



# DECUS

## PROGRAM LIBRARY

DECUS NO.	FOCAL8-187
TITLE	DISPLAY FOCAL
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SOURCE LANGUAGE	PAL

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# DISPLAY FOCAL

DECUS Program Library Write-up

DECUS NO. FOCAL8-187

FOCAL WITH VT01 STORAGE DISPLAY AND KV8/I

## MIN. REQUIREMENTS..

4K PDP-8 WITH VT01 STORAGE DISPLAY AND KV8/I CONTROLLER.

## LOADING.....

WITH DISK OR DECTAPE MONITOR..

LOAD FOCAL 69 AND EXECUTE THE INITIALISATION

( START AT 200 )

EXECUTE A LIBRARY COMMAND THUS RETURNING TO MONITOR

NOW CALL IN THE LOADER AND LOAD THE PATCH TAPE.  
RETURNING TO THE MONITOR AT END.

NOW SAVE PROGRAM ON SYSTEM DEVICE.

((SAVE FOCV ! 0-7577; 200))

THE PROGRAM HAS NOW BEEN INITIALISED FOR THIS MACHINE  
AND THERE WILL BE NO INITIAL DIALOGUE WHEN IT IS RESTARTED.

## USAGE.....

TWO ROUTINES ARE PROVIDED.

FADC THE ANALOGUE TO DIGITAL CONVERTER ROUTINE  
HAS BEEN OVERWRITTEN BY A ROUTINE TO CLEAR THE SCREEN  
IE. S G= FADC() CLEARS THE SCREEN. ( G IS A DUMMY )

FNEW THIS IS THE MAIN PLOT ROUTINE AND IT  
WORKS IN VECTOR MODE ONLY  
S G = FNEW(X,Y,Z,W)

X X CO-ORDINATE

Y Y CO-ORDINATE

Z =0 GIVES A SHORT VECTOR

=-1 GIVES A LONG VECTOR

W =0 GIVES A VISIBLE VECTOR

=-1 GIVES AN INVISIBLE VECTOR

ALL PLOTTING IS DONE IN ABSOLUTE MODE.

## OPERATION.....

THE PLOTTING ROUTINE OPERATES  
UNDER INTERRUPT AS DOES THE ERASE FN. ALLOWING FOR  
OVERLAPPED OPERATION.

THE INTERRUPT HANDLER EXTENSION AND PLOT  
ROUTINE TAKE UP 66 OCTAL LOCATIONS IN THE  
USER BUFFER AREA. ( 4511-4577 )

IF FADC IS REQUIRED THEN THE ERASE ROUTINE  
COULD BE MOVED ELSEWHERE ( FX SAY )

IF THERE IS NO SYSTEM DEVICE THEN LOAD IN FOCAL  
EXECUTE THE INITIAL DIALOGUE ; USE THE BINARY LOADER  
TO READ IN THE PATCH THEN RE-START FOCAL AT 200

IF FADC IS TO BE RETAINED MAKE THESE CHANGES TO SOURCE FILE.

\*1343 BECOMES \*4471  
IND, DCA I FNSWA BECOMES DCA FNSW  
DELETE:- FNSWA, FNSW

THEN ADD  
\*ENTABF+16  
XADC

CHANGE BOTTOM=4510 TO BOTTOM =4470

THEN TO ERASE USE S G=FX()

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/          FCCAL PATCH ROUTINES FOR KV8/I
/ TC ERASE S G=FADC()
/ TC PLCT S G=FNEW(X,Y,Z,W)
/ X = X CC-CRD. Y = Y (O-ORD.
/ Z      = 0,   SHORT VECTOR
/        = -1,  LONG VECTOR
/ W      = 0,   VISIBLE
/        = -1,  INVISIBLE
/ PATCH FADC AS AN ERASE FN.
*1343
1343  7200  XACC,   CLA
1344  1352          TAD SXIC / COMBINED ABS. MODE AND ERASE-RESET.
1345  6063          LCF
1346  6066          EXC / ERASE RESET
1347  7240          STA / SET STATUS DONE FOR INT. HANDLER.
1350  3753  IND,   DCA I FNSWA
1351  5536          JMP I EFUN3I
1352  0406  SXIC,   0406
1353  4576  FNSWA,  FNSW / INDIRECT TO STATUS.
/*****

/ PATCH INTERRUPT HANDLER
*2652
2652  5653          JMP I .+1
2653  4511          INTPTR
2654  6244          RNF / FOR 8K FOCAL.
/ *****

/ PATCH FNEW ENTRY POINT.
*FNTABF+14
0410  4526  XFNEW  / PLCT FUNCTION.

/ PATCH USER AREA POINTER.
*35
0035  4510          BCTTOM

/ INTERRUPT HANDLER EXTENSION.
*4511
4511  6071  INTPTR, SRF / SCREEN FLAG
4512  5725          JMP I HANDLER / NOT IT.
4513  1376          TAD FNSW / GET STATUS POINTER
4514  7750          SPA SNA CLA
4515  5323          JMP READY / FINISHED THIS ONE
4516  1374          TAU P / EXECUTE MODE.
4517  6066          EXC
4520  7240          STA
4521  3376  COMMN,  DCA FNSW / SET STATUS TO DONE
4522  5725          JMP I HANDLER / BACK TO INT. HANDLER
4523  6072  READY,  CRF
4524  5321          JMP COMMN

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4525 2654 HANDLER,      2654 / RETURN TO INTERRUPT HANDLER.
/*****

4526 1376 XFNEW,  TAD FNSW
4527 7640          SZA CLA
4530 5326          JMP .-2 / WAIT IF PREVIOUS NOT FINISHED
4531 6002          ICF
4532 4453          JMS I INTEGER
4533 6064          LDX / SET X
4534 7200          CLA
4535 4360          JMS FIND
4536 3376          DCA FNSW / TEMP STORAGE FOR Y
4537 4360          JMS FIND / GET VECTOR TYPE
4540 7700          SMA CLA
4541 1377          TAD SIX / LONG
4542 1373          TAD FRC / SHORT
4543 3374          DCA P / SET SHORT OR LONG
4544 4360 RETN,    JMS FIND / GET VISIBLE OR INVISIBLE
4545 7001          IAC
4546 1374          TAD P / SET MODE
4547 3374          DCA P
4550 1376          TAD FNSW / GET Y
4551 6071          SRF
4552 5351          JMP .-1
4553 6065          LDY / LOAD Y
4554 7201          CLA IAC
4555 3376          DCA FNSW / SET LOADED
4556 6001          ICN
4557 5536          JMP I EFUN3I
4560 0000 FIND,    00
4561 1066          TAD CHAR
4562 1375          TAD MCGMMA
4563 7640          SZA CLA
4564 4566          JMS I 166 / ERROR, NOT ENOUGH ARGUMENTS.
4565 4545          GETC / MOVE PAST COMMA
4566 4560          SPNOR / IGNORE BLANKS
4567 4540          PUSHJ
4570 1613          EVAL / GET ARG.
4571 4453          JMS I INTEGER
4572 5760          JMP I FIND
4573 0440 FRC,    440
4574 0000 P,      00
4575 7524 MCGMMA, -254
4576 0000 FNSW,  00 / FLOT STATUS POINTER.
4577 0140 SIX,    140
/ *****/
/ ASSIGN MNEMONICS
/ FCCAL NOTATION USED

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EXC=6066
SRF=6071
LDF=6063
CRF=6072
EFUN3I=136
FNTABF=374
LDX=6064
LDY=6065
CHAR=60
GETC=JMS I 140
SPNCR=JMS I 160

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PUSHJ=JMS I 140  
EVAL=1613  
INTEGER=53  
BCTTOM=4510

BCTTOM 4510  
CHAR 0066  
CCMMN 4521  
CRF 6072  
EFLN3I 0136  
EVAL 1613  
EXC 6066  
FIND 4560  
FNSW 4576  
FNSWA 1353  
FNABF 0374  
FRC 4573  
GETC 4545  
HANDLE 4525  
IND 1350  
INTEGE 0053  
INTPTR 4511  
LCF 6063  
LCX 6064  
LDY 6065  
MCOMMA 4575  
P 4574  
PLSHJ 4540  
READY 4523  
RETN 4544  
SIX 4577  
SPACR 4560  
SRF 6071  
SXIC 1352  
XADC 1343  
XFNEW 4526

