



```

PPPPPPPP      AAAAAA      SSSSSSSS      WW      WW      RRRRRRRR      IIIIII      FFFFFFFF      DDDDDDDD      11
PPPPPPPP      AAAAAA      SSSSSSSS      WW      WW      RRRRRRRR      IIIIII      FFFFFFFF      DDDDDDDD      11
PP      PP      AA      AA      SS      WW      WW      RR      RR      II      FF      DD      DD      1111
PP      PP      AA      AA      SS      WW      WW      RR      RR      II      FF      DD      DD      1111
PP      PP      AA      AA      SS      WW      WW      RR      RR      II      FF      DD      DD      11
PPPPPPPP      AA      AA      SSSSSS      WW      WW      RRRRRRRR      II      FF      DD      DD      11
PPPPPPPP      AA      AA      SSSSSS      WW      WW      RRRRRRRR      II      FFFFFFFF      DD      DD      11
PP      AAAAAAAAAA      SS      WW      WW      RR      RR      II      FF      DD      DD      11
PP      AAAAAAAAAA      SS      WW      WW      RR      RR      II      FF      DD      DD      11
PP      AA      AA      SS      WWW      WWW      RR      RR      II      FF      DD      DD      11
PP      AA      AA      SS      WWW      WWW      RR      RR      II      FF      DD      DD      11
PP      AA      AA      SSSSSSSS      WW      WW      RR      RR      IIIIII      FF      DDDDDDDD      111111
PP      AA      AA      SSSSSSSS      WW      WW      RR      RR      IIIIII      FF      DDDDDDDD      111111

```

```

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

```

```

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

```

```
1 0001 0 MODULE PASSWRITE_REALF_D1 ( %TITLE 'Write an D_floating in F format - V1 semantics'  
2 0002 0 IDENT = '1-002' ! File: PASWRIFD1.B32 Edit: SBL1002  
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 FACILITY: Pascal Language Support  
32 0032 1  
33 0033 1 ABSTRACT:  
34 0034 1  
35 0035 1 This module contains a procedure which writes a D floating in  
36 0036 1 fixed-point notation to a textfile using V1 semantics.  
37 0037 1  
38 0038 1 ENVIRONMENT: User mode - AST reentrant  
39 0039 1  
40 0040 1 AUTHOR: Steven B. Lionel, CREATION DATE: 1-April-1981  
41 0041 1  
42 0042 1 MODIFIED BY:  
43 0043 1  
44 0044 1 1-001 - Original. SBL 1-April-1981  
45 0045 1 1-002 - Make total-width a longword. SBL 29-June-1982  
46 0046 1 --  
47 0047 1
```

```
49 0048 1 %SBTTL 'Declarations'
50 0049 1
51 0050 1 PROLOGUE DEFINITIONS:
52 0051 1
53 0052 1
54 0053 1 REQUIRE 'RTLIN:PASPROLOG'; ! Externals, linkages, PSECTs, structures
55 0117 1
56 0118 1
57 0119 1 TABLE OF CONTENTS:
58 0120 1
59 0121 1
60 0122 1 FORWARD ROUTINE
61 0123 1 PASSWRITE_REALF_D1: NOVALUE, ! Write to textfile
62 0124 1 LOCAL_HANDLER; ! Local handler
63 0125 1
64 0126 1
65 0127 1 MACROS:
66 0128 1
67 0129 1 NONE
68 0130 1
69 0131 1 EQUATED SYMBOLS:
70 0132 1
71 0133 1 NONE
72 0134 1
73 0135 1 FIELDS:
74 0136 1
75 0137 1 NONE
76 0138 1
77 0139 1 OWN STORAGE:
78 0140 1
79 0141 1 NONE
80 0142 1
```

```

82 0143 1 XSBTTL 'PASSWRITE REALF D1 - Write D_floating in F format to textfile - V1'
83 0144 1 GLOBAL ROUTINE PASSWRITE_REALF_D1 (
84 0145 1     PFV: REF $PASSPFV_FILE_VARIABLE,           ! File variable
85 0146 1     VALUE_0: BLOCK [4, BYTE], VALUE_1,       ! Value to write
86 0147 1     TOTAL_WIDTH: SIGNED,                   ! Total field width
87 0148 1     FRAC_DIGITS: SIGNED,                   ! Digits in fraction
88 0149 1     ERROR                                     ! Error unwind address
89 0150 1     ): NOVALUE =
90 0151 1
91 0152 1 +-
92 0153 1 FUNCTIONAL DESCRIPTION:
93 0154 1
94 0155 1     This procedure writes a D_floating value in fixed-point notation
95 0156 1     to the specified textfile.
96 0157 1
97 0158 1     It uses the VAX-11 Pascal V1 semantics where if the value is not
98 0159 1     negative, an extra leading blank appears. This is contrary to
99 0160 1     the ISO standard.
100 0161 1
101 0162 1     This procedure is implemented using public "single-dollar" interfaces
102 0163 1     to the Pascal Run-Time Library so that it may be excluded from
103 0164 1     the shareable image PASRTL.EXE.
104 0165 1
105 0166 1 CALLING SEQUENCE:
106 0167 1
107 0168 1     CALL PASSWRITE_REALF_D1 (PFV.mr.r, VALUE.rd.v, TOTAL_WIDTH.rl.v,
108 0169 1     FRAC_DIGITS.rl.v [, ERROR.ja.r])
109 0170 1
110 0171 1 FORMAL PARAMETERS:
111 0172 1
112 0173 1     PFV           - The Pascal File Variable (PFV) passed by reference.
113 0174 1     The structure of the PFV is defined in PASPFV.REQ.
114 0175 1
115 0176 1     VALUE        - The D_floating value to write. Note that this is
116 0177 1     passed by immediate value, requiring two argument
117 0178 1     list positions.
118 0179 1
119 0180 1     TOTAL_WIDTH  - Total field width.
120 0181 1
121 0182 1     FRAC_DIGITS  - Number of digits in fraction.
122 0183 1
123 0184 1     ERROR        - Optional. Address to unwind to if an error occurs.
124 0185 1
125 0186 1 IMPLICIT INPUTS:
126 0187 1
127 0188 1     NONE
128 0189 1
129 0190 1 IMPLICIT OUTPUTS:
130 0191 1
131 0192 1     NONE
132 0193 1
133 0194 1 ROUTINE VALUE:
134 0195 1
135 0196 1     NONE
136 0197 1
137 0198 1 SIDE EFFECTS:
138 0199 1
    
```

```

139      0200  1  |           If the file is the standard file OUTPUT, it is implicitly opened.
140      0201  1  |
141      0202  1  |   SIGNALLED ERRORS:
142      0203  1  |
143      0204  1  |           LINTOOLON - Line too long
144      0205  1  |           NEGWIDDIG - negative Width or Digits specification is not allowed
145      0206  1  |
146      0207  1  |   --
147      0208  1  |
148      0209  2  |   BEGIN
149      0210  2  |
150      0211  2  |   BUILTIN
151      0212  2  |       ACTUALCOUNT;
152      0213  2  |
153      0214  2  |   LOCAL
154      0215  2  |       FIELD_WIDTH,           ! Minimum/actual field width
155      0216  2  |       TEMP_STRING,          ! Temporary for convert
156      0217  2  |       PFV_ADDR: VOLATILE,   ! Enable argument
157      0218  2  |       UNWIND_ACT: VOLATILE, ! Enable argument
158      0219  2  |       ERROR_ADDR: VOLATILE; ! Enable argument
159      0220  2  |
160      0221  2  |   ENABLE
161      0222  2  |       LOCAL_HANDLER (PFV_ADDR, UNWIND_ACT, ERROR_ADDR);      ! Enable error handler
162      0223  2  |
163      0224  2  |   !+
164      0225  2  |   ! Get ERROR parameter, if present.
165      0226  2  |   !-
166      0227  2  |
167      0228  2  |   IF ACTUALCOUNT () GEQU 6
168      0229  2  |   THEN
169      0230  2  |       ERROR_ADDR = .ERROR;           ! Set unwind address
170      0231  2  |
171      0232  2  |   PFV_ADDR = PFV [PFV$R_PFV];       ! Set PFV address
172      0233  2  |
173      0234  2  |   !+
174      0235  2  |   ! The difference between V2 and V1 semantics is that for V2
175      0236  2  |   ! (and ISO), the representation of the floating point value
176      0237  2  |   ! has no leading blank if not negative. V1 put a leading
177      0238  2  |   ! blank there, possibly causing the field to be extended
178      0239  2  |   ! an extra character.
179      0240  2  |   !-
180      0241  2  |   ! To implement this, do a trial conversion of the value into
181      0242  2  |   ! a scratch string. The convert routine will tell us how many
182      0243  2  |   ! characters are required for the conversion. If the value
183      0244  2  |   ! is not negative, increase the field width to 1 more character
184      0245  2  |   ! than is necessary. This will cause an extra leading blank.
185      0246  2  |   !-
186      0247  2  |
187      0248  2  |   FIELD_WIDTH = .TOTAL_WIDTH; ! Get specified field width
188      0249  2  |
189      0250  2  |   IF (NOT .VALUE_0 [0,15,1,0]) AND ! If value is not negative
190      0251  2  |       (.FIELD_WIDTH GEQ 0) AND      ! Don't bother for invalid width
191      0252  2  |       (.FRAC_DIGITS GEQ 0)         ! Don't bother for invalid digits
192      0253  2  |   THEN
193      0254  2  |       BEGIN
194      0255  2  |           FIELD_WIDTH = 0;          ! Expand field
195      0256  2  |

```


		6E	D5	00028	TSTL	FIELD_WIDTH	: 0251
		28	19	0002A	BLSS	2\$: 0252
	14	AC	D5	0002C	TSTL	FRAC_DIGITS	: 0256
		23	19	0002F	BLSS	2\$: 0267
	14	6E	D4	00031	CLRL	FIELD_WIDTH	: 0263
		AC	DD	00033	PUSHL	FRAC_DIGITS	
		7E	D4	00036	CLRL	-(SP)	
	08	AE	9F	00038	PUSHAB	FIELD_WIDTH	
	10	AE	9F	0003B	PUSHAB	TEMP_STRING	
	08	AC	9F	0003E	PUSHAB	VALUE_0	
00000000G	00	05	FB	00041	CALLS	#5, PASSCVT_D_T	
		6E	D6	00048	INCL	FIELD_WIDTH	: 0274
	10	AC	D1	0004A	CMPL	FIELD_WIDTH, TOTAL_WIDTH	: 0275
		04	18	0004E	BGEQ	2\$	
	6E	10	AC	DD	00050	MOVL	TOTAL_WIDTH, FIELD_WIDTH
		14	AC	DD	00054	PUSHL	FRAC_DIGITS
		04	AE	DD	00057	PUSHL	FIELD_WIDTH
	7E	08	AC	7D	0005A	MOVQ	VALUE_0, -(SP)
		04	AC	DD	0005E	PUSHL	PFV
00000000G	00	05	FB	00061	CALLS	#5, PASSWRITE_REALF_D	: 0285
		04	00068	RET			: 0290
	50	08	AC	DD	0006B	.WORD	Save nothing
	50	04	A0	DD	0006F	MOVL	8(AP), R0
		F4	A0	9F	00073	MOVL	4(R0), R0
		F8	A0	9F	00076	PUSHAB	ERROR_ADDR
		FC	A0	9F	00079	PUSHAB	UNWIND_ACT
		03	DD	0007C	PUSHAB	PFV_ADDR	
		5E	DD	0007E	PUSHL	#3	
	7E	04	AC	7D	00080	PUSHL	SP
0000V	CF	03	FB	00084	MOVQ	4(AP), -(SP)	
		04	00089	CALLS	#3, LOCAL_HANDLER		
				RET			: 0209

: Routine Size: 138 bytes, Routine Base: _PASSCODE + 0000

: 230 0291 1
 : 231 0292 1 !<BLF/PAGE>


```

233 0293 1 %SBTTL 'LOCAL_HANDLER - Local handler'
234 0294 1 ROUTINE LOCAL_HANDLER (
235 0295 1     SIGNAL_ARGS: REF BLOCK [, BYTE],      ! Signal arguments array
236 0296 1     MECH_ARGS: REF BLOCK [, BYTE],     ! Mechanism arguments array
237 0297 1     ENABLE_ARGS: REF VECTOR [, LONG] ! Enable arguments array
238 0298 1 ) =
239 0299 1
240 0300 1 ++
241 0301 1 FUNCTIONAL DESCRIPTION:
242 0302 1
243 0303 1     This is the condition handler enabled by PASSWRITE_REALF_D1.
244 0304 1     If the current signal is a Pascal error on the file our establisher
245 0305 1     was called with, we unwind to the caller of the establisher
246 0306 1     with R0 being the status code of the error.
247 0307 1
248 0308 1
249 0309 1 CALLING SEQUENCE:
250 0310 1
251 0311 1     status.wlc.v = STATUS_HANDLER (SIGNAL_ARGS.rl.ra, MECH_ARGS.rl.ra,
252 0312 1     ENABLE_ARGS.rl.ra)
253 0313 1
254 0314 1 FORMAL PARAMETERS:
255 0315 1
256 0316 1     SIGNAL_ARGS - The signal argument list.
257 0317 1
258 0318 1     MECH_ARGS - The mechanism argument list.
259 0319 1
260 0320 1     ENABLE_ARGS - An array with the following
261 0321 1     format:
262 0322 1
263 0323 1         +-----+
264 0324 1         | ENB_COUNT | <-- ENABLE_ARGS
265 0325 1         +-----+
266 0326 1         | ENB_PFV_ADDR |
267 0327 1         +-----+
268 0328 1         | ENB_UNWIND_ACT |
269 0329 1         +-----+
270 0330 1         | ENB_ERROR_ADDR |
271 0331 1         +-----+
272 0332 1
273 0333 1     ENB_COUNT is the count of following enable arguments.
274 0334 1     The count is always at least 2.
275 0335 1
276 0336 1     ENB_PFV_ADDR - If non-zero, the address of a longword
277 0337 1     containing the PFV our establisher is operating on.
278 0338 1
279 0339 1     ENB_UNWIND_ACT - Specifies the action
280 0340 1     to take on an unwind. The values are:
281 0341 1     PASSK_UNWIND_NOP - Do nothing
282 0342 1     PASSK_UNWIND_UNLOCK - Unlock PFV
283 0343 1
284 0344 1     ENB_ERROR_ADDR - Ignored here.
285 0345 1
286 0346 1 IMPLICIT INPUTS:
287 0347 1
288 0348 1     The signaller's PFV placed as the first FA0 argument in the primary
289 0349 1     signalled message.

```

```

290 0350 1 |
291 0351 1 | IMPLICIT OUTPUTS:
292 0352 1 |
293 0353 1 |     NONE
294 0354 1 |
295 0355 1 | ROUTINE VALUE:
296 0356 1 |
297 0357 1 |     SSS_RESIGNAL
298 0358 1 |
299 0359 1 | SIDE EFFECTS:
300 0360 1 |
301 0361 1 |     May cause an unwind.
302 0362 1 |
303 0363 1 | --
304 0364 1 |
305 0365 2 | BEGIN
306 0366 2 |
307 0367 2 | LITERAL
308 0368 2 |     ENB_COUNT = 0,           ! Count of enable arguments
309 0369 2 |     ENB_PFV_ADDR = 1,       ! Address of address of PFV
310 0370 2 |     ENB_UNWIND_ACT = 2,     ! Address of unwind action
311 0371 2 |     ENB_ERROR_ADDR = 3;     ! Address of address of unwind PC
312 0372 2 |
313 0373 2 |
314 0374 2 | !+ Determine if this is an unwind. If so, resignal.
315 0375 2 | !- Otherwise, see if we should cause an unwind.
316 0376 2 |
317 0377 2 |
318 0378 2 | IF .SIGNAL_ARGS [CHF$S_SIG_NAME] EQLU SSS_UNWIND
319 0379 2 | THEN
320 0380 2 |     RETURN SSS_RESIGNAL;
321 0381 2 |
322 0382 2 | IF ..ENABLE_ARGS [ENB_ERROR_ADDR] NEQ 0 ! Error continue specified?
323 0383 2 | THEN
324 0384 2 |     BEGIN
325 0385 2 |
326 0386 2 |     LOCAL
327 0387 2 |         COND_NAME: BLOCK [4, BYTE], ! Primary condition name
328 0388 2 |         COND_CODE:                 ! Sequence number of error
329 0389 2 |
330 0390 2 |
331 0391 2 | !+ Get primary condition name.
332 0392 2 | !-
333 0393 2 |
334 0394 2 | COND_NAME = .SIGNAL_ARGS [CHF$S_SIG_NAME];
335 0395 2 |
336 0396 2 | !+
337 0397 2 | !- Is this a PASS error? If not, resignal.
338 0398 2 |
339 0399 2 |
340 0400 2 | IF .COND_NAME [STSSV_FAC_NO] NEQU PASS_FACILITY
341 0401 2 | THEN
342 0402 2 |     RETURN SSS_RESIGNAL;
343 0403 2 |
344 0404 2 | !+
345 0405 2 | !- See if the error message is one which is "trapped"
346 0406 2 | ! by ERROR:=CONTINUE. This is done by comparing the
  
```

```

347      0407 3      ! message number against a select range.
348      0408 3
349      0409 3
350      0410 3      COND_CODE = .COND_NAME [ST$$V_CODE];      ! Get error number
351      0411 3      IF .COND_CODE GEQD PASS$$K_MSGCONTLO AND      ! Lowest number
352      0412 3      .COND_CODE LEQU PASS$$K_MSGCONTHI      ! Highest number
353      0413 3      THEN
354      0414 4      BEGIN
355      0415 4
356      0416 4      !+
357      0417 4      ! See if the PFVs match. The signaller's PFV is the
358      0418 4      ! first FAO parameter in the primary message.
359      0419 4      !-
360      0420 4
361      0421 4      IF .SIGNAL_ARGS [12,0,32,0] EQLA ..ENABLE_ARGS [ENB_PFV_ADDR]
362      0422 4      THEN
363      0423 4      !+
364      0424 4      ! We want to unwind to the PC specified in the enable argument
365      0425 4      ! error address.
366      0426 4      !-
367      0427 4
368      0428 5      BEGIN
369      0429 6      IF NOT $UNWIND (NEWPC=..ENABLE_ARGS [ENB_ERROR_ADDR])
370      0430 5      THEN
371      0431 5      SIGNAL_STOP (PASS_BUGCHECK,1,BUG_UNWINDFAIL);
372      0432 4      END;
373      0433 3      END;
374      0434 2      END;
375      0435 2
376      0436 2      RETURN SS$_RESIGNAL;      ! Resignal error
377      0437 2
378      0438 1      END;      ! End of routine LOCAL_HANDLER
    
```

```

.EXTRN PASS_FACILITY, PASS$$K_MSGCONTLO
.EXTRN PASS$$K_MSGCONTHI
.EXTRN SYSSUNWIND, PASS_BUGCHECK
    
```

0004 0000 LOCAL_HANDLER:

					.WORD	Save R2	:	0294
					MOVL	SIGNAL_ARGS, R1	:	0378
	00000920	51	04	AC	D0	00002	:	
		8F	04	A1	D1	00006	:	
					52	13	:	
		50	0C	AC	D0	00010	:	0382
			0C	B0	D5	00014	:	
					49	13	:	
		52	04	A1	D0	00019	:	0394
00G	52	0C		10	ED	0001D	:	0400
				3E	12	00022	:	
	52	0C		03	EF	00024	:	0410
	00000000G	8F		52	D1	00029	:	0411
				30	1F	00030	:	
	00000000G	8F		52	D1	00032	:	0412
				27	1A	00039	:	
	04	B0	0C	A1	D1	0003B	:	0421
				20	12	00040	:	
					BNEQ	1\$:	

PASSWRITE_REALF Write an D floating in F format - V1 semantics
1-002 LOCAL_HANDLER - Local handler

H 15
16-Sep-1984 02:17:52
14-Sep-1984 12:52:04

VAX-11 Bliss-32 V4.0-742
[PASRTL.SRC]PASWRIFD1.B32;1

Page 10
(4)

		0C	B0	DD	00042	PUSHL	@12(R0)	
			7E	D4	00045	CLRL	-(SP)	
00000000G	00		02	FB	00047	CALLS	#2, SYSSUNWIND	0429
	11		50	E8	0004E	BLBS	R0, 1\$	
			03	DD	00051	PUSHL	#3	0431
			01	DD	00053	PUSHL	#1	
		00000000G	8F	DD	00055	PUSHL	#PASS, BUGCHECK	
00000000G	00		03	FB	0005B	CALLS	#3, LIB\$STOP	
	50	0918	8F	3C	00062	MOVZWL	#2\$28, R0	0436
			04	00067	1\$:	RET		0438

; Routine Size: 104 bytes, Routine Base: _PASSCODE + 008A

; 379 0439 1
; 380 0440 1 !<BLF/PAGE>

PASSWRITE_REALF Write an D floating in F format - V1 semantics
1-002 LOCAL_HANDLER - Local handler

I 15
16-Sep-1984 02:17:52 VAX-11 Bliss-32 V4.0-742
14-Sep-1984 12:52:04 [PASRTL.SRC]PASWRIFD1.B32;1

: 382 0441 1 END
: 383 0442 1
: 384 0443 0 ELUDOM

! End of module PASSWRITE_REALF_D1

.EXTRN LIB\$STOP

PSECT SUMMARY

Name	Bytes	Attributes
_PASSCODE	242	NOVEC, NOWRT, RD, EXE, SHR, LCL, REL, COM, PIC, ALIGN(2)

Library Statistics

File	Total	Symbols Loaded	Percent	Pages Mapped	Processing Time
_\$255\$DUA28:[SYSLIB]STARLET.L32;1	9776	7	0	581	00:01.0
_\$255\$DUA28:[PASRTL.OBJ]PASLIB.L32;1	427	27	6	33	00:00.4

COMMAND QUALIFIERS

BLISS/CHECK=(FIELD, INITIAL, OPTIMIZE)/NOTRACE/LIS=LIS\$:PASWRIFD1/OBJ=OBJ\$:PASWRIFD1 MSRC\$:PASWRIFD1/UPDATE=(ENH\$:PASWRIFD1)

: Size: 242 code + 0 data bytes
: Pjn Time: 00:06.9
: Elapsed Time: 00:31.7
: Lines/CPU Min: 3852
: Lexemes/CPU-Min: 9495
: Memory Used: 61 pages
: Compilation Complete

