Software Performance Summary

RT-11 V2B

NOVEMBER 1975

DEC-11-XSPSA-D-D

digital

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DEC-11-XSPSA-D-D

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*Article contains a Patch.
†Article is a replacement.

RT-11 Software Performance Summary

	Sequence
FORTRAN/RT-11	
Clarification: Interfacing Assembly Language Routines to FORTRAN	1
Clarification: Procedure for Applying Patches to the FORTRAN/RT-11 Object Time System	2*
COMMON/EQUIVALENCE Error Causes Extra Large COMMONS	3*
CABS Typed as COMPLEX*8 Rather Than REAL*4	4*
DIMENSION Restriction	5*
END Statement Label Restriction	6
Compiler Does Not Detect Illegal Unary Operators	7*
Compiler Fails to Detect Missing Delimeters	8*
Sequence of Common Expressions Results in Bad Code	9*
FIND Statement Can Cause a Trap through 4	10*
Compiler Generates Incorrect Optimized Code	11*
MANUALS	
BASIC-11 LANGUAGE MANUAL	
STOP Statement Closes Files	1
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NOTE
Missing sequences are for obsoleted articles.

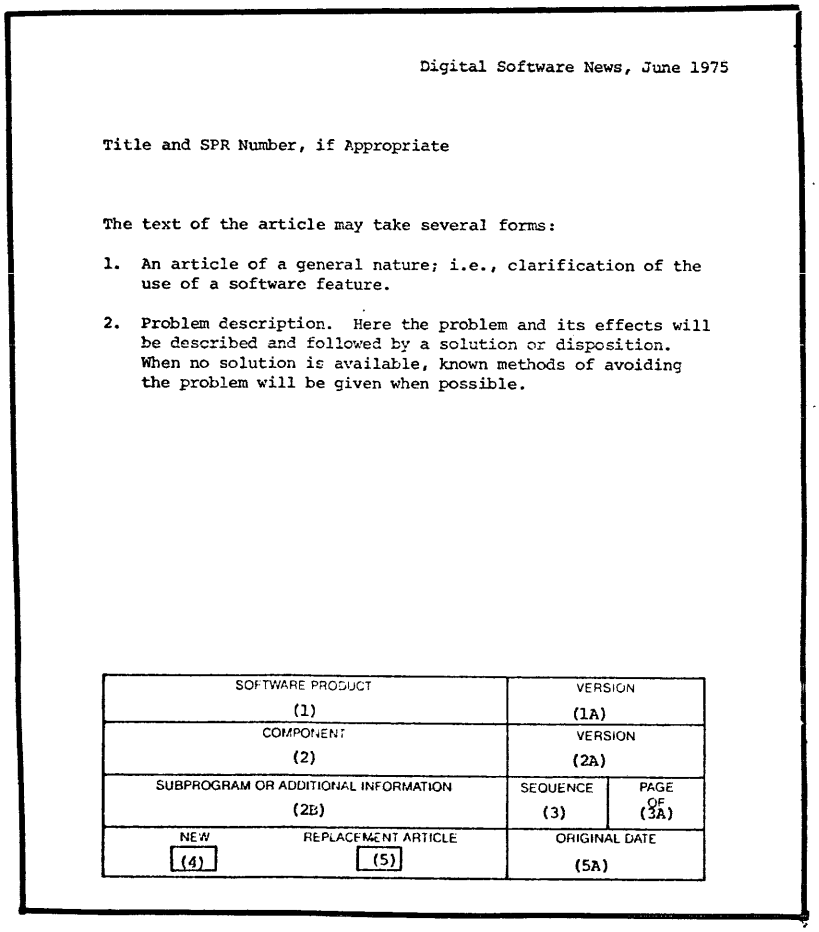
*Article contains a Patch.
†Article is a replacement.

1.0 INTRODUCTION

The Software Performance Summary is a compendium of information which provides a customer with a maintenance notebook on current software documentation and the status of known software problems. The notebook is supplemented with articles in the monthly Digital Software News which should be filed in the appropriate sections of the Software Performance Summary.

2.0 GENERAL FORMAT OF THE ARTICLES

Each article is formatted so that the subject is easily recognized. Figure 1 shows an overall example of the format.



Digital Software News, June 1975

Title and SPR Number, if Appropriate

The text of the article may take several forms:

1. An article of a general nature; i.e., clarification of the use of a software feature.

2. Problem description. Here the problem and its effects will be described and followed by a solution or disposition. When no solution is available, known methods of avoiding the problem will be given when possible.

SOFTWARE PRODUCT (1)		VERSION (1A)	
COMPONENT (2)		VERSION (2A)	
SUBPROGRAM OR ADDITIONAL INFORMATION (2B)		SEQUENCE (3)	PAGE OF (3A)
NEW (4)	REPLACEMENT ARTICLE (5)	ORIGINAL DATE (5A)	

Figure 1. Article format.

2.1 Filing

This introductory material should be filed at the beginning of the notebook.

A system has been devised to help you file each article in its proper place. The key is Figure 2 below.

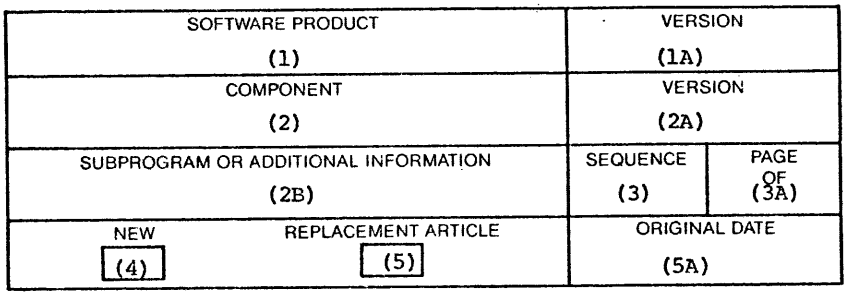


Figure 2. Coding block.

Each month the Digital Software News should be taken apart and inserted into the pages in your notebook.

First, the articles are classified by software product (1). All articles should be filed under the appropriate major heading.

Secondly, the software product is broken down by its components (2). See section 2.3 for the list of software components.

Finally, the article is referenced by sequence number (3). As an article is added to each component, it is assigned the next higher sequence number.

Additional information in the coding block is presented to further clarify the article and is not specifically for filing:

(1A) Version of the software product.

(2A) Version number of the component.

(2B) Other information helpful to the user.

(3A) Page number and pages in the article.

(4) An "X" in this block indicates a new article.

(5) A number in this block indicates an article republished for revision or correction and specifies the number of the revision. For example, the second revision of an article which originally appeared in June 1974 is shown in Figure 3.

(5A) Original date of a revised article.

NEW	REPLACEMENT ARTICLE	ORIGINAL DATE
	2	June 1974

Figure 3. Coding block showing the second revision.

2.2 System Products and Components

RT-11	ASEMBL	VS02-10
	BATCH	V01-02
	CBUILD	V01-01
	CREF	V01-03
	DUMP	None
	EDIT	V02-10
	EXPAND	V02-02
	FILEX	V02-01
	LIBR	V03-01
	LINK	V04-02
	MACRO	VM02-10
	ODT	V01-01
	PATCH	V01-02
	PATCHO	V01-03
	PIP	V03-04
	SRCCOM	V01-02
	SYSLIB	V5
BASIC/RT-11	None	V01B-01
FOCAL/RT-11	None	V01
FORTRAN/RT-11	None	V01B-08
GAMMA-11		
LA-11	SPARTA	
	Modules	TTYR11
		QA
		OUTF
		FFT
		ADSAM
		GTDISP
		GENS
		VRDISP
	Other sources to generate SPARTA	
LV-11 Plot Package		
MU BASIC/RT-11		
SSP-11/RT-11		

2.3 System Documentation

System Reference Manual	DEC-11-ORUGA-C-D
System Reference Card	DEC-11-ORRCA-C-D
Software Support Manual	DEC-11-ORPGA-B-D
Getting Started with RT-11	DEC-11-ORCPA-E-D
BASIC/RT-11 Language Reference Manual	DEC-11-LBACA-D-D, DN2
Getting Started with BASIC/RT-11	DEC-11-LBCLA-C-D
FOCAL-11 Manual	DEC-11-LFOCA-E-D, DN1
Getting Started with RT-11 FORTRAN	DEC-11-LFGOA-B-D
PDP-11 FORTRAN Language Reference Manual	DEC-11-LFLRA-B-D
RT-11 FORTRAN Compiler and OTS Manual	DEC-11-LRFPA-A-D, DN2
FORTRAN/RT-11 Extensions Manual	DEC-11-LRTEA-B-D
GAMMA-11 Reference Manual	DEC-11-MGFBA-A-D
GAMMA-11 Reference Card	DEC-11-MGCSA-A-D
Laboratory Applications User's Manual	DEC-11-ALRMA-B-D, DN1
SPARTA Reference Card	DEC-11-ALRCA-B-D
LV-11 Plotting Package BASIC/RT-11 Manual	DEC-11-LBACA-D-DN1
BASIC-11 Language Reference Manual	DEC-11-LIBBA-B-D
MU BASIC/RT-11 User's Manual	DEC-11-LIBRA-A-D
MU BASIC System Installation Guide	DEC-11-LIBMA-A-D
Scientific Subroutine Manual	DEC-11-ARSMA-A-D

3.0 SOFTWARE PERFORMANCE REPORTS

Each new installation is provided with Software Performance Report (SPR) forms. The SPR form enables users to suggest enhancements to or report problems with Digital Equipment Corporation software or documentation. When a problem is encountered, an SPR should be completed and mailed to the local SPR Center. (See inside back cover.)

Responses will be sent to the name and address appearing on the form. Additional SPR forms may be obtained by writing to the local SPR Center.

3.1 Software Performance Report Guidelines

Please fill out the SPR form completely. It is important that the machine configuration be included--the system device type, the amount of core in use, and all the peripherals on the machine. If your system has LPS, include all the options it contains (LPSKW, LPSAM-SG, SPSAD-NP, etc.). The name and version number of the operating system and the program in use, if any, is absolutely essential.

An adequate and clear description of the problem is very important and will certainly speed the processing of the SPR. Some ways to supplement the description is to include the Teletype printout, pictures of the display if involved, actual copy of user programs that show the problems, if one is involved. The printout would ideally start from the system bootstrap and include the least number of commands or instructions that cause the problem.

Before submitting a Software Performance Report, the user should review the Digital Software News to ensure that the problem has not already been published.

4.0 RT-11 SYSTEM PATCHES

Before including the patches found in the Software Performance Summary, please consult Getting Started with RT-11 V02B (DEC-11-ORCPA-E-D). Chapter 5 contains additional patches which should be installed in the system and articles describing restrictions and operational procedures.

Toggling the Cassette Boot (SPR 11D-1078)

Page 3-26 of Getting Started With RT-11 (DEC-11-ORCPA-E-D) contains an error. Location ØØ1Ø14 should read as follows:

ØØ1Ø14	Ø127Ø2	Set switches 12, 1Ø, 8, 7, 6 and 1 to the UP (1) position and all others to the DOWN (Ø) position.

SOFTWARE PRODUCT	VERSION
RT-11	V02-01
COMPONENT: BOOTSTRAP	VERSION:
SUBPROGRAM OR ADDITIONAL INFORMATION: Getting Started With RT-11 DEC-11-ORCPA-E-D	SEQUENCE: 1 / PAGE OF: 1 1
NEW: X / REPLACEMENT ARTICLE:	ORIGINAL DATE: October 1975

Changing DUMP Default Output Device (RT-11 V02B-05) (SPR 11-4967)

PROBLEM:

The DUMP utility program uses LP as its default output device. Many systems do not have a line printer and would like to use another device as the default output device.

DISPOSITION:

The following patch will change the default device to TT. Other devices may be used by substituting the appropriate .RAD50 and .ASCII codes for the device name in place of the code for TT.

```
.R PATCH

PATCH V01-02

FILE NAME--
*DUMP.SAV
*2626/          46600          100040 <CR> (.RAD50 'TT')
*2521\          114            124    <CR> (.ASCII 'T')
2522\           120            124    <CR> (.ASCII 'T')
*E
```

SOFTWARE PRODUCT	VERSION
RT-11	V02B-05
COMPONENT	VERSION
DUMP	V02-01
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 1 | PAGE OF 1 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE October 1975

Line Truncation - CRT (SPR 11-4847 and SPR 11-4213)

PROBLEM:

The display buffer used by EDIT in displaying text on the VT11 scope is fixed in size (currently 768 characters). Occasionally, when displaying many long lines, the cursor will disappear.

DISPOSITION:

NOTE: The patch works only with the V02-10 EDITOR available with the V02B release of RT-11.

The problem is caused by the text buffer filling before the cursor position is reached. One solution is to reduce the number of lines displayed. (See Getting Started with RT-11 V02B, DEC-11-ORCPA-E-D, pages 5-9, for instructions on reducing the line count.) Another solution is to increase the text buffer size. The following procedure will increase the buffer size, but it is an involved operation.

1. Decide on the increase in buffer size that is desired. This actual example will increase the buffer by 600_8 characters (384_{10}).

2. Make a copy of the file EDIT.SAV to which the patch will be applied. This leaves EDIT.SAV intact as a backup in case a mistake is made. In this example, the file is called EDIT.TMP. After the copy is created, the file size must be increased to accommodate the additional buffer size. The example adds 600 bytes to the buffer so an additional block of 1000 bytes is sufficient. The file size was originally 18 blocks, so an extension to 19 blocks is requested with the PIP /T switch.

SOFTWARE PRODUCT	VERSION
RT-11	V02B-05
COMPONENT EDIT	VERSION V02-10
SUBPROGRAM OR ADDITIONAL INFORMATION Getting Started with RT-11 V02B DEC-11-ORCPA-E-D	SEQUENCE 1 | PAGE 1 OF 3
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE October 1975

Line Truncation - CRT

```
.R PIP
*EDIT.SAV/L
3-JUL-75
EDIT  .SAV      18  11-APR-75
11Ø1 FREE BLOCKS
*EDIT.TMP=EDIT.SAV/X
*EDIT.TMP [19] =/T
*EDIT.TMP/L
3-JUL-75
EDIT .TMP       19  3-JUL-75
1Ø82 FREE BLOCKS
*↑C
```

3. The increased file size must now be reflected in location 50 (program high limit) of EDIT.TMP so that PATCH will work. The contents of location 50 are examined with PATCH, the quantity 600 is added (the amount of additional buffer) and the file is closed.

```
.R PATCH
PATCH VØ1-Ø2
FILE NAME--
*EDIT.TMP
*50/            217ØØ     225ØØ     <CR>
*E
```

4. Now the file EDIT.TMP can be re-opened for the final patching procedure, which consists of two parts. In part A, the contents of various locations in the range 230 to 13756 are examined and increased (by adding 600, the added buffer size) to reflect the new high limit of the program.

   In part B, the display buffer termination code is moved to the new end of the buffer. The address to insert the display code

SOFTWARE PRODUCT	VERSION
RT-11	V02B-05
COMPONENT EDIT	VERSION V02-10
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE: 1 / PAGE: 2 OF 3
NEW: X / REPLACEMENT ARTICLE:	ORIGINAL DATE October 1975

Line Truncation - CRT

is determined by adding the buffer increment to the value 17266. In this example, 600 is added to 17266 to get the new buffer termination address, 20066. The contents of 20066-20110 is irrelevant.

```
        .R PATCH

        PATCH V01-02

        FILE NAME--
        *EDIT.TMP
        *2366;0R
        *0,2300/        21700    22500   <CR>
        *0,7010/        21700    22500   <CR>
        *0,13064/       22700    23500   <CR>
A       *0,13550/       21662    22462   <CR>
        *0,13574/       21660    22460   <CR>
        *0,13716/       21654    22454   <CR>
        *0,13756/       21651    22451   <CR>
        *0,20066/       xxxxx    173400  <LF>
        0,20070/        xxxxx    0       <LF>
        0,20072/        xxxxx    10763   <LF>
        0,20074/        xxxxx    40015   <LF>
        0,20076/        xxxxx    115     <LF>
B       0,20100/        xxxxx    43200   <LF>
        0,20102/        xxxxx    23200   <LF>
        0,20104/        xxxxx    103020  <LF>
        0,20106/        xxxxx    173400  <LF>
        0,20110/        xxxx     0       <CR>
        *E
```

5. The new editor is now ready for testing. It is suggested that the original EDIT.SAV be kept for backup and for use in small partitions where the extended editor may not fit.

SOFTWARE PRODUCT	VERSION
RT-11	V02B-05
COMPONENT	VERSION
EDIT	V02-10
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 1 / PAGE 3 OF 3
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE October 1975

.Assign Command Does Not Work

DESCRIPTION:

The .ASS :udev construction does not work in the V2B monitors.

SOLUTION:

These patches correct the problem.

S/J Monitor: .R PATCH DK0 can not be writ protect

```
PATCH VØ1-Ø2

FILE NAME--
*MONITR.SYS/M
*17ØØØ;ØR
*Ø,26562/       1Ø4ØØ   46Ø     <CR>
*Ø,26724/       xxxxxx   1737   <LF>
Ø,26726/        xxxxxx   1Ø4ØØ  <LF>
Ø,2673Ø/        xxxxxx   715    <CR>
*324\           Ø        1Ø1    <CR>
*E
.R PIP
*A=MONITR.SYS/U
*SY:/O
```

The new version will be SJ VØ2B-Ø5A.

SOFTWARE PRODUCT	VERSION
RT-11	VØ2B-Ø5
COMPONENT MONITOR	VERSION SJ VØ2B-Ø5
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 1 / PAGE OF 1 2
NEW [ ] REPLACEMENT ARTICLE [1]	ORIGINAL DATE September 1975

F/B Monitor: R PATCH

```
PATCH VØ1-Ø2

FILE NAME--
*MONITR.SYS/M
*2ØØØØ;ØR
*Ø,37572/        1Ø4ØØ   46Ø     <CR>
*Ø,37734/        xxxxxx  1737    <LF>
Ø,37736/         xxxxxx  1Ø4ØØ   <LF>
Ø,3774Ø/         xxxxxx  715     <CR>
*324\            1Ø4     1Ø5     <CR>
*E
.R PIP
*A=MONITR.SYS/U
*SY:/O
```

The new version will be FB VØ2B-Ø5E.

SOFTWARE PRODUCT	VERSION
RT-11	VØ2B-Ø5
COMPONENT	VERSION
MONITOR	FB VØ2B-Ø5D
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE: 1 / PAGE: 2 OF 2
NEW: [ ] REPLACEMENT ARTICLE: [1]	ORIGINAL DATE: September 1975

.CDFN Error

PROBLEM:

The .CDFN request is incorrectly documented in RT-11 System Reference Manual, DEC-11-ORUGA-C-D, p.9-26, E-2 as permitting up to 256 (decimal) channels to be defined. The correct maximum is 255 (decimal) channels (numbered Ø-254 decimal, Ø-376 octal). If an attempt is made to define 256 channels, no error is reported, but the channels are unusable.

SOLUTION:

The following PATCH will correct the S/J monitor to return error code Ø if an attempt is made to define more than 255 channels.

No patch is available for the F/B monitor which will be corrected in a future release.

```
.R PATCH

PATCH V01-02

FILE NAME--
*MONITR.SYS/M
*17ØØØ;ØR
*Ø,651Ø              2Ø215     12Ø215     <CR>
*Ø,17Ø22/            1Ø1Ø77    1Ø3Ø77     <CR>
*324\                1Ø1       1Ø2        <CR>
*E
.R PIP
*A=MONITR.SYS/U
*SY:/O
```

The new monitor version will be SJ V02B-05B.

SOFTWARE PRODUCT	VERSION
RT-11	V02B-05
COMPONENT MONITOR	VERSION SJ V02B-05A
SUBPROGRAM OR ADDITIONAL INFORMATION RT-11 System Reference Manual DEC-11-ORUGA-C-D	SEQUENCE 2 / PAGE OF 1 1
NEW ☐ REPLACEMENT ARTICLE ☐1	ORIGINAL DATE October 1975

CTRL/C Hangs System

PROBLEM:

After a double CTRL/C abort of a program, the CLOSE command will hang the system if a channel was open on magtape or cassette.

SOLUTION for RT-11 MONITOR VØ2B-Ø5:

The problem occurs when the MT or CT handler is .FETCHed by the aborted program. This patch prevents a system crash.

S/J Monitor:

```
.R PATCH

PATCH VØ2-Ø1

FILE NAME--.
*MONITR.SYS/M
*17ØØØ;ØR
*Ø,11412          1Ø2Ø     24Ø      <CR>
*324\             1Ø2      1Ø3      <CR>
*E
.R PIP
*A=MONITR.SYS/U
*SY:/O
```

The new version will be SJ VØ2B-Ø5C.

F/B Monitor:

```
.R PATCH

PATCH VØ1-Ø2

FILE NAME--
*MONITR.SYS/M
*2ØØØØ;ØR
*Ø,12376/         1Ø2Ø     24Ø      <CR>
*324\             1Ø5      1Ø6      <CR>
```

SOFTWARE PRODUCT	VERSION
RT-11	VØ2B-Ø5
COMPONENT MONITOR	VERSION SJ VØ2B-Ø5B FB VØ2B-Ø5E
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 3 | PAGE 1 OF 2
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE September 1975

CTRL/C Hangs System

```
*E
.R PIP
*A=MONITR.SYS/U
*SY:/O
```

The new version will be FB VØ2B-Ø5F.

In both cases, the bootstrap should be rewritten to update the version number:

```
.R PIP
*A=MONITR.SYS/U
*
```

NOTE: This patch prevents monitor failure in the situation described. An error message will result, and the channel open on MT or CT and all subsequent channels will not be closed. To prevent this, it is necessary to LOAD the MT or CT handler before running a program which may be aborted.

SOFTWARE PRODUCT	VERSION
RT-11	VØ2B-Ø5
COMPONENT	VERSION
MONITOR	SJ VØ2B-Ø5B FB VØ2B-Ø5E
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 3 / PAGE 2 OF 2
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE September 1975

DATE Command Crashes System

PROBLEM:

If a date has not been entered and the clock passes midnight, a subsequent DATE command without an argument may cause the system to crash.

SOLUTION:

This patch applies only to the F/B monitor, since the S/J monitor does not do date rollover.

```
.R PATCH

PATCH VØ1-Ø2

FILE NAME--
*MONITR.SYS/M
*2ØØØØ;ØR
*Ø,3611Ø/        16ØØ2   167      <LF>
Ø,36112/         262     1626     <CR>
*Ø,37742/        xxxxxx  16ØØ2    <LF>
Ø,37744/         xxxxxx  262      <LF>
Ø,37746/         xxxxxx  327Ø2    <LF>
Ø,3775Ø/         xxxxxx  37       <LF>
Ø,37752/         xxxxxx  167      <LF>
Ø,37754/         xxxxxx  176136   <CR>
*324\            1Ø6     1Ø7
*E
. R PIP
*A=MONITR.SYS/U
*SY:/O
```

The new monitor version will be FB VØ2B-Ø5G.

SOFTWARE PRODUCT	VERSION
RT-11	VØ2B-Ø5
COMPONENT MONITOR	VERSION FB VØ2B-Ø5F
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 4 | PAGE 1 OF 1
NEW ☐ REPLACEMENT ARTICLE 1	ORIGINAL DATE September 1975

RT-11 SJ V02B-05 Adjusting Scroller Line Width

PROBLEM:

The S/J scroller for the VT-11 display generates a CR/LF when the line width exceeds a pre-set count. This count is set to 72 characters but may be patched to allow larger lines when using the 17-inch screen.

SOLUTION:

The following patch permits the scroll line width to be changed. The number of characters designed in octal must be inserted in place of the default value of 11Ø octal (72 decimal). In the patch which follows, xxx is the new value.

```
.R PATCH

PATCH V01-02

FILE NAME--
*MONITOR.SYS/M
*17ØØØ;ØR
*Ø,3224Ø\        11Ø        xxx<CR>
*E
.R PIP
*A=MONITR.SYS/U
*SY:/O
```

The recommended maximum is 8Ø characters if all are to be visible. Be sure the jumper on the M7Ø14YA module is correctly installed for 85 characters per line.

SOFTWARE PRODUCT RT-11		VERSION V02B-05	
COMPONENT MONITOR		VERSION SJ V02B-05	
SUBPROGRAM OR ADDITIONAL INFORMATION		SEQUENCE 5	PAGE 1 OF 1
NEW [ ]	REPLACEMENT ARTICLE [1]	ORIGINAL DATE September 1975	

Magtape and Cassette End-of-File Detection

PROBLEM:

Since magtape and cassette are sequential devices, the handlers for these devices do not know in advance the number of blocks in a particular file and thus cannot know if a particular read request is attempting to read past the end of the file. User programs can use the following procedures to determine if these handlers have encountered end of file in either software or hardware mode.

SOLUTION:

Software Mode: If end of file is encountered, both handlers will set the end of file bit (bit 13) in the channel status word. The NEXT read attempted on that channel will return with the carry bit set and with the EMT error byte (absolute location 52) set to indicate an attempt to read past end of file. To avoid having magtape cassette files appear one block longer than they really are, user software should check the end of file bit in the channel status word after a magtape or cassette read completes. If the bit is set, it indicates that the read just completed encountered end of file.

The following example shows how to do this:

```
.MCALL  ..V2..,.REGDEF,.GTJB,.LOOKUP,.READW
.REGDEF
..V2..
CSWEOF=20000            ;END OF FILE BIT IN CHANNEL STATUS WORD
ERRWRD=52               ;EMT ERROR WORD
CHNL=1                  ;I/O CHANNEL #
   .
   .
   .
.GTJB   #LIST,#JOBARG   ;GET JOB PARAMETERS
   .
   .
.LOOKUP #AREA,#CHNL,#FILNAM ;LOOKUP MAGTAPE OR CASSETTE FILE
   .
   .
   .
```

SOFTWARE PRODUCT	VERSION
RT-11	V02B-05
COMPONENT MONITOR	VERSION V2B-05
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 6 | PAGE 1 OF 3
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE October 1975

Magtape and Cassette End-of-File Detection

```
        .READW  #AREA,#CHNL,#BUFF,#400,BLKNUM ;READ A BLOCK
        BCS     EMTERR          ;CHECK FOR ERROR
        MOV     JOBARG+6,R1     ;GET POINTER TO I/O CHANNEL SPACE
                                ;(CHANNEL SPACE IS 5 WORDS PER CHANNEL
                                ;BEGINNING WITH CHANNEL 0).
        BIT     #CSWEOF,CHNL+10.(R1) ;IS THE EOF BIT SET FOR THIS CHANNEL?
        BNE     EOF             ;IF NE - YES - EOF ENCOUNTERED ON THIS READ
           .
           .
           .
EOF:                            ;END OF FILE CODE
           .
           .
FILNAM: .RAD50  'MTOFILNAMEXT'  ;OR .RAD50 'CTOFILNAMEXT'
AREA:   .BLKW   10
LIST:   .BLKW   2
JOBARG: .BLKW   10              ;JOB PARAMETERS STORED HERE
```

Hardware Mode: In hardware mode, the cassette and magtape handlers do not report end of file as they do in software mode. The best way for user programs to determine if a magtape read encountered a tape mark, or a cassette read encountered a file gap is to check the device status registers after each hardware mode read is complete.

An example of this is as follows:

For magtape (TM11)

```
        MTS=172520              ;TM11 STATUS REGISTER
        MTC=MTS+2               ;TM11 COMMAND REGISTER
        MTSEOF=40000            ;EOF BIT IN MTS
        MTSEOT=2000             ;EOT BIT IN MTS
           .
           .
           .
        .READW  #AREA,#CHNL,#BUFF,#400,BLKNUM ;READ A BLOCK FROM MT
        BCS     EMTERR          ;CHECK ERRORS
        TST     @#MTC           ;ERROR BIT SET IN COMMAND REGISTER?
        BPL     NOERR           ;IF PL - NO
        BIT     #MTSEOF,@#MTS   ;YES - WAS IT EOF (TAPE MARK)?
        BNE     EOF             ;IF NE - YES - DO END OF FILE PROCESSING
           .
           .
           .
```

SOFTWARE PRODUCT	VERSION
RT-11	V02B-05
COMPONENT	VERSION
MONITOR	V02B-05
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 6 / PAGE 2 OF 3
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE October 1975

Magtape and Cassette End-of-File Detection

```
EOF:                                    ;MT EOF Encountered
            .
            .
            .
```

For cassette

```
        TACS=177500             ;TA11 CONTROL AND STATUS REGISTER
        TAEOF=4000              ;EOF BIT IN TACS
        TAEOT=20000             ;EOT BIT IN TACS
           .
           .
           .
        .READW  #AREA,#CHNL,#BUFF,#400,BLKNUM ;READ FROM CT
        BCS     EMTERR          ;TEST ERRORS
        TST     @#TACS          ;ERROR BIT SET IN TACS?
        BPL     NOERR           ;IF PL - NO
        BIT     #TAEOF,@#TACS   ;YES - WAS IT END OF FILE?
        BNE     EOF             ;IF NE - YES
           .
           .
           .
EOF:                            ;CASSETTE END OF FILE ENCOUNTERED
           .
           .
```

If desired, both the EOF and EOT bits could be checked:

```
        BIT     #MTSEOF+MTSEOT,@#MTS ;MT EOF OR EOT?
```

OR

```
        BIT     #TAEOF+TAEOT,@#TACS ;CT EOF OR EOT?
```

SOFTWARE PRODUCT	VERSION
RT-11	V02B-05
COMPONENT: MONITOR	VERSION: V2B -05
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE: 6 / PAGE: 3 OF 3
NEW: X / REPLACEMENT ARTICLE:	ORIGINAL DATE: October 1975

Incorrect Information in "Old" Contents of Patches

PROBLEM:

Some patches in Getting Started With RT-11 (V02B) (DEC-11-ORCPA-E-D) have "Old" contents that are incorrect and should be marked as irrelevant; i.e., they have variable contents.

SOLUTION:

Page	Patch	Addresses
5-21	BATCH	Ø,1646Ø-Ø,16470
5-22	.CSIGEN	Ø,1671Ø-Ø,16722
5-23	.FRUN	Ø,41632-Ø,4164Ø
5-24	.RELEASE	Ø,16724-Ø,1674Ø

SOFTWARE PRODUCT	VERSION
RT-11	V02B-05
COMPONENT	VERSION
MONITOR	V02B-05
SUBPROGRAM OR ADDITIONAL INFORMATION .Getting Started With RT-11 Manual DEC-11-ORCPA-D-D	SEQUENCE 7 / PAGE 1 OF 1
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE October 1975

File May be Destroyed When Using PATCHO

PROBLEM:

When using PATCHO to patch an OBJ file, the file can be destroyed if an error occurs during the use of PATCHO.

SOLUTION:

Before using PATCHO on a file, copy the file to a new name and patch the new file. When PATCHO is successfully exited with a patched file, rename the file via PIP.

SOFTWARE PRODUCT	VERSION
RT-11	VØ2B-Ø5
COMPONENT PATCHO	VERSION VØ1-Ø3
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 1 / PAGE 1 OF 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE September 1975

Low Speed Reader Support

The following RT-11 program allows the user to PIP a file from the low speed paper tape reader to a file-structured device.

First, use the editor to create the source file LSRPIP.MAC. Then, assemble and link the program as follows:

```
.R MACRO
*LSRPIP=LSRPIP
*↑C
.R LINK
*LSRPIP=LSRPIP
*↑C
.
```

Then, follow the operating instructions given on the following pages.

SOFTWARE PRODUCT	VERSION
RT-11	VØ2B-Ø5
COMPONENT	VERSION
SYSTEM INFORMATION	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE # 1 / PAGE 1 OF 4
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE April 1974

Low Speed Reader Support

```
;LSRPIP
;PROGRAM TO TRANSFER FILE FROM LOW SPEED PAPER
;TAPE READER TO RT-11 FILE NAMED IN COMMAND STRING.


;OPERATING INSTRUCTIONS

;CALL PROGRAM BY TYPING "R LSRPIP"
;RESPOND TO CSI "*" WITH NAME OF FILE TO
;BE CREATED, FOLLOWED BY AN "=" OR "<". LSRPIP
;WILL ASK YOU TO PREPARE THE TAPE,THEN STRIKE A
;KEY WHEN TAPE IS READY. TAPE WILL BE READ INTO
;THE FILE,AND AN "*" WILL APPEAR TO
;INDICATE READINESS FOR THE NEXT CYCLE.
;THE TAPE WILL PAUSE OCCASIONALLY DURING THE READ PROCESS,BUT THE
;OPERATION IS NOT COMPLETE UNTIL THE "*" FOR THE NEXT COMMAND IS
;PRINTED.

;THE KEYBOARD IS DISABLED DURING THE TAPE TRANSFER.
;TO ABORT AN UNDESIRED OPERATION,SET THE LOW SPEED READER CONTROL
;SWITCH TO "STOP", WHICH WILL TERMINATE THE READ AND RETURN WITH
;AN "*". A CTRL/C CAN THEN BE TYPED.

;ANY LEGAL OUTPUT FILE OR DEVICE MAY BE USED TO TRANSFER TO; AN
;ASCII TAPE MAY EVEN BE "LISTED" BY USING "TT:" AS THE OUTPUT FILE.

;SAMPLE USAGE:          .R LSRPIP<CR>
;                       *TAPE1,BIN=<CR>
;                       PLACE TAPE IN READER,SET SWITCH TO START,
;                       THEN STRIKE ANY KEY TO BEGIN TRANSFER.
;                       *TAPE2,BIN=<CR>
;                       PLACE TAPE.......(ETC)

;CREATE THE PROGRAM WITH EDIT,CALLING THE OUTPUT FILE LSRPIP.MAC
;ASSEMBLE IT WITH MACRO (*LSRPIP=LSRPIP),THEN LINK IT WITH LINK
;(*LSRPIP=LSRPIP). IT IS THEN READY TO GO.
```

SOFTWARE PRODUCT	VERSION
RT-11	VØ2B-Ø5
COMPONENT	VERSION
SYSTEM INFORMATION	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE # / PAGE 2 OF 4
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE: April 1974

Low Speed Reader Support

```
          R1=%1
          .MCALL  .TTYIN,.WRITW,.PRINT,.CSIGEN,.CLOSE, ..V1..
          ..V1..
START:    BIC     #10000,44       ;USE TELETYPE IN GENERAL MODE FOR CSI
          .CSIGEN #DEVSPC,#DEFEXT,#0      ;USE CSI TO GET AND OPEN
                                          ;OUTPUT FILE
          BIS     #10000,44       ;SET TELETYPE TO SPECIAL MODE FOR PROMPT
          .PRINT  #MSG            ;PRINT SETUP MESSAGE
          .TTYIN                  ;WAIT FOR HIS KEYBOARD STROKE
          CLR     BLOCK           ;NEW FILE=ZERO BLOCK NUMBER
BUFCLR:   MOV     #BUFFER,R1      ;POINT R1 TO BUFFER
CLRLP:    CLR     (R1)+           ;CLEAR THE BUFFER
          CMP     R1,#BUFEND      ;DONE?
          BLO     CLRLP           ;LOOP IF NOT
          MOV     #BUFFER,R1      ;YES=RESET R1 TO POINT TO BUFFER
TTINLP:   MOVB    #1,177560       ;DISABLE TTY INT,SET READER RUN
WAIT:     TSTB    177560          ;BYTE IN YET?
          BMI     BYTEIN          ;BRANCH IF YES
          INC     COUNT           ;NO=BUMP TIMEOUT COUNTER
          BNE     WAIT            ;IF TIMEOUT NOT ZERO,LOOP
          .WRITW  0,#BUFFER,#400,BLOCK    ;WE TIMED OUT=WRITE LAST BLOCK
          .CLOSE  0               ;CLOSE OUTPUT FILE
          MOV     #100,177560     ;RE=ENABLE KEYBOARD INTERRUPT
          BR      START           ;AND CYCLE

BYTEIN:   CLR     COUNT           ;RESET TIMEOUT COUNTER
          MOVB    177562,(R1)+    ;PUT BYTE IN BUFFER
          CMP     R1,#BUFEND      ;BUFFER FULL?
          BLO     TTINLP          ;GO GET NEXT BYTE IF NOT
          .WRITW 0,#BUFFER,#400,BLOCK     ;YES=WRITE IT OUT
          INC     BLOCK           ;BUMP BLOCK NUMBER
          BR      BUFCLR          ;AND ZERO BUFFER
```

SOFTWARE PRODUCT	VERSION
RT-11	VØ2B-Ø5
COMPONENT	VERSION
SYSTEM INFORMATION	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE # / PAGE 3 OF 4
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE: April 1974

Low Speed Reader Support

```
BUFFER: .=.+1000
BUFEND:
DEFEXT: 0
        0                       ;DEFAULT EXTENSION BLOCK FOR CSIGEN
COUNT:  0                       ;TIMEOUT COUNTER
BLOCK:  0                       ;FILE BLOCK NUMBER
MSG:    .ASCII  /PLACE TAPE IN READER,SET SWITCH TO START,/
        .BYTE   15,12
        .ASCIZ  /THEN STRIKE ANY KEY TO BEGIN TRANSFER,/
        .EVEN
DEVSPC:
        .END    START
```

SOFTWARE PRODUCT	VERSION
RT-11	VØ2B-Ø5
COMPONENT	VERSION
SYSTEM INFORMATION	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE # / PAGE 4 OF 4
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE: April 1974

FOR Command Without an Argument

PROBLEM:

Execution of the FOR command without an argument (i.e., FOR I = 1,100) within a scheduled routine (via FQUE) may leave FOCAL in a state which will halt the processor if execution of the program is attempted in a second time (via GO).

DISPOSITION:

Until a patch is published for this problem, ensure that a semicolon follows a FOR command without an argument.

SOFTWARE PRODUCT	VERSION
FOCAL/RT-11	V01
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 1 / PAGE 1 OF 1
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE October 1975

FQUE Function Does Not Free Up Storage

PROBLEM:

The FQUE function does not automatically free up its internal storage after completion of a request.

SOLUTION:

The following patch will alleviate this problem:

```
R PATCH0
*OPEN
ENTER INPUT  FILE PUBLIC.OBJ
ENTER OUTPUT FILE PUBLIC.OBJ
*WORD 0=5760
*WORD 2=2
*WORD 4=1002
*WORD 6=5060
*WORD 10=6
*WORD 12=12535
*WORD 14=205
*EXIT
ENTER CHECKSUM: 32741
```

```
R PATCH0
*OPEN
ENTER INPUT  FILE FOCAL2.OBJ
ENTER OUTPUT FILE FOCAL2.OBJ
*BYTE 174=276
*BYTE 175=211
*EXIT
ENTER CHECKSUM: 1530
```

SOFTWARE PRODUCT	VERSION
FOCAL/RT-11	V01
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE: 2 / PAGE: 1 OF 1
NEW: X / REPLACEMENT ARTICLE:	ORIGINAL DATE: October 1975

FQUE Function Disregards Priority

PROBLEM:

FQUE function disregards priority on requests with a delay of zero.

SOLUTION:

The following patch will correct this problem.

```
R PATCHO
*OPEN
ENTER INPUT FILE FOCAL2.OBJ
ENTER OUTPUT FILE FOCAL2.OBJ
*WORD 46Ø=24Ø
*EXIT
ENTER CHECKSUM: 2256
```

SOFTWARE PRODUCT	VERSION
FOCAL/RT-11	V01
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 3 / PAGE 1 OF 1
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE October 1975

Clarification: Interfacing Assembly Language Routines to FORTRAN (SPR 31-3461)

User-written assembly language routines which interface to the FORTRAN Object Time System must be aware of the location of the RT-11 USR (User Service Routines).

If a user routine requests a USR function (e.g., .LOOKUP, .ENTER), or if the USR is invoked by the FORTRAN Object Time System, the USR will be swapped into memory if it is nonresident. The FORTRAN object-time system is designed so that the USR may swap over it. User routines must be written to allow the USR to swap over them or must be located outside the region of memory into which the USR will swap.

User interrupt service routines and completion routines must be further restricted to be located where the USR will not swap, because of the asynchronous nature of these routines.

The USR (if in a swapping state) will always swap over the area of memory which starts at the program initial stack pointer address; the USR occupies 2K words. Interrupt and completion routines (and their data areas) must not be located in this area.

To remove these restrictions, the user must make the USR resident by either specifying the /U switch to the FORTRAN compiler or by issuing the RT-11 Version 2 console command SET USR NOSWAP before executing the program.

SOFTWARE PRODUCT	VERSION	
FORTRAN/RT-11	V Ø1B-Ø8	
COMPONENT	VERSION	
N/A	N/A	
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 1	PAGE 1 OF 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE	

Clarification: Procedure for Applying Patches to the FORTRAN/RT-11 Object Time System

Step 1. Make a backup copy of any object module which will be modified. For installations using any extended arithmetic support, it is suggested that the patches be made to OTS.OBJ and the OBJ which is going to be used (EIS.OBJ, FIS.OBJ, EAE.OBJ, FPU.OBJ).

```
.R PIP
*OTS.OLD/X=OTS.OBJ
```

This should also be done for any of the other OBJs which will be modified.

Step 2. Apply the patches as given using PATCHO. PATCHO can only modify an OBJ; it cannot modify a library file.

Step 3. When all patches have been made, the library must be recreated as described in Getting Started with RT-11 FORTRAN (DEC-11-LFGOA-A-D).

For RT-11 V2 users, the library should be updated with the V2 modules as described in Getting Started with RT-11 (DEC-11-ORCPA-D-D).

For RT-11 V2B users, the library should be recreated as described in Getting Started with RT-11 FORTRAN (revised) (DEC-11-LFGOA-B-D).

SOFTWARE PRODUCT	VERSION	
FORTRAN/RT-11	V Ø1B-Ø8	
COMPONENT	VERSION	
N/A	N/A	
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 2	PAGE 1 OF 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE	

COMMON/EQUIVALENCE Error Causes Extra Large COMMONS (SPR 11-5079)

PROBLEM:

An error in the COMMON/EQUIVALENCE processor in FORTRAN IV may cause too much storage to be allocated for some COMMON blocks.

SOLUTION:

The following patch corrects an error in the COMMON/EQUIVALENCE processor in the FORTRAN IV compiler. COMMON blocks containing INTEGER*4 variables and arrays, certain of whose elements are equivalenced, have been erroneously allocated too much storage.

In the following patch, underlined responses are typed by the user; <CR> represents the carriage return key; <LF> represents the line feed key. Before the patch is made, the user should verify that the current version number of his FORTRAN compiler is V01B-08A. If this is not so, previous patches may have been omitted.

```
.R PATCH
PATCH Vxx-yy
FILE NAME--
*FORTRA.SAV/O
*22Ø6;ØR
*1 :Ø,25Ø3\      1Ø1        1Ø2        <CR>
*4 :Ø,3364/      167Ø3      5726       <LF>
4 :Ø,3366/       174452     137Ø3      <LF>
4 :Ø,337Ø/       14Ø3       225Ø       <LF>
4 :Ø,3372/       1Ø3Ø1      1627       <LF>
4 :Ø,3374/       167        1Ø3Ø1      <LF>
4 :Ø,3376/       17732Ø     1Ø3Ø2      <LF>
4 :Ø,34ØØ/       5726       6Ø7        <CR>
*E
```

The resulting version of FORTRAN IV is V01B-08B.

SOFTWARE PRODUCT	VERSION
FORTRAN/RT-11	V01B-08A
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 3 / PAGE 1 OF 1
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE
	October 1975

CABS Typed as COMPLEX*8 Rather Than REAL*4

PROBLEM:

Usage of the CABS function may have caused unpredictable results or compiler errors due to the fact that the compiler typed it as COMPLEX*8 rather than REAL*4.

SOLUTION:

In the following patch, underlined responses are typed by the user; <CR> represents the carriage return key. Before this patch is made, the user should verify that the current version number of the FORTRAN compiler is V01B-08B. If this is not so, previous patches may have been omitted.

```
.R PATCH
PATCH Vxx-77
FILE NAME--
*FORTRA.SAV/C
*22Ø6;ØR
*1:Ø,25Ø3\      1Ø2        1Ø3        <CR>
*12:Ø,5142/     4          2          <CR>
*E
```

The resulting version of FORTRAN IV is V01B-08C.

SOFTWARE PRODUCT	VERSION
FORTRAN/RT-11	V01B-08B
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE: 4 / PAGE: 1 OF 1
NEW: X / REPLACEMENT ARTICLE:	ORIGINAL DATE: October 1975

DIMENSION Restriction (SPR 11-5118)

PROBLEM:

Attempts to dimension arrays larger than 16K words in size will cause unpredictable compiler action.

ANALYSIS:

This is a coding error in the FORTRAN IV compiler.

SOLUTION:

Apply the following patch to FORTRAN IV V01B-08C:

```
.R PATCH
PATCH Vxx-yy
FILE NAME--
*FORTRA.SAV/O
*22Ø6;ØR
*3:Ø,15ØØ/      1Ø34Ø3      1Ø3ØØ4      <LF>
3:Ø,15Ø2/       1ØØ4        616ØØ       <LF>
3:Ø,15Ø4/       5726        1Ø34Ø5      <LF>
3:Ø,15Ø6/       2Ø7         24Ø         <LF>
3:Ø,151Ø/       616ØØ       57Ø4        <LF>
3:Ø,1512/       1Ø34Ø2      1763        <CR>
*4:Ø,3566/      1Ø34Ø3      1Ø3ØØ4      <LF>
4:Ø,357Ø/       1ØØ4        616ØØ       <LF>
4:Ø,3572/       5726        1Ø34Ø5      <LF>
4:Ø,3574/       2Ø7         24Ø         <LF>
4:Ø,3576/       616ØØ       57Ø4        <LF>
4:Ø,36ØØ/       1Ø34Ø2      1746        <CR>
*1:Ø,25Ø3\      1Ø3         1Ø4         <CR>
*E
```

The resulting version of FORTRAN IV is V01B-08D.

SOFTWARE PRODUCT	VERSION
FORTRAN/RT-11	V01B-08C
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE: 5 / PAGE: 1 OF 1
NEW: X / REPLACEMENT ARTICLE:	ORIGINAL DATE: October 1975

END Statement Label Restriction (SPR 11-E4840)

PROBLEM:

The usage of a label on the END statement of a program unit which contains warning-class errors will cause unpredictable compiler action. This applies to both the V01-11 and V01B-08 versions of RT-11 FORTRAN IV.

DISPOSITION:

This is a coding error in the FORTRAN IV compiler. It will be fixed in a future release of FORTRAN.

The END statement may not be labelled.

The effect of placing a label on the END statement may be achieved by placing the same label on a statement inserted before the END statement (such as STOP, RETURN, or CONTINUE, as appropriate).

SOFTWARE PRODUCT	VERSION
FORTRAN/RT-11	V01-11,V01B-08
COMPONENT N/A	VERSION N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 6 | PAGE 1 OF 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE October 1975

Compiler Does Not Detect Illegal Unary Operators (SPR 11-5404)

PROBLEM:

Compiler does not detect illegal unary operators such as *, /, **, .AND., .OR..

ANALYSIS:

This is a coding error in the FORTRAN compiler.

SOLUTION:

Apply the following patch to FORTRAN IV V01B-08. FORTRAN IV V01-11 has been superseded by V01B-08, which is currently available from the program library.

This patch corrects a problem in the compiler expression scanner unary OPS and applies only to V01B-08 of FORTRAN IV, not to the previous version V01-11.

In the following, underlined responses are typed by the user. <CR> represents the carriage return key; <LF> represents the line feed key; before the patch is made, the user should verify that the current version of the compiler is V01B-08D. If this is not the case, previous patches may have been omitted.

```
.R PATCH<CR>

PATCH Vxx-yy

FILE NAME--
*FORTRA.SAV/O<CR>
*1162/      22ØØ      2216<CR>
```

SOFTWARE PRODUCT	VERSION
FORTRAN IV/RT-11	V01B-08D
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 7* / PAGE 1 OF 3
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE November 1975

Compiler Does Not Detect Illegal Unary Operators

```
*E<CR>
,R PATCH<CR>

PATCH VXX-YY

FILE NAME--
*FORTRA,SAV/O<CR>
*2206;1R<CR>
*10:1,1454/       4767      137<LF>
10:1,1456/        20        6604<CR>
*10:1,4376/       41115     12746<LF>
10:1,4400/        51105     3666<LF>
10:1,4402/        51440     4737<LF>
10:1,4404/        55111     2710<LF>
10:1,4406/        5505      1002<LF>
10:1,4410/        43412     137<LF>
10:1,4412/        52105     3714<LF>
```

SOFTWARE PRODUCT	VERSION
FORTRAN IV/RT-11	V01B-08D
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 7* / PAGE 2 OF 3
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE November 1975

Compiler Does Not Detect Illegal Unary Operators

```
10:1,4414/      55114     13276Ø   <LF>
10:1,4416/      4472      1ØØ      <LF>
10:1,442Ø/      465Ø3     6552      <LF>
10:1,4422/      452Ø      1ØØ1      <LF>
10:1,4424/      3Ø522     1Ø44Ø3    <LF>
10:1,4426/      21454     137       <LF>
10:1,443Ø/      475Ø3     375Ø      <CR>
*1:1,25Ø3\      1Ø4       1Ø5       <CR>
*E
```

The resulting version of FORTRAN IV is V01B-08E.

SOFTWARE PRODUCT	VERSION
FORTRAN IV/RT-11	V01B-08D
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 7* / PAGE 3 OF 3
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE November 1975

Compiler Fails to Detect Missing Delimiters (SPR 11-5462)

PROBLEM:

Compiler fails to detect missing delimiters in the following cases:

(<expression>) <constant>
(<expression>) (<expression>)
<Array-id>(<subscript list>)<constant>
<array-id>(<subscript list>) (<expression>)
<function-id>(<parameter-list>)<constant>
<function-id>(<parameter-list>) (<expression>)

ANALYSIS:

This is a coding error in the FORTRAN compiler. The first two given examples are patchable. The others are not. All will be patched in V01C-01.

SOLUTION:

This patch corrects a problem in the compiler expression scanner missing delimiters. It applies only to VØ1B of FORTRAN IV, not to the previous version, VØ1-11.

In the following, underlined responses are typed by the user. <CR> represents the carriage return key; <LF> represents the line feed key. Before the patch is made, the user should verify that the current version of the compiler is VØ1B-Ø8E. If this is not the case, previous patches may have been omitted.

.R PATCH<CR>

PATCH Vxx-yy

FILE NAME--
*FORTRA.SAV/O<CR>
*1162/ 2216 2231<CR>
*E<CR>

SOFTWARE PRODUCT	VERSION
FORTRAN IV/RT-11	V01B-08E
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 8* / PAGE 1 OF 3
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE November 1975

Compiler Fails to Detect Missing Delimiters

```
.R PATCH<CR>

PATCH VXX-YY

FILE NAME--
*FORTRA/O<CR>
*2206;1R
*10:1,1756/      4767      137<LF>
10:1,1760        177274    6640<CR>
*10:6640/        51516     4737<LF>
10:1,4434/       4524      3464<LF>
10:1,4436/       25473     4737<LF>
10:1,4440/       25453     2710<LF>
10:1,4442/       51511     1001<LF>
10:1,4444/       53040     124411<LF>
10:1,4446/       46101     22720<LF>
```

SOFTWARE PRODUCT	VERSION
FORTRAN IV/RT-11	V01B-08E
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 8* / PAGE 2 OF 3
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE November 1975

Compiler Fails to Detect Missing Delimiters

```
10:1,4450/        42565     3<LF>
                            -----
10:1,4452/        40440     1774<LF>
                            --------
10:1,4454/        41440     137<LF>
                            -------
10:1,4456/        47117     3750<CR>
                            --------


*1:1,2503\        105       105<CR>
 ---------                  -------
*E
 -
```

The resulting version of FORTRAN IV is V01B-08F.

SOFTWARE PRODUCT	VERSION
FORTRAN IV/RT-11	V01B-08E
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 8* / PAGE 3 OF 3
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE November 1975

Sequence of Common Expressions Results in Bad Code (SPR 11-5063)

PROBLEM:

A sequence of common expressions below will cause bad code to be generated for the third expression.

```
CALL A(-W)
CALL A(-W/3.)
CALL A(-W/3.)
```

ANALYSIS:

This problem is due to a coding error in the compiler optimizer.

SOLUTION:

The problem may be avoided by applying the following patch to RT-11 FORTRAN V01B-08. This version is currently available from the software library with RT-11 V2B.

This patch corrects the problem in the compiler optimizer of leaving a value on the stack when it should be moved off; it applies only to V01B of FORTRAN IV, not to V01-11.

In the following, underlined responses are typed by the user. <CR> represents the carriage return key; <LF> represents the line feed key. Before the patch is made, the user should verify that the current version of the compiler is V01B-08F. If this is not the case, previous patches may have been omitted.

SOFTWARE PRODUCT	VERSION
FORTRAN IV/RT-11	V01B-08F
COMPONENT: N/A	VERSION: N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE: 9* / PAGE: 1 OF 2
NEW: X / REPLACEMENT ARTICLE:	ORIGINAL DATE: November 1975

Sequence of Common Expressions Results in Bad Code

```
.R PATCH<CR>

PATCH Vxx-yy

FILE NAME--
*FORTRA.SAV/0<CR>
*5Ø/              752Ø      7542     <CR>
*2136/            752Ø      7542     <CR>
*1226/            2546      2557     <CR>
*E
.R PATCH<CR>

PATCH Vxx-yy

FILE NAME--
*FORTRA.SAV/0<CR>
*22Ø6;1R<CR>
*16:1,3242/       167Ø3     4737     <LF>
16:1,3244/        175Ø24    752Ø     <CR>
*16:752Ø/         2Ø122     5737     <LF>
16:1,5314/        4Ø523     2476     <LF>
16:1,5316/        42526     1ØØ4Ø3   <LF>
16:1,532Ø/        5Ø15      62716    <LF>
16:1,5322/        47511     4Ø       <LF>
16:1,5324/        51514     2Ø7      <LF>
16:1,5326/        35Ø61     137Ø3    <LF>
16:1,533Ø/        41411     25ØØ     <LF>
16:1,5332/        5Ø115     2Ø7      <CR>
*1:1,25Ø3\        1Ø6       1Ø7      <CR>
*E
```

The resulting version of FORTRAN IV is Version V01B-08G.

SOFTWARE PRODUCT	VERSION
FORTRAN/RT-11	V01B-08F
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 9* / PAGE 2 OF 2
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE
	November 1975

FIND Statement Can Cause a Trap through 4 (SPR 11-5456)

PROBLEM:

Expressions as record designators in FIND statements cause compiler to trap through 4.

ANALYSIS:

There is a coding error in the compiler lexical parser.

SOLUTION:

The following patch allows expressions to be the record indicator in the FIND Statement. It applies only to VØ1B of FORTRAN IV, not to Version VØ1-11.

In the following, underlined responses are typed by the user. <CR> represents the carriage return key; <LF> represents the line feed key. Before the patch is made, the user should verify that the current version of the compiler is V01B-08G. If this is not the case, previous patches may have been omitted.

```
.R PATCH <CR>

PATCH Vxx-yy

FILE NAME--
*FORTRA.SAV/O<CR>
*117Ø/   236Ø   2372<CR>
*E
```

SOFTWARE PRODUCT	VERSION
FORTRAN/RT-11	V01B-08G
COMPONENT: N/A	VERSION: N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE: 10* / PAGE: 1 OF 2
NEW: X / REPLACEMENT ARTICLE:	ORIGINAL DATE: November 1975

FIND Statement Can Cause a Trap through 4

```
.R PATCH<CR>

PATCH Vxx-yy

FILE NAME--
*FORTRA.SAV/0<CR>
*22Ø6;1R<CR>
*11:1,2632/     4767      4737      <LF>
11:1,2634       17775Ø    7144      <CR>
*11:7144/       51122     4737      <LF>
11:1,474Ø       471Ø5     3672      <LF>
11:1,4742/      2Ø124     1Ø2ØØ     <LF>
11:1,4744/      425Ø4     14Ø2      <LF>
11:1,4746/      44514     4737      <LF>
11:1,475Ø/      44515     351Ø      <LF>
11:1,4752/      42524     4737      <LF>
11:1,4754/      6522      3642      <LF>
11:1,4756/      4412      26        <LF>
11:1,476Ø/      47515     2Ø7       <CR>
*1:1,25Ø3\      1Ø7       11Ø       <CR>
```

The resulting version of FORTRAN IV is V01B-08H.

SOFTWARE PRODUCT	VERSION
FORTRAN/RT-11	V01B-08G
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 10* / PAGE 2 OF 2
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE November 1975

Compiler Generates Incorrect Optimized Code (SPR 11-4658)

PROBLEM:

A subexpression consisting of only a subscripted array reference with constant subscripts causes the compiler to generate incorrect optimized code.

ANALYSIS:

This is a coding error in the compiler.

SOLUTION:

This problem will be corrected in the next release of FORTRAN IV (V01C-01) but may be avoided currently by applying the following patch. This patch only applies to RT-11 FORTRAN IV V01B-08, not to the previous version (V01-11). Version V01B-08 is currently available from the software library.

This problem corrects a problem in the compiler optimizer dealing with constant subscripts in common subexpressions.

```
.R PATCH<CR>

PATCH Vxx-yy

FILE NAME--
*FORTRA.SAV/O<CR>
*5Ø          7542      7612<CR>
*1226/       2557      26Ø3<CR>
*2136/       7542      7612<CR>
*E
```

SOFTWARE PRODUCT	VERSION
FORTRAN IV/RT-11	V-1B-08H
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 11* / PAGE 1 OF 5
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE November 1975

Compiler Generates Incorrect Optimized Code

```
,R PATCH<CR>

PATCH VXX-YY

FILE NAME--
*FORTRA/O<CR>
*2206;1R
*16:1,774/        22422    12400<LF>
16:1,776/         1011     21462<LF>
16:1,1000/        21412    2<LF>
16:1,1002/        1007     4737<LF>
16:1,1004/        24444    7564<CR>
*16:7542/         51011    14000<LF>
16:1,5336/        26065    14404<LF>
16:1,5340/        51500    20004<LF>
16:1,5342/        4520     1402<LF>
16:1,5344/        35411    24044<LF>
16:1,5346/        42523    1002<LF>
16:1,5350/        20105    5726<LF>
```

SOFTWARE PRODUCT	VERSION
FORTRAN IV/RT-11	V01B-08H
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE: 11* / PAGE: 2 OF 5
NEW: X / REPLACEMENT ARTICLE:	ORIGINAL DATE: November 1975

Compiler Generates Incorrect Optimized Code

```
16:1,5352/        43111    5026<LF>
                           --------
16:1,5354/        53440    207<LF>
                           -------
16:1,5356/        23505    1010<LF>
                           --------
16:1,5360/        42522    24444<LF>
                           ---------
16:1,5362/        40440    11202<LF>
                           ---------
16:1,5364/        20124    20002<LF>
                           ---------
16:1,5366/        47520    1405<LF>
                           --------
16:1,5370/        47111    24042<LF>
                           ---------
16:1,5372/        6524     1002<LF>
                           --------
16:1,5374/        4412     24042<LF>
                           ---------
16:1,5376/        42502    1401<LF>
                           --------
16:1,5400         4521     5726<LF>
                           --------
16:1,5402/        47511    207<CR>
                           -------
*20:1,1666/       12700    12746<LF>
 ==========                ---------
20:1,1670/        5000     5046<LF>
                           --------
20:1,1672/        26365    10300<LF>
                           ---------
20:1,1674/        4        10504<LF>
                           ---------
20:1,1676/        4        22024<LF>
                           ---------
```

SOFTWARE PRODUCT	VERSION
FORTRAN IV/RT-11	V01B-08H
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 11* / PAGE 3 OF 5
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE November 1975

Compiler Generates Incorrect Optimized Code

```
20:1,1700/        1006      <LF>
                            ----
20:1,1702/        26365     22024<LF>
                            ---------
20:1,1704/        2         21014<LF>
                            ---------
20:1,1706/        2         1003<LF>
                            --------
20:1,1710/        1002      4737<LF>
                            --------
20:1,1712/        21315     7542<LF>
                            --------
20:1,1714/        1461      240<LF>
                            -------
20:1,1716/        5700      5726<CR>
                            --------
*21:1,1654/       12700     12746<LF>
 ----------                 ---------
21:1,1656/        5000      5046<LF>
                            --------
21:1,1660/        26365     10300<LF>
                            -------
21:1,1662/        4         10504<LF>
                            ---------
21:1,1664/        4         22024<LF>
                            ---------
21:1,1666/        1006      <LF>
21:1,1670         26365     22024<LF>
                            ---------
21:1,1672/        2         21014<LF>
                            ---------
21:1,1674/        2         1003<LF>
                            --------
21:1,1676/        1002      4737<LF>
                            --------
21:1,1700/        21315     7542<LF>
                            --------
```

SOFTWARE PRODUCT	VERSION
FORTRAN IV/RT-11	V01B-08H
COMPONENT	VERSION
N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 11* / PAGE 4 OF 5
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE November 1975

Cómpiler Generates Incorrect Optimized Code

```
21:1,1702/        1461     240<LF>
                           -------
21:1,1704/        5700     5726<CR>
                           --------
*22:1,1572/       12700    12746<LF>
 ----------                ---------
22:1,1574/        5000     5046<LF>
                           --------
22:1,1576/        26365    10300<LF>
                           ---------
22:1,1600/        4        10504<LF>
                           ---------
22:1,1602/        4        22024<LF>
                           ---------
22:1,1604/        1006     <LF>
                           ----
22:1,1606/        26365    22024<LF>
                           ---------
22:1,1610/        2        21014<LF>
                           ---------
22:1,1612/        2        1003<LF>
                           --------
22:1,1614/        1002     4737<LF>
                           --------
22:1,1616/        21315    7542<LF>
                           --------
22:1,1620/        1461     240<LF>
                           -------
22:1,1622/        5700     5726<CR>
                           --------
*1:1,2503\        110      111<CR>
 ---------                 -------
*E
 -
```

The resulting version of FORTRAN IV is V01B-08I.

SOFTWARE PRODUCT FORTRAN IV/RT-11		VERSION V01B-08H
COMPONENT N/A		VERSION N/A
SUBPROGRAM OR ADDITIONAL INFORMATION		SEQUENCE 11* / PAGE 5 OF 5
NEW X	REPLACEMENT ARTICLE [ ]	ORIGINAL DATE November 1975

STOP Statement Closes Files (SPR 11D-1062)

PROBLEM:

In other BASIC-11 systems, the STOP statement does not close files and can be used as a debugging tool in all cases. In BASIC/CAPS-11, STOP closes all files because of the difficulties that are caused when a cassette file is left open. The BASIC/CAPS-11 User's Manual should describe this limitation.

DISPOSITION:

This will be included in the next revision of that manual.

MANUAL NAME	SEQUENCE
BASIC-11 Language Manual	1
DEC ORDER NO. DEC-11-LIBBA-B-D	PAGE 1 OF 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE September 1975

Missing ≠ Sign (SPR 11D-1062)

PROBLEM:

There are errors in the Relational Operators Table on page 1-13.

SOLUTION:

Correct First Column:

=
<
≤
>
≥
≠

MANUAL NAME	SEQUENCE
BASIC-11 Language Manual	2
DEC ORDER NO. DEC-11-LIBBA-B-D	PAGE 1 OF 1
NEW ☐ REPLACEMENT ARTICLE 1	ORIGINAL DATE September 1975

ASSIGN Subroutine Does Not Function as Stated

PROBLEM:

The ASSIGN subroutine does not function as described on pages B-1 through B-3 of RT-11 FORTRAN Compiler and Object Time System User's Manual. Page B-2 states "If the device is not specified, then the device remains unchanged from the default assignments or the monitor ASSIGN command.

DISPOSITION:

This is a documentation error. The sentence should read, "If the device is not specified, then the device remains unchanged from the default assignments."

MANUAL NAME	SEQUENCE NO.
RT-11 FORTRAN COMPILER AND OBJECT TIME SYSTEM USER'S MANUAL	1
DEC ORDER NO. DEC-11-LRFPA-A-D	PAGE 1 OF 1

Appendix D Corrections (SPR 11-1155)

Page D-4, line 99 should read:

```
2$:     BIT     #4ØØØ,@R5   ;TEST FOR END OF SEGMENT
```

Page D-5, line 154 should read:

```
BUFF:  .BLKW    1ØØØ    ;BUFFER AREA
```

MANUAL NAME RT-11 SOFTWARE SUPPORT MANUAL, pp. D-4 and D-5	SEQUENCE 1
DEC ORDER NO. DEC-11-ORPGA-B-D	PAGE 1 OF 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE October 1975

RT-11 Clarification

As documented in the System Reference Manual (Sec. 2.8.1), there are two HALTS in the RT-11 monitors. Users should carefully read this section: knowledge of these HALTs and their meaning will help diagnose problems.

The Single-Job monitor HALTs when a monitor I/O to the system device fails. The most common reason is a write locked device.

The F/B monitor HALTs when a trap through 4 or 10 occurs from monitor level code (RMON or handlers). The most common causes of this are:

1. Coding errors in user-written device drivers.
2. Calling a device which is not supported on the configuration. The handler traps when the device registers are referenced. One way to avoid this is to delete the handlers for those devices which are not on the configuration from the system disk. If the handler is not on the disk, the monitor will report an error for attempted references.
3. Hardware problems causing bus timeout traps through location 4. This is VERY rare and should be investigated only as a last resort.

The system halts are easily recognized by the fact that they occur in high core, above the contents of location 54.

MANUAL NAME	SEQUENCE
System Reference Manual	1
DEC ORDER NO. DEC-11-ORUGA-B-D, DEC-11-ORUGA-C-D	PAGE 1 OF 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE September 1975

Incorrect MSTAT Values

Section A.2.6 of the RT-11 System Reference Manual (DEC-11-ORUGA-C-D) contains an error. The values given for MTSTAT are incorrect. Revise the table so that it reads:

Location	TM11 Value	TJU16 Value
MTHSIZ	43ØØ	47ØØ
MTPNAM	5214Ø	5151Ø
MTSTAT	1ØØ11	1ØØ2Ø

The patch is also incorrect and should be revised as follows:

```
.R PATCH

PATCH Version Number

FILE NAME--
*MONITR.SYS/M
*MTHSIZ/43ØØ        47ØØ <CR>
*MTPNAM/5214Ø       5151Ø <CR>
*MTSTAT/1ØØ11       1ØØ2Ø <CR>
*E
```

MANUAL NAME	SEQUENCE
RT-11 System Reference Manual	3
DEC ORDER NO. DEC-11-ORUGA-C-D	PAGE 1 OF 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE October 1975

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