I 3

```
   CCCCCCCCCCCC  LLL                 IIIIIIIII     UUU         UUU  TTTTTTTTTTTTTTT  LLL
   CCCCCCCCCCCC  LLL                 IIIIIIIII     UUU         UUU  TTTTTTTTTTTTTTT  LLL
   CCCCCCCCCCCC  LLL                 IIIIIIIII     UUU         UUU  TTTTTTTTTTTTTTT  LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
CCC              LLL                    III        UUU         UUU        TTT        LLL
   CCCCCCCCCCCC  LLLLLLLLLLLLLLL     IIIIIIIII     UUUUUUUUUUUUUUU        TTT        LLLLLLLLLLLLLLL
   CCCCCCCCCCCC  LLLLLLLLLLLLLLL     IIIIIIIII     UUUUUUUUUUUUUUU        TTT        LLLLLLLLLLLLLLL
   CCCCCCCCCCCC  LLLLLLLLLLLLLLL     IIIIIIIII     UUUUUUUUUUUUUUU        TTT        LLLLLLLLLLLLLLL
```

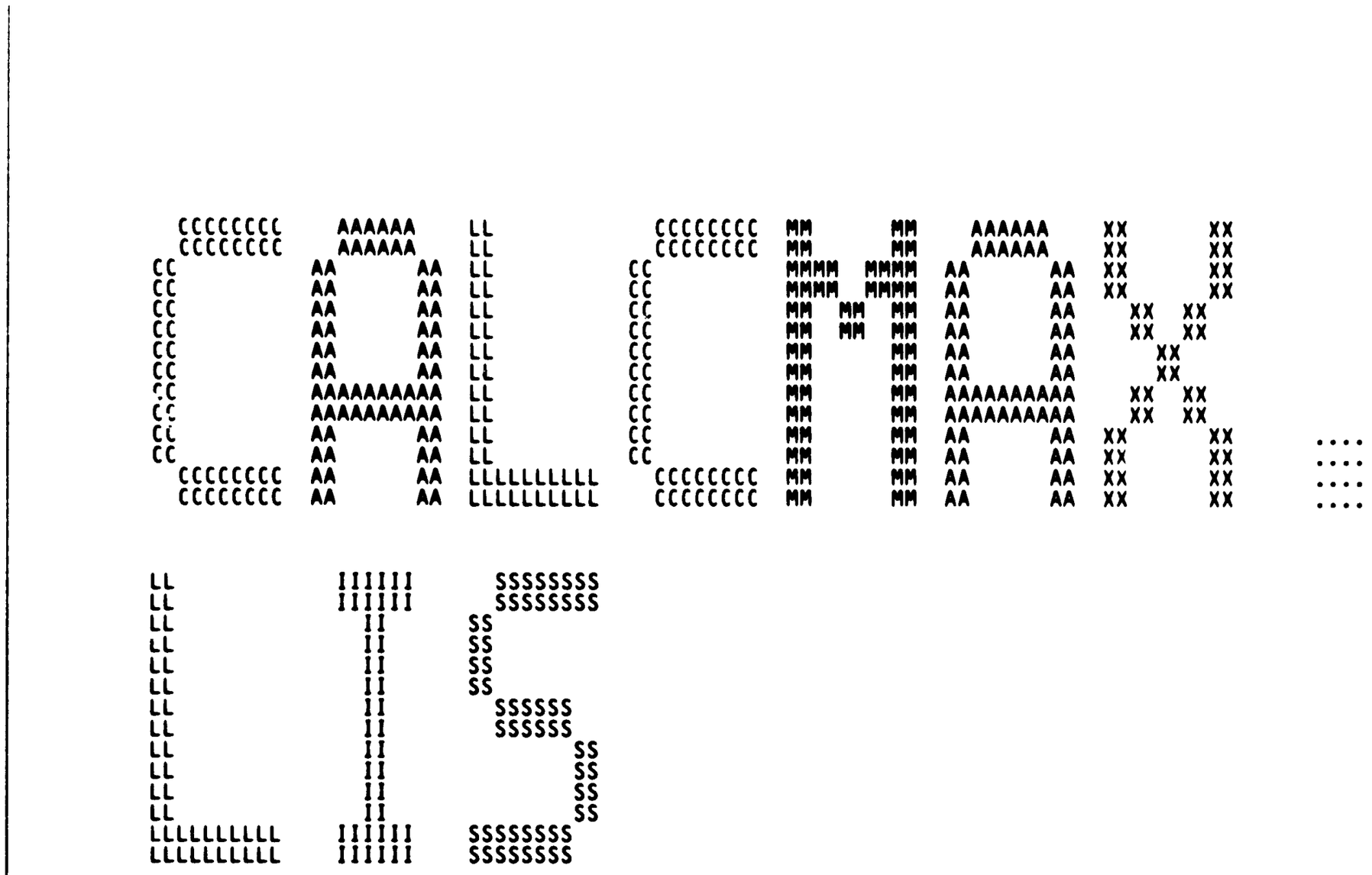
CCCCCCCC AAAAAA LL CCCCCCCC MM MM AAAAAA XX XX
CCCCCCCC AAAAAA LL CCCCCCCC MM MM AAAAAA XX XX
CC AA AA LL CC MMMM MMMM AA AA XX XX
CC AA AA LL CC MMMM MMMM AA AA XX XX
CC AA AA LL CC MM MM MM AA AA XX XX
CC AA AA LL CC MM MM MM AA AA XX XX
CC AA AA LL CC MM MM AA AA XX XX
CC AA AA LL CC MM MM AA AA XX XX
CC AAAAAAAAAA LL CC MM MM AAAAAAAAAA XX XX
CC AAAAAAAAAA LL CC MM MM AAAAAAAAAA XX XX
CC AA AA LL CC MM MM AA AA XX XX ....
CC AA AA LL CC MM MM AA AA XX XX ....
CCCCCCCC AA AA LLLLLLLLLL CCCCCCCC MM MM AA AA XX XX ....
CCCCCCCC AA AA LLLLLLLLLL CCCCCCCC MM MM AA AA XX XX ....
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

```
0000     1          .title  calcmax - calculate maximum retention period
0000     2          .sbttl  copyright notice
0000     3          .ident  'V04-000'
0000     4 ;
0000     5 ;*****************************************************************************
0000     6 ;*                                                                           *
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0000    24 ;*                                                                           *
0000    25 ;*                                                                           *
0000    26 ;*****************************************************************************
0000    27 ;
```

```
0000     29          .sbttl  Program description
0000     30 ;++
0000     31 ;   Facility:   SET VOLUME
0000     32 ;
0000     33 ;   Abstract:   This module calculates the maximum retention period for files,
0000     34 ;               given the minimum retention period.
0000     35 ;
0000     36 ;   Environment:        Native mode, user mode
0000     37 ;
0000     38 ;   Author:     Gerry Smith             Creation Date:  01-Jan-1982
0000     39 ;
0000     40 ;   Modified by:
0000     41 ;
0000     42 ;       V03-001 GAS0077         Gerry Smith             23-Apr-1982
0000     43 ;               Instead of returning 7 days, return the minimum period
0000     44 ;               plus 7 days.
0000     45 ;
0000     46 ;--
```

```
                                0000     48          .sbttl  storage definitions
                                0000     49 ;
                                0000     50 ;       storage definitions
                                0000     51 ;
                            00000000     52          .psect set$rodata,nowrt,noexe
                                0000     53
                                0000     54 bin_seven:
                FFFFFA7F D71BC000  0000     55          .long   ^XD71BC000,^XFFFFFA7F    ; Delta time of 7 days
```

```
                     0008    57          .sbttl  calculate_max -- entry point for this module
                     0008    58 ;++
                     0008    59 ;
                     0008    60 ; The minimum retention period is doubled and compared against the
                     0008    61 ; 64-bit system time representing the minimum retention period plus
                     0008    62 ; 7 days.  Whichever value is smaller is used.
                     0008    63 ;
                     0008    64 ; Inputs:
                     0008    65 ;       4(ap) - address of RETMIN_VALUE, the minimum  .tention period,
                     0008    66 ;               expressed in 64-bit system time format
                     0008    67 ;       8(ap) - address of RETMAX_VALUE, the maximum retention period.
                     0008    68 ;
                     0008    69 ; Outputs:
                     0008    70 ;       RETMAX_VALUE is computed and returned.
                     0008    71 ;
                     0008    72 ;--
                     0008    73
                00FC 0008    74          .entry  calculate_max,^m<r2,r3,r4,r5,r6,r7>
                     000A    75
                     000A    76 ;
                     000A    77 ; Double the minimum retention period.  Since this is in quadword format,
                     000A    78 ; a little extra work is required.  First the low order longwords are added,
                     000A    79 ; and then the high order longwords, with the carry bit from the addition of
                     000A    80 ; the low order addition.
                     000A    81 ;
                     000A    82
52   04 BC   7D      000A    83          movq    @4(ap),r2               ; Put minimum period in r2/r3
   54   52   7D      000E    84          movq    r2,r4                   ; Also put it in r4/r5
   54   52   C0      0011    85          addl2   r2,r4                   ; Add low half
   55   53   D8      0014    86          adwc    r3,r5                   ; Add high half including carry
                     0017    87
                     0017    88 ;
                     0017    89 ; Now take the minimum value and add the seven-day value to it.
                     0017    90 ;
                     0017    91
56   E6 AF   7D      0017    92          movq    bin_seven,r6            ; Get a copy of binary seven days
   56   52   C0      001B    93          addl2   r2,r6                   ; Add low half of minimum
   57   53   D8      001E    94          adwc    r3,r7                   ; Add high half
                     0021    95
                     0021    96 ;
                     0021    97 ; Compare the doubled value to the minimum plus seven days.
                     0021    98 ;
                     0021    99
   57   55   D1      0021   100          cmpl    r5,r7                   ; Compare high longwords
        03   12      0024   101          bneq    5$
   56   54   D1      0026   102          cmpl    r4,r6                   ; Compare low longwords
        06   14      0029   103 5$:      bgtr    10$                     ; If less, then use twice the retention peri
                     002B   104
08 BC   56   7D      002B   105          movq    r6,@8(ap)               ; Otherwise return minimum plus seven days
        04   11      002F   106          brb     20$
                     0031   107
08 BC   54   7D      0031   108 10$:     movq    r4,@8(ap)               ; Return the doubled minimum retention
                     0035   109
             04      0035   110 20$:     ret
                     0036   111          .end
```

```
BIN_SEVEN           00000000 R      01
CALCULATE_MAX       00000008 RG     01
```

Psect synopsis

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
SET$RODATA	00000036 (54.)	01 (1.)	NOPIC USR CON REL LCL NOSHR NOEXE RD NOWRT NOVEC BYTE

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	23	00:00:00.09	00:00:00.55
Command processing	120	00:00:01.00	00:00:04.61
Pass 1	66	00:00:00.40	00:00:01.17
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	38	00:00:00.25	00:00:00.70
Symbol table output	1	00:00:00.01	00:00:00.01
Psect synopsis output	1	00:00:00.03	00:00:00.44
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	251	00:00:01.78	00:00:07.48

```
The working set limit was 600 pages.
1417 bytes (3 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 2 non-local and 3 local symbols.
111 source lines were read in Pass 1, producing 13 object records in Pass 2.
0 pages of virtual memory were used to define 0 macros.
```

Macro library statistics

Macro library name	Macros defined
_255DUA28:[CLIUTL.OBJ]CLIUTL.MLB;1	0
_255DUA28:[SYS.OBJ]LIB.MLB;1	0
_255DUA28:[SYSLIB]STARLET.MLB;2	0
TOTALS (all libraries)	0

```
0 GETS were required to define 0 macros.

There were no errors, warnings or information messages.

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

JBCPRSDEF
REQ

CNVCLIATB
LIS

INFO
LIS

TYPE
REQ

CHRSUB
LIS

CNVCLINUM
LIS

SHODEVDEF
REQ

CLIMAC
MAR

CNVCLIFRM
LIS

DIGRAMS
LIS

CALCMAX
LIS

JBCCMDPRS
LIS

CLIUTLMAC
MAR

CVTTIME
LIS

SHOWDEF
REQ

CREATE
LIS