

RT-11

May 1980

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**THE
SOFTWARE
DISPATCH**

digital

RT-11 SOFTWARE DISPATCH

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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 Review).

PRODUCTS SUPPORTED in the RT-11 SOFTWARE DISPATCH

APL-11 V1	FORTTRAN/RT-11 Extensions V2.1	PLOT 11/RT-11 V1.1
BASIC-11/RT-11 V2	FORTTRAN IV/RT-11 V2, V2.1	RT-11 V3B, RT-11 V4
BASIC/RT Extensions V1	GAMMA-11 F/B V2C, V3	RT-11 (CTS-300) LSI-11
CTS-300 V5	Lab Applications-11 LIBRARY V3	2780 V2
DECnet/RT V1, V1.1	LSP-11 V1	RT-11/2780
FOCAL/RT-11 V1B	MSB11 V1	(CTS-300/2780) V2
FORTTRAN Graphics	MSB/FORTTRAN IV V1	SSP-11/RT-11 V1.1
Package V1.1	MU BASIC-11/RT-11 V2	

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SPR USER LETTER

Submitted by Sheila Hatchell, 8/11 Administration

The Dispatch SPR User Letter has been revised to reflect the new SPR form which is now available. These forms can be obtained from your local DIGITAL Office or SPR Center, or by requesting them from SPR Administration.

How to Make the Best Use of the SPR Form

What We Can Do for You:

1. Blank SPR forms 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 Your 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.

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CTS-300 V05
SORTM V05-00A
(PATCH 20)

Seq 2 M

1 of 2

MERGING ISAM FILES (LG)

If you create a SORT control file to merge two (or more) ISAM files, when it is compiled with SORTM, you will receive errors reporting three undefined names: FLBLI, IDEV, and FLBXI. You should not receive these errors.

Patch 20 corrects this problem and changes the version number of SORTM to V05-00B.

All dollar sign characters appearing in the following edit of SORTM represent the typing of the altmode key.

Please note that when sorting or merging ISAM files that the resulting output file is NOT an ISAM file but a sequential file. If an ISAM file is desired, you must then reCREATE it as such with ISMUTL.

CTS-300 V05
 SORTM V05-00A
 (PATCH 20)

Seq 2 M

2 of 2

```
.RENAME SORTM.DBL SORTM.OLD
```

```
.EDIT/OU: SORTM.DBL SORTM.OLD
```

```
*FV05-00A$V$$
```

```
;      S O R T M . D B L  V05-00A
```

```
*-CB$V$$
```

```
;      S O R T M . D B L  V05-00B
```

```
*F;COPYRIGHT$V$5L$$
```

```
;COPYRIGHT
```

```
*****
```

```
;
```

```
RECORD
```

```
ODEV,  A4          ;OUTPUT DEVICE
```

```
*2AV$$
```

```
;
```

```
*I      RECORD
```

```
IDEV,  A4          ;INPUT DEVICE
```

```
IFILE, A10         ;INPUT FILE NAME
```

```
RECORD FLBLI,X    ;OVERLAY TO MANIPULATE RECORD FIELDS
```

```
FLBXI, A10        ;FILE LABEL IN
```

```
IEXT,  A4          ;WORKFILE .TMP EXTENSION
```

```
$$
```

```
*-8A$11L$$
```

```
;COPYRIGHT
```

```
*****
```

```
RECORD
```

```
IDEV,  A4          ;INPUT DEVICE
```

```
IFILE, A10         ;INPUT FILE NAME
```

```
RECORD FLBLI,X    ;OVERLAY TO MANIPULATE RECORD FIELDS
```

```
FLBXI, A10        ;FILE LABEL IN
```

```
IEXT,  A4          ;WORKFILE .TMP EXTENSION
```

```
;
```

```
RECORD
```

```
ODEV,  A4          ;OUTPUT DEVICE
```

```
*FX55A,$UAV$$
```

```
X55A,  INCR      I
```

```
CALL    GETFCG
```

```
*I      OPEN (I,I,WKN(I))
```

```
$$
```

```
*-2LL$$
```

```
X55A,  INCR      I
```

```
OPEN (I,I,WKN(I))
```

```
CALL    GETFCG
```

```
*EX$$
```

```
.
```

RT-11 V03B-00
 MISCELLANEOUS
 SYSGEN.CND V02.11C

Seq 9 F
 1 of 2

SYSGEN FOR TU58 SUPPORT (SPR 11-28615 JM)

The DD.SYS build commands are omitted from DEVBLD.COM when TU58 support is requested during SYSGEN.

The following patch should only be applied to the SYSGEN.CND file supplied in the QJ013-AG, QJ013-TG, QJ013-AY, and QJ013-TY kits.

Patch to SYSGEN.CND

```
.R EDIT <RET>
*EBSYSGEN.CND[101]<ESC>RFSYCND+DL<ESC>-2AL<ESC><ESC>
  #IF      DL
*I      #IF      DD <RET>
      #IF      BLSJFB <RET>
MACRO/OBJ:BIN:DD SRC:(SYCND+DD) <RET>
LINK/EXE:BIN:DD.SYG BIN:DD <RET>
  #IFN     OBJ <RET>
DELETE/NOQ BIN:DD.OBJ <RET>
  #ENDC    OBJ <RET>
  #ENDC    BLSJFB <RET>
  #IF      XM <RET>
MACRO/OBJ:BIN:DDX SRC:(XM+SYCND+DD) <RET>
LINK/EXE:DDX.SYG BIN:DDX <RET>
  #IFN     OBJ <RET>
DELETE/NOQ BIN:DDX.OBJ <RET>
  #ENDC    OBJ <RET>
  #ENDC    XM <RET>
  #ENDC    DD <RET>
<ESC>-17LL<ESC><ESC>
  #ENDC    RK
  #IF      DD
  #IF      BLSJFB
MACRO/OBJ:BIN:DD SRC:(SYCND+DD)
LINK/EXE:BIN:DD.SYG BIN:DD
  #IFN     OBJ
DELETE/NOQ BIN:DD.OBJ
  #ENDC    OBJ
  #ENDC    BLSJFB
  #IF      XM
MACRO/OBJ:BIN:DDX SRC:(XM+SYCND+DD)
LINK/EXE:DDX.SYG BIN:DDX
  #IFN     OBJ
```

RT-11 Software Dispatch, May 1980

RT-11 V03B-00
MISCELLANEOUS
SYSGEN.CND V02.11C

Seq 9 F

2 of 2

DELETE/NOQ BIN:DDX.OBJ

#ENDC OBJ

#ENDC XM

#ENDC DD

#IF DL

*EX<ESC><ESC>

.

There is no resultant version change after installing this patch.

RT-11 V03B-00
MISCELLANEOUS
SYSGEN.CND V02.11C

Seq 10 F
1 of 1

DEVICE TIME-OUT SUPPORT IN SYSGEN (SPR 11-28393 JM)

The device time-out support question was not included when generating only an FB or XM monitor. The following patch corrects this problem.

Patch to SYSGEN.CND V02.11C:

```
.R EDIT <RET>
*EBSYSGEN.CND[101]<ESC>RV<ESC><ESC>

;      SYSGEN.CND V02.11C      RT-11 SYSGEN SCRIPT FILE
*2GC<ESC>-DID<ESC>V<ESC><ESC>

;      SYSGEN.CND V02.11D      RT-11 SYSGEN SCRIPT FILE
*G.11C<ESC>-DID<ESC>V<ESC><ESC>
    #PRINT RT-11 SYSTEM GENERATION PROGRAM V02.11D
*6FTIME$R<ESC>AL<ESC><ESC>
    #IF LONG
*I      #ENDC SJ <RET>
    #IFN BLSJ <RET>
<ESC>-3LL<ESC><ESC>
    #ENDC TIME$R
    #ENDC SJ
    #IFN BLSJ
    #IF LONG
*3GDEVTO<ESC>AL<ESC><ESC>
    #IF LONG
*I      #ENDC BLSJ <RET>
    #IF SJ <RET>
<ESC>-3LL<ESC><ESC>
    #ENDC DEVTO
    #ENDC BLSJ
    #IF SJ
    #IF LONG
*EX<ESC><ESC>
```

The resultant version after applying this patch will be SYSGEN.CND V02.11D.

RT-11 V03B-00
MONITOR
FB (S)V03B-000
XM (S)V03B-000U

Seq 34 M

1 of 4

CORRECTIONS TO MULTI-TERMINAL SUPPORT (JM)

The following multi-terminal problems are corrected after installing the patches below:

1. .MTSET does not set the terminal characteristics in the JSW and terminal status word for a job.
2. "SET TT CONSOLE =n" does not wait for all output to complete before switching consoles.
3. Automatic carriage return/linefeed does not work properly when the carriage width is exceeded.
4. "SET TT NOPAGE" does not ignore CTRL/S and CTRL/Q.
5. The monitor will always start with 1 stopbit unless the speed is defined at 110 baud.

Patch to KMOVLY.MAC:

```
.R EDIT <RET>
*EBKMOVLY.MAC[165]<ESC>RV<ESC><ESC>
;KMOVLY EDIT LEVEL 1
*G1<ESC>=C2<ESC>V<ESC><ESC>
;KMOVLY EDIT LEVEL 2
*FSET55$:<ESC>GOSPL<ESC>-AL<ESC><ESC>
  .IF NE      BF
*I15$:<RET>
<ESC>A1 TSTB   I.OCTR-I.CNSL(R2) <RET>
      BNE     15$ <RET>
<ESC>2A<ESC>I  TSTB   T.OCTR(R3) <RET>
      BNE     15$ <RET>
<ESC>-9LL<ESC><ESC>
      MOV     @R2,R3
15$:
  .IF NE      BF
      TSTB   I.OCTR-I.CNSL(R2)
      BNE    15$
      OSPL   7
  .IFF
      TSTB   T.OCTR(R3)
      BNE    15$
      OINTOF 6$
*EX<ESC><ESC>
.
```

RT-11 V03B-00
 MONITOR
 FB (S)V03B-000
 XM (S)V03B-00U

Seq 34 M

2 of 4

Patch to BSTRAP.MAC:

```
.R EDIT <RET>
*EBBSTRAP.MAC[69]<ESC>RV<ESC><ESC>
;BSTRAP EDIT LEVEL 25
*G5<ESC>=C6<ESC>V<ESC><ESC>
;BSTRAP EDIT LEVEL 26
*FBSTRNG:<ESC>G'O"<ESC>-JV<ESC><ESC>
  .ASCIZ "FB (S)V03B-0'...'O"
*-DIP<ESC>V<ESC><ESC>
  .ASCIZ "FB (S)V03B-0'...'P"
*G'U"<ESC>-JV<ESC><ESC>
  .ASCIZ "XM (S)V03B-0'...'U"
*-DIV<ESC>V<ESC><ESC>
  .ASCIZ "XM (S)V03B-0'...'V"
*FPDZOINT:<ESC>G55$:<ESC>2AL<ESC><ESC>
  CMP      R1,#1000
*3<I;<ESC>A<ESC>><ESC>GE$N<ESC>I+DZST$P<ESC>-5LL<ESC><ESC>
  BIC      #^C<LINSF$,R1
;      CMP      R1,#1000
;      BNE      57$
;      BIS      #40,R1
57$:      BISB   T.PUN(R0),R1
          BIS    #DZRCO$+DZLE$N+DZST$P,R1
*EX<ESC><ESC>
```

Patch to MTTINT.MAC:

```
.R EDIT <RET>
*EBMTTINT.MAC[43]<ESC>RV<ESC><ESC>
;MTTINT EDIT LEVEL 2
*G2<ESC>=C3<ESC>V<ESC><ESC>
;MTTINT EDIT LEVEL 3
*FCTRL.S:<ESC>V<ESC><ESC>
CTRL.S: BIS    #PAGE$,T.STAT(R3)
*SKA<ESC><ESC>
*I      BPL     TTINCC <RET>
<ESC><ESC>
*UI     RTS     PC <RET>
<ESC><ESC>
*4K<ESC>-5LL<ESC><ESC>
.ENDC
CTRL.S: TSTB   (R3)
```

RT-11 V03B-00
 MONITOR
 FB (S)V03B-000
 XM (S)V03B-00U

Seq 34 M

3 of 4

```

      BPL      TTINCC
      BIS      #PAGE$,T.STAT(R3)
      RTS      PC
TTIDSP: TST      (SP)+
*FDZOINT:<ESC>GOUTCHR<ESC>2AV<ESC><ESC>
      MOVB     T.OCHR(R3),(SP)
*I      MOVB     R0,@SP <RET>
; <ESC>-2LL<ESC><ESC>
      BCS      15$
      MOVB     R0,@SP
;      MOVB     T.OCHR(R3),(SP)
*EX<ESC><ESC>

```

.

Patch to MTTEMT.MAC:

```

.R EDIT <RET>
*EBMTTEMT.MAC[22]<ESC>RV<ESC><ESC>
;MTTEMT EDIT LEVEL 0
*G0<ESC>=C1<ESC>V<ESC><ESC>
;MTTEMT EDIT LEVEL 1
*F$TTST:<ESC>3GM0V<ESC>0AL<ESC><ESC>
      MOV      (R0)+,(R1)+
*I      TST      T.STAT(R3) <RET>
      BPL      30$ <RET>
      BIC      #127617,R2 <RET>
      MOV      @#JSW,-(SP) <RET>
      BIC      #50160,@SP <RET>
      BIS      R2,@SP <RET>
      MOV      (SP)+,@#JSW <RET>

```

RT-11 V03B-00
 MONITOR
 FB (S)V03B-000
 XM (S)V03B-00U

Seq 34 M

4 of 4

```

30$: <RET>
<ESC>GDZ11$N<ESC>0AL<ESC><ESC>
.IF      NE      DZ11$N
*I       TST      T.STAT(R3) <RET>
        BPL      40$ <RET>
        JSR      PC,TTRSET <RET>
40$: <RET>
<ESC>-16LL<ESC><ESC>

        TST      T.STAT(R3)
        BPL      30$
        BIC      #127617,R2
        MOV      @#JSW,-(SP)
        BIC      #50160,@SP
        BIS      R2,@SP
        MOV      (SP)+,@#JSW
30$:
        MOV      (R0)+,(R1)+
        MOV      (R0)+,(R1)+
        MOV      (R0),(R1)
        TST      T.STAT(R3)
        BPL      40$
        JSR      PC,TTRSET
40$:
.IF      NE      DZ11$N
*EX<ESC><ESC>

```

.

After installing the above patches, re-assembling, and re-linking the resultant versions will be RT-11FB (S)V03B-00P and RT-11XM (S)V03B-00V.

RT-11 V03B-00
SOURCE
DY Handler

Seq 15 M
1 of 1

MULTI-CONTROLLER DY HANDLER PROBLEM (SPR 11-26725 LCP)

Device errors may occur when single and double density media are used together on a dual RX211 or RXV211 system (4 drives). The following mandatory source patch will correct the problem in subsequently SYSGENed monitors:

```
.R EDIT <RET>
*EBDY.MAC<ESC>RV<ESC><ESC>
;DY EDIT LEVEL 3
*G3<ESC>=C4<ESC>V<ESC><ESC>
;DY EDIT LEVEL 4
*FDENOFF:<ESC>G#2<ESC>0AV<ESC><ESC>
      MOV      #2,DENOFF
*SI;<ESC>V<ESC><ESC>
;      MOV      #2,DENOFF
*GBEQ<ESC>1AU<ESC>-2A2L<ESC><ESC>
      BEQ      RXCDF
      MOV      #2,DENOFF
*EX<ESC><ESC>
.
```

*** NOTE ***

There is no binary patch for this problem as dual RX02 controller support is available only by performing a SYSGEN.

RT-11 V03B-00
 UTILITIES
 EDIT V04.02A

Seq 30 M

1 of 2

EDITING FILES ON WRITE-LOCKED DEVICES (SPR 11-25180 MG)

PROBLEM:

When the EB command is used to edit a file which resides on a device which is write-locked, the message ?EDIT-F-System I/O error is returned. If, while still in EDIT, the device is then write-enabled and the EB command issued again for the same file, the message ?EDIT-F-File not found will be returned. This is due to the 'edit-in-progress' flag not being cleared after certain errors. The second EB command found the flag set, so the previous command was completed, renaming the file to .BAK.

SOLUTION:

The following mandatory patch corrects the problem. (NOTE: All previous patches must be applied before applying this one. User responses are underlined.)

Patch to EDIT V04.02A:

.R PATCH<RET>

FILE NAME--

*EDIT.SAV/C<RET>*2362;0R

<u>*0,16432/</u>	105767	<u>167<LF></u>
<u>0,16434/</u>	157032	<u>161474<LF></u>
<u>0,16436/</u>	100401	<u>240<LF></u>
<u>0,16440/</u>	104413	<u>240<LF></u>
<u>0,16442/</u>	104417	<u>240<RET></u>
<u>*0,132/ 126727</u>	105067	<u><LF></u>
<u>0,134/ 175332</u>	227	<u><LF></u>
<u>0,136/ 177775</u>	105737	<u><LF></u>
<u>0,140/ 1004</u>	52	<u><LF></u>
<u>0,142/ 12700</u>	100401	<u><LF></u>
<u>0,144/ 1413</u>	104413	<u><LF></u>
<u>0,146/ 104374</u>	104417	<u><RET></u>
<u>*0,16670/</u>	161240	<u>161256<RET></u>
<u>*0,150/ 104417</u>	105067	<u><LF></u>
<u>0,152/ 12700</u>	211	<u><LF></u>
<u>0,154/ 1413</u>	123727	<u><LF></u>
<u>0,156/ 104374</u>	52	<u><LF></u>
<u>0,160/ 104415</u>	177775	<u><LF></u>
<u>0,162/ 0</u>	1004	<u><LF></u>

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RT-11 V03B-00
UTILITIES
EDIT V04.02A

Seq 30 M
2 of 2

0,164/ 0	<u>12700<LF></u>
0,166/ 0	<u>1413<LF></u>
0,170/ 0	<u>104374<LF></u>
0,172/ 0	<u>104417<LF></u>
0,174/ 0	<u>12700<LF></u>
0,176/ 0	<u>1413<LF></u>
0,200/ 0	<u>104374<LF></u>
0,202/ 0	<u>104415<RET></u>
*0,13660\	<u>101</u> <u>102<RET></u>
*E	

Checksum? 71351<RET>

The resultant version is EDIT V04.02B.

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RT-11 V03B-00
UTILITIES
DUP.SAV V03.04E

Seq 31 M

1 of 1

BAD BLOCK SCAN FOR LARGE DEVICES (SPR 11-25489 DF)

DUP was not printing file names for bad block numbers above octal 77777.
This was caused by using a BMI instruction rather than a BLO.

The following patch to DUP corrects this problem.

.R PATCH <RET>

FILE NAME--

*DUP.SAV/C <RET>

*11533\ 105 106 <RET>

*4210/ 100772 103772 <RET>

*E

Checksum? 36067 <RET>

.

The resultant version will be DUP.SAV V03.04F.

RT-11 SOFTWARE DISPATCH
CUMULATIVE INDEX
MAY 1980

This is a complete listing of all articles for current versions of RT-11 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.

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
APL-11 V1		
APL.SAV PROGRAM PATCHES		
ERRONEOUS "DEFINITION ERROR" DURING FUNCTION EDITING	01 M	Nov 77
LOSS OF LOWER-CASE ON RE-ENTRY TO APL-11	02 M	Nov 77
APL WORKSPACE	03 R	Nov 77
"SYSTEM ERROR" GENERATED BY NULL LINE ELEMENTS	04	Dec 77
INTERNAL MEMORY ALLOCATION PROBLEMS	05 M	Dec 77
ERROR FOR SCALAR RESULT OF DECODE OR INNER PRODUCT OPERATION	06 M	Feb 78
SYSTEM ERROR ON PARAMETER RETURN	07 M	May 78

BASIC-11/RT-11 V2

RESEQUENCE PRODUCES AN INCORRECT PROGRAM UNDER CERTAIN CONDITIONS	01 M	Aug 78
PRINT USING	02 M	Jun 78
MAX SIZE OF LINE ENTERED TO BASIC-11	03 M	Jun 78
REM STATEMENT CONTAINING LEFT PARENTHESIS CAUSES SUBSEQUENT SPACES AND PERIODS TO BE REMOVED	04 R	Jun 78
RUN (NH) COMMAND MAY GIVE AN ERROR MESSAGE	05 M	Jul 78
TERMINAL MAY HANG	06 M	Jul 78
DATA FILES	07 M	Jul 78
SAVE DEV: AND REPLACE DEV:	08 M	Jul 78
SINGLE PRECISION HANG AND NUMERIC CONVERSION PROBLEM (PATCH F)	09 M	Aug 78
CONVERSION PROGRAM	10 M	Sep 78
OVERLAYING WHILE IN A SUBROUTINE	11 R	Nov 78
OPERATION OF CTRLC, AND RCTRLC AND SYS (6) FUNCTIONS AND THE CTRL/C COMMAND	12 N	Nov 78
BASIC-11/RT-11 V2 CONVERSION PROGRAM PATCH 1	13 M	Feb 79
OPERATION OF OLD, RUN, CHAIN AND OVERLAY WHEN THE SPECIFIED FILE IS NOT FOUND	14 N	Feb 79
CREATING AND ACCESSING VIRTUAL ARRAY FILES	15 N	Feb 79
REPUBLICAN OF PATCHES	16 N	Feb 79
PRINT USING - PATCH A	17 M	Feb 79
RESEQ - PATCH B	18 M	Feb 79
EDITING A DIM #n STATEMENT - PATCH C	19 M	Feb 79
DOUBLE PRECISION HANG - PATCH D	20 M	Feb 79
SAVE dev: AND REPLACE dev: - PATCH E	21 M	Feb 79
SINGLE PRECISION HANG AND NUMERIC CONVERSION PROBLEM - PATCH F	22 M	Feb 79
SAVE .XXX & UNSAVE .XXX - PATCH G	23 M	Feb 79

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
NEW - PATCH H	24 M	Feb 79
STORAGE OF THE NULL CHARACTER IN STRING VARIABLES AND VIRTUAL STRING ARRAYS	25 N	Feb 79
USE OF COMPILE COMMAND	26 N	Feb 79
RESEQ - PATCH I	27 M	Mar 79
LISTNH /OLD - PATCH J	28 M	Mar 79
SYS(1) - PATCH K	29 M	Mar 79
CALL - PATCH L	30 M	Mar 79
DOUBLE PRECISION INTEGER VARIABLES - PATCH M	31 M	May 79
FILESIZE 0 - PATCH N	32 M	May 79
INTEGERS IN DOUBLE PRECISION BASIC-11	33 M	Jul 79
REM STATEMENTS ON MULTI-STATEMENT LINES - PATCH O	34 M	Jul 79
STRING MANIPULATION IN ASSEMBLY LANGUAGE ROUTINES	35 N	Aug 79
MAXIMUM ARRAY SUBSCRIPT SIZE	36 N	Aug 79

BASIC/RT-11 EXTENSIONS V1

"IPK" SUBROUTINE	01 M	Aug 77
SAMPLING A/D CHANNEL NO. 15	02 R	Aug 77
SAMPLING AR11	03 M	Sep 77
"CLRD" AND "PUTD" ROUTINES	04 M	Nov 77
"SETR" AND "WAIT" COMBINATION MAY FAIL	05	Apr 78
BASIC/RT-11 EXTENSION BUILD PROCEDURE RESTRICTION	06 R	Mar 79

CTS-300 V5

DECFORM		
TWO PROBLEMS WITH FOCOMP	01 M	May 79
DIBOL		
TWO PROBLEMS: FILE CORRUPTION POSSIBILITY AND REPETITIVE I/O ERRORS	01 M	Mar 79
OPENING NON-STANDARD HANDLERS	02 M	Apr 79
ANOTHER FILE CORRUPTION POSSIBILITY	03 M	Apr 79
TWO PROBLEMS: OPENING 0 LENGTH FILE IN SUD AND OPENING LP IN I MODE	04 M	Jun 79
LINE PRINTER PROBLEM AND PROBLEM WITH LARGE ISAM FILE	05 M	Jun 79
I/O ERRORS AND PROBLEM WITH FMAC SUBROUTINE	06 M	Jun 79
ISAM FILE CORRUPTION	07 M	Jun 79
SHUFFLE CAUSES TRAP TO 4	08 M	Jul 79
MISLEADING ERROR MESSAGES	09 M	Aug 79
ERRONEOUS I/O ERROR	10 M	Aug 79
TWO PROBLEMS WITH MULTI-VOLUME FILES	11 M	Oct 79
INCORRECT ERROR ON WRITING DUPLICATE FILE TO MAGTAPE	12 M	Dec 79
ACCEPT CAUSES ERRORS	13 M	Mar 80
I-O ERROR ON ISAM STORE/DELETE	14 M	Mar 80
DICOMP		
DICOMP DISLIKES SOME COMMENTS	01 M	Sep 79
ISMUTL		
REORG PROBLEMS DUE TO INSUFFICIENT SPACE ON DEVICE	01 M	Feb 80
REDUCE		
HOW TO REDUCE PAINLESSLY	01 N	Aug 79
A REDUCING PROBLEM	02 M	Dec 79
SORTM		
MERGE DOES NOT ACCEPT EMPTY FILES	01 M	Apr 79
MERGING ISAM FILES	02 M	May 80

CTS-300 RDCP (2780/3780) V1.0

SENDING OF TRANSPARENT DATA AND TRANSLATION OF DATA AFTER SENDING A TRANSPARENT FILE	01 M	Jul 79
SEND A TRANSPARENT FILE AFTER RECEIVING AN ASCII DATA FILE	02 M	Oct 79
AN ACK IS RECEIVED WHEN ENQ HAS ALREADY BEEN SENT	03 M	Oct 79
MISCELLANEOUS ERRORS	04 M	Aug 79
RDCP11 LOOP MAY OCCUR	05 M	Oct 79
ASCII TRANSMISSION OF A FILE	06 M	Oct 79

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
DECnet-RT V1		
DAP		
DAP ROUTINES DO NOT ARBITRATE DAP SEGMENT SIZE PROPERLY	07 M	Jan 79
NOTES ON CHANGES TO DAP INTERFACE	09 N	Feb 79
CORRECT BUFFER POINTER ERROR	16.11 M	May 79
DAP ATTEMPTS TO SEND A MESSAGE TOO LONG	17.7 M	Sep 79
DDCMP		
DDCMP LINE COUNTERS OVERFLOW TO ZERO	01 O	Jul 78
DMC		
DMC LINE COUNTERS OVERFLOW TO ZERO	01 O	Jul 78
DOCUMENTATION		
USER'S GUIDE DOCUMENTATION ERRORS	2.1 N	Aug 79
FAL		
CORRECT FAL PROCESSING OF END OF STREAM MESSAGE	01 M	Jan 79
FAL INCORRECTLY ALLOCATES DISC SPACE FOR FILES	02 M	Feb 79
FAL INCORRECTLY HANDLES REMOTE FILE REQUESTS	04 M	Feb 79
TIMING DEPENDENCY IN RT TO RSTS FILE TRANSFERS	17.5 M	Jul 79
MRS FIELD NOT DEFAULTED PROPERLY	17.6 M	Jul 79
FORTRAN INTERFACE		
DIFFERENCES IN RT AND RSX FORTRAN INTERFACE IMPLEMENTATIONS	01 N	Jul 78
USE OF THREADED AND INLINE FORTRAN COMPILER OPTIONS	04 R	Jan 79
FORTRAN REMOTE OPEN FOR WRITE MODIFIES FILE ATTRIBUTES	05 N	Jan 79
MODEM CONTROL		
SUPPORT OF ASYNCHRONOUS HALF DUPLEX MODEMS	01 R	Jul 78
NFARS		
DAP ROUTINES CHANGE MODE DURING FILE TRANSFER	02 M	Feb 79
CHECK FOR BLOCK MODE TRANSFER	03 M	Feb 79
DAP DEFAULTS DO NOT ALLOW RECORDS TO SPAN BLOCKS	06 O	Jan 79
ASCII FILE ACCESS TO VAX/RSX SYSTEMS	08 M	Feb 79
INVALID FILE TYPE SENT TO VAX IN ASCII TRANSFER	10 M	Mar 79
NSP		
PROTOCOL VIOLATION IN NODE INITIALIZATION	01 M	Jan 79
NFT		
NFT ASCII FILE TRANSFER TO VAX/RSX SYSTEMS	03 M	Feb 79
LOGICAL BLOCK NUMBERS NOW START AT ONE	17.5 M	May 79

FEP-11, FORTRAN ENHANCEMENT PACKAGE
(ALSO PERTAINS TO: RT-11/FORTRAN UPGRADE PACKAGE FOR MINC)

FEP-11 INITIAL PROBLEMS, SOLUTIONS AND HINTS	01 M	May 79
PROBLEMS WITH IEEE-BUS SUBROUTINES	02 M	Feb 80

FMS-11 V1

CONSOLE TERMINAL SPECIAL MODE BIT CLEARED	01 M	Jun 79
INCORRECT MCDEMO FILE TYPES	02 O	Jun 79
TSKINI INPUT BUFFER TOO SMALL	03 M	Jun 79
ARTS ERROR MESSAGES LACK '?'	04 M	Jun 79
HANDLER FETCH CORRUPTS FORM FILE ID	05 M	Jul 79
ZERO-FILLED FIELD VALIDATION PROBLEM	06 M	Jul 79
FILED VIDEO ATTRIBUTES PROBLEM	07 M	Jul 79
FRED ERROR MESSAGES LACK '?'	08 M	Jul 79
ERROR IN SCROLL FORWARD/BACKWARD CODE	09 M	Jul 79
ERROR IN EXIT SCROLLED AREA FORWARD CODE	10 M	Jul 79
ANNOUNCING FMS-11 FORMS MANAGEMENT SYSTEM	11 F	Nov 79

FOCAL/RT-11 V1B

FOR COMMAND WITHOUT AN ARGUMENT	01 M	Oct 75
OPERATE COMMAND CAUSES ERROR	04 M	Aug 76
FCLK ROUTINE GIVES INCORRECT TIME	05 O	Aug 76

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
"LIBRARY ASK" COMMAND	06 O	Feb 77
"/Z" SWITCH	07 M	Aug 77
@START NOT WORKING WHEN DOWN-LINE LOADING	08 M	Mar 78
LIBRARIES FROM FOCAL SOURCE DISK MUST BE REFORMATTED	09 N	Aug 78
CLOCK PROBLEM FOR PAPER TAPE (STAND-ALONE) FOCAL USERS	10 M	Nov 78

FORTRAN GRAPHICS PACKAGE, V1.1

DECGRAPHIC		
NMBR SUBROUTINE IN DECgraphic	01 R	JAN 79

FORTRAN/RT-11 EXTENSIONS V1

RUNNING PROGRAM WITH "SETR"	01 M	Oct 78
IBEF NOT PROPERLY DECREMENTED	02 R	Oct 78
LPS DEVICE CONFLICT CAUSED BY CALL SETR AFTER CALL RTS	03 R	Oct 78
IADC AFTER RTS DOES NOT WORK	04 M	Oct 78
SUBROUTINE NAMING CONFLICT	05 N	Oct 78
PLOT55 DESCRIPTION	06 N	Oct 78
ILLEGAL MEMORY REFERENCE ERROR	07 M	Oct 78
DEVICE CONFLICT ERROR	08 R	Oct 78
TWO PROBLEMS WITH THE RT-11/FORTRAN GRAPHICS EXTENSIONS	09 M	Oct 78

FORTRAN/RT-11 EXTENSIONS V1B

FORTRAN CRASHES AFTER RUNNING PROGRAM WITH "SETR"	01 M	Oct 78
TWO PROBLEMS WITH THE RT-11/FORTRAN GRAPHICS EXTENSIONS	02 M	Oct 78
NEGATIVE INTENSITY	03 N	Nov 78
PROGRAM TERMINATION ERROR USING RT-11 F/B	04 R	Apr 79

FORTRAN/RT-11 EXTENSIONS V2.1

FORTRAN CRASHES AFTER RUNNING PROGRAM WITH "SETR"	01 M	Mar 79
TWO PROBLEMS WITH THE RT-11/FORTRAN GRAPHICS EXTENSIONS	02 M	Mar 79
NEGATIVE INTENSITY	03 N	Mar 79

FORTRAN IV/RT-11 V2

COMPILER		
DISPOSE = 'KEEP' OPTION	01 R	Jan 79
CRASH DUMPS	02 N	Jan 79
SYNTAX ERRORS IN SOURCE PROGRAM MAY CAUSE COMPILER TO ABORT	03 M	Jan 79
SIMRT	04 M	Jan 79
SIMRT CONTINUED	05 M	Jan 79
KNOWN FORTRAN IV V2 BUGS	06 N	Jan 79
USE OF THE FIND STATEMENT	07 M	Jan 79
RAISING COMPLEX NUMBERS	08 M	Jan 79
EXTRA CHARACTERS MAY RESULT IN COMPILER TRAPPING	09 M	Jan 79
TRANSMITTING ASCII DATA	10 R	Jan 79
IN-LINE CODE	11 N	Jan 79
ERRORS OCCUR WITH NO DO LOOP	12 M	Jan 79
FORTRAN "ACCEPT" STATEMENT	13 R	Jan 79

FORTRAN IV/RT-11 V2.1

FORTRAN IV V2.1 MAINTENANCE RELEASE	01 N	Dec 78
PATCH 1	02 M	Feb 79
PATCH 2	03 M	Feb 79
PATCH 3	04 M	Feb 79
PATCH 4	05 M	Sep 79
CARRIAGE CONTROL OPTION - PATCH 5	06 M	May 79
OPEN FAILURE WITH TYPE='OLD' - PATCH 6	07 M	Sep 79
FORTRAN LIBRARY FUNCTION ERRST - PATCH 7	08 M	Aug 79
REGISTER ALLOCATION - PATCH 8	09 M	Sep 79
SMALLER EXECUTION-TIME PROGRAMS	10 N	Jun 79
FORTRAN OTS - PATCH 9	11 M	Sep 79
I/O FROM A FORTRAN COMPLETION ROUTINE - PATCH 10	12 M	Aug 79
FORTRAN FAILS TO COMPILE DO-LOOPS - PATCH 11	13 M	Aug 79

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
CALL CLOSE (FORTRAN LIBRARY SUBROUTINE) - PATCH 12	14 M	Aug 79
UNFORMATTED BYTE I/O - PATCH 13	15 F	Aug 79
LIST DIRECTED INPUT ERRORS - PATCH 14	16 M	Aug 79
DISP='DELETE' OPTION - PATCH 15	17 M	Aug 79
FORMATTED RECORD OUTPUT - PATCH 16	18 M	Aug 79
COMMON SUBEXPRESSION OPTIMIZATION - PATCH 17	19 M	Aug 79
CALL ASSIGN CARRIAGE CONTROL - PATCH 18	20 M	Aug 79
NON-PLAS VIRTUAL ARRAY INITIALIZATION - PATCH 19	21 M	Aug 79
BYTE COMPARISON AND COMMON SUBEXPRESSION OPTIMIZATION - PATCH 20	22 M	Aug 79
DIRECT ACCESS READ - PATCH 21	23 M	Aug 79
COMPLEX VARIABLE TO CONSTANT COMPARISON - PATCH 22	24 M	Aug 79

GAMMA-11 F/B V2

DATA ANALYSIS PROGRAM	01 M	Feb 79
STUDY PROGRAM DISPLAYS TOO MANY INDEX LINES PER PAGE	02 M	Feb 77
BASIC AND FOCAL	03 M	Feb 77
BACKGROUND PROGRAM CAN HANG THE FOREGROUND TERMINAL	04 M	Feb 77
CNTL/C UNDER SINGLE JOB MONITOR	05 M	Feb 77
CROSSHAIRS FAIL TO APPEAR IN SLICE	06 M	Feb 77
UNDOCUMENTED PROGRAMS	07 N	Mar 77
FORTAN SUPPORT INCORRECTLY CONVERTS DATA AND TIME OF INQUISITION	08 M	May 77
"RS" COMMAND IS INCORRECTLY	09 N	Jun 77

GAMMA-11 F/B V2C

GATED LIST MODE IMAGES	01 O	Sep 78
TU16 SUPPORT	02 M	Sep 78
PROBLEMS WITH PLAYBACK BUFFER COMMENTS AND FLOOD CORRECTIONS	03 M	Oct 78
STATIC FOREGROUND ACQUISITION FAILS ON RK06 OR RL01 SYSTEMS	04 M	Oct 78
DYNAMIC CURVE CALCULATIONS MAY FAIL	05 M	Dec 79
RK06, 7 AND RL01 FOREGROUND ACQUISITIONS PROBLEMS	06 M	Dec 78
PROBLEMS WITH FLOOD CORRECTIONS	07 M	Dec 78
PROBLEMS WITH REGION OF INTEREST	08 M	Dec 78
KW11-P REAL-TIME CLOCK INCORRECTLY INITIALIZED	09 M	Dec 78
GAMMA-11 V2C NCV11 REAL-TIME CLOCK CAN BE DISABLED	10 M	Dec 78
KW11-P REAL-TIME CLOCK RUNS TOO FAST DURING GSA STUDIES	11 M	Dec 78
BUILDING AN RL01 GAMMA-11 V2C SYSTEM	12 M	Dec 78
PREDEFINED GATED LIST MODE STUDIES	13 M	Dec 78
GATED LIST MODE DATA ACQUISITION SET-UP	14 M	Dec 78
PROBLEMS WITH MAGTAPE DISTRIBUTION	15 N	Dec 78
SUBROUTINE 'GMXG' GENERATES ILLEGAL ADDRESS MESSAGE	16 F	Jul 79
FGAMMA/BGAMMA RACE CONDITION	17 M	Feb 79
DELAYED START LIST MODE STUDIES	18 M	Feb 79
FORMATTING GATED LIST MODE STUDIES	19 M	Feb 79
SLICE PROBLEMS	20 M	Feb 79
DOUBLE INTERPOLATION OF 64 X 64 MATRIX DATA	21 M	Feb 79
GAMMA-11 AND RT-11 DATE ROLLOVER	22 M	Feb 79
PROBLEMS WITH PATIENT MONITOR AND GSA ADMIN BLOCKS	23 M	Feb 79
FOREGROUND GATED LIST MODE STUDIES FAIL	24 M	Feb 79
NCV11 JOYSTICK AND LIST MODE PROBLEMS	25 M	May 79
SYSTEM SUMMARY FOR RK07 DISKS	26 O	May 79
MORE PROBLEMS WITH FLOOD CORRECTION	27 M	May 79
TWO MINOR PROBLEMS WITH PLAYBACK BUFFERS	28 M	May 79
TRANSFER STUDY CAN CORRUPT A DISK DIRECTORY	29 M	May 79
FOUR FRAME MINIMUM FOR GSA STUDIES	30 M	May 79
GAMMA-11/BASIC PATCHES	31 M	May 79
CONTINUE ANALYSIS (CA) OCCASIONALLY FAILS	32 M	May 79
ASCII STRING VARIABLE TABLE (FORTRAN AND BASIC) -- SUBROUTINE		
GPAR AND GPAW --	33 M	Jul 79
GAMMA-11 SYSTEMS WITH RK07 AS A DEVICE	34 M	Sep 79
INVOKING AN RT-11 INDIRECT COMMAND FILE FROM GAMMA-11	35 O	Oct 79
PROBLEM WITH ABORTING GAMMA-11	36 M	Oct 79
PROBLEMS WITH FORTRAN SUBROUTINES 'GPFR' AND 'GPFW'	37 F	Nov 79
PROBLEMS WITH THE SAME COMMAND (S) IN RI	38 M	Nov 79

GAMMA-11 F/B V2.4

CONTINUE ANALYSIS (CA) OCCASIONALLY FAILS	01 M	Oct 79
GAMMA-11 SYSTEMS WITH RK07 DISKS AS A DEVICE	02 M	Jan 80
PROBLEM WITH ABORTING GAMMA-11	03 M	Oct 79

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
PROBLEMS WITH FOUR BIT MAP ANALYSIS COMMANDS	04 M	Oct 79
PROBLEMS WITH FORTRAN SUBROUTINES 'GPFR' AND GPFW'	05 F	Jan 80
PROBLEMS WITH DATA ANALYSIS	06 M	Jan 80
PROBLEMS WITH DYNAMIC ACQUISITION ON RK05 GAMMA-11	07 M	Nov 79
PROBLEMS WITH DATA ACQUISITION	08 M	Nov 79
TRANSFER STUDIES WITH MAGTAPE PROBLEM	09 M	Nov 79

LABORATORY APPLICATIONS-11 V3

A NEW MODULE TO ENHANCE DATA FLOW WITHIN LA-11	01 N	Oct 76
HISTO.MAC ACQUIRING AND PROCESSING HISTOGRAM DATA	01 M	Sep 76
LABMAC.SML ERRONEOUS MACRO INCLUDING LABMAC.SML IN SYSMAC.SML	01 M 02 M	Sep 77 Mar 79
PEAK.MAC WIDE PEAKS PEAK PROBLEMS AND CORRECTIONS ARITHMETIC CORRECTION FOR PEAK AREA MISSING PATCH IN RELEASE NOTES	01 M 02 M 03 M 04 M	Mar 76 Jul 76 Dec 76 Oct 77
SPARTA LPS AND AR-11 VECTOR AND STATUS REGISTER USING SPARTA AND FLOATING POINT BUFFERS AR-11 TIMING PROBLEMS WITH ADSAM AND SPARTA FFT SCALING CORRECTION SCALE FACTOR CORRECTION FOR SPARTA COMMANDS FAC AND FCC DATA DISPLAYS USING LA-11 DATA PREPARATION FOR SPARTA COMMANDS FAC AND FCC SPARTA CORRECTIONS FOR POINT-PLOT DISPLAY ADDING COMMANDS TO SPARTA CORRECTION FOR THE DPV COMMAND WITH POINT PLOT DISPLAY GENERAL SUBROUTINE MODULE FOR EAE INCORRECT PHASE ANGLE CALCULATION "MOU" AND "MIN" COMMANDS CAN BE READ OUT AND IN CORRECTLY MULTIPLE SYNCH PULSES AUTO AND CROSS CORRELATION ALLOCATING MORE THAN 16K BUFFERS IN SPARTA A/D SAMPLING: FAST MODE A/D SAMPLING: FAST MODE EXIT SCALE FACTOR PRINT FOR THE FFT	01 N 02 N 03 O 04 M 05 M 06 N 07 N 08 M 09 M 10 M 11 O 12 M 13 N 14 M 15 M 16 M 17 M 19 M 20 M	Dec 75 Feb 76 Feb 76 Feb 76 Mar 76 Mar 76 Apr 76 Apr 76 May 76 Jun 76 Jun 76 Oct 76 Jan 77 Jan 77 Jan 77 Feb 77 Jul 77 Mar 78 Jan 79
SWEEP.MAC SWEEP SAMPLING: FAST MODE	01 M	Aug 77
THRU HOW TO START DATA ACQUISITION WHEN CSTART EQUALS ZERO MULTICHANNEL SINGLE RATE SCHMIT TRIGGER SWITCH BOUNCE CONTINUOUS SAMPLING: CONDITIONAL ASSEMBLY ERRORS CONTINUOUS SAMPLING: DMA WITH DUAL SAMPLE + HOLD DOCUMENTATION CORRECTIONS	01 N 02 M 03 M 04 M 05 M	Jun 76 Dec 76 Jul 77 Jul 77 Nov 77

LSP-11 V1

PATCH NO. 1 - GENERAL CORRECTIONS NO. 1	01 M	Jun 79
PATCH NO. 2 - PEAK CORRECTION NO. 1	02 M	Jun 79
PATCH NO. 3 - PEAK CORRECTION NO. 2	03 M	Jun 79

LV11/RT-11 PLOTTING PACKAGE V2

SUBROUTINE PLOT DOES NOT CORRECTLY REPRODUCE VT11 PICTURE	01 M	Apr 78
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MSB-11 V1.0

MSB-11 SOFTWARE ON THE PDP-11/03	01 M	Jul 79
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<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
MU BASIC/RT-11 V1		
BUILDING MU BASIC/RT-11 UNDER RT-11 V2C	01	Feb 76
REMOTE TERMINAL SUPPORT ON MODEMS	02	May 76
OVERLAY... LINE WORKS INCORRECTLY	03	May 76
USING IMMEDIATE MODE "GOSUBs"	04	Dec 76
CLOCK LOSES TIME ON RT-11 WHEN RUNNING MU BASIC	05	Jul 77
REM STATEMENTS	06	Feb 78
ADDITIONAL FILES ON RELEASE KIT (MUB*.)	07 N	May 78
MU BASIC/RT-11 SYSTEM INSTALLATION GUIDE		
REPLACEMENT PAGES	01	Jan 77
REPLACEMENT PAGES	02 N	Jan 78
REPLACEMENT PAGES	03 N	Jan 78
MU BASIC-11/RT-11 V2		
MU BASIC-11/RT-11 V2 CONVERSION PROGRAM	01 R	Nov 78
OPERATION OF CTRL/C, RCTRLC AND SYS (6) FUNCTIONS AND THE CTRL/C COMMAND	02 N	Nov 78
MEMORY REQUIREMENTS OF OPTIONAL FUNCTIONS ETC.	03 O	Nov 78
MU BASIC-11/RT-11 V2 RELEASE NOTES AND INSTALLATION GUIDE CHANGES	04 N	Dec 78
ORDER OF COMMON STATEMENTS AT START OF MUCNFG.B00, MUCNF1.B00, MUCNF2.B00	05 M	Dec 78
OPERATION OF OLD, RUN, CHAIN AND OVERLAY WHEN THE SPECIFIED FILE IS NOT FOUND	06 N	Feb 79
CREATING AND ACCESSING VIRTUAL ARRAY FILES	07 N	Feb 79
STORAGE OF THE NULL CHARACTER IN STRING VARIABLES AND VIRTUAL STRING ARRAYS	08 N	Feb 79
USE OF COMPILE COMMAND	09 N	Feb 79
MU BASIC-11/RT-11 V2 CONFIGURATION PROGRAM PATCH 1	10 O	Feb 79
CHAINING WITH COMMON - PATCH A	11 M	Feb 79
VIRTUAL FILE I/O - PATCH B	12 M	Feb 79
SYS (1,n) FUNCTION - PATCH C	13 M	Feb 79
RESEQ - PATCH D	14 M	Feb 79
VALUES IN PATCHES A, B, C	15 N	Feb 79
LISTNH /OLD - PATCH E	16 M	Mar 79
CALL - PATCH F	17 M	Mar 79
MU BASIC-11 DEVICE INDEPENDENCE FOR INIT.B00 - SPECIAL PATCH YY1	18 M	May 79
DOUBLE PRECISION INTEGER VARIABLES - PATCH G	19 M	May 79
INPUT #/PRINT # - PATCH H	20 M	May 79
OLD OF A ZERO BLOCK FILE - PATCH I	21 M	May 79
ADDITION TO PATCH B - PATCH J	22 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 1	23 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 2	24 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 3	25 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 4a	26 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 4b	27 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 4c	28 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 5	29 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 6	30 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 7	31 M	May 79
MU BASIC-11/RT-11 V2 PERFORMANCE IMPROVEMENT PATCH NO. 8	32 M	May 79
DEVICE MNEMONIC PROBLEM - PATCH K	33 M	Jul 79
CLOSE - PATCH L	34 M	Jul 79
REM STATEMENTS ON MULTI-STATEMENT LINES	35 M	Jul 79
DEASSIGNING A TERMINAL - PATCH N	36 M	Jul 79
OVERLAYING THE ERROR MESSAGE MODULE - SPECIAL PATCH WW1	37 M	Jul 79
UNEQUAL USER PARTITION SIZE ALLOCATION - SPECIAL PATCH XX1	38 M	Jul 79
HOW TO CHANGE INIT.B00's DEVICE AFTER INSTALLING SPECIAL PATCH YY1	39 M	Jul 79
INTEGERS IN DOUBLE PRECISION MU BASIC-11	40 M	Jul 79
STRING MANIPULATION IN ASSEMBLY LANGUAGE ROUTINES	41 N	Aug 79
SIZING MU BASIC-11	42 N	Aug 79
ERROR IN TABLE 4-1 OF THE USER'S GUIDE	43 N	Aug 79
RESTRICTION OF USR RESIDENCY WHEN RUNNING IN FOREGROUND	44 N	Aug 79
NOTES ON PERFORMANCE PATCHES NO. 4a, NO. 4b, NO. 4c	45 N	Aug 79
MAXIMUM ARRAY SUBSCRIPT SIZE	46 N	Aug 79
ASSEMBLING SOURCE FILES (SOURCE LICENSE HOLDERS ONLY)	47 M	Sep 79
USE OF SYS (1,n) FUNCTION WHEN 'n' IS OMITTED	48 M	Sep 79
DISABLING CR/LF USING TTYSET - PATCH P	49 M	Dec 79
HANDLER FETCH ERROR MAY LEAD TO MONITOR FAULT - PATCH Q	50 M	Jan 80

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
PDL/RT-11 V1B		
CLARIFICATION OF SEARCH FAILURE IN SUBROUTINE FIND	01 N	Jul 78
FIND SUBROUTINE	02 R	Jul 78
PATCHES TO PDL	03 M	Jul 78
SUBROUTINE QKGT	04 M	Jul 78
PDL SUBROUTINE 'RDAA'	05 M	Sep 78
PDL PEAK ALGORITHM WILL NOT RECOGNIZE VALID PEAKS	06 M	Sep 78
PEAK-11 V1		
"MREPT" AND "REPRT" GET CONFUSED	01 M	Aug 78
REMOTE/RT-11 V1		
SCHEDULER DOES NOT PROPERLY SET PROCESSOR PRIORITY	01 M	May 76
NOEDIT- 0 HALTS	02 M	May 76
NUSERS=1 STAYS IN A FILE MESSAGE LOOP	03 M	May 76
INCORRECT SWAP AREA ALLOCATION FOR FOUR OR MORE USERS	04 M	May 76
REBOOT FROM SATELLITE DURING EDIT HANGS HOST	05 M	Jun 76
HARD ERROR ON LOOKUP IS FATAL	06 M	Jun 76
SECONDARY MODE PROGRAM LOAD FEATURE NOT COMPLETELY FUNCTIONAL	07 M	Jun 76
ONE SECOND TIMER FOR LINE TIMEOUTS IS SET INCORRECTLY	08 M	Aug 76
LINE FEEDS MAY CAUSE SYSTEM ERRORS--ASSEMBLY ERROR WITH DIAL AND NODDC	09 M	Aug 76
PROPER GENERATION OF REMOTE IS DEPENDENT ON MODULE ORDER	10 M	Aug 76
ASCII CODES 173 AND 174 DO NOT PRINT	11 M	Aug 76
IMPROPER FILLER HANDLING FOR VT05	12 O	Aug 76
SYSTEM CRASHES IF RUN IN FOREGROUND WITHOUT /N	13 O	Aug 76
"UNSAVE" COMMAND CAUSES SYSTEM ERRORS	14 M	Dec 76
FLET WILL REMOVE MORE THAN ONE USER FROM THE WAIT QUEUE	15 M	Dec 76
STACK FOR USER THREE IMPROPERLY SET	16 O	Dec 76
SECONDARY MODE LOADS DO NOT OPERATE PROPERLY	17 M	Jan 77
@START COMMAND GIVEN ON TERMINAL WITHOUT SATELLITE CAUSES CRASH	18 O	Jan 77
"RTSIM" DOES NOT SUPPORT 50 Hz LINE CLOCK	19 O	Jan 77
CHANNEL ACTIVE ERROR	20 M	Mar 77
THREE WORDS LOST ON DOWNLINE LOAD	21 M	Mar 77
CSISPC NOT PROPERLY SIMULATED	22 M	May 77
EXCEEDING CHARACTERS PER LINE LIMIT	23 M	Oct 77
UNASSIGNED	24	XXX XX
@RE IN THE SATELLITE DOES NOT WORK	25 R	Mar 78
"HANG" CONDITIONS	26 R	Apr 78
UANSIGNED	27	XXX XX
USING KG-11 CRC CALCULATOR	28 M	Aug 78
PASTE CAUSES LINE DUPLICATION	29 M	Aug 78
"DAISY CHAIN" ARRANGEMENT IN RTSIM.MAC	30 M	Aug 78
OPTIONAL RMON IS OMITTED FROM RTSIM BY DEFINING NORMON=0	31 M	Oct 78
DL-11 ERROR AND CRC ERROR IN HOST	32 M	Oct 78
RT-11 V3		
DOCUMENTATION		
TYPOGRAPHICAL ERRORS	01 N	Mar 78
ERROR IN FOREGROUND/BACKGROUND DEMONSTRATION	02 M	Aug 78
THE /LIST OPTION FOR THE DIBOL, FORTRAN, AND MACRO KEYBOARD MONITOR COMMANDS	03 M	Nov 78
EDIT		
EDIT DOES NOT OPERATE CORRECTLY UNDER XM MONITOR	01 M	Mar 78
MACRO		
.NARG FAILS WHEN AUTOMATIC LABEL GENERATION IS USED	01 M	Apr 78
MISCELLANEOUS		
GETSTR AND PUTSTR ROUTINES FOR IN-LINE CODE	01 M	Jun 78
ERROR IN THE CONCAT ROUTINE	02 M	Jun 78
ERROR IN MTATCH ROUTINE	03 M	Nov 78
ODD RING BUFFER SIZES CAUSE ASSEMBLY ERRORS	04 R	Jun 79

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
MONITOR		
INCORRECT IDENTIFIER IN .TWAIT REQUEST CAUSES PROBLEMS	01 M	Mar 78
.CHAIN, .EXIT FROM VIRTUAL JOB; USR MOVING INTO PAR1 AREA	02 M	Apr 78
PATCH TO INTERRUPT EXIT ROUTINE	03 M	Apr 78
IMPROPER HANDLING OF THE KW11-P CLOCK	04 M	May 78
SPECIFYING 50-CYCLE CLOCK SUPPORT DURING SYSGEN OPERATIONS	05 M	Jun 78
EDITORS AND V3B MONITORS	06 M	Jun 78
TYPING NON-ASCII FILES TO CONSOLE AFTER ISSUING A GTON HANGS THE SYSTEM	07 M	Jun 78
LINK/FRUN FAILS WHEN PROGRAM IS OVERLAYED AND USES LIBRARIES	08 M	Jul 78
MULTITERMINAL CORRECTIONS	09 M	Aug 78
PATCH TO XM ADDRESS CHECKING	10 M	Aug 78
FIXES FOR TWO FB/XM PROBLEMS	11 M	Aug 78
TERMINATING CONSOLE OUTPUT	12 M	Aug 78
ISSUING SEEKS TO DX HANDLER IN XM CAUSES RANDOM SYSTEM FAILURES	13 M	Oct 78
CERTAIN EXTENDED MEMORY REQUESTS CANNOT BE ISSUED FROM BOTH MAINLINE CODE AND COMPLETION ROUTINES	14 M	Oct 78
THE "RUN" AND "GET" MONITOR COMMANDS DO NOT CORRECTLY LOAD THE PORTION OF A PROGRAM THAT OVERLAYS KMON	15 M	Oct 78
DX SJ MONITOR BOOTSTRAP CORRECTIONS	16 O	Oct 78
TYPING CTRL/O TO THE CONSOLE TERMINAL SOMETIMES CRASHES	17 M	Nov 78
LINK CAUSES ODD MONITOR ADDRESS TRAP	18 M	Nov 78
CHAINING FROM A VIRTUAL JOB AND RELATED PROBLEMS	19 M	Dec 78
DIRECTORY CORRUPTION	20 M	Dec 78
FIXES FOR FB/XM PROBLEM IN V03.02	21 M	Apr 79
CORRECTION TO "DIRECTORY CORRUPTION" PATCH	22 M	May 79
FLOPPY SYSGEN WITH KW11-P CLOCK	23 M	May 79
INPUT FILE LOST WHEN USING CSIGEN	24 M	Jun 79
SOURCES		
UNRESOLVED DIFFERENCES IN DEMOX1.MAC	01 M	Aug 78
DISTRIBUTED MAGTAPE HANDLER CORRECTIONS	02 M	Sep 78
MAGTAPE XM AND FSM CORRECTIONS	03 M	May 79
SYSTEM HANDLERS		
DM HANDLER CORRECTIONS	01 M	Oct 78
DM SYSTEM HANDLERS CORRECTIONS	02 M	Dec 78
DM HANDLER ERROR HANDLING CORRECTIONS	03 M	Jan 79
DM CTO AND SPFUN 376 CORRECTIONS	04 M	May 79
UTILITIES		
DUP DEFAULT FILE SIZE AND NULL FILE TYPES ARE INCORRECT	01 M	Mar 78
DIR MAY INCORRECTLY LIST DIRECTORIES OF MAGTAPES	02 M	Mar 78
/L OPTION TO PIP MAY CAUSE SYSTEM CRASH	03 M	Mar 78
LINK OUTPUT INVALID IF OBJ HAS AN EMPTY GSD RECORD	04 M	Mar 78
PAT GIVES FATAL ERROR IF OBJ HAS AN EMPTY RECORD	05 M	Apr 78
UNASSIGNED	06	XXX XX
EDIT VT11 DISPLAY FUNCTIONS WILL NOT OPERATE UNDER XM MONITOR	07 M/R	Apr 78
TRANSFERS IN INTERCHANGE FORMAT WHEN NO SYSTEM DATE IS GIVEN	08 M	Jun 78
DUP SCAN RATE FOR FLOPPY	09 M	Jun 78
DUP /I AND /W SWITCHES DO NOT WORK PROPERLY	10 M	Jun 78
LINK/FRUN FAILS WHEN PROGRAM IS OVERLAYED AND USES LIBRARIES	11 M	Jul 78
DUP DOES NOT DIFFERENTIATE BETWEEN DELETED .BAD FILES AND PERMANENT ONES	12 M	Jul 78
ERRORS IN FILEX INTERCHANGE FORMAT	13 M	Jul 78
LINK PRODUCES INCORRECT .LDA FILES	14 M	Sep 78
DUP DOES NOT DETECT END OF SEGMENT IF IT IS FIRST ENTRY IN A DIRECTORY SEGMENT DURING A SQUEEZE OPERATION	15 M	Oct 78
LIBR CLEARING OF LOCATION ZERO	16 M	Oct 78
LINK ERROR IN PSECTS MOVED TO ROOT	17 M	Oct 78
PIP ERRONEOUSLY DELETES FILES	18 M	Oct 78
LIBR BLOCK BOUNDARY PROBLEM	19 M	Dec 78
LINK CAN CAUSE TRAP TO 4	20 M	Feb 79
CORRECTIONS TO FILEX	21 M	May 79
DIR CORRECTIONS	22 M	Nov 79
BAD BLOCK REPLACEMENT ON RK06s	23 N	Oct 79
WILD CARD MAGTAPE COPY ERROR PROCESSING CORRECTION	24 M	Oct 79

RT-11 V3B

DOCUMENTATION

ERROR IN FOREGROUND/BACKGROUND DEMONSTRATION	01 M	Aug 78
THE /LIST OPTION FOR THE DIBOL, FORTRAN, AND MACRO KEYBOARD MONITOR COMMANDS	02 M	Nov 78
UPDATE PAGES	03 N	Dec 78
RT-11 SOFTWARE SUPPORT DOCUMENTATION	04 M	Feb 79
SUMMARY OF UPDATES FOR RT-11 V03B DOCUMENTATION	05 M	Feb 79
NEW DEVICE RELEASE DOCUMENTATION, RT-11 V03B	06 N	Jun 79
.FORK AND .SYNCH BLOCK DOCUMENTATION	07 N	Jul 79
THE DEVICE TIME-OUT FEATURE	08 N	Sep 79
CORRECTION OF ERROR RETURNS IN .SYNCH CALL	09 M	Aug 79
EXAMPLE CODE IN .FORK DOCUMENTATION IS INCORRECT	10 N	Aug 79
EXTENDED MEMORY RESTRICTIONS	11 N	Dec 79
NOTES ON .MFPS/ .MTPS PROGRAMMED REQUEST	12 N	Apr 80

MISCELLANEOUS

ERRORS IN THE SYSGEN CONDITIONAL FILE	01 M	Jul 78
ERRORS IN MTATCH ROUTINE	02 M	Nov 78
ODD RING BUFFER SIZES CAUSE ASSEMBLY ERRORS	03 R	Jun 79
INCORRECT NULL HANDLER DEVICE IDENTIFIER	04 M	Jun 79
GENERATING A SINGLE JOB MONITOR MAY CAUSE AN UNDEFINED GLOBAL	05 M	Aug 79
INCORRECT DEVICE IDENTIFIER FOR PC11	06 M	Sep 79
ERROR IN MTIN AND MTOUT ROUTINES	07 M	Sep 79
HIGH SPEED RING BUFFER PROBLEM ON SYSTEMS WITH ONE DL11	08 M	Jan 80
SYSGEN FOR TU58 SUPPORT	09 F	May 80
DEVICE TIME-OUT SUPPORT IN SYSGEN	10 F	May 80

MONITOR

SOURCE PATCHING PROCEDURES FOR V3B	01 M	Aug 78
MULTITERMINAL CORRECTIONS	02 M	Aug 78
SINGLE JOB TIMER SUPPORT CORRECTIONS	03 M	Aug 78
FIXES FOR TWO FB/XM PROBLEMS IN VP3B	04 M	Aug 78
TERMINATING CONSOLE OUTPUT	05 M	Aug 78
EDITORS AND V03B MONITORS	06 O	Aug 78
SEEK IN RK DRIVER	07 M	Aug 78
RL01 CONTROLLER VECTOR AT 160	08 M	Aug 78
FPU EXCEPTION HANDLING IN XM MONITOR	09 M	Sep 78
TWO EXTENDED MEMORY MONITOR PROBLEMS	10 M	Oct 78
TYPING CTRL/O TO THE CONSOLE TERMINAL SOMETIMES CRASHES RT-11	11 M	Oct 78
DX SJ MONITOR BOOTSTRAP CORRECTIONS	12 O	Oct 78
THE EDIT AND HELP MONITOR COMMANDS FAIL AFTER A VIRTUAL JOB HAS RUN	13 M	Nov 78
DIRECTORY CORRUPTION AND .UNPROTECT CORRECTIONS	14 M	Jan 79
FB AND XM MONITOR CLOCK SUPPORT	15 M	Apr 79
CHANGING CLOCK RATE ON GENERATED MONITORS	16 M	Apr 79
MULTI-TERMINAL CORRECTIONS TO DECREASE INTERRUPT LATENCY	17 M	Apr 79
FIXES FOR FB/XM PROBLEM IN V03B.00	18 M	Apr 79
FLOPPY SYSGEN WITH KW11-P CLOCK	19 M	May 79
DISTRIBUTED FB MONITOR CLOCK SUPPORT	20 M	May 79
OPTIONAL PATCH TO IMPROVE PERFORMANCE ON PDP-11/03 SYSTEMS	21 O	May 79
DISTRIBUTED PD AND DD FB MONITORS CLOCK SUPPORT	22 M	May 79
OPTIONAL PATCH TO IMPROVE PERFORMANCE ON PDP-11/03 AND PDT SYSTEMS FOR DD AND PD FB MONITORS	23 O	May 79
INPUT FILE LOST WHEN USING CSIGEN	24 M	Jun 79
NON-STANDARD VECTOR ADDRESSES FOR RX01 AND RX02 SECOND CONTROLLER	25 M	Nov 79
ABORT DURING COMPLETION CAUSES SYSTEM FAILURES	26 M	Nov 79
.ELRG CAN CAUSE THE SYSTEM TO CRASH	27 M	Sep 79
CORRECTION TO BOOTSTRAP TO RECOGNIZE LSI-11/23 PROCESSOR	28 M	Oct 79
FPU SAVE AREA IN XM MONITOR	29 M	Dec 79
BACKGROUND JOB MAY TRAP WHEN FOREGROUND ISSUES .SYNCH FROM INTERRUPT ROUTINE	30 M	Dec 79
PROBLEM WHEN FOREGROUND AND BACKGROUND JOB USE CSI AT SAME TIME	31 M	Mar 80
SYSTEM GENERATED SJ MONITOR WITH ESCAPE SEQUENCE SUPPORT	32 M	Apr 80
BREAKPOINT TRAP PROCESSOR STATUS WORD CORRUPTION	33 M	Apr 80
CORRECTIONS TO MULTI-TERMINAL SUPPORT	34 M	May 80

SOURCES

UNRESOLVED DIFFERENCES IN DEMOX1.MAC	01 M	Jul 78
ISSUING SEEKS TO DX HANDLER IN XM CAUSES RANDOM SYSTEM FAILURES	02 M	Sep 78
DISTRIBUTED MAGTAPE HANDLER CORRECTIONS	03 M	Sep 78
DY HANDLER DOUBLE DENSITY ONLY SUPPORT	04 M	Apr 79
DL QUEUE ELEMENT AND XM ZERO FILL CORRECTIONS	05 M	Apr 79

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
MAGTAPE XM AND FSM CORRECTIONS	06 M	May 79
DL HANDLER SEEK AND UNIT CORRECTIONS	07 M	Aug 79
MAGTAPE ABORT ENTRY CORRECTION	08 M	Sep 79
MAGTAPE ABORT ENTRY CORRECTION IN XM	09 M	Dec 79
DL HANDLER SEEK CORRECTION	10 M	Jan 80
FILE SEQUENCE NUMBER SEARCH CORRECTION	11 M	Feb 80
HARD ERROR RECOVERY IN DM HANDLER	12 M	Mar 80
FSM DOES NOT PROCESS ERRORS CORRECTLY IN XM	13 M	Apr 80
RL01/RL02 HANDLER CORRECTIONS	14 M	Apr 80
MULTI-CONTROLLER DY HANDLER PROBLEM	15 M	May 80
SYSTEM HANDLERS		
RL01 HANDLER CORRECTIONS	01 M	Sep 78
ISSUING A SEEK TO THE DY HANDLER CAUSES THE SYSTEM TO CRASH	02 M	Oct 78
DM HANDLER CORRECTIONS	03 M	Oct 78
DM SYSTEM HANDLERS CORRECTIONS	04 M	Dec 78
DY HANDLER SPFUN CORRECTION	05 M	Dec 78
DM HANDLER ERROR HANDLING CORRECTIONS	06 M	Jan 79
RL01 PATCH CLARIFICATION	07 N	Jan 79
DM CTO AND SPFUN 376 CORRECTIONS	08 M	May 79
BATCH INCORRECTLY LOGS TERMINAL OUTPUT	09 M	Apr 80
IMPROPERLY CHECKED INPUT CAUSES UNPREDICTABLE RESULTS	10 M	Apr 80
UTILITIES		
ERRORS IN FILEX INTERCHANGE FORMAT	01 M	Jul 78
LINK PRODUCES INCORRECT .LDA FILES	02 M	Sep 78
LIBR CLEARING OF LOCATION ZERO	03 M	Oct 78
LINK ERROR IN PSECTS MOVED TO ROOT	04 M	Oct 78
DUP DOES NOT DETECT END OF SEGMENT	05 M	Oct 78
COPY/DEVICE FAILS ON DISK TO MAGTAPE	06 M	Oct 78
LINK CAUSES MONITOR ODD ADDRESS TRAP	07 M	Nov 78
LIBR BLOCK BOUNDARY PROBLEM	08 M	Jan 79
EDIT ESCAPE CODE CORRECTION	09 O	Dec 78
ERROR IN ODT	10 M	Feb 79
ERROR IN EDIT	11 M	Feb 79
LINK CAN CAUSE TRAP TO 4	12 M	Feb 79
CORRECTIONS AND ADDITIONS TO FILEX	13 M	May 79
RESORC DISPLAYS STATUS OF FIRST 14 TERMINALS	15 M	Jun 79
LIBR /U SWITCH PROBLEM	16 M	Aug 79
IMPORTANT RESTRICTIONS FOR SQUEEZE OPERATIONS	17 M	Aug 79
DIR PROBLEMS	18 M	Oct 79
BAD BLOCK REPLACEMENT ON RK06s	19 N	Oct 79
WILD CARD MAGTAPE COPY ERROR PROCESSING CORRECTION	20 M	Oct 79
PROBLEM WITH PSECTS MOVED TO ROOT DURING LIBRARY PASS	21 M	Jan 80
PIP PROBLEMS	22 M	Feb 80
DIR PROBLEM	23 M	Feb 80
DUMPING DISK FILES WITH MAGTAPE HANDLER LOADED	24 M	Mar 80
BAD BLOCK REPLACEMENT ON RL01s	25 M	Apr 80
MDUP AND RL01s	26 M	Apr 80
CORRECTION TO PDT-11/150 SUPPORT IN FILEX	27 M	Apr 80
PROBLEM WITH DUP ERRORS WHEN /W OPTION USED	28 M	Apr 80
INSUFFICIENT DIRECTORY SPACE ON NON-SYSTEM FLOPPY	29 M	Apr 80
EDITING FILES ON WRITE-LOCKED DEVICES	30 M	May 80
BAD BLOCK SCAN FOR LARGE DEVICES	31 M	May 80

RT-11/2780 V2

CORRECTIONS TO 2780 PACKAGE	01	Sep 77
RUNNING 2780 ON RT-11 V3	02	Nov 77
PATCHING THE 2780 IN RT-11 V3	03 M	Jan 79
CHECK FOR ZERO LENGTH RECORD	04 M	Jan 79
RESTRICTION OF THE CONSOLE AS AN INPUT/OUTPUT DEVICE	05 R	Jan 79

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Software Product Description

PRODUCT NAME: DECnet-RT, Version 1.1, RT-11 Network Software

SPD 10.72.5

DESCRIPTION:

DECnet-RT allows a suitably configured RT-11 system to participate as a Phase II DECnet node in point-to-point computer networks. DECnet-RT offers task-to-task communications, network file transfer and network resource-sharing capabilities, using the 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-11 user programs written in MACRO-11 and FORTRAN.

DECnet-RT is a Phase II network product and is warranted for use only with Phase II and Phase III DECnet products supplied by DIGITAL.

The functions available to an RT-11 user depend, in part, on the configuration of the rest of the network. Each DECnet product offers its own level of capability and its own set of features to the user. Networks consisting entirely of DECnet-RT nodes (a two-node network because DECnet-RT supports one communication line) have the full capability described in this SPD. Networks that mix DECnet-RT nodes with other DECnet products can limit the functions available to the DECnet-RT user because some DECnet-RT features may not be supported by all DECnet products.

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 capabilities available with mixed networks can be obtained from the general Phase II (10.78) and Phase III (10.59) DECnet SPDs.

Task-to-Task Communication

Using DECnet-RT, an RT-11 user program written in MACRO-11 or FORTRAN can exchange messages with other programs using DECnet protocols. The two user programs must be adjacent DECnet nodes. (Adjacent nodes control opposite ends of a point-to-point communication line.) If the nodes are adjacent, the second node can be any DECnet system. The DECnet messages sent and received by the two user programs can be in any data format.

Network Resource Access

File Transfer Utility

Using DECnet-RT utilities, a user can transfer sequential ASCII files between DECnet nodes. Files can be

transferred in both directions between a locally supported RT-11 file system device and the file system of an adjacent DECnet node.

In addition, other types of files can be transferred where formats are compatible between the DECnet nodes.

Additional facilities allow system command files or batch files to be submitted to a remote node where the list of commands is in the format expected by the node responsible for the execution. DECnet-RT does not support system command or batch files to be submitted from other systems.

File Access

File access is supported to and from remote DECnet systems by explicit subroutine calls in FORTRAN and MACRO tasks.

READ, WRITE, OPEN and CLOSE, and DELETE operations can be initiated by local FORTRAN and MACRO tasks for sequential files residing at remote systems. Other nodes supporting file access can exercise this capability for files located on the RT-11 node. Fixed and variable length record formats are supported. Further, files accessed remotely can contain either ASCII or binary information.

Network Information Program

Using the DECnet-RT Network Information Program utility, a user can set node name and password, and display statistics related to the communication lines, including data on traffic and errors. Output can be directed to the terminal or to a log file.

Terminal Communication Utility

The DECnet-RT TLK utility allows a user at a DECnet-RT node to send messages to adjacent 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 dialog mode allows users on the two systems to type messages to one another.

Communications

DECnet-RT supports the DIGITAL Data Communications Message Protocol (DDCMP) for full- or half-duplex transmission in point-to-point operation using serial synchronous or asynchronous facilities. DDCMP provides error detection/correction and physical link management facilities.

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One point-to-point link can be supported by an RT-11 node. Only one link can connect any pair of nodes.

DECnet-RT Operation

DECnet-RT is implemented as a driver under RT-11 FB/XM and as subroutines that would be linked with the foreground or background RT-11 program. Minimum memory residency requirements for a driver and network code are 7K words (14K bytes), and at least 1K words (2K bytes) for temporary data storage. Consequently, the user should plan to dedicate at least 8K words (16K bytes) of memory storage to network control functions. Additional memory will be required for a user-written network task or any DECnet utility functions to be invoked (file transfer, TLK). Maximum additional memory required for a DECnet-RT utility is 10K words.

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 user's application requirements. It can be readily expected that network applications will run the full gamut from low-speed, low-cost situations to those of relatively high performance and capability. 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). Thus, 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

It is important to note that the rate at which user data can be shipped (throughput) over a communications line can sometimes approach, but will never equal or exceed, the actual line speed. The reason, simply stated, is that the 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.

There are basically two groups of communications interfaces presented in the following tables. They differ in many respects, particularly in their effect upon CPU utilization.

- The DMC11 is a Direct Memory Access (DMA) device. Also, the DDCMP line protocol is executed in microcode by the DMC11 communication controller, thus, off-loading the PDP-11. Thus, the only DECnet load the processor sees is completed 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 CPUs, PDT-11/130 or PDT-11/150

Device Group	Max. No. of Lines	Maximum Line Speed (Kilobits/sec)	Maximum Device Bandwidth (Kilobits/sec)	Mode
DUV11, DLV11-E	1	2.4	2.4	FDX/HDX

Maximum Line Configuration on 11/04-11/70 CPUs

Device Group	Max. No. of Lines	Maximum Line Speed (Kilobits/sec)	Maximum Device Bandwidth (Kilobits/sec)	Mode
DL11, DU11, DUP11	1	9.6*	9.6*	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

*Restricted to maximum of 4.8 on PDP-11/04, 11/10, or 11/23

Maximum Number of Lines — The largest number of physical lines that can be attached and driven by the DECnet-RT system.

Maximum Device Bandwidth — The maximum total number of bits per second that can be handled by a CPU for a given communication device. For example, DECnet-RT on a PDP-11/04 can accommodate one full-duplex character-interrupt device at 4.8KB.

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" restriction above.

Mode — This indicates whether the line is operating in either half-duplex (a single bit stream) or full-duplex (two concurrent bit streams) mode. For some instances in tables, a half-duplex line is quoted as having maximum bandwidth approximately double that comparable full-duplex line. This reflects the single bit stream character of half-duplex lines, and the fact that two of them place a load on the CPU roughly equivalent to one full-duplex line with traffic in both directions.

System Generation

Generation and installation of DECnet-RT requires a valid RT-11 V3B or later system with at least 32K bytes of memory and an RK05 disk or larger plus one additional device for distribution media. Generation on floppy diskette or TU58 DECtape II only systems is not supported.

MINIMUM HARDWARE REQUIRED:

Any valid RT-11 FB/XM system configuration with:

- Minimum of 8K words (16K bytes additional available memory for the DECnet-RT software and data storage)
- PDP-11/03 through PDP-11/70 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 RS-232-C interface
 - DMC11-AR-FA remote synchronous V.35/DDS interface
 - DMC11-AL-MD high-speed local synchronous interface
 - DMC11-AL-MA high-speed local synchronous interface
 - DL11-E asynchronous EIA RS-232-C interface with modem control
 - DL11-C asynchronous interface 20mA current loop (1)
 - DL11-WA asynchronous interface 20mA current loop (1)
 - DUV11-DA low-speed EIA RS-232-C synchronous interface
 - DLV11-E asynchronous EIA RS-232-C interface with modem control
 - DLV11-F asynchronous 20mA interface (1)

NOTE:

(1) Requires either the H319 option for optical isolation or one side of the 20mA line to be in passive mode.

- PDT-11/130 with TU58
- PDT-11/150 with dual floppies

OPTIONAL HARDWARE:

None

PREREQUISITE SOFTWARE:

RT-11 FB/XM Operating System, Version 03B

OPTIONAL SOFTWARE:

FORTTRAN IV/RT-11, Version 2.1

TRAINING CREDITS:

No training credits are included with a DECnet software license. Training courses on DECnet software are scheduled at regular intervals in DIGITAL's Training Center. 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 under DIGITAL Supported will convert the RT-11 system into a node with connection potential to a DECnet network. This installation does not include a demonstration of network connection.

SOFTWARE PRODUCT SUPPORT:

DECnet-RT includes standard 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 DECnet-RT product option that does not include support services is connected to a DECnet network, the category of support applicable to all DECnet products in the network is Customer Supported.

CUSTOMER RESPONSIBILITIES:

Before installation of the software, the customer must:

1. Obtain, install, and demonstrate operational to DIGITAL's satisfaction any modems and other equipment and facilities necessary to interface DIGITAL's communications line interfaces and terminals.
2. 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 are required to be jointly prepared by the customer and DIGITAL covering all intended network nodes and their support.

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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.

Source and/or listing 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 (D, E, G, M, Q, R, T, V, X, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ685-AD = binaries on 9-track 800 BPI Magtape (NRZI).

D = 9-track 800 BPI Magtape (NRZI)
 E = RK05 Disk Cartridge
 G = TU58 DEctape II Cartridge
 M = 9-track 1600 BPI Magtape (PE)
 Q = RL01 Disk Cartridge
 R = Microfiche
 T = RK06 Disk Cartridge
 V = RK07 Disk Cartridge
 X = RX02 Double Density Diskette
 Y = RX01 Floppy Diskette
 Z = No hardware dependency

QJ685 -A— Single-use license, binaries, documentation, support services (media: D, E, G, M, Q, T, V, X, Y)

QJ685 -C— Single-use license, binaries, documentation, no support services (media: D, E, G, M, Q, T, V, X, Y)

QJ685 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

Source /Listing Options

QJ685 -E— All sources (media: D, E, G, M, Q, T, V, X, Y)

QJ685 -F— Listings (media: R)

Update Options

Users of DECnet-RT, Version 1.0 whose specified Support Category warranty has expired may order under license the following software update at the then current charge for such update. The update is distributed in binary or source form on the appropriate medium and includes no installation or other services unless specifically stated.

QJ685 -H— Binaries, documentation (media: D, E, G, M, Q, T, V, X, Y)

QJ685 -H— Right to copy for single-use (under existing license), no binaries, documentation, no support services (media: Z)

QJ685 -N— Sources (media: D, E, G, M, Q, T, V, X, Y)

Users of DECnet-RT, Version 1.0, whose specified Support Category warranty has not expired may order under license the following software update for the then current media charge. The update is distributed in binary or source form on the appropriate medium and includes no installation or other services unless specifically stated.

QJ685 -W— Binaries, documentation (media: D, E, G, M, Q, T, V, X, Y)

QJ685 -L— Sources (media: D, E, G, M, Q, T, V, X, Y)

Miscellaneous Options

QJ685 -G— Documentation only kit (media: Z)

ADDITIONAL SERVICES:

QJ680 -S— DECnet Level I Services (media: Z)

Level II services are also available. Consult the DECnet Phase II Products SPD (10.78) for a description of Level I and Level II services.

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Software Product Description

PRODUCT NAME: DECnet Phase II Products, Version 1.0

SPD 10.78.4

DESCRIPTION:

DECnet Phase II is the collective name for the set of software products that extend various DIGITAL operating systems by enabling the user to interconnect these systems with each other to form computer networks. The DECnet Phase II products include DECnet-*IAS* Version 2.1, DECnet/*E* Version 1.1, DECnet-*RT* Version 1.1, DECnet-*VAX* Version 1.2, and DECnet-*20* Version 2.0. The DECnet user can configure a variety of networks, to satisfy a variety of applications, by choosing the appropriate CPUs, line interface (and speeds), and operating system software.

In order to satisfy these widely varying applications, DECnet allows the user to build networks from a range of systems and communications components. DECnet allows users to interconnect systems using serial asynchronous, serial synchronous, and parallel facilities. When configuring DECnet systems, both ends of any given link must use the same type of communications discipline (e.g., synchronous, asynchronous, or parallel) running at the same line speed.

DIGITAL Network Architecture

DECnet includes a set of layered network protocols, each of which is designed to fulfill specific functions within the network. Collectively, these protocols are known as the DIGITAL Network Architecture, or DNA. The major protocols and their functions are:

DIGITAL Data Communications Message Protocol (DDCMP) — DDCMP handles the physical link traffic control and physical link error recovery within DECnet. DDCMP operates over both full- and half-duplex facilities, using serial synchronous or serial asynchronous facilities in a point-to-point mode. DDCMP has the following important characteristics:

- Operates over a wide variety of hardware types
- Makes efficient use of full-duplex channel capacity
- Allows transmission of all data types (including binary with low overhead)

- Allows standard (character-oriented) communications hardware to be used
- Uses CRC-16 for error detection, with recovery by retransmission
- Effective on earth/satellite links (or other links) with long signal propagation delays

A full specification for DDCMP, Version 4.0 is available on request. DIGITAL does not regard DDCMP as a proprietary protocol, and allows others to implement and use the protocol, providing an acknowledgment of the source is made in any public documentation.

Network Services Protocol (NSP) — NSP handles network management functions within DECnet. This includes sending messages between two nodes and routing messages within any given node. NSP makes it possible for two programs on different machines to establish a logical communications channel (or logical link) between the programs, and to exchange data using this logical link. These programs need not be aware of either the nature of the physical link (full/half duplex, parallel or serial) or the nature of the protocols supporting the physical link. NSP has the following important characteristics:

- Dynamic creation of logical links between tasks
- Exchange of data between tasks on a solicited basis
- Exchange of data between tasks on a non-solicited (e.g., interrupt) basis
- Ability to connect nodes dynamically within the network once NSP initialization occurs over a previously established physical link

A full specification for the NSP, Version 3.0 is available on request. NSP is not a proprietary protocol.

Data Access Protocol (DAP) — DAP enables programs on one node of the network to use the I/O services available on other network nodes. Some DECnet products provide facilities for translating operating system's unique I/O calls into the DAP standard, and vice versa. Thus, DAP enables data requests to be processed in a meaningful way by many (possibly heterogeneous) operating systems. DAP's facilities include:

remote file access, including OPEN, READ, WRITE, CLOSE, and DELETE for sequential and random access files, and command files.

It should be noted that each DAP function requires support at both ends of the link. At the local node, where the user program initiates a data request, the DAP support must package the request for transmission through the network. At the remote node (where the device or file resides), the DAP support must cause the appropriate actions to be performed. Not all systems support both local and remote portions of each DAP operation.

A full specification for the DAP, Version 4.1 is available on request. DAP is not a proprietary protocol.

DECnet Functions

DIGITAL Network Architecture, implemented across a wide range of operating systems and hardware configurations, enables users to build a variety of networks. While such networks have a common attribute, individual systems in the network can have certain system-specific attributes. The common attribute is:

- **Task-to-task communication:** Programs or tasks on one system can create logical links and exchange data with programs or tasks on other systems in a real-time fashion.

Additionally, many DECnet systems support other features that are useful in a network environment. These include:

- **Inter-system File Transfer:** This facility allows an entire data file to be moved between systems, at either program or operator request. The common file type supported across systems that provide this function is sequential ASCII.
- **Batch/Command File Submission:** Local users can submit batch or command files to remote systems for execution.
- **Batch/Command File Execution:** Remote users can cause a batch or command file that resides at a remote node to be submitted for execution at the local node.
- **Remote File Access:** Tasks or programs can access sequential files on a record-by-record basis from files located on remote nodes.
- **Down-line System Loading:** Initial memory images for DECnet-11S systems in the network can be stored on the local system, and loaded on request into other systems in the network. Remote systems usually require the presence of a network bootstrap loader, implemented in read-only memory.
- **Down-line Task Loading:** Programs to be executed on DECnet-11S systems in the network can be stored on the local system, and loaded on request into other systems, under the joint control of the

operating systems at both ends of the physical link. This and the preceding feature simplify the operation of network systems that do not have mass storage devices.

Table I provides the information for determining if the preceding functions are available on a particular DECnet system. Note that the above descriptions define the minimum capabilities provided by a given function. Additional capabilities, above those described as the minimum for a function, may be available between two of the same or different DECnet systems.

Configuring DECnet Networks

DECnet provides a basic level of interconnection between specific products. However, each DECnet system has its own level of functions. The user can recognize specific constraints when configuring a network of heterogeneous DECnet systems. Table II lists the communication interfaces supported by each DECnet Phase II product for a particular class of line characteristics (e.g., 9.6 kilobits/second, synchronous). Each column lists the connections that are permissible for those line characteristics in cross-product network configurations. Individual product SPDs must be consulted to determine whether any particular configuration violates the maximum number of communications interfaces and line speeds for an individual product.

TRAINING CREDITS:

No training credits are 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.

PRODUCT SUPPORT:

DECnet Phase II products are DIGITAL Supported software products. A Network Profile and DECnet Customer Support Plan covering all intended network nodes and their support must be prepared jointly by the customer and DIGITAL.

The customer may purchase DECnet Phase II product license options that do not include support services. The category of support applicable to such software is Customer Supported. When a DECnet product option that does not include support services is connected to a DECnet network, the category of support applicable to all DECnet products in that network is Customer Supported.

INSTALLATION SERVICE:

The installation of DECnet Phase II software under DIGITAL Supported/DIGITAL Installed shall consist of:

1. Verifying that the software kit contains all software modules and manuals offered.

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2. Generating the DECnet software.
3. Demonstrating the use of the majority of operator commands and system utilities.
4. Running a sample DIGITAL-supplied program.
5. Introducing the customer to the sources of software information and services.

Before installation of the software, the customer must:

1. Obtain, install, and demonstrate operational to DIGITAL's satisfaction any modems and other equipment and facilities necessary to interface DIGITAL's communications line interfaces and terminals.
2. 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.

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.

When multiple systems are connected in a single network, each individual system must be licensed separately with regard to both operating system and DECnet software.

ADDITIONAL SERVICES:

Software Consulting Services are offered on a time and materials basis to meet specific customer needs. Two levels of consulting services are available:

Level I Services

QJ680 -S— DECnet Level I Services (media: Z)

Level I services provide for the integration of DECnet nodes that carry DIGITAL Installed/DIGITAL Supported support into an interconnected network, with verification of network integrity and demonstration of DECnet functions. Level I services use DIGITAL sample procedures only.

Level II Services

QS912 -S— Daily Software Consulting Services (media: Z)

QS926 -S— Weekly Software Consulting Services (media: Z)

QS922 -S— 6-Month Resident Software Consulting Services (media: Z)

QS924 -S— 12-Month Resident Software Consulting Services (media: Z)

Level II services provide for additional support as mutually agreed upon by DIGITAL and the customer in the DECnet Customer Support Plan.

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TABLE I

		DECnet-IAS Version 2.1	DECnet/E Version 1.1	DECnet-RT Version 1.1	DECnet-VAX Version 1.2	DECnet-20 Version 2.0
Task-to-Task		YES	YES	YES	YES	YES
Intersystem File Transfer		YES	YES	YES	YES	YES
Command/Batch File Submission	Requestor Server	YES YES	YES NO	YES NO	NO NO	NO YES
Command/Batch File Execution	Requestor Server	YES YES	YES YES	YES NO	YES YES	YES YES
Remote File Access	Requestor Server	YES YES	NO YES	YES YES	YES YES	NO NO
Down-Line System Loading		YES	NO	NO	YES	NO
Down-Line Task Loading		YES	NO	NO	NO	NO

Requestor — Requests Service
 Server — Provides Service

TABLE II

	EIA Sync ≤9.6K bits/sec	EIA Sync ≤19.2K bits/sec	EIA Async ≤9.6K bits/sec	20mA Async ≤9.6K bits/sec	Remote Sync 56K bits/sec	Local Sync 56K bits/sec	Local Sync 1M bits/sec	Local Parallel
DECnet-IAS Version 2.1	DP11 DU11-DA DUP11-DA DV11 DQ11-DA	DMC11-AR-DA	DL11-E DZ11-A/B	DL11-C/WA DZ11-C/D		DMC11-AL-MD	DMC11-AL-MA	DA11-B/AL
DECnet-RT Version 1.1	DU11-DA DUP11-DA DUV11-DA	DMC11-AR-DA	DL11-E	DL11-C/WA	DMC11-AR-FA	DMC11-AL-MD	DMC11-AL-MA	
DECnet/E Version 1.1		DMC11-AR-DA			DMC11-AR-FA	DMC11-AL-MD	DMC11-AL-MA	
DECnet-VAX Version 1.2		DMC11-AR-DA				DMC11-AL-MD	DMC11-AL-MA	
DECnet-20 Version 2.0		DN20-BA (KMC/ DUP11-DA)			DN21-BA (DMC11-AR- FA)	DN21-BB (DMC11-AL- MD)	DN21-HA (DMC11-AL- MA)	



DIGITAL EQUIPMENT COMPUTER USERS SOCIETY

INTRODUCTION

DECUS, the Digital Equipment Computer Users Society, was established in March of 1961 to advance the effective use of DIGITAL computers. It is a not-for-profit users group supported in part by Digital Equipment Corporation.

OBJECTIVES

The objectives of the Society are to advance the effective utilization of computers, computer peripheral equipment, and software manufactured and marketed by Digital Equipment Corporation, by promoting the interchange of information concerning their uses; advance the art of computation through mutual education and exchange of ideas and information; establish standards and provide channels to facilitate the exchange of computer programs among DECUS members; provide feedback to the computer industry on equipment and software needs; and to reduce the duplication of development efforts.

ORGANIZATION

The Digital Equipment Computer Users Society is a federation of chapters, whose membership is determined by geographic location. The membership is organized to meet the specific needs of members in its area such as Symposia and Special User Group activities. The DECUS chapters are:

- *AUSTRALIAN CHAPTER (Australia, Indonesia, Malaysia, New Zealand, PNG, Singapore,)*
- *EUROPEAN CHAPTER (Europe, Middle East, North Africa, Russia)*
- *CANADIAN CHAPTER (Canada)*
- *U.S. CHAPTER (U.S. and All Others)*

ACTIVITIES

1. SYMPOSIA

Symposia are sponsored throughout the year by each of the DECUS Chapters and Regional/National User Groups. These meetings provide an opportunity for users of DIGITAL computers to meet with other users and with DIGITAL management, engineers, and customer service representatives. They provide a forum for users to exchange information on technique and approaches to issues of common interest and to provide feedback to DIGITAL on existing and future products and services. Sessions at the symposia include user-driven workshops, tutorials, product panels, as well as application/system-specific presentations.

The technical papers and presentations from each symposium are published as DECUS Proceedings.

2. SPECIAL USER GROUPS

DECUS encourages subgrouping of users with common interests and/or geographical proximity.

Special Interest Groups (SIGs) promote the interchange of specialized information for application areas, subject areas (such as languages), or specific operating systems. A group of users must petition the Chapter Executive Board for recognition as a Special Interest Group. The group must have a chairman, a DIGITAL representative, and its organization must meet the guidelines of the Chapter Executive Board.

Geographic subgroupings are formed to service the DECUS members within a specific area although they may also be based on interests as in SIGs. There are four types of geographic subgroupings:

1. *LUGs — Local User Groups*
2. *NUGs — National User Groups*
3. *RUGs — Regional User Groups*
4. *SLUGs — Student Local User Groups*

3. STANDARDS

DECUS promotes user activity in reviewing DIGITAL standards. Users are given the opportunity to comment on DIGITAL standards prior to their finalization.

4. PROGRAM LIBRARY

One of the major activities of the users group is the DECUS Program Library. The Library contains programs written and submitted by users and is maintained and operated separate from the Digital Software Distribution Center. A wide range of software is available, including languages, editors, numerical functions, utilities, display routines, and various other types of application software.

MEMBERSHIP

Membership in DECUS is voluntary and is not subject to membership fee. Members are invited to take an active interest in the Society by contributing to the Program Library, to newsletters, and by participating in its Special User Groups and Symposia. There are two types of membership: Installation Membership and Association Membership.

INSTALLATION MEMBERSHIP

An organization, institution, or individual that has purchased, leased or has on order a computer manufactured by Digital Equipment Corporation is eligible for Installation Membership in DECUS.

An Installation should appoint a person immediately concerned with the use of the computer to act as delegate to the Society. A delegate receives all official communications and has a vote on DECUS policies and elections. An organization or company is eligible for as many voting delegates as it has DIGITAL computers. Each delegate must file an application for Installation Membership.

ASSOCIATE MEMBERSHIP

Any person who is not an appointed Installation Delegate, who has a bona fide interest in DECUS is eligible for Associate Membership.

Membership status is acquired by submitting the enclosed application to the appropriate Chapter Executive Secretary for approval by the Chapter Executive Board.

To obtain a membership form for DECUS, please return this form to the appropriate Chapter office listed below.

NAME: _____
(First) (Last/Family Name)

COMPANY: (INSTALLATION) _____

ADDRESS 1: _____

2: _____

3: _____

4: _____

(City Town, State Province, and Zip Postal Code)

COUNTRY: _____

TELEPHONE: _____ TELEX: _____

I obtained this form from _____

DECUS OFFICES

DECUS Australia
P.O. Box 384
Chatswood
NSW 2067
Australia

DECUS Canada
P.O. Box 11500
Ottawa, Ontario K2H 8K8
Canada

DECUS Europe
P.O. Box 510
12, avenue des Morgines
CH-1213 Petit-Lancy 1/GE
Switzerland

DECUS U.S. and
Office of the Executive Director
One Iron Way
Marlboro, Massachusetts 01752
USA

SOFTWARE PROBLEMS OR ENHANCEMENTS

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

<u>Areas Covered</u>	<u>SPR Center</u>	<u>Areas Covered</u>	<u>SPR Center</u>
United States; remainder of Far East, Middle East, Africa Latin America	Administrative Services Group, SWS P.O. Box F Maynard, Ma 01754	Japan	Digital Equipment Corp. INTL 3rd Floor Kowa Bldg. 8-7 Sanban Cho Chiyoda Ku Tokyo 102 Japan
Canada	Digital Equipment Canada P.O. Box 11500 Ottawa, Ontario Canada K2H 8K8	New Zealand	Digital Equipment N.Z. LTD P.O. Box 17093 Greenlane, Auckland 5, New Zealand
United Kingdom, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Qatar, Oman, Saudi Arabia, Syria, United Arab Emirates, Yemen, Arab Republic.	Digital Equipment Corp. LTD Fountain House Butts Centre GB - Reading RG17QN England	Belgium, Holland, Luxemburg	Digital Equipment B.V. KAAP Horndreef 38 NL - Utrecht/Overvecht Holland
Australia-Melbourne	Digital Equipment Aust. PTY. LTD 60 Park Street So. Melbourne Victoria Australia 3205	Sweden	Digital Equipment Corp. AB Englundavägen 7 S-171 24 Solna, Sweden
Australia-Sydney	Digital Equipment Aust. PTY. LTD 123 125 Willoughby Rd. P. O. Box 491 Crows Nest NSW Australia 2065	Denmark	Digital Equipment Corp. APS Kristineberg 3 DK-2100 Copenhagen Ø Denmark
Brazil	Digital Equipment Comercio Ind. Rua Batatais 429 Esq AL Campin 01423 Jardim Paulista Sao Paulo 0100 Brazil	Finland	Digital Equipment Corp. OY PL16 SF - 02201 ESPOO 20 Finland
Caribbean	De Latin America P. O. Box 11038 Fernando Juncos Sta. Santurce PR 00910	Norway	Digital Equipment Corp. A/S Pottenmakerveien 8 N - Oslo 5 Norway
France	Digital Equipment France 18, rue Saarinen France Silic 225 F - 94528 Rungis - Cedex France	Austria, East Germany, West Germany, Poland, Hungary, Rumania, Czechoslovakia, Russia, Bulgaria	Digital Equipment Corp. GMBH Wallsteinplatz 2 D - 8 Munich 40 West Germany
Italy	Digital Equipment S.P.A. Viale Fulvio Testi 117 I-20092 Cinisillo Balsamo Milan, Italy	Israël	DECSYS Computers LTD. 4, Yirmiyahou Str. P.O. Box 6359 IL - Tel-Aviv 63505 Israël

Areas Covered

Greece, Portugal,
Spain, Switzerland,
Yugoslavia & Sina
(Morocco, Algeria,
Tunisia, Cyprus,
Turkey, Malta)

SPR Center

Digital Equipment Corp. SA
9, route des Jeunes
1211 Geneva 26
Switzerland

DIGITAL EQUIPMENT CORPORATION, Corporate Headquarters: Maynard, Massachusetts 01754, Telephone: (617)897-5111—SALES AND SERVICE OFFICES: UNITED STATES—ALABAMA, Huntsville • ARIZONA, Phoenix and Tucson • CALIFORNIA, El Segundo, Los Angeles, Oakland, Ridgecrest, San Diego, San Francisco (Mountain View), Santa Ana, Santa Clara, Stanford, Sunnyvale and Woodland Hills • COLORADO, Englewood • CONNECTICUT, Fairfield and Meriden • DISTRICT OF COLUMBIA, Washington (Lanham, MD) • FLORIDA, Ft. Lauderdale and Orlando • GEORGIA, Atlanta • HAWAII, Honolulu • ILLINOIS, Chicago (Rolling Meadows) • INDIANA, Indianapolis • IOWA, Bettendorf • KENTUCKY, Louisville • LOUISIANA, New Orleans (Metairie) • MARYLAND, Odenton • MASSACHUSETTS, Marlborough, Waltham and Westfield • MICHIGAN, Detroit (Farmington Hills) • MINNESOTA, Minneapolis • MISSOURI, Kansas City (Independence) and St. Louis • NEW HAMPSHIRE, Manchester • NEW JERSEY, Cherry Hill, Fairfield, Metuchen and Princeton • NEW MEXICO, Albuquerque • NEW YORK, Albany, Buffalo (Cheektowaga), Long Island (Huntington Station), Manhattan, Rochester and Syracuse • NORTH CAROLINA, Durham/Chapel Hill • OHIO, Cleveland (Euclid), Columbus and Dayton • OKLAHOMA, Tulsa • OREGON, Eugene and Portland • PENNSYLVANIA, Allentown, Philadelphia (Bluebell) and Pittsburgh • SOUTH CAROLINA, Columbia • TENNESSEE, Knoxville and Nashville • TEXAS, Austin, Dallas and Houston • UTAH, Salt Lake City • VIRGINIA, Richmond • WASHINGTON, Bellevue • WISCONSIN, Milwaukee (Brookfield) • INTERNATIONAL—ARGENTINA, Buenos Aires • AUSTRALIA, Adelaide, Brisbane, Canberra, Melbourne, Perth and Sydney • AUSTRIA, Vienna • BELGIUM, Brussels • BOLIVIA, La Paz • BRAZIL, Rio de Janeiro and Sao Paulo • CANADA, Calgary, Edmonton, Halifax, London, Montreal, Ottawa, Toronto, Vancouver and Winnipeg • CHILE, Santiago • DENMARK, Copenhagen • FINLAND, Helsinki • FRANCE, Lyon, Grenoble and Paris • GERMAN FEDERAL REPUBLIC, Cologne, Frankfurt, Hamburg, Hannover, Munich, Nuremburg, Stuttgart and West Berlin • HONG KONG • INDIA, Bombay • INDONESIA, Djakarta • IRELAND, Dublin • ITALY, Milan, Rome and Turin • IRAN, Tehran • JAPAN, Osaka and Tokyo • MALAYSIA, Kuala Lumpur • MEXICO, Mexico City • NETHERLANDS, Utrecht • NEW ZEALAND, Auckland and Christchurch • NORWAY, Oslo • PUERTO RICO, Santurce • SINGAPORE • SPAIN, Madrid • SWEDEN, Gothenburg and Stockholm • SWITZERLAND, Geneva and Zurich • UNITED KINGDOM, Birmingham, Bristol, Epsom, Edinburgh, Leeds, Leicester, London, Manchester and Reading • VENEZUELA, Caracas •