


```

SSSSSSSS TTTTTTTTTT RRRRRRRR LL EEEEEEEEE EEEEEEEEE TTTTTTTTTT
SSSSSSSS TTTTTTTTTT RRRRRRRR LL EEEEEEEEE FFFFFFFFFF TTTTTTTTTT
SS      TT      RR      RR LL EEEEEEEEE FF      TT
SS      TT      RR      RR LL EEEEEEEEE FF      TT
SS      TT      RR      RR LL EEEEEEEEE FF      TT
SSSSSS TT      RRRRRRRR LL EEEEEEEEE FFFFFFFF TT
SSSSSS TT      RRRRRRRR LL EEEEEEEEE FFFFFFFF TT
SS      TT      RR RR LL EEEEEEEEE FF      TT
SS      TT      RR RR LL EEEEEEEEE FF      TT
SS      TT      RR RR LL EEEEEEEEE FF      TT
SSSSSSSS TT      RR RR LLLLLLLLLL EEEEEEEEE FF      TT
SSSSSSSS TT      RR RR LLLLLLLLLL EEEEEEEEE FF      TT

```

```

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

```

```

1 0001 0 MODULE STR$LEFT ( ! Extract a substring from the left
2 0002 0
3 0003 0 IDENT = '1-011' ! File: STRLEFT.B32 Edit: RKR1011
4 0004 0
5 0005 0 ) =
6 0006 1 BEGIN
7 0007 1
8 0008 1 *****
9 0009 1 *
10 0010 1 * COPYRIGHT (c) 1978, 1980, 1982, 1984 BY *
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27 0027 1 *
28 0028 1 *
29 0029 1 *****
30 0030 1
31 0031 1
32 0032 1 ++
33 0033 1 FACILITY: String support library
34 0034 1
35 0035 1 ABSTRACT:
36 0036 1
37 0037 1 This module extracts a substring according to the
38 0038 1 BASIC-PLUS-2 syntax. It finds the substring of a main string
39 0039 1 starting at the left end of the string (character position 1)
40 0040 1 and continues through the nth character of the string. This
41 0041 1 substring is copied to the destination string.
42 0042 1
43 0043 1 ENVIRONMENT: User mode, AST level or not or mixed
44 0044 1
45 0045 1 AUTHOR: R. Will, CREATION DATE: 19-Feb-79
46 0046 1
47 0047 1 MODIFIED BY:
48 0048 1
49 0049 1 R. Will, 19-Feb-79: VERSION 01
50 0050 1 1-001 - Original
51 0051 1 1-002 - Change linkage and call to COPY routine. 13-Mar-79 RW
52 0052 1 1-003 - Change string linkages to start with STR$. JBS 04-JUN-1979
53 0053 1 1-004 - Change call to STR$COPY. JBS 16-JUL-1979
54 0054 1 1-005 - String cleanup. Change name to STR$. RW 31-Oct-79
55 0055 1 1-006 - Change to new interlock macros. JBS 06-NOV-1979
56 0056 1 1-007 - The new interlock macros cannot be used in routines called
57 0057 1 with a JSB instruction. JBS 15-NOV-1979

```

STR\$LEFT
1-011

K 11
16-Sep-1984 01:40:48 VAX-11 Bliss-32 V4.0-742
14-Sep-1984 12:40:07 [LIBRTL.SRC]STRLEFT.B32:1

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```
.. 58 0058 1 | 1-008 - String speedup, undo edit 7, RW 7-Jan-1980
... 59 0059 1 | 1-009 - Enhance to accomodate additional classes of descriptors by
... 60 0060 1 | using $STR$GET_LEN_ADDR to extract length and 1st data
... 61 0061 1 | byte from descriptor. Remove string interlocking code.
... 62 0062 1 | RKR 21-APR-81
... 63 0063 1 | 1-010 - Speed up code. RKR 7-OCT-1981.
... 64 0064 1 | 1-011 - Use STR$COPY R R8 to do the copy. Use $STR$SIGNAL_FATAL
... 65 0065 1 | instead of $STR$CHECKSTATUS. RKR 18-NOV-1981.
... 66 0066 1 | --
... 67 0067 1 |
... 68 0068 1 | <BLF/PAGE>
```

STR\$LEFT
1-011

L 11
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[LIBRTL.SRC]STRLEFT.B32;1

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```
.. 70      0069  1  | SWITCHES:
.. 71      0070  1  |
.. 72      0071  1  |
.. 73      0072  1  |
.. 74      0073  1  | SWITCHES ADDRESSING MODE
.. 75      0074  1  |         (EXTERNAL = GENERAL, NONEXTERNAL = WORD_RELATIVE);
.. 76      0075  1  |
.. 77      0076  1  |
.. 78      0077  1  | LINKAGES:
.. 79      0078  1  |
.. 80      0079  1  |
.. 81      0080  1  | REQUIRE 'RTLIN:STRLNK';           ! Use require file with string linkage
.. 82      0265  1  |
.. 83      0266  1  |
.. 84      0267  1  | TABLE OF CONTENTS:
.. 85      0268  1  |
.. 86      0269  1  |
.. 87      0270  1  | FORWARD ROUTINE
.. 88      0271  1  |     STR$LEFT,                   ! Find the LEFT of a string, CALL
.. 89      0272  1  |     STR$LEFT_RB : STR$JSB_LEFT; ! Find the LEFT of a string,JSB
.. 90      0273  1  |
.. 91      0274  1  |
.. 92      0275  1  | INCLUDE FILES:
.. 93      0276  1  |
.. 94      0277  1  |
.. 95      0278  1  | REQUIRE 'RTLIN:RTLPSECT';        ! Declare PSECTS code
.. 96      0373  1  |
.. 97      0374  1  | REQUIRE 'RTLIN:STRMACROS';       ! use string macros to code
.. 98      1290  1  |
.. 99      1291  1  | LIBRARY 'RTLSTARLE';            ! STARLET library for macros and symb
100      1292  1  |
101      1293  1  |
102      1294  1  | MACROS:
103      1295  1  |
104      1296  1  |     NONE
105      1297  1  |
106      1298  1  | EQUATED SYMBOLS:
107      1299  1  |
108      1300  1  |     NONE
109      1301  1  |
110      1302  1  | PSECT DECLARATIONS:
111      1303  1  |
112      1304  1  | DECLARE_PSECTS (STR);
113      1305  1  |
114      1306  1  | OWN STORAGE:
115      1307  1  |
116      1308  1  |     NONE
117      1309  1  |
118      1310  1  | EXTERNAL REFERENCES:
119      1311  1  |
120      1312  1  |
121      1313  1  | EXTERNAL ROUTINE
122      1314  1  |     STR$COPY_R_RB : STR$JSB_COPY_R ; ! Routine to do the copying
123      1315  1  |
124      1316  1  | EXTERNAL LITERAL
125      1317  1  |     STR$NORMAL,                 ! successful completion
126      1318  1  |     STR$_ILLSTRPOS;             ! error status
```

STRLEFT
1-011

: 127

1319 1

M 11
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14-Sep-1984 12:40:07

VAX-11 Bliss-32 V4.0-742
[LIBRTL.SRC]STRLEFT.B32;1

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ST
1-

.....

.....

```

129 1320 1 GLOBAL ROUTINE STR$LEFT ( ! extract the left substring
130 1321 1
131 1322 1     DEST_DESC, ! Pointer to destination descriptor
132 1323 1     SRC_DESC, ! Pointer to source descriptor
133 1324 1     END_POS ! Last character to be included
134 1325 1
135 1326 1 ) =
136 1327 1
137 1328 1
138 1329 1 +-+
139 1330 1 FUNCTIONAL DESCRIPTION:
140 1331 1     This routine extracts the characters starting at the leftmost
141 1332 1     character (character position 1) and continuing through the
142 1333 1     character position specified by the input and copies that
143 1334 1     substring to the destination string (by JSB to STR$COPY_R R8)
144 1335 1     according to the syntax of the class of the destination string.
145 1336 1     If the input character position is > the length of the input
146 1337 1     string, then the length of the input string is used. If the
147 1338 1     input character position is < 1, the destination becomes a null
148 1339 1     string.
149 1340 1     The call entry point executes a JSB to the JSB entry point.
150 1341 1
151 1342 1 FORMAL PARAMETERS:
152 1343 1
153 1344 1     DEST_DESC.wt.dx pointer to destination string descriptor
154 1345 1     SRC_DESC.rt.dx pointer to source string descriptor
155 1346 1     END_POS.rl.r last character position to include
156 1347 1
157 1348 1 IMPLICIT INPUTS:
158 1349 1
159 1350 1     NONE
160 1351 1
161 1352 1 IMPLICIT OUTPUTS:
162 1353 1
163 1354 1     NONE
164 1355 1
165 1356 1 COMPLETION CODES:
166 1357 1
167 1358 1     any of the codes returned by the JSB entry point
168 1359 1
169 1360 1 SIDE EFFECTS :
170 1361 1
171 1362 1     JSBs to the JSB entry point so may signal any of its errors or
172 1363 1     have any of its side effects.
173 1364 1
174 1365 1 --
175 1366 1
176 1367 2 BEGIN
177 1368 2
178 1369 2 MAP
179 1370 2     SRC_DESC : REF $STR$DESCRIPTOR,
180 1371 2     DEST_DESC : REF $STR$DESCRIPTOR;
181 1372 2
182 1373 2 RETURN STR$LEFT_R8 (DEST_DESC [0,0,0,0],
183 1374 2     SRC_DESC [0,0,0,0],
184 1375 2     ..END_POS);
185 1376 1 END; !End of STR$LEFT

```

STR\$LEFT
1-011

B 12
16-Sep-1984 01:40:48
14-Sep-1984 12:40:07

VAX-11 Bliss-32 V4.0-742
[LIBRTL.SRC]STRLEFT.B32;1

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.TITLE STR\$LEFT
.IDENT \1-011\

.EXTRN STR\$COPY R R8, STR\$_NORMAL
.EXTRN STR\$_ILLSTRPOS

.PSECT _STR\$CODE, NOWRT, SHR, PIC, 2

.ENTRY STR\$LEFT, Save R2,R3,R4,R5,R6,R7,R8
MOVL @END_POS, R2
MOVQ DEST_DESC, R0
BSBW STR\$LEFT_R8
RET

: 1320
: 1374
: 1376

52 0C BC D0 00002
50 04 AC 7D 00006
0000V 30 0000A
04 0000D

: Routine Size: 14 bytes, Routine Base: _STR\$CODE + 0000


```
187 1377 1 GLOBAL ROUTINE STR$LEFT_R8 ( ! extract the left substring
188 1378 1
189 1379 1     DEST_DESC, ! Pointer to destination descriptor
190 1380 1     SRC_DESC, ! Pointer to source descriptor
191 1381 1     END_POS ! Last character to be included
192 1382 1
193 1383 1 ) . STR$JSB_LEFT =
194 1384 1
195 1385 1
196 1386 1 *+
197 1387 1 FUNCTIONAL DESCRIPTION:
198 1388 1     This routine extracts the characters starting at the leftmost
199 1389 1     character (character position 1) and continuing through the
200 1390 1     character position specified by the input and copies that
201 1391 1     substring to the destination string (by JSB to STR$COPY_R R8)
202 1392 1     according to the syntax of the class of the destination string.
203 1393 1     If the input character position is > the length of the input
204 1394 1     string, then the length of the input string is used. If the
205 1395 1     input character position is < 1, the destination becomes a null
206 1396 1     string.
207 1397 1
208 1398 1 FORMAL PARAMETERS:
209 1399 1
210 1400 1     DEST_DESC.wt.dx pointer to destination string descriptor
211 1401 1     SRC_DESC.rt.dx pointer to source string descriptor
212 1402 1     END_POS.rl.v value of last character position to
213 1403 1     include
214 1404 1
215 1405 1 IMPLICIT INPUTS:
216 1406 1
217 1407 1     NONE
218 1408 1
219 1409 1 IMPLICIT OUTPUTS:
220 1410 1
221 1411 1     NONE
222 1412 1
223 1413 1 COMPLETION CODES:
224 1414 1
225 1415 1     SSS_NORMAL Success
226 1416 1     STR$_ILLSTRPOS Character position reference outside of string
227 1417 1     STR$_ILLSTRSPE End pos < start pos, or length too long
228 1418 1     STR$_NEGSTRLEN Negative length supplied, 0 used
229 1419 1     STR$_TRU Truncation occurred in copying to destination
230 1420 1     (Warning)
231 1421 1
232 1422 1 SIDE EFFECTS:
233 1423 1
234 1424 1     May signal:
235 1425 1     STR$_FATINTERR Fatal internal error
236 1426 1     STR$_ILLSTRCLA Illegal (or unsupported) string class
237 1427 1     STR$_INSVIRMEM Insufficient virtual memory for
238 1428 1     reallocation of dynamic string
239 1429 1
240 1430 1 --
241 1431 1
242 1432 2 BEGIN
243 1433 2
```

```
244 1434 LOCAL
245 1435     IN_LEN,           ! length of source string
246 1436     IN_ADDR,       ! addr of 1st byte of source data
247 1437     COPY_STATUS,    ! status from STR$COPY_R_R8
248 1438     RETURN_STATUS,  ! keep track of return status
249 1439     COPY_LENGTH;    ! length to be copied
250 1440
251 1441 MAP
252 1442     SRC_DESC : REF $STR$DESCRIPTOR,
253 1443     DEST_DESC : REF $STR$DESCRIPTOR;
254 1444
255 1445     RETURN_STATUS = 1 ;           ! assume success to follow
256 1446
257 1447     !+
258 1448     ! Calculate the length and address of first byte of source string.
259 1449     !-
260 1450     $STR$GET_LEN_ADDR ( SRC_DESC, IN_LEN, IN_ADDR ) ;
261 1451
262 1452     !+
263 1453     ! Compute the correct substring and use the length and address of
264 1454     ! the substring to copy to dest. The length must be greater than or
265 1455     ! equal to 0 and is the smaller of the length specified by END_POS which
266 1456     ! was input and the source string length. Return STR$_ILLSTRPOS if
267 1457     ! END_POS does not meet those criteria.
268 1458     !-
269 1459
270 1460     COPY_LENGTH =           ! compute the length
271 1461     BEGIN
272 1462     IF .IN_LEN LSS .END_POS
273 1463     THEN
274 1464     BEGIN
275 1465     RETURN_STATUS = STR$_ILLSTRPOS; ! input length is too long
276 1466
277 1467     .IN_LEN           ! use srclen and remember
278 1468                   ! error
279 1469     END
280 1470
281 1471     ELSE
282 1472     .END_POS           ! use specified end position
283 1473     END;
284 1474
285 1475     IF .COPY_LENGTH LSS 0 THEN
286 1476     BEGIN
287 1477     COPY_LENGTH = 0; ! input length is negative
288 1478     RETURN_STATUS = STR$_ILLSTRPOS; ! use 0 and remember error
289 1479     END;
290 1480
291 1481     COPY_STATUS = STR$COPY_R_R8 ( .DEST_DESC, .COPY_LENGTH, .IN_ADDR );
292 1482
293 1483     IF .COPY_STATUS NEQ SS$ NORMAL
294 1484     THEN RETURN_STATUS = .COPY_STATUS; ! copy truncated, or severe
295 1485                                       ! error, return new status
296 1486                                       ! instead of previous value
297 1487
298 1488     $STR$SIGNAL FATAL (RETURN_STATUS); ! if fatal error, signal
299 1489     RETURN .RETURN_STATUS;
300 1490     END;           !End of STR$LEFT
```

						.EXTRN	STR\$ANALYZE_SDESC_R1				
						.EXTRN	LIB\$STOP				
		54		50	D0 00000	STR\$LEFT	R8::				
					01	DD	00003	MOVL	R0, R4		1377
		02	03		A1	91	00005	PUSHL	#1		1445
					09	1A	00009	CMPB	3(SRC_DESC), #2		1450
		50			61	3C	0000B	BGTRU	1\$		
		53	04		A1	D0	0000E	MOVZWL	(SRC_DESC), IN_LEN		
					0C	11	00012	MOVL	4(SRC_DESC), IN_ADDR		
		50			51	D0	00014	BRB	2\$		
					00	16	00017	MOVL	SRC_DESC, R0		
		53		00000000G	51	D0	0001D	JSB	STR\$ANALYZE_SDESC_R1		
		52			50	D1	00020	MOVL	R1, R3		
					0C	18	00023	CMPB	IN_LEN, END_POS		1462
		6E		00000000G	8F	D0	00025	BGEQ	3\$		
		51			50	D0	0002C	MOVL	#STR\$ ILLSTRPOS, RETURN_STATUS		1465
					03	11	0002F	MOVL	IN_LEN, COPY_LENGTH		1467
		51			52	D0	00031	BRB	4\$		
					09	18	00034	MOVL	END_POS, COPY_LENGTH		1472
					51	D4	00036	BGEQ	5\$		1475
		6E		00000000G	8F	D0	0C038	CLRL	COPY_LENGTH		1477
		52			53	D0	0003F	MOVL	#STR\$ ILLSTRPOS, RETURN_STATUS		1478
		50			54	D0	00042	MOVL	IN_ADDR, R2		1481
				00000000G	00	16	00045	MOVL	DEST_DESC, R0		
		01			50	D1	0004B	JSB	STR\$COPY R R8		
					03	13	0004E	CMPB	COPY_STATUS, #1		1483
		6E			50	D0	00050	BEQL	6\$		
		10			6E	E8	00053	MOVL	COPY_STATUS, RETURN_STATUS		1484
04		03			00	ED	00056	BLBS	RETURN_STATUS, 7\$		1488
					09	12	0005B	CMPZV	#0, #3, RETURN_STATUS, #4		
					6E	DD	0005D	BNEQ	7\$		
				00000000G	00	01	FB	PUSHL	RETURN STATUS		
					01	FB	0005F	CALLS	#1, LIB\$STOP		
					8E	D0	00066	MOVL	RETURN_STATUS, R0		1489
					05	00	00069	RSB			1490

; Routine Size: 106 bytes, Routine Base: _STR\$CODE + 000E

```

: 301      1491  1
: 302      1492  1 END
: 303      1493  1
: 304      1494  0 ELUDOM

```

!End of module

PSECT SUMMARY

Name	Bytes	Attributes
------	-------	------------

STRLEFT
1-011

F 12
16-Sep-1984 01:40:48
14-Sep-1984 12:40:07

VAX-11 Bliss-32 V4.0-742
[LIBRTL.SRC]STRLEFT.B32:1

: _STR\$CODE 120 NOVEC,NOWRT, RD , EXE, SHR, LCL, REL, CON, PIC,ALIGN(2)

Library Statistics

File	----- Total	Symbols Loaded	----- Percent	Pages Mapped	Processing Time
:_\$255\$DUA28:[SYSLIB]STARLET.L32:1	9776	7	0	581	00:00.8

COMMAND QUALIFIERS

: BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/NOTRACE/LIS=LIS\$:STRLEFT/OBJ=OBJ\$:STRLEFT MSRC\$:STRLEFT/UPDATE=(ENH\$:STRLEFT)

: Size: 120 code + 0 data bytes
: Run Time: 00:05.6
: Elapsed Time: 00:27.9
: Lines/CPU Min: 16151
: Lexemes/CPU-Min: 34929
: Memory Used: 80 pages
: Compilation Complete

