



```

FFFFFFFFF 000000 RRRRRRRR IIIIII 000000 EEEEEEEEE NN NN DDDDDDD
FFFFFFFFF 000000 RRRRRRRR IIIIII 000000 EEEEEEEEE NN NN DDDDDDD
FF 00 00 RR RR 00 00 EE NN NN DD DD
FF 00 00 RR RR 00 00 EE NN NN DD DD
FF 00 00 RR RR 00 00 EE NNNN NN DD DD
FF 00 00 RR RR 00 00 EE NNNN NN DD DD
FFFFFFFFF 00 00 RRRRRRRR IIIIII 00 00 EEEEEEEE NN NN DD DD
FFFFFFFFF 00 00 RRRRRRRR IIIIII 00 00 EEEEEEEE NN NN DD DD
FF 00 00 RR RR IIIIII 00 00 EE NN NNNN DD DD
FF 00 00 RR RR IIIIII 00 00 EE NN NNNN DD DD
FF 00 00 RR RR IIIIII 00 00 EE NN NN DD DD
FF 00 00 RR RR IIIIII 00 00 EE NN NN DD DD
FF 000000 RR RR IIIIII 000000 EEEEEEEEE NN NN DDDDDDD
FF 000000 RR RR IIIIII 000000 EEEEEEEEE NN NN DDDDDDD

```

```

LL IIIIII SSSSSSS
LL IIIIII SSSSSSS
LL II SS
LL II SS
LL II SS
LL II SS
LL II SSSSSS
LL II SS^SSS
LL II SS
LL II SS
LL II SS
LLLLLLLLLL IIIIII SSSSSSS
LLLLLLLLLL IIIIII SSSSSSS

```

FO  
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```

1 0001 0 MODULE FOR$IO_END (%TITLE 'FORTRAN End I/O statement'
2 0002 0 IDENT = '1-011' ! File: FORIOEND.B32 Edit: SBL1011
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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27 0027 1 *****
28 0028 1
29 0029 1 **
30 0030 1 FACILITY: FORTRAN Support Library - user callable
31 0031 1
32 0032 1 ABSTRACT:
33 0033 1
34 0034 1 This module terminates a FORTRAN I/O statement, writes
35 0035 1 last record if output, and pops up the I/O system to
36 0036 1 a previously active I/O statement if any.
37 0037 1
38 0038 1 ENVIRONMENT: User access mode; mixture of AST level or not
39 0039 1
40 0040 1 AUTHOR: Thomas N. Hastings, CREATION DATE: 03-Mar-77
41 0041 1
42 0042 1 MODIFIED BY:
43 0043 1
44 0044 1 Thomas N. Hastings, 05-Mar-77 : VERSION 01
45 0045 1 [Previous edit history removed. SBL 29-Sept-1982]
46 0046 1 1-011 - Change OTS$$ data structure references to FOR$$ SBL 29-Sep-1982
47 0047 1 --
48 0048 1

```

```
.. 50      0049 1  |
.. 51      0050 1  | PROLOGUE FILE:
.. 52      0051 1  |
.. 53      0052 1  |
.. 54      0053 1  | REQUIRE 'RTLIN:FORPROLOG';           | FORTRAN declarations
.. 55      0119 1  |
.. 56      0120 1  |
.. 57      0121 1  | TABLE OF CONTENTS:
.. 58      0122 1  |
.. 59      0123 1  |
.. 60      0124 1  | FORWARD ROUTINE
.. 61      0125 1  |   FOR$IO_END;                       | End I/O statement
.. 62      0126 1  |
.. 63      0127 1  |
.. 64      0128 1  | EQUATED SYMBOLS:
.. 65      0129 1  |
.. 66      0130 1  |   NONE
.. 67      0131 1  |
.. 68      0132 1  | OWN STORAGE:
.. 69      0133 1  |
.. 70      0134 1  |   NONE
.. 71      0135 1  |
.. 72      0136 1  | EXTERNAL REFERENCES:
.. 73      0137 1  |
.. 74      0138 1  |
.. 75      0139 1  | EXTERNAL
.. 76      0140 1  |   FOR$$A_CUR_LUB : VOLATILE,         | ! Pointer to current LUB/ISB/RAB
.. 77      0141 1  |   FOR$$A_UDF_PR9 : VECTOR;          | ! PIC array of user data
.. 78      0142 1  |                                       | ! formatter (UDF) level of abstraction.
.. 79      0143 1  |
.. 80      0144 1  | EXTERNAL ROUTINE
.. 81      0145 1  |   FOR$$ERR_ENDHND,                  | ! error condition handler for END= and ERR=
.. 82      0146 1  |   FOR$$CB_POP : JSB CB POP NOVALUE, | ! Pop entire I/O system back to previous LUB/ISB/RAB
.. 83      0147 1  |   FOR$$SIGNAL : NOVALUE;            | ! Signal an error with a small error number
.. 84      0148 1  |
```



```
143 0206 2          ! Needed since can only pass address, not contents
144 0207 2          ! UNWIND action code.
145 0208 2          ! ERR= user address
146 0209 2          ! END= user address
147 0210 2          ! additional frames between establisher and user (0)
148 0211 2          ! User's call frame
149 0212 2          ! Local copy of ISB$B_ERR_NO
150 0213 2
151 0214 2          ! Establish error conditon handler
152 0215 2          ! Pass UNWIND action code.
153 0216 2
154 0217 2          ! Pass ERR= and END= user addresses or 0
155 0218 2          ! and the number of frames between the activator and the user (0)
156 0219 2
157 0220 2
158 0221 2
159 0222 2          !+
160 0223 2          ! Setup LOCAL storage to be passed to error handler in case of a signal
161 0224 2          ! Indicate that UNWIND action is to pop current LUB/ISB/RAB if error
162 0225 2          !-
163 0226 2          L_UNWIND ACTION = FOR$K_UNWINDPOP;
164 0227 2          A_ERR_ADR = .CCB [ISB$A_ERR_EQUAL];
165 0228 2          A_END_ADR = .CCB [ISB$A_END_EQUAL];
166 0229 2          L_INCR_DEPTH = 0;
167 0230 2
168 0231 2          !+
169 0232 2          ! Restore user's handler in the frame, if any.
170 0233 2          !-
171 0234 2          USER_FRAME = .CCB [ISB$A_USER_FP];
172 0235 2          USER_FRAME [SF$A_HANDLER] = .CCB [ISB$A_USR_HANDL];
173 0236 2
174 0237 2          !+
175 0238 2          ! Call appropriate UDF termination routine
176 0239 2          ! Any errors will be signaled.
177 0240 2          !-
178 0241 2
179 0242 2          JSB_UDF9 (FOR$AA_UDF_PR9 + .FOR$AA_UDF_PR9 [.CCB [ISB$B_STTM_TYPE] -
180 0243 2          ! ISB$K_FORSTTYLO + 1]);
181 0244 2
182 0245 2          !+
183 0246 2          ! If a continuable error occured on the I/O statement (ISB$B_ERR_NO
184 0247 2          ! is non-zero) then SIGNAL the error. The signalling is delayed until
185 0248 2          ! statement end time so the record is positioned correctly.
186 0249 2          !-
187 0250 2
188 0251 2          IOSTAT = .CCB [ISB$B_ERR_NO];
189 0252 2
190 0253 2          IF .IOSTAT NEQU 0 THEN FOR$$SIGNAL (.IOSTAT);
191 0254 2
192 0255 2          ! Pop entire I/O system back to previous LUB/ISB/RAB if there was one when this
193 0256 2          ! I/O statement began (see FIOBEG) or indicate that I/O system is not.
194 0257 2          ! currently processing any I/O statement (usual)
195 0258 2          ! LUB for (old) current unit is saved for next I/O statement
196 0259 2          !-
197 0260 2
198 0261 2          FOR$$CB_POP ();
199 0262 2          RETURN .IOSTAT;          ! Return IOSTAT error value
```

: 200 0263 1 END;

! End of routine

					.TITLE FOR\$IO_END FORTTRAN End I/O statement	
					.IDENT \1-011\	
					.EXTRN FOR\$SA_CUR_LUB, FOR\$SA_UDF_PR9	
					.EXTRN FOR\$ERR_ENDHND	
					.EXTRN FOR\$CB_POP, FOR\$SIGNAL	
					.PSECT _FOR\$CODE, NOWRT, SHR, PIC, 2	
					.ENTRY FOR\$IO_END, Save R2, R3, R4, R5, R11	: 0149
53	00000000G	00	083C 00000	9E 00002	MOVAB FOR\$SA_UDF_PR9, R3	:
5E		0C	C2 00009	7E D4 0000C	SUBL2 #12, SP	:
		04	AE 7C 0000E	0C AE D4 00011	CLRL L_INCR_DEPTH	: 0200
		0C	AE D4 00011	0049 CF DE 00014	CLRQ A_END_ADR	:
6D	0049	CF	DE 00014	5B 00000000G	CLRL L_UNWIND_ACTION	:
5B	00000000G	00	D0 00019	0C AE D4 00020	MOVAL 2\$, (FP)	:
		0C	AE D4 00020	08 AE FF74 CB D0 00023	MOVL FOR\$SA_CUR_LUB, CCB	: 0219
08	AE	FF74	CB D0 00023	04 AE FF78 CB D0 00029	CLRL L_UNWIND_ACTION	: 0226
04	AE	FF78	CB D0 00029	6E D4 0002F	MOVL -T40(CCB), A_ERR_ADR	: 0227
		6E	D4 0002F	50 FF4C CB D0 00031	MOVL -136(CCB), A_END_ADR	: 0228
50	FF4C	CB	D0 00031	60 FF44 CB D0 00036	CLRL L_INCR_DEPTH	: 0229
60	FF44	CB	D0 00036	50 FF71 CB 9A 0003B	MOVL -T80(CCB), USER_FRAME	: 0234
50	FF71	CB	9A 0003B	50 6340 D0 00040	MOVL -188(CCB), (USER_FRAME)	: 0235
50		6340	D0 00040	52 FF70 CB 9A 00047	MOVZBL -143(CCB), R0	: 0243
		6340	16 00044	09 13 0004C	MOVL FOR\$SA_UDF_PR9[R0], R0	: 0242
52	FF70	CB	9A 00047	52 DD 0004E	JSB FOR\$SA_UDF_PR9[R0]	:
		09	13 0004C	00 00000000G	MOVZBL -144(CCB), IOSTAT	: 0251
		52	DD 0004E	00 00000000G	BEQL 1\$	: 0253
		01	FB 00050	50 00000000G	PUSHL IOSTAT	:
		00	16 00057	50 00000000G	CALLS #1, FOR\$SIGNAL	:
		52	D0 0005D		JSB FOR\$CB_POP	: 0261
		04	00060		MOVL IOSTAT, R0	: 0262
		0000	00061		RET	: 0263
		08	D0 00063		.WORD Save nothing	: 0200
50	04	A0	D0 00067		MOV 8(AP), R0	:
	F0	A0	9F 0006B		MOV 4(R0), R0	:
	F4	A0	9F 0006E		PUSHAB L_INCR_DEPTH	:
	F8	A0	9F 00071		PUSHAB A_END_ADR	:
	FC	A0	9F 00074		PUSHAB A_ERR_ADR	:
		04	DD 00077		PUSHAB L_UNWIND_ACTION	:
		5E	DD 00079		PUSHL #4	:
		04	AC 7D 0007B		PUSHL SP	:
00000000G	7E	04	AC 7D 0007B		MOVQ 4(AP), -(SP)	:
00	00	03	FB 0007F		CALLS #3, FOR\$ERR_ENDHND	:
		04	00086		RET	:

: Routine Size: 135 bytes, Routine Base: \_FOR\$CODE + 0000

: 201 0264 1  
: 202 0265 1 END  
: 203 0266 1  
: 204 0267 0 ELUDOM

!End of module FOR\$IO\_END

PSECT SUMMARY

```

:
: Name                Bytes                Attributes
:
: _FOR$CODE           135 NOVEC,NOWRT, RD , EXE, SHR, LCL, REL, CON, PIC,ALIGN(2)
:

```

Library Statistics

```

:
: File                Total  Symbols  Percent  Pages  Processing
:                   Total  Loaded  Percent  Mapped  Time
:
: $255$DUA28:[SYSLIB]STARLET.L32;1  9776      1      0      581    00:01.0
: -$255$DUA28:[FORRTL.OBJ]FORLIB.L32;1  711     182     25      52    00:00.6
: -$255$DUA28:[FORRTL.OBJ]RTLLIB.L32;1   36      0      0       8    00:00.1
:

```

COMMAND QUALIFIERS

```

:
: BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/NOTRACE/LIS=LIS$:FORIOEND/OBJ=OBJ$:FORIOEND MSRC$:FORIOEND/UPDATE=(ENH$:FORIOEND)
:
: Size:                135 code + 0 data bytes
: Run Time:            00:05.4
: Elapsed Time:       00:20.9
: Lines/CPU Min:      2961
: Lexemes/CPU-Min:    6776
: Memory Used:        79 pages
: Compilation Complete

```



FORINTLND LIS

FORMSG LIS

FORIOBEG LIS

FORTOEND LIS

FORLEX LIS

FORMLTAB LIS

FORINQUIR LIS

FORIOELEM LIS

FORDATE LIS

FORLIB LIS