


```

FFFFFFFFF 000000 RRRRRRR WW WW RRRRRRR IIIIII TTTTTTTTT IIIIII 000000
FFFFFFFFF 000000 RRRRRRR WW WW RRRRRRR IIIIII TTTTTTTTT IIIIII 0C0000
FF 00 00 RR RR WW WW RR RR II TT II 00 00
FF 00 00 RR RR WW WW RR RR II TT II 00 00
FF 00 00 RR RR WW WW RR RR II TT II 00 00
FFFFFFFF 00 00 RRRRRRR WW WW RRRRRRR IIIIII TTTTTTTTT IIIIII 00 00
FFFFFFFF 00 00 RRRRRRR WW WW RRRRRRR IIIIII TTTTTTTTT IIIIII 00 00
FF 00 00 RR RR WW WW RR RR II TT II 00 00
FF 00 00 RR RR WW WW RR RR II TT II 00 00
FF 00 00 RR RR WWW WWW RR RR II TT II 00 00
FF 00 00 RR RR WWW WWW RR RR II TT II 00 00
FF 00 00 RR RR WW WW RR RR II TT II 00 00
FF 000000 RR RR WW WW RR RR IIIIII TTTTTTTTT IIIIII 000000
FF 000000 RR RR WW WW RR RR IIIIII TTTTTTTTT IIIIII 000000

```

```

LL IIIIII SSSSSSS
LL IIIIII SSSSSSS
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 IIIIII SSSSSSS
LLLLLLLLLL IIIIII SSSSSSS
LLLLLLLLLL IIIIII SSSSSSS

```

(2) 56
(3) 88
(4) 136

HISTORY ; Detailed Current Edit History
DECLARATIONS
FORSWRITE_IO - WRITE INTERNAL OBJECT-FORMATTED

FO
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```
0000 1 .TITLE FOR$WRITE_IO - entry point for FORTRAN WRITE INTERNAL OBJECT-FORMATT
0000 2 .IDENT /1-013/ File: FORWRITIO.MAR Edit: JAW1013
0000 3
0000 4 *****
0000 5
0000 6 * COPYRIGHT (c) 1978, 1980, 1982, 1984 BY *
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0000 20
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0000 23
0000 24
0000 25 *****
0000 26
0000 27
0000 28 ++
0000 29 : FACILITY: FORTRAN Support Library - user callable
0000 30
0000 31 : ABSTRACT:
0000 32
0000 33 : This module contains the entry point for the FORTRAN
0000 34 : WRITE INTERNAL OBJECT-FORMATTED I/O statement. It is simply
0000 35 : a call to FOR$$IO_BEG with bits in R0 which describe the
0000 36 : parameter list. FOR$$IO_BEG interprets the parameters.
0000 37
0000 38 : MAINTENANCE NOTE:
0000 39 : The transfer vector (RTLVECTOR+ALLGBL) must have the following:
0000 40
0000 41 : .TRANSFER FOR$WRITE IO
0000 42 : .MASK FOR$$IO_BEG
0000 43 : BRW FOR$WRITE_IO+2
0000 44
0000 45 : This puts the correct mask in entry vector, that is FOR$$IO_BEG entry mask.
0000 46 : Furthermore this module must only use R0 and R1
0000 47 : since any other register might not be in the entry mask for FOR$$IO_BEG.
0000 48
0000 49 : ENVIRONMENT: User access mode; mixture of AST level or not
0000 50
0000 51 : AUTHOR: Richard B. Grove, CREATION DATE: 28-May-78
0000 52
0000 53 : MODIFIED BY:
0000 54 : T. Hastings, 29-July-78
```

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0000 56      .SBTTL HISTORY      ; Detailed Current Edit History
0000 57
0000 58
0000 59 ; Edit History for Version 1
0000 60 :
0000 61 : 0-10 - Add comment about vectors. TNH 23-June-78
0000 62 : 0-12 - Pass arg in R0, not ROR, add comments. TNH 29-July-78
0000 63 : 1-001 - Update version number and copyright notice. JBS 16-NOV-78
0000 64 : 1-002 - Change statement type symbols to be LUB$K... JBS 07-DEC-78
0000 65 : 1-003 - Change statement type symbols to be ISB$K... JBS 11-DEC-78
0000 66 : 1-004 - Add " " to the PSECT directive. JBS 22-DEC-78
0000 67 : 1-005 - Add FOR$READ_KF, FOR$READ_KO, FOR$REWRITE_SF, FOR$REWRITE_SO,
0000 68 : FOR$READ_IF, FOR$READ_IO, FOR$WRITE_IF, FOR$WRITE_IO,
0000 69 : FOR$READ_KU, FOR$REWRITE_SU,
0000 70 : SBL 2-May-1979
0000 71 : 1-006 - Remove all entry points that need object time formatting,
0000 72 : putting them in FOR$ENTRY_OBJ so that we can arrange to
0000 73 : load the format compiler only when it is needed.
0000 74 : JBS 26-JUN-1979
0000 75 : 1-007 - Remove entry point FOR$ENCODE_MF; we will code a new module
0000 76 : for it and FOR$$IO_BEG, to see how much I/O initiation time
0000 77 : improves. JBS 02-JUL-1979
0000 78 : 1-008 - Do likewise for FOR$READ_DU and FOR$WRITE_DU. JBS 03-JUL-1979
0000 79 : 1-009 - Remove all entry points and add FOR$WRITE_IO; each entry
0000 80 : point gets its own module so we can selectively load
0000 81 : the necessary UDF and REC modules. JBS 09-JUL-1979
0000 82 : 1-010 - Correct a typo that caused a data truncation error. JBS 10-JUL-1979
0000 83 : 1-011 - New parameter format for FOR$$IO_BEG. SBL 5-Dec-1979
0000 84 : 1-012 - Change BRW FOR$$IO_BEG+2 to JMP G^FOR$$IO_BEG+2. JAW 21-Feb-1981
0000 85 : 1-013 - Correct typos in the EXTRN statements which caused FOR$$UDF_RF
0000 86 : rather than FOR$$UDF_WF to be loaded. JAW 22-SEP-1981

```

```

0000 88      .SBTTL  DECLARATIONS
0000 89
0000 90  :
0000 91  : INCLUDE FILES:
0000 92  :
0000 93
0000 94      $FORPAR      ; Define inter-module FORTRAN symbols
0000 95      $ISBDEF      ; Define statement type symbols
0000 96
0000 97  :
0000 98  : EXTERNAL SYMBOLS:
0000 99  :
0000 100
0000 101     .DSABL  GBL      ; Declare all external symbols
0000 102     .EXTRN  FOR$$IO_BEG      ; common I/O statement processing
0000 103  :+
0000 104  : The following references are to make sure the necessary UDF and REC
0000 105  : modules are loaded. These are the routines which are called through
0000 106  : the dispatch tables in FOR$$DISPAT.
0000 107  :-
0000 108     .EXTRN  FOR$$UDF_WF0, FOR$$UDF_WF1, FOR$$UDF_WF9
0000 109     .EXTRN  FOR$$REC_WIF0, FOR$$REC_WIF1, FOR$$REC_WIF9
0000 110  :+
0000 111  : The following reference makes sure the format compiler is loaded.
0000 112  :-
0000 113     .EXTRN  FOR$$FMT_COMPIL
0000 114
0000 115  :
0000 116  : MACROS:
0000 117  :
0000 118     NONE
0000 119  :
0000 120  : PSECT DECLARATIONS:
0000 121  :
0000 122
0000 123     .PSECT  _FOR$CODE PIC,USR,CON,REL,LCL,SHR,EXE,RD,NOWRT,LONG
0000 124
0000 125  :
0000 126  : EQUATED SYMBOLS:
0000 127  :
0000 128
0000 129
0000 130  :
0000 131  : OWN STORAGE:
0000 132  :
0000 133     NONE
0000 134  :

```

```

0000 136          .SBTTL FOR$WRITE_IO - WRITE INTERNAL OBJECT-FORMATTED
0000 137
0000 138 :++
0000 139 : FUNCTIONAL DESCRIPTION:
0000 140 :
0000 141 :     Initialize the FORTRAN I/O system to perform
0000 142 :     a WRITE INTERNAL OBJECT-FORMATTED I/O statement.
0000 143 :
0000 144 : CALLING SEQUENCE:
0000 145 :
0000 146 :     CALL FOR$WRITE_IO (user_vbl.rt.dx, format_adr.rt.r
0000 147 :     [, err_adr.j.r [, end_adr.j.r]])
0000 148 :
0000 149 : INPUT PARAMETERS:
0000 150 :
0000 151 :     user_vbl.rt.dx          User's string variable
0000 152 :     format_adr.rt.r        format string (needs compilation)
0000 153 :     [err_adr.j.r]          optional ERR= address
0000 154 :     [end_adr.j.r]          optional END= address
0000 155 :
0000 156 : IMPLICIT INPUTS:
0000 157 :
0000 158 :     NONE except those used by FOR$$IO_BEG.
0000 159 :
0000 160 : OUTPUT PARAMETERS:
0000 161 :
0000 162 :     NONE
0000 163 :
0000 164 : IMPLICIT OUTPUTS:
0000 165 :
0000 166 :     NONE except those left by FOR$$IO_BEG.
0000 167 :
0000 168 : COMPLETION CODES:
0000 169 :
0000 170 :     NONE
0000 171 :
0000 172 : SIDE EFFECTS:
0000 173 :
0000 174 :     NONE except those of FOR$$IO_BEG.
0000 175 :
0000 176 : --
0000 177
50 0111 8F 0000' 0000 178 FOR$WRITE_IO:: .MASK FOR$$IO_BEG
0000 179 MOVZWL #ISBSK ST TY WIF+ -
0000 180 <1@FOR$V OBJ-FMT>, R0 ; Statement type
0000 181 JMP G^FOR$$IO_BEG+2 ; branch past call mask
0000 182
0000 183
0000 184 .END
  
```

FORWRITE IO
Symbol table

FORSSFMT_COMPIL	*****	X	00
FORSSIO_BEG	*****	X	00
FORSSREC_WIF0	*****	X	00
FORSSREC_WIF1	*****	X	00
FORSSREC_WIF9	*****	X	00
FORSSUDF_WF0	*****	X	00
FORSSUDF_WF1	*****	X	00
FORSSUDF_WF9	*****	X	00
FORSV_OBJ_FMT	= 00000008		
FORWRITE_IO	00000000	RG	01
ISBSK_ST_TY_WIF	= 00000011		

! Psect synopsis !

PSECT name	Allocation	PSECT No.	Attributes										
ABS	00000000 (0.)	00 (0.)	NOPIC USR	CON	ABS	LCL	NOSHR	NOEXE	NORD	NOWRT	NOVEC	BYTE	
_FORSCODE	0000000D (13.)	01 (1.)	PIC USR	CON	REL	LCL	SHR	EXE	RD	NOWRT	NOVEC	LONG	

! Performance indicators !

Phase	Page faults	CPU Time	Elapsed Time
Initialization	34	00:00:00.08	00:00:01.72
Command processing	132	00:00:00.61	00:00:02.66
Pass 1	125	00:00:01.27	00:00:04.05
Symbol table sort	0	00:00:00.20	00:00:00.39
Pass 2	46	00:00:00.47	00:00:01.55
Symbol table output	3	00:00:00.02	00:00:00.02
Psect synopsis output	3	00:00:00.02	00:00:00.03
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	345	00:00:02.68	00:00:10.43

The working set limit was 1050 pages.
6727 bytes (14 pages) of virtual memory were used to buffer the intermediate code.
There were 20 pages of symbol table space allocated to hold 188 non-local and 0 local symbols.
184 source lines were read in Pass 1, producing 8 object records in Pass 2.
9 pages of virtual memory were used to define 2 macros.

! Macro library statistics !

Macro library name	Macros defined
-\$255\$DUA28:[FORRTL.OBJ]FORRTL.MLB;1	2
-\$255\$DUA28:[SYSLIB]STARLET.MLB;2	0
TOTALS (all libraries)	2

183 GETS were required to define 2 macros.

There were no errors, warnings or information messages.

FORWRITE IO
VAX-11 Macro Run Statistics

- entry point for FORTRAN WRITE INTERNAL ^{E 9} 16-SEP-1984 00:05:28 VAX/VMS Macro V04-00 Page 6
8-SEP-1984 11:02:04 [FORRTL.SRC]FORWRITIO.MAR;1 (7.)

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS\$;FORWRITIO/OBJ=OBJ\$;FORWRITIO MSRCS\$;FORWRITIO/UPDATE=(ENHS;FORWRITIO)+LI

A grid of 130 small terminal window screenshots, arranged in approximately 10 rows and 13 columns. Each window displays text-based user interface elements, including command prompts, lists of files or options, and help text. The text is rendered in a monospaced font. The windows are separated by thin white lines, creating a dense grid of information. Some windows clearly show titles like 'FORWRTDF LIS', 'FORWRTDU LIS', 'FORVECTOR LIS', 'FORWRTIL LIS', 'FORWRTSF LIS', 'FORWRTSN LIS', 'FORWRTSU LIS', 'FORUNLOCK LIS', 'FORWRTDO LIS', 'FORWRTIF LIS', 'FORWRTIO LIS', 'FORWRTSL LIS', 'FORWRTSD LIS', 'FORLDFW LIS', and 'FORLNDER LIS'. Other windows show 'HELP' and 'VMSHELP MAP'. The overall appearance is that of a comprehensive manual or reference document for a VAX/VMS system.