

Gould MPX-32TM
Release 3.3
Reference Manual
Appendices, Glossary and Index

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HISTORY

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APPENDIX A

MPX-32 DEVICE ACCESS

Throughout the MPX-32 Reference Manual, the generic descriptor 'devmnc' indicates that a device can be specified.

Under MPX-32, device addresses are specified using a combination of three levels of identification. They are device type, device channel/controller address, and device address/subaddress.

A device can be specified using the generic device type only, which results in allocation of the first available device of the type requested.

A second method of device specification is achieved by using the generic device type and specifying the channel/controller address. This results in allocation of the first available device of the type requested on the specified channel or controller.

The third method of device selection requires specification of the device type, channel/controller, and device address/subaddress. This method allows specification of a particular device.

A.1 Special Device Specifications and Handling

A.1.1 Magnetic Tape/Floppy Disc

For magnetic tape and floppy discs, unblocking, density, a reel identifier, and multivolume number (magnetic tape only) can be part of the device mnemonic.

Syntax:

$$\$ASSIGN \text{ lfc TO DEV=devmnc } \left[\text{BLOCKED} = \begin{cases} Y \\ N \end{cases} \right] \left[\text{DENSITY} = \begin{cases} N \\ P \\ G \\ 800 \\ 1600 \\ 6250 \end{cases} \right] \\ \left[\text{ID=id} \right] \left[\text{MULTIVOL=number} \right]$$

lfc is a one- to three-character logical file code

devmnc is a device mnemonic of a configured peripheral device

BLOCKED if Y is specified, medium is blocked. If N is specified, medium is not blocked. If not specified the default is blocked.

DENSITY specifies density of high speed XIO tape. If not specified, the default is 6250 bpi.

id specifies a one- to four-character identifier for the reel. If not specified, the default is SCRA (Scratch).

number if multivolume tape, a volume number must be specified. If not specified, the default is not multivolume (0). This option is not valid for use with floppy discs.

When the task that has an assignment to tape is activated, a mount message indicates the name of the task and other information on the system console:

```
MOUNT reel VOL volume ON devmnc
TASK taskname,taskno REPLY R,H,A, OR DEVICE:
jobno
```

reel specifies a one- to four-character identifier for the reel. If not specified, the default is SCRA (Scratch).

volume identifies the volume number to mount if multivolume tape

devmnc is the device mnemonic for the tape unit selected in response to the assignment. If a specific channel and subaddress are supplied in the assignment, the specific tape drive is selected and named in the message; otherwise, a unit is selected by the system and its complete address is named in the message.

jobno identifies the job by job number if the task is part of a batch job

taskname is the name of the task to which the tape is assigned

taskno is the task number assigned to the task by the system

R,H,A,
DEVICE

the device listed in the message can be allocated and the task resumed (R), a different device can be selected (DEVICE), the task can be aborted (A), or the task can be held with the specified device deallocated (H). If an R response is given and a high speed XIO tape drive is being used, its density can be changed when the software select feature is enabled on the tape unit front panel. If specified, it overrides any specification made at assignment. Values are as follows:

<u>Value</u>	<u>Description</u>
N or 800	Indicates 800 bpi nonreturn to zero inverted (NRZI).
P or 1600	Indicates 1600 bpi phase encoded (PE).
G or 6250	Indicates 6250 bpi group coded recording (GCR). Default.
Example usage:	RN, R1600, etc.

Note: Do not insert blanks or commas.

Response:

To indicate the drive specified in the mount message is ready and proceed with the task, mount the tape on the drive and type R (resume), optionally followed by a density specification if the drive is a high speed XIO tape unit. To abort the task, type A (abort). To hold the task and deallocate the specified device, type H (hold). The task can be resumed by the OPCOM CONTINUE directive; at which time, a tape drive is selected by the system and the mount message redisplayed.

To select a tape drive other than the drive specified in the message, enter the mnemonic of the drive to be used. Any of the three levels of device identification can be used. The mount message is reissued. Mount the tape and type R if satisfactory, or if not satisfactory, abort, override, or hold as described.

Examples of the three methods of device specification follow:

Type 1 - Generic Device Class

\$ASSIGN OUT TO DEV=M9 MULT=1 ID=MVOL

In this example, the device assigned to logical file code (LFC) OUT is any 9-track tape unit on any channel. The multivolume reel number is one. The reel identifier is MVOL and the tape is blocked.

Type 2 - Generic Device Class and Channel/Controller

\$ASSIGN OUT TO DEV=M910 ID=MVOL BLOC=N

In this example, the device assigned to logical file code (LFC) OUT is the first available 9-track tape unit on channel 10. The specification is invalid if a 9-track tape unit does not exist on the channel. The reel identifier is supplied. This is not a multivolume tape and is unblocked.

Type 3 - Specific Device Request

\$ASSIGN OUT TO DEV=M91001

In this example, the device assigned to logical file code (LFC) OUT is the 9-track tape unit 01 on channel 10. The specification is invalid if unit 01 on channel 10 is not a 9-track tape. The tape reel identifier is SCRA. The tape is blocked and is not multivolume.

A.1.2 Temporary Disc Space

For a temporary disc file the following can be specified: size, blocking, printing or punching, and access.

Syntax:

\$ASSIGN lfc TO TEMP [= (volname)] [SIZE=nnnn] [BLOCKED= {Y}{N}]
{PRINT}{PUNCH} [ACCESS = ([READ] [WRITE] [MODIFY] [UPDATE] [APPEND])]

lfc is a one- to three-character logical file code

volname is the one- to sixteen-character volume name where temporary space is allocated. If not specified, the default is the current working volume or any public volume.

SIZE specifies the number of 192-word blocks required. If not specified, the default is 16 blocks.

BLOCKED if Y is specified, file is blocked. If N is specified, file is unblocked. If not specified, the default is blocked.

PRINT indicates the file be printed after deassignment

PUNCH indicates the file be punched after deassignment

ACCESS specifies the types of access for the file. If not specified, the default is the access specified at file creation.

Examples:

AS OUT TO TEMP PRINT

AS OUT TO TEMP=(SYSTEM) BLOC=Y

The first example is the equivalent of

AS OUT TO SLO

(and)

A2 OUT=SLO,100

A.2 GPMC Devices

GPMC/GPDC device specifications follow the general structure just described. The terminal at subaddress 04 on GPMC 01 whose channel address is 20 would be identified as follows:

```
$ASSIGN DEV TO DEV=TY2004
```

A.3 Null Device

A special device type, NU, is available for null device specifications. Files accessed using this device type generate: an end-of-file (EOF) when a read is attempted and normal completion when a write is attempted.

A.4 System Console

Logical file codes are assigned to the system console by using the device type CT.

A.5 Special System Files

There are four special mnemonics provided for access to special system files: SLO, SBO, SGO and SYC. These are assigned with the \$ASSIGN statement, as in:

```
$ASSIGN OUT TO SLO
```

For nonbatch tasks, SLO and SBO files are allocated dynamically by the system and used to disc buffer output to a device selected automatically. For batch tasks, use of SLO and SBO files is identical, except that automatic selection of a device can be overridden by assigning a specific file or device.

<u>Device Type Code</u>	<u>Device</u>	<u>Device Description</u>
00	CT	Operator console (not assignable)
01	DC	Any disc unit except memory disc
02	DM	Any moving head or memory disc
03	DF	Any fixed head disc
04	MT	Any magnetic tape unit
05	M9	Any 9-track magnetic tape unit
06	M7	Any 7-track magnetic tape unit
08	CR	Any card reader
0A	LP	Any line printer
0B	PT	Any paper tape reader-punch
0C	TY	Any teletypewriter (other than console)
0D	CT	Operator console (assignable)
0E	FL	Floppy disc
0F	NU	Null device
10	CA	Communications adapter (binary synchronous/asynchronous)
11	U0	Available for user-defined applications
12	U1	Available for user-defined applications
13	U2	Available for user-defined applications
14	U3	Available for user-defined applications
15	U4	Available for user-defined applications
16	U5	Available for user-defined applications
17	U6	Available for user-defined applications
18	U7	Available for user-defined applications
19	U8	Available for user-defined applications
1A	U9	Available for user-defined applications
1B	LF	Line printer/floppy controller (used only with SYSGEN)
N/A	ANY	Any nonfloppy disc except memory disc

Table A-1. Device Type Codes

A.6 Samples

A description of device selection possibilities is constructed as follows:

Disc

DC	Any disc except memory disc
DM	Any moving head or memory disc
DM08	Any moving head disc on channel 08
DM0801	Moving head disc 01 on channel 08
DM0002	Memory disc 02 on channel 00
DF	Any fixed head disc
DF04	Any fixed head disc on channel 04
DF0401	Fixed head disc 01 on channel 04

Tape

MT	Any magnetic tape
M9	Any 9-track magnetic tape
M910	Any 9-track magnetic tape on channel 10
M91002	9-track magnetic tape 02 on channel 10

Card Equipment

CR	Any card reader
CR78	Any card reader on channel 78
CR7800	Card reader 00 on channel 78

Line Printer

LP	Any line printer
LP7A	Any line printer on channel 7A
LP7A00	Line printer 00 on channel 7A
LP7EA0	Serial printer A0 on ACM channel 7E

APPENDIX B

SYSTEM SERVICES CROSS-REFERENCE

USER LEVEL SYSTEM SERVICES - MACRO NAME

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M.ACTV	Activate Task	1,X'52'	H.REXS,15	6.2
M_ACTV	Activate Task	1,X'52'	H.REXS,15	7.2
M.ADRS	Memory Address Inquiry	1,X'44'	H.REXS,3	6.2
M_ADRS	Memory Address Inquiry	1,X'44'	H.REXS,3	7.2
M_ADVANCE	Advance Record Advance File	1,X'33' 1,X'34'	H.IOCS,7 H.IOCS,8	7.2 7.2
M.ALOC	Allocate File or Peripheral Device	1,X'40'	H.MONS,21	6.4
M.ANYW	Wait for Any No-wait Operation Complete, Message Interrupt, or Break Interrupt	1,X'7C'	H.REXS,37	6.2
M_ANYWAIT	Wait for Any No-wait Operation Complete, Message Interrupt, or Break Interrupt	1,X'7C'	H.REXS,37	7.2
M_ASSIGN	Assign and Allocate Resource	2,X'52'	H.REXS,21	7.2
M.ASSN	Assign and Allocate Resource	2,X'52'	H.REXS,21	6.2
M.ASYNCH	Set Asynchronous Task Interrupt	1,X'1C'	H.REXS,68	6.2
M_ASYNCH	Set Asynchronous Task Interrupt	1,X'1C'	H.REXS,68	7.2
M_AWAITACTION	End Action Wait	1,X'1D'	H.EXEC,40	7.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M.BACK	Backspace Record	1,X'35'	H.IOCS,9	6.2
	Backspace File	1,X'36'	H.IOCS,19	6.2
M_BACKSPACE	Backspace Record	1,X'35'	H.IOCS,9	7.2
	Backspace File	1,X'36'	H.IOCS,19	7.2
M.BATCH	Batch Job Entry	2,X'55'	H.REXS,27	6.2
M_BATCH	Batch Job Entry	2,X'55'	H.REXS,27	7.2
M.BBTIM	Acquire Current Date/Time in Byte Binary Format	2,X'50'	H.REXS,74	6.2
M_BBTIM	Acquire Current Date/Time in Byte Binary Format	2,X'50'	H.REXS,74	7.2
M.BORT	Abort Specified Task	1,X'56'	H.REXS,19	6.2
	Abort Self	1,X'57'	H.REXS,20	6.2
	Abort With Extended Message	1,X'62'	H.REXS,28	6.2
M_BORT	Abort Specified Task	1,X'56'	H.REXS,19	7.2
	Abort Self	1,X'57'	H.REXS,20	7.2
	Abort With Extended Message	1,X'62'	H.REXS,28	7.2
M.BRK	Break/Task Interrupt Link/Unlink	1,X'6E'	H.REXS,46	6.2
M_BRK	Break/Task Interrupt Link/Unlink	1,X'6E'	H.REXS,46	7.2
M.BRKXIT	Exit From Task Interrupt Level	1,X'70'	H.REXS,48	6.2
M_BRKXIT	Exit From Task Interrupt Level	1,X'70'	H.REXS,48	7.2
M.BTIM	Acquire Current Date/Time in Binary Format	2,X'50'	H.REXS,74	6.2
M_BTIM	Acquire Current Date/Time in Binary Format	2,X'50'	H.REXS,74	7.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M.CDJS	Submit Job from Disc File	1,X'61'	H.MONS,27	6.4
M_CHANPROGFCB	Execute Channel Program File Control Block	N/A	N/A	7.2
M.CLOSER	Close Resource	2,X'43'	H.REMM,22	6.2
M_CLOSER	Close Resource	2,X'43'	H.REMM,22	7.2
M.CLSE	Close File	1,X'39'	H.IOCS,23	6.2
M_CLSE	Close File	1,X'39'	H.IOCS,23	7.2
M.CMD	Get Command Line	2,X'61'	H.REXS,88	6.2
M_CMD	Get Command Line	2,X'61'	H.REXS,88	7.2
M.CONABB	Convert ASCII Date/Time to Byte Binary Format	2,X'51'	H.REXS,75	6.2
M_CONABB	Convert ASCII Date/Time to Byte Binary Format	2,X'51'	H.REXS,75	7.2
M.CONADB	Convert ASCII Decimal to Binary	1,X'28'	H.TSM,7	6.2
M_CONADB	Convert ASCII Decimal to Binary	1,X'28'	H.TSM,7	7.2
M.CONAHB	Convert ASCII Hex to Binary	1,X'29'	H.TSM,8	6.2
M_CONAHB	Convert ASCII Hex to Binary	1,X'29'	H.TSM,8	7.2
M.CONASB	Convert ASCII Date/Time to Standard Binary	2,X'51'	H.REXS,75	6.2
M_CONASB	Convert ASCII Date/Time to Standard Binary	2,X'51'	H.REXS,75	7.2
M.CONBAD	Convert Binary to ASCII Decimal	1,X'2A'	H.TSM,9	6.2
M_CONBAD	Convert Binary to ASCII Decimal	1,X'2A'	H.TSM,9	7.2
M.CONBAF	Convert Binary Date/Time to ASCII Format	2,X'51'	H.REXS,75	6.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M_CONBAF	Convert Binary Date/Time to ASCII Format	2,X'51'	H.REXS,75	7.2
M.CONBAH	Convert Binary to ASCII Hex	1,X'2B'	H.TSM,10	6.2
M_CONBAH	Convert Binary to ASCII Hex	1,X'2B'	H.TSM,10	7.2
M.CONBBA	Convert Byte Binary Date/Time to ASCII	2,X'51'	H.REXS,75	6.2
M_CONBBA	Convert Byte Binary Date/Time to ASCII	2,X'51'	H.REXS,75	7.2
M.CONBBY	Convert Binary Date/Time to Byte Binary	2,X'51'	H.REXS,75	6.2
M_CONBBY	Convert Binary Date/Time to Byte Binary	2,X'51'	H.REXS,75	7.2
M.CONBYB	Convert Byte Binary Date/Time to Binary	2,X'51'	H.REXS,75	6.2
M_CONBYB	Convert Byte Binary Date/Time to Binary	2,X'51'	H.REXS,75	7.2
M.CONN	Connect Task to Interrupt	1,X'4B'	H.REXS,10	6.2
M_CONN	Connect Task to Interrupt	1,X'4B'	H.REXS,10	7.2
M_CONSTRUCTPATH	Reconstruct Pathname	2,X'2F'	H.VOMM,16	7.2
M_CONVERTTIME	Convert Time	2,X'51'	H.REXS,75	7.2
M.CPERM	Create Permanent File	2,X'20'	H.VOMM,1	6.2
M.CREATE	Create Permanent File	1,X'75'	H.FISE,12	6.4
M_CREATEFCB	Create File Control Block	N/A	N/A	7.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M_CREATEP	Create Permanent File	2,X'20'	H.VOMM,1	7.2
M_CREATET	Create Temporary File	2,X'21'	H.VOMM,2	7.2
M.CTIM	Convert System Date/Time Format	2,X'51'	H.REXS,75	6.2
M_CTIM	Convert System Date/Time Format	2,X'51'	H.REXS,75	7.2
M.CWAT	System Console Wait	1,X'3D'	H.IOCS,26	6.2
M_CWAT	System Console Wait	1,X'3D'	H.IOCS,26	7.2
M.DALC	Deallocate File or Peripheral Device	1,X'41'	H.MONS,22	6.4
M.DASN	Deassign and Deallocate Resource	2,X'53'	H.REXS,22	6.2
M.DATE	Date and Time Inquiry	1,X'15'	H.REXS,70	6.2
M_DATE	Date and Time Inquiry	1,X'15'	H.REXS,70	7.2
M_DEASSIGN	Deassign and Deallocate Resource	2,X'53'	H.REXS,22	7.2
M.DEBUG	Load and Execute Interactive Debugger	1,X'63'	H.REXS,29	6.2
M_DEBUG	Load and Execute Interactive Debugger	1,X'63'	H.REXS,29	7.2
M.DEFT	Change Defaults	2,X'27'	H.VOMM,8	6.2
M_DEFT	Change Defaults	2,X'27'	H.VOMM,8	7.2
M.DELETE	Delete Permanent File or Non-SYSGEN Memory Partition	1,X'77'	H.FISE,14	6.4
M_DELETER	Delete Resource	2,X'24'	H.VOMM,5	7.2
M.DELR	Delete Resource	2,X'24'	H.VOMM,5	6.2
M.DELTSK	Delete Task	1,X'5A'	H.REXS,31	6.2
M_DELTSK	Delete Task	1,X'5A'	H.REXS,31	7.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M.DEVID	Get Device Mnemonic or Type Code	1,X'14'	H.REXS,71	6.2
M_DEVID	Get Device Mnemonic or Type Code	1,X'14'	H.REXS,71	7.2
M.DFCB	Create File Control Block	N/A	N/A	5.9.2
M.DIR	Create Directory	2,X'23'	H.VOMM,4	6.2
M_DIR	Create Directory	2,X'23'	H.VOMM,4	7.2
M.DISCON	Disconnect Task from Interrupt	1,X'5D'	H.REXS,38	6.2
M_DISCON	Disconnect Task from Interrupt	1,X'5D'	H.REXS,38	7.2
M_DISMOUNT	Dismount Volume	2,X'4A'	H.REMM,19	7.2
M.DLTT	Delete Timer Entry	1,X'47'	H.REXS,6	6.2
M_DLTT	Delete Timer Entry	1,X'47'	H.REXS,6	7.2
M.DMOUNT	Dismount Volume	2,X'4A'	H.REMM,19	6.2
M.DSMI	Disable Message Task Interrupt	1,X'2E'	H.REXS,57	6.2
M_DSMI	Disable Message Task Interrupt	1,X'2E'	H.REXS,57	7.2
M.DSUB	Disable User Break Interrupt	1,X'12'	H.REXS,73	6.2
M_DSUB	Disable User Break Interrupt	1,X'12'	H.REXS,73	7.2
M.DUMP	Memory Dump Request	1,X'4F'	H.REXS,12	6.2
M_DUMP	Memory Dump Request	1,X'4F'	H.REXS,12	7.2
M.EAWAIT	End Action Wait	1,X'1D'	H.EXEC,40	6.2
M.ENMI	Enable Message Task Interrupt	1,X'2F'	H.REXS,58	6.2
M_ENMI	Enable Message Task Interrupt	1,X'2F'	H.REXS,58	7.2
M.ENUB	Enable User Break Interrupt	1,X'13'	H.REXS,72	6.2

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(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M_ENUB	Enable User Break Interrupt	1,X'13'	H.REXS,72	7.2
M.ENVRMT	Get Task Environment	2,X'5E'	H.REXS,85	6.2
M_ENVRMT	Get Task Environment	2,X'5E'	H.REXS,85	7.2
M.EXCL	Free Shared Memory	1,X'79'	H.ALOC,14	6.4
M.EXCLUDE	Exclude Memory Partition	2,X'41'	H.REMM,14	6.2
M_EXCLUDE	Exclude Shared Image	2,X'41'	H.REMM,14	7.2
M.EXIT	Terminate Task Execution	1,X'55'	H.REXS,18	6.2
M_EXIT	Terminate Task Execution	1,X'55'	H.REXS,18	7.2
M.EXTD	Extend File	2,X'25'	H.VOMM,6	6.2
M_EXTENDFILE	Extend File	2,X'25'	H.VOMM,6	7.2
M_EXTSTS	Exit With Status	2,X'5F'	H.REXS,86	7.2
M.FADD	Permanent File Address Inquiry	1,X'43'	H.MONS,2	6.4
M.FD	Free Dynamic Extended Indexed Data Space	1,X'6A'	H.REMM,9	6.2
M.FE	Free Dynamic Task Execution Space	1,X'68'	H.REMM,11	6.2
M.FILE	Open File	1,X'30'	H.IOCS,1	6.4
M_FREEMEMBYTES	Free Memory in Byte Increments	2,X'4C'	H.REMM,29	7.2
M.FSLR	Release Synchronization File Lock	1,X'24'	H.FISE,25	6.4
M.FSLS	Set Synchronization File Lock	1,X'23'	H.FISE,24	6.4

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M.FWRD	Advance Record Advance File	1,X'33' 1,X'34'	H.IOCS,7 H.IOCS,8	6.2 6.2
M.FXLR	Release Exclusive File Lock	1,X'22'	H.FISE,23	6.4
M.FXLS	Set Exclusive File Lock	1,X'21'	H.FISE,22	6.4
M.GADRL	Get Address Limits	1,X'65'	H.REXS,41	6.2
M.GD	Get Dynamic Extended Data Space	1,X'69'	H.REMM,8	6.2
M.GE	Get Dynamic Task Execution Space	1,X'67'	H.REMM,10	6.2
M_GETCTX	Get User Context	2,X'70'	H.EXEC,41	7.2
M.GETDEF	Get Terminal Function Definition	2,X'7A'	H.TSM,15	6.2
M_GETMEMBYTES	Get Memory in Byte Increments	2,X'4B'	H.REMM,28	7.2
M_GETTIME	Get Current Date and Time	2,X'50'	H.REXS,74	7.2
M.GMSGP	Get Message Parameters	1,X'7A'	H.REXS,35	6.2
M_GMSGP	Get Message Parameters	1,X'7A'	H.REXS,35	7.2
M.GRUNP	Get Run Parameters	1,X'7B'	H.REXS,36	6.2
M_GRUNP	Get Run Parameters	1,X'7B'	H.REXS,36	7.2
M.GTIM	Acquire System Date/Time in Any F Format	2,X'50'	H.REXS,74	6.2
M_GTIM	Acquire System Date/Time in Any F Format	2,X'50'	H.REXS,74	7.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M.HOLD	Program Hold Request	1,X'58'	H.REXS,25	6.2
M_HOLD	Program Hold Request	1,X'58'	H.REXS,25	7.2
M.ID	Get Task Number	1,X'64'	H.REXS,32	6.2
M_ID	Get Task Number	1,X'64'	H.REXS,32	7.2
M.INCL	Get Shared Memory	1,X'72'	H.ALOC,13	6.4
M.INCLUDE	Include Memory Partition	2,X'40'	H.REMM,12	6.2
M_INCLUDE	Include Shared Image	2,X'40'	H.REMM,12	7.2
M_INQUIRER	Resource Inquiry	2,X'48'	H.REMM,27	7.2
M.INQUIRY	Resource Inquiry	2,X'48'	H.REMM,27	6.2
M.INT	Activate Task Interrupt	1,X'6F'	H.REXS,47	6.2
M_INT	Activate Task Interrupt	1,X'6F'	H.REXS,47	7.2
M.IPUBS	Set IPU Bias	2,X'5B'	H.REXS,82	6.2
M_IPUBS	Set IPU Bias	2,X'5B'	H.REXS,82	7.2
M_LIMITS	Get Base Mode Task Address Limits	2,X'5D'	H.REXS,84	7.2
M.LOC	Read Descriptor	2,X'2C'	H.VOMM,13	6.2
M.LOCK	Set Exclusive Resource Lock	2,X'44'	H.REMM,23	6.2
M_LOCK	Set Exclusive Resource Lock	2,X'44'	H.REMM,23	7.2
M.LOG	Permanent File Log	1,X'73'	H.MONS,33	6.4
M.LOGR	Log Resource or Directory	2,X'29'	H.VOMM,10	6.2
M_LOGR	Log Resource or Directory	2,X'29'	H.VOMM,10	7.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M.MEM	Create Memory Partition	2,X'22'	H.VOMM,3	6.2
M_MEM	Create Memory Partition	2,X'22'	H.VOMM,3	7.2
M.MEMB	Get Memory in Byte Increments	2,X'4B'	H.REMM,28	6.2
M.MEMFRE	Free Memory in Byte Increments	2,X'4C'	H.REMM,29	6.2
M.MOD	Modify Descriptor	2,X'2A'	H.VOMM,11	6.2
M_MOD	Modify Descriptor	2,X'2A'	H.VOMM,11	7.2
M.MODU	Modify Descriptor User Area	2,X'31'	H.VOMM,26	6.2
M_MODU	Modify Descriptor User Area	2,X'31'	H.VOMM,26	7.2
M.MOUNT	Mount Volume	2,X'49'	H.REMM,17	6.2
M_MOUNT	Mount Volume	2,X'49'	H.REMM,17	7.2
M.MOVE	Move Data to User Address	2,X'62'	H.REXS,89	6.2
M_MOVE	Move Data to User Address	2,X'62'	H.REXS,89	7.2
M.MYID	Get Task Number	1,X'64'	H.REXS,32	6.2
M_MYID	Get Task Number	1,X'64'	H.REXS,32	7.2
M.NEWRRS	Reformat RRS Entry	2,X'54'	H.REXS,76	6.2
M.OLAY	Load Overlay Segment	1,X'50'	H.REXS,13	6.2
	Load and Execute Overlay	1,X'51'	H.REXS,14	6.2
M.OPENR	Open Resource	2,X'42'	H.REMM,21	6.2
M_OPENR	Open Resource	2,X'42'	H.REMM,21	7.2
M_OPTIONWORD	Task Option Word Inquiry	1,X'4C'	H.REXS,24	7.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M.PDEV	Physical Device Inquiry	1,X'42'	H.MONS,1	6.4
M.PERM	Change Temporary File to Permanent	1,X'76'	H.FISE,13	6.4
M.PGOW	Task Option Word Inquiry	1,X'4C'	H.REXS,24	6.2
M.PNAM	Reconstruct Pathname	2,X'2F'	H.VOMM,16	6.2
M.PNAMB	Convert Pathname to Pathname Block	2,X'2E'	H.VOMM,15	6.2
M_PNAMB	Convert Pathname to Pathname Block	2,X'2E'	H.VOMM,15	7.2
M.PRIL	Change Priority Level	1,X'4A'	H.REXS,9	6.2
M_PRIL	Change Priority Level	1,X'4A'	H.REXS,9	7.2
M.PRIV	Reinstate Privilege Mode to Privilege Task	2,X'57'	H.REXS,78	6.2
M_PRIVMODE	Reinstate Privilege Mode to Privilege Task	2,X'57'	H.REXS,78	7.2
M.PTSK	Parameter Task Activation	1,X'5F'	H.REXS,40	6.2
M_PTSK	Parameter Task Activation	1,X'5F'	H.REXS,40	7.2
M_PUTCTX	Put User Context	2,X'71'	H.EXEC,42	7.2
M.QATIM	Acquire Current Date/Time in ASCII Format	2,X'50'	H.REXS,74	6.2
M_QATIM	Acquire Current Date/Time in ASCII Format	2,X'50'	H.REXS,74	7.2
M.RADDR	Get Real Physical Address	1,X'0E'	H.REXS,90	6.2
M_RADDR	Get Real Physical Address	1,X'0E'	H.REXS,90	7.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M.RCVR	Receive Message Link Address	1,X'6B'	H.REXS,43	6.2
M_RCVR	Receive Message Link Address	1,X'6B'	H.REXS,43	7.2
M.READ	Read Record	1,X'31'	H.IOCS,3	6.2
M_READ	Read Record	1,X'31'	H.IOCS,3	7.2
M_READD	Read Descriptor	2,X'2C'	H.VOMM,13	7.2
M.RELP	Release Dual- ported Disc/Set Dual- channel 8-line Mode	1,X'27'	H.IOCS,27	6.2
M_RELP	Release Dual- ported Disc/Set Dual- channel 8-line Mode	1,X'27'	H.IOCS,27	7.2
M.RENAM	Rename File	2,X'2D'	H.VOMM,14	6.2
M_RENAME	Rename File	2,X'2D'	H.VOMM,14	7.2
M.REPLAC	Replace Permanent File	2,X'30'	H.VOMM,23	6.2
M_REPLACE	Replace Permanent File	2,X'30'	H.VOMM,23	7.2
M.RESP	Reserve Dual- ported Disc/Set Single-channel 8-line Mode	1,X'26'	H.IOCS,24	6.2
M_RESP	Reserve Dual- ported Disc/Set Single-channel 8-line Mode	1,X'26'	H.IOCS,24	7.2
M_REWIND	Rewind File	1,X'37'	H.IOCS,2	7.2
M.REWRIT	Rewrite Descriptor	2,X'2B'	H.VOMM,12	6.2
M_REWRIT	Rewrite Descriptor	2,X'2B'	H.VOMM,12	7.2
M.REWRTU	Rewrite Descriptor User Area	2,X'32'	H.VOMM,27	6.2
M_REWRTU	Rewrite Descriptor User Area	2,X'32'	H.VOMM,27	7.2

USER LEVEL SYSTEM SERVICES - MACRO NAME

(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M.ROPL	Reset Option Lower	2,X'78'	H.TSM,14	6.2
M_ROPL	Reset Option Lower	2,X'78'	H.TSM,14	7.2
M.RRES	Release Channel Reservation	1,X'3B'	H.IOCS,13	6.2
M_RRES	Release Channel Reservation	1,X'3B'	H.IOCS,13	7.2
M.RSML	Resourcemark Lock	1,X'19'	H.REXS,62	6.2
M_RSML	Resourcemark Lock	1,X'19'	H.REXS,62	7.2
M.RSMU	Resourcemark Unlock	1,X'1A'	H.REXS,63	6.2
M_RSMU	Resourcemark Unlock	1,X'1A'	H.REXS,63	7.2
M.RSRV	Reserve Channel	1,X'3A'	H.IOCS,12	6.2
M_RSRV	Reserve Channel	1,X'3A'	H.IOCS,12	7.2
M.RWND	Rewind File	1,X'37'	H.IOCS,2	6.2
M_SETERA	Set Exception Return Address	2,X'79'	H.REXS,81	7.2
M_SETEXA	Set Exception Handler	2,X'5C'	H.REXS,83	7.2
M.SETS	Set User Status Word	1,X'48'	H.REXS,7	6.2
M_SETS	Set User Status Word	1,X'48'	H.REXS,7	7.2
M.SETSYNC	Set Synchronous Resource Lock	2,X'46'	H.REMM,25	6.2
M_SETSYNC	Set Synchronous Resource Lock	2,X'46'	H.REMM,25	7.2
M.SETT	Create Timer Entry	1,X'45'	H.REXS,4	6.2
M_SETT	Create Timer Entry	1,X'45'	H.REXS,4	7.2
M.SHARE	Share Memory with Another Task	1,X'71'	H.ALOC,12	6.4
M.SMSGR	Send Message to Specified Task	1,X'6C'	H.REXS,44	6.2
M_SMSGR	Send Message to Specified Task	1,X'6C'	H.REXS,44	7.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M.SMULK	Unlock and Dequeue Shared Memory	1,X'1F'	H.ALOC,19	6.4
M.SOPL	Set Option Lower	2,X'77'	H.TSM,13	6.2
M_SOPL	Set Option Lower	2,X'77'	H.TSM,13	7.2
M.SRUNR	Send Run Request to Specified Task	1,X'6D'	H.REXS,45	6.2
M_SRUNR	Send Run Request to Specified Task	1,X'6D'	H.REXS,45	7.2
M.SUAR	Set User Abort Receiver Address	1,X'60'	H.REXS,26	6.2
M_SUAR	Set User Abort Receiver Address	1,X'60'	H.REXS,26	7.2
M.SUME	Resume Task Execution	1,X'53'	H.REXS,16	6.2
M_SUME	Resume Task Execution	1,X'53'	H.REXS,16	7.2
M.SUSP	Suspend Task Execution	1,X'54'	H.REXS,17	6.2
M_SUSP	Suspend Task Execution	1,X'54'	H.REXS,17	7.2
M.SYNCH	Set Synchronous Task Interrupt	1,X'1B'	H.REXS,67	6.2
M_SYNCH	Set Synchronous Task Interrupt	1,X'1B'	H.REXS,67	7.2
M.TBRKON	Trap On-line User's Task	1,X'5C'	H.TSM,6	1.13 (V II)
M.TDAY	Time-of-Day Inquiry	1,X'4E'	H.REXS,11	6.2
M_TDAY	Time-of-Day Inquiry	1,X'4E'	H.REXS,11	7.2
M.TEMP	Create Temporary File	2,X'21'	H.VOMM,2	6.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M.TEMPER	Change Temporary File to Permanent File	2,X'28'	H.VOMM,9	6.2
M_TEMPFILETOPERM	Change Temporary File to Permanent File	2,X'28'	H.VOMM,9	7.2
M.TRNC	Truncate File	2,X'26'	H.VOMM,7	6.2
M_TRUNCATE	Truncate File	2,X'26'	H.VOMM,7	7.2
M.TSCAN	Scan Terminal Input Buffer	1,X'5B'	H.TSM,2	1.13 (V II)
M.TSTE	Arithmetic Exception Inquiry	1,X'4D'	H.REXS,23	6.2
M_TSTE	Arithmetic Exception Inquiry	1,X'4D'	H.REXS,23	7.2
M.TSTS	Test User Status Word	1,X'49'	H.REXS,8	6.2
M_TSTS	Test User Status Word	1,X'49'	H.REXS,8	7.2
M.TSTT	Test Timer Entry	1,X'46'	H.REXS,5	6.2
M_TSTT	Test Timer Entry	1,X'46'	H.REXS,5	7.2
M.TURNON	Activate Program at Given Time of Day	1,X'1E'	H.REXS,66	6.2
M_TURNON	Activate Program at Given Time of Day	1,X'1E'	H.REXS,66	7.2
M.TYPE	System Console Type	1,X'3F'	N/A	6.2
M_TYPE	System Console Type	1,X'3F'	N/A	7.2
M.UNLOCK	Release Exclusive Resource Lock	2,X'45'	H.REMM,24	6.2
M_UNLOCK	Release Exclusive Resource Lock	2,X'45'	H.REMM,24	7.2
M_UNPRIVMODE	Change Task to Unprivileged Mode	2,X'58'	H.REXS,79	7.2
M.UNSYNC	Release Synchronous Resource Lock	2,X'47'	H.REMM,26	6.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M_UNSYNC	Release Synchronous Resource Lock	2,X'47'	H.REMM,26	7.2
M.UPRIV	Change Task to Unprivileged Mode	2,X'58'	H.REXS,79	6.2
M.UPSP	Upspace	1,X'10'	H.IOCS,20	6.2
M_UPSP	Upspace	1,X'10'	H.IOCS,20	7.2
M.USER	User Name Specification	1,X'74'	H.MONS,34	6.4
M.VADDR	Validate Address Range	2,X'59'	H.REXS,33	6.2
M_VADDR	Validate Address Range	2,X'59'	H.REXS,33	7.2
M.WAIT	Wait I/O	1,X'3C'	H.IOCS,25	6.2
M_WAIT	Wait I/O	1,X'3C'	H.IOCS,25	7.2
M.WEOF	Write EOF	1,X'38'	H.IOCS,5	6.2
M.WRIT	Write Record	1,X'32'	H.IOCS,4	6.2
M_WRITE	Write Record	1,X'32'	H.IOCS,4	7.2
M_WRITEEOF	Write EOF	1,X'38'	H.IOCS,5	7.2
M.XBRKR	Exit from Task Interrupt Level	1,X'70'	H.REXS,48	6.2
M_XBRKR	Exit from Task Interrupt Level	1,X'70'	H.REXS,48	7.2
M.XIEA	No-wait I/O End-action Return	1,X'2C'	H.IOCS,34	6.2
M_XIEA	No-wait I/O End-action Return	1,X'2C'	H.IOCS,34	7.2
M.XMEA	Exit from Message End-action Routine	1,X'7E'	H.REXS,50	6.2
M_XMEA	Exit from Message End-action Routine	1,X'7E'	H.REXS,50	7.2
M.XMSGR	Exit from Message Receiver	1,X'5E'	H.REXS,39	6.2

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
M_XMSGR	Exit from Message Receiver	1,X'5E'	H.REXS,39	7.2
M.XREA	Exit from Run Request End-action Routine	1,X'7F'	H.REXS,51	6.2
M_XREA	Exit from Run Request End-action Routine	1,X'7F'	H.REXS,51	7.2
M.XRUNR	Exit Run Receiver	1,X'7D'	H.REXS,49	6.2
M_XRUNR	Exit Run Receiver	1,X'7D'	H.REXS,49	7.2
M.XTIME	Task CPU Execution Time	1,X'2D'	H.REXS,65	6.2
M_XTIME	Task CPU Execution Time	1,X'2D'	H.REXS,65	7.2
N/A	Allocate File Space	N/A	H.VOMM,19	6.3
N/A	Allocate Resource Descriptor	N/A	H.VOMM,17	6.3
N/A	Create Temporary File	N/A	H.VOMM,24	6.3
N/A	Deallocate File Space	N/A	H.VOMM,20	6.3
N/A	Deallocate Resource Descriptor	N/A	H.VOMM,18	6.3
N/A	Debug Link Service	1,X'66'	H.REXS,42	6.3
N/A	Debug Link Service-Base Mode	1,X'66'	H.REXS,42	7.3
N/A	Eject/Purge Routine	1,X'0D'	H.IOCS,22	6.3
N/A	Eject/Purge Routine-Base Mode	1,X'0D'	H.IOCS,22	7.3
N/A	Erase or Punch Trailer	1,X'3E'	H.IOCS,21	6.3
N/A	Erase or Punch Trailer - Base Mode	1,X'3E'	H.IOCS,21	7.3
N/A	Execute Channel Program	1,X'25'	H.IOCS,10	6.3

USER LEVEL SYSTEM SERVICES - MACRO NAME
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
N/A	Execute Channel Program - Base Mode	1,X'25'	H.IOCS,10	7.3
N/A	Get Extended Memory Array	2,X'7F'	H.MEMM,14	6.3
N/A	Get Extended Memory Array - Base Mode	2,X'7F'	H.MEMM,14	7.3
N/A	Read/Write Authorization File	N/A	H.VOMM,25	6.3
N/A	Release FHD Port	1,X'27'	H.IOCS,27	6.3
N/A	Release FHD Port - Base Mode	1,X'27'	H.IOCS,27	7.3
N/A	Reserve FHD Port	1,X'26'	H.IOCS,24	6.3
N/A	Reserve FHD Port- Base Mode	1,X'26'	H.IOCS,24	7.3
N/A	Reserved for Interactive Debugger	2,X'56'	H.REXS,30	N/A
N/A	Reserved for Rapid File Allocation:			N/A
	Zero MDT	2,X'AA'	H.MDT,1	
	Locate/Read MDT Entry	2,X'AB'	H.MDT,2	
	Update/Create MDT Entry	2,X'AC'	H.MDT,3	
	Delete MDT Entry	2,X'AD'	H.MDT,4	
N/A	Set Tabs in UDT	1,X'59'	H.TSM,5	N/A
N/A	TSM Task Detach	1,X'20'	H.TSM,3	N/A

USER LEVEL SYSTEM SERVICES - ALPHABETIC

<u>Description</u>	<u>Macro</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Abort Self	M.BORT	1,X'57'	H.REXS,20	6.2
	M_BORT	1,X'57'	H.REXS,20	7.2
Abort Specified Task	M.BORT	1,X'56'	H.REXS,19	6.2
	M_BORT	1,X'56'	H.REXS,19	7.2
Abort With Extended Message	M.BORT	1,X'62'	H.REXS,28	6.2
	M_BORT	1,X'62'	H.REXS,28	7.2
Acquire Current Date/Time in ASCII Format	M.QATIM	2,X'50'	H.REXS,74	6.2
	M_QATIM	2,X'50'	H.REXS,74	7.2
Acquire Current Date/Time in Binary Format	M.BTIM	2,X'50'	H.REXS,74	6.2
	M_BTIM	2,X'50'	H.REXS,74	7.2
Acquire Current Date/Time in Byte Binary Format	M.BBTIM	2,X'50'	H.REXS,74	6.2
	M_BBTIM	2,X'50'	H.REXS,74	7.2
Acquire System Date/Time in Any Format	M.GTIM	2,X'50'	H.REXS,74	6.2
	M_GTIM	2,X'50'	H.REXS,74	7.2
Activate Program at Given Time of Day	M.TURNON	1,X'1E'	H.REXS,66	6.2
	M_TURNON	1,X'1E'	H.REXS,66	7.2
Activate Task	M.ACTV	1,X'52'	H.REXS,15	6.2
	M_ACTV	1,X'52'	H.REXS,15	7.2
Activate Task Interrupt	M.INT	1,X'6F'	H.REXS,47	6.2
	M_INT	1,X'6F'	H.REXS,47	7.2
Advance File	M.FWRD	1,X'34'	H.IOCS,8	6.2
	M_ADVANCE	1,X'34'	H.IOCS,8	7.2
Advance Record	M.FWRD	1,X'33'	H.IOCS,7	6.2
	M_ADVANCE	1,X'33'	H.IOCS,7	7.2
Allocate File or Peripheral Device	M.ALOC	1,X'40'	H.MONS,21	6.4
Allocate File Space	N/A	N/A	H.VOMM,19	6.3
Allocate Resource Descriptor	N/A	N/A	H.VOMM,17	6.3

USER LEVEL SYSTEM SERVICES - ALPHABETIC
(Continued)

<u>Macro</u>	<u>Description</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Arithmetic Exception Inquiry	M.TSTE	1,X'4D'	H.REXS,23	6.2
	M_TSTE	1,X'4D'	H.REXS,23	7.2
Assign and Allocate Resource	M.ASSN	2,X'52'	H.REXS,21	6.2
	M_ASSIGN	2,X'52'	H.REXS,21	7.2
Backspace File	M.BACK	1,X'36'	H.IOCS,19	6.2
	M_BACKSPACE	1,X'36'	H.IOCS,19	7.2
Backspace Record	M.BACK	1,X'35'	H.IOCS,9	6.2
	M_BACKSPACE	1,X'35'	H.IOCS,9	7.2
Batch Job Entry	M.BATCH	2,X'55'	H.REXS,27	6.2
	M_BATCH	2,X'55'	H.REXS,27	7.2
Break/Task Interrupt Link/Unlink	M.BRK	1,X'6E'	H.REXS,46	6.2
	M_BRK	1,X'6E'	H.REXS,46	7.2
Change Defaults	M.DEFT	2,X'27'	H.VOMM,8	6.2
	M_DEFT	2,X'27'	H.VOMM,8	7.2
Change Priority Level	M.PRIL	1,X'4A'	H.REXS,9	6.2
	M_PRIL	1,X'4A'	H.REXS,9	7.2
Change Task to Unprivileged Mode	M.UPRIV	2,X'58'	H.REXS,79	6.2
	M_UNPRIVMODE	2,X'58'	H.REXS,79	7.2
Change Temporary File to Permanent	M.PERM	1,X'76'	H.FISE,13	6.4
Change Temporary File to Permanent File	M.TEMPER	2,X'28'	H.VOMM,9	6.2
	M_TEMPFILETOPERM	2,X'28'	H.VOMM,9	7.2
Close File	M.CLSE	1,X'39'	H.IOCS,23	6.2
	M_CLSE	1,X'39'	H.IOCS,23	7.2
Close Resource	M.CLOSER	2,X'43'	H.REMM,22	6.2
	M_CLOSER	2,X'43'	H.REMM,22	7.2
Connect Task to Interrupt	M.CONN	1,X'4B'	H.REXS,10	6.2
	M_CONN	1,X'4B'	H.REXS,10	7.2
Convert ASCII Date/Time to Byte Binary Format	M.CONABB	2,X'51'	H.REXS,75	6.2
	M_CONABB	2,X'51'	H.REXS,75	7.2

USER LEVEL SYSTEM SERVICES - ALPHABETIC
(Continued)

<u>Description</u>	<u>Macro</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Convert ASCII Date/Time to Standard Binary	M.CONASB	2,X'51'	H.REXS,75	6.2
	M_CONASB	2,X'51'	H.REXS,75	7.2
Convert ASCII Decimal to Binary	M.CONADB	1,X'28'	H.TSM,7	6.2
	M_CONADB	1,X'28'	H.TSM,7	7.2
Convert ASCII Hex to Binary	M.CONAHB	1,X'29'	H.TSM,8	6.2
	M_CONAHB	1,X'29'	H.TSM,8	7.2
Convert Binary Date/Time to ASCII Format	M.CONBAF	2,X'51'	H.REXS,75	6.2
	M_CONBAF	2,X'51'	H.REXS,75	7.2
Convert Binary Date/Time to Byte Binary	M.CONBBY	2,X'51'	H.REXS,75	6.2
	M_CONBBY	2,X'51'	H.REXS,75	7.2
Convert Binary to ASCII Decimal	M.CONBAD	1,X'2A'	H.TSM,9	6.2
	M_CONBAD	1,X'2A'	H.TSM,9	7.2
Convert Binary to ASCII Hex	M.CONBAH	1,X'2B'	H.TSM,10	6.2
	M_CONBAH	1,X'2B'	H.TSM,10	7.2
Convert Byte Binary Date/Time to ASCII	M.CONBBA	2,X'51'	H.REXS,75	6.2
	M_CONBBA	2,X'51'	H.REXS,75	7.2
Convert Byte Binary Date/Time to Binary	M.CONBYB	2,X'51'	H.REXS,75	6.2
	M_CONBYB	2,X'51'	H.REXS,75	7.2
Convert Pathname to Pathname Block	M.PNAMB	2,X'2E'	H.VOMM,15	6.2
	M_PNAMB	2,X'2E'	H.VOMM,15	7.2
Convert System Date/Time Format	M.CTIM	2,X'51'	H.REXS,75	6.2
	M_CTIM	2,X'51'	H.REXS,75	7.2
Convert Time	M_CONVERTTIME	2,X'51'	H.REXS,75	7.2
Create Directory	M.DIR	2,X'23'	H.VOMM,4	6.2
	M_DIR	2,X'23'	H.VOMM,4	7.2
Create File Control Block	M.DFCB	N/A	N/A	5.9.2
Create File Control Block	M_CREATEFCB	N/A	N/A	7.2
Create Memory Partition	M.MEM	2,X'22'	H.VOMM,3	6.2
	M_MEM	2,X'22'	H.VOMM,3	7.2

USER LEVEL SYSTEM SERVICES - ALPHABETIC

(Continued)

<u>Description</u>	<u>Macro</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Create Permanent File	M.CREATE	1,X'75'	H.FISE,12	6.4
Create Permanent File	M.CPERM	2,X'20'	H.VOMM,1	6.2
	M_CREATEP	2,X'20'	H.VOMM,1	7.2
Create Temporary File	M.TEMP	2,X'21'	H.VOMM,2	6.2
	M_CREATET	2,X'21'	H.VOMM,2	7.2
Create Temporary File	N/A	N/A	H.VOMM,24	6.3
Create Timer Entry	M.SETT	1,X'45'	H.REXS,4	6.2
	M_SETT	1,X'45'	H.REXS,4	7.2
Date and Time Inquiry	M.DATE	1,X'15'	H.REXS,70	6.2
	M_DATE	1,X'15'	H.REXS,70	7.2
Deallocate File or Peripheral Device	M.DALC	1,X'41'	H.MONS,22	6.4
Deallocate File Space	N/A	N/A	H.VOMM,20	6.3
Deallocate Resource Descriptor	N/A	N/A	H.VOMM,18	6.3
Deassign and Deallocate Resource	M.DASN	2,X'53'	H.REXS,22	6.2
	M_DEASSIGN	2,X'53'	H.REXS,22	7.2
Debug Link Service	N/A	1,X'66'	H.REXS,42	6.3
Debug Link Service-Base Mode	N/A	1,X'66'	H.REXS,42	7.3
Delete Permanent File or Non-SYSGEN Memory Partition	M.DELETE	1,X'77'	H.FISE,14	6.4
Delete Resource	M.DELR	2,X'24'	H.VOMM,5	6.2
	M_DELETER	2,X'24'	H.VOMM,5	7.2
Delete Task	M.DELTSK	1,X'5A'	H.REXS,31	6.2
	M_DELTSK	1,X'5A'	H.REXS,31	7.2
Delete Timer Entry	M.DLTT	1,X'47'	H.REXS,6	6.2
	M_DLTT	1,X'47'	H.REXS,6	7.2

USER LEVEL SYSTEM SERVICES - ALPHABETIC
(Continued)

<u>Description</u>	<u>Macro</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Disable Message Task Interrupt	M.DSMI	1,X'2E'	H.REXS,57	6.2
	M_DSMI	1,X'2E'	H.REXS,57	7.2
Disable User Break Interrupt	M.DSUB	1,X'12'	H.REXS,73	6.2
	M_DSUB	1,X'12'	H.REXS,73	7.2
Disconnect Task from Interrupt	M.DISCON	1,X'5D'	H.REXS,38	6.2
	M_DISCON	1,X'5D'	H.REXS,38	7.2
Dismount Volume	M.DMOUNT	2,X'4A'	H.REMM,19	6.2
	M_DISMOUNT	2,X'4A'	H.REMM,19	7.2
Eject/Purge Routine	N/A	1,X'0D'	H.IOCS,22	6.3
Eject/Purge Routine- Base Mode	N/A	1,X'0D'	H.IOCS,22	7.3
Enable Message Task Interrupt	M.ENMI	1,X'2F'	H.REXS,58	6.2
	M_ENMI	1,X'2F'	H.REXS,58	7.2
Enable User Break Interrupt	M.ENUB	1,X'13'	H.REXS,72	6.2
	M_ENUB	1,X'13'	H.REXS,72	7.2
End Action Wait	M.EAWAIT	1,X'1D'	H.EXEC,40	6.2
	M_AWAITACTION	1,X'1D'	H.EXEC,40	7.2
Erase or Punch Trailer	N/A	1,X'3E'	H.IOCS,21	6.3
Erase or Punch Trailer - Base Mode	N/A	1,X'3E'	H.IOCS,21	7.3
Exclude Memory Partition	M.EXCLUDE	2,X'41'	H.REMM,14	6.2
Exclude Shared Image	M_EXCLUDE	2,X'41'	H.REMM,14	7.2
Execute Channel Program	N/A	1,X'25'	H.IOCS,10	6.3
Execute Channel Program - Base Mode	N/A	1,X'25'	H.IOCS,10	7.3
Execute Channel Program File Control Block	M_CHANPROGFCB	N/A	N/A	7.2
Exit from Message End-action Routine	M.XMEA	1,X'7E'	H.REXS,50	6.2
	M_XMEA	1,X'7E'	H.REXS,50	7.2

USER LEVEL SYSTEM SERVICES - ALPHABETIC
(Continued)

<u>Description</u>	<u>Macro</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Exit from Message Receiver	M.XMSGR	1,X'5E'	H.REXS,39	6.2
	M_XMSGR	1,X'5E'	H.REXS,39	7.2
Exit from Run Request End-action Routine	M.XREA	1,X'7F'	H.REXS,51	6.2
	M_XREA	1,X'7F'	H.REXS,51	7.2
Exit from Task Interrupt Level	M.BRKXIT	1,X'70'	H.REXS,48	6.2
	M_BRKXIT	1,X'70'	H.REXS,48	7.2
	M_XBRKR	1,X'70'	H.REXS,48	6.2
	M_XBRKR	1,X'70'	H.REXS,48	7.2
Exit Run Receiver	M.XRUNR	1,X'7D'	H.REXS,49	6.2
	M_XRUNR	1,X'7D'	H.REXS,49	7.2
Exit With Status	M_EXTSTS	2,X'5F'	H.REXS,86	7.2
Extend File	M.EXTD	2,X'25'	H.VOMM,6	6.2
	M_EXTENDFILE	2,X'25'	H.VOMM,6	7.2
Free Dynamic Extended Indexed Data Space	M.FD	1,X'6A'	H.REMM,9	6.2
Free Dynamic Task Execution Space	M.FE	1,X'68'	H.REMM,11	6.2
Free Memory in Byte Increments	M.MEMFRE	2,X'4C'	H.REMM,29	6.2
	M_FREEMEMBYTES	2,X'4C'	H.REMM,29	7.2
Free Shared Memory	M.EXCL	1,X'79'	H.ALOC,14	6.4
Get Address Limits	M.GADRL	1,X'65'	H.REXS,41	6.2
Get Base Mode Task Address Limits	M_LIMITS	2,X'5D'	H.REXS,84	7.2
Get Command Line	M.CMD	2,X'61'	H.REXS,88	6.2
	M_CMD	2,X'61'	H.REXS,88	7.2
Get Current Date and Time	M_GETTIME	2,X'50'	H.REXS,74	7.2
Get Device Mnemonic or Type Code	M.DEVID	1,X'14'	H.REXS,71	6.2
	M_DEVID	1,X'14'	H.REXS,71	7.2
Get Dynamic Extended Data Space	M.GD	1,X'69'	H.REMM,8	6.2

USER LEVEL SYSTEM SERVICES - ALPHABETIC
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<u>Description</u>	<u>Macro</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Get Dynamic Task Execution Space	M.GE	1,X'67'	H.REMM,10	6.2
Get Extended Memory Array	N/A	2,X'7F'	H.MEMM,14	6.3
Get Extended Memory Array - Base Mode	N/A	2,X'7F'	H.MEMM,14	7.3
Get Memory in Byte Increments	M.MEMB	2,X'4B'	H.REMM,28	6.2
	M_GETMEMBYTES	2,X'4B'	H.REMM,28	7.2
Get Message Parameters	M.GMSGP	1,X'7A'	H.REXS,35	6.2
	M_GMSGP	1,X'7A'	H.REXS,35	7.2
Get Real Physical Address	M.RADDR	1,X'0E'	H.REXS,90	6.2
	M_RADDR	1,X'0E'	H.REXS,90	7.2
Get Run Parameters	M.GRUNP	1,X'7B'	H.REXS,36	6.2
	M_GRUNP	1,X'7B'	H.REXS,36	7.2
Get Shared Memory	M.INCL	1,X'72'	H.ALOC,13	6.4
Get Task Environment	M.ENVRMT	2,X'5E'	H.REXS,85	6.2
	M_ENVRMT	2,X'5E'	H.REXS,85	7.2
Get Task Number	M.ID	1,X'64'	H.REXS,32	6.2
	M_ID	1,X'64'	H.REXS,32	7.2
	M_MYID	1,X'64'	H.REXS,32	6.2
	M_MYID	1,X'64'	H.REXS,32	7.2
Get Terminal Function Definition	M.GETDEF	2,X'7A'	H.TSM,15	6.2
Get User Context	M_GETCTX	2,X'70'	H.EXEC,41	7.2
Include Memory Partition	M.INCLUDE	2,X'40'	H.REMM,12	6.2
Include Shared Image	M_INCLUDE	2,X'40'	H.REMM,12	7.2
Load and Execute Interactive Debugger	M.DEBUG	1,X'63'	H.REXS,29	6.2
	M_DEBUG	1,X'63'	H.REXS,29	7.2

USER LEVEL SYSTEM SERVICES - ALPHABETIC

(Continued)

<u>Description</u>	<u>Macro</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Load Overlay Segment	M.OLAY	1,X'50'	H.REXS,13	6.2
Load and Execute Overlay		1,X'51'	H.REXS,14	6.2
Log Resource or Directory	M.LOGR M_LOGR	2,X'29' 2,X'29'	H.VOMM,10 H.VOMM,10	6.2 7.2
Memory Address Inquiry	M.ADRS M_ADRS	1,X'44' 1,X'44'	H.REXS,3 H.REXS,3	6.2 7.2
Memory Dump Request	M.DUMP M_DUMP	1,X'4F' 1,X'4F'	H.REXS,12 H.REXS,12	6.2 7.2
Modify Descriptor	M.MOD M_MOD	2,X'2A' 2,X'2A'	H.VOMM,11 H.VOMM,11	6.2 7.2
Modify Descriptor User Area	M.MODU M_MODU	2,X'31' 2,X'31'	H.VOMM,26 H.VOMM,26	6.2 7.2
Mount Volume	M.MOUNT M_MOUNT	2,X'49' 2,X'49'	H.REMM,17 H.REMM,17	6.2 7.2
Move Data to User Address	M.MOVE M_MOVE	2,X'62' 2,X'62'	H.REXS,89 H.REXS,89	6.2 7.2
No-wait I/O End- action Return	M.XIEA M_XIEA	1,X'2C' 1,X'2C'	H.IOCS,34 H.IOCS,34	6.2 7.2
Open File	M.FILE	1,X'30'	H.IOCS,1	6.4
Open Resource	M.OPENR M_OPENR	2,X'42' 2,X'42'	H.REMM,21 H.REMM,21	6.2 7.2
Parameter Task Activation	M.PTSK M_PTSK	1,X'5F' 1,X'5F'	H.REXS,40 H.REXS,40	6.2 7.2
Permanent File Address Inquiry	M.FADD	1,X'43'	H.MONS,2	6.4
Permanent File Log	M.LOG	1,X'73'	H.MONS,33	6.4
Physical Device Inquiry	M.PDEV	1,X'42'	H.MONS,1	6.4
Program Hold Request	M.HOLD M_HOLD	1,X'58' 1,X'58'	H.REXS,25 H.REXS,25	6.2 7.2

USER LEVEL SYSTEM SERVICES - ALPHABETIC
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<u>Description</u>	<u>Macro</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Put User Context	M_PUTCTX	2,X'71'	H.EXEC,42	7.2
Read Descriptor	M.LOC	2,X'2C'	H.VOMM,13	6.2
	M_READD	2,X'2C'	H.VOMM,13	7.2
Read Record	M.READ	1,X'31'	H.IOCS,3	6.2
	M_READ	1,X'31'	H.IOCS,3	7.2
Read/Write Authorization File	N/A	N/A	H.VOMM,25	6.3
Receive Message Link Address	M.RCVR	1,X'6B'	H.REXS,43	6.2
	M_RCVR	1,X'6B'	H.REXS,43	7.2
Reconstruct Pathname	M.PNAM	2,X'2F'	H.VOMM,16	6.2
	M_CONSTRUCTPATH	2,X'2F'	H.VOMM,16	7.2
Reformat RRS Entry	M.NEWRRS	2,X'54'	H.REXS,76	6.2
Reinstate Privilege Mode to Privilege Task	M.PRIV	2,X'57'	H.REXS,78	6.2
	M_PRIVMODE	2,X'57'	H.REXS,78	7.2
Release Channel Reservation	M.RRES	1,X'3B'	H.IOCS,13	6.2
	M_RRES	1,X'3B'	H.IOCS,13	7.2
Release Dual-ported Disc/Set Dual-channel 8-line Mode	M.RELP	1,X'27'	H.IOCS,27	6.2
	M_RELP	1,X'27'	H.IOCS,27	7.2
Release Exclusive File Lock	M.FXLR	1,X'22'	H.FISE,23	6.4
Release Exclusive Resource Lock	M.UNLOCK	2,X'45'	H.REMM,24	6.2
	M_UNLOCK	2,X'45'	H.REMM,24	7.2
Release FHD Port	N/A	1,X'27'	H.IOCS,27	6.3
Release FHD Port- Base Mode	N/A	1,X'27'	H.IOCS,27	7.3
Release Synchronization File Lock	M.FSLR	1,X'24'	H.FISE,25	6.4
Release Synchronous Resource Lock	M.UNSYNC	2,X'47'	H.REMM,26	6.2
	M_UNSYNC	2,X'47'	H.REMM,26	7.2

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<u>Description</u>	<u>Macro</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Rename File	M.RENAM	2,X'2D'	H.VOMM,14	6.2
	M_RENAME	2,X'2D'	H.VOMM,14	7.2
Replace Permanent File	M.REPLAC	2,X'30'	H.VOMM,23	6.2
	M_REPLACE	2,X'30'	H.VOMM,23	7.2
Reserve Channel	M.RSRV	1,X'3A'	H.IOCS,12	6.2
	M_RSRV	1,X'3A'	H.IOCS,12	7.2
Reserve Dual-ported Disc/Set Single-channel 8-line Mode	M.RESP	1,X'26'	H.IOCS,24	6.2
	M_RESP	1,X'26'	H.IOCS,24	7.2
Reserve FHD Port	N/A	1,X'26'	H.IOCS,24	6.3
Reserve FHD Port- Base Mode	N/A	1,X'26'	H.IOCS,24	7.3
Reserved for Interactive Debugger	N/A	2,X'56'	H.REXS,30	N/A
Reserved for Rapid File Allocation:	N/A			N/A
Zero MDT		2,X'AA'	H.MDT,1	
Locate/Read MDT Entry		2,X'AB'	H.MDT,2	
Update/Create MDT Entry		2,X'AC'	H.MDT,3	
Delete MDT Entry		2,X'AD'	H.MDT,4	
Reset Option Lower	M.ROPL	2,X'78'	H.TSM,14	6.2
	M_ROPL	2,X'78'	H.TSM,14	7.2
Resource Inquiry	M.INQUIRY	2,X'48'	H.REMM,27	6.2
	M_INQUIRER	2,X'48'	H.REMM,27	7.2
Resourcemark Lock	M.RSML	1,X'19'	H.REXS,62	6.2
	M_RSML	1,X'19'	H.REXS,62	7.2
Resourcemark Unlock	M.RSMU	1,X'1A'	H.REXS,63	6.2
	M_RSMU	1,X'1A'	H.REXS,63	7.2
Resume Task Execution	M.SUME	1,X'53'	H.REXS,16	6.2
	M_SUME	1,X'53'	H.REXS,16	7.2
Rewind File	M.RWND	1,X'37'	H.IOCS,2	6.2
	M_REWIND	1,X'37'	H.IOCS,2	7.2

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<u>Description</u>	<u>Macro</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Rewrite Descriptor	M.REWRIT	2,X'2B'	H.VOMM,12	6.2
	M_REWRIT	2,X'2B'	H.VOMM,12	7.2
Rewrite Descriptor User Area	M.REWRTU	2,X'32'	H.VOMM,27	6.2
	M_REWRTU	2,X'32'	H.VOMM,27	7.2
Scan Terminal Input Buffer	M.TSCAN	1,X'5B'	H.TSM,2	1.13 (V II)
Send Message to Specified Task	M.SMSGR	1,X'6C'	H.REXS,44	6.2
	M_SMSGR	1,X'6C'	H.REXS,44	7.2
Send Run Request to Specified Task	M.SRUNR	1,X'6D'	H.REXS,45	6.2
	M_SRUNR	1,X'6D'	H.REXS,45	7.2
Set Asynchronous Task Interrupt	M.ASYNCH	1,X'1C'	H.REXS,68	6.2
	M_ASYNCH	1,X'1C'	H.REXS,68	7.2
Set Exception Handler	M_SETEXA	2,X'5C'	H.REXS,83	7.2
Set Exception Return Address	M_SETERA	2,X'79'	H.REXS,81	7.2
Set Exclusive File Lock	M.FXLS	1,X'21'	H.FISE,22	6.4
Set Exclusive Resource Lock	M_LOCK	2,X'44'	H.REMM,23	6.2
	M_LOCK	2,X'44'	H.REMM,23	7.2
Set IPU Bias	M.IPUBS	2,X'5B'	H.REXS,82	6.2
	M_IPUBS	2,X'5B'	H.REXS,82	7.2
Set Option Lower	M.SOPL	2,X'77'	H.TSM,13	6.2
	M_SOPL	2,X'77'	H.TSM,13	7.2
Set Synchronization File Lock	M.FSLS	1,X'23'	H.FISE,24	6.4
Set Synchronous Resource Lock	M.SETSYNC	2,X'46'	H.REMM,25	6.2
	M_SETSYNC	2,X'46'	H.REMM,25	7.2
Set Synchronous Task Interrupt	M.SYNCH	1,X'1B'	H.REXS,67	6.2
	M_SYNCH	1,X'1B'	H.REXS,67	7.2
Set Tabs in UDT	N/A	1,X'59'	H.TSM,5	N/A
Set User Abort Receiver Address	M.SUAR	1,X'60'	H.REXS,26	6.2
	M_SUAR	1,X'60'	H.REXS,26	7.2

USER LEVEL SYSTEM SERVICES - ALPHABETIC
(Continued)

<u>Description</u>	<u>Macro</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Set User Status Word	M.SETS	1,X'48'	H.REXS,7	6.2
	M_SETS	1,X'48'	H.REXS,7	7.2
Share Memory with Another Task	M.SHARE	1,X'71'	H.ALOC,12	6.4
Submit Job from Disc File	M.CDJS	1,X'61'	H.MONS,27	6.4
Suspend Task Execution	M.SUSP	1,X'54'	H.REXS,17	6.2
	M_SUSP	1,X'54'	H.REXS,17	7.2
System Console Type	M.TYPE	1,X'3F'	N/A	6.2
	M_TYPE	1,X'3F'	N/A	7.2
System Console Wait	M.CWAT	1,X'3D'	H.IOCS,26	6.2
	M_CWAT	1,X'3D'	H.IOCS,26	7.2
Task CPU Execution Time	M.XTIME	1,X'2D'	H.REXS,65	6.2
	M_XTIME	1,X'2D'	H.REXS,65	7.2
Task Option Word Inquiry	M.PGOW	1,X'4C'	H.REXS,24	6.2
	M_OPTIONWORD	1,X'4C'	H.REXS,24	7.2
Terminate Task Execution	M.EXIT	1,X'55'	H.REXS,18	6.2
	M_EXIT	1,X'55'	H.REXS,18	7.2
Test Timer Entry	M.TSTT	1,X'46'	H.REXS,5	6.2
	M_TSTT	1,X'46'	H.REXS,5	7.2
Test User Status Word	M.TSTS	1,X'49'	H.REXS,8	6.2
	M_TSTS	1,X'49'	H.REXS,8	7.2
Time-of-Day Inquiry	M.TDAY	1,X'4E'	H.REXS,11	6.2
	M_TDAY	1,X'4E'	H.REXS,11	7.2
Trap On-line User's Task	M.TBRKON	1,X'5C'	H.TSM,6	1.13 (V II)
Truncate File	M.TRNC	2,X'26'	H.VOMM,7	6.2
	M_TRUNCATE	2,X'26'	H.VOMM,7	7.2
TSM Task Detach	N/A	1,X'20'	H.TSM,3	N/A
Unlock and Dequeue Shared Memory	M.SMULK	1,X'1F'	H.ALOC,19	6.4

USER LEVEL SYSTEM SERVICES - ALPHABETIC

(Continued)

<u>Description</u>	<u>Macro</u>	<u>SVC</u>	<u>Module, E.P.</u>	<u>Volume I Ref. Manual Section</u>
Upspace	M.UPSP	1,X'10'	H.IOCS,20	6.2
	M_UPSP	1,X'10'	H.IOCS,20	7.2
User Name Specification	M.USER	1,X'74'	H.MONS,34	6.4
Validate Address Range	M.VADDR	2,X'59'	H.REXS,33	6.2
	M_VADDR	2,X'59'	H.REXS,33	7.2
Wait for Any No-wait Operation Complete, Message Interrupt, or Break Interrupt	M.ANYW	1,X'7C'	H.REXS,37	6.2
	M_ANYWAIT	1,X'7C'	H.REXS,37	7.2
Wait I/O	M.WAIT	1,X'3C'	H.IOCS,25	6.2
	M_WAIT	1,X'3C'	H.IOCS,25	7.2
Write EOF	M.WEOF	1,X'38'	H.IOCS,5	6.2
	M_WRITEEOF	1,X'38'	H.IOCS,5	7.2
Write Record	M.WRIT	1,X'32'	H.IOCS,4	6.2
	M_WRITE	1,X'32'	H.IOCS,4	7.2

USER LEVEL SYSTEM SERVICES - SVC ORDER

<u>SVC 1,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
00-0A	Reserved			
0B	Reserved for Vector Processor			
0C	Reserved			
0D	Eject/Purge Routine	H.IOCS,22	N/A	6.3
	Eject/Purge Routine - Base Mode	H.IOCS,22	N/A	7.3
0E	Get Real Physical Address	H.REXS,90	M.RADDR M_RADDR	6.2 7.2
0F	Reserved for Vector Processor		N/A	N/A
10	Upspace	H.IOCS,20	M.UPSP M_UPSP	6.2 7.2
11	Reserved			
12	Disable User Break Interrupt	H.REXS,73	M.DSUB M_DSUB	6.2 7.2
13	Enable User Break Interrupt	H.REXS,72	M.ENUB M_ENUB	6.2 7.2
14	Get Device Mnemonic or Type Code	H.REXS,71	M.DEVID M_DEVID	6.2 7.2
15	Date and Time Inquiry	H.REXS,70	M.DATE M_DATE	6.2 7.2
16	ADI Maximum IOCBs	N/A	M.ADIMAX	N/A
17	ADI I/O	N/A	M.ADIO	N/A
18	ADI EAI	N/A	M.ADIEAI	N/A
19	Resourcemark Lock	H.REXS,62	M.RSML M_RSML	6.2 7.2
1A	Resourcemark Unlock	H.REXS,63	M.RSMU M_RSMU	6.2 7.2
1B	Set Synchronous Task Interrupt	H.REXS,67	M.SYNCH M_SYNCH	6.2 7.2

USER LEVEL SYSTEM SERVICES - SVC ORDER
(Continued)

<u>SVC I,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
1C	Set Asynchronous Task Interrupt	H.REXS,68	M.ASYNCH M_ASYNCH	6.2 7.2
1D	End Action Wait	H.EXEC,40	M.EAWAIT M_AWAITACTION	6.2 7.2
1E	Activate Program at Given Time of Day	H.REXS,66	M.TURNON M_TURNON	6.2 7.2
1F	Unlock and Dequeue Shared Memory	H.ALOC,19	M.SMULK	6.4
20	TSM Task Detach	H.TSM,3	N/A	N/A
21	Set Exclusive File Lock	H.FISE,22	M.FXLS	6.4
22	Release Exclusive File Lock	H.FISE,23	M.FXLR	6.4
23	Set Synchronization File Lock	H.FISE,24	M.FSLS	6.4
24	Release Synchronization File Lock	H.FISE,25	M.FSLR	6.4
25	Execute Channel Program	H.IOCS,10	N/A	6.3
	Execute Channel Program - Base Mode	H.IOCS,10	N/A	7.3
26	Reserve FHD Port Reserve FHD Port - Base Mode	H.IOCS,24	N/A N/A	6.3 7.3
	Reserve Dual- ported Disc/Set Single-channel 8-line Mode		M.RESP M_RESP	6.2 7.2
27	Release FHD Port Release FHD Port - Base Mode	H.IOCS,27	N/A N/A	6.3 7.3
	Release Dual- ported Disc/Set Dual-channel 8-line Mode		M.RELP M_RELP	6.2 7.2
28	Convert ASCII Decimal to Binary	H.TSM,7	M.CONADB M_CONADB	6.2 7.2

USER LEVEL SYSTEM SERVICES - SVC ORDER
(Continued)

<u>SVC 1,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
29	Convert ASCII Hex to Binary	H.TSM,8	M.CONAHB M_CONAHB	6.2 7.2
2A	Convert Binary to ASCII Decimal	H.TSM,9	M.CONBAD M_CONBAD	6.2 7.2
2B	Convert Binary to ASCII Hex	H.TSM,10	M.CONBAH M_CONBAH	6.2 7.2
2C	No-wait I/O End- action Return	H.IOCS,34	M.XIEA M_XIEA	6.2 7.2
2D	Task CPU Execution Time	H.REXS,65	M.XTIME M_XTIME	6.2 7.2
2E	Disable Message Task Interrupt	H.REXS,57	M.DSMI M_DSMI	6.2 7.2
2F	Enable Message Task Interrupt	H.REXS,58	M.ENMI M_ENMI	6.2 7.2
30	Open File	H.IOCS,1	M.FILE	6.4
31	Read Record	H.IOCS,3	M.READ M_READ	6.2 7.2
32	Write Record	H.IOCS,4	M.WRIT M_WRITE	6.2 7.2
33	Advance Record	H.IOCS,7	M.FWRD M_ADVANCE	6.2 7.2
34	Advance File	H.IOCS,8	M.FWRD M_ADVANCE	6.2 7.2
35	Backspace Record	H.IOCS,9	M.BACK M_BACKSPACE	6.2 7.2
36	Backspace File	H.IOCS,19	M.BACK M_BACKSPACE	6.2 7.2
37	Rewind File	H.IOCS,2	M.RWND M_REWIND	6.2 7.2
38	Write EOF	H.IOCS,5	M.WEOF M_WRITEEOF	6.2 7.2
39	Close File	H.IOCS,23	M.CLSE M_CLSE	6.2 7.2
3A	Reserve Channel	H.IOCS,12	M.RSRV M_RSRV	6.2 7.2

USER LEVEL SYSTEM SERVICES - SVC ORDER
(Continued)

<u>SVC 1,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
3B	Release Channel Reservation	H.IOCS,13	M.RRES M_RRES	6.2 7.2
3C	Wait I/O	H.IOCS,25	M.WAIT M_WAIT	6.2 7.2
3D	System Console Wait	H.IOCS,26	M.CWAT M_CWAT	6.2 7.2
3E	Erase or Punch Trailer	H.IOCS,21	N/A	6.3
	Erase or Punch Trailer - Base Mode	H.IOCS,21	N/A	7.3
3F	System Console Type	N/A	M.TYPE M_TYPE	6.2 7.2
40	Allocate File or Peripheral Device	H.MONS,21	M.ALOC	6.4
41	Deallocate File or Peripheral Device	H.MONS,22	M.DALC	6.4
42	Physical Device Inquiry	H.MONS,1	M.PDEV	6.4
43	Permanent File Address Inquiry	H.MONS,2	M.FADD	6.4
44	Memory Address Inquiry	H.REXS,3	M.ADRS M_ADRS	6.2 7.2
45	Create Timer Entry	H.REXS,4	M.SETT M_SETT	6.2 7.2
46	Test Timer Entry	H.REXS,5	M.TSTT M_TSTT	6.2 7.2
47	Delete Timer Entry	H.REXS,6	M.DLTT M_DLTT	6.2 7.2
48	Set User Status Word	H.REXS,7	M.SETS M_SETS	6.2 7.2
49	Test User Status Word	H.REXS,8	M.TSTS M_TSTS	6.2 7.2

USER LEVEL SYSTEM SERVICES - SVC ORDER
(Continued)

<u>SVC L,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
4A	Change Priority Level	H.REXS,9	M.PRIL M_PRIL	6.2 7.2
4B	Connect Task to Interrupt	H.REXS,10	M.CONN M_CONN	6.2 7.2
4C	Task Option Word Inquiry	H.REXS,24	M.PGOW M_OPTIONWORD	6.2 7.2
4D	Arithmetic Exception Inquiry	H.REXS,23	M.TSTE M_TSTE	6.2 7.2
4E	Time-of-Day Inquiry	H.REXS,11	M.TDAY M_TDAY	6.2 7.2
4F	Memory Dump Request	H.REXS,12	M.DUMP M_DUMP	6.2 7.2
50	Load Overlay Segment	H.REXS,13	M.OLAY	6.2
51	Load and Execute Overlay	H.REXS,14	M.OLAY	6.2
52	Activate Task	H.REXS,15	M.ACTV M_ACTV	6.2 7.2
53	Resume Task Execution	H.REXS,16	M.SUME M_SUME	6.2 7.2
54	Suspend Task Execution	H.REXS,17	M.SUSP M_SUSP	6.2 7.2
55	Terminate Task Execution	H.REXS,18	M.EXIT M_EXIT	6.2 7.2
56	Abort Specified Task	H.REXS,19	M.BORT M_BORT	6.2 7.2
57	Abort Self	H.REXS,20	M.BORT M_BORT	6.2 7.2
58	Program Hold Request	H.REXS,25	M.HOLD M_HOLD	6.2 7.2
59	Set Tabs in UDT	H.TSM,5	N/A	N/A
5A	Delete Task	H.REXS,31	M.DELTSK M_DELTSK	6.2 7.2
5B	Scan Terminal Input Buffer	H.TSM,2	M.TSCAN	1.13 (V II)
5C	Trap On-line User's Task	H.TSM,6	M.TBRKON	1.13 (V II)

USER LEVEL SYSTEM SERVICES - SVC ORDER

(Continued)

<u>SVC 1,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
5D	Disconnect Task from Interrupt	H.REXS,38	M.DISCON M_DISCON	6.2 7.2
5E	Exit from Message Receiver	H.REXS,39	M.XMSGR M_XMSGR	6.2 7.2
5F	Parameter Task Activation	H.REXS,40	M.PTSK M_PTSK	6.2 7.2
60	Set User Abort Receiver Address	H.REXS,26	M.SUAR M_SUAR	6.2 7.2
61	Submit Job from Disc File	H.MONS,27	M.CDJS	6.4
62	Abort With Extended Message	H.REXS,28	M.BORT M_BORT	6.2 7.2
63	Load and Execute Interactive Debugger	H.REXS,29	M.DEBUG M_DEBUG	6.2 7.2
64	Get Task Number	H.REXS,32	M.ID M_ID M_MYID M_MYID	6.2 7.2 6.2 7.2
65	Get Address Limits	H.REXS,41	M.GADRL	6.2
66	Debug Link Service	H.REXS,42	N/A	6.3
	Debug Link Service - Base Mode	H.REXS,42	N/A	7.3
67	Get Dynamic Task Execution Space	H.REMM,10	M.GE	6.2
68	Free Dynamic Task Execution Space	H.REMM,11	M.FE	6.2
69	Get Dynamic Extended Data Space	H.REMM,8	M.GD	6.2
6A	Free Dynamic Extended Indexed Data Space	H.REMM,9	M.FD	6.2

USER LEVEL SYSTEM SERVICES - SVC ORDER
(Continued)

<u>SVC 1,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
6B	Receive Message Link Address	H.REXS,43	M.RCVR M_RCVR	6.2 7.2
6C	Send Message to Specified Task	H.REXS,44	M.SMSGR M_SMSGR	6.2 7.2
6D	Send Run Request to Specified Task	H.REXS,45	M.SRUNR M_SRUNR	6.2 7.2
6E	Break/Task Interrupt Link/Unlink	H.REXS,46	M.BRK M_BRK	6.2 7.2
6F	Activate Task Interrupt	H.REXS,47	M.INT M_INT	6.2 7.2
70	Exit from Task Interrupt Level	H.REXS,48	M.BRKXIT M_BRKXIT M_XBRKR M_XBRKR	6.2 7.2 6.2 7.2
71	Share Memory with Another Task	H.ALOC,12	M.SHARE	6.4
72	Get Shared Memory	H.ALOC,13	M.INCL	6.4
73	Permanent File Log	H.MONS,33	M.LOG	6.4
74	User Name Specification	H.MONS,34	M.USER	6.4
75	Create Permanent File	H.FISE,12	M.CREATE	6.4
76	Change Temporary File to Permanent	H.FISE,13	M.PERM	6.4
77	Delete Permanent File or Non-SYSGEN Memory Partition	H.FISE,14	M.DELETE	6.4
78	Reserved			
79	Free Shared Memory	H.ALOC,14	M.EXCL	6.4
7A	Get Message Parameters	H.REXS,35	M.GMSGP M_GMSGP	6.2 7.2
7B	Get Run Parameters	H.REXS,36	M.GRUNP M_GRUNP	6.2 7.2

USER LEVEL SYSTEM SERVICES - SVC ORDER
(Continued)

<u>SVC 1,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
7C	Wait for Any No-wait Operation Complete, Message Interrupt, or Break Interrupt	H.REXS,37	M.ANYW M_ANYWAIT	6.2 7.2
7D	Exit Run Receiver	H.REXS,49	M.XRUNR M_XRUNR	6.2 7.2
7E	Exit from Message End-action Routine	H.REXS,50	M.XMEA M_XMEA	6.2 7.2
7F	Exit from Run Request End-action Routine	H.REXS,51	M.XREA M_XREA	6.2 7.2
80-FFF	Available for Customer Use			

USER LEVEL SYSTEM SERVICES - SVC ORDER

<u>SVC 2,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
00-1F	Reserved			
20	Create Permanent File	H.VOMM,1	M.CPERM M_CREATEP	6.2 7.2
21	Create Temporary File	H.VOMM,2	M.TEMP M_CREATET	6.2 7.2
22	Create Memory Partition	H.VOMM,3	M.MEM M_MEM	6.2 7.2
23	Create Directory	H.VOMM,4	M.DIR M_DIR	6.2 7.2
24	Delete Resource	H.VOMM,5	M.DELR M_DELETER	6.2 7.2
25	Extend File	H.VOMM,6	M.EXTD M_EXTENDFILE	6.2 7.2
26	Truncate File	H.VOMM,7	M.TRNC M_TRUNCATE	6.2 7.2
27	Change Defaults	H.VOMM,8	M.DEFT M_DEFT	6.2 7.2
28	Change Temporary File to Permanent File	H.VOMM,9	M.TEMPER M_TEMPFILETOPERM	6.2 7.2
29	Log Resource or Directory	H.VOMM,10	M.LOGR M_LOGR	6.2 7.2
2A	Modify Descriptor	H.VOMM,11	M.MOD M_MOD	6.2 7.2
2B	Rewrite Descriptor	H.VOMM,12	M.REWRIT M_REWRIT	6.2 7.2
2C	Read Descriptor	H.VOMM,13	M.LOC M_READD	6.2 7.2
2D	Rename File	H.VOMM,14	M.RENAM M_RENAME	6.2 7.2
2E	Convert Pathname to Pathname Block	H.VOMM,15	M.PNAMB M_PNAMB	6.2 7.2
2F	Reconstruct Pathname	H.VOMM,16	M.PNAM M_CONSTRUCTPATH	6.2 7.2

USER LEVEL SYSTEM SERVICES - SVC ORDER
(Continued)

<u>SVC 2,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
30	Replace Permanent File	H.VOMM,23	M.REPLAC M_REPLACE	6.2 7.2
31	Modify Descriptor User Area	H.VOMM,26	M.MODU M_MODU	6.2 7.2
32	Rewrite Descriptor User Area	H.VOMM,27	M.REWRTU M_REWRTU	6.2 7.2
33-3F	Reserved			
40	Include Memory Partition	H.REMM,12	M.INCLUDE	6.2
	Include Shared Image		M_INCLUDE	7.2
41	Exclude Memory Partition	H.REMM,14	M.EXCLUDE	6.2
	Exclude Shared Image		M_EXCLUDE	7.2
42	Open Resource	H.REMM,21	M.OPENR M_OPENR	6.2 7.2
43	Close Resource	H.REMM,22	M.CLOSER M_CLOSER	6.2 7.2
44	Set Exclusive Resource Lock	H.REMM,23	M.LOCK M_LOCK	6.2 7.2
45	Release Exclusive Resource Lock	H.REMM,24	M.UNLOCK M_UNLOCK	6.2 7.2
46	Set Synchronous Resource Lock	H.REMM,25	M.SETSYNC M_SETSYNC	6.2 7.2
47	Release Synchronous Resource Lock	H.REMM,26	M.UNSYNC M_UNSYNC	6.2 7.2
48	Resource Inquiry	H.REMM,27	M.INQUIRY M_INQUIRER	6.2 7.2
49	Mount Volume	H.REMM,17	M.MOUNT M_MOUNT	6.2 7.2
4A	Dismount Volume	H.REMM,19	M.DMOUNT M_DISMOUNT	6.2 7.2

USER LEVEL SYSTEM SERVICES - SVC ORDER
(Continued)

<u>SVC</u> <u>2,X'nn'</u>	<u>Description</u>	<u>Module,</u> <u>E.P.</u>	<u>Macro</u>	<u>Volume I</u> <u>Ref. Manual</u> <u>Section</u>
4B	Get Memory in Byte Increments	H.REMM,28	M.MEMB M_GETMEMBYTES	6.2 7.2
4C	Free Memory in Byte Increments	H.REMM,29	M.MEMFRE M_FREEMEMBYTES	6.2 7.2
4D-4E	Reserved			
4F	Reserved			
50	Acquire Current Date/Time in ASCII Format	H.REXS,74	M.QATIM M_QATIM	6.2 7.2
	Acquire Current Date/Time in Binary Format	H.REXS,74	M.BTIM M_BTIM	6.2 7.2
	Acquire Current Date/Time in Byte Binary Format	H.REXS,74	M.BBTIM M_BBTIM	6.2 7.2
	Acquire System Date/Time in Any Format	H.REXS,74	M.GTIM M_GTIM	6.2 7.2
	Get Current Date and Time	H.REXS,74	M_GETTIME	7.2
51	Convert ASCII Date/Time to Byte Binary Format	H.REXS,75	M.CONABB M_CONABB	6.2 7.2
	Convert ASCII Date/Time to Standard Binary	H.REXS,75	M.CONASB M_CONASB	6.2 7.2
	Convert Binary Date/Time to ASCII Format	H.REXS,75	M.CONBAF M_CONBAF	6.2 7.2
	Convert Binary Date/Time to Byte Binary	H.REXS,75	M.CONBBY M_CONBBY	6.2 7.2
	Convert Byte Binary Date/Time to ASCII	H.REXS,75	M.CONBBA M_CONBBA	6.2 7.2
	Convert Byte Binary Date/Time to Binary	H.REXS,75	M.CONBYB M_CONBYB	6.2 7.2
	Convert System Date/Time Format	H.REXS,75	M.CTIM M_CTIM	6.2 7.2
	Convert Time	H.REXS,75	M_CONVERTTIME	7.2

USER LEVEL SYSTEM SERVICES - SVC ORDER
(Continued)

<u>SVC 2,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
52	Assign and Allocate Resource	H.REXS,21	M.ASSN M_ASSIGN	6.2 7.2
53	Deassign and Deallocate Resource	H.REXS,22	M.DASN M_DEASSIGN	6.2 7.2
54	Reformat RRS Entry	H.REXS,76	M.NEWRRS	6.2
55	Batch Job Entry	H.REXS,27	M.BATCH M_BATCH	6.2 7.2
56	Reserved for Interactive Debugger	H.REXS,30	N/A	N/A
57	Reinstate Privilege Mode to Privilege Task	H.REXS,78	M.PRIV M_PRIVMODE	6.2 7.2
58	Change Task to Unprivileged Mode	H.REXS,79	M.UPRIV M_UNPRIVMODE	6.2 7.2
59	Validate Address Range	H.REXS,33	M.VADDR M_VADDR	6.2 7.2
5A	Reserved			
5B	Set IPU Bias	H.REXS,82	M.IPUBS M_IPUBS	6.2 7.2
5C	Set Exception Handler	H.REXS,83	M_SETEXA	7.2
5D	Get Base Mode Task Address Limits	H.REXS,84	M_LIMITS	7.2
5E	Get Task Environment	H.REXS,85	M.ENVRMT M_ENVRMT	6.2 7.2
5F	Exit With Status	H.REXS,86	M_EXTSTS	7.2
60	Reserved			
61	Get Command Line	H.REXS,88	M.CMD M_CMD	6.2 7.2
62	Move Data to User Address	H.REXS,89	M.MOVE M_MOVE	6.2 7.2
63-6F	Reserved			

USER LEVEL SYSTEM SERVICES - SVC ORDER
(Continued)

<u>SVC 2,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
70	Get User Context	H.EXEC,41	M_GETCTX	7.2
71	Put User Context	H.EXEC,42	M_PUTCTX	7.2
72-74	Reserved for Symbolic Debugger/X32			
75	Reserved for Future Development			
76	Reserved			
77	Set Option Lower	H.TSM,13	M.SOPL M_SOPL	6.2 7.2
78	Reset Option Lower	H.TSM,14	M.ROPL M_ROPL	6.2 7.2
79	Set Exception Return Address	H.REXS,81	M_SETERA	7.2
7A	Get Terminal Function Definition	H.TSM,15	M.GETDEF	6.2
7B-7E	Reserved			
7F	Get Extended Memory Array	H.MEMM,14	N/A	6.3
	Get Extended Memory Array - Base Mode	H.MEMM,14	N/A	7.3
80-9F	Reserved for ACX-32			
A0-A3	Reserved for Swapper			
A4-A9	Reserved			
AA-AD	Reserved for Rapid File Allocation:		N/A	N/A
	Zero MDT	H.MDT,1		
	Locate/Read MDT Entry	H.MDT,2		
	Update/Create MDT Entry	H.MDT,3		
	Delete MDT Entry	H.MDT,4		
AE-FFF	Reserved			

USER LEVEL SYSTEM SERVICES - SVC ORDER
(Continued)

<u>SVC 2,X'nn'</u>	<u>Description</u>	<u>Module, E.P.</u>	<u>Macro</u>	<u>Volume I Ref. Manual Section</u>
N/A	Allocate File Space	H.VOMM,19	N/A	6.3
N/A	Allocate Resource Descriptor	H.VOMM,17	N/A	6.3
N/A	Create File Control Block	N/A N/A	M.DFCB M_CREATEFCB	5.9.2 7.2
N/A	Create Temporary File	H.VOMM,24	N/A	6.3
N/A	Deallocate File Space	H.VOMM,20	N/A	6.3
N/A	Deallocate Resource Descriptor	H.VOMM,18	N/A	6.3
N/A	Execute Channel Program File Control Block	N/A	M_CHANPROGFCB	7.2
N/A	Read/Write Authorization File	H.VOMM,25	N/A	6.3



APPENDIX C

MPX-32 ABORT AND CRASH CODES

Address Specification Trap Handler (H.IPOC)

<u>CODE</u>	<u>DESCRIPTION</u>
AD01	Address specification error occurred within the operating system.
AD02	Address specification error occurred within the current task.
AD03	Trap occurred while no tasks were in active state.
AD04	Trap occurred within another interrupt trap routine.

Allocator (H.ALOC) (Compatibility Mode Only)

<u>CODE</u>	<u>DESCRIPTION</u>
AL01-AL06	Reserved
AL07	The combined number of file assignments for a task exceeds number specified. The cataloged assignments are combined with those defined by \$ASSIGN statements. See Cataloger FILES directive and recatalog if needed.
AL08	An assigned permanent file is nonexistent.
AL09	An assigned device is not configured in the system. An assigned device is off-line.
AL10-AL11	Reserved
AL12	Unable to load program because of I/O error or addressing inconsistencies in load module preamble.
AL13	An unrecoverable I/O error has occurred during the read of the task preamble into the TSA.
AL14	Reserved
AL15	An assigned device type is not configured in the system.
AL16	A resident request has been issued for a task requiring an SLO, SBO, SGO or SYC file. Resident tasks cannot use system files.

<u>CODE</u>	<u>DESCRIPTION</u>
AL17-AL18	Reserved
AL19	A file code to file code assignment (ASSIGN4) has been made to an undefined file code. A file code must be defined before a second file code can be equated by an ASSIGN4.
AL20	User attempted deallocation of TSA.
AL21	Destroyed task MIDL was detected while attempting to allocate dynamic execution space.
AL22	A software checksum error has occurred during task loading.
AL23	An invalid user name is cataloged with the task. The user name is not contained in the M.KEY file or a valid key is not specified.
AL24	Access to an assigned permanent file is by password only, and a valid password was not included on the cataloged assignment or Job Control statement assignment.
AL25	Undefined Resource Requirement Summary (RRS) type (internal format of an assignment statement is wrong).
AL26	The task has requested more blocking buffers than were specified during catalog. See Cataloger BUFFER directive and recatalog if needed.
AL27	There are no free entries in shared memory table for GLOBAL, DATAPOOL, CSECT, or other shared areas.
AL28	Task is attempting to share an undefined GLOBAL or DATAPOOL memory partition.
AL29	Task is attempting to exclude undefined memory partition.
AL30	The requested device is already assigned to the requesting task via another file code. Use ASSIGN4 or deallocate before reallocating.
AL31	Logical file code has already been allocated by caller (e.g., a card reader may already be assigned to LFC IN and a magnetic tape cannot be assigned to the same file code). Use ASSIGN4 or deallocate before reallocating.
AL32	Dynamic common block may not be assigned via ASSIGN1 directive.
AL33	Shared memory definition conflicts with caller's address space.
AL34	Shared memory partition not defined in directory.
AL35	Attempt to share a directory entry that is not a memory partition.
AL36	Invalid password specified for shared memory partition.

<u>CODE</u>	<u>DESCRIPTION</u>
AL37	Attempt to exclude undefined shared memory partition.
AL38	Attempt to activate a privileged task by unauthorized owner.
AL39	Shared memory entry not found.
AL40	Partition definition not found in directory.
AL41	Directory definition not a dynamic partition.
AL42	Invalid password for a memory partition.
AL43	Task has attempted to allocate an unshared resource that was not available during task activation in a memory-only environment.
AL44	Unable to resume 'SYSBUILD' task during initial task activation in a memory-only environment.
AL45	Unable to deallocate input device after dynamic task activation in a memory-only environment.
AL46	Task has attempted to share memory via a dynamic memory partition in a memory-only environment.
AL47	Dynamic memory partitions cannot be greater than 1 megabyte.
AL48	The user has attempted to exclude a shared partition whose associated map blocks are not designated as being shared in the task's TSA.
AL49	The task's DSECT space requirements overlap the task's TSA space requirements.
AL50	The task's DSECT space requirements overlap the task's CSECT space requirements, or if no CSECT, load module is too large to fit in user's address space.
AL51	Destroyed task MIDL detected while attempting to allocate system buffer space.
AL52	An error condition pertaining to file system structures has occurred. This error is not a function of the compatibility interface.
AL53	Destroyed task MIDL was detected while attempting to allocate extended indexed data space.
AL54	Invalid compatible RRS type.
AL55	Access mode is not allowed.
AL56-AL57	Reserved

ANSI Labeled Tapes

<u>CODE</u>	<u>DESCRIPTION</u>
AT01	Incorrect or no run parameters received.
AT02	Incorrect status returned from J.ATAPE run request.
AT03	An error occurred.
AT04	I/O error occurred on tape.

Auto-Start Trap Processor

<u>CODE</u>	<u>DESCRIPTION</u>
AU01	Trap occurred on auto-start.
AU02-AU05	Reserved

Call Monitor Interrupt Processor (H.IP27 and H.IP0A)

<u>CODE</u>	<u>DESCRIPTION</u>
CM01	Call monitor interrupt processor cannot locate the CALM instruction.
CM02	Expected CALM instruction does not have CALM (X'30') opcode.
CM03	Invalid CALM number.
CM04	CALM number too low (out of bounds).
CM05	CALM number too big (out of bounds).

**File System
(Compatibility Mode Only)**

<u>CODE</u>	<u>DESCRIPTION</u>
FS01	Unrecoverable I/O error to the directory.
FS02	Unrecoverable I/O error to file space allocation map.
FS03	Attempt to add a new file, but the directory is full.
FS04	A disc allocation map checksum error was detected.
FS05	Attempt to allocate disc space that is already allocated.
FS06	Attempt to deallocate disc space that is not allocated.
FS07	User has called an entry point in H.FISE that no longer exists.

Halt Trap Processor (H.IPHT)

<u>CODE</u>	<u>DESCRIPTION</u>
HT01	An attempt was made to execute a halt instruction in user's program.
HT02	An attempt was made to execute a halt instruction in an interrupt trap routine.
HT03	An attempt was made to execute a halt instruction when no tasks were in an active state.
HT04	Reserved.
HT05	An attempt was made to execute a halt instruction when user was unmapped.

Input/Output Control Supervisor (H.IOCS)

<u>CODE</u>	<u>DESCRIPTION</u>
IO02	An unprivileged task is attempting to read or write data into an unmapped address.
IO03	An unprivileged task is attempting to read data into protected memory.
IO06	Invalid blocking buffer control cells in blocked file encountered. Probable causes: <ol style="list-style-type: none">(1) File is improperly blocked,(2) Blocking buffer is destroyed, or(3) Transfer error during file input.
IO07	The task has attempted to perform an operation which is not valid for the device to which the user's file is assigned (e.g., a read operation specified for a file assigned to the line printer).
IO08	Device assignment is required for an unprivileged task to use this service.
IO09	Illegal operation on the SYC file.
IO15	A task has requested a type operation and the Type Control Parameter Block (TCPB) specified indicates that an operation associated with that TCPB is already in progress.
IO16	Invalid blocking buffer control cell(s) encountered during write of blocked file. This error is usually caused by a user specified blocking buffer that has been destroyed.
IO17	Open attempted on a file and FPT has no matching file code. Probable causes: <ol style="list-style-type: none">(1) Bad or missing RRS in preamble(2) LFC in FCB has been destroyed.
IO19	An error has occurred in the REMM close procedure.
IO20	An error has occurred in the REMM open procedure.
IO21	IOCS has encountered an unrecoverable I/O error in attempting to process an I/O request on behalf of a task.
IO22	An illegal IOCS entry point has been entered by a task.
IO23	A H.VOMM denial has occurred in reading the resource descriptor to get more segment definitions.
IO24	Illegal address, transfer count or transfer type (i.e., improper bounding for data type) specified in the FCB.

<u>CODE</u>	<u>DESCRIPTION</u>
IO28	Illegal operation attempted on an output active file or device.
IO30	Illegal or unexpected volume number or reel ID encountered on magnetic tape.
IO32	Calling task has attempted to perform a second read on a \$ statement through the SYC file.
IO38	Write attempted on unit opened in read-only mode. A read-write open will be forced to read-only if task has only read access to unit.
IO40	Invalid transfer count. Transfer count too large for transfer type, transfer count not an even multiple of transfer type, or data address not bounded for transfer type.
IO41	Blocking error during non-device access.
IO42	Blocked Data Management module (H.BKDM) is not configured in the system.
IO43	Input/Output Control List (IOCL) or data address not in contiguous 'E' memory (GPMC devices only).
IO44	Non-device access I/O error. This error may be the result of channel/controller initialization failure.
IO45	Multivolume Magnetic Tape module (H.MVMT) is not configured in the system.
IO47	Class 'E' device TCW is not in class 'E' memory. This type of error indicates a map failure.
IO48	Reserved
IO50	An unprivileged user attempted to execute a physical channel program.
IO51	A 'TESTSTAR' command was used in a logical channel program.
IO52	A logical channel was too large to be moved to memory pool.
IO53	A TIC command follows a TIC command in a logical channel program.
IO54	A TIC command attempted to transfer to an address which is not word bounded.
IO55	Illegal address in logical IOCL. Address is not in user's logical address space.
IO56	A read-backward command was used in a logical channel program.

<u>CODE</u>	<u>DESCRIPTION</u>
IO57	Illegal IOCL address. IOCL must be located in the first 128K words of memory.
IO61	Invalid LFC in FCB.
IO62	Error occurred on implicit open.
IO77	Attempt to use data flow control (other than WISM), that is not supported by the currently installed controller.
IO80	Illegal access mode for volume resource.
IO98	H.VOMM denial has occurred on IOCS automatic file extension request for the LFC specified in the abort message.
IO99	Internal system error detected at the address relative to IOCS which is specified in the abort message.

Task Activation Loading (H.TAMM)

<u>CODE</u>	<u>DESCRIPTION</u>
LD01	Load code section error.
LD02	Code section checksum error.
LD03	Bias code error.
LD04	Code matrix checksum error.
LD05	Load data section error.
LD06	Data section checksum error.
LD07	Bias data error.
LD08	Data matrix checksum error.

Memory Parity Trap (H.IP02)

<u>CODE</u>	<u>DESCRIPTION</u>
MP01	Memory error occurred in a task's logical address space. This is an internal or CPU failure. Rerun task.
MP02	Memory error occurred in another interrupt trap routine (nested traps, context lost).
MP03	Memory error occurred while no tasks were in the active state.
MP04	Memory error occurred in a map block reserved for the O/S.
MP05	Error occurred while current task was in the unmapped mode.

**System Services (H.MONS)
(Compatibility Mode Only)**

<u>CODE</u>	<u>DESCRIPTION</u>
MS01	Permanent file address inquiry service found a number of allocation units in the Unit Definition Table that do not correspond to any known disc.
MS09	Task has attempted to connect a task to an interrupt level not defined for indirectly connected tasks.
MS12	Overlay is password protected.
MS16	Task has requested dynamic allocation with an invalid function code.
MS17	File name contains characters outside range of X'20' to X'5F', inclusively.
MS21	Multivolume magnetic tape allocation request made to scratch (SCRA) tape.
MS22	Multivolume magnetic tape allocation request made on shared tape drive.
MS23	Task has issued a MOUNT MESSAGE ONLY allocation request to a nonallocated drive or to a device which is not a magnetic tape.
MS24	Task has specified an illegal volume number (0 if tape is multivolume; nonzero if tape is single volume).
MS28	A permanent file log has been requested, but the address specified for storage of the directory entry is not contained within the calling task's logical address space.
MS30	Task has attempted to obtain a permanent file log in a memory-only environment.
MS31	User attempted to go to an any wait state from an end-action routine.
MS33	Allocation error in RTM M.ALOC call.
MS87	No denial return address specified on CALM M.ALOC emulation.

Task Activation (J.TSM)

<u>CODE</u>	<u>DESCRIPTION</u>
PT01	Invalid attempt to multicopy a unique task.
PT02	File specified is not in directory.
PT03	Unable to allocate file.
PT04	File is not a valid load module or executable image.
PT05	DQE is not available.
PT06	Read error on resource descriptor.
PT07	Read error on load module.
PT08	Insufficient logical/physical address space for task activation.
PT09	Calling task is unprivileged.
PT10	Invalid priority.
PT11	Invalid send buffer address or size.
PT12	Invalid return buffer address or size.
PT13	Invalid no-wait mode end-action routine address.
PT14	Memory pool unavailable.
PT15	Destination task receiver queue full.
PT16	Invalid PSB address.
PT17	RRS list exceeds 384 words.
PT18	Invalid RRS entry in parameter block.

Record Manager

<u>CODE</u>	<u>DESCRIPTION</u>
RC01	Less than one block on read.
RC02	Not a multiple number of blocks read.
RC03	No more IOCs available.
RC04	Error condition on read.
RC05	Premature end-of-file.
RC06	End-of-medium on output file.
RC07	Write attempted on unopened file.
RC08	User record size too large.
RC09	Read not allowed after write.
RC10	Error on write.
RC11	End-of-medium on output file.
RC12	Internal file position error.
RC13	Resource cannot be opened.
RC14	Internal file position error.
RC15	Invalid blocking buffer cell.

Rapid File Allocation

<u>CODE</u>	<u>DESCRIPTION</u>
RF01	Invalid pathname.
RF02	Pathname consists of volume only.
RF03	Volume not mounted.
RF05	File is not a permanent file.
RF07	Resource does not exist.
RF08	Resource name in use.
RF10	MDT entry unavailable.
RF15	Volume must be mounted public.
RF60	Invalid mode.
RF99	Warning, input errors encountered, check SLO output.

Resource Management (H.REMM)

<u>CODE</u>	<u>DESCRIPTION</u>
RM01	Unable to locate resource.
RM02	Access mode not allowed.
RM03	Too many assignments.
RM04	Blocking buffer space not available or invalid buffer address.
RM05	Shared Memory Table (SMT) entry not found.
RM06	Too many mount requests.
RM07	Static assign to dynamic common.
RM08	Unrecoverable I/O error.
RM09	Invalid usage specification.
RM10	Invalid parameter address.
RM11	Invalid Resource Requirement Summary (RRS) entry.
RM12	Invalid LFC to LFC assignment.
RM13	Device not in system or off-line.
RM14	Resource already allocated by task.
RM15	Invalid SYC/SGO assignment.
RM16	Common conflicts with task address space.
RM17	Duplicate LFC assignment.
RM18	Invalid device specification.
RM19	Invalid resource ID (RID).
RM20	Volume not assigned or access not allowed.
RM21	Unable to mount. J. MOUNT run request failed.
RM22	Resource marked for deletion.
RM23	Assigned device is marked off-line.
RM24	Unable to locate Mounted Volume Table (MVT) entry.
RM25	Random access not allowed.
RM26	Attempt to write on SYC.

<u>CODE</u>	<u>DESCRIPTION</u>
RM27	Resource already opened in different mode.
RM28	Invalid access specification at open.
RM29	Invalid File Control Block (FCB) address or unassigned LFC in FCB.
RM30	Invalid allocation index.
RM31	Resource not open.
RM32	Lock not owned by this task.
RM33	Resource is not allocated in a shareable mode.
RM34	System Administrator attribute is required to mount a public volume.
RM35	Resource is not a shared image.
RM36	Physical memory already allocated.
RM37	Attempt to allocate nonpresent physical memory.
RM38	Time out waiting for resource.
RM39	Unable to perform write back.
RM40	Invalid load module.
RM41	Invalid physical address specified.
RM42	User requested abort of mount process.
RM43	User requested hold on mount process.
RM44	Writeback requested and shared image has no writeback section.
RM45	Loading error during inclusion of read only section of shared image.
RM46	Unable to obtain resource descriptor lock (multiport only).
RM47	Loading error during inclusion of read/write section of shared image.
RM48	Incompatible load addresses for shared image.
RM49	Excessive multicopied shared images with no read-only section.
RM50	Resource is locked by another task.
RM51	Shareable resource is allocated by another task in an incompatible access mode.

<u>CODE</u>	<u>DESCRIPTION</u>
RM52	Volume space is not available.
RM53	Assigned device is not available.
RM54	Unable to allocate resource for specified usage.
RM55	Allocated Resource Table (ART) space is not available.
RM56	Task requires Shadow Memory and none is configured.
RM57	Volume is not available for mount with requested usage.
RM58	Shared Memory Table (SMT) space is not available.
RM59	Mounted Volume Table (MVT) space is not available.
RM60	Resource descriptor space definition conflict.
RM61-RM63	Reserved.
RM64	The task's DSECT space requirements overlap the task's Task Service Area (TSA) space requirements.
RM65	The task's DSECT space requirements overlap the task's CSECT space requirements or, if no CSECT, load module is too large to fit in user's address space.
RM66	Software checksum. Error may be fixed by recataloging.
RM67	Excessive memory request.
RM68	Excessive volume space requested.
RM69	Invalid user name specified.
RM70	Invalid privileged activation.
RM71	Reserved.
RM72	Unable to resume SYSINIT on tape activation.
RM73	File overlap has occurred. Please check the system console.
RM74	Loading error.
RM75	Invalid work volume/directory.
RM76	User attempted deallocation of TSA.
RM77	A task has destroyed the allocation linkages in its dynamic expansion space.

<u>CODE</u>	<u>DESCRIPTION</u>
RM78	Unable to load Task Debugger with task.
RM79	Invalid Caller Notification Packet (CNP) address.
RM80	Shared image version level is not compatible with executable image.
RM81	Invalid activation of a base mode task on a system configured for non-base task execution.
RM82	Invalid activation of an ADA task on a system configured without ADA support.
RM83	Insufficient logical address space to activate task.
RM84	Invalid logical position for extended MPX.

Resident Executive Services (H.REXS)

<u>CODE</u>	<u>DESCRIPTION</u>
RX02	Invalid function code specified for request to create a timer entry. Valid codes are ACP (1), RSP or RST (2), STB (3), RSB (4) and RQI (5).
RX03	Task attempted to set/reset a bit outside of a static partition or the operating system.
RX04	Task has attempted to create a timer entry to request an interrupt with a priority level outside the range of X'12' to X'7F', inclusive, or the requesting task is unprivileged.
RX05	Invalid function code has been specified for request to set user status word.
RX06	Unprivileged task has attempted to reset a task priority level or a privileged task has attempted to reset a task priority to a level outside the range of 1 to 64, inclusively.
RX07	Cannot load overlay segment due to software checksum or data error.
RX08	Overlay is not in the directory.
RX10	Overlay has an invalid preamble.
RX11	An unrecoverable I/O error has occurred during overlay loading.
RX13	Function code supplied to a date/time service is out of range.

<u>CODE</u>	<u>DESCRIPTION</u>
RX14	Destination buffer address is invalid or protected.
RX15	Attempt to set exception return address when arithmetic exception not in progress.
RX25	Operator has aborted task in response to mount message.
RX29	Task has attempted to load the interactive task debugger overlay in a memory-only environment.
RX32	Invalid DQE address.
RX33	Overlay linkages have been destroyed by loading a larger overlay.
RX34	Task has made a break receiver exit call while no break is active.
RX36	Status in register zero is not a zero or a valid abort code.
RX86	Task has made an end-action routine exit while end action was not active.
RX88	Reserved for Debug Link service.
RX89	An unprivileged task has attempted to reestablish an abort receiver (other than M.IOEX).
RX90	Task has made a run request end-action routine exit while the run request interrupt was not active.
RX91	Task has attempted normal exit with a task interrupt still active.
RX92	Task has attempted normal exit with messages in its receiver queue.
RX93	An invalid Receiver Exit Block (RXB) address was encountered during message exit.
RX94	An invalid Receiver Exit Block (RXB) return buffer address or size was encountered during message exit.
RX95	Task has made a message exit while the message interrupt was not active.
RX96	An invalid Receiver Exit Block (RXB) address was encountered during run receiver exit.
RX97	An invalid Receiver Exit Block (RXB) return buffer address or size was encountered during run receiver exit.
RX98	Task has made a run receiver exit while the run receiver interrupt was not active.
RX99	Task has made a message end-action routine exit while the message interrupt was not active.

Shadow Memory (J.SHAD)

<u>CODE</u>	<u>DESCRIPTION</u>
SH01	J.SHAD has aborted. See output (UT if interactive or SLO if batch), for actual error description(s).

System Binary Output

<u>CODE</u>	<u>DESCRIPTION</u>
SB01	An I/O error has been encountered on the device assigned as the system binary (punched) output device.
SB02	The system output program has encountered an unrecoverable I/O error in attempting to read a punched output file from disc.
SB03	Denial of file code to file code allocation for J.SOUT2 indicates loss of system integrity.
SB04	System binary output aborted by operator.
SB05	No timer entry for system binary output (system fault).
SB06	Five echo check errors detected while attempting to punch a single card.

System Check Trap Processor

<u>CODE</u>	<u>DESCRIPTION</u>
SC01	System check trap occurred at an address located within the operating system.
SC02	System check trap occurred within the current task's space.
SC03	System check trap occurred at a time when there were no tasks currently being executed (C.PRNO equals zero).
SC04	System check trap occurred within another trap (C.GINT does not equal 1).

System Generator (SYSGEN)

<u>CODE</u>	<u>DESCRIPTION</u>
SG01	Invalid loader function code in binary object module from the System Resident Module (OBJ) file.
SG02	Invalid binary record read from System Resident Module (OBJ) file (byte 0 must be X'FF' or X'DF').
SG03	Sequence error in module being read from temporary file.
SG04	CHECKSUM error in module being read from temporary file.
SG05	Unable to find CDT and/or UDT for I/O module load.
SG06	Unable to obtain additional memory required for resident system image module loading.
SG07	Unable to obtain memory required for resident system image construction.
SG08	Non-relocatable byte string encountered in binary module being processed from temporary file.
SG09	Unable to allocate temporary file space.
SG10	Overrun of SYSGEN address space by system being generated. Probable erroneous size specification in PATCH or POOL directive.
SG11	Sequence error while reading object module from file assigned to 'OBJ'.
SG12	CHECKSUM error while reading object module from file assigned to 'OBJ'.
SG13	Unable to allocate disc space for SYMTAB file. Possible causes are insufficient disc space or access rights denial.
SG14	Unable to allocate disc space for SYSTEM IMAGE file. Possible causes are insufficient disc space, access rights denial, or attempting to SYSGEN over current default image.
SG15	Maximum number (240) of symbol table/patch file entries exceeded.
SG16	Missing SYSTEM or SYMTAB directive.
SG17	Invalid IPU interval timer priority. Must not be between X'78' and X'7F'.
SG18	Maximum size of 88K for target system has been exceeded.

<u>CODE</u>	<u>DESCRIPTION</u>
SG19	Attempt to define interrupt vectoring routine as system reentrant. Only device handlers may be system reentrant.
SG20	Unable to find "link" device in UDT.
SG21	Insufficient room in memory pool for download file list.
SG23	Share directive specified without enough SMT entries. Entries must exceed or be equal to the number of partitions plus memory discs.
SG24	Attempt to define partition starting mapblock number in operating system area.
SG25	Attempt to define partition starting mapblock number in non-configured physical memory.
SG26	Attempt to use a module incompatible with the target machine type. The offending module name is the last entry on the listing followed by three asterisks (***)
SG27	The device specified in either the SWP, SID, LOD or POD directive is not included in the configuration being built.
SG28	The null device specification which is required to be included in every configuration is missing.
SG29	SYSINIT object module missing on SYSGEN object input file (OBJ). It must be the first module after J.SWAPR.
SG30	The file assigned to file code OBJ does not contain valid object code.
SG31	The generated image contains unsatisfied external references. See the SLO output for more details. This is not a fatal abort and the system image is produced.
SG32	One or more requested object modules could not be located on the input object file. See the SLO output for more details. This is not a fatal abort and the system image is produced.
SG33	Event trace has been enabled with no memory partition reserved from X'78000' to X'80000'.
SG35	Insufficient memory pool for static partition.
SG36	Unmapped portion of H.DEBUG object module is missing on SYSGEN object input file. It must be the last module if the system debugger is to be configured.
SG37	Communications Region + DSECT + Adapter region exceeds 16KW.
SG38	MPX extended code area extends past logical limit.
SG39	Invalid MPX extended code area logical map start.
SG98	Error encountered during object processing preceded by message describing the error condition.
SG99	Directive errors encountered.

System Input Task (J.SSIN)

<u>CODE</u>	<u>DESCRIPTION</u>
SN00	Invalid run request parameters.

System Output Task (J.SOUT)

<u>CODE</u>	<u>DESCRIPTION</u>
ST01	Unrecoverable write error to destination device.
ST02	Unable to perform allocation of separator file code.
ST03	Unable to issue magnetic tape mount message via allocation service.

Whenever a System Output task aborts, the task may be restarted with the OPCOM/REPRINT or REPUNCH commands.

SVC Trap Processor (H.IP06)

<u>CODE</u>	<u>DESCRIPTION</u>
SV01	Unprivileged task attempting to use M.CALL.
SV02	Invalid SVC number.
SV03	Unprivileged task attempting to use a privileged-only service.
SV04	Invalid SVC type.
SV05	Unprivileged task attempting to use M.RTRN.
SV06	Invalid module number or entry point.
SV07	Attempting to use a SVC which is invalid for base mode operations.
SV08	SVC 0, 1 or 2 attempted that would result in a TSA stack overflow (i.e. T.REGP greater than or equal to 'X' 600).

Swap Scheduler Task (J.SWAPR)

<u>CODE</u>	<u>DESCRIPTION</u>
SW01	I/O error on inswap or outswap.
SW02	EOM detected on swap file.
SW03	Can not create swap file space directory in memory pool.
SW04	Swap file space directory is full.
SW05	Task not outswapped and inswap detected.

System Output Executive (J.SOEX)

<u>CODE</u>	<u>DESCRIPTION</u>
SX01	Invalid run request headcell count.
SX02	Load module J.SOUT does not exist.

System Initialization (SYSINIT)

<u>CODE</u>	<u>DESCRIPTION</u>
SY01	System halt occurred during SYSINIT phase one processing.
SY02	System halt due to memory parity error being detected in the operating system.

TERMDEF (J.TSET)

<u>CODE</u>	<u>DESCRIPTION</u>
TD01	Attempted to run J.TSET in batch mode.
TD02	J.TSET was unable to open UT for processing.

Volume Formatter (VFMT)

<u>CODE</u>	<u>DESCRIPTION</u>
VF01	Error has occurred. See SLO file for explanation.
VF02	OPEN failure on audit trail device/file.
VF03	EOF/EOM on audit trail device/file.
VF04	I/O error on audit trail device/file.

Volume Management Module (H.VOMM)

In some cases, H.VOMM displays H.REMM abort conditions. If a user calls an H.VOMM service which in turn calls an H.REMM service for processing and an abort condition occurs within the H.REMM processing, the abort condition is returned to H.VOMM which displays it to the user in the format 10xx where xx is the specific H.REMM abort condition. For example, abort condition 1026 indicates H.REMM error 26 has occurred. The TSM \$ERR command can be used to determine the reason for the error, i.e., \$ERR RM26.

<u>CODE</u>	<u>DESCRIPTION</u>
VM01	Invalid pathname.
VM02	Pathname consists of volume only.
VM03	Volume not mounted.
VM04	Directory does not exist.
VM05	Directory name in use.
VM06	Directory creation not allowed at specified level.
VM07	Resource does not exist.
VM08	Resource already exists.
VM09	Resource descriptor unavailable.
VM10	Directory entry unavailable.
VM11	Required file space unavailable.
VM12	Unrecoverable I/O error while reading DMAP.
VM13	Unrecoverable I/O error while writing DMAP.
VM14	Unrecoverable I/O error while reading resource descriptor.
VM15	Unrecoverable I/O error while writing resource descriptor.
VM16	Unrecoverable I/O error while reading SMAP.
VM17	Unrecoverable I/O error while writing SMAP.
VM18	Unrecoverable I/O error while reading directory.
VM19	Unrecoverable I/O error while writing directory.
VM20	Project group name or key invalid.
VM21	Reserved.

<u>CODE</u>	<u>DESCRIPTION</u>
VM22	Invalid File Control Block (FCB) or LFC.
VM23	Parameter address specification error.
VM24	Resource descriptor not currently allocated.
VM25	Pathname block overflow.
VM26	File space not currently allocated.
VM27	'Change defaults' not allowed.
VM28	Resource cannot be accessed in requested mode or default system image file cannot be deleted.
VM29	Operation not allowed on this resource type (resource is not the correct type).
VM30	Required parameter was not specified.
VM31	File extension denied. Segment definition area full.
VM32	File extension denied. File would exceed maximum size allowed.
VM33	I/O error occurred when resource was zeroed.
VM34	Replacement file cannot be allocated.
VM35	Invalid directory entry.
VM36	Directory and file are not on the same volume.
VM37	An unimplemented entry point has been called.
VM38	Replacement file is allocated by another task and bit 0 in the CNP option field is not set, or file is allocated by another CPU in multiport environment.
VM39	Out of system space.
VM40	Cannot allocate FAT/FPT when creating a temporary file.
VM41	Deallocation error in zeroing file.
VM42	Resource descriptor destroyed or the resource descriptor and the directory entry linkage has been destroyed.
VM43	Invalid resource specification.
VM44	Internal logic error from Resource Management Module (H.REMM). Abort task, try a different task and if it fails, reboot system.

<u>CODE</u>	<u>DESCRIPTION</u>
VM45	Attempted to modify more than one resource descriptor at same time or attempted to rewrite resource descriptor prior to modifying it.
VM46	Resource descriptor is locked by another CPU (multiport only).
VM47	Directory contains active entries and cannot be deleted.
VM48	A resource descriptor's link count is zero.
VM49	Attempting to delete a permanent resource without specifying a pathname or pathname block vector.
VM50	Resource descriptor contains unexpected resource descriptor type.
VM51	Directory entry deleted but failed to release file space.
VM52	An attempt was made to deallocate free space or to allocate space that is currently allocated on a volume other than system disc.
VM53	The file space created is less than the space requested.
VM99	An attempt was made to deallocate free space or to allocate space that is currently allocated on the system volume.

Volume Manager (VOLMGR)

<u>CODE</u>	<u>DESCRIPTION</u>
VO01	Error has occurred. See SLO file for explanation.
VO02	OPEN failure on audit trail device/file.
VO03	EOF/EOM on audit trail device/file.
VO04	I/O error on audit trail device/file.
VO05	Reserved.
VO06	I/O error on the tape during save operation. Tape has been backspaced to the end of the last saved file. All files on the image prior to the tape I/O error are saved on the tape.

Miscellaneous Abort Codes

<u>CODE</u>	<u>DESCRIPTION</u>
AC01	Insufficient SLO space for accounting listing.
CP01	Cache parity error occurred within the operating system.
CP02	Cache parity error occurred in task body.
CP03	Trap occurred while no tasks were in active state.
CP04	Trap occurred in another interrupt trap routine.
EX01	An abort has occurred in the task exit sequence.
EX02	An abort has occurred during the task abort sequence and has been changed to a delete (kill) task sequence.
EX03	User attempted to go to an any wait state from an end-action routine.
IP01	Abnormal task termination in IPU.
MC01	Machine check trap.
MF01	A map fault trap has occurred. This is the result of a bad memory reference outside of the user's addressable space.
MM01	Request for memory disc I/O to a location outside the memory disc boundaries.
NM01	Indicates a CPU failure.
OC01	The operator has requested that the task be aborted.
PV01	Privilege violation trap.
TS01	User requested removal from a BREAK request.
TS02	User requested removal from a resource Wait State queue.
TS03	Task running from specified terminal was aborted when the terminal disconnected.
TS04	Removal of a job was requested.
UI01	Undefined instruction trap.
UI02	Unexpected DEBUGX32 breakpoint found and DEBUGX32 not attached.

Crash Codes

When system crash occurs as a result of a trap handler entry, the CPU halts with the registers containing the following information:

<u>Register</u>	<u>Contents</u>
0	PSD Word 0 (when trap generated)
1	PSD Word 1 (when trap generated)
2	Real address of instruction causing trap
3	Instruction causing trap
4	CPU status word (from trap handler)
5	Crash code: MP01=X'4D503031' (See H.IP02 Codes) NM01=X'4E4D3031' (Nonpresent Memory - H.IP03) UI01=X'55493031' (Undefined Instruction - H.IP04) PV01=X'50563031' (Privilege Violation - H.IP05) MC01=X'4D433031' (Machine Check - H.IP07) SC01=X'53433031' (System Check - H.IP08) MF01=X'4D463031' (Map Fault - H.IP09) CP01=X'43503031' (Cache Parity Error - H.IP10) 32/67, 32/87 and 32/97 SW01=X'53573031' (See SWAPR codes)
6	Real address of register save block
7	C'TRAP'=X'54524150'

For further description, see Volume I, Chapter 2.

APPENDIX D
NUMERICAL INFORMATION

2^n	n	2^{-n}
1	0	1.0
2	1	0.5
4	2	0.25
8	3	0.125
16	4	0.062 5
32	5	0.031 25
64	6	0.015 625
128	7	0.007 812 5
256	8	0.003 906 25
512	9	0.001 953 125
1 024	10	0.000 976 562 5
2 048	11	0.000 488 281 25
4 096	12	0.000 244 140 625
8 192	13	0.000 122 070 312 5
16 384	14	0.000 061 035 156 25
32 768	15	0.000 030 517 578 125
65 536	16	0.000 015 258 789 062 5
131 072	17	0.000 007 629 394 531 25
262 144	18	0.000 003 814 697 265 625
524 288	19	0.000 001 907 348 632 812 5
1 048 576	20	0.000 000 953 674 316 406 25
2 097 152	21	0.000 000 476 837 158 203 125
4 194 304	22	0.000 000 238 418 579 101 562 5
8 388 608	23	0.000 000 119 209 289 550 781 25
16 777 216	24	0.000 000 059 604 644 775 390 625
33 554 432	25	0.000 000 029 802 322 387 695 312 5
67 108 864	26	0.000 000 014 901 161 193 847 656 25
134 217 728	27	0.000 000 007 450 580 596 923 828 125
268 435 456	28	0.000 000 003 725 290 298 461 914 062 5
536 870 912	29	0.000 000 001 862 645 149 230 957 031 25
1 073 741 824	30	0.000 000 000 931 322 574 615 478 515 625
2 147 483 648	31	0.000 000 000 465 661 287 307 739 257 812 5

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2^n	n	2^{-n}
4 294 967 296	32	0.000 000 000 232 830 643 653 869 628 906 25
8 589 934 592	33	0.000 000 000 116 415 321 826 934 814 453 125
17 179 869 184	34	0.000 000 000 058 207 660 913 467 407 226 562 5
34 359 738 368	35	0.000 000 000 029 103 830 456 733 703 613 281 25
68 719 476 736	36	0.000 000 000 014 551 915 228 366 851 806 640 625
137 438 953 472	37	0.000 000 000 007 275 957 614 183 425 903 320 312 5
274 877 906 944	38	0.000 000 000 003 637 978 807 091 712 951 660 156 25
549 755 813 888	39	0.000 000 000 001 818 989 403 545 856 475 830 078 125
1 099 511 627 776	40	0.000 000 000 000 909 494 701 772 928 237 915 039 062 5
2 199 023 255 552	41	0.000 000 000 000 454 747 350 886 464 118 957 519 531 25
4 398 046 511 104	42	0.000 000 000 000 227 373 675 443 232 059 478 759 765 625
8 796 093 022 208	43	0.000 000 000 000 113 686 837 721 616 029 739 379 882 812 5
17 592 186 044 416	44	0.000 000 000 000 056 843 418 860 808 014 869 689 941 406 25
35 184 372 088 832	45	0.000 000 000 000 028 421 709 430 404 007 434 844 970 703 125
70 368 744 177 664	46	0.000 000 000 000 014 210 854 715 202 003 717 422 485 351 562 5
140 737 488 355 328	47	0.000 000 000 000 007 105 427 357 601 001 858 711 242 675 781 25
281 474 976 710 656	48	0.000 000 000 000 003 552 713 678 800 500 929 355 621 337 890 625
562 949 953 421 312	49	0.000 000 000 000 001 776 356 839 400 250 464 677 810 668 945 312 5
1 125 899 906 842 624	50	0.000 000 000 000 000 888 178 419 700 125 232 338 905 334 472 656 25
2 251 799 813 685 248	51	0.000 000 000 000 000 444 089 209 850 062 616 169 452 667 236 328 125
4 503 599 627 370 496	52	0.000 000 000 000 000 222 044 604 925 031 308 084 726 333 618 164 062 5
9 007 199 254 740 992	53	0.000 000 000 000 000 111 022 302 462 515 654 042 363 166 809 082 031 25
18 014 398 509 481 984	54	0.000 000 000 000 000 055 511 151 231 257 827 021 181 583 404 541 015 625
36 028 797 018 963 968	55	0.000 000 000 000 000 027 755 575 615 628 913 510 590 791 702 270 507 812 5
72 057 594 037 927 936	56	0.000 000 000 000 000 013 877 787 807 814 456 755 295 395 851 135 253 906 25
144 115 188 075 855 872	57	0.000 000 000 000 000 006 938 893 903 907 228 377 647 697 925 567 626 953 125
288 230 376 151 711 744	58	0.000 000 000 000 000 003 469 446 951 953 614 188 823 848 962 783 813 476 562 5
576 460 752 303 423 488	59	0.000 000 000 000 000 001 734 723 475 976 807 094 411 924 481 391 906 738 281 25
1 152 921 504 606 846 976	60	0.000 000 000 000 000 000 867 361 737 988 403 547 205 962 240 695 953 369 140 625
2 305 843 009 213 693 952	61	0.000 000 000 000 000 000 433 680 868 994 201 773 602 981 120 347 976 684 570 312 5
4 611 686 018 427 387 904	62	0.000 000 000 000 000 000 216 840 434 497 100 886 801 490 560 173 988 342 285 156 25
9 223 372 036 854 775 808	63	0.000 000 000 000 000 000 108 420 217 248 550 443 400 745 380 086 994 171 142 578 125

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APPENDIX E
POWERS OF INTEGERS

POWERS OF SIXTEEN IN DECIMAL

<u>16ⁿ</u>	<u>n</u>	<u>16⁻ⁿ</u>					
	1	0	0.10000	00000	00000	00000	x 10
	16	1	0.62500	00000	00000	00000	x 10 ⁻¹
	256	2	0.39062	50000	00000	00000	x 10 ⁻²
	4 096	3	0.24414	06250	00000	00000	x 10 ⁻³
	65 536	4	0.15258	78906	25000	00000	x 10 ⁻⁴
	1 048 576	5	0.95367	43164	06250	00000	x 10 ⁻⁶
	16 777 216	6	0.59604	64477	53906	25000	x 10 ⁻⁷
	268 435 456	7	0.37252	90298	46191	40625	x 10 ⁻⁸
	4 294 967 296	8	0.23283	06436	53869	62891	x 10 ⁻⁹
	68 719 476 736	9	0.14551	91522	83668	51807	x 10 ⁻¹⁰
	1 099 511 627 776	10	0.90949	47017	72928	23792	x 10 ⁻¹²
	17 592 186 044 416	11	0.56843	41886	08080	14870	x 10 ⁻¹³
	281 474 976 710 656	12	0.35527	13678	80050	09294	x 10 ⁻¹⁴
	4 503 599 627 370 496	13	0.22204	46049	25031	30808	x 10 ⁻¹⁵
	72 057 594 037 927 936	14	0.13877	78780	78144	56755	x 10 ⁻¹⁶
1	152 921 504 606 846 976	15	0.86736	17379	88403	54721	x 10 ⁻¹⁸

POWERS OF TEN IN HEXADECIMAL

10^n	n	10^{-n}						
	1	0	1.0000	0000	0000	0000		
	A	1	0.1999	9999	9999	9999		
	64	2	0.28F5	C28F	5C28	F5C3	x 16 ⁻¹	
	3E8	3	0.4189	374B	C6A7	EF9E	x 16 ⁻²	
	2710	4	0.68DB	8BAC	710C	B296	x 16 ⁻³	
	1	86A0	5	0.A7C5	AC47	1B47	8423 x 16 ⁻⁴	
	F	4240	6	0.10C6	F7A0	B5ED	8D37 x 16 ⁻⁴	
	98	9680	7	0.1AD7	F29A	BCAF	4858 x 16 ⁻⁵	
	5F5	E100	8	0.2AF3	1DC4	6118	73BF x 16 ⁻⁶	
	3B9A	CA00	9	0.44B8	2FA0	9B5A	52CC x 16 ⁻⁷	
2	540B	E400	10	0.6DF3	7F67	5EF6	EADF x 16 ⁻⁸	
17	4876	E800	11	0.AFEB	FF0B	CB24	AAFF x 16 ⁻⁹	
E8	D4A5	1000	12	0.1197	9981	2DEA	1119 x 16 ⁻⁹	
918	4E72	A000	13	0.1C25	C268	4976	81C2 x 16 ⁻¹⁰	
5AF3	107A	4000	14	0.2D09	370D	4257	3604 x 16 ⁻¹¹	
3	8D7E	A4C6	8000	15	0.480E	BE7B	9D58	566D x 16 ⁻¹²
23	86F2	6FC1	0000	16	0.734A	CA5F	6226	F0AE x 16 ⁻¹³
163	4578	5D8A	0000	17	0.B877	AA32	36A4	B449 x 16 ⁻¹⁴
DF0	B6B3	A764	0000	18	0.1272	5DD1	D243	ABA1 x 16 ⁻¹⁴
8AC7	2304	89E8	0000	19	0.1D83	C94F	B6D2	AC35 x 16 ⁻¹⁵

APPENDIX F

ASCII INTERCHANGE CODE SET

Row	Col	0	1	2	3	4	5	6	7																																								
		<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>Bit Positions</p> <p>4 — 0</p> <p>5 — 1</p> <p>6 — 2</p> <p>7 — 3</p> </div> <table style="border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">0</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">0</td></tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">1</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">1</td></tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">2</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">0</td></tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">3</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">0</td><td style="padding: 0 5px;">1</td></tr> </table> </div>								0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	1	1	2	0	1	0	1	0	1	0	1	0	3	0	1	0	1	1	0	1	0	1
0	0	0	0	0	0	0	0	0	0																																								
1	0	0	1	0	1	0	1	1	1																																								
2	0	1	0	1	0	1	0	1	0																																								
3	0	1	0	1	1	0	1	0	1																																								
0000	0	NUL 12-0-9-8-1	DLE 12-11-9-8-1	SP No Punch	0	@ 8-4	P 11-7	^ 8-1	p 12-11-7																																								
0001	1	SOH 12-9-1	DC1 11-9-1	!	1	A 12-1	Q 11-8	a 12-0-1	q 12-11-8																																								
0010	2	STX 12-9-2	DC2 11-9-2	"	2	B 12-2	R 11-9	b 12-0-2	r 12-11-9																																								
0011	3	ETX 12-9-3	DC3 11-9-3	#	3	C 12-3	S 0-2	c 12-0-3	s 11-0-3																																								
0100	4	EOT 9-7	DC4 9-8-4	\$	4	D 12-4	T 0-3	d 12-0-4	t 11-0-3																																								
0101	5	ENQ 0-9-8-5	NAK 9-8-5	%	5	E 12-5	U 0-4	e 12-0-5	u 11-0-4																																								
0110	6	ACK 0-9-8-6	SYN 9-2	&	6	F 12-6	V 0-5	f 12-0-6	v 11-0-5																																								
0111	7	BEL 0-9-8-7	ETB 0-9-6	/	7	G 12-7	W 0-6	g 12-0-7	w 11-0-6																																								
1000	8	BS 11-9-6	CAN 11-9-8	(8	H 12-8	X 0-7	h 12-0-8	x 11-0-7																																								
1001	9	HT 12-9-5	EM 11-9-8-1)	9	I 12-9	Y 0-8	i 12-0-9	y 11-0-8																																								
1010	A	LF 0-9-5	SUB 9-8-7	*	:	J 11-1	Z 0-9	j 12-11-1	z 11-0-9																																								
1011	B	VT 12-9-8-3	ESC 0-9-7	+	;	K 11-2	[12-8-2	k 12-11-2	{ 12-0																																								
1100	C	FF 12-9-8-4	FS 11-9-8-4	0-8-3	<	L 11-3	\ 0-8-2	l 12-11-3	 12-11																																								
1101	D	CR 12-9-8-5	GS 11-9-8-5	-	=	M 11-4] 11-8-2	m 12-11-4	} 11-0																																								
1110	E	SO 12-9-8-6	RS 11-9-8-6	.	>	N 11-5	^ 11-8-7	n 12-11-5	~ 11-0-1																																								
1111	F	SI 12-9-8-7	US 11-9-8-7	/	?	O 11-6	_ 0-8-5	o 12-11-6	DEL 12-9-7																																								

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Some positions in the ASCII code chart may have a different graphic representation on various devices as:

ASCII	IBM 029
!	
[¢
]	!
^	>

Control Characters:

NUL	–	Null	DC3	–	Device Control 3
SOH	–	Start of Heading (CC)	DC4	–	Device Control 4 (stop)
STX	–	Start of Text (CC)	NAK	–	Negative Acknowledge (CC)
ETX	–	End of Text (CC)	SYN	–	Synchronous Idle (CC)
EOT	–	End of Transmission (CC)	ETB	–	End of Transmission Block (CC)
ENQ	–	Enquiry (CC)	CAN	–	Cancel
ACK	–	Acknowledge (CC)	EM	–	End of Medium
BEL	–	Bell (audible or attention signal)	SS	–	Start of Special Sequence
BS	–	Backspace (FE)	ESC	–	Escape
HT	–	Horizontal Tabulation (punch card skip)(FE)	FS	–	File Separator (IS)
LF	–	Line Feed (FE)	GS	–	Group Separator (IS)
VT	–	Vertical Tabulation (FE)	RS	–	Record Separator (IS)
FF	–	Form Feed (FE)	US	–	Unit Separator (IS)
CR	–	Carriage Return (FE)	DEL	–	Delete
SO	–	Shift Out	SP	–	Space (normally nonprinting)
SI	–	Shift In	(CC)	–	Communication Control
DLE	–	Data Link Escape (CC)	(FE)	–	Format Effector
DC1	–	Device Control 1	(IS)	–	Information Separator
DC2	–	Device Control 2			

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APPENDIX G

IOP CONSOLE COMMANDS

AS (CR)	Clear address stop
AS=xxxxxxxx (CR)	Set address stop
CRMD=xxxxxxxxxxxxx (CR)	Load CRAM with xxxxxxxxxxxx
=xxxxxxxxxxxxx (CR)	Load CRAM with data and increment address
CS (CR)	Read control switches
CS=xxxxxxxx (CR)	Set control switches
EA (CR)	Read effective address
EXEC (CR)	Execute CRAM
GPR (CR)	Read general purpose registers
HALT (CR)	Halt
IPL (CR)	IPL from default address
IPL=xxxx (CR)	IPL from xxxx
IS (CR)	Clear instruction stop
IS=xxxxxxxx (CR)	Set instruction stop
MA=xxxxxx (CR)	Read physical memory address location
(CR)	Increment and read memory address
MAV=xxxxxx (CR)	Read virtual memory address location
(CR)	Increment and read memory address
MD=xxxxxxxx (CR)	Write memory data
=xxxxxxxx (CR)	Increment and write memory data
= (CR)	Increment and write previous data
MSGE (CR)	Message
OVR (CR)	Toggle clock override
PRIP (CR)	Set primary panel (master only)
PSD (CR)	Read Program Status Doubleword (1 and 2)
PSD=xxxxxxxx (CR)	Write Program Status Word (2)
PSW (CR)	Read Program Status Word (1)
PSW=xxxxxxxx (CR)	Write Program Status Word (1)
REGA=xxxxxxxx (CR)	Write General Purpose Register A
RS (CR)	Clear read operand stop
RS=xxxxxxxx (CR)	Set read operand stop
RST (CR)	Reset

RUN (CR)	Run
SECP (CR)	Set secondary panel (master and slave)
STEP (CR)	Instruction step
(CR)	Instruction step
WS (CR)	Clear write operand stop
WS=xxxxxxxx (CR)	Set write operand stop
@@C	Enter console mode
@@P	Enter panel mode
(LF)	Repeat command

Notes:

- 1 (CR) denotes Carriage Return after each command.
- 2 LOCK ON and LOCK OFF are not supported by the CRT panel.

Console Mode

To change from SCP mode to console mode, it is necessary for an operator to input @@C (CR).

Upon receipt of the CR command following the @@C command, the firmware moves the cursor on the CRT to the extreme left margin of the next line.

To return to the control panel mode, enter @@P (CR). When the control panel mode is selected, // is used as the prompt.

APPENDIX H

STANDARD DATE AND TIME FORMATS

With the advent of the new MPX-32 file system, proper maintenance of the system date and time becomes more important than ever before as all file system resources will be time stamped to aid in management. It is vital the date and time be kept in a manner that is at once useful in this application and also convenient to convert into other formats that the user might require.

System date and time are kept in standard binary format. This format consists of two words: the first word contains the date and the second word contains the time. The date is maintained as the number of days since January 1, 1960 and the time is maintained as the binary count of system time units since midnight, adjusted to 100 microsecond granularity.

For the convenience of the user, monitor service calls are provided to convert the date and time between any of three standard formats. These are:

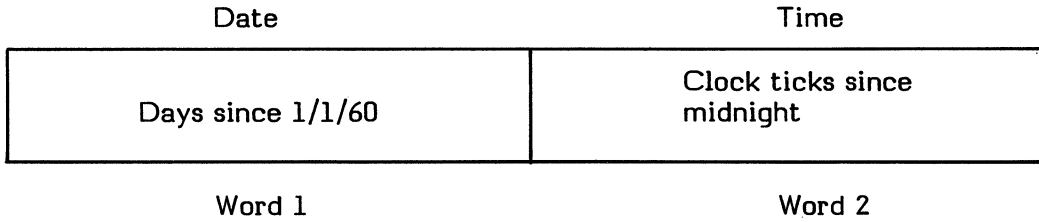
1. Binary Format (described above)
2. Byte Binary Format
3. ASCII Format (sometimes referred to as quad ASCII format)

Byte binary format time consists of two words: the first word contains date information and the second word contains time information. In byte binary format, the date is kept as four distinct values instead of one. Byte 0 of the date word is the binary century, byte 1 is the binary year in that century, byte 2 is the binary month and byte 3 the binary day of the month. Time is kept in a similar manner with byte 0 being the hour, byte 1 the minutes, byte 2 the second, and byte 3 the number of clock ticks.

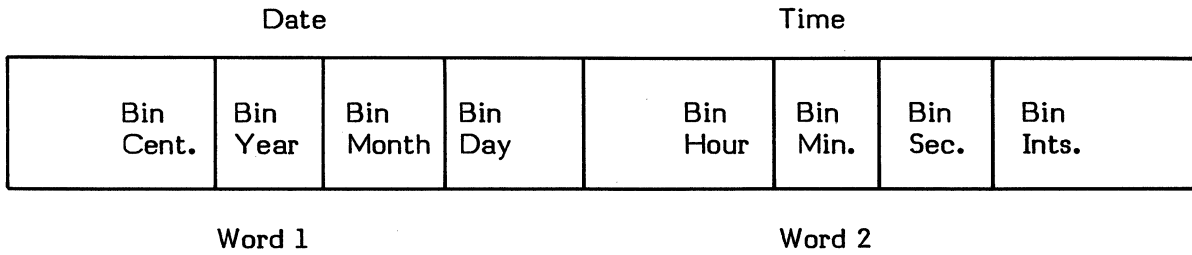
ASCII format consists of four words of information. The first two words contain the ASCII century, year, month, and day in successive halfwords. The second two words contain the hour, minutes, seconds, and clock ticks in a similar fashion. In ASCII format, use of a 120-hertz clock can cause truncation of the clock tick fields, allowing for only two ASCII digits.

Date/Time Standard Formats

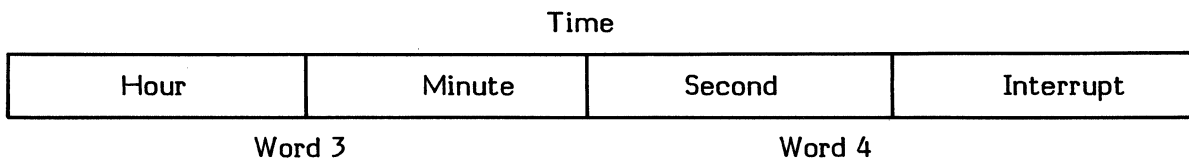
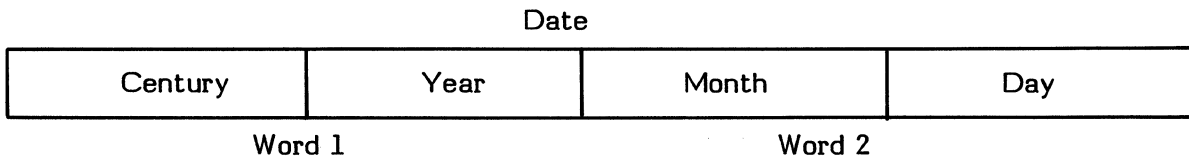
Binary



Byte Binary



Quad ASCII



APPENDIX I

COMPRESSED SOURCE FORMAT

Compressed source files are blocked files that consist of 120 byte records. The last record may be less than 120 bytes and has a Data Type Code of 9F. The structure of a compressed record is described below.

Each record contains 6 control bytes:

1 byte	Data Type Code, BF (9F indicates last record)
1 byte	Byte Count, number of data bytes in record
2 bytes	Checksum, halfword sum of data bytes
2 bytes	Sequence Number, record sequence number starting at zero

Data is recorded as follows:

1 byte	Blank Count, number of blanks before data
1 byte	Data Count, number of data bytes
n-bytes	Actual ASCII data
.	
.	(this sequence is repeated until the end of a line is reached)
.	
1 byte	EOL Character, FF



APPENDIX J

MAP BLOCK ADDRESS ASSIGNMENTS

<u>Map Block #</u> <u>DEC/HEX</u>	<u>Page #</u> <u>DEC/HEX</u>	<u>Address Range</u> <u>Hexadecimal</u>
00/00	00/00	00000 - 01FFF
01/01	04/04	02000 - 03FFF
02/02	08/08	04000 - 05FFF
03/03	12/0C	06000 - 07FFF
04/04	16/10	08000 - 09FFF
05/05	20/14	0A000 - 0BFFF
06/06	24/18	0C000 - 0DFFF
07/07	28/1C	0E000 - 0FFFF
08/08	32/20	10000 - 11FFF
09/09	36/24	12000 - 13FFF
10/0A	40/28	14000 - 15FFF
11/0B	44/2C	16000 - 17FFF
12/0C	48/30	18000 - 19FFF
13/0D	52/34	1A000 - 1BFFF
14/0E	56/38	1C000 - 1DFFF
15/0F	60/3C	1E000 - 1FFFF
16/10	64/40	20000 - 21FFF
17/11	68/44	22000 - 23FFF
18/12	72/48	24000 - 25FFF
19/13	76/4C	26000 - 27FFF
20/14	80/50	28000 - 29FFF
21/15	84/54	2A000 - 2BFFF
22/16	88/58	2C000 - 2DFFF
23/17	92/5C	2E000 - 2FFFF
24/18	96/60	30000 - 31FFF
25/19	100/64	32000 - 33FFF
26/1A	104/68	34000 - 35FFF
27/1B	108/6C	36000 - 37FFF
28/1C	112/70	38000 - 39FFF
29/1D	116/74	3A000 - 3BFFF
30/1E	120/78	3C000 - 3DFFF
31/1F	124/7C	3E000 - 3FFFF
32/20	128/80	40000 - 41FFF
33/21	132/84	42000 - 43FFF
34/22	136/88	44000 - 45FFF
35/23	140/8C	46000 - 47FFF
36/24	144/90	48000 - 49FFF
37/25	148/94	4A000 - 4BFFF
38/26	152/98	4C000 - 4DFFF
39/27	156/9C	4E000 - 4FFFF
40/28	160/A0	50000 - 51FFF
41/29	164/A4	52000 - 53FFF
42/2A	168/A8	54000 - 55FFF
43/2B	172/AC	56000 - 57FFF

<u>Map Block #</u> <u>DEC/HEX</u>	<u>Page #</u> <u>DEC/HEX</u>	<u>Address Range</u> <u>Hexadecimal</u>
44/2C	176/B0	58000 - 59FFF
45/2D	180/B4	5A000 - 5BFFF
46/2E	184/B8	5C000 - 5DFFF
47/2F	188/BC	5E000 - 5FFFF
48/30	192/C0	60000 - 61FFF
49/31	196/C4	62000 - 63FFF
50/32	200/C8	64000 - 65FFF
51/33	204/CC	66000 - 67FFF
52/34	208/D0	68000 - 69FFF
53/35	212/D4	6A000 - 6BFFF
54/36	216/D8	6C000 - 6DFFF
55/37	220/DC	6E000 - 6FFFF
56/38	224/E0	70000 - 71FFF
57/39	228/E4	72000 - 73FFF
58/3A	232/E8	74000 - 75FFF
59/3B	236/EC	76000 - 77FFF
60/3C	240/F0	78000 - 79FFF
61/3D	244/F4	7A000 - 7BFFF
62/3E	248/F8	7C000 - 7DFFF
63/3F	252/FC	7E000 - 7FFFF

Extended Memory 128KW to 256KW - 1B

64/40	256/100	80000 - FFFFF
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Extended Memory 256KW to 384KW - 1B

128/80	512/200	100000 - 17FFFF
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Extended Memory 384KW to 512KW - 1B

192/C0	768/300	180000 - 1FFFFFF
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Extended Memory 512KW to 1024KW - 1B

256/100	1024/400	200000 - 3FFFFFF
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Extended Memory 1024KW to 2048KW - 1B

512/200	2048/800	400000 - 7FFFFFF
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Extended Memory 2048KW to 4096KW - 1B

1024/400	4096/1000	800000 - FFFFFFF
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GLOSSARY

Access Method	A software package that provides the ability to access fields within records, to classify or order records according to the contents of fields, and to perform other such functions.
Access Mode	Defines the range of operations to be performed on a resource.
Allocated Resource Table (ART)	A system resident table with an entry for each currently allocated resource in the system.
Allocation	The process of securing a resource for a specific usage and access mode for a task.
Allocation Unit	A mechanism for grouping more than one block on a formatted disc, or other mass medium, at one time. Usually specified in multiples of 192-word disc blocks. See Disc Block.
Assign	To associate a resource with a logical file code used by a process.
Assignment	The process of associating an LFC with a system resource. Does not guarantee the resource for a specific use or access mode for a task.
Asynchronous	Implies one entity does not wait for or otherwise acknowledge another entity when it performs an operation.
Asynchronous Notification	A process does not stop execution waiting for notification. It receives a software interrupt when an asynchronous operation is complete.
Base Mode	Implies the base register instruction set which allows executable programs of up to 4096KW (16MB).
Blocked I/O	The process of packing records equal to or less than 254 bytes so that more than one record is stored in a 192-word disc block.
Blocking Buffers	Buffers used for packing records for blocked I/O. See Blocked I/O.
Caller Notification Packet (CNP)	A structure used to supply additional calling parameters and to control the handling of abnormal conditions that may occur during resource requests.

Classes of Users	A three-level grouping of users into OWNER, PROJECTGROUP and OTHER. Used to permit or limit access to a resource by 'class'.
Command File	A file containing commands known to a particular operating system or process.
CONCEPT/32	A term which implies the entire line of CONCEPT/32 computers; for example, the 32/67.
Configuration	Hardware: the physical hardware related to a CPU. Software: adapting the operating system to a hardware configuration with the SYSGEN processor.
Data Files	Files containing data or transactions that have been processed by a task or will be processed.
Data Management	The ability to structure data into records using buffers.
Deallocate	To detach a resource from a process.
Deassign	To remove the association between a logical file code and a resource and deallocate the resource.
Dequeue	To remove from a prioritized list.
Device	A peripheral unit such as a card reader, a printer, a disc drive, or a tape drive. Distinguished from media used with devices.
Device Access	Levels are physical I/O, logical device I/O, and logical file I/O.
Device-dependent I/O	Tasks perform operations to a specified device with minimal IOCS overhead.
Device-independent I/O	Tasks perform I/O operations through the use of operating system calls which are independent of the device used to perform the operation.
Direct I/O	Tasks perform operations bypassing IOCS and handler functions by coding its own handler and attaching it to a specific channel.
Directory	A list of file names and/or memory partition names. Stored on disc like a regular file. Located via a resource descriptor for the directory. Directory names are one to sixteen characters in length and valid characters for names are A to Z, 0 to 9, dot (.) and underscore (_).
Directory Descriptor	The resource descriptor for a directory.

Disc Block	A common unit of measurement (some number of words) used to measure file space on formatted media throughout a system. The number of words in a block is oriented to the most common sector size on discs used with the system.
DMAP	See Resource Descriptor Allocation Map.
Dynamic Assignment	The association of an LFC with a system resource during task execution.
Enqueue	To put into a list ordered by software priority.
Exclusive Use	A resource is not available for use by any other task until that resource is deallocated by the using task. Guarantees access to a resource, within the access limitations imposed by the resource creator, when logical I/O is initiated.
Executable Image	A file of object code produced by the LINKER/X32.
Explicit Shared Use	A resource can be used concurrently by more than one task. Each task maintains resource integrity by establishing its own synchronization and locking mechanisms. Each task is guaranteed access to the resource, within access limitations imposed by the resource creator, when logical I/O is initiated.
Extended Code	That part of the operating system that has been modified to run in the extended execution space.
Extended File Control Block	A File Control Block set up by the user which contains more information than the standard FCB. See File Control Block.
File	A set of information stored on a mass medium such as disc or tape that is given a unique identity (number and often name) and treated as a single entity for processing.
File Control Block (FCB)	Set up by the user to describe logical files within a task. Describes attributes of logical I/O operation.
File Descriptor	A resource descriptor for a file.
File Identifier	A unique identifier stored in the resource descriptor for a file when the file is created. Used to access the resource descriptor without a directory search.
File Segment	Set of contiguous allocation units on a volume identifying the space associated with a file. Each file segment definition contains the absolute 192-word block volume segment address and the segment length in 192-word blocks (maximum of 32 file segment definitions per file).

File Space Allocation Map (SMAP)	A bit map used to allocate space on a volume.
Filename	A one- to sixteen-character name supplied for a permanent file when it is created on a mass medium. Used in most cases thereafter to identify the file. Valid characters for filenames are the upper-case letters A to Z, the decimal numbers 0 to 9, and the special characters dot (.) and underscore (_). Filenames to be used with the compatible interfaces, for example, Editor, File Manager, Media, are limited to one to eight characters.
Format	Standard organization of information.
Formatted Volume	A disc pack or floppy disc that contains standard volume system structures established by the Volume Formatter utility.
Implicit Shared Use	A resource is available for concurrent use by other tasks in a compatible access mode. Does not guarantee access when logical I/O is initiated. Resource integrity is automatically maintained by the system.
Job File	A command file designed to run in the batch or interactive environment.
Library File	Object modules or source modules identified by name that are output to a single file. Modules on library files can be used separately and repeatedly. For example, object modules can be retrieved by name during cataloging and inserted with existing code. The ability to edit the contents of library files by name is also normally available.
Load Module File	A file of object code produced by the Cataloger that is ready to relocate from disc into memory and execute as a process. Load module files can be activated by name and are controlled by name or task number.
Logical Device I/O	I/O where the physical characteristics of a device are not determined automatically by the file management system (device and data formatting are inhibited), allowing the user to exert control over a particular physical device or device medium.
Logical File Code (LFC)	User defined one- to three-character ASCII codes identifying logical files within tasks.
Logical File I/O	I/O where the physical characteristics of a device and device medium (device format control, data conversion, data formatting) are performed automatically for the user so that he gains a degree of device independence.

Medium (singular) Media (plural)	A contiguous source of input or output that is used for a particular peripheral device. For example, a disc pack is the medium mounted on a disc drive; a tape is the medium mounted on a tape drive; paper is the medium used on a printer; a deck of cards is the medium used on a card reader. The operating system distinguishes use of media from use of devices.
Memory Descriptor Memory Partitions	The resource descriptor for a memory partition. Named areas of physical memory that can be shared by concurrently executing tasks.
Modular	Construction in independent layers. Each higher level layer builds on the layer beneath it and provides its own standard interfaces to the levels above and below it.
Mounted Volume Table (MVT)	A system resident table with an entry for each physically mounted volume. Each entry contains information used by the system to maintain volume accounting information.
Multivolume Magnetic Tape	A set of 1 through 255 maximum physical reels of magnetic tape processed as a continuous reel.
Nonbase Mode	Implies the nonbase register instruction set which allows executable programs of up to 128KW.
Nonpublic Volume	A volume assigned specifically to the tasks that mount them. Remains mounted until use and assign counts equal zero.
Object File	A file of assembled or compiled code that can be cataloged or linked into a task.
OPCOM Mounted Volume	A volume mounted with an OPCOM MOUNT command. Remains mounted until an OPCOM DISMOUNT command is issued.
Owner	One who has possession of and can control access to a file, device, memory partition, or directory. Usually the owner of a resource is the user who created its resource descriptor.
Owner Name	A one- to eight-character name supplied at logon which remains unchangeable through logoff. The following characters cannot be used in owner names: blanks, commas, semicolons, equal signs, and left or right parentheses. All other characters are valid. Owner names are associated with any task or process activated on the system and noted by any process that acts in the owner's behalf. Owner name is also associated with any resources a user creates unless the user specifies otherwise. Specifying a different owner when creating a resource definition does not change the user's owner name; it only specifies the owner name associated with the resource.

Parameters	Strings of key words and/or numbers passed to a process that is designed to recognize them.
Pathname	Variable length ASCII character strings which uniquely identify a volume resident resource by explicitly or implicitly describing the volume, one or more directories, and the resource name.
Pathname Block	Doubleword bounded variable length ASCII character string beginning with "!" which uniquely identifies a volume resident resource by explicitly or implicitly describing the volume, one or more directories, and the resource name.
Permanent Files	Files that remain defined on a volume until explicitly deleted.
Portable	Can be used on any compatible device in a single system configuration. Can also be carried to a compatible device on a different system hardware configuration. Usually describes a volume.
Postprogram Controlled Interrupt Receiver	User supplied end-action receiver entered when a hardware postprogram controlled interrupt is encountered.
Process	A body of code scheduled for CPU time as a single entity. A load module is a process, in loadable form, stored on disc (same as Task).
Project Group Name	A name that is specified at logon and can also be changed. Identifies a group of users that have a defined set of rights when they access a resource.
Protect	To limit access to a resource. See Classes of Users.
Protection Granule	A 512-word unit in which memory can be protected by hardware.
Public Volume	A volume available for resource assignments by all tasks activated in the system. Remains mounted as long as the system is running.
Real Time Task	Synonymous with Time Critical Process.
Requestor	The process which requests a function. Each process on a system has an associated owner name. The system process that requests a function for a user (e.g., in the interactive environment) keeps track of the owner name so that the user thinks of himself as the 'requestor'.

Resource Create Block (RCB)	Defines access attributes for permanent files, temporary files, memory partitions, and directories when the particular resource is created. If not supplied at resource creation, system default attributes are assumed.
Resource Descriptor (RD)	Contains access, accounting, and space definition information pertaining to mounted volume resources, permanent files, temporary files, directories and partitions.
Resource Descriptor Allocation Map (DMAP)	A bit map used for the allocation of resource descriptors on a volume.
Resource Identifier (RID)	The fastest way to locate an already created volume resource. The RID is in the first eight words of a resource descriptor and contains the volume address of the resource descriptor, which points to and describes the resource.
Resource Logging Block (RLB)	A parameter block used as input to the M.LOGR service for logging resources.
Resource Management Module (H.REMM)	Performs allocation and assignment of all system resources and maintains access compatibility and usage rights for these resources. Also contains synchronization mechanisms for concurrent access to shared resources.
Resource Requirement Summary (RRS)	Defines assignment requirements of a resource. Entries are variable length, doubleword bounded. There are 7 types of entries.
Root Directory	The directory of all directories defined on a volume.
SMAP	See File Space Allocation Map.
Source File	A file of source code to be assembled or compiled into object code.
Static Assignment	The association of an LFC with a system resource during task activation.
Status Posting	The process of returning information that indicates whether a service was completed successfully, with errors, or denied.
Swap Volume	A volume used as the primary medium for swap file allocations.
Symbolic	A representation of a physical resource, e.g., a name that represents an entity but is not the entity itself.

Synchronous Notification	A process waits on further processing until it is notified that an operation is done or that there is something inhibiting the operation (e.g., a resource is not available or other processes are in contention for the resource).
System Administrator Attribute (SA)	Gives an unprivileged user the ability to execute privileged SVC's, allows a user to mount public volumes, and allows a user to change his owner name. A user with the System Administrator Attribute is, however, restricted to resource access limitations imposed by the resource creator.
System Directory	Special directory on the system volume which contains volume resources necessary for system operation.
System Volume	A volume containing the system and bootstrap images from which the current system was IPLed. This volume is automatically mounted by the SYSINIT task at system initialization.
Task	Synonymous with process.
Temporary Files	Unnamed files that are referenced by resource identifiers. They are automatically deleted from the system and their volume space made available when the last task assigned to them terminates execution.
Time Critical Process	A process which has time constraints. Same as a real time task.
Traverse	To pass through a directory on the way to another directory or resource.
Type Control Parameter Block (TCPB)	Set up by the user for sending and receiving messages to/from the system console.
Unformatted Media	A medium (magnetic tape, disc pack or floppy disc) that does not contain valid volume format information, but must be mounted before initiation of I/O operations.
Usage Mode	Defines the degree to which multiple tasks can concurrently allocate a resource. Usage modes are: Exclusive Use, Explicit Shared, and Implicit Shared.
User	A person who uses a system. Processes and commands that activate processes are either initiated by a user or initiated on behalf of a user.
Volume	A volume is a medium that has a standard format. Disc packs can be formatted as volumes.
Volume Assignment Table (VAT)	A task resident table with an entry for each nonpublic volume currently assigned to the task.

Volume Management
Module (H.VOMM)

Manipulates volume resident and related memory resident structures in order to allow for creation, deletion, and maintenance of user and system resources which reside on volumes; for example, provides space management for all currently mounted volumes in the system.



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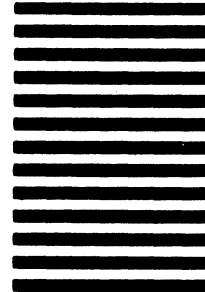
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