



# DECUS

## PROGRAM LIBRARY

DECUS NO.	8-188
TITLE	Extended Memory Patch for 4 Word Floating Point Package (DEC-08-FMHA-8B)
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DATE	Submitted: May 1969
SOURCE LANGUAGE	PAL

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PATCH TO UTILIZE 4 WORD FLOATING POINT PACKAGE (DEC-08-FMHA-8B)

DECUS Program Library Write-up

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INTRODUCTION

This patch will allow the Floating Point Package to be entered from any memory bank, but of course, the arguments and operands processed by the floating point routine must all reside in the same memory bank that the package is called from. The patch only uses free locations within the Floating Point Package and does not increase the size of the floating point routines. The Floating Point Package must reside in field 0. To enter the Floating Point Package the following procedure must be used:

1. Each field calling the floating point package must contain locations whose contents are

A. FLPNT,	5600 (Floating point routine)
B. FLOUTP,	7200 (Output routine)
C. FLINTP,	7400 (input routine)
D. INPUT,	7576 (Set by user)
E. OUTPUT,	7376 (Set by user)
F. NOP,	7000
G. CIF,	62X2 (X=This field)

2. To call the floating point routines from a field other than field zero the coding must be

```
      .  
      .  
      .  
      CIF 0  
      JMS I FLPNT  
      .  
      .  
      .  
      EXIT
```

3. To call the input or output routines from a field other than zero the coding must be

```
      .  
      .  
      TAD CIF  
      CDF 0  
      DCA I INPUT OR DCA I OUTPUT  
      CIF 0  
      JMS I FLOUTP OR JMS I FLINTP  
      TAD NOP  
      DCA I INPUT OR DCA I OUTPUT  
      CDF THIS FIELD
```

NOTE

This patch is loaded into Field 0 after loading the 4 word Floating Point Package.

/  
CDF=6201  
RDF=6214

\*5644

5644 5372 JMP 5772 /JUMP TO PATCH

/

\*5772

5772 3043 DCA 43 /EXECUTE INSTRUCTION  
/WHICH WAS AT 5636

5773 6214

RDF

5774 6201

CDF 0

5775 5776

JMP I 5776

5776 6166

6166

/GO TO CONTINUATION OF  
/THIS PATCH

/

\*6166

6166 1374

TAD 6174

6167 3775

DCA I 6175

/GENERATE A CDF TO PROPER FIELD

6170 1775

TAD I 6175

6171 7001

IAC

/GENERATE A CIF TO PROPER FIELD

6172 3776

DCA I 6176

6173 5777

JMP I 6177

/GO BACK TO WHENCE WE CAME

6174 6201

6201

/CDF

6175 6752

6752

/LOCATION TO EXECUTE CDF

6176 6761

6761

/LOCATION TO EXECUTE CIF

6177 5645

5645

/RETURN TO FLOATING POINT ADDRESS

/

\*5656

5656 5771

JMP I 5771

/JUMP TO PATCH TO RETURN TO ARGUMENT  
/PICK-UP

/

/

/

\*5771

5771 6752

6752

/POINTER TO CDF

/

\*6752

6752 0000

0

/CDF GOES HERE

6753 5766

JMP I 6766

/RETURN TO FPNT+1

/

\*6766

6766 5601

5601

/FPNT+1

/

\*5720

5720 5777

JMP I 5777

/PATCH FOR EXIT ROUTINE

/

5777	6754	*5777 6754	/ADDRESS OF PATCH FOR EXIT ROUTINE
/			
5713	5256	*5713 JMP 5656	/JUMP TO EXIT WHICH RESTORES /DATA FIELD /FOR FLGT
5732	5256	*5732 JMP 5656	/JUMP TO EXIT WHICH ENSURES /ARGUMENT FROM PROPER FIELD
/			
5733	0000	*5733 Ø	/OVERLAY FOR FLPT
5734	1771	TAD I 5771	/GET CDF INSTRUC
5735	3336	DCA .+1	
5736	0000	Ø	/CDF GOES HERE
5737	1044	TAD 44	
5740	3662	DCA I 5662	
5741	1045	TAD 45	
5742	2262	ISZ 5662	
5743	3662	DCA I 5662	
5744	1046	TAD 46	
5745	2262	ISZ 5662	
5746	3662	DCA I 5662	
5747	5365	JMP 5765	/CONTINUATION OF PATCH
/			
5765	1047	*5765 TAD 47	
5766	2262	ISZ 5662	
5767	3662	DCA I 5662	
5770	5201	JMP 5601	/EXIT AS DATA FIELD ALREADY SET
/			
6754	1765	*6754 TAD I 6765	/GET CONTENTS OF FPNT
6755	3364	DCA 6764	/SAVE IT ON THIS OAGE
6756	1352	TAD 6752	/GET CDF
6757	3360	DCA .+1	
6760	0000	Ø	/CDF GOES HERE
6761	0000	Ø	/CIF GOES HERE
6762	5764	JMP I 6764	/LEAVE
/			
6764	0000	*6764 Ø	/CONTENTS OF FPNT GOES HERE
6765	5600	5600	/ADDRESS OF FPNT
/			
7467	5376	*7467 JMP 7576	/PATCH FOR FLOATING INPUT ROUTINE

	/			
7503	5376	*7503	JMP 7576	/PATCH CONVERSION ROUTINE
	/			
	/			
7457	5376	*7457	JMP 7576	/PATCH CONVERSION ROUTINE
	/			
	/			
7576	7000	*7576	7000	/USER SETS CIF PRIOR TO ENTRY HERE
7577	5600		JMP I 7400	/RETURN TO USER
	/			
	/			
7216	5376	*7216	JMP 7376	/JUMP TO EXIT PATCH
	/			
	/			
7376	7000	*7376	7000	/USER STICKS A CIF IN HERE
7377	5600		JMP I 7200	/RETURN TO USER
CDF	6201			
RDF	6214			