


```

LL          IIIIII  BBBB8888  MM      MM  AAAAAA  TTTTTTTTTT  CCCCCCCC  HH      HH  CCCCCCCC
LL          IIIIII  BBBB8888  MM      MM  AAAAAA  TTTTTTTTTT  CCCCCCCC  HH      HH  CCCCCCCC
LL          II      BB      BB  MMMM  MMMM  AA      AA  TT      TT  CC      CC  HH      HH  CC      CC
LL          II      BB      BB  MMMM  MMMM  AA      AA  TT      TT  CC      CC  HH      HH  CC      CC
LL          II      BB      BB  MM  MM  MM  AA      AA  TT      TT  CC      CC  HH      HH  CC      CC
LL          II      BBB88888  MM      MM  AA      AA  TT      TT  CC      CC  HHHHHHHHHH  CC      CC
LL          II      BBB88888  MM      MM  AA      AA  TT      TT  CC      CC  HHHHHHHHHH  CC      CC
LL          II      BB      BB  MM      MM  AAAAAAAAAA  TT      TT  CC      CC  HH      HH  CC      CC
LL          II      BB      BB  MM      MM  AAAAAAAAAA  TT      TT  CC      CC  HH      HH  CC      CC
LL          II      BB      BB  MM      MM  AA      AA  TT      TT  CC      CC  HH      HH  CC      CC
LL          II      BB      BB  MM      MM  AA      AA  TT      TT  CC      CC  HH      HH  CC      CC
LLLLLLLLLLL IIIIII  BBBB8888  MM      MM  AA      AA  TT      TT  CCCCCCCC  HH      HH  CCCCCCCC
LLLLLLLLLLL IIIIII  BBBB8888  MM      MM  AA      AA  TT      TT  CCCCCCCC  HH      HH  CCCCCCCC

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
LLLLLLLLLLL IIIIII  SSSSSSSS
LLLLLLLLLLL IIIIII  SSSSSSSS

```

LI
Sy
DE
LE
LI
SO

PS
--
-L

Ph
--
In
Co
Pa
Sy
Pa
Sy
Ps
Cr
As

Th
12
Th
13
O

Ma
--
-3
O
Th
MA

(2) 61
(3) 89

DECLARATIONS
LIBSMATCHC - match characters


```

0000 1 .TITLE LIBSMATCHC - Match Character
0000 2 .IDENT /1-007/ ; File: LIBSMATCHC.MAR Edit: RKR1007
0000 3
0000 4
0000 5 *****
0000 6 *
0000 7 * COPYRIGHT (c) 1978, 1980, 1982, 1984 BY *
0000 8 * DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS. *
0000 9 * ALL RIGHTS RESERVED. *
0000 10 *
0000 11 * THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED *
0000 12 * ONLY IN ACCORDANCE WITH THE TERMS OF SUCH LICENSE AND WITH THE *
0000 13 * INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR ANY OTHER *
0000 14 * COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY *
0000 15 * OTHER PERSON. NO TITLE TO AND OWNERSHIP OF THE SOFTWARE IS HEREBY *
0000 16 * TRANSFERRED. *
0000 17 *
0000 18 * THE INFORMATION IN THIS SOFTWARE IS SUBJECT TO CHANGE WITHOUT NOTICE *
0000 19 * AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL EQUIPMENT *
0000 20 * CORPORATION. *
0000 21 *
0000 22 * DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS *
0000 23 * SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL. *
0000 24 *
0000 25 *
0000 26 *****
0000 27
0000 28
0000 29 ++
0000 30 FACILITY: General Utility Library
0000 31
0000 32 ABSTRACT:
0000 33
0000 34 search a string for the first occurrence of a substring
0000 35
0000 36 ENVIRONMENT: User Mode, AST Reentrant
0000 37
0000 38 --
0000 39 AUTHOR: Donald G. Petersen, CREATION DATE: 03-Jan-78
0000 40
0000 41 MODIFIED BY:
0000 42
0000 43 DGP, 03-Jan-78 : VERSION 00
0000 44 01 - Original
0000 45 00-02 - DGP 06-Jan-78 - Change MATCHC operands
0000 46 1-001 - Update version number and copyright notice. JBS 16-NOV-78
0000 47 1-002 - Add "" to PSECT directive. JBS 21-DEC-78
0000 48 1-003 - Fix so it doesn't wipe out argument descriptors!.
0000 49 Also clean up code. SBL 02-Feb-79
0000 50 1-004 - Enhance to recognize additional classes of string descriptors
0000 51 by invoking LIB$ANALYZE_SDESC_R3 to extract length and
0000 52 address of 1st byte of data. RKR 22-MAY-1981
0000 53 1-005 - Add special-case code to process string descriptors that
0000 54 "read" like fixed string descriptors. RKR 7-OCT-1981.
0000 55 1-006 - Redirect jsb's from LIB$ANALYZE_SDESC_R3 to
0000 56 LIB$ANALYZE_SDESC_R2.
0000 57 RKR 18-NOV-1981.

```

LIBSMATCHC
1-007

- Match Character

L 9

16-SEP-1984 00:13:42 VAX/VMS Macro V04-00 Page 2
6-SEP-1984 11:09:07 [LIBRTL.SRC]LIBMATCHC.MAR;1 (1)

0000 58 : 1-007 - Correct computation of matched position -- corrupted in edits
0000 59 : 4 through 6. RKR 18-DEC-1981


```
0000 61      .SBTTL  DECLARATIONS
0000 62      :
0000 63      : INCLUDE FILES: NONE
0000 64      :
0000 65      :
0000 66      : EXTERNAL SYMBOLS:
0000 67      .DSABL  GBL      ; Explicit externals only
0000 68      .EXTRN  LIB$ANALYZE_SDESC_R2 ; Extract length and address of
0000 69      ; 1st data byte
0000 70      :
0000 71      : MACROS:
0000 72      :
0000 73      $DSCDEF      ; fields in a descriptor
0000 74      :
0000 75      :
0000 76      : EQUATED SYMBOLS: NONE
0000 77      :
0000 78      :
0000 79      :
0000 80      : OWN STORAGE: NONE
0000 81      :
0000 82      :
0000 83      :
0000 84      : PSECT DECLARATIONS:
0000 85      :
00000000 86      .PSECT _LIB$CODE PIC, SHR, LONG, EXE, NOWRT
0000 87
```

```

0000 89 .SBTTL LIB$MATCHC - match characters
0000 90 :++
0000 91 : FUNCTIONAL DESCRIPTION:
0000 92 :
0000 93 : The character string supplied is searched for the first
0000 94 : incidence of the substring specified. An index is returned
0000 95 : which is the relative position of the first character of the
0000 96 : substring within the string or zero if no occurrence of the
0000 97 : substring was encountered. If both strings have
0000 98 : zero length or if the substring has a zero length, then the
0000 99 : routine returns as if the substring has been found at the
0000 100 : first character position. If the source string has a zero
0000 101 : length and the substring a non-zero length, then a zero is
0000 102 : returned.
0000 103 :
0000 104 : CALLING SEQUENCE:
0000 105 :
0000 106 : index.wlu.v = LIB$MATCHC(sub_str.rt.dx,string.rt.dx)
0000 107 :
0000 108 :
0000 109 : INPUT PARAMETERS:
0000 110 :
00000004 0000 111 : sub_string = 4 ; Adr of substring desc
00000008 0000 112 : src_string = 8 ; Adr of src string desc
0000 113 :
0000 114 : IMPLICIT INPUTS:
0000 115 :
0000 116 : NONE
0000 117 :
0000 118 : OUTPUT PARAMETERS:
0000 119 :
0000 120 : NONE
0000 121 :
0000 122 : IMPLICIT OUTPUTS:
0000 123 :
0000 124 : NONE
0000 125 :
0000 126 : FUNCTION VALUE:
0000 127 :
0000 128 : index.wlu.v - Position of substring in source, or zero
0000 129 : if no match.
0000 130 :
0000 131 : SIDE EFFECTS:
0000 132 :
0000 133 : NONE
0000 134 :
0000 135 :--
0000 136 :
007C 0000 137 :.ENTRY LIB$MATCHC , ^M<R2, R3, R4, R5, R6> ; Entry point
0002 138 :
50 04 AC D0 0002 139 : MOVL SUB_STRING(AP), R0 ; Address of sub_string descr.
02 03 A0 91 0006 140 : CMPB DSC$B_CLASS(R0), #DSC$K_CLASS_D ; read like fixed ?
54 04 BC 7D 000A 141 : BGTRU 1$ ; no
OC 11 0010 142 : MOVQ @SUB_STRING(AP), R4 ; length->R4, address->R5
0012 143 : BRB 2$ ; join common flow
00000000*GF 16 0012 144 :
0000 145 1$: JSB G^LIB$ANALYZE_SDESC_R2 ; Extract: length->R1, addr->R2

```



```

      54 51 3C 0018 146      MOVZWL R1, R4      ; save sub_string length
      55 52 DO 001B 147      MOVL   R2, R5      ; save sub_string address
                        001E 148
      50 08 AC DO 001E 149 2$: MOVL   SRC_STRING(AP), R0      ; Address of src_string descr.
      02 03 A0 91 0022 150    CMPB   DSC$B_CLASS(R0), #DSC$K_CLASS_D ; read like fixed ?
                        1A 0026 151    BGTRU  3$              ; no
      51 08 BC 7D 0028 152    MOVQ   @SRC_STRING(AP), R1      ; length->R1, address->R2
                        06 11 002C 153    BRB    4$              ; join common flow
                        002E 154
      00000000'GF 16 002E 155 3$: JSB   G^LIB$ANALYZE_SDESC_R2 ; Extract: length->R1, addr->R2
      56 51 3C 0034 156 4$: MOVL   R1, R6      ; save src_string length
      62 51 65 54 39 0037 157
                        0037 158    MATCHC R4, (R5), R1, (R2) ; find sub_string in src_string
                        003C 159    ; State of regs after a MATCHC instr.
                        003C 160    ; R0 = If match occurred, 0,
                        003C 161    ; else number of bytes in object
                        003C 162    ; string.
                        003C 163    ; R1 = If match occurred, the address of
                        003C 164    ; one byte beyond the object
                        003C 165    ; string,
                        003C 166    ; else address of the object string
                        003C 167    ; R2 = If match occurred, the number of
                        003C 168    ; bytes remaining at the source
                        003C 169    ; string after the match,
                        003C 170    ; else 0
                        003C 171    ; R3 = If match occurred, the address of
                        003C 172    ; one byte beyond the last byte
                        003C 173    ; matched,
                        003C 174    ; else address of one byte beyond
                        003C 175    ; the source string.
                        003C 176
                        003C 177
      50 56 0D 12 003C 178    BNEQ   NOMATCH      ; No match?
      50 56 54 A3 003E 179    SUBW3  R4, R6, R0    ; R0 = diff. in string lengths.
                        0042 180    ; Has to be non-neg else no match.
      50 50 3C 0042 181    MOVZWL R0, R0
      50 52 C2 0045 182    SUBL   R2, R0      ; Subtract bytes left in source string
                        0048 183    ; giving offset into source.
      50 06 0048 184    INCL   R0      ; one origin
      04 004A 185    RET
      004B 186
      004B 187 NOMATCH:
      50 04 004B 188    CLRL   R0      ; Indicate no match
      04 004D 189    RET
      004E 190    .END

```


LIB\$MATCHC
Symbol table

- Match Character

C 10

16-SEP-1984 00:13:42 VAX/VMS Macro V04-00 Page 6
6-SEP-1984 11:09:07 [LIBRTL.SRC]LIBMATCHC.MAR;1 (3)

DSC\$B_CLASS	=	00000003		
DSC\$K_CLASS_D	=	00000002		
LIB\$ANALYZE_SDESC_R2		*****	X	00
LIB\$MATCHC		00000000	RG	02
NOMATCH		0000004B	R	02
SRC_STRING	=	00000008		
SUB_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			
\$ABSS	00000000 (0.)	01 (1.)	NOPIC USR	CON	ABS	LCL	NOSHR	EXE	RD	WRT	NOVEC	BYTE			
_LIB\$CODE	0000004E (78.)	02 (2.)	PIC USR	CON	REL	LCL	SHR	EXE	RD	NOWRT	NOVEC	LONG			

! Performance indicators !

Phase	Page faults	CPU Time	Elapsed Time
Initialization	31	00:00:00.01	00:00:02.73
Command processing	109	00:00:00.30	00:00:02.62
Pass 1	131	00:00:01.09	00:00:07.00
Symbol table sort	0	00:00:00.10	00:00:00.35
Pass 2	48	00:00:00.35	00:00:01.89
Symbol table output	3	00:00:00.01	00:00:00.01
Psect synopsis output	2	00:00:00.02	00:00:00.02
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	326	00:00:01.89	00:00:14.63

The working set limit was 1050 pages.
8372 bytes (17 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 136 non-local and 4 local symbols.
190 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=LISS:LIBMATCHC/OBJ=OBJ\$:LIBMATCHC MSRC\$:LIBMATCHC/UPDATE=(ENH\$:LIBMATCHC)

