control statement does not begin on the same statement as the operation definer.

System Action: Stage 1 termination.

User Response: Check for statements that contain only the operation definer.

IER007A - SYNTAX ERR - xxx

Explanation: Critical. A control statement contains an error in syntax. xxx is a 3-character code ("S/M," "REC," or "MOD") that indicates the control statement in which the error occurred.

System Action: Stage 2 termination.

User Response: Check the control statements for syntax errors. Some of the more common syntax errors are:

- Unbalanced parentheses.
- Missing commas.
- Embedded blanks.

IER008A - FLD OR VALUE GT 8 CHAR - xxx

Explanation: Critical. A parameter of greater than 8 characters has been specified. xxx is a 3-character code ("S/M," "REC," or "MOD") that indicates the control statement in which the error occurred.

System Action: Stage 2 termination.

User Response: Check control statements for errors that characters.

IER009A - EXCESS INFO ON CARD - xxx

Explanation: More information than necessary appears in a control statement. This could possibly be caused by a syntax error which cannot be diagnosed by the program. xxx is a 3-character code ("S/M," "REC," or "MOD") that indicates the control statement in which the error occurred.

System Action: The excess information is treated as a comment.

User Response: Check control statements.

IER010A - NO S/M CARD

Explanation: Critical. All control statements have been processed and no SORT or MERGE control statement has been found.

System Action: Stage 2 termination.

User Response: Supply a SORT or MERGE control statement.

IER011A - TOO MANY S/M KEYWORDS

Explanation: Critical. More than the maximum of 5 keyword operands defined on a SORT or MERGE control statement.

System Action: Stage 2 termination.

User Response: Check SORT or MERGE control statement for too many keyword operands.

- IER012A - NO FLD DEFINER
- Explanation: Critical. A SORT or MERGE control statement does not contain a control field definition.
- System Action: Stage 2 termination.
- User Response: Check SORT or MERGE control statement for lack of a control field definition.
- IER013A - INVALID S/M KEYWORD
- Explanation: Critical. An invalid keyword operand has been detected on a SORT or MERGE control statement.
- System Action: Stage 2 termination.
- User Response: Check SORT or MERGE control statement for invalid keyword operand.
- IER014A - DUPLICATE S/M KEYWORD
- Explanation: Critical. A keyword operand is defined twice on a SORT or MERGE control statement.
- System Action: Stage 2 termination.
- User Response: Check SORT or MERGE control statement for a multiple defined keyword operand.
- IER015A - TOO MANY PARAMETERS
- Explanation: Critical. Too many parameters are associated with a keyword operand on a SORT or MERGE control statement.
- System Action: Stage 2 termination.
- User Response: Check SORT or MERGE control statement keyword operands for too many parameters.
- IER016A - INVALID VALUES IN FLD
- Explanation: Critical. An invalid number of values is specified with a FIELDS operand on a SORT or MERGE control statement.
- System Action: Stage 2 termination.
- User Response: Check values in control field definitions on SORT or MERGE control statement.
- IER017A - ERR IN D/L VALUE
- Explanation: Critical. An invalid length or displacement value is specified in a control field definition on a SORT or MERGE control statement.
- System Action: Stage 2 termination.
- User Response: Check length and displacement values specified in SORT or MERGE control statement.
- IER018A - CTL FLD ERR
- Explanation: Critical. An error in specifying the type of control field defined in a SORT or MERGE control statement has been detected.
- System Action: Stage 2 termination.
- User Response: Check control field types on SORT or MERGE control statement for keypunching or other errors in specification.
- IER019A - SIZE/SKIPREC ERR
- Explanation: Critical. An error in specifying the SIZE operand in either a SORT or MERGE control statement, or the SKIPREC operand in a SORT control statement, has been detected.
- System Action: Stage 2 termination.
- User Response: Check SORT or MERGE control statement for invalid SIZE or SKIPREC operand.
- IER020A - INVALID REC KEYWORD
- Explanation: Critical. An invalid operand definer has been found in a RECORD control statement.

System Action: Stage 2 termination.

User Response: Check RECORD control statement for keypunching or other error in an operand definer.

IER021A - NO TYPE DEFINER

Explanation: Critical. A RECORD control statement has been found without a TYPE operand.

System Action: Stage 2 termination.

User Response: Check RECORD control statement for lack of TYPE operand.

IER022A - RCD FORMAT NOT F/V

Explanation: Critical. An error in specifying the value associated with the TYPE operand of a RECORD control statement has been detected.

System Action: Stage 2 termination.

User Response: Check the RECORD control statement for keypunching or other errors resulting in TYPE operand value being some character other than F (fixed-length records) or V (variable-length records).

IER023A - NO LENGTH DEFINER

Explanation: Critical. The LENGTH operand of a RECORD control statement is not present.

System Action: Stage 2 termination.

User Response: Check RECORD control statement for lack of LENGTH operand.

IER024A - ERR IN LENGTH VALUE

Explanation: Critical. An incorrect value is associated with the LENGTH parameter of a RECORD control statement.

System Action: Stage 2 termination.

User Response: Check RECORD control statement for incorrectly specified length value.

IER025A - RCD SIZE GT MAX

Explanation: Critical. The logical record size specified on a RECORD control statement is greater than the maximum allowed by the program.

System Action: Stage 2 termination.

User Response: Check RECORD control statement for incorrectly specified logical record length.

IER026A - L1 NOT GIVEN

Explanation: Critical. The LENGTH operand of a RECORD control statement lacks an L₁ value.

System Action: Stage 2 termination.

User Response: Check RECORD control statement for lack of L₁ value in LENGTH operand.

IER027A - CF BEYOND RCD

Explanation: Critical. A control field has been defined as beginning beyond the maximum record length specified in a RECORD control statement.

System Action: Stage 2 termination.

User Response: Check SORT or MERGE control statement for incorrectly specified control field displacement. Check RECORD control statement for incorrectly specified maximum record length (L₂).

IER028A - TOO MANY EXITS

Explanation: Critical. An attempt has been made to activate more than the maximum number of program exits allowed by the program (17).

System Action: Stage 2 termination.

User Response: Reduce the number of exits specified in the MODS control statement.

IER029A - IMPROPER EXIT

Explanation: Critical. This message is generated for one of two reasons:

- An exit other than the 17 allowed by the program has been activated on a MODS control statement.
- An exit in the sort or intermediate merge phase of the program has been activated during a merge application.

System Action: Stage 2 termination.

User Response: Check MODS control statement for keypunching error or other error resulting in specification of invalid program exit number. If a merge is being performed, check MODS control statement for exit numbers which refer only to sort or intermediate merge phase exits.

IER030A - MULTIPLY DEFINED EXIT

Explanation: Critical. A program exit has been defined twice in MODS control statement.

System Action: Stage 2 termination.

User Response: Check MODS control statement for multiply defined exits.

IER031A - INVALID MODS OP CHAR

Explanation: Critical. An invalid character in a parameter of a MODS control statement has been found.

System Action: Stage 2 termination.

User Response: Check the parameters of a MODS control statement for a length field containing something other than numeric data, a source or name field beginning with something other than an alphabetic character, or a source or length field containing a special character.

IER032A - EXIT E61 REQUIRED

Explanation: Critical. A SORT or MERGE control statement defines a control field calling for user-written routine (this is done by specifying E for the control field sequence indicator), and exit E61 is not activated by a MODS control statement.

System Action: Stage 2 termination.

User Response: Check MODS and SORT or MERGE control statements for keypunching errors resulting in the specification of an E type parameter on the SORT or MERGE control statement and no E61 on the MODS control statement.

IER033A - CF SEQ INDIC E REQUIRED

Explanation: Critical. Program exit E61 is activated and no control fields have been specified for user modification (E control field sequence parameter missing on SORT or MERGE control statement).

System Action: Stage 2 termination.

User Response: Check MODS, and SORT or MERGE control statements for keypunching errors resulting in the activation of exit E61 and the lack of an E type parameter on the SORT or MERGE control statement.

IER034A - PARAM ERR FOR MODS

Explanation: Critical. An incorrect number of parameters follow an operand definer on a MODS control statement.

System Action: Stage 2 termination.

User Response: Check MODS control statement for parameter specification error.

IER035A - DUPLICATE MOD RTN IN PHASE

Explanation: Critical. A user-written routine of the same name appears at more than one exit in the same sort/merge program phase.

System Action: Stage 2 termination.

User Response: Check MODS control statement for duplicate routine names assigned to exits within the same program phase.

IER036I - B = xxxxxx

Explanation: This message communicates the blocking used by the sort for intermediate storage records. For fixed-length records, the blocking factor is substituted for xxxxxx in the message text. For variable-length records, the size of the buffer area is substituted for xxxxxx in the message text.

System Action: None.

User Response: None.

IER037I - G = xxxxxx

Explanation: This message communicates the number of logical records that can fit into the program's record storage area at one time during a sort. The number of records is substituted for the xxxxxx in the text of the message as shown above.

System Action: None.

User Response: None.

IER038I - NMAX = xxxxxx

Explanation: This message communicates an estimate of the maximum number of records that can be sorted using the intermediate storage and main storage available to the sort for the current application. The number replaces the xxxxxx in the text of the message as shown above.

System Action: None.

User Response: None.

IER039A - INSUFFICIENT CORE

Explanation: Critical. There is not enough main storage available to the sort to allow program execution.

System Action: The program terminates.

User Response: The sort requests main storage from 12,000 bytes to the maximum amount specified by the user at system generation. For any given execution, the minimum amount required depends upon the number of intermediate storage data sets, the logical record length, and the physical block length. Reducing the number of intermediate storage data sets reduces the amount of main storage required for buffer areas. If the number of intermediate storage data sets is at the minimum allowed for the application, reducing the physical block length may also reduce the amount of main storage needed for buffer areas. If such corrective action is not possible, the user-specified maximum must be increased.

IER040A - INSUFFICIENT WORK UNITS

Explanation: Critical. There is not enough intermediate storage available to the sort to allow program execution.

System Action: Stage 2 termination.

User Response: Check DD statements for errors. Check to see if less than three intermediate storage units were assigned. Assign more intermediate storage to sort.

IER041A - N GT NMAX

Explanation: Critical. The number of records specified in the SIZE operand of a SORT control statement is greater than the maximum sort capacity calculated by the program.

System Action: The program terminates.

User Response: Check SIZE operand of SORT control statement for error. If SIZE operand is correct, check DD statements for an error in assigning intermediate storage. If DD statements are correct, assign more intermediate storage to the program and rerun.

IER042A - MIXED UNITS ASGN

Explanation: Critical. Different types of intermediate storage devices, or an invalid combination of input, work, and output devices have been assigned to the sort.

System Action: Stage 2 termination.

User Response: Assign intermediate storage so that all units are of the same type, i.e., all are either direct-access units or tape units. Only when 7-track tape is used for the input unit, may it be used for the intermediate storage units and the output units.

Option	E18	E19	E28	E29	E38	E39
SYNAD	x	x	x	x	x	x
EXLST	x	x	x	x	x	x
EROPT	x		x		x	
EODAD	x					

IER043A - DATA SET ATTRIBUTE NOT SPECIFIED

Explanation: Critical. DD statements that define the input and output data sets conflict with each other or lack any of the following information:

- Input or output blocking factor (BLKSIZE).
- Record format (RECFM).
- Logical record length (LRECL).

System Action: Stage 2 termination.

User Response: Supply needed information and rerun job.

IER044I - EXIT Exx ILLEGAL OPTION

Explanation: Critical. An invalid data control block field specification was passed to the sort/merge program at exit E18, E19, E28, E29, E38, or E39. The xx value in the above message text is replaced by the number of the exit at which the error occurred.

System Action: The invalid option is ignored.

User Response: Check the parameter list passed by the user-written routine against the following table before rerunning the application. An x indicates which options are allowed with the exit in question.

IER045I - END SORT PH

Explanation: The program's sort phase has been successfully executed.

System Action: None.

User Response: None.

IER046A - SORT CAPACITY EXCEEDED

Explanation: Critical. The sort has used up all available intermediate storage and the input data set has not been exhausted.

System Action: The program terminates.

User Response: Rerun application with more intermediate storage.

IER047A - RCD CNT OFF, IN xxxxxx, OUT xxxxxx

Explanation: Critical. A discrepancy in the number of records entering and leaving a program phase has been found. This message can appear in phase 1 or phase 2. In phase 3 the message is RCD CNT OFF and record IER054I contains the count. The numbers replace the values specified as xxxxxx in the text of the message as shown above.

System Action: The program terminates.

User Response: None.

IER048I - NMAX REACHED

Explanation: Critical. The sort has reached the calculated sort capacity while processing the input data set, and exit E16 is specified.

System Action: The user-written routine at exit E16 is entered. (See the section "Program Modification," for further information.)

User Response: None. (The number of records sorted is equal to the Nmax calculated by the sort. See sort message IER038I.)

IER049I - SKIP MERGE PH

Explanation: It is not necessary to execute the intermediate merge phase to complete a sorting application.

System Action: Control is passed directly from the sort phase to the final merge phase.

User Response: None.

IER050I - END MERGE PH

Explanation: The program's intermediate merge phase has been successfully executed.

System Action: None.

User Response: None.

IER051A - UNENDING MERGE

Explanation: Critical. There is not enough intermediate storage assigned to successfully complete the program's intermediate merge phase.

System Action: The program terminates.

User Response: Rerun the job after assigning more intermediate storage to the sort/merge program.

IER052I - EOJ

Explanation: The program's final merge phase has been successfully executed.

System Action: Return is made to the operating system for a normal end of task.

User Response: None.

IER053A - OUT OF SEQ

Explanation: Critical. The current record leaving the final merge phase is not in collating

sequence with the last record blocked for output.

System Action: The program terminates.

User Response: If a user-written routine was modifying the records leaving the final merge phase at the time this message was generated, check the routine thoroughly. If not, rerun the job.

IER054I - RCD IN xxxxxx, OUT xxxxxx

Explanation: This message lists the number of records accepted by the sort as input and the number of records in the output data set. The numbers replace the xxxxxx in the text of the message as shown above. In a merging application, the RECORDS IN field is blank unless an actual data set size was specified in the SIZE parameter of the MERGE control card. When an actual size is specified, it is inserted in the IN field of the message.

System Action: None.

User Response: None.

IER055I - INSERT xxxxxx, DELETE xxxxxx

Explanation: The number of records inserted and/or deleted during a sort/merge program execution replaces the values shown as xxxxxx in the above format.

System Action: None.

User Response: None.

IER056A - SORTIN/SORTOUT NOT DEFINED

Explanation: Critical. SORTIN and/or SORTOUT do not appear as ddnames on DD statements supplied to the sort/merge program. This message can also appear when DD statements are supplied for a merge, and a SORT control statement is given instead of a MERGE statement.

System Action: The program terminates.

User Response: Check DD statements for error.

IER057A - SORTIN NOT SORTWK01

Explanation: Critical. An intermediate storage data set

other than SORTWK01 was assigned to the same I/O device as SORTIN.

System Action: The program terminates.

User Response: Check DD statements for error.

IER058A - SORTOUT A WORK UNIT

Explanation: Critical. SORTOUT was specified on the same I/O unit as an intermediate storage data set.

System Action: The program terminates.

User Response: Check DD statements for error.

IER059A - RCD LNG INVALID FOR DEVICE

Explanation: Critical. The logical record length in the input

data set(s) is too large for the assigned intermediate storage devices. (For example, a logical record which can not be contained on one disk track is too large.)

System Action: The program terminates.

User Response: Assign a different type of intermediate storage device.

IER060A - DSCB NOT DEFINED

Explanation: Critical. A DD statement used to define a direct-access intermediate storage data set is incorrect.

System Action: The program terminates.

User Response: Check DD statements for error.

APPENDIX B: TIMING ESTIMATES

The following tables contain estimated total execution times of the sort/merge program for more than 5,000 sorting applications. The tables can be used as a basis for estimating execution times for other applications. The times shown are total execution times, including the required control program executions, but excluding the rewind of final output on tape.

The times shown are for fixed-length record sorts. Times for variable-length record sorts can best be approximated from the table values by using the modal length as the data record length. If modal length is not known, average length can be used.

The user should note that the timings are based on estimates of general operating system functions, and there are many possible combinations of functions. Variations in the control program, inclusion of additional system functions, user service routines and similar options cause empirical values obtained in timing sort applications to vary; they may not necessarily be identical to the values shown in the tables. Simple extrapolation to obtain timing values for I/O configurations not shown also gives values that should not be considered absolute.

The times shown reflect the following assumptions:

1. The logical records in the input data set are in random order. For an otherwise identical input data set in better than random order, sorting time may be less than that shown. If the input data is less than random order (that is, has some degree of sequencing inversely related to the desired output sequencing), sorting time may be greater.
2. Logical records are ordered into ascending and descending sequence on the basis of a single 10-byte character control field. On System/360 Models 30, 40, and 50, and on single data channel Models 65 and 75, sorting times may be greater than the table value if:
 - a. a longer control field is used.
 - b. a fixed-point, packed decimal, zoned decimal, binary (if not on a byte boundary), or floating-point control field is used.
 - c. multiple control fields are used.
3. No user routines have been added to the program. For sorting applications where user routines are to be executed, their execution time, including linkage time, should be added to the times shown.
4. In two-channel, no-tape-switch cases, tape units are evenly distributed between the two channels. For sorting applications where tape units are not equally distributed between the channels, sorting times will almost certainly be greater than the times shown, through partial loss of I/O overlap.
5. Where direct-access devices are specified, at least three logical areas are required for intermediate storage. If three or more physical units are used, it is assumed that the logical areas will be assigned to different units. It is also assumed that all areas are equal in size. If storage space is unevenly distributed, sorting times may be greater than those shown. Moreover, theoretical sequence distribution is unlikely. For this reason, actual times may be greater than estimated.
6. The 2400 Series Magnetic Tape Units are 9-track units. Sorting times with 7-track units may be slightly greater than times shown.
7. In tape-switch cases, all intermediate tape units are accessed through the switch.
8. It is assumed that the operating system with which the sort is being executed has, for the Model 30, an 18K linkage editor and an 18K scheduler; for Models 40, 50, 65, and 75, an 18K linkage editor and a 44K scheduler are assumed.

If the 44K linkage editor is used for Models 40, 50, 65, and 75, there will be a reduction in the times shown for these central processing units. The reduction will vary, up to a maximum of 60 seconds for the Model 40.
9. System residence is an IBM 2311 Disk Storage Drive.
10. The sort is not being multiprogrammed; no other task is using the CPU or input/output devices.

11. The minimum number of tape units used is five -- one input, three intermediate storage, and one output. If the input or output data sets are specified on the same units as intermediate storage data sets, sorting times will be greater than those in the table.
12. Input/output operations are error free, and no checkpoints are taken.
13. The maximum data set size in the tables is a theoretical maximum. The actual maximum data set size for a particular application may vary from this value, especially if an accurate data set size is not given on the SORT control statement.
14. The sort blocking shown for each line is the largest sort blocking calculated for any of the cases in the line.

The tables are arranged according to the following hierarchy:

1. System/360 Model - Times for Models 30, 40, 50, 65, and 75 are provided.
2. Main storage used - Times are shown for representative amounts of main

storage available for the sort/merge program throughout its execution.

3. Record Length - Times are shown for logical record lengths of 20, 80, 200, and 500 bytes.
4. No. CH - Times are shown for one and two selector channels. SW refers to the use of an IBM 2816 Switching Unit.
5. Work unit - Times are given for various I/O devices. The same device type is used for input, output, and intermediate storage in each case considered.
6. No. Units - Times for various numbers and types of intermediate storage devices are given.
7. Data set size - Times for up to 12 data set sizes (in thousands of records) are given for each case. In some cases, certain data set sizes may exceed the maximum possible data set size. CE is used to indicate sort capacity has been exceeded.
8. Max Size - The maximum data set size that can be sorted for the given machine configuration is shown.

The following tables contain estimated total execution times of the sort/merge program for more than 5,000 sorting applications. The tables can be used as a basis for estimating execution times for other applications. The times shown are total execution times, including the required control program executions, but excluding the rewind of final output on tape.

The times shown are for fixed-length record sorts. Times for variable-length record sorts can best be approximated from the table values by using the modal length as the data record length. If modal length is not known, average length can be used.

The user should note that the timings are based on estimates of general operating system functions, and there are many possible combinations of functions. Variations in the control program, inclusion of additional system functions, user service routines and similar options cause empirical values obtained in timing sort applications to vary; they may not necessarily be identical to the values shown in the tables. Simple extrapolation to obtain timing values for I/O configurations not shown also gives values that should not be considered absolute.

The times shown reflect the following assumptions:

1. The logical records in the input data set are in random order. For an otherwise identical input data set in better than random order, sorting time may be less than that shown. If the input data is less than random order (that is, has some degree of sequencing inversely related to the desired output sequencing), sorting time may be greater.
2. Logical records are ordered into ascending and descending sequence on the basis of a single 10-byte character control field. On System/360 Models 30, 40, and 50, and on single data channel Models 65 and 75, sorting times may be greater than the table value if
 - a. a longer control field is used.
 - b. a fixed-point, packed decimal, zoned decimal, binary (if not on a byte boundary), or floating-point control field is used.
3. No user routines have been added to the program. For sorting applications where user routines are to be executed, their execution time, including linkage time, should be added to the times shown.
4. In two-channel, no-tape-switch cases, tape units are evenly distributed between the two channels. For sorting applications where tape units are not equally distributed between the channels, sorting times will almost certainly be greater than the times shown, through partial loss of I/O overlap.
5. Where direct-access devices are specified, at least three logical areas are required for intermediate storage. If three or more physical units are used, it is assumed that the logical areas will be assigned to different units. It is also assumed that all areas are equal in size. If storage space is unevenly distributed, sorting times may be greater than those shown. Moreover, theoretical sequence distribution is unlikely. For this reason, actual times may be greater than estimated.
6. The 2400 Series Magnetic Tape Units are 9-track units. Sorting times with 7-track units may be slightly greater than times shown.
7. In tape-switch cases, all intermediate tape units are accessed through the switch.
8. For Model 30 cases, it is assumed that the operating system with which the sort is being executed has an 18K linkage editor and an 18K scheduler. In all other cases, it is assumed that the 44K linkage editor and the 44K scheduler are used.
9. System residence is an IBM 2311 Disk Storage Drive.
10. The sort is not being multiprogrammed; no other task is using the CPU or input/output devices.
- c. multiple control fields are used.

11. The minimum number of tape units used is five -- one input, three intermediate storage, and one output. If the input or output data sets are specified on the same units as intermediate storage data sets, sorting times will be greater than those in the table.
12. Input/output operations are error free, and no checkpoints are taken.
13. The maximum data set size in the tables is a theoretical maximum. The actual maximum data set size for a particular application may vary from this value, especially if an accurate data set size is not given on the SORT control statement.
14. The sort blocking shown for each line is the largest sort blocking calculated for any of the cases in the line.

The tables are arranged according to the following hierarchy:

1. System/360 Model - Times for Models 30, 40, 50, 65, and 75 are provided.
2. Main storage used - Times are shown for representative amounts of main

storage available for the sort/merge program throughout its execution.

3. Record Length - Times are shown for logical record lengths of 20, 80, 200, and 500 bytes.
4. No. CH - Times are shown for one and two selector channels. SW refers to the use of an IBM 2816 Switching Unit.
5. Work unit - Times are given for various I/O devices. The same device type is used for input, output, and intermediate storage in each case considered.
6. No. Units - Times for various numbers and types of intermediate storage devices are given.
7. Data set size - Times for up to 12 data set sizes (in thousands of records) are given for each case. In some cases, certain data set sizes may exceed the maximum possible data set size. CE is used to indicate sort capacity has been exceeded.
8. Max Size - The maximum data set size that can be sorted for the given machine configuration is shown.

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 18K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2311	156KC	1	1	NO	2311	125	6.5	7.2	8.6	12	15	25	33	46	CE	CE	CE	CE	182K	181
2311	156KC	2	1	NO	2311	125	6.5	7.1	8.3	11	13	22	29	40	81	120	CE	CE	364K	181
2311	156KC	3	1	NO	2311	125	6.5	7.1	8.3	11	13	22	29	40	80	120	170	210	547K	181
2400-1	30KC	3	1	NO	2400-1	150	6.5	7.3	8.7	12	14	24	34	44	90	140	190	240	964K	134
2400-1	30KC	5	1	NO	2400-1	100	6.4	7.0	7.9	10	12	18	24	31	60	93	130	160	1745K	79
2400-1	30KC	8	1	NO	2400-1	100	6.5	6.9	7.8	9.6	11	17	22	30	57	82	120	150	2425K	59
2400-2	60KC	3	1	NO	2400-2	150	6.5	7.0	8.1	11	12	20	28	36	72	110	150	190	964K	134
2400-2	60KC	5	1	NO	2400-2	100	6.4	6.8	7.5	9.1	11	15	20	26	48	75	97	130	1745K	79
2400-2	60KC	8	1	NO	2400-2	100	6.4	6.8	7.5	8.9	10	15	19	25	46	66	93	120	2425K	59
2400-3	90KC	3	1	NO	2400-3	150	6.4	6.9	8.0	11	12	19	26	33	66	110	140	180	964K	134
2400-3	90KC	5	1	NO	2400-3	100	6.4	6.8	7.4	8.9	9.8	15	19	24	45	69	89	120	1745K	79
2400-3	90KC	8	1	NO	2400-3	100	6.4	6.7	7.4	8.7	9.7	14	18	23	43	61	85	110	2425K	59
2311	156KC	2	2	NO	2311	150	6.5	7.1	8.3	11	13	22	29	40	81	120	CE	CE	355K	181
2311	156KC	3	2	NO	2311	150	6.5	7.1	8.3	11	13	22	29	40	80	120	170	210	533K	181
2400-1	30KC	3	2	NO	2400-1	80	6.5	7.1	8.4	12	13	21	30	39	78	120	170	210	877K	81
2400-1	30KC	5	2	NO	2400-1	40	6.5	7.1	8.0	11	12	18	26	32	64	92	140	170	1681K	68
2400-1	30KC	8	2	NO	2400-1	40	6.5	7.0	7.9	9.8	11	17	22	27	54	77	100	130	2349K	53
2400-2	60KC	3	2	NO	2400-2	80	6.5	7.0	8.0	11	12	19	26	34	68	110	150	180	877K	81
2400-2	60KC	5	2	NO	2400-2	40	6.4	7.0	7.8	9.8	12	17	24	29	57	83	120	150	1681K	68
2400-2	60KC	8	2	NO	2400-2	40	6.4	6.9	7.6	9.3	11	16	20	24	48	68	89	110	2349K	53
2400-3	90KC	3	2	NO	2400-3	80	6.4	6.9	7.9	11	12	18	25	33	64	97	140	170	877K	81
2400-3	90KC	5	2	NO	2400-3	40	6.4	7.0	7.7	9.7	12	16	23	28	55	79	120	150	1681K	68
2400-3	90KC	8	2	NO	2400-3	40	6.4	6.9	7.6	9.2	9.9	15	19	24	46	66	85	110	2349K	53
2400-1	30KC	3	2	YES	2400-1	80	6.5	7.1	8.2	11	13	20	28	37	72	110	160	190	877K	81
2400-1	30KC	5	2	YES	2400-1	40	6.4	6.9	7.7	9.5	11	17	21	28	53	77	110	140	1583K	55
2400-1	30KC	8	2	YES	2400-1	40	6.5	6.9	7.7	9.4	11	15	21	26	50	76	110	140	1975K	33
2400-2	60KC	3	2	YES	2400-2	80	6.4	7.0	8.0	11	12	19	26	33	65	99	140	180	877K	81
2400-2	60KC	5	2	YES	2400-2	40	6.4	6.8	7.5	9.0	9.9	15	20	26	48	68	95	120	1583K	55
2400-2	60KC	8	2	YES	2400-2	40	6.4	6.8	7.5	9.0	9.6	14	19	24	44	67	89	120	1975K	33
2400-3	90KC	3	2	YES	2400-3	80	6.4	6.9	7.9	11	12	18	25	32	63	95	140	170	877K	81
2400-3	90KC	5	2	YES	2400-3	40	6.4	6.8	7.4	8.9	9.7	15	19	25	46	65	92	120	1583K	55
2400-3	90KC	8	2	YES	2400-3	40	6.4	6.8	7.4	8.8	9.4	14	19	23	42	64	85	120	1975K	33

SYSTEM/360 MODEL 30

MAIN STORAGE USED 18K

RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2311	156KC	1	1	NO	2311	30	7.4	9.6	14	24	29	CE	CE	CE	CE	CE	CE	47K	45	
2311	156KC	2	1	NO	2311	30	7.1	8.8	13	20	23	44	69	CE	CE	CE	CE	94K	45	
2311	156KC	3	1	NO	2311	30	7.1	8.7	12	20	23	43	67	87	CE	CE	CE	142K	45	
2400-1	30KC	3	1	NO	2400-1	35	7.5	11	16	27	33	66	100	140	290	CE	CE	234K	28	
2400-1	30KC	5	1	NO	2400-1	25	7.2	8.8	12	19	24	45	64	89	190	360	480	CE	465K	27
2400-1	30KC	8	1	NO	2400-1	25	7.2	8.7	12	19	22	40	61	79	190	270	360	450	670K	22
2400-2	60KC	3	1	NO	2400-2	35	7.0	8.4	12	18	21	39	58	78	170	CE	CE	234K	28	
2400-2	60KC	5	1	NO	2400-2	25	6.8	7.7	9.5	14	17	28	40	54	110	210	270	CE	465K	27
2400-2	60KC	8	1	NO	2400-2	25	6.8	7.7	9.5	14	16	26	39	49	110	160	210	260	670K	22
2400-3	90KC	3	1	NO	2400-3	35	6.8	8.1	11	16	19	33	49	65	140	CE	CE	234K	28	
2400-3	90KC	5	1	NO	2400-3	25	6.7	7.5	9.0	13	15	25	34	46	90	170	230	CE	465K	27
2400-3	90KC	8	1	NO	2400-3	25	6.8	7.5	8.9	13	14	23	33	42	89	130	180	220	670K	22
2311	156KC	2	2	NO	2311	40	7.1	8.8	12	20	25	48	68	CE	CE	CE	CE	91K	45	
2311	156KC	3	2	NO	2311	40	7.1	8.7	12	19	25	47	67	96	CE	CE	CE	137K	45	
2400-1	30KC	3	2	NO	2400-1	20	7.3	9.5	14	23	29	55	84	120	240	CE	CE	225K	23	
2400-1	30KC	5	2	NO	2400-1	15	7.1	8.7	12	20	23	43	61	86	190	280	370	CE	420K	17
2400-1	30KC	8	2	NO	2400-1	15	7.0	8.5	11	17	19	36	51	66	150	210	280	350	583K	13
2400-2	60KC	3	2	NO	2400-2	20	6.8	8.1	11	16	20	34	51	69	140	CE	CE	225K	23	
2400-2	60KC	5	2	NO	2400-2	15	6.8	7.9	9.9	15	17	29	40	56	120	170	230	CE	420K	17
2400-2	60KC	8	2	NO	2400-2	15	6.8	7.7	9.3	13	15	26	35	44	92	140	180	220	583K	13
2400-3	90KC	3	2	NO	2400-3	20	6.8	7.9	11	15	18	31	45	61	130	CE	CE	CE	225K	23
2400-3	90KC	5	2	NO	2400-3	15	6.8	7.7	9.5	14	16	27	37	51	110	160	210	CE	420K	17
2400-3	90KC	8	2	NO	2400-3	15	6.7	7.6	9.0	13	14	24	32	40	84	130	170	200	583K	13
2400-1	30KC	3	2	YES	2400-1	20	7.1	9.0	13	21	26	49	74	100	210	CE	CE	CE	225K	23
2400-1	30KC	5	2	YES	2400-1	15	7.0	8.2	11	17	20	36	51	71	190	280	CE	CE	399K	17
2400-1	30KC	8	2	YES	2400-1	15	7.0	8.3	11	17	19	34	52	68	150	210	280	CE	499K	13
2400-2	60KC	3	2	YES	2400-2	20	6.8	7.9	11	15	18	31	46	62	130	CE	CE	CE	225K	23
2400-2	60KC	5	2	YES	2400-2	15	6.7	7.5	9.1	13	15	25	35	47	120	170	CE	CE	399K	17
2400-2	60KC	8	2	YES	2400-2	15	6.8	7.6	9.2	13	15	25	36	46	92	140	180	CE	499K	13
2400-3	90KC	3	2	YES	2400-3	20	6.7	7.7	9.8	14	17	29	42	57	120	CE	CE	CE	225K	23
2400-3	90KC	5	2	YES	2400-3	15	6.7	7.4	8.8	12	14	24	32	43	110	160	CE	CE	399K	17
2400-3	90KC	8	2	YES	2400-3	15	6.8	7.5	8.9	13	14	23	33	42	84	130	170	CE	499K	13

SYSTEM/360 MODEL 3C
 MAIN STORAGE USED 18K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-CUT BLOCK	2	TIME IN MINUTES					FOR DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK	
								5	10	20	25	50	75	100	200	300	400			500
2311	156KC	1	1	NO	2311	15	9.2	15	26	CE	CE	CE	CE	CE	CE	CE	CE	CE	18K	18
2311	156KC	2	1	NO	2311	15	8.4	13	20	37	50	CE	CE	CE	CE	CE	CE	CE	37K	18
2311	156KC	3	1	NO	2311	15	8.3	12	20	36	49	110	CE	CE	CE	CE	CE	CE	55K	18
2400-1	30KC	3	1	NO	2400-1	20	11	19	34	68	86	180	280	CE	CE	CE	CE	CE	89K	9
2400-1	30KC	5	1	NO	2400-1	15	8.8	14	24	44	53	110	170	300	CE	CE	CE	CE	186K	11
2400-1	30KC	8	1	NO	2400-1	15	8.7	14	23	43	52	110	170	230	480	CE	CE	CE	243K	6
2400-2	60KC	3	1	NO	2400-2	20	8.4	13	21	38	47	94	150	CE	CE	CE	CE	CE	89K	9
2400-2	60KC	5	1	NO	2400-2	15	7.6	11	15	26	30	59	90	160	CE	CE	CE	CE	186K	11
2400-2	60KC	8	1	NO	2400-2	15	7.5	11	15	25	30	58	90	120	250	CE	CE	CE	243K	6
2400-3	90KC	3	1	NO	2400-3	20	7.8	11	17	28	35	67	110	CE	CE	CE	CE	CE	89K	9
2400-3	90KC	5	1	NO	2400-3	15	7.2	9.1	13	20	24	45	67	120	CE	CE	CE	CE	186K	11
2400-3	90KC	8	1	NO	2400-3	15	7.3	9.3	13	21	25	46	71	88	190	CE	CE	CE	243K	6
2311	156KC	2	2	NO	2311	15	8.4	13	20	37	50	CE	CE	CE	CE	CE	CE	CE	37K	18
2311	156KC	3	2	NO	2311	15	8.3	12	20	36	49	110	CE	CE	CE	CE	CE	CE	55K	18
2400-1	30KC	3	2	NO	2400-1	10	9.5	17	29	55	70	150	230	CE	CE	CE	CE	CE	89K	9
2400-1	30KC	5	2	NO	2400-1	10	9.2	14	24	43	52	110	180	230	CE	CE	CE	CE	162K	6
2400-1	30KC	8	2	NO	2400-1	10	8.4	13	19	36	43	85	140	180	370	CE	CE	CE	213K	4
2400-2	60KC	3	2	NO	2400-2	10	7.9	12	18	32	39	78	120	CE	CE	CE	CE	CE	89K	9
2400-2	60KC	5	2	NO	2400-2	10	7.9	11	16	26	31	60	94	130	CE	CE	CE	CE	162K	6
2400-2	60KC	8	2	NO	2400-2	10	7.5	9.7	13	22	26	48	73	95	200	CE	CE	CE	213K	4
2400-3	90KC	3	2	NO	2400-3	10	7.5	11	15	25	31	59	87	CE	CE	CE	CE	CE	89K	9
2400-3	90KC	5	2	NO	2400-3	10	7.6	9.5	14	22	26	49	76	99	CE	CE	CE	CE	162K	6
2400-3	90KC	8	2	NO	2400-3	10	7.3	9.1	12	19	23	41	61	79	170	CE	CE	CE	213K	4
2400-1	30KC	3	2	YES	2400-1	10	9.1	15	26	49	61	130	200	CE	CE	CE	CE	CE	89K	9
2400-1	30KC	5	2	YES	2400-1	10	8.2	13	20	36	43	86	140	230	CE	CE	CE	CE	162K	6
2400-1	30KC	8	2	YES	2400-1	10	8.3	13	21	37	45	90	140	180	CE	CE	CE	CE	199K	5
2400-2	60KC	3	2	YES	2400-2	10	7.7	11	17	29	35	69	110	CE	CE	CE	CE	CE	89K	9
2400-2	60KC	5	2	YES	2400-2	10	7.3	9.5	14	22	26	48	74	130	CE	CE	CE	CE	162K	6
2400-2	60KC	8	2	YES	2400-2	10	7.4	9.6	14	23	27	51	73	95	CE	CE	CE	CE	199K	5
2400-3	90KC	3	2	YES	2400-3	10	7.4	9.7	14	23	28	53	78	CE	CE	CE	CE	CE	89K	9
2400-3	90KC	5	2	YES	2400-3	10	7.1	8.9	12	19	22	41	62	99	CE	CE	CE	CE	162K	6
2400-3	90KC	8	2	YES	2400-3	10	7.2	9.2	13	21	24	45	61	79	CE	CE	CE	CE	199K	5

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 18K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK	
								5	10	20	25	50	75	100	200	300	400			500
2311	156KC	1	1	NO	2311	6	15	33	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	7K	7
2311	156KC	2	1	NO	2311	6	12	25	47	CE	CE	CE	CE	CE	CE	CE	CE	CE	14K	7
2311	156KC	3	1	NO	2311	6	12	24	46	95	CE	CE	CE	CE	CE	CE	CE	CE	21K	7
2400-1	30KC	3	1	NO	2400-1	10	20	46	90	200	250	CE	CE	CE	CE	CE	CE	CE	36K	4
2400-1	30KC	5	1	NO	2400-1	10	15	30	58	120	150	410	CE	CE	CE	CE	CE	CE	73K	4
2400-1	30KC	8	1	NO	2400-1	10	14	29	56	120	150	310	480	CE	CE	CE	CE	CE	99K	3
2400-2	60KC	3	1	NO	2400-2	10	13	26	49	110	130	CE	CE	CE	CE	CE	CE	CE	36K	4
2400-2	60KC	5	1	NO	2400-2	10	11	19	33	63	77	210	CE	CE	CE	CE	CE	CE	73K	4
2400-2	60KC	8	1	NO	2400-2	10	11	18	32	61	75	170	250	CE	CE	CE	CE	CE	99K	3
2400-3	90KC	3	1	NO	2400-3	10	11	20	35	71	87	CE	CE	CE	CE	CE	CE	CE	36K	4
2400-3	90KC	5	1	NO	2400-3	10	9.3	15	24	45	55	150	CE	CE	CE	CE	CE	CE	73K	4
2400-3	90KC	8	1	NO	2400-3	10	9.0	15	24	45	54	120	170	CE	CE	CE	CE	CE	99K	3
2311	156KC	2	2	NO	2311	6	12	25	47	CE	CE	CE	CE	CE	CE	CE	CE	CE	14K	7
2311	156KC	3	2	NO	2311	6	12	24	46	95	CE	CE	CE	CE	CE	CE	CE	CE	21K	7
2400-1	30KC	3	2	NO	2400-1	10	20	46	90	200	250	CE	CE	CE	CE	CE	CE	CE	36K	4
2400-1	30KC	5	2	NO	2400-1	10	15	30	58	120	150	410	CE	CE	CE	CE	CE	CE	73K	4
2400-1	30KC	5	2	NO	2400-1	10	18	36	73	160	190	410	CE	CE	CE	CE	CE	CE	73K	4
2400-1	30KC	8	2	NO	2400-1	10	15	31	54	120	150	310	480	630	CE	CE	CE	CE	103K	3
2400-2	60KC	3	2	NO	2400-2	10	13	26	49	110	130	CE	CE	CE	CE	CE	CE	CE	36K	4
2400-2	60KC	5	2	NO	2400-2	10	12	22	40	81	99	210	CE	CE	CE	CE	CE	CE	73K	4
2400-2	60KC	8	2	NO	2400-2	10	11	19	31	62	76	170	250	330	CE	CE	CE	CE	103K	3
2400-3	90KC	3	2	NO	2400-3	10	11	20	35	71	87	CE	CE	CE	CE	CE	CE	CE	36K	4
2400-3	90KC	5	2	NO	2400-3	10	11	17	29	57	69	150	CE	CE	CE	CE	CE	CE	73K	4
2400-3	90KC	8	2	NO	2400-3	10	9.2	15	23	45	54	120	170	220	CE	CE	CE	CE	103K	3
2400-1	30KC	3	2	YES	2400-1	10	20	46	90	200	250	CE	CE	CE	CE	CE	CE	CE	36K	4
2400-1	30KC	5	2	YES	2400-1	10	15	30	58	120	150	410	CE	CE	CE	CE	CE	CE	73K	4
2400-1	30KC	8	2	YES	2400-1	10	14	29	56	120	150	310	480	CE	CE	CE	CE	CE	99K	3
2400-2	60KC	3	2	YES	2400-2	10	13	26	49	110	130	CE	CE	CE	CE	CE	CE	CE	36K	4
2400-2	60KC	5	2	YES	2400-2	10	11	19	33	63	77	210	CE	CE	CE	CE	CE	CE	73K	4
2400-2	60KC	8	2	YES	2400-2	10	11	18	32	61	75	170	250	CE	CE	CE	CE	CE	99K	3
2400-3	90KC	3	2	YES	2400-3	10	11	20	35	71	87	CE	CE	CE	CE	CE	CE	CE	36K	4
2400-3	90KC	5	2	YES	2400-3	10	9.3	15	24	45	55	150	CE	CE	CE	CE	CE	CE	73K	4
2400-3	90KC	8	2	YES	2400-3	10	9.0	15	24	45	54	120	170	CE	CE	CE	CE	CE	99K	3

SYSTEM/360 MODEL 30

MAIN STORAGE USED 44K

RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES				FOR	DATA	SET	SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
								5	10	20	25				75	100	200	300	400		
2311	156K	1	1	NO	2311	125	6.3	6.5	6.8	8.3	8.8	12	15	17	35	CE	CE	CE	219K	181	
2311	156K	2	1	NO	2311	125	6.3	6.5	6.8	8.2	8.6	12	14	17	33	47	60	CE	439K	181	
2311	156K	3	1	NO	2311	125	6.3	6.5	6.8	8.1	8.5	11	14	16	32	45	58	72	659K	181	
2400-1	30KC	3	1	NO	2400-1	350	6.4	6.8	7.8	10	12	18	26	34	68	110	15C	190	1033K	239	
2400-1	30KC	5	1	NO	2400-1	350	6.4	6.7	7.3	8.9	9.9	15	20	25	48	74	97	130	2023K	193	
2400-1	30KC	8	1	NO	2400-1	250	6.5	6.7	7.2	8.5	9.6	14	18	24	44	63	89	110	3051K	203	
2400-2	60KC	3	1	NO	2400-2	350	6.3	6.7	7.5	9.2	11	16	22	29	55	84	120	150	1033K	239	
2400-2	60KC	5	1	NO	2400-2	350	6.4	6.6	7.1	8.4	9.2	13	17	22	40	61	79	98	2023K	193	
2400-2	60KC	8	1	NO	2400-2	250	6.4	6.6	7.0	8.1	8.9	13	16	20	37	52	73	90	3051K	203	
2400-3	90KC	3	1	NO	2400-3	350	6.3	6.6	7.4	8.9	9.9	15	21	27	51	78	110	140	1033K	239	
2400-3	90KC	5	1	NO	2400-3	350	6.4	6.5	7.0	8.2	8.9	13	16	20	37	56	73	91	2023K	193	
2400-3	90KC	8	1	NO	2400-3	250	6.4	6.6	6.9	7.9	8.7	12	15	19	34	48	68	83	3051K	203	
2311	156K	2	2	NO	2311	125	6.3	6.5	7.1	8.0	8.4	12	15	18	34	47	60	CE	437K	181	
2311	156K	3	2	NO	2311	125	6.3	6.4	7.0	7.8	8.2	12	14	17	32	45	57	81	656K	181	
2400-1	30KC	3	2	NO	2400-1	200	6.3	6.7	7.6	9.6	11	17	24	31	60	93	130	170	1022K	214	
2400-1	30KC	5	2	NO	2400-1	125	6.4	6.7	7.5	9.3	10	16	20	27	48	76	99	140	2061K	231	
2400-1	30KC	8	2	NO	2400-1	125	6.4	6.7	7.6	8.8	9.4	14	18	22	43	60	78	97	2933K	147	
2400-2	60KC	3	2	NO	2400-2	200	6.3	6.7	7.4	9.1	11	16	21	27	53	80	120	140	1022K	214	
2400-2	60KC	5	2	NO	2400-2	125	6.4	6.6	7.3	8.9	9.6	15	19	25	43	69	90	130	2061K	231	
2400-2	60KC	8	2	NO	2400-2	125	6.4	6.7	7.4	8.5	9.0	14	17	20	39	55	71	87	2933K	147	
2400-3	90KC	3	2	NO	2400-3	200	6.3	6.6	7.4	8.9	9.9	15	20	26	50	76	110	140	1022K	214	
2400-3	90KC	5	2	NO	2400-3	125	6.4	6.6	7.3	8.8	9.4	14	18	24	42	66	87	120	2061K	231	
2400-3	90KC	8	2	NO	2400-3	125	6.4	6.6	7.4	8.4	8.9	13	16	20	38	53	68	84	2933K	147	
2400-1	30KC	3	2	YES	2400-1	200	6.3	6.7	7.5	9.3	11	16	22	29	56	86	120	150	1022K	214	
2400-1	30KC	5	2	YES	2400-1	125	6.4	6.6	7.2	8.5	9.5	14	17	23	42	60	83	110	2013K	185	
2400-1	30KC	8	2	YES	2400-1	125	6.4	6.7	7.1	8.3	9.0	13	17	21	39	56	78	96	2819K	114	
2400-2	60KC	3	2	YES	2400-2	200	6.3	6.6	7.4	9.0	10	15	21	27	51	78	110	140	1022K	214	
2400-2	60KC	5	2	YES	2400-2	125	6.4	6.6	7.1	8.2	9.1	13	16	21	38	54	75	92	2013K	185	
2400-2	60KC	8	2	YES	2400-2	125	6.4	6.6	7.0	8.0	8.6	13	15	20	36	50	71	87	2819K	114	
2400-3	90KC	3	2	YES	2400-3	200	6.3	6.6	7.3	8.9	9.8	15	20	26	50	76	110	130	1022K	214	
2400-3	90KC	5	2	YES	2400-3	125	6.4	6.5	7.0	8.1	9.0	13	16	20	37	52	73	89	2013K	185	
2400-3	90KC	8	2	YES	2400-3	125	6.4	6.6	6.9	7.9	8.5	12	15	19	35	49	68	84	2819K	114	

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 44K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET								SIZES (IN THOUSANDS)						MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300	400	500					
2311	156KC	1	1	NO	2311	30	6.4	7.2	8.3	11	12	21	CE	CE	CE	CE	CE	CE	55K	45			
2311	156KC	2	1	NO	2311	30	6.4	7.1	8.1	10	11	20	26	33	CE	CE	CE	CE	110K	45			
2311	156KC	3	1	NO	2311	30	6.4	7.1	7.9	9.6	11	19	25	31	CE	CE	CE	CE	165K	45			
2400-1	30KC	3	1	NO	2400-1	85	6.9	8.7	13	21	25	48	74	100	220	CE	CE	CE	265K	86			
2400-1	30KC	5	1	NO	2400-1	50	6.7	7.9	11	15	18	32	47	66	140	260	370	480	533K	92			
2400-1	30KC	8	1	NO	2400-1	50	6.7	7.7	9.6	14	16	29	43	56	120	210	270	340	788K	73			
2400-2	60KC	3	1	NO	2400-2	85	6.6	7.6	9.5	14	17	29	43	58	120	CE	CE	CE	265K	86			
2400-2	60KC	5	1	NO	2400-2	50	6.5	7.2	8.5	12	13	22	30	41	81	150	210	270	533K	92			
2400-2	60KC	8	1	NO	2400-2	50	6.6	7.2	8.3	11	13	20	28	36	71	120	160	200	788K	73			
2400-3	90KC	3	1	NO	2400-3	85	6.6	7.4	8.9	13	15	25	37	49	99	CE	CE	CE	265K	86			
2400-3	90KC	5	1	NO	2400-3	50	6.4	7.1	8.1	11	12	19	26	35	68	130	180	220	533K	92			
2400-3	90KC	8	1	NO	2400-3	50	6.5	7.0	8.0	11	12	18	24	31	60	98	130	160	788K	73			
2311	156KC	2	2	NO	2311	30	6.5	6.9	8.0	9.9	11	18	24	30	CE	CE	CE	CE	109K	45			
2311	156KC	3	2	NO	2311	30	6.4	6.8	7.7	9.3	11	17	21	26	CE	CE	CE	CE	164K	45			
2400-1	30KC	3	2	NO	2400-1	45	6.8	8.2	11	18	21	40	61	81	180	CE	CE	CE	263K	77			
2400-1	30KC	5	2	NO	2400-1	30	6.6	7.9	9.6	15	18	30	46	60	130	190	260	340	514K	57			
2400-1	30KC	8	2	NO	2400-1	30	6.6	7.6	9.0	13	15	27	37	47	100	150	200	240	752K	45			
2400-2	60KC	3	2	NO	2400-2	45	6.6	7.4	9.0	13	15	25	37	49	100	CE	CE	CE	263K	77			
2400-2	60KC	5	2	NO	2400-2	30	6.5	7.3	8.4	12	14	21	31	39	78	120	160	210	514K	57			
2400-2	60KC	8	2	NO	2400-2	30	6.5	7.2	8.1	11	12	19	26	32	65	93	130	160	752K	45			
2400-3	90KC	3	2	NO	2400-3	45	6.5	7.2	8.6	12	14	23	33	43	88	CE	CE	CE	263K	77			
2400-3	90KC	5	2	NO	2400-3	30	6.4	7.2	8.1	11	13	19	28	36	71	110	150	190	514K	57			
2400-3	90KC	8	2	NO	2400-3	30	6.5	7.1	7.9	11	12	18	24	29	59	85	120	140	752K	45			
2400-1	30KC	3	2	YES	2400-1	45	6.7	7.9	11	16	19	35	53	71	150	CE	CE	CE	263K	77			
2400-1	30KC	5	2	YES	2400-1	30	6.5	7.5	9.0	13	15	25	36	48	110	190	260	340	514K	57			
2400-1	30KC	8	2	YES	2400-1	30	6.6	7.3	8.7	12	14	23	33	42	85	150	200	240	752K	45			
2400-2	60KC	3	2	YES	2400-2	45	6.5	7.3	8.7	12	14	23	34	44	89	CE	CE	CE	263K	77			
2400-2	60KC	5	2	YES	2400-2	30	6.4	7.1	8.1	11	12	18	25	33	65	120	160	210	514K	57			
2400-2	60KC	8	2	YES	2400-2	30	6.5	7.0	8.0	11	11	17	24	30	58	93	130	160	752K	45			
2400-3	90KC	3	2	YES	2400-3	45	6.5	7.2	8.4	12	13	22	31	40	81	CE	CE	CE	263K	77			
2400-3	90KC	5	2	YES	2400-3	30	6.4	7.0	7.9	9.8	11	17	23	30	59	110	150	190	514K	57			
2400-3	90KC	8	2	YES	2400-3	30	6.5	6.9	7.8	9.7	11	16	22	28	53	85	120	140	752K	45			

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 44K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES			FOR DATA SET		SIZES (IN THOUSANDS)							MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300	400	500			
2311	156KC	1	1	NO	2311	15	7.0	8.3	11	19	CE	CE	CE	CE	CE	CE	CE	CE	CE	22K	18
2311	156KC	2	1	NO	2311	15	6.9	8.0	9.9	17	19	CE	CE	CE	CE	CE	CE	CE	CE	44K	18
2311	156KC	3	1	NO	2311	15	6.8	7.8	9.4	16	18	30	CE	CE	CE	CE	CE	CE	CE	66K	18
2400-1	30KC	3	1	NO	2400-1	30	8.6	14	24	47	59	130	200	270	CE	CE	CE	CE	CE	104K	28
2400-1	30KC	5	1	NO	2400-1	25	7.8	11	18	32	40	80	130	170	470	CE	CE	CE	CE	213K	37
2400-1	30KC	8	1	NO	2400-1	25	7.6	11	16	28	36	72	110	150	330	560	CE	CE	CE	315K	30
2400-2	60KC	3	1	NO	2400-2	30	7.4	11	16	27	33	67	110	140	CE	CE	CE	CE	CE	104K	28
2400-2	60KC	5	1	NO	2400-2	25	7.1	8.7	12	20	24	44	67	88	250	CE	CE	CE	CE	213K	37
2400-2	60KC	8	1	NO	2400-2	25	7.0	8.4	12	18	22	40	57	80	170	290	CE	CE	CE	315K	30
2400-3	90KC	3	1	NO	2400-3	30	7.1	9.0	13	21	25	49	74	98	CE	CE	CE	CE	CE	104K	28
2400-3	90KC	5	1	NO	2400-3	25	6.9	8.0	11	16	19	33	49	64	170	CE	CE	CE	CE	213K	37
2400-3	90KC	8	1	NO	2400-3	25	6.8	7.9	9.8	15	18	31	42	59	130	210	CE	CE	CE	315K	30
2311	156KC	2	2	NO	2311	15	6.8	8.0	10	16	19	CE	CE	CE	CE	CE	CE	CE	CE	43K	18
2311	156KC	3	2	NO	2311	15	6.6	7.7	9.2	15	17	27	CE	CE	CE	CE	CE	CE	CE	65K	18
2400-1	30KC	3	2	NO	2400-1	20	8.1	13	21	39	48	110	160	220	CE	CE	CE	CE	CE	103K	23
2400-2	60KC	3	2	NO	2400-2	20	7.2	9.4	14	23	28	55	85	120	CE	CE	CE	CE	CE	103K	23
2400-2	60KC	5	2	NO	2400-1	15	7.4	9.4	14	21	25	47	73	95	200	CE	CE	CE	CE	206K	23
2400-2	60KC	8	2	NO	2400-1	15	7.3	9.2	12	20	23	39	61	79	160	250	CE	CE	CE	301K	18
2400-2	60KC	5	2	NO	2400-2	15	7.1	8.8	13	18	22	41	63	81	180	CE	CE	CE	CE	206K	23
2400-2	60KC	8	2	NO	2400-2	15	7.0	8.5	11	17	19	32	51	66	130	210	CE	CE	CE	301K	18
2400-3	90KC	3	2	NO	2400-3	20	6.9	8.5	12	18	22	41	62	82	CE	CE	CE	CE	CE	103K	23
2400-3	90KC	5	2	NO	2400-3	15	6.9	8.3	11	15	18	31	47	66	130	CE	CE	CE	CE	206K	23
2400-3	90KC	8	2	NO	2400-3	15	6.8	8.0	9.5	14	16	25	39	50	92	160	CE	CE	CE	301K	18
2311	156KC	2	2	YES	2311	15	6.8	8.0	10	16	19	CE	CE	CE	CE	CE	CE	CE	CE	43K	18
2311	156KC	3	2	YES	2311	15	6.6	7.7	9.2	15	17	27	CE	CE	CE	CE	CE	CE	CE	65K	18
2400-1	30KC	3	2	YES	2400-1	20	7.9	12	19	34	42	88	140	190	CE	CE	CE	CE	CE	103K	23
2400-2	60KC	3	2	YES	2400-2	20	7.1	9.0	13	21	25	49	74	99	CE	CE	CE	CE	CE	103K	23
2400-2	60KC	5	2	YES	2400-1	15	7.1	8.7	12	19	22	40	59	79	200	CE	CE	CE	CE	206K	23
2400-2	60KC	8	2	YES	2400-1	15	7.1	8.5	12	17	21	38	54	79	160	CE	CE	CE	CE	299K	18
2400-2	60KC	5	2	YES	2400-2	15	6.9	8.0	11	16	19	34	49	66	180	CE	CE	CE	CE	206K	23
2400-2	60KC	8	2	YES	2400-2	15	6.8	7.9	9.9	15	18	32	44	66	130	CE	CE	CE	CE	299K	18
2400-3	90KC	3	2	YES	2400-3	20	6.9	8.2	11	17	20	37	55	72	CE	CE	CE	CE	CE	103K	23
2400-3	90KC	5	2	YES	2400-3	15	6.7	7.6	9.3	14	16	26	39	50	130	CE	CE	CE	CE	206K	23
2400-3	90KC	8	2	YES	2400-3	15	6.7	7.6	9.1	13	16	26	36	50	92	CE	CE	CE	CE	299K	18

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 44K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)								MAX SIZE	SORT BLOCK		
								5	10	20	25	50	75	100	200			300	400
2311	156KC	1	1	NO	2311	6	8.1	11	CE	CE	CE	CE	CE	CE	CE	CE	CE	8K	7
2311	156KC	2	1	NO	2311	6	7.9	11	18	CE	CE	CE	CE	CE	CE	CE	CE	17K	7
2311	156KC	3	1	NO	2311	6	7.6	9.8	17	28	33	CE	CE	CE	CE	CE	CE	25K	7
2400-1	30KC	3	1	NO	2400-1	20	14	30	61	130	170	CE	CE	CE	CE	CE	CE	40K	7
2400-1	30KC	5	1	NO	2400-1	15	12	21	39	79	110	270	440	CE	CE	CE	CE	85K	14
2400-1	30KC	8	1	NO	2400-1	15	11	20	36	71	87	210	310	460	CE	CE	CE	110K	4
2400-2	60KC	3	1	NO	2400-2	20	11	19	34	68	86	CE	CE	CE	CE	CE	CE	40K	7
2400-2	60KC	5	1	NO	2400-2	15	8.7	14	23	43	54	140	230	CE	CE	CE	CE	85K	14
2400-2	60KC	8	1	NO	2400-2	15	8.4	13	21	39	47	110	160	240	CE	CE	CE	110K	4
2400-3	90KC	3	1	NO	2400-3	20	8.9	15	25	48	60	CE	CE	CE	CE	CE	CE	40K	7
2400-3	90KC	5	1	NO	2400-3	15	8.0	12	18	31	39	97	160	CE	CE	CE	CE	85K	14
2400-3	90KC	8	1	NO	2400-3	15	7.7	11	17	29	34	74	110	160	CE	CE	CE	110K	4
2311	156KC	2	2	NO	2311	6	7.9	11	18	CE	CE	CE	CE	CE	CE	CE	CE	17K	7
2311	156KC	3	2	NO	2311	6	7.5	9.6	16	26	39	CE	CE	CE	CE	CE	CE	25K	7
2400-1	30KC	3	2	NO	2400-1	10	13	25	49	110	130	CE	CE	CE	CE	CE	CE	40K	7
2400-1	30KC	5	2	NO	2400-1	10	11	20	38	77	95	190	310	CE	CE	CE	CE	82K	9
2400-1	30KC	8	2	NO	2400-1	10	11	17	30	54	76	150	220	330	CE	CE	CE	120K	7
2400-2	60KC	3	2	NO	2400-2	10	9.3	16	28	55	69	CE	CE	CE	CE	CE	CE	40K	7
2400-2	60KC	5	2	NO	2400-2	10	8.7	14	23	43	52	99	160	CE	CE	CE	CE	82K	9
2400-2	60KC	8	2	NO	2400-2	10	8.4	12	19	31	42	77	120	170	CE	CE	CE	120K	7
2400-3	90KC	3	2	NO	2400-3	10	8.3	13	21	39	49	CE	CE	CE	CE	CE	CE	40K	7
2400-3	90KC	5	2	NO	2400-3	10	8.0	12	18	32	38	70	110	CE	CE	CE	CE	82K	9
2400-3	90KC	8	2	NO	2400-3	10	7.8	9.9	15	24	31	55	80	120	CE	CE	CE	120K	7
2400-1	30KC	3	2	YES	2400-1	10	12	23	43	87	120	CE	CE	CE	CE	CE	CE	40K	7
2400-1	30KC	5	2	YES	2400-1	10	9.9	17	30	57	73	190	310	CE	CE	CE	CE	82K	9
2400-1	30KC	8	2	YES	2400-1	10	9.7	16	28	54	66	150	220	330	CE	CE	CE	120K	7
2400-2	60KC	3	2	YES	2400-2	10	8.9	15	25	48	60	CE	CE	CE	CE	CE	CE	40K	7
2400-2	60KC	5	2	YES	2400-2	10	8.1	12	18	33	41	99	160	CE	CE	CE	CE	82K	9
2400-2	60KC	8	2	YES	2400-2	10	8.1	12	18	31	37	77	120	170	CE	CE	CE	120K	7
2400-3	90KC	3	2	YES	2400-3	10	8.1	12	20	35	43	CE	CE	CE	CE	CE	CE	40K	7
2400-3	90KC	5	2	YES	2400-3	10	7.6	9.9	15	25	30	70	110	CE	CE	CE	CE	82K	9
2400-3	90KC	8	2	YES	2400-3	10	7.6	9.8	14	24	28	55	80	120	CE	CE	CE	120K	7

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 18K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR										DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2311	156KC	1	1	NO	2311	125	3.9	4.4	5.4	7.6	9.3	17	23	32	CE	CE	CE	CE	182K	181			
2311	156KC	2	1	NO	2311	125	3.9	4.3	5.1	6.8	8.1	14	19	26	52	76	CE	CE	364K	181			
2311	156KC	3	1	NO	2311	125	4.0	4.3	5.1	6.7	8.0	14	18	25	51	74	110	140	547K	181			
2400-1	30KC	3	1	NO	2400-1	150	4.0	4.6	5.6	8.2	9.5	17	25	33	68	110	150	190	964K	134			
2400-1	30KC	4	1	NO	2400-1	150	3.9	4.4	5.2	7.0	8.0	14	19	25	50	76	110	140	935K	111			
2400-1	30KC	6	1	NO	2400-1	100	3.9	4.4	5.0	6.5	7.2	12	17	21	42	64	86	120	1734K	77			
2400-1	30KC	8	1	NO	2400-1	100	4.0	4.3	5.0	6.3	7.4	12	16	22	42	61	86	110	2425K	59			
2400-2	60KC	3	1	NO	2400-2	150	3.9	4.2	5.0	6.6	7.4	12	17	22	45	68	91	120	964K	134			
2400-2	60KC	4	1	NO	2400-2	150	3.9	4.2	4.7	5.9	6.5	9.9	14	18	34	50	69	87	935K	111			
2400-2	60KC	6	1	NO	2400-2	100	3.9	4.2	4.6	5.6	6.1	8.8	13	15	29	44	58	75	1734K	77			
2400-2	60KC	8	1	NO	2400-2	100	3.9	4.4	5.0	6.5	6.2	9.0	12	16	29	42	58	72	2425K	59			
2400-3	90KC	3	1	NO	2400-3	150	3.9	4.2	4.8	6.2	6.8	11	16	20	39	59	79	110	964K	134			
2400-3	90KC	4	1	NO	2400-3	150	3.9	4.1	4.6	5.6	6.1	9.0	13	16	29	44	59	75	935K	111			
2400-3	90KC	6	1	NO	2400-3	100	3.9	4.1	4.5	5.4	5.7	8.1	11	14	25	38	50	65	1734K	77			
2400-3	90KC	8	1	NO	2400-3	100	3.9	4.1	4.5	5.3	5.9	8.3	11	14	26	36	51	62	2425K	59			
2311	156KC	2	2	NO	2311	150	3.9	4.3	5.1	6.8	8.1	14	19	26	52	76	CE	CE	355K	181			
2311	156KC	3	2	NO	2311	150	4.0	4.3	5.1	6.7	8.0	14	18	25	51	74	110	140	533K	181			
2400-1	30KC	3	2	NO	2400-1	80	4.0	4.4	5.3	7.5	8.5	15	21	28	57	87	120	160	877K	81			
2400-1	30KC	4	2	NO	2400-1	80	3.9	4.3	5.0	6.5	7.5	12	17	22	43	67	88	120	844K	69			
2400-1	30KC	6	2	NO	2400-1	40	3.9	4.3	5.0	6.6	7.3	12	16	20	39	57	77	110	1681K	68			
2400-1	30KC	8	2	NO	2400-1	40	3.9	4.3	5.0	6.3	6.8	11	15	18	37	53	69	85	2349K	53			
2400-2	60KC	3	2	NO	2400-2	80	3.9	4.2	4.8	6.2	6.9	11	16	20	39	59	81	110	877K	81			
2400-2	60KC	4	2	NO	2400-2	80	3.9	4.1	4.6	5.6	6.3	9.4	13	16	31	47	61	80	844K	69			
2400-2	60KC	6	2	NO	2400-2	40	3.9	4.2	4.7	5.8	6.3	9.5	13	15	29	42	55	74	1681K	68			
2400-2	60KC	8	2	NO	2400-2	40	3.9	4.2	4.6	5.6	6.0	8.9	12	14	27	39	50	61	2349K	53			
2400-3	90KC	3	2	NO	2400-3	80	3.9	4.2	4.7	5.9	6.6	11	14	18	35	53	73	91	877K	81			
2400-3	90KC	4	2	NO	2400-3	80	3.9	4.1	4.5	5.4	6.1	8.8	12	15	28	42	55	72	844K	69			
2400-3	90KC	6	2	NO	2400-3	40	3.9	4.1	4.6	5.7	6.1	9.0	12	14	27	39	51	68	1681K	68			
2400-3	90KC	8	2	NO	2400-3	40	3.9	4.2	4.6	5.5	5.8	8.5	11	13	25	36	46	57	2349K	53			
2400-1	30KC	3	2	YES	2400-1	80	3.9	4.4	5.1	7.0	7.9	14	19	25	50	76	110	140	877K	81			
2400-1	30KC	4	2	YES	2400-1	80	3.9	4.2	4.8	6.2	7.1	11	16	20	38	59	78	110	844K	69			
2400-1	30KC	6	2	YES	2400-1	40	3.9	4.3	4.8	6.1	6.6	11	15	18	34	53	69	90	1380K	37			
2400-1	30KC	8	2	YES	2400-1	40	3.9	4.2	4.8	6.0	6.5	10	14	18	35	52	70	91	1975K	33			
2400-2	60KC	3	2	YES	2400-2	80	3.9	4.2	4.7	6.0	6.7	11	15	19	36	54	74	93	877K	81			
2400-2	60KC	4	2	YES	2400-2	80	3.9	4.1	4.5	5.5	6.1	8.9	12	15	28	43	56	74	844K	69			
2400-2	60KC	6	2	YES	2400-2	40	3.9	4.2	4.6	5.4	5.8	8.3	12	14	26	39	50	64	1380K	37			
2400-2	60KC	8	2	YES	2400-2	40	3.9	4.1	4.6	5.4	5.8	8.2	11	14	25	38	50	65	1975K	33			
2400-3	90KC	3	2	YES	2400-3	80	3.9	4.1	4.6	5.8	6.4	9.8	14	18	34	50	69	86	877K	81			
2400-3	90KC	4	2	YES	2400-3	80	3.9	4.1	4.5	5.4	5.9	8.5	12	15	27	40	52	69	844K	69			
2400-3	90KC	6	2	YES	2400-3	40	3.9	4.1	4.5	5.3	5.7	7.9	11	13	24	36	47	59	1380K	37			
2400-3	90KC	8	2	YES	2400-3	40	3.9	4.1	4.5	5.3	5.6	7.8	11	13	24	35	46	60	1975K	33			

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 18K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES										FOR DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2311	156KC	1	1	NO	2311	30	4.7	6.6	11	19	23	CE	CE	CE	CE	CE	CE	CE	47K	45			
2311	156KC	2	1	NO	2311	30	4.5	5.8	8.4	15	17	34	54	CE	CE	CE	CE	CE	94K	45			
2311	156KC	3	1	NO	2311	30	4.5	5.8	8.2	14	17	33	52	68	CE	CE	CE	CE	142K	45			
2400-1	30KC	3	1	NO	2400-1	35	5.0	7.7	13	24	31	63	97	140	290	CE	CE	CE	234K	28			
2400-1	30KC	4	1	NO	2400-1	35	4.7	6.6	11	19	23	46	71	94	210	CE	CE	CE	225K	23			
2400-1	30KC	6	1	NO	2400-1	25	4.6	6.3	9.4	17	20	38	60	79	170	310	430	CE	465K	27			
2400-1	30KC	8	1	NO	2400-1	25	4.7	6.1	9.1	16	19	37	58	76	180	270	350	440	670K	22			
2400-2	60KC	3	1	NO	2400-2	35	4.4	5.8	8.4	15	18	34	51	70	150	CE	CE	CE	234K	28			
2400-2	60KC	4	1	NO	2400-2	35	4.3	5.2	7.1	12	14	25	38	50	110	CE	CE	CE	225K	23			
2400-2	60KC	6	1	NO	2400-2	25	4.2	5.1	6.7	11	12	22	33	42	87	160	220	CE	465K	27			
2400-2	60KC	8	1	NO	2400-2	25	4.3	5.0	6.5	9.8	12	21	32	41	92	140	180	230	670K	22			
2400-3	90KC	3	1	NO	2400-3	35	4.2	5.1	7.0	11	14	25	37	49	110	CE	CE	CE	234K	28			
2400-3	90KC	4	1	NO	2400-3	35	4.1	4.8	6.1	9.0	11	19	28	36	74	CE	CE	CE	225K	23			
2400-3	90KC	6	1	NO	2400-3	25	4.1	4.7	5.8	8.3	9.4	17	24	31	62	120	160	CE	465K	27			
2400-3	90KC	8	1	NO	2400-3	25	4.2	4.7	5.8	8.1	9.1	16	23	30	66	96	130	160	670K	22			
2311	156KC	2	2	NO	2311	40	4.5	5.8	8.4	15	19	37	53	CE	CE	CE	CE	CE	91K	45			
2311	156KC	3	2	NO	2311	40	4.5	5.7	8.2	14	18	36	52	76	CE	CE	CE	CE	137K	45			
2400-1	30KC	3	2	NO	2400-1	20	4.8	6.9	12	21	26	52	80	110	240	CE	CE	CE	225K	23			
2400-1	30KC	4	2	NO	2400-1	20	4.6	6.2	9.2	16	21	40	62	82	180	CE	CE	CE	210K	17			
2400-1	30KC	6	2	NO	2400-1	15	4.6	6.2	8.5	15	18	35	51	66	150	220	320	CE	420K	17			
2400-1	30KC	8	2	NO	2400-1	15	4.5	5.9	8.2	14	17	33	47	62	140	210	270	340	583K	13			
2400-2	60KC	3	2	NO	2400-2	20	4.3	5.4	7.6	13	16	29	43	59	130	CE	CE	CE	225K	23			
2400-2	60KC	4	2	NO	2400-2	20	4.2	5.0	6.6	9.9	13	23	34	44	90	CE	CE	CE	210K	17			
2400-2	60KC	6	2	NO	2400-2	15	4.3	5.1	6.3	9.6	11	21	28	36	77	120	170	CE	420K	17			
2400-2	60KC	8	2	NO	2400-2	15	4.2	5.0	6.2	9.1	11	19	27	34	73	110	150	180	583K	13			
2400-3	90KC	3	2	NO	2400-3	20	4.1	4.9	6.5	9.7	12	21	31	42	86	CE	CE	CE	225K	23			
2400-3	90KC	4	2	NO	2400-3	20	4.1	4.7	5.8	8.2	9.8	17	25	32	64	CE	CE	CE	210K	17			
2400-3	90KC	6	2	NO	2400-3	15	4.2	4.8	5.7	8.0	9.0	16	22	27	56	82	120	CE	420K	17			
2400-3	90KC	8	2	NO	2400-3	15	4.1	4.7	5.6	7.7	8.6	15	21	26	54	78	110	130	583K	13			
2400-1	30KC	3	2	YES	2400-1	20	4.6	6.5	11	18	23	45	69	95	200	CE	CE	CE	225K	23			
2400-1	30KC	4	2	YES	2400-1	20	4.5	5.9	8.4	15	18	35	54	71	150	CE	CE	CE	210K	17			
2400-1	30KC	6	2	YES	2400-1	15	4.4	5.8	8.2	14	16	31	48	63	150	220	CE	CE	399K	17			
2400-1	30KC	8	2	YES	2400-1	15	4.5	5.8	8.2	14	16	31	48	63	140	210	270	CE	499K	13			
2400-2	60KC	3	2	YES	2400-2	20	4.2	5.2	7.1	12	14	25	38	51	110	CE	CE	CE	225K	23			
2400-2	60KC	4	2	YES	2400-2	20	4.1	4.9	6.2	9.1	12	20	30	39	78	CE	CE	CE	210K	17			
2400-2	60KC	6	2	YES	2400-2	15	4.1	4.8	6.1	8.9	11	18	27	35	77	120	CE	CE	399K	17			
2400-2	60KC	8	2	YES	2400-2	15	4.2	4.9	6.1	8.9	11	18	27	35	73	110	150	CE	499K	13			
2400-3	90KC	3	2	YES	2400-3	20	4.1	4.8	6.2	8.9	11	19	28	37	75	CE	CE	CE	225K	23			
2400-3	90KC	4	2	YES	2400-3	20	4.0	4.6	5.5	7.6	9.1	16	23	29	57	CE	CE	CE	210K	17			
2400-3	90KC	6	2	YES	2400-3	15	4.1	4.6	5.5	7.5	8.4	14	21	26	56	82	CE	CE	399K	17			
2400-3	90KC	8	2	YES	2400-3	15	4.2	4.6	5.5	7.5	8.4	14	21	26	54	78	110	CE	499K	13			

SYSTEM/360 MODEL 4C

MAIN STORAGE USED 18K

RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET										SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300	400	500	75	100	200	300		
2311	156KC	1	1	NO	2311	15	6.4	12	21	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	18K	18	
2311	156KC	2	1	NO	2311	15	5.6	8.9	16	31	42	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	37K	18	
2311	156KC	3	1	NO	2311	15	5.5	8.7	15	30	40	85	CE	CE	CE	CE	CE	CE	CE	CE	CE	55K	18	
2400-1	30KC	3	1	NO	2400-1	20	7.9	17	32	65	83	180	280	CE	CE	CE	CE	CE	CE	CE	CE	89K	9	
2400-1	30KC	4	1	NO	2400-1	20	6.7	13	24	47	59	130	200	CE	CE	CE	CE	CE	CE	CE	CE	93K	11	
2400-1	30KC	6	1	NO	2400-1	15	6.3	11	20	38	51	110	160	250	CE	CE	CE	CE	CE	CE	CE	175K	8	
2400-1	30KC	8	1	NO	2400-1	15	6.2	12	21	41	50	110	170	220	470	CE	CE	CE	CE	CE	CE	243K	6	
2400-2	60KC	3	1	NO	2400-2	20	5.8	10	18	35	44	91	150	CE	CE	CE	CE	CE	CE	CE	CE	89K	9	
2400-2	60KC	4	1	NO	2400-2	20	5.3	8.1	14	26	32	64	110	CE	CE	CE	CE	CE	CE	CE	CE	93K	11	
2400-2	60KC	6	1	NO	2400-2	15	5.1	7.3	12	22	28	56	81	130	CE	CE	CE	CE	CE	CE	CE	175K	8	
2400-2	60KC	8	1	NO	2400-2	15	5.0	7.6	13	23	27	54	86	120	240	CE	CE	CE	CE	CE	CE	243K	6	
2400-3	90KC	3	1	NO	2400-3	20	5.2	8.0	13	25	31	62	96	CE	CE	CE	CE	CE	CE	CE	CE	89K	9	
2400-3	90KC	4	1	NO	2400-3	20	4.8	6.7	11	19	23	45	69	CE	CE	CE	CE	CE	CE	CE	CE	93K	11	
2400-3	90KC	6	1	NO	2400-3	15	4.7	6.2	9.1	16	20	39	56	88	CE	CE	CE	CE	CE	CE	CE	175K	8	
2400-3	90KC	8	1	NO	2400-3	15	4.7	6.4	9.5	17	20	38	59	78	170	CE	CE	CE	CE	CE	CE	243K	6	
2311	156KC	2	2	NO	2311	15	5.6	8.9	16	31	42	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	37K	18	
2311	156KC	3	2	NO	2311	15	5.5	8.7	15	30	40	85	CE	CE	CE	CE	CE	CE	CE	CE	CE	55K	18	
2400-1	30KC	3	2	NO	2400-1	10	7.0	14	26	52	67	150	220	CE	CE	CE	CE	CE	CE	CE	CE	89K	9	
2400-1	30KC	4	2	NO	2400-1	10	6.2	12	21	41	50	110	170	CE	CE	CE	CE	CE	CE	CE	CE	81K	6	
2400-1	30KC	6	2	NO	2400-1	10	6.3	11	18	36	43	93	140	200	CE	CE	CE	CE	CE	CE	CE	153K	5	
2400-1	30KC	8	2	NO	2400-1	10	5.9	11	17	33	40	81	130	170	360	CE	CE	CE	CE	CE	CE	213K	4	
2400-2	60KC	3	2	NO	2400-2	10	5.4	8.8	15	29	36	74	120	CE	CE	CE	CE	CE	CE	CE	CE	89K	9	
2400-2	60KC	4	2	NO	2400-2	10	5.0	7.7	13	23	27	57	85	CE	CE	CE	CE	CE	CE	CE	CE	81K	6	
2400-2	60KC	6	2	NO	2400-2	10	5.1	7.5	11	20	24	50	72	100	CE	CE	CE	CE	CE	CE	CE	153K	5	
2400-2	60KC	8	2	NO	2400-2	10	5.0	7.1	11	19	23	44	68	89	190	CE	CE	CE	CE	CE	CE	213K	4	
2400-3	90KC	3	2	NO	2400-3	10	4.9	7.1	12	21	26	51	77	CE	CE	CE	CE	CE	CE	CE	CE	89K	9	
2400-3	90KC	4	2	NO	2400-3	10	4.6	6.4	9.5	17	20	40	59	CE	CE	CE	CE	CE	CE	CE	CE	81K	6	
2400-3	90KC	6	2	NO	2400-3	10	4.8	6.4	8.7	15	18	35	51	69	CE	CE	CE	CE	CE	CE	CE	153K	5	
2400-3	90KC	8	2	NO	2400-3	10	4.6	6.1	8.2	14	17	31	47	62	130	CE	CE	CE	CE	CE	CE	213K	4	
2400-1	30KC	3	2	YES	2400-1	10	6.6	13	23	45	58	130	190	CE	CE	CE	CE	CE	CE	CE	CE	89K	9	
2400-1	30KC	4	2	YES	2400-1	10	5.9	11	19	36	43	94	150	CE	CE	CE	CE	CE	CE	CE	CE	81K	6	
2400-1	30KC	6	2	YES	2400-1	10	5.8	9.4	17	32	42	85	140	200	CE	CE	CE	CE	CE	CE	CE	153K	5	
2400-1	30KC	8	2	YES	2400-1	10	5.8	10	18	34	42	86	130	170	CE	CE	CE	CE	CE	CE	CE	199K	5	
2400-2	60KC	3	2	YES	2400-2	10	5.2	8.1	14	25	32	64	97	CE	CE	CE	CE	CE	CE	CE	CE	89K	9	
2400-2	60KC	4	2	YES	2400-2	10	4.9	7.1	12	20	24	50	74	CE	CE	CE	CE	CE	CE	CE	CE	81K	6	
2400-2	60KC	6	2	YES	2400-2	10	4.9	6.7	11	18	23	46	72	100	CE	CE	CE	CE	CE	CE	CE	153K	5	
2400-2	60KC	8	2	YES	2400-2	10	4.9	7.0	11	20	23	46	68	89	CE	CE	CE	CE	CE	CE	CE	199K	5	
2400-3	90KC	3	2	YES	2400-3	10	4.7	6.7	11	18	23	45	67	CE	CE	CE	CE	CE	CE	CE	CE	89K	9	
2400-3	90KC	4	2	YES	2400-3	10	4.5	6.1	8.8	15	18	35	52	CE	CE	CE	CE	CE	CE	CE	CE	81K	6	
2400-3	90KC	6	2	YES	2400-3	10	4.5	5.8	8.2	14	17	33	51	69	CE	CE	CE	CE	CE	CE	CE	153K	5	
2400-3	90KC	8	2	YES	2400-3	10	4.6	6.0	8.6	15	17	33	47	62	CE	CE	CE	CE	CE	CE	CE	199K	5	

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 18K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR					DATA SET	SIZES (IN THOUSANDS)					400	500	MAX SIZE	SORT BLOCK
								5	10	20	25	50		75	100	200	300					
2311	156KC	1	1	NO	2311	6	12	28	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	7K	7	
2311	156KC	2	1	NO	2311	6	8.8	20	41	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	14K	7	
2311	156KC	3	1	NO	2311	6	8.6	20	39	83	CE	CE	CE	CE	CE	CE	CE	CE	CE	21K	7	
2400-1	30KC	3	1	NO	2400-1	10	18	43	87	190	240	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-1	30KC	4	1	NO	2400-1	10	14	31	63	140	170	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-1	30KC	6	1	NO	2400-1	10	12	25	54	120	140	330	CE	CE	CE	CE	CE	CE	CE	73K	4	
2400-1	30KC	8	1	NO	2400-1	10	12	27	53	120	140	310	470	CE	CE	CE	CE	CE	CE	99K	3	
2400-2	60KC	3	1	NO	2400-2	10	11	24	46	98	130	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-2	60KC	4	1	NO	2400-2	10	8.5	18	34	68	85	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-2	60KC	6	1	NO	2400-2	10	7.6	15	29	58	72	170	CE	CE	CE	CE	CE	CE	CE	73K	4	
2400-2	60KC	8	1	NO	2400-2	10	7.6	16	29	58	72	160	240	CE	CE	CE	CE	CE	CE	99K	3	
2400-3	90KC	3	1	NO	2400-3	10	8.3	17	32	67	83	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-3	90KC	4	1	NO	2400-3	10	7.0	13	24	47	59	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-3	90KC	6	1	NO	2400-3	10	6.4	11	21	41	50	120	CE	CE	CE	CE	CE	CE	CE	73K	4	
2400-3	90KC	8	1	NO	2400-3	10	6.4	12	21	40	49	110	170	CE	CE	CE	CE	CE	CE	99K	3	
2311	156KC	2	2	NO	2311	6	8.8	20	41	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	14K	7	
2311	156KC	3	2	NO	2311	6	8.6	20	39	83	CE	CE	CE	CE	CE	CE	CE	CE	CE	21K	7	
2400-1	30KC	3	2	NO	2400-1	10	18	43	87	190	240	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-1	30KC	4	2	NO	2400-1	10	14	31	63	140	170	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-1	30KC	6	2	NO	2400-1	10	14	30	63	130	160	330	CE	CE	CE	CE	CE	CE	CE	73K	4	
2400-1	30KC	8	2	NO	2400-1	10	12	28	51	120	140	310	470	630	CE	CE	CE	CE	CE	103K	3	
2400-2	60KC	3	2	NO	2400-2	10	11	24	46	98	130	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-2	60KC	4	2	NO	2400-2	10	8.5	18	34	68	85	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-2	60KC	6	2	NO	2400-2	10	8.8	17	34	67	82	170	CE	CE	CE	CE	CE	CE	CE	73K	4	
2400-2	60KC	8	2	NO	2400-2	10	8.0	16	28	59	73	160	240	320	CE	CE	CE	CE	CE	103K	3	
2400-3	90KC	3	2	NO	2400-3	10	8.3	17	32	67	83	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-3	90KC	4	2	NO	2400-3	10	7.0	13	24	47	59	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-3	90KC	6	2	NO	2400-3	10	7.2	13	24	46	57	120	CE	CE	CE	CE	CE	CE	CE	73K	4	
2400-3	90KC	8	2	NO	2400-3	10	6.7	13	20	41	50	110	170	220	CE	CE	CE	CE	CE	103K	3	
2400-1	30KC	3	2	YES	2400-1	10	18	43	87	190	240	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-1	30KC	4	2	YES	2400-1	10	14	31	63	140	170	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-1	30KC	6	2	YES	2400-1	10	12	25	54	120	140	330	CE	CE	CE	CE	CE	CE	CE	73K	4	
2400-1	30KC	8	2	YES	2400-1	10	12	27	53	120	140	310	470	CE	CE	CE	CE	CE	CE	99K	3	
2400-2	60KC	3	2	YES	2400-2	10	11	24	46	98	130	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-2	60KC	4	2	YES	2400-2	10	8.5	18	34	68	85	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-2	60KC	6	2	YES	2400-2	10	7.6	15	29	58	72	170	CE	CE	CE	CE	CE	CE	CE	73K	4	
2400-2	60KC	8	2	YES	2400-2	10	7.6	16	29	58	72	160	240	CE	CE	CE	CE	CE	CE	99K	3	
2400-3	90KC	3	2	YES	2400-3	10	8.3	17	32	67	83	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-3	90KC	4	2	YES	2400-3	10	7.0	13	24	47	59	CE	CE	CE	CE	CE	CE	CE	CE	36K	4	
2400-3	90KC	6	2	YES	2400-3	10	6.4	11	21	41	50	120	CE	CE	CE	CE	CE	CE	CE	73K	4	
2400-3	90KC	8	2	YES	2400-3	10	6.4	12	21	40	49	110	170	CE	CE	CE	CE	CE	CE	99K	3	

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 44K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)					400	500	MAX SIZE	SORT BLOCK				
								5	10	20	25	50					75	100	200	300
2311	156KC	1	1	NO	2311	125	3.8	3.9	4.1	5.0	5.4	7.0	8.7	11	22	CE	CE	219K	181	
2311	156KC	2	1	NO	2311	125	3.8	3.9	4.1	4.9	5.2	6.8	8.4	10	20	29	37	CE	439K	181
2311	156KC	3	1	NO	2311	125	3.8	3.9	4.1	4.9	5.1	6.5	8.0	9.5	19	28	35	44	659K	181
2400-1	30KC	3	1	NO	2400-1	300	3.8	4.2	4.9	6.5	7.5	13	18	25	50	77	110	140	1042K	264
2400-1	30KC	4	1	NO	2400-1	300	3.9	4.1	4.7	5.9	6.6	11	15	20	38	57	78	99	1030K	230
2400-1	30KC	6	1	NO	2400-1	175	3.9	4.1	4.5	5.7	6.2	9.2	13	16	31	48	64	85	2084K	263
2400-1	30KC	8	1	NO	2400-1	175	3.9	4.1	4.5	5.4	6.0	9.2	12	16	31	44	63	78	3051K	203
2400-1	30KC	10	1	NO	2400-1	175	4.0	4.2	4.5	5.5	5.9	8.6	12	15	29	45	58	79	3972K	165
2400-2	60KC	3	1	NO	2400-2	300	3.8	4.0	4.5	5.6	6.3	9.5	14	18	34	52	71	90	1042K	264
2400-2	60KC	4	1	NO	2400-2	300	3.8	4.0	4.4	5.3	5.7	8.2	11	15	27	40	54	68	1030K	230
2400-2	60KC	6	1	NO	2400-2	175	3.9	4.0	4.3	5.1	5.5	7.6	11	13	23	35	45	60	2084K	263
2400-2	60KC	8	1	NO	2400-2	175	3.9	4.0	4.3	5.0	5.3	7.6	9.5	13	23	32	45	56	3051K	203
2400-2	60KC	10	1	NO	2400-2	175	3.9	4.1	4.3	5.0	5.3	7.2	9.6	12	21	33	42	56	3972K	165
2400-3	90KC	3	1	NO	2400-3	300	3.8	4.0	4.4	5.3	5.9	8.7	12	16	30	45	62	78	1042K	264
2400-3	90KC	4	1	NO	2400-3	300	3.8	3.9	4.3	5.1	5.4	7.5	9.9	13	24	35	47	59	1030K	230
2400-3	90KC	6	1	NO	2400-3	175	3.9	4.0	4.2	5.0	5.2	7.0	9.2	11	20	31	40	52	2084K	263
2400-3	90KC	8	1	NO	2400-3	175	3.9	4.0	4.2	4.8	5.1	7.1	8.7	12	21	29	40	49	3051K	203
2400-3	90KC	10	1	NO	2400-3	175	3.9	4.1	4.2	4.9	5.1	6.8	8.9	11	19	29	37	50	3972K	165
2311	156KC	2	2	NO	2311	125	3.8	3.9	4.2	4.7	5.0	6.9	8.4	10	19	26	33	CE	437K	181
2311	156KC	3	2	NO	2311	125	3.7	3.8	4.2	4.6	4.8	6.5	7.8	9.2	17	24	30	44	656K	181
2311	156KC	4	2	NO	2311	125	3.8	3.8	4.2	4.6	4.8	6.5	7.9	9.2	17	24	30	44	984K	181
2400-1	30KC	3	2	NO	2400-1	200	3.8	4.1	4.7	6.1	6.9	11	16	21	42	64	88	120	1022K	214
2400-1	30KC	4	2	NO	2400-1	200	3.8	4.0	4.6	5.6	6.1	9.4	13	17	33	49	66	83	1003K	180
2400-1	30KC	6	2	NO	2400-1	115	3.9	4.1	4.6	5.5	6.3	8.7	13	16	30	43	56	72	1913K	127
2400-1	30KC	8	2	NO	2400-1	115	3.9	4.1	4.7	5.4	5.8	8.8	12	14	27	39	52	62	2960K	157
2400-1	30KC	10	2	NO	2400-1	115	3.9	4.1	4.4	5.5	5.9	7.9	12	14	24	39	51	62	3926K	151
2400-2	60KC	3	2	NO	2400-2	200	3.8	4.0	4.5	5.4	6.0	8.8	12	16	30	46	63	79	1022K	214
2400-2	60KC	4	2	NO	2400-2	200	3.8	3.9	4.4	5.1	5.5	7.8	11	14	25	36	49	61	1003K	180
2400-2	60KC	6	2	NO	2400-2	115	3.8	4.0	4.4	5.1	5.7	7.5	11	13	24	34	44	55	1913K	127
2400-2	60KC	8	2	NO	2400-2	115	3.9	4.0	4.5	5.1	5.4	7.7	9.5	12	22	31	40	49	2960K	157
2400-2	60KC	10	2	NO	2400-2	115	3.9	4.0	4.3	5.1	5.5	7.0	9.7	12	20	31	40	49	3926K	151
2400-3	90KC	3	2	NO	2400-3	200	3.8	4.0	4.4	5.2	5.8	8.3	12	15	28	42	57	72	1022K	214
2400-3	90KC	4	2	NO	2400-3	200	3.8	3.9	4.3	5.0	5.3	7.4	9.5	13	23	33	44	55	1003K	180
2400-3	90KC	6	2	NO	2400-3	115	3.8	4.0	4.4	5.0	5.6	7.3	9.9	12	23	32	41	52	1913K	127
2400-3	90KC	8	2	NO	2400-3	115	3.9	4.0	4.4	5.0	5.3	7.4	9.1	11	21	29	37	45	2960K	157
2400-3	90KC	10	2	NO	2400-3	115	3.9	4.0	4.2	5.1	5.3	6.8	9.3	11	18	30	38	46	3926K	151
2400-1	30KC	3	2	YES	2400-1	200	3.8	4.1	4.6	5.8	6.5	11	15	19	37	57	78	98	1022K	214
2400-1	30KC	4	2	YES	2400-1	200	3.8	4.0	4.5	5.4	5.9	8.8	12	16	29	44	59	73	1003K	180
2400-1	30KC	6	2	YES	2400-1	115	3.9	4.0	4.4	5.3	5.6	8.0	11	13	25	38	49	65	1966K	153
2400-1	30KC	8	2	YES	2400-1	115	3.9	4.1	4.3	5.1	5.6	8.0	11	14	25	35	49	61	2819K	114
2400-1	30KC	10	2	YES	2400-1	115	4.0	4.1	4.4	5.2	5.5	7.7	11	13	23	36	46	62	3600K	91
2400-2	60KC	3	2	YES	2400-2	200	3.8	4.0	4.4	5.3	5.8	8.5	12	15	28	43	59	73	1022K	214
2400-2	60KC	4	2	YES	2400-2	200	3.8	3.9	4.3	5.0	5.4	7.5	9.7	13	23	34	46	56	1003K	180
2400-2	60KC	6	2	YES	2400-2	115	3.9	4.0	4.3	5.0	5.2	7.0	9.2	11	20	30	39	51	1966K	153
2400-2	60KC	8	2	YES	2400-2	115	3.9	4.0	4.2	4.8	5.2	7.1	8.8	12	20	28	40	48	2819K	114
2400-2	60KC	10	2	YES	2400-2	115	3.9	4.1	4.3	4.9	5.1	6.9	8.9	11	19	29	37	50	3600K	91
2400-3	90KC	3	2	YES	2400-3	200	3.8	4.0	4.4	5.2	5.7	8.1	11	14	27	40	55	68	1022K	214
2400-3	90KC	4	2	YES	2400-3	200	3.8	3.9	4.3	4.9	5.3	7.2	9.3	12	22	32	43	53	1003K	180
2400-3	90KC	6	2	YES	2400-3	115	3.8	4.0	4.3	4.9	5.1	6.8	8.8	11	19	28	36	48	1966K	153
2400-3	90KC	8	2	YES	2400-3	115	3.9	4.0	4.2	4.7	5.0	6.9	8.4	11	19	27	37	45	2819K	114
2400-3	90KC	10	2	YES	2400-3	115	3.9	4.0	4.2	4.8	5.0	6.6	8.5	11	18	27	35	46	3600K	91

SYSTEM/360 MODEL 40

MAIN STORAGE USED 44K

RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES					FOR DATA SET 50	SIZES (IN THOUSANDS)					400	500	MAX SIZE	SORT BLOCK
								5	10	20	25	50		75	100	200	300					
2311	156KC	1	1	NO	2311	30	3.9	4.6	5.4	7.0	7.9	16	CE	CE	CE	CE	CE	CE	CE	55K	45	
2311	156KC	2	1	NO	2311	30	3.9	4.4	5.2	6.7	7.5	14	19	24	CE	CE	CE	CE	CE	116K	45	
2311	156KC	3	1	NO	2311	30	3.8	4.4	5.0	6.3	7.0	13	18	22	CE	CE	CE	CE	CE	165K	45	
2400-1	30KC	3	1	NO	2400-1	80	4.4	6.1	9.5	18	22	45	70	96	210	CE	CE	CE	CE	266K	89	
2400-1	30KC	4	1	NO	2400-1	80	4.3	5.6	8.1	14	17	33	51	71	150	CE	CE	CE	CE	266K	92	
2400-1	30KC	6	1	NO	2400-1	40	4.2	5.2	7.3	13	15	28	43	57	120	230	310	420	533K	92		
2400-1	30KC	8	1	NO	2400-1	40	4.2	5.2	7.0	12	14	26	40	52	110	200	260	330	790K	76		
2400-1	30KC	10	1	NO	2400-1	40	4.3	4.9	6.7	12	14	26	38	52	110	170	240	330	1041K	65		
2400-2	60KC	3	1	NO	2400-2	80	4.1	5.0	6.7	11	13	25	38	51	110	CE	CE	CE	CE	266K	89	
2400-2	60KC	4	1	NO	2400-2	80	4.0	4.7	6.0	8.9	11	19	28	39	79	CE	CE	CE	CE	266K	92	
2400-2	60KC	6	1	NO	2400-2	40	4.0	4.5	5.6	8.2	9.3	17	24	31	64	120	160	220	533K	92		
2400-2	60KC	8	1	NO	2400-2	40	4.0	4.5	5.6	7.8	8.7	15	23	29	59	110	140	170	790K	76		
2400-2	60KC	10	1	NO	2400-2	40	4.1	4.9	5.4	7.7	8.8	15	22	29	59	90	130	180	1041K	65		
2400-3	90KC	3	1	NO	2400-3	80	4.0	4.6	5.8	8.7	11	19	28	37	77	CE	CE	CE	CE	266K	89	
2400-3	90KC	4	1	NO	2400-3	80	4.0	4.5	5.4	7.4	8.4	15	21	28	56	CE	CE	CE	CE	266K	92	
2400-3	90KC	6	1	NO	2400-3	40	3.9	4.3	5.1	7.0	7.8	13	19	24	46	83	120	160	533K	92		
2400-3	90KC	8	1	NO	2400-3	40	4.0	4.4	5.1	6.7	7.4	12	17	22	43	74	97	130	790K	76		
2400-3	90KC	10	1	NO	2400-3	40	4.0	4.3	5.0	6.7	7.5	12	17	22	43	65	89	130	1041K	65		
2311	156KC	2	2	NO	2311	30	3.9	4.3	5.2	6.8	7.5	14	19	24	CE	CE	CE	CE	CE	109K	45	
2311	156KC	3	2	NO	2311	30	3.9	4.2	4.9	6.2	6.7	12	16	20	CE	CE	CE	CE	CE	164K	45	
2311	156KC	4	2	NO	2311	30	3.9	4.2	5.0	6.2	6.8	12	16	20	48	CE	CE	CE	CE	247K	45	
2400-1	30KC	3	2	NO	2400-1	45	4.3	5.6	8.3	15	18	37	57	76	170	CE	CE	CE	CE	263K	77	
2400-1	30KC	4	2	NO	2400-1	45	4.2	5.3	7.3	12	14	27	41	58	130	CE	CE	CE	CE	257K	58	
2400-1	30KC	6	2	NO	2400-1	25	4.1	5.1	7.0	12	14	24	38	49	110	160	210	300	514K	57		
2400-1	30KC	8	2	NO	2400-1	25	4.1	5.1	6.4	11	12	24	33	43	95	150	190	240	752K	45		
2400-1	30KC	10	2	NO	2400-1	25	4.2	5.2	6.5	11	13	21	29	44	83	130	170	240	978K	37		
2400-2	60KC	3	2	NO	2400-2	45	4.0	4.7	6.1	9.4	12	21	31	42	88	CE	CE	CE	CE	263K	77	
2400-2	60KC	4	2	NO	2400-2	45	4.0	4.6	5.6	8.0	9.1	16	24	32	65	CE	CE	CE	CE	257K	58	
2400-2	60KC	6	2	NO	2400-2	25	4.0	4.5	5.6	8.0	9.0	15	22	28	58	85	120	160	514K	57		
2400-2	60KC	8	2	NO	2400-2	25	4.0	4.5	5.2	7.3	8.2	15	20	25	52	76	100	130	752K	45		
2400-2	60KC	10	2	NO	2400-2	25	4.0	4.6	5.3	7.5	8.3	13	17	25	46	67	89	130	978K	37		
2400-3	90KC	3	2	NO	2400-3	45	4.0	4.5	5.5	7.8	9.0	16	23	31	63	CE	CE	CE	CE	263K	77	
2400-3	90KC	4	2	NO	2400-3	45	3.9	4.4	5.1	6.8	7.6	13	18	24	48	CE	CE	CE	CE	257K	58	
2400-3	90KC	6	2	NO	2400-3	25	3.9	4.3	5.1	6.9	7.6	12	17	22	43	63	82	120	514K	57		
2400-3	90KC	8	2	NO	2400-3	25	3.9	4.4	4.9	6.5	7.1	12	16	19	39	57	74	91	752K	45		
2400-3	90KC	10	2	NO	2400-3	25	4.0	4.4	5.0	6.6	7.2	11	14	20	35	50	67	93	978K	37		
2400-1	30KC	3	2	YES	2400-1	45	4.2	5.4	7.7	13	16	32	49	66	150	CE	CE	CE	CE	263K	77	
2400-1	30KC	4	2	YES	2400-1	45	4.1	5.1	6.8	11	13	24	36	51	110	CE	CE	CE	CE	257K	58	
2400-1	30KC	6	2	YES	2400-1	25	4.1	4.8	6.3	9.9	12	21	32	42	87	160	210	CE	CE	499K	57	
2400-1	30KC	8	2	YES	2400-1	25	4.1	4.8	6.2	9.2	11	20	30	39	80	150	190	240	752K	45		
2400-1	30KC	10	2	YES	2400-1	25	4.2	4.6	6.0	9.5	11	20	29	40	83	130	170	240	978K	37		
2400-2	60KC	3	2	YES	2400-2	45	4.0	4.6	5.8	8.6	11	19	28	37	77	CE	CE	CE	CE	263K	77	
2400-2	60KC	4	2	YES	2400-2	45	4.0	4.5	5.4	7.4	8.4	15	21	29	57	CE	CE	CE	CE	257K	58	
2400-2	60KC	6	2	YES	2400-2	25	3.9	4.3	5.2	7.0	7.8	13	19	24	48	85	120	CE	CE	499K	57	
2400-2	60KC	8	2	YES	2400-2	25	4.0	4.4	5.1	6.8	7.5	12	18	23	45	76	100	130	752K	45		
2400-2	60KC	10	2	YES	2400-2	25	4.0	4.3	5.0	6.9	7.6	13	17	23	46	67	89	130	978K	37		
2400-3	90KC	3	2	YES	2400-3	45	3.9	4.4	5.3	7.3	8.3	15	21	27	56	CE	CE	CE	CE	263K	77	
2400-3	90KC	4	2	YES	2400-3	45	3.9	4.3	5.0	6.5	7.2	12	16	22	43	CE	CE	CE	CE	257K	58	
2400-3	90KC	6	2	YES	2400-3	25	3.9	4.2	4.9	6.2	6.8	11	15	19	36	63	82	CE	CE	499K	57	
2400-3	90KC	8	2	YES	2400-3	25	3.9	4.3	4.9	6.1	6.6	10	14	18	34	57	74	91	752K	45		
2400-3	90KC	10	2	YES	2400-3	25	4.0	4.2	4.8	6.2	6.7	11	14	18	35	50	67	93	978K	37		

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 44K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
								5	10	20	25	50	75	100	200	300	400			500	
2311	156KC	1	1	NO	2311	15	4.5	5.6	7.4	15	CE	CE	CE	CE	CE	CE	CE	CE	22K	18	
2311	156KC	2	1	NO	2311	15	4.4	5.3	7.0	13	CE	CE	CE	CE	CE	CE	CE	CE	44K	18	
2311	156KC	3	1	NO	2311	15	4.3	5.1	6.4	12	14	24	CE	CE	CE	CE	CE	CE	66K	18	
2400-1	30KC	3	1	NO	2400-1	30	6.1	12	22	45	56	130	200	270	CE	CE	CE	CE	104K	28	
2400-1	30KC	4	1	NO	2400-1	30	5.5	9.2	17	33	42	87	140	190	CE	CE	CE	CE	105K	31	
2400-1	30KC	6	1	NO	2400-1	25	5.1	8.3	15	27	34	70	120	160	420	CE	CE	CE	213K	36	
2400-1	30KC	8	1	NO	2400-1	25	5.1	7.8	13	25	33	69	110	150	330	550	CE	CE	CE	315K	30
2400-1	30KC	10	1	NO	2400-1	25	4.9	7.9	14	25	31	63	110	140	330	490	CE	CE	CE	399K	26
2400-2	60KC	3	1	NO	2400-2	30	4.9	7.6	13	25	30	64	100	140	CE	CE	CE	CE	104K	28	
2400-2	60KC	4	1	NO	2400-2	30	4.7	6.5	11	19	23	46	72	96	CE	CE	CE	CE	105K	31	
2400-2	60KC	6	1	NO	2400-2	25	4.5	6.1	9.0	16	19	38	58	78	210	CE	CE	CE	213K	36	
2400-2	60KC	8	1	NO	2400-2	25	4.5	5.9	8.5	15	19	37	53	76	170	280	CE	CE	CE	315K	30
2400-2	60KC	10	1	NO	2400-2	25	4.4	5.9	8.6	15	18	34	54	73	170	250	CE	CE	CE	399K	26
2400-3	90KC	3	1	NO	2400-3	30	4.6	6.3	9.6	18	22	44	68	92	CE	CE	CE	CE	104K	28	
2400-3	90KC	4	1	NO	2400-3	30	4.4	5.6	8.0	14	17	32	50	66	CE	CE	CE	CE	105K	31	
2400-3	90KC	6	1	NO	2400-3	25	4.3	5.4	7.3	12	14	27	41	54	150	CE	CE	CE	213K	36	
2400-3	90KC	8	1	NO	2400-3	25	4.3	5.2	7.0	12	14	26	37	52	120	190	CE	CE	CE	315K	30
2400-3	90KC	10	1	NO	2400-3	25	4.2	5.3	7.1	12	13	24	38	50	120	170	CE	CE	CE	399K	26
2311	156KC	2	2	NO	2311	15	4.2	5.4	7.1	13	15	CE	CE	CE	CE	CE	CE	CE	43K	18	
2311	156KC	3	2	NO	2311	15	4.1	5.0	6.3	11	13	22	CE	CE	CE	CE	CE	CE	65K	18	
2311	156KC	4	2	NO	2311	15	4.1	5.0	6.4	12	13	22	42	CE	CE	CE	CE	CE	98K	18	
2400-1	30KC	3	2	NO	2400-1	20	5.6	9.8	18	36	45	98	160	210	CE	CE	CE	CE	103K	23	
2400-1	30KC	4	2	NO	2400-1	20	5.3	8.1	14	27	35	71	120	150	CE	CE	CE	CE	103K	23	
2400-1	30KC	6	2	NO	2400-1	20	5.0	7.6	14	25	31	59	97	130	290	CE	CE	CE	206K	23	
2400-1	30KC	8	2	NO	2400-1	15	5.1	7.8	12	23	28	51	87	120	230	390	CE	CE	CE	301K	18
2400-1	30KC	10	2	NO	2400-1	15	5.1	6.9	12	20	24	52	76	99	230	340	CE	CE	CE	392K	15
2400-2	60KC	3	2	NO	2400-2	20	4.7	6.8	11	20	25	52	80	110	CE	CE	CE	CE	103K	23	
2400-2	60KC	4	2	NO	2400-2	20	4.5	6.0	8.8	16	20	38	59	78	CE	CE	CE	CE	103K	23	
2400-2	60KC	6	2	NO	2400-2	20	4.4	5.8	8.6	15	18	32	52	67	150	CE	CE	CE	206K	23	
2400-2	60KC	8	2	NO	2400-2	15	4.5	5.9	7.9	14	16	28	47	61	120	200	CE	CE	CE	301K	18
2400-2	60KC	10	2	NO	2400-2	15	4.5	5.5	8.0	12	14	29	41	53	120	180	CE	CE	CE	392K	15
2400-3	90KC	3	2	NO	2400-3	20	4.4	5.8	8.5	15	18	36	56	74	CE	CE	CE	CE	103K	23	
2400-3	90KC	4	2	NO	2400-3	20	4.3	5.3	7.2	12	15	27	42	54	CE	CE	CE	CE	103K	23	
2400-3	90KC	6	2	NO	2400-3	20	4.2	5.2	7.1	12	14	23	37	47	110	CE	CE	CE	206K	23	
2400-3	90KC	8	2	NO	2400-3	15	4.3	5.3	6.6	11	13	21	33	43	81	140	CE	CE	CE	301K	18
2400-3	90KC	10	2	NO	2400-3	15	4.3	5.0	6.7	9.4	11	21	29	38	82	130	CE	CE	CE	392K	15
2400-1	30KC	3	2	YES	2400-1	20	5.4	8.9	16	32	39	84	140	180	CE	CE	CE	CE	103K	23	
2400-1	30KC	4	2	YES	2400-1	20	5.1	7.5	13	24	30	61	97	130	CE	CE	CE	CE	103K	23	
2400-1	30KC	6	2	YES	2400-1	20	4.9	7.0	12	21	25	51	79	130	CE	CE	CE	CE	199K	23	
2400-1	30KC	8	2	YES	2400-1	15	4.8	6.7	11	19	25	51	74	120	230	CE	CE	CE	299K	18	
2400-1	30KC	10	2	YES	2400-1	15	4.6	6.8	11	20	24	47	76	99	230	340	CE	CE	CE	392K	15
2400-2	60KC	3	2	YES	2400-2	20	4.6	6.4	9.8	18	22	45	70	93	CE	CE	CE	CE	103K	23	
2400-2	60KC	4	2	YES	2400-2	20	4.4	5.7	8.1	14	17	33	52	68	CE	CE	CE	CE	103K	23	
2400-2	60KC	6	2	YES	2400-2	20	4.4	5.5	7.5	13	15	28	42	67	CE	CE	CE	CE	199K	23	
2400-2	60KC	8	2	YES	2400-2	15	4.3	5.3	7.2	12	15	28	40	61	120	CE	CE	CE	299K	18	
2400-2	60KC	10	2	YES	2400-2	15	4.2	5.4	7.4	12	14	26	41	53	120	180	CE	CE	CE	392K	15
2400-3	90KC	3	2	YES	2400-3	20	4.3	5.5	7.8	14	16	32	49	65	CE	CE	CE	CE	103K	23	
2400-3	90KC	4	2	YES	2400-3	20	4.2	5.1	6.7	11	13	24	37	47	CE	CE	CE	CE	103K	23	
2400-3	90KC	6	2	YES	2400-3	20	4.2	4.9	6.4	9.5	11	20	30	47	CE	CE	CE	CE	199K	23	
2400-3	90KC	8	2	YES	2400-3	15	4.2	4.9	6.2	9.1	12	20	29	43	81	CE	CE	CE	299K	18	
2400-3	90KC	10	2	YES	2400-3	15	4.1	5.0	6.3	9.3	11	19	29	38	82	130	CE	CE	CE	392K	15

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 44K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK	
								5	10	20	25	50	75	100	200	300	400			500
2311	156KC	1	1	NO	2311	6	5.5	8.2	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	8K	7
2311	156KC	2	1	NO	2311	6	5.3	7.7	15	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7
2311	156KC	3	1	NO	2311	6	5.0	7.0	14	24	29	CE	CE	CE	CE	CE	CE	CE	25K	7
2400-1	30KC	3	1	NO	2400-1	15	12	28	56	130	160	CE	CE	CE	CE	CE	CE	CE	41K	9
2400-1	30KC	4	1	NO	2400-1	15	9.2	21	42	88	120	CE	CE	CE	CE	CE	CE	CE	40K	8
2400-1	30KC	6	1	NO	2400-1	10	8.3	17	34	70	93	230	380	CE	CE	CE	CE	CE	76K	5
2400-1	30KC	8	1	NO	2400-1	10	7.8	17	33	69	85	210	300	420	CE	CE	CE	CE	120K	7
2400-1	30KC	10	1	NO	2400-1	10	7.9	16	31	64	87	180	310	410	CE	CE	CE	CE	166K	10
2400-2	60KC	3	1	NO	2400-2	15	7.6	16	30	64	81	CE	CE	CE	CE	CE	CE	CE	41K	9
2400-2	60KC	4	1	NO	2400-2	15	6.5	13	23	46	58	CE	CE	CE	CE	CE	CE	CE	40K	8
2400-2	60KC	6	1	NO	2400-2	10	6.1	11	19	37	49	120	200	CE	CE	CE	CE	CE	76K	5
2400-2	60KC	8	1	NO	2400-2	10	5.9	11	19	37	45	110	160	220	CE	CE	CE	CE	120K	7
2400-2	60KC	10	1	NO	2400-2	10	5.9	9.7	18	34	46	89	160	210	CE	CE	CE	CE	166K	10
2400-3	90KC	3	1	NO	2400-3	15	6.3	12	22	44	56	CE	CE	CE	CE	CE	CE	CE	41K	9
2400-3	90KC	4	1	NO	2400-3	15	5.6	9.5	17	32	41	CE	CE	CE	CE	CE	CE	CE	40K	8
2400-3	90KC	6	1	NO	2400-3	10	5.4	8.3	14	26	34	80	130	CE	CE	CE	CE	CE	76K	5
2400-3	90KC	8	1	NO	2400-3	10	5.2	8.3	14	26	31	71	110	150	CE	CE	CE	CE	120K	7
2400-3	90KC	10	1	NO	2400-3	10	5.3	7.8	13	24	32	61	110	140	CE	CE	CE	CE	166K	10
2311	156KC	2	2	NO	2311	6	5.3	7.9	15	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7
2311	156KC	3	2	NO	2311	6	5.0	6.8	13	22	35	CE	CE	CE	CE	CE	CE	CE	25K	7
2311	156KC	4	2	NO	2311	6	5.0	6.9	13	22	35	CE	CE	CE	CE	CE	CE	CE	38K	7
2400-1	30KC	3	2	NO	2400-1	10	9.8	23	46	98	130	CE	CE	CE	CE	CE	CE	CE	40K	7
2400-1	30KC	4	2	NO	2400-1	10	8.1	18	34	71	91	CE	CE	CE	CE	CE	CE	CE	39K	6
2400-1	30KC	6	2	NO	2400-1	10	7.7	16	31	61	81	160	270	CE	CE	CE	CE	CE	82K	9
2400-1	30KC	8	2	NO	2400-1	10	7.7	14	28	51	73	150	210	320	CE	CE	CE	CE	120K	7
2400-1	30KC	10	2	NO	2400-1	10	6.9	14	24	52	63	130	220	290	CE	CE	CE	CE	156K	6
2400-2	60KC	3	2	NO	2400-2	10	6.8	13	26	51	66	CE	CE	CE	CE	CE	CE	CE	40K	7
2400-2	60KC	4	2	NO	2400-2	10	6.0	11	20	38	48	CE	CE	CE	CE	CE	CE	CE	39K	6
2400-2	60KC	6	2	NO	2400-2	10	5.8	9.7	18	33	43	82	140	CE	CE	CE	CE	CE	82K	9
2400-2	60KC	8	2	NO	2400-2	10	5.9	8.8	16	28	39	74	110	170	CE	CE	CE	CE	120K	7
2400-2	60KC	10	2	NO	2400-2	10	5.4	8.9	14	28	34	64	110	150	CE	CE	CE	CE	156K	6
2400-3	90KC	3	2	NO	2400-3	10	5.8	10	19	36	46	CE	CE	CE	CE	CE	CE	CE	40K	7
2400-3	90KC	4	2	NO	2400-3	10	5.3	8.4	15	27	34	CE	CE	CE	CE	CE	CE	CE	39K	6
2400-3	90KC	6	2	NO	2400-3	10	5.2	7.8	14	24	31	57	94	CE	CE	CE	CE	CE	82K	9
2400-3	90KC	8	2	NO	2400-3	10	5.3	7.3	12	21	28	51	75	120	CE	CE	CE	CE	120K	7
2400-3	90KC	10	2	NO	2400-3	10	4.9	7.3	11	21	25	45	76	100	CE	CE	CE	CE	156K	6
2400-1	30KC	3	2	YES	2400-1	10	8.9	20	40	84	110	CE	CE	CE	CE	CE	CE	CE	40K	7
2400-1	30KC	4	2	YES	2400-1	10	7.5	16	30	61	78	CE	CE	CE	CE	CE	CE	CE	39K	6
2400-1	30KC	6	2	YES	2400-1	10	7.0	14	27	54	66	160	270	CE	CE	CE	CE	CE	82K	9
2400-1	30KC	8	2	YES	2400-1	10	7.2	14	25	51	63	150	210	320	CE	CE	CE	CE	120K	7
2400-1	30KC	10	2	YES	2400-1	10	6.9	13	24	49	66	130	220	290	CE	CE	CE	CE	156K	6
2400-2	60KC	3	2	YES	2400-2	10	6.4	12	23	45	57	CE	CE	CE	CE	CE	CE	CE	40K	7
2400-2	60KC	4	2	YES	2400-2	10	5.7	9.7	17	33	42	CE	CE	CE	CE	CE	CE	CE	39K	6
2400-2	60KC	6	2	YES	2400-2	10	5.4	9.0	16	29	36	82	140	CE	CE	CE	CE	CE	82K	9
2400-2	60KC	8	2	YES	2400-2	10	5.6	8.7	15	28	34	74	110	170	CE	CE	CE	CE	120K	7
2400-2	60KC	10	2	YES	2400-2	10	5.5	8.3	14	27	36	64	110	150	CE	CE	CE	CE	156K	6
2400-3	90KC	3	2	YES	2400-3	10	5.5	9.1	17	32	40	CE	CE	CE	CE	CE	CE	CE	40K	7
2400-3	90KC	4	2	YES	2400-3	10	5.1	7.8	13	24	30	CE	CE	CE	CE	CE	CE	CE	39K	6
2400-3	90KC	6	2	YES	2400-3	10	4.9	7.3	12	21	26	57	94	CE	CE	CE	CE	CE	82K	9
2400-3	90KC	8	2	YES	2400-3	10	5.0	7.1	12	20	24	51	75	120	CE	CE	CE	CE	120K	7
2400-3	90KC	10	2	YES	2400-3	10	5.0	6.9	11	20	26	45	76	100	CE	CE	CE	CE	156K	6

SYSTEM/360 MODEL 4C
 MAIN STORAGE USED 100K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES					DATA SET SIZES (IN THOUSANDS)					400	500	MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300					
2311	156K	1	1	NO	2311	125	3.8	3.9	4.1	4.6	4.8	5.9	7.0	11	18	CE	CE	226K	181		
2311	156K	2	1	NO	2311	125	3.8	3.9	4.1	4.6	4.8	5.9	7.0	11	17	24	31	CE	452K	181	
2311	156K	3	1	NO	2311	125	3.8	3.9	4.1	4.5	4.7	5.7	6.6	9.7	16	22	28	35	679K	181	
2400-1	30K	3	1	NO	2400-1	350	3.8	4.0	4.4	5.7	6.3	11	15	20	41	65	86	120	1085K	500	
2400-1	30K	4	1	NO	2400-1	350	3.9	4.1	4.4	5.3	5.8	9.2	12	17	32	50	66	83	1050K	289	
2400-1	30K	6	1	NO	2400-1	350	3.9	4.1	4.4	5.1	5.4	8.4	11	15	28	40	56	69	2170K	500	
2400-1	30K	8	1	NO	2400-1	350	3.9	4.1	4.5	5.1	5.4	7.7	11	13	25	39	51	67	2870K	127	
2400-1	30K	10	1	NO	2400-1	350	4.0	4.2	4.5	5.1	5.5	7.8	9.7	13	25	36	51	62	4304K	420	
2400-2	60K	3	1	NO	2400-2	350	3.8	3.9	4.2	5.1	5.5	8.3	12	14	29	45	58	77	1085K	500	
2400-2	60K	4	1	NO	2400-2	350	3.8	4.0	4.2	4.9	5.2	7.5	9.4	13	23	36	46	58	1050K	289	
2400-2	60K	6	1	NO	2400-2	350	3.9	4.0	4.2	4.7	4.9	7.1	8.7	12	21	29	41	50	2170K	500	
2400-2	60K	8	1	NO	2400-2	350	3.9	4.0	4.3	4.7	5.0	6.6	8.7	11	19	29	37	48	2870K	127	
2400-2	60K	10	1	NO	2400-2	350	3.9	4.1	4.3	4.8	5.0	6.7	8.1	11	19	27	38	46	4304K	420	
2400-3	90K	3	1	NO	2400-3	350	3.8	3.9	4.1	4.9	5.3	7.6	11	13	26	39	51	67	1085K	500	
2400-3	90K	4	1	NO	2400-3	350	3.8	3.9	4.1	4.7	5.0	7.0	8.7	12	21	32	41	51	1050K	289	
2400-3	90K	6	1	NO	2400-3	350	3.9	4.0	4.2	4.6	4.8	6.6	8.1	11	19	26	36	44	2170K	500	
2400-3	90K	8	1	NO	2400-3	350	3.9	4.0	4.2	4.6	4.8	6.3	8.1	9.5	17	26	33	42	2870K	127	
2400-3	90K	10	1	NO	2400-3	350	3.9	4.1	4.3	4.6	4.8	6.3	7.5	9.6	17	24	33	41	4304K	420	
2311	156K	2	2	NO	2311	125	3.8	3.9	4.1	4.5	4.7	5.7	7.6	9.0	15	20	26	CE	452K	181	
2311	156K	3	2	NO	2311	125	3.8	3.8	4.0	4.3	4.5	5.3	7.0	8.2	13	18	22	27	678K	181	
2311	156K	4	2	NO	2311	125	3.8	3.9	4.0	4.4	4.5	5.3	7.1	8.2	13	18	22	27	1018K	181	
2400-1	30K	3	2	NO	2400-1	350	3.8	4.0	4.4	5.4	6.1	9.2	13	18	34	54	73	93	1085K	500	
2400-1	30K	4	2	NO	2400-1	350	3.8	4.0	4.3	5.1	5.7	8.3	11	14	27	42	54	73	1085K	500	
2400-1	30K	6	2	NO	2400-1	250	3.9	4.0	4.3	5.3	5.7	7.7	11	14	26	37	48	67	2170K	500	
2400-1	30K	8	2	NO	2400-1	250	3.9	4.1	4.4	5.0	5.8	7.7	9.6	14	23	32	48	59	3244K	463	
2400-1	30K	10	2	NO	2400-1	150	3.9	4.1	4.4	5.0	5.3	7.8	9.7	12	23	33	42	52	4283K	385	
2400-2	60K	3	2	NO	2400-2	350	3.8	3.9	4.2	5.0	5.5	7.7	11	14	26	40	53	68	1085K	500	
2400-2	60K	4	2	NO	2400-2	350	3.8	3.9	4.2	4.8	5.3	7.1	8.9	12	21	32	41	55	1085K	500	
2400-2	60K	6	2	NO	2400-2	250	3.8	4.0	4.2	5.0	5.3	6.8	9.3	12	21	30	38	53	2170K	500	
2400-2	60K	8	2	NO	2400-2	250	3.9	4.0	4.2	4.7	5.4	6.9	8.4	12	19	26	39	48	3244K	463	
2400-2	60K	10	2	NO	2400-2	150	3.9	4.1	4.3	4.8	5.0	7.0	8.5	11	19	27	34	42	4283K	385	
2400-3	90K	3	2	NO	2400-3	350	3.8	3.9	4.2	4.8	5.3	7.4	9.8	13	24	36	48	62	1085K	500	
2400-3	90K	4	2	NO	2400-3	350	3.8	3.9	4.1	4.7	5.1	6.8	8.4	11	20	30	38	50	1085K	500	
2400-3	90K	6	2	NO	2400-3	250	3.8	4.0	4.2	4.9	5.2	6.6	8.9	11	20	28	36	50	2170K	500	
2400-3	90K	8	2	NO	2400-3	250	3.9	4.0	4.2	4.6	5.3	6.6	8.0	11	18	25	37	45	3244K	463	
2400-3	90K	10	2	NO	2400-3	150	3.9	4.0	4.2	4.7	4.9	6.8	8.2	9.6	18	25	32	39	4283K	385	
2400-1	30K	3	2	YES	2400-1	350	3.8	4.0	4.4	5.2	5.9	8.6	12	16	31	48	65	83	1085K	500	
2400-1	30K	4	2	YES	2400-1	350	3.8	4.0	4.2	5.0	5.6	7.8	10	13	24	38	49	65	1085K	500	
2400-1	30K	6	2	YES	2400-1	250	3.9	4.0	4.3	4.8	5.1	7.3	9.1	12	22	31	43	53	2142K	387	
2400-1	30K	8	2	YES	2400-1	250	3.9	4.1	4.3	4.8	5.1	6.9	9.1	11	20	31	39	53	3151K	289	
2400-1	30K	10	2	YES	2400-1	150	4.0	4.1	4.4	4.9	5.2	7.0	8.5	11	20	28	40	49	4122K	231	
2400-2	60K	3	2	YES	2400-2	350	3.8	3.9	4.2	4.9	5.4	7.5	10	13	24	37	49	63	1085K	500	
2400-2	60K	4	2	YES	2400-2	350	3.8	3.9	4.1	4.7	5.2	6.9	8.6	11	20	30	39	52	1085K	500	
2400-2	60K	6	2	YES	2400-2	250	3.9	4.0	4.2	4.6	4.8	6.6	8.0	11	18	26	35	43	2142K	387	
2400-2	60K	8	2	YES	2400-2	250	3.9	4.0	4.2	4.6	4.8	6.3	8.1	9.5	17	26	33	44	3151K	289	
2400-2	60K	10	2	YES	2400-2	150	3.9	4.1	4.3	4.7	4.9	6.4	7.6	9.7	17	24	33	41	4122K	231	
2400-3	90K	3	2	YES	2400-3	350	3.8	3.9	4.2	4.8	5.3	7.2	9.5	12	23	35	46	59	1085K	500	
2400-3	90K	4	2	YES	2400-3	350	3.8	3.9	4.1	4.6	5.1	6.7	8.2	11	19	29	37	48	1085K	500	
2400-3	90K	6	2	YES	2400-3	250	3.8	4.0	4.1	4.5	4.7	6.4	7.7	9.7	17	24	33	40	2142K	387	
2400-3	90K	8	2	YES	2400-3	250	3.9	4.0	4.2	4.6	4.7	6.1	7.8	9.1	16	24	31	41	3151K	289	
2400-3	90K	10	2	YES	2400-3	150	3.9	4.0	4.2	4.6	4.8	6.2	7.3	9.2	16	22	31	38	4122K	231	

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 100K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET					SIZES (IN THOUSANDS)					400	500	MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300					
2311	156KC	1	1	NO	2311	30	3.9	4.2	4.7	5.7	6.2	13	CE	CE	CE	CE	CE	CE	CE	56K	45
2311	156KC	2	1	NO	2311	30	3.9	4.2	4.7	5.7	6.2	12	CE	CE	CE	CE	CE	CE	CE	112K	45
2311	156KC	3	1	NO	2311	30	3.8	4.1	4.5	5.3	5.7	11	14	18	CE	CE	CE	CE	CE	169K	45
2400-1	30KC	3	1	NO	2400-1	85	4.1	5.4	7.7	14	17	35	54	78	170	CE	CE	CE	CE	267K	98
2400-1	30KC	4	1	NO	2400-1	85	4.1	5.0	6.9	12	14	28	40	58	130	CE	CE	CE	CE	271K	125
2400-1	30KC	6	1	NO	2400-1	85	4.2	4.7	6.3	9.8	12	22	34	46	100	190	260	360	542K	125	
2400-1	30KC	8	1	NO	2400-1	85	4.2	4.8	5.8	8.9	12	22	31	44	93	170	220	320	814K	125	
2400-1	30KC	10	1	NO	2400-1	85	4.2	4.8	5.8	8.8	11	20	30	40	88	170	220	270	1085K	125	
2400-2	60KC	3	1	NO	2400-2	85	3.9	4.6	5.8	8.8	11	20	30	42	88	CE	CE	CE	CE	267K	98
2400-2	60KC	4	1	NO	2400-2	85	3.9	4.4	5.4	7.6	8.7	17	23	32	66	CE	CE	CE	CE	271K	125
2400-2	60KC	6	1	NO	2400-2	85	4.0	4.3	5.1	7.0	7.9	14	20	26	54	100	140	190	542K	125	
2400-2	60KC	8	1	NO	2400-2	85	4.0	4.2	4.9	6.6	7.8	13	19	25	51	86	120	170	814K	125	
2400-2	60KC	10	1	NO	2400-2	85	4.1	4.4	4.9	6.5	7.2	12	18	23	48	86	120	150	1085K	125	
2400-3	90KC	3	1	NO	2400-3	85	3.9	4.6	5.2	7.4	8.6	15	22	31	63	CE	CE	CE	CE	267K	98
2400-3	90KC	4	1	NO	2400-3	85	3.9	4.3	5.0	6.6	7.3	13	18	24	48	CE	CE	CE	CE	271K	125
2400-3	90KC	6	1	NO	2400-3	85	3.9	4.2	4.8	6.2	6.8	11	16	20	40	72	96	140	542K	125	
2400-3	90KC	8	1	NO	2400-3	85	4.0	4.2	4.6	5.9	6.8	11	15	19	38	62	82	120	814K	125	
2400-3	90KC	10	1	NO	2400-3	85	4.0	4.3	4.7	5.9	6.4	9.9	14	18	36	63	82	110	1085K	125	
2311	156KC	2	2	NO	2311	30	3.8	4.1	4.5	6.2	6.8	9.9	13	17	CE	CE	CE	CE	112K	45	
2311	156KC	3	2	NO	2311	30	3.8	4.0	4.2	5.5	6.0	8.3	11	13	CE	CE	CE	CE	169K	45	
2311	156KC	4	2	NO	2311	30	3.8	4.0	4.2	5.6	6.0	8.3	11	13	23	CE	CE	CE	CE	253K	45
2400-1	30KC	3	2	NO	2400-1	85	4.0	5.0	6.8	12	15	30	44	61	14C	CE	CE	CE	CE	256K	56
2400-1	30KC	4	2	NO	2400-1	85	4.0	4.7	6.2	9.5	12	23	33	46	97	CE	CE	CE	CE	271K	125
2400-1	30KC	6	2	NO	2400-1	50	4.1	4.6	6.1	9.7	12	20	31	40	88	130	180	250	542K	125	
2400-1	30KC	8	2	NO	2400-1	50	4.1	4.6	6.2	8.5	9.6	19	26	34	75	120	150	220	810K	115	
2400-1	30KC	10	2	NO	2400-1	35	4.2	4.7	6.3	8.6	9.8	19	27	34	64	120	150	190	1070K	96	
2400-2	60KC	3	2	NO	2400-2	85	3.9	4.4	5.4	8.1	9.2	18	25	34	72	CE	CE	CE	CE	256K	56
2400-2	60KC	4	2	NO	2400-2	85	3.9	4.3	5.1	6.8	8.0	14	19	27	53	CE	CE	CE	CE	271K	125
2400-2	60KC	6	2	NO	2400-2	50	3.9	4.2	5.1	7.0	7.8	13	19	23	49	71	94	140	542K	125	
2400-2	60KC	8	2	NO	2400-2	50	4.0	4.2	5.1	6.4	7.0	12	16	20	42	61	81	120	810K	115	
2400-2	60KC	10	2	NO	2400-2	35	4.0	4.3	5.2	6.5	7.1	13	17	21	37	63	82	110	1070K	96	
2400-3	90KC	3	2	NO	2400-3	85	3.8	4.3	5.0	6.9	7.7	14	19	26	53	CE	CE	CE	CE	256K	56
2400-3	90KC	4	2	NO	2400-3	85	3.9	4.2	4.8	6.1	6.9	12	15	20	40	CE	CE	CE	CE	271K	125
2400-3	90KC	6	2	NO	2400-3	50	3.9	4.1	4.8	6.3	6.8	11	15	18	37	53	70	97	542K	125	
2400-3	90KC	8	2	NO	2400-3	50	3.9	4.1	4.8	5.8	6.3	9.9	13	16	33	47	61	86	810K	115	
2400-3	90KC	10	2	NO	2400-3	35	4.0	4.2	4.9	5.9	6.4	11	14	17	29	47	62	76	1070K	96	
2400-1	30KC	3	2	YES	2400-1	85	4.0	4.8	6.4	11	13	26	39	53	120	CE	CE	CE	CE	256K	56
2400-1	30KC	4	2	YES	2400-1	85	4.0	4.6	5.9	8.7	11	20	29	40	84	CE	CE	CE	CE	271K	125
2400-1	30KC	6	2	YES	2400-1	50	4.0	4.5	5.5	8.0	9.1	17	25	33	70	130	180	250	542K	125	
2400-1	30KC	8	2	YES	2400-1	50	4.1	4.5	5.2	7.4	9.0	16	23	32	66	120	150	220	810K	115	
2400-1	30KC	10	2	YES	2400-1	35	4.1	4.6	5.3	7.4	8.3	15	23	29	61	120	150	190	1070K	96	
2400-2	60KC	3	2	YES	2400-2	85	3.9	4.4	5.2	7.5	8.5	16	23	30	63	CE	CE	CE	CE	256K	56
2400-2	60KC	4	2	YES	2400-2	85	3.9	4.2	4.9	6.5	7.5	13	17	24	47	CE	CE	CE	CE	271K	125
2400-2	60KC	6	2	YES	2400-2	50	3.9	4.2	4.8	6.1	6.7	11	15	20	39	71	94	140	542K	125	
2400-2	60KC	8	2	YES	2400-2	50	4.0	4.2	4.6	5.8	6.7	11	14	19	37	61	81	120	810K	115	
2400-2	60KC	10	2	YES	2400-2	35	4.0	4.3	4.6	5.9	6.3	9.7	14	18	35	63	82	110	1070K	96	
2400-3	90KC	3	2	YES	2400-3	85	3.8	4.2	4.8	6.6	7.3	13	18	23	47	CE	CE	CE	CE	256K	56
2400-3	90KC	4	2	YES	2400-3	85	3.9	4.1	4.7	5.8	6.6	11	14	19	36	CE	CE	CE	CE	271K	125
2400-3	90KC	6	2	YES	2400-3	50	3.9	4.1	4.6	5.6	6.1	9.0	13	16	31	53	70	97	542K	125	
2400-3	90KC	8	2	YES	2400-3	50	3.9	4.1	4.4	5.4	6.1	8.9	12	16	29	47	61	86	810K	115	
2400-3	90KC	10	2	YES	2400-3	35	4.0	4.2	4.5	5.5	5.8	8.4	12	15	27	47	62	76	1070K	96	

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 100K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES										SIZES (IN THOUSANDS)					MAX SIZE	SCRIB BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2311	156KC	1	1	NO	2311	15	4.1	4.7	5.8	12	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	22K	18	
2311	156KC	2	1	NO	2311	15	4.1	4.7	5.8	11	13	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18
2311	156KC	3	1	NO	2311	15	4.0	4.5	5.2	9.3	11	18	CE	CE	CE	CE	CE	CE	CE	CE	CE	67K	18
2400-1	30KC	3	1	NO	2400-1	35	5.1	8.8	17	34	46	96	160	220	CE	CE	CE	CE	CE	CE	108K	50	
2400-1	30KC	4	1	NO	2400-1	35	4.8	7.6	13	26	34	71	120	160	CE	CE	CE	CE	CE	CE	108K	50	
2400-1	30KC	6	1	NO	2400-1	35	4.7	6.8	12	22	29	60	89	130	360	CE	CE	CE	CE	CE	217K	50	
2400-1	30KC	8	1	NO	2400-1	35	4.8	6.9	12	21	26	53	87	120	300	470	CE	CE	CE	CE	325K	50	
2400-1	30KC	10	1	NO	2400-1	35	4.8	6.2	10	19	26	53	78	120	270	400	530	CE	CE	CE	CE	433K	48
2400-2	60KC	3	1	NO	2400-2	35	4.4	6.3	11	19	25	50	80	120	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	4	1	NO	2400-2	35	4.2	5.7	8.4	15	19	38	60	79	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	6	1	NO	2400-2	35	4.3	5.3	7.6	13	17	32	47	67	190	CE	CE	CE	CE	CE	217K	50	
2400-2	60KC	8	1	NO	2400-2	35	4.3	5.4	7.6	13	15	29	46	60	160	240	CE	CE	CE	CE	325K	50	
2400-2	60KC	10	1	NO	2400-2	35	4.3	5.1	7.0	12	15	29	41	60	140	210	270	CE	CE	CE	CE	433K	48
2400-3	90KC	3	1	NO	2400-3	35	4.2	5.5	8.2	14	18	35	55	78	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	4	1	NO	2400-3	35	4.1	5.1	6.9	12	14	27	42	55	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	6	1	NO	2400-3	35	4.1	4.9	6.4	9.9	13	23	33	47	130	CE	CE	CE	CE	CE	217K	50	
2400-3	90KC	8	1	NO	2400-3	35	4.1	4.9	6.4	9.7	12	21	32	42	110	170	CE	CE	CE	CE	325K	50	
2400-3	90KC	10	1	NO	2400-3	35	4.2	4.7	6.0	9.0	12	21	30	42	93	140	190	CE	CE	CE	CE	433K	48
2311	156KC	2	2	NO	2311	15	4.0	4.5	6.4	9.1	11	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18	
2311	156KC	3	2	NO	2311	15	3.9	4.1	5.6	7.4	8.3	14	CE	CE	CE	CE	CE	CE	CE	CE	67K	18	
2311	156KC	4	2	NO	2311	15	3.9	4.2	5.6	7.4	8.4	14	18	34	CE	CE	CE	CE	CE	CE	161K	18	
2400-1	30KC	3	2	NO	2400-1	35	5.0	8.2	14	29	36	77	130	180	CE	CE	CE	CE	CE	CE	108K	50	
2400-1	30KC	4	2	NO	2400-1	35	4.7	6.8	12	23	27	56	91	120	CE	CE	CE	CE	CE	CE	107K	40	
2400-1	30KC	6	2	NO	2400-1	35	4.6	6.6	11	22	26	48	81	110	240	CE	CE	CE	CE	CE	217K	50	
2400-1	30KC	8	2	NO	2400-1	25	4.6	6.7	9.5	19	22	48	70	91	210	320	CE	CE	CE	CE	324K	46	
2400-1	30KC	10	2	NO	2400-1	25	4.6	6.7	9.5	19	22	40	58	92	180	270	360	CE	CE	CE	CE	428K	38
2400-2	60KC	3	2	NO	2400-2	35	4.4	6.0	8.9	17	20	41	63	89	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	4	2	NO	2400-2	35	4.3	5.3	7.5	14	16	31	48	63	CE	CE	CE	CE	CE	CE	107K	40	
2400-2	60KC	6	2	NO	2400-2	35	4.2	5.2	7.5	13	15	27	43	56	130	CE	CE	CE	CE	CE	217K	50	
2400-2	60KC	8	2	NO	2400-2	25	4.2	5.3	6.7	12	14	27	38	49	110	170	CE	CE	CE	CE	324K	46	
2400-2	60KC	10	2	NO	2400-2	25	4.2	5.4	6.8	12	14	23	32	49	94	140	190	CE	CE	CE	CE	428K	38
2400-3	90KC	3	2	NO	2400-3	35	4.2	5.3	7.3	13	15	29	44	62	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	4	2	NO	2400-3	35	4.1	4.8	6.3	11	12	22	34	44	CE	CE	CE	CE	CE	CE	167K	40	
2400-3	90KC	6	2	NO	2400-3	35	4.0	4.8	6.4	9.9	12	20	31	40	86	CE	CE	CE	CE	CE	217K	50	
2400-3	90KC	8	2	NO	2400-3	25	4.1	4.8	5.8	8.9	11	20	27	35	76	120	CE	CE	CE	CE	324K	46	
2400-3	90KC	10	2	NO	2400-3	25	4.1	4.9	5.9	9.0	11	17	23	35	65	96	130	CE	CE	CE	CE	428K	38
2400-1	30KC	3	2	YES	2400-1	35	4.8	7.6	13	25	32	66	110	150	CE	CE	CE	CE	CE	CE	108K	50	
2400-1	30KC	4	2	YES	2400-1	35	4.6	6.4	11	20	24	49	78	110	CE	CE	CE	CE	CE	CE	167K	40	
2400-1	30KC	6	2	YES	2400-1	35	4.4	5.9	9.0	17	21	42	63	87	240	CE	CE	CE	CE	CE	217K	50	
2400-1	30KC	8	2	YES	2400-1	25	4.5	5.9	8.9	16	19	38	61	79	210	320	CE	CE	CE	CE	324K	46	
2400-1	30KC	10	2	YES	2400-1	25	4.5	5.5	8.1	14	19	38	55	80	180	270	360	CE	CE	CE	CE	428K	38
2400-2	60KC	3	2	YES	2400-2	35	4.3	5.7	8.2	15	18	36	55	77	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	4	2	YES	2400-2	35	4.2	5.1	7.0	12	14	27	42	55	CE	CE	CE	CE	CE	CE	107K	40	
2400-2	60KC	6	2	YES	2400-2	35	4.1	4.9	6.5	11	13	23	34	47	130	CE	CE	CE	CE	CE	217K	50	
2400-2	60KC	8	2	YES	2400-2	25	4.1	4.9	6.5	9.9	12	21	33	43	110	170	CE	CE	CE	CE	324K	46	
2400-2	60KC	10	2	YES	2400-2	25	4.2	4.7	6.0	9.1	12	22	30	43	94	140	190	CE	CE	CE	CE	428K	38
2400-3	90KC	3	2	YES	2400-3	35	4.1	5.1	6.8	11	14	26	39	54	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	4	2	YES	2400-3	35	4.1	4.7	6.0	9.3	11	20	30	39	CE	CE	CE	CE	CE	CE	107K	40	
2400-3	90KC	6	2	YES	2400-3	35	4.0	4.5	5.7	8.3	9.6	17	25	33	86	CE	CE	CE	CE	CE	217K	50	
2400-3	90KC	8	2	YES	2400-3	25	4.0	4.6	5.7	8.0	9.0	16	24	31	76	120	CE	CE	CE	CE	324K	46	
2400-3	90KC	10	2	YES	2400-3	25	4.1	4.4	5.4	7.5	9.1	16	22	31	65	96	130	CE	CE	CE	CE	428K	38

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 100K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES				FOR DATA SET				SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300	400	500				
2311	156KC	1	1	NO	2311	6	4.7	8.3	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	8K	7	
2311	156KC	2	1	NO	2311	6	4.7	7.8	12	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7	
2311	156KC	3	1	NO	2311	6	4.4	7.1	11	18	21	CE	CE	CE	CE	CE	CE	CE	CE	26K	7	
2400-1	30KC	3	1	NO	2400-1	20	8.8	21	45	96	130	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-1	30KC	4	1	NO	2400-1	20	7.6	17	34	71	90	CE	CE	CE	CE	CE	CE	CE	CE	41K	11	
2400-1	30KC	6	1	NO	2400-1	20	6.8	15	29	60	73	200	340	CE	CE	CE	CE	CE	CE	86K	20	
2400-1	30KC	8	1	NO	2400-1	20	6.8	13	26	53	71	170	260	390	CE	CE	CE	CE	CE	130K	20	
2400-1	30KC	10	1	NO	2400-1	20	6.2	13	26	53	65	170	250	330	CE	CE	CE	CE	CE	173K	20	
2400-2	60KC	3	1	NO	2400-2	20	6.3	13	25	50	67	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	4	1	NO	2400-2	20	5.7	11	19	38	47	CE	CE	CE	CE	CE	CE	CE	CE	41K	11	
2400-2	60KC	6	1	NO	2400-2	20	5.3	9.2	17	32	39	100	170	CE	CE	CE	CE	CE	CE	86K	20	
2400-2	60KC	8	1	NO	2400-2	20	5.4	8.4	15	29	38	86	140	200	CE	CE	CE	CE	CE	130K	20	
2400-2	60KC	10	1	NO	2400-2	20	5.0	8.5	15	29	35	86	130	170	CE	CE	CE	CE	CE	173K	20	
2400-3	90KC	3	1	NO	2400-3	20	5.5	9.4	18	35	46	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	4	1	NO	2400-3	20	5.1	8.2	14	27	33	CE	CE	CE	CE	CE	CE	CE	CE	41K	11	
2400-3	90KC	6	1	NO	2400-3	20	4.8	7.5	13	23	28	69	120	CE	CE	CE	CE	CE	CE	86K	20	
2400-3	90KC	8	1	NO	2400-3	20	4.9	6.9	11	21	27	59	91	140	CE	CE	CE	CE	CE	130K	20	
2400-3	90KC	10	1	NO	2400-3	20	4.6	7.0	12	21	25	59	86	120	CE	CE	CE	CE	CE	173K	20	
2311	156KC	2	2	NO	2311	6	4.5	6.9	11	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7	
2311	156KC	3	2	NO	2311	6	4.1	5.9	8.0	13	15	CE	CE	CE	CE	CE	CE	CE	CE	26K	7	
2311	156KC	4	2	NO	2311	6	4.1	5.9	8.1	13	15	CE	CE	CE	CE	CE	CE	CE	CE	39K	7	
2400-1	30KC	3	2	NO	2400-1	20	8.2	18	36	81	100	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-1	30KC	4	2	NO	2400-1	20	7.0	14	27	56	76	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-1	30KC	6	2	NO	2400-1	20	6.6	13	26	49	67	130	230	CE	CE	CE	CE	CE	CE	86K	20	
2400-1	30KC	8	2	NO	2400-1	15	6.6	13	22	47	58	120	200	260	CE	CE	CE	CE	CE	129K	18	
2400-1	30KC	10	2	NO	2400-1	15	6.7	11	22	40	49	120	170	220	CE	CE	CE	CE	CE	171K	15	
2400-2	60KC	3	2	NO	2400-2	20	6.0	11	20	43	53	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	4	2	NO	2400-2	20	5.4	8.9	16	31	40	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	6	2	NO	2400-2	20	5.2	8.3	15	27	36	68	120	CE	CE	CE	CE	CE	CE	86K	20	
2400-2	60KC	8	2	NO	2400-2	15	5.3	8.4	13	26	32	59	110	140	CE	CE	CE	CE	CE	129K	18	
2400-2	60KC	10	2	NO	2400-2	15	5.3	7.4	13	22	27	59	87	120	CE	CE	CE	CE	CE	171K	15	
2400-3	90KC	3	2	NO	2400-3	20	5.3	8.6	15	30	37	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	4	2	NO	2400-3	20	4.9	7.2	12	22	29	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	6	2	NO	2400-3	20	4.8	6.9	12	20	26	47	79	CE	CE	CE	CE	CE	CE	86K	20	
2400-3	90KC	8	2	NO	2400-3	15	4.8	7.0	10	19	23	41	69	91	CE	CE	CE	CE	CE	129K	18	
2400-3	90KC	10	2	NO	2400-3	15	4.9	6.3	11	17	20	41	60	78	CE	CE	CE	CE	CE	171K	15	
2400-1	30KC	3	2	YES	2400-1	20	7.5	16	31	70	86	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-1	30KC	4	2	YES	2400-1	20	6.5	13	24	49	65	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-1	30KC	6	2	YES	2400-1	20	6.0	12	21	41	51	130	230	CE	CE	CE	CE	CE	CE	86K	20	
2400-1	30KC	8	2	YES	2400-1	15	5.9	11	19	37	51	120	200	260	CE	CE	CE	CE	CE	129K	18	
2400-1	30KC	10	2	YES	2400-1	15	5.5	11	19	38	46	120	170	220	CE	CE	CE	CE	CE	171K	15	
2400-2	60KC	3	2	YES	2400-2	20	5.7	9.9	18	37	46	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	4	2	YES	2400-2	20	5.2	8.2	14	27	35	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	6	2	YES	2400-2	20	4.9	7.5	13	23	28	68	120	CE	CE	CE	CE	CE	CE	86K	20	
2400-2	60KC	8	2	YES	2400-2	15	4.9	7.0	12	21	28	59	110	140	CE	CE	CE	CE	CE	129K	18	
2400-2	60KC	10	2	YES	2400-2	15	4.7	7.1	12	21	26	59	87	120	CE	CE	CE	CE	CE	171K	15	
2400-3	90KC	3	2	YES	2400-3	20	5.0	7.9	14	27	32	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	4	2	YES	2400-3	20	4.7	6.7	11	19	25	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	6	2	YES	2400-3	20	4.6	6.3	9.5	17	20	47	79	CE	CE	CE	CE	CE	CE	86K	20	
2400-3	90KC	8	2	YES	2400-3	15	4.6	6.0	8.9	16	20	41	69	91	CE	CE	CE	CE	CE	129K	18	
2400-3	90KC	10	2	YES	2400-3	15	4.4	6.1	9.0	16	19	41	60	78	CE	CE	CE	CE	CE	171K	15	

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 200K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES										FOR DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300	400	500						
2311	156KC	1	1	NO	2311	125	3.8	3.9	4.1	4.6	4.8	6.0	7.1	8.3	13	CE	CE	CE	228K	181				
2311	156KC	2	1	NO	2311	125	3.8	3.9	4.1	4.6	4.8	6.0	7.1	8.3	13	24	31	CE	456K	181				
2311	156KC	3	1	NO	2311	125	3.8	3.9	4.1	4.5	4.7	5.7	6.7	7.8	12	23	29	35	684K	181				
2400-2	60KC	3	1	NO	2400-2	350	3.8	4.0	4.2	4.7	5.2	7.2	9.8	13	25	38	54	67	1085K	500				
2400-2	60KC	4	1	NO	2400-2	350	3.8	4.0	4.2	4.7	4.9	6.6	8.8	11	22	30	43	53	1085K	500				
2400-2	60KC	6	1	NO	2400-2	350	3.9	4.0	4.2	4.7	5.0	6.1	8.0	9.5	19	27	38	46	2170K	500				
2400-2	60KC	8	1	NO	2400-2	350	3.9	4.1	4.3	4.8	5.0	6.2	7.4	9.5	18	27	34	42	3256K	500				
2400-2	60KC	10	1	NO	2400-2	300	3.9	4.1	4.3	4.8	5.0	6.2	7.4	8.6	18	24	35	42	4341K	500				
2400-3	90KC	3	1	NO	2400-3	350	3.8	3.9	4.1	4.5	5.0	6.7	9.0	12	22	34	47	58	1085K	500				
2400-3	90KC	4	1	NO	2400-3	350	3.8	3.9	4.1	4.6	4.8	6.2	8.1	9.7	19	27	38	46	1085K	500				
2400-3	90KC	6	1	NO	2400-3	350	3.9	4.0	4.2	4.6	4.8	5.8	7.5	8.8	17	24	34	41	2170K	500				
2400-3	90KC	8	1	NO	2400-3	350	3.9	4.0	4.2	4.6	4.8	5.9	6.9	8.8	16	24	31	37	3256K	500				
2400-3	90KC	10	1	NO	2400-3	300	3.9	4.1	4.3	4.7	4.9	5.9	6.9	8.0	16	22	31	37	4341K	500				
2311	156KC	2	2	NO	2311	125	3.8	3.9	4.1	4.5	4.7	5.8	6.9	7.9	13	20	26	CE	456K	181				
2311	156KC	3	2	NO	2311	125	3.8	3.9	4.0	4.4	4.5	5.4	6.2	7.1	11	18	23	27	684K	181				
2311	156KC	4	2	NO	2311	125	3.8	3.9	4.0	4.4	4.5	5.4	6.3	7.1	11	18	23	27	1026K	181				
2400-2	60KC	3	2	NO	2400-2	350	3.8	3.9	4.1	4.6	5.0	6.8	9.1	12	22	34	48	59	1085K	500				
2400-2	60KC	4	2	NO	2400-2	350	3.8	4.0	4.2	4.6	4.8	6.3	8.3	11	20	27	39	47	1085K	500				
2400-2	60KC	6	2	NO	2400-2	350	3.8	4.0	4.2	4.7	4.9	6.8	8.4	9.9	19	26	39	47	2170K	500				
2400-2	60KC	8	2	NO	2400-2	350	3.9	4.0	4.3	4.7	5.0	6.2	8.4	10	17	27	34	41	3256K	500				
2400-2	60KC	10	2	NO	2400-2	300	3.9	4.1	4.3	4.8	5.0	6.2	8.6	11	17	23	35	42	4341K	500				
2400-3	90KC	3	2	NO	2400-3	350	3.8	3.9	4.1	4.5	4.9	6.6	8.6	12	21	31	44	54	1085K	500				
2400-3	90KC	4	2	NO	2400-3	350	3.8	3.9	4.1	4.5	4.7	6.1	7.9	9.5	18	25	35	43	1085K	500				
2400-3	90KC	6	2	NO	2400-3	350	3.8	4.0	4.2	4.6	4.9	6.6	8.0	9.4	18	25	37	45	2170K	500				
2400-3	90KC	8	2	NO	2400-3	350	3.9	4.0	4.2	4.7	4.9	6.0	8.1	9.5	16	25	32	39	3256K	500				
2400-3	90KC	10	2	NO	2400-3	300	3.9	4.0	4.3	4.7	4.9	6.0	8.2	9.7	16	22	33	40	4341K	500				
2400-2	60KC	3	2	YES	2400-2	350	3.8	3.9	4.1	4.5	5.0	6.7	8.8	12	21	32	45	55	1085K	500				
2400-2	60KC	4	2	YES	2400-2	350	3.8	3.9	4.1	4.6	4.8	6.2	8.1	9.7	19	26	36	44	1085K	500				
2400-2	60KC	6	2	YES	2400-2	350	3.9	4.0	4.2	4.6	4.8	5.8	7.5	8.9	17	23	33	40	2170K	500				
2400-2	60KC	8	2	YES	2400-2	350	3.9	4.0	4.2	4.6	4.9	5.9	6.9	8.8	16	24	30	36	3247K	472				
2400-2	60KC	10	2	YES	2400-2	300	3.9	4.1	4.3	4.7	4.9	5.9	7.0	8.1	16	22	30	37	4334K	481				
2400-3	90KC	3	2	YES	2400-3	350	3.8	3.9	4.1	4.5	4.9	6.5	8.4	11	20	30	42	52	1085K	500				
2400-3	90KC	4	2	YES	2400-3	350	3.8	3.9	4.1	4.5	4.7	6.0	7.7	9.3	18	25	34	42	1085K	500				
2400-3	90KC	6	2	YES	2400-3	350	3.9	4.0	4.2	4.5	4.7	5.7	7.2	8.5	16	22	31	37	2170K	500				
2400-3	90KC	8	2	YES	2400-3	350	3.9	4.0	4.2	4.6	4.8	5.7	6.7	8.4	15	22	28	34	3247K	472				
2400-3	90KC	10	2	YES	2400-3	300	3.9	4.0	4.2	4.6	4.8	5.8	6.7	7.8	15	20	28	34	4334K	481				

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 200K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES										DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500										
2311	156KC	1	1	NO	2311	30	3.9	4.2	4.7	5.7	6.2	8.8	CE	CE	CE	CE	CE	CE	56K	45								
2311	156KC	2	1	NO	2311	30	3.9	4.2	4.7	5.7	6.2	8.8	16	20	CE	CE	CE	CE	113K	45								
2311	156KC	3	1	NO	2311	30	3.8	4.1	4.5	5.3	5.7	7.8	14	18	CE	CE	CE	CE	170K	45								
2400-2	60KC	3	1	NO	2400-2	90	3.9	4.2	5.1	7.9	8.9	18	28	35	80	CE	CE	CE	271K	125								
2400-2	60KC	4	1	NO	2400-2	90	3.9	4.3	4.8	7.1	7.9	14	21	27	58	CE	CE	CE	250K	45								
2400-2	60KC	6	1	NO	2400-2	90	4.0	4.3	4.8	6.5	7.1	12	18	23	47	86	140	170	542K	125								
2400-2	60KC	8	1	NO	2400-2	90	4.0	4.3	4.9	5.9	6.6	12	16	23	46	87	120	150	814K	125								
2400-2	60KC	10	1	NO	2400-2	90	4.1	4.4	4.9	6.0	6.5	11	16	20	41	72	95	120	1054K	76								
2400-3	90KC	3	1	NO	2400-3	90	3.9	4.1	4.8	6.8	7.5	14	21	26	58	CE	CE	CE	271K	125								
2400-3	90KC	4	1	NO	2400-3	90	3.9	4.1	4.6	6.2	6.8	11	16	20	42	CE	CE	CE	250K	45								
2400-3	90KC	6	1	NO	2400-3	90	3.9	4.2	4.6	5.8	6.3	9.7	14	18	35	63	95	120	542K	125								
2400-3	90KC	8	1	NO	2400-3	90	4.0	4.2	4.6	5.4	6.0	9.7	13	18	34	63	82	110	814K	125								
2400-3	90KC	10	1	NO	2400-3	90	4.0	4.3	4.7	5.5	5.9	8.8	13	16	31	53	69	87	1054K	76								
2311	156KC	2	2	NO	2311	30	3.9	4.1	4.6	5.4	5.9	8.1	14	17	CE	CE	CE	CE	113K	45								
2311	156KC	3	2	NO	2311	30	3.8	4.0	4.2	4.8	5.1	6.4	11	14	CE	CE	CE	CE	170K	45								
2311	156KC	4	2	NO	2311	30	3.8	4.0	4.2	4.8	5.1	6.4	11	14	24	CE	CE	CE	255K	45								
2400-2	60KC	3	2	NO	2400-2	90	3.9	4.1	4.9	7.1	7.9	15	23	29	64	CE	CE	CE	271K	125								
2400-2	60KC	4	2	NO	2400-2	90	3.9	4.2	4.6	6.4	7.1	12	18	22	49	CE	CE	CE	271K	125								
2400-2	60KC	6	2	NO	2400-2	90	3.9	4.2	4.7	6.3	6.9	12	16	20	42	61	93	120	542K	125								
2400-2	60KC	8	2	NO	2400-2	90	4.0	4.2	4.7	6.3	7.0	11	16	20	36	61	80	99	814K	125								
2400-2	60KC	10	2	NO	2400-2	90	4.0	4.3	4.7	5.8	7.0	11	14	18	36	51	67	91	953K	31								
2400-3	90KC	3	2	NO	2400-3	90	3.9	4.1	4.6	6.2	6.8	12	18	22	47	CE	CE	CE	271K	125								
2400-3	90KC	4	2	NO	2400-3	90	3.9	4.1	4.4	5.8	6.3	9.5	14	18	37	CE	CE	CE	271K	125								
2400-3	90KC	6	2	NO	2400-3	90	3.9	4.1	4.5	5.7	6.2	9.8	13	16	32	46	69	85	542K	125								
2400-3	90KC	8	2	NO	2400-3	90	3.9	4.1	4.5	5.8	6.3	8.6	13	16	28	46	60	74	814K	125								
2400-3	90KC	10	2	NO	2400-3	90	4.0	4.2	4.5	5.4	6.3	8.7	12	15	28	40	52	69	953K	31								
2400-2	60KC	3	2	YES	2400-2	90	3.9	4.1	4.7	6.6	7.4	14	20	26	56	CE	CE	CE	271K	125								
2400-2	60KC	4	2	YES	2400-2	90	3.9	4.1	4.5	6.1	6.7	11	16	20	43	CE	CE	CE	271K	125								
2400-2	60KC	6	2	YES	2400-2	90	3.9	4.2	4.5	5.7	6.2	9.4	14	17	34	61	93	120	542K	125								
2400-2	60KC	8	2	YES	2400-2	90	4.0	4.2	4.6	5.3	6.2	9.4	13	17	33	61	80	99	814K	125								
2400-2	60KC	10	2	YES	2400-2	90	4.0	4.2	4.6	5.4	5.7	8.6	13	15	30	51	67	91	953K	31								
2400-3	90KC	3	2	YES	2400-3	90	3.8	4.0	4.5	5.9	6.5	11	16	20	42	CE	CE	CE	271K	125								
2400-3	90KC	4	2	YES	2400-3	90	3.9	4.0	4.4	5.6	6.0	8.9	13	16	33	CE	CE	CE	271K	125								
2400-3	90KC	6	2	YES	2400-3	90	3.9	4.1	4.4	5.3	5.7	8.2	12	14	27	46	69	85	542K	125								
2400-3	90KC	8	2	YES	2400-3	90	3.9	4.1	4.4	5.1	5.7	8.2	11	14	26	46	60	74	814K	125								
2400-3	90KC	10	2	YES	2400-3	90	4.0	4.2	4.5	5.1	5.4	7.6	11	13	24	40	52	69	953K	31								

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 200K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES					FOR DATA SET		SIZES (IN THOUSANDS)					400	500	MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300	400	500					
2311	156KC	1	1	NO	2311	15	4.1	4.7	5.8	7.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	22K	18
2311	156KC	2	1	NO	2311	15	4.1	4.7	5.8	7.9	9.0	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18
2311	156KC	3	1	NO	2311	15	4.0	4.5	5.2	6.8	7.6	19	CE	CE	CE	CE	CE	CE	CE	CE	CE	68K	18
2400-2	60KC	3	1	NO	2400-2	35	4.2	5.8	8.7	17	21	44	67	96	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	4	1	NO	2400-2	35	4.2	5.3	7.6	13	16	34	49	72	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	6	1	NO	2400-2	35	4.3	5.0	6.9	12	14	29	42	60	160	CE	CE	CE	CE	CE	CE	217K	50
2400-2	60KC	8	1	NO	2400-2	35	4.3	5.0	6.2	12	14	26	41	54	140	210	CE	CE	CE	CE	CE	325K	50
2400-2	60KC	10	1	NO	2400-2	35	4.3	5.1	6.2	10	12	26	36	53	120	210	270	CE	CE	CE	CE	434K	50
2400-3	90KC	3	1	NO	2400-3	35	4.0	5.1	7.1	13	15	31	46	66	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	4	1	NO	2400-3	35	4.1	4.8	6.4	10	12	25	35	50	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	6	1	NO	2400-3	35	4.1	4.6	5.9	8.9	11	21	30	42	110	CE	CE	CE	CE	CE	CE	217K	50
2400-3	90KC	8	1	NO	2400-3	35	4.1	4.6	5.5	8.9	11	19	29	38	93	140	CE	CE	CE	CE	CE	325K	50
2400-3	90KC	10	1	NO	2400-3	35	4.2	4.7	5.5	8.0	9.3	19	26	38	77	140	190	CE	CE	CE	CE	434K	50
2311	156KC	2	2	NO	2311	15	4.0	4.6	5.4	7.2	8.1	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18
2311	156KC	3	2	NO	2311	15	3.9	4.2	4.6	5.5	6.0	14	CE	CE	CE	CE	CE	CE	CE	CE	CE	68K	18
2311	156KC	4	2	NO	2311	15	3.9	4.2	4.6	5.6	6.0	14	19	24	CE	CE	CE	CE	CE	CE	CE	102K	18
2400-2	60KC	3	2	NO	2400-2	35	4.1	5.3	7.6	15	17	37	54	76	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	4	2	NO	2400-2	35	4.1	5.0	6.8	11	15	28	39	57	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	6	2	NO	2400-2	35	4.2	4.8	6.6	12	13	26	37	48	110	CE	CE	CE	CE	CE	CE	217K	50
2400-2	60KC	8	2	NO	2400-2	35	4.2	4.8	6.7	9.5	11	22	31	40	92	140	CE	CE	CE	CE	CE	325K	50
2400-2	60KC	10	2	NO	2400-2	35	4.2	4.8	6.7	9.5	11	22	31	40	77	140	180	CE	CE	CE	CE	434K	50
2400-3	90KC	3	2	NO	2400-3	35	4.0	4.8	6.4	11	13	26	38	53	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	4	2	NO	2400-3	35	4.0	4.6	5.8	8.7	11	20	28	40	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	6	2	NO	2400-3	35	4.0	4.5	5.7	8.8	10	19	27	34	75	CE	CE	CE	CE	CE	CE	217K	50
2400-3	90KC	8	2	NO	2400-3	35	4.1	4.5	5.8	7.7	8.7	17	23	29	64	94	CE	CE	CE	CE	CE	325K	50
2400-3	90KC	10	2	NO	2400-3	35	4.1	4.5	5.9	7.8	8.7	17	23	29	55	94	130	CE	CE	CE	CE	434K	50
2400-2	60KC	3	2	YES	2400-2	35	4.0	5.1	7.0	13	15	32	47	65	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	4	2	YES	2400-2	35	4.1	4.8	6.4	9.9	13	24	34	49	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	6	2	YES	2400-2	35	4.1	4.6	5.9	8.8	12	21	29	42	110	CE	CE	CE	CE	CE	CE	217K	50
2400-2	60KC	8	2	YES	2400-2	35	4.1	4.6	5.6	8.8	11	19	29	37	92	140	CE	CE	CE	CE	CE	325K	50
2400-2	60KC	10	2	YES	2400-2	35	4.2	4.7	5.5	8.0	11	19	26	37	77	140	180	CE	CE	CE	CE	434K	50
2400-3	90KC	3	2	YES	2400-3	35	3.9	4.7	6.0	9.8	12	23	33	46	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	4	2	YES	2400-3	35	4.0	4.5	5.6	8.0	9.9	18	25	35	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	6	2	YES	2400-3	35	4.0	4.3	5.2	7.3	8.9	16	22	30	75	CE	CE	CE	CE	CE	CE	217K	50
2400-3	90KC	8	2	YES	2400-3	35	4.0	4.4	5.0	7.3	8.2	14	21	27	64	94	CE	CE	CE	CE	CE	325K	50
2400-3	90KC	10	2	YES	2400-3	35	4.1	4.4	5.0	6.7	8.2	14	19	27	55	94	130	CE	CE	CE	CE	434K	50

SYSTEM/360 MODEL 4C
 MAIN STORAGE USED 2C0K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2.	TIME IN MINUTES FOR				DATA SET SIZES (IN THOUSANDS)				400	500	MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200				
2311	156KC	1	1	NO	2311	6	4.7	6.2	CE	CE	CE	CE	CE	CE	CE	CE	8K	7	
2311	156KC	2	1	NO	2311	6	4.7	6.2	9.7	CE	CE	CE	CE	CE	CE	CE	17K	7	
2311	156KC	3	1	NO	2311	6	4.4	5.5	7.2	18	22	CE	CE	CE	CE	CE	26K	7	
2400-2	60KC	3	1	NO	2400-2	20	5.8	11	21	44	56	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	4	1	NO	2400-2	20	5.3	8.6	16	34	42	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	6	1	NO	2400-2	20	5.0	7.6	14	29	35	85	150	CE	CE	CE	86K	20	
2400-2	60KC	8	1	NO	2400-2	20	5.0	7.6	13	26	31	86	130	170	CE	CE	130K	20	
2400-2	60KC	10	1	NO	2400-2	20	5.0	6.8	12	26	31	71	110	170	CE	CE	173K	20	
2400-3	90KC	3	1	NO	2400-3	20	5.1	8.5	15	31	39	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	4	1	NO	2400-3	20	4.8	7.0	12	24	29	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	6	1	NO	2400-3	20	4.6	6.4	11	21	25	59	110	CE	CE	CE	86K	20	
2400-3	90KC	8	1	NO	2400-3	20	4.6	6.4	10	19	22	59	86	120	CE	CE	130K	20	
2400-3	90KC	10	1	NO	2400-3	20	4.6	5.8	9.2	19	22	49	71	120	CE	CE	173K	20	
2311	156KC	2	2	NO	2311	6	4.5	5.7	7.8	CE	CE	CE	CE	CE	CE	CE	17K	7	
2311	156KC	3	2	NO	2311	6	4.1	4.7	5.7	13	16	CE	CE	CE	CE	CE	26K	7	
2311	156KC	4	2	NO	2311	6	4.1	4.7	5.7	13	16	CE	CE	CE	CE	CE	39K	7	
2400-2	60KC	3	2	NO	2400-2	20	5.3	9.3	17	36	44	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	4	2	NO	2400-2	20	5.0	7.7	14	27	33	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	6	2	NO	2400-2	20	4.9	7.2	13	26	31	59	100	CE	CE	CE	86K	20	
2400-2	60KC	8	2	NO	2400-2	20	4.8	7.3	11	22	26	58	85	120	CE	CE	130K	20	
2400-2	60KC	10	2	NO	2400-2	20	4.8	7.3	11	22	26	48	70	120	CE	CE	173K	20	
2400-3	90KC	3	2	NO	2400-3	20	4.8	7.5	13	26	31	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	4	2	NO	2400-3	20	4.6	6.4	11	20	24	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	6	2	NO	2400-3	20	4.6	6.1	9.8	19	23	41	69	CE	CE	CE	86K	20	
2400-3	90KC	8	2	NO	2400-3	20	4.4	6.2	8.6	16	19	41	59	77	CE	CE	130K	20	
2400-3	90KC	10	2	NO	2400-3	20	4.5	6.2	8.5	16	19	34	49	77	CE	CE	173K	20	
2400-2	60KC	3	2	YES	2400-2	20	5.1	8.5	15	32	38	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	4	2	YES	2400-2	20	4.8	7.2	13	24	29	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	6	2	YES	2400-2	20	4.6	6.5	11	21	25	59	100	CE	CE	CE	86K	20	
2400-2	60KC	8	2	YES	2400-2	20	4.6	6.4	9.9	18	22	58	85	120	CE	CE	130K	20	
2400-2	60KC	10	2	YES	2400-2	20	4.6	5.9	10	18	22	48	70	120	CE	CE	173K	20	
2400-3	90KC	3	2	YES	2400-3	20	4.7	6.9	12	23	27	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	4	2	YES	2400-3	20	4.5	6.1	9.7	18	21	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	6	2	YES	2400-3	20	4.3	5.6	8.7	15	18	41	69	CE	CE	CE	86K	20	
2400-3	90KC	8	2	YES	2400-3	20	4.3	5.5	8.0	14	16	41	59	77	CE	CE	130K	20	
2400-3	90KC	10	2	YES	2400-3	20	4.4	5.3	8.0	14	16	34	49	77	CE	CE	173K	20	

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 44K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES										FOR DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2311	156KC	1	1	NO	2311	125	3.1	3.2	3.3	4.0	4.2	5.3	6.4	7.6	16	CE	CE	CE	219K	181			
2311	156KC	2	1	NO	2311	125	3.1	3.2	3.3	3.9	4.1	5.1	6.1	7.2	14	20	25	CE	439K	181			
2311	156KC	3	1	NO	2311	125	3.1	3.2	3.3	3.8	4.0	4.8	5.8	6.7	13	18	23	28	659K	181			
2311	156KC	4	1	NO	2311	125	3.1	3.2	3.3	3.8	4.0	4.9	5.8	6.7	13	18	23	28	989K	181			
2400-2	60KC	3	1	NO	2400-2	200	3.2	3.3	3.7	4.5	5.0	7.3	10	14	26	39	54	67	1056K	314			
2400-2	60KC	4	1	NO	2400-2	200	3.2	3.3	3.6	4.2	4.5	6.3	8.2	11	20	29	40	49	1047K	280			
2400-2	60KC	6	1	NO	2400-2	110	3.2	3.3	3.5	4.1	4.4	5.8	7.6	9.1	17	25	33	43	2084K	263			
2400-2	60KC	10	1	NO	2400-2	110	3.3	3.4	3.6	4.1	4.3	5.6	7.3	8.6	16	24	30	39	3676K	101			
2400-3	90KC	3	1	NO	2400-3	200	3.1	3.3	3.6	4.1	4.5	6.1	8.0	11	19	29	39	48	1056K	314			
2400-3	90KC	4	1	NO	2400-3	200	3.2	3.2	3.5	3.9	4.1	5.4	6.9	8.3	15	22	29	36	1047K	280			
2400-3	90KC	6	1	NO	2400-3	110	3.2	3.3	3.4	3.9	4.1	5.2	6.5	7.6	13	19	25	32	2084K	263			
2400-3	90KC	10	1	NO	2400-3	110	3.3	3.4	3.5	3.9	4.0	5.1	6.3	7.3	13	19	23	29	3676K	101			
2311	156KC	1	2	NO	2311	125	3.1	3.2	3.5	4.0	4.2	6.2	7.8	9.4	20	CE	CE	CE	218K	181			
2311	156KC	2	2	NO	2311	125	3.1	3.2	3.4	3.7	3.9	5.2	6.2	7.2	14	19	24	CE	437K	181			
2311	156KC	3	2	NO	2311	125	3.1	3.2	3.4	3.6	3.7	4.8	5.6	6.4	12	16	21	32	656K	181			
2311	156KC	4	2	NO	2311	125	3.1	3.2	3.4	3.6	3.7	4.8	5.6	6.5	12	17	21	32	984K	181			
2400-2	60KC	3	2	NO	2400-2	200	3.2	3.3	3.6	4.3	4.6	6.6	8.8	12	22	32	44	56	1022K	214			
2400-2	60KC	4	2	NO	2400-2	200	3.2	3.3	3.5	4.0	4.3	5.8	7.4	9.3	17	25	33	41	1003K	180			
2400-2	60KC	6	2	NO	2400-2	110	3.2	3.3	3.6	4.0	4.4	5.5	7.4	8.7	16	22	29	36	1925K	132			
2400-2	60KC	10	2	NO	2400-2	110	3.3	3.3	3.5	4.0	4.2	5.2	6.9	8.0	13	20	26	31	3926K	151			
2400-3	90KC	3	2	NO	2400-3	200	3.1	3.3	3.5	4.0	4.2	5.7	7.3	9.0	17	24	33	41	1022K	214			
2400-3	90KC	4	2	NO	2400-3	200	3.2	3.2	3.5	3.8	4.0	5.2	6.3	7.7	14	19	25	31	1003K	180			
2400-3	90KC	6	2	NO	2400-3	110	3.2	3.2	3.5	3.8	4.1	5.0	6.4	7.4	13	18	22	28	1925K	132			
2400-3	90KC	10	2	NO	2400-3	110	3.2	3.3	3.4	3.9	4.0	4.8	6.1	6.9	11	16	21	25	3926K	151			
2400-2	60KC	3	2	YES	2400-2	200	3.1	3.3	3.6	4.1	4.5	6.2	8.1	11	19	29	39	49	1022K	214			
2400-2	60KC	4	2	YES	2400-2	200	3.2	3.2	3.5	3.9	4.2	5.5	6.9	8.6	16	22	30	37	1003K	180			
2400-2	60KC	6	2	YES	2400-2	110	3.2	3.3	3.4	3.9	4.1	5.2	6.5	7.6	13	20	25	33	1966K	153			
2400-2	60KC	10	2	YES	2400-2	110	3.3	3.4	3.5	3.9	4.0	5.1	6.3	7.3	13	19	24	31	3600K	91			
2400-3	90KC	3	2	YES	2400-3	200	3.1	3.3	3.5	3.9	4.1	5.4	6.8	8.3	15	22	29	36	1022K	214			
2400-3	90KC	4	2	YES	2400-3	200	3.2	3.2	3.4	3.8	3.9	5.0	6.0	7.2	12	18	23	28	1003K	180			
2400-3	90KC	6	2	YES	2400-3	110	3.2	3.3	3.4	3.8	3.9	4.7	5.7	6.6	11	16	20	25	1966K	153			
2400-3	90KC	10	2	YES	2400-3	110	3.3	3.3	3.4	3.8	3.9	4.7	5.7	6.5	11	15	19	25	3600K	91			

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 44K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2311	156KC	1	1	NO	2311	30	3.2	3.8	4.6	6.0	6.7	14	CE	CE	CE	CE	CE	CE	55K	45
2311	156KC	2	1	NO	2311	30	3.2	3.7	4.3	5.6	6.3	12	17	21	CE	CE	CE	CE	110K	45
2311	156KC	3	1	NO	2311	30	3.2	3.6	4.2	5.2	5.8	11	15	19	CE	CE	CE	CE	165K	45
2311	156KC	4	1	NO	2311	30	3.2	3.7	4.2	5.2	5.8	11	15	19	36	CE	CE	CE	248K	45
2400-2	60KC	3	1	NO	2400-2	45	3.5	4.3	5.9	9.9	12	24	36	48	110	CE	CE	CE	269K	106
2400-2	60KC	4	1	NO	2400-2	45	3.4	4.0	5.3	8.1	9.4	18	27	36	76	CE	CE	CE	266K	92
2400-2	60KC	6	1	NO	2400-2	35	3.4	3.9	4.9	7.4	8.5	15	23	30	61	120	160	210	533K	92
2400-2	60KC	10	1	NO	2400-2	25	3.5	3.8	4.7	6.8	8.1	15	20	28	57	87	120	170	1041K	65
2400-3	90KC	3	1	NO	2400-3	45	3.4	3.9	5.0	7.7	8.9	17	25	34	72	CE	CE	CE	269K	106
2400-3	90KC	4	1	NO	2400-3	45	3.3	3.7	4.6	6.5	7.4	13	19	25	52	CE	CE	CE	266K	92
2400-3	90KC	6	1	NO	2400-3	35	3.3	3.7	4.4	6.0	6.8	12	16	21	42	77	110	150	533K	92
2400-3	90KC	10	1	NO	2400-3	25	3.4	3.6	4.2	5.7	6.5	11	15	20	40	60	81	120	1041K	65
2311	156KC	2	2	NO	2311	30	3.3	3.6	4.4	5.8	6.4	12	17	21	CE	CE	CE	CE	109K	45
2311	156KC	3	2	NO	2311	30	3.2	3.5	4.1	5.1	5.6	11	14	18	CE	CE	CE	CE	164K	45
2311	156KC	4	2	NO	2311	30	3.3	3.5	4.2	5.2	5.7	11	14	18	43	CE	CE	CE	247K	45
2400-2	60KC	3	2	NO	2400-2	45	3.4	4.1	5.4	8.5	11	20	30	39	84	CE	CE	CE	263K	77
2400-2	60KC	4	2	NO	2400-2	45	3.4	3.9	4.9	7.1	8.2	15	22	30	62	CE	CE	CE	257K	58
2400-2	60KC	6	2	NO	2400-2	35	3.3	3.8	4.8	7.1	8.0	14	20	26	54	79	110	150	514K	57
2400-2	60KC	10	2	NO	2400-2	25	3.4	3.9	4.6	6.6	7.4	12	16	23	43	62	83	120	978K	37
2400-3	90KC	3	2	NO	2400-3	45	3.3	3.8	4.7	6.8	7.8	14	21	28	58	CE	CE	CE	263K	77
2400-3	90KC	4	2	NO	2400-3	45	3.3	3.7	4.3	5.8	6.5	11	16	22	43	CE	CE	CE	257K	58
2400-3	90KC	6	2	NO	2400-3	35	3.3	3.6	4.3	5.9	6.5	10	15	19	38	55	73	100	514K	57
2400-3	90KC	10	2	NO	2400-3	25	3.3	3.7	4.2	5.6	6.1	8.8	12	17	30	43	58	82	978K	37
2400-2	60KC	3	2	YES	2400-2	45	3.4	4.0	5.1	7.8	9.1	17	26	34	73	CE	CE	CE	263K	77
2400-2	60KC	4	2	YES	2400-2	45	3.3	3.8	4.7	6.6	7.5	14	19	27	54	CE	CE	CE	257K	58
2400-2	60KC	6	2	YES	2400-2	35	3.3	3.7	4.5	6.2	6.9	12	17	22	44	79	110	CE	499K	48
2400-2	60KC	10	2	YES	2400-2	25	3.4	3.6	4.3	6.1	6.8	12	16	21	43	62	83	120	978K	37
2400-3	90KC	3	2	YES	2400-3	45	3.3	3.7	4.5	6.3	7.2	13	19	24	50	CE	CE	CE	263K	77
2400-3	90KC	4	2	YES	2400-3	45	3.3	3.6	4.2	5.5	6.1	9.9	14	19	37	CE	CE	CE	257K	58
2400-3	90KC	6	2	YES	2400-3	35	3.3	3.5	4.1	5.2	5.7	8.8	13	16	31	55	73	CE	499K	48
2400-3	90KC	10	2	YES	2400-3	25	3.3	3.5	4.0	5.2	5.7	8.6	12	16	30	43	58	82	978K	37

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 44K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2311	156KC	1	1	NO	2311	15	3.8	4.9	6.6	14	CE	CE	CE	CE	CE	CE	CE	CE	22K	18
2311	156KC	2	1	NO	2311	15	3.7	4.6	6.2	12	14	CE	CE	CE	CE	CE	CE	CE	44K	18
2311	156KC	3	1	NO	2311	15	3.6	4.4	5.7	11	13	22	CE	CE	CE	CE	CE	CE	66K	18
2311	156KC	4	1	NO	2311	15	3.6	4.4	5.7	11	13	23	33	CE	CE	CE	CE	CE	99K	18
2400-2	60KC	3	1	NO	2400-2	20	4.3	6.9	12	24	29	62	96	140	CE	CE	CE	CE	106K	33
2400-2	60KC	4	1	NO	2400-2	20	4.0	5.9	9.4	18	23	45	69	94	CE	CE	CE	CE	106K	36
2400-2	60KC	6	1	NO	2400-2	20	3.9	5.5	8.4	15	18	36	57	76	210	CE	CE	CE	213K	36
2400-2	60KC	10	1	NO	2400-2	15	3.8	5.3	8.0	14	17	34	53	72	170	250	CE	CE	399K	26
2400-3	90KC	3	1	NO	2400-3	20	3.9	5.7	8.9	17	21	43	65	89	CE	CE	CE	CE	106K	33
2400-3	90KC	4	1	NO	2400-3	20	3.7	5.0	7.3	13	16	31	48	64	CE	CE	CE	CE	106K	36
2400-3	90KC	6	1	NO	2400-3	20	3.6	4.7	6.7	11	13	26	39	52	150	CE	CE	CE	213K	36
2400-3	90KC	10	1	NO	2400-3	15	3.6	4.7	6.4	11	13	24	37	49	120	170	CE	CE	399K	26
2311	156KC	2	2	NO	2311	15	3.6	4.7	6.3	12	14	CE	CE	CE	CE	CE	CE	CE	43K	18
2311	156KC	3	2	NO	2311	15	3.4	4.3	5.6	11	12	21	CE	CE	CE	CE	CE	CE	65K	18
2311	156KC	4	2	NO	2311	15	3.5	4.3	5.6	11	12	21	40	CE	CE	CE	CE	CE	98K	18
2400-2	60KC	3	2	NO	2400-2	20	4.1	6.1	10	20	24	50	79	110	CE	CE	CE	CE	103K	23
2400-2	60KC	4	2	NO	2400-2	20	3.9	5.3	8.1	15	19	37	58	76	CE	CE	CE	CE	103K	23
2400-2	60KC	6	2	NO	2400-2	20	3.8	5.1	7.9	14	17	31	50	65	150	CE	CE	CE	206K	23
2400-2	60KC	10	2	NO	2400-2	15	3.9	4.8	7.3	12	14	28	39	51	120	180	CE	CE	392K	15
2400-3	90KC	3	2	NO	2400-3	20	3.8	5.1	7.8	14	17	35	54	72	CE	CE	CE	CE	103K	23
2400-3	90KC	4	2	NO	2400-3	20	3.7	4.6	6.5	11	14	26	40	52	CE	CE	CE	CE	103K	23
2400-3	90KC	6	2	NO	2400-3	20	3.6	4.5	6.4	11	13	22	35	45	98	CE	CE	CE	206K	23
2400-3	90KC	10	2	NO	2400-3	15	3.7	4.3	6.0	8.6	9.9	20	28	36	79	120	CE	CE	392K	15
2400-2	60KC	3	2	YES	2400-2	20	3.9	5.7	9.0	17	21	43	68	91	CE	CE	CE	CE	103K	23
2400-2	60KC	4	2	YES	2400-2	20	3.8	5.0	7.4	13	17	32	50	66	CE	CE	CE	CE	103K	23
2400-2	60KC	6	2	YES	2400-2	20	3.7	4.8	6.8	12	14	27	41	65	CE	CE	CE	CE	199K	23
2400-2	60KC	10	2	YES	2400-2	15	3.6	4.8	6.7	11	13	25	40	51	120	180	CE	CE	392K	15
2400-3	90KC	3	2	YES	2400-3	20	3.7	4.9	7.1	13	15	30	47	62	CE	CE	CE	CE	103K	23
2400-3	90KC	4	2	YES	2400-3	20	3.6	4.4	6.0	9.8	12	23	35	45	CE	CE	CE	CE	103K	23
2400-3	90KC	6	2	YES	2400-3	20	3.6	4.3	5.7	8.7	11	19	29	45	CE	CE	CE	CE	199K	23
2400-3	90KC	10	2	YES	2400-3	15	3.5	4.3	5.6	8.5	9.8	18	28	36	79	120	CE	CE	392K	15

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 44K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR					DATA SET SIZES (IN THOUSANDS)					400	500	MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300					
2400-2	60KC	3	1	NO	2400-2	10	6.9	15	29	62	78	CE	CE	CE	CE	CE	CE	CE	42K	12	
2400-2	60KC	4	1	NO	2400-2	10	5.9	12	23	45	56	CE	CE	CE	CE	CE	CE	CE	41K	11	
2400-2	60KC	6	1	NO	2400-2	10	5.5	9.8	18	36	48	120	190	CE	CE	CE	CE	CE	76K	5	
2400-2	60KC	10	1	NO	2400-2	10	5.3	9.1	17	33	45	88	160	210	CE	CE	CE	CE	166K	10	
2400-3	90KC	3	1	NO	2400-3	10	5.7	11	21	43	54	CE	CE	CE	CE	CE	CE	CE	42K	12	
2400-3	90KC	4	1	NO	2400-3	10	5.0	8.7	16	31	39	CE	CE	CE	CE	CE	CE	CE	41K	11	
2400-3	90KC	6	1	NO	2400-3	10	4.7	7.6	14	26	33	79	130	CE	CE	CE	CE	CE	76K	5	
2400-3	90KC	10	1	NO	2400-3	10	4.7	7.2	13	24	31	60	110	140	CE	CE	CE	CE	166K	10	
2400-2	60KC	3	2	NO	2400-2	10	6.2	13	25	50	64	CE	CE	CE	CE	CE	CE	CE	40K	7	
2400-2	60KC	4	2	NO	2400-2	10	5.3	10	19	37	47	CE	CE	CE	CE	CE	CE	CE	39K	6	
2400-2	60KC	6	2	NO	2400-2	10	5.2	9.0	17	32	42	80	140	CE	CE	CE	CE	CE	82K	9	
2400-2	60KC	10	2	NO	2400-2	10	4.8	8.2	13	27	33	63	110	150	CE	CE	CE	CE	156K	6	
2400-3	90KC	3	2	NO	2400-3	10	5.2	9.3	18	35	44	CE	CE	CE	CE	CE	CE	CE	40K	7	
2400-3	90KC	4	2	NO	2400-3	10	4.6	7.7	14	26	33	CE	CE	CE	CE	CE	CE	CE	39K	6	
2400-3	90KC	6	2	NO	2400-3	10	4.5	7.1	13	23	30	55	91	CE	CE	CE	CE	CE	82K	9	
2400-3	90KC	10	2	NO	2400-3	10	4.3	6.6	9.9	20	24	43	74	97	CE	CE	CE	CE	156K	6	
2400-2	60KC	3	2	YES	2400-2	10	5.7	11	22	43	55	CE	CE	CE	CE	CE	CE	CE	40K	7	
2400-2	60KC	4	2	YES	2400-2	10	5.0	9.0	17	32	41	CE	CE	CE	CE	CE	CE	CE	39K	6	
2400-2	60KC	6	2	YES	2400-2	10	4.8	8.3	15	28	35	80	140	CE	CE	CE	CE	CE	82K	9	
2400-2	60KC	10	2	YES	2400-2	10	4.8	7.6	14	26	35	63	110	150	CE	CE	CE	CE	156K	6	
2400-3	90KC	3	2	YES	2400-3	10	4.9	8.4	16	30	38	CE	CE	CE	CE	CE	CE	CE	40K	7	
2400-3	90KC	4	2	YES	2400-3	10	4.4	7.1	12	23	28	CE	CE	CE	CE	CE	CE	CE	39K	6	
2400-3	90KC	6	2	YES	2400-3	10	4.3	6.6	11	20	24	55	91	CE	CE	CE	CE	CE	82K	9	
2400-3	90KC	10	2	YES	2400-3	10	4.3	6.2	9.9	19	24	43	74	97	CE	CE	CE	CE	156K	6	

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 100K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR					DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK	
								5	10	20	25	50	75	100	200	300	400			500
2311	156KC	1	1	NO	2311	125	3.1	3.2	3.3	3.6	3.8	4.5	5.2	7.7	13	CE	CE	CE	226K	181
2311	156KC	2	1	NO	2311	125	3.1	3.2	3.3	3.6	3.8	4.5	5.2	7.3	12	16	21	CE	452K	181
2311	156KC	3	1	NO	2311	125	3.1	3.2	3.3	3.5	3.7	4.2	4.8	6.8	11	15	19	22	679K	181
2311	156KC	4	1	NO	2311	125	3.1	3.2	3.3	3.5	3.7	4.2	4.8	6.8	11	15	19	22	1018K	181
2400-2	60KC	3	1	NO	2400-2	350	3.2	3.2	3.4	4.1	4.3	6.3	8.6	11	22	33	43	57	1085K	500
2400-2	60KC	4	1	NO	2400-2	350	3.2	3.3	3.4	3.9	4.1	5.8	7.1	9.1	17	26	33	42	1050K	289
2400-2	60KC	6	1	NO	2400-2	350	3.2	3.3	3.5	3.8	3.9	5.4	6.5	8.2	15	21	29	35	2170K	500
2400-2	60KC	10	1	NO	2400-2	350	3.3	3.4	3.5	3.8	4.0	5.1	6.0	7.6	14	19	26	32	4304K	420
2400-3	90KC	3	1	NO	2400-3	350	3.1	3.2	3.3	3.8	4.0	5.5	7.1	8.5	16	25	32	42	1085K	500
2400-3	90KC	4	1	NO	2400-3	350	3.2	3.2	3.4	3.7	3.9	5.1	6.1	7.5	13	20	25	31	1050K	289
2400-3	90KC	6	1	NO	2400-3	350	3.2	3.3	3.4	3.6	3.8	4.9	5.7	7.0	12	16	22	27	2170K	500
2400-3	90KC	10	1	NO	2400-3	350	3.3	3.4	3.5	3.7	3.8	4.7	5.4	6.7	11	15	21	25	4304K	420
2311	156KC	2	2	NO	2311	125	3.1	3.2	3.3	3.6	3.7	4.3	5.6	6.5	9.9	14	17	CE	452K	181
2311	156KC	3	2	NO	2311	125	3.1	3.2	3.2	3.4	3.5	3.9	5.0	5.7	8.3	11	14	17	678K	181
2311	156KC	4	2	NO	2311	125	3.1	3.2	3.2	3.4	3.5	3.9	5.1	5.7	8.3	11	14	17	1018K	181
2400-2	60KC	3	2	NO	2400-2	350	3.2	3.2	3.4	3.9	4.3	5.7	7.5	9.6	18	27	37	46	1085K	500
2400-2	60KC	4	2	NO	2400-2	350	3.2	3.2	3.4	3.8	4.1	5.3	6.4	8.0	14	22	28	36	1085K	500
2400-2	60KC	6	2	NO	2400-2	250	3.2	3.3	3.4	3.9	4.1	5.0	6.5	7.6	14	19	24	34	2170K	500
2400-2	60KC	10	2	NO	2400-2	150	3.3	3.3	3.5	3.7	3.9	5.1	6.0	6.9	13	17	22	26	4283K	385
2400-3	90KC	3	2	NO	2400-3	350	3.1	3.2	3.4	3.7	4.0	5.1	6.4	7.9	14	21	28	35	1085K	500
2400-3	90KC	4	2	NO	2400-3	350	3.2	3.2	3.3	3.6	3.9	4.8	5.7	6.8	12	17	21	28	1085K	500
2400-3	90KC	6	2	NO	2400-3	250	3.2	3.2	3.4	3.8	3.9	4.6	5.8	6.6	12	16	19	26	2170K	500
2400-3	90KC	10	2	NO	2400-3	150	3.2	3.3	3.4	3.7	3.8	4.7	5.5	6.2	11	14	18	21	4283K	385
2400-2	60KC	3	2	YES	2400-2	350	3.1	3.2	3.4	3.8	4.1	5.4	7.0	8.8	16	24	32	41	1085K	500
2400-2	60KC	4	2	YES	2400-2	350	3.2	3.2	3.3	3.7	4.0	5.1	6.0	7.4	13	19	25	32	1085K	500
2400-2	60KC	6	2	YES	2400-2	250	3.2	3.3	3.4	3.6	3.8	4.8	5.7	6.9	12	16	22	26	2142K	387
2400-2	60KC	10	2	YES	2400-2	150	3.3	3.4	3.5	3.7	3.8	4.7	5.4	6.6	11	15	20	25	4122K	231
2400-3	90KC	3	2	YES	2400-3	350	3.1	3.2	3.4	3.7	3.9	4.9	6.1	7.4	13	19	25	31	1085K	500
2400-3	90KC	4	2	YES	2400-3	350	3.2	3.2	3.3	3.6	3.8	4.6	5.4	6.5	11	16	20	25	1085K	500
2400-3	90KC	6	2	YES	2400-3	250	3.2	3.3	3.4	3.6	3.7	4.5	5.2	6.2	9.7	13	18	21	2142K	387
2400-3	90KC	10	2	YES	2400-3	150	3.3	3.3	3.4	3.6	3.7	4.5	5.1	6.0	9.4	13	17	21	4122K	231

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 100K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES										SIZES (IN THOUSANDS)					MAX SIZE	SGRT BLOCK
							2	5	10	20	25	30	35	40	45	50	75	100	200	300	400		
2311	156KC	1	1	NO	2311	30	3.2	3.5	3.9	4.7	5.1	11	CE	CE	CE	CE	CE	CE	56K	45			
2311	156KC	2	1	NO	2311	30	3.2	3.5	3.9	4.7	5.1	9.6	13	17	CE	CE	CE	CE	112K	45			
2311	156KC	3	1	NO	2311	30	3.2	3.4	3.7	4.3	4.6	8.6	12	15	CE	CE	CE	CE	169K	45			
2311	156KC	4	1	NO	2311	30	3.2	3.4	3.7	4.3	4.6	8.7	12	15	26	CE	CE	CE	254K	45			
2400-2	60KC	3	1	NO	2400-2	85	3.3	3.9	5.1	8.0	9.7	19	29	40	84	CE	CE	CE	267K	98			
2400-2	60KC	4	1	NO	2400-2	85	3.3	3.8	4.7	6.8	7.8	16	22	31	63	CE	CE	CE	271K	125			
2400-2	60KC	6	1	NO	2400-2	85	3.4	3.6	4.4	6.2	7.0	13	19	25	51	96	130	190	542K	125			
2400-2	60KC	10	1	NO	2400-2	85	3.4	3.7	4.2	5.7	6.4	11	17	22	45	82	110	140	1085K	125			
2400-3	90KC	3	1	NO	2400-3	85	3.2	3.7	4.5	6.4	7.6	14	20	28	58	CE	CE	CE	267K	98			
2400-3	90KC	4	1	NO	2400-3	85	3.2	3.6	4.2	5.6	6.3	12	16	22	44	CE	CE	CE	271K	125			
2400-3	90KC	6	1	NO	2400-3	85	3.3	3.5	4.0	5.2	5.8	9.3	14	18	36	66	87	130	542K	125			
2400-3	90KC	10	1	NO	2400-3	85	3.4	3.6	3.9	4.9	5.4	8.4	12	16	32	56	74	91	1085K	125			
2311	156KC	2	2	NO	2311	30	3.2	3.4	3.7	5.2	5.7	8.3	11	14	CE	CE	CE	CE	112K	45			
2311	156KC	3	2	NO	2311	30	3.1	3.2	3.4	4.5	4.9	6.7	8.5	11	CE	CE	CE	CE	169K	45			
2311	156KC	4	2	NO	2311	30	3.1	3.3	3.4	4.6	4.9	6.7	8.5	11	18	CE	CE	CE	253K	45			
2400-2	60KC	3	2	NO	2400-2	85	3.3	3.8	4.7	7.2	8.3	16	24	32	69	CE	CE	CE	256K	56			
2400-2	60KC	4	2	NO	2400-2	85	3.3	3.6	4.4	6.0	7.1	13	18	25	50	CE	CE	CE	271K	125			
2400-2	60KC	6	2	NO	2400-2	50	3.3	3.6	4.3	6.2	6.9	12	17	21	45	66	88	130	542K	125			
2400-2	60KC	10	2	NO	2400-2	35	3.4	3.6	4.5	5.6	6.2	11	15	19	34	58	76	94	1070K	96			
2400-3	90KC	3	2	NO	2400-3	85	3.2	3.6	4.2	5.9	6.6	12	17	23	47	CE	CE	CE	256K	56			
2400-3	90KC	4	2	NO	2400-3	85	3.2	3.5	4.0	5.1	5.8	9.5	13	18	35	CE	CE	CE	271K	125			
2400-3	90KC	6	2	NO	2400-3	50	3.2	3.4	4.0	5.2	5.7	8.7	13	16	32	46	61	84	542K	125			
2400-3	90KC	10	2	NO	2400-3	35	3.3	3.5	4.1	4.9	5.3	8.4	11	14	24	40	53	65	1070K	96			
2400-2	60KC	3	2	YES	2400-2	85	3.2	3.7	4.5	6.7	7.5	15	21	28	59	CE	CE	CE	256K	56			
2400-2	60KC	4	2	YES	2400-2	85	3.3	3.6	4.2	5.6	6.6	12	16	22	43	CE	CE	CE	271K	125			
2400-2	60KC	6	2	YES	2400-2	50	3.3	3.5	4.0	5.3	5.8	9.4	14	18	36	66	88	130	542K	125			
2400-2	60KC	10	2	YES	2400-2	35	3.4	3.6	3.9	5.0	5.5	8.6	13	16	32	58	76	94	1070K	96			
2400-3	90KC	3	2	YES	2400-3	85	3.2	3.5	4.0	5.5	6.1	11	15	20	41	CE	CE	CE	256K	56			
2400-3	90KC	4	2	YES	2400-3	85	3.2	3.4	3.9	4.8	5.5	8.6	12	16	30	CE	CE	CE	271K	125			
2400-3	90KC	6	2	YES	2400-3	50	3.3	3.4	3.8	4.6	5.0	7.4	11	13	26	46	61	84	542K	125			
2400-3	90KC	10	2	YES	2400-3	35	3.3	3.5	3.7	4.5	4.8	6.9	9.5	12	23	40	53	65	1070K	96			

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 100K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR										DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2311	156KC	1	1	NO	2311	15	3.4	4.0	5.0	11	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	22K	18
2311	156KC	2	1	NO	2311	15	3.4	4.0	5.0	9.4	11	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18
2311	156KC	3	1	NO	2311	15	3.3	3.8	4.5	8.4	9.7	17	CE	CE	CE	CE	CE	CE	CE	CE	CE	67K	18
2311	156KC	4	1	NO	2311	15	3.4	3.8	4.5	8.4	9.7	17	24	31	CE	CE	CE	CE	CE	CE	CE	101K	18
2400-2	60KC	3	1	NO	2400-2	35	3.8	5.7	9.7	19	24	49	78	120	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	4	1	NO	2400-2	35	3.6	5.1	7.7	15	19	37	59	78	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	6	1	NO	2400-2	35	3.6	4.7	7.0	13	16	31	46	66	180	CE	CE	CE	CE	CE	CE	217K	50
2400-2	60KC	10	1	NO	2400-2	35	3.7	4.4	6.3	11	14	28	41	58	140	200	270	CE	CE	CE	CE	433K	48
2400-3	90KC	3	1	NO	2400-3	35	3.6	4.8	7.5	14	17	34	53	76	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	4	1	NO	2400-3	35	3.5	4.4	6.2	11	14	26	41	53	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	6	1	NO	2400-3	35	3.5	4.2	5.7	9.1	12	22	32	45	130	CE	CE	CE	CE	CE	CE	217K	50
2400-3	90KC	10	1	NO	2400-3	35	3.6	4.0	5.3	8.3	11	20	28	40	91	140	180	CE	CE	CE	CE	433K	48
2311	156KC	2	2	NO	2311	15	3.4	3.9	5.6	8.1	9.4	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18
2311	156KC	3	2	NO	2311	15	3.2	3.5	4.8	6.5	7.3	12	CE	CE	CE	CE	CE	CE	CE	CE	CE	67K	18
2311	156KC	4	2	NO	2311	15	3.2	3.5	4.8	6.5	7.4	12	17	32	CE	CE	CE	CE	CE	CE	CE	101K	18
2400-2	60KC	3	2	NO	2400-2	35	3.8	5.4	8.2	16	20	40	62	87	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	4	2	NO	2400-2	35	3.6	4.7	6.9	13	15	30	47	62	CE	CE	CE	CE	CE	CE	CE	107K	40
2400-2	60KC	6	2	NO	2400-2	35	3.5	4.6	6.8	12	15	25	42	54	130	CE	CE	CE	CE	CE	CE	217K	50
2400-2	60KC	10	2	NO	2400-2	25	3.6	4.7	6.1	11	13	22	31	48	91	140	180	CE	CE	CE	CE	428K	38
2400-3	90KC	3	2	NO	2400-3	35	3.6	4.6	6.6	12	14	28	43	60	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	4	2	NO	2400-3	35	3.5	4.2	5.7	9.4	11	21	33	42	CE	CE	CE	CE	CE	CE	CE	107K	40
2400-3	90KC	6	2	NO	2400-3	35	3.4	4.1	5.6	9.1	11	18	29	38	82	CE	CE	CE	CE	CE	CE	217K	50
2400-3	90KC	10	2	NO	2400-3	25	3.5	4.2	5.2	8.2	9.4	16	22	33	63	92	130	CE	CE	CE	CE	428K	38
2400-2	60KC	3	2	YES	2400-2	35	3.7	5.0	7.5	14	17	35	53	75	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	4	2	YES	2400-2	35	3.6	4.5	6.3	12	14	26	40	53	CE	CE	CE	CE	CE	CE	CE	107K	40
2400-2	60KC	6	2	YES	2400-2	35	3.5	4.2	5.8	9.6	12	22	33	45	130	CE	CE	CE	CE	CE	CE	217K	50
2400-2	60KC	10	2	YES	2400-2	25	3.6	4.1	5.4	8.4	11	21	29	41	91	140	180	CE	CE	CE	CE	428K	38
2400-3	90KC	3	2	YES	2400-3	35	3.5	4.4	6.1	11	13	24	37	51	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	4	2	YES	2400-3	35	3.4	4.0	5.3	8.5	9.8	19	28	37	CE	CE	CE	CE	CE	CE	CE	107K	40
2400-3	90KC	6	2	YES	2400-3	35	3.4	3.9	5.0	7.5	8.8	16	23	32	82	CE	CE	CE	CE	CE	CE	217K	50
2400-3	90KC	10	2	YES	2400-3	25	3.5	3.8	4.7	6.7	8.3	15	21	29	63	92	130	CE	CE	CE	CE	428K	38

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 100K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK	
								5	10	20	25	50	75	100	200	300	400			500
2311	156KC	1	1	NO	2311	6	4.0	7.6	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	8K	7
2311	156KC	2	1	NO	2311	6	4.0	7.1	12	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7
2311	156KC	3	1	NO	2311	6	3.8	6.4	9.7	17	20	CE	CE	CE	CE	CE	CE	CE	26K	7
2311	156KC	4	1	NO	2311	6	3.8	6.4	9.8	17	20	CE	CE	CE	CE	CE	CE	CE	39K	7
2400-2	60KC	3	1	NO	2400-2	20	5.7	12	24	49	66	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	4	1	NO	2400-2	20	5.1	9.7	18	37	47	CE	CE	CE	CE	CE	CE	CE	41K	11
2400-2	60KC	6	1	NO	2400-2	20	4.7	8.6	16	31	38	99	170	CE	CE	CE	CE	CE	86K	20
2400-2	60KC	10	1	NO	2400-2	20	4.4	7.9	14	28	34	84	130	170	CE	CE	CE	CE	173K	20
2400-3	90KC	3	1	NO	2400-3	20	4.8	8.8	17	34	45	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	4	1	NO	2400-3	20	4.4	7.5	14	26	32	CE	CE	CE	CE	CE	CE	CE	41K	11
2400-3	90KC	6	1	NO	2400-3	20	4.2	6.8	12	22	27	67	120	CE	CE	CE	CE	CE	86K	20
2400-3	90KC	10	1	NO	2400-3	20	4.0	6.4	11	20	24	58	85	120	CE	CE	CE	CE	173K	20
2311	156KC	2	2	NO	2311	6	3.9	6.3	9.5	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7
2311	156KC	3	2	NO	2311	6	3.5	5.2	7.4	12	14	CE	CE	CE	CE	CE	CE	CE	26K	7
2311	156KC	4	2	NO	2311	6	3.5	5.2	7.4	12	15	CE	CE	CE	CE	CE	CE	CE	39K	7
2400-2	60KC	3	2	NO	2400-2	20	5.3	11	20	42	51	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	4	2	NO	2400-2	20	4.8	8.2	15	30	39	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	6	2	NO	2400-2	20	4.6	7.6	14	26	35	67	120	CE	CE	CE	CE	CE	86K	20
2400-2	60KC	10	2	NO	2400-2	15	4.7	6.7	13	21	26	58	85	120	CE	CE	CE	CE	171K	15
2400-3	90KC	3	2	NO	2400-3	20	4.6	7.9	14	29	36	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	4	2	NO	2400-3	20	4.2	6.6	11	21	28	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	6	2	NO	2400-3	20	4.1	6.2	11	19	25	46	77	CE	CE	CE	CE	CE	86K	20
2400-3	90KC	10	2	NO	2400-3	15	4.2	5.6	9.3	16	19	40	58	76	CE	CE	CE	CE	171K	15
2400-2	60KC	3	2	YES	2400-2	20	5.0	9.2	17	36	44	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	4	2	YES	2400-2	20	4.5	7.5	13	26	34	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	6	2	YES	2400-2	20	4.3	6.8	12	22	27	67	120	CE	CE	CE	CE	CE	86K	20
2400-2	60KC	10	2	YES	2400-2	15	4.1	6.5	11	20	25	58	85	120	CE	CE	CE	CE	171K	15
2400-3	90KC	3	2	YES	2400-3	20	4.4	7.2	13	25	31	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	4	2	YES	2400-3	20	4.1	6.1	9.8	18	24	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	6	2	YES	2400-3	20	3.9	5.6	8.8	16	19	46	77	CE	CE	CE	CE	CE	86K	20
2400-3	90KC	10	2	YES	2400-3	15	3.8	5.4	8.2	15	18	40	58	76	CE	CE	CE	CE	171K	15

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 200K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2311	156KC	1	1	NO	2311	125	3.1	3.2	3.3	3.6	3.8	4.5	5.2	5.9	8.8	CE	CE	CE	228K	181
2311	156KC	2	1	NO	2311	125	3.1	3.2	3.4	3.6	3.8	4.5	5.2	6.0	8.8	16	21	CE	456K	181
2311	156KC	3	1	NO	2311	125	3.1	3.2	3.3	3.5	3.7	4.3	4.9	5.4	7.8	15	19	23	684K	181
2311	156KC	4	1	NO	2311	125	3.1	3.2	3.3	3.6	3.7	4.3	4.9	5.5	7.8	15	19	23	1026K	181
2400-2	60KC	3	1	NO	2400-2	350	3.2	3.3	3.4	3.7	4.1	5.5	7.3	9.6	18	28	40	49	1085K	500
2400-2	60KC	4	1	NO	2400-2	350	3.2	3.3	3.4	3.7	3.9	5.0	6.5	7.7	16	22	31	37	1085K	500
2400-2	60KC	6	1	NO	2400-2	350	3.2	3.3	3.5	3.8	3.9	4.7	6.0	7.0	14	19	26	32	2170K	500
2400-2	60KC	10	1	NO	2400-2	350	3.3	3.4	3.5	3.8	4.0	4.8	5.5	6.3	12	17	24	29	4341K	500
2400-3	90KC	3	1	NO	2400-3	350	3.1	3.2	3.3	3.6	3.9	4.9	6.3	7.9	14	21	30	36	1085K	500
2400-3	90KC	4	1	NO	2400-3	350	3.2	3.2	3.4	3.6	3.7	4.6	5.7	6.6	12	17	23	28	1085K	500
2400-3	90KC	6	1	NO	2400-3	350	3.2	3.3	3.4	3.6	3.8	4.4	5.4	6.1	11	15	21	25	2170K	500
2400-3	90KC	10	1	NO	2400-3	350	3.3	3.4	3.5	3.7	3.8	4.5	5.1	5.7	11	14	19	23	4341K	500
2311	156KC	2	2	NO	2311	125	3.1	3.2	3.3	3.6	3.7	4.3	5.0	5.6	8.1	14	18	CE	456K	181
2311	156KC	3	2	NO	2311	125	3.1	3.2	3.2	3.4	3.5	3.9	4.4	4.8	6.5	12	14	17	684K	181
2311	156KC	4	2	NO	2311	125	3.1	3.2	3.3	3.4	3.5	3.9	4.4	4.8	6.5	12	14	17	1026K	181
2400-2	60KC	3	2	NO	2400-2	350	3.2	3.2	3.4	3.6	3.9	5.1	6.6	8.4	15	23	33	40	1085K	500
2400-2	60KC	4	2	NO	2400-2	350	3.2	3.2	3.4	3.6	3.8	4.7	6.0	7.1	13	18	25	31	1085K	500
2400-2	60KC	6	2	NO	2400-2	350	3.2	3.3	3.4	3.7	3.8	5.0	5.9	6.7	12	17	24	30	2170K	500
2400-2	60KC	10	2	NO	2400-2	300	3.3	3.3	3.5	3.7	3.9	4.6	6.0	6.9	11	14	21	26	4341K	500
2400-3	90KC	3	2	NO	2400-3	350	3.1	3.2	3.3	3.5	3.8	4.7	5.8	7.1	12	18	25	30	1085K	500
2400-3	90KC	4	2	NO	2400-3	350	3.2	3.2	3.3	3.5	3.7	4.4	5.4	6.3	11	15	20	24	1085K	500
2400-3	90KC	6	2	NO	2400-3	350	3.2	3.2	3.4	3.6	3.7	4.6	5.3	6.0	10	14	20	24	2170K	500
2400-3	90KC	10	2	NO	2400-3	300	3.2	3.3	3.4	3.7	3.8	4.3	5.5	6.2	9.0	12	18	21	4341K	500
2400-2	60KC	3	2	YES	2400-2	350	3.1	3.2	3.3	3.6	3.8	4.9	6.2	7.8	14	21	29	35	1085K	500
2400-2	60KC	4	2	YES	2400-2	350	3.2	3.2	3.4	3.6	3.7	4.6	5.7	6.7	12	17	23	28	1085K	500
2400-2	60KC	6	2	YES	2400-2	350	3.2	3.3	3.4	3.6	3.7	4.3	5.3	6.1	11	15	20	24	2170K	500
2400-2	60KC	10	2	YES	2400-2	300	3.3	3.4	3.5	3.7	3.8	4.4	5.0	5.6	9.8	13	18	22	4334K	481
2400-3	90KC	3	2	YES	2400-3	350	3.1	3.2	3.3	3.5	3.7	4.5	5.5	6.7	12	17	23	27	1085K	500
2400-3	90KC	4	2	YES	2400-3	350	3.2	3.2	3.3	3.5	3.6	4.3	5.2	6.0	9.9	14	18	22	1085K	500
2400-3	90KC	6	2	YES	2400-3	350	3.2	3.3	3.4	3.6	3.7	4.2	4.9	5.6	9.1	13	17	20	2170K	500
2400-3	90KC	10	2	YES	2400-3	300	3.3	3.3	3.4	3.6	3.7	4.2	4.7	5.3	8.7	12	16	19	4334K	481

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 200K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES					FOR DATA SET	SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK	
							2	5	10	20	25		75	100	200	300	400			500
2311	156KC	1	1	NO	2311	30	3.2	3.5	3.9	4.7	5.1	7.1	CE	CE	CE	CE	CE	56K	45	
2311	156KC	2	1	NO	2311	30	3.2	3.5	3.9	4.7	5.1	7.1	14	17	CE	CE	CE	113K	45	
2311	156KC	3	1	NO	2311	30	3.2	3.4	3.7	4.3	4.6	6.1	12	15	CE	CE	CE	170K	45	
2311	156KC	4	1	NO	2311	30	3.2	3.4	3.7	4.3	4.6	6.1	12	15	27	CE	CE	255K	45	
2400-2	60KC	3	1	NO	2400-2	90	3.3	3.6	4.4	7.1	8.0	17	26	33	77	CE	CE	271K	125	
2400-2	60KC	4	1	NO	2400-2	90	3.3	3.6	4.1	6.2	7.0	13	19	25	55	CE	CE	250K	45	
2400-2	60KC	6	1	NO	2400-2	90	3.4	3.6	4.1	5.6	6.2	11	17	21	43	82	130	160	542K	125
2400-2	60KC	10	1	NO	2400-2	90	3.4	3.7	4.2	5.1	5.6	9.3	15	18	38	68	89	120	1054K	76
2400-3	90KC	3	1	NO	2400-3	90	3.2	3.4	4.0	5.8	6.4	12	19	24	53	CE	CE	271K	125	
2400-3	90KC	4	1	NO	2400-3	90	3.2	3.4	3.8	5.2	5.7	9.3	14	18	38	CE	CE	250K	45	
2400-3	90KC	6	1	NO	2400-3	90	3.3	3.5	3.8	4.8	5.2	8.2	12	15	30	56	86	110	542K	125
2400-3	90KC	10	1	NO	2400-3	90	3.4	3.6	3.9	4.5	4.8	7.3	11	14	27	47	61	77	1054K	76
2311	156KC	2	2	NO	2311	30	3.2	3.4	3.7	4.4	4.8	6.4	11	14	CE	CE	CE	113K	45	
2311	156KC	3	2	NO	2311	30	3.1	3.2	3.4	3.8	3.9	4.8	8.6	11	CE	CE	CE	170K	45	
2311	156KC	4	2	NO	2311	30	3.2	3.3	3.4	3.8	3.9	4.8	8.6	11	19	CE	CE	255K	45	
2400-2	60KC	3	2	NO	2400-2	90	3.3	3.5	4.2	6.2	6.9	14	21	27	60	CE	CE	CE	271K	125
2400-2	60KC	4	2	NO	2400-2	90	3.3	3.5	3.9	5.6	6.1	11	16	20	45	CE	CE	CE	271K	125
2400-2	60KC	6	2	NO	2400-2	90	3.3	3.5	3.9	5.4	6.0	11	14	18	38	56	85	110	542K	125
2400-2	60KC	10	2	NO	2400-2	90	3.4	3.6	4.0	5.0	6.1	8.8	12	16	32	46	61	83	953K	31
2400-3	90KC	3	2	NO	2400-3	90	3.2	3.4	3.8	5.2	5.7	10	15	19	42	CE	CE	CE	271K	125
2400-3	90KC	4	2	NO	2400-3	90	3.2	3.4	3.6	4.8	5.2	7.9	12	15	32	CE	CE	CE	271K	125
2400-3	90KC	6	2	NO	2400-3	90	3.2	3.4	3.7	4.7	5.1	8.1	11	13	27	39	59	73	542K	125
2400-3	90KC	10	2	NO	2400-3	90	3.3	3.5	3.7	4.4	5.2	7.1	8.9	12	23	33	42	58	953K	31
2400-2	60KC	3	2	YES	2400-2	90	3.2	3.4	4.0	5.7	6.4	12	18	23	52	CE	CE	CE	271K	125
2400-2	60KC	4	2	YES	2400-2	90	3.2	3.4	3.8	5.2	5.7	9.2	14	18	39	CE	CE	CE	271K	125
2400-2	60KC	6	2	YES	2400-2	90	3.3	3.5	3.8	4.8	5.2	8.2	12	15	30	56	85	110	542K	125
2400-2	60KC	10	2	YES	2400-2	90	3.4	3.6	3.9	4.5	4.8	7.3	11	14	27	46	61	83	953K	31
2400-3	90KC	3	2	YES	2400-3	90	3.2	3.3	3.7	4.9	5.3	9.0	14	17	36	CE	CE	CE	271K	125
2400-3	90KC	4	2	YES	2400-3	90	3.2	3.3	3.6	4.6	4.9	7.3	11	13	28	CE	CE	CE	271K	125
2400-3	90KC	6	2	YES	2400-3	90	3.2	3.4	3.6	4.3	4.6	6.6	9.1	12	22	39	59	73	542K	125
2400-3	90KC	10	2	YES	2400-3	90	3.3	3.5	3.7	4.1	4.3	6.0	8.3	9.9	19	33	42	58	953K	31

SYSTEM/360 MODEL 5C
 MAIN STORAGE USED 200K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET										SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2311	156KC	1	1	NO	2311	15	3.4	4.0	5.0	6.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	22K	18	
2311	156KC	2	1	NO	2311	15	3.4	4.0	5.0	6.9	7.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18	
2311	156KC	3	1	NO	2311	15	3.3	3.8	4.5	5.8	6.5	17	CE	CE	CE	CE	CE	CE	CE	CE	68K	18	
2311	156KC	4	1	NO	2311	15	3.4	3.8	4.5	5.9	6.5	17	24	31	CE	CE	CE	CE	CE	CE	102K	18	
2400-2	60KC	3	1	NO	2400-2	35	3.6	5.1	8.0	17	20	43	65	95	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	4	1	NO	2400-2	35	3.6	4.7	7.0	13	16	33	48	71	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	6	1	NO	2400-2	35	3.6	4.3	6.2	11	13	28	41	59	160	CE	CE	CE	CE	CE	217K	50	
2400-2	60KC	10	1	NO	2400-2	35	3.7	4.4	5.6	9.3	12	25	36	52	110	200	270	CE	CE	CE	434K	50	
2400-3	90KC	3	1	NO	2400-3	35	3.4	4.5	6.4	12	15	30	45	64	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	4	1	NO	2400-3	35	3.4	4.2	5.7	9.2	12	24	34	48	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	6	1	NO	2400-3	35	3.5	4.0	5.2	8.2	9.8	20	29	41	110	CE	CE	CE	CE	CE	217K	50	
2400-3	90KC	10	1	NO	2400-3	35	3.6	4.0	4.8	7.3	8.6	18	25	36	75	140	180	CE	CE	CE	434K	50	
2311	156KC	2	2	NO	2311	15	3.4	3.9	4.7	6.3	7.1	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18	
2311	156KC	3	2	NO	2311	15	3.2	3.5	3.9	4.6	5.0	12	CE	CE	CE	CE	CE	CE	CE	CE	68K	18	
2311	156KC	4	2	NO	2311	15	3.2	3.5	3.9	4.6	5.0	12	17	22	CE	CE	CE	CE	CE	CE	102K	18	
2400-2	60KC	3	2	NO	2400-2	35	3.5	4.7	6.9	14	16	35	52	74	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	4	2	NO	2400-2	35	3.5	4.3	6.1	11	14	27	38	55	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	6	2	NO	2400-2	35	3.5	4.2	5.9	11	12	25	36	47	110	CE	CE	CE	CE	CE	217K	50	
2400-2	60KC	10	2	NO	2400-2	35	3.6	4.2	6.0	8.8	11	21	30	39	75	140	180	CE	CE	CE	434K	50	
2400-3	90KC	3	2	NO	2400-3	35	3.3	4.2	5.7	9.9	12	25	36	51	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	4	2	NO	2400-3	35	3.4	4.0	5.2	7.9	10	19	27	38	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	6	2	NO	2400-3	35	3.4	3.8	5.0	8.0	9.2	18	25	32	72	CE	CE	CE	CE	CE	217K	50	
2400-3	90KC	10	2	NO	2400-3	35	3.5	3.9	5.1	7.0	7.9	16	22	27	52	90	120	CE	CE	CE	434K	50	
2400-2	60KC	3	2	YES	2400-2	35	3.4	4.5	6.4	12	14	31	45	64	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	4	2	YES	2400-2	35	3.4	4.2	5.7	9.1	12	23	33	48	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	6	2	YES	2400-2	35	3.5	4.0	5.2	8.1	11	20	28	40	110	CE	CE	CE	CE	CE	217K	50	
2400-2	60KC	10	2	YES	2400-2	35	3.6	4.0	4.8	7.3	9.4	18	25	36	75	140	180	CE	CE	CE	434K	50	
2400-3	90KC	3	2	YES	2400-3	35	3.3	4.0	5.3	9.0	11	22	31	44	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	4	2	YES	2400-3	35	3.3	3.8	4.9	7.2	9.0	17	24	33	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	6	2	YES	2400-3	35	3.4	3.7	4.6	6.5	8.0	15	20	28	72	CE	CE	CE	CE	CE	217K	50	
2400-3	90KC	10	2	YES	2400-3	35	3.5	3.8	4.3	6.0	7.4	13	18	25	52	90	120	CE	CE	CE	434K	50	

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 200K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES										FOR DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300	400	500						
2311	156KC	1	1	NO	2311	6	4.0	5.5	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	8K	7	
2311	156KC	2	1	NO	2311	6	4.0	5.5	8.0	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7	
2311	156KC	3	1	NO	2311	6	3.8	4.8	6.5	17	21	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	26K	7	
2311	156KC	4	1	NO	2311	6	3.8	4.8	6.5	17	21	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	39K	7	
2400-2	60KC	3	1	NO	2400-2	20	5.1	11	20	43	55	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	4	1	NO	2400-2	20	4.7	7.9	16	33	41	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	6	1	NO	2400-2	20	4.3	7.0	13	28	34	84	150	CE	CE	CE	CE	CE	CE	CE	CE	86K	20	
2400-2	60KC	10	1	NO	2400-2	20	4.4	6.2	12	25	30	70	110	170	CE	CE	CE	CE	CE	CE	CE	173K	20	
2400-3	90KC	3	1	NO	2400-3	20	4.5	7.9	14	30	38	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	4	1	NO	2400-3	20	4.2	6.3	12	23	28	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	6	1	NO	2400-3	20	3.9	5.7	9.7	20	24	58	99	CE	CE	CE	CE	CE	CE	CE	CE	86K	20	
2400-3	90KC	10	1	NO	2400-3	20	4.0	5.2	8.6	18	21	48	70	120	CE	CE	CE	CE	CE	CE	CE	173K	20	
2311	156KC	2	2	NO	2311	6	3.9	5.1	7.1	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7	
2311	156KC	3	2	NO	2311	6	3.5	4.0	5.0	13	15	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	26K	7	
2311	156KC	4	2	NO	2311	6	3.5	4.1	5.0	13	15	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	39K	7	
2400-2	60KC	3	2	NO	2400-2	20	4.7	8.6	16	35	43	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	4	2	NO	2400-2	20	4.3	7.1	14	27	32	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	6	2	NO	2400-2	20	4.3	6.6	12	25	30	57	97	CE	CE	CE	CE	CE	CE	CE	CE	86K	20	
2400-2	60KC	10	2	NO	2400-2	20	4.2	6.7	10	21	26	47	69	110	CE	CE	CE	CE	CE	CE	CE	173K	20	
2400-3	90KC	3	2	NO	2400-3	20	4.2	6.8	12	25	30	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	4	2	NO	2400-3	20	3.9	5.8	9.9	19	23	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	6	2	NO	2400-3	20	3.9	5.5	9.1	18	22	40	67	CE	CE	CE	CE	CE	CE	CE	CE	86K	20	
2400-3	90KC	10	2	NO	2400-3	20	3.8	5.6	7.8	15	18	33	47	75	CE	CE	CE	CE	CE	CE	CE	173K	20	
2400-2	60KC	3	2	YES	2400-2	20	4.5	7.8	14	31	37	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	4	2	YES	2400-2	20	4.2	6.5	12	23	28	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	6	2	YES	2400-2	20	3.9	5.8	11	20	24	57	97	CE	CE	CE	CE	CE	CE	CE	CE	86K	20	
2400-2	60KC	10	2	YES	2400-2	20	4.0	5.3	9.3	18	21	47	69	110	CE	CE	CE	CE	CE	CE	CE	173K	20	
2400-3	90KC	3	2	YES	2400-3	20	4.0	6.3	11	22	26	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	4	2	YES	2400-3	20	3.8	5.4	8.9	17	20	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	6	2	YES	2400-3	20	3.7	5.0	8.0	15	17	40	67	CE	CE	CE	CE	CE	CE	CE	CE	86K	20	
2400-3	90KC	10	2	YES	2400-3	20	3.8	4.6	7.3	13	15	33	47	75	CE	CE	CE	CE	CE	CE	CE	173K	20	

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 100K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES										DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2301	1200KC	1	1	NO	2301	200	3.1	3.1	3.2	3.3	3.4	3.7	4.2	4.5	CE	CE	CE	CE	111K	1000			
2301	1200KC	2	1	NO	2301	200	3.1	3.1	3.2	3.3	3.4	3.8	4.2	4.6	6.3	CE	CE	CE	222K	1000			
2301	1200KC	3	1	NO	2301	200	3.1	3.2	3.2	3.4	3.4	3.8	4.3	4.6	6.4	8.5	CE	CE	333K	1000			
2311	156KC	1	1	NO	2311	125	3.1	3.1	3.2	3.4	3.5	4.0	4.5	6.7	11	CE	CE	CE	226K	181			
2311	156KC	2	1	NO	2311	125	3.1	3.2	3.3	3.5	3.6	4.0	4.5	6.3	9.5	13	16	CE	CE	452K	181		
2311	156KC	3	1	NO	2311	125	3.1	3.1	3.2	3.4	3.4	3.8	4.2	5.8	8.5	12	14	17	679K	181			
2400-2	60KC	3	1	NO	2400-2	350	3.1	3.2	3.3	3.9	4.2	6.0	8.1	9.9	20	31	41	54	1085K	500			
2400-2	60KC	4	1	NO	2400-2	350	3.2	3.2	3.4	3.8	4.0	5.4	6.6	8.4	16	24	31	38	1050K	289			
2400-2	60KC	6	1	NO	2400-2	250	3.2	3.3	3.4	3.6	3.8	5.1	6.0	7.6	14	19	26	32	2170K	500			
2400-2	60KC	10	1	NO	2400-2	150	3.3	3.4	3.5	3.7	3.9	4.7	5.6	7.1	13	17	24	29	4304K	420			
2400-3	90KC	3	1	NO	2400-3	350	3.1	3.2	3.3	3.7	3.8	5.1	6.5	7.7	15	22	28	37	1085K	500			
2400-3	90KC	4	1	NO	2400-3	350	3.1	3.2	3.3	3.6	3.7	4.7	5.5	6.7	12	17	22	27	1050K	289			
2400-3	90KC	6	1	NO	2400-3	250	3.2	3.2	3.3	3.5	3.6	4.5	5.1	6.2	9.9	14	19	23	2170K	500			
2400-3	90KC	10	1	NO	2400-3	150	3.3	3.3	3.4	3.6	3.7	4.2	4.9	5.9	9.2	13	17	21	4304K	420			
2301	1200KC	2	2	NO	2301	200	3.1	3.1	3.2	3.3	3.4	3.8	4.2	4.6	6.3	CE	CE	CE	222K	1000			
2301	1200KC	3	2	NO	2301	200	3.1	3.2	3.2	3.4	3.4	3.8	4.3	4.6	6.4	8.5	CE	CE	333K	1000			
2301	1200KC	4	2	NO	2301	200	3.1	3.2	3.2	3.4	3.5	3.9	4.3	4.7	6.4	8.6	11	CE	CE	499K	1000		
2311	156KC	2	2	NO	2311	125	3.1	3.1	3.2	3.4	3.5	3.9	5.0	5.6	8.2	11	14	CE	CE	452K	181		
2311	156KC	3	2	NO	2311	125	3.1	3.1	3.2	3.2	3.3	3.5	4.4	4.9	6.6	8.4	11	12	678K	181			
2311	156KC	4	2	NO	2311	125	3.1	3.1	3.2	3.2	3.3	3.5	4.4	4.9	6.6	8.4	11	12	1018K	181			
2400-2	60KC	3	2	NO	2400-2	350	3.1	3.2	3.4	3.8	4.1	5.4	7.0	8.9	16	25	33	42	1085K	500			
2400-2	60KC	4	2	NO	2400-2	350	3.2	3.2	3.3	3.6	3.9	4.9	5.9	7.3	13	19	25	33	1085K	500			
2400-2	60KC	6	2	NO	2400-2	250	3.2	3.2	3.3	3.8	3.9	4.6	6.0	6.9	13	17	21	30	2170K	500			
2400-2	60KC	10	2	NO	2400-2	150	3.2	3.3	3.4	3.6	3.7	4.8	5.5	6.2	11	15	19	22	4283K	385			
2400-3	90KC	3	2	NO	2400-3	350	3.1	3.2	3.3	3.6	3.8	4.6	5.7	7.0	12	18	24	30	1085K	500			
2400-3	90KC	4	2	NO	2400-3	350	3.1	3.2	3.2	3.5	3.7	4.4	5.0	5.9	9.5	14	18	23	1085K	500			
2400-3	90KC	6	2	NO	2400-3	250	3.2	3.2	3.3	3.6	3.7	4.2	5.1	5.7	9.3	13	16	21	2170K	500			
2400-3	90KC	10	2	NO	2400-3	150	3.2	3.3	3.3	3.5	3.6	4.3	4.8	5.3	8.4	11	14	16	4283K	385			
2400-2	60KC	3	2	YES	2400-2	350	3.1	3.2	3.3	3.7	4.0	5.1	6.4	8.1	15	22	29	37	1085K	500			
2400-2	60KC	4	2	YES	2400-2	350	3.1	3.2	3.3	3.6	3.8	4.7	5.5	6.7	12	17	22	29	1085K	500			
2400-2	60KC	6	2	YES	2400-2	250	3.2	3.2	3.3	3.5	3.6	4.5	5.1	6.2	10	14	19	23	2142K	387			
2400-2	60KC	10	2	YES	2400-2	150	3.3	3.3	3.4	3.6	3.7	4.4	4.9	6.0	9.4	13	18	21	4122K	231			
2400-3	90KC	3	2	YES	2400-3	350	3.1	3.2	3.3	3.5	3.7	4.4	5.4	6.5	11	16	21	26	1085K	500			
2400-3	90KC	4	2	YES	2400-3	350	3.1	3.2	3.2	3.4	3.6	4.2	4.8	5.6	8.6	13	16	20	1085K	500			
2400-3	90KC	6	2	YES	2400-3	250	3.2	3.2	3.3	3.4	3.5	4.1	4.5	5.2	7.8	11	14	17	2142K	387			
2400-3	90KC	10	2	YES	2400-3	150	3.3	3.3	3.4	3.5	3.5	4.0	4.4	5.1	7.4	9.5	13	15	4122K	231			

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 100K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2301	1200KC	1	1	NO	2301	120	3.1	3.2	3.4	3.7	3.8	CE	CE	CE	CE	CE	CE	CE	28K	250
2301	1200KC	2	1	NO	2301	120	3.1	3.2	3.4	3.7	3.9	4.7	CE	CE	CE	CE	CE	CE	56K	250
2301	1200KC	3	1	NO	2301	120	3.2	3.3	3.4	3.8	3.9	4.8	5.9	CE	CE	CE	CE	CE	84K	250
2311	156KC	1	1	NO	2311	30	3.2	3.4	3.8	4.6	5.0	11	CE	CE	CE	CE	CE	CE	56K	45
2311	156KC	2	1	NO	2311	30	3.2	3.4	3.8	4.6	5.0	9.5	13	16	CE	CE	CE	CE	112K	45
2311	156KC	3	1	NO	2311	30	3.2	3.4	3.6	4.2	4.5	8.5	12	14	CE	CE	CE	CE	169K	45
2400-2	60KC	3	1	NO	2400-2	95	3.3	3.9	5.1	8.0	9.7	19	28	40	84	CE	CE	CE	267K	93
2400-2	60KC	4	1	NO	2400-2	95	3.3	3.8	4.7	6.8	7.8	16	22	30	63	CE	CE	CE	271K	125
2400-2	60KC	6	1	NO	2400-2	90	3.3	3.6	4.4	6.2	7.0	13	18	25	51	95	130	180	542K	125
2400-2	60KC	10	1	NO	2400-2	50	3.4	3.7	4.2	5.7	6.4	11	17	21	44	82	110	140	1085K	125
2400-3	90KC	3	1	NO	2400-3	95	3.2	3.7	4.4	6.4	7.5	14	20	28	57	CE	CE	CE	267K	93
2400-3	90KC	4	1	NO	2400-3	95	3.2	3.6	4.2	5.6	6.3	12	16	21	43	CE	CE	CE	271K	125
2400-3	90KC	6	1	NO	2400-3	90	3.3	3.5	4.0	5.2	5.7	9.2	14	18	35	65	87	130	542K	125
2400-3	90KC	10	1	NO	2400-3	50	3.4	3.6	3.9	4.9	5.3	8.3	12	16	31	56	74	91	1085K	125
2301	1200KC	2	2	NO	2301	120	3.1	3.2	3.4	3.7	3.9	4.7	CE	CE	CE	CE	CE	CE	56K	250
2301	1200KC	3	2	NO	2301	120	3.2	3.3	3.4	3.8	3.9	4.8	5.9	CE	CE	CE	CE	CE	84K	250
2301	1200KC	4	2	NO	2301	120	3.2	3.3	3.5	3.8	4.0	4.9	5.9	6.8	CE	CE	CE	CE	126K	250
2311	156KC	2	2	NO	2311	30	3.2	3.4	3.7	5.1	5.6	8.2	11	14	CE	CE	CE	CE	112K	45
2311	156KC	3	2	NO	2311	30	3.1	3.2	3.4	4.5	4.8	6.6	8.4	11	CE	CE	CE	CE	169K	45
2311	156KC	4	2	NO	2311	30	3.1	3.2	3.4	4.5	4.9	6.6	8.4	11	18	CE	CE	CE	253K	45
2400-2	60KC	3	2	NO	2400-2	95	3.2	3.8	4.7	7.2	8.2	16	24	32	69	CE	CE	CE	251K	46
2400-2	60KC	4	2	NO	2400-2	95	3.3	3.6	4.3	6.0	7.2	13	18	24	49	CE	CE	CE	271K	125
2400-2	60KC	6	2	NO	2400-2	90	3.3	3.5	4.3	6.1	6.8	12	17	21	44	64	90	120	542K	125
2400-2	60KC	10	2	NO	2400-2	50	3.4	3.6	4.4	5.5	6.1	11	15	18	33	56	74	91	1070K	96
2400-3	90KC	3	2	NO	2400-3	95	3.2	3.6	4.2	5.8	6.5	12	17	22	47	CE	CE	CE	251K	46
2400-3	90KC	4	2	NO	2400-3	95	3.2	3.5	4.0	5.0	5.9	9.3	13	17	34	CE	CE	CE	271K	125
2400-3	90KC	6	2	NO	2400-3	90	3.2	3.4	3.9	5.1	5.6	9.1	12	15	31	44	61	81	542K	125
2400-3	90KC	10	2	NO	2400-3	50	3.3	3.5	4.1	4.8	5.2	8.2	11	13	23	39	51	62	1070K	96
2400-2	60KC	3	2	YES	2400-2	95	3.2	3.7	4.4	6.6	7.5	14	21	27	59	CE	CE	CE	251K	46
2400-2	60KC	4	2	YES	2400-2	95	3.2	3.6	4.2	5.6	6.6	11	16	21	43	CE	CE	CE	271K	125
2400-2	60KC	6	2	YES	2400-2	90	3.3	3.5	4.0	5.2	6.1	9.8	14	18	37	64	90	120	542K	125
2400-2	60KC	10	2	YES	2400-2	50	3.4	3.6	3.9	5.0	5.4	8.4	13	16	32	56	74	91	1070K	96
2400-3	90KC	3	2	YES	2400-3	95	3.2	3.5	4.0	5.5	6.0	11	15	20	41	CE	CE	CE	251K	46
2400-3	90KC	4	2	YES	2400-3	95	3.2	3.4	3.8	4.8	5.5	8.4	12	15	30	CE	CE	CE	271K	125
2400-3	90KC	6	2	YES	2400-3	90	3.2	3.4	3.7	4.5	5.1	7.6	9.8	14	26	44	61	81	542K	125
2400-3	90KC	10	2	YES	2400-3	50	3.3	3.5	3.7	4.4	4.7	6.7	9.2	12	23	39	51	62	1070K	96

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 100K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES				FOR DATA SET	SIZES (IN THOUSANDS)							MAX SIZE	SORT BLOCK			
							2	5	10	20		25	50	75	100	200	300	400			500		
2301	1200KC	1	1	NO	2301	50	3.2	3.4	3.7	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	11K	100	
2301	1200KC	2	1	NO	2301	50	3.2	3.4	3.8	4.6	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	22K	100
2301	1200KC	3	1	NO	2301	50	3.3	3.5	3.9	4.7	5.0	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	33K	100
2311	156KC	1	1	NO	2311	15	3.4	4.0	5.0	11	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	22K	18
2311	156KC	2	1	NO	2311	15	3.4	4.0	5.0	9.4	11	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18
2311	156KC	3	1	NO	2311	15	3.3	3.8	4.4	8.3	9.6	17	CE	CE	CE	CE	CE	CE	CE	CE	CE	67K	18
2400-2	60KC	3	1	NO	2400-2	35	3.8	5.6	9.7	19	24	49	78	120	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	4	1	NO	2400-2	35	3.6	5.1	7.7	15	18	37	59	77	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	6	1	NO	2400-2	35	3.6	4.7	6.9	12	16	31	46	65	180	CE	CE	CE	CE	CE	CE	217K	50
2400-2	60KC	10	1	NO	2400-2	25	3.7	4.4	6.3	11	14	28	40	59	140	200	CE	CE	CE	CE	CE	434K	50
2400-3	90KC	3	1	NO	2400-3	35	3.6	4.8	7.5	14	17	34	53	75	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	4	1	NO	2400-3	35	3.5	4.4	6.2	11	14	26	41	53	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	6	1	NO	2400-3	35	3.5	4.2	5.7	9.1	12	22	32	45	130	CE	CE	CE	CE	CE	CE	217K	50
2400-3	90KC	10	1	NO	2400-3	25	3.6	4.0	5.3	8.2	11	20	28	40	90	140	180	CE	CE	CE	CE	434K	50
2301	1200KC	2	2	NO	2301	50	3.2	3.4	3.8	4.6	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	22K	100
2301	1200KC	3	2	NO	2301	50	3.3	3.5	3.9	4.7	5.0	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	33K	100
2301	1200KC	4	2	NO	2301	50	3.3	3.5	3.9	4.7	5.1	7.3	CE	CE	CE	CE	CE	CE	CE	CE	CE	50K	100
2311	156KC	2	2	NO	2311	15	3.4	3.9	5.6	8.1	9.3	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18
2311	156KC	3	2	NO	2311	15	3.2	3.5	4.8	6.5	7.3	12	CE	CE	CE	CE	CE	CE	CE	CE	CE	67K	18
2311	156KC	4	2	NO	2311	15	3.2	3.5	4.8	6.5	7.3	12	17	32	CE	CE	CE	CE	CE	CE	CE	101K	18
2400-2	60KC	3	2	NO	2400-2	35	3.8	5.3	8.2	16	19	40	61	86	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	4	2	NO	2400-2	35	3.6	4.7	6.8	13	15	29	46	61	CE	CE	CE	CE	CE	CE	CE	107K	40
2400-2	60KC	6	2	NO	2400-2	35	3.5	4.6	6.8	12	14	25	41	54	120	CE	CE	CE	CE	CE	CE	217K	50
2400-2	60KC	10	2	NO	2400-2	25	3.6	4.7	6.1	11	13	22	30	47	90	140	180	CE	CE	CE	CE	428K	38
2400-3	90KC	3	2	NO	2400-3	35	3.6	4.6	6.5	12	14	28	42	59	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	4	2	NO	2400-3	35	3.5	4.2	5.6	9.3	11	21	32	42	CE	CE	CE	CE	CE	CE	CE	107K	40
2400-3	90KC	6	2	NO	2400-3	35	3.4	4.1	5.6	9.0	11	18	29	37	81	CE	CE	CE	CE	CE	CE	217K	50
2400-3	90KC	10	2	NO	2400-3	25	3.5	4.2	5.2	8.1	9.3	16	22	33	62	90	120	CE	CE	CE	CE	428K	38
2400-2	60KC	3	2	YES	2400-2	35	3.7	5.0	7.4	14	17	34	53	74	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60KC	4	2	YES	2400-2	35	3.6	4.4	6.3	11	13	26	40	53	CE	CE	CE	CE	CE	CE	CE	107K	40
2400-2	60KC	6	2	YES	2400-2	35	3.5	4.2	5.8	9.5	12	22	32	45	120	CE	CE	CE	CE	CE	CE	217K	50
2400-2	60KC	10	2	YES	2400-2	25	3.6	4.0	5.3	8.3	11	20	29	41	90	140	180	CE	CE	CE	CE	428K	38
2400-3	90KC	3	2	YES	2400-3	35	3.5	4.4	6.0	10	13	24	36	51	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90KC	4	2	YES	2400-3	35	3.4	4.0	5.3	8.4	9.7	18	28	36	CE	CE	CE	CE	CE	CE	CE	107K	40
2400-3	90KC	6	2	YES	2400-3	35	3.4	3.9	4.9	7.4	8.7	16	23	31	81	CE	CE	CE	CE	CE	CE	217K	50
2400-3	90KC	10	2	YES	2400-3	25	3.5	3.8	4.7	6.7	8.2	15	20	29	62	90	120	CE	CE	CE	CE	428K	38

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 100K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES										FOR DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2301	1200KC	1	1	NO	2301	25	3.4	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	4K	40		
2301	1200KC	2	1	NO	2301	25	3.4	3.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	8K	40		
2301	1200KC	3	1	NO	2301	25	3.5	4.0	4.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	13K	40		
2311	156KC	1	1	NO	2311	6	4.0	7.6	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	8K	7		
2311	156KC	2	1	NO	2311	6	4.0	7.1	12	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7		
2311	156KC	3	1	NO	2311	6	3.8	6.4	9.7	17	20	CE	CE	CE	CE	CE	CE	CE	CE	26K	7		
2400-2	60KC	3	1	NO	2400-2	20	5.7	12	24	49	65	CE	CE	CE	CE	CE	CE	CE	CE	43K	20		
2400-2	60KC	4	1	NO	2400-2	20	5.1	9.7	18	37	46	CE	CE	CE	CE	CE	CE	CE	CE	41K	11		
2400-2	60KC	6	1	NO	2400-2	20	4.7	8.6	16	31	38	99	170	CE	CE	CE	CE	CE	CE	86K	20		
2400-2	60KC	10	1	NO	2400-2	15	4.4	7.9	14	28	34	84	130	170	CE	CE	CE	CE	CE	173K	20		
2400-3	90KC	3	1	NO	2400-3	20	4.8	8.7	17	34	45	CE	CE	CE	CE	CE	CE	CE	CE	43K	20		
2400-3	90KC	4	1	NO	2400-3	20	4.4	7.5	13	26	32	CE	CE	CE	CE	CE	CE	CE	CE	41K	11		
2400-3	90KC	6	1	NO	2400-3	20	4.2	6.8	12	22	27	67	120	CE	CE	CE	CE	CE	CE	86K	20		
2400-3	90KC	10	1	NO	2400-3	15	4.0	6.4	11	20	24	58	84	120	CE	CE	CE	CE	CE	173K	20		
2301	1200KC	2	2	NO	2301	25	3.4	3.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	8K	40		
2301	1200KC	3	2	NO	2301	25	3.5	4.0	4.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	13K	40		
2301	1200KC	4	2	NO	2301	25	3.5	4.0	5.0	7.1	CE	CE	CE	CE	CE	CE	CE	CE	CE	20K	40		
2311	156KC	2	2	NO	2311	6	3.9	6.2	9.4	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7		
2311	156KC	3	2	NO	2311	6	3.5	5.2	7.3	12	14	CE	CE	CE	CE	CE	CE	CE	CE	26K	7		
2311	156KC	4	2	NO	2311	6	3.5	5.2	7.4	12	14	CE	CE	CE	CE	CE	CE	CE	CE	39K	7		
2400-2	60KC	3	2	NO	2400-2	20	5.3	11	19	42	51	CE	CE	CE	CE	CE	CE	CE	CE	43K	20		
2400-2	60KC	4	2	NO	2400-2	20	4.7	8.2	15	29	39	CE	CE	CE	CE	CE	CE	CE	CE	43K	20		
2400-2	60KC	6	2	NO	2400-2	20	4.6	7.6	14	26	35	66	120	CE	CE	CE	CE	CE	CE	86K	20		
2400-2	60KC	10	2	NO	2400-2	15	4.7	6.7	13	21	26	57	84	120	CE	CE	CE	CE	CE	171K	15		
2400-3	90KC	3	2	NO	2400-3	20	4.6	7.9	14	29	35	CE	CE	CE	CE	CE	CE	CE	CE	43K	20		
2400-3	90KC	4	2	NO	2400-3	20	4.2	6.5	11	21	27	CE	CE	CE	CE	CE	CE	CE	CE	43K	20		
2400-3	90KC	6	2	NO	2400-3	20	4.1	6.2	11	18	25	45	76	CE	CE	CE	CE	CE	CE	86K	20		
2400-3	90KC	10	2	NO	2400-3	15	4.2	5.6	9.3	16	18	40	57	75	CE	CE	CE	CE	CE	171K	15		
2400-2	60KC	3	2	YES	2400-2	20	5.0	9.2	17	36	44	CE	CE	CE	CE	CE	CE	CE	CE	43K	20		
2400-2	60KC	4	2	YES	2400-2	20	4.5	7.5	13	26	34	CE	CE	CE	CE	CE	CE	CE	CE	43K	20		
2400-2	60KC	6	2	YES	2400-2	20	4.3	6.8	12	22	27	66	120	CE	CE	CE	CE	CE	CE	86K	20		
2400-2	60KC	10	2	YES	2400-2	15	4.0	6.4	11	20	24	57	84	120	CE	CE	CE	CE	CE	171K	15		
2400-3	90KC	3	2	YES	2400-3	20	4.4	7.2	13	25	31	CE	CE	CE	CE	CE	CE	CE	CE	43K	20		
2400-3	90KC	4	2	YES	2400-3	20	4.1	6.0	9.7	18	24	CE	CE	CE	CE	CE	CE	CE	CE	43K	20		
2400-3	90KC	6	2	YES	2400-3	20	3.9	5.6	8.7	16	19	45	76	CE	CE	CE	CE	CE	CE	86K	20		
2400-3	90KC	10	2	YES	2400-3	15	3.8	5.4	8.2	15	18	40	57	75	CE	CE	CE	CE	CE	171K	15		

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 200K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR					DATA SET SIZES (IN THOUSANDS)					400	500	MAX SIZE	SORT BLOCK	
							2	5	10	20	25	50	75	100	200	300					
2301	1200KC	1	1	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.7	3.9	CE	CE	CE	120K	1000		
2301	1200KC	2	1	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.7	4.0	4.9	CE	CE	CE	241K	1000	
2301	1200KC	3	1	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.4	3.8	4.0	4.9	5.8	CE	CE	CE	362K	1000
2311	156KC	1	1	NO	2311	125	3.1	3.1	3.2	3.4	3.5	4.0	4.5	5.0	7.0	CE	CE	CE	228K	181	
2311	156KC	2	1	NO	2311	125	3.1	3.2	3.3	3.5	3.6	4.1	4.6	5.0	7.0	13	17	CE	CE	456K	181
2311	156KC	3	1	NO	2311	125	3.1	3.1	3.2	3.4	3.4	3.8	4.2	4.5	6.0	12	15	17	684K	181	
2400-2	60KC	3	1	NO	2400-2	350	3.1	3.2	3.3	3.6	3.9	5.2	6.8	8.9	17	26	37	45	1085K	500	
2400-2	60KC	4	1	NO	2400-2	350	3.2	3.2	3.4	3.6	3.7	4.7	6.0	7.1	14	19	28	34	1085K	500	
2400-2	60KC	6	1	NO	2400-2	350	3.2	3.3	3.4	3.6	3.8	4.3	5.5	6.3	12	17	24	29	2170K	500	
2400-2	60KC	10	1	NO	2400-2	300	3.3	3.4	3.5	3.7	3.8	4.4	5.0	5.7	11	15	21	25	4341K	500	
2400-3	90KC	3	1	NO	2400-3	350	3.1	3.2	3.3	3.4	3.7	4.5	5.6	7.0	12	19	26	31	1085K	500	
2400-3	90KC	4	1	NO	2400-3	350	3.1	3.2	3.3	3.4	3.5	4.2	5.1	5.8	11	14	20	24	1085K	500	
2400-3	90KC	6	1	NO	2400-3	350	3.2	3.2	3.3	3.5	3.6	4.0	4.7	5.3	9.1	12	17	20	2170K	500	
2400-3	90KC	10	1	NO	2400-3	300	3.3	3.3	3.4	3.6	3.6	4.0	4.4	4.9	8.2	11	15	18	4341K	500	
2301	1200KC	2	2	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.7	4.0	4.9	CE	CE	CE	241K	1000	
2301	1200KC	3	2	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.4	3.8	4.0	4.9	5.8	CE	CE	CE	362K	1000
2301	1200KC	4	2	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.4	3.8	4.0	4.9	5.8	6.7	7.6	543K	1000	
2311	156KC	2	2	NO	2311	125	3.1	3.1	3.2	3.4	3.5	3.9	4.3	4.7	6.4	11	14	CE	CE	456K	181
2311	156KC	3	2	NO	2311	125	3.1	3.1	3.2	3.2	3.3	3.5	3.7	3.9	4.8	8.4	11	13	684K	181	
2311	156KC	4	2	NO	2311	125	3.1	3.1	3.2	3.2	3.3	3.5	3.7	3.9	4.8	8.5	11	13	1026K	181	
2400-2	60KC	3	2	NO	2400-2	350	3.1	3.2	3.3	3.5	3.7	4.7	6.0	7.6	14	21	29	36	1085K	500	
2400-2	60KC	4	2	NO	2400-2	350	3.2	3.2	3.3	3.5	3.6	4.4	5.4	6.4	12	16	22	27	1085K	500	
2400-2	60KC	6	2	NO	2400-2	350	3.2	3.2	3.3	3.5	3.6	4.6	5.3	6.0	11	14	21	25	2170K	500	
2400-2	60KC	10	2	NO	2400-2	300	3.2	3.3	3.4	3.6	3.7	4.2	5.4	6.1	8.9	12	18	22	4341K	500	
2400-3	90KC	3	2	NO	2400-3	350	3.1	3.2	3.2	3.3	3.5	4.2	5.1	6.1	10	15	21	25	1085K	500	
2400-3	90KC	4	2	NO	2400-3	350	3.1	3.2	3.2	3.4	3.4	4.0	4.7	5.4	8.7	12	16	19	1085K	500	
2400-3	90KC	6	2	NO	2400-3	350	3.2	3.2	3.3	3.4	3.5	4.1	4.6	5.1	8.1	11	16	18	2170K	500	
2400-3	90KC	10	2	NO	2400-3	300	3.2	3.3	3.3	3.5	3.5	3.9	4.7	5.2	7.1	9.0	14	16	4341K	500	
2400-2	60KC	3	2	YES	2400-2	350	3.1	3.2	3.3	3.4	3.7	4.5	5.6	7.0	12	18	26	31	1085K	500	
2400-2	60KC	4	2	YES	2400-2	350	3.1	3.2	3.3	3.4	3.5	4.2	5.1	6.0	11	14	20	24	1085K	500	
2400-2	60KC	6	2	YES	2400-2	350	3.2	3.2	3.3	3.5	3.6	4.0	4.7	5.4	9.0	12	17	20	2170K	500	
2400-2	60KC	10	2	YES	2400-2	300	3.3	3.3	3.4	3.6	3.6	4.0	4.5	4.9	8.3	11	15	18	4334K	481	
2400-3	90KC	3	2	YES	2400-3	350	3.1	3.2	3.2	3.3	3.5	4.0	4.8	5.7	9.1	14	18	22	1085K	500	
2400-3	90KC	4	2	YES	2400-3	350	3.1	3.2	3.2	3.3	3.4	3.8	4.5	5.1	7.9	11	14	17	1085K	500	
2400-3	90KC	6	2	YES	2400-3	350	3.2	3.2	3.3	3.4	3.4	3.7	4.2	4.7	7.2	9.1	13	15	2170K	500	
2400-3	90KC	10	2	YES	2400-3	300	3.3	3.3	3.3	3.5	3.5	3.8	4.1	4.4	6.7	8.3	12	13	4334K	481	

SYSTEM/360 MODEL 65

MAIN STORAGE USED 200K

RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2301	1200KC	1	1	NO	2301	120	3.1	3.1	3.2	3.4	3.5	CE	CE	CE	CE	CE	CE	CE	30K	250
2301	1200KC	2	1	NO	2301	120	3.1	3.1	3.2	3.4	3.5	3.9	CE	CE	CE	CE	CE	CE	60K	250
2301	1200KC	3	1	NO	2301	120	3.1	3.1	3.2	3.4	3.5	3.9	4.3	CE	CE	CE	CE	CE	91K	250
2311	156KC	1	1	NO	2311	30	3.2	3.4	3.8	4.6	5.0	7.0	CE	CE	CE	CE	CE	CE	56K	45
2311	156KC	2	1	NO	2311	30	3.2	3.4	3.8	4.6	5.0	7.0	13	17	CE	CE	CE	CE	113K	45
2311	156KC	3	1	NO	2311	30	3.2	3.4	3.6	4.2	4.5	6.0	12	14	CE	CE	CE	CE	170K	45
2400-2	60KC	3	1	NO	2400-2	90	3.3	3.6	4.4	7.0	8.0	17	26	33	76	CE	CE	CE	271K	125
2400-2	60KC	4	1	NO	2400-2	90	3.3	3.6	4.1	6.2	7.0	13	19	25	54	CE	CE	CE	250K	45
2400-2	60KC	6	1	NO	2400-2	90	3.3	3.6	4.1	5.6	6.2	11	17	21	43	81	130	160	542K	125
2400-2	60KC	10	1	NO	2400-2	90	3.4	3.7	4.2	5.1	5.6	9.3	15	18	38	67	88	120	1054K	76
2400-3	90KC	3	1	NO	2400-3	90	3.2	3.4	4.0	5.7	6.4	12	18	23	52	CE	CE	CE	271K	125
2400-3	90KC	4	1	NO	2400-3	90	3.2	3.4	3.7	5.2	5.7	9.2	14	18	37	CE	CE	CE	250K	45
2400-3	90KC	6	1	NO	2400-3	90	3.3	3.5	3.8	4.8	5.2	8.1	12	15	30	55	85	110	542K	125
2400-3	90KC	10	1	NO	2400-3	90	3.4	3.6	3.9	4.5	4.8	7.3	11	13	26	46	60	76	1054K	76
2301	1200KC	2	2	NO	2301	120	3.1	3.1	3.2	3.4	3.5	3.9	CE	CE	CE	CE	CE	CE	60K	250
2301	1200KC	3	2	NO	2301	120	3.1	3.1	3.2	3.4	3.5	3.9	4.3	CE	CE	CE	CE	CE	91K	250
2301	1200KC	4	2	NO	2301	120	3.1	3.1	3.2	3.5	3.6	4.0	4.4	4.8	CE	CE	CE	CE	136K	250
2311	156KC	2	2	NO	2311	30	3.2	3.4	3.7	4.4	4.7	6.4	11	14	CE	CE	CE	CE	113K	45
2311	156KC	3	2	NO	2311	30	3.1	3.2	3.4	3.7	3.9	4.8	8.5	11	CE	CE	CE	CE	170K	45
2311	156KC	4	2	NO	2311	30	3.1	3.2	3.4	3.8	3.9	4.8	8.5	11	18	CE	CE	CE	255K	45
2400-2	60KC	3	2	NO	2400-2	90	3.2	3.5	4.1	6.1	6.9	14	21	26	60	CE	CE	CE	271K	125
2400-2	60KC	4	2	NO	2400-2	90	3.3	3.5	3.9	5.5	6.1	11	16	20	45	CE	CE	CE	271K	125
2400-2	60KC	6	2	NO	2400-2	90	3.3	3.5	3.9	5.4	5.9	11	14	18	38	55	84	110	542K	125
2400-2	60KC	10	2	NO	2400-2	90	3.3	3.6	4.0	4.9	6.0	8.7	12	16	32	46	59	82	953K	31
2400-3	90KC	3	2	NO	2400-3	90	3.2	3.3	3.8	5.1	5.6	9.9	15	19	41	CE	CE	CE	271K	125
2400-3	90KC	4	2	NO	2400-3	90	3.2	3.4	3.6	4.7	5.1	7.8	12	15	31	CE	CE	CE	271K	125
2400-3	90KC	6	2	NO	2400-3	90	3.2	3.4	3.7	4.7	5.0	7.9	11	13	27	38	57	71	542K	125
2400-3	90KC	10	2	NO	2400-3	90	3.3	3.5	3.7	4.3	5.1	6.9	8.8	12	22	32	41	56	953K	31
2400-2	60KC	3	2	YES	2400-2	90	3.2	3.4	4.0	5.7	6.3	12	18	23	51	CE	CE	CE	271K	125
2400-2	60KC	4	2	YES	2400-2	90	3.2	3.4	3.8	5.2	5.7	9.1	14	18	39	CE	CE	CE	271K	125
2400-2	60KC	6	2	YES	2400-2	90	3.3	3.5	3.8	4.8	5.2	8.1	12	15	30	55	84	110	542K	125
2400-2	60KC	10	2	YES	2400-2	90	3.4	3.5	3.9	4.5	4.8	7.2	11	13	26	46	59	82	953K	31
2400-3	90KC	3	2	YES	2400-3	90	3.2	3.3	3.7	4.8	5.3	8.9	13	17	35	CE	CE	CE	271K	125
2400-3	90KC	4	2	YES	2400-3	90	3.2	3.3	3.5	4.5	4.8	7.1	11	13	27	CE	CE	CE	271K	125
2400-3	90KC	6	2	YES	2400-3	90	3.2	3.4	3.6	4.3	4.5	6.5	8.9	11	21	38	57	71	542K	125
2400-3	90KC	10	2	YES	2400-3	90	3.3	3.4	3.7	4.1	4.3	5.9	8.1	9.7	19	32	41	56	953K	31

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 200K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES										SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500	400	500	600	700	800	900				
2301	1200K	1	1	NO	2301	50	3.1	3.2	3.4	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	12K	100
2301	1200K	2	1	NO	2301	50	3.1	3.2	3.4	3.8	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	24K	100
2301	1200K	3	1	NO	2301	50	3.1	3.2	3.5	3.8	4.0	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	36K	100
2311	156K	1	1	NO	2311	15	3.4	4.0	5.0	6.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	22K	18
2311	156K	2	1	NO	2311	15	3.4	4.0	5.0	6.9	7.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18
2311	156K	3	1	NO	2311	15	3.3	3.8	4.4	5.8	6.5	17	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	68K	18
2400-2	60K	3	1	NO	2400-2	35	3.6	5.1	8.0	17	20	43	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60K	4	1	NO	2400-2	35	3.6	4.7	7.0	13	16	33	48	70	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60K	6	1	NO	2400-2	35	3.6	4.3	6.2	11	13	28	41	59	160	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	217K	50
2400-2	60K	10	1	NO	2400-2	35	3.7	4.4	5.6	9.2	12	25	35	52	110	200	270	CE	CE	CE	CE	CE	CE	CE	CE	CE	434K	50
2400-3	90K	3	1	NO	2400-3	35	3.4	4.5	6.4	12	14	30	45	64	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90K	4	1	NO	2400-3	35	3.4	4.2	5.7	9.2	12	23	33	48	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90K	6	1	NO	2400-3	35	3.5	3.9	5.2	8.1	9.7	20	28	41	110	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	217K	50
2400-3	90K	10	1	NO	2400-3	35	3.6	4.0	4.8	7.3	8.5	18	25	36	74	140	180	CE	CE	CE	CE	CE	CE	CE	CE	CE	434K	50
2301	1200K	2	2	NO	2301	50	3.1	3.2	3.4	3.8	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	24K	100
2301	1200K	3	2	NO	2301	50	3.1	3.2	3.5	3.8	4.0	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	36K	100
2301	1200K	4	2	NO	2301	50	3.1	3.2	3.5	3.8	4.0	4.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	54K	100
2311	156K	2	2	NO	2311	15	3.4	3.9	4.7	6.3	7.1	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18
2311	156K	3	2	NO	2311	15	3.2	3.5	3.8	4.6	5.0	12	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	68K	18
2311	156K	4	2	NO	2311	15	3.2	3.5	3.9	4.6	5.0	12	17	22	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	102K	18
2400-2	60K	3	2	NO	2400-2	35	3.5	4.7	6.9	14	16	35	52	73	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60K	4	2	NO	2400-2	35	3.5	4.3	6.1	11	14	27	38	55	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60K	6	2	NO	2400-2	35	3.5	4.2	5.9	11	12	25	35	46	110	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	217K	50
2400-2	60K	10	2	NO	2400-2	35	3.6	4.2	6.0	8.7	11	21	30	38	74	140	180	CE	CE	CE	CE	CE	CE	CE	CE	CE	434K	50
2400-3	90K	3	2	NO	2400-3	35	3.3	4.2	5.6	9.9	12	25	36	50	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90K	4	2	NO	2400-3	35	3.4	3.9	5.1	7.8	9.9	19	27	38	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90K	6	2	NO	2400-3	35	3.4	3.8	5.0	7.9	9.1	18	25	32	70	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	217K	50
2400-3	90K	10	2	NO	2400-3	35	3.5	3.8	5.1	6.9	7.8	15	21	27	51	89	120	CE	CE	CE	CE	CE	CE	CE	CE	CE	434K	50
2400-2	60K	3	2	YES	2400-2	35	3.4	4.5	6.3	12	14	30	45	63	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60K	4	2	YES	2400-2	35	3.4	4.2	5.7	9.1	12	23	33	47	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-2	60K	6	2	YES	2400-2	35	3.5	3.9	5.2	8.1	11	20	28	40	110	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	217K	50
2400-2	60K	10	2	YES	2400-2	35	3.5	4.0	4.8	7.2	9.3	18	25	35	74	140	180	CE	CE	CE	CE	CE	CE	CE	CE	CE	434K	50
2400-3	90K	3	2	YES	2400-3	35	3.3	4.0	5.3	8.9	11	22	31	43	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90K	4	2	YES	2400-3	35	3.3	3.8	4.8	7.1	8.9	17	23	33	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	108K	50
2400-3	90K	6	2	YES	2400-3	35	3.4	3.7	4.5	6.5	8.0	14	20	28	70	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	217K	50
2400-3	90K	10	2	YES	2400-3	35	3.4	3.8	4.3	5.9	7.3	13	18	25	51	89	120	CE	CE	CE	CE	CE	CE	CE	CE	CE	434K	50

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 200K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET					SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300	400		
2301	1200KC	1	1	NO	2301	25	3.1	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	4K	40
2301	1200KC	2	1	NO	2301	25	3.2	3.5	CE	CE	CE	CE	CE	CE	CE	CE	CE	9K	40
2301	1200KC	3	1	NO	2301	25	3.2	3.5	3.9	CE	CE	CE	CE	CE	CE	CE	CE	14K	40
2311	156KC	1	1	NO	2311	6	4.0	5.5	CE	CE	CE	CE	CE	CE	CE	CE	CE	8K	7
2311	156KC	2	1	NO	2311	6	4.0	5.5	7.9	CE	CE	CE	CE	CE	CE	CE	CE	17K	7
2311	156KC	3	1	NO	2311	6	3.8	4.8	6.5	17	21	CE	CE	CE	CE	CE	CE	26K	7
2400-2	60KC	3	1	NO	2400-2	20	5.1	11	20	43	55	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	4	1	NO	2400-2	20	4.7	7.9	15	33	41	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	6	1	NO	2400-2	20	4.3	6.9	13	28	34	84	150	CE	CE	CE	CE	86K	20
2400-2	60KC	10	1	NO	2400-2	20	4.4	6.2	12	25	30	69	110	170	CE	CE	CE	173K	20
2400-3	90KC	3	1	NO	2400-3	20	4.5	7.9	14	30	38	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	4	1	NO	2400-3	20	4.2	6.3	12	23	28	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	6	1	NO	2400-3	20	3.9	5.7	9.6	20	24	57	99	CE	CE	CE	CE	86K	20
2400-3	90KC	10	1	NO	2400-3	20	4.0	5.2	8.5	18	21	48	70	120	CE	CE	CE	173K	20
2301	1200KC	2	2	NO	2301	25	3.2	3.5	CE	CE	CE	CE	CE	CE	CE	CE	CE	9K	40
2301	1200KC	3	2	NO	2301	25	3.2	3.5	3.9	CE	CE	CE	CE	CE	CE	CE	CE	14K	40
2301	1200KC	4	2	NO	2301	25	3.2	3.5	3.9	4.7	CE	CE	CE	CE	CE	CE	CE	21K	40
2311	156KC	2	2	NO	2311	6	3.9	5.1	7.1	CE	CE	CE	CE	CE	CE	CE	CE	17K	7
2311	156KC	3	2	NO	2311	6	3.5	4.0	5.0	12	15	CE	CE	CE	CE	CE	CE	26K	7
2311	156KC	4	2	NO	2311	6	3.5	4.0	5.0	13	15	CE	CE	CE	CE	CE	CE	39K	7
2400-2	60KC	3	2	NO	2400-2	20	4.7	8.6	16	35	43	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	4	2	NO	2400-2	20	4.3	7.0	14	26	32	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	6	2	NO	2400-2	20	4.3	6.5	12	25	30	57	97	CE	CE	CE	CE	86K	20
2400-2	60KC	10	2	NO	2400-2	20	4.1	6.6	10	21	25	47	68	110	CE	CE	CE	173K	20
2400-3	90KC	3	2	NO	2400-3	20	4.2	6.8	12	25	30	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	4	2	NO	2400-3	20	3.9	5.7	9.8	19	23	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	6	2	NO	2400-3	20	3.9	5.4	9.0	18	21	39	66	CE	CE	CE	CE	86K	20
2400-3	90KC	10	2	NO	2400-3	20	3.8	5.5	7.8	15	18	33	47	74	CE	CE	CE	173K	20
2400-2	60KC	3	2	YES	2400-2	20	4.4	7.8	14	30	37	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	4	2	YES	2400-2	20	4.1	6.5	12	23	28	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	6	2	YES	2400-2	20	3.9	5.8	11	20	24	57	97	CE	CE	CE	CE	86K	20
2400-2	60KC	10	2	YES	2400-2	20	4.0	5.3	9.2	18	21	47	68	110	CE	CE	CE	173K	20
2400-3	90KC	3	2	YES	2400-3	20	4.0	6.2	11	21	26	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	4	2	YES	2400-3	20	3.8	5.4	8.8	17	20	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	6	2	YES	2400-3	20	3.7	4.9	7.9	14	17	39	66	CE	CE	CE	CE	86K	20
2400-3	90KC	10	2	YES	2400-3	20	3.7	4.6	7.3	13	15	33	47	74	CE	CE	CE	173K	20

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 200K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)								400	500	MAX SIZE	SORT BLOCK	
								5	10	20	25	50	75	100	200					300
2301	1200KC	1	1	NO	2301	200	3.1	3.1	3.1	3.1	3.2	3.3	3.6	3.8	CE	CE	CE	CE	120K	1000
2301	1200KC	2	1	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.7	3.8	4.6	CE	CE	CE	241K	1000
2301	1200KC	3	1	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.7	3.9	4.6	5.4	CE	CE	362K	1000
2301	1200KC	4	1	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.7	3.9	4.7	5.4	6.2	7.0	543K	1000
2311	156KC	1	1	NO	2311	125	3.1	3.1	3.2	3.4	3.5	4.0	4.5	5.0	7.0	CE	CE	CE	228K	181
2311	156KC	2	1	NO	2311	125	3.1	3.2	3.3	3.4	3.5	4.0	4.5	5.0	7.0	13	17	CE	456K	181
2311	156KC	3	1	NO	2311	125	3.1	3.1	3.2	3.4	3.4	3.8	4.1	4.5	6.0	12	14	17	684K	181
2311	156KC	4	1	NO	2311	125	3.1	3.1	3.2	3.4	3.4	3.8	4.2	4.5	6.0	12	14	17	1026K	181
2400-2	60KC	3	1	NO	2400-2	350	3.1	3.2	3.3	3.6	3.9	5.1	6.8	8.9	17	26	37	45	1085K	500
2400-2	60KC	4	1	NO	2400-2	350	3.2	3.2	3.3	3.6	3.7	4.7	6.0	7.1	14	19	28	34	1085K	500
2400-2	60KC	6	1	NO	2400-2	350	3.2	3.3	3.4	3.6	3.7	4.3	5.5	6.3	12	17	24	28	2170K	500
2400-2	60KC	10	1	NO	2400-2	350	3.3	3.4	3.5	3.7	3.8	4.4	5.0	5.7	11	15	21	25	4341K	500
2400-3	90KC	3	1	NO	2400-3	350	3.1	3.2	3.3	3.4	3.7	4.5	5.6	7.0	12	18	26	31	1085K	500
2400-3	90KC	4	1	NO	2400-3	350	3.1	3.2	3.3	3.4	3.5	4.2	5.1	5.8	11	14	20	24	1085K	500
2400-3	90KC	6	1	NO	2400-3	350	3.2	3.2	3.3	3.5	3.6	4.0	4.7	5.3	9.0	12	17	20	2170K	500
2400-3	90KC	10	1	NO	2400-3	350	3.3	3.3	3.4	3.6	3.6	4.0	4.4	4.9	8.2	11	15	18	4341K	500
2301	1200KC	2	2	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.7	3.8	4.6	CE	CE	CE	241K	1000
2301	1200KC	3	2	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.7	3.9	4.6	5.4	CE	CE	362K	1000
2301	1200KC	4	2	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.7	3.9	4.7	5.4	6.2	7.0	543K	1000
2311	156KC	2	2	NO	2311	125	3.1	3.1	3.2	3.4	3.5	3.9	4.3	4.7	6.4	11	14	CE	456K	181
2311	156KC	3	2	NO	2311	125	3.1	3.1	3.1	3.2	3.3	3.5	3.7	3.9	4.7	8.4	11	13	684K	181
2311	156KC	4	2	NO	2311	125	3.1	3.1	3.2	3.2	3.3	3.5	3.7	3.9	4.8	8.4	11	13	1026K	181
2400-2	60KC	3	2	NO	2400-2	350	3.1	3.2	3.3	3.5	3.7	4.7	6.0	7.6	14	21	29	36	1085K	500
2400-2	60KC	4	2	NO	2400-2	350	3.1	3.2	3.3	3.5	3.6	4.3	5.4	6.4	12	16	22	27	1085K	500
2400-2	60KC	6	2	NO	2400-2	350	3.2	3.2	3.3	3.5	3.6	4.6	5.3	6.0	11	14	21	25	2170K	500
2400-2	60KC	10	2	NO	2400-2	350	3.2	3.3	3.4	3.6	3.7	4.2	5.4	6.1	8.8	12	18	22	4341K	500
2400-3	90KC	3	2	NO	2400-3	350	3.1	3.2	3.2	3.3	3.5	4.2	5.0	6.1	10	15	21	25	1085K	500
2400-3	90KC	4	2	NO	2400-3	350	3.1	3.2	3.2	3.4	3.4	4.0	4.7	5.4	8.6	12	16	19	1085K	500
2400-3	90KC	6	2	NO	2400-3	350	3.2	3.2	3.3	3.4	3.5	4.1	4.6	5.1	8.0	11	15	18	2170K	500
2400-3	90KC	10	2	NO	2400-3	350	3.2	3.3	3.3	3.5	3.5	3.9	4.7	5.2	7.0	8.9	13	16	4341K	500
2400-2	60KC	3	2	YES	2400-2	350	3.1	3.2	3.3	3.4	3.6	4.5	5.6	6.9	12	18	25	31	1085K	500
2400-2	60KC	4	2	YES	2400-2	350	3.1	3.2	3.3	3.4	3.5	4.2	5.1	6.0	11	14	19	23	1085K	500
2400-2	60KC	6	2	YES	2400-2	350	3.2	3.2	3.3	3.5	3.6	4.0	4.7	5.4	9.0	12	17	20	2170K	500
2400-2	60KC	10	2	YES	2400-2	350	3.3	3.3	3.4	3.6	3.6	4.0	4.4	5.0	8.2	11	15	18	4334K	481
2400-3	90KC	3	2	YES	2400-3	350	3.1	3.1	3.2	3.3	3.5	4.0	4.8	5.7	9.0	13	18	22	1085K	500
2400-3	90KC	4	2	YES	2400-3	350	3.1	3.2	3.2	3.3	3.4	3.8	4.5	5.1	7.9	11	14	17	1085K	500
2400-3	90KC	6	2	YES	2400-3	350	3.2	3.2	3.3	3.4	3.4	3.7	4.2	4.7	7.1	9.1	13	15	2170K	500
2400-3	90KC	10	2	YES	2400-3	350	3.3	3.3	3.3	3.4	3.5	3.8	4.0	4.4	6.6	8.2	11	13	4334K	481

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 200K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES										DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2301	1200KC	1	1	NO	2301	120	3.1	3.1	3.1	3.4	3.4	CE	CE	CE	CE	CE	CE	CE	30K	250			
2301	1200KC	2	1	NO	2301	120	3.1	3.1	3.1	3.4	3.5	3.8	CE	CE	CE	CE	CE	CE	60K	250			
2301	1200KC	3	1	NO	2301	120	3.1	3.1	3.2	3.4	3.5	3.9	4.2	CE	CE	CE	CE	CE	91K	250			
2301	1200KC	4	1	NO	2301	120	3.1	3.1	3.2	3.4	3.5	3.9	4.3	4.6	CE	CE	CE	CE	136K	250			
2311	156KC	1	1	NO	2311	30	3.2	3.4	3.8	4.6	5.0	7.0	CE	CE	CE	CE	CE	CE	56K	45			
2311	156KC	2	1	NO	2311	30	3.2	3.4	3.8	4.6	5.0	7.0	13	16	CE	CE	CE	CE	113K	45			
2311	156KC	3	1	NO	2311	30	3.2	3.4	3.6	4.2	4.5	5.9	12	14	CE	CE	CE	CE	170K	45			
2311	156KC	4	1	NO	2311	30	3.2	3.4	3.6	4.2	4.5	6.0	12	14	26	CE	CE	CE	255K	45			
2400-2	60KC	3	1	NO	2400-2	90	3.3	3.6	4.4	7.0	8.0	17	26	33	76	CE	CE	CE	271K	125			
2400-2	60KC	4	1	NO	2400-2	90	3.3	3.6	4.1	6.2	6.9	13	19	24	54	CE	CE	CE	250K	45			
2400-2	60KC	6	1	NO	2400-2	90	3.3	3.6	4.1	5.6	6.2	11	17	21	43	81	130	160	542K	125			
2400-2	60KC	10	1	NO	2400-2	90	3.4	3.7	4.2	5.1	5.6	9.2	15	18	37	67	88	120	1054K	76			
2400-3	90KC	3	1	NO	2400-3	90	3.2	3.4	4.0	5.7	6.4	12	18	23	52	CE	CE	CE	271K	125			
2400-3	90KC	4	1	NO	2400-3	90	3.2	3.4	3.7	5.2	5.7	9.2	14	18	37	CE	CE	CE	250K	45			
2400-3	90KC	6	1	NO	2400-3	90	3.2	3.5	3.8	4.8	5.2	8.1	12	15	30	55	85	110	542K	125			
2400-3	90KC	10	1	NO	2400-3	90	3.4	3.5	3.9	4.5	4.8	7.3	11	13	26	46	60	76	1054K	76			
2301	1200KC	2	2	NO	2301	120	3.1	3.1	3.1	3.4	3.5	3.8	CE	CE	CE	CE	CE	CE	60K	250			
2301	1200KC	3	2	NO	2301	120	3.1	3.1	3.2	3.4	3.5	3.9	4.2	CE	CE	CE	CE	CE	91K	250			
2301	1200KC	4	2	NO	2301	120	3.1	3.1	3.2	3.4	3.5	3.9	4.3	4.6	CE	CE	CE	CE	136K	250			
2311	156KC	2	2	NO	2311	30	3.2	3.4	3.7	4.4	4.7	6.4	11	14	CE	CE	CE	CE	113K	45			
2311	156KC	3	2	NO	2311	30	3.1	3.2	3.4	3.7	3.9	4.8	8.5	11	CE	CE	CE	CE	170K	45			
2311	156KC	4	2	NO	2311	30	3.1	3.2	3.4	3.7	3.9	4.8	8.5	11	18	CE	CE	CE	255K	45			
2400-2	60KC	3	2	NO	2400-2	90	3.2	3.5	4.1	6.1	6.9	14	21	26	59	CE	CE	CE	271K	125			
2400-2	60KC	4	2	NO	2400-2	90	3.3	3.5	3.9	5.5	6.1	11	16	20	45	CE	CE	CE	271K	125			
2400-2	60KC	6	2	NO	2400-2	90	3.3	3.5	3.9	5.4	5.9	11	14	18	38	55	84	110	542K	125			
2400-2	60KC	10	2	NO	2400-2	90	3.3	3.6	4.0	4.9	6.0	8.7	12	16	32	45	59	81	953K	31			
2400-3	90KC	3	2	NO	2400-3	90	3.2	3.3	3.8	5.1	5.6	9.9	15	19	41	CE	CE	CE	271K	125			
2400-3	90KC	4	2	NO	2400-3	90	3.2	3.4	3.6	4.7	5.1	7.8	12	14	31	CE	CE	CE	271K	125			
2400-3	90KC	6	2	NO	2400-3	90	3.2	3.4	3.6	4.6	5.0	7.9	11	13	26	38	57	71	542K	125			
2400-3	90KC	10	2	NO	2400-3	90	3.3	3.4	3.7	4.3	5.1	6.9	8.7	12	22	32	41	56	953K	31			
2400-2	60KC	3	2	YES	2400-2	90	3.2	3.4	4.0	5.7	6.3	12	18	23	51	CE	CE	CE	271K	125			
2400-2	60KC	4	2	YES	2400-2	90	3.2	3.4	3.8	5.2	5.7	9.1	14	17	39	CE	CE	CE	271K	125			
2400-2	60KC	6	2	YES	2400-2	90	3.3	3.5	3.8	4.8	5.2	8.1	12	15	30	55	84	110	542K	125			
2400-2	60KC	10	2	YES	2400-2	90	3.4	3.5	3.9	4.5	4.8	7.2	11	13	26	45	59	81	953K	31			
2400-3	90KC	3	2	YES	2400-3	90	3.2	3.3	3.7	4.8	5.3	8.9	13	17	35	CE	CE	CE	271K	125			
2400-3	90KC	4	2	YES	2400-3	90	3.2	3.3	3.5	4.5	4.8	7.1	10	13	27	CE	CE	CE	271K	125			
2400-3	90KC	6	2	YES	2400-3	90	3.2	3.4	3.6	4.3	4.5	6.5	8.9	11	21	38	57	71	542K	125			
2400-3	90KC	10	2	YES	2400-3	90	3.3	3.4	3.7	4.1	4.3	5.9	8.1	9.7	19	32	41	56	953K	31			

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 200K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES										FOR DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2301	1200KC	1	1	NO	2301	50	3.1	3.1	3.4	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	12K	100	
2301	1200KC	2	1	NO	2301	50	3.1	3.2	3.4	3.8	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	24K	100	
2301	1200KC	3	1	NO	2301	50	3.1	3.2	3.5	3.8	3.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	36K	100	
2301	1200KC	4	1	NO	2301	50	3.1	3.2	3.5	3.8	4.0	4.8	CE	CE	CE	CE	CE	CE	CE	CE	54K	100	
2311	156KC	1	1	NO	2311	15	3.4	4.0	5.0	6.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	22K	18	
2311	156KC	2	1	NO	2311	15	3.4	4.0	5.0	6.9	7.8	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18	
2311	156KC	3	1	NO	2311	15	3.3	3.7	4.4	5.8	6.5	17	CE	CE	CE	CE	CE	CE	CE	CE	68K	18	
2311	156KC	4	1	NO	2311	15	3.3	3.8	4.4	5.8	6.5	17	24	31	CE	CE	CE	CE	CE	CE	102K	18	
2400-2	60KC	3	1	NO	2400-2	35	3.6	5.1	8.0	17	20	43	65	94	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	4	1	NO	2400-2	35	3.6	4.7	6.9	13	15	33	48	70	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	6	1	NO	2400-2	35	3.6	4.3	6.2	11	13	28	41	59	160	CE	CE	CE	CE	CE	217K	50	
2400-2	60KC	10	1	NO	2400-2	35	3.7	4.4	5.6	9.2	12	25	35	52	110	200	270	CE	CE	CE	434K	50	
2400-3	90KC	3	1	NO	2400-3	35	3.4	4.5	6.4	12	14	30	45	64	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	4	1	NO	2400-3	35	3.4	4.2	5.7	9.1	12	23	33	48	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	6	1	NO	2400-3	35	3.5	3.9	5.2	8.1	9.7	20	28	41	110	CE	CE	CE	CE	CE	217K	50	
2400-3	90KC	10	1	NO	2400-3	35	3.5	4.0	4.8	7.3	8.5	18	25	36	74	140	180	CE	CE	CE	434K	50	
2301	1200KC	2	2	NO	2301	50	3.1	3.2	3.4	3.8	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	24K	100	
2301	1200KC	3	2	NO	2301	50	3.1	3.2	3.5	3.8	3.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	36K	100	
2301	1200KC	4	2	NO	2301	50	3.1	3.2	3.5	3.8	4.0	4.8	CE	CE	CE	CE	CE	CE	CE	CE	54K	100	
2311	156KC	2	2	NO	2311	15	3.4	3.9	4.7	6.3	7.1	CE	CE	CE	CE	CE	CE	CE	CE	CE	45K	18	
2311	156KC	3	2	NO	2311	15	3.2	3.4	3.8	4.6	5.0	12	CE	CE	CE	CE	CE	CE	CE	CE	68K	18	
2311	156KC	4	2	NO	2311	15	3.2	3.5	3.8	4.6	5.0	12	17	22	CE	CE	CE	CE	CE	CE	102K	18	
2400-2	60KC	3	2	NO	2400-2	35	3.5	4.7	6.9	14	16	35	52	73	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	4	2	NO	2400-2	35	3.5	4.3	6.1	11	14	26	38	55	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	6	2	NO	2400-2	35	3.5	4.2	5.9	11	12	25	35	46	110	CE	CE	CE	CE	CE	217K	50	
2400-2	60KC	10	2	NO	2400-2	35	3.6	4.2	6.0	8.7	10	21	30	38	74	130	180	CE	CE	CE	434K	50	
2400-3	90KC	3	2	NO	2400-3	35	3.3	4.2	5.6	9.8	12	25	36	50	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	4	2	NO	2400-3	35	3.4	3.9	5.1	7.8	9.9	19	27	38	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	6	2	NO	2400-3	35	3.4	3.8	5.0	7.9	9.0	18	25	32	70	CE	CE	CE	CE	CE	217K	50	
2400-3	90KC	10	2	NO	2400-3	35	3.4	3.8	5.1	6.9	7.8	15	21	27	51	88	120	CE	CE	CE	434K	50	
2400-2	60KC	3	2	YES	2400-2	35	3.4	4.4	6.3	12	14	30	45	63	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	4	2	YES	2400-2	35	3.4	4.2	5.7	9.1	12	23	33	47	CE	CE	CE	CE	CE	CE	108K	50	
2400-2	60KC	6	2	YES	2400-2	35	3.5	3.9	5.2	8.0	11	20	28	40	110	CE	CE	CE	CE	CE	217K	50	
2400-2	60KC	10	2	YES	2400-2	35	3.5	4.0	4.8	7.2	9.3	18	25	35	74	130	180	CE	CE	CE	434K	50	
2400-3	90KC	3	2	YES	2400-3	35	3.3	4.0	5.3	8.8	11	22	31	43	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	4	2	YES	2400-3	35	3.3	3.8	4.8	7.1	8.9	17	23	33	CE	CE	CE	CE	CE	CE	108K	50	
2400-3	90KC	6	2	YES	2400-3	35	3.4	3.7	4.5	6.4	7.9	14	20	28	70	CE	CE	CE	CE	CE	217K	50	
2400-3	90KC	10	2	YES	2400-3	35	3.4	3.8	4.3	5.9	7.3	13	18	25	51	88	120	CE	CE	CE	434K	50	

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 200K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR								DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300	400	500				
2301	1200KC	1	1	NO	2301	25	3.1	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	4K	40	
2301	1200KC	2	1	NO	2301	25	3.1	3.5	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	9K	40	
2301	1200KC	3	1	NO	2301	25	3.2	3.5	3.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	14K	40	
2301	1200KC	4	1	NO	2301	25	3.2	3.5	3.9	4.7	CE	CE	CE	CE	CE	CE	CE	CE	CE	21K	40	
2311	156KC	1	1	NO	2311	6	4.0	5.5	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	8K	7	
2311	156KC	2	1	NO	2311	6	4.0	5.5	7.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7	
2311	156KC	3	1	NO	2311	6	3.7	4.8	6.5	17	21	CE	CE	CE	CE	CE	CE	CE	CE	26K	7	
2311	156KC	4	1	NO	2311	6	3.8	4.8	6.5	17	21	CE	CE	CE	CE	CE	CE	CE	CE	39K	7	
2400-2	60KC	3	1	NO	2400-2	20	5.1	11	20	43	55	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	4	1	NO	2400-2	20	4.7	7.9	15	33	41	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	6	1	NO	2400-2	20	4.3	6.9	13	28	34	84	150	CE	CE	CE	CE	CE	CE	86K	20	
2400-2	60KC	10	1	NO	2400-2	20	4.4	6.2	12	25	30	69	110	170	CE	CE	CE	CE	CE	173K	20	
2400-3	90KC	3	1	NO	2400-3	20	4.5	7.8	14	30	38	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	4	1	NO	2400-3	20	4.2	6.3	12	23	28	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	6	1	NO	2400-3	20	3.9	5.7	9.6	20	24	57	99	CE	CE	CE	CE	CE	CE	86K	20	
2400-3	90KC	10	1	NO	2400-3	20	4.0	5.2	8.5	18	21	48	69	120	CE	CE	CE	CE	CE	173K	20	
2301	1200KC	2	2	NO	2301	25	3.1	3.5	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	9K	40	
2301	1200KC	3	2	NO	2301	25	3.2	3.5	3.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	14K	40	
2301	1200KC	4	2	NO	2301	25	3.2	3.5	3.9	4.7	CE	CE	CE	CE	CE	CE	CE	CE	CE	21K	40	
2311	156KC	2	2	NO	2311	6	3.9	5.1	7.1	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7	
2311	156KC	3	2	NO	2311	6	3.4	4.0	5.0	12	15	CE	CE	CE	CE	CE	CE	CE	CE	26K	7	
2311	156KC	4	2	NO	2311	6	3.5	4.0	5.0	12	15	CE	CE	CE	CE	CE	CE	CE	CE	39K	7	
2400-2	60KC	3	2	NO	2400-2	20	4.7	8.6	16	35	43	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	4	2	NO	2400-2	20	4.3	7.0	14	26	32	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	6	2	NO	2400-2	20	4.3	6.5	12	25	30	57	97	CE	CE	CE	CE	CE	CE	86K	20	
2400-2	60KC	10	2	NO	2400-2	20	4.1	6.6	10	21	25	47	68	110	CE	CE	CE	CE	CE	173K	20	
2400-3	90KC	3	2	NO	2400-3	20	4.2	6.8	12	25	30	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	4	2	NO	2400-3	20	3.9	5.7	9.8	19	23	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	6	2	NO	2400-3	20	3.9	5.4	9.0	18	21	39	66	CE	CE	CE	CE	CE	CE	86K	20	
2400-3	90KC	10	2	NO	2400-3	20	3.8	5.5	7.8	15	18	32	47	74	CE	CE	CE	CE	CE	173K	20	
2400-2	60KC	3	2	YES	2400-2	20	4.4	7.7	14	30	37	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	4	2	YES	2400-2	20	4.1	6.5	12	23	28	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-2	60KC	6	2	YES	2400-2	20	3.9	5.8	11	20	24	57	97	CE	CE	CE	CE	CE	CE	86K	20	
2400-2	60KC	10	2	YES	2400-2	20	4.0	5.3	9.2	17	21	47	68	110	CE	CE	CE	CE	CE	173K	20	
2400-3	90KC	3	2	YES	2400-3	20	4.0	6.2	11	21	26	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	4	2	YES	2400-3	20	3.8	5.4	8.8	16	20	CE	CE	CE	CE	CE	CE	CE	CE	43K	20	
2400-3	90KC	6	2	YES	2400-3	20	3.7	4.9	7.9	14	17	39	66	CE	CE	CE	CE	CE	CE	86K	20	
2400-3	90KC	10	2	YES	2400-3	20	3.7	4.6	7.3	13	15	32	47	74	CE	CE	CE	CE	CE	173K	20	

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 400K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK			
								5	10	20	25	50	75	100	200	300	400			500		
2301	1200KC	1	1	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.4	3.6	CE	CE	CE	CE	123K	1000		
2301	1200KC	2	1	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.5	3.6	4.1	CE	CE	CE	CE	247K	1000	
2301	1200KC	3	1	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.5	3.6	4.1	4.7	CE	CE	CE	371K	1000	
2301	1200KC	4	1	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.5	3.6	4.2	4.7	6.2	7.0	CE	CE	557K	1000
2311	156KC	1	1	NO	2311	125	3.1	3.1	3.2	3.4	3.5	4.0	4.5	5.0	7.0	CE	CE	CE	CE	228K	181	
2311	156KC	2	1	NO	2311	125	3.1	3.2	3.3	3.4	3.5	4.0	4.5	5.0	7.0	9.0	11	CE	CE	457K	181	
2311	156KC	3	1	NO	2311	125	3.1	3.1	3.2	3.4	3.4	3.8	4.1	4.5	6.0	7.4	8.9	18	686K	181		
2311	156KC	4	1	NO	2311	125	3.1	3.1	3.2	3.4	3.4	3.8	4.2	4.5	6.0	7.4	8.9	18	1030K	181		
2400-2	60KC	3	1	NO	2400-2	350	3.1	3.2	3.3	3.6	3.7	4.7	6.2	7.2	15	21	30	37	1058K	322		
2400-2	60KC	4	1	NO	2400-2	350	3.2	3.2	3.4	3.6	3.7	4.3	5.5	6.2	11	17	22	30	1085K	500		
2400-2	60KC	6	1	NO	2400-2	350	3.2	3.3	3.4	3.6	3.7	4.3	4.9	5.5	9.3	15	19	25	2170K	500		
2400-2	60KC	10	1	NO	2400-2	350	3.3	3.4	3.5	3.7	3.8	4.4	5.0	5.6	8.0	13	16	22	434K	500		
2400-3	90KC	3	1	NO	2400-3	350	3.1	3.2	3.3	3.4	3.5	4.2	5.2	5.8	11	15	21	26	1058K	322		
2400-3	90KC	4	1	NO	2400-3	350	3.1	3.2	3.3	3.4	3.5	3.9	4.7	5.2	8.3	13	16	21	1085K	500		
2400-3	90KC	6	1	NO	2400-3	350	3.2	3.2	3.3	3.5	3.6	4.0	4.4	4.7	7.3	11	14	18	2170K	500		
2400-3	90KC	10	1	NO	2400-3	350	3.3	3.3	3.4	3.6	3.6	4.0	4.4	4.8	6.4	9.3	12	16	434K	500		
2301	1200KC	2	2	NO	2301	200	3.1	3.1	3.1	3.1	3.2	3.3	3.4	3.5	4.4	CE	CE	CE	CE	247K	1000	
2301	1200KC	3	2	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.4	3.5	4.4	5.1	CE	CE	CE	CE	371K	1000
2301	1200KC	4	2	NO	2301	200	3.1	3.1	3.1	3.2	3.2	3.3	3.4	3.5	4.5	5.1	5.8	6.5	CE	CE	557K	1000
2311	156KC	2	2	NO	2311	125	3.1	3.1	3.2	3.4	3.5	3.9	4.3	4.7	6.4	8.0	9.7	CE	CE	CE	457K	181
2311	156KC	3	2	NO	2311	125	3.1	3.1	3.1	3.2	3.3	3.5	3.7	3.9	4.7	5.6	6.4	13	686K	181		
2311	156KC	4	2	NO	2311	125	3.1	3.1	3.2	3.2	3.3	3.5	3.7	3.9	4.8	5.6	6.4	13	1030K	181		
2400-2	60KC	3	2	NO	2400-2	350	3.1	3.2	3.3	3.5	3.6	4.3	5.5	6.3	12	17	24	31	977K	147		
2400-2	60KC	4	2	NO	2400-2	350	3.1	3.2	3.3	3.5	3.6	4.0	4.9	5.5	9.1	14	18	24	1085K	500		
2400-2	60KC	6	2	NO	2400-2	350	3.2	3.2	3.3	3.5	3.6	4.1	4.6	5.9	8.7	14	18	21	2170K	500		
2400-2	60KC	10	2	NO	2400-2	350	3.2	3.3	3.4	3.6	3.7	4.2	4.7	5.2	8.8	12	15	17	434K	500		
2400-3	90KC	3	2	NO	2400-3	350	3.1	3.2	3.2	3.3	3.4	3.9	4.7	5.2	9.1	13	17	22	977K	147		
2400-3	90KC	4	2	NO	2400-3	350	3.1	3.2	3.2	3.4	3.4	3.7	4.4	4.8	7.1	11	13	17	1085K	500		
2400-3	90KC	6	2	NO	2400-3	350	3.2	3.2	3.3	3.4	3.5	3.8	4.1	5.1	6.9	11	13	16	2170K	500		
2400-3	90KC	10	2	NO	2400-3	350	3.2	3.3	3.3	3.5	3.5	3.9	4.2	4.5	7.0	8.9	11	13	434K	500		
2400-2	60KC	3	2	YES	2400-2	350	3.1	3.2	3.3	3.4	3.5	4.2	5.1	5.8	11	15	21	27	977K	147		
2400-2	60KC	4	2	YES	2400-2	350	3.1	3.2	3.3	3.4	3.5	3.9	4.7	5.2	8.2	13	16	21	1085K	500		
2400-2	60KC	6	2	YES	2400-2	350	3.2	3.2	3.3	3.5	3.6	3.9	4.3	4.7	7.2	11	14	18	2170K	500		
2400-2	60KC	10	2	YES	2400-2	350	3.3	3.3	3.4	3.6	3.6	4.0	4.4	4.8	6.4	9.3	12	16	434K	500		
2400-3	90KC	3	2	YES	2400-3	350	3.1	3.1	3.2	3.3	3.4	3.8	4.5	4.9	8.2	11	15	20	977K	147		
2400-3	90KC	4	2	YES	2400-3	350	3.1	3.2	3.2	3.3	3.4	3.7	4.2	4.5	6.6	9.2	12	15	1085K	500		
2400-3	90KC	6	2	YES	2400-3	350	3.2	3.2	3.3	3.4	3.4	3.7	4.0	4.2	5.9	8.2	10	13	2170K	500		
2400-3	90KC	10	2	YES	2400-3	350	3.3	3.3	3.3	3.4	3.5	3.8	4.0	4.3	5.4	7.3	8.9	12	434K	500		

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 400K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES										DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2301	1200KC	1	1	NO	2301	120	3.1	3.1	3.1	3.2	3.3	CE	CE	CE	CE	CE	CE	CE	CE	31K	250		
2301	1200KC	2	1	NO	2301	120	3.1	3.1	3.1	3.2	3.3	CE	CE	CE	CE	CE	CE	CE	CE	62K	250		
2301	1200KC	3	1	NO	2301	120	3.1	3.1	3.2	3.3	3.3	CE	CE	CE	CE	CE	CE	CE	CE	93K	250		
2301	1200KC	4	1	NO	2301	120	3.1	3.1	3.2	3.3	3.3	CE	CE	CE	CE	CE	CE	CE	CE	139K	250		
2311	156KC	1	1	NO	2311	30	3.2	3.4	3.8	4.6	5.0	CE	CE	CE	CE	CE	CE	CE	CE	56K	45		
2311	156KC	2	1	NO	2311	30	3.2	3.4	3.8	4.6	5.0	7.0	8.9	11	CE	CE	CE	CE	CE	113K	45		
2311	156KC	3	1	NO	2311	30	3.2	3.4	3.6	4.2	4.5	5.9	7.4	8.8	CE	CE	CE	CE	CE	170K	45		
2311	156KC	4	1	NO	2311	30	3.2	3.4	3.6	4.2	4.5	6.0	7.4	8.8	26	CE	CE	CE	CE	256K	45		
2400-2	60KC	3	1	NO	2400-2	90	3.3	3.6	4.0	5.6	7.1	13	21	30	63	CE	CE	CE	CE	271K	125		
2400-2	60KC	4	1	NO	2400-2	90	3.3	3.6	4.1	5.0	6.2	11	17	22	45	CE	CE	CE	CE	271K	125		
2400-2	60KC	6	1	NO	2400-2	90	3.3	3.6	4.1	5.0	5.5	9.2	15	18	38	81	110	140	542K	125			
2400-2	60KC	10	1	NO	2400-2	90	3.4	3.7	4.2	5.1	5.6	7.9	13	16	33	67	88	110	1085K	125			
2400-3	90KC	3	1	NO	2400-3	90	3.2	3.4	3.7	4.8	5.6	9.6	15	21	43	CE	CE	CE	CE	271K	125		
2400-3	90KC	4	1	NO	2400-3	90	3.2	3.4	3.7	4.4	5.2	8.2	13	16	31	CE	CE	CE	CE	271K	125		
2400-3	90KC	6	1	NO	2400-3	90	3.3	3.5	3.8	4.4	4.7	7.2	11	13	27	55	73	90	542K	125			
2400-3	90KC	10	1	NO	2400-3	90	3.4	3.5	3.9	4.5	4.8	6.4	9.3	12	23	46	60	74	1085K	125			
2301	1200KC	2	2	NO	2301	120	3.1	3.1	3.1	3.2	3.2	3.4	CE	CE	CE	CE	CE	CE	CE	62K	250		
2301	1200KC	3	2	NO	2301	120	3.1	3.1	3.1	3.2	3.2	3.4	3.9	CE	CE	CE	CE	CE	CE	93K	250		
2301	1200KC	4	2	NO	2301	120	3.1	3.1	3.1	3.2	3.2	3.4	3.9	4.2	CE	CE	CE	CE	CE	139K	250		
2311	156KC	2	2	NO	2311	30	3.2	3.4	3.7	4.4	4.7	6.4	8.1	9.7	CE	CE	CE	CE	CE	113K	45		
2311	156KC	3	2	NO	2311	30	3.1	3.2	3.4	3.7	3.9	4.8	5.6	6.4	CE	CE	CE	CE	CE	170K	45		
2311	156KC	4	2	NO	2311	30	3.1	3.2	3.4	3.7	3.9	4.8	5.6	6.5	19	CE	CE	CE	CE	256K	45		
2400-2	60KC	3	2	NO	2400-2	90	3.2	3.5	3.8	5.1	6.2	11	17	24	49	CE	CE	CE	CE	271K	125		
2400-2	60KC	4	2	NO	2400-2	90	3.3	3.5	3.8	4.6	5.5	9.0	14	17	36	CE	CE	CE	CE	271K	125		
2400-2	60KC	6	2	NO	2400-2	90	3.3	3.5	3.9	4.7	5.1	8.6	12	18	31	54	71	88	542K	125			
2400-2	60KC	10	2	NO	2400-2	90	3.3	3.6	4.0	4.7	5.1	8.7	12	15	25	45	59	73	1085K	125			
2400-3	90KC	3	2	NO	2400-3	90	3.2	3.3	3.6	4.4	5.2	8.1	12	17	34	CE	CE	CE	CE	271K	125		
2400-3	90KC	4	2	NO	2400-3	90	3.2	3.4	3.6	4.1	4.7	7.1	11	13	25	CE	CE	CE	CE	271K	125		
2400-3	90KC	6	2	NO	2400-3	90	3.2	3.4	3.6	4.2	4.4	6.8	8.6	13	22	38	49	60	542K	125			
2400-3	90KC	10	2	NO	2400-3	90	3.3	3.4	3.7	4.2	4.5	6.9	8.7	11	18	32	41	50	1085K	125			
2400-2	60KC	3	2	YES	2400-2	90	3.2	3.4	3.7	4.8	5.8	9.5	15	21	42	CE	CE	CE	CE	271K	125		
2400-2	60KC	4	2	YES	2400-2	90	3.2	3.4	3.7	4.4	5.2	8.1	12	15	31	CE	CE	CE	CE	271K	125		
2400-2	60KC	6	2	YES	2400-2	90	3.3	3.5	3.8	4.4	4.7	7.1	11	13	26	54	71	88	542K	125			
2400-2	60KC	10	2	YES	2400-2	90	3.4	3.5	3.9	4.5	4.8	6.3	9.2	12	23	45	59	73	1085K	125			
2400-3	90KC	3	2	YES	2400-3	90	3.2	3.3	3.5	4.2	4.9	7.4	11	15	29	CE	CE	CE	CE	271K	125		
2400-3	90KC	4	2	YES	2400-3	90	3.2	3.3	3.5	3.9	4.5	6.5	9.1	11	22	CE	CE	CE	CE	271K	125		
2400-3	90KC	6	2	YES	2400-3	90	3.2	3.4	3.6	4.0	4.2	5.8	8.1	9.7	19	38	49	60	542K	125			
2400-3	90KC	10	2	YES	2400-3	90	3.3	3.4	3.6	4.1	4.3	5.3	7.2	8.5	16	32	41	50	1085K	125			

SYSTEM/360 MODEL 75

MAIN STORAGE USED 400K

RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2301	1200KC	1	1	NO	2301	50	3.1	3.1	3.2	CE	CE	CE	CE	CE	CE	CE	CE	CE	12K	100
2301	1200KC	2	1	NO	2301	50	3.1	3.2	3.3	3.5	CE	CE	CE	CE	CE	CE	CE	CE	24K	100
2301	1200KC	3	1	NO	2301	50	3.1	3.2	3.3	3.5	3.6	CE	CE	CE	CE	CE	CE	CE	37K	100
2301	1200KC	4	1	NO	2301	50	3.1	3.2	3.3	3.5	3.6	4.8	CE	CE	CE	CE	CE	CE	56K	100
2311	156KC	1	1	NO	2311	15	3.4	4.0	5.0	6.9	CE	CE	CE	CE	CE	CE	CE	CE	22K	18
2311	156KC	2	1	NO	2311	15	3.4	4.0	5.0	6.9	7.8	CE	CE	CE	CE	CE	CE	CE	45K	18
2311	156KC	3	1	NO	2311	15	3.3	3.7	4.4	5.8	6.5	9.9	CE	CE	CE	CE	CE	CE	68K	18
2311	156KC	4	1	NO	2311	15	3.3	3.8	4.4	5.8	6.5	9.9	24	32	CE	CE	CE	CE	102K	18
2400-2	60KC	3	1	NO	2400-2	35	3.6	4.3	7.1	13	17	36	59	77	CE	CE	CE	CE	108K	50
2400-2	60KC	4	1	NO	2400-2	35	3.6	4.3	6.2	11	13	26	43	63	CE	CE	CE	CE	108K	50
2400-2	60KC	6	1	NO	2400-2	35	3.6	4.3	5.5	9.2	11	22	36	47	140	CE	CE	CE	217K	50
2400-2	60KC	10	1	NO	2400-2	35	3.7	4.4	5.6	7.9	9.1	19	31	40	110	170	220	CE	434K	50
2400-3	90KC	3	1	NO	2400-3	35	3.4	3.9	5.8	9.6	12	25	40	53	CE	CE	CE	CE	108K	50
2400-3	90KC	4	1	NO	2400-3	35	3.4	3.9	5.2	8.2	9.5	19	30	43	CE	CE	CE	CE	108K	50
2400-3	90KC	6	1	NO	2400-3	35	3.5	3.9	4.7	7.2	8.2	16	25	32	90	CE	CE	CE	217K	50
2400-3	90KC	10	1	NO	2400-3	35	3.5	4.0	4.8	6.4	7.2	14	22	28	74	110	150	CE	434K	50
2301	1200KC	2	2	NO	2301	50	3.1	3.1	3.2	3.3	CE	CE	CE	CE	CE	CE	CE	CE	24K	100
2301	1200KC	3	2	NO	2301	50	3.1	3.1	3.2	3.4	3.7	CE	CE	CE	CE	CE	CE	CE	37K	100
2301	1200KC	4	2	NO	2301	50	3.1	3.1	3.2	3.4	3.7	4.3	CE	CE	CE	CE	CE	CE	55K	100
2311	156KC	2	2	NO	2311	15	3.4	3.9	4.7	6.3	7.1	CE	CE	CE	CE	CE	CE	CE	45K	18
2311	156KC	3	2	NO	2311	15	3.2	3.4	3.8	4.6	5.0	6.9	CE	CE	CE	CE	CE	CE	68K	18
2311	156KC	4	2	NO	2311	15	3.2	3.5	3.8	4.6	5.0	6.9	17	22	CE	CE	CE	CE	102K	18
2400-2	60KC	3	2	NO	2400-2	35	3.5	4.0	6.2	11	15	29	46	60	CE	CE	CE	CE	108K	50
2400-2	60KC	4	2	NO	2400-2	35	3.5	4.0	5.5	9.0	11	21	34	49	CE	CE	CE	CE	108K	50
2400-2	60KC	6	2	NO	2400-2	35	3.5	4.1	5.1	8.6	9.9	21	30	46	88	CE	CE	CE	217K	50
2400-2	60KC	10	2	NO	2400-2	35	3.6	4.2	5.1	8.7	10	17	24	38	73	110	150	CE	434K	50
2400-3	90KC	3	2	NO	2400-3	35	3.3	3.7	5.2	8.1	11	20	32	41	CE	CE	CE	CE	168K	50
2400-3	90KC	4	2	NO	2400-3	35	3.4	3.7	4.7	7.1	8.0	15	24	34	CE	CE	CE	CE	108K	50
2400-3	90KC	6	2	NO	2400-3	35	3.4	3.8	4.4	6.8	7.7	15	21	32	60	CE	CE	CE	217K	50
2400-3	90KC	10	2	NO	2400-3	35	3.4	3.8	4.5	6.9	7.8	13	17	27	50	73	96	CE	434K	50
2400-2	60KC	3	2	YES	2400-2	35	3.4	3.9	5.7	9.5	13	25	40	52	CE	CE	CE	CE	108K	50
2400-2	60KC	4	2	YES	2400-2	35	3.4	3.9	5.2	8.1	9.4	18	29	42	CE	CE	CE	CE	108K	50
2400-2	60KC	6	2	YES	2400-2	35	3.5	3.9	4.7	7.1	8.1	16	25	33	88	CE	CE	CE	217K	50
2400-2	60KC	10	2	YES	2400-2	35	3.5	4.0	4.8	6.3	7.1	14	21	28	73	110	150	CE	434K	50
2400-3	90KC	3	2	YES	2400-3	35	3.3	3.6	4.9	7.4	9.3	18	28	36	CE	CE	CE	CE	108K	50
2400-3	90KC	4	2	YES	2400-3	35	3.3	3.6	4.5	6.5	7.3	13	21	30	CE	CE	CE	CE	108K	50
2400-3	90KC	6	2	YES	2400-3	35	3.4	3.7	4.2	5.8	6.5	12	18	23	60	CE	CE	CE	217K	50
2400-3	90KC	10	2	YES	2400-3	35	3.4	3.8	4.3	5.3	5.8	9.8	16	20	50	73	96	CE	434K	50

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 400K
 RECORDED SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK	
								5	10	20	25	50	75	100	200	300	400			500
2301	1200KC	1	1	NO	2301	25	3.1	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	4K	40
2301	1200KC	2	1	NO	2301	25	3.1	3.3	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	9K	40
2301	1200KC	3	1	NO	2301	25	3.2	3.3	3.5	CE	CE	CE	CE	CE	CE	CE	CE	CE	14K	40
2301	1200KC	4	1	NO	2301	25	3.2	3.3	3.5	4.0	CE	CE	CE	CE	CE	CE	CE	CE	22K	40
2311	156KC	1	1	NO	2311	6	4.0	5.5	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	8K	7
2311	156KC	2	1	NO	2311	6	4.0	5.5	7.9	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7
2311	156KC	3	1	NO	2311	6	3.7	4.8	6.5	9.9	21	CE	CE	CE	CE	CE	CE	CE	26K	7
2311	156KC	4	1	NO	2311	6	3.8	4.8	6.5	9.9	21	CE	CE	CE	CE	CE	CE	CE	39K	7
2400-2	60KC	3	1	NO	2400-2	20	4.3	8.1	16	36	44	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	4	1	NO	2400-2	20	4.3	6.9	13	26	36	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	6	1	NO	2400-2	20	4.3	6.1	11	22	30	84	130	CE	CE	CE	CE	CE	86K	20
2400-2	60KC	10	1	NO	2400-2	20	4.4	6.1	9.1	18	26	69	110	140	CE	CE	CE	CE	173K	20
2400-3	90KC	3	1	NO	2400-3	20	3.9	6.4	12	25	31	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	4	1	NO	2400-3	20	3.9	5.7	9.4	18	25	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	6	1	NO	2400-3	20	3.9	5.1	8.2	16	21	57	84	CE	CE	CE	CE	CE	86K	20
2400-3	90KC	10	1	NO	2400-3	20	4.0	5.2	7.1	14	19	48	69	91	CE	CE	CE	CE	173K	20
2301	1200KC	2	2	NO	2301	25	3.1	3.2	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	9K	40
2301	1200KC	3	2	NO	2301	25	3.1	3.2	3.7	CE	CE	CE	CE	CE	CE	CE	CE	CE	14K	40
2301	1200KC	4	2	NO	2301	25	3.1	3.2	3.7	4.2	CE	CE	CE	CE	CE	CE	CE	CE	22K	40
2311	156KC	2	2	NO	2311	6	3.9	5.1	7.1	CE	CE	CE	CE	CE	CE	CE	CE	CE	17K	7
2311	156KC	3	2	NO	2311	6	3.4	4.0	5.0	6.9	15	CE	CE	CE	CE	CE	CE	CE	26K	7
2311	156KC	4	2	NO	2311	6	3.5	4.0	5.0	6.9	15	CE	CE	CE	CE	CE	CE	CE	39K	7
2400-2	60KC	3	2	NO	2400-2	20	4.0	6.9	14	29	35	CE	CE	CE	CE	CE	CE	CE	43K	18
2400-2	60KC	4	2	NO	2400-2	20	4.0	6.1	11	21	29	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	6	2	NO	2400-2	20	4.1	6.5	9.9	21	25	56	82	CE	CE	CE	CE	CE	86K	20
2400-2	60KC	10	2	NO	2400-2	20	4.1	5.6	10	17	20	47	68	89	CE	CE	CE	CE	173K	20
2400-3	90KC	3	2	NO	2400-3	20	3.7	5.7	11	20	24	CE	CE	CE	CE	CE	CE	CE	43K	18
2400-3	90KC	4	2	NO	2400-3	20	3.7	5.1	8.0	15	20	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	6	2	NO	2400-3	20	3.8	5.4	7.6	15	18	39	56	CE	CE	CE	CE	CE	86K	20
2400-3	90KC	10	2	NO	2400-3	20	3.8	4.8	7.7	13	15	32	47	61	CE	CE	CE	CE	173K	20
2400-2	60KC	3	2	YES	2400-2	20	3.9	6.4	13	25	30	CE	CE	CE	CE	CE	CE	CE	43K	18
2400-2	60KC	4	2	YES	2400-2	20	3.9	5.6	9.3	18	25	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-2	60KC	6	2	YES	2400-2	20	3.9	5.1	8.1	16	21	56	82	CE	CE	CE	CE	CE	86K	20
2400-2	60KC	10	2	YES	2400-2	20	4.0	5.1	7.0	13	18	47	68	89	CE	CE	CE	CE	173K	20
2400-3	90KC	3	2	YES	2400-3	20	3.6	5.3	9.3	18	21	CE	CE	CE	CE	CE	CE	CE	43K	18
2400-3	90KC	4	2	YES	2400-3	20	3.6	4.8	7.3	13	18	CE	CE	CE	CE	CE	CE	CE	43K	20
2400-3	90KC	6	2	YES	2400-3	20	3.7	4.4	6.4	12	15	39	56	CE	CE	CE	CE	CE	86K	20
2400-3	90KC	10	2	YES	2400-3	20	3.7	4.5	5.8	9.7	14	32	47	61	CE	CE	CE	CE	173K	20

APPENDIX C

The following tables contain preliminary estimated total execution times of the sort/merge program when IBM 2400 Series Magnetic Tape Units, models 4, 5, and 6 are used as work units. Please refer to Appendix B of this publication for an

explanation of the assumptions made in producing the timings.

System/360 Model 30 times shown are based on a 1.5 microsecond memory cycle.

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 18K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-4	60KC	3	1	NO	2400-4	150	6.5	7.1	8.2	11	13	20	28	38	73	120	160	200	1675K	134
2400-4	60KC	5	1	NO	2400-4	100	6.4	6.8	7.6	9.2	11	16	21	26	49	76	99	130	2830K	79
2400-4	60KC	8	1	NO	2400-4	100	6.4	6.8	7.5	9.0	11	15	19	25	48	68	96	120	3763K	59
2400-5	120KC	3	1	NO	2400-5	150	6.5	7.0	7.9	11	12	18	25	33	64	97	140	170	1675K	134
2400-5	120KC	5	1	NO	2400-5	100	6.4	6.8	7.4	8.8	9.7	14	19	24	44	67	87	110	2830K	79
2400-5	120KC	8	1	NO	2400-5	100	6.4	6.7	7.3	8.6	9.6	14	18	23	42	59	83	110	3763K	59
2400-6	180KC	3	1	NO	2400-6	150	6.4	6.9	7.8	10	12	18	25	32	61	93	130	160	1675K	134
2400-6	180KC	5	1	NO	2400-6	100	6.4	6.7	7.3	8.7	9.6	14	18	23	42	64	83	110	2830K	79
2400-6	180KC	8	1	NO	2400-6	100	6.4	6.7	7.3	8.5	9.4	14	17	22	40	57	80	98	3763K	59
2400-4	60KC	3	2	NO	2400-4	80	6.5	7.1	8.1	11	12	20	27	35	71	110	150	180	1428K	81
2400-4	60KC	5	2	NO	2400-4	40	6.5	7.0	7.8	9.9	12	17	24	30	58	84	130	150	2667K	68
2400-4	60KC	8	2	NO	2400-4	40	6.4	6.9	7.9	9.4	11	16	20	25	49	69	90	120	3581K	53
2400-5	120KC	3	2	NO	2400-5	80	6.5	7.0	7.9	11	12	19	25	32	65	95	140	170	1428K	81
2400-5	120KC	5	2	NO	2400-5	40	6.5	7.0	7.7	9.6	12	16	23	28	55	78	120	140	2667K	68
2400-5	120KC	8	2	NO	2400-5	40	6.4	6.9	7.8	9.1	9.8	15	19	23	46	65	84	110	3581K	53
2400-6	180KC	3	2	NO	2400-6	80	6.4	6.9	7.8	11	12	18	24	32	64	93	130	160	1428K	81
2400-6	180KC	5	2	NO	2400-6	40	6.5	7.0	7.6	9.6	11	16	23	28	54	77	120	140	2667K	68
2400-6	180KC	8	2	NO	2400-6	40	6.4	6.9	7.8	9.1	9.7	15	19	23	45	64	83	110	3581K	53
2400-4	60KC	3	2	YES	2400-4	80	6.5	7.0	8.0	11	12	19	26	34	68	100	140	180	1428K	81
2400-4	60KC	5	2	YES	2400-4	40	6.4	6.8	7.5	9.1	11	15	20	26	48	69	97	120	2429K	55
2400-4	60KC	8	2	YES	2400-4	40	6.4	6.8	7.5	9.0	9.7	14	20	24	45	69	91	120	2780K	33
2400-5	120KC	3	2	YES	2400-5	80	6.5	7.0	7.9	11	12	18	25	32	64	94	130	170	1428K	81
2400-5	120KC	5	2	YES	2400-5	40	6.4	6.8	7.4	8.9	9.9	15	19	24	45	65	91	120	2429K	55
2400-5	120KC	8	2	YES	2400-5	40	6.4	6.8	7.4	8.8	9.4	14	19	23	42	64	84	120	2780K	33
2400-6	180KC	3	2	YES	2400-6	80	6.4	6.9	7.8	11	12	18	24	32	63	93	130	160	1428K	81
2400-6	180KC	5	2	YES	2400-6	40	6.4	6.8	7.4	8.8	9.8	15	19	24	45	64	89	110	2429K	55
2400-6	180KC	8	2	YES	2400-6	40	6.4	6.8	7.4	8.7	9.3	14	18	22	41	63	83	110	2780K	33

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 18K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-4	60KC	3	1	NO	2400-4	35	7.0	8.6	12	19	22	41	60	80	170	260	350	CE	420K	34
2400-4	60KC	5	1	NO	2400-4	25	6.8	7.8	9.7	14	17	29	41	56	120	180	280	370	736K	22
2400-4	60KC	8	1	NO	2400-4	25	6.9	7.8	9.7	14	16	27	40	52	110	170	220	270	1104K	22
2400-5	120KC	3	1	NO	2400-5	35	6.8	8.0	11	15	18	32	46	61	130	200	260	CE	420K	34
2400-5	120KC	5	1	NO	2400-5	25	6.7	7.4	8.8	12	14	23	32	43	85	130	210	280	736K	22
2400-5	120KC	8	1	NO	2400-5	25	6.7	7.4	8.8	12	14	22	32	40	80	130	160	200	1104K	22
2400-6	180KC	3	1	NO	2400-6	35	6.7	7.8	9.7	15	17	29	42	55	120	180	240	CE	420K	34
2400-6	180KC	5	1	NO	2400-6	25	6.6	7.3	8.5	12	14	22	30	39	77	120	190	250	736K	22
2400-6	180KC	8	1	NO	2400-6	25	6.7	7.3	8.6	12	13	21	30	37	73	120	150	180	1104K	22
2400-4	60KC	3	2	NO	2400-4	20	6.9	8.2	11	17	20	35	52	71	150	230	CE	CE	373K	23
2400-4	60KC	5	2	NO	2400-4	15	6.8	7.9	10	15	17	30	41	57	120	180	230	290	666K	17
2400-4	60KC	8	2	NO	2400-4	15	6.8	7.8	9.4	13	15	26	36	45	95	140	190	230	887K	13
2400-5	120KC	3	2	NO	2400-5	20	6.7	7.8	9.9	15	17	30	44	59	120	190	CE	CE	373K	23
2400-5	120KC	5	2	NO	2400-5	15	6.7	7.7	9.4	14	16	26	36	50	110	150	200	250	666K	17
2400-5	120KC	8	2	NO	2400-5	15	6.7	7.6	8.9	12	14	23	31	40	82	120	160	200	887K	13
2400-6	180KC	3	2	NO	2400-6	20	6.7	7.7	9.7	14	17	28	41	55	110	170	CE	CE	373K	23
2400-6	180KC	5	2	NO	2400-6	15	6.7	7.6	9.3	13	15	25	35	48	98	150	190	240	666K	17
2400-6	180KC	8	2	NO	2400-6	15	6.7	7.5	8.8	12	14	23	30	38	79	120	160	190	887K	13
2400-4	60KC	3	2	YES	2400-4	20	6.8	7.9	11	15	18	32	47	63	130	200	CE	CE	373K	23
2400-4	60KC	5	2	YES	2400-4	15	6.7	7.6	9.2	13	16	26	36	48	96	180	230	290	666K	17
2400-4	60KC	8	2	YES	2400-4	15	6.8	7.7	9.4	14	15	26	38	48	96	140	190	230	887K	13
2400-5	120KC	3	2	YES	2400-5	20	6.7	7.7	9.7	14	17	28	41	55	110	170	CE	CE	373K	23
2400-5	120KC	5	2	YES	2400-5	15	6.7	7.4	8.7	12	14	23	31	42	84	150	200	250	666K	17
2400-5	120KC	8	2	YES	2400-5	15	6.7	7.5	8.9	13	14	23	33	42	83	120	160	200	887K	13
2400-6	180KC	3	2	YES	2400-6	20	6.7	7.6	9.5	14	16	27	39	53	110	170	CE	CE	373K	23
2400-6	180KC	5	2	YES	2400-6	15	6.6	7.3	8.6	12	14	22	30	41	80	150	190	240	666K	17
2400-6	180KC	8	2	YES	2400-6	15	6.7	7.4	8.8	12	14	22	32	40	80	120	160	190	887K	13

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 18K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES								DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK	
							2	5	10	20	25	50	75	100	200	300	400	500				
2400-4	60KC	3	1	NO	2400-4	20	8.5	13	22	39	50	99	160	210	CE	CE	CE	CE	166K	13		
2400-4	60KC	5	1	NO	2400-4	15	7.7	11	16	27	32	63	95	130	350	CE	CE	CE	299K	11		
2400-4	60KC	8	1	NO	2400-4	15	7.6	11	16	27	32	63	98	130	270	420	CE	CE	CE	399K	8	
2400-5	120KC	3	1	NO	2400-5	20	7.6	11	16	26	32	61	94	130	CE	CE	CE	CE	166K	13		
2400-5	120KC	5	1	NO	2400-5	15	7.2	8.9	12	19	22	42	62	83	220	CE	CE	CE	299K	11		
2400-5	120KC	8	1	NO	2400-5	15	7.2	9.1	13	20	24	44	67	87	180	260	CE	CE	CE	399K	8	
2400-6	180KC	3	1	NO	2400-6	20	7.4	9.7	14	23	28	54	82	110	CE	CE	CE	CE	166K	13		
2400-6	180KC	5	1	NO	2400-6	15	7.0	8.5	12	18	20	37	55	73	190	CE	CE	CE	299K	11		
2400-6	180KC	8	1	NO	2400-6	15	7.1	8.8	12	19	22	40	60	78	160	230	CE	CE	CE	399K	8	
2400-4	60KC	3	2	NO	2400-4	10	8.1	12	19	34	42	84	130	180	CE	CE	CE	CE	148K	9		
2400-4	60KC	5	2	NO	2400-4	10	8.0	11	17	28	33	65	110	140	290	CE	CE	CE	CE	252K	6	
2400-4	60KC	8	2	NO	2400-4	10	7.6	11	14	24	28	53	80	110	230	340	CE	CE	CE	CE	348K	5
2400-5	120KC	3	2	NO	2400-5	10	7.5	9.9	15	24	29	56	82	120	CE	CE	CE	CE	148K	9		
2400-5	120KC	5	2	NO	2400-5	10	7.6	9.4	14	21	25	47	74	96	210	CE	CE	CE	CE	252K	6	
2400-5	120KC	8	2	NO	2400-5	10	7.3	9.1	12	19	22	41	59	76	170	250	CE	CE	CE	CE	348K	5
2400-6	180KC	3	2	NO	2400-6	10	7.3	9.5	14	23	27	52	76	110	CE	CE	CE	CE	148K	9		
2400-6	180KC	5	2	NO	2400-6	10	7.5	9.3	13	21	24	45	70	91	200	CE	CE	CE	CE	252K	6	
2400-6	180KC	8	2	NO	2400-6	10	7.2	8.9	12	18	21	39	56	73	160	230	CE	CE	CE	CE	348K	5
2400-4	60KC	3	2	YES	2400-4	10	7.9	12	17	30	37	74	110	160	CE	CE	CE	CE	148K	9		
2400-4	60KC	5	2	YES	2400-4	10	7.4	9.8	14	24	28	53	81	110	290	CE	CE	CE	CE	252K	6	
2400-4	60KC	8	2	YES	2400-4	10	7.5	11	15	25	30	57	89	110	230	CE	CE	CE	CE	299K	4	
2400-5	120KC	3	2	YES	2400-5	10	7.3	9.5	14	22	27	51	74	110	CE	CE	CE	CE	148K	9		
2400-5	120KC	5	2	YES	2400-5	10	7.1	8.8	12	19	22	40	60	78	210	CE	CE	CE	CE	252K	6	
2400-5	120KC	8	2	YES	2400-5	10	7.2	9.2	13	21	24	45	68	76	170	CE	CE	CE	CE	299K	4	
2400-6	180KC	3	2	YES	2400-6	10	7.3	9.3	13	21	25	49	70	96	CE	CE	CE	CE	148K	9		
2400-6	180KC	5	2	YES	2400-6	10	7.0	8.6	12	18	21	38	57	74	200	CE	CE	CE	CE	252K	6	
2400-6	180KC	8	2	YES	2400-6	10	7.2	9.0	13	20	23	43	65	73	160	CE	CE	CE	CE	299K	4	

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 18K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES								DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500			
2400-4	60KC	3	1	NO	2400-4	10	14	28	55	110	140	290	CE	CE	CE	CE	CE	CE	CE	65K	5
2400-4	60KC	5	1	NO	2400-4	10	11	20	35	68	83	190	360	480	CE	CE	CE	CE	CE	122K	4
2400-4	60KC	8	1	NO	2400-4	10	11	19	34	67	82	180	270	350	CE	CE	CE	CE	CE	166K	3
2400-5	120KC	3	1	NO	2400-5	10	11	18	32	60	77	160	CE	CE	CE	CE	CE	CE	CE	65K	5
2400-5	120KC	5	1	NO	2400-5	10	8.9	14	22	41	49	110	200	260	CE	CE	CE	CE	CE	122K	4
2400-5	120KC	8	1	NO	2400-5	10	8.8	14	23	42	51	110	150	200	CE	CE	CE	CE	CE	166K	3
2400-6	180KC	3	1	NO	2400-6	10	9.6	16	28	51	65	130	CE	CE	CE	CE	CE	CE	CE	65K	5
2400-6	180KC	5	1	NO	2400-6	10	8.5	13	20	36	43	91	170	220	CE	CE	CE	CE	CE	122K	4
2400-6	180KC	8	1	NO	2400-6	10	8.5	13	21	38	46	89	130	170	CE	CE	CE	CE	CE	166K	3
2400-4	60KC	3	2	NO	2400-4	10	14	28	55	110	140	290	CE	CE	CE	CE	CE	CE	CE	65K	5
2400-4	60KC	5	2	NO	2400-4	10	13	23	42	85	110	230	360	480	CE	CE	CE	CE	CE	122K	4
2400-4	60KC	8	2	NO	2400-4	10	11	20	33	67	81	180	270	350	CE	CE	CE	CE	CE	166K	3
2400-5	120KC	3	2	NO	2400-5	10	11	18	32	60	77	160	CE	CE	CE	CE	CE	CE	CE	65K	5
2400-5	120KC	5	2	NO	2400-5	10	9.8	15	26	49	59	130	200	260	CE	CE	CE	CE	CE	122K	4
2400-5	120KC	8	2	NO	2400-5	10	8.9	14	21	40	49	110	150	200	CE	CE	CE	CE	CE	166K	3
2400-6	180KC	3	2	NO	2400-6	10	9.6	16	28	51	65	130	CE	CE	CE	CE	CE	CE	CE	65K	5
2400-6	180KC	5	2	NO	2400-6	10	9.4	14	23	43	52	110	170	220	CE	CE	CE	CE	CE	122K	4
2400-6	180KC	8	2	NO	2400-6	10	8.6	13	19	36	43	89	130	170	CE	CE	CE	CE	CE	166K	3
2400-4	60KC	3	2	YES	2400-4	10	14	28	55	110	140	290	CE	CE	CE	CE	CE	CE	CE	65K	5
2400-4	60KC	5	2	YES	2400-4	10	11	20	35	68	83	190	360	480	CE	CE	CE	CE	CE	122K	4
2400-4	60KC	8	2	YES	2400-4	10	11	19	34	67	82	180	270	350	CE	CE	CE	CE	CE	166K	3
2400-5	120KC	3	2	YES	2400-5	10	11	18	32	60	77	160	CE	CE	CE	CE	CE	CE	CE	65K	5
2400-5	120KC	5	2	YES	2400-5	10	8.9	14	22	41	49	110	200	260	CE	CE	CE	CE	CE	122K	4
2400-5	120KC	8	2	YES	2400-5	10	8.8	14	23	42	51	110	150	200	CE	CE	CE	CE	CE	166K	3
2400-6	180KC	3	2	YES	2400-6	10	9.6	16	28	51	65	130	CE	CE	CE	CE	CE	CE	CE	65K	5
2400-6	180KC	5	2	YES	2400-6	10	8.5	13	20	36	43	91	170	220	CE	CE	CE	CE	CE	122K	4
2400-6	180KC	8	2	YES	2400-6	10	8.5	13	21	38	46	89	130	170	CE	CE	CE	CE	CE	166K	3

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 44K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-4	60KC	3	1	NO	2400-4	350	6.3	6.7	7.5	9.2	11	16	22	29	58	85	120	160	2050K	438
2400-4	60KC	5	1	NO	2400-4	350	6.4	6.6	7.1	8.4	9.2	13	17	22	40	61	79	99	3644K	193
2400-4	60KC	8	1	NO	2400-4	250	6.4	6.6	7.0	8.1	9.0	13	16	20	37	53	74	91	5520K	203
2400-5	120KC	3	1	NO	2400-5	350	6.3	6.6	7.3	8.8	9.8	15	20	26	51	75	110	140	2050K	438
2400-5	120KC	5	1	NO	2400-5	350	6.3	6.5	7.0	8.1	8.8	13	16	20	36	54	70	88	3644K	193
2400-5	120KC	8	1	NO	2400-5	250	6.4	6.6	6.9	7.8	8.6	12	15	19	33	47	66	80	5520K	203
2400-6	180KC	3	1	NO	2400-6	350	6.3	6.6	7.3	8.7	9.6	14	19	25	49	72	99	130	2050K	438
2400-6	180KC	5	1	NO	2400-6	350	6.3	6.5	7.0	8.0	8.7	12	15	19	34	52	67	84	3644K	193
2400-6	180KC	8	1	NO	2400-6	250	6.4	6.6	6.9	7.8	8.5	12	14	18	32	45	63	77	5520K	203
2400-4	60KC	3	2	NO	2400-4	200	6.3	6.7	7.4	9.3	11	16	21	28	53	81	120	140	1858K	214
2400-4	60KC	5	2	NO	2400-4	125	6.4	6.6	7.3	8.9	9.6	15	19	25	43	69	90	130	3767K	231
2400-4	60KC	8	2	NO	2400-4	125	6.4	6.7	7.4	8.5	9.0	14	17	20	39	55	71	88	5145K	147
2400-5	120KC	3	2	NO	2400-5	200	6.3	6.6	7.3	9.1	9.8	15	20	26	49	75	110	130	1858K	214
2400-5	120KC	5	2	NO	2400-5	125	6.4	6.6	7.2	8.8	9.4	14	18	24	41	65	86	120	3767K	231
2400-5	120KC	8	2	NO	2400-5	125	6.4	6.6	7.3	8.3	8.8	13	16	19	37	52	67	83	5145K	147
2400-6	180KC	3	2	NO	2400-6	200	6.3	6.6	7.3	9.0	9.7	15	20	25	48	73	100	130	1858K	214
2400-6	180KC	5	2	NO	2400-6	125	6.4	6.6	7.2	8.7	9.3	14	18	24	41	64	84	120	3767K	231
2400-6	180KC	8	2	NO	2400-6	125	6.4	6.6	7.3	8.3	8.8	13	16	19	36	51	66	81	5145K	147
2400-4	60KC	3	2	YES	2400-4	200	6.3	6.6	7.4	9.2	10	15	21	27	51	78	110	140	1858K	214
2400-4	60KC	5	2	YES	2400-4	125	6.4	6.6	7.1	8.2	9.1	13	16	21	38	54	76	93	3612K	185
2400-4	60KC	8	2	YES	2400-4	125	6.4	6.6	7.0	8.0	8.9	13	16	20	36	51	71	87	4803K	114
2400-5	120KC	3	2	YES	2400-5	200	6.3	6.6	7.3	9.0	9.8	15	20	26	49	74	110	130	1858K	214
2400-5	120KC	5	2	YES	2400-5	125	6.4	6.5	7.0	8.1	8.9	13	16	20	36	51	72	88	3612K	185
2400-5	120KC	8	2	YES	2400-5	125	6.4	6.6	6.9	7.9	8.7	12	15	19	34	48	67	83	4803K	114
2400-6	180KC	3	2	YES	2400-6	200	6.3	6.6	7.3	9.0	9.7	15	20	25	48	73	110	130	1858K	214
2400-6	180KC	5	2	YES	2400-6	125	6.3	6.5	7.0	8.1	8.9	13	15	20	36	51	70	86	3612K	185
2400-6	180KC	8	2	YES	2400-6	125	6.4	6.6	6.9	7.8	8.6	12	15	19	34	47	66	81	4803K	114

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 44K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-4	60KC	3	1	NO	2400-4	85	6.6	7.6	9.7	14	17	30	44	59	130	190	260	330	502K	91
2400-4	60KC	5	1	NO	2400-4	50	6.5	7.3	8.5	12	13	22	31	41	82	130	170	270	1006K	92
2400-4	60KC	8	1	NO	2400-4	50	6.6	7.2	8.4	11	13	20	29	37	73	120	160	200	1465K	73
2400-5	120KC	3	1	NO	2400-5	85	6.5	7.2	8.8	12	14	24	34	45	91	140	200	250	502K	91
2400-5	120KC	5	1	NO	2400-5	50	6.4	7.0	7.9	10	12	18	24	32	62	91	130	200	1006K	92
2400-5	120KC	8	1	NO	2400-5	50	6.5	6.9	7.8	9.7	11	17	23	29	56	85	120	150	1465K	73
2400-6	180KC	3	1	NO	2400-6	85	6.5	7.1	8.5	12	13	22	31	41	81	130	180	220	502K	91
2400-6	180KC	5	1	NO	2400-6	50	6.4	6.9	7.7	9.6	11	17	22	29	56	82	120	180	1006K	92
2400-6	180KC	8	1	NO	2400-6	50	6.5	6.9	7.7	9.4	11	16	21	26	50	76	110	130	1465K	73
2400-4	60KC	3	2	NO	2400-4	45	6.6	7.4	9.1	13	15	26	37	49	110	160	220	CE	472K	59
2400-4	60KC	5	2	NO	2400-4	30	6.5	7.4	8.4	12	14	21	31	39	79	120	160	210	939K	57
2400-4	60KC	8	2	NO	2400-4	30	6.5	7.2	8.1	11	12	20	26	32	65	95	130	160	1347K	45
2400-5	120KC	3	2	NO	2400-5	45	6.5	7.2	8.5	12	14	22	31	41	82	130	180	CE	472K	59
2400-5	120KC	5	2	NO	2400-5	30	6.4	7.2	8.1	11	13	19	27	34	68	99	140	180	939K	57
2400-5	120KC	8	2	NO	2400-5	30	6.5	7.0	7.8	10	11	18	23	28	57	82	110	140	1347K	45
2400-6	180KC	3	2	NO	2400-6	45	6.5	7.1	8.4	11	13	21	30	39	77	120	160	CE	472K	59
2400-6	180KC	5	2	NO	2400-6	30	6.4	7.1	8.0	11	13	18	26	33	65	94	140	170	939K	57
2400-6	180KC	8	2	NO	2400-6	30	6.4	7.0	7.7	9.8	11	17	22	27	54	78	110	130	1347K	45
2400-4	60KC	3	2	YES	2400-4	45	6.5	7.3	8.8	12	14	24	34	44	90	140	190	CE	472K	59
2400-4	60KC	5	2	YES	2400-4	30	6.5	7.1	8.1	11	12	18	25	34	65	95	140	210	939K	57
2400-4	60KC	8	2	YES	2400-4	30	6.5	7.0	8.0	11	12	17	25	30	59	92	130	160	1347K	45
2400-5	120KC	3	2	YES	2400-5	45	6.5	7.1	8.4	12	13	21	30	39	78	120	170	CE	472K	59
2400-5	120KC	5	2	YES	2400-5	30	6.4	6.9	7.8	9.6	11	17	22	30	57	81	120	180	939K	57
2400-5	120KC	8	2	YES	2400-5	30	6.5	6.9	7.7	9.5	11	16	22	27	51	79	110	140	1347K	45
2400-6	180KC	3	2	YES	2400-6	45	6.5	7.0	8.3	11	13	20	29	37	74	120	160	CE	472K	59
2400-6	180KC	5	2	YES	2400-6	30	6.4	6.9	7.7	9.4	11	16	22	28	54	78	110	170	939K	57
2400-6	180KC	8	2	YES	2400-6	30	6.5	6.9	7.6	9.3	11	15	21	26	49	76	110	130	1347K	45

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 44K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET					SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK	
								5	10	20	25	50	75	100	200	300	400			500
2400-4	60KC	3	1	NO	2400-4	30	7.5	11	16	28	34	69	110	150	310	CE	CE	CE	203K	40
2400-4	60KC	5	1	NO	2400-4	25	7.1	8.8	12	20	24	45	70	90	250	390	CE	CE	366K	20
2400-4	60KC	8	1	NO	2400-4	25	7.0	8.5	12	18	22	41	58	82	180	300	400	490	588K	30
2400-5	120KC	3	1	NO	2400-5	30	7.0	8.5	12	19	22	41	62	84	180	CE	CE	CE	203K	40
2400-5	120KC	5	1	NO	2400-5	25	6.8	7.8	9.8	15	17	29	43	56	150	230	CE	CE	366K	20
2400-5	120KC	8	1	NO	2400-5	25	6.8	7.7	9.4	14	16	28	38	53	110	180	230	290	588K	30
2400-6	180KC	3	1	NO	2400-6	30	6.8	8.1	11	17	20	36	53	72	150	CE	CE	CE	203K	40
2400-6	180KC	5	1	NO	2400-6	25	6.7	7.6	9.2	14	15	26	38	48	130	200	CE	CE	366K	20
2400-6	180KC	8	1	NO	2400-6	25	6.7	7.5	8.9	13	15	25	33	46	89	150	200	250	588K	30
2400-4	60KC	3	2	NO	2400-4	20	7.2	9.5	14	24	29	57	87	120	CE	CE	CE	188K	23	
2400-4	60KC	5	2	NO	2400-4	15	7.2	8.9	13	19	22	42	65	84	180	280	CE	CE	359K	18
2400-4	60KC	8	2	NO	2400-4	15	7.0	8.6	11	17	20	33	53	68	130	220	290	360	538K	18
2400-5	120KC	3	2	NO	2400-5	20	6.8	8.2	11	17	20	36	54	72	CE	CE	CE	CE	188K	23
2400-5	120KC	5	2	NO	2400-5	15	6.9	8.0	11	14	17	29	43	55	120	180	CE	CE	359K	18
2400-5	120KC	8	2	NO	2400-5	15	6.8	7.8	9.2	14	15	24	37	47	86	150	190	240	538K	18
2400-6	180KC	3	2	NO	2400-6	20	6.8	7.9	11	16	19	33	48	65	CE	CE	CE	CE	188K	23
2400-6	180KC	5	2	NO	2400-6	15	6.8	7.9	9.9	14	16	28	40	51	110	170	CE	CE	359K	18
2400-6	180KC	8	2	NO	2400-6	15	6.8	7.7	9.0	13	15	22	34	43	80	140	180	220	538K	18
2400-4	60KC	3	2	YES	2400-4	20	7.1	9.0	13	21	26	50	76	110	CE	CE	CE	CE	188K	23
2400-4	60KC	5	2	YES	2400-4	15	6.9	8.1	11	16	19	35	52	68	180	280	CE	CE	359K	18
2400-4	60KC	8	2	YES	2400-4	15	6.9	8.0	11	15	19	33	46	65	130	220	290	CE	499K	18
2400-5	120KC	3	2	YES	2400-5	20	6.8	8.0	11	16	19	33	48	65	CE	CE	CE	CE	188K	23
2400-5	120KC	5	2	YES	2400-5	15	6.7	7.5	9.1	13	15	25	37	46	120	180	CE	CE	359K	18
2400-5	120KC	8	2	YES	2400-5	15	6.7	7.5	8.9	13	15	25	34	46	86	150	190	CE	499K	18
2400-6	180KC	3	2	YES	2400-6	20	6.7	7.8	10	15	18	30	45	60	CE	CE	CE	CE	188K	23
2400-6	180KC	5	2	YES	2400-6	15	6.7	7.4	8.8	13	14	23	34	43	110	170	CE	CE	359K	18
2400-6	180KC	8	2	YES	2400-6	15	6.7	7.4	8.7	12	14	24	32	44	80	140	180	CE	499K	18

SYSTEM/360 MODEL 30
 MAIN STORAGE USED 44K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET					SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK	
								5	10	20	25	50	75	100	200	300	400			500
2400-4	60KC	3	1	NO	2400-4	20	11	19	35	69	89	190	290	CE	CE	CE	CE	CE	79K	13
2400-4	60KC	5	1	NO	2400-4	15	8.8	14	24	44	56	120	180	320	CE	CE	CE	CE	150K	9
2400-4	60KC	8	1	NO	2400-4	15	8.5	14	22	40	49	99	170	250	480	CE	CE	CE	235K	12
2400-5	120KC	3	1	NO	2400-5	20	8.4	13	21	39	49	99	160	CE	CE	CE	CE	CE	79K	13
2400-5	120KC	5	1	NO	2400-5	15	7.7	11	16	26	33	64	95	170	CE	CE	CE	CE	150K	9
2400-5	120KC	8	1	NO	2400-5	15	7.5	10	15	25	29	56	89	130	260	CE	CE	CE	235K	12
2400-6	180KC	3	1	NO	2400-6	20	7.9	12	18	31	38	76	120	CE	CE	CE	CE	CE	79K	13
2400-6	180KC	5	1	NO	2400-6	15	7.4	9.4	14	22	28	53	75	140	CE	CE	CE	CE	150K	9
2400-6	180KC	8	1	NO	2400-6	15	7.3	9.2	13	21	25	46	71	110	200	CE	CE	CE	235K	12
2400-4	60KC	3	2	NO	2400-4	10	9.4	16	29	56	72	150	230	CE	CE	CE	CE	CE	78K	12
2400-4	60KC	5	2	NO	2400-4	10	8.8	14	23	44	53	110	170	230	CE	CE	CE	CE	142K	7
2400-4	60KC	8	2	NO	2400-4	10	8.5	12	19	32	44	81	120	180	350	CE	CE	CE	214K	7
2400-5	120KC	3	2	NO	2400-5	10	8.0	12	19	33	41	81	130	CE	CE	CE	CE	CE	78K	12
2400-5	120KC	5	2	NO	2400-5	10	7.7	11	16	27	32	60	92	130	CE	CE	CE	CE	142K	7
2400-5	120KC	8	2	NO	2400-5	10	7.6	9.4	14	21	27	48	68	100	200	CE	CE	CE	214K	7
2400-6	180KC	3	2	NO	2400-6	10	7.6	11	16	27	34	64	98	CE	CE	CE	CE	CE	78K	12
2400-6	180KC	5	2	NO	2400-6	10	7.5	9.7	14	24	28	51	76	110	CE	CE	CE	CE	142K	7
2400-6	180KC	8	2	NO	2400-6	10	7.4	8.9	13	19	24	41	59	86	170	CE	CE	CE	214K	7
2400-4	60KC	3	2	YES	2400-4	10	9.0	15	26	49	63	130	200	CE	CE	CE	CE	CE	78K	12
2400-4	60KC	5	2	YES	2400-4	10	8.2	12	19	34	43	87	170	230	CE	CE	CE	CE	142K	7
2400-4	60KC	8	2	YES	2400-4	10	8.2	12	19	33	39	78	120	180	CE	CE	CE	CE	199K	7
2400-5	120KC	3	2	YES	2400-5	10	7.7	11	17	30	37	71	110	CE	CE	CE	CE	CE	78K	12
2400-5	120KC	5	2	YES	2400-5	10	7.4	9.3	14	22	27	51	92	130	CE	CE	CE	CE	142K	7
2400-5	120KC	8	2	YES	2400-5	10	7.4	9.3	13	22	25	47	68	100	CE	CE	CE	CE	199K	7
2400-6	180KC	3	2	YES	2400-6	10	7.5	9.9	15	25	30	57	87	CE	CE	CE	CE	CE	78K	12
2400-6	180KC	5	2	YES	2400-6	10	7.2	8.9	12	19	24	44	76	110	CE	CE	CE	CE	142K	7
2400-6	180KC	8	2	YES	2400-6	10	7.3	9.0	13	20	24	44	59	86	CE	CE	CE	CE	199K	7

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 44K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-4	60KC	3	1	NO	2400-4	300	3.8	4.0	4.5	5.6	6.3	9.6	14	18	34	52	72	91	1925K	264
2400-4	60KC	4	1	NO	2400-4	300	3.8	4.0	4.4	5.3	5.7	8.2	11	15	27	42	55	69	1882K	230
2400-4	60KC	6	1	NO	2400-4	175	3.9	4.0	4.4	5.2	5.5	7.6	11	13	23	35	46	60	3848K	263
2400-4	60KC	8	1	NO	2400-4	175	3.9	4.0	4.3	5.0	5.4	7.7	9.6	13	23	33	46	57	5520K	203
2400-4	60KC	10	1	NO	2400-4	175	3.9	4.1	4.3	5.0	5.3	7.3	9.7	12	22	33	43	58	7049K	165
2400-5	120KC	3	1	NO	2400-5	300	3.8	4.0	4.4	5.2	5.8	8.3	12	15	28	42	58	73	1925K	264
2400-5	120KC	4	1	NO	2400-5	300	3.8	3.9	4.3	5.0	5.3	7.3	9.5	13	23	34	44	55	1882K	230
2400-5	120KC	6	1	NO	2400-5	175	3.8	4.0	4.3	4.9	5.1	6.8	8.9	11	19	29	37	49	3848K	263
2400-5	120KC	8	1	NO	2400-5	175	3.9	4.0	4.2	4.8	5.0	6.9	8.4	11	20	27	38	46	5520K	203
2400-5	120KC	10	1	NO	2400-5	175	3.9	4.0	4.2	4.8	5.0	6.6	8.6	11	18	28	35	47	7049K	165
2400-6	180KC	3	1	NO	2400-6	300	3.8	4.0	4.3	5.1	5.6	8.0	11	14	26	39	53	67	1925K	264
2400-6	180KC	4	1	NO	2400-6	300	3.8	3.9	4.3	4.9	5.2	7.0	9.1	12	21	32	41	51	1882K	230
2400-6	180KC	6	1	NO	2400-6	175	3.8	3.9	4.2	4.8	5.0	6.6	8.5	10	18	27	35	46	3848K	263
2400-6	180KC	8	1	NO	2400-6	175	3.9	4.0	4.1	4.7	4.9	6.7	8.1	11	18	25	35	43	5520K	203
2400-6	180KC	10	1	NO	2400-6	175	3.9	4.0	4.2	4.7	4.9	6.4	8.2	9.6	17	26	33	44	7049K	165
2400-4	60KC	3	2	NO	2400-4	200	3.8	4.0	4.5	5.5	6.0	8.9	13	16	31	46	64	80	1858K	214
2400-4	60KC	4	2	NO	2400-4	200	3.8	4.0	4.4	5.1	5.5	8.1	11	14	25	38	49	61	1796K	180
2400-4	60KC	6	2	NO	2400-4	115	3.8	4.0	4.4	5.1	5.7	7.6	11	13	24	34	44	56	3302K	127
2400-4	60KC	8	2	NO	2400-4	115	3.9	4.0	4.5	5.1	5.4	7.7	9.6	12	22	31	40	49	5227K	157
2400-4	60KC	10	2	NO	2400-4	115	3.9	4.0	4.3	5.2	5.5	7.0	9.8	12	20	32	41	50	6905K	151
2400-5	120KC	3	2	NO	2400-5	200	3.8	4.0	4.4	5.3	5.7	8.1	11	14	27	40	55	69	1858K	214
2400-5	120KC	4	2	NO	2400-5	200	3.8	3.9	4.3	4.9	5.2	7.4	9.3	12	22	33	43	53	1796K	180
2400-5	120KC	6	2	NO	2400-5	115	3.8	4.0	4.3	5.0	5.5	7.1	9.7	12	22	31	40	50	3302K	127
2400-5	120KC	8	2	NO	2400-5	115	3.9	4.0	4.4	4.9	5.2	7.3	8.9	11	20	28	36	44	5227K	157
2400-5	120KC	10	2	NO	2400-5	115	3.9	4.0	4.2	5.0	5.3	6.7	9.1	11	18	29	37	45	6905K	151
2400-6	180KC	3	2	NO	2400-6	200	3.8	4.0	4.3	5.2	5.6	7.9	11	14	26	38	52	65	1858K	214
2400-6	180KC	4	2	NO	2400-6	200	3.8	3.9	4.3	4.9	5.2	7.2	9.0	12	21	32	41	50	1796K	180
2400-6	180KC	6	2	NO	2400-6	115	3.8	3.9	4.3	4.9	5.4	7.0	9.5	12	22	30	39	49	3302K	127
2400-6	180KC	8	2	NO	2400-6	115	3.9	4.0	4.4	4.9	5.2	7.1	8.7	11	20	27	35	43	5227K	157
2400-6	180KC	10	2	NO	2400-6	115	3.9	4.0	4.2	5.0	5.2	6.5	8.9	11	17	28	36	43	6905K	151
2400-4	60KC	3	2	YES	2400-4	200	3.8	4.0	4.4	5.4	5.8	8.5	12	15	28	43	59	74	1858K	214
2400-4	60KC	4	2	YES	2400-4	200	3.8	3.9	4.3	5.1	5.4	7.8	9.8	13	23	35	46	57	1796K	180
2400-4	60KC	6	2	YES	2400-4	115	3.9	4.0	4.3	5.0	5.3	7.1	9.2	12	20	30	39	52	3463K	153
2400-4	60KC	8	2	YES	2400-4	115	3.9	4.0	4.2	4.9	5.2	7.2	8.8	12	21	29	40	49	4803K	114
2400-4	60KC	10	2	YES	2400-4	115	3.9	4.1	4.3	4.9	5.2	6.9	9.0	11	20	30	38	50	5958K	91
2400-5	120KC	3	2	YES	2400-5	200	3.8	4.0	4.3	5.2	5.6	8.0	11	14	26	39	53	66	1858K	214
2400-5	120KC	4	2	YES	2400-5	200	3.8	3.9	4.3	4.9	5.2	7.3	9.1	12	21	32	41	51	1796K	180
2400-5	120KC	6	2	YES	2400-5	115	3.8	3.9	4.2	4.8	5.1	6.7	8.6	11	18	28	35	47	3463K	153
2400-5	120KC	8	2	YES	2400-5	115	3.9	4.0	4.2	4.7	5.0	6.8	8.2	11	19	26	36	44	4803K	114
2400-5	120KC	10	2	YES	2400-5	115	3.9	4.0	4.2	4.8	5.0	6.5	8.4	9.9	18	27	34	45	5958K	91
2400-6	180KC	3	2	YES	2400-6	200	3.8	4.0	4.3	5.2	5.5	7.8	11	14	25	38	51	64	1858K	214
2400-6	180KC	4	2	YES	2400-6	200	3.8	3.9	4.2	4.9	5.1	7.2	8.9	12	21	31	40	50	1796K	180
2400-6	180KC	6	2	YES	2400-6	115	3.8	3.9	4.2	4.8	5.0	6.6	8.4	10	18	27	34	45	3463K	153
2400-6	180KC	8	2	YES	2400-6	115	3.9	4.0	4.2	4.7	5.0	6.7	8.1	11	18	25	35	43	4803K	114
2400-6	180KC	10	2	YES	2400-6	115	3.9	4.0	4.2	4.7	5.0	6.4	8.2	9.7	17	26	33	44	5958K	91

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 44K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	5	10	20	25	50	75	100	200	300	400	500	MAX SIZE	SORT BLOCK
2400-4	60KC	3	1	NO	2400-4	80	4.1	5.0	6.9	11	14	26	39	53	120	180	250	310	503K	93
2400-4	60KC	4	1	NO	2400-4	80	4.0	4.8	6.1	9.0	11	20	29	39	80	130	170	230	503K	92
2400-4	60KC	6	1	NO	2400-4	40	4.0	4.6	5.8	8.3	9.5	17	25	32	66	110	140	230	1006K	92
2400-4	60KC	8	1	NO	2400-4	40	4.0	4.6	5.6	7.9	8.9	16	23	30	61	97	130	180	1473K	76
2400-4	60KC	10	1	NO	2400-4	40	4.1	4.4	5.5	8.0	9.0	16	24	30	61	98	130	180	1920K	65
2400-5	120KC	3	1	NO	2400-5	80	4.0	4.5	5.5	7.8	9.1	16	23	31	63	97	140	170	503K	93
2400-5	120KC	4	1	NO	2400-5	80	3.9	4.4	5.1	6.8	7.7	13	18	24	47	74	97	130	503K	92
2400-5	120KC	6	1	NO	2400-5	40	3.9	4.3	5.0	6.5	7.2	12	17	21	40	63	82	130	1006K	92
2400-5	120KC	8	1	NO	2400-5	40	4.0	4.3	5.0	6.3	6.9	11	16	20	38	59	78	110	1473K	76
2400-5	120KC	10	1	NO	2400-5	40	4.0	4.2	4.9	6.4	7.0	11	16	20	39	60	79	110	1920K	65
2400-6	180KC	3	1	NO	2400-6	80	3.9	4.4	5.2	7.1	8.2	14	20	27	53	82	120	150	503K	93
2400-6	180KC	4	1	NO	2400-6	80	3.9	4.3	4.9	6.3	7.1	12	16	21	40	62	82	110	503K	92
2400-6	180KC	6	1	NO	2400-6	40	3.9	4.2	4.8	6.1	6.7	11	15	18	35	53	70	110	1006K	92
2400-6	180KC	8	1	NO	2400-6	40	3.9	4.2	4.8	6.1	6.5	9.7	14	17	33	51	67	86	1473K	76
2400-6	180KC	10	1	NO	2400-6	40	4.0	4.2	4.7	6.0	6.6	9.9	14	18	33	52	68	89	1920K	65
2400-4	60KC	3	2	NO	2400-4	45	4.0	4.8	6.3	9.5	12	21	32	43	90	150	200	CE	472K	59
2400-4	60KC	4	2	NO	2400-4	45	4.0	4.6	5.7	8.1	9.2	17	24	33	67	110	140	CE	471K	58
2400-4	60KC	6	2	NO	2400-4	25	4.0	4.5	5.6	8.1	9.1	15	23	29	60	88	120	170	939K	57
2400-4	60KC	8	2	NO	2400-4	25	4.0	4.6	5.3	7.5	8.3	15	20	26	54	79	110	130	1347K	45
2400-4	60KC	10	2	NO	2400-4	25	4.0	4.6	5.3	7.6	8.5	13	18	26	48	69	93	140	1718K	37
2400-5	120KC	3	2	NO	2400-5	45	3.9	4.4	5.3	7.1	8.2	14	20	26	53	81	110	CE	472K	59
2400-5	120KC	4	2	NO	2400-5	45	3.9	4.3	4.9	6.4	7.1	12	16	21	41	62	84	CE	471K	58
2400-5	120KC	6	2	NO	2400-5	25	3.9	4.3	5.0	6.5	7.2	11	16	19	38	55	71	98	939K	57
2400-5	120KC	8	2	NO	2400-5	25	3.9	4.3	4.8	6.2	6.7	11	14	18	35	50	66	81	1347K	45
2400-5	120KC	10	2	NO	2400-5	25	4.0	4.4	4.8	6.3	6.9	9.7	13	18	32	45	60	84	1718K	37
2400-6	180KC	3	2	NO	2400-6	45	3.9	4.3	5.1	6.7	7.7	13	18	24	47	72	98	CE	472K	59
2400-6	180KC	4	2	NO	2400-6	45	3.9	4.2	4.8	6.1	6.7	11	15	19	37	56	75	CE	471K	58
2400-6	180KC	6	2	NO	2400-6	25	3.9	4.2	4.9	6.3	6.9	10	15	18	35	50	66	90	939K	57
2400-6	180KC	8	2	NO	2400-6	25	3.9	4.3	4.7	6.0	6.5	11	14	17	32	46	60	74	1347K	45
2400-6	180KC	10	2	NO	2400-6	25	3.9	4.3	4.8	6.1	6.6	9.2	12	17	29	42	56	77	1718K	37
2400-4	60KC	3	2	YES	2400-4	45	4.0	4.6	6.0	8.8	11	19	28	38	79	130	170	CE	472K	59
2400-4	60KC	4	2	YES	2400-4	45	4.0	4.5	5.4	7.5	8.5	15	21	29	59	90	130	CE	471K	58
2400-4	60KC	6	2	YES	2400-4	25	3.9	4.3	5.2	7.2	8.0	14	20	25	50	78	110	170	939K	57
2400-4	60KC	8	2	YES	2400-4	25	4.0	4.4	5.2	6.9	7.6	13	19	23	47	74	110	130	1347K	45
2400-4	60KC	10	2	YES	2400-4	25	4.0	4.3	5.1	7.1	7.8	13	18	24	49	74	93	140	1718K	37
2400-5	120KC	3	2	YES	2400-5	45	3.9	4.3	5.1	6.7	7.7	13	18	24	47	72	97	CE	472K	59
2400-5	120KC	4	2	YES	2400-5	45	3.9	4.2	4.8	6.1	6.7	11	15	19	37	56	75	CE	471K	58
2400-5	120KC	6	2	YES	2400-5	25	3.9	4.2	4.8	6.0	6.5	9.8	14	17	33	50	66	98	939K	57
2400-5	120KC	8	2	YES	2400-5	25	3.9	4.2	4.8	5.9	6.4	9.5	14	17	31	49	66	81	1347K	45
2400-5	120KC	10	2	YES	2400-5	25	4.0	4.2	4.7	6.0	6.5	9.8	13	17	33	49	60	84	1718K	37
2400-6	180KC	3	2	YES	2400-6	45	3.9	4.2	5.0	6.5	7.3	12	17	22	43	67	89	CE	472K	59
2400-6	180KC	4	2	YES	2400-6	45	3.9	4.2	4.7	5.9	6.5	10	14	18	34	51	69	CE	471K	58
2400-6	180KC	6	2	YES	2400-6	25	3.9	4.1	4.7	5.8	6.3	9.3	13	16	30	47	61	90	939K	57
2400-6	180KC	8	2	YES	2400-6	25	3.9	4.2	4.7	5.7	6.2	9.0	13	16	29	45	60	74	1347K	45
2400-6	180KC	10	2	YES	2400-6	25	4.0	4.1	4.6	5.8	6.3	9.3	13	16	31	45	56	77	1718K	37

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 44K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-4	60KC	3	1	NO	2400-4	30	5.0	7.7	13	25	31	65	110	140	300	CE	CE	CE	203K	40
2400-4	60KC	4	1	NO	2400-4	30	4.7	6.6	11	19	24	47	74	98	220	CE	CE	CE	201K	37
2400-4	60KC	6	1	NO	2400-4	25	4.5	6.2	9.2	16	20	39	60	81	220	CE	CE	CE	399K	36
2400-4	60KC	8	1	NO	2400-4	25	4.5	5.9	8.7	15	20	38	55	78	170	290	390	480	588K	30
2400-4	60KC	10	1	NO	2400-4	25	4.4	6.0	8.8	15	18	35	56	73	170	260	340	420	768K	26
2400-5	120KC	3	1	NO	2400-5	30	4.4	5.8	8.5	15	18	36	55	74	160	CE	CE	CE	203K	40
2400-5	120KC	4	1	NO	2400-5	30	4.3	5.3	7.2	12	14	27	41	53	120	CE	CE	CE	201K	37
2400-5	120KC	6	1	NO	2400-5	25	4.2	5.1	6.7	11	12	23	33	45	120	170	CE	CE	399K	36
2400-5	120KC	8	1	NO	2400-5	25	4.2	5.0	6.5	9.8	12	22	31	43	90	160	210	260	588K	30
2400-5	120KC	10	1	NO	2400-5	25	4.2	5.1	6.5	9.8	12	21	32	41	92	140	180	230	768K	26
2400-6	180KC	3	1	NO	2400-6	30	4.2	5.2	7.2	12	14	27	40	54	120	CE	CE	CE	203K	40
2400-6	180KC	4	1	NO	2400-6	30	4.2	4.9	6.3	9.6	12	20	30	40	85	CE	CE	CE	201K	37
2400-6	180KC	6	1	NO	2400-6	25	4.1	4.8	6.0	8.6	9.9	18	26	34	84	130	CE	CE	399K	36
2400-6	180KC	8	1	NO	2400-6	25	4.1	4.7	5.9	8.4	9.9	18	24	33	67	120	150	190	588K	30
2400-6	180KC	10	1	NO	2400-6	25	4.1	4.8	5.9	8.4	9.5	17	25	32	68	100	140	170	768K	26
2400-4	60KC	3	2	NO	2400-4	20	4.7	6.9	12	21	26	53	82	120	CE	CE	CE	188K	23	
2400-4	60KC	4	2	NO	2400-4	20	4.6	6.0	9.0	17	20	39	61	80	CE	CE	CE	188K	23	
2400-4	60KC	6	2	NO	2400-4	20	4.5	5.9	8.8	16	19	33	53	70	160	230	CE	CE	376K	23
2400-4	60KC	8	2	NO	2400-4	15	4.5	6.0	8.0	14	17	29	49	63	130	210	280	350	538K	18
2400-4	60KC	10	2	NO	2400-4	15	4.6	5.5	8.2	13	15	30	43	55	130	190	250	310	689K	15
2400-5	120KC	3	2	NO	2400-5	20	4.3	5.4	7.7	13	16	30	45	61	CE	CE	CE	188K	23	
2400-5	120KC	4	2	NO	2400-5	20	4.2	5.0	6.6	11	13	23	35	45	CE	CE	CE	188K	23	
2400-5	120KC	6	2	NO	2400-5	20	4.2	5.0	6.6	11	12	20	31	40	84	130	CE	CE	376K	23
2400-5	120KC	8	2	NO	2400-5	15	4.2	5.1	6.2	9.5	11	18	28	36	68	120	160	190	538K	18
2400-5	120KC	10	2	NO	2400-5	15	4.3	4.8	6.3	8.6	9.8	19	25	32	70	110	140	170	689K	15
2400-6	180KC	3	2	NO	2400-6	20	4.2	5.0	6.7	11	13	23	34	46	CE	CE	CE	188K	23	
2400-6	180KC	4	2	NO	2400-6	20	4.1	4.7	5.9	8.9	11	18	27	35	CE	CE	CE	188K	23	
2400-6	180KC	6	2	NO	2400-6	20	4.1	4.7	6.0	8.7	9.9	16	24	31	64	94	CE	CE	376K	23
2400-6	180KC	8	2	NO	2400-6	15	4.2	4.8	5.7	8.2	9.3	15	23	29	53	88	120	150	538K	18
2400-6	180KC	10	2	NO	2400-6	15	4.2	4.6	5.8	7.7	8.6	15	21	26	55	81	110	140	689K	15
2400-4	60KC	3	2	YES	2400-4	20	4.6	6.5	10	19	23	46	72	96	CE	CE	CE	188K	23	
2400-4	60KC	4	2	YES	2400-4	20	4.5	5.7	8.3	15	18	34	53	70	CE	CE	CE	188K	23	
2400-4	60KC	6	2	YES	2400-4	20	4.4	5.5	7.7	13	15	30	44	61	160	230	CE	CE	376K	23
2400-4	60KC	8	2	YES	2400-4	15	4.4	5.4	7.4	12	16	30	42	60	130	210	280	CE	499K	18
2400-4	60KC	10	2	YES	2400-4	15	4.3	5.5	7.6	13	15	28	44	57	130	190	250	310	689K	15
2400-5	120KC	3	2	YES	2400-5	20	4.2	5.2	7.2	12	14	27	40	53	CE	CE	CE	188K	23	
2400-5	120KC	4	2	YES	2400-5	20	4.2	4.9	6.3	9.6	12	21	31	40	CE	CE	CE	188K	23	
2400-5	120KC	6	2	YES	2400-5	20	4.2	4.8	6.0	8.6	10	18	26	35	84	130	CE	CE	376K	23
2400-5	120KC	8	2	YES	2400-5	15	4.1	4.8	5.9	8.4	11	18	25	35	68	120	160	CE	499K	18
2400-5	120KC	10	2	YES	2400-5	15	4.1	4.8	6.0	8.6	9.8	17	26	33	70	110	140	170	689K	15
2400-6	180KC	3	2	YES	2400-6	20	4.1	4.9	6.4	9.5	12	21	31	41	CE	CE	CE	188K	23	
2400-6	180KC	4	2	YES	2400-6	20	4.1	4.6	5.7	8.3	9.5	17	24	31	CE	CE	CE	188K	23	
2400-6	180KC	6	2	YES	2400-6	20	4.1	4.6	5.5	7.6	8.7	15	21	29	64	94	CE	CE	376K	23
2400-6	180KC	8	2	YES	2400-6	15	4.1	4.6	5.5	7.5	8.9	15	21	28	53	88	120	CE	499K	18
2400-6	180KC	10	2	YES	2400-6	15	4.1	4.7	5.6	7.7	8.7	15	22	28	55	81	110	140	689K	15

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 44K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	5	10	20	25	50	75	100	200	300	400	500	MAX SIZE	SORT BLOCK
2400-4	60KC	3	1	NO	2400-4	15	7.7	16	31	65	85	180	290	CE	CE	CE	CE	CE	80K	15
2400-4	60KC	4	1	NO	2400-4	15	6.6	13	24	47	60	130	200	CE	CE	CE	CE	CE	77K	11
2400-4	60KC	6	1	NO	2400-4	10	6.2	11	20	39	50	110	170	270	CE	CE	CE	CE	160K	14
2400-4	60KC	8	1	NO	2400-4	10	5.9	11	19	38	46	96	160	220	480	CE	CE	CE	235K	12
2400-4	60KC	10	1	NO	2400-4	10	6.0	10	18	35	48	99	160	220	420	CE	CE	CE	299K	10
2400-5	120KC	3	1	NO	2400-5	15	5.8	9.9	18	35	45	93	150	CE	CE	CE	CE	CE	80K	15
2400-5	120KC	4	1	NO	2400-5	15	5.2	8.2	14	26	33	68	110	CE	CE	CE	CE	CE	77K	11
2400-5	120KC	6	1	NO	2400-5	10	5.0	7.3	12	22	28	56	88	140	CE	CE	CE	CE	160K	14
2400-5	120KC	8	1	NO	2400-5	10	4.9	7.4	12	22	26	52	82	120	250	CE	CE	CE	235K	12
2400-5	120KC	10	1	NO	2400-5	10	5.0	7.1	12	20	27	53	84	120	220	CE	CE	CE	299K	10
2400-6	180KC	3	1	NO	2400-6	15	5.2	8.1	14	26	33	67	110	CE	CE	CE	CE	CE	80K	15
2400-6	180KC	4	1	NO	2400-6	15	4.8	7.0	11	20	25	49	74	CE	CE	CE	CE	CE	77K	11
2400-6	180KC	6	1	NO	2400-6	10	4.7	6.4	9.6	17	21	41	65	100	CE	CE	CE	CE	160K	14
2400-6	180KC	8	1	NO	2400-6	10	4.7	6.4	9.6	17	20	39	60	85	180	CE	CE	CE	235K	12
2400-6	180KC	10	1	NO	2400-6	10	4.7	6.3	9.2	16	21	40	62	81	160	CE	CE	CE	299K	10
2400-4	60KC	3	2	NO	2400-4	10	6.9	14	27	53	69	150	230	CE	CE	CE	CE	CE	78K	12
2400-4	60KC	4	2	NO	2400-4	10	6.0	11	20	39	50	110	170	CE	CE	CE	CE	CE	75K	9
2400-4	60KC	6	2	NO	2400-4	10	5.9	9.9	18	35	45	85	150	190	CE	CE	CE	CE	150K	9
2400-4	60KC	8	2	NO	2400-4	10	6.0	9.1	17	30	41	77	120	180	340	CE	CE	CE	214K	7
2400-4	60KC	10	2	NO	2400-4	10	5.5	9.2	15	30	36	67	120	160	310	CE	CE	CE	275K	6
2400-5	120KC	3	2	NO	2400-5	10	5.4	8.7	16	29	38	76	120	CE	CE	CE	CE	CE	78K	12
2400-5	120KC	4	2	NO	2400-5	10	5.0	7.5	12	22	28	57	90	CE	CE	CE	CE	CE	75K	9
2400-5	120KC	6	2	NO	2400-5	10	4.9	7.1	12	21	26	47	76	100	CE	CE	CE	CE	150K	9
2400-5	120KC	8	2	NO	2400-5	10	5.0	6.6	11	18	23	42	61	92	180	CE	CE	CE	214K	7
2400-5	120KC	10	2	NO	2400-5	10	4.8	6.7	9.4	18	21	37	63	82	160	CE	CE	CE	275K	6
2400-6	180KC	3	2	NO	2400-6	10	5.0	7.4	13	22	28	55	86	CE	CE	CE	CE	CE	78K	12
2400-6	180KC	4	2	NO	2400-6	10	4.7	6.5	9.8	17	22	43	66	CE	CE	CE	CE	CE	75K	9
2400-6	180KC	6	2	NO	2400-6	10	4.7	6.3	9.4	17	20	36	57	75	CE	CE	CE	CE	150K	9
2400-6	180KC	8	2	NO	2400-6	10	4.8	6.0	8.8	14	19	33	47	70	140	CE	CE	CE	214K	7
2400-6	180KC	10	2	NO	2400-6	10	4.6	6.1	8.1	14	17	29	48	63	130	CE	CE	CE	275K	6
2400-4	60KC	3	2	YES	2400-4	10	6.5	12	23	46	60	130	200	CE	CE	CE	CE	CE	78K	12
2400-4	60KC	4	2	YES	2400-4	10	5.7	9.9	18	34	44	92	150	CE	CE	CE	CE	CE	75K	9
2400-4	60KC	6	2	YES	2400-4	10	5.5	9.2	16	31	37	77	150	190	CE	CE	CE	CE	150K	9
2400-4	60KC	8	2	YES	2400-4	10	5.7	9.0	16	30	36	74	120	180	CE	CE	CE	CE	199K	7
2400-4	60KC	10	2	YES	2400-4	10	5.6	8.7	15	29	38	79	120	160	310	CE	CE	CE	275K	6
2400-5	120KC	3	2	YES	2400-5	10	5.2	8.0	14	26	33	66	110	CE	CE	CE	CE	CE	78K	12
2400-5	120KC	4	2	YES	2400-5	10	4.8	7.0	11	20	25	50	78	CE	CE	CE	CE	CE	75K	9
2400-5	120KC	6	2	YES	2400-5	10	4.7	6.7	11	18	22	42	76	100	CE	CE	CE	CE	150K	9
2400-5	120KC	8	2	YES	2400-5	10	4.8	6.6	10	18	21	41	61	92	CE	CE	CE	CE	199K	7
2400-5	120KC	10	2	YES	2400-5	10	4.8	6.5	9.8	17	23	44	63	82	160	CE	CE	CE	275K	6
2400-6	180KC	3	2	YES	2400-6	10	4.8	6.9	11	20	25	49	75	CE	CE	CE	CE	CE	78K	12
2400-6	180KC	4	2	YES	2400-6	10	4.5	6.2	9.0	16	20	38	58	CE	CE	CE	CE	CE	75K	9
2400-6	180KC	6	2	YES	2400-6	10	4.5	6.0	8.6	15	17	33	57	75	CE	CE	CE	CE	150K	9
2400-6	180KC	8	2	YES	2400-6	10	4.6	6.0	8.6	15	17	33	47	70	CE	CE	CE	CE	199K	7
2400-6	180KC	10	2	YES	2400-6	10	4.6	5.9	8.5	15	18	35	48	63	130	CE	CE	CE	275K	6

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 100K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK	
							2	5	10	20	25	50	75	100	200	300			400
2400-4 60KC	3	1	NO	2400-4	350	3.8	3.9	4.2	5.1	5.5	8.3	12	15	29	45	59	78	2075K	500
2400-4 60KC	4	1	NO	2400-4	350	3.8	4.0	4.2	4.9	5.2	7.6	9.5	13	23	36	47	58	1951K	289
2400-4 60KC	6	1	NO	2400-4	350	3.9	4.0	4.2	4.7	5.0	7.1	8.7	12	21	30	41	50	4151K	500
2400-4 60KC	8	1	NO	2400-4	350	3.9	4.0	4.3	4.7	5.0	6.6	8.8	11	19	29	38	51	6227K	500
2400-4 60KC	10	1	NO	2400-4	350	3.9	4.1	4.3	4.8	5.0	6.7	8.1	11	19	27	38	46	8167K	420
2400-5 120KC	3	1	NO	2400-5	350	3.8	3.9	4.1	4.8	5.2	7.4	9.8	12	24	37	48	63	2075K	500
2400-5 120KC	4	1	NO	2400-5	350	3.8	3.9	4.1	4.7	4.9	6.8	8.3	11	20	30	38	47	1951K	289
2400-5 120KC	6	1	NO	2400-5	350	3.8	4.0	4.1	4.5	4.7	6.5	7.8	9.8	18	25	34	41	4151K	500
2400-5 120KC	8	1	NO	2400-5	350	3.9	4.0	4.2	4.6	4.7	6.1	7.8	9.1	16	25	31	42	6227K	500
2400-5 120KC	10	1	NO	2400-5	350	3.9	4.0	4.2	4.6	4.8	6.2	7.3	9.2	16	23	32	38	8167K	420
2400-6 180KC	3	1	NO	2400-6	350	3.8	3.9	4.1	4.8	5.0	7.1	9.3	12	22	34	44	58	2075K	500
2400-6 180KC	4	1	NO	2400-6	350	3.8	3.9	4.1	4.6	4.8	6.6	8.0	11	18	28	35	44	1951K	289
2400-6 180KC	6	1	NO	2400-6	350	3.8	3.9	4.1	4.5	4.6	6.2	7.5	9.3	17	23	32	38	4151K	500
2400-6 180KC	8	1	NO	2400-6	350	3.9	4.0	4.2	4.5	4.7	5.9	7.5	8.7	15	23	29	39	6227K	500
2400-6 180KC	10	1	NO	2400-6	350	3.9	4.0	4.2	4.5	4.7	6.0	7.0	8.8	16	21	30	36	8167K	420
2400-4 60KC	3	2	NO	2400-4	350	3.8	3.9	4.3	5.0	5.5	7.8	11	14	26	40	55	68	2075K	500
2400-4 60KC	4	2	NO	2400-4	350	3.8	3.9	4.2	4.8	5.3	7.2	9.0	12	21	32	42	55	2075K	500
2400-4 60KC	6	2	NO	2400-4	250	3.8	4.0	4.2	5.0	5.3	6.9	9.3	12	21	30	39	53	4151K	500
2400-4 60KC	8	2	NO	2400-4	250	3.9	4.0	4.3	4.6	4.7	6.9	8.4	12	19	26	39	48	6184K	463
2400-4 60KC	10	2	NO	2400-4	150	3.9	4.1	4.3	4.8	5.0	7.0	8.6	11	20	27	35	42	8091K	385
2400-5 120KC	3	2	NO	2400-5	350	3.8	3.9	4.2	4.8	5.3	7.2	9.5	13	23	35	48	59	2075K	500
2400-5 120KC	4	2	NO	2400-5	350	3.8	3.9	4.1	4.6	5.0	6.7	8.2	11	19	28	36	48	2075K	500
2400-5 120KC	6	2	NO	2400-5	250	3.8	4.0	4.2	4.9	5.1	6.5	8.7	11	20	27	35	49	4151K	500
2400-5 120KC	8	2	NO	2400-5	250	3.9	4.0	4.2	4.6	5.2	6.5	7.9	11	18	24	36	43	6184K	463
2400-5 120KC	10	2	NO	2400-5	150	3.9	4.0	4.2	4.7	4.9	6.7	8.0	9.4	18	25	31	38	8091K	385
2400-6 180KC	3	2	NO	2400-6	350	3.8	3.9	4.2	4.7	5.2	7.0	9.2	12	22	33	46	56	2075K	500
2400-6 180KC	4	2	NO	2400-6	350	3.8	3.9	4.1	4.6	5.0	6.5	8.0	10	18	27	35	46	2075K	500
2400-6 180KC	6	2	NO	2400-6	250	3.8	3.9	4.1	4.8	5.1	6.4	8.6	11	19	26	34	47	4151K	500
2400-6 180KC	8	2	NO	2400-6	250	3.9	4.0	4.2	4.6	5.2	6.4	7.7	11	17	23	34	42	6184K	463
2400-6 180KC	10	2	NO	2400-6	150	3.9	4.0	4.2	4.6	4.8	6.6	7.9	9.2	17	24	30	37	8091K	385
2400-4 60KC	3	2	YES	2400-4	350	3.8	3.9	4.2	4.9	5.4	7.5	10	13	24	37	52	63	2075K	500
2400-4 60KC	4	2	YES	2400-4	350	3.8	3.9	4.1	4.7	5.2	7.0	8.6	11	20	30	39	52	2075K	500
2400-4 60KC	6	2	YES	2400-4	250	3.9	4.0	4.2	4.6	4.8	6.6	8.0	11	18	26	35	43	4048K	387
2400-4 60KC	8	2	YES	2400-4	250	3.9	4.0	4.2	4.6	4.8	6.3	8.1	9.5	17	26	33	44	5853K	289
2400-4 60KC	10	2	YES	2400-4	150	3.9	4.1	4.3	4.7	4.9	6.4	7.6	9.7	17	24	34	41	7535K	231
2400-5 120KC	3	2	YES	2400-5	350	3.8	3.9	4.2	4.8	5.2	7.1	9.3	12	22	34	47	57	2075K	500
2400-5 120KC	4	2	YES	2400-5	350	3.8	3.9	4.1	4.6	5.0	6.6	8.1	11	18	28	36	47	2075K	500
2400-5 120KC	6	2	YES	2400-5	250	3.8	4.0	4.1	4.5	4.7	6.3	7.6	9.5	17	23	32	39	4048K	387
2400-5 120KC	8	2	YES	2400-5	250	3.9	4.0	4.2	4.5	4.7	6.0	7.7	8.9	16	24	30	40	5853K	289
2400-5 120KC	10	2	YES	2400-5	150	3.9	4.0	4.2	4.6	4.8	6.1	7.2	9.1	16	22	31	37	7535K	231
2400-6 180KC	3	2	YES	2400-6	350	3.8	3.9	4.1	4.7	5.2	7.0	9.1	12	22	33	45	56	2075K	500
2400-6 180KC	4	2	YES	2400-6	350	3.8	3.9	4.1	4.6	5.0	6.5	7.9	9.9	18	27	34	45	2075K	500
2400-6 180KC	6	2	YES	2400-6	250	3.8	3.9	4.1	4.5	4.7	6.2	7.4	9.3	16	23	31	38	4048K	387
2400-6 180KC	8	2	YES	2400-6	250	3.9	4.0	4.2	4.5	4.7	5.9	7.5	8.7	15	23	29	39	5853K	289
2400-6 180KC	10	2	YES	2400-6	150	3.9	4.0	4.2	4.5	4.7	6.0	7.0	8.9	16	21	30	36	7535K	231

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 100K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)								MAX SIZE	SORT BLOCK			
								5	10	20	25	50	75	100	200			300	400	500
2400-4	60KC	3	1	NO	2400-4	85	3.9	4.6	5.8	8.9	11	20	31	43	89	150	200	250	516K	118
2400-4	60KC	4	1	NO	2400-4	85	3.9	4.4	5.4	7.7	8.8	17	23	33	67	110	150	180	502K	91
2400-4	60KC	6	1	NO	2400-4	85	4.0	4.3	5.1	7.1	8.0	14	20	27	57	84	130	150	1037K	125
2400-4	60KC	8	1	NO	2400-4	85	4.0	4.3	4.9	6.6	7.9	14	19	25	51	82	110	140	1555K	124
2400-4	60KC	10	1	NO	2400-4	85	4.1	4.4	4.9	6.6	7.3	13	18	24	49	75	110	140	2041K	105
2400-5	120KC	3	1	NO	2400-5	85	3.9	4.3	5.0	6.8	7.7	13	19	26	51	80	120	140	516K	118
2400-5	120KC	4	1	NO	2400-5	85	3.9	4.2	4.8	6.1	6.8	12	15	21	40	63	83	110	502K	91
2400-5	120KC	6	1	NO	2400-5	85	3.9	4.1	4.7	5.8	6.4	9.8	14	18	35	51	72	89	1037K	125
2400-5	120KC	8	1	NO	2400-5	85	4.0	4.2	4.5	5.6	6.4	9.6	13	17	33	51	66	82	1555K	124
2400-5	120KC	10	1	NO	2400-5	85	4.0	4.2	4.5	5.6	6.1	9.1	13	16	32	47	67	83	2041K	105
2400-6	180KC	3	1	NO	2400-6	85	3.8	4.2	4.8	6.3	7.1	12	17	22	44	67	94	120	516K	118
2400-6	180KC	4	1	NO	2400-6	85	3.8	4.1	4.6	5.7	6.3	10	14	18	34	54	70	88	502K	91
2400-6	180KC	6	1	NO	2400-6	85	3.9	4.1	4.5	5.5	6.0	8.8	12	16	30	43	61	76	1037K	125
2400-6	180KC	8	1	NO	2400-6	85	3.9	4.1	4.4	5.3	6.0	8.6	12	15	28	43	56	69	1555K	124
2400-6	180KC	10	1	NO	2400-6	85	4.0	4.1	4.4	5.3	5.7	8.3	12	15	28	40	57	70	2041K	105
2400-4	60KC	3	2	NO	2400-4	85	3.9	4.5	5.4	8.2	9.3	18	26	35	76	120	160	220	518K	125
2400-4	60KC	4	2	NO	2400-4	85	3.9	4.3	5.1	6.9	8.3	14	20	27	54	86	120	160	518K	125
2400-4	60KC	6	2	NO	2400-4	50	3.9	4.2	5.1	7.1	7.9	13	19	24	50	72	96	140	1037K	125
2400-4	60KC	8	2	NO	2400-4	50	4.0	4.3	5.1	6.4	7.1	12	16	20	43	62	82	120	1545K	115
2400-4	60KC	10	2	NO	2400-4	35	4.0	4.3	5.2	6.5	7.2	13	17	21	37	64	84	110	2022K	96
2400-5	120KC	3	2	NO	2400-5	85	3.8	4.2	4.8	6.4	7.1	12	17	22	45	67	92	130	518K	125
2400-5	120KC	4	2	NO	2400-5	85	3.9	4.1	4.6	5.7	6.6	10	14	18	34	53	69	92	518K	125
2400-5	120KC	6	2	NO	2400-5	50	3.9	4.1	4.7	5.9	6.4	9.6	13	16	32	46	61	83	1037K	125
2400-5	120KC	8	2	NO	2400-5	50	3.9	4.1	4.7	5.6	6.0	9.1	12	15	29	41	53	75	1545K	115
2400-5	120KC	10	2	NO	2400-5	35	3.9	4.1	4.8	5.7	6.1	9.4	12	15	26	42	55	67	2022K	96
2400-6	180KC	3	2	NO	2400-6	85	3.8	4.1	4.7	6.1	6.6	11	15	20	40	60	81	110	518K	125
2400-6	180KC	4	2	NO	2400-6	85	3.8	4.1	4.5	5.5	6.2	9.2	13	16	30	47	61	81	518K	125
2400-6	180KC	6	2	NO	2400-6	50	3.9	4.0	4.6	5.7	6.2	9.1	13	15	30	42	56	76	1037K	125
2400-6	180KC	8	2	NO	2400-6	50	3.9	4.1	4.6	5.4	5.8	8.6	11	14	27	38	49	69	1545K	115
2400-6	180KC	10	2	NO	2400-6	35	3.9	4.1	4.7	5.5	5.9	8.9	12	14	24	39	50	62	2022K	96
2400-4	60KC	3	2	YES	2400-4	85	3.9	4.4	5.2	7.6	8.6	16	23	31	66	99	140	190	518K	125
2400-4	60KC	4	2	YES	2400-4	85	3.9	4.2	4.9	6.5	7.7	13	18	24	48	75	99	140	518K	125
2400-4	60KC	6	2	YES	2400-4	50	3.9	4.2	4.8	6.2	6.8	11	16	20	42	60	86	110	1011K	96
2400-4	60KC	8	2	YES	2400-4	50	4.0	4.2	4.6	5.9	6.8	11	15	20	38	60	79	120	1545K	115
2400-4	60KC	10	2	YES	2400-4	35	4.0	4.3	4.7	5.9	6.4	9.9	15	18	36	56	75	110	2022K	96
2400-5	120KC	3	2	YES	2400-5	85	3.8	4.2	4.7	6.1	6.7	11	15	20	40	60	82	110	518K	125
2400-5	120KC	4	2	YES	2400-5	85	3.8	4.1	4.6	5.6	6.3	9.3	13	16	31	48	62	82	518K	125
2400-5	120KC	6	2	YES	2400-5	50	3.9	4.1	4.5	5.4	5.8	8.5	12	15	28	40	56	69	1011K	96
2400-5	120KC	8	2	YES	2400-5	50	3.9	4.1	4.4	5.3	5.9	8.4	11	14	27	41	53	75	1545K	115
2400-5	120KC	10	2	YES	2400-5	35	4.0	4.1	4.4	5.3	5.7	8.0	11	14	25	39	51	67	2022K	96
2400-6	180KC	3	2	YES	2400-6	85	3.8	4.1	4.6	5.9	6.4	11	14	18	37	55	75	99	518K	125
2400-6	180KC	4	2	YES	2400-6	85	3.8	4.1	4.5	5.4	6.0	8.8	12	15	29	44	57	75	518K	125
2400-6	180KC	6	2	YES	2400-6	50	3.9	4.0	4.4	5.3	5.6	8.0	11	14	26	37	52	64	1011K	96
2400-6	180KC	8	2	YES	2400-6	50	3.9	4.1	4.3	5.1	5.7	8.0	11	13	25	38	49	69	1545K	115
2400-6	180KC	10	2	YES	2400-6	35	4.0	4.1	4.4	5.2	5.5	7.6	11	13	23	36	47	62	2022K	96

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 100K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	5	10	20	25	50	75	100	200	300	400	500	MAX SIZE	SORT BLOCK
2400-4	60KC	3	1	NO	2400-4	35	4.5	6.4	11	20	25	51	81	120	250	CE	CE	CE	207K	50
2400-4	60KC	4	1	NO	2400-4	35	4.3	5.7	8.5	16	20	39	61	80	180	CE	CE	CE	205K	44
2400-4	60KC	6	1	NO	2400-4	35	4.3	5.4	7.7	13	17	33	48	68	150	280	370	CE	415K	50
2400-4	60KC	8	1	NO	2400-4	35	4.3	5.4	7.6	13	15	29	47	61	130	240	320	400	622K	50
2400-4	60KC	10	1	NO	2400-4	35	4.3	5.1	7.0	12	15	29	42	61	130	210	280	400	830K	50
2400-5	120KC	3	1	NO	2400-5	35	4.1	5.1	7.3	12	15	29	44	62	130	CE	CE	CE	207K	50
2400-5	120KC	4	1	NO	2400-5	35	4.0	4.8	6.3	10	12	22	34	44	93	CE	CE	CE	205K	44
2400-5	120KC	6	1	NO	2400-5	35	4.0	4.7	5.9	8.8	11	19	27	38	78	150	200	CE	415K	50
2400-5	120KC	8	1	NO	2400-5	35	4.1	4.7	5.9	8.6	9.8	18	27	34	70	130	170	220	622K	50
2400-5	120KC	10	1	NO	2400-5	35	4.1	4.5	5.6	8.1	9.8	18	25	34	71	110	150	220	830K	50
2400-6	180KC	3	1	NO	2400-6	35	4.0	4.8	6.3	9.7	12	22	33	45	93	CE	CE	CE	207K	50
2400-6	180KC	4	1	NO	2400-6	35	4.0	4.6	5.7	8.4	9.7	17	26	33	68	CE	CE	CE	205K	44
2400-6	180KC	6	1	NO	2400-6	35	4.0	4.5	5.4	7.5	8.8	15	21	29	58	110	150	CE	415K	50
2400-6	180KC	8	1	NO	2400-6	35	4.0	4.5	5.4	7.4	8.3	14	21	26	53	94	130	160	622K	50
2400-6	180KC	10	1	NO	2400-6	35	4.1	4.4	5.2	7.1	8.4	14	19	27	53	81	110	160	830K	50
2400-4	60KC	3	2	NO	2400-4	35	4.4	6.0	9.0	17	21	42	65	91	200	CE	CE	CE	200K	36
2400-4	60KC	4	2	NO	2400-4	35	4.3	5.4	7.7	14	16	31	49	64	150	CE	CE	CE	207K	50
2400-4	60KC	6	2	NO	2400-4	35	4.2	5.3	7.6	13	16	27	44	57	130	190	250	CE	415K	50
2400-4	60KC	8	2	NO	2400-4	25	4.2	5.3	6.8	12	14	27	38	50	120	170	220	280	618K	46
2400-4	60KC	10	2	NO	2400-4	25	4.2	5.4	6.9	12	14	23	33	50	96	150	190	280	808K	38
2400-5	120KC	3	2	NO	2400-5	35	4.1	5.0	6.6	11	13	25	36	50	110	CE	CE	CE	200K	36
2400-5	120KC	4	2	NO	2400-5	35	4.0	4.7	5.9	9.0	11	19	28	36	80	CE	CE	CE	207K	50
2400-5	120KC	6	2	NO	2400-5	35	4.0	4.6	5.9	8.8	10	17	26	33	70	110	140	CE	415K	50
2400-5	120KC	8	2	NO	2400-5	25	4.0	4.7	5.5	8.0	9.1	17	23	29	62	91	120	150	618K	46
2400-5	120KC	10	2	NO	2400-5	25	4.1	4.7	5.6	8.2	9.2	15	20	29	54	79	110	160	808K	38
2400-6	180KC	3	2	NO	2400-6	35	4.0	4.7	5.9	8.9	11	19	28	37	78	CE	CE	CE	200K	36
2400-6	180KC	4	2	NO	2400-6	35	4.0	4.5	5.4	7.6	8.6	15	22	28	60	CE	CE	CE	207K	50
2400-6	180KC	6	2	NO	2400-6	35	4.0	4.4	5.4	7.6	8.6	14	20	26	53	77	110	CE	415K	50
2400-6	180KC	8	2	NO	2400-6	25	4.0	4.5	5.1	7.1	7.9	14	19	23	48	70	91	120	618K	46
2400-6	180KC	10	2	NO	2400-6	25	4.0	4.6	5.2	7.2	8.0	12	16	24	43	62	80	120	808K	38
2400-4	60KC	3	2	YES	2400-4	35	4.3	5.7	8.3	16	18	37	56	78	170	CE	CE	CE	200K	36
2400-4	60KC	4	2	YES	2400-4	35	4.2	5.1	7.1	12	15	27	43	56	130	CE	CE	CE	207K	50
2400-4	60KC	6	2	YES	2400-4	35	4.1	4.9	6.6	11	13	24	35	48	100	190	250	CE	415K	50
2400-4	60KC	8	2	YES	2400-4	25	4.2	4.9	6.5	10	12	22	34	44	120	170	220	280	618K	46
2400-4	60KC	10	2	YES	2400-4	25	4.2	4.7	6.1	9.3	12	22	31	44	96	150	190	280	808K	38
2400-5	120KC	3	2	YES	2400-5	35	4.1	4.8	6.2	9.9	12	22	32	44	92	CE	CE	CE	200K	36
2400-5	120KC	4	2	YES	2400-5	35	4.0	4.5	5.7	8.3	9.4	17	25	32	70	CE	CE	CE	207K	50
2400-5	120KC	6	2	YES	2400-5	35	4.0	4.4	5.4	7.7	8.6	15	21	28	56	110	140	CE	415K	50
2400-5	120KC	8	2	YES	2400-5	25	4.0	4.5	5.4	7.3	8.2	14	21	26	62	91	120	150	618K	46
2400-5	120KC	10	2	YES	2400-5	25	4.1	4.4	5.2	7.0	8.3	14	19	26	54	79	110	160	808K	38
2400-6	180KC	3	2	YES	2400-6	35	4.0	4.6	5.6	8.3	9.5	17	25	33	69	CE	CE	CE	200K	36
2400-6	180KC	4	2	YES	2400-6	35	4.0	4.4	5.3	7.2	8.1	14	20	25	53	CE	CE	CE	207K	50
2400-6	180KC	6	2	YES	2400-6	35	3.9	4.3	5.1	6.8	7.6	13	18	22	44	77	110	CE	415K	50
2400-6	180KC	8	2	YES	2400-6	25	4.0	4.4	5.1	6.6	7.3	12	17	21	48	70	91	120	618K	46
2400-6	180KC	10	2	YES	2400-6	25	4.0	4.3	4.9	6.4	7.4	12	16	22	43	62	80	120	808K	38

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 100K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-4	60KC	3	1	NO	2400-4	20	6.4	13	25	51	68	150	230	CE	CE	CE	CE	CE	83K	20
2400-4	60KC	4	1	NO	2400-4	20	5.7	11	19	38	49	110	160	CE	CE	CE	CE	CE	82K	19
2400-4	60KC	6	1	NO	2400-4	20	5.4	9.3	17	33	40	83	140	230	CE	CE	CE	CE	166K	20
2400-4	60KC	8	1	NO	2400-4	20	5.4	8.5	15	29	39	81	120	200	400	CE	CE	CE	249K	20
2400-4	60KC	10	1	NO	2400-4	20	5.1	8.6	15	29	35	74	130	170	400	590	CE	CE	332K	20
2400-5	120KC	3	1	NO	2400-5	20	5.1	8.2	15	28	36	74	120	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	4	1	NO	2400-5	20	4.8	7.2	12	22	27	57	84	CE	CE	CE	CE	CE	82K	19
2400-5	120KC	6	1	NO	2400-5	20	4.6	6.6	11	19	22	44	71	120	CE	CE	CE	CE	166K	20
2400-5	120KC	8	1	NO	2400-5	20	4.6	6.3	9.4	17	22	44	63	110	210	CE	CE	CE	249K	20
2400-5	120KC	10	1	NO	2400-5	20	4.5	6.3	9.5	17	20	40	64	88	210	310	CE	CE	332K	20
2400-6	180KC	3	1	NO	2400-6	20	4.7	6.9	12	21	27	54	84	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	4	1	NO	2400-6	20	4.5	6.2	9.3	17	20	41	60	CE	CE	CE	CE	CE	82K	19
2400-6	180KC	6	1	NO	2400-6	20	4.4	5.9	8.4	15	17	33	51	85	CE	CE	CE	CE	166K	20
2400-6	180KC	8	1	NO	2400-6	20	4.4	5.6	7.9	13	17	32	46	75	150	CE	CE	CE	249K	20
2400-6	180KC	10	1	NO	2400-6	20	4.3	5.7	8.0	14	16	30	47	64	150	220	CE	CE	332K	20
2400-4	60KC	3	2	NO	2400-4	20	6.0	12	21	44	53	120	190	CE	CE	CE	CE	CE	79K	13
2400-4	60KC	4	2	NO	2400-4	20	5.5	9.0	16	31	41	85	140	CE	CE	CE	CE	CE	83K	20
2400-4	60KC	6	2	NO	2400-4	20	5.2	8.4	15	28	37	69	120	160	CE	CE	CE	CE	166K	20
2400-4	60KC	8	2	NO	2400-4	15	5.3	8.5	13	27	32	60	110	140	270	CE	CE	CE	246K	18
2400-4	60KC	10	2	NO	2400-4	15	5.4	7.5	14	23	27	61	88	120	270	410	CE	CE	322K	15
2400-5	120KC	3	2	NO	2400-5	20	4.9	7.5	13	24	29	63	96	CE	CE	CE	CE	CE	79K	13
2400-5	120KC	4	2	NO	2400-5	20	4.7	6.5	9.9	18	23	46	72	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	6	2	NO	2400-5	20	4.6	6.2	9.6	16	21	38	62	82	CE	CE	CE	CE	166K	20
2400-5	120KC	8	2	NO	2400-5	15	4.6	6.3	8.7	16	19	33	55	72	140	CE	CE	CE	246K	18
2400-5	120KC	10	2	NO	2400-5	15	4.7	5.8	8.8	14	16	34	48	63	150	210	CE	CE	322K	15
2400-6	180KC	3	2	NO	2400-6	20	4.6	6.5	9.8	19	22	46	70	CE	CE	CE	CE	CE	79K	13
2400-6	180KC	4	2	NO	2400-6	20	4.4	5.7	8.2	14	18	34	52	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	6	2	NO	2400-6	20	4.4	5.6	8.1	13	17	29	46	60	CE	CE	CE	CE	166K	20
2400-6	180KC	8	2	NO	2400-6	15	4.4	5.7	7.4	13	15	25	41	54	110	CE	CE	CE	246K	18
2400-6	180KC	10	2	NO	2400-6	15	4.5	5.3	7.5	12	13	26	36	47	110	160	CE	CE	322K	15
2400-4	60KC	3	2	YES	2400-4	20	5.7	10	18	38	46	110	160	CE	CE	CE	CE	CE	79K	13
2400-4	60KC	4	2	YES	2400-4	20	5.2	8.2	14	27	36	73	120	CE	CE	CE	CE	CE	83K	20
2400-4	60KC	6	2	YES	2400-4	20	5.0	7.6	13	23	28	58	93	160	CE	CE	CE	CE	166K	20
2400-4	60KC	8	2	YES	2400-4	15	4.9	7.1	12	22	29	58	85	140	270	CE	CE	CE	246K	18
2400-4	60KC	10	2	YES	2400-4	15	4.7	7.2	12	22	26	54	86	120	270	410	CE	CE	322K	15
2400-5	120KC	3	2	YES	2400-5	20	4.8	7.0	11	22	26	55	83	CE	CE	CE	CE	CE	79K	13
2400-5	120KC	4	2	YES	2400-5	20	4.5	6.1	9.0	16	21	40	63	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	6	2	YES	2400-5	20	4.4	5.8	8.3	14	17	32	50	82	CE	CE	CE	CE	166K	20
2400-5	120KC	8	2	YES	2400-5	15	4.4	5.6	7.8	13	17	32	46	72	140	CE	CE	CE	246K	18
2400-5	120KC	10	2	YES	2400-5	15	4.3	5.7	7.9	14	16	30	47	63	150	210	CE	CE	322K	15
2400-6	180KC	3	2	YES	2400-6	20	4.5	6.1	9.0	17	20	41	61	CE	CE	CE	CE	CE	79K	13
2400-6	180KC	4	2	YES	2400-6	20	4.4	5.5	7.6	13	16	30	46	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	6	2	YES	2400-6	20	4.3	5.3	7.1	12	13	25	38	60	CE	CE	CE	CE	166K	20
2400-6	180KC	8	2	YES	2400-6	15	4.3	5.2	6.9	11	14	25	35	54	110	CE	CE	CE	246K	18
2400-6	180KC	10	2	YES	2400-6	15	4.2	5.3	7.0	11	13	24	36	47	110	160	CE	CE	322K	15

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 200K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-5	120KC	3	1	NO	2400-5	350	3.8	3.9	4.1	4.5	4.9	6.5	8.6	12	21	32	44	54	2075K	500
2400-5	120KC	4	1	NO	2400-5	350	3.8	3.9	4.1	4.5	4.7	6.1	7.8	9.3	18	25	36	43	2075K	500
2400-5	120KC	6	1	NO	2400-5	350	3.9	4.0	4.2	4.5	4.7	5.7	7.3	8.4	17	23	32	38	4151K	500
2400-5	120KC	8	1	NO	2400-5	350	3.9	4.0	4.2	4.6	4.8	5.7	6.7	8.5	15	23	29	35	6227K	500
2400-5	120KC	10	1	NO	2400-5	300	3.9	4.0	4.2	4.6	4.8	5.8	6.7	7.7	15	21	29	35	8303K	500
2400-6	180KC	3	1	NO	2400-6	350	3.8	3.9	4.1	4.4	4.8	6.3	8.2	11	19	29	41	50	2075K	500
2400-6	180KC	4	1	NO	2400-6	350	3.8	3.9	4.1	4.4	4.6	5.9	7.5	8.8	17	24	33	40	2075K	500
2400-6	180KC	6	1	NO	2400-6	350	3.8	4.0	4.1	4.5	4.7	5.5	7.0	8.1	16	21	30	36	4151K	500
2400-6	180KC	8	1	NO	2400-6	350	3.9	4.0	4.2	4.5	4.7	5.6	6.5	8.1	14	21	27	33	6227K	500
2400-6	180KC	10	1	NO	2400-6	300	3.9	4.0	4.2	4.6	4.7	5.6	6.5	7.4	14	19	27	33	8303K	500
2400-5	120KC	3	2	NO	2400-5	350	3.8	3.9	4.1	4.5	4.9	6.4	8.4	11	20	30	42	52	2075K	500
2400-5	120KC	4	2	NO	2400-5	350	3.8	3.9	4.1	4.5	4.7	6.0	7.7	9.7	18	24	34	41	2075K	500
2400-5	120KC	6	2	NO	2400-5	350	3.8	4.0	4.2	4.6	4.8	6.5	7.9	9.2	18	24	35	43	4151K	500
2400-5	120KC	8	2	NO	2400-5	350	3.9	4.0	4.2	4.6	4.8	5.9	8.0	9.3	15	24	31	38	6227K	500
2400-5	120KC	10	2	NO	2400-5	300	3.9	4.0	4.2	4.7	4.9	6.0	8.1	9.5	15	21	32	38	8303K	500
2400-6	180KC	3	2	NO	2400-6	350	3.8	3.9	4.1	4.4	4.8	6.3	8.1	11	19	29	40	49	2075K	500
2400-6	180KC	4	2	NO	2400-6	350	3.8	3.9	4.1	4.4	4.6	5.9	7.5	9.4	17	23	32	40	2075K	500
2400-6	180KC	6	2	NO	2400-6	350	3.8	4.0	4.2	4.6	4.8	6.4	7.7	9.0	17	23	34	42	4151K	500
2400-6	180KC	8	2	NO	2400-6	350	3.9	4.0	4.2	4.6	4.8	5.8	7.8	9.1	15	24	30	37	6227K	500
2400-6	180KC	10	2	NO	2400-6	300	3.9	4.0	4.2	4.6	4.8	5.9	7.9	9.3	15	20	31	37	8303K	500
2400-5	120KC	3	2	YES	2400-5	350	3.8	3.9	4.1	4.4	4.8	6.4	8.3	11	19	29	41	50	2075K	500
2400-5	120KC	4	2	YES	2400-5	350	3.8	3.9	4.1	4.5	4.6	5.9	7.6	9.6	17	24	33	41	2075K	500
2400-5	120KC	6	2	YES	2400-5	350	3.8	4.0	4.1	4.5	4.7	5.6	7.1	8.4	16	22	30	36	4151K	500
2400-5	120KC	8	2	YES	2400-5	350	3.9	4.0	4.2	4.5	4.7	5.6	6.6	8.2	15	22	27	33	6195K	472
2400-5	120KC	10	2	YES	2400-5	300	3.9	4.0	4.2	4.6	4.8	5.7	6.6	7.6	15	20	28	33	8275K	481
2400-6	180KC	3	2	YES	2400-6	350	3.8	3.9	4.1	4.4	4.8	6.3	8.1	11	19	29	40	49	2075K	500
2400-6	180KC	4	2	YES	2400-6	350	3.8	3.9	4.1	4.4	4.6	5.9	7.5	9.4	17	23	32	39	2075K	500
2400-6	180KC	6	2	YES	2400-6	350	3.8	3.9	4.1	4.5	4.6	5.5	6.9	8.2	15	21	29	35	4151K	500
2400-6	180KC	8	2	YES	2400-6	350	3.9	4.0	4.2	4.5	4.7	5.6	6.5	8.1	14	21	27	32	6195K	472
2400-6	180KC	10	2	YES	2400-6	300	3.9	4.0	4.2	4.6	4.7	5.6	6.5	7.5	14	19	27	32	8275K	481

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 200K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-5	120KC	3	1	NO	2400-5	90	3.9	4.1	4.6	6.2	6.9	12	18	22	47	70	98	140	518K	125
2400-5	120KC	4	1	NO	2400-5	90	3.9	4.1	4.4	5.8	6.3	9.7	14	18	37	54	77	95	518K	125
2400-5	120KC	6	1	NO	2400-5	90	3.9	4.1	4.5	5.5	5.9	8.9	13	16	30	47	61	83	1037K	125
2400-5	120KC	8	1	NO	2400-5	90	4.0	4.2	4.5	5.2	5.7	8.9	12	16	30	43	61	76	1556K	125
2400-5	120KC	10	1	NO	2400-5	90	4.0	4.2	4.6	5.3	5.6	8.2	12	14	27	43	56	76	2075K	125
2400-6	180KC	3	1	NO	2400-6	90	3.8	4.0	4.5	5.8	6.3	11	15	19	40	60	83	110	518K	125
2400-6	180KC	4	1	NO	2400-6	90	3.9	4.0	4.3	5.5	5.9	8.7	13	15	32	46	65	81	518K	125
2400-6	180KC	6	1	NO	2400-6	90	3.9	4.1	4.4	5.2	5.6	8.0	12	14	26	40	52	70	1037K	125
2400-6	180KC	8	1	NO	2400-6	90	3.9	4.1	4.4	5.0	5.4	8.1	11	14	26	37	52	64	1556K	125
2400-6	180KC	10	1	NO	2400-6	90	4.0	4.1	4.4	5.0	5.3	7.5	11	13	24	37	48	64	2075K	125
2400-5	120KC	3	2	NO	2400-5	90	3.8	4.0	4.5	5.8	6.4	11	15	19	40	62	81	110	518K	125
2400-5	120KC	4	2	NO	2400-5	90	3.9	4.0	4.4	5.5	5.9	8.7	13	16	32	46	64	80	518K	125
2400-5	120KC	6	2	NO	2400-5	90	3.9	4.1	4.4	5.5	5.9	9.0	12	15	28	41	60	74	1037K	125
2400-5	120KC	8	2	NO	2400-5	90	3.9	4.1	4.4	5.6	6.0	8.1	12	15	25	41	53	65	1556K	125
2400-5	120KC	10	2	NO	2400-5	90	3.9	4.1	4.5	5.2	6.0	8.2	11	14	25	36	46	63	1640K	31
2400-6	180KC	3	2	NO	2400-6	90	3.8	4.0	4.4	5.6	6.0	9.6	14	17	35	55	72	95	518K	125
2400-6	180KC	4	2	NO	2400-6	90	3.8	4.0	4.3	5.3	5.7	8.1	12	14	28	41	57	71	518K	125
2400-6	180KC	6	2	NO	2400-6	90	3.9	4.0	4.3	5.3	5.7	8.5	11	14	26	37	55	67	1037K	125
2400-6	180KC	8	2	NO	2400-6	90	3.9	4.1	4.4	5.4	5.8	7.7	11	14	23	38	49	60	1556K	125
2400-6	180KC	10	2	NO	2400-6	90	3.9	4.1	4.4	5.1	5.8	7.7	9.6	13	23	33	42	58	1640K	31
2400-5	120KC	3	2	YES	2400-5	90	3.8	4.0	4.4	5.6	6.1	9.7	14	17	36	55	72	96	518K	125
2400-5	120KC	4	2	YES	2400-5	90	3.8	4.0	4.3	5.4	5.7	8.3	12	14	29	41	58	72	518K	125
2400-5	120KC	6	2	YES	2400-5	90	3.9	4.1	4.3	5.1	5.5	7.7	11	13	24	37	47	63	1037K	125
2400-5	120KC	8	2	YES	2400-5	90	3.9	4.1	4.4	4.9	5.5	7.8	9.7	13	24	34	48	58	1556K	125
2400-5	120KC	10	2	YES	2400-5	90	4.0	4.1	4.4	5.0	5.3	7.3	9.8	12	22	34	44	59	2068K	120
2400-6	180KC	3	2	YES	2400-6	90	3.8	4.0	4.4	5.4	5.9	9.2	13	16	33	51	66	88	518K	125
2400-6	180KC	4	2	YES	2400-6	90	3.8	4.0	4.3	5.2	5.5	7.8	11	14	27	38	53	66	518K	125
2400-6	180KC	6	2	YES	2400-6	90	3.9	4.0	4.3	5.0	5.3	7.3	9.8	12	22	34	43	58	1037K	125
2400-6	180KC	8	2	YES	2400-6	90	3.9	4.1	4.3	4.8	5.4	7.4	9.1	12	22	31	44	53	1556K	125
2400-6	180KC	10	2	YES	2400-6	90	4.0	4.1	4.4	4.9	5.1	6.9	9.2	11	20	31	40	54	2068K	120

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 200K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET										SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2400-5	120KC	3	1	NO	2400-5	35	4.0	4.9	6.4	11	13	26	38	53	120	CE	CE	CE	204K	43			
2400-5	120KC	4	1	NO	2400-5	35	4.0	4.6	5.9	8.8	11	21	29	41	85	CE	CE	CE	207K	50			
2400-5	120KC	6	1	NO	2400-5	35	4.0	4.5	5.5	8.0	9.4	18	25	35	72	130	180	CE	405K	39			
2400-5	120KC	8	1	NO	2400-5	35	4.1	4.5	5.2	8.0	9.0	16	24	31	64	110	150	220	622K	50			
2400-5	120KC	10	1	NO	2400-5	35	4.1	4.5	5.2	7.3	8.4	16	22	31	64	110	150	190	830K	50			
2400-6	180KC	3	1	NO	2400-6	35	3.9	4.6	5.7	8.9	11	20	28	39	82	CE	CE	CE	204K	43			
2400-6	180KC	4	1	NO	2400-6	35	4.0	4.4	5.4	7.5	8.9	16	22	31	62	CE	CE	CE	207K	50			
2400-6	180KC	6	1	NO	2400-6	35	4.0	4.3	5.1	7.0	8.1	14	19	27	54	94	130	CE	405K	39			
2400-6	180KC	8	1	NO	2400-6	35	4.0	4.4	4.9	7.0	7.7	13	19	24	48	82	110	160	622K	50			
2400-6	180KC	10	1	NO	2400-6	35	4.1	4.4	4.9	6.5	7.4	13	18	24	48	82	110	140	830K	50			
2400-5	120KC	3	2	NO	2400-5	35	3.9	4.6	5.9	9.4	11	22	31	43	96	CE	CE	CE	207K	50			
2400-5	120KC	4	2	NO	2400-5	35	4.0	4.5	5.5	7.8	9.5	17	24	33	68	CE	CE	CE	207K	50			
2400-5	120KC	6	2	NO	2400-5	35	4.0	4.4	5.4	7.9	8.9	17	23	29	62	90	140	CE	415K	50			
2400-5	120KC	8	2	NO	2400-5	35	4.0	4.4	5.5	7.1	7.9	15	20	25	53	78	110	150	622K	50			
2400-5	120KC	10	2	NO	2400-5	35	4.0	4.4	5.5	7.1	7.9	15	20	25	46	78	110	130	830K	50			
2400-6	180KC	3	2	NO	2400-6	35	3.9	4.4	5.4	8.0	9.0	17	24	33	71	CE	CE	CE	207K	50			
2400-6	180KC	4	2	NO	2400-6	35	3.9	4.3	5.1	6.8	8.1	14	19	26	51	CE	CE	CE	207K	50			
2400-6	180KC	6	2	NO	2400-6	35	3.9	4.3	5.1	7.0	7.8	14	18	23	47	69	110	CE	415K	50			
2400-6	180KC	8	2	NO	2400-6	35	4.0	4.3	5.1	6.4	7.0	12	16	20	41	60	79	120	622K	50			
2400-6	180KC	10	2	NO	2400-6	35	4.0	4.3	5.2	6.4	7.1	12	16	20	37	60	79	97	830K	50			
2400-5	120KC	3	2	YES	2400-5	35	3.9	4.5	5.6	8.7	9.9	20	28	38	84	CE	CE	CE	207K	50			
2400-5	120KC	4	2	YES	2400-5	35	3.9	4.4	5.3	7.3	8.8	16	21	29	60	CE	CE	CE	207K	50			
2400-5	120KC	6	2	YES	2400-5	35	4.0	4.3	5.0	6.7	8.0	14	19	25	51	90	140	CE	415K	50			
2400-5	120KC	8	2	YES	2400-5	35	4.0	4.3	4.9	6.8	7.5	13	18	23	46	78	110	150	622K	50			
2400-5	120KC	10	2	YES	2400-5	35	4.1	4.3	4.8	6.3	7.5	13	17	23	46	78	110	130	830K	50			
2400-6	180KC	3	2	YES	2400-6	35	3.9	4.4	5.2	7.5	8.4	16	22	29	63	CE	CE	CE	207K	50			
2400-6	180KC	4	2	YES	2400-6	35	3.9	4.3	5.0	6.5	7.6	13	17	23	46	CE	CE	CE	207K	50			
2400-6	180KC	6	2	YES	2400-6	35	3.9	4.2	4.8	6.1	7.1	12	15	21	40	69	110	CE	415K	50			
2400-6	180KC	8	2	YES	2400-6	35	4.0	4.2	4.7	6.2	6.8	11	15	19	36	60	79	120	622K	50			
2400-6	180KC	10	2	YES	2400-6	35	4.0	4.3	4.7	5.9	6.8	11	14	19	36	60	79	97	830K	50			

SYSTEM/360 MODEL 40
 MAIN STORAGE USED 200K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET										SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2400-5	120KC	3	1	NO	2400-5	20	4.8	7.4	13	26	31	64	110	CE	CE	CE	CE	CE	83K	20			
2400-5	120KC	4	1	NO	2400-5	20	4.6	6.3	11	20	24	48	76	CE	CE	CE	CE	CE	83K	20			
2400-5	120KC	6	1	NO	2400-5	20	4.4	5.8	9.0	17	20	40	62	110	CE	CE	CE	CE	166K	20			
2400-5	120KC	8	1	NO	2400-5	20	4.4	5.8	8.6	15	18	36	57	88	210	CE	CE	CE	249K	20			
2400-5	120KC	10	1	NO	2400-5	20	4.5	5.4	8.1	15	18	36	54	88	180	260	CE	CE	332K	20			
2400-6	180KC	3	1	NO	2400-6	20	4.5	6.4	9.8	19	23	47	72	CE	CE	CE	CE	CE	83K	20			
2400-6	180KC	4	1	NO	2400-6	20	4.3	5.6	8.5	15	18	35	55	CE	CE	CE	CE	CE	83K	20			
2400-6	180KC	6	1	NO	2400-6	20	4.2	5.3	7.6	13	16	30	46	75	CE	CE	CE	CE	166K	20			
2400-6	180KC	8	1	NO	2400-6	20	4.3	5.3	7.3	12	14	27	42	64	150	CE	CE	CE	249K	20			
2400-6	180KC	10	1	NO	2400-6	20	4.3	5.0	7.1	12	14	27	41	64	130	190	CE	CE	332K	20			
2400-5	120KC	3	2	NO	2400-5	20	4.6	6.6	11	21	25	55	81	CE	CE	CE	CE	CE	81K	17			
2400-5	120KC	4	2	NO	2400-5	20	4.4	5.9	9.1	16	19	38	61	CE	CE	CE	CE	CE	83K	20			
2400-5	120KC	6	2	NO	2400-5	20	4.4	5.6	8.5	16	19	33	55	71	CE	CE	CE	CE	166K	20			
2400-5	120KC	8	2	NO	2400-5	20	4.3	5.7	7.6	14	16	33	47	61	140	CE	CE	CE	249K	20			
2400-5	120KC	10	2	NO	2400-5	20	4.3	5.7	7.5	14	16	28	39	61	120	180	CE	CE	332K	20			
2400-6	180KC	3	2	NO	2400-6	20	4.4	5.9	8.6	16	19	40	59	CE	CE	CE	CE	CE	81K	17			
2400-6	180KC	4	2	NO	2400-6	20	4.2	5.4	7.7	13	15	29	45	CE	CE	CE	CE	CE	83K	20			
2400-6	180KC	6	2	NO	2400-6	20	4.3	5.2	7.3	13	15	25	41	53	CE	CE	CE	CE	166K	20			
2400-6	180KC	8	2	NO	2400-6	20	4.2	5.2	6.6	11	13	25	35	46	110	CE	CE	CE	249K	20			
2400-6	180KC	10	2	NO	2400-6	20	4.2	5.3	6.6	11	13	22	30	46	87	130	CE	CE	332K	20			
2400-5	120KC	3	2	YES	2400-5	20	4.5	6.2	9.5	19	22	48	70	CE	CE	CE	CE	CE	81K	17			
2400-5	120KC	4	2	YES	2400-5	20	4.3	5.6	8.4	15	17	33	53	CE	CE	CE	CE	CE	83K	20			
2400-5	120KC	6	2	YES	2400-5	20	4.2	5.3	7.6	13	15	29	45	71	CE	CE	CE	CE	166K	20			
2400-5	120KC	8	2	YES	2400-5	20	4.2	5.2	7.1	12	14	26	40	61	140	CE	CE	CE	249K	20			
2400-5	120KC	10	2	YES	2400-5	20	4.3	5.0	7.1	12	14	26	40	61	120	180	CE	CE	332K	20			
2400-6	180KC	3	2	YES	2400-6	20	4.3	5.6	7.9	15	17	35	52	CE	CE	CE	CE	CE	81K	17			
2400-6	180KC	4	2	YES	2400-6	20	4.2	5.2	7.2	12	14	26	40	CE	CE	CE	CE	CE	83K	20			
2400-6	180KC	6	2	YES	2400-6	20	4.1	4.9	6.7	11	12	22	34	53	CE	CE	CE	CE	166K	20			
2400-6	180KC	8	2	YES	2400-6	20	4.1	4.9	6.3	9.5	11	20	31	46	110	CE	CE	CE	249K	20			
2400-6	180KC	10	2	YES	2400-6	20	4.2	4.7	6.4	9.5	11	20	31	46	87	130	CE	CE	332K	20			

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 44K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-5	120KC	3	1	NO	2400-5	200	3.1	3.3	3.5	4.0	4.3	5.7	7.3	9.1	17	25	33	42	1973K	314
2400-5	120KC	4	1	NO	2400-5	200	3.2	3.2	3.5	3.8	4.0	5.1	6.4	7.9	14	20	26	32	1942K	280
2400-5	120KC	6	1	NO	2400-5	110	3.2	3.3	3.4	3.8	4.0	5.0	6.1	7.1	12	18	22	29	3848K	263
2400-5	120KC	10	1	NO	2400-5	110	3.3	3.4	3.5	3.8	4.0	4.9	6.0	6.9	12	17	21	28	7049K	165
2400-6	180KC	3	1	NO	2400-6	200	3.1	3.2	3.4	3.8	4.1	5.3	6.7	8.2	15	22	29	36	1973K	314
2400-6	180KC	4	1	NO	2400-6	200	3.2	3.2	3.4	3.7	3.9	4.9	5.9	7.2	12	17	23	28	1942K	280
2400-6	180KC	6	1	NO	2400-6	110	3.2	3.3	3.4	3.8	3.9	4.7	5.7	6.6	11	16	20	26	3848K	263
2400-6	180KC	10	1	NO	2400-6	110	3.3	3.3	3.4	3.8	3.9	4.7	5.7	6.4	11	15	19	25	7049K	165
2400-5	120KC	3	2	NO	2400-5	200	3.1	3.3	3.5	3.9	4.1	5.4	6.7	8.2	15	22	29	36	1858K	214
2400-5	120KC	4	2	NO	2400-5	200	3.2	3.2	3.4	3.8	3.9	5.0	6.0	7.3	13	18	23	28	1796K	180
2400-5	120KC	6	2	NO	2400-5	110	3.2	3.2	3.5	3.8	4.1	4.9	6.1	7.0	12	17	21	26	3336K	132
2400-5	120KC	10	2	NO	2400-5	110	3.2	3.3	3.4	3.8	4.0	4.7	5.9	6.7	10	16	20	23	6905K	151
2400-6	180KC	3	2	NO	2400-6	200	3.1	3.2	3.4	3.8	4.0	5.1	6.4	7.7	14	20	26	32	1858K	214
2400-6	180KC	4	2	NO	2400-6	200	3.2	3.2	3.4	3.7	3.9	4.8	5.7	6.8	12	17	21	26	1796K	180
2400-6	180KC	6	2	NO	2400-6	110	3.2	3.2	3.4	3.7	4.0	4.7	5.9	6.8	12	16	19	24	3336K	132
2400-6	180KC	10	2	NO	2400-6	110	3.2	3.3	3.4	3.8	3.9	4.6	5.7	6.5	9.5	15	18	22	6905K	151
2400-5	120KC	3	2	YES	2400-5	200	3.1	3.2	3.4	3.8	4.0	5.2	6.4	7.8	14	20	26	33	1858K	214
2400-5	120KC	4	2	YES	2400-5	200	3.2	3.2	3.4	3.7	3.9	4.9	5.7	6.9	12	17	21	26	1796K	180
2400-5	120KC	6	2	YES	2400-5	110	3.2	3.3	3.4	3.7	3.9	4.6	5.6	6.3	11	15	19	24	3463K	153
2400-5	120KC	10	2	YES	2400-5	110	3.3	3.3	3.4	3.7	3.9	4.6	5.6	6.3	9.9	15	18	24	5958K	91
2400-6	180KC	3	2	YES	2400-6	200	3.1	3.2	3.4	3.8	4.0	5.0	6.1	7.4	13	19	25	30	1858K	214
2400-6	180KC	4	2	YES	2400-6	200	3.2	3.2	3.4	3.7	3.8	4.7	5.5	6.6	11	16	20	24	1796K	180
2400-6	180KC	6	2	YES	2400-6	110	3.2	3.2	3.4	3.7	3.8	4.5	5.4	6.1	9.5	14	18	22	3463K	153
2400-6	180KC	10	2	YES	2400-6	110	3.3	3.3	3.4	3.7	3.8	4.5	5.4	6.1	9.4	14	17	22	5958K	91

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 44K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-5	120KC	3	1	NO	2400-5	45	3.3	3.8	4.6	6.7	7.7	14	21	27	57	88	120	160	513K	111
2400-5	120KC	4	1	NO	2400-5	45	3.3	3.6	4.3	5.8	6.5	11	16	21	42	63	86	120	503K	92
2400-5	120KC	6	1	NO	2400-5	35	3.3	3.6	4.2	5.5	6.0	9.5	14	18	34	54	71	120	1006K	92
2400-5	120KC	10	1	NO	2400-5	25	3.4	3.5	4.1	5.3	5.9	9.2	13	17	33	49	68	91	1920K	65
2400-6	180KC	3	1	NO	2400-6	45	3.3	3.6	4.2	5.7	6.5	11	16	21	41	63	86	110	513K	111
2400-6	180KC	4	1	NO	2400-6	45	3.3	3.5	4.0	5.1	5.6	8.7	12	16	31	47	63	83	503K	92
2400-6	180KC	6	1	NO	2400-6	35	3.2	3.5	3.9	4.9	5.3	7.9	11	14	26	40	53	81	1006K	92
2400-6	180KC	10	1	NO	2400-6	25	3.3	3.5	3.9	4.8	5.3	7.8	11	14	26	38	51	68	1920K	65
2400-5	120KC	3	2	NO	2400-5	45	3.3	3.6	4.4	6.0	6.9	12	17	23	46	72	97	CE	472K	59
2400-5	120KC	4	2	NO	2400-5	45	3.3	3.6	4.1	5.3	5.9	9.5	13	18	35	53	71	CE	471K	58
2400-5	120KC	6	2	NO	2400-5	35	3.3	3.5	4.1	5.4	5.9	8.9	13	16	31	45	59	81	939K	57
2400-5	120KC	10	2	NO	2400-5	25	3.3	3.7	4.0	5.2	5.6	7.9	11	15	26	36	48	68	1718K	37
2400-6	180KC	3	2	NO	2400-6	45	3.3	3.5	4.1	5.2	6.0	9.3	14	18	34	53	72	CE	472K	59
2400-6	180KC	4	2	NO	2400-6	45	3.2	3.5	3.9	4.8	5.2	7.9	11	14	27	40	53	CE	471K	58
2400-6	180KC	6	2	NO	2400-6	35	3.2	3.5	3.9	4.9	5.2	7.6	10	13	24	34	45	61	939K	57
2400-6	180KC	10	2	NO	2400-6	25	3.3	3.6	3.8	4.8	5.1	6.8	8.5	12	20	29	38	52	1718K	37
2400-5	120KC	3	2	YES	2400-5	45	3.3	3.6	4.3	5.6	6.4	11	16	20	41	63	84	CE	472K	59
2400-5	120KC	4	2	YES	2400-5	45	3.2	3.5	4.0	5.0	5.5	8.6	12	16	31	46	62	CE	471K	58
2400-5	120KC	6	2	YES	2400-5	35	3.2	3.5	3.9	4.9	5.3	7.8	11	14	26	40	52	81	939K	57
2400-5	120KC	10	2	YES	2400-5	25	3.3	3.5	3.9	4.9	5.3	7.8	11	14	26	39	48	68	1718K	37
2400-6	180KC	3	2	YES	2400-6	45	3.2	3.5	4.0	5.0	5.6	8.6	12	16	30	47	63	CE	472K	59
2400-6	180KC	4	2	YES	2400-6	45	3.2	3.4	3.8	4.6	4.9	7.3	9.5	13	24	36	47	CE	471K	58
2400-6	180KC	6	2	YES	2400-6	35	3.2	3.4	3.8	4.5	4.8	6.7	9.0	11	21	31	41	61	939K	57
2400-6	180KC	10	2	YES	2400-6	25	3.3	3.4	3.8	4.6	4.9	6.8	8.8	12	21	32	38	52	1718K	37

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 44K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES				FOR DATA SET	SIZES (IN THOUSANDS)					400	500	MAX SIZE	SORT BLOCK
								5	10	20	25		50	75	100	200	300				
2400-5	120KC	3	1	NO	2400-5	20	3.8	5.1	7.6	14	17	34	53	70	160	CE	CE	CE	205K	45	
2400-5	120KC	4	1	NO	2400-5	20	3.6	4.6	6.4	11	13	25	39	51	120	CE	CE	CE	201K	37	
2400-5	120KC	6	1	NO	2400-5	20	3.6	4.4	6.0	9.3	11	21	32	42	110	170	CE	CE	CE	399K	36
2400-5	120KC	10	1	NO	2400-5	15	3.5	4.4	5.8	9.0	11	20	30	39	89	140	180	220	768K	26	
2400-6	180KC	3	1	NO	2400-6	20	3.6	4.5	6.3	11	13	25	37	50	110	CE	CE	CE	205K	45	
2400-6	180KC	4	1	NO	2400-6	20	3.5	4.2	5.4	8.4	10	19	28	36	80	CE	CE	CE	201K	37	
2400-6	180KC	6	1	NO	2400-6	20	3.5	4.1	5.1	7.5	8.7	16	23	31	78	120	CE	CE	CE	399K	36
2400-6	180KC	10	1	NO	2400-6	15	3.4	4.1	5.1	7.4	8.4	15	23	29	64	93	130	160	768K	26	
2400-5	120KC	3	2	NO	2400-5	20	3.6	4.7	6.8	12	15	28	43	58	CE	CE	CE	CE	188K	23	
2400-5	120KC	4	2	NO	2400-5	20	3.6	4.3	5.8	9.4	12	21	33	42	CE	CE	CE	CE	188K	23	
2400-5	120KC	6	2	NO	2400-5	20	3.5	4.3	5.8	9.1	11	18	29	37	79	120	CE	CE	CE	376K	23
2400-5	120KC	10	2	NO	2400-5	15	3.6	4.1	5.5	7.7	8.7	17	23	30	65	96	130	160	689K	15	
2400-6	180KC	3	2	NO	2400-6	20	3.5	4.3	5.8	9.0	11	21	31	42	CE	CE	CE	CE	188K	23	
2400-6	180KC	4	2	NO	2400-6	20	3.5	4.0	5.1	7.7	8.9	16	24	31	CE	CE	CE	CE	188K	23	
2400-6	180KC	6	2	NO	2400-6	20	3.4	4.0	5.1	7.5	8.5	14	22	27	57	84	CE	CE	CE	376K	23
2400-6	180KC	10	2	NO	2400-6	15	3.5	3.9	5.0	6.5	7.3	13	18	23	49	71	93	120	689K	15	
2400-5	120KC	3	2	YES	2400-5	20	3.6	4.5	6.3	11	13	25	38	50	CE	CE	CE	CE	188K	23	
2400-5	120KC	4	2	YES	2400-5	20	3.5	4.2	5.5	8.6	11	19	28	37	CE	CE	CE	CE	188K	23	
2400-5	120KC	6	2	YES	2400-5	20	3.5	4.1	5.2	7.7	8.9	17	24	33	79	120	CE	CE	CE	376K	23
2400-5	120KC	10	2	YES	2400-5	15	3.4	4.2	5.2	7.7	8.7	16	24	31	65	96	130	160	689K	15	
2400-6	180KC	3	2	YES	2400-6	20	3.4	4.1	5.4	8.2	9.9	18	28	37	CE	CE	CE	CE	188K	23	
2400-6	180KC	4	2	YES	2400-6	20	3.4	3.9	4.8	7.1	8.1	14	21	27	CE	CE	CE	CE	188K	23	
2400-6	180KC	6	2	YES	2400-6	20	3.4	3.9	4.7	6.4	7.4	13	18	25	57	84	CE	CE	CE	376K	23
2400-6	180KC	10	2	YES	2400-6	15	3.4	3.9	4.8	6.6	7.4	13	19	24	49	71	93	120	689K	15	

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 44K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES				FOR DATA SET	SIZES (IN THOUSANDS)					400	500	MAX SIZE	SORT BLOCK
								5	10	20	25		50	75	100	200	300				
2400-5	120KC	3	1	NO	2400-5	10	5.1	9.1	17	34	43	90	150	CE	CE	CE	CE	CE	82K	18	
2400-5	120KC	4	1	NO	2400-5	10	4.6	7.6	13	25	31	65	99	CE	CE	CE	CE	CE	79K	13	
2400-5	120KC	6	1	NO	2400-5	10	4.4	6.7	11	21	27	55	87	140	CE	CE	CE	CE	160K	14	
2400-5	120KC	10	1	NO	2400-5	10	4.4	6.4	11	20	26	52	82	110	220	CE	CE	CE	CE	299K	10
2400-6	180KC	3	1	NO	2400-6	10	4.5	7.3	13	25	31	64	99	CE	CE	CE	CE	CE	82K	18	
2400-6	180KC	4	1	NO	2400-6	10	4.1	6.2	10	19	23	47	70	CE	CE	CE	CE	CE	79K	13	
2400-6	180KC	6	1	NO	2400-6	10	4.1	5.7	8.7	16	20	39	62	96	CE	CE	CE	CE	160K	14	
2400-6	180KC	10	1	NO	2400-6	10	4.1	5.5	8.4	15	19	38	59	77	160	CE	CE	CE	CE	299K	10
2400-5	120KC	3	2	NO	2400-5	10	4.7	8.0	15	28	36	73	120	CE	CE	CE	CE	CE	78K	12	
2400-5	120KC	4	2	NO	2400-5	10	4.3	6.8	12	21	27	55	87	CE	CE	CE	CE	CE	75K	9	
2400-5	120KC	6	2	NO	2400-5	10	4.3	6.4	11	20	24	45	73	96	CE	CE	CE	CE	150K	9	
2400-5	120KC	10	2	NO	2400-5	10	4.1	6.0	8.6	17	20	36	61	79	160	CE	CE	CE	CE	275K	6
2400-6	180KC	3	2	NO	2400-6	10	4.3	6.6	12	21	26	52	81	CE	CE	CE	CE	CE	78K	12	
2400-6	180KC	4	2	NO	2400-6	10	4.0	5.7	8.8	16	20	40	63	CE	CE	CE	CE	CE	75K	9	
2400-6	180KC	6	2	NO	2400-6	10	4.0	5.5	8.5	15	18	33	53	70	CE	CE	CE	CE	150K	9	
2400-6	180KC	10	2	NO	2400-6	10	3.9	5.3	7.2	13	15	27	45	59	120	CE	CE	CE	CE	275K	6
2400-5	120KC	3	2	YES	2400-5	10	4.5	7.3	13	25	32	63	99	CE	CE	CE	CE	CE	78K	12	
2400-5	120KC	4	2	YES	2400-5	10	4.2	6.3	11	19	24	48	75	CE	CE	CE	CE	CE	75K	9	
2400-5	120KC	6	2	YES	2400-5	10	4.1	6.0	9.3	17	21	40	73	96	CE	CE	CE	CE	150K	9	
2400-5	120KC	10	2	YES	2400-5	10	4.2	5.8	9.0	16	21	42	61	79	160	CE	CE	CE	CE	275K	6
2400-6	180KC	3	2	YES	2400-6	10	4.1	6.1	10	18	23	46	71	CE	CE	CE	CE	CE	78K	12	
2400-6	180KC	4	2	YES	2400-6	10	3.9	5.4	8.1	14	18	35	55	CE	CE	CE	CE	CE	75K	9	
2400-6	180KC	6	2	YES	2400-6	10	3.8	5.2	7.6	13	16	30	53	70	CE	CE	CE	CE	150K	9	
2400-6	180KC	10	2	YES	2400-6	10	4.0	5.2	7.6	13	17	33	45	59	120	CE	CE	CE	CE	275K	6

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 100K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR										DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2400-5	120KC	3	1	NO	2400-5	350	3.1	3.2	3.3	3.7	3.9	5.1	6.5	7.8	15	22	28	36	2075K	500			
2400-5	120KC	4	1	NO	2400-5	350	3.2	3.2	3.3	3.7	3.8	4.9	5.7	7.0	12	18	22	28	1951K	289			
2400-5	120KC	6	1	NO	2400-5	350	3.2	3.3	3.4	3.6	3.7	4.7	5.4	6.5	11	15	20	24	4151K	500			
2400-5	120KC	10	1	NO	2400-5	350	3.3	3.3	3.5	3.7	3.8	4.6	5.2	6.3	10	14	19	22	8167K	420			
2400-6	180KC	3	1	NO	2400-6	350	3.1	3.2	3.3	3.7	3.8	4.9	6.0	7.1	13	19	24	31	2075K	500			
2400-6	180KC	4	1	NO	2400-6	350	3.2	3.2	3.3	3.6	3.7	4.6	5.4	6.4	11	16	20	24	1951K	289			
2400-6	180KC	6	1	NO	2400-6	350	3.2	3.3	3.3	3.5	3.6	4.5	5.1	6.1	9.6	13	18	21	4151K	500			
2400-6	180KC	10	1	NO	2400-6	350	3.3	3.3	3.4	3.6	3.7	4.4	4.9	5.9	9.1	12	17	20	8167K	420			
2400-5	120KC	3	2	NO	2400-5	350	3.1	3.2	3.4	3.7	3.9	4.9	6.0	7.4	13	19	25	31	2075K	500			
2400-5	120KC	4	2	NO	2400-5	350	3.2	3.2	3.3	3.6	3.8	4.6	5.4	6.5	11	16	20	25	2075K	500			
2400-5	120KC	6	2	NO	2400-5	250	3.2	3.2	3.3	3.7	3.8	4.5	5.6	6.4	11	15	18	24	4151K	500			
2400-5	120KC	10	2	NO	2400-5	150	3.2	3.3	3.4	3.6	3.7	4.6	5.3	6.0	9.9	14	17	20	8091K	385			
2400-6	180KC	3	2	NO	2400-6	350	3.1	3.2	3.3	3.6	3.8	4.7	5.7	6.9	12	17	23	28	2075K	500			
2400-6	180KC	4	2	NO	2400-6	350	3.2	3.2	3.3	3.5	3.7	4.5	5.2	6.1	9.7	14	18	23	2075K	500			
2400-6	180KC	6	2	NO	2400-6	250	3.2	3.2	3.3	3.7	3.8	4.4	5.4	6.1	10	14	17	23	4151K	500			
2400-6	180KC	10	2	NO	2400-6	150	3.2	3.3	3.4	3.6	3.7	4.5	5.1	5.8	9.4	13	16	19	8091K	385			
2400-5	120KC	3	2	YES	2400-5	350	3.1	3.2	3.3	3.6	3.8	4.7	5.8	7.0	12	17	23	28	2075K	500			
2400-5	120KC	4	2	YES	2400-5	350	3.2	3.2	3.3	3.6	3.8	4.5	5.3	6.2	9.9	15	18	24	2075K	500			
2400-5	120KC	6	2	YES	2400-5	250	3.2	3.3	3.3	3.5	3.6	4.4	5.0	6.0	9.3	13	17	20	4048K	387			
2400-5	120KC	10	2	YES	2400-5	150	3.3	3.3	3.3	3.6	3.7	4.4	4.9	5.9	9.0	12	16	19	7535K	231			
2400-6	180KC	3	2	YES	2400-6	350	3.1	3.2	3.3	3.6	3.8	4.6	5.6	6.7	11	16	22	26	2075K	500			
2400-6	180KC	4	2	YES	2400-6	350	3.2	3.2	3.3	3.5	3.7	4.4	5.1	6.0	9.4	14	17	22	2075K	500			
2400-6	180KC	6	2	YES	2400-6	250	3.2	3.2	3.3	3.5	3.6	4.3	4.9	5.7	8.8	12	16	19	4048K	387			
2400-6	180KC	10	2	YES	2400-6	150	3.3	3.3	3.4	3.6	3.7	4.3	4.8	5.6	8.6	12	15	18	7535K	231			

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 100K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR										DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2400-5	120KC	3	1	NO	2400-5	85	3.2	3.6	4.2	5.7	6.6	12	17	23	46	71	110	130	516K	118			
2400-5	120KC	4	1	NO	2400-5	85	3.2	3.5	4.0	5.1	5.6	9.5	13	18	35	55	72	91	502K	91			
2400-5	120KC	6	1	NO	2400-5	85	3.3	3.4	3.8	4.8	5.2	8.1	12	15	30	43	61	76	1037K	125			
2400-5	120KC	10	1	NO	2400-5	85	3.3	3.5	3.8	4.6	4.9	7.4	11	13	26	39	55	68	2041K	105			
2400-6	180KC	3	1	NO	2400-6	85	3.2	3.5	3.9	5.0	5.6	9.0	13	17	34	52	72	90	516K	118			
2400-6	180KC	4	1	NO	2400-6	85	3.2	3.4	3.8	4.6	5.0	7.7	10	14	26	40	52	66	502K	91			
2400-6	180KC	6	1	NO	2400-6	85	3.2	3.4	3.7	4.4	4.7	6.8	9.0	12	23	32	45	55	1037K	125			
2400-6	180KC	10	1	NO	2400-6	85	3.3	3.4	3.6	4.3	4.5	6.4	8.4	11	20	29	41	50	2041K	105			
2400-5	120KC	3	2	NO	2400-5	85	3.2	3.5	4.0	5.3	5.9	9.9	14	19	39	58	80	110	518K	125			
2400-5	120KC	4	2	NO	2400-5	85	3.2	3.4	3.8	4.7	5.4	8.1	11	15	28	44	57	77	518K	125			
2400-5	120KC	6	2	NO	2400-5	50	3.2	3.4	3.8	4.8	5.2	7.7	11	13	26	37	49	67	1037K	125			
2400-5	120KC	10	2	NO	2400-5	35	3.3	3.4	3.9	4.6	4.9	7.4	9.4	12	20	33	43	52	2022K	96			
2400-6	180KC	3	2	NO	2400-6	85	3.2	3.4	3.8	4.7	5.1	8.1	11	14	29	43	58	77	518K	125			
2400-6	180KC	4	2	NO	2400-6	85	3.2	3.4	3.7	4.3	4.8	6.8	8.8	12	21	33	43	56	518K	125			
2400-6	180KC	6	2	NO	2400-6	50	3.2	3.3	3.7	4.5	4.7	6.8	8.6	11	20	28	37	50	1037K	125			
2400-6	180KC	10	2	NO	2400-6	35	3.3	3.4	3.8	4.3	4.5	6.5	8.0	9.5	16	26	33	40	2022K	96			
2400-5	120KC	3	2	YES	2400-5	85	3.2	3.4	3.8	5.0	5.5	9.0	13	16	34	50	69	92	518K	125			
2400-5	120KC	4	2	YES	2400-5	85	3.2	3.4	3.7	4.5	5.1	7.4	9.8	13	25	38	50	67	518K	125			
2400-5	120KC	6	2	YES	2400-5	50	3.2	3.3	3.7	4.3	4.6	6.6	8.7	12	22	31	44	54	1011K	96			
2400-5	120KC	10	2	YES	2400-5	35	3.3	3.4	3.6	4.3	4.5	6.2	8.3	10	19	29	38	52	2022K	96			
2400-6	180KC	3	2	YES	2400-6	85	3.2	3.4	3.7	4.5	4.9	7.4	10	13	26	38	51	67	518K	125			
2400-6	180KC	4	2	YES	2400-6	85	3.2	3.3	3.6	4.2	4.6	6.4	8.1	11	19	29	38	50	518K	125			
2400-6	180KC	6	2	YES	2400-6	50	3.2	3.3	3.6	4.1	4.3	5.9	7.4	9.4	17	24	34	41	1011K	96			
2400-6	180KC	10	2	YES	2400-6	35	3.3	3.4	3.6	4.1	4.3	5.6	7.2	8.6	16	23	30	40	2022K	96			

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 100K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES					FOR DATA SET		SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK	
								5	10	20	25	50	75	100	200	300	400	500				
2400-5	120KC	3	1	NO	2400-5	35	3.5	4.5	6.5	11	14	27	42	59	130	CE	CE	CE	207K	50		
2400-5	120KC	4	1	NO	2400-5	35	3.4	4.2	5.5	9.0	11	21	32	42	88	CE	CE	CE	205K	44		
2400-5	120KC	6	1	NO	2400-5	35	3.4	4.0	5.2	7.8	9.6	18	26	36	74	140	190	CE	CE	415K	50	
2400-5	120KC	10	1	NO	2400-5	35	3.5	3.9	4.9	7.2	8.9	16	23	32	67	110	140	210	CE	CE	830K	50
2400-6	180KC	3	1	NO	2400-6	35	3.4	4.1	5.5	8.6	11	20	30	42	86	CE	CE	CE	207K	50		
2400-6	180KC	4	1	NO	2400-6	35	3.3	3.9	4.8	7.3	8.5	16	23	30	62	CE	CE	CE	205K	44		
2400-6	180KC	6	1	NO	2400-6	35	3.3	3.7	4.6	6.4	7.6	14	19	26	52	98	130	CE	CE	415K	50	
2400-6	180KC	10	1	NO	2400-6	35	3.4	3.7	4.4	6.0	7.2	13	17	23	47	73	96	140	CE	CE	830K	50
2400-5	120KC	3	2	NO	2400-5	35	3.5	4.3	5.8	9.8	12	23	34	47	99	CE	CE	CE	200K	36		
2400-5	120KC	4	2	NO	2400-5	35	3.4	4.0	5.1	8.0	9.2	17	26	34	75	CE	CE	CE	207K	50		
2400-5	120KC	6	2	NO	2400-5	35	3.4	3.9	5.1	7.8	8.9	15	24	30	65	95	130	CE	CE	415K	50	
2400-5	120KC	10	2	NO	2400-5	25	3.4	4.0	4.8	7.2	8.1	13	18	27	50	73	96	140	CE	CE	808K	38
2400-6	180KC	3	2	NO	2400-6	35	3.4	3.9	5.0	7.7	8.9	17	25	34	70	CE	CE	CE	200K	36		
2400-6	180KC	4	2	NO	2400-6	35	3.3	3.7	4.6	6.5	7.3	13	19	25	53	CE	CE	CE	207K	50		
2400-6	180KC	6	2	NO	2400-6	35	3.3	3.7	4.6	6.5	7.2	12	18	22	46	67	88	CE	CE	415K	50	
2400-6	180KC	10	2	NO	2400-6	25	3.3	3.8	4.3	6.1	6.7	10	14	20	36	52	68	99	CE	CE	808K	38
2400-5	120KC	3	2	YES	2400-5	35	3.4	4.1	5.4	8.8	11	20	30	41	85	CE	CE	CE	200K	36		
2400-5	120KC	4	2	YES	2400-5	35	3.4	3.9	4.9	7.3	8.3	15	23	30	65	CE	CE	CE	207K	50		
2400-5	120KC	6	2	YES	2400-5	25	3.3	3.7	4.6	6.7	7.6	13	19	25	52	95	130	CE	CE	415K	50	
2400-5	120KC	10	2	YES	2400-5	35	3.4	3.7	4.4	6.0	7.3	13	17	24	50	73	96	140	CE	CE	808K	38
2400-6	180KC	3	2	YES	2400-6	35	3.3	3.8	4.7	7.1	8.1	15	22	29	61	CE	CE	CE	200K	36		
2400-6	180KC	4	2	YES	2400-6	35	3.3	3.7	4.4	6.1	6.8	12	17	22	46	CE	CE	CE	207K	50		
2400-6	180KC	6	2	YES	2400-6	35	3.3	3.6	4.2	5.7	6.3	11	15	19	37	67	88	CE	CE	415K	50	
2400-6	180KC	10	2	YES	2400-6	25	3.4	3.6	4.1	5.3	6.1	9.7	13	18	36	52	68	99	CE	CE	808K	38

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 100K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES					FOR DATA SET		SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300	400	500			
2400-5	120KC	3	1	NO	2400-5	20	4.5	7.5	14	27	35	73	120	CE	CE	CE	CE	CE	83K	20	
2400-5	120KC	4	1	NO	2400-5	20	4.2	6.5	11	21	26	56	82	CE	CE	CE	CE	CE	82K	19	
2400-5	120KC	6	1	NO	2400-5	20	4.0	6.0	9.6	18	21	43	69	120	CE	CE	CE	CE	166K	20	
2400-5	120KC	10	1	NO	2400-5	20	3.8	5.7	8.8	16	19	39	62	87	200	300	CE	CE	332K	20	
2400-6	180KC	3	1	NO	2400-6	20	4.1	6.2	11	20	25	51	80	CE	CE	CE	CE	CE	83K	20	
2400-6	180KC	4	1	NO	2400-6	20	3.8	5.5	8.4	15	19	39	57	CE	CE	CE	CE	CE	82K	19	
2400-6	180KC	6	1	NO	2400-6	20	3.7	5.1	7.6	13	16	31	49	81	CE	CE	CE	CE	166K	20	
2400-6	180KC	10	1	NO	2400-6	20	3.7	5.0	7.1	12	15	28	44	61	140	210	CE	CE	332K	20	
2400-5	120KC	3	2	NO	2400-5	20	4.3	6.8	12	23	28	61	93	CE	CE	CE	CE	CE	79K	13	
2400-5	120KC	4	2	NO	2400-5	20	4.0	5.8	9.1	17	22	44	70	CE	CE	CE	CE	CE	83K	20	
2400-5	120KC	6	2	NO	2400-5	20	3.9	5.5	8.9	15	20	36	60	79	CE	CE	CE	CE	166K	20	
2400-5	120KC	10	2	NO	2400-5	15	4.0	5.1	8.0	13	15	32	46	60	140	210	CE	CE	322K	15	
2400-6	180KC	3	2	NO	2400-6	20	3.9	5.7	8.8	17	21	43	66	CE	CE	CE	CE	CE	79K	13	
2400-6	180KC	4	2	NO	2400-6	20	3.8	5.0	7.3	13	16	32	49	CE	CE	CE	CE	CE	83K	20	
2400-6	180KC	6	2	NO	2400-6	20	3.7	4.8	7.2	12	15	26	43	56	CE	CE	CE	CE	166K	20	
2400-6	180KC	10	2	NO	2400-6	15	3.8	4.6	6.6	9.9	12	24	33	43	97	150	CE	CE	322K	15	
2400-5	120KC	3	2	YES	2400-5	20	4.1	6.3	11	21	25	53	80	CE	CE	CE	CE	CE	79K	13	
2400-5	120KC	4	2	YES	2400-5	20	3.9	5.4	8.3	15	19	38	60	CE	CE	CE	CE	CE	83K	20	
2400-5	120KC	6	2	YES	2400-5	20	3.8	5.1	7.5	13	16	31	48	79	CE	CE	CE	CE	166K	20	
2400-5	120KC	10	2	YES	2400-5	15	3.7	5.0	7.2	13	15	29	45	60	140	210	CE	CE	322K	15	
2400-6	180KC	3	2	YES	2400-6	20	3.8	5.3	8.0	15	18	38	57	CE	CE	CE	CE	CE	79K	13	
2400-6	180KC	4	2	YES	2400-6	20	3.7	4.7	6.7	12	15	28	43	CE	CE	CE	CE	CE	83K	20	
2400-6	180KC	6	2	YES	2400-6	20	3.6	4.5	6.2	10	12	23	35	56	CE	CE	CE	CE	166K	20	
2400-6	180KC	10	2	YES	2400-6	15	3.5	4.5	6.1	9.6	12	21	33	43	97	150	CE	CE	322K	15	

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 200K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK	
							2	5	10	20	25	50	75	100	200	300			400
2400-5 120KC	3	1	NO	2400-5	350	3.1	3.2	3.3	3.5	3.8	4.7	5.8	7.2	13	19	26	31	2075K	500
2400-5 120KC	4	1	NO	2400-5	350	3.2	3.2	3.3	3.6	3.7	4.4	5.4	6.2	11	15	21	25	2075K	500
2400-5 120KC	6	1	NO	2400-5	350	3.2	3.3	3.4	3.6	3.7	4.2	5.1	5.8	10	14	19	23	4151K	500
2400-5 120KC	10	1	NO	2400-5	350	3.3	3.3	3.5	3.7	3.8	4.3	4.9	5.4	9.3	13	17	21	8303K	500
2400-6 180KC	3	1	NO	2400-6	350	3.1	3.2	3.3	3.5	3.7	4.5	5.4	6.6	11	17	23	27	2075K	500
2400-6 180KC	4	1	NO	2400-6	350	3.2	3.2	3.3	3.5	3.6	4.3	5.1	5.8	9.8	14	18	22	2075K	500
2400-6 180KC	6	1	NO	2400-6	350	3.2	3.3	3.3	3.5	3.6	4.1	4.9	5.4	9.0	12	17	20	4151K	500
2400-6 180KC	10	1	NO	2400-6	350	3.3	3.3	3.4	3.6	3.7	4.2	4.6	5.1	8.5	11	15	18	8303K	500
2400-5 120KC	3	2	NO	2400-5	350	3.1	3.2	3.3	3.5	3.7	4.5	5.5	6.6	11	16	22	27	2075K	500
2400-5 120KC	4	2	NO	2400-5	350	3.2	3.2	3.3	3.5	3.6	4.3	5.2	6.2	9.9	14	18	22	2075K	500
2400-5 120KC	6	2	NO	2400-5	350	3.2	3.2	3.3	3.6	3.7	4.5	5.2	5.8	9.5	13	18	22	4151K	500
2400-5 120KC	10	2	NO	2400-5	300	3.2	3.3	3.4	3.6	3.7	4.3	5.3	6.0	8.6	12	17	20	8303K	500
2400-6 180KC	3	2	NO	2400-6	350	3.1	3.2	3.3	3.4	3.6	4.4	5.2	6.3	11	15	20	25	2075K	500
2400-6 180KC	4	2	NO	2400-6	350	3.2	3.2	3.3	3.5	3.6	4.2	4.9	5.9	9.2	13	17	20	2075K	500
2400-6 180KC	6	2	NO	2400-6	350	3.2	3.2	3.3	3.5	3.6	4.4	5.0	5.6	9.0	12	17	21	4151K	500
2400-6 180KC	10	2	NO	2400-6	300	3.2	3.3	3.4	3.6	3.7	4.2	5.1	5.8	8.2	11	16	19	8303K	500
2400-5 120KC	3	2	YES	2400-5	350	3.1	3.2	3.3	3.5	3.7	4.4	5.3	6.4	11	15	21	25	2075K	500
2400-5 120KC	4	2	YES	2400-5	350	3.2	3.2	3.3	3.5	3.6	4.2	5.0	5.9	9.4	13	17	21	2075K	500
2400-5 120KC	6	2	YES	2400-5	350	3.2	3.3	3.3	3.5	3.6	4.1	4.8	5.5	8.7	12	16	19	4151K	500
2400-5 120KC	10	2	YES	2400-5	300	3.3	3.3	3.4	3.6	3.7	4.2	4.6	5.1	8.3	11	15	18	8275K	481
2400-6 180KC	3	2	YES	2400-6	350	3.1	3.2	3.3	3.4	3.6	4.3	5.1	6.1	9.7	14	19	23	2075K	500
2400-6 180KC	4	2	YES	2400-6	350	3.2	3.2	3.3	3.5	3.5	4.1	4.9	5.7	8.9	12	16	19	2075K	500
2400-6 180KC	6	2	YES	2400-6	350	3.2	3.2	3.3	3.5	3.6	4.0	4.7	5.3	8.3	11	15	18	4151K	500
2400-6 180KC	10	2	YES	2400-6	300	3.3	3.3	3.4	3.6	3.7	4.1	4.5	5.0	7.9	11	14	17	8275K	481

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 200K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK	
							2	5	10	20	25	50	75	100	200	300			400
2400-5 120KC	3	1	NO	2400-5	90	3.2	3.4	3.8	5.2	5.7	11	15	19	42	62	87	120	518K	125
2400-5 120KC	4	1	NO	2400-5	90	3.2	3.4	3.6	4.8	5.2	8.0	12	15	32	46	66	82	518K	125
2400-5 120KC	6	1	NO	2400-5	90	3.3	3.4	3.7	4.5	4.8	7.2	11	13	25	39	51	69	1037K	125
2400-5 120KC	10	1	NO	2400-5	90	3.3	3.5	3.8	4.3	4.5	6.5	9.2	12	22	35	45	61	2075K	125
2400-6 180KC	3	1	NO	2400-6	90	3.2	3.3	3.6	4.7	5.0	8.1	12	15	31	46	63	84	518K	125
2400-6 180KC	4	1	NO	2400-6	90	3.2	3.3	3.5	4.4	4.7	6.7	9.2	12	24	34	48	60	518K	125
2400-6 180KC	6	1	NO	2400-6	90	3.2	3.4	3.6	4.2	4.4	6.2	8.3	10	19	29	38	51	1037K	125
2400-6 180KC	10	1	NO	2400-6	90	3.3	3.4	3.6	4.0	4.2	5.7	7.7	9.1	17	26	34	46	2075K	125
2400-5 120KC	3	2	NO	2400-5	90	3.2	3.3	3.7	4.8	5.2	8.6	13	16	34	53	69	92	518K	125
2400-5 120KC	4	2	NO	2400-5	90	3.2	3.3	3.5	4.5	4.8	6.9	9.7	13	26	37	53	65	518K	125
2400-5 120KC	6	2	NO	2400-5	90	3.2	3.4	3.6	4.4	4.7	7.1	9.0	11	22	32	47	58	1037K	125
2400-5 120KC	10	2	NO	2400-5	90	3.3	3.4	3.6	4.2	4.8	6.3	7.8	11	19	27	34	48	1640K	31
2400-6 180KC	3	2	NO	2400-6	90	3.2	3.3	3.6	4.4	4.7	7.1	9.8	13	25	39	51	67	518K	125
2400-6 180KC	4	2	NO	2400-6	90	3.2	3.3	3.5	4.1	4.4	6.0	8.1	9.8	20	28	39	48	518K	125
2400-6 180KC	6	2	NO	2400-6	90	3.2	3.3	3.5	4.1	4.4	6.2	7.6	9.1	18	25	36	44	1037K	125
2400-6 180KC	10	2	NO	2400-6	90	3.3	3.4	3.5	4.0	4.5	5.6	6.8	8.8	15	21	27	39	1640K	31
2400-5 120KC	3	2	YES	2400-5	90	3.2	3.3	3.6	4.5	4.9	7.8	12	14	29	46	60	80	518K	125
2400-5 120KC	4	2	YES	2400-5	90	3.2	3.3	3.5	4.3	4.6	6.4	8.8	11	23	32	46	57	518K	125
2400-5 120KC	6	2	YES	2400-5	90	3.2	3.3	3.5	4.1	4.3	5.9	7.9	9.5	18	28	36	48	1037K	125
2400-5 120KC	10	2	YES	2400-5	90	3.3	3.4	3.6	4.0	4.1	5.5	7.3	8.7	16	25	32	43	2068K	120
2400-6 180KC	3	2	YES	2400-6	90	3.2	3.2	3.5	4.2	4.5	6.6	9.0	11	22	34	45	59	518K	125
2400-6 180KC	4	2	YES	2400-6	90	3.2	3.3	3.4	4.0	4.3	5.7	7.5	9.0	18	25	35	43	518K	125
2400-6 180KC	6	2	YES	2400-6	90	3.2	3.3	3.5	3.9	4.1	5.3	6.9	8.1	15	22	28	37	1037K	125
2400-6 180KC	10	2	YES	2400-6	90	3.3	3.4	3.5	3.8	4.0	5.1	6.5	7.5	13	20	25	33	2068K	120

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 200K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										400	500	MAX SIZE	SORT BLOCK	
							2	5	10	20	25	50	75	100	200	300					
2400-5	120KC	3	1	NO	2400-5	35	3.3	4.2	5.7	9.9	12	25	35	50	110	CE	CE	CE	204K	43	
2400-5	120KC	4	1	NO	2400-5	35	3.4	3.9	5.1	7.8	9.5	19	27	38	80	CE	CE	CE	207K	50	
2400-5	120KC	6	1	NO	2400-5	35	3.4	3.8	4.8	7.0	8.4	16	23	32	68	130	170	CE	CE	405K	39
2400-5	120KC	10	1	NO	2400-5	35	3.5	3.9	4.5	6.4	7.5	15	20	29	60	110	140	180	830K	50	
2400-6	180KC	3	1	NO	2400-6	35	3.3	3.9	4.9	7.8	9.0	18	26	36	75	CE	CE	CE	204K	43	
2400-6	180KC	4	1	NO	2400-6	35	3.3	3.7	4.5	6.4	7.7	14	20	27	56	CE	CE	CE	207K	50	
2400-6	180KC	6	1	NO	2400-6	35	3.3	3.6	4.3	5.9	6.9	12	17	23	48	85	120	CE	CE	405K	39
2400-6	180KC	10	1	NO	2400-6	35	3.4	3.7	4.1	5.4	6.2	11	15	21	42	73	96	120	830K	50	
2400-5	120KC	3	2	NO	2400-5	35	3.3	4.0	5.1	8.4	9.7	20	29	40	90	CE	CE	CE	207K	50	
2400-5	120KC	4	2	NO	2400-5	35	3.3	3.8	4.7	6.8	8.4	16	22	30	63	CE	CE	CE	207K	50	
2400-5	120KC	6	2	NO	2400-5	35	3.3	3.7	4.6	6.9	7.9	15	21	26	56	83	130	CE	CE	415K	50
2400-5	120KC	10	2	NO	2400-5	35	3.4	3.7	4.7	6.2	6.9	13	18	22	41	71	93	120	830K	50	
2400-6	180KC	3	2	NO	2400-6	35	3.2	3.7	4.5	6.8	7.7	15	21	29	63	CE	CE	CE	207K	50	
2400-6	180KC	4	2	NO	2400-6	35	3.3	3.6	4.2	5.7	6.8	12	16	22	45	CE	CE	CE	207K	50	
2400-6	180KC	6	2	NO	2400-6	35	3.3	3.5	4.2	5.8	6.5	12	15	19	40	59	88	CE	CE	415K	50
2400-6	180KC	10	2	NO	2400-6	35	3.3	3.6	4.3	5.3	5.8	9.8	13	17	30	51	66	82	830K	50	
2400-5	120KC	3	2	YES	2400-5	35	3.3	3.8	4.8	7.7	8.8	18	25	35	78	CE	CE	CE	207K	50	
2400-5	120KC	4	2	YES	2400-5	35	3.3	3.7	4.5	6.3	7.7	14	19	27	55	CE	CE	CE	207K	50	
2400-5	120KC	6	2	YES	2400-5	35	3.3	3.6	4.3	5.8	7.0	12	17	23	46	83	130	CE	CE	415K	50
2400-5	120KC	10	2	YES	2400-5	35	3.4	3.7	4.1	5.4	6.5	11	15	21	41	71	93	120	830K	50	
2400-6	180KC	3	2	YES	2400-6	35	3.2	3.6	4.3	6.3	7.1	13	19	25	55	CE	CE	CE	207K	50	
2400-6	180KC	4	2	YES	2400-6	35	3.2	3.5	4.1	5.0	6.3	11	14	20	39	CE	CE	CE	207K	50	
2400-6	180KC	6	2	YES	2400-6	35	3.3	3.5	3.9	5.0	5.8	9.2	13	17	33	59	88	CE	CE	415K	50
2400-6	180KC	10	2	YES	2400-6	35	3.4	3.5	3.8	4.8	5.5	8.5	11	15	30	51	66	82	830K	50	

SYSTEM/360 MODEL 50
 MAIN STORAGE USED 200K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										400	500	MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300				
2400-5	120KC	3	1	NO	2400-5	20	4.2	6.8	12	25	30	63	99	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	4	1	NO	2400-5	20	3.9	5.6	9.5	19	23	46	75	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	6	1	NO	2400-5	20	3.8	5.1	8.3	16	19	39	60	110	CE	CE	CE	166K	20	
2400-5	120KC	10	1	NO	2400-5	20	3.8	4.8	7.5	15	17	35	53	87	170	260	CE	CE	332K	20
2400-6	180KC	3	1	NO	2400-6	20	3.8	5.6	8.9	18	22	45	69	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	4	1	NO	2400-6	20	3.7	4.9	7.6	14	17	33	52	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	6	1	NO	2400-6	20	3.6	4.5	6.8	12	15	28	43	71	CE	CE	CE	CE	166K	20
2400-6	180KC	10	1	NO	2400-6	20	3.7	4.3	6.2	11	13	25	38	61	120	180	CE	CE	332K	20
2400-5	120KC	3	2	NO	2400-5	20	3.9	6.0	9.6	20	24	53	78	CE	CE	CE	CE	CE	81K	17
2400-5	120KC	4	2	NO	2400-5	20	3.8	5.2	8.4	15	18	37	59	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	6	2	NO	2400-5	20	3.8	5.0	7.8	15	18	32	52	69	CE	CE	CE	CE	166K	20
2400-5	120KC	10	2	NO	2400-5	20	3.7	5.1	6.8	13	15	26	38	59	120	170	CE	CE	332K	20
2400-6	180KC	3	2	NO	2400-6	20	3.7	5.1	7.6	15	18	38	55	CE	CE	CE	CE	CE	81K	17
2400-6	180KC	4	2	NO	2400-6	20	3.6	4.6	6.8	12	14	26	42	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	6	2	NO	2400-6	20	3.6	4.4	6.4	11	13	23	37	49	CE	CE	CE	CE	166K	20
2400-6	180KC	10	2	NO	2400-6	20	3.5	4.5	5.7	9.6	12	19	27	42	80	120	CE	CE	332K	20
2400-5	120KC	3	2	YES	2400-5	20	3.8	5.6	8.7	18	21	46	68	CE	CE	CE	CE	CE	81K	17
2400-5	120KC	4	2	YES	2400-5	20	3.7	5.0	7.6	14	16	32	51	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	6	2	YES	2400-5	20	3.6	4.6	6.9	12	14	27	43	69	CE	CE	CE	CE	166K	20
2400-5	120KC	10	2	YES	2400-5	20	3.6	4.3	6.4	11	13	24	38	59	120	170	CE	CE	332K	20
2400-6	180KC	3	2	YES	2400-6	20	3.6	4.8	7.0	13	16	33	48	CE	CE	CE	CE	CE	81K	17
2400-6	180KC	4	2	YES	2400-6	20	3.5	4.5	6.2	11	12	23	36	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	6	2	YES	2400-6	20	3.4	4.2	5.8	9.0	11	20	31	49	CE	CE	CE	CE	166K	20
2400-6	180KC	10	2	YES	2400-6	20	3.5	4.0	5.5	8.3	9.6	18	28	42	80	120	CE	CE	332K	20

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 100K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	5	10	20	25	50	75	100	200	300	400	500	MAX SIZE	SORT BLOCK
2400-5	120KC	3	1	NO	2400-5	350	3.1	3.2	3.2	3.6	3.7	4.6	5.7	6.7	12	18	23	30	2075K	500
2400-5	120KC	4	1	NO	2400-5	350	3.1	3.2	3.2	3.5	3.6	4.4	5.0	5.9	9.4	14	18	22	1951K	289
2400-5	120KC	6	1	NO	2400-5	250	3.2	3.2	3.3	3.4	3.5	4.2	4.7	5.5	8.5	12	15	18	4151K	500
2400-5	120KC	10	1	NO	2400-5	150	3.3	3.3	3.4	3.5	3.6	4.1	4.6	5.4	8.0	11	14	17	8167K	420
2400-6	180KC	3	1	NO	2400-6	350	3.1	3.1	3.2	3.4	3.6	4.2	5.0	5.7	9.3	14	17	22	2075K	500
2400-6	180KC	4	1	NO	2400-6	350	3.1	3.2	3.2	3.4	3.5	4.0	4.5	5.2	7.7	11	14	17	1951K	289
2400-6	180KC	6	1	NO	2400-6	250	3.2	3.2	3.3	3.4	3.4	4.0	4.3	4.9	7.1	9.1	12	14	4151K	500
2400-6	180KC	10	1	NO	2400-6	150	3.3	3.3	3.3	3.4	3.5	3.9	4.3	4.9	6.8	8.5	12	14	8167K	420
2400-5	120KC	3	2	NO	2400-5	350	3.1	3.1	3.3	3.5	3.6	4.3	5.2	6.2	9.9	15	20	24	2075K	500
2400-5	120KC	4	2	NO	2400-5	350	3.1	3.2	3.2	3.4	3.6	4.1	4.6	5.3	8.1	12	15	19	2075K	500
2400-5	120KC	6	2	NO	2400-5	250	3.2	3.2	3.2	3.5	3.6	4.0	4.7	5.2	8.0	11	13	18	4151K	500
2400-5	120KC	10	2	NO	2400-5	150	3.2	3.2	3.3	3.4	3.5	4.1	4.5	4.9	7.4	9.4	12	14	8091K	385
2400-6	180KC	3	2	NO	2400-6	350	3.1	3.1	3.2	3.4	3.5	4.0	4.6	5.4	8.1	12	15	18	2075K	500
2400-6	180KC	4	2	NO	2400-6	350	3.1	3.2	3.2	3.3	3.5	3.9	4.3	4.8	6.8	9.2	12	15	2075K	500
2400-6	180KC	6	2	NO	2400-6	250	3.1	3.2	3.2	3.4	3.5	3.8	4.4	4.7	6.8	8.5	11	14	4151K	500
2400-6	180KC	10	2	NO	2400-6	150	3.2	3.2	3.3	3.4	3.4	3.9	4.2	4.5	6.4	7.9	9.4	11	8091K	385
2400-5	120KC	3	2	YES	2400-5	350	3.1	3.1	3.2	3.4	3.6	4.2	4.9	5.8	9.0	13	18	21	2075K	500
2400-5	120KC	4	2	YES	2400-5	350	3.1	3.2	3.2	3.4	3.5	4.0	4.4	5.1	7.4	11	13	17	2075K	500
2400-5	120KC	6	2	YES	2400-5	250	3.2	3.2	3.2	3.3	3.4	3.9	4.2	4.8	6.9	8.8	12	14	4048K	387
2400-5	120KC	10	2	YES	2400-5	150	3.3	3.3	3.3	3.4	3.5	3.9	4.2	4.8	6.6	8.3	11	13	7535K	231
2400-6	180KC	3	2	YES	2400-6	350	3.1	3.1	3.2	3.4	3.5	3.9	4.4	5.1	7.4	11	14	16	2075K	500
2400-6	180KC	4	2	YES	2400-6	350	3.1	3.2	3.2	3.3	3.4	3.8	4.1	4.6	6.4	8.5	11	13	2075K	500
2400-6	180KC	6	2	YES	2400-6	250	3.2	3.2	3.2	3.3	3.4	3.8	4.0	4.4	6.0	7.5	9.4	11	4048K	387
2400-6	180KC	10	2	YES	2400-6	150	3.3	3.3	3.3	3.4	3.4	3.8	4.0	4.4	5.9	7.2	9.1	11	7535K	231

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 100K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	5	10	20	25	50	75	100	200	300	400	500	MAX SIZE	SORT BLOCK
2400-5	120KC	3	1	NO	2400-5	95	3.2	3.5	4.1	5.7	6.5	12	16	22	45	70	99	130	514K	113
2400-5	120KC	4	1	NO	2400-5	95	3.2	3.5	3.9	5.0	5.6	9.3	13	17	34	54	70	94	518K	125
2400-5	120KC	6	1	NO	2400-5	90	3.3	3.4	3.8	4.7	5.2	8.0	11	15	29	42	60	74	1037K	125
2400-5	120KC	10	1	NO	2400-5	50	3.3	3.5	3.7	4.6	4.9	7.3	10	13	25	38	52	67	2041K	105
2400-6	180KC	3	1	NO	2400-6	95	3.2	3.4	3.8	4.9	5.4	8.7	12	16	32	49	69	86	514K	113
2400-6	180KC	4	1	NO	2400-6	95	3.2	3.4	3.7	4.4	4.8	7.4	9.5	13	24	38	49	66	518K	125
2400-6	180KC	6	1	NO	2400-6	90	3.2	3.3	3.6	4.3	4.6	6.5	8.5	11	21	30	42	52	1037K	125
2400-6	180KC	10	1	NO	2400-6	50	3.3	3.4	3.6	4.2	4.4	6.1	8.0	9.8	19	28	38	48	2041K	105
2400-5	120KC	3	2	NO	2400-5	95	3.2	3.5	3.9	5.2	5.8	9.7	14	18	38	57	78	110	518K	125
2400-5	120KC	4	2	NO	2400-5	95	3.2	3.4	3.8	4.6	5.3	7.9	11	14	27	42	55	74	518K	125
2400-5	120KC	6	2	NO	2400-5	90	3.2	3.4	3.8	4.7	5.1	7.8	10	13	25	35	50	64	1037K	125
2400-5	120KC	10	2	NO	2400-5	50	3.3	3.4	3.9	4.5	4.8	7.2	9.1	11	19	31	41	50	2022K	96
2400-6	180KC	3	2	NO	2400-6	95	3.1	3.4	3.7	4.6	5.0	7.7	11	14	27	41	55	72	518K	125
2400-6	180KC	4	2	NO	2400-6	95	3.2	3.3	3.6	4.2	4.6	6.4	8.4	11	20	30	39	52	518K	125
2400-6	180KC	6	2	NO	2400-6	90	3.2	3.3	3.6	4.3	4.5	6.4	7.9	9.5	18	25	37	45	1037K	125
2400-6	180KC	10	2	NO	2400-6	50	3.3	3.3	3.7	4.1	4.3	6.1	7.4	8.7	14	23	30	36	2022K	96
2400-5	120KC	3	2	YES	2400-5	95	3.2	3.4	3.8	4.9	5.4	8.8	13	16	33	49	67	88	518K	125
2400-5	120KC	4	2	YES	2400-5	95	3.2	3.4	3.7	4.4	5.0	7.2	9.5	13	24	37	48	64	518K	125
2400-5	120KC	6	2	YES	2400-5	90	3.2	3.3	3.6	4.3	4.7	6.7	8.4	11	21	29	42	51	1011K	96
2400-5	120KC	10	2	YES	2400-5	50	3.3	3.4	3.6	4.2	4.4	6.1	8.0	9.9	19	28	38	50	2022K	96
2400-6	180KC	3	2	YES	2400-6	95	3.1	3.3	3.6	4.4	4.7	7.0	9.5	12	24	35	47	62	518K	125
2400-6	180KC	4	2	YES	2400-6	95	3.2	3.3	3.5	4.0	4.4	6.0	7.6	9.5	18	27	34	45	518K	125
2400-6	180KC	6	2	YES	2400-6	90	3.2	3.3	3.5	3.9	4.3	5.6	6.8	8.6	16	22	30	37	1011K	96
2400-6	180KC	10	2	YES	2400-6	50	3.3	3.4	3.5	3.9	4.1	5.3	6.7	8.0	15	21	29	36	2022K	96

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 100K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-5 120KC		3	1	NO	2400-5	35	3.5	4.4	6.5	11	14	27	42	59	130	CE	CE	CE	207K	50
2400-5 120KC		4	1	NO	2400-5	35	3.4	4.1	5.5	9.0	11	21	32	42	87	CE	CE	CE	205K	44
2400-5 120KC		6	1	NO	2400-5	35	3.4	4.0	5.1	7.8	9.6	18	25	35	73	140	190	CE	415K	50
2400-5 120KC		10	1	NO	2400-5	25	3.5	3.9	4.9	7.2	8.9	16	23	32	66	110	140	210	830K	50
2400-6 180KC		3	1	NO	2400-6	35	3.4	4.0	5.4	8.5	11	20	30	41	85	CE	CE	CE	207K	50
2400-6 180KC		4	1	NO	2400-6	35	3.3	3.8	4.8	7.3	8.4	15	23	30	61	CE	CE	CE	205K	44
2400-6 180KC		6	1	NO	2400-6	35	3.3	3.7	4.6	6.4	7.6	13	19	25	52	97	130	CE	415K	50
2400-6 180KC		10	1	NO	2400-6	25	3.4	3.7	4.4	6.0	7.2	12	17	23	47	73	96	140	830K	50
2400-5 120KC		3	2	NO	2400-5	35	3.5	4.3	5.7	9.7	12	22	34	46	98	CE	CE	CE	200K	36
2400-5 120KC		4	2	NO	2400-5	35	3.4	3.9	5.1	7.9	9.1	17	26	33	74	CE	CE	CE	207K	50
2400-5 120KC		6	2	NO	2400-5	35	3.3	3.9	5.1	7.7	8.8	15	23	30	64	93	130	CE	415K	50
2400-5 120KC		10	2	NO	2400-5	25	3.4	4.0	4.7	7.1	8.0	13	18	26	49	71	94	140	808K	38
2400-6 180KC		3	2	NO	2400-6	35	3.4	3.9	4.9	7.6	8.8	17	24	33	69	CE	CE	CE	200K	36
2400-6 180KC		4	2	NO	2400-6	35	3.3	3.7	4.5	6.4	7.2	13	19	24	52	CE	CE	CE	207K	50
2400-6 180KC		6	2	NO	2400-6	35	3.3	3.7	4.5	6.4	7.1	12	17	22	45	66	86	CE	415K	50
2400-6 180KC		10	2	NO	2400-6	25	3.3	3.8	4.3	6.0	6.6	9.8	13	20	35	51	66	96	808K	38
2400-5 120KC		3	2	YES	2400-5	35	3.4	4.1	5.4	8.7	11	20	29	40	84	CE	CE	CE	200K	36
2400-5 120KC		4	2	YES	2400-5	35	3.4	3.8	4.8	7.2	8.2	15	22	29	64	CE	CE	CE	207K	50
2400-5 120KC		6	2	YES	2400-5	35	3.3	3.7	4.6	6.6	7.5	13	19	25	51	93	130	CE	415K	50
2400-5 120KC		10	2	YES	2400-5	25	3.4	3.7	4.4	6.0	7.2	13	17	23	49	71	94	140	808K	38
2400-6 180KC		3	2	YES	2400-6	35	3.3	3.8	4.7	7.0	7.9	15	21	29	59	CE	CE	CE	200K	36
2400-6 180KC		4	2	YES	2400-6	35	3.3	3.6	4.3	6.0	6.7	11	17	21	45	CE	CE	CE	207K	50
2400-6 180KC		6	2	YES	2400-6	35	3.3	3.6	4.2	5.6	6.2	9.9	14	18	36	66	86	CE	415K	50
2400-6 180KC		10	2	YES	2400-6	25	3.4	3.5	4.1	5.2	6.0	9.5	13	18	35	51	66	96	808K	38

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 100K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-5 120KC		3	1	NO	2400-5	20	4.5	7.5	14	27	35	72	120	CE	CE	CE	CE	CE	83K	20
2400-5 120KC		4	1	NO	2400-5	20	4.1	6.5	11	21	26	55	81	CE	CE	CE	CE	CE	82K	19
2400-5 120KC		6	1	NO	2400-5	20	4.0	6.0	9.5	18	21	43	69	120	CE	CE	CE	CE	166K	20
2400-5 120KC		10	1	NO	2400-5	15	3.8	5.7	8.8	16	19	39	62	86	200	300	CE	CE	332K	20
2400-6 180KC		3	1	NO	2400-6	20	4.1	6.2	11	20	25	51	80	CE	CE	CE	CE	CE	83K	20
2400-6 180KC		4	1	NO	2400-6	20	3.8	5.4	8.4	15	19	39	57	CE	CE	CE	CE	CE	82K	19
2400-6 180KC		6	1	NO	2400-6	20	3.7	5.1	7.5	13	16	31	48	81	CE	CE	CE	CE	166K	20
2400-6 180KC		10	1	NO	2400-6	15	3.7	5.0	7.1	12	15	28	44	61	140	210	CE	CE	332K	20
2400-5 120KC		3	2	NO	2400-5	20	4.3	6.8	12	23	28	61	92	CE	CE	CE	CE	CE	79K	13
2400-5 120KC		4	2	NO	2400-5	20	4.0	5.7	9.0	17	22	44	69	CE	CE	CE	CE	CE	83K	20
2400-5 120KC		6	2	NO	2400-5	20	3.9	5.5	8.8	15	20	36	59	78	CE	CE	CE	CE	166K	20
2400-5 120KC		10	2	NO	2400-5	15	4.0	5.1	8.0	13	15	32	46	59	140	200	CE	CE	322K	15
2400-6 180KC		3	2	NO	2400-6	20	3.9	5.6	8.7	17	20	43	65	CE	CE	CE	CE	CE	79K	13
2400-6 180KC		4	2	NO	2400-6	20	3.8	4.9	7.2	13	16	31	48	CE	CE	CE	CE	CE	83K	20
2400-6 180KC		6	2	NO	2400-6	20	3.7	4.8	7.1	12	15	26	42	55	CE	CE	CE	CE	166K	20
2400-6 180KC		10	2	NO	2400-6	15	3.8	4.5	6.6	9.7	12	23	33	42	95	140	CE	CE	322K	15
2400-5 120KC		3	2	YES	2400-5	20	4.1	6.2	11	20	24	52	79	CE	CE	CE	CE	CE	79K	13
2400-5 120KC		4	2	YES	2400-5	20	3.9	5.4	8.2	15	19	38	59	CE	CE	CE	CE	CE	83K	20
2400-5 120KC		6	2	YES	2400-5	20	3.8	5.1	7.5	13	16	30	47	78	CE	CE	CE	CE	166K	20
2400-5 120KC		10	2	YES	2400-5	15	3.7	5.0	7.1	12	15	28	45	59	140	200	CE	CE	322K	15
2400-6 180KC		3	2	YES	2400-6	20	3.8	5.3	7.9	15	18	37	56	CE	CE	CE	CE	CE	79K	13
2400-6 180KC		4	2	YES	2400-6	20	3.7	4.7	6.6	11	14	27	42	CE	CE	CE	CE	CE	83K	20
2400-6 180KC		6	2	YES	2400-6	20	3.6	4.5	6.2	8.9	12	22	34	55	CE	CE	CE	CE	166K	20
2400-6 180KC		10	2	YES	2400-6	15	3.5	4.5	6.0	9.5	11	21	32	42	95	140	CE	CE	322K	15

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 200K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-5	120KC	3	1	NO	2400-5	350	3.1	3.2	3.2	3.4	3.5	4.2	5.1	6.1	10	15	21	25	2075K	500
2400-5	120KC	4	1	NO	2400-5	350	3.1	3.2	3.2	3.4	3.4	4.0	4.7	5.2	8.7	12	16	19	2075K	500
2400-5	120KC	6	1	NO	2400-5	350	3.2	3.2	3.3	3.4	3.5	3.8	4.4	4.8	7.8	11	14	17	4151K	500
2400-5	120KC	10	1	NO	2400-5	300	3.3	3.3	3.4	3.5	3.6	3.9	4.2	4.5	7.2	9.2	13	15	8303K	500
2400-6	180KC	3	1	NO	2400-6	350	3.1	3.1	3.2	3.3	3.4	3.9	4.5	5.3	8.1	12	16	19	2075K	500
2400-6	180KC	4	1	NO	2400-6	350	3.1	3.2	3.2	3.3	3.4	3.8	4.3	4.7	7.2	9.2	13	15	2075K	500
2400-6	180KC	6	1	NO	2400-6	350	3.2	3.2	3.3	3.4	3.4	3.6	4.1	4.4	6.6	8.3	11	13	4151K	500
2400-6	180KC	10	1	NO	2400-6	300	3.3	3.3	3.3	3.4	3.5	3.7	4.0	4.2	6.2	7.7	10	12	8303K	500
2400-5	120KC	3	2	NO	2400-5	350	3.1	3.1	3.2	3.3	3.5	4.0	4.7	5.5	8.6	13	17	21	2075K	500
2400-5	120KC	4	2	NO	2400-5	350	3.1	3.2	3.2	3.3	3.4	3.8	4.4	5.0	7.5	9.7	14	16	2075K	500
2400-5	120KC	6	2	NO	2400-5	350	3.2	3.2	3.2	3.3	3.4	4.0	4.3	4.7	7.1	9.0	13	15	4151K	500
2400-5	120KC	10	2	NO	2400-5	300	3.2	3.2	3.3	3.4	3.5	3.7	4.4	4.8	6.3	7.8	12	13	8303K	500
2400-6	180KC	3	2	NO	2400-6	350	3.1	3.1	3.2	3.3	3.4	3.8	4.3	4.9	7.1	9.8	13	16	2075K	500
2400-6	180KC	4	2	NO	2400-6	350	3.1	3.2	3.2	3.3	3.3	3.7	4.1	4.6	6.4	8.0	11	13	2075K	500
2400-6	180KC	6	2	NO	2400-6	350	3.1	3.2	3.2	3.3	3.3	3.8	4.1	4.4	6.2	7.6	11	12	4151K	500
2400-6	180KC	10	2	NO	2400-6	300	3.2	3.2	3.3	3.4	3.4	3.6	4.2	4.5	5.6	6.8	9.2	11	8303K	500
2400-5	120KC	3	2	YES	2400-5	350	3.1	3.1	3.2	3.3	3.4	3.9	4.4	5.2	7.8	11	15	18	2075K	500
2400-5	120KC	4	2	YES	2400-5	350	3.1	3.2	3.2	3.3	3.3	3.7	4.2	4.8	6.9	8.8	12	14	2075K	500
2400-5	120KC	6	2	YES	2400-5	350	3.2	3.2	3.2	3.3	3.4	3.6	4.0	4.4	6.4	7.9	11	13	4151K	500
2400-5	120KC	10	2	YES	2400-5	300	3.3	3.3	3.3	3.4	3.5	3.7	3.9	4.2	6.0	7.3	9.5	12	8275K	481
2400-6	180KC	3	2	YES	2400-6	350	3.1	3.1	3.2	3.2	3.4	3.7	4.1	4.7	6.6	9.0	12	14	2075K	500
2400-6	180KC	4	2	YES	2400-6	350	3.1	3.2	3.2	3.3	3.3	3.6	4.0	4.4	6.0	7.4	9.6	12	2075K	500
2400-6	180KC	6	2	YES	2400-6	350	3.2	3.2	3.2	3.3	3.3	3.5	3.9	4.2	5.6	6.8	8.6	10	4151K	500
2400-6	180KC	10	2	YES	2400-6	300	3.3	3.3	3.3	3.4	3.4	3.6	3.8	4.0	5.4	6.5	8.1	9.3	8275K	481

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 200K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-5	120KC	3	1	NO	2400-5	90	3.2	3.3	3.8	5.1	5.6	9.9	15	19	41	61	85	120	518K	125
2400-5	120KC	4	1	NO	2400-5	90	3.2	3.4	3.6	4.7	5.1	7.8	12	14	31	45	64	80	518K	125
2400-5	120KC	6	1	NO	2400-5	90	3.3	3.4	3.6	4.4	4.7	7.0	9.9	13	24	38	49	67	1037K	125
2400-5	120KC	10	1	NO	2400-5	90	3.3	3.5	3.7	4.2	4.5	6.4	8.9	11	21	34	43	59	2075K	125
2400-6	180KC	3	1	NO	2400-6	90	3.2	3.3	3.6	4.5	4.9	7.8	11	14	29	43	60	80	518K	125
2400-6	180KC	4	1	NO	2400-6	90	3.2	3.3	3.5	4.2	4.5	6.3	8.7	11	22	32	45	56	518K	125
2400-6	180KC	6	1	NO	2400-6	90	3.2	3.3	3.5	4.0	4.3	5.8	7.8	9.3	18	27	35	47	1037K	125
2400-6	180KC	10	1	NO	2400-6	90	3.3	3.4	3.6	3.9	4.1	5.4	7.2	8.5	16	24	31	42	2075K	125
2400-5	120KC	3	2	NO	2400-5	90	3.2	3.3	3.7	4.7	5.1	8.3	12	15	32	51	67	89	518K	125
2400-5	120KC	4	2	NO	2400-5	90	3.2	3.3	3.5	4.4	4.7	6.8	9.4	12	25	36	51	63	518K	125
2400-5	120KC	6	2	NO	2400-5	90	3.2	3.3	3.5	4.3	4.6	6.9	8.7	11	21	30	45	56	1037K	125
2400-5	120KC	10	2	NO	2400-5	90	3.3	3.4	3.6	4.1	4.7	6.1	7.5	9.9	18	26	33	46	1640K	31
2400-6	180KC	3	2	NO	2400-6	90	3.1	3.2	3.5	4.2	4.5	6.7	9.2	12	23	36	47	63	518K	125
2400-6	180KC	4	2	NO	2400-6	90	3.2	3.2	3.4	4.0	4.2	5.6	7.5	9.1	18	26	36	44	518K	125
2400-6	180KC	6	2	NO	2400-6	90	3.2	3.3	3.4	4.0	4.2	5.8	7.0	8.3	16	22	33	40	1037K	125
2400-6	180KC	10	2	NO	2400-6	90	3.2	3.3	3.5	3.9	4.3	5.3	6.2	8.1	14	19	24	35	1640K	31
2400-5	120KC	3	2	YES	2400-5	90	3.2	3.3	3.6	4.5	4.8	7.6	11	14	28	44	58	77	518K	125
2400-5	120KC	4	2	YES	2400-5	90	3.2	3.3	3.5	4.2	4.5	6.2	8.5	11	22	31	44	54	518K	125
2400-5	120KC	6	2	YES	2400-5	90	3.2	3.3	3.5	4.0	4.2	5.7	7.7	9.1	17	26	34	46	1037K	125
2400-5	120KC	10	2	YES	2400-5	90	3.3	3.4	3.6	3.9	4.1	5.3	7.1	8.3	15	24	30	41	2068K	120
2400-6	180KC	3	2	YES	2400-6	90	3.1	3.2	3.4	4.1	4.3	6.2	8.3	11	21	32	41	54	518K	125
2400-6	180KC	4	2	YES	2400-6	90	3.2	3.2	3.4	3.9	4.1	5.3	6.9	8.2	16	22	31	38	518K	125
2400-6	180KC	6	2	YES	2400-6	90	3.2	3.3	3.4	3.8	3.9	5.0	6.3	7.3	13	19	25	33	1037K	125
2400-6	180KC	10	2	YES	2400-6	90	3.3	3.3	3.5	3.7	3.8	4.7	5.9	6.8	12	18	22	29	2068K	120

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 200K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET								SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300	400	500				
2400-5	120KC	3	1	NO	2400-5	35	3.3	4.2	5.6	9.8	12	25	35	50	110	CE	CE	CE	204K	43		
2400-5	120KC	4	1	NO	2400-5	35	3.4	3.9	5.1	7.8	9.4	19	26	38	79	CE	CE	CE	207K	50		
2400-5	120KC	6	1	NO	2400-5	35	3.4	3.8	4.7	7.0	8.3	16	23	32	67	130	170	CE	405K	39		
2400-5	120KC	10	1	NO	2400-5	35	3.5	3.8	4.5	6.4	7.4	15	20	29	59	110	140	170	830K	50		
2400-6	180KC	3	1	NO	2400-6	35	3.3	3.8	4.8	7.7	8.9	18	25	35	74	CE	CE	CE	204K	43		
2400-6	180KC	4	1	NO	2400-6	35	3.3	3.7	4.5	6.3	7.6	14	19	27	56	CE	CE	CE	207K	50		
2400-6	180KC	6	1	NO	2400-6	35	3.3	3.6	4.3	5.8	6.8	12	17	23	47	84	120	CE	405K	39		
2400-6	180KC	10	1	NO	2400-6	35	3.4	3.7	4.1	5.4	6.2	11	15	21	42	72	95	120	830K	50		
2400-5	120KC	3	2	NO	2400-5	35	3.3	3.9	5.1	8.3	9.6	20	29	40	89	CE	CE	CE	207K	50		
2400-5	120KC	4	2	NO	2400-5	35	3.3	3.8	4.7	6.7	8.4	15	21	30	62	CE	CE	CE	207K	50		
2400-5	120KC	6	2	NO	2400-5	35	3.3	3.7	4.6	6.9	7.8	15	20	26	55	81	130	CE	415K	50		
2400-5	120KC	10	2	NO	2400-5	35	3.4	3.7	4.7	6.1	6.8	13	17	22	41	69	91	120	830K	50		
2400-6	180KC	3	2	NO	2400-6	35	3.2	3.7	4.5	6.7	7.6	15	21	28	62	CE	CE	CE	207K	50		
2400-6	180KC	4	2	NO	2400-6	35	3.2	3.6	4.2	5.6	6.7	12	16	22	44	CE	CE	CE	207K	50		
2400-6	180KC	6	2	NO	2400-6	35	3.3	3.5	4.2	5.7	6.4	11	15	19	39	57	86	CE	415K	50		
2400-6	180KC	10	2	NO	2400-6	35	3.3	3.5	4.3	5.2	5.7	9.6	13	16	29	49	64	79	830K	50		
2400-5	120KC	3	2	YES	2400-5	35	3.3	3.8	4.8	7.6	8.7	17	25	34	76	CE	CE	CE	207K	50		
2400-5	120KC	4	2	YES	2400-5	35	3.3	3.7	4.5	6.2	7.6	14	19	26	54	CE	CE	CE	207K	50		
2400-5	120KC	6	2	YES	2400-5	35	3.3	3.6	4.2	5.7	6.9	12	16	22	46	81	130	CE	415K	50		
2400-5	120KC	10	2	YES	2400-5	35	3.4	3.6	4.0	5.3	6.4	11	15	20	41	69	91	120	830K	50		
2400-6	180KC	3	2	YES	2400-6	35	3.2	3.6	4.3	6.2	6.9	13	19	25	54	CE	CE	CE	207K	50		
2400-6	180KC	4	2	YES	2400-6	35	3.2	3.5	4.1	5.3	6.2	11	14	19	38	CE	CE	CE	207K	50		
2400-6	180KC	6	2	YES	2400-6	35	3.3	3.4	3.9	5.0	5.8	9.0	12	17	33	57	86	CE	415K	50		
2400-6	180KC	10	2	YES	2400-6	35	3.3	3.5	3.8	4.7	5.5	8.3	11	15	29	49	64	79	830K	50		

SYSTEM/360 MODEL 65
 MAIN STORAGE USED 200K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET								SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
								5	10	20	25	50	75	100	200	300	400	500				
2400-5	120KC	3	1	NO	2400-5	20	4.2	6.8	12	25	30	63	98	CE	CE	CE	CE	CE	83K	20		
2400-5	120KC	4	1	NO	2400-5	20	3.9	5.6	9.4	19	23	46	74	CE	CE	CE	CE	CE	83K	20		
2400-5	120KC	6	1	NO	2400-5	20	3.8	5.1	8.3	16	19	39	60	110	CE	CE	CE	166K	20			
2400-5	120KC	10	1	NO	2400-5	20	3.8	4.7	7.4	15	17	34	53	86	170	250	CE	CE	332K	20		
2400-6	180KC	3	1	NO	2400-6	20	3.8	5.6	8.8	18	22	44	69	CE	CE	CE	CE	CE	83K	20		
2400-6	180KC	4	1	NO	2400-6	20	3.7	4.8	7.6	14	17	33	52	CE	CE	CE	CE	CE	83K	20		
2400-6	180KC	6	1	NO	2400-6	20	3.6	4.5	6.8	12	14	28	43	70	CE	CE	CE	166K	20			
2400-6	180KC	10	1	NO	2400-6	20	3.6	4.3	6.2	11	13	25	38	60	120	180	CE	CE	332K	20		
2400-5	120KC	3	2	NO	2400-5	20	3.9	5.9	9.6	20	24	52	78	CE	CE	CE	CE	CE	81K	17		
2400-5	120KC	4	2	NO	2400-5	20	3.7	5.2	8.3	15	18	36	58	CE	CE	CE	CE	CE	83K	20		
2400-5	120KC	6	2	NO	2400-5	20	3.8	4.9	7.7	15	17	31	52	68	CE	CE	CE	166K	20			
2400-5	120KC	10	2	NO	2400-5	20	3.7	5.0	6.7	13	15	26	37	58	120	170	CE	CE	332K	20		
2400-6	180KC	3	2	NO	2400-6	20	3.7	5.1	7.5	15	17	37	54	CE	CE	CE	CE	CE	81K	17		
2400-6	180KC	4	2	NO	2400-6	20	3.6	4.6	6.7	12	14	26	41	CE	CE	CE	CE	CE	83K	20		
2400-6	180KC	6	2	NO	2400-6	20	3.6	4.4	6.3	11	13	23	37	48	CE	CE	CE	166K	20			
2400-6	180KC	10	2	NO	2400-6	20	3.5	4.5	5.7	9.5	11	19	27	41	78	120	CE	CE	332K	20		
2400-5	120KC	3	2	YES	2400-5	20	3.8	5.5	8.6	17	21	45	67	CE	CE	CE	CE	CE	81K	17		
2400-5	120KC	4	2	YES	2400-5	20	3.7	4.9	7.5	14	16	32	50	CE	CE	CE	CE	CE	83K	20		
2400-5	120KC	6	2	YES	2400-5	20	3.6	4.6	6.8	12	14	27	42	68	CE	CE	CE	166K	20			
2400-5	120KC	10	2	YES	2400-5	20	3.6	4.3	6.4	11	13	24	38	58	120	170	CE	CE	332K	20		
2400-6	180KC	3	2	YES	2400-6	20	3.6	4.8	6.9	13	15	32	47	CE	CE	CE	CE	CE	81K	17		
2400-6	180KC	4	2	YES	2400-6	20	3.5	4.4	6.2	10	12	23	36	CE	CE	CE	CE	CE	83K	20		
2400-6	180KC	6	2	YES	2400-6	20	3.4	4.2	5.7	8.9	11	20	30	48	CE	CE	CE	166K	20			
2400-6	180KC	10	2	YES	2400-6	20	3.5	4.0	5.4	8.2	9.4	18	27	41	78	120	CE	CE	332K	20		

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 200K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-5	120KC	3	1	NO	2400-5	350	3.1	3.2	3.2	3.3	3.5	4.2	5.0	6.1	9.9	15	21	25	2075K	500
2400-5	120KC	4	1	NO	2400-5	350	3.1	3.2	3.2	3.4	3.4	3.9	4.6	5.2	8.6	12	16	19	2075K	500
2400-5	120KC	6	1	NO	2400-5	350	3.2	3.2	3.3	3.4	3.5	3.8	4.4	4.8	7.7	10	14	17	4151K	500
2400-5	120KC	10	1	NO	2400-5	350	3.3	3.3	3.4	3.5	3.5	3.9	4.2	4.5	7.1	9.0	13	15	8303K	500
2400-6	180KC	3	1	NO	2400-6	350	3.1	3.1	3.2	3.3	3.4	3.9	4.5	5.3	8.0	12	16	19	2075K	500
2400-6	180KC	4	1	NO	2400-6	350	3.1	3.2	3.2	3.3	3.3	3.7	4.2	4.7	7.1	9.0	12	15	2075K	500
2400-6	180KC	6	1	NO	2400-6	350	3.2	3.2	3.2	3.3	3.4	3.6	4.1	4.4	6.5	8.1	11	13	4151K	500
2400-6	180KC	10	1	NO	2400-6	350	3.3	3.3	3.3	3.4	3.5	3.7	3.9	4.2	6.1	7.5	9.7	12	8303K	500
2400-5	120KC	3	2	NO	2400-5	350	3.1	3.1	3.2	3.3	3.4	4.0	4.6	5.4	8.4	13	17	20	2075K	500
2400-5	120KC	4	2	NO	2400-5	350	3.1	3.2	3.2	3.3	3.4	3.8	4.3	5.0	7.4	9.6	13	16	2075K	500
2400-5	120KC	6	2	NO	2400-5	350	3.1	3.2	3.2	3.3	3.4	3.9	4.3	4.6	7.0	8.8	13	15	4151K	500
2400-5	120KC	10	2	NO	2400-5	350	3.2	3.2	3.3	3.4	3.5	3.7	4.4	4.8	6.2	7.7	11	13	8303K	500
2400-6	180KC	3	2	NO	2400-6	350	3.1	3.1	3.2	3.2	3.4	3.7	4.2	4.8	7.0	9.6	13	16	2075K	500
2400-6	180KC	4	2	NO	2400-6	350	3.1	3.2	3.2	3.3	3.3	3.6	4.0	4.5	6.3	7.8	11	12	2075K	500
2400-6	180KC	6	2	NO	2400-6	350	3.1	3.2	3.2	3.3	3.3	3.7	4.0	4.3	6.0	7.4	9.9	12	4151K	500
2400-6	180KC	10	2	NO	2400-6	350	3.2	3.2	3.3	3.3	3.4	3.6	4.1	4.4	5.5	6.6	8.9	11	8303K	500
2400-5	120KC	3	2	YES	2400-5	350	3.1	3.1	3.2	3.3	3.4	3.8	4.4	5.1	7.7	11	15	18	2075K	500
2400-5	120KC	4	2	YES	2400-5	350	3.1	3.2	3.2	3.3	3.3	3.7	4.2	4.7	6.8	8.7	12	14	2075K	500
2400-5	120KC	6	2	YES	2400-5	350	3.2	3.2	3.2	3.3	3.4	3.6	4.0	4.4	6.3	7.8	11	12	4151K	500
2400-5	120KC	10	2	YES	2400-5	350	3.2	3.3	3.3	3.4	3.4	3.7	3.9	4.2	5.9	7.2	9.3	11	8275K	481
2400-6	180KC	3	2	YES	2400-6	350	3.1	3.1	3.2	3.2	3.3	3.7	4.1	4.6	6.5	8.7	12	14	2075K	500
2400-6	180KC	4	2	YES	2400-6	350	3.1	3.1	3.2	3.2	3.3	3.6	3.9	4.3	5.9	7.2	9.3	11	2075K	500
2400-6	180KC	6	2	YES	2400-6	350	3.2	3.2	3.2	3.3	3.3	3.5	3.8	4.1	5.5	6.6	8.4	9.6	4151K	500
2400-6	180KC	10	2	YES	2400-6	350	3.2	3.3	3.3	3.4	3.4	3.6	3.7	4.0	5.3	6.2	7.8	8.9	8275K	481

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 200K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-5	120KC	3	1	NO	2400-5	90	3.2	3.3	3.8	5.1	5.6	9.8	15	19	41	61	85	120	518K	125
2400-5	120KC	4	1	NO	2400-5	90	3.2	3.4	3.6	4.7	5.1	7.8	12	14	31	45	64	79	518K	125
2400-5	120KC	6	1	NO	2400-5	90	3.2	3.4	3.6	4.4	4.7	7.0	9.9	13	24	38	49	67	1037K	125
2400-5	120KC	10	1	NO	2400-5	90	3.3	3.5	3.7	4.2	4.4	6.4	8.9	11	21	33	43	59	2075K	125
2400-6	180KC	3	1	NO	2400-6	90	3.2	3.3	3.6	4.5	4.8	7.7	11	14	29	43	59	79	518K	125
2400-6	180KC	4	1	NO	2400-6	90	3.2	3.3	3.5	4.2	4.5	6.3	8.7	11	22	32	45	56	518K	125
2400-6	180KC	6	1	NO	2400-6	90	3.2	3.3	3.5	4.0	4.3	5.8	7.8	9.3	18	27	35	47	1037K	125
2400-6	180KC	10	1	NO	2400-6	90	3.3	3.4	3.6	3.9	4.1	5.4	7.2	8.4	16	24	31	42	2075K	125
2400-5	120KC	3	2	NO	2400-5	90	3.2	3.3	3.6	4.7	5.1	8.3	12	15	32	51	66	89	518K	125
2400-5	120KC	4	2	NO	2400-5	90	3.2	3.3	3.5	4.4	4.7	6.7	9.4	12	25	35	51	62	518K	125
2400-5	120KC	6	2	NO	2400-5	90	3.2	3.3	3.5	4.3	4.6	6.9	8.6	11	21	30	45	55	1037K	125
2400-5	120KC	10	2	NO	2400-5	90	3.3	3.4	3.6	4.1	4.7	6.1	7.5	9.9	18	25	33	46	1640K	31
2400-6	180KC	3	2	NO	2400-6	90	3.1	3.2	3.5	4.2	4.5	6.7	9.2	12	23	36	47	62	518K	125
2400-6	180KC	4	2	NO	2400-6	90	3.2	3.2	3.4	4.0	4.2	5.6	7.5	9.0	18	25	36	44	518K	125
2400-6	180KC	6	2	NO	2400-6	90	3.2	3.3	3.4	4.0	4.2	5.7	7.0	8.2	16	22	32	39	1037K	125
2400-6	180KC	10	2	NO	2400-6	90	3.2	3.3	3.5	3.9	4.3	5.2	6.2	8.1	14	19	24	35	1640K	31
2400-5	120KC	3	2	YES	2400-5	90	3.2	3.3	3.6	4.5	4.8	7.6	11	14	28	44	57	76	518K	125
2400-5	120KC	4	2	YES	2400-5	90	3.2	3.3	3.5	4.2	4.5	6.2	8.5	11	22	31	44	54	518K	125
2400-5	120KC	6	2	YES	2400-5	90	3.2	3.3	3.5	4.0	4.2	5.7	7.6	9.1	17	26	34	46	1037K	125
2400-5	120KC	10	2	YES	2400-5	90	3.3	3.4	3.6	3.9	4.0	5.3	7.0	8.3	15	23	30	41	2068K	120
2400-6	180KC	3	2	YES	2400-6	90	3.1	3.2	3.4	4.0	4.3	6.2	8.3	10	20	31	41	54	518K	125
2400-6	180KC	4	2	YES	2400-6	90	3.2	3.2	3.4	3.9	4.1	5.3	6.8	8.2	16	22	31	38	518K	125
2400-6	180KC	6	2	YES	2400-6	90	3.2	3.3	3.4	3.8	3.9	5.0	6.3	7.3	13	19	24	33	1037K	125
2400-6	180KC	10	2	YES	2400-6	90	3.3	3.3	3.5	3.7	3.8	4.7	5.9	6.7	12	17	22	29	2068K	120

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 200K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR										DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2400-5	120KC	3	1	NO	2400-5	35	3.3	4.2	5.6	9.8	12	25	35	50	110	CE	CE	CE	204K	43			
2400-5	120KC	4	1	NO	2400-5	35	3.4	3.9	5.1	7.8	9.4	19	26	38	79	CE	CE	CE	207K	50			
2400-5	120KC	6	1	NO	2400-5	35	3.4	3.8	4.7	7.0	8.3	16	23	32	67	130	170	CE	CE	405K	39		
2400-5	120KC	10	1	NO	2400-5	35	3.5	3.8	4.4	6.3	7.4	15	20	28	59	110	140	170	CE	830K	50		
2400-6	180KC	3	1	NO	2400-6	35	3.3	3.8	4.8	7.7	8.9	18	25	35	74	CE	CE	CE	204K	43			
2400-6	180KC	4	1	NO	2400-6	35	3.3	3.7	4.5	6.3	7.6	14	19	27	55	CE	CE	CE	207K	50			
2400-6	180KC	6	1	NO	2400-6	35	3.3	3.6	4.3	5.8	6.8	12	17	23	47	84	120	CE	405K	39			
2400-6	180KC	10	1	NO	2400-6	35	3.4	3.6	4.1	5.4	6.2	11	15	21	42	72	95	120	CE	830K	50		
2400-5	120KC	3	2	NO	2400-5	35	3.3	3.9	5.1	8.3	9.6	20	29	39	89	CE	CE	CE	207K	50			
2400-5	120KC	4	2	NO	2400-5	35	3.3	3.8	4.7	6.7	8.3	15	21	30	62	CE	CE	CE	207K	50			
2400-5	120KC	6	2	NO	2400-5	35	3.3	3.7	4.6	6.8	7.7	15	20	26	55	81	130	CE	415K	50			
2400-5	120KC	10	2	NO	2400-5	35	3.4	3.7	4.7	6.1	6.8	13	17	22	40	69	91	120	CE	830K	50		
2400-6	180KC	3	2	NO	2400-6	35	3.2	3.7	4.5	6.7	7.6	15	21	28	62	CE	CE	CE	207K	50			
2400-6	180KC	4	2	NO	2400-6	35	3.2	3.6	4.2	5.6	6.7	12	16	22	44	CE	CE	CE	207K	50			
2400-6	180KC	6	2	NO	2400-6	35	3.3	3.5	4.2	5.7	6.3	11	15	19	39	57	85	CE	415K	50			
2400-6	180KC	10	2	NO	2400-6	35	3.3	3.5	4.3	5.2	5.7	9.6	13	16	29	49	64	79	CE	830K	50		
2400-5	120KC	3	2	YES	2400-5	35	3.3	3.8	4.8	7.5	8.6	17	25	34	76	CE	CE	CE	207K	50			
2400-5	120KC	4	2	YES	2400-5	35	3.3	3.7	4.4	6.2	7.6	14	19	26	53	CE	CE	CE	207K	50			
2400-5	120KC	6	2	YES	2400-5	35	3.3	3.6	4.2	5.7	6.9	12	16	22	45	81	130	CE	415K	50			
2400-5	120KC	10	2	YES	2400-5	35	3.4	3.6	4.0	5.3	6.4	11	15	20	40	69	91	120	CE	830K	50		
2400-6	180KC	3	2	YES	2400-6	35	3.2	3.6	4.3	6.2	6.9	13	18	25	53	CE	CE	CE	207K	50			
2400-6	180KC	4	2	YES	2400-6	35	3.2	3.5	4.0	5.3	6.2	11	14	19	38	CE	CE	CE	207K	50			
2400-6	180KC	6	2	YES	2400-6	35	3.3	3.4	3.9	4.9	5.7	9.0	12	17	32	57	85	CE	415K	50			
2400-6	180KC	10	2	YES	2400-6	35	3.3	3.5	3.8	4.7	5.5	8.3	11	15	29	49	64	79	CE	830K	50		

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 200K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR										DATA SET SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK
							2	5	10	20	25	50	75	100	200	300	400	500					
2400-5	120KC	3	1	NO	2400-5	20	4.1	6.7	12	25	30	62	98	CE	CE	CE	CE	CE	83K	20			
2400-5	120KC	4	1	NO	2400-5	20	3.9	5.6	9.4	19	23	46	74	CE	CE	CE	CE	CE	83K	20			
2400-5	120KC	6	1	NO	2400-5	20	3.7	5.1	8.3	16	19	39	60	110	CE	CE	CE	CE	166K	20			
2400-5	120KC	10	1	NO	2400-5	20	3.8	4.7	7.4	14	17	34	53	86	170	250	CE	CE	332K	20			
2400-6	180KC	3	1	NO	2400-6	20	3.8	5.6	8.8	18	21	44	68	CE	CE	CE	CE	CE	83K	20			
2400-6	180KC	4	1	NO	2400-6	20	3.7	4.8	7.5	14	17	33	52	CE	CE	CE	CE	CE	83K	20			
2400-6	180KC	6	1	NO	2400-6	20	3.6	4.5	6.8	12	14	28	43	70	CE	CE	CE	CE	166K	20			
2400-6	180KC	10	1	NO	2400-6	20	3.6	4.3	6.2	11	13	25	38	60	120	180	CE	CE	332K	20			
2400-5	120KC	3	2	NO	2400-5	20	3.9	5.9	9.5	20	24	52	77	CE	CE	CE	CE	CE	81K	17			
2400-5	120KC	4	2	NO	2400-5	20	3.7	5.2	8.3	15	18	36	58	CE	CE	CE	CE	CE	83K	20			
2400-5	120KC	6	2	NO	2400-5	20	3.8	4.9	7.7	15	17	31	52	67	CE	CE	CE	CE	166K	20			
2400-5	120KC	10	2	NO	2400-5	20	3.7	5.0	6.7	13	15	26	37	58	120	170	CE	CE	332K	20			
2400-6	180KC	3	2	NO	2400-6	20	3.7	5.0	7.5	15	17	37	54	CE	CE	CE	CE	CE	81K	17			
2400-6	180KC	4	2	NO	2400-6	20	3.6	4.6	6.7	12	14	26	41	CE	CE	CE	CE	CE	83K	20			
2400-6	180KC	6	2	NO	2400-6	20	3.6	4.4	6.3	11	13	23	37	47	CE	CE	CE	CE	166K	20			
2400-6	180KC	10	2	NO	2400-6	20	3.5	4.5	5.7	9.5	11	19	27	41	78	120	CE	CE	332K	20			
2400-5	120KC	3	2	YES	2400-5	20	3.8	5.5	8.6	17	21	45	66	CE	CE	CE	CE	CE	81K	17			
2400-5	120KC	4	2	YES	2400-5	20	3.7	4.9	7.5	14	16	31	50	CE	CE	CE	CE	CE	83K	20			
2400-5	120KC	6	2	YES	2400-5	20	3.5	4.6	6.8	12	14	27	42	67	CE	CE	CE	CE	166K	20			
2400-5	120KC	10	2	YES	2400-5	20	3.6	4.3	6.4	11	13	24	38	58	120	170	CE	CE	332K	20			
2400-6	180KC	3	2	YES	2400-6	20	3.6	4.8	6.9	13	15	32	47	CE	CE	CE	CE	CE	81K	17			
2400-6	180KC	4	2	YES	2400-6	20	3.5	4.4	6.2	10	12	23	35	CE	CE	CE	CE	CE	83K	20			
2400-6	180KC	6	2	YES	2400-6	20	3.4	4.2	5.7	8.9	11	20	30	47	CE	CE	CE	CE	166K	20			
2400-6	180KC	10	2	YES	2400-6	20	3.5	4.0	5.4	8.2	9.4	18	27	41	78	120	CE	CE	332K	20			

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 400K
 RECORD SIZE 20

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-5	120KC	3	1	NO	2400-5	350	3.1	3.2	3.2	3.3	3.4	3.9	4.7	5.2	9.1	12	17	21	1980K	322
2400-5	120KC	4	1	NO	2400-5	350	3.1	3.2	3.2	3.4	3.4	3.7	4.3	4.7	7.1	11	13	17	2075K	500
2400-5	120KC	6	1	NO	2400-5	350	3.2	3.2	3.3	3.4	3.5	3.8	4.1	4.4	6.3	9.0	11	15	4151K	500
2400-5	120KC	10	1	NO	2400-5	350	3.3	3.3	3.4	3.5	3.5	3.9	4.2	4.5	5.7	8.0	9.6	13	8303K	500
2400-6	180KC	3	1	NO	2400-6	350	3.1	3.1	3.2	3.3	3.3	3.7	4.3	4.7	7.4	9.5	13	16	1980K	322
2400-6	180KC	4	1	NO	2400-6	350	3.1	3.2	3.2	3.3	3.3	3.6	4.0	4.3	6.1	8.3	10	13	2075K	500
2400-6	180KC	6	1	NO	2400-6	350	3.2	3.2	3.2	3.3	3.4	3.6	3.9	4.1	5.5	7.5	8.9	12	4151K	500
2400-6	180KC	10	1	NO	2400-6	350	3.3	3.3	3.3	3.4	3.5	3.7	3.9	4.2	5.1	6.8	8.0	11	8303K	500
2400-5	120KC	3	2	NO	2400-5	350	3.1	3.1	3.2	3.3	3.3	3.8	4.4	4.8	7.8	11	14	19	2075K	500
2400-5	120KC	4	2	NO	2400-5	350	3.1	3.2	3.2	3.3	3.4	3.6	4.1	4.4	6.3	8.7	11	14	2075K	500
2400-5	120KC	6	2	NO	2400-5	350	3.1	3.2	3.2	3.3	3.4	3.6	3.9	4.6	6.1	8.8	11	13	4151K	500
2400-5	120KC	10	2	NO	2400-5	350	3.2	3.2	3.3	3.4	3.4	3.7	4.0	4.2	6.2	7.6	9.1	11	8303K	500
2400-6	180KC	3	2	NO	2400-6	350	3.1	3.1	3.2	3.2	3.3	3.6	4.0	4.4	6.5	8.2	11	14	2075K	500
2400-6	180KC	4	2	NO	2400-6	350	3.1	3.2	3.2	3.3	3.3	3.5	3.9	4.1	5.5	7.2	8.9	11	2075K	500
2400-6	180KC	6	2	NO	2400-6	350	3.1	3.2	3.2	3.3	3.3	3.5	3.7	4.3	5.4	7.4	8.8	11	4151K	500
2400-6	180KC	10	2	NO	2400-6	350	3.2	3.2	3.3	3.4	3.4	3.6	3.8	4.0	5.5	6.6	7.7	8.8	8303K	500
2400-5	120KC	3	2	YES	2400-5	350	3.1	3.1	3.2	3.3	3.3	3.7	4.2	4.5	7.1	9.1	13	16	2075K	500
2400-5	120KC	4	2	YES	2400-5	350	3.1	3.2	3.2	3.3	3.3	3.5	4.0	4.2	5.8	7.9	9.8	13	2075K	500
2400-5	120KC	6	2	YES	2400-5	350	3.2	3.2	3.2	3.3	3.4	3.6	3.8	4.0	5.3	7.1	8.6	11	4151K	500
2400-5	120KC	10	2	YES	2400-5	350	3.2	3.3	3.3	3.4	3.4	3.7	3.9	4.1	4.9	6.5	7.7	9.7	8303K	500
2400-6	180KC	3	2	YES	2400-6	350	3.1	3.1	3.2	3.2	3.3	3.5	3.9	4.2	6.1	7.6	9.8	13	2075K	500
2400-6	180KC	4	2	YES	2400-6	350	3.1	3.1	3.2	3.2	3.3	3.4	3.8	4.0	5.2	6.7	8.2	10	2075K	500
2400-6	180KC	6	2	YES	2400-6	350	3.2	3.2	3.2	3.3	3.3	3.5	3.7	3.8	4.8	6.2	7.4	8.9	4151K	500
2400-6	180KC	10	2	YES	2400-6	350	3.2	3.3	3.3	3.4	3.4	3.6	3.7	3.9	4.6	5.8	6.7	8.2	8303K	500

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 400K
 RECORD SIZE 80

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	TIME IN MINUTES FOR DATA SET SIZES (IN THOUSANDS)										MAX SIZE	SORT BLOCK		
							2	5	10	20	25	50	75	100	200	300			400	500
2400-5	120KC	3	1	NO	2400-5	90	3.2	3.3	3.6	4.4	5.2	8.1	12	17	34	54	72	97	518K	125
2400-5	120KC	4	1	NO	2400-5	90	3.2	3.4	3.6	4.1	4.7	7.1	11	13	25	40	52	72	518K	125
2400-5	120KC	6	1	NO	2400-5	90	3.2	3.4	3.6	4.1	4.4	6.3	8.9	11	21	34	44	61	1037K	125
2400-5	120KC	10	1	NO	2400-5	90	3.3	3.5	3.7	4.2	4.4	5.7	7.9	9.4	19	30	38	53	2075K	125
2400-6	180KC	3	1	NO	2400-6	90	3.2	3.3	3.4	4.0	4.5	6.5	9.1	13	24	38	51	67	518K	125
2400-6	180KC	4	1	NO	2400-6	90	3.2	3.3	3.4	3.8	4.2	5.8	7.9	9.5	18	29	37	51	518K	125
2400-6	180KC	6	1	NO	2400-6	90	3.2	3.3	3.5	3.8	4.0	5.3	7.1	8.4	16	25	31	43	1037K	125
2400-6	180KC	10	1	NO	2400-6	90	3.3	3.4	3.6	3.9	4.1	4.9	6.5	7.5	14	22	28	38	2075K	125
2400-5	120KC	3	2	NO	2400-5	90	3.2	3.3	3.5	4.1	4.7	7.0	9.9	14	27	43	61	75	518K	125
2400-5	120KC	4	2	NO	2400-5	90	3.2	3.3	3.5	3.9	4.4	6.2	8.5	11	20	32	41	56	518K	125
2400-5	120KC	6	2	NO	2400-5	90	3.2	3.3	3.5	3.9	4.1	6.0	7.4	11	18	30	39	47	1037K	125
2400-5	120KC	10	2	NO	2400-5	90	3.3	3.4	3.6	4.0	4.2	6.1	7.5	8.9	15	25	32	40	2075K	125
2400-6	180KC	3	2	NO	2400-6	90	3.1	3.2	3.4	3.8	4.2	5.8	7.8	11	20	30	43	53	518K	125
2400-6	180KC	4	2	NO	2400-6	90	3.2	3.2	3.4	3.6	4.0	5.2	6.9	8.1	15	23	30	40	518K	125
2400-6	180KC	6	2	NO	2400-6	90	3.2	3.3	3.4	3.7	3.8	5.1	6.1	8.2	14	22	28	34	1037K	125
2400-6	180KC	10	2	NO	2400-6	90	3.2	3.3	3.5	3.7	3.9	5.2	6.2	7.2	11	19	24	29	2075K	125
2400-5	120KC	3	2	YES	2400-5	90	3.2	3.3	3.4	4.0	4.5	6.4	8.9	12	24	37	53	65	518K	125
2400-5	120KC	4	2	YES	2400-5	90	3.2	3.3	3.4	3.8	4.2	5.7	7.7	9.3	18	28	36	49	518K	125
2400-5	120KC	6	2	YES	2400-5	90	3.2	3.3	3.5	3.8	4.0	5.2	7.0	8.2	15	24	30	41	1037K	125
2400-5	120KC	10	2	YES	2400-5	90	3.3	3.4	3.6	3.9	4.0	4.8	6.3	7.4	14	21	27	36	2075K	125
2400-6	180KC	3	2	YES	2400-6	90	3.1	3.2	3.3	3.7	4.1	5.4	7.1	9.2	17	27	37	46	518K	125
2400-6	180KC	4	2	YES	2400-6	90	3.2	3.2	3.3	3.6	3.9	4.9	6.3	7.4	13	20	26	35	518K	125
2400-6	180KC	6	2	YES	2400-6	90	3.2	3.3	3.4	3.6	3.7	4.6	5.8	6.7	12	18	22	30	1037K	125
2400-6	180KC	10	2	YES	2400-6	90	3.3	3.3	3.5	3.7	3.8	4.4	5.4	6.1	11	16	20	26	2075K	125

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 400K
 RECORD SIZE 200

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET					SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK	
								5	10	20	25	50	75	100	200	300	400			500
2400-5	120KC	3	1	NO	2400-5	35	3.3	3.7	5.2	8.1	11	20	32	41	96	CE	CE	CE	207K	50
2400-5	120KC	4	1	NO	2400-5	35	3.4	3.7	4.7	7.0	8.0	15	24	34	72	CE	CE	CE	207K	50
2400-5	120KC	6	1	NO	2400-5	35	3.4	3.8	4.4	6.3	7.1	13	20	26	60	130	160	CE	415K	50
2400-5	120KC	10	1	NO	2400-5	35	3.5	3.8	4.4	5.7	6.3	11	18	22	53	85	120	170	830K	50
2400-6	180KC	3	1	NO	2400-6	35	3.3	3.5	4.5	6.5	8.1	15	23	29	67	CE	CE	CE	207K	50
2400-6	180KC	4	1	NO	2400-6	35	3.3	3.5	4.2	5.8	6.5	12	17	24	50	CE	CE	CE	207K	50
2400-6	180KC	6	1	NO	2400-6	35	3.3	3.6	4.0	5.3	5.8	9.7	15	19	43	84	120	CE	415K	50
2400-6	180KC	10	1	NO	2400-6	35	3.4	3.6	4.1	4.9	5.3	8.5	13	17	38	60	78	120	830K	50
2400-5	120KC	3	2	NO	2400-5	35	3.3	3.6	4.7	7.0	8.8	16	25	33	75	CE	CE	CE	207K	50
2400-5	120KC	4	2	NO	2400-5	35	3.3	3.6	4.4	6.2	6.9	13	19	27	56	CE	CE	CE	207K	50
2400-5	120KC	6	2	NO	2400-5	35	3.3	3.6	4.1	6.0	6.7	13	17	25	47	81	110	CE	415K	50
2400-5	120KC	10	2	NO	2400-5	35	3.4	3.7	4.2	6.1	6.8	11	14	22	39	57	75	120	830K	50
2400-6	180KC	3	2	NO	2400-6	35	3.2	3.4	4.2	5.8	7.0	12	19	24	53	CE	CE	CE	207K	50
2400-6	180KC	4	2	NO	2400-6	35	3.2	3.4	4.0	5.2	5.7	9.3	14	20	40	CE	CE	CE	207K	50
2400-6	180KC	6	2	NO	2400-6	35	3.3	3.5	3.8	5.1	5.6	9.4	13	19	34	57	74	CE	415K	50
2400-6	180KC	10	2	NO	2400-6	35	3.3	3.5	3.9	5.2	5.7	8.1	11	16	28	41	53	79	830K	50
2400-5	120KC	3	2	YES	2400-5	35	3.3	3.5	4.5	6.4	7.9	15	22	28	65	CE	CE	CE	207K	50
2400-5	120KC	4	2	YES	2400-5	35	3.3	3.5	4.2	5.7	6.4	11	17	24	48	CE	CE	CE	207K	50
2400-5	120KC	6	2	YES	2400-5	35	3.3	3.6	4.0	5.2	5.7	9.4	15	19	41	81	110	CE	415K	50
2400-5	120KC	10	2	YES	2400-5	35	3.4	3.6	4.0	4.8	5.2	8.3	13	17	36	57	75	120	830K	50
2400-6	180KC	3	2	YES	2400-6	35	3.2	3.4	4.1	5.4	6.4	11	16	21	45	CE	CE	CE	207K	50
2400-6	180KC	4	2	YES	2400-6	35	3.2	3.4	3.9	4.9	5.4	8.4	13	17	34	CE	CE	CE	207K	50
2400-6	180KC	6	2	YES	2400-6	35	3.3	3.4	3.7	4.6	5.0	7.5	11	14	29	57	74	CE	415K	50
2400-6	180KC	10	2	YES	2400-6	35	3.3	3.5	3.8	4.3	4.6	6.8	9.6	13	26	41	53	79	830K	50

SYSTEM/360 MODEL 75
 MAIN STORAGE USED 400K
 RECORD SIZE 500

WORK UNIT	DATA RATE	NO. UNITS	NO. CH	SW	IN-OUT UNIT	IN-OUT BLOCK	2	TIME IN MINUTES FOR DATA SET					SIZES (IN THOUSANDS)					MAX SIZE	SORT BLOCK	
								5	10	20	25	50	75	100	200	300	400			500
2400-5	120KC	3	1	NO	2400-5	20	3.7	5.7	9.6	20	24	56	90	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	4	1	NO	2400-5	20	3.7	5.1	8.0	15	20	41	67	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	6	1	NO	2400-5	20	3.7	4.6	7.0	13	17	35	51	86	CE	CE	CE	CE	166K	20
2400-5	120KC	10	1	NO	2400-5	20	3.8	4.7	6.2	11	15	31	44	71	170	250	CE	CE	332K	20
2400-6	180KC	3	1	NO	2400-6	20	3.5	4.9	7.6	15	18	39	63	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	4	1	NO	2400-6	20	3.5	4.5	6.5	11	15	29	47	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	6	1	NO	2400-6	20	3.6	4.2	5.8	9.6	13	25	36	60	CE	CE	CE	CE	166K	20
2400-6	180KC	10	1	NO	2400-6	20	3.6	4.3	5.3	8.5	12	22	31	50	120	180	CE	CE	332K	20
2400-5	120KC	3	2	NO	2400-5	20	3.6	5.1	8.7	16	20	44	70	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	4	2	NO	2400-5	20	3.6	4.6	6.9	12	16	33	53	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	6	2	NO	2400-5	20	3.6	4.9	6.6	13	15	31	44	58	CE	CE	CE	CE	166K	20
2400-5	120KC	10	2	NO	2400-5	20	3.7	4.4	6.7	11	12	26	37	48	120	170	CE	CE	332K	20
2400-6	180KC	3	2	NO	2400-6	20	3.4	4.5	6.9	12	15	31	49	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	4	2	NO	2400-6	20	3.4	4.2	5.7	9.2	12	24	37	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	6	2	NO	2400-6	20	3.5	4.4	5.5	9.3	11	22	31	41	CE	CE	CE	CE	166K	20
2400-6	180KC	10	2	NO	2400-6	20	3.5	4.0	5.6	8.0	9.2	19	26	34	78	120	CE	CE	332K	20
2400-5	120KC	3	2	YES	2400-5	20	3.5	4.8	7.9	14	17	38	60	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	4	2	YES	2400-5	20	3.5	4.4	6.3	11	14	28	45	CE	CE	CE	CE	CE	83K	20
2400-5	120KC	6	2	YES	2400-5	20	3.5	4.1	5.7	9.3	13	24	34	58	CE	CE	CE	CE	166K	20
2400-5	120KC	10	2	YES	2400-5	20	3.6	4.2	5.2	8.2	11	21	30	48	120	170	CE	CE	332K	20
2400-6	180KC	3	2	YES	2400-6	20	3.4	4.3	6.4	11	13	27	42	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	4	2	YES	2400-6	20	3.4	4.0	5.3	8.3	11	21	32	CE	CE	CE	CE	CE	83K	20
2400-6	180KC	6	2	YES	2400-6	20	3.4	3.8	4.9	7.4	9.4	18	25	41	CE	CE	CE	CE	166K	20
2400-6	180KC	10	2	YES	2400-6	20	3.5	3.9	4.6	6.7	8.5	16	22	34	78	120	CE	CE	332K	20

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