


```

BBBBBBBB      AAAAAA      SSSSSSSS      EEEEEEEEEEE      NN      NN      DDDDDDDD      DDDDDDDD      EEEEEEEEEEE      FFFFFFFFFFF
BBBBBBBB      AAAAAA      SSSSSSSS      EEEEEEEEEEE      NN      NN      DDDDDDDD      DDDDDDDD      EEEEEEEEEEE      FFFFFFFFFFF
BB      BB      AA      AA      SS      EE      NN      NN      DD      DD      DD      DD      EE      FF
BB      BB      AA      AA      SS      EE      NN      NN      DD      DD      DD      DD      EE      FF
BB      BB      AA      AA      SS      EE      NNNN      NN      DD      DD      DD      DD      EE      FF
BB      BB      AA      AA      SS      EE      NNNN      NN      DD      DD      DD      DD      EE      FF
BBBBBBBB      AA      AA      SSSSSS      EEEEEEEEE      NN      NN      NN      DD      DD      DD      DD      EEEEEEEEE      FFFFFFFF
BBBBBBBB      AA      AA      SSSSSS      EEEEEEEEE      NN      NN      NN      DD      DD      DD      DD      EEEEEEEEE      FFFFFFFF
BB      BB      AAAAAAAAAA      SS      EE      NN      NNNN      DD      DD      DD      DD      EE      FF
BB      BB      AAAAAAAAAA      SS      EE      NN      NNNN      DD      DD      DD      DD      EE      FF
BB      BB      AA      AA      SS      EE      NN      NN      DD      DD      DD      DD      EE      FF
BB      BB      AA      AA      SS      EE      NN      NN      DD      DD      DD      DD      EE      FF
BBBBBBBB      AA      AA      SSSSSSSS      EEEEEEEEEEE      NN      NN      DDDDDDDD      DDDDDDDD      EEEEEEEEEEE      FF
BBBBBBBB      AA      AA      SSSSSSSS      EEEEEEEEEEE      NN      NN      DDDDDDDD      DDDDDDDD      EEEEEEEEEEE      FF

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....
....
....
....

```

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

```

```

1 0001 0 MODULE BASSEND_DEF (
2 0002 0 IDENT = '1-013'
3 0003 0 ) =
4 0004 1 BEGIN
5 0005 1
6 0006 1 .....
7 0007 1 *
8 0008 1 * COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
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25 0025 1 *
26 0026 1 *
27 0027 1 .....
28 0028 1
29 0029 1
30 0030 1
31 0031 1 **
32 0032 1 FACILITY: BASIC-PLUS-2 Frame Support
33 0033 1
34 0034 1 ABSTRACT:
35 0035 1
36 0036 1 These routines set up and tear down frames for BASIC-PLUS-2.
37 0037 1 Frames are used for main routines, external functions,
38 0038 1 external subroutines, internal functions (both DEFs and DEF*s)
39 0039 1 internal subroutines (GOSUBs) and condition handlers.
40 0040 1
41 0041 1 ENVIRONMENT: VAX-11 user mode
42 0042 1
43 0043 1 AUTHOR: John Sauter, CREATION DATE: 10-Oct-78
44 0044 1
45 0045 1 MODIFIED BY:
46 0046 1
47 0047 1 1-001 - Original. This is just a skeleton.
48 0048 1 1-002 - Copy code from BASSEND. JBS 07-FEB-1979
49 0049 1 1-003 - Change stack frame prefix from BAS$ to BSF$. JBS 08-FEB-1979
50 0050 1 1-004 - Purge any FIELD variables when deallocating them. JBS 28-FEB-1979
51 0051 1 1-005 - Deallocate only the dynamic string templates, not the fixed
52 0052 1 string templates. JBS 20-MAR-1979
53 0053 1 1-006 - Remove edit 004--the compiled code will call the routine which
54 0054 1 purges field variables so that the field code will not have
55 0055 1 to be in the sharable library. JBS 02-APR-1979
56 0056 1 1-007 - Similarly, don't flush virtual arrays. JBS 09-APR-1979
57 0057 1 1-008 - Change OTS$$ and LIB$$ to STR$. JBS 21-MAY-1979
    
```

BASSEND_DEF
1-013

G 5
16-Sep-1984 00:21:58
14-Sep-1984 11:54:54

VAX-11 Bliss-32 V4.0-742
[BASRTL.SRC]BASENDEF.B32;1

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```
: 58      0058 1 : 1-009 - Correct the calls to STR$FREE1_DX.  JBS 22-MAY-1979
: 59      0059 1 : 1-010 - Another correction to the calls to STR$FREE1_DX.
: 60      0060 1 :      JBS 22-MAY-1979
: 61      0061 1 : 1-011 - Use the JSB entry point to STR$FREE1_DX.  JBS 11-JUN-1979
: 62      0062 1 : 1-012 - Give a better error message when an error handler runs
: 63      0063 1 :      runs off the end of a function.  JBS 24-JUL-1979
: 64      0064 1 : 1-013 - Call BASS$UNWIND when cutting back a GOSUB frame.
: 65      0065 1 :      JBS 03-AUG-1979
: 66      0066 1 : --
: 67      0067 1 :
: 68      0068 1 : <BLF/PAGE>
```

```

70 0069 1 |
71 0070 1 | SWITCHES:
72 0071 1 |
73 0072 1 |
74 0073 1 | SWITCHES ADDRESSING_MODE (EXTERNAL = GENERAL, NONEXTERNAL = WORD_RELATIVE);
75 0074 1 |
76 0075 1 |
77 0076 1 | LINKAGES:
78 0077 1 |
79 0078 1 |
80 0079 1 | LINKAGE
81 0080 1 |     BASSINIT_LINK = JSB (REGISTER = 0, REGISTER = 1, REGISTER = 2) : !
82 0081 1 |     GLOBAL (BSFSA_MAJOR_STG = 11, BSFSA_MINOR_STG = 10, BSFSA_TEMP_STG = 9) !
83 0082 1 |     NOPRESERVE (8, 7, 6, 5, 4, 3, 2, 1, 0);
84 0083 1 |
85 0084 1 | REQUIRE 'RTLIN:STRLNK';           ! String facility linkages
86 0269 1 |
87 0270 1 |
88 0271 1 | TABLE OF CONTENTS:
89 0272 1 |
90 0273 1 |
91 0274 1 | FORWARD ROUTINE
92 0275 1 |     BASSEND_DEF_RB : NOVALUE BASSINIT_LINK;           ! end DEF
93 0276 1 |
94 0277 1 |
95 0278 1 | INCLUDE FILES:
96 0279 1 |
97 0280 1 |
98 0281 1 | REQUIRE 'RTLIN:RTLPSECT';           ! macros for defing psects
99 0376 1 |
100 0377 1 | REQUIRE 'RTLIN:BASFRAME';           ! Define frame structure
101 0580 1 |
102 0581 1 | REQUIRE 'RTLIN:BASINARG';           ! Define argument list
103 0665 1 |
104 0666 1 |
105 0667 1 | MACROS:
106 0668 1 |
107 0669 1 |     NONE
108 0670 1 |
109 0671 1 | EQUATED SYMBOLS:
110 0672 1 |
111 0673 1 |     NONE
112 0674 1 |
113 0675 1 | PSECTS:
114 0676 1 |
115 0677 1 | DECLARE_PSECTS (BAS);           ! declare psects for BASS facility
116 0678 1 |
117 0679 1 | OWN STORAGE:
118 0680 1 |
119 0681 1 |     NONE
120 0682 1 |
121 0683 1 | EXTERNAL REFERENCES:
122 0684 1 |
123 0685 1 |
124 0686 1 | EXTERNAL ROUTINE
125 0687 1 |     BASS$STOP : NOVALUE,           ! signals error
126 0688 1 |     STR$FREE1_DX_R4 : STR$JSB_GETFRE, ! Deallocate a string

```

```
: 127      0689 1      BASSUNWIND : NOVALUE,           : Unwind a frame
: 128      0690 1      BASSHANDLER;           : Marker for BASIC frame
: 129      0691 1
: 130      0692 1
: 131      0693 1      !+
: 132      0694 1      !- The following are the error codes used in this module.
: 133      0695 1
: 134      0696 1      EXTERNAL LITERAL
: 135      0697 1      BASSK_RETWITGOS : UNSIGNED (8),           : RETURN without GOSUB
: 136      0698 1      BASSK_PROLOSSOR : UNSIGNED (8),           : Program lost, sorry
: 137      0699 1      BASSK_NOTIMP : UNSIGNED (8),             : Not implemented
: 138      0700 1      BASSK_FNEWITFUN : UNSIGNED (8),           : FEND without FUNCTION CALL
: 139      0701 1      BASSK_ERRTRANEE : UNSIGNED (8);           : ERROR trap needs RESUME
: 140      0702 1
```

```

142 0703 1 GLOBAL ROUTINE BASSEND_DEF_RB (
143 0704 1     ARGLIST
144 0705 1     ) : NOVALUE BASSINIT_LINK =
145 0706 1
146 0707 1
147 0708 1     ! end DEF frame
148 0709 1     ! arg list for setting up the frame
149 0710 1
150 0711 1     !**
151 0712 1     FUNCTIONAL DESCRIPTION:
152 0713 1
153 0714 1     Tear down a frame for a BASIC-PLUS-2 DEF.
154 0715 1     All heap storage is deallocated. The argument is the same
155 0716 1     as for BASSINIT_DEF_RB, for validity checking.
156 0717 1
157 0718 1     FORMAL PARAMETERS:
158 0719 1
159 0720 1     ARGLIST.ra.v List of information used to set up the
160 0721 1     frame. See BASIC-PLUS-2/VAX Description
161 0722 1     of Generated Code for details.
162 0723 1
163 0724 1     IMPLICIT INPUTS:
164 0725 1
165 0726 1     The frame, as set up by BASSINIT_DEF_RB.
166 0727 1
167 0728 1     IMPLICIT OUTPUTS:
168 0729 1
169 0730 1     NONE
170 0731 1
171 0732 1     ROUTINE VALUE:
172 0733 1
173 0734 1     NONE
174 0735 1
175 0736 1     COMPLETION CODES:
176 0737 1
177 0738 1     NONE
178 0739 1
179 0740 1     SIDE EFFECTS:
180 0741 1
181 0742 1     Deallocates the heap storage and virtual arrays local to this
182 0743 1     DEF.
183 0744 1
184 0745 1     --
185 0746 1     BEGIN
186 0747 2
187 0748 2     EXTERNAL REGISTER
188 0749 2     BSFSA_MAJOR_STG : REF BLOCK [0, BYTE],
189 0750 2     BSFSA_MINOR_STG : REF BLOCK [0, BYTE],
190 0751 2     BSFSA_TEMP_STG : REF VECTOR;
191 0752 2
192 0753 2     BUILTIN
193 0754 2     FP;
194 0755 2
195 0756 2     MAP
196 0757 2     ARGLIST : REF BLOCK [0, BYTE] FIELD (BASSINIT_ARGS); ! arg list
197 0758 2
198 0759 2     REGISTER
199 0759 2     FMP : REF BLOCK [0, BYTE] FIELD (BSF$FCD); ! pointer to FCD
200 0759 2     PREV_FMP : REF BLOCK [0, BYTE] FIELD (BSF$FCD); ! previous FCD

```

```

199 0760 2 1+
200 0761 2 1+ First cut back any GOSUB frames. We wish to make the presence of
201 0762 2 1+ the GOSUB frame invisible except on traceback.
202 0763 2 1-
203 0764 2 1- FMP = .FMP;
204 0765 2 1-
205 0766 2 1- WHILE (.FMP [BSF$B_PROC_CODE] EQL BSF$K_PROC_GOSB) DO
206 0767 2 1- BEGIN
207 0768 2 1+
208 0769 2 1+ We have a GOSUB frame, remove it. Note we do not restore any
209 0770 2 1+ registers it might have saved.
210 0771 2 1-
211 0772 2 1- BAS$$UNWIND (.FMP);
212 0773 2 1- PREV_FMP = .FMP [BSF$A_SAVED_FP];
213 0774 2 1-
214 0775 2 1- IF (.PREV_FMP [BSF$A_HANDLER] NEQA BAS$HANDLER)
215 0776 2 1- THEN
216 0777 2 1+
217 0778 2 1+ The previous frame is not a BASIC frame. This is unreasonable
218 0779 2 1+ since GOSUBs should only be callable from inside a BASIC main
219 0780 2 1+ procedure.
220 0781 2 1-
221 0782 2 1- BAS$$STOP (BAS$K_RETWITGOS);
222 0783 2 1-
223 0784 2 1- FMP = .PREV_FMP;
224 0785 2 1- END;
225 0786 2 1-
226 0787 2 1+
227 0788 2 1+ Make sure this is a DEF frame.
228 0789 2 1-
229 0790 2 1-
230 0791 2 1- CASE .FMP [BSF$B_PROC_CODE] FROM BSF$K_PROC_MAIN TO BSF$K_PROC_IOL OF
231 0792 2 1- SET
232 0793 2 1-
233 0794 2 1- [BSF$K_PROC_ONER] :
234 0795 2 1- BAS$$STOP (BAS$K_ERRRANEE);
235 0796 2 1-
236 0797 2 1- [BSF$K_PROC_DEF] :
237 0798 2 1- BEGIN
238 0799 2 1- 0
239 0800 2 1- END;
240 0801 2 1-
241 0802 2 1- [INRANGE, OTRANGE] :
242 0803 2 1- BAS$$STOP (BAS$K_PROLOSSOR);
243 0804 2 1- TES;
244 0805 2 1-
245 0806 2 1+
246 0807 2 1+ Check to be sure that this is the correct exit. This should
247 0808 2 1+ only fail if the compiler allows non-local gotos from a DEF,
248 0809 2 1+ or the equivalent using condition handling.
249 0810 2 1-
250 0811 2 1-
251 0812 2 1- IF (.FMP [BSF$A_INIT_ARG] NEQA .ARGLIST)
252 0813 2 1- THEN
253 0814 2 1+
254 0815 2 1+ The argument lists are not at the same address. This exit must not
255 0816 2 1+ correspond to the entry. Signal an error.

```


						8\$:	MOVZBL	#BAS\$K_PROLOSSOR, -(SP)	0803
						5\$:	BRB	7\$	
						6\$:	MOVZBL	#BAS\$K_ERRTRANEE, -(SP)	0795
	00000000G	00	01	FB	00054	7\$:	CALLS	#1, BAS\$\$STOP	
		57	D8	A5	D1 0005B	8\$:	CMPL	-40(FMP), ARGLIST	0812
							BEQL	9\$	
	00000000G	00	01	FB	00065		MOVZBL	#BAS\$K_FNEWITFUN, -(SP)	0818
							CALLS	#1, BAS\$\$STOP	
						9\$:	CLRL	COUNTER	0825
							BRB	11\$	
50		56				10\$:	ASHL	#1, COUNTER, R0	
		50	F8	A9	40 DE 00074		MOVAL	-8(BSF\$A_TEMP_STG)[R0], R0	
							JSB	STR\$FREET DX_R4	
EC		56	30	A7	F3 0007F	11\$:	AOBLEQ	48(ARGLIST), COUNTER, 10\$	
		57	28	A7	3C 00084		MOVZWL	40(ARGLIST), R7	0831
							CLRL	COUNTER	0832
							BRB	13\$	
		50	E0	B5	46 7E 0008C	12\$:	MOVAQ	@-32(FMP)[COUNTER], R0	
		50			08 C2 00091		SUBL2	#8, R0	
							JSB	STR\$FREE1 DX_R4	
EE		56			57 F3 0009A	13\$:	AOBLEQ	R7, COUNTER, -12\$	
		5D			55 D0 0009E		MOVL	FMP, FP	0838
							RSB		0840

; Routine Size: 162 bytes, Routine Base: _BAS\$CODE + 0000

:	280	0841	1	
:	281	0842	1	END
:	282	0843	1	
:	283	0844	0	ELUDOM

PSECT SUMMARY

Name	Bytes	Attributes
_BAS\$CODE	162	NOVEC, NOWRT, RD, EXE, SHR, LCL, REL, CON, PIC, ALIGN(2)

COMMAND QUALIFIERS

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

BASSEND_DEF
1-013

N 5
16-Sep-1984 00:21:58
14-Sep-1984 11:54:54

VAX-11 Bliss-32 V4.0-742
[BASRTL.SRC]BASENDEF.B32;1

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;)
: Size: 162 code + 0 data bytes
: Run Time: 00:06.2
: Elapsed Time: 00:14.4
: Lines/CPU Min: 8207
: Lexemes/CPU-Min: 28813
: Memory Used: 69 pages
: Compilation Complete

0022 AH-BT13A-SE
VAX/VMS V4.0

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