

RSX-11M
Version 4.2 Update Notes
Revision C

Order No. AA-W259H-TC

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Operating System and Version: RSX-11M Version 4.2

August 1986

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Contents

Preface

v

Chapter 1 Updating Your RSX-11M Operating System

- 1.1 Applying Your Update Software 1-1
- 1.2 Applying Corrections to Nonprivileged Task Libraries 1-2

Chapter 2 System Problems and Correction Files

- 2.1 System Problem Statements and Correction Files for Update C 2-1
- 2.2 System Problem Statements and Correction Files for Update B 2-11

Chapter 3 New and Modified Software

- 3.1 New and Modified Software for Update C 3-1
 - 3.1.1 Modifications to MACRO-11 3-1
 - 3.1.2 Modifications to BRU 3-2
 - 3.1.3 New DCL Qualifier 3-2
 - 3.1.4 Enhancements to FMT 3-3
 - 3.1.5 Large Disk Support 3-3
 - 3.1.6 Modifications to PUCOM.MAC 3-4
 - 3.1.7 MSDRV Spacing Time-out Value 3-4
 - 3.1.8 Restriction to FSS\$ Directive 3-4
 - 3.1.9 Modifications to EDT Version 3.1 3-4
 - 3.1.10 Modifications to RMS-11 Version 2.0 3-6
 - 3.1.10.1 RMS-11 Access Methods 3-7
 - 3.1.10.2 RMS-11 Remote Access Methods 3-8
 - 3.1.10.3 RMS-11 Utilities 3-9
- 3.2 New and Modified Software for Update B 3-9
 - 3.2.1 Enhancements to the Bad Block Replacement Control Task 3-9
 - 3.2.2 Applying the Update B Software on VAX/VMS Host Systems 3-10

3.2.3	Modifications to RMS-11 Version 2.0	3-10
3.2.3.1	RMS-11 Access Methods	3-10
3.2.3.2	RMS-11 Utilities	3-11

Chapter 4 New Hardware Support

4.1	New Hardware Support for Update C	4-1
4.2	New Hardware Support for Update B	4-1

Chapter 5 Corrections to Documentation

5.1	RSX-11M/M-PLUS System Management Guide	5-1
5.2	RSX-11M/M-PLUS Guide to Program Development	5-1
5.3	RSX-11M/M-PLUS Indirect Command Processor Manual	5-2
5.4	RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual	5-3
5.5	RSX-11M/M-PLUS Error Logging Manual	5-3
5.6	RSX-11M/M-PLUS and Micro/RSX I/O Operations Reference Manual	5-4
5.7	RSX-11M/M-PLUS Batch and Queue Operations Manual	5-4
5.8	RMS-11 Macro Programmer's Guide	5-4
5.9	RSX-11M Help Files	5-5

Chapter 6 Layered Product Support

6.1	Layered Product Update File Summary	6-1
-----	-------------------------------------	-----

Tables

6-1	Layered Product Update File References	6-1
-----	--	-----

Preface

Manual Objectives

The *RSX-11M Version 4.2 Update Notes Revision C* manual describes the RSX-11M Version 4.2 update software. It includes a list of the RSX-11M layered products that can be updated with this software package.

Intended Audience

System managers and system users familiar with the RSX-11M operating system should read this manual before applying the update software.

Structure of This Document

Chapter 1 describes the procedure for applying the RSX-11M update software.

Chapter 2 describes the existing system problems that are corrected when you apply the update software, and lists the corresponding update correction files.

Chapter 3 describes new and modified software features for the RSX-11M operating system.

Chapter 4 describes new hardware support for the RSX-11M operating system.

Chapter 5 contains corrections to documentation errors in the RSX-11M Version 4.2 documentation set.

Chapter 6 includes a list of the layered products that can be updated with this software.

Associated Documents

The following manuals provide additional information about the update and system generation procedures:

- *RSX-11M System Generation and Installation Guide*
- *RSX-11M/RSX-11S Release Notes*

Conventions Used in This Document

The following conventions are observed in this manual.

Convention	Meaning
.	Separates the file name from the file type in a file specification.
;	Separates the file type from the file version number in a file specification.
,	Separates parameters in commands.
n	Indicates a variable for a number.
red ink	In interactive examples, what the user types is printed in red.
black ink	In examples, black ink indicates what the system prints or displays.
<code>CTRL/a</code>	The symbol <code>CTRL/a</code> means that you are to press the key marked CTRL while pressing another key. Thus, <code>CTRL/Z</code> indicates that you are to press the CTRL key and the Z key together in this fashion. <code>CTRL/Z</code> is echoed on your terminal as ^Z. However, not all control characters echo.

Chapter 1

Updating Your RSX-11M Operating System

1.1 Applying Your Update Software

The RSX-11M Version 4.2 update software is applied to your RSX-11M operating system using the following steps:

1. Invoke the update command procedure (by entering the command @UPDATE).
2. Run the system generation program.
3. Apply corrections to the layered products.

WARNING

An error has been found in the RSX-11M Version 4.2 distribution kit. The file UPDATE.CMD contains a command line error. This file **cannot** be used to invoke the update software. To correct this error, a new UPDATE.CMD command file has been included with this update distribution kit. After you copy UPDATE.CMD to the user area and invoke it, follow the normal procedure for applying the update software as outlined in the *RSX-11M System Generation and Installation Guide*.

If you are using a disk device, copy UPDATE.CMD as follows:

```
MCR>MOU UP:M42UPDATEC
MCR>PIP ddsk:[200,200]UPDATE.CMD/NV=UP:[200,200]UPDATE.CMD
MCR>DMO UP:
```

where

UP: Contains the update software kit

ddsk: Is your distribution disk

```
MCR>MOU UP:/FOR (RSX-11M-PLUS and VAX/VMS systems only)
MCR>BRU/NOINI/DENS:dens/VER/REW/SUP UP:[200,200]UPDATE.CMD ddisk:
MCR>DMO UP: (RSX-11M-PLUS and VAX/VMS systems only)
```

where

UP: Contains the update software kit

ddisk: Is your distribution disk

dens Is the tape density setting

Be sure to read Chapter 2 of the *RSX-11M System Generation and Installation Guide* and Chapter 1 of the *RSX-11M/RSX-11S Release Notes for Version 4.2* before invoking the update command procedure.

1.2 Applying Corrections to Nonprivileged Task Libraries

The libraries of the following nonprivileged tasks have been modified with this update software:

- BAD (Bad Block Locator Utility)
- BRU (Backup and Restore Utility)
- EDT (Text Editor)
- FMT (Disk Volume Formatter)
- FTB (Fast Task Builder)
- MAC (MACRO-11 Assembler)
- PIP (Peripheral Interchange Program)
- STK (Slow Task Builder)
- TKB (Task Builder)
- VFY (File Structure Verification Utility)

To incorporate the Update C corrections for these tasks, first apply the update software and perform a system generation. After completing these procedures, invoke the command procedure `SYSGEN3.CMD`. This command procedure will rebuild the nonprivileged tasks. For more information, please refer to Chapter 7 of the *RSX-11M System Generation and Installation Guide*.

Chapter 2

System Problems and Correction Files

The RSX-11M Version 4.2 update software contains corrections to the system problems described in the following sections. An explanation of each problem and a list of corresponding correction file(s) are also included.

This chapter has been organized cumulatively. When a new version of the update software is created, a new section is added to this chapter. Each section contains the system problems and correction files that correspond to the particular update version.

2.1 System Problem Statements and Correction Files for Update C

The following paragraphs describe the system problems that are corrected by the RSX-11M Version 4.2 Revision C software and list the correction file or files for each problem.

SYSTEM PROBLEM

When system pool is low, the BYE task may suspend activity. In addition, BYE will not exit and remains active on a terminal even after the system recovers from low system pool.

Explanation: During some operations, BYE issues the directive Mark Time (MRKT\$) and then issues the directive Wait for Single Event Flag (WTSE\$). However, if MRKT\$ fails because of insufficient system pool, the event flag may be either set or cleared. If it is cleared, WTSE\$ is never satisfied and BYE remains active.

Corrections have been made so that directives are retried when they require system pool and are critical to the completion of the BYE task.

Correction File:

[12,60]BYE.COR

SYSTEM PROBLEM

LPP performs an infinite loop while trying to print a record that contains a negative record length.

Explanation: LPP determines whether the record length of a file is valid. After issuing the GET\$ directive, the following types of invalid record lengths may occur:

1. The actual record length exceeds the limit specified in F.URBD for the device.
2. The actual record length is negative.

When either error occurs, LPP performs an infinite loop.

LPP has been corrected and now tests for a negative record length. When this occurs, LPP exits with an error message.

Correction File:

[121,60]PRT.OBJ

SYSTEM PROBLEM

When using the DCL command PRINT qualifiers /FORM:3 and /FORM:5, the LN03 laser printer prints only 51 lines on a page while using the standard page width of 132 characters. However, the explanation in the file LPPBLD.BLD states that these qualifiers cause 66 lines to be printed on a page.

Explanation: Before the qualifiers /FORM:3 and /FORM:5 are processed, LPP issues escape sequences that initialize the LN03. Because these escape sequences contain incorrect commands, only 51 lines are printed on a page. The LPP source code has been modified to correct this problem.

Correction File:

[121,60]JOBSTR.OBJ

SYSTEM PROBLEM

The VMR command SET /TERM does not accept the following terminal devices:

- LA210
- LQP01
- LQP02
- LQP03

Explanation: This problem occurs because these terminal devices are not included in the VMR command SET /TERM source code. The source code has been modified to include these devices.

Correction Files:

[70,60]SPROV.OBJ

[70,60]SDSOV.OBJ

SYSTEM PROBLEM

Alternate command line interpreter (CLI) commands that contain 79 characters and end with a carriage return are not executed when they are passed to MCR using the Request and Pass Offspring Information (RPOI\$) directive. Instead, the command is passed repeatedly between MCR and the alternate CLI, causing an infinite loop.

Explanation: This problem occurs when bit 5 of the last byte in a command packet is cleared. This bit is used to instruct MCR to execute commands passed to it by an alternate CLI rather than transferring control of that command to the alternate CLI.

When a command is 79 characters long, the last byte is also used to contain the terminator of the command. However, the RPOI\$ directive changes this byte after the bit has been set. As a result, the commands are not executed.

The RPOI\$ directive has been modified so that bit 5 is left unchanged.

Correction File:

[11,60]DRSPW.COR

SYSTEM PROBLEM

The MCR command SET /TERM does not accept the following terminal devices:

- LQP01
- LQP02

In addition, the MCR command DEV does not display the following terminal devices:

- LA210
- LQP01
- LQP02
- LQP03

Explanation: Both problems occur because these terminal devices are not included in the MCR source code. The source code has been modified to include these devices.

Correction Files:

[12,60]SPSOV.COR

[12,60]SX20V.COR

[12,60]DV20V.COR

SYSTEM PROBLEM

On systems that contain a resident loader, MCR aborts operation if the MCR command TAS is entered with an additional character (for example, TASK instead of TAS).

Explanation: Normally, when executing the TAS command, MCR reads the task header to retrieve the task version number and assumes that a register points to the task header. However, the resident loader does not have a task header, so the register points to the end of the original

command line. If the command line has three characters, the register is even and MCR prints an incorrect version number for the task loader. If the command line has four characters, the register is odd and MCR traps because of an odd address.

Correction File:

[12,60]TASOV.COR

SYSTEM PROBLEM

The DCL command FORTRAN requires the /F77 qualifier when specifying all FORTRAN-77 qualifiers. However, FORTRAN-77 is the default FORTRAN compiler and should not be required syntax.

Explanation: FORTRAN-77 is the default FORTRAN compiler. However, while FORTRAN-77 support was added to RSX-11M Version 4.2, the source code did not include it. Consequently, the /F77 qualifier became required syntax. DCL now accepts FORTRAN-77 as the default FORTRAN compiler and the /F77 qualifier is no longer required.

Correction File:

[23,60]FORTRAN.COR

SYSTEM PROBLEM

The DCL abbreviated command SET DE defaults to the DCL command SET TERMINAL/DEC_CRT. However, other DCL commands, such as SET DEBUG, SET DEFAULT, and SET DEVICE, also include the SET DE characters.

Explanation: This problem occurs because DCL fails to require a minimum of three characters to properly interpret the command. DCL has been modified to parse the command SET TERMINAL/DEC_CRT for three characters.

Correction File:

[23,60]SET1.COR

SYSTEM PROBLEM

When a system is generated without support for the device-specific function Get Terminal Support (IO.GTS), the terminal driver (TTATT) fails to set or display the terminal characteristics.

Explanation: This problem is caused by a misplaced assembly conditional and has been corrected.

Correction File:

[11,60]TTATT.COR

SYSTEM PROBLEM

The spacing time-out value for the device driver MSDRV is insufficient for spacing a full tape volume using the space files or space blocks QIO functions.

Explanation: This problem occurs because of an error made when the spacing time-out value was changed in RSX-11M Version 4.2. If the logical end-of-volume (LEOV) is not reached before the spacing time-out value expires, the space files (IO.SPF) or space blocks (IO.SPB) QIO functions terminate abnormally and MSDRV returns the "Device not ready" (IE.DNR) error code.

Please refer to Chapter 3 of this manual for more information about the MSDRV spacing time-out value.

Correction File:

[11,60]MSDRV.COR

SYSTEM PROBLEM

MSDRV returns a status code of end-of-file (IE.EOF) for a space files reverse (IO.SPF) QIO function when the magnetic tape reaches the beginning-of-tape (BOT) position.

Explanation: This problem occurs when MSDRV does not process IO.SPF properly. To correct this error, MSDRV now returns a status code of successful completion (IS.SUC).

Correction File:

[11,60]MSDRV.COR

SYSTEM PROBLEM

The device driver DUDRV does not adequately check to see whether an I/O transfer is within a disk boundary.

Explanation: When I/O transfers that contain several blocks and start in a valid logical block occur, DUDRV fails to determine whether the I/O transfer extends past the end of the disk.

Correction File:

[11,60]MSCPDRV.COR

SYSTEM PROBLEM

The Error Logger does not correctly calculate the logical block number (LBN) for RM80 disk devices.

Explanation: This problem occurs when the error log control file module uses the value 32 instead of 31 to calculate the logical block number for RM80 devices. This problem is corrected with the correction file.

Correction File:

[104,60]ERM80.ICF

SYSTEM PROBLEM

BRU does not recover properly when a tape label error occurs during a backup operation.

Explanation: While writing tape labels, BRU issues a warning message when an error occurs. At this point, BRU fails to issue a request for another tape in order to continue the backup operation. Instead, BRU ignores the error and continues processing. Consequently, the tape becomes invalid.

Correction Files:

[74,60]TAPEIO.OBJ

[74,60]BEGIN.OBJ

[74,60]BACKTP.OBJ

SYSTEM PROBLEM

BRU issues the following erroneous error messages when backing up a file with a file identification number (FID) greater than or equal to 100000 (octal).

```
BRU -- *WARNING* -- File not found
```

```
BRU -- *WARNING* -- File ID sequence number error
```

In addition, if the file is a directory file, no files from that directory are backed up.

Explanation: This problem occurs when BRU incorrectly uses a signed branch when checking the FID. This may cause a backup operation to fail for a file whose FID is greater than or equal to 100000 (octal).

Correction File:

```
[74,60]COMLIB.OBJ
```

SYSTEM PROBLEM

The BRU qualifier /DIRECTORY displays nonsensical characters when a backup set is created on a TK25 using date selection.

Explanation: This problem occurs when BRU fails to wait for all I/O to complete at the end of the directory pass before using a buffer for other purposes. In some circumstances, corrupt data is written to tape. However, because the directory information BRU writes to tape is used separately from the actual backup data, BRU is still able to restore all saved files properly.

Correction Files:

```
[74,60]DKRDWT.OBJ
```

```
[74,60]DBLBUF.OBJ
```

```
[74,60]SCNDIR.OBJ
```

SYSTEM PROBLEM

When restoring a multidisk backup, the Backup and Restore Utility (BRU) sometimes displays the "Invalid disk format" and/or "Data was lost due to IO errors" messages. However, the restored files appear to be correct.

Explanation: This problem occurs as a result of an error in a BRU program module that reads the image backup file during an image restore operation. Occasionally, information at the end of a disk of the image backup set may be processed more than once. Consequently, an "Invalid disk format" and/or "Data was lost due to IO errors" error message is returned.

Correction File:

```
[74,60]DKREAD.OBJ
```

SYSTEM PROBLEM

When the DCL command BACKUP/LIST MSnn: (BRU /DIR MSnn:) is entered, BRU lists the first backup set and then continues to search for other backup sets before issuing the following error message:

```
BRU -- *FATAL* -- Tape read error  
I/O error code -3
```

Explanation: This problem occurs in the device driver MSDRV. While searching for other backup sets, MSDRV times out and aborts the backup procedure.

Correction File:

[11,60]MSDRV.COR

SYSTEM PROBLEM

When the end of the input buffer passed to the Command String Interpreter (CSI) macro routines CSI\$1 or CSI\$2 coincides with the end of the task's virtual address space, the task aborts with a memory protection violation.

Explanation: CSI\$1 and CSI\$2 use a macro routine called NEXTCHR. This routine performs the following actions:

1. Obtains a byte from the input buffer using an autoincrement instruction
2. Checks the index in that buffer to determine whether it is over the specified limit
3. Checks the character

This procedure is incorrect and causes a memory protection error to be issued. The routine has been corrected to first check the index of the input buffer.

Correction Files:

[55,60]CSI1.OBJ

[55,60]CSI2.OBJ

SYSTEM PROBLEM

Autoconfigure (ACF) may not properly build the DV.NUC descriptive parameter field for RS03/RS04 devices. This field resides in the file CONFIG.DAT.

Explanation: This problem occurs when the RS03/RS04 serial number register is not implemented. As a result, ACF does not build the DV.NUC field properly.

Correction File:

[1,54]ACF.BSL

SYSTEM PROBLEM

While trying to build certain tasks, the Task Builder (TKB) sometimes issues odd address traps.

Explanation: This problem occurs when TKB incorrectly translates resident-library symbol references as symbol definitions. In addition, if the symbol is from a supervisor-mode library, TKB may corrupt virtual memory. This occurs only when the following two conditions are present:

- The symbol table entry for the supervisor-mode library symbol reference is allocated to exactly the last seven words of a virtual memory page.
- The virtual memory pages are searched more than 64K times.

Correction File:

[31,60]PRCLM.OBJ

SYSTEM PROBLEM

When a privileged instruction and data space task is built and linked to a memory common and the task erroneously contains data in a program section that has the same name, size, and attributes as a program section in the memory common, the task may not receive the following error message:

***DIAG*-Load address out of range in module module-name**

(This is the error message described for this error in the *RSX-11M/M-PLUS and Micro/RSX Task Builder Manual*.) Instead, one of the following may occur:

- The error message **"*FATAL*-I/O error on output file"** is returned.
- The task is built noncontiguously.

If the task is built noncontiguously, but then made contiguous and run, the erroneous program section is not initialized.

Explanation: This problem is caused by an error in the setup of address limits. As a result, disk block addresses are not calculated correctly. Depending on the size and configuration of the task image, an incorrect disk block address may cause TKB to extend the task. This results in either the creation of a noncontiguous task image or an attempt to read the task image beyond the end-of-file, causing the I/O error message.

Correction File:

[31,60]ADRST.OBJ

SYSTEM PROBLEM

The Indirect Command Processor (Indirect) allows equivalent definitions of global and local symbols to exist on the same level. Also, local symbols that assume global names may be deleted.

Explanation: If a local name definition begins with the character "\$" and global symbols are disabled, Indirect fails to set up the correct global symbol flag. As a result, the local symbol may be deleted.

Correction File:

[12,60]ICPERA.COR

SYSTEM PROBLEM

Using the Indirect directives `.ERASE LOCAL` or `.SETS` to create logical string symbols may cause memory protection violations or illegal nesting errors. The errors occur when the directives are processed by the following methods:

- Within Begin-End blocks
- By files invoked with the `/LO` switch

Explanation: Begin-End blocking context (which is stored in the local symbol table) includes pointers to the start of the next highest symbol block. However, these pointers are not maintained properly. If `.SETS` changes the length of the symbol, a memory protection violation may occur when the task exits.

In addition, files that are invoked with the /LO switch and then execute the .ERASE LOCAL directive from the beginning block level corrupt the Begin-End block pointers. Consequently, an illegal nesting error occurs.

Correction Files:

[12,60]ICPASV.COR

[12,60]ICPIN4.COR

[12,60]ICPERA.COR

SYSTEM PROBLEM

If the Indirect command @/LB:module is entered using either the MCR or DCL command line interpreters (CLIs), the command will not work as documented in the *RSX-11M/M-PLUS Indirect Command Processor Manual* except when the command is contained within an indirect command file.

Explanation: Because the File Descriptor Block (FDB) for the indirect command file does not contain data, Indirect enters interactive mode when the command @/LB:module is issued by either MCR or DCL. Consequently, the command line is not parsed properly and the command does not work as documented.

Correction File:

[55,60]EGCML.OBJ

SYSTEM PROBLEM

An error exists in the macro definition of the command line interpreter support directive Get Command Interpreter Information (GCII\$). The error causes the directive to function inefficiently.

Explanation: The error in the macro definition of the GCII\$ directive causes the Directive Parameter Block (DPB) offsets to be redefined every time the macro is invoked rather than just the first time it is invoked. This error has been corrected and the GCII\$ directive now functions properly.

Correction File:

[61,60]GCII.OBJ

SYSTEM PROBLEM

If the following conditions exist, records written to a file using the File Control Services (FCS) routine PUT\$ may cross block boundaries:

- The block buffer is in very high virtual memory (for example, 177000).
- The FD.BLK attribute has been set.

Instead, the records should be placed in the next higher block.

Explanation: This problem occurs when the output buffer is in high virtual memory and the procedure that checks whether a record fits within the current block does not function properly. As a result, FCS places the record in the current block instead of in the next higher block.

Correction File:

[50,60]PUT.OBJ

SYSTEM PROBLEM

Postmortem Dump (PMD) does not put postmortem dump files in directory [1,4] on the system disk.

Explanation: This problem occurs because PMD incorrectly uses SY:, the user's pseudo system device name, to open postmortem dump files. This has been changed so that the pseudo system device name LB: is used.

Correction File:

[1,60]PMDBLD.COR

SYSTEM PROBLEM

When the QIO\$ function Set Multiple Characteristics (SF.SMC) is specified but the Get Multiple Characteristics (SF.GMC) function is not, the MACRO-11 Relocatable Assembler displays an undefined symbol in the terminal driver module TTATT.

Explanation: This problem occurs because the conditionals used to set these functions are not set properly. As a result, TTATT contains an undefined symbol.

Correction File:

[11,60]TTATT.COR

SYSTEM PROBLEM

The Executive module MEMAP.MAC references offset U.ACD when the full-duplex terminal driver option Ancillary Control Driver (ACD) is included.

Explanation: The Executive module MEMAP.MAC references the wrong offset. When this occurs, an undefined symbol reference is made while the file RSX11M.TSK is being created during system generation.

MEMAP.MAC has been modified to reference the correct offset U.ACD.

Correction File:

[11,60]MEMAP.COR

SYSTEM PROBLEM

The Error Logging Report Generator (RPT) aborts with the following error message while analyzing DU device errors:

ERLPRT-F-CASENOMAT, CASE selection expression has no matching value.

Explanation: This problem results because an ELSE clause for a CASE statement is missing from one of the control dispatch modules.

Correction File:

[104,60]DEVUDA.ICF

SYSTEM PROBLEM

The Bad Block Replacement Control Task (RCT) write-protects the disk and issues the following error message when a bad disk block is encountered and the replacement block is also bad:

```
hh::mm:ss *** DUx -- Write back caching data lost. Unit write locked.
```

Explanation: This problem is caused by an additional check routine that was added to the Update B version of the RCT bad block replacement algorithm. This problem has been corrected.

Correction Files:

[75,60]RCTROT.COR

[75,60]RCTDAT.COR

2.2 System Problem Statements and Correction Files for Update B

The RSX-11M Version 4.2 update software contains corrections to the system problems described in the following sections. An explanation of each problem and the corresponding correction file(s) are also included.

SYSTEM PROBLEM

Error log message packets for the TK50 cartridge tape drive are not analyzed properly.

Explanation: This problem occurs because the ETK50 device module did not contain the latest device specifications. The ETK50 device module has been modified to include the new device specifications.

Correction File:

[104,60]ETK50.ICF

SYSTEM PROBLEM

The TK50 cartridge tape drive fails to interrupt when Autoconfigure is run on a PDP-11/84 processor configuration. Consequently, SYSGEN fails sometimes to include the MU device in the peripheral configuration.

Explanation: The failure of the TK50 tape drive to interrupt is a result of the PDP-11/84's high processing speed. Autoconfigure is unsuccessful in detecting the presence of the TK50 tape drive and displaying the command and status register (CSR) and vector values. The correction file extends the allotted interrupt time and allows Autoconfigure to include the MU device in the peripheral configuration.

Correction File:

[1,60]ACF.BSL

SYSTEM PROBLEM

If both Autoconfigure and a nonstandard Executive are selected, SYSGEN will not use Autoconfigure's data in the Peripheral Options Section.

Explanation: This problem occurs because SYSGEN does not set the symbol that tells it to use the autoconfiguration data. SYSGEN has been corrected to set that symbol when a nonstandard Executive is selected.

Correction File:

[200,60]SYSGEN.COR

SYSTEM PROBLEM

The Micro/RSX File Transfer Utility (MFT) reports transmission errors. In addition, the file transfer may fail.

Explanation: To correct these problems, source code changes have been made to MFT.

Correction File:

[1,60]MFT.TSK

SYSTEM PROBLEM

The Executive \$QRMVT queue removal routine is called with the following information:

- The location that contains the starting address of a queue
- A Task Control Block (TCB) address

\$QRMVT removes an entry from the queue if the address matches either the queue entry or offset 4 within that entry.

Explanation: The \$QRMVT routine was designed to take advantage of certain data structures that have TCB addresses at offset 4. However, this routine is not practical for removing all queue entries. To correct this, certain routines in RSX-11M have been modified to call the \$QRMVA routine. This routine does not check each entry against offset 4 in the data structure.

Correction Files:

[11,60]DRCIN.COR
[11,60]DRSPW.COR
[11,60]REQSB.COR
[11,60]QUEUE.COR
[11,60]DRRAS.COR
[11,60]DRGCL.COR
[11,60]DRATP.COR
[11,60]DRCLI.COR
[12,60]ALTOV.COR
[12,60]FIXOV.COR
[12,60]MCRDEF.COR
[12,60]CLIOV.COR

SYSTEM PROBLEM

Indirect searches the specified UIC for a command file nested within another file. If Indirect fails to find the nested command file, it exits with a "Command file open error" message. Indirect should then return the name of the nested command file that could not be located. Instead, it displays the name of the calling command file.

Explanation: If the nested file is not located, Indirect should return the file name of the nested file as it appears in the command line. Instead, Indirect points to the calling file's File Descriptor Block (FDB) and returns that file name.

Indirect has been modified to return the file name of the unlocated nested file as part of the error message.

Correction File:

[12,60]ICPATS.COR

SYSTEM PROBLEM

If the Indirect special symbol <FILATR> is specified for substitution in a comment line prior to the execution of a .OPENx directive, an "Undefined symbol" error message appears and program execution is halted. A third line of output, displaying a portion of the comment line or the preceding directive line, is also generated.

Explanation: This problem has been corrected by modifying the source code to eliminate the third line of the error message.

Correction File:

[12,60]ICPSY1.COR

SYSTEM PROBLEM

The Indirect directives .SETT and .SETL cannot be used to set the special logical symbol <ERSEEN> to the value of true.

Explanation: When determining the value of the special logical symbol <ERSEEN>, Indirect does not recognize the .SETT or .SETL directives. Modifications have been made to the Indirect source code to correct this error.

Correction Files:

[12,60]ICPSY1.COR

[12,60]ICPIMP.COR

SYSTEM PROBLEM

Although the maximum period for the Indirect directive .DELAY is 24 hours, no error message exists to indicate this.

Explanation: Indirect has been modified to display the following error message when the .DELAY directive exceeds the 24-hour limit:

AT. -- Value not in range

Correction File:

[12,60]ICPPDW.COR

SYSTEM PROBLEM

Indirect fails to display symbol substitution names properly when comment lines contain invalid characters between apostrophe delimiters.

Explanation: While a comment line is being processed, symbol substitution cannot occur if the symbol name contains an invalid character. If this substitution cannot occur, the symbol name is displayed in the comment line. However, when Indirect encounters an invalid character that follows a symbol name terminator (for example, a period or a percent sign), the characters that precede the terminator are not displayed.

To correct this, the Indirect source code has been modified to display the entire symbol name (including the apostrophes).

Correction File:

[12,60]ICPSUB.COR

SYSTEM PROBLEM

The Error Logger Report Generator (RPT) does not recognize user-written control file modules in the library, which causes RPT to abort.

Explanation: This problem occurs when an incorrect Error Logger dispatch module causes RPT to take an erroneous code path and abort. The dispatching module has been removed.

Correction File:

[104,60]DEVSM1.ICF

SYSTEM PROBLEM

The qualifier /PRINTER_PORTS for the DCL command SHOW TERMINAL requires the underscore character (_) as part of the command syntax.

Explanation: Because of an oversight in the source code, the underscore character in the /PRINTER_PORTS qualifier was required syntax.

The source code has been modified so that the underscore character is now optional for the /PRINTER_PORTS qualifier and for all DCL qualifiers.

Correction Files:

[23,60]SET1.COR

[23,60]SHOW.COR

[23,60]TSHOW.COR

SYSTEM PROBLEM

When the DCL command PRINT or the DECnet-11M DCL command SUBMIT is entered without specifying the file type, DCL fails to display the file type in the error message if the file does not exist. For example,

```
PRI -- No such file - DDnn:[g,m]file
```

Explanation: The error message routine incorrectly obtains the file type data from the Command String Interpreter (CSI) control block. The error routine has been modified so that the complete file specification is taken from the filename block.

Correction Files:

[25,64]SUBWRN.CLI
[25,64]PRIWRN.CLI

SYSTEM PROBLEM

The DCL command SHOW TERMINAL/NO[device-type] returns the following error message:

SHOW -- Extraneous input

Explanation: This problem has been corrected by remapping the device type qualifiers to allow you to exclude any device types from being displayed.

Correction Files:

[23,60]SHOW.COR
[23,60]TSHOW.COR

SYSTEM PROBLEM

The DCL command SHOW TERMINAL/ALL does not display the remote terminal type RT.

Explanation: The SHOW TERMINAL/ALL translation routines have been modified to include the RT devices in the terminal display.

Correction Files:

[23,60]SHOW.COR
[23,60]TSHOW.COR

SYSTEM PROBLEM

The DECnet-11M DCL command SUBMIT accepts /LOG, but not /LOGFILE, as a valid qualifier.

Explanation: The DCL command SUBMIT has been modified to recognize both /LOG and /LOGFILE as valid qualifiers.

Correction File:

[23,60]SUBMIT.COR

SYSTEM PROBLEM

The Monitor Console Routine (MCR) interprets the DCL command RUN/STATUS:COMMAND [taskname] as RUN [taskname] instead of as RUN [taskname]/EST=NO.

Explanation: DCL translates the command RUN/STATUS:COMMAND [taskname] to the MCR command RUN [taskname]. In MCR, the default qualifier for /EST [taskname] varies depending on whether the task being run is installed. If the task is installed, the default qualifier is /EST=NO; if the task is not installed, the default qualifier is /EST=YES.

DCL now translates the command RUN/STATUS:COMMAND [taskname] to include the default qualifier /EST=NO.

Correction File:

[23,60]RUN.COR

SYSTEM PROBLEM

The MCR command "HELP /OUT:TTnn: %" does not execute properly. The percent sign is ignored.

Explanation: HELP fails to parse file specifications for either the /OUT or /FIL switches. When a device is specified without a file name and is followed by an additional parameter, HELP considers that parameter to be the file name.

Correction File:

[15,60]HSTTAB.COR

SYSTEM PROBLEM

If the MCR command MOUNT is entered to mount an RA80 or RA81 device, the command may abort with the following error messages:

MOU - failed to set volume valid bit

IE.SZE - unable to size device

Explanation: This problem occurs when the error code IE.SZE (Unable to size device) is passed to the MOUNT command while the RA disk is "spinning down." Because IE.SZE is considered a fatal error, the mount operation aborts.

MOUNT has been corrected to recognize IE.SZE in the same manner as the error code IE.DNR (Device not ready). Thus, IE.SZE is no longer considered a fatal error and MOUNT continues to wait up to one minute for the device to become ready before performing a mount operation.

Correction File:

[12,64]MOUSUB.OBJ

SYSTEM PROBLEM

The MCR command SAV does not accurately determine the size of main memory on Q-bus systems that contain more than 1920K words.

Explanation: SAV cannot determine the size of main memory above 1920K words, which is the maximum size of main memory for a UNIBUS system. Because SAV cannot distinguish between a UNIBUS and a Q-bus system, it does not recognize that Q-bus systems can have up to 2044K words of available main memory.

This problem has been corrected so that SAV now recognizes Q-bus systems and can determine the size of available main memory. Note, however, that although a Q-bus system can contain as many as four megabytes (2048K words) of memory, SAV recognizes only the maximum main memory available (2044K words).

Correction File:

[12,60]SAVSIZ.OBJ

SYSTEM PROBLEM

In some cases, the MCR command SAV does not accurately determine the size of main memory on UNIBUS systems that contain more than 1920K words.

Explanation: Because the nonexistent memory trap is not set, the UNIBUS mapping registers (UMRs) point SAV back to low memory when SAV attempts to size available memory. SAV then attempts to size this low memory and, consequently, the memory is accessed and destroyed.

The correction file eliminates this problem. Main memory remains uncorrupted.

Correction File:

[12,60]SAVSIZ.OBJ

SYSTEM PROBLEM

On certain DU devices, the Error Logger reports that some single disk blocks have been identified as bad, but have not been replaced.

Explanation: The Bad Block Replacement Control Task (RCT) algorithm writes and reads standard test patterns to the disk block once. If both tests succeed, RCT concludes that the error is temporary and does not replace the bad block. Some bad blocks read the test pattern correctly, but do not record the user's data properly.

RCT has been modified to use user data and the complement of this data as test patterns. RCT then writes and reads this data repeatedly to replace any bad blocks.

Correction Files:

[75,64]RCTDAT.OBJ
[75,64]RCTSUB.OBJ
[75,64]RCTROT.OBJ
[11,60]MSCPDRV.OBJ

SYSTEM PROBLEM

When the following Peripheral Interchange Program (PIP) command is specified, the most recent version of the file is deleted in only the first User File Directory (UFD):

PIP [G,*)filename.ext;0 /DE

Explanation: In this example, PIP deletes the most recent version of the file in the first UFD. However, in the next UFD (and all subsequent UFDs), PIP deletes the file with the same version number as the file it deleted in the first UFD. However, this file may not be the most recent version of the file marked for deletion. PIP has been corrected so that the appropriate file is deleted in all UFDs.

Correction File:

[32,60]PIPDEL.OBJ

SYSTEM PROBLEM

The Task Builder (TKB) returns the following error message if, when it is building an instruction and data space (I- and D-space) task, the resident common overlaps the virtual address range of a resident library:

TKB -- *FATAL*-Resident library memory allocation conflict

The option line being processed is also reported. This message occurs when the first Active Page Register (APR) of the resident common or resident library region is explicitly specified.

Explanation: When building an I- and D-space task, TKB checks for memory allocation conflicts between shared regions. When the first APR is specified, the TKB check is changed to further determine if an I-and D-space task build should continue.

Correction File:

[31,64]P20PT.OBJ

SYSTEM PROBLEM

TKB does not function properly when an Overlay Description Language (ODL) file contains a .PSECT directive with multiple references in a single segment. TKB also aborts with an odd address trap.

Explanation: Once TKB detects a multiple reference, it skips the .PSECT directive and fails to insert it into the segment's section list. Consequently, an extra word is removed from the run-time data stack.

TKB has been corrected so that this error no longer occurs.

Correction File:

[31,64]MLSG2.OBJ

SYSTEM PROBLEM

Tasks that build with many options (for example, Indirect) cause the build to process too slowly.

Explanation: When TKB uses the GCML (Get Command Line) routine to access indirect command files, the GE.CLO bit in the G.MODE byte is not cleared. Consequently, TKB opens and closes the file for each option. TKB has been modified to clear the GE.CLO bit while processing all options.

Correction File:

[31,64]P20PT.OBJ

SYSTEM PROBLEM

Instruction and data space (I- and D-space) tasks that use more than 95 logical unit numbers (LUNs) and are built with the On-Line Debugging Tool (ODT) suspend task activity.

Explanation: When tasks are built with ODT, two additional LUNs are included. ODT incorrectly uses the first LUN as an event flag number to issue the Queue I/O Request (QIO\$) directive to the terminal. If ODT contains a logical unit number that is higher than any of the legal event flag numbers, task activity is suspended.

Correction File:

[47,60]ODT.OBJ

SYSTEM PROBLEM

The RA60 drive error code table in module MSCP60 does not meet with the latest RA60 specifications.

Explanation: The RA60 drive error code table in the MSCP60 module has been modified to meet the latest RA60 specifications.

Correction File:

[104,60]MSCP60.ICF

SYSTEM PROBLEM

End message packets for MU devices are not analyzed properly.

Explanation: This problem occurs because the end message packets for MU devices are analyzed by the MSCPEN DU device module. A new device module, TMSPE, has been created to analyze MU end message packets properly.

Correction File:

[104,60]DEVUDA.ICF

SYSTEM PROBLEM

The system fails when both the MUDRV and PUCOM device drivers are mapped.

Explanation: This problem occurs when there are no packets in the I/O queue for MUDRV to process. Consequently, the MUDRV acceptance routine fails to properly restore the general purpose registers that contain the Controller State Table (QST) address and the Connection State Table (CST) address. Without these tables, MUDRV is unable to function and the system fails.

The packet acceptance routine now properly restores the necessary registers under all circumstances.

Correction File:

[11,60]MSCPDRV.COR

SYSTEM PROBLEM

When the first command is issued to a DL device, complete drive-status checking is not performed.

Explanation: The complete drive-status check is performed before the first command is issued to the DL device. If that command fails, error recovery checks only the drive-ready state and not the complete status of the drive.

The DL device error recovery code has been modified to check the complete status of the drive.

Correction File:

[11,60]DLDRV.COR

SYSTEM PROBLEM

When files larger than 100 disk blocks are being copied, the TU58 device driver DDDRV exits when the allotted time is reached.

Explanation: The time needed to rewind the TU58 cassette tape and to perform the data checking is longer than the initial time-out value the driver allows for copying. To correct this problem, the initial time-out value has been extended.

Correction File:

[200,60]SGNPER.COR

SYSTEM PROBLEM

While attempting to restore files, the Backup and Restore Utility (BRU) may terminate with the following error message:

Memory protect violation

Explanation: This problem occurs when BRU, in attempting to restore a file, creates a directory entry in the MFD and then tries to find adequate space on the output device for that file. If it cannot find enough space, BRU tries, but fails, to delete the file.

BRU has been modified so that when an output device contains inadequate space, BRU returns to the MFD and deletes the directory entry.

Correction File:

[74,60]BRUHEAD.OBJ

SYSTEM PROBLEM

If the Master File Directory (MFD) of an input disk contains more allocated space than is actually used in the file (indicated by the end-of-file pointer), BRU may report verification errors or errors finding files that do not exist. This occurs while BRU is processing the second or succeeding magnetic tapes during a backup operation.

Explanation: After processing a tape or, if an error occurs during the processing of a tape, BRU may return to the beginning of the tape to do the following:

- Perform verification
- Attempt to write a new tape

When this occurs, BRU must restore its context to the point where the processing of the tape began. BRU's context includes such information as the status of the backup operation and the quantity of disk space used by the MFD. While BRU is trying to restore this information to tape, it mishandles the information about the quantity of disk space used by the MFD. Consequently, BRU may ignore the true value of the end-of-file pointer and errors occur.

The BRU source code has been modified to correct this problem.

Correction Files:

[74,60]SCNDIR.OBJ

[74,60]COMLIB.OBJ

SYSTEM PROBLEM

The following error message is displayed after entering the BRU /VERIFY backup command:

```
BRU -- *WARNING* -- No files found
```

Actually, the files were located and verified.

Explanation: This error message is displayed when the number of files equals the number of file extension headers. In addition, if a multitape backup is being performed, some of the magnetic tapes will not be verified.

Correction Files:

```
[74,60]BACKTP.OBJ  
[74,60]BRUDAT.OBJ  
[74,60]COMLIB.OBJ  
[74,60]SCNDIR.OBJ
```

SYSTEM PROBLEM

While performing the verification operation, BRU reports the following error message:

```
BRU -- *FATAL* -- Output disk too fragmented to restore
```

Explanation: When the BRU qualifier /VERIFY is entered, BRU refers to a table that contains information about the data being restored. However, while performing the verification operation, BRU may treat the table as overflowing. This source code error in BRU has been corrected.

Correction Files:

```
[74,60]BRUDAT.OBJ  
[74,60]BRUFILE.OBJ  
[74,60]BRURP.OBJ  
[74,60]COMLIB.OBJ  
[74,60]SCNDIR.OBJ
```

SYSTEM PROBLEM

BRU displays all I/O status codes as negative.

Explanation: When an I/O error occurs, BRU reports the appropriate I/O status code. However, when BRU should report a positive I/O status code, it reports a negative I/O status code.

BRU has been modified to interpret and report positive status codes correctly.

Correction Files:

```
[74,60]BRUBAD.OBJ  
[74,60]ERROR.OBJ
```

SYSTEM PROBLEM

When looking for an image file backup set during a restore or compare operation, BRU sometimes uses the wrong directory or file name.

Explanation: This problem occurs when BRU fails to check all components of the file specification. The source code has been modified so that BRU now checks each component of the file name during restore and compare operations.

Correction Files:

[74,60]DSKIO.OBJ
[74,60]SCNDIR.OBJ

SYSTEM PROBLEM

While performing a backup operation, BRU may fail if the qualifier /VERIFY has been specified.

Explanation: This problem occurs when BRU fails to wait for all output operations to complete before starting the verification process. Note that this problem may occur only when the verify pass is being performed on the last tape (which may be the first and only tape).

Correction Files:

[74,60]DBLBUF.OBJ
[74,60]DKRDWT.OBJ
[74,60]SCNDIR.OBJ

SYSTEM PROBLEM

BRU reports a fatal error message followed by an additional error message that indicates an attach attempt failed.

Explanation: This problem occurs because BRU incorrectly believes that a detach operation has failed when, in fact, it was another operation that failed. In addition, it incorrectly reports an "Attach failed" error message. Only the original fatal error message should have been reported.

Correction Files:

[74,60]BEGIN.OBJ
[74,60]BRUDAT.OBJ
[74,60]DSKINI.OBJ
[74,60]TAPEIO.OBJ

SYSTEM PROBLEM

BRU may terminate abnormally during the verify pass of a restore or copy operation.

Explanation: This problem occurs only during a disk-to-disk copy or restore operation. It results from an error in a routine that might be called during a verify pass if the output disk is very fragmented.

Although the verify pass is not completed, the restore operation is completed and the output disk is unaffected.

Correction File:

[74,60]BRUFILE.OBJ

SYSTEM PROBLEM

If an illegal file name is specified, the Virtual Monitor Console Routine (VMR) reports an "Open failure" error message. Instead, VMR should report an "Illegal file specification" error message.

Explanation: VMR has been corrected to report the "Illegal file specification" error message when an improper file name is specified.

Correction File:

[70,60]SETUP.OBJ

SYSTEM PROBLEM

Even if a system does not include network support, the VMR command SET /NETUIC may be entered. This command changes the system User Identification Code (UIC).

Explanation: If the VMR command SET /NETUIC has been entered, VMR will check to see whether the system includes network support. However, the procedure VMR uses to check for network support is incorrect. Consequently, the SET /NETUIC command is processed and, in turn, the system UIC is changed.

VMR has been corrected so that this problem no longer occurs.

Correction File:

[70,60]SPROV.OBJ

SYSTEM PROBLEM

When VMR is being task-built, it may report an undefined symbol error message for the symbol \$DUINU.

Explanation: This problem is caused by a change to the DU bootstrap in VMR. However, the undefined symbol does not cause a problem and may be ignored. Corrections have been made to VMR so that this problem will not occur.

Correction Files:

[70,60]SADUM.OBJ

[70,60]SADUU.OBJ

Chapter 3

New and Modified Software

This chapter describes new features and restrictions for RSX-11M Version 4.2. Also included are corrections and additions to RMS-11.

3.1 New and Modified Software for Update C

RSX-11M Version 4.2 Update C includes new or modified software support for the features described in the following sections.

3.1.1 Modifications to MACRO-11

MACRO-11 issues an assembly error for command lines that should not be parsed for assembly. In the following example, MACRO-11 issues an "A" error for the third line:

```
.IF      NE,0
.MACRO  TEST COND, ARG1, ARG2
. IF     COND, <ARG1>--<ARG2>
.ENDC;  COND, <ARG1>--<ARG2>
.ENDM;  TEST
.ENDC;  NE;0
.END
```

Correction File:

[1,24]MAC.OLB

3.1.2 Modifications to BRU

A new stand-alone Backup and Restore Utility (BRU) system has been provided with this update software. It includes all applicable Update C corrections.

To create a hardware-bootable BRUSYS from the update software kit, use VMR to save the system image on tape as follows:

```
>SET /UIC=ddnn:[1,51]
>ASN ddnn:=SY:
>ASN ddnn:=LB:
>INS [1,54]VMR
>VMR
ENTER FILENAME:BRUSYS
VMR>SAVE mmnn:BRUSYS
VMR> CTRL/Z
```

To create a hardware-bootable BRU64K from the update software kit, use VMR to save the system image on tape as follows:

```
>SET /UIC=ddnn:[1,51]
>ASN ddnn:=SY:
>ASN ddnn:=LB:
>INS [1,54]VMR
>VMR
ENTER FILENAME:BRU64K
VMR>SAVE mmnn:BRU64K
VMR> CTRL/Z
```

In both examples, ddnn refers to your Update C software kit and mmnn is any valid tape device. For more information about BRU64K or BRUSYS, please refer to the *RSX-11M System Generation and Installation Guide*.

Correction Files:

```
[1,64]BRUSYS.SYS
[1,64]BRU64K.SYS
```

3.1.3 New DCL Qualifier

RSX-11M Version 4.2 Update C now supports the following new qualifier to the DCL command COBOL:

```
/CONDITIONALS=(a,b,c ...)
```

Identifies lines of source code for conditional compilation. As many as 26 alphabetic conditionals may be specified. Commas between conditionals are optional.

Correction File:

```
[23,60]COBOL.COR
```

3.1.4 Enhancements to FMT

The Disk Volume Formatter (FMT) utility now formats RX33 diskettes. The switches /DENSITY, /VERIFY, and /NOVERIFY are used to format an RX33 diskette. Before using FMT, the RX33 must be mounted using the /FOREIGN qualifier.

While an RX33 cannot be formatted to simulate an RX50 diskette, an RX50 can be formatted to simulate an RX33. This is because of a difference in the magnetic properties on RX50 diskettes. Consequently, you may not be able to perform read or write operations on the diskette.

Correction Files:

[112,60]FMTPRS.OBJ
[112,60]FMTDAT.OBJ
[112,60]FMTMSG.OBJ
[112,60]FMTROT.OBJ
[104,60]DEVUDA.ICF
[104,60]MSCP60.ICF
[104,60]MSCP80.ICF
[104,60]MSCP5X.ICF
[104,60]MSCPSD.ICF
[104,60]MSCPAT.ICF
[104,60]MSCPEN.ICF

3.1.5 Large Disk Support

Large disk support has been included for the following RSX-11M tasks and utilities:

- The Backup and Restore Utility (BRU)
- Files-11 ACP (F11ACP)
- The File Structure Verification Utility (VFY)
- INITIALIZE VOLUME (INI)
- The Peripheral Interchange Program (PIP)

This support allows Files-11 initialization and access to disks that contain more than 1,044,480 logical blocks but fewer than 16,777,217 logical blocks.

Note

Please note that even though RSX-11M Version 4.2 Update C does support a larger number of logical blocks, support for a larger maximum number of files has not been included. The maximum number of files allowed on a disk is still limited to 65,500.

Correction Files:

[12,60]INIBIT.OBJ
[12,60]INIUPD.OBJ
[12,60]INIINDX.OBJ
[12,60]INIROT.OBJ
[12,60]INIALL.OBJ
[13,60]MOUNT2.OBJ
[74,60]BRUINDEX.OBJ

[74,60]BRUBITMAP.OBJ
[74,60]BRUALLOC.OBJ
[74,60]BRUHEAD.OBJ
[74,60]DSKINI.OBJ
[32,60]PIPFRE.OBJ
[34,60]VFYOPN.OBJ

3.1.6 Modifications to PUCOM.MAC

RSX-11M Version 4.2 distribution kits contain two versions of the PUCOM.MAC file: one version for disk distribution kits and one version for tape distribution kits. To apply update corrections to PUCOM.MAC on both kits, modifications have been included in the update software which delete the first version of PUCOM.MAC and replace it with a new version. As a result, all update corrections are applied to the new version of PUCOM.MAC.

3.1.7 MSDRV Spacing Time-out Value

Beginning with RSX-11M Version 4.2 Update C, the MSDRV spacing time-out value no longer causes the Backup and Restore Utility (BRU) to end abnormally when any of the following conditions exists:

- Including the /DIRECTORY qualifier and spacing to the end of the backup set
- Multiple appends, including the /REWIND switch in each command, and spacing to the end of the last backup set
- Restoring a specified backup set (that may or may not exist) that cannot be accessed before the spacing time-out value expires

Correction File:

[11,60]MSDRV.COR

3.1.8 Restriction to FSS\$ Directive

The File Specification Scanner (FSS\$) directive always returns the value of one for the operation status word. However, the *RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual* lists several values that may be returned to indicate an error. The description of the FSS\$ directive is incorrect. The status word in the parse block is always set to the value of one by the FSS\$ directive. However, other directives related to the FSS\$ directive will report additional values for the operation status word. Please refer to Chapter 5 of this manual for more information.

3.1.9 Modifications to EDT Version 3.1

The following list describes problems with EDT that have been corrected in RSX-11M Version 4.2 Update C.

- Previously, EDT would not display an error message if erroneous characters followed the EXIT command. For example, *EX9T would create the output file 9T.
EDT now correctly displays an "Unrecognized command" error message and reprompts for the correct command.
- EDT would occasionally change lowercase text to uppercase while using the SET ENTITY command.

EDT now correctly recognizes all lowercase characters in the SET ENTITY WORD command.

- The following nokeypad sequence of commands would not always undelete all the characters in the line:

```
D (delete)
EL (end of line)
UNDL (undelete line)
```

This problem has been corrected.

- Formerly, if you cleared a buffer (other than the main or paste buffers) that had a select range active, and then created the buffer again or attempted to reset the select range, EDT would display an internal "BUG CHECK" error.
- The command SUB/ / / ALL did not always work properly. If the string used with the ALL qualifier was at or near the end of the text line and the length from the beginning of the string to the end of the text line was shorter than the length of the substitute search string, EDT would fail to continue substituting after the first substitution was complete.

EDT now continues with additional substitutions.

- In some cases, EDT would display a "Must select full lines" error message even though a full line appeared to be selected. This would happen in the nokeypad mode when the cursor was on a character that was not at the beginning of the line. Under those conditions, when a Beginning of Paragraph (BPAR), Beginning of Line (BL), or a similar entity command was issued, followed by the selection of a full line of text and then a line mode command was issued, the error message was displayed.

The error is no longer given and the command operates correctly on the full line of text.

- When the command "! ^Z" (the EDT command that specifies a comment line with a CTRL/Z) was used in an initialization file, EDT ignored the fact that "! ^Z" was a comment and would exit the command file.
- An EDT macro that cleared itself would abort the editing session and display an "I/O error on work file" error message. The following sequence produced this problem:

```
edit/nocommand x.x
*insert=a
clear a
^Z
*define macro a
*a
I/O error on work file
?End of file on device
```

EDT was attempting to read an address that was no longer accessible due to the cleared macro.

This problem has been corrected.

- EDT would abort abruptly without an error message under conditions similar to the following:

```
edt x.x/nocommand
set word nodelimiter
set wrap 10
set entity word "-"
change
```

The next step was to enter five characters on the first line and another five characters on the second line:

```
abcde
abcde
```

Then, when you opened a new line between them and started inserting minus signs (-), EDT would abort with a "BUG CHECK" error message after the tenth entry.

EDT no longer aborts under these conditions.

- EDT would abort occasionally while performing the FILL operation with the SELECT command invoked and in the backward direction. Subsequently, the "BUG CHECK" error message would be displayed.
- More than one CTRL/C in an EDT journal file would cause EDT to abort with an "Internal software error" error message upon recovery.

EDT now handles more than one CTRL/C properly.

Correction Files:

```
[1,60]CHMBEGWRD.OBJ
[1,60]INPUT.OBJ
[1,60]LCLEAR.OBJ
[1,60]LSHOW.OBJ
[1,60]REAJOUTEX.OBJ
[1,60]SCRFIND.OBJ
```

3.1.10 Modifications to RMS-11 Version 2.0

This section describes corrections made to RMS-11 Version 2.0 Update C. The following correction files have been included for the RMS-11 Update C corrections:

```
[1,1]RMSLIBRSX.INS
[1,1]RMSLIBRSX.NEP
[1,1]RMSLIB.OLB
[1,1]RMSDAPRSX.INS
[1,1]RMSDAPRSX.NEP
[1,1]RMSDAP.OLB
[1,1]RMSMAC.MLB
[1,1]RMSRES.TSK
[1,1]RMSRESSUB.TSK
[1,1]DAPRES.TSK
[1,34]RMSRES.MAP
[1,34]RMSRESSUB.MAP
[1,34]DAPRES.MAP
```

[1,24]RMSUTLRSX.NEP
[1,24]RMSUTL.OLB
[1,24]CNVNON.COMD
[1,24]CNVNRN.COMD
[1,24]CNVNOO.COMD
[1,24]CNVNRR.CND
[1,24]IFLNON.ODL
[1,24]IFLNRN.ODL
[1,54]RMSCNV.TSK
[1,54]RMSIFL.TSK
[1,54]RMSRST.TSK
[1,54]RMSBCK.TSK

3.1.10.1 RMS-11 Access Methods

This section describes corrections to access method problems relating to the previous release of RMS-11 Version 2.0.

Note

In-task RMS-11 applications must be rebuilt against the latest RMSLIB.OLB to incorporate these changes. Tasks built against the RMS resident library do not have to be rebuilt unless a change is noted as occurring in the RMS root code.

- Previously, there was a performance problem with sequential files with fixed-length records and keyed (relative record number) or RFA (record file address) access. In cases where the target record existed in the currently held RMS I/O buffer, the record was not used. Instead, the block was read from the disk again.
- A \$GET operation on a relative file would return invalid (obsolete) data under the following conditions:
 - The file was opened for READ access, allowing WRITE sharing.
 - Locate mode was requested.
 - At least one other user had the file opened for WRITE access.
 - The current \$GET involved the same bucket as the previous \$GET.
 - In the time period since an original \$GET, another user had modified the record sought by the original \$GET.
- There was a potential for deadlock when multi-keyed index files were write-shared by two or more applications, one of which was trying to perform a \$DELETE operation. A \$DELETE operation would seem to loop when it attempted to access an alternate index in which other accessors possessed locks. Under this condition, it was necessary to abort the deleting program to allow other accessors to continue their operations. This problem has been corrected so that a deleting operation can now take place simultaneously with other access operations.

Note

If an application aborts before an RMS-11 write operation (for example, \$PUT, \$DELETE, or \$WRITE) is completed, the file is left in an indeterminate state. This is similar to the effect of a system failure. If the file is an

indexed file, it should be reloaded by using RMSIFL before any applications are permitted to access it.

- Multi-block \$WRITE operations would fail when the record size exceeded the pack default extension quantity.
- Programs using Mass Insert in indexed files (including RMSCNV with /MA) sometimes displayed the error message ER\$DME (Dynamic memory exhausted) when duplicate keys were encountered during \$PUT operations.
- In assembling I- and D-space programs, the \$ORG, \$GSA, and \$POOL macros would cause the current program section to be lost. These macros redirected to the blank program section (this appears on the map or listing as .BLK., an instruction program section). The assembler would then put any data that immediately followed in instruction space until a new program section was declared. Later, at run time, when a reference was made to the incorrectly placed data, the program would abort due to memory management violations.

Applications that are impacted by this problem must be reassembled against RMSMAC.MLB and then rebuilt.

3.1.10.2 RMS-11 Remote Access Methods

The following corrections apply to RMS-11 remote access methods:

Note

In-task RMS-11 remote applications must be rebuilt against the latest RMSDAP.OLB to incorporate these changes. Tasks built against the DAPRES library do not have to be rebuilt unless a change is noted as occurring in the RMS root code.

- The programmer (PRG) and project (PRJ) fields of the protection (PRO) extended-attribute block (Xab) were translated incorrectly when the remote system was RSX or VMS. For the network transfer (following standard Data Access Protocols), these fields were converted to ASCII and then back to binary. The conversion was incorrect in that it always assumed that the numbers were decimal instead of octal. The result was that remote creation produced an incorrect file owner and remote open reported an incorrect file owner.
- A \$CLOSE operation did not work properly under the following circumstances:
 - The remote network partner was not using Data Access Protocol (DAP) Version 6.0 or above.
 - A protection extended-attribute block (Xab) was linked into the chain of Xabs pointed to by the File Access Block Xab pointer (O\$XAB).

Restriction

If there is a possibility that the remote network partner is not using Data Access Protocol (DAP) Version 6.0, then correct protection extended-attribute-block (Xab) values should be set when the file is created instead of being modified during a \$CLOSE operation (as required by previous versions of DAP).

3.1.10.3 RMS-11 Utilities

The following corrections apply to RMS-11 utilities:

RMSCNV

- The /MA switch did not work correctly due to a problem in the RMS-11 Access Methods. While loading records into an indexed file, RMSCNV could abort with the message "Dynamic memory exhausted" when a large number of duplicate key values were encountered.

RMSBCK

- The /QU and /NOQU switches did not work properly. No query was performed by RMSBCK in the event that a Read Check (/RC) or Read After (/RA) switch was detected. If either /QU or the default was intended and the error occurred, then a query should have been issued to determine if the processing should continue. When /NOQU was specified, RMSBCK did not terminate processing of the file. Now both /QU and /NOQU work as they should.
- The switches /RC and /RA reported an incorrect block number for detected errors.
- The switches /RC and /RA reported an incorrect total for the number of errors for each file.
- The /RW switch did not cause RMSBCK to rewind the tape. Thus, unless you reinitialized the tape, RMSBCK would write the new files to the end of the tape without overwriting the old files. This could cause confusion when the tape was used to restore files since it is possible to have multiple files with the same name on a backup tape. This problem has been corrected.

3.2 New and Modified Software for Update B

RSX-11M Version 4.2 Update B includes new or modified software support for the features described in the following sections.

3.2.1 Enhancements to the Bad Block Replacement Control Task

The following enhancements have been made to the Bad Block Replacement Control Task (RCT):

- A new bad block location and replacement algorithm has been created for RCT. This algorithm includes a test that ensures the replacement of bad blocks. When a disk is formatted, a forced error bit is placed in the header of each replacement block. To ensure that the block was revectorred correctly, RCT reads the block and checks for the forced error bit. If the block was revectorred correctly, the read operation is directed to the replacement block and the forced error bit is found. If the block was not revectorred correctly and the forced error bit is not found, RCT write-protects the volume and informs you that the disk is corrupted.
- A recursion counter has been included in the new RCT algorithm. If the counter identifies three consecutive bad disk blocks, it aborts the search operation and will not replace the block. Subsequently, if the problem causing the errors is in the data line (thus affecting all I/O), the recursion counter prevents RCT from marking all replacement blocks as bad.

- RCT has been modified to read the user's data in a bad block four times. As a result, data is successfully recovered more often.

Correction Files:

[1,24]RCT.OLB
[1,24]BAD.OLB

3.2.2 Applying the Update B Software on VAX/VMS Host Systems

If you use RL02 distribution kits, you must have VAX-11 RSX Version 2.1 in order to apply the RSX-11M Version 4.2 Update Revision B software.

3.2.3 Modifications to RMS-11 Version 2.0

This section describes corrections made to RMS-11 Version 2.0 for Update B.

3.2.3.1 RMS-11 Access Methods

The following notes apply to RMS-11 access methods:

- Asynchronous record operations could result in an ER\$RAB error. This error occurs when an asynchronous operation is finishing on one record stream while another operation is just beginning execution on a different record stream. An adjustment made to a timing window in the ROEXEC module of RMSLIB.OLB corrects this problem. Because this module is built into the root of the user program, you must treat all RMS-11 applications as in-task RMS-11 and rebuild each application that requires this correction.
- Locate mode is not used in a sequential file that contains fixed-length records if a sequential access includes the last record in a block and that record ends exactly on the block boundary. Because locate mode was not used, the last record in a block was needlessly transferred into the user buffer. This correction is in R1GBLD in RMSLIB.OLB and the resident library.

Note

MACRO programs performing a GET operation should always test the record size before attempting to access data in the record buffer. When locate mode is used, the pointer to the I/O buffer can be advanced beyond the end-of-buffer (EOB) if the current record is a null record that terminates on the block boundary. (A null record is used to obtain carriage control in a sequential variable or VFC print format file.) Ignoring a zero-length record size could cause the application to access incorrect data or to abort with a memory protection violation.

3.2.3.2 RMS-11 Utilities

The following notes apply to RMS-11 utilities:

RMSCNV

- RMSCNV fails when an indirect command file uses the /ER:filespec switch. The code for this error has been corrected so that the error no longer occurs.
- The /EO switch works incorrectly. RMSCNV has been changed so that null characters fill all blocks from the logical end-of-file (EOF) to the physical EOF when this switch is specified.

RMSIFL

- The /DE switch fails to handle logical names correctly. Changes have been made to allow the /DE switch to accept new-style logical names.
- Multiple commands do not execute correctly when the /NOER switch is specified and an exception record is found. The next command is rejected and the ER\$ISI (Bad value in ISI field) error message is reported. This problem has been corrected.
- Using large numbers of alternate keys may result in the RMS-11 error ER\$DME (Dynamic memory exhausted). This problem has been corrected.
- If an output file allows duplicates on an alternate record key, and the record header for the duplicate array is situated such that the duplicate count field occurs on a block boundary, RMSIFL corrupts the alternate key root bucket. Subsequently, once the file is loaded, any applications attempting alternate key access fail with the ER\$CHK (Check byte error in bucket) error message. This problem has been corrected.
- RMSIFL improperly references a move data routine in the RMS-11 resident library. Changes to nonvectored code in the library may cause the RMSIFL entry point to be invalid. To correct this, a new module called ROMDAU has been inserted in RMSLIB.OLB. In addition, corresponding changes have been made to the build procedures for RMSIFL in the Overlay Description Language (ODL) files so that RMSIFL will reference its copy of the move data routine.
- RMSIFL has been enhanced to check the FAB DEQ for an extension quantity if no explicit non-zero AREA XAB DEQ value has been provided. Consequently, you cannot set an explicit extension quantity without having to design areas. Note that if you do not provide an extension quantity, RMSIFL uses approximately 50 blocks (aligned with bucket size).

RMSRST

- The /SE: switch incorrectly requires a complete file specification. If the file specification is not provided, RMSRST returns a "File not found" error message. This problem has been corrected.
- RMSRST now terminates immediately when the /SE: switch is specified and all files have been found.
- RMSRST does not always list the file version numbers as part of the summary listing. This problem has been corrected.

- RMSRST does not handle magnetic tape files with decimal version numbers correctly. This occurs when files are being restored to a system that supports decimal version numbers and file version numbers were then erroneously converted to octal. This problem has been corrected.
- RMSRST sometimes reports an "Unknown error" message when the /FR switch is used to restore a magnetic tape container file. This occurs when you do not have sufficient privileges to create an output file with the protection code and ownership of the original account. Even though this error occurs, the file was restored but with protection code and ownership of the login account. This problem has been corrected.

Chapter 4

New Hardware Support

This chapter describes new hardware features and restrictions for RSX-11M Version 4.2.

4.1 New Hardware Support for Update C

RSX-11M Version 4.2 Update C includes new hardware support for the following devices:

- MicroPDP-11/53 processor
- DELUA UNIBUS synchronous communications controller
- RD31 20mb Winchester disk drive
- RX33 1.2mb diskette
- RQDX3/RX33 formatting capability
- TU81 magnetic tape drive
- TU81E magnetic tape drive
- TU81E-DA Q-bus magnetic tape drive

Note

Digital Equipment Corporation (DIGITAL) may announce support for new hardware devices on certain processors. Additional correction files (.COR) may be provided to include software support for these devices when and if they are supported. However, only devices listed in the Software Product Description (SPD) are guaranteed to be supported by DIGITAL.

4.2 New Hardware Support for Update B

RSX-11M Version 4.2 Update B includes new hardware support for the TUK50 magnetic tape device.

Chapter 5

Corrections to Documentation

This chapter contains corrections to manuals in the RSX-11M documentation set. The section headings in this chapter are the titles of the manuals that need to be corrected.

5.1 RSX-11M/M-PLUS System Management Guide

In Chapter 8, Section 8.7.1, please make the following correction:

When the delay before system shutdown expires, SHUTUP performs the following functions:

1. Stops the Console Logger (if active)
2. Redirects the console terminal to the TI: of SHUTUP
3. Logs out logged-in terminals (multiuser protection systems only)
4. Stops the Queue Manager and holds all active batch and print jobs
5. Stops Resource Accounting (if active)
6. Checkpoints all read/write commons
7. Invokes LB:[1,2]SHUTUP.CMD (if present)
8. Stops the Error Logger task (ERRLOG) (if active)
9. Deallocates checkpoint space and dismounts devices
10. Halts the processor

5.2 RSX-11M/M-PLUS Guide to Program Development

In Chapter 6, Section 6.2.2, please make the following correction:

```
DCL>LINK/TA:SUPLIB/MAP:SUPLIB FILE, USROBJ/INC:(TTREAD,TTWRIT)
>
```

5.3 RSX-11M/M-PLUS Indirect Command Processor Manual

Please make the following corrections to the *RSX-11M/M-PLUS Indirect Command Processor Manual*:

- In Chapter 2, Section 2.4.5, add the following statement:
The default radix will always be octal unless you specify the character "D" in the format control string. For example,

```
: NUMBER = 'NUMBER%D'
```
- In Chapter 2, Section 2.6.2, please make the following correction:
The format for timeout is nnu, where nn is the decimal number of time units to wait and u is S (seconds), M (minutes), or H (hours).
- In Chapter 2, Section 2.6.3, please make the following correction:
The format for timeout is nnu, where nn is the decimal number of time units to wait and u is S (seconds), M (minutes), or H (hours).
- In Chapter 2, Section 2.6.4, please make the following correction:
The format for timeout is nnu, where nn is the decimal number of time units to wait and u is S (seconds), M (minutes), or H (hours).
- In Chapter 2, Section 2.6.12, add the following statement:
The initial setting of the .ENABLE directive for GLOBAL mode is disabled (not enabled).
- In Chapter 2, Section 2.6.19.3, please add the following information:
The directives .IFDF symb and .IFT symb should not be used on the same line. Because the .IFDF symb directive evaluates to false, Indirect processes the remainder of the command line looking for a .OR directive. Instead, it encounters .IFT symb, but because the symbol is undefined, an error message is generated.

The following example shows how to test whether a symbol is defined and how to then use that symbol:

```
.IFNDF symbol .GOTO 10$  
.IFT symbol <action...>  
.  
.10$:  
.IFNDF symbol .SETF symbol  
.  
.
```

- In Appendix A, Section A.2, add the following error message:

AT.-File attributes not available

Explanation: An attempt was made to obtain file-attribute information with the <FILATR> symbol before any files were opened.

User Action: A file must be opened with a .OPEN(x) directive before <FILATR> can contain any information.

5.4 RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual

Please make the following corrections to the *RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual*:

- In Chapter 3, Section 3.7.2, add the following statement:

The MACRO-11 interface to the fast-mapping facility uses general register 3 (R3) as a "scratch" buffer. Consequently, all data stored by the fast-mapping facility is destroyed.

- In Chapter 3, Section 3.7.4, add the following status message:

Error Code	Meaning
IE.ITS	Inconsistent task state

- In Chapter 5, Section 5.3.34, note the following correction:

The parse block has the following format:

1. O\$STAT (status word). Indicates the status of the operation. This field can contain the following value:

SU\$SUC Success

5.5 RSX-11M/M-PLUS Error Logging Manual

In Chapter 3, Section 3.5, please add the following error message:

ERLRPT-F-FORINVCHR, FORMAT error -invalid character in string in IDP directive.

Explanation: A control file module executed a WRITE_GROUP statement where the string in a !DP directive contained a nonprinting character.

User Action: Correct the user-written module or submit a Software Performance Report (SPR) for DIGITAL-supplied modules.

5.6 RSX-11M/M-PLUS and Micro/RSX I/O Operations Reference Manual

In Chapter 4, Section 4.2.1, please make the following correction:

- R1 Contains the size (in bytes) of the default directory string in program section \$\$FSR2. If no default directory string descriptor words have been written, R1 equals 0.
- R2 Contains the address of the default directory string in program section \$\$FSR2.

5.7 RSX-11M/M-PLUS Batch and Queue Operations Manual

In Chapter 3, Section 3.8, note the following addition:

Any spooled output or maps are also appended to the print job that contains the log file. In addition, the print job also assumes the characteristics of the batch log.

5.8 RMS-11 Macro Programmer's Guide

Please make the following corrections to the *RMS-11 Macro Programmer's Guide*:

- In Appendix A, Section A.1, add the following text to the description of the error ER\$MRS:
Or, the sum of the fixed length record size and the record overhead exceeds the bucket size.
Or, No Span Blocks has been selected with an invalid total record size.
- In Appendix A, Section A.1, add the following text to the description of the error ER\$NOD:
Or, the remote node rejected the operation. (STV contains the Network Services Protocol (NSP) code and can be found in Appendix C of the *DECnet-RSX Programmer's Reference Manual*.)
- In Appendix A, Section A.1, add the following text to the description of the error ER\$FUL:
ER\$FUL, Device or File Allocation Failure

Octal: 176360
Decimal: -784

Explanation: The specified device or directory does not have enough room for file creation or extension. In the case of a contiguous request, it is also possible that there is not enough contiguous space on the device.

5.9 RSX-11M Help Files

Please note the following change for the "HELP INDIRECT PARAMETER" help file text for RSX-11M systems:

Parameters can be passed to an indirect command file that is opened by the at sign (@) by appending a space to the file specification and following it with the space-delimited parameters. For example:

```
CLI>@file arg1 arg2 arg ... argn
```

The entire command line, except for the initial at sign (@), will appear in the reserved symbol **COMMAN**.

The rest of the text is complete.

Chapter 6

Layered Product Support

6.1 Layered Product Update File Summary

Table 6-1 lists the layered products that are being updated for RSX-11M Version 4.2. Applying the files in this update software to each layered product will result in improved software performance. The corresponding directories and documentation files for each layered product are also included. The documentation files describe the procedure for applying corrections to the specific layered product.

Table 6-1: Layered Product Update File References

Layered Product	Directories Used	Backup Set	Documentation File Name
BASIC-PLUS-2 Version 2.3	[211,200]	BP2	[211,200]BP2C.DOC
COBOL-81/RSX Version 2.3	[216,200]	C81	[216,200]C81.DOC
DATATRIEVE-11 Version 3.1	[222,200]	DTR	[222,200]DTR.DOC
DCX KMV11-A Development Tools Version 1.0	[224,200]	DCX	[224,200]DCX.DOC
KMV11 X25 Link Level Version 1.0	[322,200]	KXI	[322,200]KXI.DOC
KMV11-A HDLC Framing Software Version 1.0	[253,200]	KMV	[253,200]KMV11.DOC

Table 6-1 (Cont.): Layered Product Update File References

Layered Product	Directories Used	Backup Set	Documentation File Name
DECnet-11M Version 4.2	[230,200] [230,20] [230,40] [225,20] [225,40]	DECNET	[230,200]DECNET.DOC
DPM (IP11) Version 4.1	[236,200]	DPM	[236,200]DPM.DOC
FMS-11/RSX Version 2.3	[244,200]	FMS	[244,200]FMS.DOC
PDP-11 COBOL Version 4.4	[215,200]	C11	[215,200]C11.DOC
PDP-11 Symbolic Debugger Version 1.0	[247,200]	PDPDBG	[247,200]PDPDBG.DOC
PDP-11 FORTRAN-77/RSX Version 5.0	[246,200]	F77	[246,200]F77.DOC
PDP-11 FORTRAN IV Version 2.6	[245,200]	FORTIV	[245,200]FORTIV.DOC
PDP-11 PASCAL/RSX Version 1.2	[262,200]	PASCAL	[262,200]PASCAL.DOC
PDP-11 SORT/MERGE Version 3.0	[311,200]	SORT	[311,200]SORT.DOC
RSX-11 2780/3780 Protocol Emulator Version 4.1	[301,200] [301,24] [301,26]	2780	[301,200]2780.DOC

**USER'S
COMMENTS**

Your comments and suggestions are welcome and will help us in our continuous effort to improve the quality and usefulness of our documentation and software.

Remember, the system includes information that you read on your terminal: help files, error messages, prompts, and so on. Please let us know if you have comments about this information, too.

Did you find this manual understandable, usable, and well organized? Please make suggestions for improvement.

Did you find errors in this manual? If so, specify the error and the page number.

What kind of user are you? Programmer Nonprogrammer

What do you use the system for? _____

Years of experience as a computer programmer/user: _____

Name _____ Date _____

Organization _____

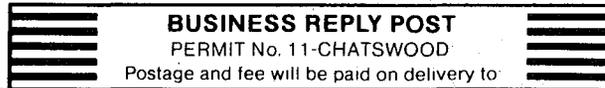
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