

ProForth for the Apple II (6502 Source, could be adapted to the Atari 8bit)#

NAME: EDASM macro used by FDICT.S

```
DFB &1
DCI &2
IFEQ >+*+3
LST ON
FAIL 2, 'PFA=xxFF'
FIN
```

fdict.s

```
        LST OFF,NOGen,NOWarn,NOVsym,NOAsym,NOExp
        MACLIB
        ORG $800
SSIZE   EQU 1024
NBUF    EQU 2
BMAG    EQU SSIZE+4*NBUF
BOS     EQU $60
TOS     EQU $DE
N       EQU TOS+8
IP      EQU N+8
W       EQU IP+3
UP      EQU W+2
XSAVE   EQU UP+2
KSWL    EQU $38
TIBX    EQU $0300
MEM     EQU $BF00
UAREA   EQU MEM-128
DAREA   EQU UAREA-BMAG
MLI     EQU $BF00
OUTCH   EQU $FDED
INCH    EQU $FD0C
CROUT   EQU $FD8E
MONITOR EQU $FF69
ORIG    EQU *
ENTER   JMP COLD+2
        NOP
REENTER JMP WARM
        NOP
        DW $0004
        DW $5ED2
        DW NTOP Last NFA
        DW 8 Backspace key
        DW UAREA User start
        DW TOS Program TOS
        DW $1FF Return TOS
        DW TIBX Terminal input buffer
        DW 31 Name field size max
        DW 1 Warning
        DW TOP FENCE
        DW TOP DP
        DW VLO VOC-LINK
        DW 0
L22     NAME $83,'LIT'
        DW 00
```

```

LIT      DW  *+2
        LDA  (IP),Y
        PHA
        INC  IP
        BNE  L30
        INC  IP+1
L30     LDA  (IP),Y
L31     INC  IP
        BNE  PUSH
        INC  IP+1
PUSH    DEX
        DEX
PUT     STA  1,X
        PLA
        STA  0,X
NEXT    LDY  #1
        LDA  (IP),Y
        STA  W+1
        DEY
        LDA  (IP),Y
        STA  W
        CLC
        LDA  IP
        ADC  #2
        STA  IP
        BCC  L54
        INC  IP+1
L54     JMP  W-1
*
L35     NAME $84, 'CLIT'
        DW  L22
CLIT    DW  *+2
        LDA  (IP),Y
        PHA
        TYA
        BEQ  L31
SETUP   ASL  A
        STA  N-1
L63     LDA  0,X
        STA  N,Y
        INX
        INY
        CPY  N-1
        BNE  L63
        LDY  #0
        RTS
L75     NAME $87, 'EXECUTE'
        DW  L35
EXEC    DW  *+2
        LDA  0,X
        STA  W
        LDA  1,X
        STA  W+1
        INX
        INX
        JMP  W-1
L89     NAME $86, 'BRANCH'
        DW  L75
BRAN    DW  *+2

```

```

        CLC
        LDA (IP),Y
        ADC IP
        PHA
        INY
        LDA (IP),Y
        ADC IP+1
        STA IP+1
        PLA
        STA IP
        JMP NEXT+2
L107   NAME $87, '0BRANCH'
        DW L89
ZBRAN  DW *+2
        INX
        INX
        LDA $FE,X
        ORA $FF,X
        BEQ BRAN+2
BUMP   CLC
        LDA IP
        ADC #2
        STA IP
        BCC L122
        INC IP+1
L122   JMP NEXT
L127   NAME $86, '(LOOP)'
        DW L107
PLOOP  DW L130
L130   STX XSAVE
        TSX
        INC $101,X
        BNE PL1
        INC $102,X
PL1    CLC
        LDA $103,X
        SBC $101,X
        LDA $104,X
        SBC $102,X
PL2    LDX XSAVE
        ASL A
        BCC BRAN+2
        PLA
        PLA
        PLA
        PLA
        JMP BUMP
L154   NAME $87, '(+LOOP)'
        DW L127
PPLOO  DW *+2
        INX
        INX
        STX XSAVE
        LDA $FF,X
        PHA
        PHA
        LDA $FE,X
        TSX
        INX

```

```

        INX
        CLC
        ADC $101,X
        STA $101,X
        PLA
        ADC $102,X
        STA $102,X
        PLA
        BPL PL1
        CLC
        LDA $101,X
        SBC $103,X
        LDA $102,X
        SBC $104,X
        JMP PL2
L185   NAME $84, '(DO)'
        DW L154
PDO    DW *+2
        LDA 3,X
        PHA
        LDA 2,X
        PHA
        LDA 1,X
        PHA
        LDA 0,X
        PHA
POPTWO INX
        INX
POP    INX
        INX
        JMP NEXT
L207   NAME $81, 'I'
        DW L185
I      DW R+2
L214   NAME $85, 'DIGIT'
        DW L207
DIGIT  DW *+2
        SEC
        LDA 2,X
        SBC #$30
        BMI L234
        CMP #$A
        BMI L227
        SEC
        SBC #7
        CMP #$A
        BMI L234
L227   CMP 0,X
        BPL L234
        STA 2,X
        LDA #1
        PHA
        TYA
L234   JMP PUT
        TYA
        PHA
        INX
        INX
        JMP PUT

```

```

L243      NAME $86, '(FIND) '
          DW L214
PFIND     DW *+2
          LDA #2
          JSR SETUP
          STX XSAVE
L249     LDY #0
          LDA (N),Y
          EOR (N+2),Y
          AND #$3F
          BNE L281
L254     INY
          LDA (N),Y
          EOR (N+2),Y
          ASL A
          BNE L280
          BCC L254
          LDX XSAVE
          DEX
          DEX
          DEX
          DEX
          CLC
          TYA
          ADC #5
          ADC N
          STA 2,X
          LDY #0
          TYA
          ADC N+1
          STA 3,X
          STY 1,X
          LDA (N),Y
          STA 0,X
          LDA #1
          PHA
          JMP PUSH
L280     BCS L284
L281     INY
          LDA (N),Y
          BPL L281
L284     INY
          LDA (N),Y
          TAX
          INY
          LDA (N),Y
          STA N+1
          STX N
          ORA N
          BNE L249
          LDX XSAVE
          LDA #0
          PHA
          JMP PUSH
L301     NAME $87, 'ENCLOSE '
          DW L243
ENCL     DW *+2
          LDA #2
          JSR SETUP

```

```

TXA
SEC
SBC #8
TAX
STY 3,X
STY 1,X
DEY
DEC N+3
DEC 1,X
L313  INY
      BNE LX1
      INC N+3
      INC 1,X
LX1   LDA (N+2),Y
      CMP N
      BEQ L313
      STY 4,X
      LDA 1,X
      STA 5,X
L318  LDA (N+2),Y
      BNE L327
      STY 2,X
      STY 0,X
      LDA 1,X
      STA 3,X
      TYA
      CMP 4,X
      BNE L326
      LDA 1,X
      CMP 5,X
      BNE L326
      INC 2,X
      BNE L326
      INC 3,X
L326  JMP NEXT
L327  PHA
      STY 2,X
      LDA 1,X
      STA 3,X
      INY
      BNE LX2
      INC 1,X
      INC N+3
LX2   PLA
      CMP N
      BNE L318
      STY 0,X
      JMP NEXT
L337  NAME $84, 'EMIT'
      DW L301
EMIT  DW XEMIT
L344  NAME $83, 'KEY'
      DW L337
KEY   DW XKEY
L351  NAME $89, '?TERMINAL'
      DW L344
QTERM DW XQTER
L358  NAME $82, 'CR'
      DW L351

```

```

CR          DW XCR
L365       NAME $85, 'CMOVE'
          DW L358
CMOVE      DW *+2
          LDA #3
          JSR SETUP
L370       CPY N
          BNE L375
          DEC N+1
          BPL L375
          JMP NEXT
L375       LDA (N+4),Y
          STA (N+2),Y
          INY
          BNE L370
          INC N+5
          INC N+3
          JMP L370
L386       NAME $82, 'U*'
          DW L365
USTAR      DW *+2
          LDA 2,X
          STA N
          STY 2,X
          LDA 3,X
          STA N+1
          STY 3,X
          LDY #16
L396       ASL 2,X
          ROL 3,X
          ROL 0,X
          ROL 1,X
          BCC L411
          CLC
          LDA N
          ADC 2,X
          STA 2,X
          LDA N+1
          ADC 3,X
          STA 3,X
          LDA #0
          ADC 0,X
          STA 0,X
L411       DEY
          BNE L396
          JMP NEXT
L418       NAME $82, 'U/'
          DW L386
USLAS      DW *+2
          LDA 4,X
          LDY 2,X
          STY 4,X
          ASL A
          STA 2,X
          LDA 5,X
          LDY 3,X
          STY 5,X
          ROL A
          STA 3,X

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```

L433 LDA #16
      STA N
      ROL 4,X
      ROL 5,X
      SEC
      LDA 4,X
      SBC 0,X
      TAY
      LDA 5,X
      SBC 1,X
      BCC L444
      STY 4,X
      STA 5,X
L444 ROL 2,X
      ROL 3,X
      DEC N
      BNE L433
      JMP POP
L453 NAME $83, 'AND'
      DW L418
ANDD DW *+2
      LDA 0,X
      AND 2,X
      PHA
      LDA 1,X
      AND 3,X
BINARY INX
      INX
      JMP PUT
L469 NAME $82, 'OR'
      DW L453
OR DW *+2
      LDA 0,X
      ORA 2,X
      PHA
      LDA 1,X
      ORA 3,X
      INX
      INX
      JMP PUT
L484 NAME $83, 'XOR'
      DW L469
XOR DW *+2
      LDA 0,X
      EOR 2,X
      PHA
      LDA 1,X
      EOR 3,X
      INX
      INX
      JMP PUT
L499 NAME $83, 'SP@'
      DW L484
SPAT DW *+2
      TXA
PUSHOA PHA
      LDA #0
      JMP PUSH
L511 NAME $83, 'SP!'

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```

        DW L499
SPSTO  DW *+2
        LDY #6
        LDA (UP),Y
        TAX
        JMP NEXT
L522   NAME $83,'RP!'
        DW L511
RPSTO  DW *+2
        STX XSAVE
        LDY #8
        LDA (UP),Y
        TAX
        TXS
        LDX XSAVE
        JMP NEXT
L536   NAME $82,'      ;S'
        DW L522
SEMIS  DW *+2
        PLA
        STA IP
        PLA
        STA IP+1
        JMP NEXT
L548   NAME $85,'LEAVE'
        DW L536
LEAVE  DW *+2
        STX XSAVE
        TSX
        LDA $101,X
        STA $103,X
        LDA $102,X
        STA $104,X
        LDX XSAVE
        JMP NEXT
L563   NAME $82,'>R'
        DW L548
TOR    DW *+2
        LDA 1,X
        PHA
        LDA 0,X
        PHA
        INX
        INX
        JMP NEXT
L577   NAME $82,'R>'
        DW L563
RFROM  DW *+2
        DEX
        DEX
        PLA
        STA 0,X
        PLA
        STA 1,X
        JMP NEXT
L591   NAME $81,'R'
        DW L577
R      DW *+2
        STX XSAVE

```

```

        TSX
        LDA $101,X
        PHA
        LDA $102,X
        LDX XSAVE
        JMP PUSH
L605   NAME $82, '0='
        DW L591
ZEQU   DW *+2
        LDA 0,X
        ORA 1,X
        STY 1,X
        BNE L613
        INY
L613   STY 0,X
        JMP NEXT
L619   NAME $82, '0<'
        DW L605
ZLESS  DW *+2
        ASL 1,X
        TYA
        ROL A
        STY 1,X
        STA 0,X
        JMP NEXT
        DW 0
L632   NAME $81, '+'
        DW L619
PLUS   DW *+2
        CLC
        LDA 0,X
        ADC 2,X
        STA 2,X
        LDA 1,X
        ADC 3,X
        STA 3,X
        INX
        INX
        JMP NEXT
L649   NAME $82, 'D+'
        DW L632
DPLUS  DW *+2
        CLC
        LDA 2,X
        ADC 6,X
        STA 6,X
        LDA 3,X
        ADC 7,X
        STA 7,X
        LDA 0,X
        ADC 4,X
        STA 4,X
        LDA 1,X
        ADC 5,X
        STA 5,X
        JMP POPTWO
L670   NAME $85, 'MINUS'
        DW L649
MINUS  DW *+2

```

```

SEC
TYA
SBC 0,X
STA 0,X
TYA
SBC 1,X
STA 1,X
JMP NEXT
L685 NAME $86, 'DMINUS'
      DW L670
DMINU DW *+2
      SEC
      TYA
      SBC 2,X
      STA 2,X
      TYA
      SBC 3,X
      STA 3,X
      JMP MINUS+3
L700 NAME $84, 'OVER'
      DW L685
OVER  DW *+2
      LDA 2,X
      PHA
      LDA 3,X
      JMP PUSH
L711 NAME $84, 'DROP'
      DW L700
DROP  DW POP
L718 NAME $84, 'SWAP'
      DW L711
SWAP  DW *+2
      LDA 2,X
      PHA
      LDA 0,X
      STA 2,X
      LDA 3,X
      LDY 1,X
      STY 3,X
      JMP PUT
L733 NAME $83, 'DUP'
      DW L718
DUP   DW *+2
      LDA 0,X
      PHA
      LDA 1,X
      JMP PUSH
L744 NAME $82, '+!'
      DW L733
PSTOR DW *+2
      CLC
      LDA (0,X)
      ADC 2,X
      STA (0,X)
      INC 0,X
      BNE L754
      INC 1,X
L754 LDA (0,X)
      ADC 3,X

```

```

        STA (0,X)
        JMP POPTWO
L762   NAME $86, 'TOGGLE'
        DW L744
TOGGL  DW *+2
        LDA (2,X)
        EOR 0,X
        STA (2,X)
        JMP POPTWO
L773   NAME $81, '@'
        DW L762
AT     DW *+2
        LDA (0,X)
        PHA
        INC 0,X
        BNE L781
        INC 1,X
L781   LDA (0,X)
        JMP PUT
L787   NAME $82, 'C@'
        DW L773
CAT    DW *+2
        LDA (0,X)
        STA 0,X
        STY 1,X
        JMP NEXT
L798   NAME $81, '!'
        DW L787
STORE  DW *+2
        LDA 2,X
        STA (0,X)
        INC 0,X
        BNE L806
        INC 1,X
L806   LDA 3,X
        STA (0,X)
        JMP POPTWO
L813   NAME $82, 'C!'
        DW L798
CSTOR  DW *+2
        LDA 2,X
        STA (0,X)
        JMP POPTWO
L823   NAME $C1, ':'
        DW L813
COLON  DW DOCOL
        DW QEXEC
        DW SCSP
        DW CURR
        DW AT
        DW CON
        DW STORE
        DW CREAT
        DW RBRAC
        DW PSCOD
DOCOL  LDA IP+1
        PHA
        LDA IP
        PHA

```

```

        CLC
        LDA W
        ADC #2
        STA IP
        TYA
        ADC W+1
        STA IP+1
        JMP NEXT
L853   NAME $C1, '      ; '
        DW L823
        DW DOCOL
        DW QCSP
        DW COMP
        DW SEMIS
        DW SMUDG
        DW LBRAC
        DW SEMIS
L867   NAME $88, 'CONSTANT'
        DW L853
CONST  DW DOCOL
        DW CREAT
        DW SMUDG
        DW COMMA
DOCON  LDY #2
        LDA (W),Y
        PHA
        INY
        LDA (W),Y
        JMP PUSH
L885   NAME $88, 'VARIABLE'
        DW L867
VAR    DW DOCOL
        DW CONST
        DW PSCOD
DOVAR  CLC
        LDA W
        ADC #2
        PHA
        TYA
        ADC W+1
        JMP PUSH
L902   NAME $84, 'USER'
        DW L885
USER   DW DOCOL
        DW CONST
        DW PSCOD
DOUSE  LDY #2
        CLC
        LDA (W),Y
        ADC UP
        PHA
        LDA #0
        ADC UP+1
        JMP PUSH
L920   NAME $81, '0'
        DW L902
ZERO   DW DOCON
        DW 0

```

L928 NAME \$81, '1'
DW L920
ONE DW DOCON
DW 1
L936 NAME \$81, '2'
DW L928
TWO DW DOCON
DW 2
L944 NAME \$81, '3'
DW L936
THREE DW DOCON
DW 3
L952 NAME \$82, 'BL'
DW L944
BL DW DOCON
DW \$20
L960 NAME \$83, 'C/L'
DW L952
CSLL DW DOCON
DW 64
L968 NAME \$85, 'FIRST'
DW L960
FIRST DW DOCON
DW DAREA
L976 NAME \$85, 'LIMIT'
DW L968
LIMIT DW DOCON
DW UAREA
L984 NAME \$85, 'B/BUF'
DW L976
BBUF DW DOCON
DW SSIZE
L992 NAME \$85, 'B/SCR'
DW L984
BSCR DW DOCON
DW 1024/SSIZE
L993 NAME \$85, 'FSIZE'
DW L992
FSIZE DW DOCON
DW 100
L1000 NAME \$87, '+ORIGIN'
DW L993
PORIG DW DOCOL
DW LIT,ORIG
DW PLUS
DW SEMIS
L1010 NAME \$83, 'TIB'
DW L1000
TIB DW DOUSE
DFB \$A
L1018 NAME \$85, 'WIDTH'
DW L1010
WIDTH DW DOUSE

;

DFB \$C
L1026 NAME \$87, 'WARNING'
DW L1018
WARN DW DOUSE
DFB \$E

L1034 NAME \$85, 'FENCE'
DW L1026
FENCE DW DOUSE
DFB \$10
L1042 NAME \$82, 'DP'
DW L1034
DP DW DOUSE
DFB \$12
L1050 NAME \$88, 'VOC-LINK'
DW L1042
VOCL DW DOUSE
DFB \$14
L1058 NAME \$83, 'BLK'
DW L1050
BLK DW DOUSE
DFB \$16
L1066 NAME \$82, 'IN'
DW L1058
IN DW DOUSE
DFB \$18
L1074 NAME \$83, 'OUT'
DW L1066
OUT DW DOUSE
DFB \$1A
L1082 NAME \$83, 'SCR'
DW L1074
SCR DW DOUSE
DFB \$1C
L1090 NAME \$86, 'OFFSET'
DW L1082
OFSET DW DOUSE
DFB \$1E
L1098 NAME \$87, 'CONTEXT'
DW L1090
CON DW DOUSE
DFB \$20
L1106 NAME \$87, 'CURRENT'
DW L1098
CURR DW DOUSE
DFB \$22
L1114 NAME \$85, 'STATE'
DW L1106
STATE DW DOUSE
DFB \$24
L1122 NAME \$84, 'BASE'
DW L1114
BASE DW DOUSE
DFB \$26
L1130 NAME \$83, 'DPL'
DW L1122
DPL DW DOUSE
DFB \$28
L1138 NAME \$83, 'FLD'
DW L1130
FLD DW DOUSE
DFB \$2A
L1146 NAME \$83, 'CSP'
DW L1138
CSP DW DOUSE

L1154 DFB \$2C
 NAME \$82, 'R#'
 DW L1146
 RNUM DW DOUSE
 DFB \$2E
 L1162 NAME \$83, 'HLD'
 DW L1154
 HLD DW DOUSE
 DFB \$30
 L1170 NAME \$82, '1+'
 DW L1162
 ONEP DW DOCOL
 DW ONE
 DW PLUS
 DW SEMIS
 L1180 NAME \$82, '2+'
 DW L1170
 TWOP DW DOCOL
 DW TWO
 DW PLUS
 DW SEMIS
 L1190 NAME \$84, 'HERE'
 DW L1180
 HERE DW DOCOL
 DW DP
 DW AT
 DW SEMIS
 L1200 NAME \$85, 'ALLOT'
 DW L1190
 ALLOT DW DOCOL
 DW DP
 DW PSTOR
 DW SEMIS
 L1210 DFB \$81, \$AC ,
 DW L1200
 COMMA DW DOCOL
 DW HERE
 DW STORE
 DW TWO
 DW ALLOT
 DW SEMIS
 L1222 DFB \$82, 'C', \$AC C,
 DW L1210
 CCOMM DW DOCOL
 DW HERE
 DW CSTOR
 DW ONE
 DW ALLOT
 DW SEMIS
 L1234 NAME \$81, '-'
 DW L1222
 SUB DW DOCOL
 DW MINUS
 DW PLUS
 DW SEMIS
 L1244 NAME \$81, '='
 DW L1234
 EQUAL DW DOCOL
 DW SUB


```

        DW ZEQU
        DW SEMIS
L1246  NAME $82, 'U<'
        DW L1244
ULESS  DW *+2
        LDA 2,X
        CMP 0,X
        LDA 3,X
        SBC 1,X
        TYA
        ROL A
        EOR #1
        STA 2,X
        STY 3,X
        JMP POP
L1254  NAME $81, '<'
        DW L1246
LESS   DW *+2
        SEC
        LDA 2,X
        SBC 0,X
        LDA 3,X
        SBC 1,X
        STY 3,X
        BVC L1258
        EOR # $80
L1258  BPL L1260
        INY
L1260  STY 2,X
        JMP POP
L1264  NAME $81, '>'
        DW L1254
GREAT  DW DOCOL
        DW SWAP
        DW LESS
        DW SEMIS
L1274  NAME $83, 'ROT'
        DW L1264
ROT    DW DOCOL
        DW TOR
        DW SWAP
        DW RFROM
        DW SWAP
        DW SEMIS
L1286  NAME $85, 'SPACE'
        DW L1274
SPACE  DW DOCOL
        DW BL
        DW EMIT
        DW SEMIS
L1296  NAME $84, '-DUP'
        DW L1286
DDUP   DW DOCOL
        DW DUP
        DW ZBRAN
L1301  DW $4
        DW DUP
L1303  DW SEMIS
L1308  NAME $88, 'TRAVERSE'

```

	DW L1296
TRAV	DW DOCOL
	DW SWAP
L1312	DW OVER
	DW PLUS
	DW CLIT
	DFB \$7F
	DW OVER
	DW CAT
	DW LESS
	DW ZBRAN
L1320	DW \$FFF1
	DW SWAP
	DW DROP
	DW SEMIS
L1328	NAME \$86, 'LATEST'
	DW L1308
LATES	DW DOCOL
	DW CURR
	DW AT
	DW AT
	DW SEMIS
L1339	NAME \$83, 'LFA'
	DW L1328
LFA	DW DOCOL
	DW CLIT
	DFB 4
	DW SUB
	DW SEMIS
L1350	NAME \$83, 'CFA'
	DW L1339
CFA	DW DOCOL
	DW TWO
	DW SUB
	DW SEMIS
L1360	NAME \$83, 'NFA'
	DW L1350
NFA	DW DOCOL
	DW CLIT
	DFB \$5
	DW SUB
	DW LIT, \$FFFF
	DW TRAV
	DW SEMIS
L1373	NAME \$83, 'PFA'
	DW L1360
PFA	DW DOCOL
	DW ONE
	DW TRAV
	DW CLIT
	DFB 5
	DW PLUS
	DW SEMIS
L1386	NAME \$84, '!CSP'
	DW L1373
SCSP	DW DOCOL
	DW SPAT
	DW CSP
	DW STORE

L1397	DW SEMIS NAME \$86, '?ERROR'
QERR	DW L1386 DW DOCOL DW SWAP DW ZBRAN
L1402	DW 8 DW ERROR DW BRAN
L1405	DW 4
L1406	DW DROP
L1407	DW SEMIS
L1412	NAME \$85, '?COMP'
QCOMP	DW L1397 DW DOCOL DW STATE DW AT DW ZEQU DW CLIT DFB \$11 DW QERR DW SEMIS
L1426	NAME \$85, '?EXEC'
QEXEC	DW L1412 DW DOCOL DW STATE DW AT DW CLIT DFB \$12 DW QERR DW SEMIS
L1439	NAME \$86, '?PAIRS'
QPAIR	DW L1426 DW DOCOL DW SUB DW CLIT DFB \$13 DW QERR DW SEMIS
L1451	NAME \$84, '?CSP'
QCSP	DW L1439 DW DOCOL DW SPAT DW CSP DW AT DW SUB DW CLIT DFB \$14 DW QERR DW SEMIS
L1466	NAME \$88, '?LOADING'
QLOAD	DW L1451 DW DOCOL DW BLK DW AT DW ZEQU DW CLIT DFB \$16 DW QERR

L1480 DW SEMIS
 NAME \$87, 'COMPILE'
 DW L1466
 COMP DW DOCOL
 DW QCOMP
 DW RFROM
 DW DUP
 DW TWOP
 DW TOR
 DW AT
 DW COMMA
 DW SEMIS
 L1495 NAME \$C1, '['
 DW L1480
 LBRAC DW DOCOL
 DW ZERO
 DW STATE
 DW STORE
 DW SEMIS
 L1507 NAME \$81, ']'
 DW L1495
 RBRAC DW DOCOL
 DW CLIT
 DFB \$C0
 DW STATE
 DW STORE
 DW SEMIS
 L1519 NAME \$86, 'SMUDGE'
 DW L1507
 SMUDG DW DOCOL
 DW LATES
 DW CLIT
 DFB \$20
 DW TOGGL
 DW SEMIS
 L1531 NAME \$83, 'HEX'
 DW L1519
 HEX DW DOCOL
 DW CLIT
 DFB 16
 DW BASE
 DW STORE
 DW SEMIS
 L1543 NAME \$87, 'DECIMAL'
 DW L1531
 DECIM DW DOCOL
 DW CLIT
 DFB 10
 DW BASE
 DW STORE
 DW SEMIS
 L1555 NAME \$87, '(;CODE)'
 DW L1543
 PSCOD DW DOCOL
 DW RFROM
 DW LATES
 DW PFA
 DW CFA
 DW STORE

```

L1568    DW SEMIS
        NAME $C5, '      ;CODE '
        DW L1555
        DW DOCOL
        DW QCSP
        DW COMP
        DW PSCOD
        DW LBRAC
        DW SMUDG
        DW SEMIS
L1582    NAME $87, '<BUILDS '
        DW L1568
BUILD    DW DOCOL
        DW ZERO
        DW CONST
        DW SEMIS
L1592    NAME $85, 'DOES> '
        DW L1582
DOES     DW DOCOL
        DW RFROM
        DW LATES
        DW PFA
        DW STORE
        DW PSCOD
DODOE    LDA IP+1
        PHA
        LDA IP
        PHA
        LDY #2
        LDA (W),Y
        STA IP
        INY
        LDA (W),Y
        STA IP+1
        CLC
        LDA W
        ADC #4
        PHA
        LDA W+1
        ADC #0
        JMP PUSH
L1622    NAME $85, 'COUNT '
        DW L1592
COUNT   DW DOCOL
        DW DUP
        DW ONEP
        DW SWAP
        DW CAT
        DW SEMIS
L1634    NAME $84, 'TYPE '
        DW L1622
TYPE     DW DOCOL
        DW DDUP
        DW ZBRAN
L1639    DW $18
        DW OVER
        DW PLUS
        DW SWAP
        DW PDO

```

```

L1644      DW I
           DW CAT
           DW EMIT
           DW PLOOP
L1648      DW $FFF8
           DW BRAN
L1650      DW $4
L1651      DW DROP
L1652      DW SEMIS
L1657      NAME $89, '-TRAILING'
           DW L1634
DTRAI      DW *+2
           LDY 0,X
           LDA 2,X
           STA N
           LDA 3,X
           STA N+1
DTR1       DEY
           BMI DTR2
           LDA (N),Y
           CMP #$20
           BEQ DTR1
DTR2       INY
           STY 0,X
           JMP NEXT
L1685      NAME $84, '(.)'
           DW L1657
PDOTQ      DW DOCOL
           DW R
           DW COUNT
           DW DUP
           DW ONEP
           DW RFROM
           DW PLUS
           DW TOR
           DW TYPE
           DW SEMIS
L1701      NAME $C2, '."'
           DW L1685
           DW DOCOL
           DW CLIT
           DFB $22
           DW STATE
           DW AT
           DW ZBRAN
L1709      DW $14
           DW COMP
           DW PDOTQ
           DW WORD
           DW HERE
           DW CAT
           DW ONEP
           DW ALLOT
           DW BRAN
L1718      DW $A
L1719      DW WORD
           DW HERE
           DW COUNT
           DW TYPE

```

```

L1723      DW SEMIS
L1729      NAME $86, 'EXPECT'
          DW L1701
EXPEC      DW *+2
          STX XSAVE
          LDA 2,X
          STA N
          LDA 3,X
          STA N+1
          JSR $FD6F
          CPX #$4D
          BCC EXPEC1
          LDX #$4C
EXPEC1     LDA #0
          STA $200,X
          INX
          STA $200,X
          INX
          STA $200,X
          INX
          STA $200,X
          TXA
          TAY
EXPEC2     LDA $200,X
          AND #$7F
          STA (N),Y
          DEY
          DEX
          BPL EXPEC2
          LDX XSAVE
          JMP POPTWO
L1788      NAME $85, 'QUERY'
          DW L1729
QUERY      DW DOCOL
          DW TIB
          DW AT
          DW CLIT
          DFB 80
          DW EXPEC
          DW ZERO
          DW IN
          DW STORE
          DW SEMIS
L1804      DFB $C1,$80 @
          DW L1788
          DW DOCOL
          DW BLK
          DW AT
          DW ZBRAN
L1810      DW $2A
          DW ONE
          DW BLK
          DW PSTOR
          DW ZERO
          DW IN
          DW STORE
          DW BLK
          DW AT
          DW ZERO,BSCR

```

	DW USLAS
	DW DROP
	DW ZEQU
	DW ZBRAN
L1824	DW 8
	DW QEXEC
	DW RFROM
	DW DROP
L1828	DW BRAN
L1829	DW 6
L1830	DW RFROM
	DW DROP
L1832	DW SEMIS
L1838	NAME \$84, 'FILL'
	DW L1804
FILL	DW DOCOL
	DW SWAP
	DW TOR
	DW OVER
	DW CSTOR
	DW DUP
	DW ONEP
	DW RFROM
	DW ONE
	DW SUB
	DW CMOVE
	DW SEMIS
L1856	NAME \$85, 'ERASE'
	DW L1838
ERASE	DW DOCOL
	DW ZERO
	DW FILL
	DW SEMIS
L1866	NAME \$86, 'BLANKS'
	DW L1856
BLANK	DW DOCOL
	DW BL
	DW FILL
	DW SEMIS
L1876	NAME \$84, 'HOLD'
	DW L1866
HOLD	DW DOCOL
	DW LIT, \$FFFF
	DW HLD
	DW PSTOR
	DW HLD
	DW AT
	DW CSTOR
	DW SEMIS
L1890	NAME \$83, 'PAD'
	DW L1876
PAD	DW DOCOL
	DW HERE
	DW CLIT
	DFB 68
	DW PLUS
	DW SEMIS
L1902	NAME \$84, 'WORD'
	DW L1890

WORD	DW DOCOL
	DW BLK
	DW AT
	DW ZBRAN
L1908	DW \$C
	DW BLK
	DW AT
	DW BLOCK
	DW BRAN
L1913	DW \$6
L1914	DW TIB
	DW AT
L1916	DW IN
	DW AT
	DW PLUS
	DW SWAP
	DW ENCL
	DW HERE
	DW CLIT
	DFB \$22
	DW BLANK
	DW IN
	DW PSTOR
	DW OVER
	DW SUB
	DW TOR
	DW R
	DW HERE
	DW CSTOR
	DW PLUS
	DW HERE
	DW ONEP
	DW RFROM
	DW CMOVE
	DW SEMIS
L1943	NAME \$85, 'UPPER'
	DW L1902
UPPER	DW DOCOL
	DW OVER
	DW PLUS
	DW SWAP
	DW PDO
L1950	DW I
	DW CAT
	DW CLIT
	DFB \$5F
	DW GREAT
	DW ZBRAN
L1956	DW 09
	DW I
	DW CLIT
	DFB \$20
	DW TOGGL
L1961	DW PLOOP
L1962	DW \$FFEA
	DW SEMIS
L1968	NAME \$88, '(NUMBER)'
	DW L1943
PNUMB	DW DOCOL

L1971	DW ONEP
	DW DUP
	DW TOR
	DW CAT
	DW BASE
	DW AT
	DW DIGIT
	DW ZBRAN
L1979	DW \$2C
	DW SWAP
	DW BASE
	DW AT
	DW USTAR
	DW DROP
	DW ROT
	DW BASE
	DW AT
	DW USTAR
	DW DPLUS
	DW DPL
	DW AT
	DW ONEP
	DW ZBRAN
L1994	DW 8
	DW ONE
	DW DPL
	DW PSTOR
L1998	DW RFROM
	DW BRAN
L2000	DW \$FFC6
L2001	DW RFROM
	DW SEMIS
L2007	NAME \$86, 'NUMBER'
	DW L1968
NUMBER	DW DOCOL
	DW ZERO
	DW ZERO
	DW ROT
	DW DUP
	DW ONEP
	DW CAT
	DW CLIT
	DFB \$2D
	DW EQUAL
	DW DUP
	DW TOR
	DW PLUS
	DW LIT, \$FFFF
L2023	DW DPL
	DW STORE
	DW PNUMB
	DW DUP
	DW CAT
	DW BL
	DW SUB
	DW ZBRAN
L2031	DW \$15
	DW DUP
	DW CAT

	DW CLIT
	DFB \$2E
	DW SUB
	DW ZERO
	DW QERR
	DW ZERO
	DW BRAN
L2041	DW \$FFDD
L2042	DW DROP
	DW RFROM
	DW ZBRAN
L2045	DW 4
	DW DMINU
L2047	DW SEMIS
L2052	NAME \$85, '-FIND'
	DW L2007
DFIND	DW DOCOL
	DW BL
	DW WORD
	DW HERE
	DW COUNT
	DW UPPER
	DW HERE
	DW CON
	DW AT
	DW AT
	DW PFIND
	DW DUP
	DW ZEQU
	DW ZBRAN
L2068	DW \$A
	DW DROP
	DW HERE
	DW LATES
	DW PFIND
L2073	DW SEMIS
L2078	NAME \$87, '(ABORT)'
	DW L2052
PABOR	DW DOCOL
	DW ABORT
	DW SEMIS
L2087	NAME \$85, 'ERROR'
	DW L2078
ERROR	DW DOCOL
	DW WARN
	DW AT
	DW ZLESS
	DW ZBRAN
	DW L2096-*
	DW PABOR
L2096	DW HERE
	DW COUNT
	DW TYPE
	DW PDOTQ
	STR ' ? '
	DW MESS
	DW SPSTO
	DW DROP, DROP
	DW IN

DW AT
DW BLK
DW AT
DW QUIT
DW SEMIS
L2113 NAME \$83, 'ID.'
DW L2087
IDDOT DW DOCOL
DW PAD
DW CLIT
DFB \$20
DW CLIT
DFB \$5F
DW FILL
DW DUP
DW PFA
DW LFA
DW OVER
DW SUB
DW PAD
DW SWAP
DW CMOVE
DW PAD
DW COUNT
DW CLIT
DFB \$1F
DW ANDD
DW TYPE
DW SPACE
DW SEMIS
L2142 NAME \$86, 'CREATE'
DW L2113
CREAT DW DOCOL
DW LIT, \$A800
DW HERE
DW ULESS
DW TWO
DW QERR
DW DFIND
DW ZBRAN
L2155 DW \$0F
DW DROP
DW NFA
DW IDDOT
DW CLIT
DFB 4
DW MESS
DW SPACE
L2163 DW HERE
DW DUP
DW CAT
DW WIDTH
DW AT
DW MIN
DW ONEP
DW ALLOT
DW DP
DW CAT
DW CLIT

DFB \$FD
 DW EQUAL
 DW ALLOT
 DW DUP
 DW CLIT
 DFB \$A0
 DW TOGGL
 DW HERE
 DW ONE
 DW SUB
 DW CLIT
 DFB \$80
 DW TOGGL
 DW LATES
 DW COMMA
 DW CURR
 DW AT
 DW STORE
 DW HERE
 DW TWOP
 DW COMMA
 DW SEMIS
 L2200 NAME \$C9, '[COMPILE]'
 DW L2142
 DW DOCOL
 DW DFIND
 DW ZEQU
 DW ZERO
 DW QERR
 DW DROP
 DW CFA
 DW COMMA
 DW SEMIS
 L2216 NAME \$C7, 'LITERAL'
 DW L2200
 LITER DW DOCOL
 DW STATE
 DW AT
 DW ZBRAN
 L2222 DW 8
 DW COMP
 DW LIT
 DW COMMA
 L2226 DW SEMIS
 L2232 NAME \$C8, 'DLITERAL'
 DW L2216
 DLIT DW DOCOL
 DW STATE
 DW AT
 DW ZBRAN
 L2238 DW 8
 DW SWAP
 DW LITER
 DW LITER
 L2242 DW SEMIS
 L2248 NAME \$86, '?STACK'
 DW L2232
 QSTAC DW DOCOL
 DW CLIT

DFB TOS-2
 DW SPAT
 DW ULESS
 DW ONE
 DW QERR
 DW SPAT
 DW CLIT
 DFB BOS
 DW ULESS
 DW CLIT
 DFB 7
 DW QERR
 DW SEMIS
 L2269 NAME \$89, 'INTERPRET'
 DW L2248
 INTER DW DOCOL
 L2272 DW DFIND
 DW ZBRAN
 L2274 DW \$1E
 DW STATE
 DW AT
 DW LESS
 DW ZBRAN
 L2279 DW \$A
 DW CFA
 DW COMMA
 DW BRAN
 L2283 DW \$6
 L2284 DW CFA
 DW EXEC
 L2286 DW QSTAC
 DW BRAN
 L2288 DW \$1C
 L2289 DW HERE
 DW NUMBER
 DW DPL
 DW AT
 DW ONEP
 DW ZBRAN
 L2295 DW 8
 DW DLIT
 DW BRAN
 L2298 DW \$6
 L2299 DW DROP
 DW LITER
 L2301 DW QSTAC
 L2302 DW BRAN
 L2303 DW \$FFC2
 L2309 NAME \$89, 'IMMEDIATE'
 DW L2269
 DW DOCOL
 DW LATES
 DW CLIT
 DFB \$40
 DW TOGGL
 DW SEMIS
 L2321 NAME \$8A, 'VOCABULARY'
 DW L2309
 DW DOCOL

	DW BUILD
	DW LIT,\$A081
	DW COMMA
	DW CURR
	DW AT
	DW CFA
	DW COMMA
	DW HERE
	DW VOCL
	DW AT
	DW COMMA
	DW VOCL
	DW STORE
	DW DOES
DOVOC	DW TWOP
	DW CON
	DW STORE
	DW SEMIS
L2346	NAME \$C5, 'FORTH'
	DW L2321
FORTH	DW DODOE
	DW DOVOC
	DW \$A081
XFOR	DW NTOP
VLO	DW 0
L2357	NAME \$8B, 'DEFINITIONS'
	DW L2346
DEFIN	DW DOCOL
	DW CON
	DW AT
	DW CURR
	DW STORE
	DW SEMIS
L2369	NAME \$C1, '('
	DW L2357
	DW DOCOL
	DW CLIT
	DFB \$29
	DW WORD
	DW SEMIS
L2381	NAME \$84, 'QUIT'
	DW L2369
QUIT	DW DOCOL
	DW ZERO
	DW BLK
	DW STORE
	DW LBRAC
L2388	DW RPSTO
	DW CR
	DW QUERY
	DW INTER
	DW STATE
	DW AT
	DW ZEQU
	DW ZBRAN
	DW L2399-*
	DW PDOTQ
	STR 'OK'
L2399	DW BRAN

```

        DW L2388-*
        DW SEMIS
L2406   NAME $85, 'ABORT'
        DW L2381
ABORT   DW DOCOL
ABORT1  DW SPSTO
        DW DECIM
        DW DR0
        DW CR
        DW PDOTQ
        STR 'APPLE-DAYTON ProFORTH V3.2'
        DW CR
        DW FORTH
        DW DEFIN
        DW QUIT
L2423   NAME $84, 'COLD'
        DW L2406
COLD    DW *+2
        LDA #>WARM
        STA $3F9
        LDA #<WARM
        STA $3FA
        LDA #>RESET
        STA $3F2
        LDA #<RESET
        STA $3F3
        EOR #A5
        STA $3F4
        LDA #$4C
        STA $3EA
        LDA #>MYHOOK
        STA $3EB
        LDA #<MYHOOK
        STA $3EC
        LDA ORIG+$0C
        STA FORTH+6
        LDA ORIG+$0D
        STA FORTH+7
        LDY #$15
        BNE L2433
WARM    LDY #$0F
L2433   LDA ORIG+$10
        STA UP
        LDA ORIG+$11
        STA UP+1
L2437   LDA ORIG+$0C,Y
        STA (UP),Y
        DEY
        BPL L2437
        LDA #$80 NULL prompt if
        STA $33 backspace to far
        JSR MYHOOK
        LDA #<ABORT1
        STA IP+1
        LDA #>ABORT1
        STA IP
        CLD
        LDA #$6C
        STA W-1

```



```

        JMP RPSTO+2
RESET   LDA $BF98
        AND #2
        BEQ RESET1
        JSR $C300
RESET1  JMP WARM
MYKEY   JSR $FF58
        CMP #$FF
        BNE MYKEY1
        LDA #$88 DEL=^H
MYKEY1  RTS
MYHOOK  LDA KSWL+1
        CMP #<MYKEY
        BEQ HOOKED
        STA MYKEY+2
        LDA KSWL
        STA MYKEY+1
        LDA #>MYKEY
        STA KSWL
        LDA #<MYKEY
        STA KSWL+1
HOOKED  RTS
L2453   NAME $84, 'S->D'
        DW L2423
STOD    DW DOCOL
        DW DUP
        DW ZLESS
        DW MINUS
        DW SEMIS
L2464   NAME $82, '+-'
        DW L2453
PM      DW DOCOL
        DW ZLESS
        DW ZBRAN
L2469   DW 4
        DW MINUS
L2471   DW SEMIS
L2476   NAME $83, 'D+-'
        DW L2464
DPM     DW DOCOL
        DW ZLESS
        DW ZBRAN
L2481   DW 4
        DW DMINU
L2483   DW SEMIS
L2488   NAME $83, 'ABS'
        DW L2476
ABS     DW DOCOL
        DW DUP
        DW PM
        DW SEMIS
L2498   NAME $84, 'DABS'
        DW L2488
DABS    DW DOCOL
        DW DUP
        DW DPM
        DW SEMIS
L2508   NAME $83, 'MIN'
        DW L2498

```

MIN	DW DOCOL
	DW OVER
	DW OVER
	DW GREAT
	DW ZBRAN
L2515	DW 4
	DW SWAP
L2517	DW DROP
	DW SEMIS
L2523	NAME \$83, 'MAX'
	DW L2508
MAX	DW DOCOL
	DW OVER
	DW OVER
	DW LESS
	DW ZBRAN
L2530	DW 4
	DW SWAP
L2532	DW DROP
	DW SEMIS
L2538	NAME \$82, 'M*'
	DW L2523
MSTAR	DW DOCOL
	DW OVER
	DW OVER
	DW XOR
	DW TOR
	DW ABS
	DW SWAP
	DW ABS
	DW USTAR
	DW RFROM
	DW DPM
	DW SEMIS
L2556	NAME \$82, 'M/'
	DW L2538
MSLAS	DW DOCOL
	DW OVER
	DW TOR
	DW TOR
	DW DABS
	DW R
	DW ABS
	DW USLAS
	DW RFROM
	DW R
	DW XOR
	DW PM
	DW SWAP
	DW RFROM
	DW PM
	DW SWAP
	DW SEMIS
L2579	NAME \$81, '*'
	DW L2556
STAR	DW DOCOL
	DW USTAR
	DW DROP
	DW SEMIS

L2589 NAME \$84, '/MOD'
DW L2579
SLMOD DW DOCOL
DW TOR
DW STOD
DW RFROM
DW MSLAS
DW SEMIS
L2601 NAME \$81, '/'
DW L2589
SLASH DW DOCOL
DW SLMOD
DW SWAP
DW DROP
DW SEMIS
L2612 NAME \$83, 'MOD'
DW L2601
MOD DW DOCOL
DW SLMOD
DW DROP
DW SEMIS
L2622 NAME \$85, '* /MOD'
DW L2612
SSMOD DW DOCOL
DW TOR
DW MSTAR
DW RFROM
DW MSLAS
DW SEMIS
L2634 NAME \$82, '* /'
DW L2622
SSLAS DW DOCOL
DW SSMOD
DW SWAP
DW DROP
DW SEMIS
L2645 NAME \$85, 'M/MOD'
DW L2634
MSMOD DW DOCOL
DW TOR
DW ZERO
DW R
DW USLAS
DW RFROM
DW SWAP
DW TOR
DW USLAS
DW RFROM
DW SEMIS
L2662 NAME \$83, 'USE'
DW L2645
USE DW DOVAR
DW DAREA
L2670 NAME \$84, 'PREV'
DW L2662
PREV DW DOVAR
DW DAREA
L2678 NAME \$84, '+BUF'
DW L2670

PBUF	DW DOCOL
	DW LIT
	DW SSIZE+4
	DW PLUS
	DW DUP
	DW LIMIT
	DW EQUAL
	DW ZBRAN
L2688	DW 6
	DW DROP
	DW FIRST
L2691	DW DUP
	DW PREV
	DW AT
	DW SUB
	DW SEMIS
L2700	NAME \$86, 'UPDATE'
	DW L2678
UPDAT	DW DOCOL
	DW PREV
	DW AT
	DW AT
	DW LIT, \$8000
	DW OR
	DW PREV
	DW AT
	DW STORE
	DW SEMIS
L2705	NAME \$85, 'FLUSH'
	DW L2700
	DW DOCOL
	DW LIT, NBUF+1
	DW ZERO, PDO
L2835	DW LIT, \$7FFF, BUFFR
	DW DROP, PLOOP, L2835-*
	DW SEMIS
L2716	NAME \$8D, 'EMPTY-BUFFERS'
	DW L2705
	DW DOCOL
	DW FIRST
	DW LIMIT
	DW OVER
	DW SUB
	DW ERASE
	DW SEMIS
L2729	NAME \$83, 'DR0'
	DW L2716
DR0	DW DOCOL
	DW LIT, 0, OFFSET, STORE
	DW SEMIS
L2740	NAME \$83, 'DR1'
	DW L2729
DR1	DW DOCOL
	DW FSIZE, OFFSET, STORE
	DW SEMIS
L2751	NAME \$86, 'BUFFER'
	DW L2740
BUFFR	DW DOCOL
	DW USE

	DW AT
	DW DUP
	DW TOR
L2758	DW PBUF
	DW ZBRAN
L2760	DW \$FFFC
	DW USE
	DW STORE
	DW R
	DW AT
	DW ZLESS
	DW ZBRAN
L2767	DW \$14
	DW R
	DW TWOP
	DW R
	DW AT
	DW LIT, \$7FFF
	DW ANDD
	DW ZERO
	DW RSLW
L2776	DW R
	DW STORE
	DW R
	DW PREV
	DW STORE
	DW RFROM
	DW TWOP
	DW SEMIS
L2788	NAME \$85, 'BLOCK'
	DW L2751
BLOCK	DW DOCOL
	DW OFFSET
	DW AT
	DW PLUS
	DW TOR
	DW PREV
	DW AT
	DW DUP
	DW AT
	DW R
	DW SUB
	DW DUP
	DW PLUS
	DW ZBRAN
L2804	DW \$34
L2805	DW PBUF
	DW ZEQU
	DW ZBRAN
L2808	DW \$14
	DW DROP
	DW R
	DW BUFR
	DW DUP
	DW R
	DW ONE
	DW RSLW
	DW TWO
	DW SUB

L2818	DW DUP
	DW AT
	DW R
	DW SUB
	DW DUP
	DW PLUS
	DW ZEQU
	DW ZBRAN
L2826	DW \$FFD6
	DW DUP
	DW PREV
	DW STORE
L2830	DW RFROM
	DW DROP
	DW TWOP
	DW SEMIS
L2838	NAME \$86, '(LINE)'
	DW L2788
PLINE	DW DOCOL
	DW TOR
	DW CSLL
	DW BBUF
	DW SSMOD
	DW RFROM
	DW BSCR
	DW STAR
	DW PLUS
	DW BLOCK
	DW PLUS
	DW CSLL
	DW SEMIS
L2857	NAME \$85, '.LINE'
	DW L2838
DLINE	DW DOCOL
	DW PLINE
	DW DTRAI
	DW TYPE
	DW SEMIS
L2868	NAME \$87, 'MESSAGE'
	DW L2857
MESS	DW DOCOL
	DW WARN
	DW AT
	DW ZBRAN
	DW L2888-*
	DW CLIT
	DFB 4
	DW OFFSET
	DW AT
	DW BSCR
	DW SLASH
	DW SUB
	DW DLINE
	DW BRAN
	DW L2891-*
L2888	DW PDOTQ
	STR 'MSG #'
	DW DOT
L2891	DW SEMIS

```

L2896      NAME $84, 'LOAD'
           DW L2868
LOAD       DW DOCOL
           DW BLK
           DW AT
           DW TOR
           DW IN
           DW AT
           DW TOR
           DW ZERO
           DW IN
           DW STORE
           DW BSCR
           DW STAR
           DW BLK
           DW STORE
           DW INTER
           DW RFROM
           DW IN
           DW STORE
           DW RFROM
           DW BLK
           DW STORE
           DW SEMIS
L2924     NAME $C3, '-->'
           DW L2896
           DW DOCOL
           DW QLOAD
           DW ZERO
           DW IN
           DW STORE
           DW BSCR
           DW BLK
           DW AT
           DW OVER
           DW MOD
           DW SUB
           DW BLK
           DW PSTOR
           DW SEMIS
XEMIT     INC UAREA+$1A
           BNE XEMIT1
           INC UAREA+$1B
XEMIT1    LDA 0, X
           STX XSAVE
           ORA #$80
           JSR OUTCH
           LDX XSAVE
           JMP POP
XKEY      STX XSAVE
           JSR INCH
           AND #$7F
           LDX XSAVE
           JMP PUSHOA
XQTER     BIT $C000
           BPL XQTER2
XQTER1    BIT $C010
           BIT $C000
           BMI XQTER1

```

```

        INY
XQTER2  TYA
        JMP PUSHOA
XCR     STX XSAVE
        JSR CROUT
        LDX XSAVE
        JMP NEXT
L3050   NAME $85, '(R/W)'
        DW L2924
PRSLW   DW *+2
        LDA 0,X
        STA SETREF
        STA RWREF
        LDA #$CA
        STA RWCOM
        LDA 2,X
        BNE PRSLW1
        LDA #$CB
        STA RWCOM
PRSLW1  LDA 6,X
        STA RWBUF
        LDA 7,X
        STA RWBUF+1
        LDA 4,X
        ASL A
        STA SETPOS+1
        LDA 5,X
        ROL A
        STA SETPOS+2
        ASL SETPOS+1
        ROL SETPOS+2
        JSR MLI
        DB $CE Set file position
        DW SETLIST
        BCS PRSLW2
        JSR MLI
RWCOM   DB 0 Read/write command
        DW RWLIST
PRSLW2  PHA
        TXA
        CLC
        ADC #6
        TAX
        TYA
        JMP PUT
SETLIST DB 2
SETREF  DB 0
SETPOS  DB 0,0,0
RWLIST  DB 4
RWREF   DB 0
RWBUF   DW 0
RWLEN   DW 1024,0
FCLIST  DB 1,0
BLIST   DFB 4,0,0,0,0,0,0
L3060   NAME $83, 'R/W'
        DW L3050
RSLW    DW DOCOL,TOR,DUP,FSIZE,ULESS
        DW ZBRAN,RSLW1-*
        DW ONE,BRAN,RSLW2-*

```



```

RSLW1      DW FSIZE, SUB, TWO
RSLW2      DW RFROM, SWAP, PRSLW
            DW DDUP, ZBRAN, RSLW3-*
            DW DOT, LIT, 8, ERROR
RSLW3      DW SEMIS
L3202      NAME $C1, ""
            DW L3060
TICK       DW DOCOL
            DW DFIND
            DW ZEQU
            DW ZERO
            DW QERR
            DW DROP
            DW LITER
            DW SEMIS
L3217      NAME $86, 'FORGET'
            DW L3202
FORG       DW DOCOL
            DW TICK, NFA, DUP
            DW FENCE, AT, ULESS, CLIT
            DFB $15
            DW QERR, TOR, VOCL, AT
L3220      DW R, OVER, ULESS
            DW ZBRAN, L3225-*
            DW FORTH, DEFIN, AT, DUP
            DW VOCL, STORE
            DW BRAN, $FFFF-24+1 ;L3220-*
L3225      DW DUP, CLIT
            DFB 4
            DW SUB
L3228      DW PFA, LFA, AT
            DW DUP, R, ULESS
            DW ZBRAN, $FFFF-14+1 ;L3228-*
            DW OVER, TWO, SUB, STORE
            DW AT, DDUP, ZEQU
            DW ZBRAN, $FFFF-39+1 ;L3225-*
            DW RFROM, DP, STORE
            DW SEMIS
L3250      NAME $84, 'BACK'
            DW L3217
BACK       DW DOCOL
            DW HERE
            DW SUB
            DW COMMA
            DW SEMIS
L3261      NAME $C5, 'BEGIN'
            DW L3250
            DW DOCOL
            DW QCOMP
            DW HERE
            DW ONE
            DW SEMIS
L3273      NAME $C5, 'ENDIF'
            DW L3261
ENDIF     DW DOCOL
            DW QCOMP
            DW TWO
            DW QPAIR
            DW HERE

```

```

DW OVER
DW SUB
DW SWAP
DW STORE
DW SEMIS
L3290 NAME $C4, 'THEN'
DW L3273
DW DOCOL
DW ENDIF
DW SEMIS
L3300 NAME $C2, 'DO'
DW L3290
DW DOCOL
DW COMP
DW PDO
DW HERE
DW THREE
DW SEMIS
L3313 NAME $C4, 'LOOP'
DW L3300
DW DOCOL
DW THREE
DW QPAIR
DW COMP
DW PLOOP
DW BACK
DW SEMIS
DW SEMIS
L3327 NAME $C5, '+LOOP'
DW L3313
DW DOCOL
DW THREE
DW QPAIR
DW COMP
DW PPLOO
DW BACK
DW SEMIS
L3341 NAME $C5, 'UNTIL'
UNTIL DW L3327
DW DOCOL
DW ONE
DW QPAIR
DW COMP
DW ZBRAN
DW BACK
DW SEMIS
L3355 NAME $C3, 'END'
DW L3341
DW DOCOL
DW UNTIL
DW SEMIS
L3365 NAME $C5, 'AGAIN'
AGAIN DW L3355
DW DOCOL
DW ONE
DW QPAIR
DW COMP
DW BRAN
DW BACK

```

```

L3379      DW SEMIS
           NAME $C6, 'REPEAT'
           DW L3365
           DW DOCOL
           DW TOR
           DW TOR
           DW AGAIN
           DW RFROM
           DW RFROM
           DW TWO
           DW SUB
           DW ENDIF
           DW SEMIS
L3396      NAME $C2, 'IF'
           DW L3379
IF          DW DOCOL
           DW COMP
           DW ZBRAN
           DW HERE
           DW ZERO
           DW COMMA
           DW TWO
           DW SEMIS
L3411      NAME $C4, 'ELSE'
           DW L3396
           DW DOCOL
           DW TWO
           DW QPAIR
           DW COMP
           DW BRAN
           DW HERE
           DW ZERO
           DW COMMA
           DW SWAP
           DW TWO
           DW ENDIF
           DW TWO
           DW SEMIS
L3431      NAME $C5, 'WHILE'
           DW L3411
           DW DOCOL
           DW IF
           DW TWOP
           DW SEMIS
L3442      NAME $86, 'SPACES'
           DW L3431
SPACS      DW DOCOL
           DW ZERO
           DW MAX
           DW DDUP
           DW ZBRAN
L3449      DW $0C
           DW ZERO
           DW PDO
L3452      DW SPACE
           DW PLOOP
L3454      DW $FFFC
L3455      DW SEMIS
L3460      NAME $82, '<#'

```

	DW L3442
BDIGS	DW DOCOL
	DW PAD
	DW HLD
	DW STORE
	DW SEMIS
L3471	NAME \$82, '#>'
	DW L3460
EDIGS	DW DOCOL
	DW DROP
	DW DROP
	DW HLD
	DW AT
	DW PAD
	DW OVER
	DW SUB
	DW SEMIS
L3486	NAME \$84, 'SIGN'
	DW L3471
SIGN	DW DOCOL
	DW ROT
	DW ZLESS
	DW ZBRAN
L3492	DW \$7
	DW CLIT
	DFB \$2D
	DW HOLD
L3496	DW SEMIS
L3501	DFB \$81, \$A3
	DW L3486
DIG	DW DOCOL
	DW BASE
	DW AT
	DW MSMOD
	DW ROT
	DW CLIT
	DFB 9
	DW OVER
	DW LESS
	DW ZBRAN
L3513	DW 7
	DW CLIT
	DFB 7
	DW PLUS
L3517	DW CLIT
	DFB \$30
	DW PLUS
	DW HOLD
	DW SEMIS
L3526	NAME \$82, '#S'
	DW L3501
DIGS	DW DOCOL
L3529	DW DIG
	DW OVER
	DW OVER
	DW OR
	DW ZEQU
	DW ZBRAN
L3535	DW \$FFF4

L3541 DW SEMIS
 NAME \$83, 'D.R'
 DW L3526
 DDOTR DW DOCOL
 DW TOR
 DW SWAP
 DW OVER
 DW DABS
 DW BDIGS
 DW DIGS
 DW SIGN
 DW EDIGS
 DW RFROM
 DW OVER
 DW SUB
 DW SPACS
 DW TYPE
 DW SEMIS
 L3562 NAME \$82, 'D.'
 DW L3541
 DDOT DW DOCOL
 DW ZERO
 DW DDOTR
 DW SPACE
 DW SEMIS
 L3573 NAME \$82, '.R'
 DW L3562
 DOTR DW DOCOL
 DW TOR
 DW STOD
 DW RFROM
 DW DDOTR
 DW SEMIS
 L3585 DFB \$81, \$AE
 DW L3573
 DOT DW DOCOL
 DW STOD
 DW DDOT
 DW SEMIS
 L3595 NAME \$81, '?'
 DW L3585
 QUES DW DOCOL
 DW AT
 DW DOT
 DW SEMIS
 L3605 NAME \$84, 'LIST'
 DW L3595
 LIST DW DOCOL
 DW DECIM
 DW CR
 DW DUP
 DW SCR
 DW STORE
 DW PDOTQ
 DFB 6
 ASC 'Scr # '
 DW DOT
 DW CLIT
 DFB 16

	DW ZERO
	DW PDO
L3620	DW CR
	DW I
	DW THREE
	DW DOTR
	DW SPACE
	DW I
	DW SCR
	DW AT
	DW DLINE
	DW PLOOP
L3630	DW \$FFEC
	DW CR
	DW SEMIS
L3637	NAME \$85, 'INDEX'
	DW L3605
	DW DOCOL
	DW CR
	DW ONEP
	DW SWAP
	DW PDO
L3647	DW CR
	DW I
	DW THREE
	DW DOTR
	DW SPACE
	DW ZERO
	DW I
	DW DLINE
	DW QTERM
	DW ZBRAN
L3657	DW 4
	DW LEAVE
L3659	DW PLOOP
L3660	DW \$FFE6
	DW CLIT
	DFB \$0D
	DW EMIT
	DW SEMIS
L3666	NAME \$85, 'TRIAD'
	DW L3637
	DW DOCOL
	DW THREE
	DW SLASH
	DW THREE
	DW STAR
	DW THREE
	DW OVER
	DW PLUS
	DW SWAP
	DW PDO
L3681	DW CR
	DW I
	DW LIST
	DW PLOOP
L3685	DW \$FFF8
	DW CR
	DW CLIT

```

DFB $F
DW MESS
DW CR
DW CLIT
DFB $0D
DW EMIT
DW SEMIS
L3696 NAME $85, 'VLIST'
DW L3666
VLIST DW DOCOL
DW CLIT
DFB $80
DW OUT
DW STORE
DW CON
DW AT
DW AT
L3706 DW OUT
DW AT
DW CSSL
DW GREAT
DW ZBRAN
DW L3716-*
DW CR
DW ZERO
DW OUT
DW STORE
L3716 DW DUP
DW IDDOT
DW SPACE
DW SPACE
DW PFA
DW LFA
DW AT
DW DUP
DW ZEQU
DW QTERM
DW OR
DW ZBRAN
DW L3706-*
DW DROP
DW SEMIS
NMON NAME $83, 'MON'
DW L3696
MON DW *+2
JMP MONITOR
NMLI NAME $83, 'MLI'
DW NMON
DOMLI DW *+2
LDA 0,X
STA MLICOM
LDA 2,X
STA MLICOM+1
LDA 3,X
STA MLICOM+2
JSR MLI
MLICOM DFB 0,0,0
INX
INX

```

```

        PHA
        TYA
        JMP PUT
NCALL   NAME $84, 'CALL'
        DW NMLI
CALL    DW *+2
        STX XSAVE
        LDA 0,X
        STA CALL1+1
        LDA 1,X
        STA CALL1+2
        LDA 0
        LDX 1
        LDY 2
CALL1   JSR 0
        STY 2
        STX 1
        STA 0
        LDX XSAVE
        JMP POP
NTOP    NAME $83, 'BYE'
        DW NCALL
BYE     DW *+2
        JSR MLI
        DB $CC
        DW FCLIST
        JSR MLI
        DFB $65
        DW BLIST
TOP     DFB 00

```

fsys.s (ProDos Filesystem interface)

```

        LST ON,NOGen,NOAsym,NOVsym
* FORTH.SYSTEM by John Matthews, M.D.
A1      EQU $3C
A2      EQU $3E
A4      EQU $42
FSTART  EQU $800 Forth dictionary entry
FBUF1   EQU $B200
MLI     EQU $BF00 Call MLI
BITMAP  EQU $BF58 ProDOS memory bit map
FLEVEL  EQU $BF94
MACHID  EQU $BF98
CLR80COL EQU $C000 Hardware switches
CLR80VID EQU $C00C
SETALTCH EQU $C00F
ROMON   EQU $C082
HOME    EQU $FC58 Monitor routines
GETKEY  EQU $FD0C
CROUT   EQU $FD8E
PRBYTE  EQU $FD8A
COUT    EQU $FDED
MOVE    EQU $FE2C
SETKBD  EQU $FE89
SETVID  EQU $FE93
SYS
        ORG $2000
        LDX #$FF
        TXS

```



```

LDA #0
STA A1
STA A2
STA A4
LDA #21
STA A1+1
LDA #24
STA A2+1
LDA #<FSYS
STA A4+1
LDY #0
JSR MOVE
LDA #>FSYS
STA $3F2
LDA #<FSYS
STA $3F3
EOR #A5
STA $3F4
JMP FSYS
ORG $A000
* Initialize normal keyboard & 40 columns
FSYS    LDA ROMON Enable the ROMs!
        JSR SETVID
        JSR SETKBD
        STA CLR80VID
        STA SETALTCH
        STA CLR80COL
        LDA MACHID
        AND #2
        BEQ NO80COL
        JSR $C300
NO80COL JSR HOME
        JSR SCREEN
* Initialize the ProDOS bit map
        LDX #17
        LDA #1 Global page ($BF00) in use
        STA BITMAP,X
        DEX
        LDA #0 Free all other pages
        STA FLEVEL File level = 0
CLRBITS STA BITMAP,X
        DEX
        BPL CLRBITS
        LDA #$CF Zero page, stack and text
        STA BITMAP page 1 in use
* Clear the future user area & buffers
        LDA #B2
        STA A1+1
        LDY #0
        STY A1
CLRBUF1 TYA
CLRBUF2 STA (A1),Y
        INY
        BNE CLRBUF2
        INC A1+1
        LDA A1+1
        CMP #BF
        BNE CLRBUF1
* Close any open files

```

```

        JSR MLI
        DB $CC CLOSE command
        DW CLOSLIST
        BCS ERROR
* Get the prefix
        JSR MLI
        DB $C7 GET PREFIX command
        DW PREFLIST
        BCS ERROR
        LDA PREFIX
        BEQ ERROR Null prefix is death
* Open F.DICT file
        LDA #>FNAME1
        STA ONAME
        LDA #<FNAME1
        STA ONAME+1
        JSR MLI
        DB $C8 OPEN command
        DW OPENLIST
        BCS ERROR
* Get end of file mark
        LDA REFNO Use the REFNO supplied
        STA EREF by the call to OPEN
        JSR MLI
        DB $D1 GET EOF command
        DW EOFLIST
        BCS ERROR
* Read the file
        LDA REFNO Use the REFNO again
        STA RREF
        LDA EPOS Use the length supplied
        STA RLENGTH by the call to GET EOF
        LDA EPOS+1
        STA RLENGTH+1
        JSR MLI
        DB $CA READ command
        DW READLIST
        BCS ERROR
* Close F.DICT
        JSR MLI
        DB $CC CLOSE command
        DW CLOSLIST
        BCS ERROR
* Open F.DISK
        LDA #>FNAME2
        STA ONAME
        LDA #<FNAME2
        STA ONAME+1
        JSR MLI
        DB $C8 OPEN command
        DW OPENLIST
        BCS ERROR
        JMP FSTART
* Handle fatal error
ERROR    PHA A Save the error code
        JSR CROUT Print RETURN
        LDY ERRMSG Print error message
        LDX #1
ERR1     LDA ERRMSG,X

```

```

ORA #\$80
JSR COUT
INX
DEY
BNE ERR1
PLA A Restore error code
JSR PRBYTE Print it
JSR GETKEY Wait for it
JSR MLI Die horribly
DB \$65 QUIT command
DW QLIST
* Standard print routine
PRINT1 LDY #0
      PLA
      STA A1
      PLA
      STA A1+1
PRINT2 INC A1
      BNE PRINT3
      INC A1+1
PRINT3 LDA (A1),Y
      BEQ PRINT4
      ORA #\$80
      JSR COUT
      JMP PRINT2
PRINT4 INC A1
      BNE PRINT5
      INC A1+1
PRINT5 JMP (A1)
* Print the credits
SCREEN JSR PRINT1
      DB 13,13
      ASC "*** PRO-FORTH V3.2 ***"
      DB 13,13,13
      ASC "PRESENTED BY APPLE-DAYTON, INC."
      DB 13,13
      ASC "PO BOX 1666 FAIRBORN OH 45324-7666"
      DB 13,13,13
      ASC "COURTESY OF THE FORTH INTEREST GROUP"
      DB 13,13
      ASC "PO BOX 1105 SAN CARLOS CA 94070"
      DB 13,13,13
      ASC "ADAPTED FOR PRODOS BY JOHN B. MATTHEWS"
      DB 13,13,13
      DB 0
      RTS
* "Prefix" parameter list
PREFLIST DB 1 Parameter count
        DW PREFIX Pathname pointer
* "Open" parameter list
OPENLIST DB 3 Parameter count
ONAME    DW FNAME1 File name pointer
        DW FBUF1 File #1 buffer addr.
REFNO    DB 0 Reference number
* "End of File" parameter list
EOFLIST  DB 2 Parameter count
EREF     DB 0 Reference number
EPOS     DB 0,0,0 File position
* "Read" parameter list

```

```
READLIST  DB 4 Parameter count
RREF      DB 0 Reference number
RDATA     DW FSTART Data buffer addr.
RLENGTH   DW 0 Requested length
           DW 0 Actual length
* "Close" parameter list
CLOSLIST  DB 1 Parameter count
CREF      DB 0 0 closes all open files
* "Quit parameter list
QLIST     DFB 4,0,0,0,0,0,0
* String storage
ERRMSG    STR "PRODOS ERROR: $"
FNAME1    STR "F.DICT"
FNAME2    STR "F.DISK"
PREFIX    DS 64,0
```