


```

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      BBBB8888  MM      MM  AA      AA  TT      TT      CC      CC      HHHHHHHHHH  CC      CC
LL      II      BBBB8888  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
LLLLLLLLLLLL  IIIIII  BBBB8888  MM      MM  AA      AA  TT      TT      CCCCCCCC  HH      HH      CCCCCCCC
LLLLLLLLLLLL  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
LLLLLLLLLLLL  IIIIII  SSSSSSSS
LLLLLLLLLLLL  IIIIII  SSSSSSSS

```

LI
SY
DE
LE
LI
SC

PS
--
L

Ph
--
In
Co
Pa
Sy
Pa
Sy
Ps
Cr
As
Th
12
Th
13
O

Ma
--
-s
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]LIBSMATCHC.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 LIBSMATCHC - 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 = LIBSMATCHC(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 LIBSMATCHC , ^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	D0	001B	147	MOVL	R2, R5	; save sub_string address
				001E	148			
50	08	AC	D0	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 ?
		06	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\$:	MOVZWL	R1, R6 ; save src_string length
				0037	157			
62	51	65	54	39	0037		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?
		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	D6	0048	184		INCL	R0 ; one origin
			04	004A	185		RET	
				004B	186			
				004B	187	NOMATCH:		
	50	D4	04	004B	188		CLRL	R0 ; Indicate no match
		04		004D	189		RET	
				004E	190		.END	

LIBSMATCHC
Symbol table

- Match Character

C 10

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

Page 6
(3)

DSC\$B_CLASS	=	00000003		
DSC\$K_CLASS_D	=	00000002		
LIB\$ANALYZE_SDESC_R2		*****	X	00
LIBSMATCHC		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	M cros 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=OBJS:LIBMATCHC MSRCS:LIBMATCHC/UPDATE=(ENHS:LIBMATCHC)

