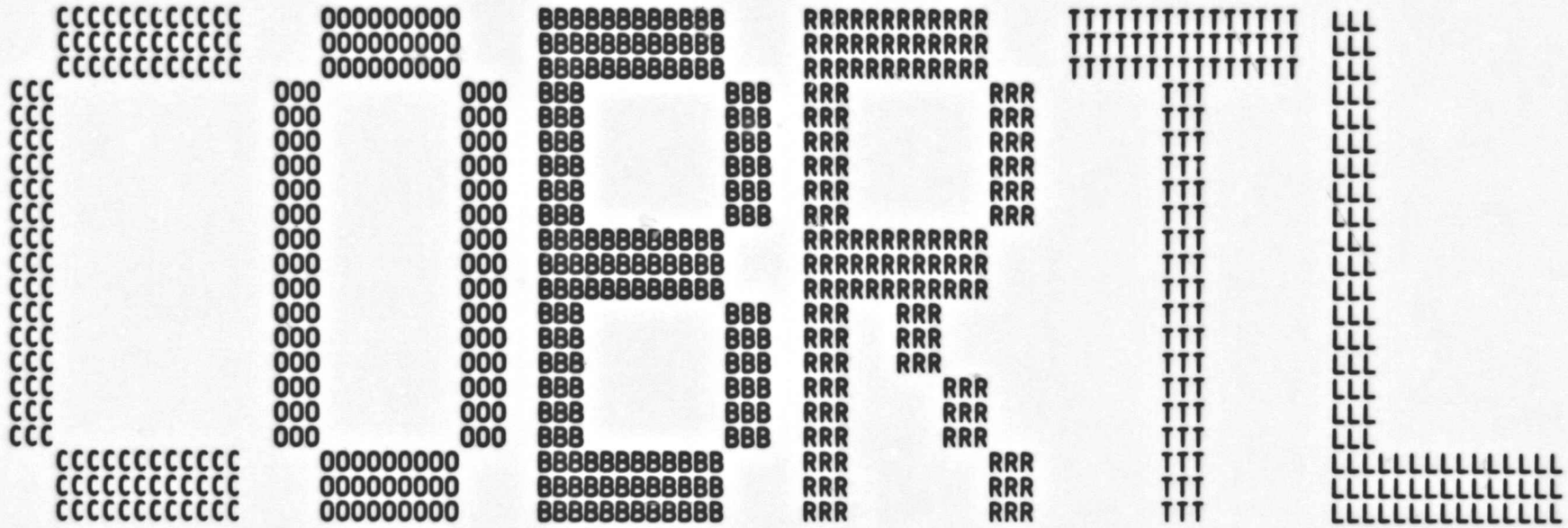
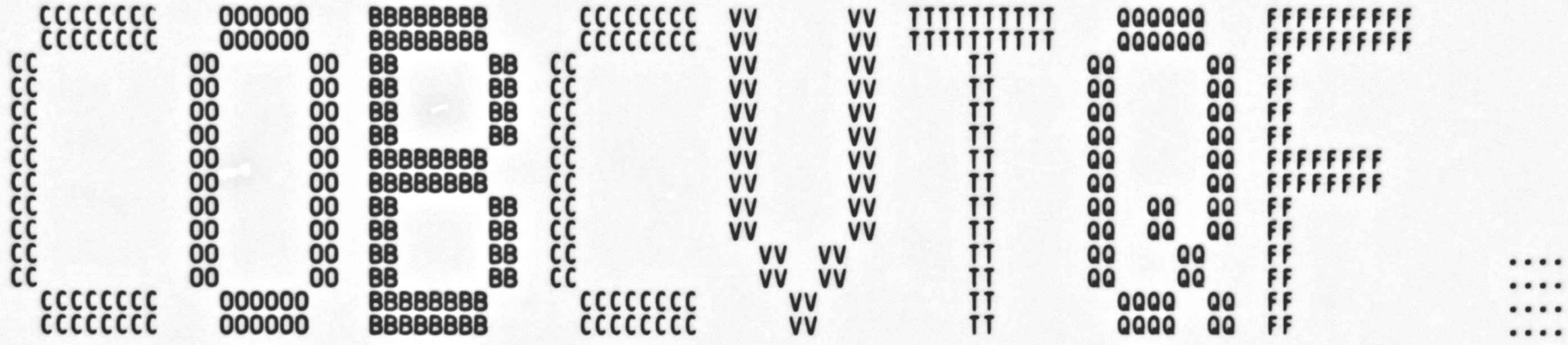
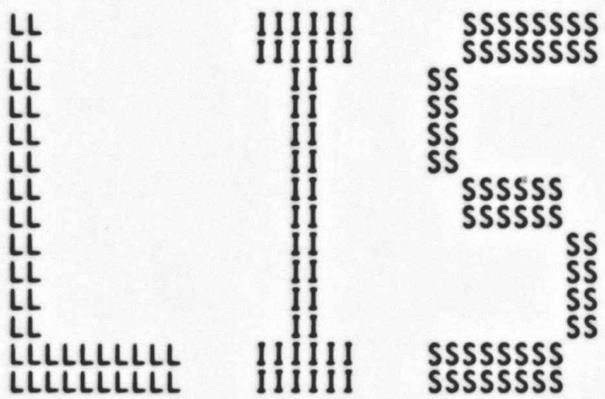

COBRA

FILEID**COBCVTQF





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(2) 49 HISTORY ; Detailed Current Edit History
(3) 60 DECLARATIONS
(4) 101 COB$CVTQF_R8

```
0000     1          .TITLE  COB$CVTQF_R8    COBOL Convert Quad to Floating
0000     2          .IDENT  /1-004/         ; File: COBCVTQF.MAR
0000     3
0000     4 ;
0000     5 ;****************************************************************************
0000     6 ;*                                                                          *
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0000    24 ;*                                                                          *
0000    25 ;*                                                                          *
0000    26 ;****************************************************************************
0000    27 ;
0000    28 ; FACILITY: COBOL SUPPORT
0000    29 ;++
0000    30 ; ABSTRACT:
0000    31 ;       This module contains the routine that converts quadword numbers
0000    32 ;       to floating.
0000    33 ;
0000    34 ;
0000    35 ;--
0000    36 ;
0000    37 ; VERSION: 1
0000    38 ;
0000    39 ; HISTORY:
0000    40 ;
0000    41 ; AUTHOR:
0000    42 ;       Marty Jack, 14-Mar-1979
0000    43 ;
0000    44 ; MODIFIED BY:
0000    45 ;
0000    46 ;
0000    47 ;
```

```
0000     49          .SBTTL  HISTORY          ; Detailed Current Edit History
0000     50
0000     51
0000     52 ; Edit History for Version 1 of COBCVTQF
0000     53 ;
0000     54 ; 1-001 - Original.  MLJ 14-Mar-1979
0000     55 ; 1-002 - Make external references explicit. RKR 17-JULY-1979
0000     56 ; 1-003 - Change all references to FOR$CNV_IN_DEFG to OTS$CVT_T_D
0000     57 ;         RKR 27-SEPT-79
0000     58 ; 1-004 - Cosmetic changes.  RKR 18-OCT-79
```

```
                     0000     60          .SBTTL  DECLARATIONS
                     0000     61
                     0000     62 ;
                     0000     63 ; INCLUDE FILES:
                     0000     64 ;
                     0000     65          $DSCDEF
                     0000     66
                     0000     67 ;
                     0000     68 ; EXTERNAL SYMBOLS:
                     0000     69
                     0000     70          .DSABL  GBL             ; Prevent undeclared symbols from being
                     0000     71                                  ; automatically global
                     0000     72
                     0000     73          .EXTRN  OTS$CVT_T_D     ; D, E, F, G Format Converison Routine
                     0000     74 ;
                     0000     75
                     0000     76 ;
                     0000     77 ; MACROS:
                     0000     78 ;        NONE
                     0000     79 ;
                     0000     80
                     0000     81 ;
                     0000     82 ; PSECT DECLARATIONS:
                00000000     83          .PSECT  _COB$CODE       PIC, SHR, LONG, EXE, NOWRT
                     0000     84
                     0000     85 ;
                     0000     86 ; EQUATED SYMBOLS:
                     0000     87 ;        NONE
                     0000     88 ;
                     0000     89
                     0000     90 ;
                     0000     91 ; OWN STORAGE:
                     0000     92 ;
                     0000     93 ;+
                     0000     94 ; The following constant has the value 2**32.  It is used for scaling
                     0000     95 ; the high 32 bits and for compensating for unsigned arithmetic.
                     0000     96 ;-
6C 29 67 49 29 04    0000     97 BIAS:    .PACKED 4294967296      ; 2**32
                   0000000A   0006     98 BIAS_DIGITS=10
                     0006     99 ;
```

```
                     0006   101          .SBTTL  COB$CVTQF_R8
                     0006   102
                     0006   103 ;++
                     0006   104 ; FUNCTIONAL DESCRIPTION:
                     0006   105 ;
                     0006   106 ;       Converts 64-bit (quadword) numbers to floating.
                     0006   107 ;
                     0006   108 ; CALLING SEQUENCE:
                     0006   109 ;
                     0006   110 ;       JSB COB$CVTQF_R8 (scale.rl.v, src.rq.r, dst.wf.r)
                     0006   111 ;
                     0006   112 ;       Arguments are passed in R6, R7, and R8.
                     0006   113 ;
                     0006   114 ; INPUT PARAMETERS:
                     0006   115 ;
                     0006   116 ;       SCALE.rl.v              The power of ten by which the internal
                     0006   117 ;                               representation of the source must be
                     0006   118 ;                               multiplied to scale the same as the
                     0006   119 ;                               internal representation of the dest.
                     0006   120 ;       SRC.rq.r                The number to be converted
                     0006   121 ;
                     0006   122 ; IMPLICIT INPUTS:
                     0006   123 ;
                     0006   124 ;       All of the trap bits in the PSL are assumed off.
                     0006   125 ;
                     0006   126 ; OUTPUT PARAMETERS:
                     0006   127 ;
                     0006   128 ;       DST.wf.r                The place to store the converted number
                     0006   129 ;
                     0006   130 ; IMPLICIT OUTPUTS:
                     0006   131 ;
                     0006   132 ;       NONE
                     0006   133 ;
                     0006   134 ; FUNCTION VALUE:
                     0006   135 ;
                     0006   136 ;       1 = SUCCESS, 0 = FAILURE
                     0006   137 ;
                     0006   138 ; SIDE EFFECTS:
                     0006   139 ;
                     0006   140 ;       Destroys registers R0 through R8.
                     0006   141 ;
                     0006   142 ;--
                     0006   143
                     0006   144
                     0006   145 COB$CVTQF_R8::
                5E   28   C2 0006   146          SUBL2   #40,SP                  ; Space for temp string and result
                     0009   147 ;
                     0009   148 ; Convert the quadword input to packed.
                     0009   149 ;
          04 A7   67   01   1F 0009   150          CMPV    #31,#1,(R7),4(R7)       ; Is number in longword range?
                          07   12 000F   151          BNEQ    11$                     ; Br if not to slower code
                08 AE   13   67 F9 0011   152          CVTLP   (R7),#19,8(SP)          ; Convert low order longword
                          20   11 0016   153          BRB     13$                     ; To common code
                6E   0A   04 A7 F9 0018   154 11$:     CVTLP   4(R7),#10,(SP)          ; Convert high order longword
13              6E   0A   DF AF   0A   25 001D   155          MULP    #BIAS_DIGITS,BIAS,#10,(SP),#19,8(SP)
                               08 AE        0024
                                            0026   156                                  ; Multiply by 2**32
```

```
                6E   0A    67   F9   0026   157          CVTLP   (R7),#10,(SP)           ; Convert low order longword
                           06   18   002A   158          BGEQ    12$                     ; Br if nonnegative
          6E    0A   D0 AF   0A   20   002C   159          ADDP4   #BIAS_DIGITS,BIAS,#10,(SP)
                                  0032   160                                          ; Correct for signed conversion
          08 AE   13   6E    0A   20   0032   161 12$:     ADDP4   #10,(SP),#19,8(SP)      ; Sum low and high order parts
                                  0038   162 ;
                                  0038   163 ; Convert the packed intermediate to leading separate.
                                  0038   164 ;
       14 AE   13   08 AE   13   08   0038   165 13$:     CVTPS   #19,8(SP),#19,20(SP)    ; Make a separate sign string
                                  003F   166 ;
                                  003F   167 ; Make a descriptor for the leading separate string.
                                  003F   168 ;
                          53   DD   003F   169          PUSHL   R3                      ; Address = temp string
                       7E 01   90   0041   170          MOVB    #DSC$K_CLASS_S,-(SP)    ; Class = static
                       7E 0E   90   0044   171          MOVB    #DSC$K_DTYPE_T,-(SP)    ; Data type = ASCII text
                       7E 14   B0   0047   172          MOVW    #20,-(SP)               ; Length = 20 bytes
                                  004A   173 ;
                                  004A   174 ; Now call the conversion routine.
                                  004A   175 ;
                       7E 56   CE   004A   176          MNEGL   R6,-(SP)                ; Scale factor
                          00   DD   004D   177          PUSHL   #0                      ; Digits in fraction
                        10 AE   9F   004F   178          PUSHAB  16(SP)                  ; Address of result area
                        0C AE   9F   0052   179          PUSHAB  12(SP)                  ; Address of descriptor
             00000000'GF    04   FB   0055   180          CALLS   #4,G^OTS$CVT_T_D        ; Call the routine
                        0D 50   E9   005C   181          BLBC    R0,15$                  ; Failure, must be overflow
                    68  08 AE   76   005F   182          CVTDF   8(SP),(R8)              ; Store result
                           07   1D   0063   183          BVS     15$                     ; Br if overflowed
                       50 01    D0   0065   184          MOVL    #1,R0                   ; Indicate success
                       5E 30    C0   0068   185 14$:     ADDL2   #48,SP                  ; Delete stack temps
                                  05   006B   186          RSB                             ; Return
                                  006C   187 ;
                                  006C   188 ; Come here on overflow to store the reserved operand.
                                  006C   189 ;
                68 01    0F   78   006C   190 15$:     ASHL    #15,#1,(R8)             ; Store reserved operand
                       50 D4    11   0070   191          CLRL    R0                      ; Indicate failure
                       F4 11    11   0072   192          BRB     14$                     ; Delete stack temps and return
                                  0074   193 ;
                                  0074   194          .END
```

```
BIAS                            00000000 R      02
BIAS_DIGITS                   = 0000000A
COB$CVTQF_R8                    00000006 RG     02
DSC$K_CLASS_S                 = 00000001
DSC$K_DTYPE_T                 = 0000000E
OTS$CVT_T_D                     ********   X    00
```

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
_COB$CODE	00000074 (116.)	02 (2.)	PIC USR CON REL LCL SHR EXE RD NOWRT NOVEC LONG

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	30	00:00:00.06	00:00:01.16
Command processing	119	00:00:00.29	00:00:02.78
Pass 1	139	00:00:01.17	00:00:05.83
Symbol table sort	0	00:00:00.11	00:00:00.56
Pass 2	50	00:00:00.39	00:00:02.51
Symbol table output	2	00:00:00.01	00:00:00.01
Psect synopsis output	2	00:00:00.01	00:00:00.01
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	344	00:00:02.05	00:00:12.89

The working set limit was 1050 pages.
8737 bytes (18 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 135 non-local and 5 local symbols.
194 source lines were read in Pass 1, producing 10 object records in Pass 2.
8 pages of virtual memory were used to define 7 macros.

Macro library statistics

Macro library name	Macros defined
_255DUA28:[SYSLIB]STARLET.MLB;2	4

190 GETS were required to define 4 macros.

There were no errors, warnings or information messages.

```
MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS$:COBCVTQF/OBJ=OBJ$:COBCVTQF MSRC$:COBCVTQF/UPDATE=(ENH$:COBCVTQF)
```

COBCVTRPQ
LIS

COBCVTDQ
LIS

COBCANCEL
LIS

COBCVTQP
LIS

COBACCTIM
LIS

COBCVTPQ
LIS

COBCVTRFQ
LIS

COBCVTQF
LIS

COBCVTRQP
LIS

COBCALL
LIS

COBCVTFQ
LIS

COBACCEPT
LIS

COBCVTRDQ
LIS

COBCVTQD
LIS