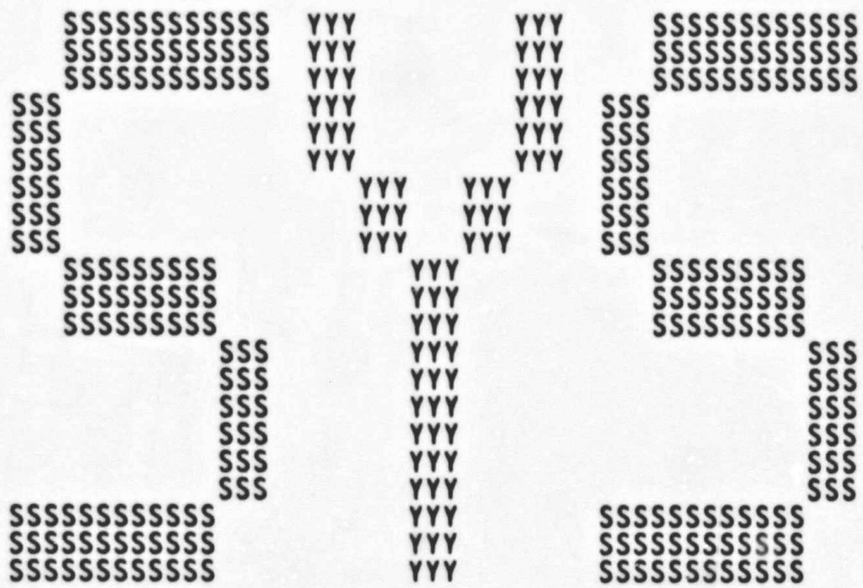
SSSSSSSSSSS YYY YYY SSSSSSSSSSS
SSSSSSSSSSS YYY YYY SSSSSSSSSSS
SSSSSSSSSSS YYY YYY SSSSSSSSSSS
SSS YYY YYY SSS
SSS YYY YYY SSS
SSS YYY YYY SSS
SSS YYY YYY SSS
SSS YYY YYY SSS
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SSSSSSSSS YYY SSSSSSSSS
SSSSSSSSS YYY SSSSSSSSS
SSSSSSSSS YYY SSSSSSSSS
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SSS YYY SSS
SSS YYY SSS
SSSSSSSSSSS YYY SSSSSSSSSSS
SSSSSSSSSSS YYY SSSSSSSSSSS
SSSSSSSSSSS YYY SSSSSSSSSSS

FILEID**CONSOLIO

```
  CCCCCCCC    OOOOOO    NN      NN   SSSSSSSS    OOOOOO    LL          IIIIII     OOOOOO
  CCCCCCCC    OOOOOO    NN      NN   SSSSSSSS    OOOOOO    LL          IIIIII     OOOOOO
CC           OO      OO  NN      NN  SS         OO      OO  LL            II     OO      OO
CC           OO      OO  NN      NN  SS         OO      OO  LL            II     OO      OO
CC           OO      OO  NNNN    NN  SS         OO      OO  LL            II     OO      OO
CC           OO      OO  NNNN    NN  SS         OO      OO  LL            II     OO      OO
CC           OO      OO  NN  NN  NN    SSSSSS   OO      OO  LL            II     OO      OO
CC           OO      OO  NN  NN  NN    SSSSSS   OO      OO  LL            II     OO      OO
CC           OO      OO  NN    NNNN          SS  OO      OO  LL            II     OO      OO
CC           OO      OO  NN    NNNN          SS  OO      OO  LL            II     OO      OO
CC           OO      OO  NN      NN          SS  OO      OO  LL            II     OO      OO
CC           OO      OO  NN      NN          SS  OO      OO  LL            II     OO      OO
  CCCCCCCC    OOOOOO    NN      NN  SSSSSSSS      OOOOOO    LLLLLLLLLL  IIIIII     OOOOOO
  CCCCCCCC    OOOOOO    NN      NN  SSSSSSSS      OOOOOO    LLLLLLLLLL  IIIIII     OOOOOO
```

```
LL            IIIIII     SSSSSSSS
LL            IIIIII     SSSSSSSS
LL              II     SS
LL              II     SS
LL              II     SS
LL              II     SS
LL              II       SSSSSS
LL              II       SSSSSS
LL              II             SS
LL              II             SS
LL              II             SS
LL              II             SS
LLLLLLLLLL    IIIIII     SSSSSSSS
LLLLLLLLLL    IIIIII     SSSSSSSS
```

Table of contents

(1) 97 CONVERT LONGWORD TO HEX AND OUTPUT DIGITS
(1) 124 OUTPUT BLANK CHARACTER
(1) 144 OUTPUT CHARACTER
(1) 185 OUTPUT CARRIAGE RETURN/LINE FEED PAIR
(1) 208 OUTPUT COUNTED AND ZERO TERMINATED STRINGS

```
                        1          .TITLE CONSOLIO - CONSOLE TERMINAL I/O ROUTINES
                        2          .IDENT  'V04-000'
                        3
                        4 ;
                        5 ;******************************************************************************
                        6 ;*                                                                            *
                        7 ;*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                                   *
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                       19 ;*  AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT     *
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                       21 ;*                                                                            *
                       22 ;*  DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE  OR  RELIABILITY OF ITS     *
                       23 ;*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                   *
                       24 ;*                                                                            *
                       25 ;*                                                                            *
                       26 ;******************************************************************************
                       27 ;
                       28 ; D. N. CUTLER 12-AUG-76
                       29 ;
                       30 ; CONSOLE I/O ROUTINES
                       31 ;
                       32 ; Modified by:
                       33 ;
                       34 ;       V03-001 WHM0001         Bill Matthews           9-Jul-1984
                       35 ;               Add support for alternate console terminal.
                       36 ;
                       37 ;       V02-004 TCM0002         Trudy C. Matthews       10-Aug-1981
                       38 ;               Remember to strip parity bit when checking for XON/XOFF.
                       39 ;
                       40 ;
                       41 ;       V02-003 TCM0001         Trudy C. Matthews       14-May-1981
                       42 ;               Added XON/XOFF recognition during terminal I/O.
                       43 ;
                       44 ; MACRO LIBRARY CALLS
                       45 ;
                       46
                       47          $PRDEF                              ;DEFINE PROCESSOR REGISTERS
                       48
                       49 ;
                       50 ; LOCAL SYMBOLS
                       51 ;
                       52 ; CHARACTER DEFINITIONS
                       53 ;
                       54
00000020               55 BLANK=32                                    ;BLANK
0000000D               56 CR=13                                       ;CARRIAGE RETURN
0000000A               57 LF=10                                       ;LINE FEED
```

```
00000037  0000     58 SEVEN=55                                ;DIGIT 7
00000030  0000     59 ZERO=48                                 ;DIGIT 0
00000013  0000     60         CONTROL_S = 19
00000011  0000     61         CONTROL_Q = 17
          0000     62
          0000     63 ;
          0000     64 ; TERMINAL REGISTER DEFINITIONS
          0000     65 ;
          0000     66
FFFFFFFC  0000     67 RCSR=-4                                 ;OFFSET RECEIVER CSR
FFFFFFFE  0000     68 RDBR=-2                                 ;OFFSET RECEIVER DBR
00000000  0000     69 TCSR=0                                  ;OFFSET TRANSMITTER CSR
00000002  0000     70 TDBR=2                                  ;OFFSET TRANSMITTER DBR
          0000     71
          0000     72 ;
          0000     73 ; LOCAL DATA
          0000     74 ;
          0000     75 ; HEX CONVERSION TABLE
          0000     76 ;
          0000     77
        00000000   78         .PSECT  $AEXENONPAGED
          0000     79 EXE$AB_HEXTAB::                         ;HEXDECIMAL CONVERSION TABLE
       30 0000     80         .ASCII  /0/                     ;0 DIGIT
       31 0001     81         .ASCII  /1/                     ;1 DIGIT
       32 0002     82         .ASCII  /2/                     ;2 DIGIT
       33 0003     83         .ASCII  /3/                     ;3 DIGIT
       34 0004     84         .ASCII  /4/                     ;4 DIGIT
       35 0005     85         .ASCII  /5/                     ;5 DIGIT
       36 0006     86         .ASCII  /6/                     ;6 DIGIT
       37 0007     87         .ASCII  /7/                     ;7 DIGIT
       38 0008     88         .ASCII  /8/                     ;8 DIGIT
       39 0009     89         .ASCII  /9/                     ;9 DIGIT
       41 000A     90         .ASCII  /A/                     ;10 DIGIT
       42 000B     91         .ASCII  /B/                     ;11 DIGIT
       43 000C     92         .ASCII  /C/                     ;12 DIGIT
       44 000D     93         .ASCII  /D/                     ;13 DIGIT
       45 000E     94         .ASCII  /E/                     ;14 DIGIT
       46 000F     95         .ASCII  /F/                     ;15 DIGIT
```

```
                        0010    97          .SBTTL  CONVERT LONGWORD TO HEX AND OUTPUT DIGITS
                        0010    98 ;+
                        0010    99 ; EXE$OUTHEX - CONVERT LONGWORD TO HEX AND OUTPUT DIGITS
                        0010   100 ;
                        0010   101 ; THIS ROUTINE IS CALLED VIA A JSB TO CONVERT A LONGWORD TO HEX AND
                        0010   102 ; OUTPUT THE RESULTANT DIGITS TO A SPECIFIED DEVICE IN NONINTERRUPT
                        0010   103 ; MODE.
                        0010   104 ;
                        0010   105 ; INPUTS:
                        0010   106 ;
                        0010   107 ;       R1 = VALUE TO BE CONVERTED.
                        0010   108 ;       R11 = OUTPUT DEVICE CSR ADDRESS.
                        0010   109 ;
                        0010   110 ; OUTPUTS:
                        0010   111 ;
                        0010   112 ;       THE SPECIFED VALUE IS CONVERTED TO HEX AND OUTPUT.
                        0010   113 ;-
                00000000   114          .PSECT  Z$INIT__BUGC            ;
                        0000   115
                        0000   116 EXE$OUTHEX::                         ;CONVERT AND OUTPUT HEX LONGWORD
            52    1C    D0   0000   117          MOVL    #28,R2          ;SET POSITION OF FIRST FOUR BIT FIELD
      50    51    04    52   EF   0003   118 10$:     EXTZV   R2,#4,R1,R0     ;GET NEXT FOUR BITS OF VALUE
    50    00000000'9F40    9A   0008   119          MOVZBL  @#EXE$AB_HEXTAB[R0],R0  ;GET ASCII CHARACTER
                  0D    10   0010   120          BSBB    EXE$OUTCHAR     ;OUTPUT DIGIT
FFEA 52     FC 8F    00    9D   0012   121          ACBB    #0,#-4,R2,10$   ;ANY MORE DIGITS TO CONVERT?
                        05   0019   122          RSB                     ;
```

```
                     001A   124          .SBTTL  OUTPUT BLANK CHARACTER
                     001A   125 ;+
                     001A   126 ; EXE$OUTBLANK - OUTPUT BLANK CHARACTER
                     001A   127 ;
                     001A   128 ; THIS ROUTINE IS CALLED VIA A JSB TO OUTPUT A BLANK CHARACTER TO A
                     001A   129 ; SPECIFIED DEVICE.
                     001A   130 ;
                     001A   131 ; INPUTS:
                     001A   132 ;
                     001A   133 ;       R11 = OUTPUT DEVICE CSR ADDRESS.
                     001A   134 ;
                     001A   135 ; OUTPUTS:
                     001A   136 ;
                     001A   137 ;       BLANK CHARACTER IS OUTPUT TO SPECIFIED DEVICE.
                     001A   138 ;-
                     001A   139
                     001A   140 EXE$OUTBLANK::                          ;OUTPUT BLANK CHARACTER
 50   20   9A        001A   141          MOVZBL  #BLANK,R0               ;SET BLANK CHARACTER
      00   11        001D   142          BRB     EXE$OUTCHAR             ;
```

```
                     001F   144          .SBTTL  OUTPUT CHARACTER
                     001F   145 ;+
                     001F   146 ; EXE$OUTCHAR - OUTPUT CHARACTER
                     001F   147 ;
                     001F   148 ; THIS ROUTINE IS CALLED VIA A JSB TO OUTPUT A CHARACTER TO A SPECIFIED
                     001F   149 ; DEVICE.
                     001F   150 ;
                     001F   151 ; INPUTS:
                     001F   152 ;
                     001F   153 ;       R0 = CHARACTER TO OUTPUT.
                     001F   154 ;       R11 = OUTPUT DEVICE CSR ADDRESS (ZERO IMPLIES CONSOLE TERMINAL).
                     001F   155 ;
                     001F   156 ; OUTPUTS:
                     001F   157 ;
                     001F   158 ;       CHARACTER IS OUTPUT TO THE SPECIFIED DEVICE. IF THE CHARACTER
                     001F   159 ;       IS A CARRIAGE RETURN AND THE OUTPUT DEVICE IS THE CONSOLE TERMINAL,
                     001F   160 ;       THEN A SUFFICIENT NUMBER OF FILL CHARACTERS ARE ALSO OUTPUT.
                     001F   161 ;-
                     001F   162
                     001F   163 EXE$OUTCHAR::                           ;OUTPUT CHARACTER
           51   DD   001F   164          PUSHL   R1                     ; GET A WORKING REGISTER
           5B   D5   0021   165          TSTL    R11                    ;CONSOLE TERMINAL?
           08   12   0023   166          BNEQ    20$                    ;IF NEQ NO
00000000'9F   16   0025   167          JSB     @#CON$PUTCHAR          ;CALL CONSOLE TERMINAL SPECIFIC ROUTINE
           0B   11   002B   168          BRB     30$                    ;
6B    0080 8F   B3   002D   169 20$:    BITW    #^X080,TCSR(R11)       ;DEVICE READY?
           F9   13   0032   170          BEQL    20$                    ;IF EQL NO
  02 AB    50   90   0034   171          MOVB    R0,TDBR(R11)           ;OUTPUT CHARACTER
     50    0D   91   0038   172 30$:    CMPB    #CR,R0                 ;CARRIAGE RETURN?
           0F   12   003B   173          BNEQ    60$                    ;IF NEQ NO
           5B   D5   003D   174          TSTL    R11                    ;CONSOLE TERMINAL?
           0B   12   003F   175          BNEQ    60$                    ;IF NEQ NO
           50   D4   0041   176 40$:    CLRL    R0                     ;SET FILL CHARACTER
           02   DD   0043   177          PUSHL   #2                     ;SET FILL COUNT
           D8   10   0045   178 50$:    BSBB    EXE$OUTCHAR            ;OUTPUT A FILL CHARACTER
FB         6E   F5   0047   179          SOBGTR  (SP),50$               ;ANY MORE FILLS TO OUTPUT?
           8E   D5   004A   180          TSTL    (SP)+                  ;CLEAN STACK
           51 8ED0   004C   181 60$:    POPL    R1                     ; RESTORE WORKING REGISTER
              05   004F   182          RSB
                   0050   183
```

```
                                                H 13
                                0050   185          .SBTTL  OUTPUT CARRIAGE RETURN/LINE FEED PAIR
                                0050   186 ;+
                                0050   187 ; EXE$OUTCRLF - OUTPUT CARRIAGE RETURN/LINE FEED PAIR
                                0050   188 ;
                                0050   189 ; THIS ROUTINE IS CALLED TO OUTPUT A CARRIAGE RETURN/LINE FEED PAIR TO A
                                0050   190 ; SPECIFIED DEVICE.
                                0050   191 ;
                                0050   192 ; INPUTS:
                                0050   193 ;
                                0050   194 ;       R11 = OUTPUT DEVICE CSR ADDRESS.
                                0050   195 ;
                                0050   196 ; OUTPUTS:
                                0050   197 ;
                                0050   198 ;       A CARRIAGE RETURN FOLLOWED BY A LINE FEED IS OUTPUT TO THE SPECIFIED
                                0050   199 ;       DEVICE.
                                0050   200 ;-
                                0050   201
                                0050   202 EXE$OUTCRLF::                             ;OUTPUT CARRIAGE RETURN/LINE FEED PAIR
 50   0D   9A                  0050   203          MOVZBL  #CR,R0                    ;SET CARRIAGE RETURN CHARACTER
      CA   10                   0053   204          BSBB    EXE$OUTCHAR               ;OUTPUT CARRIAGE RETURN
 50   0A   9A                  0055   205          MOVZBL  #LF,R0                    ;SET LINE FEED CHARACTER
      C5   11                   0058   206          BRB     EXE$OUTCHAR               ;OUTPUT LINE FEED CHARACTER
```

```
                     005A    208          .SBTTL  OUTPUT COUNTED AND ZERO TERMINATED STRINGS
                     005A    209 ;+
                     005A    210 ; EXE$OUTCSTRING - OUTPUT COUNTED STRING
                     005A    211 ;
                     005A    212 ; THIS ROUTINE IS CALLED VIA A JSB TO OUTPUT A STRING WHOSE FIRST CHARACTER
                     005A    213 ; IS THE NUMBER OF CHARACTERS TO BE OUTPUT.
                     005A    214 ;
                     005A    215 ; INPUTS:
                     005A    216 ;
                     005A    217 ;       R1 = ADDRESS OF COUNTED STRING.
                     005A    218 ;       R11 = OUTPUT DEVICE CSR ADDRESS.
                     005A    219 ;
                     005A    220 ; OUTPUTS:
                     005A    221 ;
                     005A    222 ;       THE NUMBER OF CHARACTERS SPECIFIED BY THE FIRST BYTE OF THE STRING
                     005A    223 ;       ARE OUTPUT TO THE SPECIFIED DEVICE. OUTPUT IS ALSO TERMINATED IF
                     005A    224 ;       A ZERO BYTE IS ENCOUNTERED BEFORE THE COUNT IS EXHAUSTED.
                     005A    225 ;-
                     005A    226
                     005A    227          .ENABL  LSB
                     005A    228 EXE$OUTCSTRING::                        ;OUTPUT COUNTED STRING
52   81   9A         005A    229          MOVZBL  (R1)+,R2               ;SET COUNT OF CHARACTERS TO OUTPUT
     04   11         005D    230          BRB     10$                    ;
                     005F    231
                     005F    232 ;+
                     005F    233 ; EZE$OUTZSTRING - OUTPUT ZERO TERMINATED STRING
                     005F    234 ;
                     005F    235 ; THIS ROUTINE IS CALLED VIA A JSB TO OUTPUT A STRING THAT IS TERMINATED BY
                     005F    236 ; A ZERO BYTE.
                     005F    237 ;
                     005F    238 ; INPUTS:
                     005F    239 ;
                     005F    240 ;       R1 = ADDRESS OF ZERO TERMINATED STRING.
                     005F    241 ;       R11 = OUTPUT DEVICE CSR ADDRESS.
                     005F    242 ;
                     005F    243 ; OUTPUTS:
                     005F    244 ;
                     005F    245 ;       CHARACTERS FROM THE SPECIFIED STRING ARE OUTPUT UNTIL A ZERO BYTE
                     005F    246 ;       IS ENCOUNTERED.
                     005F    247 ;-
                     005F    248
                     005F    249 EXE$OUTZSTRING::                        ;OUTPUT ZERO TERMINATED STRING
52   FF   8F   9A    005F    250          MOVZBL  #255,R2                ;SET MAXIMUM ALLOWABLE STRING LENGTH
  50     81   9A    0063    251 10$:     MOVZBL  (R1)+,R0               ;GET NEXT CHARACTER FROM INPUT STRING
       05   13      0066    252          BEQL    20$                    ;IF EQL END OF STRING
       B5   10      0068    253          BSBB    EXE$OUTCHAR            ;OUTPUT CHARACTER
    F6 52   F5      006A    254          SOBGTR  R2,10$                 ;ANY MORE CHARACTERS TO OUTPUT?
            05      006D    255 20$:     RSB                            ;
                    006E    256          .DSABL  LSB
                    006E    257
                    006E    258          .END
```

```
BLANK             = 00000020
CON$PUTCHAR         ********   X   03
CONTROL_Q         = 00000011
CONTROL_S         = 00000013
CR                = 0000000D
EXE$AB_HEXTAB       00000000 RG    02
EXE$OUTBLANK        0000001A RG    03
EXE$OUTCHAR         0000001F RG    03
EXE$OUTCRLF         00000050 RG    03
EXE$OUTCSTRING      0000005A RG    03
EXE$OUTHEX          00000000 RG    03
EXE$OUTZSTRING      0000005F RG    03
LF                = 0000000A
RCSR              = FFFFFFFC
RDBR              = FFFFFFFE
SEVEN             = 00000037
TCSR              = 00000000
TDBR              = 00000002
ZERO              = 00000030
```

Psect synopsis

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
ABS	00000000 (0.)	01 (1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
$AEXENONPAGED	00000010 (16.)	02 (2.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC BYTE
Z$INIT__BUGC	0000006E (110.)	03 (3.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC BYTE

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	37	00:00:00.08	00:00:01.26
Command processing	128	00:00:00.52	00:00:03.05
Pass 1	138	00:00:01.53	00:00:06.43
Symbol table sort	0	00:00:00.09	00:00:00.23
Pass 2	59	00:00:00.60	00:00:01.67
Symbol table output	3	00:00:00.02	00:00:00.02
Psect synopsis output	1	00:00:00.03	00:00:00.03
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	368	00:00:02.87	00:00:12.70

```
The working set limit was 1050 pages.
7334 bytes (15 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 99 non-local and 8 local symbols.
258 source lines were read in Pass 1, producing 15 object records in Pass 2.
8 pages of virtual memory were used to define 7 macros.
```

```
                    +---------------------------+
                    ! Macro library statistics !
                    +---------------------------+

Macro library name                                Macros defined
------------------                                --------------
_$255$DUA28:[SYS.OBJ]LIB.MLB;1                               0
_$255$DUA28:[SYSLIB]STARLET.MLB;2                            4
TOTALS (all libraries)                                       4

139 GETS were required to define 4 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS$:CONSOLIO/OBJ=OBJ$:CONSOLIO MSRC$:CONSOLIO/UPDATE=(ENH$:CONSOLIO)+EXECML$/LIB
```

0373 AH-BT13A-SE
VAX/VMS V4.0

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CMODSSDSP
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DEADLOCK
LIS

CVTFILNAM
LIS

BOOPARAM
LIS

CJFSYSVEC
LIS

CVTATB
LIS

BUGCHKMSG
LIS

CONSOLIO
LIS