



```

PPPPPPP      AAAAAA      SSSSSSSS  RRRRRRRR  TTTTTTTTTT  11
PPPPPPP      AAAAAA      SSSSSSSS  RRRRRRRR  TTTTTTTTTT  11
PP      PP    AA      AA    SS      RR      RR    TT      1111
PP      PP    AA      AA    SS      RR      RR    TT      1111
PP      PP    AA      AA    SS      RR      RR    TT      11
PP      PP    AA      AA    SS      RR      RR    TT      11
PPPPPPP      AA      AA    SSSSSS  RRRRRRRR  TT      11
PPPPPPP      AA      AA    SSSSSS  RRRRRRRR  TT      11
PP      AAAAAAAAAA      SS      RR  RR    TT      11
PP      AAAAAAAAAA      SS      RR  RR    TT      11
PP      AA      AA    SS      RR  RR    TT      11
PP      AA      AA    SS      RR  RR    TT      11
PP      AA      AA    SSSSSSSS  RR      RR    TT      111111
PP      AA      AA    SSSSSSSS  RR      RR    TT      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
LLLLLLLLLLL  IIIIII      SSSSSSSS
LLLLLLLLLLL  IIIIII      SSSSSSSS

```

```
0000 1 :  
0000 2 :*****  
0000 3 :*  
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0000 21 :*  
0000 22 :*  
0000 23 :*****  
0000 24 :*  
0000 25 :*          PASSRT UTIL *  
0000 26 :*    RUNTIME SUPPORT MODULE FOR PASCAL -- SECTION 1 *  
0000 27 :*  
0000 28 :*    VERSION V1.0-1 -- OCTOBER 1979 *  
0000 29 :*  
0000 30 :*    This module defines the following routines: *  
0000 31 :*  
0000 32 :*    pas$entry:  JSB routine to expand stack on procedure entry *  
0000 33 :*    pas$unwind: routine to unwind stack for nonlocal goto *  
0000 34 :*    pas$clock:  routine to implement the Pascal function clock *  
0000 35 :*    pas$card:   routine to implement the Pascal function card *  
0000 36 :*    pas$getargs: routine to get compiler options settings *  
0000 37 :*    pas$extract, *  
0000 38 :*    pas$insert: routines for compile time variable field handling *  
0000 39 :*  
0000 40 :*    Written by: Jeff Scofield 10-Dec-78 *  
0000 41 :*                Hellmut Golde 15-Feb-79 *  
0000 42 :*                Jan Sanislo 22-Feb-79 *  
0000 43 :*  
0000 44 :*    Edit History: *  
0000 45 :*    01-002: Eliminate body of pas$entry for VMS V2.0. Leave the entry *  
0000 46 :*            point available for compatibility with older versions of *  
0000 47 :*            of the compiler. *  
0000 48 :*                                Paul Hohensee 21FEB80 *  
0000 49 :*  
0000 50 :*    01-003: multiply result of PASS$CLOCK by 10. *  
0000 51 :*                                Paul Hohensee 20-Jul-81 *  
0000 52 :*  
0000 53 :*****  
0000 54 :*    .title  pas$rt_util *  
0000 55 :*    .IDENT  'V04-000' *  
0000 56 :*    .psect _pas$code,pic,shr,exe,nowrt *  
0000 57 :
```

```

0000 58 : ROUTINE TO EXPAND STACK WHEN NECESSARY UPON PROCEDURE ENTRY
0000 59 :
0000 60 pas$entry::
05 0000 61     rsb           ; leave entry point for compatibility
0001 62 :
0001 63 :
0001 64 : ROUTINE TO IMPLEMENT THE PROCEDURE PASSUNWIND
0001 65 :
0001 66 Modified 5/22/79 - Restore correct SP in case of pathological goto
0001 67 Jan Sanislo
0001 68 :
0000 0001 69     .entry  pas$unwind,^m<>
      OC AD 50 D1 0003 70 loop:  cmpl   r0,12(fp)
      06 13 0007 71     beql   lastret
      1J AD F7 AF DE 0009 72     moval  loop,16(fp)
      04 000E 73     ret
10 AD 00000018'EF 9E 000F 74 lastret:
      04 0017 75     movab  fixsp,16(fp)
      0018 76     ret
      SE F4 AD D0 0018 77 :
      61 17 001C 78 fixsp:  movl   -12(fp),sp
      001E 79     jmp    (r1)
      001E 80 :
      001E 81 : ROUTINE TO IMPLEMENT THE PASCAL FUNCTION CLOCK
      001E 82 :
      001E 83     $jpicdef
0000 001E 84     .entry  pas$clock,^m<>
      00 DD 0020 85     pushl  #0           ; make room for returned cpu time
      0022 86 :
      0022 87 : Create request list on stack at -20(fp)
      0022 88 :
      7E 7C 0022 89     clrq   -(sp)           ; two zero longwords
      FC AD DF 0024 90     pushal -4(fp)           ; address of spot to get cpu time
      04070004 8F DD 0027 91     pushl  #<jpi$_cputim@16>!4 ; size and request words
      002D 92 :
      002D 93 : Push arguments and call sys$getjpi
      002D 94 :
      7E 7C 002D 95     clrq   -(sp)           ; arg6,arg7--null arguments
      00 DD 002F 96     pushl  #0           ; arg5--null argument
      EC AD DF 0031 97     pushal -20(fp)        ; arg4--address of request list
      7E 7C 0034 98     clrq   -(sp)           ; arg2,arg3--null arguments
      00 DD 0036 99     pushl  #0           ; arg1--null argument
00000000'GF 07 FB 0038 100    calls  #7,G^sys$getjpi ; get cpu time from system
      50 0A FC AD C5 003F 101    MULL3  -4(FP),#10,R0 ; multiply by 10 to get milliseconds
      04 0044 102    ret
      0045 103 :
      0045 104 : ROUTINE TO IMPLEMENT THE PASCAL FUNCTION CARD
      0045 105 :
003C 0045 106     .entry  pas$card,^m<r2,r3,r4,r5>
      50 D4 0047 107     clr    r0           ; clear return count
      51 D4 0049 108     clr    r1           ; clear starting position
      55 D4 004B 109     clr    r5           ; clear size comparison reg.
      52 04 AC D0 004D 110    movl   4(ap),r2        ; get length of set
      53 52 D0 0051 111    movl   r2,r3         ; into 3 registers
      54 52 D0 0054 112 10$:  movl   r2,r4
      20 54 D1 0057 113    cmpl   r4,#32         ; check size field
      06 15 005A 114    bleq   20$,           ; is ok.

```



PASRT\_UTIL  
Symbol table

F 4

16-SEP-1984 02:08:46 VAX/VMS Macro V04-00  
5-SEP-1984 02:32:39 [PASCAL.SRC]PASRT1.MAR;1

Page 4  
(1)

FIXSP	00000018	R	01
JPI\$ CPUTIM	= 00000407		
LASTRET	0000000F	R	01
LOOP	00000003	R	01
PASSCARD	00000045	RG	01
PASSCLOCK	0000001E	RG	01
PASSENTRY	00000000	RG	01
PASSEXTRACT	000000B8	RG	01
PAS\$GETARGS	0000007D	RG	01
PAS\$INSERT	000000AC	RG	01
PAS\$UNWIND	00000001	RG	01
SY\$GETJPI	*****	X	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
PAS\$CODE	000000C4 ( 196.)	01 ( 1.)	PIC USR CON REL LCL SHR EXE RD NOWRT NOVEC BYTE
SABSS	00000000 ( 0.)	02 ( 2.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE

-----  
! Performance indicators !  
-----

Phase	Page faults	CPU Time	Elapsed Time
Initialization	34	00:00:00.09	00:00:00.90
Command processing	135	00:00:00.50	00:00:02.14
Pass 1	128	00:00:01.66	00:00:03.55
Symbol table sort	0	00:00:00.10	00:00:00.09
Pass 2	45	00:00:00.53	00:00:01.10
Symbol table output	3	00:00:00.02	00:00:00.03
Psect synopsis output	3	00:00:00.02	00:00:00.02
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	351	00:00:02.92	00:00:07.84

The working set limit was 1050 pages.  
7791 bytes (16 pages) of virtual memory were used to buffer the intermediate code.  
There were 10 pages of symbol table space allocated to hold 120 non-local and 4 local symbols.  
157 source lines were read in Pass 1, producing 28 object records in Pass 2.  
8 pages of virtual memory were used to define 7 macros.

-----  
! Macro library statistics !  
-----

Macro library name	Macros defined
_\$255\$DUA28:[SYSLIB]STARLET.MLB;2	4

168 GETS were required to define 4 macros.

There were no errors, warnings or information messages.

PAS  
Sym  
  
ALL  
EXI  
EXI  
EXI  
EXP  
INP  
INS  
LAS  
LIB  
LIB  
LIN  
LIN  
LOC  
LOC  
MAR  
NES  
PAR  
PAS  
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POO  
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REM  
SET  
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\$AB  
\_PA  
\_PA  
  
Pha  
---  
Ini  
CON  
Pas  
Sym  
Pas  
Sym  
Pse  
Crc

PASSRT UTIL  
VAX-11 Macro Run Statistics

G 4

16-SEP-1984 02:08:46 VAX/VMS Macro V04-00  
5-SEP-1984 02:32:39 [PASCAL.SRC]PASRT1.MAR;1

Page 5  
(1)

MACRO/DISABLE=TRACE/LIS=LISS: PASRT1/OBJ=OBJ\$: PASRT1 MSRC\$: PASRT1/UPDATE=(ENH\$: PASRT1)

PAS  
VAX

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