```
BBBBBBBBBBBB           AAAAAAAAA          SSSSSSSSSSSS   RRRRRRRRRRRR    TTTTTTTTTTTTTTTT  LLL
BBBBBBBBBBBB           AAAAAAAAA          SSSSSSSSSSSS   RRRRRRRRRRRR    TTTTTTTTTTTTTTTT  LLL
BBBBBBBBBBBB           AAAAAAAAA          SSSSSSSSSSSS   RRRRRRRRRRRR    TTTTTTTTTTTTTTTT  LLL
BBB         BBB    AAA          AAA  SSS                RRR        RRR        TTT          LLL
BBB         BBB    AAA          AAA  SSS                RRR        RRR        TTT          LLL
BBB         BBB    AAA          AAA  SSS                RRR        RRR        TTT          LLL
BBB         BBB    AAA          AAA  SSS                RRR        RRR        TTT          LLL
BBB         BBB    AAA          AAA  SSS                RRR        RRR        TTT          LLL
BBB         BBB    AAA          AAA  SSS                RRR        RRR        TTT          LLL
BBBBBBBBBBBB       AAA          AAA      SSSSSSSS       RRRRRRRRRRRR         TTT          LLL
BBBBBBBBBBBB       AAA          AAA      SSSSSSSS       RRRRRRRRRRRR         TTT          LLL
BBBBBBBBBBBB       AAA          AAA      SSSSSSSS       RRRRRRRRRRRR         TTT          LLL
BBB         BBB    AAAAAAAAAAAAAAAA          SSS        RRR    RRR           TTT          LLL
BBB         BBB    AAAAAAAAAAAAAAAA          SSS        RRR    RRR           TTT          LLL
BBB         BBB    AAAAAAAAAAAAAAAA          SSS        RRR    RRR           TTT          LLL
BBB         BBB    AAA          AAA          SSS        RRR        RRR       TTT          LLL
BBB         BBB    AAA          AAA          SSS        RRR        RRR       TTT          LLL
BBB         BBB    AAA          AAA          SSS        RRR        RRR       TTT          LLL
BBBBBBBBBBBB       AAA          AAA  SSSSSSSSSSSS        RRR            RRR   TTT   LLLLLLLLLLLLLLLLL
BBBBBBBBBBBB       AAA          AAA  SSSSSSSSSSSS        RRR            RRR   TTT   LLLLLLLLLLLLLLLLL
BBBBBBBBBBBB       AAA          AAA  SSSSSSSSSSSS        RRR            RRR   TTT   LLLLLLLLLLLLLLLLL
```

```
BBBBBBBB      AAAAAA      SSSSSSSS   RRRRRRRR      AAAAAA   DDDDDDD   5555555555   000000
BBBBBBBB      AAAAAA      SSSSSSSS   RRPRRRRR      AAAAAA   DDDDDDD   5555555555   000000
BB      BB   AA    AA   SS          RR      RR  AA    AA   DD    DD  55           00      00
BB      BB   AA    AA   SS          RR      RR  AA    AA   DD    DD  55           00      00
BB      BB   AA    AA   SS          RR      RR  AA    AA   DD    DD  555555       00    0000
BB      BB   AA    AA   SS          RR      RR  AA    AA   DD    DD  555555       00    0000
BBBBBBBB     AA    AA   SSSSSS      RRRRRRRR    AA    AA   DD    DD          55   00  00  00
BBBBBBBB     AA    AA   SSSSSS      RRRRRRRR    AA    AA   DD    DD          55   00  00  00
BB      BB   AAAAAAAAAA        SS   RR  RR      AAAAAAAAAA DD    DD          55   0000    00
BB      BB   AAAAAAAAAA        SS   RR  RR      AAAAAAAAAA DD    DD          55   0000    00
BB      BB   AA    AA          SS   RR    RR    AA    AA   DD    DD  55      55   00      00
BB      BB   AA    AA          SS   RR    RR    AA    AA   DD    DD  55      55   00      00
BBBBBBBB     AA    AA   SSSSSSSS    RR      RR  AA    AA   DDDDDDD    555555      000000
BBBBBBBB     AA    AA   SSSSSSSS    RR      RR  AA    AA   DDDDDDD    555555      000000
```

```
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
```

```
    1    0001  0  MODULE BAS$RAD50 (                          ! RADIX50 conversion
    2    0002  0                   IDENT = '1-005'            ! File: BASRAD50.B32
    3    0003  0                   ) =
    4    0004  1  BEGIN
    5    0005  1  !
    6    0006  1  !******************************************************************
    7    0007  1  !*                                                                *
    8    0008  1  !*    COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                     *
    9    0009  1  !*    DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.      *
   10    0010  1  !*    ALL RIGHTS RESERVED.                                        *
   11    0011  1  !*                                                                *
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   14    0014  1  !*    INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR  ANY  OTHER  *
   15    0015  1  !*    COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY  *
   16    0016  1  !*    OTHER PERSON.  NO TITLE TO AND OWNERSHIP OF  THE  SOFTWARE IS  HEREBY  *
   17    0017  1  !*    TRANSFERRED.                                                *
   18    0018  1  !*                                                                *
   19    0019  1  !*    THE INFORMATION IN THIS SOFTWARE IS  SUBJECT TO CHANGE WITHOUT NOTICE  *
   20    0020  1  !*    AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT  *
   21    0021  1  !*    CORPORATION.                                                *
   22    0022  1  !*                                                                *
   23    0023  1  !*    DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE  OR  RELIABILITY OF ITS  *
   24    0024  1  !*    SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.      *
   25    0025  1  !*                                                                *
   26    0026  1  !*                                                                *
   27    0027  1  !******************************************************************
   28    0028  1  !
   29    0029  1
   30    0030  1  !++
   31    0031  1  ! FACILITY:  BASIC-PLUS-2 Miscellaneous
   32    0032  1  !
   33    0033  1  ! ABSTRACT:
   34    0034  1  !
   35    0035  1  !       This module contains the BASIC RAD$ function,
   36    0036  1  !       which converts a 16-bit word to three ASCII characters.
   37    0037  1  !
   38    0038  1  ! ENVIRONMENT:  VAX-11 User Mode
   39    0039  1  !
   40    0040  1  ! AUTHOR: John Sauter, CREATION DATE: 01-MAY-1979
   41    0041  1  !
   42    0042  1  ! MODIFIED BY:
   43    0043  1  !
   44    0044  1  ! 1-001 - Original.
   45    0045  1  ! 1-002 - The BAS$RAD synonym must be global!  JBS 02-MAY-1979
   46    0046  1  ! 1-003 - Change LIB$S and OTS$S to STR$.  JBS 21-MAY-1979
   47    0047  1  ! 1-004 - Change the call to STR$COPY.  JBS 16-JUL-1979
   48    0048  1  ! 1-005 - Improve a comment.  JBS 07-NOV-1979
   49    0049  1  !--
   50    0050  1
   51    0051  1  !<BLF/PAGE>
```

```
  53    0052  1 !
  54    0053  1 ! SWITCHES:
  55    0054  1 !
  56    0055  1
  57    0056  1 SWITCHES ADDRESSING_MODE (EXTERNAL = GENERAL, NONEXTERNAL = WORD_RELATIVE);
  58    0057  1
  59    0058  1 !
  60    0059  1 ! LINKAGES:
  61    0060  1 !
  62    0061  1 !      NONE
  63    0062  1 !
  64    0063  1 ! TABLE OF CONTENTS:
  65    0064  1 !
  66    0065  1
  67    0066  1 FORWARD ROUTINE
  68    0067  1     BAS$RAD50 : NOVALUE;                    ! convert word to three chars
  69    0068  1
  70    0069  1 !
  71    0070  1 ! INCLUDE FILES:
  72    0071  1 !
  73    0072  1
  74    0073  1 REQUIRE 'RTLIN:RTLPSECT';                   ! Macros for defining psects
  75    0168  1
  76    0169  1 LIBRARY 'RTLSTARLE';                        ! System symbols
  77    0170  1
  78    0171  1 !
  79    0172  1 ! MACROS:
  80    0173  1 !
  81    0174  1 !      NONE
  82    0175  1 !
  83    0176  1 ! EQUATED SYMBOLS:
  84    0177  1 !
  85    0178  1
  86    0179  1 GLOBAL BIND
  87    0180  1     ROUTINE
  88    0181  1     BAS$RAD = BAS$RAD50;                    ! Synonym used by compiled code
  89    0182  1 !
  90    0183  1 !
  91    0184  1 ! PSECTS:
  92    0185  1 !
  93    0186  1 DECLARE_PSECTS (BAS);                       ! Declare psects for BAS$ facility
  94    0187  1 !
  95    0188  1 ! OWN STORAGE:
  96    0189  1 !
  97    0190  1 !      NONE
  98    0191  1 !
  99    0192  1 ! EXTERNAL REFERENCES:
 100    0193  1 !
 101    0194  1
 102    0195  1 EXTERNAL ROUTINE
 103    0196  1     R50ASC : NOVALUE,                       ! Convert radix50 to ASCII
 104    0197  1     STR$COPY_R,                             ! Copy a string by reference
 105    0198  1     LIB$STOP : NOVALUE;                     ! Signal a fatal error
 106    0199  1
```

```
 108    0200  1   GLOBAL ROUTINE BAS$RAD50 (            ! Convert a word to three characters
 109    0201  1       RESULT,                           ! Descriptor of resultant string
 110    0202  1       NUMBER                            ! Value to convert
 111    0203  1       ) : NOVALUE =
 112    0204  1
 113    0205  1   !++
 114    0206  1   ! FUNCTIONAL DESCRIPTION:
 115    0207  1   !
 116    0208  1   !       Convert a 16-bit word into an ASCII string.  The word is
 117    0209  1   !       encoded as RADIX50.
 118    0210  1   !
 119    0211  1   !       This function should not be used for new development,
 120    0212  1   !       someday we hope to do away with this extra character set.
 121    0213  1   !
 122    0214  1   ! FORMAL PARAMETERS:
 123    0215  1   !
 124    0216  1   !       RESULT.wt.dx    A string containing the 3 characters in the word
 125    0217  1   !       NUMBER.rw.v     The 16-bit word into which the characters are
 126    0218  1   !                       packed.
 127    0219  1   !
 128    0220  1   ! IMPLICIT INPUTS.
 129    0221  1   !
 130    0222  1   !       NONE
 131    0223  1   !
 132    0224  1   ! IMPLICIT OUTPUTS:
 133    0225  1   !
 134    0226  1   !       NONE
 135    0227  1   !
 136    0228  1   ! ROUTINE VALUE:
 137    0229  1   ! COMPLETION CODES:
 138    0230  1   !
 139    0231  1   !       NONE
 140    0232  1   !
 141    0233  1   ! SIDE EFFECTS:
 142    0234  1   !
 143    0235  1   !       NONE
 144    0236  1   !
 145    0237  1   !--
 146    0238  1
 147    0239  2       BEGIN
 148    0240  2
 149    0241  2       LOCAL
 150    0242  2           THREE_CHARS : VECTOR [3, BYTE];
 151    0243  2
 152    0244  2   !+
 153    0245  2   ! Call the FORTRAN-compatability routine to convert radix-50 to ASCII.
 154    0246  2   !-
 155    0247  2       R50ASC (%REF (3), NUMBER, THREE_CHARS [0]);
 156    0248  2   !+
 157    0249  2   ! Copy the three characters back to the caller's descriptor.
 158    0250  2   !-
 159    0251  2       STR$COPY_R (.RESULT, %REF (3), THREE_CHARS [0]);
 160    0252  1       END;                                        ! end of BAS$RAD50


                                            .TITLE  BAS$RAD50
                                            .IDENT  \1-005\
```

```
                                                        .EXTRN  R50ASC, STR$COPY_R
                                                        .EXTRN  LIB$STOP

                                                        .PSECT  _BAS$CODE,NOWRT,  SHR,  PIC,2

                                    0000 00000          .ENTRY  BAS$RAD50, Save nothing        ; 0200
                        5E       08  C2 00002           SUBL2   #8, SP
                     04 AE       9F 00005               PUSHAB  THREE_CHARS                     ; 0247
                     08 AC       9F 00008               PUSHAB  NUMBER
               08 AE            03 D0 0000B             MOVL    #3, 8(SP)
                     08 AE       9F 0000F               PUSHAB  8(SP)
        00000000G 00            03 FB 00012             CALLS   #3, R50ASC
                     04 AE       9F 00019               PUSHAB  THREE_CHARS                     ; 0251
               04 AE            03 D0 0001C             MOVL    #3, 4(SP)
                     04 AE       9F 00020               PUSHAB  4(SP)
                     04 AC       DD 00023               PUSHL   RESULT
        00000000G 00            03 FB 00026             CALLS   #3, STR$COPY_R
                               04 0002D                 RET                                     ; 0252
; Routine Size:  46 bytes,    Routine Base:  _BAS$CODE + 0000

;  161      0253  1
;  162      0254  1 END                                  ! end of module BAS$RAD50
;  163      0255  1
;  164      0256  0 ELUDOM
```

                                BAS$RAD==   BAS$RAD50

                    PSECT SUMMARY

      Name   Bytes   Attributes

    _BAS$CODE   46 NOVEC,NOWRT, RD , EXE, SHR, LCL, REL, CON, PIC,ALIGN(2)

                    Library Statistics

                        -------- Symbols --------   Pages   Processing
          File   Total   Loaded   Percent   Mapped   Time

    _255DUA28:[SYSLIB]STARLET.L32;1   9776   0   0   581   00:01.0

                    COMMAND QUALIFIERS

;   BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/NOTRACE/LIS=LIS$:BASRAD50/OBJ=OBJ$:BASRAD50 MSRC$:BASRAD50/UPDATE=(ENH$:BASRAD50)

; Size: 46 code + 0 data bytes
; Run Time: 00:03.3
; Elapsed Time: 00:10.0
; Lines/CPU Min: 4726
; Lexemes/CPU-Min: 12627
; Memory Used: 36 pages
; Compilation Complete

BASRSTSO
LIS

BASRAD50
LIS

BASRSET
LIS

BASPUT
LIS

BASRECPRO
LIS

BASRESTAR
LIS

BASRANDOM
LIS

BASREMAP
LIS

BASRESTOR   BASRIGHT
LIS   LIS