

(2) 48
(3) 59
(4) 89

HISTORY ; Detailed Current Edit History
DECLARATIONS
FOR\$SECNDS - get delta system time

```
0000 1 .TITLE FOR$SECNDS - GET DELTA TIME
0000 2 .IDENT /1-002/ ; File: FORSECNDS.MAR
0000 3
0000 4
0000 5 :*****
0000 6 :*
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0000 24 :*
0000 25 :*
0000 26 :*****
0000 27 :
0000 28
0000 29 : FACILITY: MATH LIBRARY
0000 30 :++
0000 31 : ABSTRACT:
0000 32 :
0000 33 :
0000 34 :--
0000 35
0000 36 : VERSION: 0
0000 37 :
0000 38 : HISTORY:
0000 39 :
0000 40 : AUTHOR:
0000 41 : Jonathan Taylor, 29-Jun-77 : Version 0
0000 42 :
0000 43 : MODIFIED BY:
0000 44 :
0000 45 :
0000 46 :
```

FORSSECNDS
1-002

L 15

- GET DELTA TIME 16-SEP-1984 00:02:24 VAX/VMS Macro V04-00 Page 2
HISTORY ; Detailed Current Edit History 6-SEP-1984 11:00:23 [FORRTL.SRC]FORSECNDS.MAR;1 (2)

0000 48 .SBTTL HISTORY ; Detailed Current Edit History
0000 49
0000 50
0000 51 ; Edit History for Version 0 of FORSECNDS
0000 52 ;
0000 53
0000 54 : 0-5 - Add 86400 if negative for midnight. TNH 7-June-78
0000 55 : 0-6 - Remove FOR\$FLAG_JACKET. TNH 11-July-78
0000 56 : 1-001 - Update version number and copyright notice. JBS 16-NOV-78
0000 57 : 1-002 - Add '_' to the PSECT directive. JBS 22-DEC-78

```
0000 59      .SBTTL  DECLARATIONS
0000 60
0000 61 :
0000 62 : INCLUDE FILES:
0000 63 :     NONE
0000 64 :
0000 65 :
0000 66 : EXTERNAL SYMBOLS:
0000 67 :     NONE
0000 68 :
0000 69 :
0000 70 : MACROS:
0000 71 :     NONE
0000 72 :
0000 73 :
0000 74 : PSECT DECLARATIONS:
0000 75 :
00000000 76      .PSECT  _FOR$CODE      PIC, SHR, LONG, EXE, NOWRT
0000 77 :                                     ; FOR$ code section
0000 78 :
0000 79 :
0000 80 : EQUATED SYMBOLS:
0000 81 :
00000004 0000 82      arg      = 4      ; offset of addr of users' arg
0000 83 :
0000 84 :
0000 85 : OWN STORAGE:
0000 86 :
0000 87 :
```

```
0000 89 .SBTTL FOR$SECNDS - get delta system time
0000 90
0000 91 :++
0000 92 : FUNCTIONAL DESCRIPTION:
0000 93 :
0000 94 : Routine FOR$SECNDS returns the system time in seconds as
0000 95 : a single precision floating point value minus the value
0000 96 : of its single real argument.
0000 97
0000 98 : CALLING SEQUENCE:
0000 99 :
0000 100 : Time_difference.wf.v = FOR$SECNDS( time_origin.rf.r)
0000 101 :
0000 102 : INPUT PARAMETERS:
0000 103 :
0000 104 : The time_origin parameter is single precision floating point
0000 105 : and called by reference.
0000 106 :
0000 107 : IMPLICIT INPUTS:
0000 108 : NONE
0000 109 :
0000 110 : OUTPUT PARAMETERS:
0000 111 : NONE
0000 112 :
0000 113 : IMPLICIT OUTPUTS:
0000 114 : NONE
0000 115 :
0000 116 : COMPLETION CODES:
0000 117 : NONE
0000 118 :
0000 119 : SIDE EFFECTS:
0000 120 :
0000 121 : Integer Overflow can occur (but it shouldn't)
0000 122 : Floating Underflow and Overflow can occur.
0000 123 :
0000 124 :--
```

			4000	0000	126	.ENTRY	FOR\$SECNDS,	^M<IV>	
	5E	10	C2	0002	127	SUBL	#2*8, SP		: make an 8 word work space
				0005	128				: for \$NUMTIM
	50	5E	D0	0005	129	MOVL	SP, R0		: R0 -> work space
				0008	130	\$NUMTIM	S (R0)		: get system time values
	5E	06	C0	0013	131	ADDL	#2*3, SP		: SP -> 'hour of day'
50	3C	8E	A5	0016	132	MULW3	(SP)+, #60, R0		: R0 = hours * 60
	50	8E	A0	001A	133	ADDW	(;P)+, R0		: add in 'minutes of hour'
	50	50	3C	001D	134	MOVZWL	R0, R0		: get more precision
	50	3C	C4	0020	135	MULL	#60, R0		: so this doesn't overflow
	51	8E	3C	0023	136	MOVZWL	(SP)+, R1		: convert 'seconds of minute'
	50	51	C0	0026	137	ADDL	R1, R0		: and add to total time
	50	50	4E	0029	138	CVTLF	R0, R0		: convert to floating
51	000043C8	8F	4D	002C	139	CVTWF	(SP), R1		: R1 = 'hundredths of seconds'
	50	51	40	0036	141	DIVF	#100, R1		: make a fraction
	50	04	BC	42	0039	ADDF	R1, R0		: add in hundredths
				003D	143	SUBF	@arg(AP), R0		: and get delta time from
				003D	144				: users' argument
50	C00048A8	8F	18	003D	144	BGEQ	10\$: branch if not negative
				40	003F	ADDF	#86400., R0		: must have gone by midnight
				0046	146				: so add # of seconds in 1 day.
			04	0046	147	RET			: R0 = delta time
				0047	148				
				0047	149				
						.END			

FOR\$SECNDS
Symbol table

- GET DELTA TIME

C 16

16-SEP-1984 00:02:24 VAX/VMS Macro V04-00 Page 6
6-SEP-1984 11:00:23 [FORRTL.SRC]FOR\$SECNDS.MAR;1 (5)

ARG = 00000004
FOR\$SECNDS 00000000 RG 01
SYSSNUMTIM ***** G 01

! Psect synopsis !

PSECT name	Allocation	PSECT No.	Attributes
ABS	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
_FOR\$CODE	00000047 (71.)	01 (1.)	PIC USR CON REL LCL SHR EXE RD NOWRT NOVEC LONG

! Performance indicators !

Phase	Page faults	CPU Time	Elapsed Time
Initialization	35	00:00:00.09	00:00:01.09
Command processing	141	00:00:00.56	00:00:03.47
Pass 1	102	00:00:00.56	00:00:04.04
Symbol table sort	0	00:00:00.00	00:00:00.01
Pass 2	42	00:00:00.34	00:00:01.33
Symbol table output	1	00:00:00.01	00:00:00.02
Psect synopsis output	3	00:00:00.01	00:00:00.01
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	326	00:00:01.58	00:00:09.98

The working set limit was 1050 pages.
2004 bytes (4 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 3 non-local and 1 local symbols.
149 source lines were read in Pass 1, producing 11 object records in Pass 2.
2 pages of virtual memory were used to define 2 macros.

! Macro library statistics !

Macro library name	Macros defined
_\$255\$DUA28:[SYSLIB]STARLET.MLB;2	2

13 GETS were required to define 2 macros.

There were no errors, warnings or information messages.

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS\$:FOR\$SECNDS/OBJ=OBJ\$:FOR\$SECNDS MSRC\$:FOR\$SECNDS/UPDATE=(ENH\$:FOR\$SECNDS)

