The Software Dispatch

RT-11

September 1982

AD-C740C-31

digital software

RT-11 SOFTWARE DISPATCH

Published by
Corporate Administrative Systems Group, Software Services
Digital Equipment Corporation
P.O. Box F
Maynard, MA 01754

The RT-11 Software Dispatch complements the RT-11 Software Dispatch Review. 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).

PRODUCTS SUPPORTED in the RT-11 SOFTWARE DISPATCH

BASIC-11/RT-11 V2
CTS-300 V6/V7
DECnet-RT V1.1
FMS-11/RT-11 V1.1
FORTRAN IV/RT-11 V2.5
GAMMA-11 F/B V3.1
LSP-11 V1.1
MSB11 V1.2
MSB/FORTRAN IV V1
RT-11 V4
RT-11 2780 3780 Protocol Emulator V4
SSP-11 V1.3

DISTRIBUTION

The RT-11 Software Dispatch is directed to one software contact for each software product. No mailing will be made to addresses without a software contact name. **Address change requests should be sent to the nearest DIGITAL field office. Include the new address and mailing label from the most recently received publication.**

Software binary and sources are provided under licenses only. The standard Terms and Conditions, OEM Agreement, and/or Quantity Discount Agreement contain the licenses for all binaries other than DECsystem-10.

Ann Owens, Associate Editor

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PRODUCT AVAILABILITY DATES - RT-11

SEPTEMBER 1982

The following are dates products have become available. Customers who are in warranty or have a Software Product Service contract during the month the product became available are eligible to receive the update. Customers who are eligible and have not received the update should contact their local Digital office.

Autopatch is distributed to Software Product Service Basic contract customers and to Self-Maintenance contract customers who have selected this option. Autopatch will be installed for DECsupport contract customers as part of their Preventive Maintenance.

PRODUCT	VERSION	AVAILABLE
CTS-300	7.0	MAR 82
DECNET-RT	2.0	MAR 82
DECTYPE-300	1.2	APR 82
LSP-11	1.2	NOV 81
MACDBG	1.0	MAR 82
MACSYS-RT	1.0	JUL 82
MU-BASIC	2.1	SEP 81
SPETS-11	1.0	JUL 82
SSP-11	1.3	NOV 81
RT-11 AUTOPATCH	F	JUN 82
RGL FEP/RT-11	1.0	MAY 82
QUILL	1.0	MAR 82

SPR USER LETTER

Submitted by Sheila Hatchell, 8/11 Administration

How to Make the Best Use of the SPR Form

What We Can Do for You:

1. Blank SPR forms are returned with each SPR acknowledgement and are available upon request in the desired quantities through the SPR Administration (P.O. Box F) and your local office/SPR Center.
2. Copies of the SPR acknowledgement and answer are sent to the appropriate DIGITAL Office/SPR Center for their information.
3. STATUS FOR SUBMITTED SPRs IS PROVIDED UPON REQUEST.
4. SPRs marked PROBLEM/ERROR will have a response for DIGITAL SUPPORTED products. These SPRs should refer to suspected deficiencies in the software.
5. SPRs marked SUGGESTION are forwarded to the pertinent software group for information purposes, and are responded to at their discretion.

What You Can Do for Us:

1. Fill out the form completely either by typing or printing clearly. **PLEASE INCLUDE YOUR SOFTWARE SERVICE CUSTOMER NUMBER IN THE ADDRESS BOX.**
2. Limit only one problem per SPR form. Several problems on an SPR can lengthen the turnaround time.
3. WHENEVER POSSIBLE, SUBMIT AN SPR WITH ATTACHMENTS, SUCH AS MACHINE READABLE DATA, DETAILED INSTRUCTIONS ON HOW TO REPRODUCE THE PROBLEM, PROGRAM AND/OR DATA FILES, LISTINGS, AND CONSOLE LOG.
4. It would be helpful to all concerned if problems with patches are reported as soon as possible.
5. For security SPRs, it is imperative that the DO NOT PUBLISH box be marked.
6. It would be helpful if tapes submitted with SPRs are labeled (track and density), and have a directory attached.
7. Complete the questionnaire that is supplied with each SPR answer. Your feedback is essential in monitoring the quality of our responses.
8. SPRs should not be used for problems concerning software policy, software distribution, or hardware. The local office should be contacted in these cases.

COMPLETION ROUTINE OPERATION UNDER THE SJ MONITOR (GLA/LCP)

The documentation does not accurately reflect the operation of completion routines under the SJ monitor. The description of completion routine operation under SJ in the Programmer's Reference Manual (pages 1-2Ø & 1-21), while correct under most circumstances, is not true in every case. The basic difficulty is that timer completion routines are not handled in a manner compatible with those for an I/O request.

For I/O, completion routines are indeed entered at the priority of the device which caused the completion routine to be scheduled. Additionally, a completion routine of a device of higher priority, may interrupt a running completion routine. In fact, even a device of the SAME or LOWER priority may interrupt under certain circumstances; this will be discussed later.

Timer completion routines, on the other hand, work in a manner similar to the FB monitor. They are serialized and run at hardware priority Ø but at an elevated software priority.

This is incompatible with the SJ style; however, changing timer support to be compatible would be worse.

Firstly, if timer completion routines were to be dispatched at clock hardware priority level, the system could "lose time" because of extended running with the clock virtually off. (There is considerable overhead in dispatching a completion routine, not to mention the actual processing time the routine itself may use.)

Secondly, a "tick accumulation" algorithm is utilized to minimize the overhead per clock interrupt. If a completion routine is already running, timer queue elements are not processed, rather merely accumulated, since another timer completion routine cannot be run anyway. Changing the clock service to process the timer queue on each and every tick would significantly impact system performance. Consequently, changing the timer support is not practical.

The idea of dispatching completion routines at hardware priorities was to provide "serialization", of a sort, for completion routines associated with one device (or devices at the same level) by blocking actual hardware interrupts. In practice however, this is not always the case.

Often, a completion routine may issue a programmed request, which causes the SYSTEM priority to go to Ø; consequently, a completion routine at ANY priority may interrupt ANY other completion routine once one of these programmed requests has been made. (Of course, timer completion routines will not interrupt other timer completion routines because they are serialized by the monitor not by the hardware.)

In the next release of RT-11, this difference, along with some attendant restrictions, will be lifted or at worst, well described. The ideal way in which to accomplish this is to modify the FB monitor to support only a single job (i.e. make SJ a conditional assembly of FB). However, this is most likely impractical because of the miriad of SJ applications already programmed to take into consideration SJ's particular way of handling completion routines. Changing the very core of SJ operation could "break" a lot of user software. However, you may find the following suggestions helpful for your present and

future software development activities until such time as the problem can be suitably resolved:

1. In general, try NOT to write your programs at completion routine level. Rather, select a design which minimizes the amount of time spent in completion routine state; when you enter a completion routine, flag the event and/or reissue an appropriate follow-on request and then exit quickly. Leave the real processing for a main line, normal priority routine. The suspend/resume directives are useful for this purpose.

2. Especially, do not write your programs in a style which requires or counts on the fact that one completion routine may interrupt another. This attribute of the SJ monitor is incompatible with the other monitors and may be changed in a future release.

RT-11 V4.Ø
Spooling Package
QUEUE.REL

Seq 16.1.5 M

1 of 1

QUEUE MAY INDICATE INCORRECT NUMBER OF COPIES ON BANNER PAGES (LCP)

If a job specifying more than 9 copies of a file is followed by another job, the value of the number of copies printed on the banner pages will be incorrect.

1. The following is a required patch to the QUEUE.REL utility program. It must be installed in all copies of the utility.

   NOTE: Since patching the distribution medium is not recommended, the patch must be installed every time you copy the program from the distribution medium.

2. This patch is installed using SIPP, the Save Image Patching Program. First, ensure that a copy of the file QUEUE.REL is on a mounted volume. Create the file, QUEUE.ØØ4 as follows. Replace 'DK:' in the patch below with the name of the device that contains the program file.

```
R SIPP
DK:QUEUE.REL/C
Ø
12242
177Ø24
^Y                                  (up-arrow/Y)
14Ø647
^C                                  (CTRL/C to exit)
```

3. To apply the patch to QUEUE.REL type:

   @QUEUE.ØØ4

   There is no new version number for QUEUE.REL.

4. Save the new version of the utility on a backup volume.

BASIC-11/RT-11 V2.Ø
for RT-11 V4.Ø
INTERPRETER
BSX1A.OBJ

INTEGER COMPARISON - PATCH T FOR SINGLE USER BASIC-11 (WPL)

PROBLEM:

Comparison of two integers will result in the error message, 'INTEGER OVERFLOW AT LINE nnnn', if the arithmetic difference between the left-hand and the right-hand operands exceeds 32767. This error results regardless of the comparison operator (ie. <,<=,=,<>,>=,>), and regardless of the user's hardware configuration (ie. NHD,EIS,FPU,...).

PROCEDURE:

1. Create the following files (PATT1.MAC and PATT2.MAC):

PATT1.MAC

```
.TITLE  BSX1A
.PSECT  BASXCD, RO, I
.ENABL  GBL
.GLOBL  FAC2

LOC = .
. = LOC + 4Ø6
```

BASIC-11/RT-11 V2.Ø
for RT-11 V4.Ø
INTERPRETER
BSX1A.OBJ


```
;
        JMP     PATT1
PATT1R::
;
        .PSECT  PATT1
;
PATT1:: TST     2(SP)
        BNE     DOSUB
;
        TST     4(SP)
        BEQ     LEQZ
        BGT     LGTZ
;
        TST     FAC2(R5)
        BLT     DOSUB
        BR      CLNCLZ
;
LEQZ:   TST     FAC2(R5)
        BLT     SENCLZ
        BEQ     CLNSEZ
        BGT     CLNCLZ
;
LGTZ:   TST     FAC2(R5)
        BLE     SENCLZ
        BR      DOSUB
;
CLNCLZ: ADD     #6, SP
        CLN
        CLZ
        BR      PATT1E
;
CLNSEZ: ADD     #6, SP
        CLN
        SEZ
        BR      PATT1E
;
SENCLZ: ADD     #6, SP
        SEN
        CLZ
        BR      PATT1E
;
DOSUB:  JSR     PC, SUBSTK
;
PATT1E: JMP     PATT1R
;
        .END
```

PATT2.MAC

```
        .TITLE  BSPAT
        .ENABL  GBL
        .PSECT  BASPCH,RO,I
        . = . + 6
        .ASCII  /T/
        .END
```

2. Assemble the patch files:

```
        .MACRO  PATT1
        .MACRO  PATT2
```

3. Run the RT-11 PAT utility program:

```
        .R PAT
        *BSX1A=BSX1A,PATT1

        .R PAT
        *BSPAT=BSPAT,PATT2
```

4. Relink your version of SU BASIC-11 using the indirect command file that you have already created. If you have not yet configured a BASIC, read the "BASIC-11/RT-11 Installation Guide and Release Notes" manual. In any event, you will need to do this so that the newly patched module will become part of your BASIC interpreter!

BASIC-11/RT-11 V2.Ø
for RT-11 V4.Ø
INTERPRETER
BSCLS.OBJ

PASSING STRING ARGUMENTS TO ALRs - PATCH U FOR SINGLE USER BASIC-11 (WPL)

PROBLEM:

When passing string variables or constants to Assembly Language Routines (ALRs) from BASIC the arguments are sometimes corrupted.

PROCEDURE:

1. Create the file PATU1.MAC containing the following code:

```
        .TITLE BSCLS
        .PSECT BASXCD,RO,I,LCL,REL,CON
        LOC = .
        . = LOC + 1726
        JMP     PATU
PATURET::
        .PSECT  PATUCLS,I,RO,LCL,REL,CON
PATU:   MOV     RØ,-(SP)
        MOV     R1,-(SP)
        MOV     R2,-(SP)
        MOV     6(SP),RØ
        MOVB    (RØ),-(SP)
        MOV     RØ,R2
        TST     (R2)+
        MOV     -(RØ),RØ
1$:     BIT     #1,(RØ)
        BNE     2$
        MOV     (RØ),R1
        MOV     (R1)+,-(SP)
        BIC     #^C176,(SP)
        CMP     (SP)+,#1ØØ
        BNE     2$
        MOV     @(R1)+,(R2)
        ADD     #3,(R2)
2$:     CMP     (RØ)+,(R2)+
        DECB    (SP)
        BNE     1$
        TST     (SP)+
        MOV     (SP)+,R2
        MOV     (SP)+,R1
        MOV     (SP)+,RØ
        MOV     @2(SP),-(SP)
        JMP     PATURET
        .END
```

BASIC-11/RT-11 V2.Ø
for RT-11 V4.Ø
INTERPRETER
BSCLS.OBJ

2. Create the file PATU2.MAC to change the patch level.

```
.TITLE  BSPAT
.ENABLE GBL
.PSECT  BASPCH,RO,I
. = . + 6
.ASCII  /U/
.END
```

3. Assemble the files.

```
.MACRO PATU1
.MACRO PATU2
```

4. Run the PAT utility.

```
.R PAT
*BSCLS=BSCLS,PATU1

.R PAT
*BSPAT=BSPAT,PATU2
```

5. Relink your version of BASIC using the indirect command file that you have already created.

MicroPower/Pascal V1.1
MISCELLANEOUS NOTES
RT-11 V4.Ø

ANNOUNCING MicroPower/Pascal V1.1 (MEN)

DIGITAL has updated the MicroPower/Pascal Version 1.0 distribution kit to Version 1.1. Version 1.1 consists of a complete media replacement and documentation change pages for V1.0. There are two main areas of difference between V1.1 and V1.0: new functionality, and corrections for software problems. The new functionality is limited to support for the new FPF11 Floating-Point Processor. The V1.1 distribution kit contains a file, UPDATE.TXT, that describes all of the software problems which this kit corrects. This file is on the RL02 GREEN VOLUME and on the RX02 AUXILIARY VOLUME 3.

Instructions for Current Users of MicroPower/Pascal V1.0:

Please read the above-mentioned file (UPDATE.TXT) to gain an understanding of the differences between V1.1 and V1.0. Also consult the MicroPower/Pascal Release Notes for information on software restrictions and clarifications, documentation corrections, and a description of the V1.1 distribution kit contents. If V1.1 is adopted for use, all user-developed source modules that comprise an application must be recompiled/reassembled and rebuilt (MERGE/RELOC/MIB) using only MicroPower/Pascal system software from the V1.1 distribution kit.

Instructions for New Users:

Please read the MicroPower/Pascal Release Notes for information on software restrictions and clarifications, documentation corrections, and a description of the V1.1 distribution kit contents. At some point, read the above-mentioned file (UPDATE.TXT) for some supplementary information about MicroPower/Pascal.

Registering with the Customer Services Support Center

Please read the Customer Services Brochure in the MicroPower/Pascal distribution kit for information concerning registration with the Customer Services Support Center (CSSC). The CSSC is staffed by specialists who are dedicated to helping you with any questions or problems you may have with MicroPower/Pascal.

MicroPower/Pascal V1.Ø
KERNEL
RT-11 V4.Ø

DISCONNECT FROM INTERRUPT REQUEST MAY CORRUPT KERNEL FREE POOL (SHD)

PROBLEM STATEMENT:

The disconnect from interrupt request (DINT) incorrectly tries to deallocate the user impure area by returning it to the kernel pool. This corrupts the kernel linked list of free pool space. Any further access to the kernel pool, including the execution of certain primitives, will have unpredictable results.

RESPONSE:

This problem will be fixed in a future update kit. The recommended workaround, until the fix is released, is to not issue the disconnect from interrupt request. If this is not sufficient, PASDBG can be used to correct the problem. Once the application and symbols have been loaded, issue the following commands to PASDBG:

```
SET PROGRAM KERNEL
EXAMINE/INSTRUCTION $DINT
```

The instruction shown should be "MOV @R0,R3". Approximately 74 octal bytes higher in memory (larger number address) is a "CMP -1,R5" instruction, followed by a "BEQ" to a location. Use PASDBG to change this "BEQ" instruction to a "BR" to the same location. This change will fix the problem and allow the application to successfully issue the disconnect request.

MicroPower/Pascal V1.Ø
PAXU
RT-11 V4.Ø

Seq 37.4.1.7 N

MULTIPLE EXCEPTIONS IN A PROCESS CAN CAUSE UNPREDICTABLE RESULTS

PROBLEM STATEMENT:

The unmapped version of the dismiss exception primitive (DEXC) has an incorrect call to the debugger service module in it. The call format does not push the return address on the stack, usually causing a crash at an unpredictable location. This problem effects applications regardless of whether or not debugger support is enabled. This code is only executed when additional exceptions occur while a process is being terminated.

RESPONSE:

This problem will be fixed in a future update kit. The recommended workaround is to use PASDBG to both verify that the problem exists in the application and then to correct it. Once the application and symbols have been loaded, issue the following commands to PASDBG:

```
SET PROGRAM KERNEL
EXAMINE/INSTRUCTION $DEXC
```

The instruction shown should be "MOV (R0)+,R5". Approximately 74 octal bytes higher in memory (larger number address) is a "JMP $DSMAB" instruction. Set a breakpoint on this instruction. If the breakpoint occurs, this problem exists in the application. Now use PASDBG to change this instruction to a "JSR PC,$DSMAB". The next instruction is a "JMP $DLPCS". This instruction must be changed to a "JMP $DLPC". Once these changes have been made, the application will process the exceptions correctly.

MicroPower/Pascal V1.Ø
DOCUMENTATION
RT-11 V4.Ø

RENAMING LIBXXX.OBJ TO SYSLIB IS NO LONGER RECOMMENDED (DW)

PROBLEM STATEMENT:

It was originally recommended that the MicroPower/Pascal object library, LIBxxx.OBJ, be renamed to SYSLIB.OBJ when you merged it with your static process and the kernel symbol table. (You chose LIBxxx.OBJ from the four OTS libraries included in the distribution kit.) The MicroPower/Pascal SYSLIB can, however, be confused with the RT-11 SYSLIB (the FORTRAN-callable subroutines).

RESPONSE:

The MicroPower/Pascal V1.1 System User's Guide now recommends that you use the name of the OTS library as it appears on your distribution kit; and specify the library name in your PASCAL command line as necessary. This avoids any confusion with RT-11 files.

The following PASCAL command merges a static process with one of the four OTS libraries (LIBxxx.OBJ) and the kernel symbol table.

```
.R MERGE<RET>
*APAS=APAS/D,KERN.STB,LIBxxx.OBJ<RET>
*<CTRL/C>
```

Micropower/Pascal V1.Ø
DOCUMENTATION
RT-11 V4.Ø

RENAMING COMM.SML OR COMU.SML TO SYSMAC.SML IS NO LONGER RECOMMENDED (DW)

PROBLEM STATEMENT:

It was originally recommended that the MicroPower/Pascal system macro library, COMM.SML (for mapped systems) or COMU.SML (for unmapped systems), be renamed to SYSMAC.SML when you installed it on your developement system. (The MACRO-11 assembler searches COMM.SML or COMU.SML for the macro reference in your configuration file.) The MicroPower SYSMAC.SML can, however, be confused with the RT-11 SYSMAC.SML (the RT-11 system macro library).

RESPONSE:

The MicroPower/Pascal V1.1 System User's Guide now recommends that you retain the name COMM.SML or COMU.SML for your default system macro library; and specify the name in your MACRO-11 command line as necessary.

The following MACRO-11 command is used to specify the system macro library:

```
                    M
.MACRO CONF1+COM .SML/LIBRARY<RET>
                    U
```

MicroPower/Pascal V1.Ø
DOCUMENTATION
RT-11 V4.Ø

PROCESSOR JUMPERS FOR POWER-UP MODES SHOWN ON PAGE 1-4 OF THE MicroPower/Pascal INSTALLATION GUIDE ARE INCORRECT (DW)

PROBLEM STATEMENT:

Table 1-1, LSI-11, LSI-11/2, and LSI-11/23 Jumper Configuration Summary, on page 1-4 of the MicroPower/Pascal Installation Guide lists some of the jumpers incorrectly. The following corrections apply to LSI-11, LSI-11/2 AND LSI-11/23 configurations:

	power-up mode W5	W6	
Installation verification	I	R	(reverse order)
Debug applications	I	R	(reverse order)

MicroPower/Pascal V1.Ø
DOCUMENTATION
RT-11 V4.Ø

Seq 37.1Ø.1.4 N

1 of 1

MicroPower/Pascal V1.Ø SYSTEM USER'S GUIDE DOES NOT GIVE FULL INFORMATION ON THE LINDF$ MACRO FIELDS (DW)

PROBLEM STATEMENT:

The information on the LINDF$ macro in V1.0 of the System User's Guide is not complete. The following information has been added to page 6-20 of the System User's Guide V1.1. The information is added directly after the first paragraph of the LINDF$ section.

RESPONSE:

Table 6-a
LINDF$ Fields

Field	Description
csr	Control and status register address.
vec	Interrupt vector address.
rnam	Name of the receiver ring buffer.
xnam	Name of the transmitter ring buffer.
rsiz	Number of bits allocated to the receiver ring buffer.
xsiz	Number of bits allocated to the transmitter ring buffer.
ratt	Attributes of the receiver ring buffer.
xatt	Attributes of the transmitter ring buffer.
rmod	Mode bits of the receiver.
xmod	Mode bits of the transmitter.
spd	Desired initial baud rate for the line, if programmable baud rate is to be used.

MicroPower/Pascal V1.Ø
DOCUMENTATION
RT-11 V4.Ø

Seq 37.1Ø.1.5 N

1 of 1

DLV-11 PREFIX MODULE EXAMPLE SHOWS INCORRECT CSR (DW)

PROBLEM STATEMENT:

The example DLV-11 Handler Prefix Module on page 6-21 of the System User's Guide incorrectly shows the second line of the LINDF$ macro with CSR= 177500. The example should show CSR= 176500.

MU BASIC-11/RT-11 V2.1
for RT-11 V4.Ø
INTERPRETER
BSRØS.OBJ, BSRØD.OBJ

PROGRAMS RETRIEVED USING "OLD filename" OR "RUN filename" ARE SOMETIMES CORRUPTED - PATCH "D" FOR MU BASIC-11 (WPL)

PROBLEM:

Multi-User BASIC-11 incorrectly retrieves BASIC programs when the "OLD filename" or the "RUN filename" commands are used. As a result, the retrieved program, if listed with either the "LIST" or the "LISTNH" command, will contain corrupted or garbled text, and will not execute properly. Note that this problem only occurs when using version 2.1 of MU BASIC-11. The following patch will resolve this problem.

PROCEDURE:

1. Create the following three patch files (PATD1S.MAC, PATD1D.MAC and PATD2.MAC):

   Note: This patch is to be applied to both the single- and double-precision modules of BSRØ (ie. BSRØS.OBJ and BSRØD.OBJ). Therefore two patch files must be created, one for each of the above two modules! This is best done if two identical copies of the patch below are made, and then the values shown in the comments to the right of the lines which differ between the two patches (ie. PATD1S.MAC and PATD1D.MAC) are substituted for 'nnnnn' and 'xxxxx' on the appropriate lines.

MU BASIC-11/RT-11 V2.1
  for RT-11 V4.Ø
INTERPRETER
BSRØS.OBJ, BSRØD.OBJ

PATD1S.MAC and PATD1D.MAC

```
        .TITLE  BSRØ
        .PSECT  BASRCD
        .ENABL  GBL
;
        LOC = .
        SKPØ1 = LOC + nnnnn      ; nnnnn = 1402 (PSRØS) or 1474 (BSRØD)
        . = LOC + xxxxx          ; xxxxx = 135Ø (BSRØS) or 1442 (BSRØD)
;
        JMP     PATD1
        NOP
PATD1R::
;
        .PSECT  PATD1, RO, I
;
PATD1:: BNE     1Ø$
        TSTB    -(R1)
        TST     (SP)+
        JMP     SKPØ1
1Ø$:    CMPB    -(R1), #.TEXT
        JMP     PATD1R
;
        .END
```

PATD2.MAC

```
        .TITLE  BSPAT
        .ENABL  GBL
        .PSECT  BASPCH, RO, I
;
        . = . + 4
        .ASCII  /ØD/
;
        .END
```

2. Assemble all three patch files as follows:

```
.MACRO PATD1S
.MACRO PATD1D
.MACRO PATD2
```

3. Apply the patches to the affected modules using the RT-11 PAT utility program as follows:

```
.R PAT
*BSRØS=BSRØS,PATD1S

.R PAT
*BSRØD=BSRØD,PATD1D

.R PAT
*BSPAT=BSPAT,PATD2
```

4. Relink your version of MU BASIC-11 using the indirect command file that you have already created. If you have not yet configured a MU BASIC-11 interpreter, please read the "MU BASIC-11/RT-11 Installation Guide". In any event, you will need to relink in order that the newly patched modules will become part of your MU BASIC-11 interpreter!

MU BASIC-11/RT-11 V2.1
for RT-11 V4.Ø
INTERPRETER
MUBS2E.OBJ, MULNK2.BØØ

IMPROPER FILE EXTENSION CREATED FOR COMPILED FILES WHEN MU BASIC-11 IS CONFIGURED FOR DOUBLE-PRECISION
- PATCH "E" FOR MU BASIC-11 (WPL)

PROBLEM:

According to the "MU BASIC-11/RT-11 User's Guide", the "COMPILE filename" command should, by default, place a "C" in the first character position of the file type when single-precision arithmetic is being used, and place an "X" in the first character position of the file type when double-precision arithmetic is being used. Currently, MU BASIC-11 places a "C" in the first character position in either case.

PROCEDURE:

1. Add the following lines to the MU BASIC-11 utility program "MULNK2.BØØ" (note that lines numbered 1710 and 1772 are replaced!) using the following procedure (Note: Should log in to a privileged account!):

```
Ready   (BASIC's prompt!)

OLD MULNK2.BØØ

Ready

1710 IF C$(14)='Y' THEN 1720
1713 IF C$(12)<>'D' THEN PRINT #1, 'MUBS2E'
1716 IF C$(12)='D' THEN PRINT #1, 'MBS2ED'
1771 IF C$(14)='N' THEN 1775
1772 IF C$(12)<>'D' THEN PRINT #1, 'MUEID,MUBS2E,BSEØ,BSE1/C:1'
1773 IF C$(12)='D' THEN PRINT #1, 'MUEID,MBS2ED,BSEØ,BSE1/C:1'
REPLACE MULNK2.BØØ
```

2. Create the following two patch files (PATE1.MAC and PATE2.MAC):

PATE1.MAC

```
        .TITLE  MUBS2E
        .CSECT  MUBS2E
        .ENABL  GBL
;
        LOC = .
        . = . + 46Ø
;
        FSEXT = 11.             ; Offset to File Spec EXTension.
        MOVB    #'X, FSEXT(SP)  ; Use 'X' if using double precision.
;
        .END
```

PATE2.MAC

```
        .TITLE  BSPAT
        .ENABL  GBL
        .PSECT  BASPCH, RO, I
;
        . = . + 4
        .ASCII  /ØE/
;
        .END
```

3. Assemble both patch files as follows:

```
.MACRO PATE1
.MACRO PATE2
```

4. Create the file MBS2ED.OBJ as follows:

```
.COPY MUBS2E.OBJ MBS2ED.OBJ
```

5. Apply the patches to the affected modules using the RT-11 PAT utility program as follows:

```
.R PAT
*MBS2ED=MBS2ED,PATE1

.R PAT
*BSPAT=BSPAT,PATE2
```

6. Using the MULNK program (see the "MU BASIC-11/RT-11 Installation Guide", chapter 4) create a command file to be used in building a double precision MU BASIC-11 interpreter. Relink your version of MU BASIC-11 using this indirect command file. You will need to relink in order that the newly patched modules will become part of your MU BASIC-11 interpreter!

MU BASIC-11/RT-11 V2.1
for RT-11 V4.Ø
INTERPRETER
BSFUNC.OBJ

"PRIVILEGED SYSTEM FUNCTION AT LINE nnnnn" ERROR ISSUED WHEN PRIVILEGED PROGRAM RUN FROM NON-PRIVILEGED ACCOUNT - PATCH F FOR MU BASIC-11 (WPL)

PROBLEM:

According to the "MU BASIC-11/RT-11 User's Guide", paragraph 3.3.1.3, a non-privileged user should be able to run a privileged program (ie. one whose file name contains a "9" in either the first or second character position) which contains privileged system functions. Currently, priviliged programs containing "SYS(4)", "SYS(5)" or "SYS(8,N)" functions will produce the error message "PRIVILEGED SYSTEM FUNCTION AT LINE nnnnn" when executed by a non-privileged user. The following patch enables non-privileged users to run privileged programs containing all of the privileged "SYS" functions.

MU BASIC-11/RT-11 V2.1
for RT-11 V4.Ø
INTERPRETER
BSFUNC.OBJ

Seq 38.1.6 M

2 of 3

PROCEDURE:

1. Create the following patch files (PATF1.MAC and PATF2.MAC):

PATF1.MAC

```
        .TITLE  BSFUNC
        .PSECT  BSFDSP, RW, D
        .ENABL  GBL
;
        LOC = .
        USW = 162
        USWPS$ = 6Ø
;
        . = LOC + 536
        BIT     #USWPS$,USW(R5)
;
        . = LOC + 562
        BIT     #USWPS$,USW(R5)
;
        . = LOC + 74Ø
        BIT     #USWPS$,USW(R5)
;
        .END
```

PATF2.MAC

```
        .TITLE  BSPAT
        .ENABL  GBL
        .PSECT  BASPCH, RO, I
;
        . = . + 4
        .ASCII  /ØF/
;
        .END
```

2. Assemble the patch files as follows:

```
.MACRO PATF1
.MACRO PATF2
```

3. Apply the patches to the affected modules using the RT-11 PAT utility program as follows:

```
.R PAT
*BSFUNC=BSFUNC,PATF1

.R PAT
*BSPAT=BSPAT,PATF2
```

4. Relink your version of MU BASIC-11 using the indirect command file that you have already created. If you have not yet configured a MU BASIC-11 interpreter, please read the "MU BASIC-11/RT-11 Installation Guide". In any event, you will need to relink in order that the newly patched modules will become part of your MU BASIC-11 interpreter!

RT-11 V4.0
CUMULATIVE INDEX
SEPTEMBER 1982

This is a complete listing of all articles for RT-11 V4.0 and related products. In the case of subordinate software, missing sequence numbers may pertain to problems unique to interaction with previous 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 RT-11 Software Dispatch Review, March 1980.

*The "Autopatch Kit" column in the list which follows indicates the first RT-11 V4.0 Autopatch Kit in which the associated patch was included. Unless otherwise indicated, the patches also appear in subsequent Autopatch Kits as well. Note that Autopatch Kit "G" is the latest kit available from the SDC.

Component	Autopatch Kit	Sequence	Mon/Yr
RT-11 V4.0			
MONITOR PATCHES			
ISSUING .SETTOP #-2 AND .EXIT UNDER XM MONITOR MAY CORRUPT SYSTEM DISK	A	1.1.1 M	Jul 80
IMPLEMENTING INTERNAL HANDLER QUEUEING IN FB AND XM MONITORS	A	1.1.2 M	Jul 80
ADDING HIGH SPEED RING BUFFER SUPPORT	A	1.1.3 M	Jul 80
CORRUPTION OF CSI TEXT UNDER XM MONITOR	A	1.1.4 M	Jul 80
MISSING COLON IN BOOT XX CAUSES SYSTEM HALT	A	1.1.5 M	Jul 80
TYPING ^U WHILE IN A ^X SEQUENCE UNDER A SYSTEM JOB	A	1.1.6 M	Sep 80
ABNORMAL TERMINATION OF FG JOB WHICH IS USING CSI	A	1.1.7 M	Nov 80
MISCELLANEOUS MRRT-11 BUGS	A	1.1.8 M	Nov 80
MRRT-11 MINIMAL FILE SUPPORT PROBLEM	A	1.1.9 M	Nov 80
INCORRECT LIMIT CHECKS ON PRIVILEGED BACKGROUND JOBS USING VIRTUAL OVERLAYS	A	1.1.10 M	Nov 80
MULTI-TERMINAL MONITORS DON'T ALWAYS PROCESS CTRL/F PROPERLY	A	1.1.11 M	Nov 80
MONITOR CHANGES AND CORRECTIONS	A	1.1.12 M	Dec 80
MONITOR CORRECTIONS	B	1.1.13 M	Jan 81
MONITOR UPDATES	B	1.1.14 M	Feb 81
ABORT I/O IN PROGRESS HANDLER BIT	B	1.1.15 M	Apr 81
CORRECTIONS FOR DISTRIBUTED AND SYSTEM GENERATED MONITORS	C	1.1.16 M	Jun 81
PRINT COMMAND RESTRICTION		1.1.17 R	Jul 81
UPDATES TO MONITOR FILES	D	1.1.18 M	Oct 81
CORRECTIONS TO THE MONITOR	E	1.1.19 M	Jan 82
MONITOR NOTES			
COMPLETION ROUTINE OPERATION UNDER THE SJ MONITOR		1.2.1 N	Sep 82

Component	Autopatch Kit	Sequence	Mon/Yr
DEVICE HANDLER SOURCES			
DEVICE HANDLER NOTES			
RL02s AT REV. LEVEL "F" FAIL DURING RT-11 SYSGEN		6.1.1 N	Oct 80
DD.MAC			
DD PRIMARY BOOTSTRAP PROBLEM	A	6.4.1 M	Jul 80
DL.MAC			
PATCH XM VERSION OF DL HANDLER .SPFUN GET SIZE ROUTINE	A	6.5.1 M	Dec 80
ERRORS ON RL01 DISK DRIVES AFTER DISK PACKS ARE CHANGED	B	6.5.2 M	Jan 81
DM.MAC			
ERRORS IN DM OFFSET POSITIONING AND ERROR LOGGING	A	6.6.1 M	Jul 80
DY.MAC			
DELETED DATA MARK MAY BE LOST IF BUFFER STARTS ON PAR BOUNDARY	D	6.11.1 M	Aug 81
LP.MAC			
LP SET NOHANG MAY CRASH SYSTEM	A	6.12.1 M	Sep 80
LS.MAC			
LS SET NOHANG MAY CRASH SYSTEM	A	6.13.1 M	Sep 80
PROBLEMS WITH LS HANDLER	B	6.13.2 M	Jan 81
USING AN LA120 TERMINAL AS A LINE PRINTER WITH THE LS HANDLER		6.13.3 N	Jul 81
SET LS NOHANG IS CURRENTLY INOPERATIVE	C	6.13.4 M	Jul 81
RACE CONDITION IN LS HANDLER	D	6.13.5 M	Aug 81
LS HANDLER SET "NOHANG" PROBLEM	E	6.13.6 M	Jan 82
PD.MAC			
CORRECTION TO PDT ERROR LOGGING SUPPORT	B	6.16.1 M	Apr 81
MAG TAPE HANDLERS			
BUFFER CLEARING ON SHORT READ IN XM MONITOR	A	6.20.1 M	Jul 80
LINKING AN XM, NON-FILESTRUCTURED TS HANDLER GENERATES AN UNDEFINED GLOBAL	A	6.20.2 M	Aug 80
INCORRECT READ ERROR RECOVERY IN MT HANDLER	A	6.20.3 M	Sep 80
TS-11 DOES NOT RECOVER FROM SOFT ERROR ON WRITE EOF	C	6.20.4 M	Jul 81
SYSTEM UTILITIES			
PIP.SAV			
ERRORS IN PIP	A	7.1.1 M	Sep 80
COPY/PREDELETE COMMAND		7.1.2 N	Sep 80
MATCHING FILE SPEECIFICATIONS ERRORS	B	7.1.3 M	Feb 81
COPY/BINARY/WAIT AND LOG HEADER PROBLEMS	B	7.1.4 M	Apr 81
COPY/PREDELETE AND COPY/NOREPLACE WORK INCORRECTLY WITH /WAIT	C	7.1.5 M	Jun 81
ERROR WITH RENAME/NOREPLACE	C	7.1.6 M	Jul 81
/POSITION:N SWITCH FOR MAGTAPE INPUT WORKS INCORRECTLY	D	7.1.7 M	Oct 81
COPY/BINARY STOPS PROCESSING AFTER ENCOUNTERING AN OBJ LIBRARY FILE	E	7.1.8 M	Nov 81
COPYING FILES TO UNINITIALIZED DISKS		7.1.9 N	Nov 81
ALLOCATE AND DELETE WORK INCORRECTLY WITH COPY OPERATIONS	F	7.1.10 M	Feb 82
DUP.SAV			
MISSING COLON IN BOOT XX CAUSES SYSTEM HALT	A	7.2.1 M	Jul 80
SQUEEZE CREATES <UNUSED> ENTRIES OF LENGTH ZERO BEFORE .BAD FILES	A	7.2.2 M	Aug 80
PROBLEMS WITH COPY/DEVICE AND INITIALIZE	A	7.2.3 M	Dec 80
BOOTSTRAPPING AN UNPATCHED MONITOR FROM A PATCHED SYSTEM	B	7.2.4 N	Jan 81
.SPFUN RETURN BUFFER PROCESSED INCORRECTLY FOR RK06/7	B	7.2.5 M	Jan 81
USE OF INITIALIZE/RESTORE ON MEDIA SUPPORTING BAD BLOCK REPLACEMENT		7.2.6 N	May 81
PROBLEMS WITH INIT/BAD AND COPY/DEVICE	C	7.2.7 M	May 81
PROBLEMS WITH INITIALIZE COMMAND	C	7.2.8 M	Jun 81
ATTEMPT TO RESTORE UNCLOSED TENTATIVE FILES FAILS	C	7.2.9 M	Jul 81
/V WITH NO DEVICE SPECIFICATION GIVES WRONG ERROR MESSAGE	D	7.2.10 M	Sep 81
OUTPUT ERROR DURING COPY/DEVICE TO MAGTAPE CAUSES SYSTEM ERROR	E	7.2.11 M	Oct 81
USE OF COPY/DEV/FILE WITHOUT FILE SPECIFICATION	E	7.2.12 M	Nov 81
PROBLEMS WITH COPY/DEVICE USING /END	F	7.2.13 M	Apr 82

Component	Autopatch Kit	Sequence	Mon/Yr
DIR.SAV			
DIR/OUT COMMAND PRODUCES DEVICE NOT ACTIVE MESSAGE	A	7.3.1 M	Jul 80
DIR/VOL GIVES ?MON-F-TRAP TO 4	A	7.3.2 M	Dec 80
LOSS OF LAST PRINT CHARACTER IN DIRECTORY LISTING	D	7.3.3 M	Sep 81
RESORC.SAV			
RESORC MAY REPORT INCORRECT JOB NAMES ON A SHOW JOBS COMMAND	A	7.5.1 M	Aug 80
ADD CIS DETECTION CAPABILITY TO RESORC	B	7.5.2 M	May 81
PROBLEM WITH IDENTIFYING 11/23 PROCESSOR	D	7.5.3 M	Sep 81
LINK.SAV			
LINK BYTE RELOCATION AND DIRECTORY SIZE	A	7.9.1 M	Jul 80
LINK MAP PROCESSING ERROR	A	7.9.2 M	Aug 80
LINK MAP ERROR AND MULTIPLE DEFINITION LIBRARIES	A	7.9.3 M	Oct 80
RT-11 V4 LINKER RESTRICTION	B	7.9.4 R	Jan 81
LINK TRANSFER ADDRESS CALCULATION BUGS	B	7.9.5 M	Mar 81
LINK ADDITIONS AND CORRECTIONS	D	7.9.6 M	Aug 81
LINK UPGRADE	E	7.9.7 M	Nov 81
LINK ERROR IN LIBRARY MODULE TRANSFER ADDRESS PROCESSING	E	7.9.8 M	Jan 82
LINK LIBRARY MODULE PLACEMENT ERROR	E	7.9.9 M	Jan 82
LINK MULTIPLE ERROR FIXES	G	7.9.10 M	May 82
LIBR.SAV			
A LIBR COMMAND WITH NO FILE-SPEC CAN CAUSE A SYSTEM CRASH	A	7.10.1 M	Jul 80
LIBR ERRORS	C	7.10.2 M	Jul 81
LIBR CORRUPTS FORM LIBRARY DIRECTORY	C	7.10.3 M	Jun 81
LIBR ERROR IN GENERATING ENTRY POINT TABLE	E	7.10.4 M	Jan 82
LIBR RESTRICTION		7.10.5 N	Jan 82
FILEX.SAV			
FILEX WILDCARD TRANSFERS CAUSE MONITOR TRAP	A	7.11.1 M	Aug 80
FILEX CREATES ZERO FILLED INTERCHANGE RECORDS	A	7.11.2 M	Sep 80
SIZE CALCULATION PROBLEM IN FILEX	D	7.11.3 M	Aug 81
RECORDS DROPPED BY FILEX	D	7.11.4 M	Sep 81
SRCCOM.SAV			
COMPARING TWO FILES MAY CAUSE TRAP TO 4	A	7.12.1 M	Aug 80
BLANK LINE COMPARISON FOR SLIDING MATCH	A	7.12.2 M	Dec 80
BINCOM.SAV			
BINCOM GENERATES ERRONEOUS ERROR MESSAGE	B	7.13.1 M	Apr 81
ERRONEOUS DOUBLE PRECISION CALCULATION IN BINCOM	C	7.13.2 M	Jun 81
BINCOM PLACES TAB CHARACTER AFTER OFFSET IN SIPP COMMAND FILE	E	7.13.3 M	Jan 82
DUMP.SAV			
BLOCK NUMBERS OUTPUT FROM DUMP	D	7.14.1 M	Aug 81
SLP.SAV			
TERMINATION OF PATCHING SESSION WITH SLP FATAL ERRORS	A	7.15.1 M	Nov 80
SLP GENERATES FATAL ERROR TRAP	B	7.15.2 M	Jan 81
SLP ERROR	B	7.15.3 M	Mar 81
SIPP.SAV			
CORRUPTION OF MULTI-BLOCK LOG FILES	A	7.16.1 M	Jul 80
PAT.SAV			
USE OF THE PAT UTILITY WITH RT-11 V3B PATCHES		7.17.1 N+	Mar 80
HELP.SAV			
PROBLEMS WITH HELP UTILITY	A	7.19.1 M	Nov 80
EDIT.SAV			
EDIT MISHANDLES OUTPUT FILE FULL ERROR	B	7.20.1 M	Nov 81
SYSTEM SUBROUTINE LIBRARY (SYSLIB)			
SYSLIB.OBJ			
PATCH TO ICSI	A	8.1.1 M	Oct 80
IASIGN REDEFINITIONS	A	8.1.2 M	Oct 80
ILUN RESTRICTION		8.1.3 R	Feb 81
VIRTUAL OVERLAY HANDLER CORRECTION	E	8.1.4 M	Feb 82

Component	Autopatch Kit	Sequence	Mon/Yr
SYSTEM MACRO LIBRARY			
.SPFUN PROGRAMMED REQUEST	A	9.1.1 M	Dec 80
ABORT I/O PROGRESS SUPPORT FOR SYSMAC	B	9.1.2 M	Apr 81
.CMKT PROGRAMMED REQUEST	C	9.1.3 M	Jun 81
INCORRECT EXPANSION OF .DRSET MACRO	F	9.1.4 M	Apr 82
SYSTEM GENERATION PACKAGE			
SYSGEN CREATES ONE MORE DEVICE SLOT THAN REQUESTED	A	10.3.1 M	Dec 80
ASSEMBLY ERROR AFTER SYSGEN	B	10.3.2 M	Mar 81
TERMINAL OUTPUT CORRUPTION ON DZ11 OR DZV11 LINES	F	10.3.3 M	Apr 82
DOCUMENTATION			
RT-11 SYSTEM RELEASE NOTES			
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS		11.2.1 N	Jul 80
DOCUMENTATION CORRECTIONS		11.2.2 N	Aug 80
CHANGES TO DUP /I OPTION		11.2.3 N	Apr 81
INCORRECT DUP CUSTOMIZATION PATCHES		11.2.4 N	Sep 81
RT-11 INSTALLATION AND SYSTEM GENERATION GUIDE			
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS		11.3.1 N	Jul 80
CORRECTION TO AN OPTIONAL PATCH TO LINK		11.3.2 N	Aug 80
DOCUMENTATION ERROR: REFERENCE TO RL02 OMITTED FROM SYSGEN DIALOGUE		11.3.3 N	Oct 80
INCORRECT LINK MAPS FOR DISTRIBUTED MONITORS		11.3.4 N	Dec 80
INCORRECT PATCH FOR CHANGING QUEUE WORK FILE SIZE		11.3.5 N	Dec 80
CHANGING DEFAULT NUMBER OF DIRECTORY SEGMENTS		11.3.6 N	Apr 81
INTRODUCTION TO RT-11			
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS		11.4.1 N	Jul 80
RT-11 SYSTEM USER'S GUIDE			
RT-11 DOCUMENTATION CORRECTIONS AND ADDITIONS		11.5.1 N	Jul 80
CORRECTIONS TO SLP CHAPTER: RT-11 SYSTEM USER'S GUIDE		11.5.2 N	Oct 80
DIFFERENCES BETWEEN DEVICE COPYING COMMANDS		11.5.3 N	Dec 80
RT-11 SYSTEM MESSAGE MANUAL			
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS		11.6.1 N	Jul 80
CORRECTIONS TO SLP MESSAGES IN "RT-11 SYSTEM MESSAGE MANUAL"		11.6.2 N	Nov 80
NEW SLP ERROR MESSAGE		11.6.3 N	Feb 81
PIP ERROR MESSAGES MISSING		11.6.4 N	Oct 81
RT-11 POCKET GUIDE			
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS		11.7.1 N	Jul 80
RT-11 PROGRAMMER'S REFERENCE MANUAL			
DOCUMENTATION CORRECTIONS		11.8.1 N	Sep 80
INCORRECT PROGRAMMED REQUEST EXAMPLES		11.8.2 N	Mar 81
UNDOCUMENTED .SERR ERROR CODE		11.8.3 N	Dec 81
RT-11 SOFTWARE SUPPORT MANUAL			
RT-11 V4.0 DOCUMENTATION CORRECTIONS AND ADDITIONS		11.9.1 N	Jul 80
SOFTWARE SUPPORT MANUAL CORRECTION		11.9.2 N	Jun 81
ERROR IN DESCRIPTION OF .DRSET MACRO		11.9.3 N	Sep 81
DEBUGGING UTILITIES			
VDT.OBJ			
NOTES ON USING ODT OR VDT IN AN XM ENVIRONMENT		12.2.1 N	Jan 81
ERROR CONTROL PACKAGE			
ERROUT.MAC			
ERROR LOGGING SUPPORT OF USER-WRITTEN HANDLERS	G	14.6.1 M	May 82
BATCH PACKAGE			
BATCH.SAV			
PATCH BATCH TO USE MONITOR SUFFIX	A	15.1.1 M	Oct 80
BATCH $CREATE IGNORES BLANK LINES		15.1.2 M	Aug 82

Component	Autopatch Kit	Sequence	Mon/Yr
SPOOLING PACKAGE			
QUEUE.REL			
SUPERFLUOUS LINEFEED FROM QUEUE	B	16.1.1 M	Mar 81
NARROW BANNER PAGES FROM QUEUE	C	16.1.2 F	May 81
/R FOLLOWING /S IF NO OUPTUT QUEUED MAY CAUSE FATAL ERROR IN QUEUE	D	16.1.3 M	Aug 81
ATTEMPTING TO COMMUNICATE WITH 'QUEUE' FROM A VIRTUAL JOB		16.1.4 N	Apr 82
QUEUE MAY INDICATE INCORRECT NUMBER OF COPIES ON BANNER PAGES		16.1.5 M	Sep 82
QUEMAN.SAV			
PROBLEMS WITH QUEMAN	B	16.2.1 M	Jan 81
KEYPAD EDITOR			
KED			
MAKE TERMINAL SETUP OPTIONAL IF MTATCH FAILS	A	17.1.1 F	Aug 80
PROVIDE A .CHAIN INTERFACE FOR KED	A	17.1.2 F	Aug 80
PROVIDE REASONABLE ACTIONS AND ERROR MESSAGES WHEN DEALING WITH DEGENERATE FILES	A	17.1.3 M	Oct 80
SEARCH FAILS IF TARGET IF FIRST OR LAST STRING IN THE FILE	A	17.1.4 M	Nov 80
KNOWN ERRORS AND RESTRICTIONS		17.1.5 R	Dec 80
"SET SEARCH EXACT JUNK" COMMAND CRASHES KED	C	17.1.6 M	Jul 81
REPEATED USE OF THE "APPEND" FUNCTION CRASHES KED	C	17.1.7 M	Dec 81
DISABLE REVERSE VIDEO DISPLAY BY KED	E	17.1.8 F	Jul 81
FILE SAMPLE.KED OMITTED FROM DISTRIBUTION		17.1.9 N	Aug 81
KED DOCUMENTATION CORRECTION		17.1.10 N	Nov 81
K52			
MAKE TERMINAL SETUP OPTIONAL IF MTATCH FAILS	A	17.2.1 F	Aug 80
PROVIDE A .CHAIN INTERFACE FOR K52	A	17.2.2 F	Aug 80
PROVIDE REASONABLE ACTIONS AND ERROR MESSAGES WHEN DEALING WITH DEGENERATE FILES	A	17.2.3 M	Oct 80
SEARCH FAILS IF TARGET IS FIRST OR LAST STRING IN THE FILE	A	17.2.4 M	Nov 80
KNOWN ERRORS AND RESTRICTIONS		17.2.5 R	Dec 80
"SET SEARCH EXACT JUNK" COMMAND CRASHES K52	C	17.2.6 M	Jul 81
REPEATED USE OF THE "APPEND" FUNCTION CRASHES K52	E	17.2.7 M	Dec 81
NO EQUIVALENT PATCH FOR K52 FOR SEQ 17.1.8		17.2.8 N	Aug 81
FILE SAMPLE.KED OMITTED FROM DISTRIBUTION		17.2.9 N	Aug 81
KED DOCUMENTATION CORRECTION		17.2.10 N	Dec 81
AUTOMATED PATCHING FACILITY PACKAGE			
PACKAGE NOTES			
AUTOPATCH SERVICE FOR RT-11		19.1.1 N	Jun 81
FMS-11/RT-11 V1.1			
ANNOUNCING FMS-11/RT-11 V1.1		33.1 N	Aug 80
FRED V1.1			
ZERO IMPURE AREA SIZE PROBLEM		33.3.1 M	Sep 81
BASIC-11/RT-11 V2.0			
INTERPRETER			
REPUBLICATION OF PATCHES		35.1.1 N+	Mar 80
PRINT USING - PATCH A	A	35.1.2 M+	Mar 80
RESEQ - PATCH B	A	35.1.3 M+	Mar 80
EDITING A DIM #n STATEMENT - PATCH C	A	35.1.4 M+	Mar 80
DOUBLE PRECISION HANG - PATCH D	A	35.1.5 M+	Mar 80
SAVE dev: AND REPLACE dev: - PATCH E	A	35.1.6 M+	Mar 80
SINGLE PRECISION HANG AND NUMERIC CONVERSION PROBLEM - PATCH F	A	35.1.7 M+	Mar 80
SAVE .XXX & UNSAVE .XXX - PATCH G	A	35.1.8 M+	Mar 80
NEW - PATCH H	A	35.1.9 M+	Mar 80
RESEQ - PATCH I	A	35.1.10 M+	Mar 80
LISTNH / OLD - PATCH J	A	35.1.11 M+	Mar 80
SYS(1) - PATCH K	A	35.1.12 M+	Mar 80
CALL - PATCH L	A	35.1.13 M+	Mar 80
DOUBLE PRECISION INTEGER VARIABLES - PATCH M	A	35.1.14 M+	Mar 80
FILESIZE 0 - PATCH N	A	35.1.15 M+	Mar 80

Component	Autopatch Kit	Sequence	Mon/Yr
INTEGERS IN DOUBLE PRECISION BASIC-11		35.1.16 N+	Mar 80
REM STATEMENTS ON MULTI-STATEMENT LINES - PATCH 0	A	35.1.17 M+	Mar 80
INT FUNCTION - PATCH P FOR SINGLE USER BASIC-11	A	35.1.18 M	Nov 80
RETRACTED		35.1.19 M	May 81
PRINT USING - PATCH R FOR SINGLE USER BASIC-11	B	35.1.20 M	Jan 81
OMITTING TRIG FUNCTIONS FROM BASIC-11	B	35.1.21 N	Jan 81
STRING CONCATENATION - PATCH S FOR SINGLE USER BASIC-11	B	35.1.22 M	Mar 81
PROBLEM WITH BASIC-11 PATCH Q		35.1.23 N	May 81
INTEGER COMPARISON - PATCH T FOR SINGLE USER BASIC-11		35 1.24 M	Sep 82
PASSING STRING ARGUMENTS TO ALRs - PATCH U FOR SINGLE USER BASIC-11		35.1.25 M	Sep 82
UTILITIES			
CONVERSION PROGRAM		35.2.1 M+	Mar 80
BASIC-11/RT-11 V2 CONVERSION PROGRAM PATCH 1		35.2.2 M+	Mar 80
DOCUMENTATION			
OVERLAYING WHILE IN A SUBROUTINE		35.3.1 R+	Mar 80
OPERATION OF CTRLC, RCTRLC AND SYS(6) FUNCTIONS AND THE CTRL/C COMMAND		35.3.2 N+	Mar 80
OPERATION OF OLD, RUN, CHAIN, AND OVERLAY WHEN THE SPECIFIED FILE IS NOT FOUND		35.3.3 N+	Mar 80
CREATING AND ACCESSING VIRTUAL ARRAY FILES		35.3.4 N+	Mar 80
STORAGE OF THE NULL CHARACTER IN STRING VARIABLES AND VIRTUAL STRING ARRAYS		35.3.5 N+	Mar 80
USE OF COMPILE COMMAND		35.3.6 N+	Mar 80
STRING MANIPULATION IN ASSEMBLY LANGUAGE ROUTINES		35.3.7 N+	Mar 80
MAXIMUM ARRAY SUBSCRIPT SIZE		35.3.8 N+	Mar 80
NEW MANUAL AVAILABLE FOR BASIC-11/RT-11		35.3.9 N	May 81
MICROPOWER/PASCAL V1.0			
ANNOUNCING MICROPOWER/PASCAL V1.0		37.1.1 N	Apr 82
BUILDING AN APPLICATION THAT USES THE FILE SYSTEM		37.1.2 M	May 82
MICROPOWER/PASCAL V1.1			
MISCELLANEOUS NOTES			
ANNOUNCING MicroPower/Pascal V1.1		37.1.1.1 N	Sep 82
MIB			
MIB MAY GIVE A HARDWARE READ ERROR DURING KERNAL INSTALLATION		37.3.3.1 N	Aug 82
PAXM/PAXU/KERNAL			
SERA REQUEST FOR DISCONNECT MAY FAIL IN A MAPPED SYSTEM		37.4.1.1 N	Aug 82
ILLEGAL ADDRESS ARGUMENT CAN CAUSE UNPREDICTABLE RESULTS		37.4.1.2 N	Aug 82
DISPATCH TO UNMAPPED STACK OVERFLOW EXCEPTION IS INCORRECT		37.4.1.3 N	Aug 82
STOPPED PROCESSES ARE PLACED IN THE INACTIVE QUEUE		37.4.1.4 N	Aug 82
PROCESS ON INACTIVE QUEUE DOES NOT HAVE POINTER TO EXCEPTION FRAME		37.4.1.5 N	Aug 82
DISCONNECT FROM INTERRUPT REQUEST MAY CORRUPT KERNEL FREE POOL		37.4.1.6 N	Sep 82
MULTIPLE EXCEPTIONS IN A PROCESS CAN CAUSE UNPREDICTABLE RESULTS		37.4.1.7 N	Sep 82
PASCAL COMPILER			
CONFORMANT ARRAYS AND SINGLE CHARACTER LITERALS		37.5.1.1 N	Aug 82
FORMAL PARAMETER LISTS WITH DEFAULT VALUES		37.5.1.2 N	Aug 82
ATTRIBUTE [CONTEXT(MMU)] DOES NOT WORK		37.5.1.3 N	Aug 82
ACCESSING UP-LEVEL LOCAL VARIABLES FROM [TERMINATE] PROCEDURES		37.5.1.4 N	Aug 82
CALLING THE ROUND (OR TRUNC, UROUND, UTRUNC) FUNCTION WITH NON-STATIC VARIABLES		37.5.1.5 N	Aug 82
OTS			
KEF-11 FLOATING POINT STATUS WORD IS INCORRECTLY INITIALIZED		37.6.1.1 N	Aug 82
THE NATURAL LOG FUNCTION RETURNS INCORRECT RESULTS		37.6.1.2 N	Aug 82
XL (SERIAL LINE) DRIVER			
ERROR IN "DISCONNECT TRANSMIT RING BUFFER" FUNCTION		37.8.1.1 N	Aug 82
BLOCK MODE READ REQUEST RETURNS INCORRECT DATA		37.8.1.2 N	Aug 82

Component	Autopatch Kit	Sequence	Mon/Yr
DOCUMENTATION			
RENAMING LIBXXX.OBJ TO SYSLIB IS NO LONGER RECOMMENDED		37.10.1.1 N	Sep 82
RENAMING COMM.SML OR COMU.SML TO SYSMAC.SML IS NO LONGER RECOMMENDED		37.10.1.2 N	Sep 82
PROCESSOR JUMPERS FOR POWER-UP MODES SHOWN ON PAGE 1-4 OF THE MicroPower/Pascal INSTALLATION GUIDE ARE INCORRECT		37.10.1.3 N	Sep 82
MicroPower/Pascal V1.0 SYSTEM USER'S GUIDE DOES NOT GIVE FULL INFORMATION ON THE LINDF$ MACRO FIELDS		37.10.1.4 N	Sep 82
DLV-11 PREFIX MODULE EXAMPLE SHOWS INCORRECT CSR		37.10.1.5 N	Sep 82
MU BASIC-11/RT V2.1			
INTERPRETER			
MU BASIC V2.1 MAINTENANCE RELEASE AVAILABLE			Mar 82
UNWARRANTED ISSUANCE OF "TOO MANY CHANNELS" ERROR - PATCH A FOR MULTI-USER BASIC-11		38.1.1 M	Jul 82
"ERR" VALUE IMPROPERLY UPDATED WHEN USING "ON ERROR GOTO nnnnn" - PATCH B TO MULTI-USER BASIC-11		38.1.2 M	Jul 82
"RESEQ" FOLLOWING "DEL nnnnn" RESULTS IN "Mon-F-Trap to 10 000002" - PATCH C TO MULTI-USER BASIC-11		38.1.3 M	Jul 82
PROGRAMS RETRIEVED USING "OLD filename" OR "RUN filename" ARE SOMETIMES CORRUPTED - PATCH "D" FOR MU BASIC-11		38.1.4 M	Sep 82
IMPROPER FILE EXTENSION CREATED FOR COMPILED FILES WHEN MU BASIC-11 IS CONFIGURED FOR DOUBLE-PRECISION - PATCH "E" FOR MU BASIC-11		38.1.5 M	Sep 82
"PRIVILEGED SYSTEM FUNCTION AT LINE nnnnn" ERROR ISSUED WHEN PRIVILEGED PROGRAM RUN FROM NON-PRIVILEGED ACCOUNT - PATCH F FOR MU BASIC-11		38.1.6 M	Sep 82
FORTRAN IV/RT-11 V2.5			
COMPILER			
ANNOUNCING PDP-11 FORTRAN IV/RT-11 V2.5		45.1.1 N	Sep 80
THE COMPILER INCORRECTLY PARSES SOME EXPRESSIONS IN I/O LISTS	A	45.1.2 M	Nov 80
THE COMPILER INCORRECTLY CONVERTS INTEGER TO BYTE IN LOGICAL EXPRESSIONS	A	45.1.3 M	Nov 80
THE COMPILER GENERATES INCORRECT CODE FOR EQUIVALENCED ARRAYS (PAT 12)	D	45.1.4 M	Sep 81
THE COMPILER INCORRECTLY INTERPRETS COMMENTS WITH TABS (PAT 17)	E	45.1.5 M	Nov 81
MISSING END IN MAIN PROGRAM CAN CAUSE COMPILER CRASH (PAT 18)	E	45.1.6 M	Nov 81
THE COMPILER INCORRECTLY OPTIMIZES ARRAY ELEMENTS PASSED AS ARGUMENTS (PAT 20)	E	45.1.7 M	Dec 81
THE COMPILER INCORRECTLY PARSES PARENTHESES IN QUOTED STRINGS (PAT 21)	E	45.1.8 M	Jan 82
THE COMPILER CRASHES WHILE ACCESSING AN ODD ADDRESS IN PAT 12 (PAT 22)	E	45.1.9 M	Jan 82
CORRECTION FOR CONTINUATION LINES PRECEEDED BY COMMENTS (PAT 27)	F	45.1.10 M	Apr 82
BOUNDS CHECKING OF INTERNAL BUFFER IN OPTIMIZER (PAT 29)	G	45.1.11 M	Jun 82
COMPILER HANGS WHEN ERRORS OCCUR IN STATEMENT FUNCTIONS (PAT 31)	G	45.1.12 M	Jun 82
INCORRECT BYTE TO INTEGER CONVERSION		45.1.13 M	Aug 82
COMPILER GENERATES FATAL ERROR IN REGISTER ALLOCATOR		45.1.14 M	Aug 82
OTS			
THE OTS DOES NOT SET DEFAULT CARRIAGE CONTROL FOR SERIAL LINE PRINTER	B	45.2.1 M	Jan 81
THE LUN IS NOT SAVED WHEN AN ERROR OCCURS WHILE OPENING A FILE	B	45.2.2 M	Jul 81
PATCH TO ALLOW THE PLACEMENT OF THE FORTRAN OTS WORK AREA BETWEEN THE PROGRAM'S HIGH LIMIT AND THE BASE OF THE FIRST VIRTUAL OVERLAY FOR PRIVILEGED FORTRAN JOBS	B	45.2.3 F	Feb 81
BOUNDARY CONDITION ON FORMATTED I/O CORRUPTS I/O (PAT 6)	B	45.2.4 M	Mar 81
DEFAULT CARRIAGE CONTROL FOR IMPLIED SEQUENTIAL ACCESS FILES (PAT 7)	C	45.2.5 M	Jul 81
STANDALONE FORTRAN YIELDS RUN-TIME ERROR 64 (PAT 8)	B	45.2.6 M	Apr 81
DISPOSE = 'KEEP' NOT RECOGNIZED WITH READONLY OPEN PARAMETER (PAT 9)	C	45.2.7 M	Jul 81
THE DATE ROUTINE DOES NOT PERMIT BYTE ALIGNED PARAMETERS (PAT10)	C	45.2.8 M	Jul 81
IMPLICIT READ FAILURE MAY HALT PROCESSOR (PAT 11)	C	45.2.9 M	Jul 81
FPU DOUBLE PRECISION SINE/COSINE MODULE ERRORS (PAT 13)	D	45.2.10 M	Sep 81
EMBEDDED BLANKS OVERRIDE THE ICNT PARAMETER IN THE ASSIGN ROUTINE	D	45.2.11 M	Oct 81
THE DEFAULT CARRIAGE CONTROL FOR THE ASSIGN ROUTINE IS INCORRECT	D	45.2.12 M	Oct 81
CORRECTION FOR UNIT CLOSING (PAT 16)	E	45.2.13 M	Nov 81
LIST DIRECTED INPUT CONVERSION ERROR (PAT 19)	E	45.2.14 M	Dec 81

Component	Autopatch Kit	Sequence	Mon/Yr
BOUNDARY CONDITION ON FORMATTED I/O CORRUPTS I/O IN PAT 6 (PAT 23)	F	45.2.15 M	Feb 82
BOUNDARY CONDITION ON FORMATTED I/O BACKSPACE CORRUPTS I/O	F	45.2.16 M	Feb 82
CORRECTION OF ASSIGN FILENAME HANDLING WHEN ICNT EQUALS ZERO	F	45.2.17 M	Feb 82
CONVERSION ERROR WHILE READING COMPLEX NUMBER FROM FILE (PAT 26)	F	45.2.18 M	Apr 82
CORRECTION TO ALLOW CLOSING OF UNIT RECORD DEVICES (PAT 28)	G	45.2.19 M	Jun 82
PREMATURE CLEARING OF ERR= BRANCH WHEN EOF IS ENCOUNTERED (PAT 30)	G	45.2.20 M	Jun 82
UIOBYT PREMATURELY DETERMINES END OF BLOCK (PAT 32)	G	45.2.21 M	Jul 82
GAMMA V3.1			
FGAMMA-FRAMES 3 TO 10 OF GSA STUDY SOMETIMES CORRUPT		49.2.1 M	Jul 81
SYSTEM MAY HANG WHEN DISK SQUEEZED		49.2.2 M	Oct 81
STATIC STUDIES ON LARGE DEVICES		49.2.3 M	Jan 82
STATIC STUDY ACQUISITION ON LARGE DEVICES		49.4.1 M	Jan 82
ISOMETRIC DISPLAY IMAGES USE INCORRECT INTENSITY LEVELS		49.5.1 M	Oct 81
SLICE - LAST POINT IS NOT PLOTTED		49.5.2 M	Nov 81
SLICE - <CR>, <LF> NOT ISSUED AFTER PRINTING SLICE DATA		49.5.3 M	Jan 82
DYNAMIC CURVE RECALCULATION IN REGIONS OF INTEREST		49.5.4 M	Aug 82
TRANSFER STUDY IN SELECTIVE STEP MODE		49.8.1 F	Mar 82
GAMMA-11 DOCUMENTATION CORRECTIONS AND ADDITIONS		49.10.1 N	Mar 82
PATCHING THE RT-11 MONITOR FOR GAMMA-11		49.11.1 M	Nov 81
ERROR IN THE BASIC SUPPORT ROUTINE GPMR		49.12.1 M	Aug 82
ERRORS IN THE BASIC SUPPORT ROUTINES GPLR AND GPF		49.12.2 M	Aug 82
ERROR IN FORTRAN SUPPORT SUBROUTINE GPMR		49.13.1 M	Mar 82
ERRORS IN THE FORTRAN SUPPORT ROUTINES GPLR AND GPF		49.13.2 M	Mar 82
CTS-300 V6.0			
DBUILD			
CORRECTION FOR THREE DECFORM PROBLEMS		51.2.1 M	Oct 81
DECFORM			
PROBLEM WITH DECFORM AND THE VT100		51.4.1 M	Nov 80
CORRECTION FOR THREE DECFORM PROBLEMS		51.4.2 M	Oct 81
DECFORM WITH VT100 TERMINAL CAUSES BAD CHARACTER ON TYPE-AHEAD		51.4.3 M	Nov 81
DIBOL			
TWO CORRECTIONS TO XCALL PAK/UNPAK		51.5.1 M	Aug 81
DICOMP			
FOUR DICOMP ERRORS FIXED		51.6.1 M	Oct 81
DKED			
TWO PROBLEMS WITH DKED		51.7 M	Aug 80
DKED SELECT/CUT AND KEYPAD ERRORS		51.7.2 M	Sep 80
DKED INCORRECTLY HANDLES CONTINUED LINES		51.7.3 M	Oct 81
POSSIBLE BOTTOM OF SCREEN CORRUPTION USING DKED		51.7.4 M	May 82
ISMUTL			
CORRECTIONS FOR ISAM UTILITY ERRORS		51.8.1 M	Nov 81
ISMUTL GIVES INCORRECT ERROR MESSAGES IF INSUFFICIENT MEMORY AVAILABLE		51.8.2 M	Apr 82
LPTSPL			
TSD SPOOLER GETS CONFUSED		51.9.1 M	Nov 80
SORTM			
SORT SENDS MESSAGES INDISCRIMINATELY		51.14.1 M	Jan 81

Component	Autopatch Kit	Sequence	Mon/Yr
SUD			
CORRECTIONS TO DIBOL RUN TIME SYSTEMS		51.16.1 M	Jan 81
PROBLEMS WITH XCALL RENAM AND ERROR 6		51.16.2 M	Feb 81
NO ERROR 22 RETURNED		51.16.3 M	Nov 81
DIBOL STACK OVERFLOW ON OPEN		51.16.4 M	Nov 81
PROBLEMS WITH STACK OVERFLOW AND INCREMENT		51.16.5 M	Dec 81
SUD MESSAGES OVER 100 CHARACTERS IN LENGTH ARE NOT RECEIVED CORRECTLY		51.16.6 M	Feb 82
ISAM FILE RECORD COUNT REVERTS TO 0		51.16.7 M	Apr 82
A SUD PROGRAM DOING AN XCALL MAY RESULT IN A TRAP TO 4 OR 10		51.16.8 M	Jul 82
TDIBOL			
PROBLEM WITH XCALL PAK		51.17 M	Aug 80
PROBLEM UNPACKING DATA		51.17.2 M	Sep 80
TWO CORRECTIONS TO XCALL PAK/UNPAK		51.17.3 M	Aug 81
TSD			
CORRECTIONS TO DIBOL RUN TIME SYSTEMS		51.18.1 M	Jan 81
PROBLEMS WITH XCALL RENAM AND ERROR 6		51.18.2 M	Feb 81
INCORRECT TERMINAL WIDTHS AND CIS PROBLEM		51.18.3 M	Aug 81
CORRECTION TO TSD/XMTSD		51.18.4 M	Sep 81
CORRECTION FOR ISAM PROBLEM		51.18.5 M	Oct 81
"SEND" STARTS MULTIPLE JOBS		51.18.6 M	Oct 81
NO ERROR 22 RETURNED		51.18.7 M	Nov 81
DIBOL STACK OVERFLOW ON OPEN		51.18.8 M	Nov 81
PROBLEMS WITH STACK OVERFLOW AND INCREMENT		51.18.9 M	Dec 81
CORRECTION FOR SIDE EFFECTS FROM PATCH 27		51.18.10 M	Feb 82
LINE PRINTER IS SOMETIMES INCORRECTLY CONSIDERED IN USE		51.18.11 M	Feb 82
ISAM FILE RECORD COUNT REVERTS TO 0		51.18.12 M	Apr 82
TSD AND XMTSD HANG AFTER ATTEMPT TO ILLEGALLY START UP JOB		51.18.13 M	May 82
XMTSD			
CONFLICT BETWEEN XMTSD AND RT-11 OVER CHANNEL 16		51.20 M	Aug 80
CORRECTIONS TO DIBOL RUN TIME SYSTEMS		51.20.2 M	Jan 81
PROBLEMS WITH XCALL RENAM AND ERROR 6		51.20.3 M	Feb 81
PATCH FOR XMTSD WITH CIS		51.20.4 M	Apr 81
INCORRECT TERMINAL WIDTHS AND CIS PROBLEM		51.20.5 M	Aug 81
XMTSD HANGS WHEN LP IS OFF-LINE		51.20.6 M	Sep 81
CORRECTION TO TSD/XMTSD		51.20.7 M	Sep 81
CORRECTION FOR ISAM PROBLEM		51.20.8 M	Oct 81
"SEND" STARTS MULTIPLE JOBS		51.20.9 M	Oct 81
NO ERROR 22 RETURNED		51.20.10 M	Nov 81
DIBOL STACK OVERFLOW ON OPEN		51.20.11 M	Nov 81
PROBLEMS WITH STACK OVERFLOW AND INCREMENT		51.20.12 M	Dec 81
CORRECTION FOR SIDE EFFECTS FROM PATCH 27		51.20.13 M	Feb 82
LINE PRINTER IS SOMETIMES INCORRECTLY CONSIDERED IN USE		51.20.14 M	Feb 82
ISAM FILE RECORD COUNT REVERTS TO 0		51.20.15 M	Apr 82
XMTSD GIVES INCORRECT ERROR WHEN NO ROOM FOR I/O BUFFER		51.20.16 M	Apr 82
TSD AND XMTSD HANG AFTER ATTEMPT TO ILLEGALLY START UP JOB		51.20.17 M	May 82
DOCUMENTATION			
CTS-300 VERSION 6 IS RELEASED		51.21 N	Aug 80
TWO RT-11 PATCHES MODIFIED FOR CTS-300 USE		51.21.2 N	Oct 80
RT-11 PATCH TO LS.MAC MODIFIED FOR CTS-300 USE		51.21.3 N	Feb 81
ADDITIONS TO CTS-300 DOCUMENTATION ON PRINT UTILITY		51.21.4 N	Mar 81
LIST OF SEQUENCE NUMBERS FOR CTS-300 V6		51.21.5 N	Mar 81
SOME NOTES ON RT-11 PATCH SEQ 6.13.3 M TO LS.MAC FOR CTS-300 USERS		51.21.6 M	Jul 81
SOME NOTES ON RT-11 PATCH SEQ 6.13.4 M TO LS.MAC FOR CTS-300 USERS		51.21.7 N	Aug 81
SOME NOTES ON RT-11 PATCH SEQ 6.13.5 M TO LS.MAC FOR CTS-300 USERS		51.21.8 N	Aug 81
AVOIDING POSSIBLE PROBLEM WITH ISAM FILES		51.21.9 N	Dec 81
SOME NOTES ON RT-11 PATCH SEQ 6.13.6 M TO LS.MAC FOR CTS-300 USERS		51.21.10 N	Feb 82
RESTRICTION FOR CTS-300		51.21.11 R	Apr 82
LS.MAC			
SPECIAL CTS-300 PATCH FOR LS.MAC		51.23.1 M	Feb 81
CORRECTION TO CTS-300 PATCH 11 (SEQ 51.23.1 M) TO LS.MAC		51.23.2 M	Jun 81

Component	Autopatch Kit	Sequence	Mon/Yr
SYSTBL.CND			
RT-11 PATCH TO SYSTBL.CND MODIFIED FOR CTS-300 USE		51.25.1 M	Mar 81
RT-11 PATCH SEQ 10.3.2 M TO SYSTBL.CND MODIFIED FOR CTS-300 USE		51.25.2 M	Apr 81
RT-11 PATCH SEQ 10.3.3 M TO SYSTBL.CND MODIFIED FOR CTS-300 USE		51.25.3 M	May 82
	CTS-300 V7.0		
DOCUMENTATION			
CTS-300 VERSION 7 IS RELEASED		52.1.1 N	Apr 82
XMTSD RUN-TIME SYSTEM SIZE		52.1.2 N	Jun 82
CHANGING THE DEFAULT TIME SLICE VALUE FOR XMTSD		52.1.3 N	Jun 82
RELINK DIBOL PROBLEMS FOR CTS-300 V7		52.1.4 N	Jun 82
PATCH LEVEL FOR KED/K52 CLARIFIED		52.1.5 N	Aug 82
DIBOL RUN-TIME SYSTEMS			
PATCH 5: VARIOUS TSD AND XMTSD PROBLEMS		52.3.1 M	Jun 82
PATCH 6: ISAM FILE RECORD COUNT REVERTS TO 0		52.3.2 M	Jun 82
DIBOL/TDIBOL			
PATCH 2: POSSIBLE INCORRECT RESULTS FROM THE INSTR ROUTINE		52.4.1 M	Apr 82
DKED			
PATCH 8: POSSIBLE BOTTOM OF SCREEN CORRUPTION USING DKED		52.6.1 M	Jul 82
ERMSG.TXT			
PATCH 9: INCORRECT ERROR MESSAGES FOR SORT IN ERMSG.TXT		52.10.1 M	Jul 82
DIBOL SORT			
PATCH 7: ERROR RECEIVED WHEN PERFORMING A LEGAL SORT		52.14.1 M	Jul 82
MACRO SORT			
PATCH 1: TWO SORT PROBLEMS EMERGE UNDER CERTAIN CONFIGURATIONS		52.15.1 M	Jun 82
PATCH 3: SINGLE USER SORT MAY LEAVE TEMPORARY FILES ON DISK		52.15.2 M	Jul 82
PATCH 10: TWO MACRO SORT PROBLEMS		52.15.3 M	Aug 82
SYSTBL.CTS			
PATCH 4: TERMINAL OUTPUT CORRUPTION ON DZ11 OR DZV11 LINES		52.16.1 M	Jun 82
	CTS-300 DICAM (3271) V3.1		
INCORRECT ACK SENT IN CONVERSATIONAL MODE		55.1.1 M	Jul 81
LOOP WHEN CLOSE IS ISSUED WITH OUTSTANDING I/O REQUESTS		55.1.2 M	Jul 81
	CTS-300 RDCP (2780/3780) V2.0		
ABNORMAL TERMINATION AND LISTING PROBLEMS		56.1.1 M	Dec 80
SUBSCRIPT ERROR IN RDCP EDITOR		56.1.2 M	Dec 80
MEMORY CORRUPTION PROBLEM		56.1.3 M	Dec 80
	DECtype-300 V1.1		
REPEATED USE OF THE PASTE FUNCTION WILL CAUSE AN ERROR 28		57.1.1 M	Jun 82
	RGL/FEP		
INVALID LABELS FOR DATA RANGE OF 0.1 TO 1.0		58.1.1 M	Aug 82
ERROR CALLING LOCATE, LFIXED OR LFREE TWICE IN SUCCESSION		58.1.2 M	Aug 82
	RT-11/FORTRAN ENHANCEMENT PACKAGE for MINC (FEP)		
INVALID LABELS FOR DATA RANGE OF 0.1 TO 1.0		59.1.1 M	Aug 82
ERROR CALLING LOCATE, LFIXED FOR LFREE TWICE IN SUCCESSION		59.1.2 M	Aug 82

Component	Autopatch Kit	Sequence	Mon/Yr
REAL-11/MNC			
UNDEFINED GLOBAL DRSW10 IN MNCLIB		59.4.1 M	Jul 82
DATA SENT BY THE MAIN PROGRAM IS CORRUPTED BY THE SRQ ROUTINE		59.5.1 M	Jul 82
IBSRQ SKIPS INSTRUMENT ADDRESS IF SRQ ROUTINE DEFAULTED		59.5.2 M	Jul 82
SRQ ROUTINE AND TIMEOUT VALUE NOT CLEARED ON EXIT		59.5.3 M	Jul 82
SYSTEM CRASHES IF THE IB DRIVER IS NOT LOADED		59.5.4 M	Jul 82
CAN'T SPECIFY TALKER WHEN LISTENERS DEFAULTED, AND INCORRECT RECEIVE		59.5.5 M	Jul 82
CANNOT USE SECONDARY ADDRESSES IN RANGE 96. to 126.		59.5.6 M	Jul 82

Software Product Description

PRODUCT NAME: DECnet-RT, Version 2.0
RT-11 Network Software

SPD 10.72.8

DESCRIPTION:

DECnet-RT is a Phase III network product that allows a suitably configured RT-11 Foreground/Background (FB) system to participate as a nonrouting (end) node in DECnet computer networks. DECnet-RT offers task-to-task communications, utilities for network file operations, and network resource-sharing capabilities using DIGITAL Network Architecture (DNA) protocols. DECnet-RT communicates with adjacent nodes over synchronous and asynchronous communication lines. Access to DECnet-RT is supported for RT-11FB user programs written in MACRO-11 and FORTRAN IV.

DECnet-RT is warranted for use only with Phase III DECnet products supplied by DIGITAL. The functions available to an RT-11FB user depend, in part, on the configuration of the rest of the network. Each DECnet product offers its own level of functionality and its own set of features to the user. Networks consisting entirely of DECnet-RT nodes, for example a two node network, can have the full functionality described in this SPD. Networks that mix DECnet-RT nodes with other DECnet products will enhance the functions available to the DECnet-RT user. As a nonrouting node, DECnet-RT does not support all the features of a routing node.

The DECnet products and functions available to users on mixed networks can be determined by comparison of the SPDs for the component products. An overview of DECnet and common functionality available with mixed networks can be obtained from the general DECnet Phase III (10.59.xx) SPD.

Task-to-Task Communication

Using DECnet-RT, an RT-11FB user program written in MACRO-11 or FORTRAN IV can exchange messages with other network user programs. The messages sent and received by the two user programs can be in any data format.

Network Resource Access

File Transfer Utilities

DECnet-RT provides two utilities for use in accessing and/or transferring files between two DECnet nodes. The Network File Transfer (NFT) utility provides a means for users to transfer sequential ASCII or image files. These files can be transferred in either direction between the local RT file system devices and the file system of other DECnet-RT nodes. Additional facilities allow file deletion, spooling of files and submission and/or execution of command files provided the remote node supports these functions. NFT allows wild cards for the file name and file type for files that reside on DECnet-RT nodes, as well as wild cards in other file specification fields to non-DECnet-RT nodes subject to the restrictions of those implementations. NFT also allows directory listings of remote systems that support this feature. The File Access Listener (FAL) utility allows remote DECnet nodes to access RT file system devices. FAL provides support for sequential ASCII and image files. FAL also supports file deletion and directory listings. Wild cards are allowed in file specifications for file name and file type.

File Access

Access to remote DECnet node files is supported for FORTRAN IV and MACRO-11. The FORTRAN IV Network File Access Routines (NFARS) are explicit subroutine calls that allow OPEN, READ, WRITE, CLOSE, PURGE and DELETE operations to be initiated by FORTRAN IV tasks to sequential ASCII and image files residing on other DECnet nodes. APPEND, SUBMIT, EXECUTE, and SPOOL operations are also supported provided that the remote DECnet node supports these operations (remote DECnet-RT nodes do not). The MACRO-11 NFARS provide all the functionality of the FORTRAN IV NFARS. In addition, the MACRO-11 NFARS allow random access to remote, sequential, or relative files provided that the remote DECnet node supports this feature. Both the FORTRAN IV and MACRO-11 NFARS allow fixed length, variable length, and sequenced record formats.

Network Command Terminal

DECnet-RT provides unsupported utilities that allow a terminal user to establish a virtual connection to Phase III DECnet-11M, DECnet-11M-PLUS, or DECnet-VAX systems. This connection makes the terminal appear as if it were physically connected to the other system and the operator can use most of the standard system and network utilities supported by that system. These

utilities are particularly useful for doing remote program development and allow terminal users on small application oriented systems to uitilize the resources of larger development oriented systems. However, these utilities are provided only as a courtesy from DIGITAL, with no implied support services offered, as is the case with the other mentioned DECnet-RT capabilities.

Task Activation on Incoming Connect

The Network Job Spawner (NJS) will run as a background program in an "unattended" environment. This program will be notified of incoming connect requests by the Network, and if the program exists, will pass control to the requested job. The requested job should pass control back to NJS if it was initiated by NJS. All server tasks supplied by DECnet-RT, which can be activated by incoming connects, will support the NJS. Server tasks include the File Access Listener (FAL), the Data Test Receiver (DTR), the Terminal Communication Utility (TLK), the Network Management Listener (NML) and the Loopback Mirror (LOOPER).

Network Management

The Network Control Program (NCP) performs three primary functions: displaying statistical and error information, controlling network components, and testing network operation. These functions can be performed locally or executed at remote Phase III nodes that support this feature. In either case, the output resulting from a command can be directed to a local file or to the user's terminal.

An operator can display the status of DECnet activity at the local node and other Phase III nodes. The user can choose to display statistics related to both node and communication lines, including data on traffic and errors. The local console operator can also perform many network control functions, such as loading and unloading DECnet components, starting and stopping lines, and activating the local node.

DECnet-RT does not provide local network events logging to the console device. NCP can be used to test components of the network. NCP can be used to send and receive test messages over individual lines either between nodes or through controller loopback arrangements. The messages can then be compared. NCP allows performance of a logical series of tests that will aid in isolating problems. Network Management Listener allows remote command nodes to perform network management functions at a DECnet-RT node. Functions include display of line and node parameters and counters, zeroing of line and node counters, and changing selected line and node parameters.

Terminal Communication Utility

The DECnet-RT TLK utility allows a user at a DECnet-RT node to send messages to DECnet nodes that support the same feature. Messages can be directed to a specific terminal or to the operator's console at the destination node. TLK dialogue mode allows users of two systems to type messages to one another.

Nonrouting (End) Node

A nonrouting (end) node has only one line that must be connected to another DECnet Phase III node. DECnet-RT systems support only one active line. A nonrouting node can send and receive messages from nonadjacent Phase III network nodes; however, it does not route transient messages through to other nodes since it is only an end node.

Communications

DECnet-RT supports the DIGITAL Data Communications Messages Protocol (DDCMP) for full- or half-duplex transmission in point-to-point and as a tributary in a multi-point operation, using serial synchronous or asynchronous facilities. DDCMP provides error detection and physical link management facilities. In addition, an auto-answer capability is provided.

Node Topologies

DECnet-RT will provide DECnet Phase III nonrouting (end) node support. This feature will allow a DECnet-RT node to communicate with nonadjacent nodes through one or more intervening nodes if the adjacent node supports full routing. If the adjacent node is a nonrouting node, for example another DECnet-RT, Version 2.0 node, the topology of the network would be restricted to two nodes.

Line Configuration

DECnet-RT will support a single line at a time. Although multiple lines can be configured into a particular system, only one line can be loaded and activated for the network. Thus the system is a nonrouting (end) node in the network, with a single path to the adjacent node and, therefore, the rest of the network. The line can be point-to-point or a multipoint tributary.

Direct Line Access

User-written MACRO-11 tasks will be provided with Direct Line Access (DLX) interface support.

This interface allows user tasks to obtain control of and use physical communications lines. Tasks send and receive data using the data link control protocol that is associated with that line. The DECnet logical link control level will be bypassed entirely.

The direct line interface is functionally equivalent to that provided in DECnet-RSX, Version 3.0. The functions supported by the DLX interface are as follows:

- Open a line (implies start)
- Close a line (implies stop)
- Send a message on the line
- Receive a message on the line
- Hang up the line

NCP commands are used for setting and displaying the owner of a line. A line owner can be either NSP for normal network use, or DLX to make the line available for direct access by users.

The direct line access will be supported for a single line and only to another RT-11FB system that has the direct line access enabled for the line. Although multiple lines of the same type, such as DUP, can be simultaneously enabled, these configurations are not supported and communication to other products, for example RSX DLX, supporting the DLX option is possible, but not supported.

DECnet-RT Operation

DECnet-RT, Version 2.0 is implemented as a foreground program and device handlers under the RT-11FB monitor with DIGITAL supplied background utilities and subroutines. A pregenerated system is provided on the distribution media, which can be used for a wide variety of user applications. The following sizing information is based upon the sizes of the pregenerated system. The size of a user generated system will depend upon the specific parameters selected during the Network Generation procedure.

When the network software is loaded in a 56K byte memory system, the background program area remaining is approximately 24K bytes when a DMC, DMR, DMP, or DMV communication device is used. The space available for the background program area is approximately 21K bytes when a DUP, DU, DUV, DL, DLV, or DPV communication device is used. These sizes do not include the size of the RT-11 User Service Routines (USR).

DECnet-RT Configuration

The process of configuring a DECnet-RT node is based primarily on trade-offs of cost, performance, and functionality, within the realm of satisfying the application requirements. Network applications range from low-speed, low-cost situations to those of relatively high performance and functionality. The performance of a given DECnet node is a function not only of the expected network traffic and resultant processing (global conditions), but also of the amount of concurrent processing peculiar to that node (local conditions).

Node performance depends on many factors, including

- CPU power
- Number of device interrupts per unit time
- Communication line characteristics
- Number and size of buffers
- Message size and frequency
- "Local" applications

Note that the rate at which user data can be transmitted (throughput) over a communications line can sometimes approach, but will never equal or exceed, the actual line speed. Actual throughput is a function of many factors, including the user application(s), network topology, protocol overhead, and the factors cited at the beginning of this section.

Two basic groups of communications interfaces are presented in the tables below. They differ in many respects, particularly in their effect on CPU utilization.

- The DMC11, DMR, DMP, and DMV are Direct Memory Access (DMA) devices. Also, the DDCMP line protocol is executed in microcode by these communication controllers, thus, off-loading the PDP-11. The only DECnet load the processor sees is complete incoming and outgoing messages.
- With character interrupt devices, such as the DUP11, CPU cycles are required for not only the DDCMP processing, but also each character sent and received.

The following tables describe what physical hardware configurations are supported by DECnet-RT in terms of CPU class and communication interface. It should be noted that the attachment of such devices as A/D converters and multiple terminals can reduce the line speed that can effectively be supported.

Maximum Line Configurations on 11/03 and 11/23 CPUs, or PDT-11/150

Device	Maximum Number of Lines	Maximum Linespeed (Kilobits/sec)	Maximum Device Bandwidth (Kilobits/sec)	Mode
DLV11-E, DUV11, DPV11	1	4.8[1]	4.8[1]	FDX/HDX
DMV[2]	1	56.0	56.0	FDX/HDX

[1]NOTE: Restricted to 2.4 on 11/03 and PDT-11/150
[2]NOTE: Restricted to 11/23-PLUS only

Maximum Line Configurations on 11/04 - 11/60 CPUs

Device	Maximum Number of Lines	Maximum Linespeed (Kilobits/sec)	Maximum Device Bandwidth (Kilobits/sec)	Mode
DL11, DU11, DUP11	1	9.6[3]	9.6[3]	FDX/HDX
DMC11-AR -DA	1	19.2	19.2	FDX/HDX
DMC11-AL -MD	1	56.0	56.0	FDX/HDX
DMC11-AL -MA	1	1000.0	1000.0	FDX/HDX
DMR	1	1000.0	1000.0	FDX/HDX
DMP	1	1000.0	1000.0	FDX/HDX

[3]NOTE: Restricted to maximum of 4.8 on PDP-11/10, 11/04.

In order to achieve a viable configuration, the user and/or a DIGITAL software specialist must perform a level of application analysis that addresses the factors above. In the preceding tables, the columns have the following meanings:

- Maximum Line Configuration — The greatest number of physical lines that can be attached and driven by the DECnet-RT system.
- Maximum Line Speed — The fastest clock rate at which the device can be driven under DECnet-RT. This means that even if devices have the ability to operate at a maximum rate, they must be configured subject to the "maximum device bandwidth" restrictions listed in the preceding tables.
- Mode — This indicates whether the line is operating in either half-duplex (a single bit stream) or full-duplex (two concurrent bit streams) mode.

System Generation

Generation and installation of DECnet-RT, Version 2.0 requires a generated RT-11FB, Version 4.0 with at least 56K bytes of memory.

NOTE: Generation on floppy diskette or TU58 Dectape II only systems is not supported.

MINIMUM HARDWARE REQUIRED:

Any valid RT-11FB system configuration (excluding PDT-11/130 and TU58 based systems) with:

- 56KB memory and a minimum of 24KB available memory for the DECnet-RT software and data storage
- An RK05 disk or larger, plus one additional device for distribution media
- PDP-11/03 through PDP-11/60 central processor with one or more of the appropriate communications devices:
  - DU11-DA low-speed synchronous interface
  - DUP11-DA low-speed synchronous interface
  - DMC11-AR -DA remote synchronous V.24/EIA-232-C interface
  - DMC11-AR -FA remote synchronous V.35/DDS interface
  - DMC11-AL -MD high-speed synchronous interface
  - DMC11-AL -MA high-speed local synchronous interface
  - DMV11-AA synchronous QBUS interface RS232-C/RS423A for 11/23-PLUS
  - DMV11-AB synchronous QBUS interface CCITT V.35/DDS for 11/23-PLUS
  - DMV11-AC local synchronous QBUS interface for 11/23-PLUS
  - DMP11-AA synchronous UNIBUS interface RS232-C/RS423A
  - DMP11-AB synchronous UNIBUS interface CCITT V.35/DDS
  - DMP11-AC local synchronous UNIBUS interface
  - DMP11-AE synchronous UNIBUS interface RS422A
  - DMR11-AA synchronous interface RS232C/CCITT V.24
  - DMR11-AB synchronous interface CCITT V.35/DDS
  - DMR11-AC local synchronous interface
  - DMR11-AE synchronous interface RS449/422
  - DL11-E asynchronous RS232-C interface with modem control
  - DL11-C asynchronous interface 20mA current loop[4]
  - DL11-WA asynchronous interface 20mA current loop[4]
  - DUV11-DA low-speed EIA RS232-C synchronous interface
  - DLV11-F asynchronous 20mA interface[4]
  - DLV11-E asynchronous EIA interface
  - DPV11-DB synchronous QBUS interface
  - PDT-11/150 with dual floppies

[4]NOTE: Requires either the H319 option for optical isolation or one side of the 20mA line to be in passive mode.

OPTIONAL HARDWARE:

KG11-A Communications Arithmetic Element can be used in conjunction with DU11 and DL11.

PREREQUISITE SOFTWARE:

RT-11FB Operating System, Version 4.0 with device timeout support and without error logging generated

OPTIONAL SOFTWARE:

FORTRAN IV/RT-11

TRAINING CREDITS:

Training credits are not included with a DECnet software license. Training courses on DECnet software are scheduled at regular intervals in DIGITAL's Training Centers. Arrangements should be made directly with DIGITAL's Educational Services Department.

SUPPORT CATEGORY:

DIGITAL SUPPORTED

DECnet-RT is a DIGITAL Supported Software Product.

SOFTWARE INSTALLATION:

DIGITAL INSTALLED

DIGITAL installation is required for Software Product Support. There is no charge for installation if performed at the time of system installation. DIGITAL installed software products, except for operating systems, are subject to an add-on installation fee when purchased subsequent to system installation.

Installation by DIGITAL will convert the RT-11FB system into a node with connection potential to a DECnet network. Connectivity of the DIGITAL installed DECnet-RT node to all adjacent DECnet Phase III, DIGITAL supported nodes, within the customer's network, will be demonstrated by the use of Network Installation Procedures. The updating/upgrading of adjacent nodes within the customer's network to allow connectivity is the responsibility of the customer.

SOFTWARE PRODUCT SUPPORT:

DECnet-RT includes standard warranty services as defined in the Software Support Categories Addendum of this SPD.

The customer can purchase DECnet-RT licenses with options that do not include support services. The category of support applicable to such software is Customer Supported. When a network contains DECnet product options, which were purchased without warranty services and/or are not currently covered by a DIGITAL Software Product Service contract, DIGITAL will respond to only those problems that occur or can be demonstrated by the customer to occur among nodes that are under warranty service or a current DIGITAL Software Product Service Contract.

CUSTOMER RESPONSIBILITIES:

Before installation of the software, the customer must

- Obtain, install, and demonstrate as operational to DIGITAL's satisfaction any modems and other equipment and facilities necessary to interface DIGITAL's communications line interfaces and terminals.
- Make available to DIGITAL personnel all hardware, including terminals, to be used during installation for a reasonable period of time, as mutually agreed upon by DIGITAL and the customer, until installation is complete.

Delays caused by any failure to meet these responsibilities will be charged at the then prevailing rate for time and materials

PREREQUISITE SUPPORT:

A Network Profile and DECnet Customer Support Plan covering all intended network-nodes and their support may be required.

ORDERING INFORMATION:

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU.

All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

Options with no support services are only available after the purchase of one supported license.

A single-use, license-only option is a license to copy the software previously obtained under license.

The following key (D, E, H, Q, X, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ687-AD = binaries on 9-track 800 BPI Magtape (NRZI).

D = 9-track 800 BPI Magtape (NRZI)
E = RK05 Disk Cartridge
H = RL02 Disk Cartridge
Q = RL01 Disk Cartridge
X = RX02 Double Density Diskette
Z = No hardware dependency

QJ687 -A— Single-use license, binaries, documentation, support services (media: D, E, H, Q, X)

QJ687 -D— Single-use license-only option, no binaries, no documentation, no support services (media: Z)

Update/Unsupported Options

Users of DECnet-RT whose specified Support Category warranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a binary, single-use, license-only option. Options are distributed in binary form on the appropriate medium and include no installation or other services unless specifically stated.

QJ687 -H— Binaries, documentation (media: D, E, H, Q, X)

QJ687 -H— Right to copy for single-use, no binaries, no documentation (media: Z)

Miscellaneous Options

QJ687 -G— Documentation-only kit (media: Z)

ADDITIONAL SERVICES:

The following post-warranty Software Product Services for this software product are available to licensed customers:

- Self-Maintenance Service
- Basic Service
- DECsupport Service

The prerequisite being the purchase of the equivalent level RT-11 Software Product Service. Customers should contact their local DIGITAL office for additional information on the availability of these services.

Software Product Description

PRODUCT NAME: MRRT-11, Version 1.1
Memory-Resident RT-11

SPD 12.17.3

DESCRIPTION:

MRRT-11 is a memory-resident run-time version of the RT-11 Operating System, Version 4.0, designed to operate on a PDP-11/03, PDP-11/23, or SB11 microcomputer. MRRT-11 provides a subset of the RT-11 Single-Job (SJ) run-time environment for the execution of application programs on a memory-based computer. Although MRRT-11 provides support for reading and writing to an RT-11 mass storage device, it is not dependent upon any mass storage media for execution.

Application programs written in MACRO-11 or FORTRAN IV must be created, assembled or compiled, and linked on a host RT-11 system. The MRRT-11 BUILD utility program is then used to build a MRRT-11 run-time system consisting of DIGITAL-supplied monitor and handler files and user-supplied application programs and data files. The resulting MRRT-11 run-time system is then transported from an RT-11 host system to a MRRT-11 target system for execution either manually on a TU58 tape cartridge or via the MRRT-11 down-line load facility.

MRRT-11 requires an RT-11, Version 4.0 system for program development and system generation. The software components contained in the MRRT-11 distribution kit include components that run on the host and components that run on the target system.

Host Components

- BUILD — Utility program that builds a MRRT-11 run-time system
- DLLOAD — Down-line load utility program
- XT — Handler that provides the communications link to the MRRT-11 target system
- MRRT-11 System Generation Files

Target Components

- MRRT-11 monitors for each supported SB11 configuration that control MRRT-11 system programs and MRRT-11 application programs
- DD-A TU58 device handler that either provides local support of a TU58 tape drive or provides the communications link to the host
- APPLP utility that loads a user-written MRRT-11 application program into an SB11 when more than one application program is included in a run-time system

MINIMUM HARDWARE REQUIRED:

An RT-11 Version 4.0 system is required for MRRT-11 system generation (optional) and program development. This RT-11 system must include either a TU58 tape drive or a DL-type communications line.

A minimum supported MRRT-11 target system must include the following:

- PDP-11/03, PDP-11/23, SB11-AA, SB11-DA, SB11-EA, or SB11-FA
- VT100, LA38, or LA120 console terminal
- TU58-VA cartridge tape unit

NOTE: MRRT-11 will run on a PDP-11/03, PDP-11/23 or SB11 that does not include a console or a TU58; however, when providing software support for MRRT-11 target systems, DIGITAL requires that the console and TU58 be present for debugging purposes.

OPTIONAL HARDWARE:

- LS120 serial line printer
- DRV11-J parallel line interface

PREREQUISITE SOFTWARE:

RT-11 Operating System, Version 4.0 is required on the development system (not a PDT-11) on which MRRT-11 applications are developed.

OPTIONAL SOFTWARE:

INSTRUMENT BUS Subroutines can be used with MRRT-11 on the SB11-FA.

TRAINING CREDITS:

None

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SUPPORT CATEGORY:

CUSTOMER SUPPORTED

MRRT-11 is provided on an "as is" basis without warranty expressed or implied. Any software services, if available, will be provided at the prevailing rate.

ORDERING INFORMATION:

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU.

All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

A single-use, license-only option is a license to copy the software previously obtained under license.

Sources and/or listings options are only available after the purchase of at least one supported license and after a source license agreement is in effect.

The following key (G, H, Q, X, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ018-AG = binaries on TU58 DECtape II Cartridge.

G = TU58 DECtape II Cartridge*
H = RL02 Disk Cartridge
Q = RL01 Disk Cartridge
X = RX02 Double Density Diskette
Z = No hardware dependency

*The TU58 is to 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.

QJ018 -C— Single-use license, binaries, documentation, no support services (media: G, H, Q, X)

QJ018 -D— Single-use license-only option, no binaries, no documentation, no support services (media: Z)

Sources/Listings Options

NOTE: Source kits provided by DIGITAL do not necessarily contain all the source files used by DIGITAL to build the binary kits.

QJ018 -E— Sources license, sources, no support services (media: G, H, Q, X)

QJ018 -F— Sources license, listings, no support services (media: R)

Update/Unsupported Options

Users of MRRT-11 whose specified Support Category warranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a binary, single-use, license-only option. Options are distributed in binary form on the appropriate medium and include no installation or other services unless specifically stated.

QJ018 -H— Binaries, documentation (media: G, H, Q, X)

QJ018 -H— Right to copy for single use, no binaries, no documentation (media: Z)

Sources/Listings Update Options

The following options are available to licensed users as updates to sources and/or listings options. The update is distributed in source form on the appropriate medium and includes no installation or other services unless specifically stated.

QJ018 -N— Sources, documentation (media: Q, X)

Miscellaneous Options

QJ018 -G— Documentation-only kits (media: Z)

ADDITIONAL SERVICES:

None

Software Product Description

PRODUCT NAME: MACSYS-RT, Version 1.0 **SPD 12.61.0**
MACRO-11 Development System Software

DESCRIPTION:

MACSYS-RT is a microcomputer software development environment for the MACRO-11 programmer and is packaged with 11MDS hardware. MACSYS-RT consists of the following software components, grouped together for ease of use and installation:

- MACDBG-RT, Version 1.0 — Remote debugger for MACRO-11 programmers
- A preconfigured RT-11 Extended Memory (XM) monitor with an on-line software installation procedure
- VTERM — VT100 terminal emulation software
- RT-11, Version 4.0, Real-Time Operating System

MACSYS-RT can be installed using the preconfigured RT-11XM monitor and on-line installation procedure. With the facilities available under this monitor, the user can develop application programs in MACRO-11. For target applications that do not use RT, the user can link the target application hardware to the 11MDS system via a serial link and use MACDBG-RT to down-line load and test his application software in the target environment.

RT-11

RT-11 provides a disk based, single-use, real-time operating system designed for interactive program development and/or on-line applications. RT-11 supports single job (SJ), foreground/background (FB), and extended memory (XM) modes of processing. RT-11 minimizes system requirements in the CPU and on the mass storage device, while maximizing system throughput. RT-11's ease of use is partially due to the system simplicity inherent in its design. RT-11 provides the user with development aids, such as text editors, a file system, utilities, assembler, linker, and debugging tools. RT-11 is a mass storage based operating system. Refer to SPD No. 12.1.xx for specifics.

MACDBG-RT

MACDBG-RT is an RT-11 layered software development/debugging tool for MACRO-11 users. MACDBG-RT enables programmers, who have developed applications in the MACRO-11 language on a host RT-11 system, to down-line load the application software across a serial line into the target system, and to test/debug and control the execution of target sy;stem from the host system. This is primarily useful for non-mass storage based applications. The user can develop application software on the mass storage based host RT-11 system using the many development aids available with RT-11, and then test the software in the target application configuration with MACDBG-RT. MACDBG-RT provides features, such as symbolic debugging, breakpoints, tracepoints, watchpoints, single step capability and reversed assembled examination of memory contents. The components of MACDBG-RT included in this package are supported only under the XM monitor of RT-11. For specifics refer to SPD No. 12.58.xx.

Preconfigured RT-11XM

A preconfigured RT-11XM monitor, configured for the 11MDS floppy-based development system is provided. This enables the first time user to use the system without performing a SYSGEN. An on-line installation procedure facilitates installation/verification of system software. Refer to SPD No. 12.1.xx for specifics on the RT-11XM monitor.

VT100 Emulation Program (VTERM)

VTERM allows the 11MDS console terminal to be used as a standard terminal on PDP-11 or VAX-11 system. VTERM is activated via the RT-11 "RUN" command. Once VTERM has started, the user follows the normal log-on procedure for the remote system. The remote system and local 11MDS system must be connected by a serial line.

While logged into the remote system, the user can transmit a file to the remote system as though it was being typed. Output from the remote system can be logged into a file, as well as being displayed on the terminal. This provides a limited form of ASCII file transfer when used in conjunction with a text editor on the remote system. The user can create, edit and maintain source files on a remote PDP-11 or VAX-11 system in a multi-user environment. Multiple programmers can contribute to these source files. When the files are ready to be compiled, and debugged/tested in the target environment, they can be copied onto the RX02 drive on the 11MDS system using VTERM. Note that binary files cannot be transported in this manner.

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MINIMUM HARDWARE REQUIRED:

Any 11MDS system that includes

- VT103-AA (terminal with 4x4 Q-bus backplane)
- VT1XX-AB (advanced video option for the terminal)
- KDF11-AA (LSI-11/23 CPU with MMU)
- KEF11-AA (FIS microcode chip for KDF11 processor)
- MSV11-DD (64KB MOS RAM module)
- Two MXV11-AC (multifunction modules - each module with 32KB RAM and 2 SLUs)
- MXV11-A2 (RXV21 bootstrap PROMS mounted on one MSV11 module)
- RXV21 (RX02 floppy drive interface module)
- VT1X3-MM (VT103 terminal maintenance module)
- RX02M-E (table top RX02 floppy drive)
- LA120-RA (LA120 "receive only" 180 cps printer)

When using MACDBG-RT in a host-target configuration with the 11MDS functioning as the host RT-11 development system, the host-target interconnect and the target hardware configuration must satisfy the minimum hardware requirements for MACDBG-RT. Refer to SPD No. 12.58.xx for specifics.

When using the VTERM utility to communicate with a remote PDP-11 or VAX-11 system, a serial link must be established between the auxiliary port on the 11MDS system and the remote system.

OPTIONAL HARDWARE:

PB11 PROM blasting hardware

PREREQUISITE SOFTWARE:

None

OPTIONAL SOFTWARE:

PROM/RT-11

TRAINING CREDITS:

None

SUPPORT CATEGORY:

DIGITAL SUPPORTED

MACSYS-RT is a DIGITAL Supported Software Product.

SOFTWARE INSTALLATION:

CUSTOMER INSTALLED

MACSYS-RT is a software product engineered to be installed by the customer and includes other Software Product Support services listed below.

SOFTWARE PRODUCT SUPPORT:

MACSYS-RT includes standard warranty services as defined in the Software Support Categories Addendum of this SPD, except that no Newsletter or on-site remedial service will be provided.

The customer is entitled to telephone support by the Microcomputer Development Support Group (MDSG) for a period of 90 days following installation of the product, or starting 30 days after delivery, whichever occurs first. Delivery will be F.O.B. DIGITAL's plants.

Telephone support shall consist of answering customer's questions with regard to the operation of MACSYS-RT, as well as aiding the customer in diagnosing MACSYS-RT software application development problems. The MDSGs are located in Atlanta, Georgia for the U.S. and Canada, and in Munich, Germany for Europe. Users in other locations should consult the local DIGITAL office for the location of the Microcomputer Development Support Group (MDSG) in their area.

Software updates released by DIGITAL during the 90 day period following installation of the product will be provided to the customer at no charge. After the 90 day period, further updates (if any) will be made available according to the prevailing DIGITAL policies.

ORDERING INFORMATION:

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU.

All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

MACSYS-RT software is available only as the software component of the 11MDS—M Microcomputer Development System and is available only on RX02 double density diskette distribution media.

11MDS-MA	11MDS-A hardware, single-use license, binaries, documentation, support services, 120V/60Hz. Includes single-use license to use the debugger service module on the target system, for debugging purposes during the development phase.
11MDS-ZA	11MDS-A hardware, single-use license-only option, no binaries, no documentation, no support services, 120V/60Hz. Includes single-use license to use the debugger service module on the target system, for debugging purposes during the development phase.
11MDS-MC	11MDS-A hardware, single-use license, binaries, documentation, support services, 120V/50Hz. Includes single-use license to use the debugger service module on the target system, for debugging purposes during the development phase.
11MDS-ZC	11MDS-A hardware, single-use license-only option, no binaries, no documentation, no support services, 120V/50Hz. Includes single-use license to use the debugger service module on the target for debugging purposes during the development phase.

11MDS-MD 11MDS-A hardware, single-use license, binaries, documentation, support services, 240V/60Hz. Includes single-use license to use the debugger service module on the target system, for debugging purposes during the development phase.

11MDS-ZD 11MDS-A hardware, single-use license-only option, no binaries, no documentation, no support services, 240V/60Hz. Includes single-use license to use the debugger service module on the target system, for debugging purposes during the development phase.

Update Option

Users of MACSYS-RT whose specified Support Category warranty has expired may order under license the following software update at the prevailing rate for such update. The update is distributed in binary form on the appropriate medium and includes no installation or other services unless specifically stated.

QJ061-HX Binaries, documentation

ADDITIONAL SERVICES:

The following post-warranty Software Product Services for this software product are available to licensed customers:

- Self-Maintenance Service
- Basic Service

The prerequisite being the purchase of the equivalent level RT-11 Software Product Service. Customers should contact their local DIGITAL office for additional information on the availability of these services.

Software Product Description

PRODUCT NAME: LSP-11, Version 1.2
Laboratory Subroutine Package

SPD 15.44.4

DESCRIPTION:

The Laboratory Subroutine Package (LSP) is a set of FORTRAN-callable subroutines that perform a variety of standard analytical tasks commonly encountered in the laboratory. All of the subroutines are dedicated to processing data that has been acquired by other laboratory data acquisition software.

The Laboratory Subroutine Package provides the user with the following data manipulation subroutines.

- Peak processing
- Envelope processing
- Interval histogramming with reference points
- Fast Fourier transform
- Phase angle and amplitude spectrum
- Power spectrum
- Correlation function

MINIMUM HARDWARE REQUIRED:

One of the following:

- Any valid RT-11 Operating System configuration supporting FORTRAN IV/RT-11 with at least 32K bytes of memory
- Any valid mapped RSX-11M Operating System configuration supporting either FORTRAN IV/IAS-RSX or FORTRAN-77/RSX with at least a 32K byte user available partition

OPTIONAL HARDWARE:

- PDP-11 Extended Instruction Set
- PDP-11 Extended Arithmetic Element

PREREQUISITE SOFTWARE:

One of the following:

- RT-11 Operating System, Version 4.0 with FORTRAN IV/RT-11, Version 2.5
- RSX-11M Operating System*, with either FORTRAN IV/IAS-RSX*, or FORTRAN-77/RSX*

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

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

DIGITAL SUPPORTED

LSP-11 is a DIGITAL Supported Software Product.

SOFTWARE INSTALLATION:

CUSTOMER INSTALLED

LSP-11 is a software product engineered to be installed by the customer and includes other Software Product Support services listed below.

SOFTWARE PRODUCT SUPPORT:

LSP-11 includes standard warranty services as defined in the Software Support Categories Addendum of this SPD.

ORDERING INFORMATION:

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU.

All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources License Agreement between Purchaser and DIGITAL.

Options with no support services are only available after the purchase of one supported license.

A single-use, license-only option is a license to copy the software previously obtained under license.

The following key (D, E, H, M, Q, T, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ724-AD = binaries on 9-track 800 BPI Magtape (NRZI).

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D = 9-track 800 BPI Magtape (NRZI)
E = RK05 Disk Cartridge
H = RL02 Disk Cartridge
M = 9-track 1600 BPI Magtape (PE)
Q = RL01 Disk Cartridge
T = RK06 Disk Cartridge
Y = RX01 Floppy Diskette
Z = No hardware dependency

For RT-11 Systems

QJ624 -A— Single-use license, binaries, documentation, support services (media: E, H, Q, Y)

QJ624 -D— Single-use license-only option, no binaries, no documentation, no support services (media: Z)

For RSX-11M Systems

QJ724 -A— Single-use license, binaries, documentation, support services (media: D, E, H, M, Q, T)

QJ724 -D— Single-use license-only option, no binaries, no documentation, no support services (media: Z)

Update/Unsupported Options

Users of LSP-11 whose specified Support Category warranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a binary, single-use, license-only option. Options are distributed in binary form on the appropriate medium and include no installation or other services unless specifically stated.

For RT-11 Systems

QJ624 -H— Binaries, documentation (media: E, H, Q, Y)

QJ624 -H— Right to copy for single-use, no binaries, no documentation (media: Z)

For RSX-11M Systems

QJ724 -H— Binaries, documentation (media: D, E, H, M, Q, T)

QJ724 -H— Right to copy for single-use, no binaries, no documentation (media: Z)

ADDITIONAL SERVICES:

The following post-warranty Software Product Services for this software product are available to licensed customers:

- Self-Maintenance Service
- Basic Service
- DECsupport Service

The prerequisite being the purchase of the equivalent level RSX-11M or RT-11 Software Product Service. Customers should contact their local DIGITAL office for additional information on the availability of these services.

Software Product Description

PRODUCT NAME: SSP-11, Version 1.3
PDP-11 Scientific Subroutine Package

SPD 15.45.8

DESCRIPTION:

The Scientific Subroutine Package (SSP) is a collection of over 100 mathematical and statistical routines commonly required in scientific programming. The subroutines are written in FORTRAN and contain no I/O statements.

Many of the larger statistical routines are provided as a collection of several smaller routines. This enables easier incorporation in larger programs requiring overlays.

SSP-11 Subroutine:

ABSNT	Detection of missing data
ARRAY	Vector storage double dimensioned storage conversion
AUTO	Autocovariances
AVCAL	AND operation
AVDAT	Data storage allocation
BESI	I Bessel function
BESJ	J Bessel function
BESK	K Bessel function
BESY	Y Bessel function
BOUND	Selections of observations within bounds
CADD	Add column of one matrix to column of another matrix
CANOR	Canonical correlation
CCPY	Copy column of matrix into vector
CCUT	Partition column-wise
CEL1	Elliptic integrals of the first kind
CEL2	Elliptic integrals of the second kind
CHISQ	CHI square test for a contingency table
CINT	Interchange two columns
CORRE	Means, standard deviations, and correlations
CROSS	Cross covariances
CS	Fresnel integrals
CSRT	Sort matrix columns
CSUM	Sum the columns of a matrix
CTAB	Tabulate the columns of a matrix
CTIE	Adjoin two matrices column-wise
DCLA	Replace diagonal with scalar
DCPY	Copy diagonal of matrix into vector
DISCR	Discriminant functions
DMATX	Means and dispersion matrix
EIGEN	Eigenvalues and eigenvectors of a real, symmetric matrix
EXPI	Exponential integral
EXSMO	Triple exponential smoothing
FORIF	Fourier analysis of a given function
FORIT	Fourier analysis of a tabulated function
GAMMA	Gamma function
GAUSS	Normal random numbers
GDATA	Data generation
GMADD	Add two general matrices
GMPRD	Product of two general matrices
GMSUB	Subtract two general matrices
GMTRA	Transpose of a general matrix
GTPRD	Transpose product of two general matrices
KRANK	Kendall rank correlation
LEP	Legendre polynomial
LOAD	Factor loading
LOC	Location in compressed-stored matrix
MADD	Add two matrices
MATA	Transpose product of matrix by itself
MCPY	Matrix copy
MEANQ	Mean square operation
MFUN	Matrix transformation by function
MOMEN	First four moments
MPRD	Matrix product (row into column)
MSTR	Storage conversion
MSUB	Subtract two matrices
MTRA	Transpose a matrix
MULTR	Multiple regression and correlation
NROOT	Eigenvalues and eigenvectors of a special nonsymmetric matrix

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ORDER	Rearrangement of integer correlations
PADD	Add two polynomials
PADDM	Multiply polynomial by constant and add to another polynomial
PCLA	Replace one polynomial by another
PLCD	Complete linear synthetic division
PDER	Derivative of a polynomial
PDIV	Divide one polynomial by another
PILD	Evaluate polynomial and its derivative
PINT	Integral of a polynomial
PGCD	Greatest common divisor of two polynomials
PMPY	Multiply two polynomials
PNORM	Normalize coefficient vector of polynomial
POLRT	Real and complex roots of a real polynomial
PSUB	Subtract one polynomial from another
PQSD	Quadratic synthetic division of a polynomial
PVAL	Value of a polynomial
PVSUB	Substitute variable polynomial by another polynomial
QATR	Integral of a given function by trapezoidal rule using Romberg's extrapolation method
QSF	Integral of equidistantly tabulated function by Simpson's Rule
QTEST	Cochran Q-test
RADD	Add row of one matrix to row of another matrix
RCPY	Copy row of matrix into vector
RANK	Rank observations
RECP	Reciprocal function for MFUN
RCUT	Partition by row
RKGS	Solution of a system of first order differential equations with given initial values by the Runge-Kutta method
RINT	Interchanges two rows
RK2	Tabulated integral of first order differential equation by Runge-Kutta method
RK1	Integral of first-order differential equation by Runge-Kutta method
RSUM	Sum the rows of a matrix
RTAB	Tabulate the rows of a matrix
RSRT	Sort matrix rows
RTMI	Determine root within a range by Mueller's iteration
RTIE	Adjoin two matrices row-wise
RTWI	Refine estimate of root by Wegstein's iteration
RTNI	Refine estimate of root by Newton's iteration
SCLA	Matrix clear and add scalar
SADD	Add scalar to matrix
SDIV	Matrix divided by a scalar
SCMA	Scalar multiply column and add to another column
SICI	Sine/cosine integral
SIMQ	Solution of simultaneous linear algebraic equations
SMO	Application of filter coefficients (weights)
SMPY	Matrix multiplied by a scalar
SANK	Spearman rank correlation
SRMA	Multiply a row by a scalar and add to another row
SSUB	Subtract scalar from matrix
SUBMX	Build subset matrix
SUBST	Subset selection from observation matrix
TAB1	Tabulation of data (one variable)
TAB2	Tabulation of data (two variables)
TALLY	Totals, means, standard deviations, minimums, and maximums
TPRD	Transpose product
TRACE	Cumulative percentage of eigenvalues
TTSTT	Tests on population means
TWOAV	Friedman 2-way analysis of variance
UTEST	Mann-Whitney U-test
VARMX	Varimax rotation
WTEST	Kendall coefficient of concordance
XCPY	Copy submatrix from given matrix

MINIMUM HARDWARE REQUIRED:

One of the following:

- Any valid RT-11 Operating System configuration supporting FORTRAN IV/RT-11 with at least 32K bytes of memory
- Any valid mapped RSX-11M Operating System configuration supporting either FORTRAN IV/IAS-RSX or FORTRAN-77/RSX with at least 32K byte user available partition

OPTIONAL HARDWARE:

None

PREREQUISITE SOFTWARE:

One of the following:

- RT-11 Operating System, Version 4.0 with FORTRAN IV/RT-11, Version 2.5
- RSX-11M Operating System*, with either FORTRAN IV/IAS-RSX*, or FORTRAN-77/RSX*

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

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

DIGITAL SUPPORTED

SSP-11 is a DIGITAL Supported Software Product.

SOFTWARE INSTALLATION:

CUSTOMER INSTALLED

SSP-11 is a software product engineered to be installed by the customer and includes other Software Product Support services listed below.

SOFTWARE PRODUCT SUPPORT:

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Q = RL01 Disk Cartridge
T = RK06 Disk Cartridge
Y = RX01 Floppy Diskette
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For RSX-11M Systems

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For RT-11 Systems

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For RSX-11M Systems

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QJ962 -H— Right to copy for single-use, no binaries, no documentation (media: Z)

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- Basic Service
- DECsupport Service

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MU BASIC-11/RT-11 V2.1
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DO NOT INSTALL MU BASIC-11/RT-11 V2.1, PATCH "F", SEQ 38.1.6 WHICH IS PUBLISHED IN THE SEPTEMBER 1982 ISSUE OF THE RT-11 SOFTWARE DISPATCH. THE PATCH IS ALSO INCORRECT IN THE SMALL BUFFER (VOL. 644, AUGUST 5, 1982, PAGE 18).

INSTALLATION OF PATCH "F", UNDER CERTAIN CONDITIONS, WILL NOT ALLOW THE USER TO EXIT FROM MU BASIC.

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