

The Software Dispatch

RSX

RSX-11M/S
RSX-11M-PLUS
Micro/RSX
November 1986
AD-FD06A-14



digital
software

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RSX SOFTWARE DISPATCH

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The RSX Software Dispatch complements the Software Dispatch Reviews for RSX-11M/S, RSX-11M-PLUS and Micro/RSX. New and revised Software Product Descriptions, programming notes, software problems and solutions, and documentation corrections are published here. Much of the material is developed from Software Performance Report (SPR) answers significant to the general audience and is printed here to supplement the maintenance notebook (established by the Software Dispatch Review).

PRODUCTS SUPPORTED in the RSX SOFTWARE DISPATCH

BASIC-PLUS-2	FMS-11/RSX	RSX-11/3271 Protocol Emulator
COBOL, PDP-11	FORTRAN IV/VAX to RSX	RSX-11M 2780/3780 Emulator
COBOL-81/RSX	FORTRAN-77/RSX, PDP-11	RSX-11M/FORTRAN Enhancement
CORAL 66, PDP-11	FORTRAN-77 DEBUG, PDP-11	Pkg. for MINC
DATATRIEVE-11	LSP-11	RSX-11M/FORTRAN Real-Time Pkg.
DBMS-11	MUX200/RSX-IAS	for MINC
DECnet-11M	PASCAL/RSX, PDP-11	RSX-11M/SNA Protocol Emulator
DECnet-11M-PLUS	RGL/11	RTEM-11
DECnet-11S	RPG II, PDP-11	SORT-11
DECnet/SNA Gateway Products	RSX MDE/T-11	SSP-11
DPM	RSX-11M	UN1004/RSX
DPM-PLUS Software	RSX-11S	
DT07-11M	RSX-11M-PLUS	

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Barbara Scollan, Editor

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PRODUCT AVAILABILITY DATES - RSX

NOVEMBER 1986

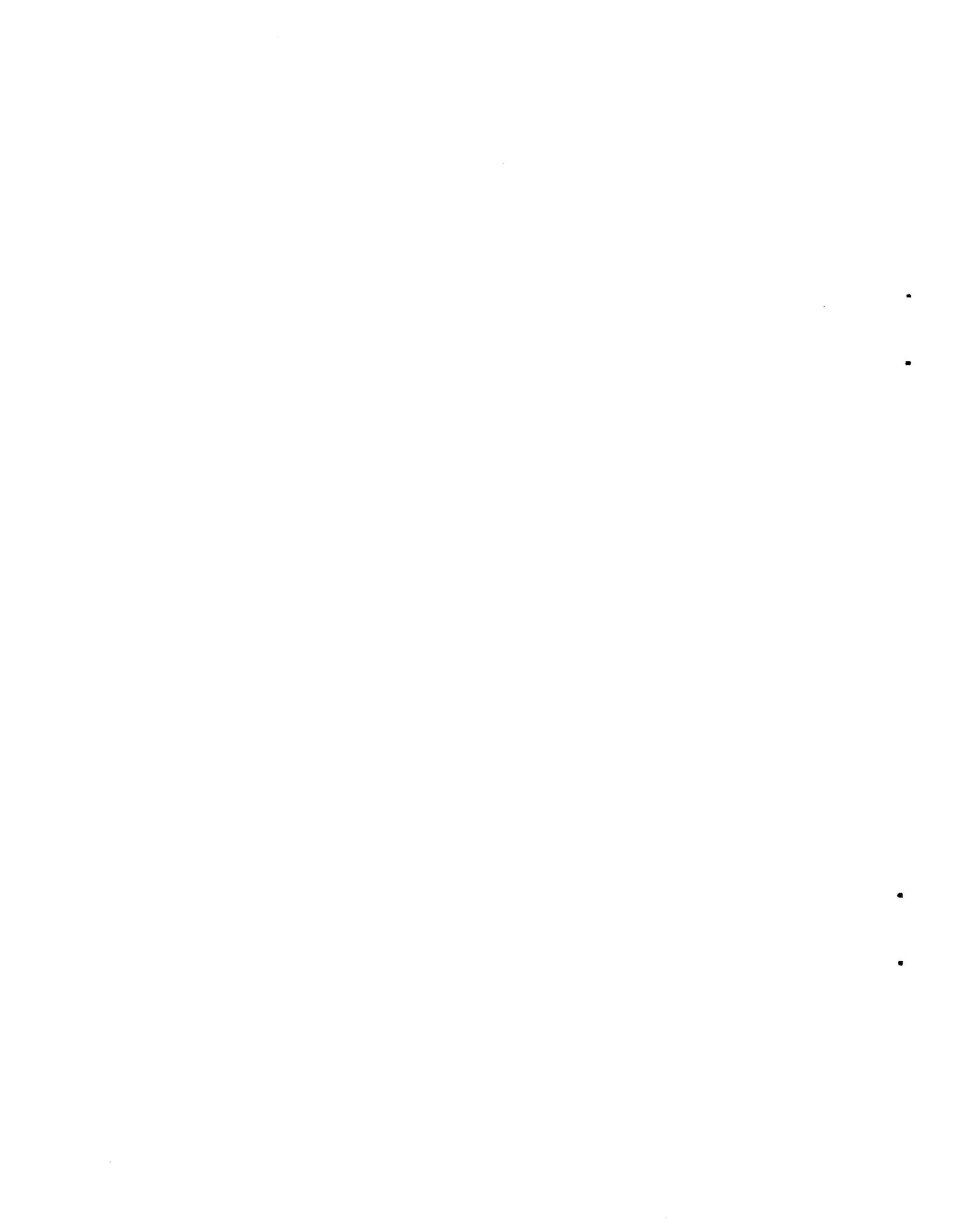
The following list contains date and version of the latest release of supported software products. Customers who are in warranty or have a software product service agreement during the month the product became available, are eligible to receive the new release. Eligible customers who have not received the new release should contact their local DIGITAL office.

<u>PRODUCT</u>	<u>VERSION</u>	<u>AVAILABLE</u>
BASIC-PLUS-2 for RSX-11M and RSX-11M-PLUS,PDP-11	2.3	JUN 85
COBOL,PDP-11	4.4	MAY 82
COBOL-81/RSX	2.4	MAY 86
DATATRIEVE-11	3.1	SEP 84
DBMS-11	2.1	JAN 83
DECdx/RSX	1.0	NOV 84
DECmail-11 for RSX-11M-PLUS and Micro/RSX	2.0	AUG 84
DECnet Router Server	1.1 SPD ONLY	OCT 85
DECnet-11M	4.2	FEB 86
DECnet-11M-PLUS	3.0	FEB 86
DECnet-11S	4.2	FEB 86
DECnet/SNA Gateway Products	1.3	JAN 86
DPM	4.1	AUG 82
DPM-PLUS SOFTWARE	1.1	AUG 82
FORTRAN IV/RSX	2.6	JUN 83
PDP-11 SYMBOLIC DEBUGGER/RSX (formerly FORTRAN-77 DEBUG/RSX, PDP-11)	2.0	APR 86
FORTRAN-77/RSX,PDP-11	5.0 SPD ONLY	JAN 86
LSP-11	1.2 DOC ONLY	JAN 86
MicroPower/Pascal-RSX	2.2	JUN 86
PASCAL/RSX,PDP-11	1.2	JAN 86
RGL/11	1.1 DOC ONLY	JAN 86
RPG II,PDP-11	8.8	JUL 83
RSX MDE/T-11	1.0	DEC 82
RSX-11 2780/3780 Emulator	4.1	JUL 82
RSX-11 PSI/M	2.1	FEB 86
RSX-11 PSI/M-PLUS	2.1	FEB 86
RSX-11/3271 Protocol Emulator	3.1	MAR 86
RSX-11M	4.2	JAN 86
RSX-11M V4.2 UPDATE	B	MAY 86
RSX-11M/FORTRAN Enhancement Pkg. for MINC	1.3 RETIRED	MAR 86

PRODUCT AVAILABILITY DATES - RSX (cont'd)

<u>PRODUCT</u>	<u>VERSION</u>	<u>AVAILABLE</u>
RSX-11M/FORTRAN Real-Time Pkg. for MINC	1.2 RETIRED	MAR 86
RSX-11M-PLUS	3.0	JAN 86
RSX-11M-PLUS DECgraph-11	1.2 RETIRED	FEB 86
RSX-11M-PLUS DECtype	3.1	JUN 86
RSX-11M-PLUS DIBOL	1.2	APR 86
RSX-11M-PLUS V3.0 UPDATE	B	MAY 86
RSX-11S	4.2	JAN 86
RSX-11S V4.2 UPDATE	B	MAY 86
RTEM-11	2.2	APR 86
SORT/MERGE, PDP-11	3.0	JUN 84
SPM-11M	2.1 RETIRED	APR 86
SPM-11M-PLUS	2.1 RETIRED	APR 86
SSP-11	1.3 DOC ONLY	JAN 86

RSX-11M V4.2



RSX Software Dispatch, November 1986

RSX-11M V4.2
SYSGEN
Command Files

Seq. No. 1.1.1.10 N

1 of 1

NO RESPONSES ARE ACCEPTED FOR DHV11 DEVICES (SPR 11-M90877 GNL)

PROBLEM
STATEMENT:

If DHU/DHV devices are selected during system generation, no responses are accepted when SYSGEN asks for the vector, control and status register (CSR), highest line number, and terminal speed.

RESPONSE:

In SGNPER.CMD, the module which collects the DHV/DHU information does not set the symbol RANGE4 to false. This allows no responses for the DHV/DHU questions.

This problem will be corrected in RSX-11M Version 4.2 Update D.

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RSX Software Dispatch, November 1986

RSX-11M V4.2
SYSGEN
Update

Seq. No. 1.1.3.1 M

1 of 1

FMS-11/RSX VERSION NUMBER INCORRECT IN UPDATE C NOTES (SPR 11-M00300X DK)

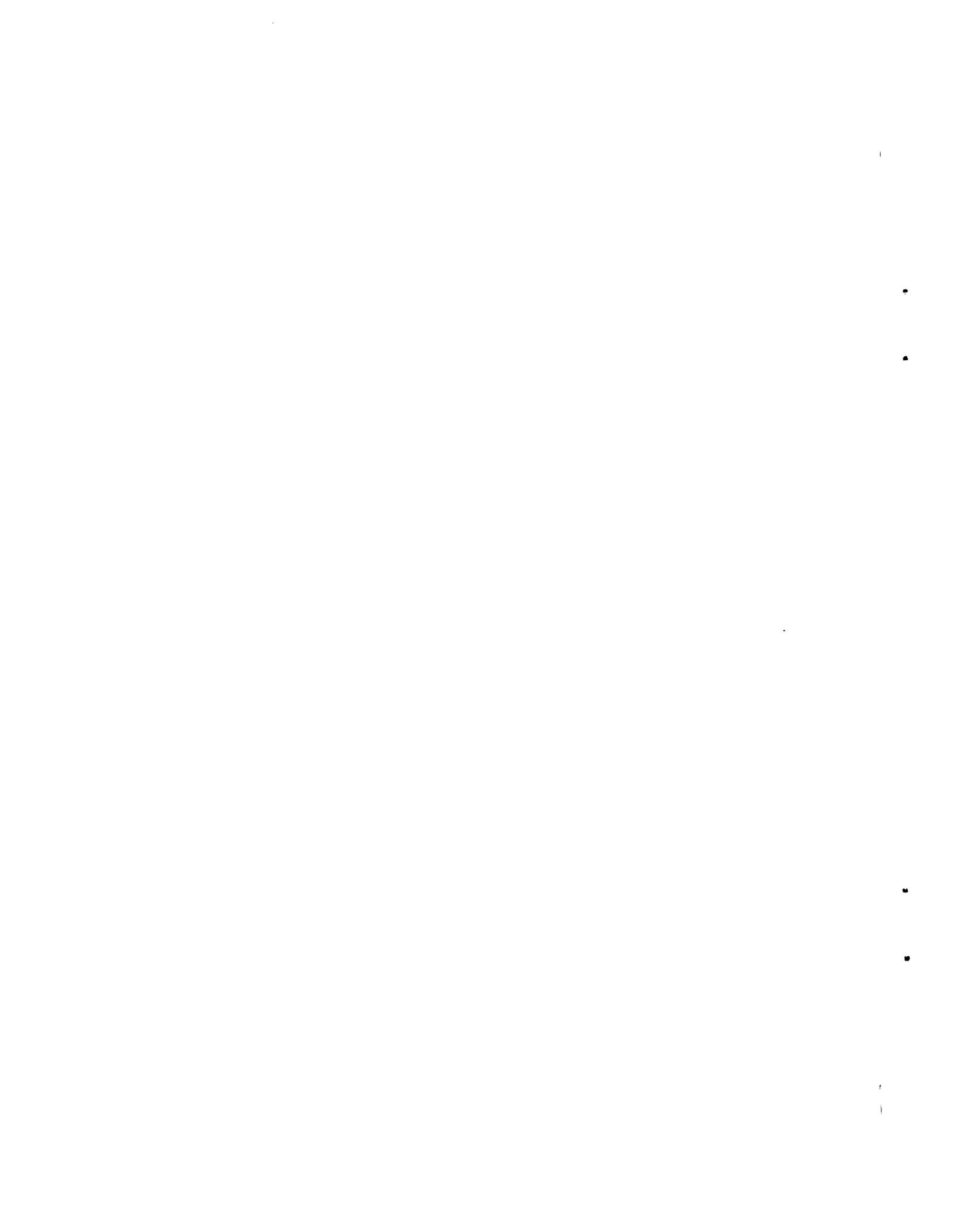
PROBLEM
STATEMENT:

The version number of the layered product FMS-11/RSX is incorrect in the RSX-11M/S Version 4.2 Update Notes, Revision C.

RESPONSE:

The version number listed in Section 6.1, Layered Product Update File Summary, is FMS-11/RSX Version 2.3. The correct version number is FMS-11/RSX Version 1.0.

Please note that RSX-11M/S Version 4.2 Update C contains the last set of corrections to be applied to FMS-11/RSX V1.0. Beginning with Update D, corrections supplied on the RSX-11M/S Update kit apply to FMS-11/RSX V2.0.



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RSX-11M V4.2
Drivers
FDX-TTDRV

Seq. No. 3.1.3.8 N

1 of 1

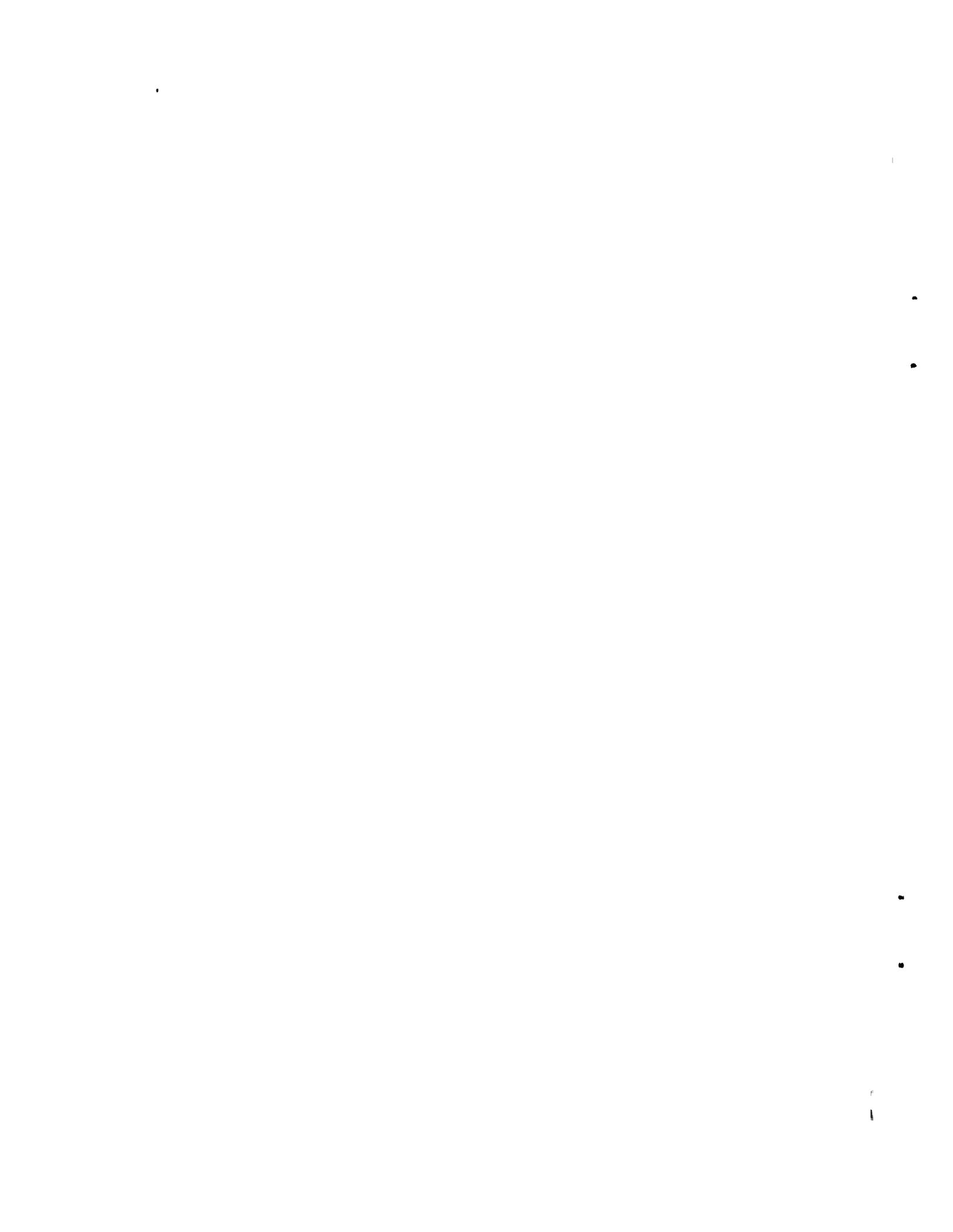
TF.RAL FUNCTIONALITY CHANGE (SPR 11-M00299X TS)

PROBLEM
STATEMENT:

The functionality of TTDRV's TF.RAL subfunction changed between RSX-11M V4.1 and RSX-11M V4.2

RESPONSE:

The I/O Drivers Reference Manual documents this change but the Release Notes do not. The functionality has changed from READ ALL BITS to READ ALL CHARACTERS. This subfunction allows the passage of all characters to the requesting task. The characteristic TC.8BC, when set, will allow the driver to pass 8 bits.



RSX-11M V4.2
Batch/Queue Mgr
LPP

Seq. No. 4.1.5.5 M

1 of 1

CANNOT INITIALIZE LOGGED-IN TERMINAL AS /SHAREABLE PRINTER (SPR 11-M91362 RDH)

PROBLEM
STATEMENT:

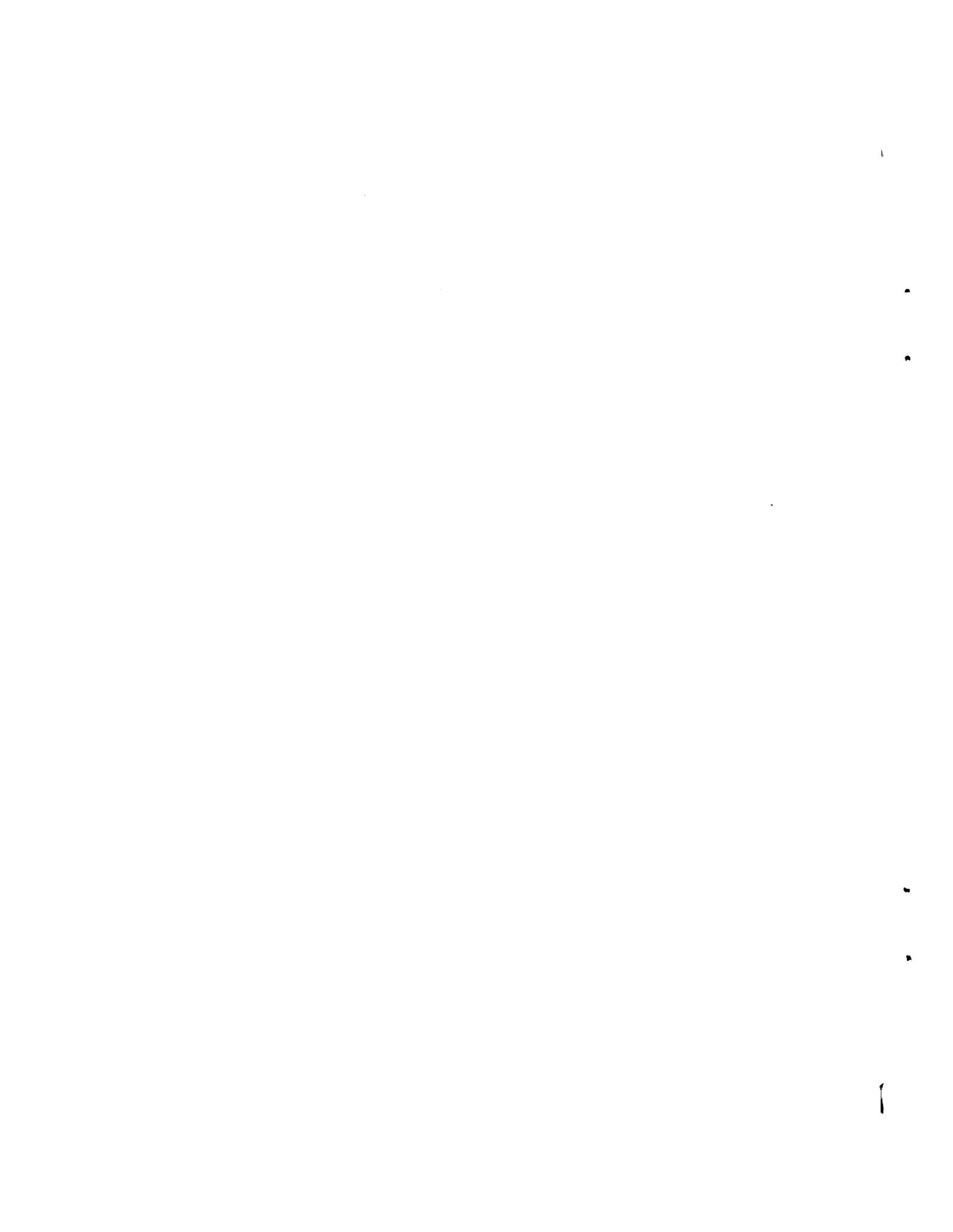
The console device cannot be initialized as a shared printer from the startup command file. This was possible on RSX-11M Version 4.1.

RESPONSE:

The Queue Manager (QMG) task will not allow a device to be initialized as a printer if it is attached, allocated, or logged in at the time of attempted initialization. The test for logged-in condition does not depend upon whether the device is being initialized /SHAREABLE. Because this test is performed by checking for a nonzero login UIC, it was accidentally affected when Version 4.2 changes were made to log the console terminal in to [1,54] instead of the dummy account [,].

A workaround for this problem is to remove the printer initialization commands from the startup command file, at least the ones for a shared console printer. Initialization of T10: as a shared printer can then be effected from another terminal after the system is running and the console is logged off.

RSX-11M Version 4.2 Update D will include changes to allow a printer to be initialized /SHAREABLE even if it is logged in at the time. Initialization of a printer which is attached or allocated will still be disallowed.



RSX-11M V4.2
Multiuser Task
BYE

Seq. No. 4.2.3.2 M

1 of 1

EXCESSIVE DELAYS IN BYE ON HEAVILY LOADED SYSTEM (SPR 11-M91064 RDH)

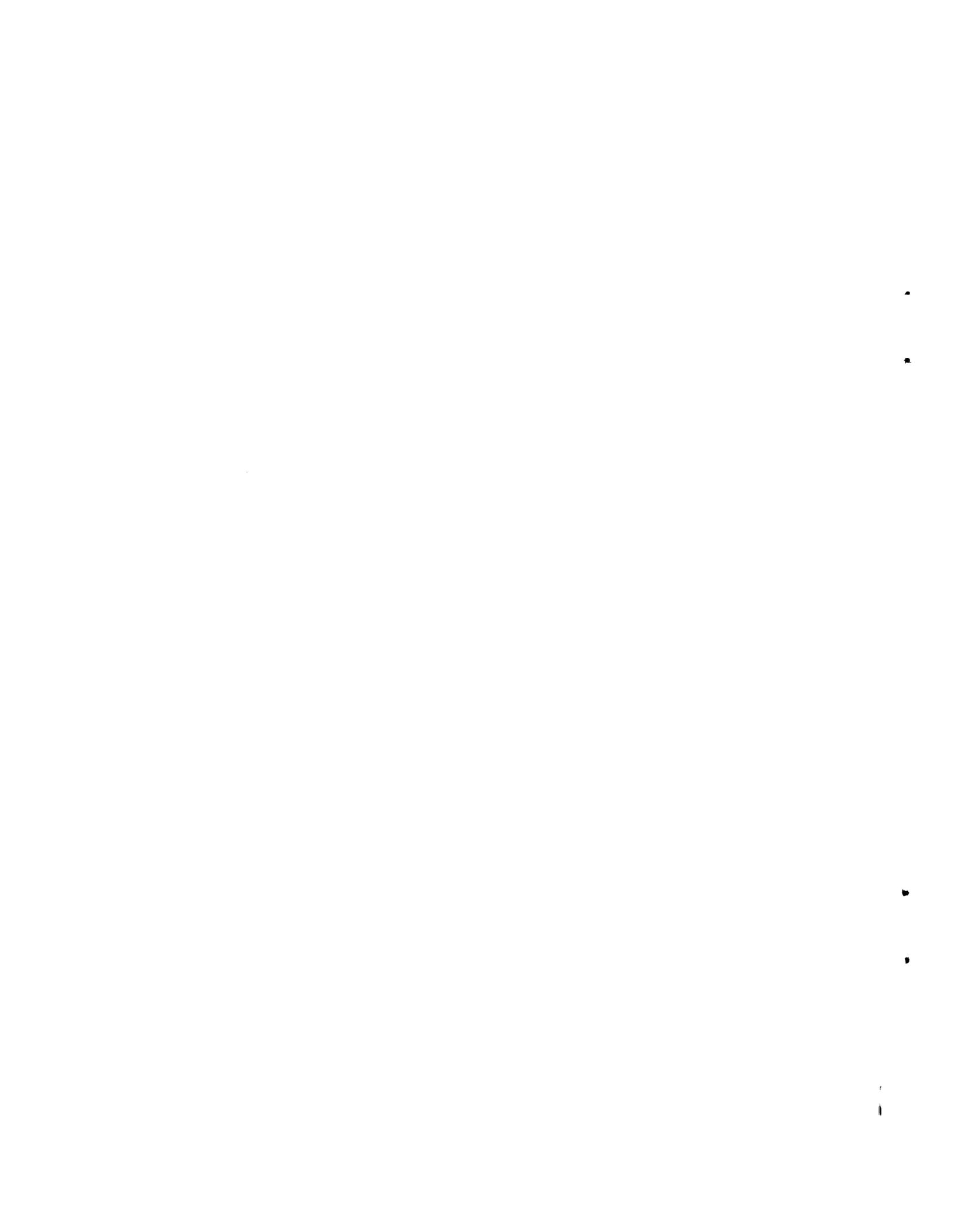
PROBLEM
STATEMENT:

When a user logs off a heavily loaded system, there may be a 10- to 14-second wait before he is actually logged off and the prompt returns.

RESPONSE:

Several of the operations that BYE spawns are given maximum times in which to complete. This is implemented by issuing a Mark Time directive after spawning. BYE will proceed after either the spawned task completes or the time elapses. In the case of the DMO /USER task, the same event flag is used for the spawned task and the Mark Time. If, because of heavy system load, the DMO completes before the Mark Time is issued, there will be a 10-second delay.

RSX-11M Version 4.2 Update D will include corrections to this problem. The spawning of the DMO /USER task will use event flag 3 and the Mark Time will continue to use event flag 1. BYE will proceed after either event flag is set true.



RSX Software Dispatch, November 1986

RSX-11M V4.2
Multiuser Task
SHUTUP

Seq. No. 4.2.5.1 M

1 of 1

SHUTUP DOES NOT SEND NOTIFICATION TO HT: OR RT: TERMINALS (SPR 11-M91204 RDH)

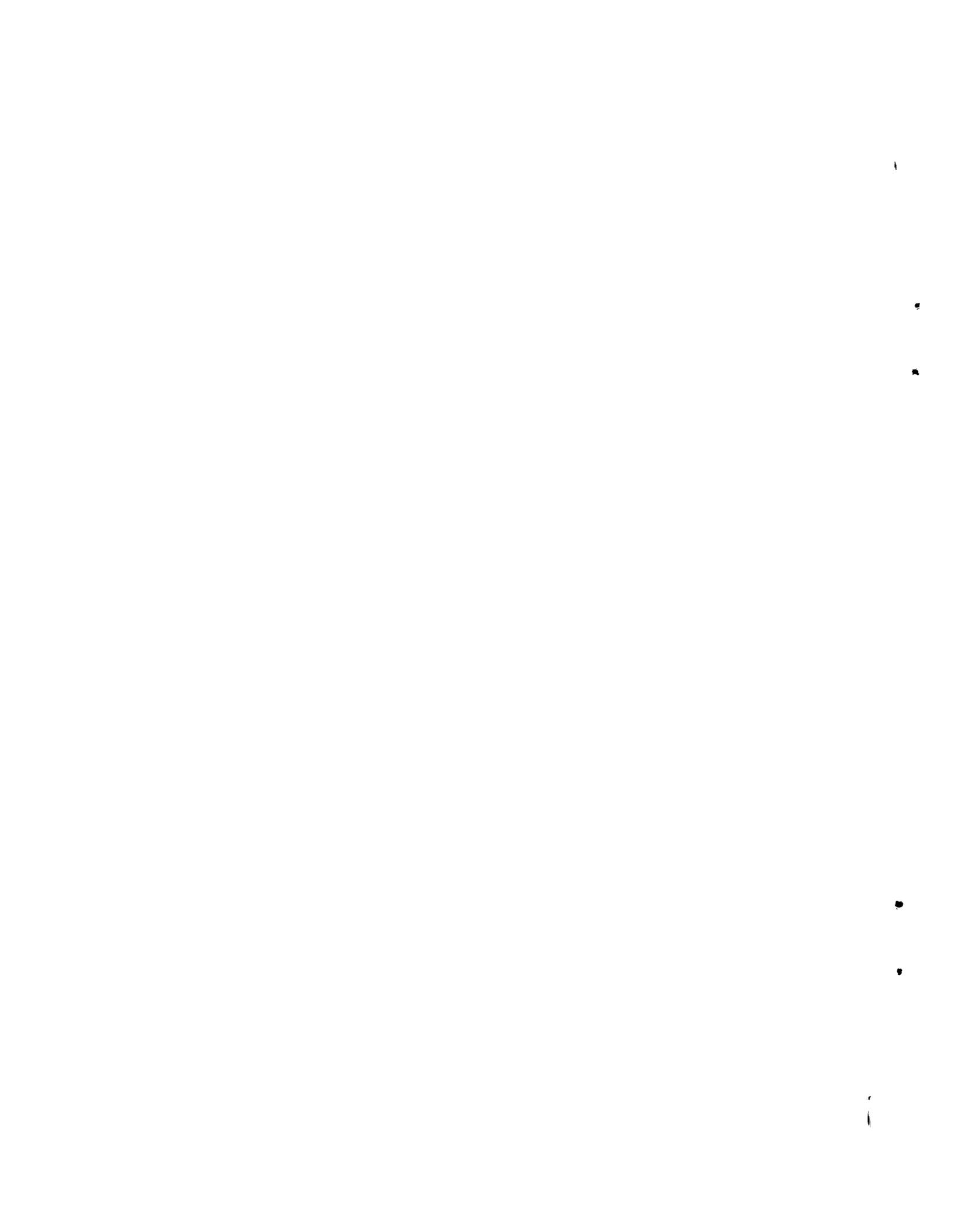
PROBLEM
STATEMENT:

SHUTUP does not send notification to HT: and RT: network terminals.

RESPONSE:

Extension of the RSX-11M SHUTUP task to include notification to HT: and RT: network terminals was omitted.

RSX-11M Version 4.2 Update D will include changes to notify those terminals of impending system SHUTUP.



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RSX-11M V4.2
DCL
DCL

Seq. No. 6.1.0.13 M

1 of 1

SHOW QUEUE/DEVICE/BRIEF FAILS (SPR 11-M91043 LP)

PROBLEM
STATEMENT:

The MCR command QUE/BR/LI:P correctly displays the print queues, print queue assignments, and jobs in the print queues. However, if you issue the equivalent DCL command SHOW QUEUE/BRIEF/DEVICE, you get the error message about illegal, contradictory, or ambiguous qualifiers.

RESPONSE:

The DCL SHOW QUEUE command should allow you to use the /BRIEF and /DEVICE qualifiers together.

This command will be corrected in RSX-11M Version 4.2 Update D.

In the meantime, as a workaround, you can use the MCR version of the command, QUE/LI:P/BR, to get the desired display.

RSX-11M V4.2
DCL
DCL

Seq. No. 6.1.0.14 M

1 of 1

SET DEVICE /WRITECHECK TRANSLATES INCORRECTLY (SPR 11-M91038 LP)

PROBLEM
STATEMENT:

The Digital Command Language (DCL) command SET DEVICE=ddnn:/WRITE translates to the invalid Monitor Console Routine (MCR) command SET /WRITE=ddnn:. The DCL command SET DEVICE=ddnn:/WRITEC[HECK] translates correctly to the MCR command SET /WCHK=ddnn:.

RESPONSE:

Originally, there were both /WRITE and /WCHK switches for the MCR SET command, and the DCL SET DEVICE command had the corresponding qualifiers /WRITE and /WRITEC[HECK]. The support for the MCR command SET /WRITE=ddnn: was removed, but, unfortunately, the DCL SET DEVICE qualifier /WRITE was not.

The DCL SET DEVICE qualifier /WRITE will be removed in RSX-11M Version 4.2 Update E. Furthermore, users will be allowed to abbreviate /WRITECHECK to three characters instead of six.

In the meantime, you may use either the DCL or MCR version of this command for write checking your devices.

RSX-11M V4.2
CUMULATIVE INDEX
NOVEMBER 1986

This is a complete listing of all articles for RSX-11M V4.2 and layered products. Missing sequence numbers may pertain to problems unique to other versions of the same product or other major operating systems.

IMPORTANT!

Unassigned articles are indicated: UNASSIGNED.

Flags are currently being installed for all articles. The flags and definitions are as follows.

M = Mandatory Patch. These patches correct errors in the software product. All users are required to apply these patches to maintain consistent "user level" unless the accompanying article specifies otherwise.

F = Optional Feature Patch. These patches extend or configure functionality into the product. These functions will be treated as a supported part of the product for the duration of the current release and will be incorporated with any future release, unless otherwise stated.

R = Restriction. These articles discuss areas that will not be patched in the current release because they require major modification or because they are not consistent with the design of the product. Restrictions, except those described as permanent, are reviewed and modified when possible as part of the normal release cycle.

N = Note. These articles provide explanatory information that supplements the manual set and provide more detailed information about a program or package. They also provide procedural information to make it easier to use a program or package.

* = Articles appeared in the RSX Software Dispatch Review, September 1985.

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ACF MAY NOT CORRECTLY SET UP DV.NUC IN CONFIG.DAT FOR RSO3/4s	1.1.1.3 M	Apr 86
SYSGEN DOES NOT USE AUTOCONFIGURE RESULTS IF NONSTANDARD EXEC	1.1.1.4 M	May 86
SYSGEN TRAPS DURING PHASE 1 ONLY ON PDP-11/34 WHEN ACF HAS RUN	1.1.1.5 M	Jun 86
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DDDRV TIMES OUT WHILE COPYING LARGE FILES	3.1.1.2 M	Mar 86

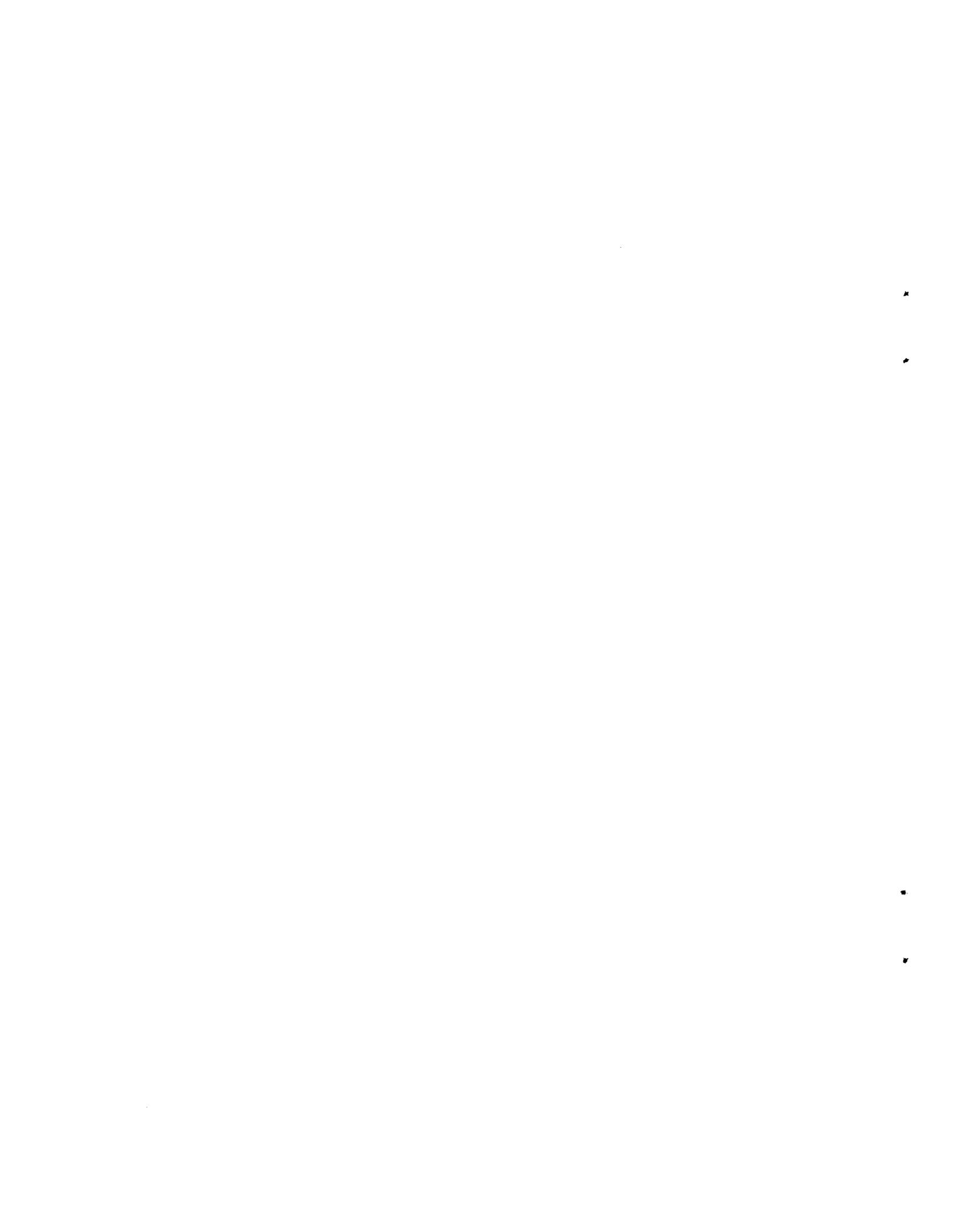
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END MESSAGE PACKETS FOR MU ARE NOT ANALYZED PROPERLY	3.3.5.3 M	Mar 86
ERROR LOG MESSAGE PACKETS FOR TK50 ARE NOT ANALYZED PROPERLY	3.3.5.4 M	Mar 86
ERLRPT-F-MODLOASYM UNDEFINED SYMBOL IN MODULE TO BE LOADED	3.3.5.5 M	Apr 86
RPT ABORTS WITH MESSAGE ERLRPT-F-CASENOMAT FOR DU: ERRORS	3.3.5.6 M	Jul 86
LBN FOR RM80s ARE INCORRECT IN ERROR LOG REPORT	3.3.5.7 M	Jul 86
<u>Batch/Queue Mgr</u>		
QMG		
STICKINESS IS LOST IN FILE EXTENSION IF FILES DO NOT EXIST	4.1.3.1 M	Mar 86
LPP		
LPP LOOPS ON NEGATIVE RECORD LENGTH	4.1.5.1 M	Apr 86
LNO3 PRINTS 51 LINES PER SHEET IN LANDSCAPE MODE	4.1.5.2 M	Jun 86
LPP HANGS WHEN USING SIMULATED FORM FEEDS	4.1.5.3 M	Aug 86
UNSOLICITED INPUT FROM PRINT DEVICES CRASHES THE SYSTEM	4.1.5.4 M	Aug 86
CANNOT INITIALIZE LOGGED-IN TERMINAL AS /SHAREABLE PRINTER	4.1.5.5 M	Nov 86
QUE/PRI		
QUE /MOD FAILS TO CHANGE /DELETE ATTRIBUTE	4.1.4.1 M	Oct 86

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<u>Multiuser Task</u>		
BYE		
BYE HANGS WITH LOW POOL	4.2.3.1 M	Jun 86
EXCESSIVE DELAYS IN BYE ON HEAVILY LOADED SYSTEM	4.2.3.2 M	Nov 86
HELLO		
DEFAULT CLI PROMPT MUST BE THREE OR MORE BYTES	4.2.4.1 M	Sep 86
SHUTUP		
SHUTUP DOES NOT SEND NOTIFICATION TO HT: OR RT: TERMINALS	4.2.5.1 M	Nov 86
DMP		
ANSI MAGTAPES AND DMP	5.1.5.1 R*	Sep 85
<u>Utilities</u>		
MOU		
MOUNT DOES NOT WAIT FOR RA80/81 TO SPIN DOWN1	5.1.10.1 M	Mar 86
PIP		
DELETING FILES, ;0 DOES NOT ALWAYS WORK PROPERLY	5.1.12.1 M	Apr 86
PIP DISPLAYS NEGATIVE NUMBER OF FILES	5.1.12.2 M	Aug 86
BRU		
BRU "NO FILES FOUND" PROBLEM CORRECTED	5.1.17.1 M	Dec 85
BRU ENDS WITH MEMORY PROTECTION VIOLATION DURING RESTORES	5.1.17.2 N	Mar 86
BRU INDICATES OUTPUT DISK IS TOO FRAGMENTED DURING VERIFY	5.1.17.3 N	Mar 86
BRU MAY FAIL ON THE VERIFY PASS OF A BACKUP OPERATION	5.1.17.4 N	Mar 86
BRU REPORTS I/O STATUS OF -255	5.1.17.5 N	Mar 86
BRU REPORTS ERRORS ABOUT FILES THAT DO NOT EXIST	5.1.17.6 N	Mar 86
BRU USES WRONG IMAGE FILE FOR RESTORE/COMPARE	5.1.17.7 N	Mar 86
BRU DOES NOT RECOVER PROPERLY FROM TAPE-LABEL ERRORS	5.1.17.8 M	Mar 86
ABNORMAL TERMINATION DURING THE VERIFY PASS OF A RESTORE	5.1.17.9 M	Mar 86
BRU REPORTS ATTACH FAILED AS SECOND FATAL ERROR	5.1.17.10 N	Mar 86
POTENTIAL PROBLEM WHEN FIRST FILE RESTORED IS CONTIGUOUS	5.1.17.11 M	Apr 86
BRU /IMAGE:RESTORE DISPLAYS ERRORS DESPITE SUCCESS	5.1.17.12 M	Jun 86
BRU64K /COMPARE/IMAGE:SAVE DOES NOT WORK PROPERLY	5.1.17.13 M	Jul 86
STAND-ALONE BRU /IMAGE:SAVE INCORRECTLY INITIALIZES DISKS	5.1.17.14 M	Sep 86
BRU SKIPPING OVER BOOTABLE SYSTEM IMAGE	5.1.17.15 M	Sep 86
BRU PROBLEMS WITH LARGE FID NUMBERS	5.1.17.16 M	Sep 86
BRU /VERIFY INCORRECTLY RESTORES DISK WITH ONLY EMPTY UFDs	5.1.17.17 M	Sep 86
<u>System Libraries</u>		
RSXMAC		
MINOR ERROR IN GCII\$ MACRO	5.2.4.1 M	May 86
FORTTRAN CALLS WFLORS AND STLORS DO NOT WORK	5.2.4.2 M	Aug 86
CSI\$1 AND CSI\$2 MEMORY PROTECT		
SYSLIB \$DIVD CONFLICTS WITH FORTTRAN IV \$DIVD	5.2.6.1 M	Mar 86
	5.2.6.2 N	Jun 86

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<u>Task Builder</u>		
<u>Task Builder</u>		
TKB SWITCH /CL DOES NOT WORK	5.3.0.1 M	Apr 86
MULTIPLE REFERENCES TO .PSECT IN SEGMENT CAUSE TKB TO ABORT	5.3.0.2 M	Apr 86
<u>TKB</u>		
TKB OPENED AND CLOSED THE COMMAND FILE FOR EACH OPTION	5.3.1.1 N	Nov 85
I/D TASK LINKED TO LIBRARY AND COMMON DOES NOT BUILD	5.3.1.2 M	Feb 86
I/D TASK WITH DATA IN COMMON PSECT DOES NOT GET CAUGHT CORRECTLY	5.3.1.3 M	Jun 86
ASG OPTION REJECTED IF LUN IS GREATER THAN UNITS OPTION	5.3.1.4 M	Sep 86
<u>Debugging Aids</u>		
<u>ODT</u>		
TASK WITH LARGE NUMBER OF LUNs HANGS IN ODT	5.5.1.1 M	Apr 86
<u>Misc SYS Tasks</u>		
<u>HELP</u>		
HELP /OUT:TTNN: <PARAMETER> DOES NOT WORK	5.7.1.1 N	Apr 86
<u>PMD/SNAP</u>		
PMD PUTS OUTPUT IN WRONG PLACE	5.7.3.1 N	Jun 86
<u>MFT/DTE</u>		
MFT FAILS TO FUNCTION PROPERLY	5.7.12.1 N	Mar 86
<u>RCT</u>		
RCT DOES NOT REPLACE ALL BAD BLOCKS	5.7.15.1 M	Feb 86
<u>DCL</u>		
<u>DCL</u>		
CORRECT PRINTERPORTS PROBLEM AND ADD DEVICE NEGATIONS	6.1.0.1 M	Feb 86
RUN/STATUS:COMMAND DOES NOT MAP CORRECTLY	6.1.0.2 M	Feb 86
/LOG QUALIFIER SHOULD BE /LOGFILE ON SUBMIT COMMAND	6.1.0.3 M	Feb 86
DCL LINK DOES NOT WORK CORRECTLY IN SET DEBUG/EXECUTE MODE	6.1.0.4 M	Mar 86
DCL LINK/OPTION DOES NOT FUNCTION AS DOCUMENTED	6.1.0.5 M	Apr 86
DCL "LIBRARY @FILESPEC" DOES NOT WORK	6.1.0.6 M	Apr 86
DCL "SET DE" SHOULD NOT DEFAULT TO SET DEC CRT	6.1.0.7 M	Jun 86
FORTTRAN /CHECK REQUIRES /F77	6.1.0.8 M	Jun 86
ADD SUPPORT FOR COBOL-81 /CONDITIONALS QUALIFIED	6.1.0.9 M	Jul 86
DCL SHOULD NOT ACCEPT TERMINAL TYPE RT02 OR RT02C	6.1.0.10 M	Jul 86
DCL SET PROTECTION DOES NOT WORK WITH FILES STARTING WITH "L"	6.1.0.11 M	Aug 86
SET DEFAULT WITHOUT PARAMETERS DOES NOT WORK CORRECTLY	6.1.0.12 M	Sep 86
SHOW QUEUE/DEVICE/BRIEF FAILS	6.1.0.13 M	Nov 86
SET DEVICE /WRITECHECK TRANSLATES INCORRECTLY	6.1.0.14 M	Nov 86
RSX-11 2780/3780 Protocol Emulator V4.1		
CONDITIONS FOR AUTOMATIC SIGN ON	10.5.1.1 N*	Sep 85

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
DECnet-11M/S V4.2		
DECnet-11M/S PROBLEMS FIXED ON RSX-11M AND RSX-11S LAYERED UPDATE B	10.8.3.1 N	May 86
DECnet-RSX DELUA DEVICE SUPPORT	10.8.3.2 N	May 86
BASIC-PLUS-2 V2.3		
PROBLEM WITH PRINT USING	10.20.1.1 N	Dec 85
BASIC-PLUS-2 V2.3 RSX UPDATE B NOTICE	10.20.1.2 N	Sep 86
FORTRAN IV/RSX V2.6		
OTS		
LIST-DIRECTED READ	16.1.1.1 N	Dec 85
Update C		
FORTRAN IV PROBLEMS CORRECTED ON UPDATE C	16.1.2.1 N	Jun 86
FORTRAN IV/VAX to RSX V2.7		
INSTALLATION GUIDE/RELEASE NOTES ERRATA	16.2.1.1 N	Jul 86
PDP-11 Symbolic Debugger V2.0		
ANNOUNCING THE PDP-11 SYMBOLIC DEBUGGER V2.0	17.1.1.1 N	Apr 86

RSX-11S V4.2



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RSX-11S V4.2
SYSGEN
Command Files

Seq. No. 1.1.1.2 N

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NO RESPONSES ARE ACCEPTED FOR DHV11 DEVICES (SPR 11-S90877 GNL)

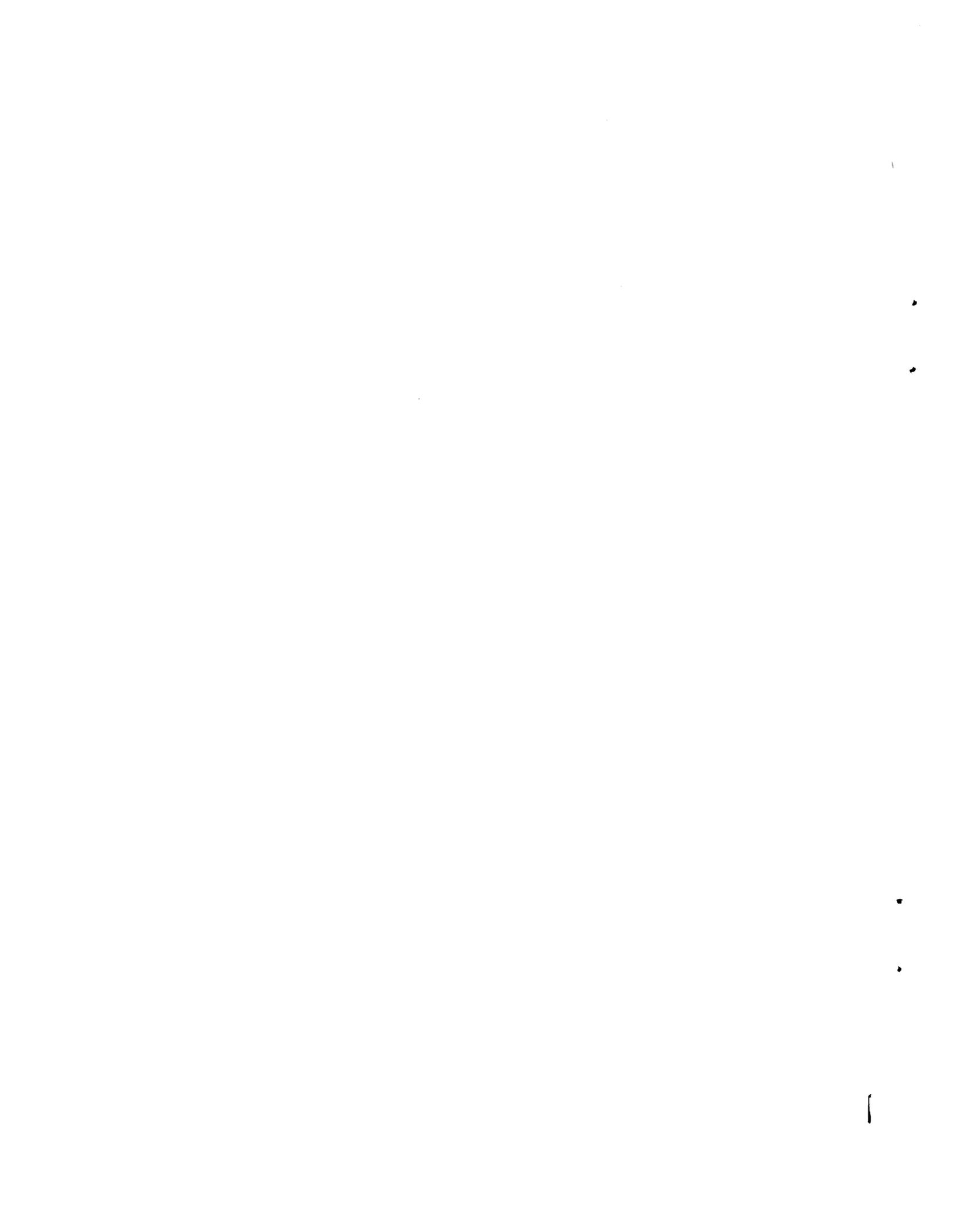
PROBLEM
STATEMENT:

If DHU/DHV devices are selected during system generation, no responses are accepted when SYSGEN asks for the vector, control and status register (CSR), highest line number, and terminal speed.

RESPONSE:

In SGNPER.CMD, the module which collects the DHV/DHU information does not set the symbol RANGE4 to false. This allows no responses for the DHV/DHU questions.

This problem will be corrected in RSX-11S Version 4.2 Update D.



RSX Software Dispatch, November 1986

RSX-11S V4.2
SYSGEN
Update

Seq. No. 1.1.3.1 M

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FMS-11/RSX VERSION NUMBER INCORRECT IN UPDATE C NOTES (SPR 11-S00300X DK)

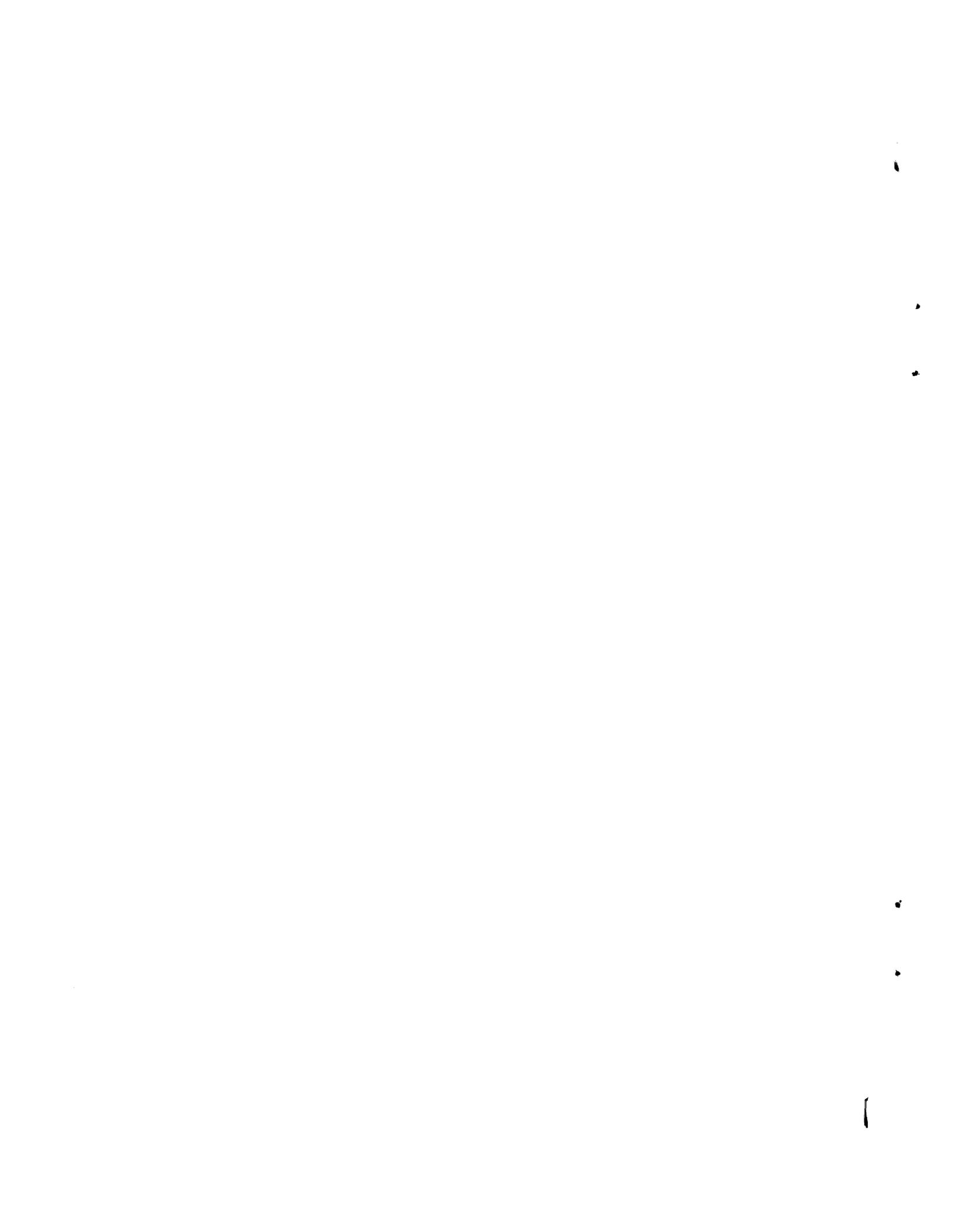
PROBLEM
STATEMENT:

The version number of the layered product FMS-11/RSX is incorrect in the RSX-11M/S Version 4.2 Update Notes, Revision C.

RESPONSE:

The version number listed in the Layered Product Update File Summary, Section 6.1, is FMS-11/RSX Version 2.3. The correct version number is FMS-11/RSX Version 1.0.

Please note that RSX-11M/S Version 4.2 Update C contains the last set of corrections to be applied to FMS-11/RSX V1.0. Beginning with Update D, corrections supplied on the RSX-11M/S Update kit apply to FMS-11/RSX V2.0.



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RSX-11S V4.2
Drivers
FDX-TTDRV

Seq. No. 3.1.3.4 N

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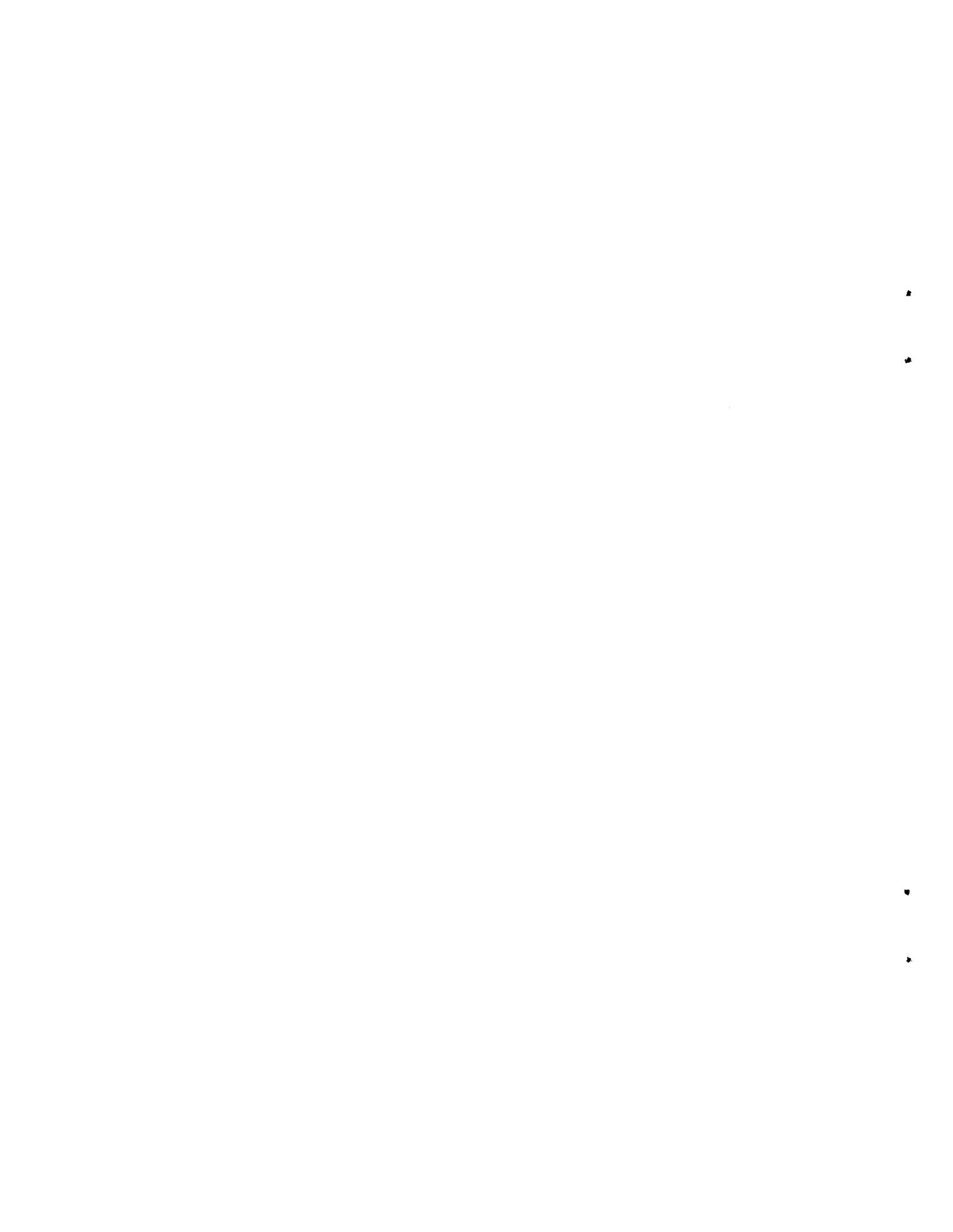
TF.RAL FUNCTIONALITY CHANGE (SPR 11-S00299X TS)

PROBLEM
STATEMENT:

The functionality of TTDRV's TF.RAL subfunction changed between RSX-11S V4.1 and RSX-11S V4.2.

RESPONSE:

The I/O Drivers Reference Manual documents this change but the Release Notes do not. The functionality has changed from READ ALL BITS to READ ALL CHARACTERS. This subfunction allows the passage of all characters to the requesting task. The characteristic TC.8BC, when set, will allow the driver to pass 8 bits.



RSX-11S V4.2
 CUMULATIVE INDEX
 NOVEMBER 1986

This is a complete listing of all articles for RSX-11S V4.2 and layered products. Missing sequence numbers may pertain to problems unique to other versions of the same product or other major operating systems.

IMPORTANT!

Unassigned articles are indicated: UNASSIGNED.

Flags are currently being installed for all articles. The flags and definitions are as follows.

M = Mandatory Patch. These patches correct errors in the software product. All users are required to apply these patches to maintain consistent "user level" unless the accompanying article specifies otherwise.

F = Optional Feature Patch. These patches extend or configure functionality into the product. These functions will be treated as a supported part of the product for the duration of the current release and will be incorporated with any future release, unless otherwise stated.

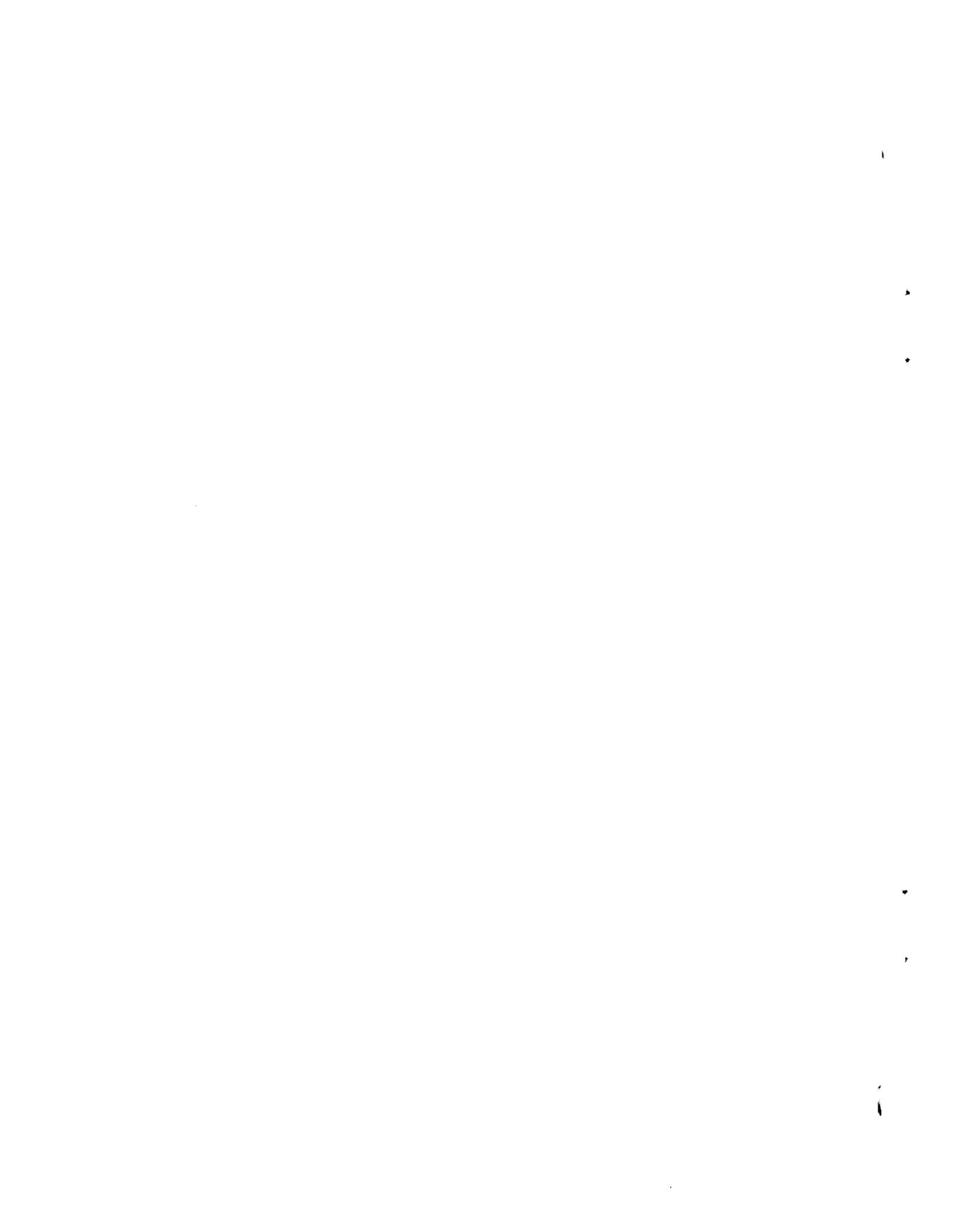
R = Restriction. These articles discuss areas that will not be patched in the current release because they require major modification or because they are not consistent with the design of the product. Restrictions, except those described as permanent, are reviewed and modified when possible as part of the normal release cycle.

N = Note. These articles provide explanatory information that supplements the manual set and provide more detailed information about a program or package. They also provide procedural information to make it easier to use a program or package.

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<u>RSX-11S V4.2</u>		
<u>SYSGEN</u>		
<u>Command Files</u>		
SGNPER ABORTS WHEN CREATING DATABASE FOR VT11	1.1.1.1 M	Sep 86
NO RESPONSES ARE ACCEPTED FOR DHV11 DEVICES	1.1.1.2 N	Nov 86
<u>Update</u>		
FMS-11/RSX VERSION NUMBER INCORRECT IN UPDATE C NOTES	1.1.3.1 M	Nov 86
<u>11SGEN2</u>		
11SGEN2 RETURNS "COMMAND FILE OPEN ERROR"	1.1.6.1 M	Feb 86
11SGEN2 PROBLEMS	1.1.6.2 M	Apr 86
11SGEN LOOKS FOR UML, RCT, AND CDA BLD FILES IN [1,20]	1.1.6.3 M	May 86
<u>Executive Directives</u>		
ACD SUPPORT CAUSES AN UNDEFINED SYMBOL IN SYSGEN	2.1.1.1 M	Jun 86

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<u>Drivers</u>		
MUDRV		
MUDRV DOES NOT SUPPORT MULTIPLE-DENSITY TAPE DRIVES	3.1.2.1 M	Mar 86
SYSTEM CRASHES WITH MUDRV/PUCOM MAPPED	3.1.2.2 M	Mar 86
<u>FDX-TTDRV</u>		
GET/SET CHARACTERISTIC DOES NOT WORK WHEN GET OPTIONS NOT SELECTED	3.1.3.1 M	Jun 86
BIC OF S6.EIO NOT CONDITIONALIZED ON EXTENDED I/O	3.1.3.2 M	Jul 86
SIX CORRECTIONS TO TTDRV	3.1.3.3 M	Oct 86
TF.RAL FUNCTIONALITY CHANGE	3.1.3.4 N	Nov 86
<u>Utilities</u>		
BRU		
BRU "NO FILES FOUND" PROBLEM CORRECTED	5.1.17.1 M	Dec 85
<u>System Libraries</u>		
CSI		
CSI\$1 AND CSI\$2 MEMORY PROTECT	5.2.6.1 M	Mar 86
<u>Misc SYS Tasks</u>		
RCT		
RCT DOES NOT REPLACE ALL BAD BLOCKS	5.7.15.1 M	Feb 86
DECnet-11M/S V4.2		
DECnet-11M/S PROBLEMS FIXED ON RSX-11M AND RSX-11S LAYERED UPDATE B	10.8.3.1 N	May 86
DECnet-RSX DELUA DEVICE SUPPORT	10.8.3.2 N	May 86

RSX-11M-PLUS V3.0



RSX-11M-PLUS V3.0
SYSGEN
Update

Seq. No. 1.1.3.1 R

1 of 2

ERROR IN RSX-11M-PLUS UPDATE C RK07 ON VAX-11 RSX HOST (SPR 11-P00301X DK)

PROBLEM
STATEMENT:

The application of Update C to the RSX-11M-PLUS V3.0 RK07 kit using a VAX-11 RSX host system produces the following Backup and Restore Utility (BRU) errors:

```
"BRU -- *WARNING* -- Cannot restore contiguously"  
"BRU -- *WARNING* -- Allocation failure"
```

RESPONSE:

This error is caused by a problem in the VAX-11 RSX file purge processing in the Peripheral Interchange Program (PIP) Utility. The Update procedure does not have sufficient space on the RK07 system disk because not all the necessary files are being purged by the VAX-11 RSX PIP utility.

Please follow these steps to successfully apply Update C to your RSX-11M-PLUS Version 3.0 RK07 kit:

1. Invoke UPDATE.CMD as described in Section 2.5 of the RSX-11M-PLUS V3.0 System Generation and Installation Guide.
2. When the above BRU error is encountered, the Update procedure will indicate an error has occurred and ask you to abort, continue, or pause the procedure, or to repeat the command. Enter the letter P to pause the Update procedure.
3. At the MCR prompt, enter the VMS PURGE command to purge all files on your RK07 system disk:

```
> PURGE dd:[*,*]*.*,*
```

where dd: is the correct device specification for your RK07 system disk.

4. At the MCR prompt, resume the Update procedure:

```
> RES
```

RSX-11M-PLUS V3.0
SYSGEN
Update

Seq. No. 1.1.3.1 R

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5. The Update procedure will again ask you to abort, continue, or pause the procedure, or to repeat the command. Enter the letter R to repeat the BRU command.
6. The procedure will now complete successfully. After the procedure exits, you must purge the new files on your RK07 system disk using the VMS PURGE command:

```
> PURGE DD:[*,*]*.*;*
```

where dd: is the correct device specification for your RK07 system disk.

This problem in the PIP purge processing will be fixed in a future release of VAX-11 RSX.

RSX-11M-PLUS V3.0
Executive
Directives

Seq. No. 2.1.1.12 M

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PARSE OF REMOTE QUOTED FILESPEC APPENDS FILE TYPE (SPR 11-P00202P PW)

PROBLEM
STATEMENT:

The PRMS\$ directive parses a remote file with a quoted file name incorrectly. If a node and quoted file are specified, the PRMS\$ directive appends the file type from the default file string. If a quoted file is specified without a node, the file type is not appended, which is the expected behavior for both cases.

RESPONSE:

When a node specification was present, the logical expansion code in the PRMS\$ directive was incorrectly clearing the bit indicating a quoted string was present. This problem is corrected in RSX-11M-PLUS Version 3.0 Update D.

RSX Software Dispatch, November 1986

RSX-11M-PLUS V3.0
Executive
Directives

Seq. No. 2.1.1.13 N

1 of 1

FAST MAP ROUTINE DOES NOT WORK AS DOCUMENTED (SPR 11-P90448 EP)

PROBLEM
STATEMENT:

Fast mapping is not performed as described in the Executive Reference Manual, page 3-21. According to the second paragraph, if the length-to-map is not specified, it is assumed to be the same as W.NSIZ.

RESPONSE:

The manual should indicate that if the length-to-map is not specified, the window length is not changed. This is corrected in the RSX-11M-PLUS Version 3.0 Update D documentation.

RSX Software Dispatch, November 1986

RSX-11M-PLUS V3.0
Drivers
DUDRV

Seq. No. 3.1.1.7 M

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SHADOW RECORDING ACROSS TWO DU CONTROLLERS HANGS (SPR 11-P00304X GM)

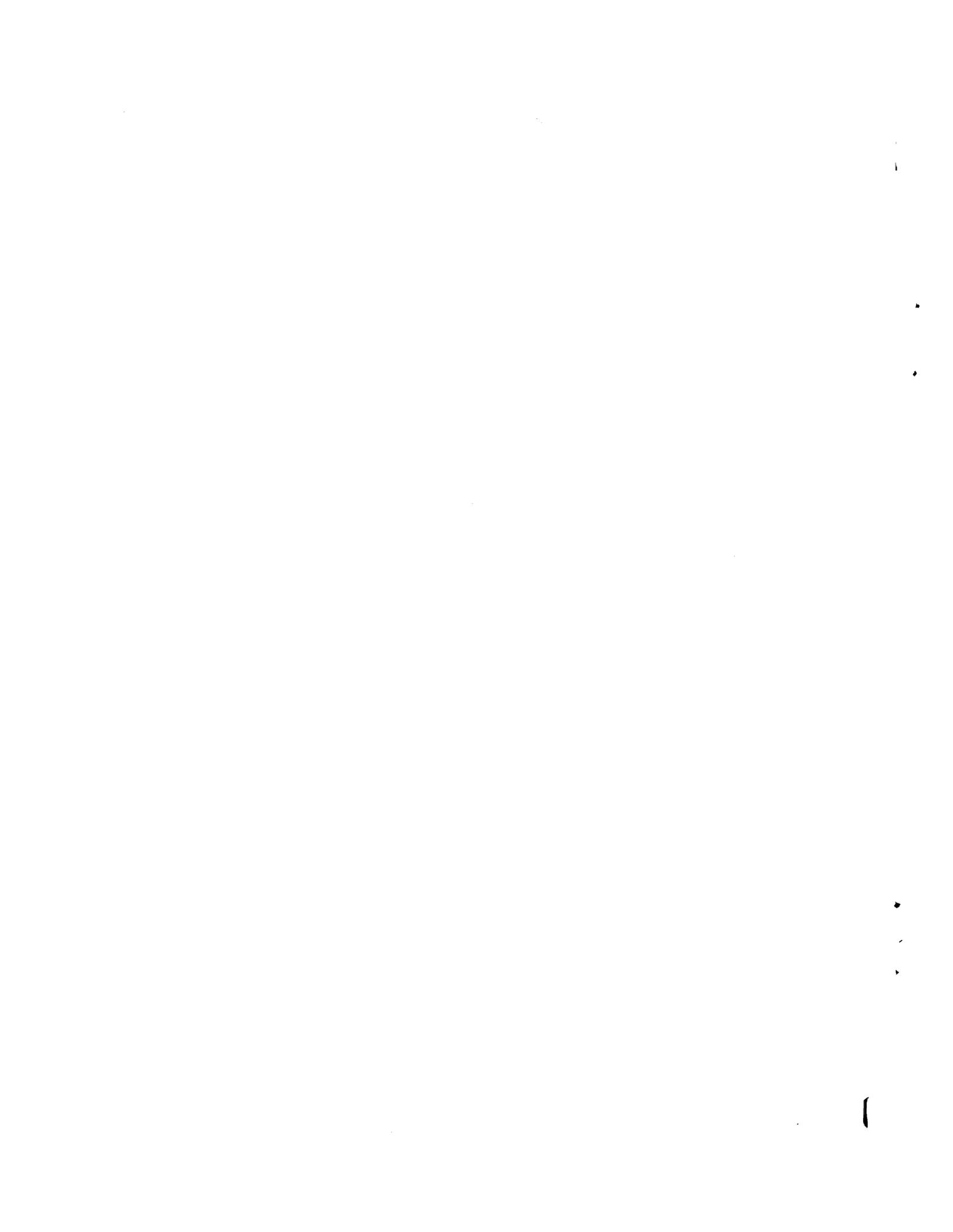
PROBLEM
STATEMENT:

When shadow recording is performed across two DU controllers, the system hangs.

RESPONSE:

This problem occurs because of DUDRV's failure to save and restore registers before and after a call to the Executive routine \$IODSA (which is called at the completion of an I/O to do final processing).

This problem is corrected in RSX-11M-PLUS Version 3.0 Update D.



RSX-11M-PLUS V3.0
Drivers
FDX-TTDRV

Seq. No. 3.1.3.9 N

1 of 1

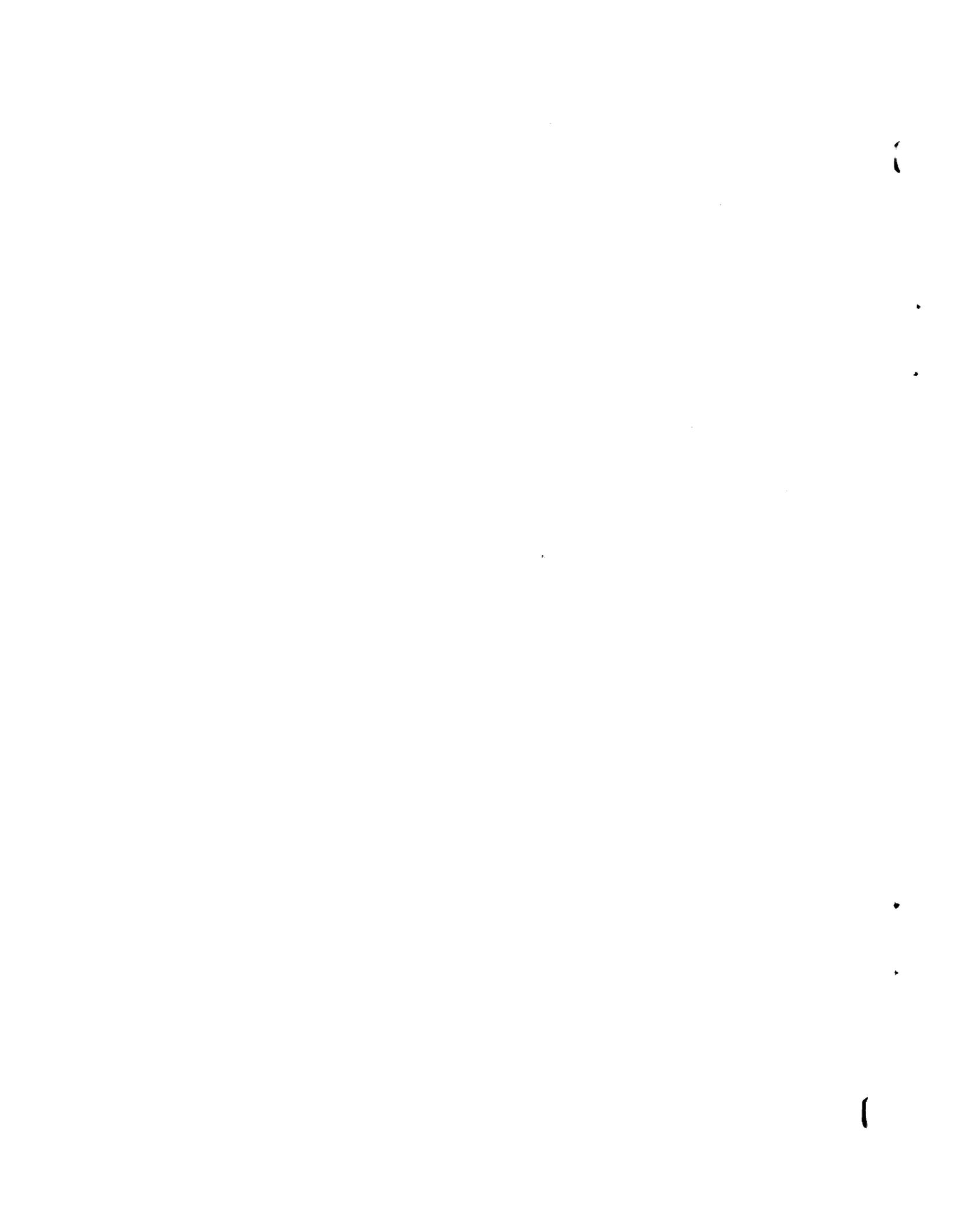
TF.RAL FUNCTIONALITY CHANGE (SPR 11-P00299X TS)

PROBLEM
STATEMENT:

The functionality of TTDRV's TF.RAL subfunction changed between RSX-11M-PLUS V2.1 and RSX-11M-PLUS V3.0.

RESPONSE:

The I/O Drivers Reference Manual documents this change but the Release Notes do not. The functionality has changed from READ ALL BITS to READ ALL CHARACTERS. This subfunction allows the passage of all characters to the requesting task. The characteristic TC.8BC, when set, will allow the driver to pass 8 bits.



RSX Software Dispatch, November 1986

RSX-11M-PLUS V3.0
Error Logging
RPT

Seq. No. 3.3.4.1 M

1 of 1

RPT REPORTS BAD BLOCK GREATER THEN THAT INDICATED BY BAD (SPR 11-P00303X GM)

PROBLEM
STATEMENT:

When the Bad Block Locator Utility (BAD) reports bad blocks on a DR: drive, the Report Generator (RPT) reports a logical block number (LBN) that is one greater than that indicated by BAD.

RESPONSE:

This problem occurs because the Control Files, which analyze the logged packets for RPT, calculate the LBN of the block next to the block that is reported to be bad.

This problem will be corrected in RSX-11M-PLUS Version 3.0 Update D.



RSX Software Dispatch, November 1986

RSX-11M-PLUS V3.0
System Libraries
FORTRAN Exec

Seq. No. 5.2.4.5 N

1 of 1

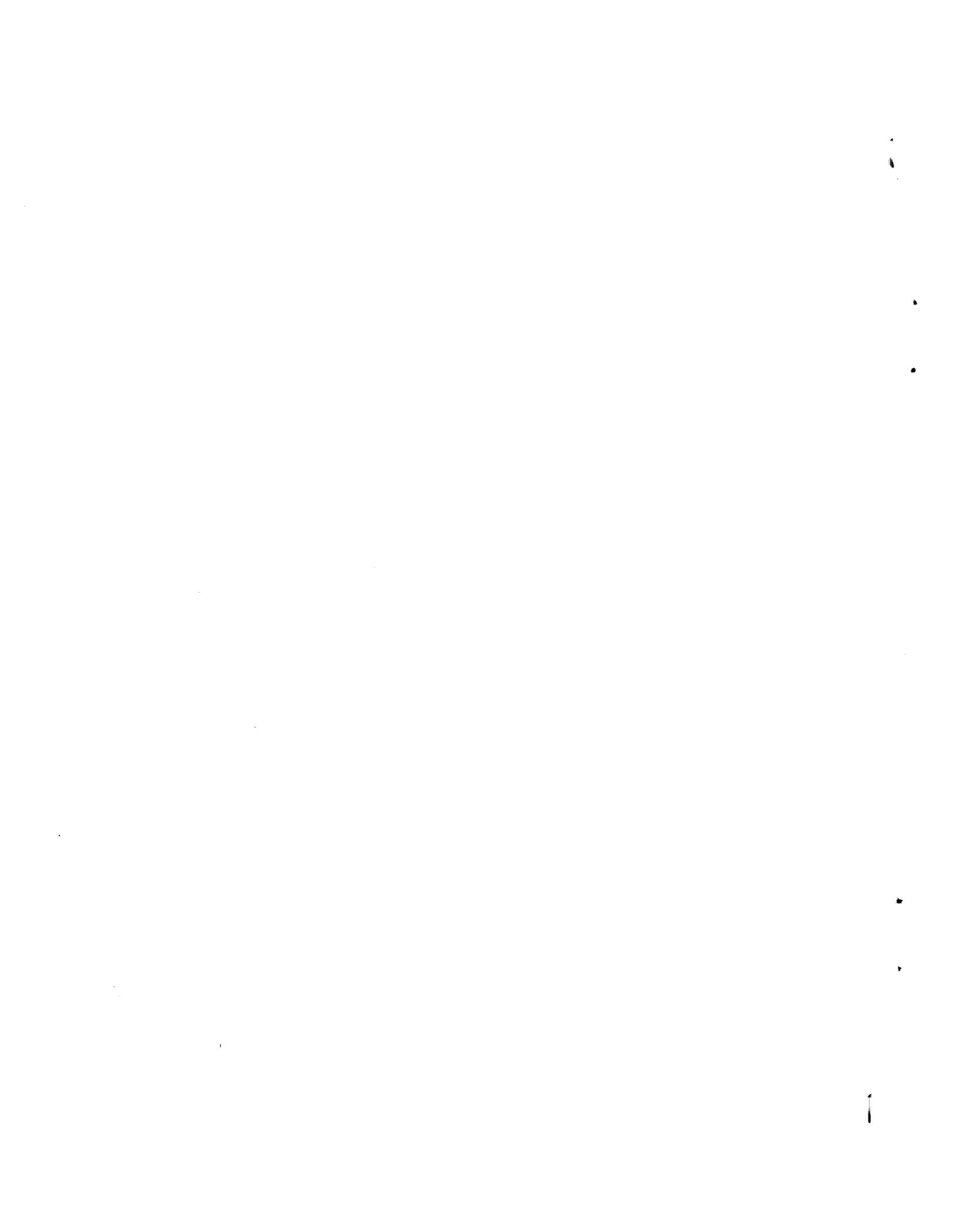
TASKS USING EXEC INTERFACE MAY BUILD WITH UNDEFINED SYMBOLS (SPR 11-P00305X BM)

PROBLEM
STATEMENT:

Programs using the high-level language interface to the Executive directives, specifically those which include the .X.ERR (error handling) module, will task build with an undefined reference to ERRDEF after Update C is applied.

RESPONSE:

This reference was inadvertently introduced in the process of building Update C. The problem is corrected in RSX-11M-PLUS Version 3.0 Update D. The undefined symbol is purely cosmetic and will not affect program operation. A simple workaround is to include the Task Builder (TKB) option "GBLDEF=ERRDEF:0" in the build files for programs that display the problem.



RSX-11M-PLUS V3.0
Misc SYS Tasks
CDA

Seq. No. 5.7.2.1 M

1 of 1

CDA EXITS ABNORMALLY WHEN READING FROM MS: (SPR 11-P87908 PW)

PROBLEM
STATEMENT:

When the Crash Dump Analyzer (CDA) reads a crash dump from an MS: tape drive, it terminates abnormally with the error message:

"Task exit with outstanding I/O."

RESPONSE:

This problem is caused because MS: tape drives do not show completion of a rewind request until the tape is fully rewound, while other tape drives return completion immediately. CDA is fixed in RSX-11M-PLUS Version 3.0 Update D to wait for the completion of the rewind I/O before exiting.



RSX-11M-PLUS V3.0
DCL
DCL

Seq. No. 6.1.0.11 M

1 of 1

SHOW QUEUE/DEVICE/BRIEF FAILS (SPR 11-P91043 LP)

PROBLEM
STATEMENT:

The MCR command QUE/BR/LI:P correctly displays the print queues, print queue assignments, and jobs in the print queues. However, if you issue the equivalent DCL command SHOW QUEUE/BRIEF/DEVICE, you get the error message about illegal, contradictory, or ambiguous qualifiers.

RESPONSE:

The DCL SHOW QUEUE command should allow you to use the /BRIEF and /DEVICE qualifiers together.

This command will be corrected in RSX-11M-PLUS Version 3.0 Update D.

In the meantime, as a workaround, you can use the MCR version of the command, QUE/LI:P/BR, to get the desired display.

RSX-11M-PLUS V3.0
DCL
DCL

Seq. No. 6.1.0.12 M

1 of 1

SET DEVICE /WRITECHECK TRANSLATES INCORRECTLY (SPR 11-P91038 LP)

PROBLEM
STATEMENT:

The DCL command SET DEVICE=ddnn:/WRITE translates to the invalid MCR command SET /WRITE=ddnn:. The DCL command SET DEVICE=ddnn:/WRITEC[HECK] translates correctly to the MCR command SET /WCHK=ddnn:.

RESPONSE:

Originally, there were both /WRITE and /WCHK switches for the MCR SET command, and the DCL SET DEVICE command had the corresponding qualifiers /WRITE and /WRITEC[HECK]. The support for the MCR command SET /WRITE=ddnn: was removed, but, unfortunately, the DCL SET DEVICE qualifier /WRITE was not.

The DCL SET DEVICE qualifier /WRITE will be removed RSX-11M-PLUS Version 3.0 Update E. Furthermore, users will be allowed to abbreviate /WRITECHECK to three characters instead of six.

In the meantime, use either the DCL or MCR version of this command for write checking your devices.

RSX-11M-PLUS V3.0
Documentation
MCR Operations

Seq. No. 7.1.25.1 N

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DEFAULT UIC AND FILE PROTECTION (SPR 11-P90186 JF)

PROBLEM
STATEMENT:

When you own a volume or have a volume allocated, your default user file directory (UFD) is used for file protection checks rather than your protection user identification code (UIC). This is not the behavior documented in Section 2.1.2 of the MCR Operations Manual.

RESPONSE:

When you are the owner of a volume or when you have the volume allocated, RSX uses your default UFD for file protection checks. This is so you will have access to the files in your current default directory on the disk regardless of whether you are a privileged user or not.

We will add the following information to the description of file protection in the MCR Operations Manual in the future to clarify this behavior.

File Protection As Practiced By F11ACP

Four types of access are allowed:

- Read
- Write
- Extend
- Delete

To four classes of users:

- o System (one of the following applies)
 - Your protection UIC is a system UIC (that is, the group number is between 1 and 10 inclusive).
 - Your protection UIC matches the volume owner's UIC.
 - You have the volume allocated.
- o Owner
 - Your protection UIC matches the owner's UIC.

RSX-11M-PLUS V3.0
Documentation
MCR Operations

Seq. No. 7.1.25.1 N

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- o Group
 - The group number of your protection UIC matches the group number of the owner's UIC.
- o World
 - You always have world access rights.

To perform a function on a file, you must have access to the volume, directory, and file, as follows:

Function	Volume Access	Directory Access	File Access
Read	read	read	read
Write	read, write	read	read, write
Extend	read, write	read	read, write, extend
Delete	delete	read, write	delete
Create	read, write, create	read, write, extend	<none>
Read attributes	read	read	read
Write attributes	read, write	read	<none>

You must have all the accesses listed to perform the function, except as follows:

- o Privileged tasks bypass all these protection checks.
- o If you meet one or more of the following criteria, you do not have to have the file access listed to perform a read attributes function:
 - Your protection UIC is a system UIC (that is, the group number is between 1 and 10 inclusive).
 - Your protection UIC matches the volume owner's UIC.
 - You have the volume allocated.
 - Your protection UIC matches the file owner's UIC.

- o You must also meet one or more of the following criteria to perform a write attributes function:
 - Your protection UIC is a system UIC (that is, the group number is between 1 and 10 inclusive).
 - Your protection UIC matches the volume owner's UIC.
 - You have the volume allocated.
 - Your protection UIC matches the file owner's UIC.

Normally, your protection UIC is used to determine volume and file access rights, and to determine the file owner when creating a file. However, in the following two cases, your default UFD is used instead of your protection UIC, and, in addition, you have system access rights:

- o Your protection UIC is not a system UIC and your protection UIC matches the volume owner's UIC.
- o You have the volume allocated.

In these cases, your default UFD is taken from:

- o Your default directory if your default directory is of the form:
 - [g,m] where g and m are octal numbers from 1 to 377, for example, [7,20].
 - [gggmmm] where ggg and mmm are three digit octal numbers from 1 to 377 with leading zeros, for example, [007020].
- o Your protection UIC if your default directory is not of one of the above forms, for example, if your default directory is a named directory.



RSX Software Dispatch, November 1986

DECmail-11 V3.0
for RSX-11M-PLUS V3.0

Seq. No. 18.1.1.1 N

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ANNOUNCING A MAJOR RELEASE AND 60-DAY FREE TRIAL OFFER FOR DECmail-11 V3.0

Applications and Timesharing Software Engineering (ATSE) announces a major release of DECmail-11 V3.0, which runs on RSX-11M-PLUS and Micro/RSX. Micro/RSTS operating systems.

Free Trial Offer

A 60-day free trial package is being offered for a limited time (November 1986 through April 1987). The trial package consists of DECmail-11 V3.0 on RX50 or 1600-bpi magtape and one copy each of the DECmail-11 V3.0 Installation Guide, DECmail-11 V3.0 Getting Started Guide, and DECmail-11 V3.0 User's Guide. This is an excellent opportunity to try DECmail-11 at no risk. For more information on this free trial offer, contact Ginger Landry, Product Manager, 603-884-0206, or contact your Digital account representative.

Product Description

DECmail-11 is an easy-to-use, full-functionality, menu or command-driven electronic message system that operates on PDP-11 computers running under the following operating systems:

- o RSX-11M-PLUS V3.0 (or later)
- o Micro/RSX V3.0 (or later)

DECmail-11 provides facilities for creating, editing, sending, reading, printing, deleting, and filing messages. Some unique features include user-defined commands, user-defined nicknames, system manager-defined commands and nicknames (global), the ability to set auto answer, and the ability to have DECmail-11 act on single messages or sequences of messages. These and other features make this mail system an effective means of communication management. The power of the mail system can be easily controlled by the user through flexible, simple-to-learn and use commands, an on line help facility, and complete in-depth user documentation. Commands such as NEXT, PREVIOUS, and LAST allow the user to move through a large number of messages quickly and easily. Messages can be sent to and received from PDP-11, VAX, and TOPS-10/20 systems connected via DECnet.

Major New Features

o One-level menu interface

This added functionality provides each user the option of either a menu or command-mode interface. The menu, which contains a major subset of the DECmail-11 functions, will quickly aid the new or infrequent user to be productive with the use of mail within minutes. The design of the menu is similar to ALL-IN-1. Upon user request, the menu can be turned off. The user will then be in command mode. The menu can be turned back on at the user's request.

o Remote VMS Message Router support

DECmail-11 V3.0 supports connections to a remote VMS Message Router (V2.0 or later) via DECnet. DECmail-11 users who wish to use the STORE and FORWARD features of Message Router, or wish to correspond with users of ALL-IN-1 based mail products (without using MRGATE, the Message Router VMSmail Gateway), will be able to do so by using a remote Message Router mailbox located on a VMS node.

o Mail queue task

DECmail-11 V3.0 includes a mail queue task to handle the delivery of queued messages. Messages can be queued by user request or queued automatically if, for example, the destination node is not available. The mail queue task automatically restarts after a system has recovered from a crash. In addition, error messages are returned to the user, and users will be able to query the system as to the status of their queued messages through the SHOW QUEUE command.

o Improved batch mail message sending

When sending messages via the BA send menu option, DECmail-11 notifies the user of any errors which prevent the message from being delivered and returns the entire message back to the sender.

o Support for EDT V3

EDT V3 is supported for all operating systems as the default editor.

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- o Display full network error messages

DECmail-11 V3.0 repeats DECnet messages exactly, in addition to giving its own interpretation of the message.

- o Printer port support

DECmail-11 V3.0 supports the printing of messages though local printer ports on VT100 and VT200-family terminals.

- o UNDELETE command

The UNDELETE command recovers deleted messages.

- o Documentation

The documentation for DECmail-11 consists of the following:

- User's Guide
- Installation/System Manager's Guide
- Getting Started
- Reference Card

Use of DECmail-11

Communications is a key ingredient that helps teams work in a business environment, and electronic mail is today's most effective communication tool. Electronic mail enables users to work more productively by eliminating "telephone tag" and the interoffice mail blues. Benefits obtained with electronic mail include the fact that it is instantaneous, reliable delivery, it maintains an automatic record of transmissions, it is the most direct way of getting an idea from one person to another and/or a group of people, it is a cost savings in regard to manual mail processing, and it provides a spontaneous situation. DECmail-11 offers these benefits and more, and it has been tailored for personal, departmental, and organizational users of the PDP-11 family.

DECmail-11 can be used to meet the needs of the small office with a stand-alone computer or those of a large corporation or university with a complex distributed network of both PDP-11s and VAXs. DECmail-11 is an excellent way people in a small corporation or department to leave messages

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for each other. It is their electronic message board, electronic highway, and electronic filing system. Communications is faster and easier. DECmail-11 supports the PDP-11 strategy of providing low-cost software solutions for the business environment.

As a communication tool, DECmail-11 is fully compatible with the way people work, not in isolation, but together as a team, sharing and refining information.

Prerequisite Software

One of the following is required:

- o RSX-11M-PLUS V3.0 (or later)
- o Micro/RSX V3.0 (or later)

Availability

DECmail-11 V3.0 is available from Digital this month. Contact your Digital account representative for information on DECmail-11 and participating in the free trial offer.

RSX-11M-PLUS V3.0
 CUMULATIVE INDEX
 NOVEMBER 1986

This is a complete listing of all articles for RSX-11M-PLUS V3.0 and layered products. Missing sequence numbers may pertain to problems unique to other versions of the same product or other major operating systems.

IMPORTANT!

Unassigned articles are indicated: UNASSIGNED.

Flags are currently being installed for all articles. The flags and definitions are as follows.

M = Mandatory Patch. These patches correct errors in the software product. All users are required to apply these patches to maintain consistent "user level" unless the accompanying article specifies otherwise.

F = Optional Feature Patch. These patches extend or configure functionality into the product. These functions will be treated as a supported part of the product for the duration of the current release and will be incorporated with any future release, unless otherwise stated.

R = Restriction. These articles discuss areas that will not be patched in the current release because they require major modification or because they are not consistent with the design of the product. Restrictions, except those described as permanent, are reviewed and modified when possible as part of the normal release cycle.

N = Note. These articles provide explanatory information that supplements the manual set and provide more detailed information about a program or package. They also provide procedural information to make it easier to use a program or package.

* = Articles appeared in the RSX-11M-PLUS V3.0 Software Dispatch Review, August 1985.

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<u>RSX-11M-PLUS V3.0</u>		
<u>SYSGEN</u>		
SYSGEN		
AUTOCONFIGURE DOES NOT PASS MULTIPLE T(MSCP) INFO TO SYSGEN	1.1.0.1 M	Apr 86
ACF MAY NOT CORRECTLY SET UP DV,NUC IN CONFIG.DAT FOR RSO3/4s	1.1.1.1 M	Apr 86
UNDEFINED REFERENCE IN DR4COM.MAP	1.1.1.2 M	May 86
ACT FAILS TO DETECT FIFTH D211	1.1.1.3.N	Jun 86
 Command Files		
SYSGEN FOR NONZERO MU: PHYSICAL UNIT NUMBERS	1.1.1.4 M	Jul 86
APPLICATION NOT PROPERLY INSTALLED	1.1.1.5 M	Sep 86

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
Distrib Kits		
DAPRES NOT PROPERLY INSTALLED	1.1.2.1 M	Feb 86
CANNOT COPY SECOND BACKUP SET USING CERTAIN MS TAPE DRIVES	1.1.2.2 N	Sep 86
Update		
ERROR IN RSX-11M-PLUS UPDATE C RK07 ON VAX-11 RSX HOST	1.1.3.1	Nov 86
Executive		
Executive		
DISK CACHE FLUSH PARTIAL BLOCK WRITES TO SUPPORT RTEW-11	2.1.0.1 M	Mar 86
Directives		
FAST MAP FACILITY HAS ADDITIONAL RESTRICTION AND ERROR CODE	2.1.1.1 M	Mar 86
GSSW\$ CRASHES SYSTEMS WITH NO SWITCH REGISTER	2.1.1.2 R	Apr 86
DEVICE NORMALIZATION OCCURS ON ALL LOGICAL NAME DIRECTIVES	2.1.1.3 M	May 86
TASKS WITHOUT EXTERNAL HEADERS CRASH SYSTEM WITH CRAW\$	2.1.1.4 M	Jun 86
A PARSE OF " " CRASHES THE SYSTEM	2.1.1.5 M	Jul 86
FSS\$ ALWAYS RETURNS SUCCESS	2.1.1.6 N	Jul 86
DRPFN \$LNFC\$ REMOVES ZEROS	2.1.1.7 M	Jul 86
RESCHEDULED COPIES OF TASK ARE INITIATED WITH WRONG UIC	2.1.1.8 M	Jul 86
SYSTEM CORRUPTION IN DEFAULT UIC	2.1.1.9 N	Sep 86
RPOI RETURNS IE.IDU FROM A VT:	2.1.1.10 M	Sep 86
FEAT\$C DIRECTIVE DOES NOT WORK IN I- AND D-SPACE TASKS	2.1.1.11 M	Oct 86
PARSE OF REMOTE QUOTED FILESPEC APPENDS FILE TYPE	2.1.1.12 M	Nov 86
FAST MAP ROUTINE DOES NOT WORK AS DOCUMENTED	2.1.1.13 N	Nov 86
SHF		
SHUFFLER MAY CAUSE SYSTEM CRASH	2.1.2.1 M	Sep 86
LOADR		
DRIVER WITH A CLOCK BLOCK IN THE CTB CRASHES THE SYSTEM	2.1.5.1 M	Apr 86
Misc Routines		
CERTAIN CALLS TO \$QRMVT SHOULD BE CHANGED TO \$QRMVA	2.1.6.1 M	Jan 86
DRMAP HAS UNDEFINED SYMBOL IN FAST MAPPING SUPPORT	2.1.6.2 M	May 86
UNMAPPED FAST MAP WINDOW DESCRIPTOR CAUSES SYSTEM CRASH	2.1.6.3 M	Aug 86
ERROR LOGGER REPORT FOR RK07 IS MEANINGLESS	2.1.6.4 M	Aug 86
TASKS RUN WITH /UIC SWITCH GET WRONG UIC	2.1.6.5 M	Oct 86
Data Caching		
MOUNTING A DU: DEVICE MAY CAUSE CRASH IF ANOTHER IS CACHING	2.1.7.1 M	Jun 86
CACHE REGION NAME	2.1.7.2 M	Aug 86
MCR		
Internal CMDS		
CBD NEEDS TO KNOW ABOUT NEW REGION CHARACTERISTICS	2.2.1.1 M	Jan 86
ASN COMMANDS WITH NULL LOGICALS CAUSE SYSTEM CRASH	2.2.1.2 M	Apr 86
SET /CACHE EXTENT SIZE = 0 CRASHES SYSTEM	2.2.1.3 M	Jun 86
CACHE READ-AHEAD LESS THAN VIRTUAL CAN CRASH SYSTEM	2.2.1.4 M	Jul 86
SET /SPEED DOES NOT ACCEPT EXTA OR EXTB	2.2.1.5 M	Jul 86

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
INS		
NEW "TASK IMAGE I/O ERROR" MESSAGE FOR DEVICES	2.2.2.1 M	Apr 86
DELETING THE DISK IMAGE OF AN INSTALLED TASK	2.2.2.2 R	Jul 86
INSTLL,RUN,REMOVE WINDOW ALLOWS OTHER TASKS TO ACTIVATE IT	2.2.2.3 M	Sep 86
Indirect, ICQ, ICM, ICP		
INDIRECT EXITS WITHOUT WARNING ON I/O ERROR	2.2.3.1 M	Jan 86
LOGICAL NAME AND SUBSTITUTION ERRORS IN INDIRECT	2.2.3.2 M	Jan 86
INDIRECT PROBLEMS CORRECTED IN UPDATE B	2.2.3.3 M	Feb 86
SPECIAL SYMBOL <UIC> SOMETIMES ERRONEOUS IN NAMED MODE	2.2.3.4 M	Feb 86
24-HOUR MAXIMUM FOR .DELAY DIRECTIVE	2.2.3.5 M	Mar 86
INVALID CHARACTERS IN SUBSTITUTION SYMBOL NAMES	2.2.3.6 M	Mar 86
INDIRECT COMMAND .SETT <ERSEEN> LEAVES IT FALSE	2.2.3.7 M	Mar 86
.EXIT DIRECTIVE WITHIN BEGIN-END BLOCK	2.2.3.8 M	Mar 86
ERROR IN EXECUTION OF @/LB:MODULE FROM DCL OR MCR	2.2.3.9 M	Mar 86
.ASK DOES NOT WORK AS DOCUMENTED WITH <ESC> RESPONSE	2.2.3.10 M	Apr 86
ERASING LOCAL SYMBOLS WITH DOLLAR-SIGN NAMES	2.2.3.11 M	Apr 86
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DIRECTIVE .ASK WITH TIME-OUT CANNOT CHECKPOINT	2.2.3.13 M	Aug 86
IMBEDDED PERIODS NOT ALLOWED IN .TESTPARTITION	2.2.3.14 M	Aug 86
VMR		
SET /NOTYPEAHEAD CAUSES CRASH	2.2.5.1 M	May 86
SET /NOECHO DOES NOT WORK	2.2.5.2 M	Sep 86
SAV/BOO		
SAV DOES NOT SIZE MEMORY ABOVE 1920 kW ON Q-BUS SYSTEMS	2.2.6.1 M	Feb 86
SAV'd/BOOTED 11/70 SYSTEMS DO NOT CORRECTLY IDENTIFY RH11s	2.2.6.2 M	Mar 86
SAV DOES NOT SIZE MEMORY CORRECTLY ON UNIBUS SYSTEMS	2.2.6.3 M	Apr 86
SAV CRASHES WHEN SYSTEM DISK IS DUAL-ACCESS DEVICE	2.2.6.4 M	Apr 86
LOA		
LOA /EXP DOES NOT ACCEPT SIZE VALUES OF 40000 OR GREATER	2.2.7.1 M	Aug 86
Drivers		
RX02 SUPPORT FOR 22-BIT Q-BUS SYSTEMS	3.1.1.1 M	Aug 85
DLDRV's ERROR RECOVERY SHOULD MAKE COMPLETE DRIVE-STATUS CHECK	3.1.1.2 M	Mar 86
DDDRV TIMES OUT WHILE COPYING LARGE FILES	3.1.1.3 M	Mar 86
BYE HANGS WHEN SPINNING DOWN REMOVABLE RC25 BEFORE FIXED	3.1.1.4 R	Jun 86
DUDRV's LBN RANGE CHECKING IS INADEQUATE	3.1.1.5 M	Jul 86
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SHADOW RECORDING ACROSS TWO CU CONTROLLERS HANGS	3.1.1.7 M	Nov 86
MUDRV		
MUDRV DOES NOT SUPPORT MULTIPLE-DENSITY TAPE DRIVES	3.1.2.1 M	Mar 86
SYSTEM CRASHES WITH MUDRV/PUCOM MAPPED	3.1.2.2 M	Mar 86
MSDRV SPACING TIME-OUT VALUE IS INSUFFICIENT	3.1.2.3 M	Jul 86
MSDRV RETURNS IE.EOF SPACING REVERSE TO BOT	3.1.2.4 M	Jul 86
CANNOT USE MS: DEVICE ON 22-BIT, Q-BUS I/D SYSTEM	3.1.2.5 M	Jul 86

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
FDX-TTDRV		
DRIVER DOUBLE FORK CAUSES SYSTEM CRASH ON Q-BUS SYSTEM	3.1.3.1 N	Feb 86
VARIOUS TTDRV PROBLEMS	3.1.3.2 M	Mar 86
CONTROL CHARACTERS TYPED TO CONTINUATION PROMPT CRASH SYSTEM	3.1.3.3 M	Jun 86
BIC OF S6.EIO NOT CONDITIONALIZED ON EXTENDED I/O	3.1.3.4 M	Jul 86
ASSEMBLY ERRORS IN THE TTATT MODULE	3.1.3.5 M	Jul 86
LAT TERMINALS DO NOT ALLOW I/O HANG UP	3.1.3.6 M	Jul 86
POWERFAIL TO OUTPUTTING DHV LEAVES LINE HUNG	3.1.3.7 M	Sep 86
SIX CORRECTIONS TO TTDRV	3.1.3.8 M	Oct 86
TF.RAL FUNCTIONALITY CHANGE	3.1.3.9 N	Nov 86
XEDRV		
VARIOUS XEDRV PROBLEMS	3.1.5.1 M	Mar 86
CODRV		
CONSOLE LOGGING TASK COT DOES NOT SUPPORT NAMED DIRECTORIES	3.1.6.1 M	Aug 86
FCS		
RECORDS MAY SPAN BLOCKS	3.2.1.1 M	May 86
FCS DOES NOT PARSE ANSI FILE SPECIFICATION CORRECTLY	3.2.1.2 M	Sep 86
F11ACP		
LARGE DISK SUPPORT	3.2.2.1 N	Jul 86
<u>Error Logging</u>		
RPT		
RPT REPORTS BAD BLOCK GREATER THAN THAT INDICATED BY BAD	3.3.4.1 M	Nov 86
Control Files		
UPDATE ERROR-CODE TABLE IN MSCP60.CNF	3.3.5.1 M	Mar 86
END MESSAGE PACKETS FOR MU ARE NOT ANALYZED PROPERLY	3.3.5.2 M	Mar 86
ERROR LOG MESSAGE PACKETS FOR TK50 ARE NOT ANALYZED PROPERLY	3.3.5.3 M	Mar 86
RPT ABORTS WITH MESSAGE ERLRPT-F-CASENOMAT FOR DU: ERRORS	3.3.5.4 M	Jul 86
LBN FOR RM80s ARE INCORRECT IN ERROR LOG REPORT	3.3.5.5 M	Jul 86
RPT FAILS WHEN A GEOMETRY SUMMARY IS REQUESTED	3.3.5.6 M	Jul 86
<u>Batch/Queue Mgr</u>		
BPR		
BPR GIVES CRYPTIC ERROR MESSAGE WHEN FILE IS DELETED	4.1.1.1 M	Apr 86
SUBMIT /NOPRINT PUTS LOG FILE IN WRONG PLACE	4.1.1.2 M	May 86
QMG		
INCORRECT ERROR MESSAGE IF DEVICE IS INVALID	4.1.3.1 M	Mar 86
STICKINESS IS LOST IN FILE EXTENSION IF FILES DO NOT EXIST	4.1.3.2 M	Mar 86
EXTERNAL HEADER INCONSISTENCY IN QMG CRASHES SYSTEM	4.1.3.3 M	Aug 86
QUE/PRI		
QUE /MOD FAILS TO CHANGE /DELETE ATTRIBUTE	4.1.4.1 M	Oct 86
LPP		
LPP LOOPS ON NEGATIVE RECORD LENGTH	4.1.5.1 M	Apr 86
LPP MISCOUNTS PAGES IN PRINT JOB	4.1.5.2 M	May 86

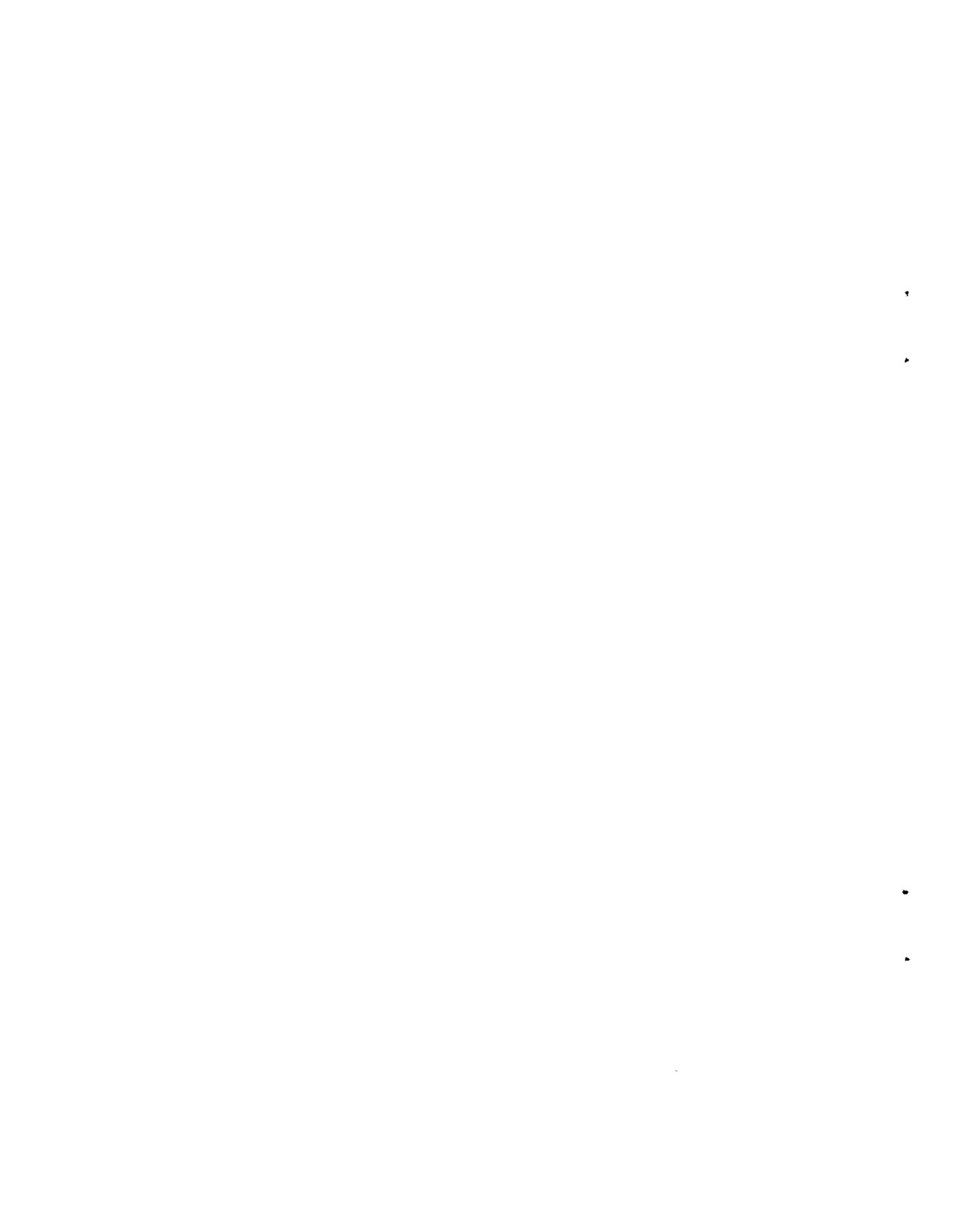
<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
LN03 PRINTS 51 LINES PER SHEET IN LANDSCAPE MODE	4.1.5.3 M	Jun 86
LPP HANGS WHEN USING SIMULATED FORM FEEDS	4.1.5.4 M	Aug 86
UNSOLICITED INPUT FROM PRINT DEVICES CRASHES THE SYSTEM	4.1.5.5 M	Aug 86
<u>Multiuser Task</u>		
ACNT		
IF LAST NAME CHANGED IN ACNT, PASSWORD DOES NOT WORK	4.2.1.1 N	May 86
A NAMED DIRECTORY OF [G,M] TYPE NOT DELETED BY ACNT	4.2.1.2 M	May 86
ACNT PUTS USER IN NAMED MODE IF ANYTHING TYPED FOR DEFAULT DIRECTORY	4.2.1.3 N	May 86
NULL PASSWORD NOT ALLOWED IN PSW	4.2.1.4 M	Jun 86
ACNT DOES NOT ALLOW REMOVAL OF DEFAULT FILE PROTECTION	4.2.1.5 M	Jul 86
ACNT HANGS WHEN DELETING [GGGMM] TYPE DIR	4.2.1.6 M	Oct 86
BRO		
BRO ON SYSTEMS WITHOUT ACCOUNTING: GARBAGE IN USER NAME	4.2.2.1 N	Apr 86
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BYE HANGS WITH LOW POOL	4.2.3.1 M	Jun 86
BYE FROM BATCH JOB OR SILENT CLI DOES NOT ABORT INDIRECT	4.2.3.2 M	Sep 86
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SYSTEM CRASH WHEN USER ENTERS INCORRECT PASSWORD	4.2.4.1 M	Jul 86
ODD ADDRESS TRAP IN HELLO IF SYSGEN WITHOUT ALTERNATE CLI	4.2.4.2 M	Jul 86
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HELLO ERROR MESSAGE INCORRECT WHEN LOGGED IN	4.2.4.4 M	Oct 86
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MISLEADING ACCOUNTING WARNINGS IN SHUTUP	4.2.5.1 M	May 86
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BAD		
/ALLOCATE AND /NOEXERCISE GIVE I/O ERROR CODE -2 IN ANALYZE	5.1.1.1 M	Jun 86
INI		
INI WILL NOT EXECUTE A COMMAND LINE GREATER THAN 80 CHARACTERS	5.1.8.1 M	Aug 86
MOU		
MOUNT DOES NOT WAIT FOR RA80/81 TO SPIN DOWN1	5.1.10.1 M	Mar 86
MOUNT ACCEPTS EXTENT SIZES OF ZERO FOR CACHE OPTIONS	5.1.10.2 M	Jul 86
CACHE READ-AHEAD LESS THAN VIRTUAL CAN CRASH SYSTEM	5.1.10.3 M	Jul 86
MOU WILL CLEAR VOLUME VALID ON LABEL ERROR ON SHARED DISK	5.1.10.4 M	Jul 86
MOUNT ACCEPTS EXTENT SIZE OF ZERO FOR CACHE OPTIONS	5.1.10.5 M	Jul 86
PIP		
DELETING FILE, ;0 DOES NOT ALWAYS WORK PROPERLY	5.1.12.1 M	Apr 86
PIP DISPLAYS NEGATIVE NUMBER OF FILES	5.1.12.2 M	Aug 86
PIPRES/APPEND TERMINATES WITH ODD ADDRESS	5.1.12.3 M	Sep 86
BRU		
BRU "NO FILES FOUND" PROBLEM CORRECTED	5.1.17.1 M	Dec 85
BRU ENDS WITH MEMORY PROTECTION VIOLATION DURING RESTORES	5.1.17.2 N	Mar 86
BRU INDICATES OUTPUT DISK IS TOO FRAGMENTED DURING VERIFY	5.1.17.3 N	Mar 86

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
BRU MAY FAIL ON THE VERIFY PASS OF A BACKUP OPERATION	5.1.17.4 N	Mar 86
BRU REPORTS ATTACH FAILED AS SECOND FATAL ERROR	5.1.17.5 N	Mar 86
BRU REPORTS I/O STATUS OF -255	5.1.17.6 N	Mar 86
BRU REPORTS ERRORS ABOUT FILES THAT DO NOT EXIST	5.1.17.7 N	Mar 86
BRU USES WRONG IMAGE FILE FOR RESTORE/COMPARE	5.1.17.8 N	Mar 86
BRU DOES NOT RECOVER PROPERLY FROM TAPE-LABEL ERRORS	5.1.17.9 M	Mar 86
BRU--MISLEADING ERROR MESSAGE/ACTION FOR UNMOUNTED TAPES	5.1.17.10 N	Apr 86
BACKUPS TO TAPE FAIL UNDER A-TO-Z CONTROL	5.1.17.11 M	Jun 86
BRU /IMAGE:RESTORE DISPLAYS ERRORS DESPITE SUCCESS	5.1.17.12 M	Jun 86
BRU64K /COMPARE/IMAGE:SAVE DOES NOT WORK PROPERLY	5.1.17.13 M	Jul 86
STAND-ALONE BRU /IMAGE:SAVE INCORRECTLY INITIALIZES DISKS	5.1.17.14 M	Sep 86
BRU SKIPPING OVER BOOTABLE SYSTEM IMAGE	5.1.17.15 M	Sep 86
BRU PROBLEM WITH LARGE FID NUMBERS	5.1.17.16 M	Sep 86
BRU /VERIFY INCORRECTLY RESTORES DISK WITH ONLY EMPTY UFDs	5.1.17.17 M	Sep 86
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LOGICAL NAME FORTRAN INTERFACE ROUTINES RETURN IE.SDP	5.2.4.1 M	May 86
GDVI\$ MACROS MISSING FROM RSXMAC.SML	5.2.4.2 M	May 86
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TASKS USING EXEC INTERFACE MAY BUILD WITH UNDEFINED SYMBOLS	5.2.4.5 N	Nov 86
Misc SYSLIB, CSI		
CSI\$1 AND CSI\$2 MEMORY PROTECT	5.2.6.1 M	Mar 86
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<u>Task Builder</u>		
Task Builder		
TKB SWITCH /CL DOES NOT WORK	5.3.0.1 M	Apr 86
MULTIPLE REFERENCES TO .PSECT IN SEGMENT CAUSE TKB TO ABORT	5.3.0.2 M	Apr 86
TKB		
NOTES REGARDING CLUSTER LIBRARY USE	5.3.1.1 M	Aug 85
TKB OPENED AND CLOSED THE COMMAND FILE FOR EACH OPTION	5.3.1.2 N	Nov 85
I/D TASK LINKED TO LIBRARY AND COMMON DOES NOT BUILD	5.3.1.3 M	Feb 86
I/D TASK WITH DATA IN COMMON PSECT DOES NOT GET CAUGHT CORRECTLY	5.3.1.4 M	Jun 86
ASG OPTION REJECTED IF LUN IS GREATER THAN UNITS OPTION	5.3.1.5 M	Sep 86
<u>Debugging Aids</u>		
ODT		
TASK WITH LARGE NUMBER OF LUNs HANGS IN ODT	5.5.1.1 M	Apr 86
<u>Misc SYS Tasks</u>		
HELP		
HELP /OUT:TTNN: <PARAMETER> DOES NOT WORK	5.7.1.1 N	Apr 86
CDA		
CDA EXITS ABNORMALLY WHEN READING FROM MS:	5.7.2.1 M	Nov 86

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
PMD/SNAP		
PMD SNAPSHOT FOR I/D SNAPSHOT DUMPS I-SPACE AND NOT D-SPACE	5.7.3.1 M	Apr 86
PMD PUTS OUTPUT IN WRONG PLACE	5.7.3.2 N	Jun 86
RMDEMO		
RMD C PAGE DISPLAY WRONG WHEN CACHING SET TO 4096.	5.7.5.1 M	Jul 86
COT		
COT... ABORTS WITH ODD ADDRESS TRP	5.7.14.1 M	Jul 86
RCT		
RCT DOES NOT REPLACE ALL BAD BLOCKS	5.7.15.1 M	Feb 86
DCL		
DCL		
DCL LINK DOES NOT WORK CORRECTLY IN SET DEBUG/EXECUTE MODE	6.1.0.1 M	Mar 86
DCL LINK/OPTION DOES NOT FUNCTION AS DOCUMENTED	6.1.0.2 M	Apr 86
DCL "LIBRARY @FILESPEC" DOES NOT WORK	6.1.0.3 M	Apr 86
DCL "SET DE" SHOULD NOT DEFAULT TO SET DEC_CRT	6.1.0.4 M	Jun 86
FORTRAN /CHECK REQUIRES /F77	6.1.0.5 M	Jun 86
ADD SUPPORT FOR COBOL-81 /CONDITIONALS QUALIFIED	6.1.0.6 M	Jul 86
DCL SHOULD NOT ACCEPT TERMINAL TYPE RT02 OR RT02C	6.1.0.7 M	Jul 86
DCL SHOW ASSIGNMENTS RETURNS "ILLEGAL FUNCTION" ERROR	6.1.0.8 M	Jul 86
DCL EDIT WITH NULL FILE NAME DOES NOT WORK	6.1.0.9 M	Aug 86
DCL SET PROTECTION DOES NOT WORK WITH FILES STARTING WITH "L"	6.1.0.10 M	Aug 86
SHOW QUEUE/DEVICE/BRIEF FAILS	6.1.0.11 M	Nov 86
SET DEVICE /WRITECHECK TRANSLATES INCORRECTLY	6.1.0.12 M	Nov 86
Documentation		
MCR Operations		
DEFAULT UIC AND FILE PROTECTION	7.1.25.1 N	Nov 86
RSX-11 2780/3780 Protocol Emulator V4.1		
CONDITIONS FOR AUTOMATIC SIGN ON	10.5.1.1 N	Aug 85
DECnet-11M-PLUS V3.0		
DECnet-11M-PLUS PROBLEMS FIXED ON RSX-11M-PLUS LAYERED UPDATE B	10.8.2.1 N	May 86
DECnet-RSX DELUA DEVICE SUPPORT	10.8.2.2 N	May 86
BASIC-PLUS-2 V2.3		
PROBLEM WITH PRINT USING	10.20.1.1 N	Dec 85
BASIC-PLUS-2 V2.3 RSX UPDATE B NOTICE	10.20.1.2 N	Oct 86

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
FORTRAN IV/RSX V2.6		
OTS		
LIST-DIRECTED READ	16.1.1.1 N	Dec 85
Update C		
FORTRAN IV PROBLEMS CORRECTED ON UPDATE C	16.1.2.1 N	Jun 86
FORTRAN IV/VAX to RSX V2.7		
INSTALLATION GUIDE/RELEASE NOTES ERRATA	16.2.1.1 N	Jul 86
PDP-11 Symbolic Debugger V2.0		
ANNOUNCING THE PDP-11 SYMBOLIC DEBUGGER V2.0	17.1.1.1 N	Apr 86
DECmail-11 V3.0		
ANNOUNCING A MAJOR RELEASE AND 60-DAY FREE TRIAL OFFER FOR DECmail-11	18.1.1.1 N	Nov 86

Micro/RSX V3.0



Micro/RSX V3.0
SYSGEN
Distrib Kits

Seq. No. 1.1.2.2 M

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IN OPTION.CMD, BRU IS LEFT ACTIVE AFTER FATAL ERROR (SPR 11-X00298X KN)

PROBLEM
STATEMENT:

The Option Installation procedure, OPTION.CMD, leaves the Backup and Restore Utility (BRU) active and fails to dismount the tape or disk device when a fatal BRU error occurs.

RESPONSE:

The procedure OPTION.CMD has been modified to abort BRU when a fatal error occurs. The DISMOUNT command is able to dismount the device and clean up properly, since BRU no longer has the device attached.

The correction will be included in the next release of Micro/RSX.



Micro/RSX V3.0
Executive
Directives

Seq. No. 2.1.1.10 N

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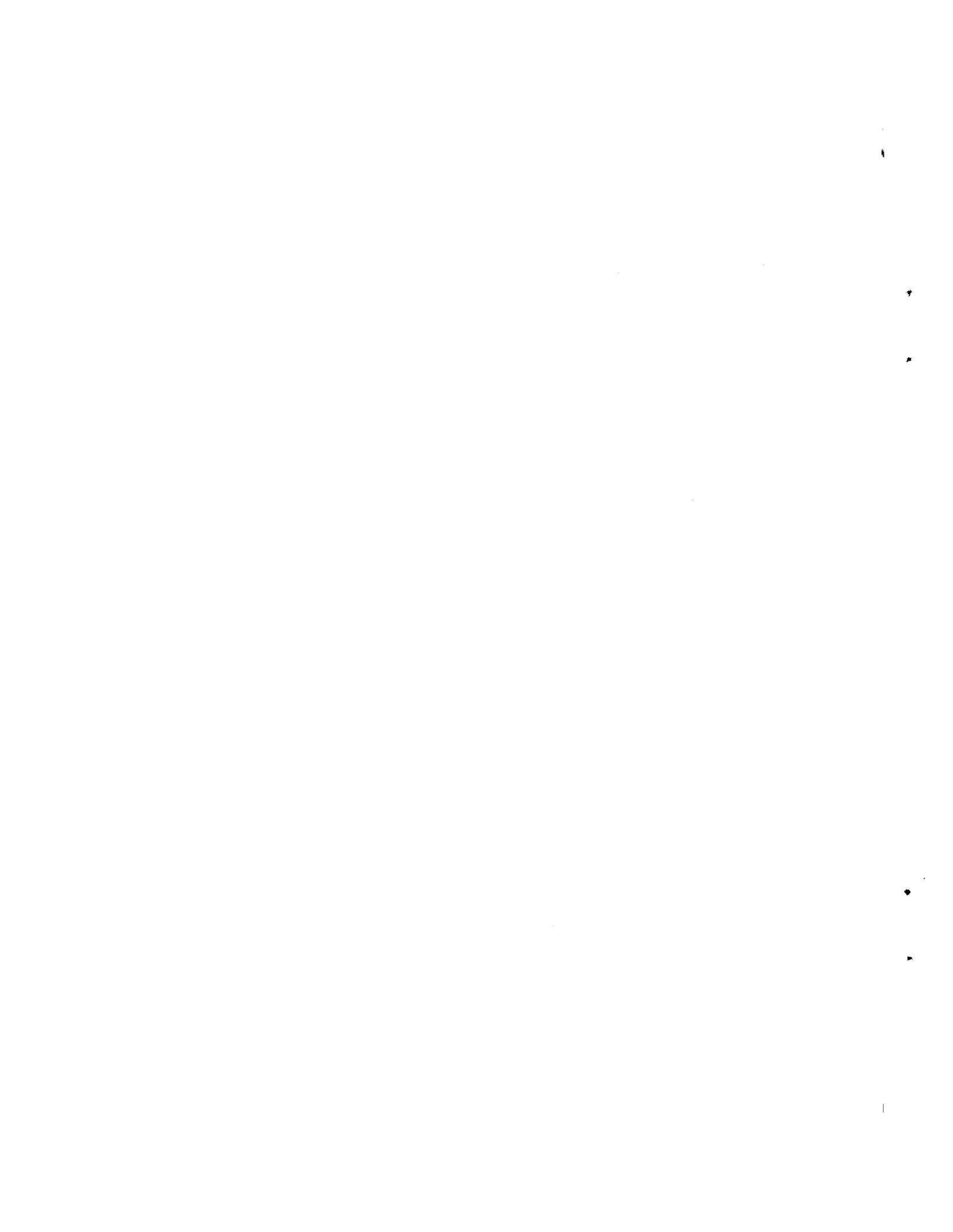
FAST MAP ROUTINE DOES NOT WORK AS DOCUMENTED (SPR 11-X90448 EP)

PROBLEM
STATEMENT:

Fast mapping is not performed as described in the Executive Reference Manual, page 3-21. According to the second paragraph, if the length-to-map is not specified, it is assumed to be the same as W.NSIZ.

RESPONSE:

The manual should indicate that if the length-to-map is not specified, the window length is not changed. This will be corrected in the documentation for a future release of Micro/RSX.



RSX Software Dispatch, November 1986

Micro/RSX V3.0
Drivers
FDX-TTDRV

Seq. No. 3.1.3.3 N

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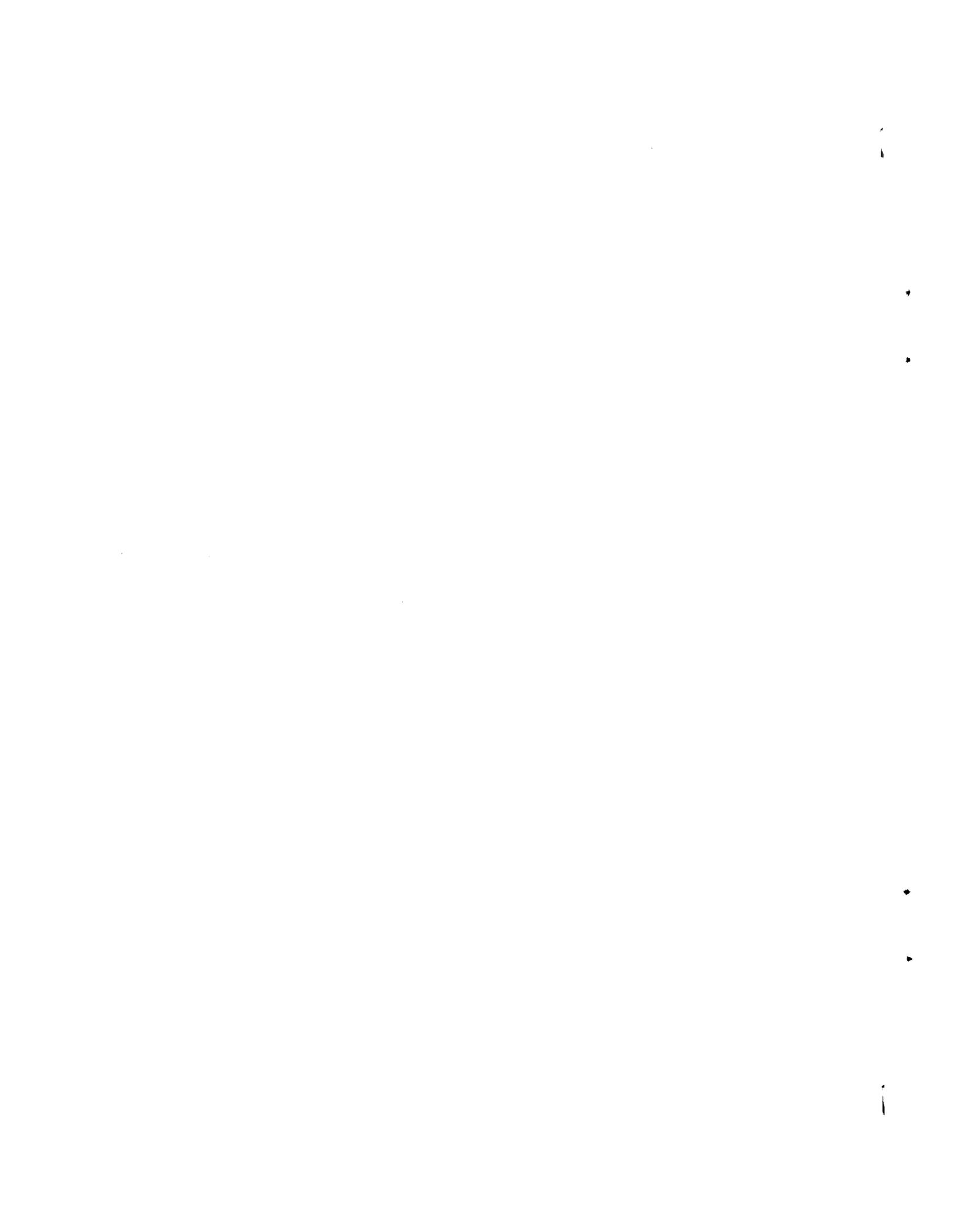
TF.RAL FUNCTIONALITY CHANGE (SPR 11-X00299X TS)

PROBLEM
STATEMENT:

The functionality of TTDRV's TF.RAL subfunction changed between Micro/RSX V2.1 and Micro/RSX V3.0.

RESPONSE:

The I/O Drivers Reference Manual documents this change but the Release Notes do not. The functionality has changed from READ ALL BITS to READ ALL CHARACTERS. This subfunction allows the passage of all characters to the requesting task. The characteristic TC.8BC, when set, will allow the driver to pass 8 bits.



RSX Software Dispatch, November 1986

Micro/RSX V3.0
System Libraries
FORTRAN Exec

Seq. No. 5.2.4.5 N

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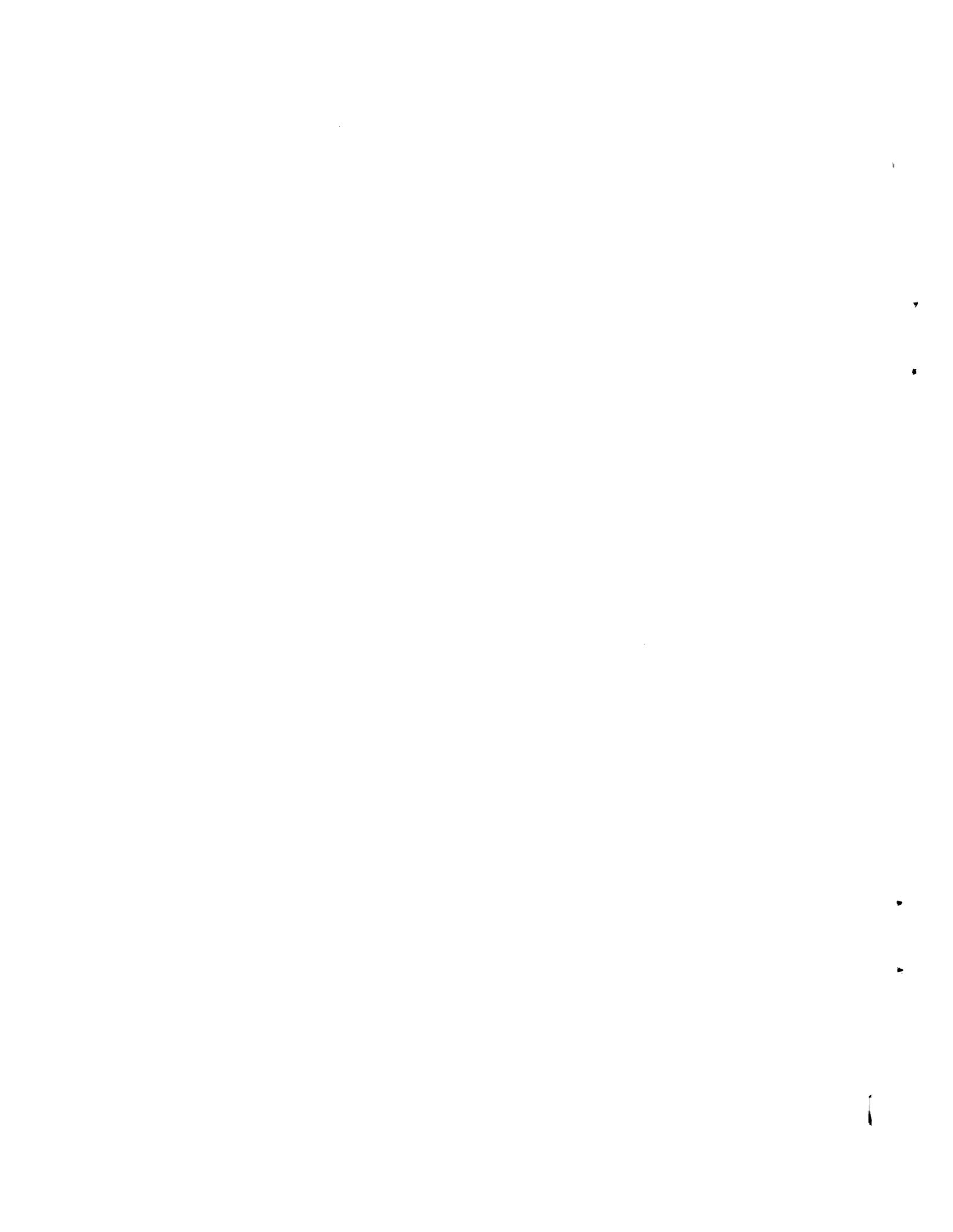
TASKS USING EXEC INTERFACE MAY BUILD WITH UNDEFINED SYMBOLS (SPR 11-X00305X BM)

PROBLEM
STATEMENT:

Programs using the high-level language interface to the Executive directives, specifically those which include the .X.ERR (error handling) module, will task build with an undefined reference to ERRDEF after Update C is applied.

RESPONSE:

This reference was inadvertently introduced in the process of building Update C. The problem is corrected in a future release of Micro/RSX. The undefined symbol is purely cosmetic and will not affect program operation. A simple workaround is to include the Task Builder (TKB) option "GBLDEF=ERRDEF:0" in the build files for programs that display the problem.



RSX Software Dispatch, November 1986

Micro/RSX V3.0

Seq. No. 6.1.0.8 M

DCL

DCL

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SHOW QUEUE/DEVICE/BRIEF FAILS (SPR 11-X91043 LP)

PROBLEM

STATEMENT:

The MCR command QUE/BR/LI:P correctly displays the print queues, print queue assignments, and jobs in the print queues. However, if you issue the equivalent DCL command SHOW QUEUE/BRIEF/DEVICE, you get the error message about illegal, contradictory, or ambiguous qualifiers.

RESPONSE:

The DCL SHOW QUEUE command should allow you to use the /BRIEF and /DEVICE qualifiers together.

This command will be corrected in a future release of Micro/RSX.

In the meantime, as a workaround, you can use the MCR version of the command, QUE/LI:P/BR, to get the desired display.

Micro/RSX V3.0
DCL
DCL

Seq. No. 6.1.0.9 M

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SET DEVICE /WRITECHECK TRANSLATES INCORRECTLY (SPR 11-X91038 LP)

PROBLEM
STATEMENT:

The DCL command SET DEVICE=ddnn:/WRITE translates to the invalid MCR command SET /WRITE=ddnn:. The DCL command SET DEVICE=ddnn:/WRITEC[HECK] translates correctly to the MCR command SET /WCHK=ddnn:.

RESPONSE:

Originally, there were both /WRITE and /WCHK switches for the MCR SET command, and the DCL SET DEVICE command had the corresponding qualifiers /WRITE and /WRITEC[HECK]. The support for the MCR command SET /WRITE=ddnn: was removed, but, unfortunately, the DCL SET DEVICE qualifier /WRITE was not.

The DCL SET DEVICE qualifier /WRITE will be removed in a future release of Micro/RSX. Furthermore, users will be allowed to abbreviate /WRITECHECK to three characters instead of six.

In the meantime, use either the DCL or MCR version of this command for write checking your devices.

DECmail-11 V3.0
for Micro/RSX V3.0

Seq. No. 18.1.1.1 N

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ANNOUNCING A MAJOR RELEASE AND 60-DAY FREE TRIAL OFFER FOR DECmail-11 V3.0

Applications and Timesharing Software Engineering (ATSE) announces a major release of DECmail-11 V3.0, which runs on Micro/RSX and RSX-11M-PLUS operating systems.

Free Trial Offer

A 60-day free trial package is being offered for a limited time (November 1986 through April 1987). The trial package consists of DECmail-11 V3.0 on RX50 or 1600-bpi magtape and one copy each of the DECmail-11 V3.0 Installation Guide, DECmail-11 V3.0 Getting Started Guide, and DECmail-11 V3.0 User's Guide. This is an excellent opportunity to try DECmail-11 at no risk. For more information on this free trial offer, contact Ginger Landry, Product Manager, 603-884-0206, or contact your Digital account representative.

Product Description

DECmail-11 is an easy-to-use, full-functionality, menu or command-driven electronic message system that operates on PDP-11 computers running under the following operating systems:

- o Micro/RSX V3.0 (or later)
- o RSX-11M-PLUS V3.0 (or later)

DECmail-11 provides facilities for creating, editing, sending, reading, printing, deleting, and filing messages. Some unique features include user-defined commands, user-defined nicknames, system manager-defined commands and nicknames (global), the ability to set auto answer, and the ability to have DECmail-11 act on single messages or sequences of messages. These and other features make this mail system an effective means of communication management. The power of the mail system can be easily controlled by the user through flexible, simple-to-learn and use commands, an on line help facility, and complete in-depth user documentation. Commands such as NEXT, PREVIOUS, and LAST allow the user to move through a large number of messages quickly and easily. Messages can be sent to and received from PDP-11, VAX, and TOPS-10/20 systems connected via DECnet.

Major New Features

- o One-level menu interface

This added functionality provides each user the option of either a menu or command-mode interface. The menu, which contains a major subset of the DECmail-11 functions, will quickly aid the new or infrequent user to be productive with the use of mail within minutes. The design of the menu is similar to ALL-IN-1. Upon user request, the menu can be turned off. The user will then be in command mode. The menu can be turned back on at the user's request.

- o Remote VMS Message Router support

DECmail-11 V3.0 supports connections to a remote VMS Message Router (V2.0 or later) via DECnet. DECmail-11 users who wish to use the STORE and FORWARD features of Message Router, or wish to correspond with users of ALL-IN-1 based mail products (without using MRGATE, the Message Router VMSmail Gateway), will be able to do so by using a remote Message Router mailbox located on a VMS node.

- o Mail queue task

DECmail-11 V3.0 includes a mail queue task to handle the delivery of queued messages. Messages can be queued by user request or queued automatically if, for example, the destination node is not available. The mail queue task automatically restarts after a system has recovered from a crash. In addition, error messages are returned to the user, and users will be able to query the system as to the status of their queued messages through the SHOW QUEUE command.

- o Improved batch mail message sending

When sending messages via the BA send menu option, DECmail-11 notifies the user of any errors which prevent the message from being delivered and returns the entire message back to the sender.

- o Support for EDT V3

EDT V3 is supported for all operating systems as the default editor.

- o Display full network error messages

DECmail-11 V3.0 repeats DECnet messages exactly, in addition to giving its own interpretation of the message.

- o Printer port support

DECmail-11 V3.0 supports the printing of messages though local printer ports on VT100 and VT200-family terminals.

- o UNDELETE command

The UNDELETE command recovers deleted messages.

- o Documentation

The documentation for DECmail-11 consists of the following:

- User's Guide
- Installation/System Manager's Guide
- Getting Started
- Reference Card

Use of DECmail-11

Communications is a key ingredient that helps teams work in a business environment, and electronic mail is today's most effective communication tool. Electronic mail enables users to work more productively by eliminating "telephone tag" and the interoffice mail blues. Benefits obtained with electronic mail include the fact that it is instantaneous, reliable delivery, it maintains an automatic record of transmissions, it is the most direct way of getting an idea from one person to another and/or a group of people, it is a cost savings in regard to manual mail processing, and it provides a spontaneous situation. DECmail-11 offers these benefits and more, and it has been tailored for personal, departmental, and organizational users of the PDP-11 family.

DECmail-11 can be used to meet the needs of the small office with a stand-alone computer or those of a large corporation or university with a complex distributed network of both PDP-11s and VAXs. DECmail-11 is an excellent way people in a small corporation or department to leave messages

DECmail-11 V3.0
for Micro/RSX V3.0

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for each other. It is their electronic message board, electronic highway, and electronic filing system. Communications is faster and easier. DECmail-11 supports the PDP-11 strategy of providing low-cost software solutions for the business environment.

As a communication tool, DECmail-11 is fully compatible with the way people work, not in isolation, but together as a team, sharing and refining information.

Prerequisite Software

One of the following is required:

- o Micro/RSX V3.0 (or later)
- o RSX-11M-PLUS V3.0 (or later)

Availability

DECmail-11 V3.0 is available from Digital this month. Contact your Digital account representative for information on DECmail-11 and participating in the free trial offer.

Micro/RSX V3.0
 CUMULATIVE INDEX
 NOVEMBER 1986

This is a complete listing of all articles for Micro/RSX V3.0 and layered products. Missing sequence numbers may pertain to problems unique to other versions of the same product or other major operating systems.

IMPORTANT!

Unassigned articles are indicated: UNASSIGNED.

Flags are currently being installed for all articles. The flags and definitions are as follows.

M = Mandatory Patch. These patches correct errors in the software product. All users are required to apply these patches to maintain consistent "user level" unless the accompanying article specifies otherwise.

F = Optional Feature Patch. These patches extend or configure functionality into the product. These functions will be treated as a supported part of the product for the duration of the current release and will be incorporated with any future release, unless otherwise stated.

R = Restriction. These articles discuss areas that will not be patched in the current release because they require major modification or because they are not consistent with the design of the product. Restrictions, except those described as permanent, are reviewed and modified when possible as part of the normal release cycle.

N = Note. These articles provide explanatory information that supplements the manual set and provide more detailed information about a program or package. They also provide procedural information to make it easier to use a program or package.

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<u>Micro/RSX V3.0</u>		
<u>SYSGEN</u>		
<u>Autoconfigure</u>		
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<u>Distrib Kits</u>		
DAPRES NOT PROPERLY INSTALLED	1.1.2.1 M	Feb 86
IN OPTION.COMD, BRU IS LEFT ACTIVE AFTER FATAL ERROR	1.1.2.2 M	Nov 86
<u>Executive</u>		
<u>Executive</u>		
DISK CACHE FLUSH PARTIAL BLOCK WRITES TO SUPPORT RTEM-11	2.1.0.1 M	Mar 86

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
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FAST MAP FACILITY HAS ADDITIONAL RESTRICTION AND ERROR CODE	2.1.1.1 M	Mar 86
ERROR IN EXECUTION OF @/LB:MODULE FROM DCL	2.1.1.2 M	Mar 86
DEVICE NORMALIZATION OCCURS ON ALL LOGICAL NAME DIRECTIVES	2.1.1.3 M	May 86
TASKS WITHOUT EXTERNAL HEADERS CRASH SYSTEM WITH CRAW\$	2.1.1.4 M	Jun 86
FSS\$ ALWAYS RETURNS SUCCESS	2.1.1.5 N	Jul 86
RESCHEDULED COPIES OF TASK ARE INITIATED WITH WRONG UIC	2.1.1.6 M	Jul 86
SYSTEM CORRUPTION IN DEFAULT UIC	2.1.1.7 N	Sep 86
RPOI RETURNS IE.IDU FROM A VT:	2.1.1.8 M	Sep 86
FEAT\$C DIRECTIVE DOES NOT WORK IN I- AND D-SPACE TASKS	2.1.1.9 M	Oct 86
FAST MAP ROUTINE DOES NOT WORK AS DOCUMENTED	2.1.1.10 N	Nov 86
SHF		
SHUFFLER MAY CAUSE SYSTEM CRASH	2.1.2.1 M	Sep 86
Misc Routines		
UNMAPPED FAST MAP WINDOW DESCRIPTOR CAUSES SYSTEM CRASH	2.1.6.1 M	Aug 86
TASKS RUN WITH /UIC SWITCH GET WRONG UIC	2.1.6.2 M	Oct 86
Data Caching		
MOUNTING A DU: DEVICE MAY CAUSE CRASH IF ANOTHER IS CACHING	2.1.7.1 M	Jun 86
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MCR		
Internal CMDS		
ASN COMMANDS WITH NULL LOGICALS CAUSE SYSTEM CRASH	2.2.1.1 M	Apr 86
SET /CACHE EXTENT SIZE = 0 CRASHES SYSTEM	2.2.1.2 M	Jun 86
CACHE READ-AHEAD LESS THAN VIRTUAL CAN CRASH SYSTEM	2.2.1.3 M	Jul 86
INS		
NEW "TASK IMAGE I/O ERROR" MESSAGE FOR DEVICES	2.2.2.1 M	Apr 86
DELETING THE DISK IMAGE OF AN INSTALLED TASK	2.2.2.2 R	Jul 86
INSTALL,RUN,REMOVE WINDOW ALLOWS OTHER TASKS TO ACTIVATE IT	2.2.2.3 M	Sep 86
Indirect, ICQ, ICM, ICP		
LOGICAL NAME AND SUBSTITUTION ERRORS IN INDIRECT	2.2.3.1 M	Jan 86
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SPECIAL SYMBOL <UIC> SOMETIMES ERRONEOUS IN NAMED MODE	2.2.3.3 M	Feb 86
INVALID CHARACTERS IN SUBSTITUTION SYMBOL NAMES	2.2.3.4 M	Mar 86
24-HOUR MAXIMUM FOR .DELAY DIRECTIVE	2.2.3.5 M	Mar 86
INDIRECT COMMAND .SETT <ERSEEN> LEAVES IT FALSE	2.2.3.6 M	Mar 86
.EXIT DIRECTIVE WITHIN BEGIN-END BLOCK	2.2.3.7 M	Mar 86
ERASING LOCAL SYMBOLS WITH DOLLAR-SIGN NAMES	2.2.3.8 M	Apr 86
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DIRECTIVE .ASK WITH TIME-OUT CANNOT CHECKPOINT	2.2.3.10 M	Aug 86
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Drivers		
DDDRV, DUDRV, DLDRV		
DDDRV TIMES OUT WHILE COPYING LARGE FILES	3.1.1.1 M	Mar 86
DLDRV's ERROR RECOVERY SHOULD MAKE COMPLETE DRIVE-STATUS CHECK	3.1.1.2 M	Mar 86
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<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
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SYSTEM CRASHES WITH MUDRV/PUCOM MAPPED	3.1.2.2 M	Mar 86
MSDRV SPACING TIME-OUT VALUE IS INSUFFICIENT	3.1.2.3 M	Jul 86
FDX-TTDRV		
CONTROL CHARACTERS TYPED TO CONTINUATION PROMPT CRASH SYSTEM	3.1.3.1 M	Jun 86
SIX CORRECTIONS TO TTDRV	3.1.3.2 M	Oct 86
TF.RAL FUNCTIONALITY CHANGE	3.1.3.3 N	Nov 86
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CONSOLE LOGGING TASK COT DOES NOT SUPPORT NAMED DIRECTORIES	3.1.6.1 M	Aug 86
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RECORDS MAY SPAN BLOCKS	3.2.1.1 M	May 86
FCS DOES NOT PARSE ANSI FILE SPECIFICATION CORRECTLY	3.2.1.2 M	Sep 86
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ERROR LOG MESSAGE PACKETS FOR TK50 ARE NOT ANALYZED PROPERLY	3.3.5.2 M	Mar 86
RPT ABORTS WITH MESSAGE ERLRPT-F-CASENOMAT FOR DU: ERRORS	3.3.5.3 M	Jul 86
RPT FAILS WHEN A GEOMETRY SUMMARY IS REQUESTED	3.3.5.4 M	Jul 86
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BPR GIVES CRYPTIC ERROR MESSAGE WHEN FILE IS DELETED	4.1.1.1 M	Apr 86
SUBMIT /NOPRINT PUTS LOG FILE IN WRONG PLACE	4.1.1.2 M	May 86
QMG		
EXTERNAL HEADER INCONSISTENCY IN QMG CRASHES SYSTEM	4.1.3.1 M	Aug 86
QUE/PRI		
QUE /MOD FAILS TO CHANGE /DELETE ATTRIBUTE	4.1.4.1 M	Oct 86
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LPP LOOPS ON NEGATIVE RECORD LENGTH	4.1.5.1 M	Apr 86
LPP MISCOUNTS PAGES IN PRINT JOB	4.1.5.2 M	May 86
LN03 PRINTS 51 LINES PER SHEET IN LANDSCAPE MODE	4.1.5.3 M	Jun 86
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UNSOLICITED INPUT FROM PRINT DEVICES CRASHES THE SYSTEM	4.1.5.5 M	Aug 86
Multiuser Task		
ACNT		
IF LAST NAME CHANGED IN ACNT, PASSWORD DOES NOT WORK	4.2.1.1 N	May 86
A NAMED DIRECTORY OF [G,M] TYPE NOT DELETED BY ACNT	4.2.1.2 M	May 86
ACNT PUTS USER IN NAMED MODE IF ANYTHING TYPED FOR DEFAULT DIRECTORY	4.2.1.3 N	May 86
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<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
ACNT DOES NOT ALLOW REMOVAL OF DEFAULT FILE PROTECTION	4.2.1.5 M	Jul 86
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BYE HANGS WITH LOW POOL	4.2.3.1 M	Jun 86
BYE FROM BATCH JOB OR SILENT CLI DOES NOT ABORT INDIRECT	4.2.3.2 M	Sep 86
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DEFAULT CLI PROMPT MUST BE THREE OR MORE BYTES	4.2.4.1 M	Sep 86
HELLO ERROR MESSAGE INCORRECT WHEN LOGGED IN	4.2.4.2 M	Oct 86
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MISLEADING ACCOUNTING WARNINGS IN SHUTUP	4.2.5.1 M	May 86
<u>Utilities</u>		
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/ALLOCATE AND /NOEXERCISE GIVE I/O ERROR CODE -2 IN ANALYZE	5.1.1.1 M	Jun 86
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INI WILL NOT EXECUTE A COMMAND LINE GREATER THAN 80 CHARACTERS	5.1.8.1 M	Aug 86
MOU		
CACHE READ-AHEAD LESS THAN VIRTUAL CAN CRASH SYSTEM	5.1.10.1 M	Jul 86
MOUNT ACCEPTS EXTENT SIZE OF ZERO FOR CACHE OPTIONS	5.1.10.2 M	Jul 86
MOU WILL CLEAR VOLUME VALID ON LABEL ERROR ON SHARED DISK	5.1.10.3 M	Jul 86
PIP		
PIP DISPLAYS NEGATIVE NUMBER OF FILES	5.1.12.1 M	Aug 86
PIPRES/APPEND TERMINATES WITH ODD ADDRESS	5.1.12.2 M	Sep 86
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BRU--MISLEADING ERROR MESSAGE/ACTION FOR UNMOUNTED TAPES	5.1.17.1 M	Feb 86
BRU ENDS WITH MEMORY PROTECTION VIOLATION DURING RESTORES	5.1.17.2 M	Mar 86
BRU INDICATES OUTPUT DISK IS TOO FRAGMENTED DURING VERIFY	5.1.17.3 M	Mar 86
BRU MAY FAIL ON THE VERIFY PASS OF A BACKUP OPERATION	5.1.17.4 M	Mar 86
BRU REPORTS ATTACH FAILED AS SECOND FATAL ERROR	5.1.17.5 M	Mar 86
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BRU REPORTS ERRORS ABOUT FILES THAT DO NOT EXIST	5.1.17.7 M	Mar 86
BRU USES WRONG IMAGE FILE FOR RESTORE/COMPARE	5.1.17.8 M	Mar 86
BRU DOES NOT RECOVER PROPERLY FROM TAPE-LABEL ERRORS	5.1.17.9 M	Mar 86
BACKUPS TO TAPE FAIL UNDER A-TO-Z CONTROL	5.1.17.10 M	Jun 86
BRU /IMAGE:RESTORE DISPLAYS ERRORS DESPITE SUCCESS	5.1.17.11 M	Jun 86
BRU64K /COMPARE/IMAGE:SAVE DOES NOT WORK PROPERLY	5.1.17.12 M	Jul 86
BRU SKIPPING OVER BOOTABLE SYSTEM IMAGE	5.1.17.13 M	Sep 86
BRU PROBLEM WITH LARGE FID NUMBERS	5.1.17.14 M	Sep 86
BRU /VERIFY INCORRECTLY RESTORES DISK WITH ONLY EMPTY UFDs	5.1.17.15 M	Sep 86
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LOGICAL NAME FORTRAN INTERFACE ROUTINES RETURN IE.SDP	5.2.4.1 M	May 86
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<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
MINOR ERROR IN GCII\$ MACRO	5.2.4.3 M	May 86
FORTRAN CALLS WFLORS AND STLORS DO NOT WORK	5.2.4.4 M	Aug 86
TASKS USING EXEC INTERFACE MAY BUILD WITH UNDEFINED SYMBOLS	5.2.4.5 N	Nov 86
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Task Builder		
MULTIPLE REFERENCES TO .PSECT IN SEGMENT CAUSE TKB TO ABORT	5.3.0.1 M	Apr 86
TKB SWITCH /CL DOES NOT WORK	5.3.0.2 M	Apr 86
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I/D TASK WITH DATA IN COMMON PSECT DOES NOT GET CAUGHT CORRECTLY	5.3.1.1 M	Jun 86
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PMD PUTS OUTPUT IN WRONG PLACE	5.7.3.1 N	Jun 86
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RCT DOES NOT REPLACE ALL BAD BLOCKS	5.7.15.1 M	Feb 86
DCL		
DCL		
DCL LINK DOES NOT WORK CORRECTLY IN SET DEBUG/EXECUTE MODE	6.1.0.1 M	Mar 86
DCL LINK/OPTION DOES NOT FUNCTION AS DOCUMENTED	6.1.0.2 M	Apr 86
DCL "LIBRARY @FILESPEC" DOES NOT WORK	6.1.0.3 M	Apr 86
DCL "SET DE" SHOULD NOT DEFAULT TO SET DEC CRT	6.1.0.4 M	Jun 86
FORTRAN /CHECK REQUIRES /F77	6.1.0.5 M	Jun 86
DCL EDIT WITH NULL FILE NAME DOES NOT WORK	6.1.0.6 M	Aug 86
DCL SET PROTECTION DOES NOT WORK WITH FILES STARTING WITH "L"	6.1.0.7 M	Aug 86
SHOW QUEUE/DEVICE/BRIEF FAILS	6.1.0.8 M	Nov 86
SET DEVICE /WRITECHECK TRANSLATES INCORRECTLY	6.1.0.9 M	Nov 86
Documentation		
Documentation		
DOC.ERROR IN CREATING AN OPTIONAL SOFTWARE TAPE KIT	7.1.0.1 M	Jan 86
DECmail-11 V3.0		
ANNOUNCING A MAJOR RELEASE AND 60-DAY FREE TRIAL OFFER FOR DECmail-11	18.1.1.1 N	Nov 86



Software Product Descriptions (SPDs)

Below is a list of the revised SPDs which appear on the following pages:

09.21.16	RSX-11S, Version 4.2
14.11.14	PDP-11 BASIC-PLUS-2 for RSX-11M and RSX-11M-PLUS, Version 2.3
14.18.07	PDP-11 PASCAL/RSX, Version 1.2
14.28.03	Micro/RSX, Version 3.1
14.31.09	PDP-11 FORTRAN-77/RSX, Version 5.0
14.35.25	RSX-11M, Version 4.2
14.70.13	RSX-11M-PLUS, Version 3.0
20.95.16	Micro/RSX Optional Software Cross Reference Table



Software Product Description

PRODUCT NAME: RSX-11S, Version 4.2
Real-Time Operating System

SPD 09.21.16

DESCRIPTION

RSX-11S is a memory-based, real-time operating system designed to run on a PDP-11 or MicroPDP-11 processor with a minimum of 16K bytes of memory. It is a fully compatible subset of the RSX-11M disk-based operating system. RSX-11S is designed, however, for the run-time execution of memory-resident application programs and requires the support of a disk-based host system for system generation and program development.

The I/O driver interfaces are identical to those of RSX-11M. Device drivers written for either system can execute on both systems. Any application program that executes under RSX-11S will execute under RSX-11M without change following a relink of the object program.

As a memory-based system, RSX-11S does not support a file system, nonresident tasks, checkpointing (rollin/roll-out), overlays (excluding memory-resident overlays), or program development. It provides a runtime environment for execution of tasks on a memory-based system.

RSX-11S has most of the features and capabilities of the RSX-11M system. RSX-11S supports all of the peripheral devices that are supported under RSX-11M, plus CPU options such as floating point processors, parity memory, and memory management.

RSX-11S supports the Digital Terminal Services Architecture (TSA). Terminals connected to an RSX-11S system in a DECnet-based network can function as remote command terminals on other RSX or VAX/VMS systems that also support TSA. Likewise, terminals on those remote systems can function as command terminals on the RSX-11S system.

Tasks written in MACRO, FORTRAN IV, FORTRAN-77, or BASIC-PLUS-2 must be assembled or compiled and subsequently linked on a host system and transported to a target RSX-11S system for execution. Tasks written in FORTRAN require a minimum of 32K bytes of memory on the RSX-11S target system. Transportation of tasks between the host and the RSX-11S target system is provided via the File Exchange (FLX) utility on the host system and the On-line Task Loader (OTL) utility on the target system, or via DECnet.

Among the software components contained in the RSX-11S distribution kit are the following:

- Basic Monitor Console Routine (MCR) — RSX-11M Subset
- Virtual Monitor Console Routine (VMR)
- All RSX-11M I/O Device Drivers (except console logger device driver)
- Network support, including TSA support
- On-line Task Loader (OTL) Utility
- System Image Preservation (SIP) Program
- File Control Services (FCS) for record devices (does not include directory support)
- Task Termination Notification Program
- System Activity Display Programs

SOURCE CODE INFORMATION

Source code modules for the RSX-11S Executive and other privileged code are included in the binary kit options on all available distribution media. These source code modules are included because they are required to generate the RSX-11S system.

This source code is provided on an "AS IS" basis without any warranty of any kind either express or implied.

MINIMUM HARDWARE REQUIRED

For System Generation and Program Development:

Any valid mapped RSX-11M, RSX-11M-PLUS, or VAX/VMS Operating System configuration with at least 128K bytes of memory.

For RSX-11S Execution:

Processor — Any PDP-11 processor, any MicroPDP-11 processor, or the LSI-11/73 processor module

Note: The LSI-11/73 (KDJ11-A) processor module is ONLY supported when used in the following two configurations with the noted restrictions. Configuration 1 is recommended wherever possible.

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Configuration 1: (NOT supported with the RQDX1 controller)

- KDJ11-A processor module
- MRV11-D memory module with MXV11-B2 boot ROM set
- DLVJ1 four-line terminal interface

Configuration 2: (Supports only ONE DL11-type interface when using half-duplex terminal driver)

- KDJ11-A processor module
- MXV11-BF multifunction module with MXV11-B2 boot ROM set

Memory — 16K bytes WITHOUT SUPPORT for RA60/80/81, RC25, RD31/51/52/53, RX50 disk drives, and TK50 tape drive; 128K bytes WITH SUPPORT for any of these devices

Clock - KW11-L, KW11-P, or DL11-W if not provided by processor or bootstrap

Console — DL11, DLV11, or compatible console interface with an appropriate terminal from the list of supported hardcopy, standard video, or graphics display terminals

Hardware bootstrap loader

Load Devices — one of the following:

- An appropriate interprocessor link from the list of supported Communications Devices
- An appropriate tape drive from the list of supported magnetic tape drives and devices
- RX33 floppy disk drive
- RX50 floppy disk system
- RX11, RX211, RXV12, or RXV21 floppy disk system
- TU58 DECTape II dual drive cartridge tape subsystem (not supported by SIP)
- TU60 dual-drive cassette tape system
- PR11 paper tape reader
- PC11 paper tape reader/punch

HARDWARE RESTRICTIONS

In some cases, not all hardware features of the following options are supported. Hardware and software restrictions can limit the number of devices that a given system can support. Some combinations of devices may be mutually exclusive.

For example, due to hardware restrictions, errors may be experienced when the DLVJ1 is configured with an RQDX1 or additional DLVJ1 modules. Similarly, only one RQDX1 is supported per system.

OPTIONAL HARDWARE

Processor Options

- Additional memory to a system total of 56K bytes on

systems that do not include the hardware memory management unit, or 3840K bytes on systems that include the hardware memory management unit

- FP11 Floating Point Processor
- FPF11 Floating Point Processor
- FPJ11 Floating Point Processor
- KE11-A,B Extended Arithmetic Element (supported only on systems that do not include a memory management unit)
- KE11-E Extended Instruction Set
- KE11-F Floating Instruction Set
- KEF11-AA Floating Point Processor
- KEF11-BB Commercial Instruction Set
- KW11-Y Watch-dog Timer Clock
- KT11 Memory Management Unit (requires a minimum of 56K bytes of memory)
- KT24 PAX Module (required on the PDP-11/24 to support more than 248K bytes of memory)

Note: As a memory-resident system, RSX-11S does not provide directory or file support for any magnetic tape, disk, terminal, or print device.

9-Track Magnetic Tape Drives

- TE10, TS03, TU10, and TU10W 800 bpi tape drives
- TE16, TU16, TU45, and TU77 800/1600 bpi tape drives
- TS11, TSV05, and TU80 1600 bpi tape drives
- TU81 and TU81E 1600/6250 bpi tape drives

Note: The TU81E is supported as TU81 drives.

Other Magnetic Tape Devices

- TU58 dual-drive DECTape II cartridge tape subsystem (with DL11 or DLV11 controller)
- TU60 dual-drive cassette tape system (with TA11 controller)
- TK25 cartridge tape drive (with appropriate Q-BUS controller)
- TK50 cartridge tape drive (with appropriate Q-BUS or UNIBUS controller and 128K bytes memory minimum)

Hard Disk Devices

- ML11 semiconductor disk emulator (with RH70 controller)
- RA60, RA80, and RA81 disk drives (with UDA50 or KDA50 controller and 128K bytes memory minimum)
- RC25 fixed/removable disk subsystem (with appropri-

ate UNIBUS or Q-BUS controller and 128K bytes memory minimum)

- RD51 and RD52 disk drives (with RQDX1, RQDX2, or RQDX3 controller and 128K bytes memory minimum). The RQDX1 requires Version 9 microcode or later to support the RD52 disk drive. There can be no more than one RQDX1 on a system.
- RD53 disk drive (with RQDX2 or RQDX3 controller and 128K bytes memory minimum)
- RD31 disk drive (with RQDX3 controller and 128K bytes memory minimum)
- RF11 fixed-head disk drive
- RK05 and RK05F cartridge disk drives (with RK11 controller)
- RK06 and RK07 cartridge disk drives (with appropriate RK controller)
- RL01 and RL02 cartridge disk drives (with appropriate RL controller)
- RM02, RM03, RM05, and RM80 disk drives (with appropriate RH controller)
- RPR02/ RP02 and RP03 disk pack drives (with RP11 controller)
- RP04, RP05, and RP06 disk pack drives (with appropriate RH controller)

Note: *RSX-11S does not support the loading of tasks from any MSCP fixed disk device.*

With this software product, serious data corruption and/or performance degradation can occur if, in a disk drive with the dual port option, the port select switch is placed in the programmable position.

Soft Disk Devices

- RX11, RX211, RXV12, and RXV21 floppy disk systems
- RX50 floppy disk system (with RQDX1, RQDX2, RQDX3, or RUX50 controller and 128K bytes memory minimum)
- RX33 dual density floppy disk drive (with RQDX3 controller and 128K bytes memory minimum).

Terminals

- Hardcopy Terminals — LA12, LA30S/P, LA34, LA36, LA38, LA120, LA180S, LT33, and LT35
- Standard Video Terminals — VT05B, VT50, VT52, VT100, VT101, VT102, VT131 (in VT100/102 character mode only), and VT220
- Graphics Display Terminals — VT55, VT105, VT125, VT240, and VT241

- Other Terminal Devices
 - DTC01 DECtalk
 - The PC100 (Rainbow 100) is supported as a terminal in VT102 mode
 - The PC278 (DECmate II) is supported as a terminal in VT102 mode
 - The Professional 300 series personal computers are supported as VT102/VT125s in emulation mode
 - RT02 Alphanumeric Display
 - RT02-C Alphanumeric Display and Badge Reader
- Terminal Interfaces — The terminals listed above are supported when connected to a DH11 (with or without DM11-BB), DHU11, DHV11, DL11-A,B,C,D,E, or W, DLV11, DLV11-E or F, DLVJ1 (console baud rates must not exceed 1200 baud with DLVJ1 - see other DLVJ1 disclaimers in HARDWARE RESTRICTIONS section), DZ11, DZV11, DZQ11, or DZS11 (first terminal must be VT1xx with DZS11).

Note: *A maximum of 64 terminals is supported.*

Communications Devices

- DA11-B DMA UNIBUS link
- DEUNA and DELUA Ethernet controllers
- DL11 and DLVE1 asynchronous single-line interfaces
- DMC11-E interprocessor link
- DMR11 interprocessor link
- DP11 and DPV11 synchronous single-line interfaces
- DQ11 DMA synchronous single-line interface
- DU11 and DUV11 synchronous single-line interfaces
- DUP11 synchronous single-line interface

Laboratory/Industrial Control Devices

- AD01-D A/D Converter
- AFC11 A/D Converter
- AR11 Analog Real-Time System with DR11-K 16-bit digital I/O option; one per subsystem (bit interrupt capability not supported)
- DRS11/DSS11 Industrial Control System Modules
- ICS11/ICR11 Industrial Control Subsystem
- LPA11-K Laboratory Peripheral Accelerator
- LPS11 Laboratory Peripheral System
- UDC11 Universal Digital Controller
- Laboratory I/O Subsystem configured using the following options:
 - AA11-K 4-channel 12-bit D/A converter with scope control; 16 per subsystem

- AAV11-A, ADV11-A, DRV11, and KVV11-A real-time options
- AD11-K 12-bit A/D converter with 16-channel multiplexer; 16 per subsystem (15 if ADK11 is part of the same subsystem)
- ADK11-KT 12-bit A/D converter with 16-channel multiplexer; one per subsystem
- AM11-K 48-channel A/D multiplexer with gain ranging; one per AD11-K or ADK11-KT
- DR11-K 16-bit digital I/O option; 16 per subsystem
- KW11-K dual real-time clock with Schmitt triggers; one per subsystem

Note: Support for the IP11 and IPV11 Process Control Subsystems, bundled in previous versions of RSX-11S, is now available as a separate optional software product for RSX-11S.

Other Peripherals

- PR11 paper tape reader and PC11 paper tape reader/punch
- CR11 and CM11-E card reader
- VT11/VS60 Graphics Display processor and scope
- Printers — LA50, LA100, LA180, LA210, LN01, LN03, LP11 Series (LP01/ 02/04/05/06/07/14/25/26/27), LQP02, LQP03, LS11, and LV01.

PREREQUISITE SOFTWARE

For System Generation:

One of the following operating systems:

RSX-11M *
RSX-11M-PLUS **
VAX/VMS running VAX-11 RSX ***

* Refer to the RSX-11M Optional Software Cross Reference Table (SPD 20.98.xx) for the required version.

** Refer to the RSX-11M-PLUS Optional Software Cross Reference Table (SPD 20.99.xx) for the required version.

*** Refer to the VAX/VMS System Software Order Table/ Optional Software Cross Reference Table (28.98.xx) for the required versions.

For System Execution:

None

OPTIONAL SOFTWARE

BASIC-PLUS-2 for RSX-11M and RSX-11M-PLUS
DECdataway Intelligent Subsystem Software
DECnet-11S
DPM
FEPCM Software Tools Kit
FMS-11/RSX
FORTRAN-77/RSX, PDP-11

IP11 Driver
KMS-11 RSX X.25 LAPB Link Level Software

SOFTWARE WARRANTY

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product as defined in the Software Warranty Addendum of this SPD.

INSTALLATION

Only experienced customers should attempt installation of this product. DIGITAL recommends that all other customers purchase DIGITAL's Installation Services. These services provide for installation of the software product by an experienced DIGITAL Software Specialist.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide, in part, that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on same CPU.

You will need a separate license for each CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then, Materials and Service Options are selected to utilize the product effectively. **THE LICENSE OPTIONS ARE DESCRIBED BELOW. IF YOU ARE NOT FAMILIAR WITH THE SERVICE OPTIONS, YOU MAY OBTAIN THE APPROPRIATE SOFTWARE PRODUCT SERVICE DESCRIPTION(S) FROM YOUR LOCAL DIGITAL OFFICE.** If you are already familiar with these options, you may obtain the ordering information directly from the Software Options Chart.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single CPU.

You purchase a Single-Use License according to the category to which your CPU belongs:

- Class H Single-Use License (for high end systems)
 - All UNIBUS models and systems
 - MicroPDP-11/83
- Class L Single-Use License (for low end systems)
 - All Q-BUS models and systems except MicroPDP-11/83
 - KD11, KDF11, KDJ11 CPU modules
 - DCT11, DCF11, DCJ11 microprocessor chips

For your first installation of this software product you must purchase as a **minimum**:

- Single-Use License Option, and
- Distribution and Documentation Option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation

Option provides the machine-readable software and related documentation.

To use this software product on additional CPUs, you must purchase for each CPU as a minimum:

- Single-Use License Option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

Distribution and Documentation Option

The Distribution and Documentation option provides the machine-readable software and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

Software Revision Right-To-Copy Option

The Right-To-Copy Option allows a customer with multiple CPUs to copy a revised version of a software product from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPUs by purchasing the Right-To-Copy Option for each additional CPU.

Documentation-Only Option

The Documentation-Only Option provides one copy of the basic documentation.

Software Product Services

A variety of service options are available. For more information on these or other services, please contact your local DIGITAL office.

SOFTWARE OPTIONS CHART

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QJ642-H5 = binaries on a TK50 Tape Cartridge.

- | | |
|------------------------------------|----------------------------------|
| 5 = TK50 Tape Cartridge | Q = RL01 Disk Cartridge |
| D = 9-track 800 BPI Magtape (NRZI) | T = RK06 Disk Cartridge (Note 1) |
| H = RL02 Disk Cartridge | V = RK07 Disk Cartridge |
| M = 9-track 1600 BPI Magtape (PE) | Z = No hardware dependency |

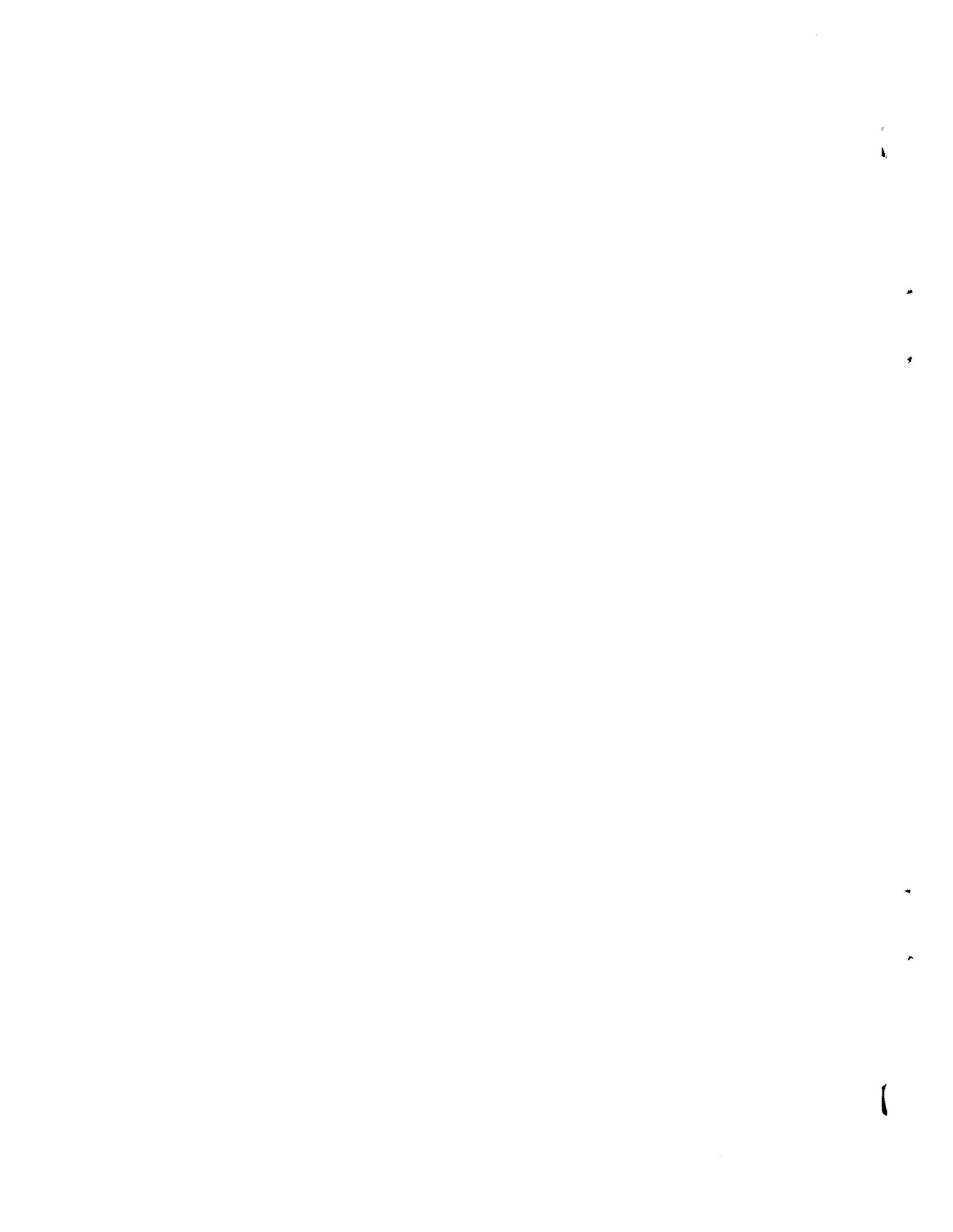
NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.	
Single-Use License (Class H)*	QJ642-UZ
Single-Use License (Class L)*	QY642-UZ
MATERIALS AND SERVICE OPTIONS:	
Distribution and Documentation Option	QJ642-H5 QJ642-HD QJ642-HH QJ642-HM QJ642-HQ QJ642-HT (Note 1) QJ642-HV
Software Revision Right-To-Copy Option	QJ642-HZ
Documentation-Only Option	QJ642-GZ

Installation Service Option	QJ642-15 QJ642-1D QJ642-1H QJ642-1M QJ642-1Q QJ642-1T QJ642-1V
DECsupport Service	QJ642-95 QJ642-9D QJ642-9H QJ642-9M QJ642-9Q QJ642-9V
Basic Service	QJ642-85 QJ642-8D QJ642-8H QJ642-8M QJ642-8Q QJ642-8V
Self-Maintenance Service	QJ642-35 QJ642-3D QJ642-3H QJ642-3M QJ642-3Q QJ642-3V

* Refer to the descriptions of Class H and Class L single-use licenses in the License Option section of this SPD.

Note 1: Version 4.2 is the last release to be distributed on RK06 Disk Cartridges.
RK06 kits cannot be ordered after November 30, 1986.



Software Product Description

PRODUCT NAME: **PDP-11 BASIC-PLUS-2 for RSX-11M and RSX-11M-PLUS, Version 2.3**

SPD 14.11.14

DESCRIPTION

PDP-11 BASIC-PLUS-2 for RSX-11M and RSX-11M-PLUS is an extended BASIC compiler for the RSX-11M and RSX-11M-PLUS Operating Systems. It takes full advantage of the PDP-11 floating point and integer instructions and generates threaded code instructions. Run-time operations are supported on RSX-11S.

BASIC-PLUS-2 provides a high performance program execution environment for applications development and timesharing. It combines immediate mode with the power of a structured programming language.

In addition to elementary BASIC language features, BASIC-PLUS-2 provides:

- BASIC Programming Support Environment
 - The compiler generates code suitable for Instruction and Data space on processors where both the hardware and software operating system support this feature.
 - RUN command for immediate execution of BASIC programs
 - RUN allows use of RMS-11 Sequential, Relative, and Indexed file organizations
 - Dynamic linking (LOAD) of separately compiled BASIC modules for immediate execution using the RUN command
 - EDIT command for revision of program text while within BASIC
 - HELP (INQUIRE) for on-line assistance
 - SEQUENCE command for generating line numbers
 - Direct execution of unnumbered statements (immediate mode)
 - Direct execution of command line statements
 - Integrated cross-reference and listing facility
 - Ability to detect and report multiple errors on a source line
 - A high degree of compatibility with VAX BASIC
- Compile-Time Directives
 - Text inclusion through use of the %INCLUDE directive
 - Conditional compilation (%IF)
 - Listing and cross-reference output controls (%LIST, %CROSS)
- Structured Programming Constructs
 - 31 character alphanumeric statement labels
 - 31 character variable names, allowing (..) and (.)
 - DECLARE statement removes the requirement for (%) and (\$) suffixes in variables
 - Explicit declarations provide access to many data types
 - Most program lines do not need line numbers
 - Statement condition/repeat modifiers simplify structure
 - IF...THEN...ELSE...END IF conditional blocks
 - SELECT...CASE...END SELECT multiway decision blocks
 - EXIT and ITERATE statements for iterative statement blocks
 - OTHERWISE out-of-range clause for ON GOTO and ON GOSUB statements
- EXTERNAL statement allows access to global variables, functions, and constants, and allows data typing of parameters to aid in minimizing run-time mismatches
- Language Subsets and Subset Flaggers
 - Declining Feature Flagger for program maintenance/conversion use
- Exception Handling (ON ERROR) for main and subprograms
- Multiline Statements and Multistatement Lines
- Program segmentation

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- Single and multiline user-defined functions using DEF
 - SUB and FUNCTION programs as individually compiled modules
 - External module parameter passing BY VALUE, REFERENCE, or DESCRIPTOR
 - Ability to invoke EXTERNAL function procedures from BASIC-PLUS-2
 - Up to eight actual arguments per call or external function invocation
 - COMMON and MAP statements for creating static storage areas and sharing data between modules
 - Implicit or Explicit data typing allowed
 - Specification of data types permitted on COMMON, DECLARE, DEF, DIMENSION, EXTERNAL, FUNCTION, MAP, and SUB statements
 - Default data allocation rules can be specified with BASIC commands or by the OPTION statement in program text
 - By default all declarations are implicit, however the OPTION TYPE=EXPLICIT can be used to require explicit declaration of all variables
 - Integer data type:
 - BYTE (8 bit) with range of -128 to +127
 - WORD (16 bit) with range of -32768 to +32767
 - LONG (32 bit) with range of -2147483648 to +2147483647
 - Real data type:
 - SINGLE (6 digits) with range of $.29 \times 10^{-38}$ to 1.70×10^{38}
 - DOUBLE (16 digits) with range of $.29 \times 10^{-38}$ to 1.70×10^{38}
 - STRING data type, allowing both static (in MAP or COMMON) and dynamic length
 - Symbolic names for control characters BEL, BS, HT, LF, VT, FF, CR, SO, SI, ESC, and DEL
 - Definition of user-defined program constants through DECLARE CONSTANT
 - A BASIC Symbolic Debugger allowing inspection and alteration of program variables
 - File Organizations and Access Methods
 - Block I/O (random access to sequential files of 512 byte records)
 - Virtual Arrays (arrays mapped onto disk structures)
 - RMS Sequential I/O
 - RMS Relative I/O
 - Multikey RMS Indexed I/O operations, including support for integer and segmented keys
 - RMS Record File Address (RFA) access for high performance applications
 - Dynamic record definition and variable allocation via MAP DYNAMIC
 - Extended Report Formatting Capabilities
 - Suppression of zero fields
 - Zero fill or blank fill fields
 - Commas in large numeric values
 - CR (credit) or DR (debit) indicators
 - Floating currency symbol for numeric fields
 - Asterisk-fill on numeric fields
 - FORMAT\$ function accepts full PRINT USING editing syntax
 - Arrays up to eight dimensions, declarable at run-time
 - Matrix manipulation capabilities
- PDP-11 BASIC-PLUS-2 uses the full printable ASCII character set and 8-bit character codes within constants and I/O operations.
- The BASIC-PLUS-2 user has the option of traditional compilation with subsequent linker invocation or use of the RUN command that causes the program to be placed into execution.
- Subprograms and function programs compiled under BASIC-PLUS-2 can be included by the LOAD command for execution when RUN is used.
- Object Time System**
- The BASIC-PLUS-2 Object Time System is a set of object modules selectively linked with object modules produced by the BASIC-PLUS-2 compiler by the operating system linker (task builder utility) to produce a task (program) ready for execution.
- MINIMUM HARDWARE REQUIRED**
- Any valid mapped RSX-11M or RSX-11M-PLUS system configuration with:
- Minimum of 64 Kbytes of user memory
 - At least 2000 - 2800 free disk blocks, 1700 - 2200 of which must be contiguous, at compile time
 - At least 6000 - 7900 free disk blocks, 2500 - 2800 of which must be contiguous, temporarily required during installation procedure
 - Extended Instruction Set
 - A device capable of reading one of the available distribution media
- OPTIONAL HARDWARE**
- Floating Point Processor (as supported by the RSX-11M or RSX-11M-PLUS Operating System configuration)
- PREREQUISITE SOFTWARE**
- RSX-11M or RSX-11M-PLUS Operating System
RSX-11S, Version 4.2 (Run-time operations only)

Refer to the RSX-11M and RSX-11M-PLUS Optional Software Cross Reference Tables (SPD 20.98.xx and SPD 20.99.xx) for the required versions.

OPTIONAL SOFTWARE

None

SOFTWARE WARRANTY

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product as defined in the Software Warranty Addendum of this SPD.

INSTALLATION

This software product can be installed by the customer using the step-by-step documentation available for this product. Optionally you can purchase DIGITAL Installation Services which provide for the installation of the software product by an experienced DIGITAL Software Specialist.

Courtesy Installation

This software product will be installed by DIGITAL at no additional charge if you purchase it concurrent with a Start-Up Service Package that includes Installation Service. Both the host operating system and this product must be installed concurrently.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on that same CPU.

You will need a separate license for each CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then, Materials and Service Options are selected to utilize the product effectively. **THE LICENSE OPTIONS ARE DESCRIBED BELOW. IF YOU ARE NOT FAMILIAR WITH THE SERVICE OPTIONS, YOU MAY OBTAIN THE APPROPRIATE SOFTWARE PRODUCT SERVICE DESCRIPTION(S) FROM YOUR LOCAL DIGITAL OFFICE.** If you are already familiar with these options, you may obtain the ordering information directly from the Software Options Chart.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single CPU.

For your first installation of this software product you must purchase as a **minimum**:

- Single-Use License option, and
- Distribution and Documentation option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation option provides the machine-readable software and related documentation.

To use this software product on additional CPUs, for each CPU you must purchase as a **minimum**:

- Single-Use License option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation option is not required, but optional.

The licensee may also reproduce and distribute object modules and/or resident libraries which are necessary to run programs compiled with this product provided such programs are distributed: 1) in accordance with the provisions of licensee's standard software license; or 2) with licensee's copyright notice included on such programs; or 3) if conditions (1) or (2) are not met, with DIGITAL's COPYRIGHT notice included on such programs.

Distribution and Documentation Option

The Distribution and Documentation option provides the machine readable software and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

Software Revision Right-To-Copy Option

The Right-To-Copy option allows a customer with multiple CPUs to copy a revised version of a software product from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPUs by purchasing the Right-To-Copy option for each additional CPU.

Documentation-Only Option

The Documentation-Only option provides one copy of the basic documentation.

Software Product Services

A variety of service options are available. For more information on these or other services, please contact your local DIGITAL office.

SOFTWARE OPTIONS CHART

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QY918-H5 = binaries on TK50 Tape Cartridge.

- | | |
|------------------------------------|----------------------------|
| 5 = TK50 Tape Cartridge | Q = RL01 Disk Cartridge |
| D = 9-track 800 BPI Magtape (NRZI) | T = RK06 Disk Cartridge |
| H = RL02 Disk Cartridge | V = RK07 Disk Cartridge |
| M = 9-track 1600 BPI Magtape (PE) | Z = No hardware dependency |

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER CLASS L SYSTEMS ¹	ORDER NUMBER CLASS H SYSTEMS ²
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.		
Single-Use License	QY918-UZ	QJ918-UZ
MATERIALS AND SERVICE OPTIONS:		
Distribution and Documentation Option	QY918-H5 QY918-HH QY918-HM	QJ918-H5 QJ918-HD QJ918-HH QJ918-HM QJ918-HQ QJ918-HT QJ918-HV
Software Revision Right-To-Copy Option	QY918-HZ	QJ918-HZ
Documentation Only Option	QY918-GZ	QJ918-GZ
Installation Service Option	QY918-I5 QY918-IH QY918-IM	QJ918-I5 QJ918-ID QJ918-IH QJ918-IM QJ918-IQ QJ918-IT QJ918-IV
DECsupport Service	QY918-95 QY918-9H QY918-9M	QJ918-95 QJ918-9D QJ918-9H QJ918-9M QJ918-9Q QJ918-9T QJ918-9V

Basic Service	QY918-85 QY918-8H QY918-8M	QJ918-85 QJ918-8D QJ918-8H QJ918-8M QJ918-8Q QJ918-8T QJ918-8V
Self-Maintenance Service	QY918-35 QY918-3H QY918-3M	QJ918-35 QJ918-3D QJ918-3H QJ918-3M QJ918-3Q QJ918-3T QJ918-3V

¹Class L Systems (for low-end systems):

- All Q-BUS models and systems except MicroPDP-11/83
- KD11, KDF11, KDJ11 CPU modules
- DCT11, DCF11, DCJ11 microprocessor chips

²Class H Systems (for high-end systems):

- All UNIBUS models and systems
- MicroPDP-11/83



Software Product Description

PRODUCT NAME: PDP-11 PASCAL/RSX, Version 1.2

SPD 14.18.07

DESCRIPTION

PDP-11 PASCAL/RSX is an implementation of the Pascal language that accepts programs compatible with Level 0 of the ISO Specification for the Computer Programming Language Pascal [ISO 7185-1983 (E)] as well as ANSI/IEEE 770X3.97-1983 (December, 1983). PDP-11 PASCAL/RSX is a multipass optimizing compiler that provides all standard Pascal data types and statements as well as extensions.

Major Pascal Language Elements

The data types, control statements, and predeclared functions and procedures provided by Pascal include:

- INTEGER, REAL, CHAR, BOOLEAN, enumerated and subrange data types
- ARRAY, RECORD, SET and FILE structured data types
- FOR, REPEAT, WHILE repetitive control statements
- CASE, IF-THEN, and IF-THEN-ELSE conditional statements
- BEGIN...END compound statement
- GOTO statement
- READ, WRITE, READLN, and WRITELN input and output procedures
- FORWARD procedure and function directive

PDP-11 PASCAL/RSX Extensions

- Support for RSX File Control System (FCS) sequential files with fixed or variable length records
- Sequential access to fixed or variable length records, and both direct and sequential access to fixed length records
- User-Mode Instruction and Data space support on processors where both the hardware and software support this feature.
- EXTERNAL procedure and function directive
- OTHERWISE clause in case statements
- REM operator to supply the remainder in division operations

- GLOBAL, LOCAL, and EXTERNAL attributes on variables and subprograms
- MODULE reserved word for separate and independent compilation
- STATIC and AUTOMATIC allocation attributes
- %INCLUDE directive to allow multiple compilation units to access the same program text
- Binary, hexadecimal, and octal constants
- Exponential operator
- Dollar sign (\$) and underscore (_) characters in identifiers
- Value initialization in declaration section at program level
- Predefined procedures CLOSE, DATE, OPEN, TIME, and HALT

Compilation

PDP-11 PASCAL/RSX programs can be compiled in interactive mode or with an indirect command file. The PDP-11 PASCAL/RSX compiler performs optimizations designed to improve execution speed, including constant folding, constant conversion, constant pooling, and global register assignment. Optional instruction to the compiler and input and output file attributes are specified by compiler switches that:

- Perform run-time checks of array bound, case selectors, pointers, string bounds, and subrange bounds
- Limit the number of error messages printed and allow compilation to continue regardless of the number of errors
- Cause code to be generated that provides source line numbers at run-time
- Determine whether to generate EIS or FPP instructions
- Produce an optimal, machine-code listing
- Identify the PDP-11 PASCAL/RSX compiler version number
- Print warning-level messages that identify the use of PDP-11 PASCAL/RSX extensions

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- Provide automatic spooling of the listing file
- Maintain qualifier settings for subsequent compilations in interactive mode or in the same indirect command file

Task Building

After compilation, the RSX Task Builder is used to produce an executable image file, and to provide support for both relocatable and resident object libraries. Task builder options create checkpointable tasks, identify the use of floating point hardware, provide On-line Debugging Technique (ODT) support and allow simultaneous execution of multiple versions of a single task.

RSX Environment

PDP-11 PASCAL/RSX allows use of the FORTRAN standard calling sequence, permitting Pascal programs to communicate with FORTRAN callable system routines for real-time applications. However, routines written in FORTRAN cannot be called from PDP-11 PASCAL/RSX. In addition, PDP-11 PASCAL/RSX programs can call RSX system services for process-control operations, system directives, and special peripheral access.

MINIMUM HARDWARE REQUIRED

Any valid mapped RSX-11M or RSX-11M-PLUS system configuration that includes:

- Extended Instruction Set (EIS)
- A minimum of 30K words of available memory, with approximately 800 free blocks of disk space required for the compiler and OTS files. Of the 800 free blocks required, 675 blocks must be contiguous.

Additional disk space is required during compiler execution. The amount of additional space required varies with the size and complexity of the source program.

OPTIONAL HARDWARE

- Floating Point Processor as supported by the system configuration

PREREQUISITE SOFTWARE

RSX-11M or RSX-11M-PLUS Operating System

Refer to the RSX-11M and RSX-11M-PLUS Optional Software Cross Reference Tables (SPD 20.98.xx and SPD 20.99.xx) for the required versions.

OPTIONAL SOFTWARE

None

SOFTWARE WARRANTY

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product as defined in the Software Warranty Addendum of this SPD.

INSTALLATION

This software product can be installed by the customer using the step-by-step documentation available for this product. Optionally you can purchase DIGITAL Installation

Services which provide for the installation of the software product by an experienced DIGITAL Software Specialist.

Courtesy Installation

This software product will be installed by DIGITAL at no additional charge if you purchase it concurrent with a Start-Up Service Package that includes Installation Service. Both the host operating system and this product must be installed concurrently.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on that same CPU.

You will need a separate license for each CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then, Materials and Service Options are selected to utilize the product effectively. **THE LICENSE OPTIONS ARE DESCRIBED BELOW. IF YOU ARE NOT FAMILIAR WITH THE SERVICE OPTIONS, YOU MAY OBTAIN THE APPROPRIATE SOFTWARE PRODUCT SERVICE DESCRIPTION(S) FROM YOUR LOCAL DIGITAL OFFICE.** If you are already familiar with these options, you may obtain the ordering information directly from the Software Options Chart.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single CPU.

For your first installation of this software product you must purchase as a **minimum**:

- Single-Use License option, and
- Distribution and Documentation option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation option provides the machine-readable software and related documentation.

To use this software product on additional CPUs, for each CPU you must purchase as a **minimum**:

- Single-Use License option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation option is not required, but optional.

The licensee may also reproduce and distribute object modules and/or resident libraries which are necessary to run programs compiled with this product provided such programs are distributed: 1) in accordance with the provisions of licensee's standard software license; or 2) with

licensee's copyright notice included on such programs; or 3) if conditions (1) or (2) are not met, with DIGITAL's COPYRIGHT notice included on such programs.

Distribution and Documentation Option

The Distribution and Documentation option provides the machine-readable software and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

Software Revision Right-To-Copy Option

The Right-To-Copy option allows a customer with multiple CPUs to copy a revised version of a software product

from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPUs by purchasing the Right-To-Copy option for each additional CPU.

Documentation-Only Option

The Documentation-Only option provides one copy of the basic documentation.

Software Product Services

A variety of service options are available. For more information on these or other services, please contact your local DIGITAL office.

SOFTWARE OPTIONS CHART

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QJ128-HD = binaries on 9-track 800 BPI Magtape (NRZI).

- | | |
|------------------------------------|-----------------------------------|
| 5 = TK50 Tape Cartridge | M = 9-track 1600 BPI Magtape (PE) |
| D = 9-track 800 BPI Magtape (NRZI) | V = RK07 Disk Cartridge |
| H = RL02 Disk Cartridge | Z = No hardware dependency |

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

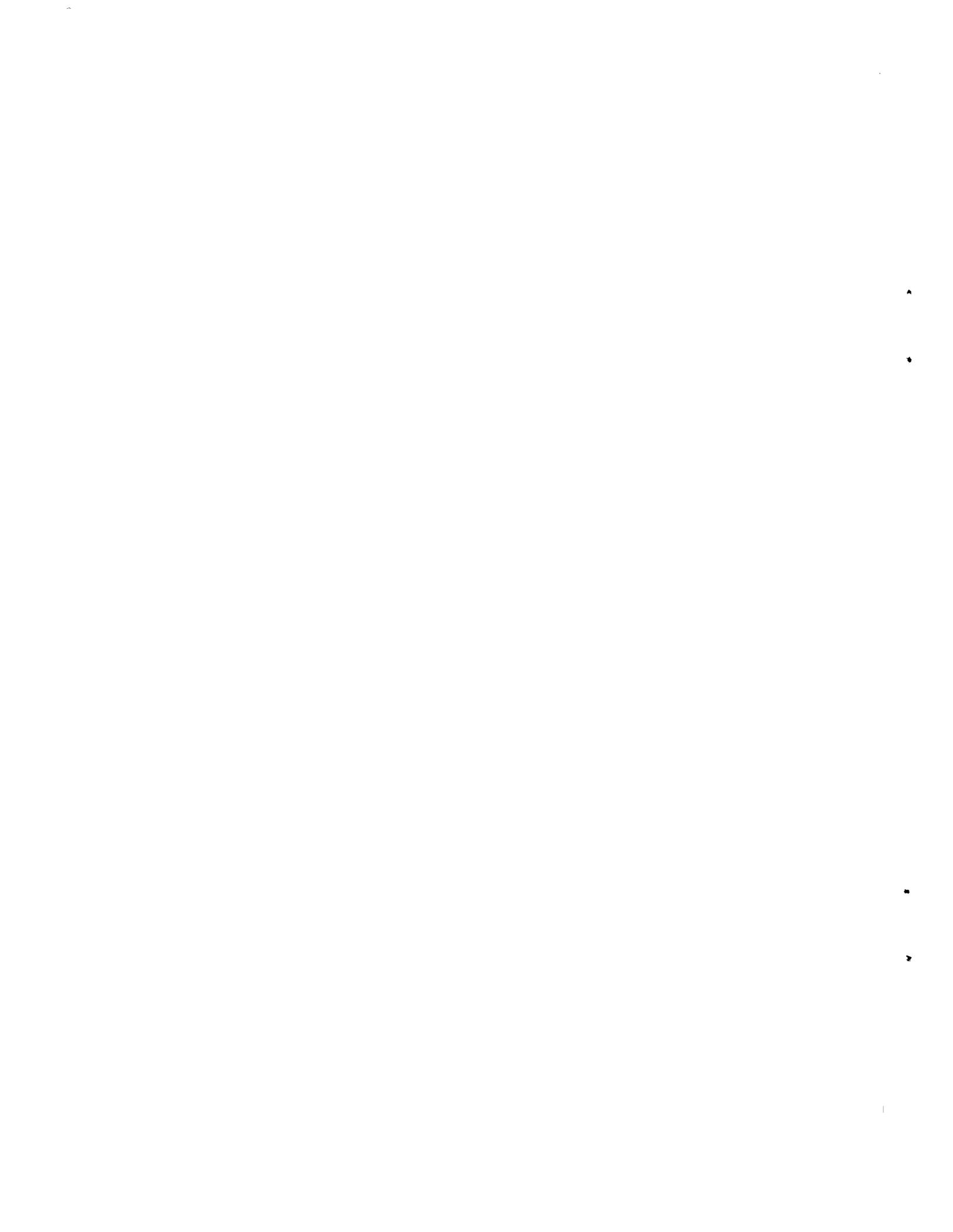
OPTIONS	ORDER NUMBER CLASS H ¹ SYSTEMS	ORDER NUMBER CLASS L ² SYSTEMS
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.		
Single-Use License	QJ128-UZ	QY128-UZ
MATERIALS AND SERVICE OPTIONS		
Distribution and Documentation Option	QJ128-H5 QJ128-HD QJ128-HH QJ128-HM QJ128-HV	QY128-H5 QY128-HH QY128-HM
Software Revision Right-To-Copy Option	QJ128-HZ	QY128-HZ
Documentation-Only Option	QJ128-GZ	QY128-GZ
Installation Service Option	QJ128-I5 QJ128-ID QJ128-IH QJ128-IM QJ128-IV	QY128-I5 QY128-IH QY128-IM
DECsupport Service	QJ128-95 QJ128-9D QJ128-9H QJ128-9M QJ128-9V	QY128-95 QY128-9H QY128-9M
Basic Service	QJ128-85 QJ128-8D QJ128-8H QJ128-8M QJ128-8V	QY128-85 QY128-8H QY128-8M
Self-Maintenance Service	QJ128-35 QJ128-3D QJ128-3H QJ128-3M QJ128-3V	QY128-35 QY128-3H QY128-3M

¹Class H (high-end systems):

- All UNIBUS models and systems
- MicroPDP-11/83

²Class L (low-end systems):

- All Q-BUS models and systems except MicroPDP-11/83
- KD11, KDF11, KDJ11 CPU modules
- DCT11, DCF11, DCJ11 microprocessor chips



Software Product Description

PRODUCT NAME: Micro/RSX, Version 3.1

SPD 14.28.03

DESCRIPTION

Micro/RSX is a multiuser, general-purpose operating system, distributed on RX50 floppy diskettes and TK50 cartridge tape, for the MicroPDP-11 family of computers. Micro/RSX, Version 3.1 provides a runtime and program development system, based on RSX-11M-PLUS, Version 3.0, Update C, and is especially tailored for users running applications on the MicroPDP-11s.

Features

- Ease of use — Micro/RSX is specifically designed for ease of use.
- Ease of software installation — Micro/RSX is customer installable and uses an interactive installation procedure to automatically install the operating system and optional software products.
- Help Files — Micro/RSX has extensive on-line help files. Users can get help through the HELP command, or by typing a "?" in response to most DCL prompts they don't understand.
- Pregenerated system — Micro/RSX has no SYSGEN requirement, nor can it be SYSGENed. This contributes to its ease of use.
- Transportability — Most nonprivileged tasks written for RSX systems can be run on Micro/RSX with little or no modification. This includes upward compatibility for nonprivileged tasks with RSX-11M-PLUS, Versions 2.0, 2.1 and 3.0, RSX-11M, Versions 4.0, 4.1 and 4.2, and Micro/RSX, Versions 1.0, 1.1 and 3.0. Task rebuilding is usually not required.

Within certain restrictions, tasks can be written to run on both the Professional Operating System and Micro/RSX.
- DCL — Micro/RSX includes the easy-to-use DIGITAL Command Language (DCL) which prompts users for input and provides Help text during command entry. DCL commands are English words that are self-documenting when typed in full, but they can be abbreviated once the user is accustomed to the system. More than 60 Micro/RSX DCL commands provide control over the system and work done on it.
- Error logging — The RSX-11M-PLUS error logging subsystem and I/O exerciser are included. Installation of these is optional.
- EDT — Micro/RSX includes EDT, DIGITAL's easy-to-use, flexible screen editor. EDT provides many advanced editing features such as DEFINE KEY which allows the user to define custom editing functions to be executed on a single keystroke, and journaling, which allows for the recovery of all but the very last keystrokes of an editing session in the event of an unexpected exit from EDT.
- Named Directories — Micro/RSX has a named as well as a numbered directory scheme.
- Documentation for the New User — Micro/RSX has documentation specifically for the new user, including a tutorial introduction to Micro/RSX that explains the most common commands and system functions, including editing. Other documentation helps the new user manage the system. Other assistance includes automated procedures for common operations, such as backing up files.
- Encrypted Passwords — Passwords are encrypted by means of a one-way encryption algorithm.
- Disk Data Caching, which, for many applications, significantly reduces actual disk I/O operations, thereby increasing system performance.
- Support for Ethernet Terminal Servers using the Local Area Transport (LAT) protocol. DECnet-Micro/RSX software is needed for this feature.
- Terminal Services Architecture (TSA). Terminals on a Micro/RSX system with DECnet-Micro/RSX can function as remote command terminals on other RSX or VAX systems that also have TSA capability in the network. Likewise, terminals on those remote systems can function as command terminals on the Micro/RSX system.
- Support for the DIGITAL Multinational Character Set and for user-written translation routines for other character sets.
- Support for separated Instruction and Data Space and for Supervisor Mode on the MicroPDP-11/53, MicroPDP-11/73 and MicroPDP-11/83.

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- Powerfail/restart, which allows the system to continue executing upon power restoration, restarting all interrupted I/O activities and notifying any active task through a powerfail asynchronous system trap entry point.

Micro/RSX consists of two separate kits:

To use Micro/RSX, the Micro/RSX Base Kit and a Micro/RSX Single-Use License must be purchased. The Micro/RSX Advanced Programmer's Kit is an optional additional package that requires the purchase of a Micro/RSX Single-Use License and Micro/RSX Base Kit as a prerequisite.

- The Base System Kit includes software and documentation necessary to provide operating system services to an application, including device support and essential utilities. In general, to do programming in a higher level language, it is necessary only to purchase the Base Kit and the desired language software product. The Advanced Programmer's Kit will not be required. (Requirements may vary depending upon the language. Refer to the respective language SPDs for details.)
- The Advanced Programmer's Kit provides software and documentation to support native MACRO-11 and privileged program development. The Advanced Programmer's Kit also includes the Data Terminal Emulator and File Transfer Utility (DTE/MFT) which allows easy file interchange between the Micro/RSX system and other PDP-11 RSX systems, Professional 350 or 380 P/OS systems and VAX/VMS systems with VAX-11 RSX. ANSI magnetic tape support is also included in the Advanced Programmer's Kit.

The Micro/RSX Base Kit supports native program development with either the Advanced Programmer's Kit (MACRO-11) or a high-level language. Micro/RSX supports host development from any RSX system that supports program development. In this context, "host development" means the ability to develop programs on one system for execution on another system. Host development requires the capability of transferring files to and from the Micro/RSX system. This can be done either by using common media devices such as the RL02, RX02, RX33, RX50, RC25, RA60, TU58, TSV05, TK25, or TK50 on both systems, or by using the DTE/MFT software or an optional communications product such as DECnet.

Micro/RSX Base Kit Features:

- A pregenerated RSX-11M-PLUS, Version 3.0 executive. The executive manages system resources in the multiuser, multitask environment. These resources include memory, central processor, and mass storage.
- Both File Control Services (FCS) and Record Management Services (RMS). These file systems support the system's file oriented mass storage devices. The file

systems provide multiuser file protection, device independence, and logical device assignment.

—RMS-11 supports three file organizations — Sequential, Relative and Multikeyed Index Sequential (ISAM), and provides sequential and direct access modes.

—FCS supports sequential and direct access to sequentially and randomly organized files.

- A full complement of development and support utilities such as the Back-Up and Restore Utility (BRU).
- The Indirect Command Processor, which allows for the programming of automatic system operations.
- The Batch Processor and Queue Manager, which allow for unattended printing and batch operations.
- Support for multiple users
- Support for magnetic tape backup on TSV05, TK25, and TK50. This support is for Back Up and Restore Format only. Full ANSI support is provided in the Advanced Programmer's Kit.
- An automatic software installation procedure for the system and optional software products.
- User-oriented documentation

Micro/RSX Advanced Programmer's Kit Features:

- MACRO-11 programming — Includes the MACRO-11 assembler, the File Dump Utility, Resource Monitor Display (RMD), On-Line Debugging Tool (ODT), and MACRO libraries.
- System programming tools — Includes the necessary RSX components to develop privileged software such as user-written device drivers. It also includes tools such as a loadable executive debugger and loadable crash dump drivers to assist programmers in developing privileged code.
- File Transfer — The file transfer and data terminal emulation utilities are designed to allow easy file interchange between the Micro/RSX system and a Professional 350 or 380 running P/OS, another PDP-11 running an RSX operating system, or a VAX/VMS system running VAX-11 RSX. The other system can also be another Micro/RSX system. Communication between any of these systems is established through a terminal line. The file transfer utility uses the protocol DDCMP, which provides error detection and correction to assure data integrity. As MFT transfers files using RMS block I/O, all types of data files can be copied.
- ANSI Magtape Support — The ANSI magtape software is part of the Advanced Programmer's Kit. This software handles magtape file and volume labels and record, block and file formats according to standards defined by the American National Standards Institute.

HARDWARE RESTRICTIONS

In some cases, not all hardware features of the options in the following MINIMUM HARDWARE and OPTIONAL HARDWARE sections are supported. Hardware restrictions can limit the number of devices that a system can support, and there may be some combinations of devices that are mutually exclusive.

If the TK50 is used with utilities other than BRU (the utility used by the Micro/R SX Installation System) or is used with the verify pass of BRU, degraded performance and/or capacity of the TK50 should be expected.

Micro/R SX supports on-line formatting of RX33 diskettes. However, an RX50 format diskette, although it can be read and written in an RX33 drive, cannot be reformatted into the higher density RX33 format.

MINIMUM HARDWARE REQUIRED*Processor*

MicroPDP-11/23, MicroPDP-11/53, MicroPDP-11/73, MicroPDP-11/83, or LSI-11/73

Note: The LSI-11/73 (KDJ11-A) processor module is supported ONLY when used in the following configuration:

- KDJ11-A processor module
- MXV11-BF multifunction module with MXV11-B2 boot ROM set

Memory

- 512K bytes

Hard Disks

- RD31, RD51, RD52, RD53 or RC25
- Flexible Disk or Cartridge Tape

RX33 dual-density floppy drive, RX50 dual floppy drive or TK50 cartridge tape drive

Console Terminal

One send/receive terminal from the optional terminals listing. This terminal connects to the MicroPDP-11 via the integrated serial console line on the MicroPDP-11 CPU.

OPTIONAL HARDWARE

Supported hardware options include:

- KEF11-AA Floating Point Chip Option
- KEF11-BB CIS Chip Option
- FPF11 and FPJ11 Floating Point Processors
- One to four RLV12 controllers with one to four RL02 disk drives on each controller

- One TU58 dual drive (requires a second serial line unit on the CPU or a DLV11 interface)
- One dual RX02 8-inch floppy drive with RXV21 controller
- DZV11 4-line serial terminal multiplexer
- DLV11-E,F asynchronous serial line interfaces
- DHV11 8-line serial DMA terminal multiplexer
- DZQ11 4-line serial multiplexer
- One TSV05 tape drive or one TQK25 cartridge tape drive
- One TK50 cartridge tape drive
- Additional memory
- A maximum of any four of the following DSA disk controllers with associated units:

1. RQDX1, RQDX2, or RQDX3 controller — Each controller may have four units, which may be: RX50 (dual device - counts as two units), RX33, RD31, RD51, RD52 or RD53. RQDX1 can be used only with RD51, RD52 and RX50 and supports no more than two RD5x units (plus one RX50 dual floppy drive). RQDX1 requires version 9 microcode or later to support the RD52. There can be no more than one RQDX1 on a system.

RQDX2 can be used only with RD51, RD52, RD53 and RX50.

2. RC25 subsystem, including Q-BUS controller. The controller supports two drives (four units).
3. KDA50 controller. Each controller may have four units, which may be: RA60, RA80, or RA81.

Terminals

The following terminals and related devices are supported when interfaced to DZV11, DZQ11, DHV11, DLV11-E, or DLV11-F. They are also supported when connected to an integrated serial line unit provided as part of the MicroPDP-11 CPU.

- LA34, LA38, LA120, VT100, VT101, VT102, VT125, VT220, VT240, and VT241 terminals.
- LA50, LA100, LA180S, LA210, LN03, and LQP03 are supported as output-only hardcopy devices.
- The PC100 is supported as a terminal in VT102 mode.
- The PC278 (DECmate II) is supported as a terminal in VT102 mode.
- The Professional 350 and 380 are supported in VT102/VT125 emulation mode.
- DTC01 DECtalk

Printers

- One LP25 or LP26 with LPV11 interface

PREREQUISITE SOFTWARE

None

Note: The Micro/RSX Base Kit is a prerequisite for the Micro/RSX Advanced Programmer's Kit.

If support for Ethernet Terminal Servers is required, then DECnet-Micro/RSX is needed. This is true even if only the Local Area Transport (LAT) protocol is to be used.

OPTIONAL SOFTWARE

Refer to the Micro/RSX Optional Software Cross Reference Table (SPD 20.95.xx) for optional software availability.

SOFTWARE WARRANTY

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product as defined in the Software Warranty Addendum of this SPD.

INSTALLATION

This software product can be installed by the customer using the step-by-step documentation available for this product. Optionally you can purchase DIGITAL Installation Services which provide for the installation of the software product by an experienced DIGITAL Software Specialist.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide, in part, that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on same CPU.

You will need a separate license for each CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then, Materials and Service Options are selected to utilize the product effectively. **THE LICENSE OPTIONS ARE DESCRIBED BELOW. IF YOU ARE NOT FAMILIAR WITH THE SERVICE OPTIONS, YOU MAY OBTAIN THE APPROPRIATE SOFTWARE PRODUCT SERVICE DESCRIPTION(S) FROM YOUR LOCAL DIGITAL OFFICE.** If you are already familiar with these options, you may obtain the ordering information directly from the Software Options Chart.

LICENSE OPTIONS**Single-Use License Option**

The Single-Use License is your right to use the software product on a single CPU.

You purchase a Single-Use License according to the category to which your CPU belongs:

- Class H Single-Use License (high-end systems)

— All UNIBUS models and systems

— MicroPDP-11/83

- Class L Single-Use License (low-end systems)

— All Q-BUS models and systems except MicroPDP-11/83

— KD11, KDF11, KDJ11 CPU modules

— DCT11, DCF11, DCJ11 microprocessor chips

For your first installation of this software product you must purchase as a **minimum**:

- Single-Use License Option, and
- Distribution and Documentation Option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation Option provides the machine-readable software and related documentation.

To use this software product on additional CPUs, you must purchase for each CPU as a **minimum**:

- Single-Use License Option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

Distribution and Documentation Option

The Distribution and Documentation option provides the machine-readable software and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

Software Revision Right-To-Copy Option

The Right-To-Copy Option allows a customer with multiple CPUs to copy a revised version of a software product from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPUs by purchasing the Right-To-Copy Option for each additional CPU.

Documentation-Only Option

The Documentation-Only Option provides one copy of the basic documentation.

Software Product Services

A variety of service options are available. For more information on these or other services, please contact your local DIGITAL office.

Since the Base Kit is prerequisite software for the Advanced Programmer's Kit, it must have the equivalent level Software Product Service.

This product is serviced by two basic mechanisms. First, new releases of the product may provide new features and remedies for known software problems. Second, suggestion/problem reports will be acknowledged upon receipt by DIGITAL. If there is a suitable workaround available for a suggestion/problem report it will be provided, otherwise it will be considered for inclusion or remedy in a future new release. The optional service agreements include these two mechanisms as well as other service offerings.

SOURCE MATERIALS OPTIONS

You can obtain optional source materials for this software product by signing DIGITAL's Software Program Sources License Agreement and then purchasing the source option(s) you want. The agreement entitles you to use the

source materials at one customer facility or location which is specified in the agreement.

Most users do not require source materials. They are used primarily to make modifications to the software product. Source kits provided by DIGITAL do not necessarily contain all source files used by DIGITAL to build binary kits.

Source License and Sources Listings Option

This option provides you with listings of the source programs for this software product. It gives you the right to use the listings for any CPU at the facility/location specified in the agreement which has a Single-Use License for the object code.

SOFTWARE OPTIONS CHART

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g. QY800-H3 = binaries on RX50 Floppy Diskette.

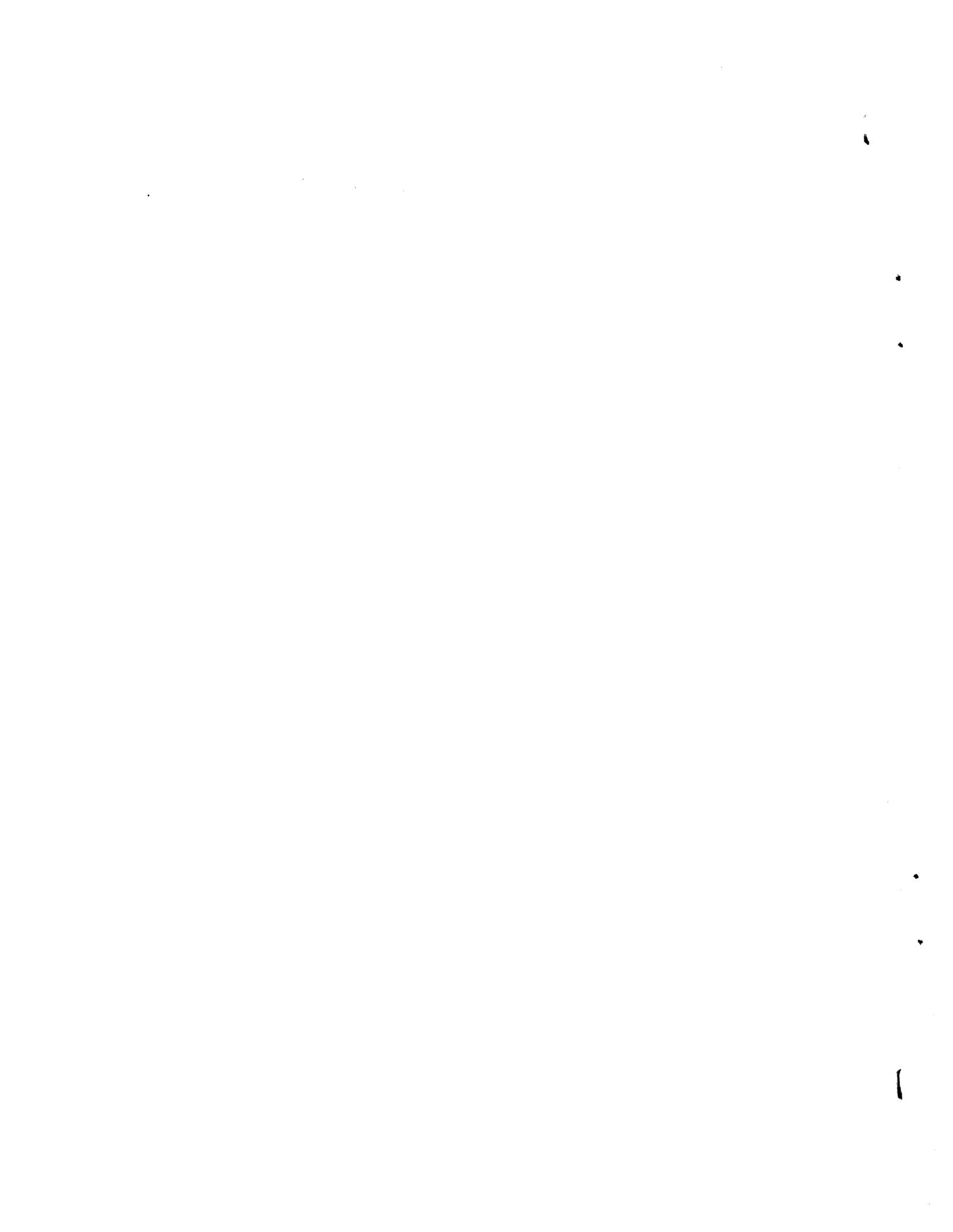
- 3 = RX50 Floppy Diskette (For RX33 drives order the RX50 media.)
- 5 = TK50 Tape Cartridge
- R = Microfiche
- Z = No hardware dependency

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER Base Kit	ORDER NUMBER Advanced Programmer's Kit
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.		
Single-Use License (Class H) ¹	QR810-UZ ²	QR810-UZ ²
Single-Use License (Class L) ¹	QY800-UZ ²	QY800-UZ ²
MATERIALS AND SERVICE OPTIONS:		
Start-Up Service Package, Level I	QY800-53 QY800-55	QY801-53 QY801-55
Distribution and Documentation Option	QY800-H3 QY800-H5	QY801-H3 QY801-H5
Software Revision Right-To-Copy Option	QY800-HZ	QY801-HZ
Documentation-Only Option	QY800-GZ	QY801-GZ
Advanced Programmer's Kit Add-on Documentation Kit		QY801-TZ ³
Installation Service Option	QY800-I3 QY800-I5	QY801-I3 QY801-I5
DECsupport Service	QY800-93 QY800-95	QY801-93 QY801-95
Basic Service	QY800-83 QY800-85;	QY801-83 QY801-85
Self-Maintenance Service	QY800-33 QY800-35	QY801-33 QY801-35
SOURCE MATERIALS OPTIONS:		
Source License and Source Listing	QY801-FR ⁴	QY801-FR ⁴

- (1) Refer to the descriptions of Class H and Class L single-use licenses in the License Option section of this SPD.
- (2) Either QY800-UZ or QR810-UZ licenses both the Base and Advanced Programmer's Kit. Only one (1) license is required on a single CPU for use of both the Base and Advanced Programmer's Kit.

- (3) QY801-TZ contains only the Micro/RSX-specific manuals from the Advanced Programmer's Documentation Kit (QY801-GZ), which includes several manuals that are also contained in the RSX-11M-PLUS, Version 3.0 documentation set. If one already has the RSX-11M-PLUS, Version 3.0 documentation, QY801-TZ may be ordered to avoid duplication.
- (4) QY801-FR is a listing of both the Base and Advanced Programmer's Kit sources.



Software Product Description

PRODUCT NAME: PDP-11 FORTRAN-77/RSX, Version 5.0

SPD 14.31.09

DESCRIPTION

PDP-11 FORTRAN-77/RSX is an extended implementation of the ANSI subset FORTRAN-77 standard (X3.9-1978) that runs on the RSX-11M and RSX-11M-PLUS Operating Systems (Run-time operations supported on RSX-11S). PDP-11 FORTRAN-77/RSX contains all the features of the ANSI FORTRAN-77 subset, many of the full-set language features, and extensions that are not included in the ANSI FORTRAN-77 standard. Switch selectable support is provided for user programs based on the previous ANSI FORTRAN standard (X3.9-1966).

PDP-11 FORTRAN-77/RSX meets the Federal Information Processing Standard Publication (FIPS PUB-69) requirement for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements that do not conform to the full-level ANSI FORTRAN X3.9-1978 standard.

PDP-11 FORTRAN-77/RSX programs can be optionally executed under control of PDP-11 Symbolic Debugger/RSX (SPD 12.78.xx). Execution of application programs using PDP-11 Symbolic Debugger aids in location of programming errors in successfully compiled programs that behave abnormally when executed.

Among the major features defined by the new ANSI subset-language FORTRAN standard and not found in either the previous ANSI standard or previous versions of DIGITAL PDP-11 FORTRAN are:

- CHARACTER data type
- Block IF construct, including IF...THEN, ELSE IF, ELSE, and END IF statements, for conditional execution of blocks of statements

The PDP-11 FORTRAN-77/RSX compiler includes the following features of full-language FORTRAN as defined by the ANSI Standard:

- Double precision and complex data types
- Intrinsic functions, including LEN, ICHAR, and INDEX
- Exponentiation forms, including double precision and complex
- Format edit descriptors, including S, SP, SS, T, TL, TR, lw.m, and Gw.dEe

- Generalized DO loop parameters
- Generic function selection based on argument data type for FORTRAN-defined functions
- Lower and upper bounds specification in array declarators
- Substrings of character variables and character array elements
- Optional syntax for I/O statements (UNIT+ and FMT+)

PDP-11 FORTRAN-77/RSX includes the following extensions to the ANSI Standard:

- Language elements for keyed and sequential access to RMS multikey ISAM files
- DEFINE FILE, FIND, DELETE, REWRITE, and UNLOCK statements
- TYPE and ACCEPT input/output statements
- Comments permitted at the end of each source line
- INCLUDE statement
- BYTE data type
- ENCODE, DECODE statements
- Explicit specification of storage allocation units for data types (e.g., INTEGER*4)
- Hexadecimal and octal constants
- Virtual array support for systems with memory management directives. Virtual arrays are memory-resident and require enough main memory to contain all elements of all arrays.
- O and Z format edit descriptors

The PDP-11 FORTRAN-77 compiler produces direct PDP-11 machine code optimized for execution-time efficiency on a PDP-11 with a floating point processor. PDP-11 FORTRAN-77 compiler optimizations include:

- Optimizations of arithmetic and logical IF statements
- Common subexpression elimination
- Removal of invariant expressions from DO loops

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- Allocation of processor registers across block IF constructs and DO loops

Object Time System

The PDP-11 FORTRAN-77/RSX Object Time System (OTS) is a set of object modules that are selectively linked with compiler-produced object modules by the operating system's task builder, to produce a task (program) ready for execution.

PDP-11 FORTRAN-77/RSX provides the capability of creating either or both of the following object time systems:

- The OTS based on File Control Services (FCS) allows sequential and random access to sequentially organized files.
- The OTS based on Record Management Services (RMS) uses RMS to provide access to sequential, relative, and indexed organization files.

The RMS OTS is normally larger than the FCS OTS, but provides additional capabilities. For a given task, it is not possible to mix FCS OTS modules with RMS OTS modules.

MINIMUM HARDWARE REQUIRED

Any valid RSX-11M or RSX-11M-PLUS Operating System configuration with

- Floating Point Processor (FPP)
- At least 48K bytes of user memory
- Up to 390 contiguous disk blocks for the compiler task
- An additional 150 to 250 disk blocks are required for the Object Time System library file and auxiliary support files, depending on installation options.

The compiler can use 370 or more blocks of temporary disk space when compiling large programs.

Note: The FPP is not required if the user's source program does not exercise floating point arithmetic.

OPTIONAL HARDWARE

None

PREREQUISITE SOFTWARE

One of the following operating systems:

- RSX-11M-PLUS
- RSX-11M
- RSX-11S, Version 4.2 (for run-time operations only)

Refer to the RSX-11M (SPD 20.98.xx) and RSX-11M-PLUS (SPD 20.99.xx) Optional Software Cross Reference Tables for the required versions.

OPTIONAL SOFTWARE

PDP-11 Symbolic Debugger

SOFTWARE WARRANTY

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product as defined in the Software Warranty Addendum of this SPD.

INSTALLATION

This software product can be installed by the customer using the step-by-step documentation available for this product. Optionally you can purchase DIGITAL Installation Services which provide for the installation of the software product by an experienced DIGITAL Software Specialist.

Courtesy Installation Service

This software product will be installed by DIGITAL at no additional charge if you purchase it concurrent with a Startup Service Package that includes installation service. Both the operating system and this product must be installed concurrently.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on that same CPU.

You will need a separate license for each CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then, Materials and Service Options are selected to utilize the product effectively. **THE LICENSE OPTIONS ARE DESCRIBED BELOW. IF YOU ARE NOT FAMILIAR WITH THE SERVICE OPTIONS, YOU MAY OBTAIN THE APPROPRIATE SOFTWARE PRODUCT DESCRIPTION(S) FROM YOUR LOCAL DIGITAL OFFICE.** If you are already familiar with these options, you may obtain the ordering information directly from the Software Options Chart.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single CPU.

For your first installation of this software product you must purchase as a **minimum**:

- Single-Use License Option, and
- Distribution and Documentation Option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation Option provides the machine-readable software and related documentation.

To use this software product on additional CPUs, you must purchase for each CPU as a **minimum**:

- Single-Use License Option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

The licensee may also reproduce and distribute object modules and/or resident libraries which are necessary to run programs compiled with this product provided such

programs are distributed: 1) in accordance with the provisions of licensee's standard software license; or 2) with licensee's copyright notice included on such programs; or 3) if conditions (1) and (2) are not met, with DIGITAL's COPYRIGHT notice included on such programs.

Single-Use License Option For Object Time System

If you have PDP-11 FORTRAN-77/RSX installed on a CPU fully licensed for that product and you wish to use the Object Time System portion of it on an additional CPU, you can purchase a Single-Use License for the Object Time System. This license gives you the right to use only the Object Time System and does not include software warranty.

Migration Option

Current licensed users of PDP-11 FORTRAN IV/RSX are eligible for the migration option. This is a Single-Use License offered at a reduced price and provides all of the License rights described above.

For your first installation of this software product you must purchase as a **minimum**:

- Migration Option, and
- Distribution and Documentation Option

To use this software product on additional CPUs currently licensed for PDP-11 FORTRAN IV/RSX, you must purchase for each CPU as a **minimum**:

- Migration Option

Distribution and Documentation Option

The Distribution and Documentation option provides the machine-readable software and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

Software Revision Right-To-Copy Option

The Right-To-Copy Option allows a customer with multiple CPUs to copy a revised version of a software product from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPUs by purchasing the Right-To-Copy Option for each additional CPU.

Documentation-Only Option

The Documentation-Only option provides one copy of the basic documentation.

Software Product Services

A variety of service options are available. For more information on these or other services, please contact your local DIGITAL office.

SOURCE MATERIALS OPTIONS

You can obtain optional source materials for this software product by signing DIGITAL's Software Program Sources License Agreement and then purchasing the source option(s) you want. The agreement entitles you to use the source materials at one customer facility or location which is specified in the agreement.

Most users do not require source materials. They are used primarily to make modifications to the software product. Source kits provided by DIGITAL do not necessarily contain all source files used by DIGITAL to build binary kits.

Portions of the PDP-11 FORTRAN-77 sources are written in BLISS-16, which executes on a VAX-11 processor running VAX/VMS. The compiler sources cannot be compiled by the customer, unless BLISS-16 and a VAX-11 processor running VAX/VMS have been purchased. Some compiler modules and all of the OTS modules are written in MACRO-11.

Source License and Sources Distribution Option

This option provides you with the machine-readable source code for this software product. It gives you the right to use the source code on any CPU at the facility/location specified in the agreement which has a Single-Use License for the object code.

Source License and Sources Listings Option

This option provides you with listings of the source programs for this software product. It gives you the right to use the listings for any CPU at the facility/location specified in the agreement which has a Single-Use License for the object code.

Sources Distribution Option

This option provides you with the revised version of the machine-readable source code for this software product. You must have purchased the Source License and Source Distribution Option to obtain this option.

Sources Listings Option

This option provides you with listings of source code for the revised version of the software product.

SOFTWARE OPTIONS CHART

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g. QY668-H5 = binaries on TK50 Tape Cartridge.

- | | |
|------------------------------------|----------------------------|
| 5 = TK50 Cartridge Tape | R = Microfiche |
| D = 9-track 800 BPI Magtape (NRZI) | T = RK06 Disk Cartridge |
| H = RL02 Disk Cartridge | V = RK07 Disk Cartridge |
| M = 9-track 1600 BPI Magtape (PE) | Z = No hardware dependency |
| Q = RL01 Disk Cartridge | |

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER CLASS L SYSTEMS ¹	ORDER NUMBER CLASS H SYSTEMS ²
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.		
Single-Use License	QY668-UZ	QJ668-UZ
Migration Option for PDP-11 FORTRAN IV/RSX	QY234-UZ	QP234-UZ
MATERIALS AND SERVICE OPTIONS:		
Distribution and Documentation Option	QY668-H5 QY668-HH QY668-HM	QJ668-H5 QJ668-HD QJ668-HH QJ668-HM QJ668-HQ QJ668-HT QJ668-HV
Software Revision Right-To-Copy Option	QY668-HZ	QJ668-HZ
Documentation-Only Option	QY668-GZ	QJ668-GZ
Installation Service Option	QY668-I5 QY668-IH QY668-IM	QJ668-I5 QJ668-ID QJ668-IH QJ668-IM QJ668-IQ QJ668-IT QJ668-IV
DECsupport Service	QY668-95 QY668-9H QY668-9M	QJ668-95 QJ668-9D QJ668-9H QJ668-9M QJ668-9Q QJ668-9T QJ668-9V

Basic Service	QY668-85 QY668-8H QY668-8M	QJ668-85 QJ668-8D QJ668-8H QJ668-8M QJ668-8Q QJ668-8T QJ668-8V
Self-Maintenance Service	QY668-35 QY668-3H QY668-3M	QJ668-35 QJ668-3D QJ668-3H QJ668-3M QJ668-3Q QJ668-3T QJ668-3T
SOURCE MATERIALS OPTIONS:		
Source License and Sources Distribution for Compiler		QJ668-ED QJ668-EM
Source License and Sources Distribution for Object Time System		QJ669-ED QJ669-EM
Source License and Sources Listings		QJ669-FR
Sources Distribution for Compiler		QJ668-ND QJ668-NM
Sources Distribution for Object Time System		QJ668-ND QJ668-NM
Sources Listings for Compiler		QJ669-NR

¹Class L Systems:

- All Q-bus models and systems except MicroPDP-11/83
- KD11, KDF11, KDJ11 CPU modules
- DCT11, DCF11, DCJ11 microprocessor chips

²Class H Systems:

- All UNIBUS models and systems
- MicroPDP-11/83



Software Product Description

PRODUCT NAME: RSX-11M, Version 4.2
Real-Time Operating System

SPD 14.35.25

DESCRIPTION

RSX-11M is a disk-based, real-time operating system that runs on any UNIBUS PDP-11 processor and on most Q-BUS PDP-11 and MicroPDP-11 processors. It provides an environment for the development and execution of multiple real-time tasks (program images) using a priority-structured, event-driven scheduler. System generation on either a host PDP-11 or VAX processor allows the user to tailor the software for systems ranging in size from small 32K-byte systems to large 3840K-byte systems.

Program development and real-time tasks can execute concurrently in systems with at least 48K bytes of memory. The system's software priority levels enable the user to compile/assemble, debug, install, and execute tasks without affecting real-time task response.

A multiuser program-development facility is available for systems with a recommended minimum of 64K bytes of memory. LOGIN/LOGOUT, password protection, device access protection, a round-robin scheduler (running under the real-time Executive), and concurrent execution of equal priority tasks via Executive-level swapping are provided. All systems have the MCR command interface. Mapped systems can select the easier-to-use DIGITAL Command Language (DCL), with MCR or DCL selectable on a per-terminal basis.

Tasks can be written in MACRO-11 assembly language, or in optionally available high-level languages including BASIC-PLUS-2, COBOL-81, FORTRAN-77, and PASCAL. Shareable libraries and system support for user-created libraries are provided. The EDT and EDI editors, program development utilities, a symbol cross-reference processor, an interactive debugger, and task memory dump facilities are provided to assist task development and checkout.

The RSX-11M file system provides automatic space allocation and file structures for all block-structured devices. Features include file protection, device independence, and logical device assignment. Multiheader file support is provided, which enables file size to be limited only by the capacity of the volume on which it resides. During system generation, the user can select a minimum 4K-byte version of the resident file system to conserve space.

Two file access facilities are available: Record Management Services (RMS-11) and File Control Services (FCS). RMS-11 supports three file organizations: sequential, relative, and multikeyed indexed sequential (ISAM), and provides sequential and direct access modes. FCS supports sequential and direct access to sequentially and randomly organized files. RMS requires at least 8K bytes per task. Using FCS will increase the user task by approximately 2K to 8K bytes, depending on the number of open files and the services desired.

Indirect command file support provides extremely powerful batch-like facilities. A user can create a file containing system commands. The system can then be instructed to execute the commands in the files without user intervention. The Indirect Command Processor can be executing command files concurrent with real-time task execution.

Most PDP-11 processors have Memory Management available, which provides logical to physical memory mapping. If the configuration does not include hardware memory management, the system can support between 32K and 56K bytes of memory. If the configuration includes hardware memory management, RSX-11M can support between 56K and 3840K bytes of memory. RSX-11M provides the same primary services in mapped and unmapped systems; however, some supplied optional features and separately-licensed software options require hardware configurations larger than the minimum supported systems.

Memory is logically divided into partitions in which tasks are loaded and executed. Activity in a partition can either be user-controlled or system-controlled; the user determines the placement of tasks in the former and the system controls the placement of tasks in the latter. Automatic memory compaction minimizes fragmentation of a system-controlled partition. Unmapped systems support only user-controlled partitions. Mapped systems support both user-controlled and system-controlled partitions.

Real-time interrupt response is provided by the system's task scheduler, which recognizes 250 software priority levels. The user-specified task priority determines the task's eligibility to execute. A task can be fixed in a partition to ensure immediate execution when it is activated or it can reside on disk while it is dormant to make

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memory available to other tasks. Task checkpointing enables tasks to be displaced from a partition to enable a higher priority, nonresident task to execute.

Software-supported Reliability Features

- Processor error logging
- Disk and magnetic tape error logging
- Power fail restart
- On-line device exerciser (IOX) to verify correct operation of disks and tapes

Other Available RSX-11M Features

- Terminal Services Architecture (TSA) support — Terminals connected to an RSX-11M system in a DECnet-based network can function as remote command terminals on other RSX or VAX/VMS systems that also support TSA. Likewise, terminals on those remote systems can function as command terminals on the RSX-11M system.
- File Transfer — The file transfer utility allows easy file interchange between the RSX-11M system and a Professional 350 or 380 running P/OS, another PDP-11 running Micro/RSX or RSX-11M-PLUS, or a VAX/VMS system running VAX-11/RSX. DECnet software is not required. Communication with these systems is established through a terminal line and must be initiated from the other system. Although communication cannot be initiated from the RSX-11M system, files can be transferred in either direction. The file transfer utility uses the protocol DDCMP, which provides error detection and correction to assure data integrity. As files are transferred using RMS block I/O, all types of data files can be copied.
- Logical device assignments
- Magnetic tape character set translation
- Line printer spooling
- Loadable device drivers
- Postmortem and snapshot dump facility
- Crash Dump Analyzer facility
- Ability to perform an RSX-11M system generation on a host RSX-11M-PLUS system and on a host VAX/VMS system running VAX-11 RSX.
- Host for RSX-11S system generation and program development
- Full-duplex terminal driver that supports advanced features and additional devices not supported by the half-duplex terminal driver
- Direct connecting of a user task to hardware interrupts
- Memory management facilities

SOURCE CODE INFORMATION

Source code modules for the RSX-11M Executive and other privileged code are included in the binary kit options

on all available distribution media. These source code modules are included because they are required to generate the RSX-11M system. A separate source license and kit are provided for the RSX-11M utilities modules on 800 bpi magtape or 1600 bpi magtape.

This source code is provided on an "AS IS" basis without any warranty of any kind either express or implied.

MINIMUM HARDWARE REQUIRED

For System Generation:

VAX/VMS Systems:

Any valid VAX/VMS system configuration

PDP-11 and MicroPDP-11 Systems:

Processor — Any UNIBUS PDP-11 processor, PDP-11/70, PDP-11/23, PDP-11/23S, PDP-11/23-PLUS, MicroPDP-11/23, MicroPDP-11/53, MicroPDP-11/73, MicroPDP-11/83, or LSI-11/73.

Note: The LSI-11/73 (KDJ11-A) processor module is ONLY supported when used in the following two configurations with the noted restrictions. Configuration 1 is recommended wherever possible.

Configuration 1: (NOT supported with the RQDX1 controller)

- KDJ11-A processor module
- MRV11-D memory module with MXV11-B2 boot ROM set
- DLVJ1 four-line terminal interface

Configuration 2: (supports only ONE DL11-type interface when using half-duplex terminal driver)

- KDJ11-A processor module
- MXV11-BF multifunction module with MXV11-B2 boot ROM set

Memory — 196K bytes if the distribution medium is TK50 tape cartridge; 128K bytes for all other distribution media

Console — DL11, DLV11, or compatible interface with an appropriate terminal from the list of supported hardcopy, standard video, or graphics display terminals

Clock — KW11-L, KW11-P, or DL11-W if not provided by processor or bootstrap

Disk — RA60/80/81, RC25, RD52/53, dual RK06/07, dual RL01/RL02, RM02/03/05/80, or RP04/05/06

Note: RC25 is NOT a software distribution device for RSX-11M.

Tape — For all RA60/80/81, RC25, RD52/53, RM02/03/05/80, and RP04/05/06 systems, a 9-track tape drive (except TS03) from the optional hardware list or a TK50 tape drive is required.

For System Execution

Processor — Any UNIBUS PDP-11 processor, PDP-11/70, PDP-11/23, PDP-11/23S, PDP-11/23-PLUS, MicroPDP-11/23, MicroPDP-11/53, MicroPDP-11/73,

MicroPDP-11/83, or LSI-11/73 (Refer to LSI-11/73 NOTE above)

Memory — 32K bytes WITHOUT SUPPORT for RA60/80/81, RC25, RD31/51/52/53, and RX50 disk drives, and TK50 tape drive; 128K bytes WITH SUPPORT for any of these devices

Console — DL11, DLV11, or compatible interface with an appropriate terminal from the list of supported hardcopy, standard video, or graphics display terminals

Clock — KW11-L, KW11-P, or DL11-W if not provided by processor or bootstrap

Disk — A hard disk from the optional hardware list

The basic 32K-byte RSX-11M system provides approximately 16K bytes of memory for user tasks and 16K bytes of memory for system space. Additional Executive services and device drivers can be selectively incorporated into the system at increased memory space usage. The following are contained in the basic system memory space:

- Executive
- File System Primitives (4K version)
- Operator Interface Task (MCR)
- Task Loader
- Space for three device drivers which include:
 - One system disk driver
 - A small terminal driver supporting a single DL11 or DLV11 line
 - One other driver (excluding ICS11/ICR11)

A minimum of 56K bytes is required for mapped systems or where it is desired to perform concurrent program development and application execution.

Although magnetic tape drives are supported in a 32K byte system, the minimum recommended memory for tape support is 56K bytes.

HARDWARE RESTRICTIONS

In some cases, not all hardware features of the following options are supported. Hardware and software restrictions can limit the number of devices that a given system can support. Some combinations of devices may be mutually exclusive.

For example, due to hardware restrictions, errors may be experienced when the DLVJ1 is configured with an RQDX1 or additional DLVJ1 modules. Similarly, only one RQDX1 is supported per system.

OPTIONAL HARDWARE

Processor Options

- Additional memory to a system total of 56K bytes on systems that do not include the hardware memory management unit, or 3840K bytes on systems that include the hardware memory management unit.
- FP11 Floating Point Processor

- FPF11 Floating Point Processor
- FPJ11 Floating Point Processor
- KE11-A,B Extended Arithmetic Element (supported only on systems that do not include a memory management unit)
- KE11-E Extended Instruction Set
- KE11-F Floating Instruction Set
- KEF11-AA Floating Point Processor
- KEF11-BB Commercial Instruction Set
- KW11-Y Watch-dog Timer Clock
- KT11 Memory Management Unit (requires a minimum of 56K bytes of memory)
- KT24 PAX Module (required on the PDP-11/24 to support more than 248K bytes of memory)

9-Track Magnetic Tape Drives

- TE10, TS03, TU10, and TU10W 800 bpi tape drives
- TE16, TU16, TU45, and TU77 800/1600 bpi tape drives
- TS11, TSV05, and TU80 1600 bpi tape drives
- TU81 and TU81E 1600/6250 bpi tape drives

Note: The TU81E is supported as TU81 drives

Other Magnetic Tape Devices

- TU58 dual-drive DECtape II cartridge tape subsystem (with DL11 or DLV11 controller)
- Note:** The TU58 should be used only in a stand-alone, lightly-loaded environment. If used as a file device on a heavily-loaded system, it can degrade system performance.
- TU60 dual-drive cassette tape system (with TA11 controller)
- TK25 cartridge tape drive (with appropriate Q-BUS controller)
- TK50 cartridge tape drive (with appropriate Q-BUS or UNIBUS controller and 128K bytes memory minimum)

Note: If the TK50 is used with utilities other than BRU or is used with the verify pass of BRU, degraded performance and/or capacity of the TK50 should be expected.

Hard Disk Devices

- ML11 semiconductor disk emulator (with RH70 controller)
- RA60, RA80 and, RA81 disk drives (with UDA50 or KDA50 controller and 128K bytes memory minimum)
- RC25 fixed/removable disk subsystem (with appropriate UNIBUS or Q-BUS controller and 128K bytes memory minimum)

- RD51 and RD52 disk drives (with RQDX1, RQDX2, or RQDX3 controller and 128K bytes memory minimum). The RQDX1 requires Version 9 microcode or later to support the RD52 disk drive. There can be no more than one RQDX1 on a system.
- RD53 disk drive (with RQDX2 or RQDX3 controller and 128K bytes memory minimum)
- RD31 disk drive (with RQDX3 controller and 128K bytes memory minimum)
- RK05 and RK05F cartridge disk drives (with RK11 controller)
- RK06 and RK07 cartridge disk drives (with appropriate RK controller)
- RL01 and RL02 cartridge disk drives (with appropriate RL controller)
- RM02, RM03, RM05, and RM80 disk drives (with appropriate RH controller)
- RPR02/ RP02 and RP03 disk pack drives (with RP11 controller)
- RP04, RP05, and RP06 disk pack drives (with appropriate RH controller)
- RS03 and RS04 fixed-head disk drives (with appropriate RH controller)

Note: With this software product, serious data corruption and/or performance degradation can occur if, in a disk drive with the dual port option, the port select switch is placed in the programmable position.

Soft Disk Devices

- RX11, RX211, RXV12, and RXV21 floppy disk systems
- RX50 floppy disk system (with RQDX1, RQDX2, RQDX3, or RUX50 controller and 128K bytes memory minimum)
- RX33 dual density floppy disk drive (with RQDX3 controller and 128K bytes memory minimum).

RSM-11M supports on-line formatting of RX33 diskettes. However, an RX50 format diskette, although it can be read and written in an RX33 drive, cannot be reformatted into the higher density RX33 format.

Terminals

- Hardcopy Terminals — LA12, LA30S/P, LA34, LA36, LA38, LA120, LA180S, LT33, and LT35
- Standard Video Terminals — VT05B, VT50, VT52, VT100, VT101, VT102, VT131 (in VT100/102 character mode only), and VT220
- Graphics Display Terminals — VT55, VT105, VT125, VT240, and VT241

Other Terminal Devices

- DTC01 DECTalk

- The PC100 (Rainbow 100) is supported as a terminal in VT102 mode
- The PC278 (DECmate II) is supported as a terminal in VT102 mode
- The Professional 300 series personal computers are supported as VT102/VT125s in emulation mode
- RT02 Alphanumeric Display
- RT02-C Alphanumeric Display and Badge Reader
- Terminal Interfaces — The terminals listed above are supported when connected to a DH11 (with or without DM11-BB), DHU11, DHV11, DL11-A,B,C,D,E, or W, DLV11, DLV11-E or F, DLVJ1 (console baud rates must not exceed 1200 baud with DLVJ1. Refer to the other DLVJ1 disclaimers in the **HARDWARE RESTRICTIONS** section), DZ11, DZV11, DZQ11, or DZS11 (first terminal must be VT1xx with DZS11).

Note: A maximum of 64 terminals is supported.

Communications Devices

- DA11-B DMA UNIBUS link
- DEUNA and DELUA Ethernet controllers
- DL11 and DLVE1 asynchronous single-line interfaces
- DMC11-E interprocessor link
- DMR11 interprocessor link
- DP11 and DPV11 synchronous single-line interfaces
- DQ11 DMA synchronous single-line interface
- DU11 and DUV11 synchronous single-line interfaces
- DUP11 synchronous single-line interface

Laboratory/Industrial Control Devices

- AD01-D A/D Converter
- AFC11 A/D Converter
- AR11 Analog Real-Time System with DR11-K 16-bit digital I/O option; one per subsystem (bit interrupt capability not supported)
- DRS11/DSS11 Industrial Control System Modules
- ICS11/ICR11 Industrial Control Subsystem
- LPA11-K Laboratory Peripheral Accelerator
- LPS11 Laboratory Peripheral System
- UDC11 Universal Digital Controller
- Laboratory I/O Subsystem configured using the following options:
 - AA11-K 4-channel 12-bit D/A converter with scope control; 16 per subsystem

- AAV11-A, ADV11-A, DRV11, and KVV11-A real-time options
- AD11-K 12-bit A/D converter with 16-channel multiplexer; 16 per subsystem (15 if ADK11 is part of the same subsystem)
- ADK11-KT 12-bit A/D converter with 16-channel multiplexer; one per subsystem
- AM11-K 48-channel A/D multiplexer with gain ranging; one per AD11-K or ADK11-KT
- DR11-K 16-bit digital I/O option; 16 per subsystem
- KW11-K dual real-time clock with Schmitt triggers; one per system

Note: Support for the IP11 and IPV11 Process Control Subsystems, bundled in previous versions of RSX-11M, is now available as a separate optional software product for RSX-11M.

Other Peripherals

- PR11 paper tape reader and PC11 paper tape reader/punch
- CR11 and CM11-E card reader
- VT11/VS60 Graphics Display processor and scope
- Printers — LA50, LA75 in LA50 mode, LA100, LA180, LA210, LN01, LN03, LP11 Series (LP01/02/04/05/06/07/14/25/26/27), LQP02, LQP03, LS11, and LV01.

Note: Plotter support for DIGITAL printer plotters is provided by optional software.

- KMC11-A auxiliary processor as a line printer DMA interface

PREREQUISITE SOFTWARE

For System Generation

For Stand-alone Generation:

None

For On-Line Generation:

One of the following Operating Systems:

RSX-11M*
RSX-11M-PLUS**
VAX/VMS running VAX-11 RSX***

- * Refer to the RSX-11M Optional Software Cross Reference Table (SPD 20.98.xx) for the required version.
- ** Refer to the RSX-11M-PLUS Optional Software Cross Reference Table (SPD 20.99.xx) for the required version.
- *** Refer to the VAX/VMS System Software Order Table/Optional Software Cross Reference Table (SPD 28.98.xx) for the required versions.

For System Execution:

None

OPTIONAL SOFTWARE

Refer to the RSX-11M Optional Software Cross Reference Table (SPD 20.98.xx) for all available optional software.

SOFTWARE WARRANTY

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product as defined in the Software Warranty Addendum of this SPD.

INSTALLATION

Only experienced customers should attempt installation of this product. DIGITAL recommends that all other customers purchase DIGITAL's Installation Services. These services provide for installation of the software product by an experienced DIGITAL Software Specialist.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide, in part, that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on same CPU.

You will need a separate license for each CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then, Materials and Service Options are selected to utilize the product effectively. **THE LICENSE OPTIONS ARE DESCRIBED BELOW. IF YOU ARE NOT FAMILIAR WITH THE SERVICE OPTIONS, YOU MAY OBTAIN THE APPROPRIATE SOFTWARE PRODUCT SERVICE DESCRIPTION(S) FROM YOUR LOCAL DIGITAL OFFICE.** If you are already familiar with these options, you may obtain the ordering information directly from the Software Options Chart.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single CPU.

You purchase a Single-Use License according to the category to which your CPU belongs:

- Class H Single-Use License (high-end systems)
 - All UNIBUS models and systems
 - MicroPDP-11/83
- Class L Single-Use License (low-end systems)
 - All Q-BUS models and systems except MicroPDP-11/83
 - KD11, KDF11, KFJ11 CPU modules
 - DCT11, DCF11, DCJ11 microprocessor chips

For your first installation of this software product you must purchase as a **minimum**:

- Single-Use License Option, and
- Distribution and Documentation Option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation Option provides the machine-readable software and related documentation.

To use this software product on additional CPUs, you must purchase for each CPU as a **minimum**:

- Single-Use License Option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

Distribution and Documentation Option

The Distribution and Documentation option provides the machine-readable software and the basic documentation.

You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

Software Revision Right-To-Copy Option

The Right-To-Copy Option allows a customer with multiple CPUs to copy a revised version of a software product from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPUs by purchasing the Right-To-Copy Option for each additional CPU.

Documentation-Only Option

The Documentation-Only Option provides one copy of the basic documentation.

Software Product Services

A variety of service options are available. For more information on these or other services, please contact your local DIGITAL office.

SOFTWARE OPTIONS CHARTS

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g. QJ738-H5 = binaries for RL01/RL02-based systems on TK50 Tape Cartridge.

- | | |
|------------------------------------|----------------------------------|
| 5 = TK50 Tape Cartridge | R = Microfiche |
| D = 9-track 800 BPI Magtape (NRZI) | T = RK06 Disk Cartridge (Note 1) |
| H = RL02 Disk Cartridge | V = RK07 Disk Cartridge |
| M = 9-track 1600 BPI Magtape (PE) | Z = No hardware dependency |
| Q = RL01 Disk Cartridge | |

CHART I

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER FOR RL01/RL02 BASED SYSTEMS	ORDER NUMBER FOR RK06/RK07 BASED SYSTEMS
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.		
Single-Use License (Class H)*	QJ628-UZ	QJ628-UZ
Single-Use License (Class L)*	QY628-UZ	QY628-UZ
Migration Option from RT-11, RSX-11D and IAS	QJ740-UZ	QJ740-UZ
MATERIALS AND SERVICE OPTIONS:		
Start-Up Service Package, Level III	QJ738-B5 QJ738-BD QJ738-BH QJ738-BM QJ738-BQ	QJ629-B5 QJ629-BD QJ629-BM QJ629-BV
Start-Up Service Package, Level II	QJ738-75 QJ738-7D QJ738-7H QJ738-7M QJ738-7Q	QJ629-75 QJ629-7D QJ629-7M QJ629-7V
Start-Up Service Package, Level I	QJ738-55 QJ738-5D QJ738-5H QJ738-5M QJ738-5Q	QJ629-55 QJ629-5D QJ629-5M QJ629-5V
Distribution and Documentation Option	QJ738-H5 QJ738-HD QJ738-HH QJ738-HM QJ738-HQ	QJ629-H5 QJ629-HD QJ629-HM QJ629-HT (Note 1) QJ629-HV
Software Revision Right-To-Copy Option	QJ628-HZ	QJ628-HZ

OPTIONS	ORDER NUMBER FOR RL01/RL02 BASED SYSTEMS	ORDER NUMBER FOR RK06/RK07 BASED SYSTEMS
Documentation-Only Option	QJ628-GZ	QJ628-GZ
Installation Service Option	QJ738-I5 QJ738-ID QJ738-IH QJ738-IM QJ738-IQ	QJ629-I5 QJ629-ID QJ629-IM QJ629-IT (Note 1) QJ629-IV
DECsupport Service	QJ738-95 QJ738-9D QJ738-9H QJ738-9M QJ738-9Q	QJ629-95 QJ629-9D QJ629-9M QJ629-9V
Basic Service	QJ738-85 QJ738-8D QJ738-8H QJ738-8M QJ738-8M	QJ629-85 QJ629-8D QJ629-8M QJ629-8V
Self-Maintenance Service	QJ738-35 QJ738-3D QJ738-3H QJ738-3M QJ738-3Q	QJ629-35 QJ629-3D QJ629-3M QJ629-3V
SOURCE MATERIALS OPTIONS: (Note 2)		
Source License and Sources Distribution for Utilities	QJ638-E5 QJ638-ED QJ638-EM	QJ638-E5 QJ638-ED QJ638-EM
Source License and Sources Listings for Utilities	QJ638-FR	QJ638-FR
Source License and Sources Listings for Executive	QJ628-FR	QJ628-FR
Sources Distribution Update for Utilities	QJ638-N5 QJ638-ND QJ638-NM	QJ638-N5 QJ638-ND QJ638-NM
Sources Listings Update for Utilities	QJ638-NR	QJ638-NR
Sources Listings Update for Executive	QJ628-NR	QJ628-NR

* Refer to the descriptions of Class H and Class L single-use licenses in the License Option section of this SPD.

Note 1: Version 4.2 is the last release to be distributed on RK06 Disk Cartridges.

RK06 kits cannot be ordered after November 30, 1986.

Note 2: The combination of Executive and Utilities sources does not necessarily comprise all the sources used by DIGITAL to build binary kits.

CHART II

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER FOR RP04/05/06 BASED SYSTEMS	ORDER NUMBER FOR RM02/03/05/80	ORDER NUMBER FOR RA60/80/81/RC25/RD52/53 BASED SYSTEMS
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.			
Single-Use License (Class H)*	QJ628-UZ	QJ628-UZ	QJ628-UZ
Single-Use License (Class H)*	QY628-UZ	QY628-UZ	QY628-UZ
Migration Option from RT-11, RSX-11D and IAS	QJ740-UZ	QJ740-UZ	QJ740-UZ
MATERIALS AND SERVICE OPTIONS:			
Start-Up Service Package, Level III	QJ637-B5 QJ637-BD QJ637-BM	QJ737-B5 QJ737-BD QJ737-BM	QJ676-B5 QJ676-BD QJ676-BM
Start-Up Service Package, Level II	QJ637-75 QJ637-7D QJ637-7M	QJ737-75 QJ737-7D QJ737-7M	QJ676-75 QJ676-7D QJ676-7M
Start-Up Service Package, Level I	QJ637-55 QJ637-5D QJ637-5M	QJ737-55 QJ737-5D QJ737-5M	QJ676-55 QJ676-5D QJ676-5M
Distribution and Documentatin Option	QJ637-H5 QJ637-HD QJ637-HM	QJ737-H5 QJ737-HD QJ737-HM	QJ676-H5 QJ676-HD QJ676-HM
Software Revision Right-To-Copy Option	QJ628-HZ	QJ628-HZ	QJ628-HZ
Documentation-Only Option	QJ628-GZ	QJ628-GZ	QJ628-GZ
Installation Service Option	QJ637-I5 QJ637-ID QJ637-IM	QJ737-I5 QJ737-ID QJ737-IM	QJ676-I5 QJ676-ID QJ676-IM
DECsupport Service	QJ637-95 QJ637-9D QJ637-9M	QJ737-95 QJ737-9D QJ737-9M	QJ676-95 QJ676-9D QJ676-9M
Basic Service	QJ637-85 QJ637-8D QJ637-8M	QJ737-85 QJ737-8D QJ737-8M	QJ676-85 QJ676-8D QJ676-8M

OPTIONS	ORDER NUMBER FOR RP04/05/06 BASED SYSTEMS	ORDER NUMBER FOR RM02/03/05/80	ORDER NUMBER FOR RA60/80/81/RC25/RD52/53 BASED SYSTEMS
Self-Maintenance Service	QJ637-35 QJ637-3D QJ637-3M	QJ737-35 Qj737-3D QJ737-3M	QJ676-35 QJ676-3D QJ676-3M
SOURCE MATERIALS OPTIONS: (Note 2)			
Source License and Sources Distribution for Utilities	QJ638-E5 QJ638-ED QJ638-EM	QJ638-E5 QJ638-ED QJ638-EM	QJ638-E5 QJ638-ED QJ638-EM
Source License and Sources Listings for Utilities	QJ638-FR	QJ638-FR	QJ638-FR
Source License and Sources Listings for Executive	QJ628-FR	QJ628-FR	QJ628-FR
Sources Distribution Update for Utilities	QJ638-N5 QJ638-ND QJ638-NM	QJ638-N5 QJ638-ND QJ638-NM	QJ638-N5 QJ638-ND QJ638-NM
Sources Listings Update for Utilities	QJ638-NR	QJ638-NR	QJ638-NR
Sources Listings Update for Executive	QJ628-NR	QJ628-NR	QJ628-NR

* Refer to the descriptions of Class H and Class L single-use licenses in the License Option section of this SPD.

Note 2: The combination of Executive and Utilities sources does not necessarily comprise all the sources used by DIGITAL to build binary kits.

Software Product Description

PRODUCT NAME: **RSX-11M-PLUS, Version 3.0**

SPD 14.70.13

DESCRIPTION

RSX-11M-PLUS is a disk-based, multiuser operating system that provides a multiprogramming environment and real-time capabilities using a priority structured, event-driven scheduler. It is a superset of the RSX-11M Operating System designed to maximize performance of large memory and general purpose PDP-11 processors.

Time-shared program development and interactive processing, real-time tasks, and batch streams can execute concurrently. The system's software priority levels enable the user to compile or assemble, debug, install and execute tasks, and run batch streams without significantly affecting real-time response.

The system recognizes 250 software priority levels. The user-specified task priority determines the task's eligibility to execute. A task can be fixed in a partition to ensure immediate execution when activated or it can reside on disk while it is dormant, making memory available to other tasks. Task checkpointing allows tasks to be displaced from memory to enable higher priority, nonresident tasks to execute.

Memory sizes from 512K bytes to 3,840K bytes are supported. Memory is logically divided into partitions in which tasks are loaded and executed. The system controls the placement of tasks within a partition, and automatic memory compaction minimizes memory fragmentation within a partition.

A multiuser program development facility is provided. RSX-11M-PLUS supports the traditional MCR command interface, the easy-to-use Digital Command Language (DCL) and user-written command interpreters. LOGIN/LOGOUT with passwords, device, and file access protection, a round-robin scheduler (running under the real-time executive), and concurrent execution of equal priority tasks via executive level swapping provide a time-sharing environment. In addition, accounting information is logged to a disk file. This information includes, among other things, per user connect time, CPU time, and pages printed. The system keeps passwords in an encrypted form, using a one-way encryption algorithm.

Tasks can be written in the supplied MACRO-11 assembly language or in optionally available languages, such as

FORTRAN-77, COBOL-81, DIBOL-83, PASCAL, and BASIC-PLUS-2. User libraries and shareable libraries are supported.

Tasks can be written so that the system will automatically load a single, reentrant code section of a multiuser task and an impure section for each invocation of the task.

On MicroPDP-11/53, MicroPDP-11/73, MicroPDP-11/83, PDP-11/44, PDP-11/70, and PDP-11/84 systems, supervisor mode mapping can be used to map libraries, thus increasing the effective size of a user task.

And, on these systems, hardware mapping facilities are available to user tasks to separate instructions and data into separate 64KB address spaces, doubling the address space available to tasks.

Note: Not all of the available languages support the Instruction and Data Space and Supervisor Mode of operation available on these systems. Check the Software Product Description (SPD) for the specific language in question.

An extensive set of utilities is provided to facilitate file and system maintenance, error analysis, and program debugging. EDT, the DIGITAL standard editor, is supplied as well as RSX EDI. EDT supports advanced editing features including DEFINE KEY, which permits user defined key functions, and journalling which permits the recovery of most of the keystrokes of an editing session in the event of an abnormal exit from the editor.

The file system provides file structures for block structured devices. It also provides automatic space allocation, multiuser file protection, device independence, and logical device assignment.

Files are logically grouped into directories, which can be labeled by a name or by a pair of numbers conventionally denoting a user and a group to which the user belongs. A file is denoted by a file specification, which includes the file's device, directory and version as well as the file's name, and may include other elements. But typically all or part of a file specification can be replaced with a logical name or appropriate system-determined defaults. Multiple versions of a file may be retained. For most purposes, the user may omit specific reference to the file's version, and the system will automatically select the most recent version or, if appropriate, create a new one.

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Two file access facilities are available: File Control Services (FCS) and Record Management Services (RMS-11).

RMS-11 supports three file organizations — Sequential, Relative and Multikeyed Index Sequential (ISAM), and provides sequential and direct access modes.

FCS supports sequential and direct access to sequentially and randomly organized files.

The use of the File Control Services (FCS) will increase the task size by approximately 2K to 8K bytes, depending on the number of open files and services desired. The Record Management System (RMS) requires at least 8K bytes per task.

A powerful, multi-stream BATCH facility is provided with RSX-11M-PLUS indirect command file processing capabilities. The batch commands are in DCL or MCR format, making this capability easy to use. Status is returned to the batch processor as each step is completed, allowing for conditionalized branching. The batch processor collects all print files from a batch stream and spools them along with the log file. The queue manager gives the system manager control over the multiple batch streams and print queues.

Features

- Overlapped disk seek for RK06/07, RA60/80/81/82, RP04/05/06, RM02/03/05/80 disks
- Request queue optimization, which reduces average seek times on disks
- Disk Data Caching, which, for many applications, significantly reduces actual disk I/O operations, thereby increasing system performance.
- Dynamic dual pathing support for RK06/07, RP04/05/06, and RM02/03/05/80 disks
- Software addressing of up to 256 terminals
- Support for Ethernet Terminal Servers using the Local Area Transport (LAT) protocol. RSX-11M-PLUS DECnet software is needed for this feature.
- Terminal Services Architecture (TSA). Terminals on an RSX-11M-PLUS system with DECnet can function as remote command terminals on other RSX or VAX/VMS systems in the network that also have TSA capability. Likewise, terminals on those remote systems can function as command terminals on the RSX-11M-PLUS system.
- Support for the DIGITAL Multinational Character Set and for user-written translation routines for other character sets.
- Upward compatibility for most nonprivileged tasks with RSX-11M-PLUS Versions 2.0 and 2.1, RSX-11M Versions 4.0 and 4.1, and Micro/RSX Versions 1.0 and 1.1. Task rebuilding is usually not required.
- Capability to transfer files to and from a Micro/RSX system over a serial asynchronous communications link. This basic file transfer facility is provided by the

two operating systems and requires no added software.

- Shadowed disk support, which allows one of two disks of the same type to be designated as a shadowed backup of the other disk mounted as a Files-11 volume. All writes to the primary drive are automatically written to the secondary. In the event of a read failure on the primary drive, the system will automatically read the data from the secondary drive.
- Powerfail/restart, which allows the system to continue executing upon power restoration, restarting all interrupted I/O activities and notifying any active task through a powerfail asynchronous system trap entry point.
- Host for RSX-11S program development and system building
- Error logging capabilities

RL02 Distribution

A subset RSX-11M-PLUS system is provided on RL02 distribution. Most, but not all, RSX-11M-PLUS features and device support (including error logging) are provided on the kit. Mass storage device support includes: RA60, RA80, RA81, RA82, RC25, RD31, RD51, RD52, RD53, RX02, RX50, RL01, RL02, TU58, TS11, TU80, TQK25, TK50, and TSV05.

The RL02 distribution is a disk pack distribution that neither requires nor permits system generation. Executive and privileged task sources ARE NOT included in the RL02 distribution.

For the MicroPDP-11/53, MicroPDP-11/73, MicroPDP-11/83, PDP-11/44, PDP-11/70 and PDP-11/84 processors supporting separated Instruction and Data space (I-and-D space), a pregenerated system is provided that utilizes these features. A non-I-and-D space system which does not support Supervisor mode is provided for the Micro/PDP-11/23, the PDP-11/23-PLUS, and the PDP-11/24. An automated procedure deletes one of the pregenerated systems if it is not required in order to recover some disk space.

For the RL02 distribution, support for Shadow Recording and Console Logging is provided only in the I-and-D space system.

For a complete list of device support provided in the RL02 distribution, refer to the discussion of the "RL02 distribution" in the MINIMUM HARDWARE REQUIRED section of this SPD.

SOURCE CODE INFORMATION

With the exception of the RL02 pregenerated kit, source code for the RSX-11M-PLUS Executive and most privileged code modules are provided in the binary kit options on 800 BPI Magtape, 1600 BPI Magtape, TK50 cartridge tape, and RK07 disk cartridge. This source code is included in order to generate the RSX-11M-PLUS system.

A separate source license is required for the RSX-11M-PLUS utilities and nonprivileged modules. A kit for these

sources is available on 800 BPI Magtape, 1600 BPI Magtape, and TK50 Cartridge Tape.

This source code is provided on an "AS IS" basis without warranty of any kind either express or implied.

HARDWARE RESTRICTIONS

In some cases, not all hardware features of the options in the following MINIMUM HARDWARE and OPTIONAL HARDWARE sections are supported. Hardware restrictions can limit the number of devices that a system can support, and there may be some combinations of devices that are mutually exclusive.

If the TK50 is used with utilities other than BRU or is used with the verify pass of BRU, degraded performance and/or capacity of the TK50 should be expected.

Due to hardware restrictions, errors may be experienced when the DLVJ1 (formerly DLV11-J) is configured with an RQDX1 or additional DLVJ1 modules.

The current release of RSX-11M-PLUS does not support on-line formatting of RX33 diskettes. They may, however, be formatted by a stand-alone diagnostic supplied with the hardware. An RX50 format diskette, although it can be read and written in an RX33 drive, cannot be reformatted into the higher density RX33 format.

RSX-11M-PLUS supports the TU81E as a TU81. The same is true of the TU81E-DA, the Q-BUS version of the TU81.

MINIMUM HARDWARE REQUIRED

All RSX-11M-PLUS systems, whether for system generation or just system execution or for the pregenerated RL02-based system, require the following basic hardware:

Processor:

PDP-11/23-PLUS, PDP-11/24, PDP-11/44, PDP-11/70, PDP-11/84, MicroPDP-11/23, MicroPDP-11/53, MicroPDP-11/73, MicroPDP-11/83, or LSI-11/73

Note: The LSI-11/73 (KDJ11-A) processor module is supported ONLY when used in the following two configurations, and with the restrictions noted. Configuration 1 is recommended wherever possible:

Configuration 1: (NOT supported with RQDX1 controller)

- KDJ11-A processor module
- MRV11-D memory module with MXV11-B2 boot ROM set
- DLVJ1 four-line terminal interface

Configuration 2:

- KDJ11-A processor module
- MXV11-BF multifunction module with MXV11-B2boot ROM set

Console Terminal:

DL11, DLV11, or compatible interface with an appropriate terminal from the list of supported hardcopy, standard video, or graphic display terminals

Note: If the Console Terminal is using a DLVJ1 (formerly DLV11-J) interface, Console baud rates must not exceed 1200 baud.

Clock:

KW11-L, KW11-P, DL11-W or equivalent

Memory:

512K bytes, KT24 for PDP-11/24

Further minimum requirements depend upon the use of the system. There is also a maximum configuration for the pregenerated RL02-based system. These requirements and constraints are detailed in the following sections.

For System Generation

Disk: RA60/80/81, RP04/05/06, RM02/03/05/80, RD53, dual RD52, dual RK07, or dual RC25 subsystems. A dual RC25 configuration consists of two devices, which comprise four units.

Tape: Except for the dual RK07-based system, a 9-track tape drive from the optional hardware list or a TK50 cartridge tape drive is required.

System Generation for RSX-11M-PLUS can also be accomplished on a VAX/VMS system with VAX-11 RSX.

For System Execution

Disk:

RD31, RD51, RD52, RD53, RC25, RL01/02, RK06/07, RA60/80/81, RM02/03/05/80 or RP04/05/06

For RL02 Distribution

Disk:

Dual RL02

Maximum Configuration for RL02 Distribution

Memory:

3840K bytes

Disk:

Four RL01/RL02 controllers with four units each, one RX11 controller with two RX01 units or one RX211 or RXV21 controller with two RX02 units, and any four of the following controllers or subsystems:

1. RQDX1, RQDX2, or RQDX3 controller — Each controller may have four units, which may be: RX50 (dual device - counts as two units), RX33, RD31, RD51, RD52 or RD53. RQDX1 can be used only with RD51, RD52 and RX50 and supports no more than two RD5x units (plus one RX50 dual floppy drive). RQDX1 requires version 9 microcode or later to support the RD52. There can be no more than one RQDX1 on a system.

RQDX2 can be used only with RD51, RD52, RD53 and RX50.

2. RUX50 controller — Each controller may have four RX50 units (i.e., two dual units).
3. RC25 subsystem, including a UNIBUS or Q-BUS controller — The controller supports two drives (four units).
4. UDA50 or KDA50 controller — Each controller may have four units, which may be: RA60, RA80, RA81 or RA82.

Terminals and Serial Printers:

Up to 64 lines using DL, DLV, DZ, DZV, DZQ, DHV, DHU, DHQ controllers with a maximum of 16 controllers

Line Printer:

One LP11 series printer or equivalent

Tape:

Two TU58, one of the following: TK50, TU81, TU81E or TU81E-DA, and one of the following: TS11, TU80, TSV05, or TQK25

Laboratory Peripherals:

K-Series devices, LPA11

Communications (QIO Interface):

One DEUNA or DELUA Ethernet Controller

Floating Point Processors:

FP11, KEF11-AA, FPF11, FPJ11

Note: The RL02 distribution does not include a system generation capability. However, loadable driver support is included so that customers can write their own device drivers. Executive and privileged module sources are not included on the RL02 distribution.

OPTIONAL HARDWARE

- Additional memory up to a maximum of 3840K bytes
- FP11 Floating Point Processor
- KEF11-AA Floating Point Processor
- FPF11 Floating Point Processor
- FPJ11 Floating Point Processor
- KEF11-BB Commercial Instruction Set Microcode

I/O Peripherals

- PR11 paper tape reader and PC11 paper tape reader/punch
- CR11 and CM11-E card reader
- LA50, LA75 in LA50 mode, LA100, LA180, LA210, LN01, LN03, LQP02, LQP03, LP11 series printers (LP01/02/04/05/06/07/14/25/26/27), LS11 and LV01 (Plotter support for printers is not included in RSX-

11M-PLUS, but may be included in optional, layered software.)

9-Track Magnetic Tape Drives

- TU10, TU10W, TE10 800 BPI tape drives
- TU16, TE16, TU45, TU77 800/1600 BPI tape drives
- TS11, TSV05, TU80 1600 BPI tape drives
- TU81, TU81E, TU81E-DA 1600/6250 BPI tape drives

Other Magnetic Tape Devices

- TU58 DECtape cartridge tape subsystem

Note: *The TU58 should be used only in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.*

- TQK25 8" cartridge tape drive
- TK50 cartridge tape drive with UNIBUS or Q-BUS controller

Hard Disk Devices

- RK05 and RK05F cartridge disk drives (with RK11 controller)
- RL01 and RL02 cartridge disk drives (with appropriate RL controller)
- RK06 and RK07 cartridge disk drives (with appropriate RK controller)
- RP04, RP05, and RP06 disk pack drives (with appropriate RH controller)
- RM02/03/05 disk pack drives (with appropriate RH controller)
- RM80 disk drive (with RH70 controller)
- RS03 and RS04 fixed head disks (with appropriate RH controller)
- ML11 semiconductor disk emulator (with RH70 controller)
- RA60/80/81/82 disk drives (with UDA50 or KDA50 controller)
- RD51 and RD52 disk drives (with RQDX1, RQDX2, or RQDX3 controller). The RQDX1 requires version 9 microcode or later to support the RD52. There can be no more than one RQDX1 on a system.
- RD53 disk drive (with RQDX2 or RQDX3 controller)
- RD31 disk drive (with RQDX3 controller)
- RC25 fixed/removable disk subsystem

Soft Disk Devices

- RX11, RX211 and RXV21 floppy disk systems
- RX50 floppy disk subsystem (with RQDX1,

RQDX2, RQDX3, or RUX50 controller)

- RX33 dual density floppy disk drive (with RQDX3 controller).

Terminals

- Hardcopy Terminals - LA12, LA34, LA36, LA38, LA120, LT33, and LT35
- Standard Video Terminals - VT52, VT100, VT101, VT102, VT131 (in VT100/102 character mode only), and VT220
- Graphics Display Terminals - VT55, VT125, VT240, and VT241
- Other Terminal Devices
 - DTC01 DECtalk
 - The PC100 (Rainbow 100) is supported as a terminal in VT102 mode
 - The PC278 (DECmate-II) is supported as a terminal in VT102 mode
 - The Professional 300 series personal computers are supported as VT102/VT125s in emulation mode.
 - RT02 Alphanumeric Display
 - RT02-C Alphanumeric Display and Badge Reader
- Terminal Interfaces — The terminals listed above are supported when connected to DHQ11, DHU11, DHV11, DL11-A, B, C, D, E or W, DLV11, DLV11-E or F, or DLVJ1 (formerly DLV11-J), DZ11, DZQ11, DZV11, or DZS11 (first terminal must be VT1xx with DZS11).

Console baud rates must not exceed 1200 baud with DLVJ1. Due to hardware restrictions, errors may be experienced when the DLVJ1 (formerly DLV11-J) is configured with an RQDX1 or additional DLVJ1 modules.

Note: A maximum of 256 terminals is supported.

Communications (QIO Interface)

- DMC11
- DMR11
- PCL11-B
- DUP11
- DEUNA Ethernet controller
- DELUA Ethernet Controller

Laboratory/Industrial Control

- LPA11-K Laboratory Peripheral Accelerator
- Laboratory I/O Subsystem configured using the following options:
 - ADK11-KT 12-bit A/D converter with 16-channel multiplexer; one per subsystem

- AD11-K 12-bit A/D converter with 16-channel multiplexer, 16 per subsystem (15 if ADK11-KT is part of same subsystem)
- KW11-K Dual real-time clock with Schmitt triggers: one per subsystem (clock already included in ADK11-KT, no KW11-K required if one is present)
- AM11-K 48 channel A/D multiplexer with gain ranging: one per AD11-K or ADK11-KT
- DR11-K 16-bit digital I/O option: 16 per subsystem
- AA11-K 4-channel 12-bit D/A converter with scope control; 16 per subsystem
- AAV11-A, ADV11-A, KWV11-A, and DRV11 real-time options

Support for the IP11 and IPV11 Process Control Subsystems, contained in previous versions of RSX-11M-PLUS, is now available in a separate optional software product for RSX-11M-PLUS.

PREREQUISITE SOFTWARE

If support for Ethernet Terminal Servers is required, then RSX-11M-PLUS DECnet (at a minimum of Version 3.0) is needed. This is true even if only the Local Area Transport (LAT) protocol is to be used.

OPTIONAL SOFTWARE

Refer to the RSX-11M-PLUS Optional Software Cross Reference Table (SPD 20.99.xx) for optional software.

SOFTWARE WARRANTY

Warranty for this software product is provided by DIGITAL with the purchase of a license for the product as defined in the Software Warranty Addendum of this SPD.

INSTALLATION

Only experienced customers should attempt installation of this product. DIGITAL recommends that all other customers purchase DIGITAL's Installation Services. These services provide for installation of the software product by an experienced DIGITAL Software Specialist.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide, in part, that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on same CPU.

You will need a separate license for each CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then, Materials and Service Options are selected to utilize the product effectively. **THE LICENSE OPTIONS ARE DESCRIBED BELOW. IF YOU ARE NOT FAMILIAR WITH THE SERVICE OPTIONS, YOU MAY OBTAIN THE APPROPRIATE SOFTWARE PRODUCT SERVICE DESCRIPTION(S) FROM YOUR LOCAL DIGITAL OFFICE.** If you are already familiar with these options, you may obtain the ordering information directly from the Software Options Chart.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single CPU.

You purchase a Single-Use License according to the category to which your CPU belongs:

- Class H Single-Use License (high-end systems)
 - All UNIBUS models and systems
 - MicroPDP-11/83
- Class L Single-Use License (low-end systems)
 - All Q-BUS models and systems except MicroPDP-11/83
 - KD11, KDF11, KDJ11 CPU models
 - DCT11, DCF11, DCJ11 microprocessor chips

For your first installation of this software product you must purchase as a **minimum**:

- Single-Use License Option, and
- Distribution and Documentation Option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation Option provides the machine-readable software and related documentation.

To use this software product on additional CPUs, you must purchase for each CPU as a **minimum**:

- Single-Use License Option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

Migration Option

Current licensed users of RSX-11M, RSX-11D, IAS, and RT-11 are eligible for the migration option. This is a Single-Use License offered at a reduced price and provides all of the License rights described above.

For your first installation of this software product you must purchase as a **minimum**:

- Migration Option, and

- Distribution and Documentation Option

To use this software product on additional CPUs currently licensed for RSX-11M, RSX-11D, IAS, and RT-11 you must purchase for each CPU as a **minimum**:

- Migration Option

Distribution and Documentation Option

The Distribution and Documentation option provides the machine-readable software and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

Software Revision Right-To-Copy Option

The Right-To-Copy Option allows a customer with multiple CPUs to copy a revised version of a software product from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPUs by purchasing the Right-To-Copy Option for each additional CPU.

Documentation-Only Option

The Documentation-Only Option provides one copy of the basic documentation.

Software Product Services

A variety of service options are available. For more information on these or other services, please contact your local DIGITAL office.

SOURCE MATERIALS OPTIONS

You can obtain optional source materials for this software product by signing DIGITAL's Software Program Sources License Agreement and then purchasing the source option(s) you want. The agreement entitles you to use the source materials at one customer facility or location which is specified in the agreement.

Most users do not require source materials. They are used primarily to make modifications to the software product. Source kits provided by DIGITAL do not necessarily contain all source files used by DIGITAL build binary kits.

Source License and Sources Distribution Option

This option provides you with the machine-readable source code for this software product. It gives you the right to use the source code on any CPU at the facility/location specified in the agreement which has a Single-Use License for the object code.

Source License and Sources Listings Option

This option provides you with listings of the source programs for this software product. It gives you the right to use the listings for any CPU at the facility/location specified in the agreement which has a Single-Use License for the object code.

Sources Update Distribution Option

This option provides you with the revised version of the machine-readable source code for this software product. You must have purchased the Source License and Source Distribution Option to obtain this option.

Sources Update Listings Option

This option provides you with listings of source code for the revised version of the software product. You must have purchased the Source License and Source Listings Option to obtain this option.

SOFTWARE OPTIONS CHART

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g. QR500-HD = binaries on 9-track 800 BPI Magtape (NRZI).

5 = TK50 Tape Cartridge
 D = 9-track 800 BPI Magtape (NRZI)
 H = RL02 Disk Cartridge
 M = 9-track 1600 BPI Magtape (PE)

R = Microfiche
 V = RK07 Disk Cartridge
 Z = No hardware dependency

NOTE: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

OPTIONS	ORDER NUMBER For Non-RL02 Based Systems*	ORDER NUMBER For RL02 Based Systems
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.		
Single-Use License (Class H) ¹	QR500-UZ	QR503-UZ
Single-Use License (Class L) ¹	QY505-UZ	QY503-UZ
Migration Option from RT-11, RSX-11M, RSX-11D and IAS	QR510-UZ	QR513-UZ
MATERIALS AND SERVICE OPTIONS:		
Start-Up Service Package, Level III	QR500-B5 QR500-BD QR500-BM QR500-BV	QR503-BH
Start-Up Service Package, Level II	QR500-75 QR500-7D QR500-7M QR500-7V	QR503-7H
Start-Up Service Package, Level I	QR500-55 QR500-5D QR500-5M QR500-5V	QR503-5H

Distribution and Documentation Option	QR500-H5 QR500-HD QR500-HM QR500-HV	QR503-HH
Software Revision Right-To-Copy Option	QR500-HZ	QR503-HZ
Documentation-Only Option	QR500-GZ	QR503-GZ
Installation Service Option	QR500-I5 QR500-ID QR500-IM QR500-IV	QR503-IH
DECsupport Service	QR500-95 QR500-9D QR500-9 QR500-9V	QR503-9H
Basic Service	QR500-85 QR500-8D QR500-8M QR500-8V	QR503-8H
Self-Maintenance Service	QR500-35 QR500-3D QR500-3M QR500-3V	QR503-3H
SOURCE MATERIALS OPTIONS (See Note 5)		
Source License and Source Distribution for RSX-11M-PLUS Utilities	QR520-E5 QR520-ED QR520-EM	(See Note 2)
Source Update Distribution for RSX-11M-PLUS Utilities	QR520-N5 QR520-ND QR520-NM	(See Note 2)
Source License and Source Listings for RSX-11M-PLUS Utilities	QR520-FR (See Notes 4 & 5)	QR520-FR (See Notes 3 & 4)
Source Listings Update for RSX-11M-PLUS Utilities	QR520-NR (See Notes 4 & 5)	QR520-NR (See Notes 3 & 4)
Source License and Source Listings for RSX-11M-PLUS Executive and I/O Drivers	QR500-FR (See Notes 4 & 5)	QR500-FR (See Notes 3 & 4)
Source Listings Update for RSX-11M-PLUS Executive and I/O Drivers	QR500-NR (See Notes 4 & 5)	QR500-NR (See Notes 3 & 4)

* Non-RL02 Based Systems include: RK07, RA60/80/81/82, RM02/03/05/80, RP04/05/06/07, RD52, RD53 and RC25 Based Systems.

Notes

- (1) Refer to the descriptions of Class H and Class L Single-Use License in the License Option section of this SPD.
- (2) The RL02 kit is pregenerated. It can NOT be system generated and therefore the Source License and Source Options are not applicable for the RL02 Kit.

- (3) Since System Generation is not possible on the RL02 kit, the use of Source License and Listing Options is for information purposes only.
- (4) The Source License and Listing Options for RSX-11M-PLUS are divided into two separate kits. One is for the Executive and I/O drivers sources that are included on all but the RL02 distribution and documentation kits. The second listing kit is for the RSX-11M-PLUS Utility Sources which are provided on the Source License and Source Kits.
- (5) The combination of Executive and Utilities sources does not necessarily comprise all the sources used by DIGITAL to build the binary kits.

Software Product Description

Micro/RSX Optional Software Cross Reference Table

SPD 20.95.16

This table has been prepared to assist in determining which Micro/RSX optional software products are supported by Versions 1.1, 3.0, and 3.1 of the Micro/RSX Base System. Refer to the appropriate SPD for all other details on a particular product.

Optional Software	Micro/RSX (SPD 14.28.xx)			
	SPD No.	V1.1	V3.0	V3.1
A-to-Z Base System for MicroPDP-11	18.16.xx	1.5†	2.0†	—
CMR21 Host Utility	30.39.xx	—	1.1	1.1
DECmail-11 (RSX)	13.27.xx	2.0	2.0	2.0
DECnet-Micro/RSX	18.27.xx	—	1.0	1.0
DECserver 100 Terminal Server	30.43.xx	—	1.2	1.2
Ethernet Terminal Server	30.43.xx	—	2.1	2.1
IEX-RSX-Driver	12.68.xx	2.0	2.0	2.0
IP11 Industrial I/O Subsystem Handler	15.07.xx	—	4.0	4.0
Micro/RSX 2780/3780 Emulator	18.32.xx	—	1.0	1.0
Micro/RSX 3271 Protocol Emulator	18.33.xx	—	1.0	1.0
MicroPower/Pascal-Micro/RSX	18.24.xx	2.0	2.2	2.2
Micro/RSX Advanced Programmer's Kit	14.28.xx	1.0	3.0	3.1
Micro/RSX BASIC-PLUS-2	18.06.xx	2.3	2.3	2.3
Micro/RSX COBOL-81	18.03.xx	2.3	2.4	2.4
Micro/RSX DATATRIEVE-11	18.15.xx	1.0	3.1	3.1
Micro/RSX DECgraph-11	13.26.xx	1.2	1.2	1.2
Micro/RSX DECTYPE	18.14.xx	3.0	3.1	3.1
Micro/RSX DIBOL	18.05.xx	1.1	1.2	1.2
Micro/RSX FORTRAN-77	18.04.xx	5.0	5.0	5.0
Micro/RSX FMS-11	18.34.xx	1.0	1.0	1.0
Micro/RSX PDP-11 PASCAL	18.07.xx	1.1	1.2	1.2

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Optional Software	Micro/RSX (SPD 14.28.xx)			
	SPD No.	V1.1	V3.0	V3.1
Micro/RSX PDP-11 Symbolic Debugger (Formerly Micro/RSX FORTRAN-77 DEBUG)	14.79.xx	—	2.0	2.0
Micro/RSX SORT/MERGE	18.13.xx	3.0	3.0	3.0
Micro/RSX VSV21 Support Software	18.47.xx	—	2.0	2.0
Multuser Digital Accounting System Starter Kit for Micro/RSX	18.39.xx	—	3.0	3.0
Peripheral Processor Tool Kit Micro/RSX (Formerly KXT11-CA Peripheral Processor Tool Kit/RSX)	18.48.xx	—	2.0	2.0
RAINBOW CONNECTION Software	50.17.xx	—	1.0	1.0
RTEM-11	15.63.xx	—	2.2	2.2

* These products are currently being scheduled for certification.

† The Micro/RSX Base System is an integral part of this product.

SOFTWARE PERFORMANCE REPORT (SPR) SUBMISSIONS

Digital Equipment Corporation guarantees a response to every SPR submitted by DIGITAL specialists and customers who purchase software product service agreements.

Blank SPR forms are available upon request in desired quantities from SPR Administration, P.O. Box F, Maynard, MA 01754, or your local DIGITAL office.

Inquiries on the progress of submitted SPRs should be directed to your local DIGITAL office or SPR Administration at (617) 493-4722.

An SPR Answer Survey Card is enclosed with each SPR response. Please complete the survey card; it provides essential feedback for monitoring the quality of our SPR responses.

Completing an SPR Form

Complete the entire form by either typing or printing clearly. Remove "Customer File Copy" for your records. Leave carbon in tact.

Include customer name and **complete** mailing address.

To expedite the processing of your SPR, enter your **Customer Number** in the space provided. This number is located in the upper left-hand corner of your Dispatch label. It can also be obtained from your local DIGITAL office or by calling SPR Administration at (617) 493-6683.

If you do not want your SPR to be published, check the "DO NOT PUBLISH" box on the SPR form. However, if the SPR is determined to be of universal value and it does not describe a security problem, DIGITAL may elect to publish it. For SPRs which describe security problems, it is imperative that the "DO NOT PUBLISH" box be marked.

Describe one problem per SPR form. If an SPR is submitted with more than one problem, it can lengthen the turnaround time.

State the problem clearly. If necessary, summarize the problem, then describe in detail.

Include all the information needed to reproduce the problem. The easiest problems to fix are those reported in statements similar to the following: if you do X, Y happens when Z should.

State all version numbers and all inserted patches. The problem can be fixed sooner if the version is known. Please include the operating system version even on operating system SPRs, since operating system bugs sometimes manifest themselves as "bugs" in other programs. A statement of patches inserted in the relevant software is also helpful. State the type of terminal or work station on which the software is running, e.g., VT100, VT220, PRO 350, DECmate.

Include as much information as possible; too much information is better than not enough. Send all information in machine-readable format if it occupies more than half a page. Please include the following:

1. Program causing the problems
2. All necessary auxiliary files, such as DBMS or LIBRARY files
3. Assembly switches which are on (if applicable)
4. Switches handed to the software, since different switches cause different sections of the code to be executed
5. All necessary run-time files for language run-time problems
6. A directory listing of media, when included; label media carefully

SUGGESTIONS FOR SUBMITTING TAPES WITH SPRs

To insure timely processing of SPRs submitted with tapes, please follow the suggestions below:

1. Use either a floppy or a magnetic tape.
2. If a magnetic tape is used, it should be either 800, 1600, or 6250 bpi.
3. Include a directory with each tape submitted.
4. Label each tape with the following information:
 - a. Customer name
 - b. Tape format
 - c. bpi
 - d. Track
 - e. Preprinted number of the SPR submitted with the tape
5. Remove from the tape any unnecessary or confidential files.

Thank you.

SOFTWARE PROBLEMS OR ENHANCEMENTS

Questions and problems regarding, and enhancements to, DIGITAL software should be reported on a Software Performance Report (SPR) form and mailed to the SPR Center at one of the following DIGITAL offices (SPR forms are available from the SPR Center):

AREAS COVERED

SPR CENTER

United States	Corporate Administrative Services Group P.O. Box F Maynard, MA 01754
Canada	Digital Equipment of Canada, Ltd. P.O. Box 13000 Kanata, Ontario Canada, K2K 2A6
Mexico	Digital Equipment de Mexico S.A. de C.V. Apartado Postal 12-1009 Mexico 12, O.F. Mexico
Puerto Rico	Digital Equipment Latin America P.O. Box 11038 Fernandez Juncos Station Santurce 00910 Puerto Rico
Australia, New Zealand	Digital Equipment Aust Pty Ltd 754 Pacific Hwy 1st floor M/SSNH/B-1 Chatswood, New South Wales 2067 Australia
Brazil	Digital Equipment Comercio e Industria Ltda. Avenida Augusto Severo, 156-A 20021 Rio de Janeiro, RJ Brazil
China	Digital Equipment Hong Kong Ltd. 5-7th Floor Intercontinental Plaza 94 Granville Road Tsimshatsui East Kowloon Hong Kong
Remainder of General International Area (GIA)	Digital Equipment Corp. General International District - SWS 100 Nagog Park Acton, MA 01720-3499 United States
United Kingdom, Bahrein, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Qatar, Oman, Saudi Arabia, Syria, United Arab Emirates, Yemen Arab Republic	Digital Equipment Co. Ltd. Jays Close Basingstoke, Hampshire RG22 4DE England
France	Digital Equipment France Zone Industrielle Bois de L'Epine 11 Avenue Joliot Curie BP 202 91007 Evry Cedex France

AREAS COVERED**SPR CENTER**

Italy	Digital Equipment S.p.A. Viale Fulvio Testi, 11 Ang. Via Gorki 105 1-20092 Cinisello Balsamo Milan Italy
Japan	Nihon Digital Equipment Corp. Sunshine 60, P.O. Box 1135 1-1 Higashi Ikebukuro 3-Chome, Toshima-Ku, Tokyo, 170 Japan
Belgium, Luxemburg	Digital Equipment N.V./S.A. Rue De L'Aeronef 1 B-1140 Brussels Belgium
Holland	Digital Equipment B.V. Kaap Hoordreef 38 NL-3563 AV Utrecht Holland
Sweden	Digital Equipment AB SPR Admin. M-B Duff/CSC Allen 6 S-172 89 Sundbyberg Sweden
Denmark	Digital Equipment Corp. A/S Sandtoften 9 DK-2820 Gentofte Denmark
Finland	Digital Equipment Corp. OY Box 16 02201 ESPOO Finland
Norway	Digital Equipment Corp. A/S Ammerudveien 22 N-0958 Oslo 9 Norway
Austria, East Germany, West Germany, Poland, Hungary, Rumania, Czechoslovakia, Russia, Bulgaria	Digital Equipment Corp. GmbH SPR Centre - D2 Freischuetzstrasse 91 8000 Muenchen 81 West Germany
Israel	Digital Equipment Ltd. Digital House Acadia Junction Herzlia 46 733 Israel
Greece, Portugal, Spain, Switzerland, Yugoslavia, (Morocco, Algeria, Tunisia, Cyprus, Turkey, Malta)	Digital Equipment Corp. AG Kanalstrasse 21 CH-8152 Glattbrugg (Zurich) Switzerland

DIGITAL EQUIPMENT COMPUTER USERS SOCIETY

BENEFITS OF BELONGING

The Digital Equipment Computer Users Society (DECUS) is one of the largest and most respected users groups in the computer industry today. Membership in DECUS, which is free and voluntary, provides the individual user with information and services not found anywhere else.

DECUS provides an environment where users of Digital Equipment Corporation products can share information with other users and with DIGITAL. Members can find out the latest news on DIGITAL's hardware, software, and educational products. The feedback exchange with DIGITAL allows the users of DIGITAL's products to have a voice in the company's future.

Founded in 1961, DECUS now has three autonomous areas worldwide- DECUS U.S., DECUS Europe, made up of eight independent chapters, and DECUS GIA (General International Area), made up of four independent chapters. DECUS services and activities are shared between these chapters through mutual agreements.

All DECUS services promote the exchange of information in a noncommercial environment. Included in these services are:

Special Interest Groups (SIGs)

These groups, formed around an area of common interest, exist for a variety of hardware, operating systems, languages, applications, and marketing areas. Participation in these groups allows fellow users to exchange information and share technical expertise in the areas of most interest to the users.

Local Users Groups (LUGs) and National Users Groups (NUGs)

LUGs and NUGs are licensed groups of individuals who gather to share information with other users on a periodic basis. Not only do they have common professional interest, but they also have geographic and cultural ties. DIGITAL representatives attending these meetings often unveil new products and services and supply updates on existing policies and procedures.

Symposia

DECUS holds symposia each year in the different chapters, two per year in the U.S. These meetings provide a unique opportunity for users with a wide spectrum of experience to meet for up to five days of intensive technical exchange. Symposium activities include workshops, clinics, panels, tutorials, and formal paper presentations. DIGITAL participates in symposia by sending Product Group managers and developers to discuss strategies, products, problems, and solutions.

Publications

The flow of information among users, as well as between users and DIGITAL, is the primary goal of DECUS. Various publications generated by DECUS support this communication. They include chapter newsletters and *The Proceedings*, a technical volume published after each symposium. DECUS also publishes Special Interest Groups' newsletters that provide information pertaining to specific DIGITAL products.

Program Library

The DECUS Program Library is the main vehicle for the exchange of software among users of all DIGITAL systems. The Library contains over 1000 software programs written and voluntarily submitted by users. These programs include compilers, editors, utilities, numerical and statistical functions, as well as games and graphic routines. The Library publishes an annual software catalog that lists and describes all the DECUS programs available to all users for a minimal charge.

You are cordially invited to join over 60,000 other users of DIGITAL products around the world and begin to share your experiences, both successes and problems.

For more information, contact the appropriate DECUS chapter office listed here.

DECUS CHAPTER OFFICES — WORLDWIDE

DECUS U.S.

DECUS, U.S. Chapter
219 Boston Post Road (BPO2)
Marlborough, Massachusetts 01752
U.S. Activities: (617) 480-3259 (3302)
Library: (617) 480-3521
Finance and Administration: (617) 480-3634

DECUS Europe

DECUS At Large (in Europe)
C.P. 510
CH-1213 PETIT-LANCY 1/GE
Switzerland

DECUS Denmark
Digital Equipment Corp. A/S
Sandtoften 9
DK-2820 Gentofte
Denmark

DECUS France
BP. 136
F-91004 EVRY CEDEX

DECUS Holland
Kaap Hoorndreef 38
NL-3563 AV UTRECHT
The Netherlands

DECUS Muenchen
Freischuetzstrasse 91
D-8000 MUENCHEN 81
Federal Republic of Germany

DECUS Italia
Viale Fulvio Testi 11
I-20092 CINISELLO BALSAMO

DECUS Norway
Digital Equipment Corp. A/S
Ammerudveien 22
N-0958 Oslo 9
Norway

DECUS Sweden
S-172 89 SUNDBYBERG
Sweden

DECUS U.K., Ireland and
Middle East
P.O. Box 53
READING, RG2 OTW
U.K.

DECUS Switzerland
Schaffhauserstrasse 144
8302 Kloten
Switzerland

DECUS GIA (General International Area)

DECUS Australia
Northern Tower, Chatswood Plaza
Railway Street
Chatswood, New South Wales 2067
Australia
Phone: (02) 412.5237

DECUS Canada
100 Herzberg Road
P.O. Box 13000
Kanata, Ontario K2K 2A6
Canada
Phone: (613) 592-5111, ext. 2115

DECUS Japan
Nihon Digital Equipment KK
Sunshine 60, P.O. Box 1135
1-1, Higashi Ikeburo 3-Chome
Toshima-ku, Tokyo 170
Japan
Phone: [81]-(3)-9897111

DECUS GIC
100 Nagog Park AKO1-1/B11
Acton, Massachusetts 01720
U.S.A.
Phone: (617) 264-6561



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