



# DECUS

## PROGRAM LIBRARY

DECUS NO.	5-5
TITLE	Expanded Adding Machine
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SOURCE LANGUAGE	Symbolic Listing

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## EXPANDED ADDING MACHINE

Program Library Write-up

DECUS No. 5-5

Expanded Adding Machine is a minimum - space version of Expensive Adding Machine (DEC-5-43-D) using a table lookup method and including an error escape facility.

This is a basic version to which additional control functions can easily be added: optional vertical or horizontal format, optional storage of intermediate result without reentry, fixed-point output of results within reason, and other features that can be had in little additional space under switch register control.

\*5

FINK, 7400

FOUT, 7200

FPNT, 5600

\*176

XTYP, TYPE

XCL, CRLF

\*200

```

BGIN, KCC           /SA = 0200
      TLS
      JMS I Z XCL   /CR,LF
      DCA ACC
      DCA ACC+1     /CLEAR 3-WORD REGISTER
      DCA ACC+2
  
```

```

GOPR, KSF           /READ OPERATOR, KYBD OR TAPE
      JMP .-1
      KRB
      DCA SAVE
      TADCODX       /SET POINTER FOR TABLE LOOKUP
      DCA PTR
      TAD SAVE
      ISZ PTR       /STEP POINTER TO OPERATOR CODE
      TAD I PTR     /TEST OPERATOR CODE
      ISZ PTR       /STEP POINTER TO FUNCTION VALUE
      SMA SZA
      JMP .-4       /TRY NEXT CODE IN TABLE
      SZA
      JMP GOPR      /ILLEGAL CODE, TRY AGAIN
  
```

```

TOPR, TAD SAVE     /TYPEOUT OPERATOR
      JMS I Z XTYP
      TAD Z C240   /SPACE
      JMS I Z XTYP
  
```

```
JMS I Z FINK      /GET OPERAND (KEY SPACE AFTER ! OR =)
JMP I PTR         /GO TO OPERATOR SUBROUTINE

PTR, 0
CODX, CODX
0-241
JMP BGIN+2       /CODE 241 IS !,RESTRT
241-253
JMP ADD          /CODE 253 IS +
253-255
JMP SUB          /CODE 255 IS -
255-257
JMP DVD          /CODE 257 IS SLASH
257-275
JMP EQL          /CODE 275 IS =
275-330
JMPMLT           /CODE 330 IS X
330-400

ADD, JMS I Z FPNT
FADD ACC
FPUT ACC
FEXT
JMP GOPR

SUB, JMS I Z FPNT
FPUT ACC+3
FGET ACC
FSUB ACC+3
FPUT ACC
FEXT
JMP GOPR

DVD, JMS I Z FPNT
FPUT ACC+3
FGET ACC
FDIV ACC+3
FPUT ACC
FEXT
JMP GOPR

MLT, JMS I Z FPNT
FMPY ACC
FPUT ACC
FEXT
JMP GOPR

EQL, JMS I Z FPNT
FGET ACC
FEXT
JMS I Z XCL      /CR,LF
JMS I Z FOUT     /TYPEOUT RESULT
```

JMP BGIN+2

ACC, 0  
0  
0  
0  
0  
0  
0  
SAVE, 0  
\$

/EAD = 0315