```
LLL              IIIIIIIIII   BBBBBBBBBBBB   RRRRRRRRRRR   TTTTTTTTTTTTTTT   LLL
LLL              IIIIIIIIII   BBBBBBBBBBBB   RRRRRRRRRRR   TTTTTTTTTTTTTTT   LLL
LLL              IIIIIIIIII   BBBBBBBBBBBB   RRRRRRRRRRR   TTTTTTTTTTTTTTT   LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT         LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT         LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT         LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT         LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT         LLL
LLL                 III       BBBBBBBBBBBB   RRRRRRRRRRR         TTT         LLL
LLL                 III       BBBBBBBBBBBB   RRRRRRRRRRR         TTT         LLL
LLL                 III       BBB      BBB   RRR   RRR           TTT         LLL
LLL                 III       BBB      BBB   RRR   RRR           TTT         LLL
LLL                 III       BBB      BBB   RRR   RRR           TTT         LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT         LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT         LLL
LLL                 III       BBB      BBB   RRR      RRR        TTT         LLL
LLLLLLLLLLLLLLL   IIIIIIIIII   BBBBBBBBBBBB   RRR      RRR        TTT         LLLLLLLLLLLLLLL
LLLLLLLLLLLLLLL   IIIIIIIIII   BBBBBBBBBBBB   RRR      RRR        TTT         LLLLLLLLLLLLLLL
LLLLLLLLLLLLLLL   IIIIIIIIII   BBBBBBBBBBBB   RRR      RRR        TTT         LLLLLLLLLLLLLLL
```

```
LL          IIIIII   BBBBBBBB    CCCCCCCC  RRRRRRRR    CCCCCCCC  TTTTTTTTTT  AAAAAA    BBBBBBBB
LL          IIIIII   BBBBBBBB    CCCCCCCC  RRRRRRRR    CCCCCCCC  TTTTTTTTTT  AAAAAA    BBBBBBBB
LL            II     BB    BB  CC          RR    RR  CC              TT      AA    AA  BB    BB
LL            II     BB    BB  CC          RR    RR  CC              TT      AA    AA  BB    BB
LL            II     BB    BB  CC          RR    RR  CC              TT      AA    AA  BB    BB
LL            II     BBBBBBBB  CC          RRRRRRRR  CC              TT      AA    AA  BBBBBBBB
LL            II     BBBBBBBB  CC          RRRRRRRR  CC              TT      AA    AA  BBBBBBBB
LL            II     BB    BB  CC          RR  RR    CC              TT      AAAAAAAAAA  BB    BB
LL            II     BB    BB  CC          RR   RR   CC              TT      AA    AA  BB    BB
LL            II     BB    BB  CC          RR    RR  CC              TT      AA    AA  BB    BB
LLLLLLLLLL  IIIIII   BBBBBBBB    CCCCCCCC  RR      RR   CCCCCCCC     TT      AA    AA  BBBBBBBB
LLLLLLLLLL  IIIIII   BBBBBBBB    CCCCCCCC  RR      RR   CCCCCCCC     TT      AA    AA  BBBBBBBB

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

```
    1    0001  0  MODULE LIB$CRC_TABLE (%TITLE'Library CRC table genarator'
    2    0002  0             IDENT = '1-003', ! File: LIBCRCTAB.B32  Edit: SBL1003
    3    0003  0             LINKAGE(FORTRAN)
    4    0004  0                     ) =
    5    0005  1  BEGIN
    6    0006  1
    7    0007  1  !
    8    0008  1  !****************************************************************************
    9    0009  1  !*                                                                          *
   10    0010  1  !*   COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                                *
   11    0011  1  !*   DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.                 *
   12    0012  1  !*   ALL RIGHTS RESERVED.                                                   *
   13    0013  1  !*                                                                          *
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   15    0015  1  !*   ONLY IN  ACCORDANCE WITH  THE  TERMS  OF  SUCH  LICENSE  AND WITH THE  *
   16    0016  1  !*   INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR  ANY  OTHER  *
   17    0017  1  !*   COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY  *
   18    0018  1  !*   OTHER PERSON.  NO TITLE TO AND OWNERSHIP OF  THE  SOFTWARE  IS  HEREBY  *
   19    0019  1  !*   TRANSFERRED.                                                           *
   20    0020  1  !*                                                                          *
   21    0021  1  !*   THE INFORMATION IN THIS SOFTWARE IS  SUBJECT TO CHANGE WITHOUT NOTICE  *
   22    0022  1  !*   AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT  *
   23    0023  1  !*   CORPORATION.                                                           *
   24    0024  1  !*                                                                          *
   25    0025  1  !*   DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE  OR  RELIABILITY OF ITS  *
   26    0026  1  !*   SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                *
   27    0027  1  !*                                                                          *
   28    0028  1  !*                                                                          *
   29    0029  1  !****************************************************************************
   30    0030  1  !
   31    0031  1
   32    0032  1  !++
   33    0033  1  ! FACILITY:  General Utility Library
   34    0034  1  !
   35    0035  1  ! ABSTRACT:
   36    0036  1  !
   37    0037  1  !
   38    0038  1  ! Given a polynomial, a table is constructed which can be
   39    0039  1  ! used by the LIB$CRC module for generating the CRC value for an
   40    0040  1  ! input stream.
   41    0041  1  !
   42    0042  1  ! ENVIRONMENT:  User Mode - AST re-entrant
   43    0043  1  !
   44    0044  1  ! AUTHOR:  Donald G. Petersen, CREATION DATE:  09-Jan-78
   45    0045  1  !
   46    0046  1  ! MODIFIED BY:
   47    0047  1  !
   48    0048  1  !     Donald G. Petersen, 09-Jan-78: VERSION 0
   49    0049  1  ! 01    - original
   50    0050  1  ! 0-02  - Change REQUIRE files for VAX system build.  DGP 28-Apr-78
   51    0051  1  ! 0-03  - Change file name to LIBCRCTAB, and change the name of
   52    0052  1  !           the require file similarly.  JBS 14-NOV-78
   53    0053  1  ! 1-001 - Update version number and copyright notice.  JBS 16-NOV-78
   54    0054  1  ! 1-002 - Don't use arithmetic shift for right shift.  SBL 4-Dec-1979
   55    0055  1  ! 1-003 - Use prologue file.  SBL 24-June-1983
   56    0056  1  !--
```

```
   58           0057  1  !
   59           0058  1  !  PROLOGUE FILE:
   60           0059  1  !
   61           0060  1
   62           0061  1  REQUIRE 'RTLIN:LIBPROLOG';      ! LIB$ definitions
   63           0132  1
   64           0133  1  !
   65           0134  1  !  TABLE OF CONTENTS:
   66           0135  1  !
   67           0136  1
   68           0137  1  FORWARD ROUTINE
   69           0138  1          LIB$CRC_TABLE:NOVALUE;  ! CRC table build routine
   70           0139  1
   71           0140  1  !
   72           0141  1  !  MACROS:
   73           0142  1  !
   74           0143  1  !      NONE
   75           0144  1
   76           0145  1  !  EQUATED SYMBOLS:
   77           0146  1  !
   78           0147  1  !      NONE
   79           0148  1  !
   80           0149  1  !  OWN STORAGE:
   81           0150  1  !
   82           0151  1  !      NONE
   83           0152  1
   84           0153  1  !  EXTERNAL REFERENCES:
   85           0154  1  !
   86           0155  1  !      NONE
```

```
 88   0156  1  GLOBAL ROUTINE LIB$CRC_TABLE    ( ! Build a table for the CRC routine
 89   0157  1      POLY,                          ! Adr of CRC polynomial input
 90   0158  1      TABLE)                         ! Adr of where table is to be built
 91   0159  1          :NOVALUE =                 ! No value is returned
 92   0160  1  !++
 93   0161  1  ! FUNCTIONAL DESCRIPTION:
 94   0162  1  !
 95   0163  1  ! The input polynomial is used to produce a table with 16 longword entries
 96   0164  1  ! which is the proper format to be used by the LIB$CRC routine for
 97   0165  1  ! calculating the CRC for a data stream.
 98   0166  1  !
 99   0167  1  ! FORMAL PARAMETERS:
100   0168  1  !
101   0169  1  !     poly.rl.r                    input CRC polynomial
102   0170  1  !     table.wl.ar                  Adr of where table of 16 longwords
103   0171  1  !
104   0172  1  ! IMPLICIT INPUTS:
105   0173  1  !
106   0174  1  !     NONE
107   0175  1  !
108   0176  1  ! IMPLICIT OUTPUTS:
109   0177  1  !
110   0178  1  !     NONE
111   0179  1  !
112   0180  1  ! ROUTINE VALUE:
113   0181  1  ! COMPLETION CODES:
114   0182  1  !
115   0183  1  !     NONE
116   0184  1  !
117   0185  1  ! SIDE EFFECTS:
118   0186  1  !
119   0187  1  !     NONE
120   0188  1  !
121   0189  1  !--
122   0190  1
123   0191  2      BEGIN
124   0192  2      MAP
125   0193  2          TABLE: REF VECTOR [16],
126   0194  2          POLY: REF VECTOR [1];
127   0195  2      LOCAL
128   0196  2          TMP,                         ! temporary
129   0197  2          X,                           ! used as a flag
130   0198  2          INDEX,                       ! index into the CRC table
131   0199  2          I;                           ! iteration index for making each entry
132   0200  2      INCR INDEX FROM 0 TO 15 DO
133   0201  3          BEGIN
134   0202  3          TMP = .INDEX;
135   0203  3          INCR I FROM 1 TO 4 DO
136   0204  4              BEGIN
137   0205  4              X = .TMP AND 1;
138   0206  4              TMP = .TMP<1,31>;    ! Equivalent to .TMP ^ -1
139   0207  4              IF .X EQL 1 THEN
140   0208  4                  TMP = .TMP XOR .POLY[0]
141   0209  3              END;
142   0210  3          TABLE[.INDEX] = .TMP
143   0211  2          END;
144   0212  2      RETURN;
```

```
; 145            0213 1     END;


                                                              .TITLE    LIBSCRC_TABLE Library CRC table genarator
                                                              .IDENT    \1-003\


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

                                          000C 00000          .ENTRY    LIB$CRC_TABLE, Save R2,R3
                                       50 D4 00002            CLRL      INDEX
                                52     50 DO 00004 1$:        MOVL      INDEX, TMP
                                51     01 DO 00007            MOVL      #1, I
               53        52     00 EF 0000A 2$:               EXTZV     #0, #1, TMP, X
               52        52     1F 01 EF 0000F               EXTZV     #1, #31, TMP, TMP
                                01 53 D1 00014                CMPL      X, #1
                                04 12 00017                   BNEQ      3$
                                52        04 BC CC 00019       XORL2     @POLY, TMP
               E9        51     04 F3 0001D 3$:               AOBLEQ    #4, I, 2$
                      08 BC40   52 DO 00021                   MOVL      TMP, @TABLE[INDEX]
               DA        50     OF F3 00026                   AOBLEQ    #15, INDEX, 1$
                                04 0002A                      RET

; Routine Size: 43 bytes,    Routine Base:  _LIB$CODE + 0000


; 146            0214 1     END
; 147            0215 0     ELUDOM
```

PSECT SUMMARY

```
    Name                        Bytes                        Attributes

 _LIB$CODE                      43  NOVEC,NOWRT,  RD , EXE,  SHR,  LCL,  REL,  CON,  PIC,ALIGN(2)
```

Library Statistics

File	Total	Symbols Loaded	Percent	Pages Mapped	Processing Time
_255DUA28:[SYSLIB]STARLET.L32;1	9776	0	0	581	00:00.7
_255DUA28:[LIBRTL.OBJ]RTLLIB.L32;1	36	0	0	8	00:00.1

```
;                                     COMMAND QUALIFIERS

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

; Size:           43 code + 0 data bytes
; Run Time:          00:02.3
; Elapsed Time:      00:14.0
; Lines/CPU Min:      5733
; Lexemes/CPU-Min: 10000
; Memory Used:   40 pages
; Compilation Complete
```