

**RT-11**

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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 V3B 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	FORTRAN/RT-11 Extensions V1B	PEAK-11 V2
BASIC-11/RT-11 V2	FORTRAN/RT-11 LSI Extensions V1	PLOT 11/RT-11 V1.1
BASIC/RT Extensions V1	FORTRAN IV/RT-11 V2	RT-11/03 FORTRAN
COS-350/2780	GAMMA-11 F/B V2, V2C	Extensions V1
CTS-300 V3, V4, V5	Industrial BASIC/RT-11 V1	REMOTE/RT-11 V1
CTS-300 DICAM V1	Lab Applications-11 V3	RT-11 V3, V3B
CTS-300 DICAM II V1	LSP-11 V1	RT-11 (CTS-300)/LSI-11
CTS-300/DIS V1	MSB11 V1	2780 V2
DECnet/RT V1	MSB/FORTRAN IV V1	RT-11/2780 (CTS-300/
FOCAL/RT-11 V1B	MU BASIC-11/RT-11 V2	2780) V2
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Package V1.1		

## DISTRIBUTION

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**Eleanor F. Hunter, Editor**  
**Ann Owens, Associate Editor**

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## REVISED SPR USER LETTER

Submitted by Sheila Hatchell, 8/11 SPR 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 supported Category A and B 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.
2. Limit only one problem per SPR form. Several problems on an SPR can greatly 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 most 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 very 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.

### NEW SPR FORM

A new SPR form is being distributed (see following). The Key areas of change are:

1. Reversal of order of priorities, 1 through 5 instead of 5 through 1.
2. Capsulized definitions of the priorities on the form.
3. Typewriter compatibility to include boxes to be Xed.
4. SPR Centers updated.
- \* 5. Use of Customer Number as part of customer's address. (**Customer number is located on Software Dispatch label, top left-hand corner**).
6. Administrative fields (shaded area) used in processing SPRs have been added.



**SOFTWARE  
PERFORMANCE  
REPORT**

FIELD NO.:	CORPORATE SPR NO.:
------------	--------------------

258203

✓ TO SET UP FOR PROPER ALIGNMENT, START AT MARK BELOW.

PAGE \_\_\_\_\_ OF \_\_\_\_\_

OPERATING SYSTEM	VERSION	SYSTEM PROGRAM OR DOCUMENT TITLE	VERSION OR DOCUMENT PART NO.	DATE
NAME: FIRM:		DEC OFFICE	DO YOU HAVE SOURCES? YES <input type="checkbox"/> NO <input type="checkbox"/>	
ADDRESS:		REPORT TYPE/PRIORITY		
* CUST. NO.:		<input type="checkbox"/> PROBLEM/ERROR	1. <input type="checkbox"/> HEAVY SYSTEM IMPACT	
		<input type="checkbox"/> SUGGESTED ENHANCEMENT	2. <input type="checkbox"/> MODERATE SYSTEM IMPACT	
		<input type="checkbox"/> OTHER	3. <input type="checkbox"/> MINOR SYSTEM IMPACT	
			4. <input type="checkbox"/> NO SIGNIFICANT IMPACT	
			5. <input type="checkbox"/> DOCUMENTATION/SUGGESTION	
SUBMITTED BY:		PHONE:	CAN THE PROBLEM BE REPRODUCED AT WILL? YES <input type="checkbox"/> NO <input type="checkbox"/>	
ATTACHMENTS		COULD THIS SPR HAVE BEEN PREVENTED BY BETTER OR MORE DOCUMENTATION? YES <input type="checkbox"/> NO <input type="checkbox"/>		
MAG TAPE <input type="checkbox"/>	FLOPPY DISKS <input type="checkbox"/>	LISTING <input type="checkbox"/>	DECTAPE <input type="checkbox"/>	PLEASE EXPLAIN IN PROVIDED SPACE BELOW.
OTHER:				
CPU TYPE	SERIAL NO.	MEMORY SIZE	DISTRIBUTION MEDIUM	SYSTEM DEVICE
				DO NOT PUBLISH <input type="checkbox"/>

ALL SUBMISSIONS BECOME THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION.

SHORT NAME	MNT. CAT.	MNT. GRP.	XFER GRP.	PL	PRB. TYPE
DATE RECEIVED (MAIL)	DATE TO MAINTAINER		XFER DATE	LOGGED ON	
DATE RECEIVED (ASG)	DATE RECEIVED FROM MAINTAINER		DATE ANSWERED	LOGGED OFF	

EN 1044H-07-R479 (35C)

ADMINISTRATIVE SERVICES GROUP, SWS

DIRECTIONS FOR COMPLETING SPR FORM

258203

The SPR form must be filled out completely and MUST BE TYPEWRITTEN in order to ensure proper processing. The shaded areas on the form should be left blank, they will be used by DIGITAL in processing the SPR.

The following is a brief summary of the information required:

**OPERATING SYSTEM/MONITOR (SOFTWARE PRODUCT)**

Monitor (software product) the system program runs under and its version number (e.g. RSX-11M V3, TOPS-10 V6.03). Document Title such as OS/8 Handbook.

**SYSTEM PROGRAM & VERSION (OR DOCUMENT PART NUMBER)**

The program in which the problem resides, e.g. FORTRAN V5A, BASIC V1B. If a monitor, write MONITOR (module). If a documentation error is being reported, the DEC order number of the manual should be entered here (e.g. DEC-11-ORSUB-A-D).

**DATE:**

Date of submittal using a three character abbreviation for month (e.g. 4-APR-79)

**NAME AND ADDRESS:**

Fill out the name of your installation's responsible software contact and complete mailing address. The information in this block will be used to return the acknowledgment copy.

**CUST. NO.:**

A permanent reference number which is assigned by DIGITAL. Customers will be informed of their number.

**SUBMITTED BY AND PHONE:**

Enter name and phone number of the author of the SPR.

**DEC OFFICE:**

Enter local DEC office (or SPR Center if European or Australian).

**REPRODUCIBLE AT WILL, SOURCE AND DOCUMENTATION QUESTIONS**

Check appropriate boxes.

**REPORT TYPE/PRIORITY**

Check appropriate box for Report Type and Priority.

Priority Definitions are as follows:

1. Most production work cannot be run, e.g. functions/jobs which are not usable are a major use of system, e.g. system won't boot, necessary peripherals cannot be used as intended.
2. Some production work cannot be run, e.g. certain jobs/functions are not usable, performance degradation, installation has insufficient excess capacity.
3. All production work can be run with some impact on user, e.g. significant manual intervention required, extra procedures, performance degradation but installation has excess capacity.
4. All production work can be run with no significant impact on user, e.g., problem can be easily patched, simple bypass procedure exists.
5. No system modifications needed to return to normal production, e.g., suggestion, consultation, documentation error.

**ATTACHMENTS:**

If attachments are included with SPR, describe materials sent and insure that the number from the top of this form appears on them. Printed examples must be dark. If magtape, include track and density.

**CPU TYPE:**

Enter model number of the processor (e.g. 1080, 8/A, 11/70, 2040).

**SERIAL #:**

Enter serial # of central processor. If there are two processors, enter serial number of first.

**SYSTEM DEVICE:**

The device on which the monitor resides (e.g. DOS/BATCH on RK05 where RK05 is system device).

**DISTRIBUTION MEDIUM:**

Indicate the medium on which you receive software (e.g. 9TR Magtape, DEC Tape, RX02, RK05).

**PROBLEM DESCRIPTION:**

A concise description of the problem in the form of PROBLEM:, DIAGNOSIS:, CURE: (if known), with references to circumstances surrounding its occurrence should be included. **Only one problem should be stated per SPR form.** Attempt to reduce the problem to a simple test case. If you cannot, include all programs and data in machine readable form. If a patch or interim solution exists, include it.

**DO NOT PUBLISH:**

Check this box if you do not want your SPR published in its original form. This does not guarantee that the solution will not be published if of universal value.

**SPR SUBMISSION:**

Upon completion of the SPR form **remove last copy** and send remainder to the nearest SPR center. Refer to the reverse side of this instruction sheet for a listing of SPR centers.

## 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).*

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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

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Tunisia, Cyprus,  
Turkey, Malta)

### SPR Center

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

## THE DEVICE TIME-OUT FEATURE

This article describes the device time-out support feature and explains how to use it in a device handler.

An optional feature available to device handlers is monitor support for device time-out. A handler can assign a completion routine to be executed if an interrupt does not occur within a specified time interval. Thus, the handler can perform the equivalent of a mark time operation without the need for a .SYNCH call and its attendant potential delay.

You select the device time-out feature at system generation time. Time-out is used by the RT-11 multi-terminal monitor, so the option is automatically included in your system if you select multi-terminal time-out support or support for remote DZ11 lines. Otherwise, if you need to use the feature in your handler, you must specifically include it at system generation time. It is also required for DECnet applications.

RT-11 provides two macros to help you implement device time-out in your handler. The macros, which are described below, are .TIMIO and .CTIMIO. The macros are available only to device handlers. Remember to issue the .MCALL request if you use .TIMIO and .CTIMIO.

### The .TIMIO Macro

Use the .TIMIO macro in your handler to issue the time-out call. You can issue the request anywhere in the handler except at interrupt level. If you need to issue the request at interrupt level, you must issue a .FORK macro first. The .TIMIO request schedules a completion routine to run after the specified time interval has elapsed. The completion routine runs in the context of the job indicated in the timer block. In XM systems, the completion routine executes with kernel mapping, since it is still a part of the interrupt service routine. As usual with completion routines, R0 and R1 are available to use. When the completion routine is entered, R0 contains the sequence number of the request that timed out.

The format of the macro is as follows:

```
.TIMIO tbk,hi,lo
```

tbk is the address of the timer block, a seven-word pseudo timer queue element, described below. Note that you do not need a pound sign (#) before tbk.

hi is the high order word of a two-word time interval.

lo is the low order word of a two-word time interval.

The timer block format is shown in Table 1.

Table 1: The Timer Block Format

<u>Offset</u>	<u>Filled In By</u>	<u>Contents</u>
0	.TIMIO	High order time word.
2	.TIMIO	Low order time word.
4	Monitor	Link to next queue element; 0 indicates none.
6	User	Owner's job number; get this from the queue element.
10	User	Sequence number of timer request. The valid range for sequence numbers is from 177701 through 177766. The range of sequence numbers will change in Version 4 of RT-11.
12	Monitor	-1
14	User	Address of the completion routine to execute if time-out occurs. The monitor zeroes this word when it calls the completion routine, indicating that the timer block is available for reuse.

Although the .TIMIO macro moves the high and low order time words to the timer block for you, you must take care to specify them properly in the macro call. Express the time interval in ticks. There are 60 (decimal) ticks per second if your system is running with 60-cycle power. If your system is running with 50-cycle power, there are 50 (decimal) ticks per second. Time values for 50-cycle power are shown in square brackets [] immediately after the 60-cycle figure.

The low order time word accomodates values of up to 65535 ticks. That is equal to about 1092 [1310] seconds, or about 18.2 [21.8] minutes. If you need to specify a time interval of 18.2 [21.8] minutes or less, place a zero in the hi argument, and the number of ticks in the lo argument to the .TIMIO macro.

If you need to specify a time interval longer than 18.2 [21.8] minutes, think of the high order word as a carry word. Each interval of 18.2 [21.8] minutes' duration causes a carry of 1 into the high order word. So, to specify an interval slightly greater than 18.2 [21.8] minutes, supply a 1 to the hi argument, and a 0 to the lo argument. To specify 36.4 [43.6] minutes, move 2 to the hi argument and 0 to the lo argument, and so on. Since the two-word time permits you to indicate up to 65565 units of 18.2 [21.8] minutes each, the largest time interval you can specify is about 2.3 [2.7] years.

The only words of information you must set up yourself in the timer block are the job number, the sequence number, and the address of the completion routine.

You can get the job number from the current queue element, then move it to the timer block. You assign the sequence number yourself. Start with 177701 and work up. The highest valid sequence number is 177766. The job number and sequence number are passed to the completion routine when it is entered. You must move the address of the completion routine to the seventh word of the timer block in a position-independent manner.

The .TIMIO macro expands as follows:

```
.TIMIO tbk,hi,lo

JSR    R5,@$TIMIT ;POINTER AT END OF HANDLER
.WORD  tbk - .
.WORD  0           ;CODE FOR .TIMIO
.WORD  hi          ;HI ORDER TIME INTERVAL
.WORD  lo          ;LO ORDER TIME INTERVAL
```

#### The .CTIMIO Macro

You should issue a cancel time-out call when the condition the handler was waiting for occurs. This disables the completion routine. Use the .CTIMIO macro call in your handler to cancel the time-out request. Execution must be in system state when you issue the call. Be sure to issue a .FORK call first if you use .CTIMIO at interrupt level.

For example, a line printer handler could check for an off-line condition. When a program requests an I/O transfer, the handler's I/O initiation section forces an immediate interrupt. The handler's interrupt service section checks the device error bit. If the bit is set, the printer is not on-line. The handler prints a message, sets a 2-minute timer with .TIMIO, and returns to the monitor with RTS PC to wait for another interrupt. The device should not interrupt again until the error condition has been fixed by an operator. If no interrupt occurs within two minutes, the timer completion routine prints another error message, sets another 2-minute timer, and returns again to the monitor with RTS PC to wait for an interrupt.

In this example, when an interrupt finally occurs and the error bit is clear, the handler issues the .CTIMIO call to cancel the timed wait.

As another example, the RK disk handler could set a timer before it starts up a seek operation. Since seeks interrupt twice, the handler should not cancel the timer after the first interrupt. When the second interrupt occurs, though, the seek is complete, and the handler should then cancel the timer.

If the time interval in any application has already elapsed and the device has, therefore, timed out, the .CTIMIO request fails. The completion routine has already been placed in the queue. The .CTIMIO call returns with the C bit set if it did not successfully cancel the time-out request before the completion routine was queued.

The format of the .CTIMIO macro call is as follows:

```
.CTIMIO tbk
```

tbk is the address of the seven-word timer block described above.

The .CTIMIO macro expands as follows:

```
.CTIMIO
JSR      R5,@$TIMIT ;POINTER AT END OF HANDLER
.WORD    tbk - .
.WORD    1           ;CODE FOR .CTIMIO
```

#### Device Time-out Applications

Device time-out support is used by RT-11 in only a few instances. However, there are a number of conditions in which timer requests are appropriate. If you are writing a handler for your own device, take the time to consider whether or not timer requests would be useful to you.

#### Multi-terminal Service

The resident multi-terminal service in RT-11 that supports DZ11 and DZV11 modems uses device time-out to check the status of remote dial-up lines. The bootstrap starts up a polling routine to check each modem for a change in status. If a change occurs, the terminal service takes the appropriate action: it either recognizes a new line, or disconnects a line when carrier is lost. The last instruction in the polling routine issues a .TIMIO call to start a half-second timer. The timer completion routine restarts the polling routine after a half second elapses.

#### Typical Timer Procedure for a Disk Handler

A disk handler could implement a timer procedure for any disk operation. The purpose of the timer routine is to cancel or restart any operation that takes too long. If an operation does not complete within a reasonable amount of time, chances are good that a disk error of some sort corrupted the operation.

The handler's I/O initiation section sets a timer by using the .TIMIO call. Then the handler starts up the operation that a job requested: a read, write, or seek operation. The handler returns to the monitor with an RTS PC instruction and waits for a device interrupt.

If an interrupt occurs before the time limit expires, the handler cancels the timer and performs its normal sequence of error checking on the results of the transfer. In general, the handler either drops to FORK level to restart an incorrect operation, or exits to the monitor with .DRFIN to remove the current queue element.

If an interrupt does not occur within the time limit, the timer completion routine begins to execute. The first thing the completion routine should do is fake an interrupt. This action duplicates the handler environment after a genuine interrupt, and ensures that the stack has the right information.

Then the timer completion routine acts as though the device interrupted but the transfer was in error. The timer completion routine simply branches to the correct section of code in the interrupt service section of the device handler to finish the processing.

The timer completion routine should use the following instructions to fake an interrupt and enter system state:

```

MOV      @SP,-(SP)      ;MAKE ROOM ON THE STACK
CLR      2(SP)          ;FAKE INTERRUPT PS = 0
.MTPS   #340           ;GO TO PRIORITY 7
.INTEN   0,PIC         ;ENTER SYSTEM STATE

```

After the handler enters system state, it takes the appropriate action as a result of the time-out. The handler can try the operation again. To do this, it decrements the retry count, drops to FORK level, and branches to the I/O initiation section. The code in the initiation section sets another timer, restarts the transfer, and returns to the monitor with an RTS PC instruction to await another interrupt.

Or, the handler can decide that the time-out indicates a serious error, one that should not be retried. The handler can follow this same procedure for a transfer whose retry count is used up. The handler sets the hard error bit in the channel status word, then exits to the monitor with the .DRFIN call to remove the current queue element.

#### NOTE:

Before a handler goes through the .DRFIN routine to remove the current queue element, it must cancel any timer request that has not yet expired.

#### Line Printer Handler Example

The following extended example consists of excerpts from a version of the RT-11 line printer handler modified to use timer support to check for the device off-line condition. When the handler's I/O initiation section starts up a transfer, it forces an immediate interrupt. The handler's interrupt service section checks the error bit in the CSR. If there is an error, control passes to the routine OFFLIN. OFFLIN issues a .SYNCH call to enter user state. It prints an error message on the console terminal, then sets a 2-minute timer. The handler returns to the monitor with an RTS PC instruction and waits for the device to interrupt.

If the device interrupts, it means that the error condition has been corrected by an operator. The handler cancels the timer, and checks the error bit once again to make sure there are no problems. If there is no error, the handler proceeds as usual. If there is an error, the handler loops back to the OFFLIN routine.

If an interrupt does not occur within two minutes, the timer completion routine begins to execute. It prints an error message, sets another 2-minute timer, and returns to the monitor with an RTS PC instruction to await an interrupt.

; I/O INITIATION SECTION

```

        .DRBEG  LP
        MOV     LPCQE,R4      ;R4 POINTS TO CURRENT Q ENTRY
        ASL     6(R4)        ;WORD COUNT TO BYTE COUNT
        BCC     LPERR        ;A READ REQUEST IS ILLEGAL
        BEQ     LPDONE       ;SEEKS COMPLETE IMMEDIATELY
RET:    BIS     #100,@LPS    ;CAUSE AN INTERRUPT, STARTING TRANSFER
        RTS     PC

```

; INTERRUPT SERVICE SECTION

.ENABL LSB

```

        .DRAST  LP,4,LPDONE
        TST     TICMPL       ;IS A TIMER ELEMENT ACTIVE?
        BEQ     1$          ;NO
        .CTIMIO TIMBLK     ;YES, CANCEL IT
        BCS     1$          ;ERROR
        CLR     TICMPL       ;AND DON'T DO IT AGAIN
1$:    MOV     LPCQE,R4     ;R4 POINTS TO CURRENT QUEUE ELEMENT
        TST     @(PC)+      ;ERROR CONDITION?
LPS:    .WORD  LP$CSR       ;LINE PRINTER STATUS REGISTER
ERROPT: BMI    OFFLIN      ;YES, HANG TILL CORRECTED
        .
        .
        .

```

; I/O COMPLETION SECTION

```

LPDONE: CLR     @LPS        ;TURN OFF INTERRUPT
        .DRFIN  LP
        .
        .
        .

```

; PRINTER OFF LINE, PRINT WARNING EVERY 2 MINUTES

```

OFFLIN: MOV     LPCQE,R5    ;POINT TO QUEUE ELEMENT
        MOVB    Q$JNUM(R5),R5 ;GET JOB NUMBER OF CURRENT JOB
        ASR     R5          ;SHIFT IT
        ASR     R5          ; RIGHT
        ASR     R5          ; 3 BITS
        BIC     #^C<17>,R5 ;ISOLATE JOB NUMBER
        MOV     R5,SYJNUM   ;SAVE IT FOR .SYNCH
        MOV     R5,TIJNUM   ;SAVE IT FOR .TIMIO
        .SYNCH  SYNBLK,PIC  ;GO TO USER STATE
        RTS     PC         ;SYNCH FAILED, PUNT

```

```

1$:   CLR    TICMPL           ;INDICATE THAT WE GOT HERE
      TST    @LPS            ;IS THERE STILL AN ERROR?
      BPL    2$              ;NO, QUIT
      MOV    PC,R0           ;AS COMPLETION ROUTINE, PRINT MESSAGE
      ADD    #MESSAG-.,R0    ;POINT TO MESSAGE AS PIC
      .PRINT                ;PRINT IT
      MOV    PC,R0           ;IN A PIC WAY,
      ADD    #1$-.,R0        ;POINT TO TIMIO COMPLETION ROUTINE
      MOV    R0,TICMPL       ;SAVE IT
      .TIMIO TIMBLK,0,2*60.*60. ;SET A 2-MINUTE TIMER
2$:   RTS    PC              ;RETURN LATER

TIMBLK: .WORD 0              ;TIMER BLOCK: HI ORDER TIME
        .WORD 0              ;LO ORDER TIME
        .WORD 0              ;LINK
TIJNUM: .WORD 0              ;JOB NUMBER
        .WORD 177701         ;SEQUENCE NUMBER
        .WORD 0              ;MONITOR PUTS -1 HERE
TICMPL: .WORD 0              ;ADDRESS OF COMPLETION ROUTINE
SYNBLK: .WORD 0              ;SYNCH BLOCK
SYJNUM: .WORD 0              ;JOB NUMBER
        .WORD 0,0,0,-1,0    ;OTHER
MESSAG: .ASCIZ "?LP-W-LP off line - please correct"
        .EVEN
        .DREND LP

```

RT-11 Software Dispatch, September 1979

Seq 6 R

RT-11 V03B-00  
MISCELLANEOUS  
SYSTBL.CND

1 of 1

INCORRECT DEVICE IDENTIFIER FOR PC11 (JM)

System generation incorrectly creates a device code 10 for the PC11 handler. The device identifier should be 7. The following mandatory patch updates SYSTBL.CND to generate the correct identifier.

Patch to SYSTBL.CND:

```
.R EDIT <RET>  
*EBSYSTBL.CND[26]<ESC>RG1<ESC>=C2<ESC>V<ESC><ESC>  
;SYSTBL EDIT LEVEL 2  
*2<FPC,10<ESC>-2DI7<ESC>V<ESC>><ESC><ESC>  
DEV PC,7  
DEV PC,7+RONLY$  
*EX<ESC><ESC>
```

.

There is no version number change after installing this patch.

RT-11 V03B-00  
MISCELLANEOUS  
SYSF4.OBJ

Seq 7 M

1 of 1

ERROR IN MTIN AND MTOUT ROUTINES (SPR 11-24437 MAS)

MTIN and MTOUT do not function properly if the character count argument (chrcnt) is specified.

The following patch will correct this problem.

Create the following file MTFIX.MAC using a text editor.

```
.TITLE MTSET  
.PSECT SYS$I  
.=.+66  
BISB @4(R5),R1  
.END
```

Assemble the new file to produce an object module:

```
.MACRO MTFIX <RET>
```

Update SYSF4.OBJ by using PAT.SAV:

```
.R PAT <RET>  
SYSF4=SYSF4/C:017410,MTFIX/C:005351 <RET>
```

Then recreate the default system library (SYSLIB.OBJ).

RT-11 SOFTWARE DISPATCH  
 CUMULATIVE INDEX  
 SEPTEMBER 1979

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!**

Retracted articles are indicated: RETRACTION.

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		
<b>APL.SAV PROGRAM PATCHES</b>		
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" S 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 CTRL C, AND RCTRL C 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
REPUBLICANION 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

<b>DECFORM</b>		
TWO PROBLEMS WITH FOCOMP	01 M	May 79
<b>DIBOL</b>		
TWO PROBLEMS: FILE CORRUPTION POSSIBILITY AND REPETITIVE I/O ERRORS	01 M	Apr 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
<b>DICOMP</b>		
DICOMP DISLIKES SOME COMMENTS	01 M	Sep 79
<b>REDUCE</b>		
HOW TO REDUCE PAINLESSLY	01 N	Aug 79
<b>SORTM</b>		
MERGE DOES NOT ACCEPT EMPTY FILES	01 M	Apr 79

#### 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	Jul 79
AN ACK IS RECEIVED WHEN ENQ HAS ALREADY BEEN SENT	03 M	Jul 79
ATTEMPT TO LOAD LPX.SYS BEFORE CMX.SYS UNDER XM MONITOR	04 M	Aug 79

#### DECnet-RT V1

<b>DAP</b>		
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
<b>DDCMP</b>		
DDCMP LINE COUNTERS OVERFLOW TO ZERO	01 O	Jul 78

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<b>DMC</b>		
DMC LINE COUNTERS OVERFLOW TO ZERO	01 O	Jul 78
<b>DOCUMENTATION</b>		
USER'S GUIDE DOCUMENTATION ERRORS	2.1 N	Aug 79
<b>FAL</b>		
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
<b>FORTRAN INTERFACE</b>		
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
<b>MODEM CONTROL</b>		
SUPPORT OF ASYNCHRONOUS HALF DUPLEX MODEMS	01 R	Jul 78
<b>NFARS</b>		
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
<b>NSP</b>		
PROTOCOL VIOLATION IN NODE INITIALIZATION	01 M	Jan 79
<b>NFT</b>		
NFT ASCII FILE TRANSFER TO VAX/RSX SYSTEMS	03 M	Feb 79
LOGICAL BLOCK NUMBERS NOW START AT ONE	17.5 M	May 79
<b>FEP-11, FORTRAN ENHANCEMENT PACKAGE</b>		
<b>ALSO PERTAINS TO: RT-11/FORTRAN UPGRADE PACKAGE FOR MINC</b>		
FEP-11 INITIAL PROBLEMS, SOLUTIONS AND HINTS	01 M	May 79
<b>FMS-11 V1</b>		
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 FROM 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
<b>FORTRAN GRAPHICS PACKAGE, V1.1</b>		
<b>DECGRAPHIC</b>		
NMBR SUBROUTINE IN DECgraphic	01 R	JAN 79
<b>FORTRAN/RT-11 EXTENSIONS V1</b>		
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
uDEVICE CONFLICT ERROR	08 R	Oct 78
TWO PROBLEMS WITH THE RT-11/FORTRAN GRAPHICS EXTENSIONS	09 M	Oct 78

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
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
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

#### 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
"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/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

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<b>FORTRAN/RT-11 EXTENSIONS V1B</b>		
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
<b>FORTRAN/RT-11 EXTENSIONS V2.1</b>		
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
<b>GAMMA-11 F/B V2</b>		
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
FORTRAN SUPPORT INCORRECTLY CONVERTS DATA AND TIME OF INQUISITION	08 M	May 77
"RS" COMMAND IS INCORRECTLY	09 N	Jun 77
<b>GAMMA-11 F/B V2C</b>		
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 RLO1 SYSTEMS	04 M	Oct 78
DYNAMIC CURVE CALCULATIONS MAY FAIL	05 M	Dec 79
RK06, 7 AND RLO1 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 RLO1 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
<b>LABORATORY APPLICATIONS-11 V3</b>		
A NEW MODULE TO ENHANCE DATA FLOW WITHIN LA-11	01 N	Oct 76
<b>HISTO.MAC</b>		
ACQUIRING AND PROCESSING HISTOGRAM DATA	01 M	Sep 76

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<b>LABMAC.SML</b>		
ERRONEOUS MACRO	01 M	Sep 77
INCLUDING LABMAC.SML IN SYSMAC.SML	02 M	Mar 79
<b>PEAK.MAC</b>		
WIDE PEAKS	01 M	Mar 76
PEAK PROBLEMS AND CORRECTIONS	02 M	Jul 76
ARITHMETIC CORRECTION FOR PEAK AREA	03 M	Dec 76
MISSING PATCH IN RELEASE NOTES	04 M	Oct 77
<b>SPARTA</b>		
LPS AND AR-11 VECTOR AND STATUS REGISTER	01 N	Dec 75
USING SPARTA AND FLOATING POINT BUFFERS	02 N	Feb 76
AR-11 TIMING PROBLEMS WITH ADSAM AND SPARTA	03 O	Feb 76
FFT SCALING CORRECTION	04 M	Feb 76
SCALE FACTOR CORRECTION FOR SPARTA COMMANDS FAC AND FCC	05 M	Mar 76
DATA DISPLAYS USING LA-11	06 N	Mar 76
DATA PREPARATION FOR SPARTA COMMANDS FAC AND FCC	07 N	Apr 76
SPARTA CORRECTIONS FOR POINT-PLOT DISPLAY	08 M	Apr 76
ADDING COMMANDS TO SPARTA	09 M	May 76
CORRECTION FOR THE DPV COMMAND WITH POINT PLOT DISPLAY	10 M	Jun 76
GENERAL SUBROUTINE MODULE FOR EAE	11 O	Jun 76
INCORRECT PHASE ANGLE CALCULATION	12 M	Oct 76
"MOU" AND "MIN" COMMANDS CAN BE READ OUT AND IN CORRECTLY	13 N	Jan 77
MULTIPLE SYNCH PULSES	14 M	Jan 77
AUTO AND CROSS CORRELATION	15 M	Jan 77
ALLOCATING MORE THAN 16K BUFFERS IN SPARTA	16 M	Feb 77
A/D SAMPLING: FAST MODE	17 M	Jul 77
A/D SAMPLING: FAST MODE EXIT	19 M	Mar 78
SCALE FACTOR PRINT FOR THE FFT	20 M	Jan 79
<b>SWEEP.MAC</b>		
SWEEP SAMPLING: FAST MODE	01 M	Aug 77
<b>THRU</b>		
HOW TO START DATA ACQUISITION WHEN CSTART EQUALS ZERO	01 N	Jun 76
MULTICHANNEL SINGLE RATE SCHMIT TRIGGER SWITCH BOUNCE	02 M	Dec 76
CONTINUOUS SAMPLING: CONDITIONAL ASSEMBLY ERRORS	03 M	Jul 77
CONTINUOUS SAMPLING: DMA WITH DUAL SAMPLE + HOLD	04 M	Jul 77
DOCUMENTATION CORRECTIONS	05 M	Nov 77
<b>LSP-11 V1</b>		
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
<b>LV11/RT-11 PLOTTING PACKAGE V2</b>		
SUBROUTINE PLOT DOES NOT CORRECTLY REPRODUCE VT11 PICTURE	01 M	Apr 78
<b>MSB-11 V1.0</b>		
MSB-11 SOFTWARE ON THE PDP-11/03	01 M	Jul 79
<b>MU BASIC/RT-11 V1</b>		
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
<b>MU BASIC/RT-11 SYSTEM INSTALLATION GUIDE</b>		
REPLACEMENT PAGES	01	Jan 77
REPLACEMENT PAGES	02 N	Jan 78
REPLACEMENT PAGES	03 N	Jan 78

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
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.BOO, MUCNF1.BOO, MUCNF2.BOO	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.BOO - 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.BOO'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

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

"MREPR" AND "REPR" GET CONFUSED	01 M	Aug 78
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<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
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

<b>DOCUMENTATION</b>		
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
<b>EDIT</b>		
EDIT DOES NOT OPERATE CORRECTLY UNDER XM MONITOR	01 M	Mar 78
<b>MACRO</b>		
.NARG FAILS WHEN AUTOMATIC LABEL GENERATION IS USED	01 M	Apr 78
<b>MISCELLANEOUS</b>		
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
<b>MONITOR</b>		
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

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
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
<b>SOURCES</b>		
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
<b>SYSTEM HANDLERS</b>		
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
<b>UTILITIES</b>		
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 CUASE 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
<b>RT-11 V3B</b>		
<b>DOCUMENTATION</b>		
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
<b>MISCELLANEOUS</b>		
ERRORS IN THE SYSGEN CONDITIONAL FILE	01 M	Jul 78
ERROS 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 R	Sep 79
ERROR IN MTIN AND MTOUT ROUTINES	07 M	Sep 79

<u>Component</u>	<u>Sequence</u>	<u>Mon/Yr</u>
<b>MONITOR</b>		
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	Aug 79
ABORT DURING COMPLETION CAUSES SYSTEM FAILURES	26 M	Aug 79
.ELRG CAN CAUSE THE SYSTEM TO CRASH	27 M	Sep 79
<b>SOURCES</b>		
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
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
<b>SYSTEM HANDLERS</b>		
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
<b>UTILITIES</b>		
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

Component

Sequence

Mon/Yr

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



# Software Product Description

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**PRODUCT NAME: PDT-11 2780/3780 Protocol Emulator, Version 1.0**

**SPD 12.26.0**

## **DESCRIPTION:**

The PDT-11 2780/3780 Protocol Emulator provides a PDT-11/130 or PDT-11/150 system with communications capabilities similar to IBM 2780 and 3780 remote batch terminals.

The Emulator runs as a background program under the RT-11, Version 03B Foreground/Background monitor with PDT-11 support. No other programs may be run concurrently. The Emulator accepts commands interactively or from indirect command files with special operator commands provided for operation in unattended environments. The Emulator supports operation of a single full- or half-duplex synchronous line at transmission speeds up to 4800 bits per second. Support for automatic answer to incoming calls is also available for use with modem packages providing this capability.

The communications discipline implemented by the PDT-11 2780/3780 is a subset of IBM's Binary Synchronous Communications protocol (BSC) using the EBCDIC transmission code. Horizontal format control records can be received and processed. A subset of vertical format control escape sequences is supported, specifically single, double, and triple space, form feed, and space suppress. Any disk or tape device supported by RT-11 Version 03B for the PDT-11/130 or the PDT-11/150 can be used as a source of transmission files. Both fixed length (80 character card image) and variable length (up to 132 characters) record formats are supported with records transmitted as ASCII (automatically translated to EBCDIC) or binary data. BSC control characters are automatically added to data before transmission. Any device (except optional cluster terminals) supported by RT-11 Version 03B for the PDT-11/130 or the PDT-11/150 can be used to receive files. Records up to 132 characters in length plus a two character escape sequence can be received.

The following 2780/3780 remote batch terminal features are supported:

- 2780 multiple record transmission option
- BSC transparency
- 3780 space compression
- Variable horizontal forms control

## **MINIMUM HARDWARE REQUIRED:**

PDT-11/150 with dual floppies and 32K bytes of memory or a PDT-11/130 with dual TU58s and 32K bytes of memory. If the PDT is also to be used to generate the 2780/3780, then 60K bytes are required.

A PDP-11 System with 32K bytes of memory running RT-11 Version 03B with PDT Compatible media for generating the PDT-11 2780/3780, if the 2780/3780 is not to be generated on the run-time PDT.

## **OPTIONAL HARDWARE:**

Any printer device supported by RT-11, Version 03B for the PDT-11/130 or PDT-11/150 operating at speeds not exceeding 1200 baud.

## **PREREQUISITE SOFTWARE:**

RT-11 Version 03B operating system with PDT-11 support running on the PDT-11/130 or PDT-11/150

RT-11 Version 03B operating system running on a PDP-11 for generation of the PDT-11 2780/3780.

## **OPTIONAL SOFTWARE:**

None

## **TRAINING CREDITS:**

None

## **SUPPORT CATEGORY:**

A — Software Support will be provided as stated in the Software Support Categories Addendum to this SPD.

## **CUSTOMER RESPONSIBILITIES:**

Before installation of the software, the customer must:

- Previously have installed all requisite hardware including terminals.
- Obtain, install, and demonstrate as operational any modems and other equipment and facilities necessary to interface to DIGITAL's communication equipment.
- Demonstrate equivalency of operation for modems other than Bell 201 and 208, or in Europe, PTT approved synchronous modems.
- Provide a relevant file or job that can be submitted to the remote system to facilitate installation verification of the software.

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- Make available for a reasonable period of time, as mutually agreed by DIGITAL and the customer, all hardware, communication facilities terminals, and relevant remote system personnel that are to be used during installation.
- DIGITAL has designed this software according to the specifications for IBM 2780 and 3780 data transmission terminals as defined in IBM documents GA27-3005-3, and GA27-3063-3 respectively.
- Customer accepts responsibility for proper operation of equipment or software not provided by DIGITAL and conformance of such equipment or software to the IBM specifications cited above.

The following is an example of a specific configuration against which the software has been tested:

IBM OS/VS2-HASP

Since the introduction of this product other configurations may have been tested. Please contact your local DIGITAL office for up-to-date information.

#### **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. When a software license is ordered without support services, the category of support applicable to such software is Category C.

A single-use license only option is a license to copy the software previously obtained under license, and use such software in accordance with DIGITAL's Standard Terms and Conditions of Sale. The category of support applicable to such copied software is Category C.

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 (G, R, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJV41-AY = binaries on RX01 floppy diskette.

G = TU58 DECTape II cartridge  
 R = Microfiche  
 Y = RX01 Floppy diskette  
 Z = No hardware dependency

QJV41 -A— Single-use license, binaries, documentation, support services (media: G, Y)

QJV41 -C— Single-use license, binaries, documentation, no support services (media: G, Y)

QJV41 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

#### *Source/Listing Options*

QJV41 -E— All sources (media: G, Y)

QJV41 -F— Listings (media: R)

#### *Miscellaneous Options*

QJV41 -G— Documentation only kit (media: Z)

#### **ADDITIONAL SERVICES:**

None



# Software Product Description

**PRODUCT NAME: RT-11/FORTRAN Upgrade Package for MINC-11,**  
Version 1.0

**SPD 15.49.1**

**DESCRIPTION:**

The RT-11/FORTRAN Upgrade Package for MINC-11 is a complete FORTRAN systems software package.

It consists of three standard software kits:

- RT-11, Single-User Operating System, Version 03B
- FORTRAN-IV, Version 2.1
- FEP-11, FORTRAN Enhancement Package,

The FEP-11 kit consists of six components:

- SSP-11 — Scientific Subroutine Package
- LSP-11 — Laboratory Subroutine Package
- FDT — FORTRAN Debugging Technique
- PLOT 55 — Video graphics control subroutine
- IBV11-A support library for the control of IEEE-488 bus instruments
- Real-Time control library for MNC-series modules (REAL-11/MNC)

**MINIMUM HARDWARE REQUIRED:**

MNC11-B or MNC11-C

**OPTIONAL HARDWARE:**

- 60K Bytes
- Any disks supported by RT-11, Version 03B
- Any line printer supported by RT-11 Version 03B or MINC/BASIC

*Terminals*

- Any terminal type supported by RT-11 Version 03B or MINC/BASIC

*Communication Device*

- Any Q-Bus devices supported by RT-11 Version 03B

MODULE	DESCRIPTION	MAXIMUM NUMBER
MNCKW	Programmable real-time clock	2
MNCAD	A/D converter	4
MNCAM	dual multiplexer	7 per MNCAD
MNCAG	preamplifier	2 per MNCAM 1 per MNCAD
MNCAA	D/A converter	8
MNCDI	digital input	8
MNCDO	digital output	8

**NOTE:**

The maximum number of MNC-series modules in use at any one time is eight.

*Miscellaneous:*

Seven additional IBV11-A options (subject to slot availability)

**PREREQUISITE SOFTWARE:**

MINC/BASIC, Version 1 (for support of the LA35 line printer)

**OPTIONAL SOFTWARE:**

Any software which utilizes the RT-11 Version 03B Operating System.

**TRAINING CREDITS:**

None

This is a complete FORTRAN software package and consists of three standard software kits but the Training Credits for RT-11/FORTRAN Upgrade Package for MINC-11 are determined solely by this SPD.

**SUPPORT CATEGORY:**

A — Software Support will be provided as stated in the Software Support Categories Addendum to 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. When a software license is ordered without support services, the category of support applicable to such software is Category C.

A single-use license only option is a license to copy the software previously obtained under license, and use such software in accordance with DIGITAL's

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Standard Terms and Conditions of Sale. The category of support applicable to such copied software is Category C.

The following option is available as an upgrade kit from MINC/BASIC Version 1

QJV32 -A— Single-use license, binaries, documentation, support service (media: X)

QJV32 -C— Single-use license, binaries, documentation, no support services (media: X)

QJV32 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

*Miscellaneous Options:*

QJV32 -G— Documentation only kit (media: Z)

**ADDITIONAL SERVICES:**

None

# The Digital Equipment Computer Users Society



DECUS, the Digital Equipment Computer Users Society, was established in March of 1961 to advance the effective use of DIGITAL computers. It is a voluntary, 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.

## ACTIVITIES

### 1. SYMPOSIA

Symposia are held throughout the year in each of the DECUS Chapters. These meetings provide a forum for users of DIGITAL computers to meet with other users and with DIGITAL management, engineers, and Software Services and Field Service representatives. They are an opportunity for users to participate in DIGITAL Product Workshops and Product Planning feedback sessions. The technical papers and presentations from each symposium are published as DECUS Proceedings after each meeting and provide a permanent record of the meetings activities.

### 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 and have no geographical limitations. Specializations may be 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, and its organization must meet the guidelines of the Chapter Executive Board.

Examples of active SIGs are users of RSX-11, RSTS, RT-11 users, business system users, etc. For additional information, contact your Chapter Executive Secretary.

One of the most successful subgroupings are Local Users Groups (LUGs). There are numerous active LUGs in Australia, Canada, Europe, and the U.S. Local User Groups are basically geographic in nature; however, they may be geographic and specific as well.

The largest Special User Group is composed of users of the DECsystem-10 and DECsystem-20.

### 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.

DECUS (continued)

Library catalogs, updated periodically, contain descriptive abstracts and ordering information.

Information and forms for submitting programs to the Library may be obtained from local DECUS offices.

Programs are available to all members on a request basis. Orders for programs are made on DECUS Library Order Forms and directed to the local DECUS Chapter office. Information on the nominal service charge applied to most programs is published in the Library Catalogs.

As of January 1979, the Library contained approximately 1500 active software packages.

## MEMBERSHIP

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

### INSTALLATION

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

On acceptance of the application for membership, literature covering numerous DECUS services is sent to the Installation Delegate for reference and aid in maintaining active participation in the Society.

### ASSOCIATE

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

Like Installation Members, Associate Members receive DECUSCOPE, the Society's quarterly newsletter, automatically. They may receive other DECUS material on request. Written application indicating desire to join must be submitted to the appropriate Chapter Executive Secretary for approval by the Chapter Executive Board.

On acceptance of the application for membership, literature covering the numerous DECUS services is sent to the member for reference and to enable active participation in the Society.

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

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February 1979

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DECUS OFFICES			
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## 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
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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

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### SPR Center

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