```
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
LLLLLLLLLLLLLLL       III       BBBBBBBBBBBB   RRR      RRR       TTT          LLLLLLLLLLLLLLL
LLLLLLLLLLLLLLL    IIIIIIIIII   BBBBBBBBBBBB   RRR      RRR       TTT          LLLLLLLLLLLLLLL
LLLLLLLLLLLLLLL    IIIIIIIIII   BBBBBBBBBBBB   RRR      RRR       TTT          LLLLLLLLLLLLLLL
```

```
LL        IIIIII   BBBBBBBB   IIIIII   CCCCCCCC  HH      HH    AAAAAA    RRRRRRR
LL        IIIIII   BBBBBBBB   IIIIII   CCCCCCCC  HH      HH    AAAAAA    RRRRRRRR
LL          II     BB    BB     II     CC        HH      HH   AA    AA   RR    RR
LL          II     BB    BB     II     CC        HH      HH   AA    AA   RR    RR
LL          II     BB    BB     II     CC        HH      HH   AA    AA   RR    RR
LL          II     BB    BB     II     CC        HH      HH   AA    AA   RR    RR
LL          II     BBBBBBBB     II     CC        HHHHHHHHHH   AA    AA   RRRRRRR
LL          II     BBBBBBBB     II     CC        HHHHHHHHHH   AA    AA   RRRRRRR
LL          II     BB    BB     II     CC        HH      HH   AAAAAAAAAA RR  RR
LL          II     BB    BB     II     CC        HH      HH   AAAAAAAAAA RR  RR
LL          II     BB    BB     II     CC        HH      HH   AA    AA   RR    RR    ....
LL          II     BB    BB     II     CC        HH      HH   AA    AA   RR    RR    ....
LLLLLLLLLL IIIIII  BBBBBBBB   IIIIII   CCCCCCCC  HH      HH   AA    AA   RR    RR    ....
LLLLLLLLLL IIIIII  BBBBBBBB   IIIIII   CCCCCCCC  HH      HH   AA    AA   RR    RR    ....


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

C 14
LIB$ICHAR   ; Return first char of string as value   16-SEP-1984 00:09:55   VAX/VMS Macro V04-00   Page   0
Table of contents

```
0000     1          .TITLE  LIB$ICHAR          ; Return first char of string as value
0000     2          .IDENT  /1-006/            ; File: LIBICHAR.MAR Edit:RKR1006
0000     3
0000     4  ;
0000     5  ;*******************************************************************************
0000     6  ;*                                                                             *
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0000    24  ;*                                                                             *
0000    25  ;*                                                                             *
0000    26  ;*******************************************************************************
0000    27  ;
0000    28  ;
0000    29  ; FACILITY: General Utility Library
0000    30  ;++
0000    31  ; ABSTRACT:
0000    32  ;
0000    33  ;       Return first character of a string as INTEGER*4 ASCII value.
0000    34  ;
0000    35  ;--
0000    36  ;
0000    37  ; VERSION: 1-001
0000    38  ;
0000    39  ; HISTORY:
0000    40  ;
0000    41  ; AUTHOR:
0000    42  ;       Thomas N. Hastings, 6-Aug-77: Version 0
0000    43  ;
0000    44  ; MODIFIED BY:
0000    45  ;
0000    46  ;
0000    47  ;
```

E 14
; Return first char of string as value   16-SEP-1984 00:09:55   VAX/VMS Macro V04-00   Page 2
HISTORY ; Detailed Current Edit History 6-SEP-1984 11:08:02   [LIBRTL.SRC]LIBICHAR.MAR;1   (2)

```
0000    49              .SBTTL  HISTORY          ; Detailed Current Edit History
0000    50
0000    51
0000    52  ; Edit History for Version 0
0000    53  ;
0000    54
0000    55  ; 1-001 - Update copyright notice and version number.  The last edit
0000    56  ;              number on version 0 was 3.  JBS 16-NOV-78
0000    57  ; 1-002 - Add "." to PSECT directive.  JBS 21-DEC-78
0000    58  ; 1-003 - Add support for 0 length dynamic strings.  RW  16-AUG-79
0000    59  ; 1-004 - Enhance to allow recognition of additional classes of
0000    60  ;              string descriptors by using LIB$ANALYZE_SDESC_R3 to extract
0000    61  ;              length and address of 1st byte of data from descritpor.
0000    62  ;              RKR 20-MAY-1981
0000    63  ; 1-005 - Add special-case code to process string descriptors that
0000    64  ;              "read" like fix string descriptors.  RKR 7-OCT-1981.
0000    65  ; 1-006 - Redirect jsb's from LIB$ANALYZE_SDESC_R3 to
0000    66  ;              LIB$ANALYZE_SDESC_R2.  Drop R3 from entry mask.
0000    67  ;              RKR 18-NOV-1981.
```

LIB$ICHAR
1-006

F 14
; Return first char of string as value 16-SEP-1984 00:09:55 VAX/VMS Macro V04-00   Page 3
DECLARATIONS   6-SEP-1984 11:08:02 [LIBRTL.SRC]LIBICHAR.MAR;1   (3)

```
            0000        69              .SBTTL  DECLARATIONS
            0000        70
            0000        71      ;
            0000        72      ; INCLUDE FILES: NONE
            0000        73      ;
            0000        74
            0000        75
            0000        76      ; EXTERNAL SYMBOLS:
            0000        77      ;
            0000        78              .DSABL  GBL                     ; no default externals
            0000        79              .EXTRN  LIB$ANALYZE_SDESC_R2    ; extract length and address
            0000        80
            0000        81      ;
            0000        82      ; MACROS:
            0000        83      ;
            0000        84              $DSCDEF                         ; for fields within a descriptor
            0000        85
            0000        86      ;
            0000        87      ; PSECT DECLARATIONS:
            0000        88      ;
        00000000        89              .PSECT  _LIB$CODE PIC,SHR,LONG,EXE,NOWRT
            0000        90      ;
            0000        91      ; EQUATED SYMBOLS: NONE
            0000        92      ;
            0000        93
            0000        94      ;
            0000        95      ; OWN STORAGE: NONE
            0000        96      ;
            0000        97
```

LIB$ICHAR
1-006

G 14
; Return first char of string as value   16-SEP-1984 00:09:55   VAX/VMS Macro V04-00   Page   4
LIB$ICHAR - Return first char of string   6-SEP-1984 11:08:02   [LIBRTL.SRC]LIBICHAR.MAR;1   (4)

```
                        0000      99                   .SBTTL  LIB$ICHAR - Return first char of string as INTEGER*4 value
                        0000     100
                        0000     101  ;++
                        0000     102  ; FUNCTIONAL DESCRIPTION:
                        0000     103  ;
                        0000     104  ;        Return first character of string as INTEGER*4 8-bit ASCII value.
                        0000     105  ;        If the string is a null string, ie. the length is 0, return a
                        0000     106  ;        null.
                        0000     107  ;
                        0000     108  ; CALLING SEQUENCE:
                        0000     109  ;
                        0000     110  ;        First_char_val.wlu.v = LIB$ICHAR (string.rt.dx)
                        0000     111  ;
           00000004     0000     112  ;        string = 4                          ; Adr. of string descriptor
                        0000     113  ;
                        0000     114  ;
                        0000     115  ; INPUT PARAMETERS:
                        0000     116  ;        NONE
                        0000     117  ;
                        0000     118  ; IMPLICIT INPUTS:
                        0000     119  ;        NONE
                        0000     120  ;
                        0000     121  ; OUTPUT PARAMETERS:
                        0000     122  ;        NONE
                        0000     123  ;
                        0000     124  ; IMPLICIT OUTPUTS:
                        0000     125  ;        NONE
                        0000     126  ;
                        0000     127  ; ROUTINE VALUE
                        0000     128  ;        FIRST_CHAR_VAL.wlu.v    value of 1st char as a INTEGER*4
                        0000     129  ;
                        0000     130  ; SIDE EFFECTS:
                        0000     131  ;        NONE
                        0000     132  ;
                        0000     133  ;--
                        0000     134
                        0000     135
                        0000     136
                0004    0000     137                   .ENTRY  LIB$ICHAR, ^M<R2>        ; entry mask
  50    04 AC    D0      0002     138                   MOVL    STRING(AP), R0           ; address of string descriptor
  02 03 A0       91      0006     139                   CMPB    DSC$B_CLASS(R0), #DSC$K_CLASS_D ; read like fixed ?
           0C    1A      000A     140                   BGTRU   1$                       ; no
  50    04 BC    7D      000C     141                   MOVQ    @STRING(AP), R0          ; length->R0, address->R1
        50       B5      0010     142                   TSTW    R0
        15       1B      0012     143                   BLEQU   10$                      ; if negative
  50    61       9A      0014     144                   MOVZBL  (R1), R0                 ; value of 1st character
        04               0017     145                   RET
                         0018     146
  00000000'GF    16      0018     147  1$:              JSB     G^LIB$ANALYZE_SDESC_R2   ; extract: length->R1, addr->R2
     08 50       E9      001E     148                   BLBC    R0, 10$                  ; if not success, quit
        51       B5      0021     149                   TSTW    R1                       ; length 0 ?
        04       1B      0023     150                   BLEQU   10$                      ; if so, return a null
  50    62       9A      0025     151                   MOVZBL  (R2), R0                 ; value of 1st character
        04               0028     152                   RET                              ; return from LIB$ICHAR
                         0029     153
        50       D4      0029     154  10$:             CLRL    R0                       ; return a null
        04               002B     155                   RET
```

LIB$ICHAR
1-006

H 14
; Return first char of string as value   16-SEP-1984 00:09:55 VAX/VMS Macro V04-00   Page 5
LIB$ICHAR - Return first char of string   6-SEP-1984 11:08:02 [LIBRTL.SRC]LIBICHAR.MAR;1   (4)

```
002C    156
002C    157          .END                              ; End of module LIB$ICHAR
```

I 14

DSC$B_CLASS   = 00000003
DSC$K_CLASS_D   = 00000002
LIB$ANALYZE_SDESC_R2   ******** X   00
LIB$ICHAR   00000000 RG X   02
STRING   = 00000004

```
                                      +------------------+
                                      ! 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
_LIB$CODE                     0000002C  (    44.)   02 (   2.)  PIC      USR   CON   REL   LCL  SHR    EXE    RD     NOWRT  NOVEC  LONG
```

```
                                      +----------------------------+
                                      ! Performance indicators !
                                      +----------------------------+


Phase                   Page faults   CPU Time        Elapsed Time
-----                   -----------   --------        ------------
Initialization                  29    00:00:00.02     00:00:02.01
Command processing             113    00:00:00.34     00:00:02.90
Pass 1                         132    00:00:01.12     00:00:03.71
Symbol table sort                0    00:00:00.10     00:00:00.11
Pass 2                          41    00:00:00.30     00:00:02.59
Symbol table output              2    00:00:00.01     00:00:00.01
Psect synopsis output            3    00:00:00.01     00:00:00.01
Cross-reference output           0    00:00:00.00     00:00:00.00
Assembler run totals           322    00:00:01.91     00:00:11.34
```

The working set limit was 900 pages.
7877 bytes (16 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 134 non-local and 2 local symbols.
157 source lines were read in Pass 1, producing 13 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:[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$:LIBICHAR/OBJ=OBJ$:LIBICHAR MSRC$:LIBICHAR/UPDATE=(ENH$:LIBICHAR)

LIBFLTUND
LIS

LIBGETSYI
LIS

LIBICHAR
LIS

LIBINITIA
LIS

LIBFIXUPF
LIS

LIBGETFOR
LIS

LIBGETINP
LIS

LIBINISHR
LIS

LIBGETDVI
LIS

LIBGETOPC
LIS

LIBFNDIMG
LIS

LIBGETMSG
LIS

LIBINDEX
LIS

LIBINSQHI
LIS

LIBGETJPI
LIS

LIBGETTAB
LIS