


```

SSSSSSSS YY YY MM MM TTTTTTTTTT AAAAAA BBBB8888
SSSSSSSS YY YY MM MM TTTTTTTTTT AAAAAA BBBB8888
SS YY YY MMM MMM TT AA AA BB BB
SS YY YY MMM MMM TT AA AA BB BB
SS YY YY MM MM TT AA AA BB BB
SSSSSS YY YY MM MM TT AA AA BBBB8888
SSSSSS YY YY MM MM TT AA AA BBBB8888
SS YY YY MM MM TT AAAAAAAAAA BB BB
SS YY YY MM MM TT AAAAAAAAAA BB BB
SS YY YY MM MM TT AA AA BB BB
SSSSSS YY YY MM MM TT AA AA BBBB8888
SSSSSS YY YY MM MM TT AA AA BBBB8888

```

```

LL IIIIII SSSSSSSS
LL IIIIII SSSSSSSS
LL II SS
LL II SS
LL II SS
LL II SSSSSS
LL II SSSSSS
LL II SS
LL II SS
LL II SS
LLLLLLLLLL IIIIII SSSSSSSS
LLLLLLLLLL IIIIII SSSSSSSS

```

(2)	91	SYM ENTER SYMBOL INTO SYMBOL TABLE
(3)	134	MACRO TO ENTER SYMBOL INTO LINKED LIST FROM HASH TABLE
(4)	175	PERMANENT SYMBOL HASH TABLE
(5)	200	USER SYMBOL HASH TABLE
(6)	213	MACRO NAME HASH TABLE
(7)	227	PERMANENT SYMBOLS
(8)	258	PSECT OPTION TABLE
(9)	325	SPECIAL MACRO DIRECTIVE SYMBOLS
(10)	354	CROSS REFERENCE QUALIFIER VALUE OPTIONS
(11)	379	LIST/NLIST OPTION TABLE
(12)	423	ENABLE/DISABLE OPTIONS
(13)	495	SYMBOLS FOR .DEFAULT DIRECTIVE
(14)	515	OPCODE DEFINITIONS
(23)	987	DIRECTIVES

```

0000 1 .TITLE MACSSYMTAB PERMANENT SYMBOL TABLE
0000 2 .IDENT 'V04-000'
0000 3
0000 4
0000 5 *****
0000 6 *
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0000 24 *
0000 25 *
0000 26 *****
0000 27
0000 28
0000 29 **
0000 30 : FACILITY: VAX MACRO ASSEMBLER OBJECT LIBRARY
0000 31
0000 32 : ABSTRACT:
0000 33
0000 34 : The VAX-11 MACRO assembler translates MACRO-32 source code into object
0000 35 : modules for input to the VAX-11 LINKER.
0000 36
0000 37 : ENVIRONMENT: USER MODE
0000 38
0000 39 : AUTHOR: Benn Schreiber, CREATION DATE: 20-AUG-78
0000 40
0000 41 : MODIFIED BY:
0000 42
0000 43 : V03-001 MTR0031 Mike Rhodes 13-Apr-1983
0000 44 : Add .LINK directive to the directives symbol list.
0000 45
0000 46 : V02.20 MTR0001 Mike Rhodes 09-Nov-1981
0000 47 : Add new symbol block for /DEBUG parameter symbols.
0000 48 : The functions are the same as combinations of the
0000 49 : /Enable and /Disable qualifiers utilizing the DEBUG
0000 50 : and TRACEBACK parameters.
0000 51
0000 52 : V02.19 PCG0009 Peter George 28-Aug-1981
0000 53 : Delete multiple CLRG definition.
0000 54
0000 55 : V02.18 CNH0042 Chris Hume 28-Oct-1980
0000 56 : De-optimize boundary valued backward references if indexing
0000 57 : requested. Allow the architecturally legal immediate mode in

```

```

0000 58 : address and viold contexts and also the practically useless
0000 59 : indexed immediate mode.
0000 60 : (ACTREF.MAR 02.15, ACTSTA.MAR 02.15, DEFINE.MAR 02.17)
0000 61 :
0000 62 : V01.17 RN0014 R. Newland 10-Oct-1979
0000 63 : Support for G_floating, H_floating and Octaword datatypes
0000 64 :
0000 65 : V01.16 RN0013 R. Newland 27-Sep-1979
0000 66 : Add VEC attribute name to PSECT options
0000 67 :
0000 68 : V01.15 RN0005 R. Newland 12-Aug-1979
0000 69 : Variable symbol name storage
0000 70 :
0000 71 : V01.13 RN0004 R. Newland 15-Mar-1979
0000 72 : Insert CLRG, MOVAG and PUSHAG into opcode definitions
0000 73 :
0000 74 : V01.14 RN0006 R. Newland 21-Aug-1979
0000 75 : Insert .REPEAT into table of directives treated
0000 76 : specially within a macro body
0000 77 :
0000 78 : V01.12 RN0001 R. Newland 01-FEB-1979
0000 79 : Insert CVTDH and CVTGF into opcode definitions
0000 80 :
0000 81 :--
0000 82 :
0000 83 $MAC_GENVALDEF ;DEFINE COMMONLY USED SYMBOLS
0000 84 $MAC_SYMBLKDEF ;DEFINE SYMBOL BLOCK OFFSETS
0000 85 $MAC_CTLFLGDEF ;DEFINE FLAG BIT VALUES
0000 86 $MAC_CRFLAGDEF ;DEFINE CROSS REF FLAG BITS
0000 87 $MAC_GRAMMARDEF ;DEFINE VAX-11 MACRO TERMINAL GRAMMAR
0000 88 $MAC_ADRMODDEF ;DEFINE ADDRESSING MODES
0000 89 $MAC_OPRDEF ;DEFINE OPERAND DESCRIPTOR BITS

```

```

0000 91      .SBTTL SYM      ENTER SYMBOL INTO SYMBOL TABLE
0000 92
00000000 93      .PSECT MAC$PRMSYMTAB,GBL,NOEXE,NOWRT,LONG
0000 94      .NLIST ME
0000 95      :++
0000 96      SYM -- ENTER SYMBOL INTO SYMBOL TABLE
0000 97
0000 98      THE FOLLOWING MACRO IS USED TO CREATE THE INITIAL SYMBOL TABLE.
0000 99
0000 100     FORMAT IS:      SYM      SYMBOL_NAME,TOKEN<,VALUE><,<,SEGMENT><,<,FLG>
0000 101
0000 102     INPUTS:
0000 103
0000 104     SYMBOL_NAME    IS THE SYMSK_MAXLEN-CHARACTER OR LESS NAME
0000 105     TOKEN          IS THE TOKEN TO BE ENTERED
0000 106     VALUE          IS THE INITIAL VALUE
0000 107                    IF NO VALUE IS GIVEN, THE DEFAULT IS 0
0000 108     SEGMENT        IS THE SEGMENT TO DEFINE THE SYMBOL IN
0000 109     FLG            ARE THE INITIAL FLAGS (DEFAULT IS 0)
0000 110
0000 111     :--
0000 112
0000 113     .MACRO SYM      NME,      TKN=0,  VLE=0,  SEG=0,  FLG=0
0000 114     .NCHR SYMLN,<'NME>      ;DETERMINE SYMBOL LENGTH
0000 115     HASHVL = SYMLN
0000 116     .IRPC HASHCH, <'NME>
0000 117     HASHVL = HASHVL + ^A/HASHCH/ ;HASH THE SYMBOL
0000 118     .ENDR
0000 119
0000 120     HASHVL = HASHVL & HASHSZ      ;MASK DOWN TO HASH TABLE SIZE
0000 121
0000 122     .ASCIC /'NME/      ; Counted name string
0000 123
0000 124     ENTERSYM      \HASHVL      ;ENTER SYMBOL INTO TABLES
0000 125
0000 126     .LONG 0          ;LINK TO NEXT SYMBOL
0000 127     .BYTE SYMLN+1   ; Offset to name
0000 128     .LONG VLE
0000 129     .WORD FLG
0000 130     .BYTE TKN      ;TOKEN VALUE
0000 131     .BYTE SEG      ;SEGMENT
0000 132     .ENDM SYM

```

```

0000 134      .SBTTL  MACRO TO ENTER SYMBOL INTO LINKED LIST FROM HASH TABLE
0000 135
0000 136      :++
0000 137      :      ENTERSYM -- ENTER SYMBOL INTO LINKED LIST FROM HASH TABLE
0000 138      :
0000 139      : INPUTS:
0000 140      :
0000 141      :      HASHNM  HASH VALUE OF SYMBOL
0000 142      :
0000 143      : OUTPUTS:
0000 144      :
0000 145      :      SYMBOL IS LINKED INTO HASH BUCKET
0000 146      :
0000 147      :--
0000 148
0000 149      .MACRO  ENTERSYM          HASHNM
0000 150
0000 151      .PSECT  MAC$PRMSYMTAB,GBL,NOEXE,NOWRT,LONG
0000 152
0000 153      HASHPT = .                ;SAVE CURRENT LOCATION
0000 154
0000 155      .IF EQ C$'HASHNM
0000 156      .PSECT  MAC$PHASHTAB,GBL,NOEXE,NOWRT,LONG
0000 157      .=MAC$AL PRMHSHTB      ;RELOCATE TO START OF HASH TABLE
0000 158      .=.<HASHNM*4>        ;RELOCATE TO HASH POSITION IN HASH TABLE
0000 159      .LONG   HASHPT        ;POINT FROM HASH TABLE TO SYMBOL
0000 160      .IFF
0000 161      .=$$'HASHNM + SYM$SL_LINK ; Relocate to previous symbol linkage
0000 162      .LONG   HASHPT        ;POINT FROM LAST SYMBOL IN CHAIN
0000 163      .=.-SYM$SL_LINK      ; Point to base of entry
0000 164      .ENDC
0000 165
0000 166      C$'HASHNM = C$'HASHNM + 1    ;COUNT ENTRIES IN BUCKET
0000 167
0000 168      .PSECT  MAC$PRMSYMTAB,GBL,NOEXE,NOWRT,LONG
0000 169      .=HASHPT                ;RELOCATE BACK TO END OF FREE STORAGE
0000 170      $$'HASHNM = .          ;UPDATE LINKED LIST POINTER
0000 171
0000 172      .ENDM  ENTERSYM
0000 173

```

```

0000 175      .SBTTL PERMANENT SYMBOL HASH TABLE
0000 176
0000 177 :
0000 178 : THIS CODE INITIALIZES THE PERMANENT SYMBOL TABLE WHICH CONTAINS
0000 179 : THE NAMES OF ALL DIRECTIVES AND MACHINE INSTRUCTIONS. THIS CODE
0000 180 : ALSO INITIALIZES THE VARIABLES USED BY THE ASSEMBLER TO CONSTRUCT
0000 181 : THE INITIAL HASH TABLE ENTRIES.
0000 182 :
00000000 183      .PSECT MAC$PHASHTAB,GBL,NOEXE,NOWRT,LONG
0000 184
0000 185 MAC$AL_PRMHSHTB::      ;START OF HASH TABLE
0000 186
00000000 0000 187 XXX=0      ; DUMMY COUNTER
0000 188
0000 189      .REPT  HASHSZ+1
0000 190      .NLIST
0000 191      .IRP  XX,\XXX
0000 192      .BLKL  1      ;ALLOCATE HASH ENTRY
0000 193      C$'XX= 0      ;CLEAR HASH INDEX
0000 194      .ENDR
0000 195      XXX=XXX+1      ;MOVE TO NEXT SYMBOL
0000 196      .LIST
0200 198

```



```
0200 200 .SBTTL USER SYMBOL HASH TABLE
0200 201
0200 202 :
0200 203 : THE USER SYMBOL TABLE CONSISTS OF ALL SYMBOLS (EXCEPT MACRO NAMES)
0200 204 : DEFINED BY THE USER. THE CODE BELOW INITIALIZES THIS TABLE TO BE
0200 205 : EMPTY. (IE. EACH OF THE HASH TABLE ENTRIES ARE ZEROED.)
0200 206 :
00000000 207 .PSECT MAC$USERHASHTAB,NOEXE,LONG
0000 208
0000 209 MAC$AL_USYHSHTB:: ;START OF USER HASH TABLE
0000 210
00000200 0000 211 .BLKL HASHSZ+1 ;ALLOCATE HASH TABLE
```

```
0200 213 .SBTTL MACRO NAME HASH TABLE
0200 214
0200 215 :
0200 216 : THE MACRO NAME TABLE CONTAINS THE NAMES OF ALL MACROS DEFINED BY
0200 217 : THE USER. THE CODE BELOW INITIALIZES THIS TABLE TO BE EMPTY.
0200 218 :
0200 219 :
00000000 220 .PSECT MAC$SRMACROHSH,NOEXE,LONG
0000 221
0000 222 MAC$AL_UMCHSHTB:: ;START OF MACRO NAME HASH TABLE
0000 223
00000200 0000 224 .BLKL HASHSZ+1 ;ALLOCATE HASH TABLE
0200 225
```

```

                0200 227      .SBTTL PERMANENT SYMBOLS
                0200 228
                0200 229 :
                0200 230 :
                0200 231 : THE PERMANENT SYMBOLS RESIDE IN THE 'MAC$PRMSYMTAB' PSECT.
                0200 232 :
                0200 233 :
                00000000 234      .PSECT MAC$PSECT_TAB,NOEXE,LONG
                0000 235
                00000000 0000 236 INSYMP = 0 ; START OF PSECT LIST
                0000 237
                2E 20 20 53 42 41 20 20 2E 00' 0000 238      .ASCIC /. ABS ./
                09 0000
                000A 239 PSECT$MAIN::
                00000000 000A 240      .LONG 0 ;LINK
                0A 000E 241      .BYTE 9+1 ; Offset to name
                00000000 000F 242      .LONG 0 ;MAX LENGTH
                0001 0013 243      .WORD SYM$M_DEF ;SYMBOL (PSECT) FLAGS
                00 00 0015 244      .BYTE 0,0 ;SEGMENT #0, UNUSED BYTE
                0000 0017 245      .WORD 0 ;PSECT OPTIONS
                00000000 0019 246      .LONG 0 ;CURRENT LOCATION COUNTER
                001D 247
                2E 20 4B 4E 41 4C 42 20 2E 00' 001D 248      .ASCIC /. BLANK ./
                09 001D
                0027 249 PSECT$BLANK::
                00000000 0027 250      .LONG 0 ;LINK
                0A 002B 251      .BYTE 9+1 ; Offset to name
                00000000 002C 252      .LONG 0 ;MAX LENGTH
                0001 0030 253      .WORD SYM$M_DEF ;SYMBOL (PSECT) FLAGS
                01 00 0032 254      .BYTE 0,1 ;UNUSED, SEGMENT # 1
                01CB 0034 255      .WORD PSC$M_DEFAULT ;PSECT DEFAULT OPTIONS
                00000000 0036 256      .LONG 0 ;CURRENT LOCATION COUNTER

```

```

003A 258 .SBTTL PSECT OPTION TABLE
003A 259
00000000 260 .PSECT MAC$PSC_OPTIONS,NOEXE,NOWRT,GBL,LONG
0000 261
0000 262 :
0000 263 : MASK DEFINITIONS
0000 264 :
0000 265
FFFF0000 0000 266 MSK_LH = ^XFFFF0000 ;MASK TO GET LH WORD ONLY
0000FFFF 0000 267 MSK_RH = ^XFFFF ;MASK TO GET RH WORD ONLY
00000010 0000 268 SHF_LH = 16 ;SHIFT COUNT TO LH WORD
80000000 0000 269 SIGN_BIT= ^X80000000 ;MASK FOR SIGN BIT
0000 270
00000000 0000 271 INSIMP = 0
0000 272
0000 273 $MAC_INSERT SYX PIC - ;POSITION INDEPENDENT CODE
0000 274 <<PSC$M_PIC&MSK_RH>+<PSC$M_PIC@SHF_LH>>
000D 275 $MAC_INSERT SYX NOPIC - ;NON-PIC CODE
000D 276 <<PSC$M_NOPIC&MSK_RH>+<<<PSC$M_NOPIC\SIGN_BIT>@SHF_LH>&MSK_LH>>
001C 277 $MAC_INSERT SYX LIB - ;UNIVERSAL
001C 278 <<PSC$M_LIB&MSK_RH>+<PSC$M_LIB@SHF_LH>>
0029 279 $MAC_INSERT SYXUSR - ;USER (NOT UNIVERSAL)
0029 280 <<PSC$M_USR&MSK_RH>+<<<<PSC$M_USR\SIGN_BIT>@SHF_LH>&MSK_LH>>
0036 281 $MAC_INSERT SYX OVR - ;OVERLAID
0036 282 <<PSC$M_OVR&MSK_RH>+<PSC$M_OVR@SHF_LH>>
0043 283 $MAC_INSERT SYX CON - ;CONCATENATED
0043 284 <<PSC$M_CON&MSK_RH>+<<<<PSC$M_CON\SIGN_BIT>@SHF_LH>&MSK_LH>>
0050 285 $MAC_INSERT SYX REL - ;RELOCATABLE
0050 286 <<PSC$M_REL&MSK_RH>+<PSC$M_REL@SHF_LH>>
005D 287 $MAC_INSERT SYX ABS - ;ABSOLUTE
005D 288 <<PSC$M_ABS&MSK_RH>+<<<<PSC$M_ABS\SIGN_BIT>@SHF_LH>&MSK_LH>>
006A 289 $MAC_INSERT SYX GBL - ;GLOBAL
006A 290 <<PSC$M_GBL&MSK_RH>+<PSC$M_GBL@SHF_LH>>
0077 291 $MAC_INSERT SYX LCL - ;LOCAL
0077 292 <<PSC$M_LCL&MSK_RH>+<<<<PSC$M_LCL\SIGN_BIT>@SHF_LH>&MSK_LH>>
0084 293 $MAC_INSERT SYX SHR - ;SHAREABLE
0084 294 <<PSC$M_SHR&MSK_RH>+<PSC$M_SHR@SHF_LH>>
0091 295 $MAC_INSERT SYX NOSHR - ;NON-SHAREABLE
0091 296 <<PSC$M_NOSHR&MSK_RH>+<<<<PSC$M_NOSHR\SIGN_BIT>@SHF_LH>&MSK_LH>>
00A0 297 $MAC_INSERT SYX EXE - ;EXECUTABLE
00A0 298 <<PSC$M_EXE&MSK_RH>+<<PSC$M_EXE\PSC$M_RD>@SHF_LH>>
00AD 299 $MAC_INSERT SYX NOEXE - ;NON-EXECUTABLE
00AD 300 <<PSC$M_NOEXE&MSK_RH>+<<<<PSC$M_NOEXE\SIGN_BIT>@SHF_LH>&MSK_LH>>
00BC 301 $MAC_INSERT SYX RD - ;READABLE
00BC 302 <<PSC$M_RD&MSK_RH>+<PSC$M_RD@SHF_LH>>
00C8 303 $MAC_INSERT SYX NORD - ;NOT READABLE
00C8 304 <<PSC$M_NORD&MSK_RH>+<<<<PSC$M_NORD\SIGN_BIT>@SHF_LH>&MSK_LH>>
00D6 305 $MAC_INSERT SYX WRT - ;WRITEABLE
00D6 306 <<PSC$M_WRT&MSK_RH>+<<PSC$M_WRT\PSC$M_RD>@SHF_LH>>
00E3 307 $MAC_INSERT SYX NOWRT - ;NOT WRITEABLE
00E3 308 <<PSC$M_NOWRT&MSK_RH>+<<<<PSC$M_NOWRT\SIGN_BIT>@SHF_LH>&MSK_LH>>
00F2 309 $MAC_INSERT SYX BYTE - ;BYTE ALIGNMENT
00F2 310 <<PSC$M_BYTE&MSK_RH>+<PSC$M_BYTE@SHF_LH>>
0100 311 $MAC_INSERT SYX WORD - ;WORD ALIGNMENT
0100 312 <<PSC$M_WORD&MSK_RH>+<PSC$M_WORD@SHF_LH>>
010E 313 $MAC_INSERT SYX LONG - ;LONGWORD ALIGNMENT
010E 314 <<PSC$M_LONG&MSK_RH>+<PSC$M_LONG@SHF_LH>>

```

011C	315	\$MAC_INSERT_SYX QUAD -	: QUADWORD ALIGNMENT
011C	316	<<PSCSM_QUAD&MSK_RH>+<PSCSM_QUAD@SHF_LH>>	
012A	317	\$MAC_INSERT_SYX PAGE -	: PAGE ALIGNMENT
012A	318	<<PSCSM_PAGE&MSK_RH>+<PSCSM_PAGE@SHF_LH>>	
0138	319	\$MAC_INSERT_SYX VEC -	
0138	320	<<PSCSM_VEC&MSK_RH>+<PSCSM_VEC@SHF_LH>>	
0145	321	\$MAC_INSERT_SYX NOVEC -	
0145	322	<<PSCSM_NOVEC&MSK_RH>+<<<PSCSM_NOVEC\SIGN_BIT>@SHF_LH>&MSK_LH>>,-	
0145	323	PSC&G_OPTIONS	

```

0154 325 .SBTTL SPECIAL MACRO DIRECTIVE SYMBOLS
0154 326
0154 327
0154 328 :: THE FOLLOWING DIRECTIVES ARE TREATED SPECIAL WHEN THEY ARE ENCOUNTERED
0154 329 :: WHILE SCANNING A MACRO BODY TO LOAD IT INTO MEMORY. THE ARGUMENT IS
0154 330 :: THE NAME OF THE ROUTINE TO CALL.
0154 331 ::
0154 332
00000000 333 .PSECT MAC$PRMSYMTAB,GBL,NOEXE,NOWRT,LONG
0000 334
00000000 0000 335 INSYMP = 0 ; START OF LIST
0000 336
0000 337 $MAC_INSERT_SYX .ERROR, MAC$SET_ALL_CHR ::.ERROR WITHIN MACRO DEF
0010 338 $MAC_INSERT_SYX .WARN, MAC$SET_ALL_CHR ::.WARN WITHIN MACRO DEF
001F 339 $MAC_INSERT_SYX .PRINT, MAC$SET_ALL_CHR ::.PRINT WITHIN MACRO DEF
002F 340 $MAC_INSERT_SYX .ASCII, MAC$SET_ALL_CHR ::.ASCII WITHIN MACRO DEF
003F 341 $MAC_INSERT_SYX .ASCIZ, MAC$SET_ALL_CHR ::.ASCIZ WITHIN MACRO DEF
004F 342 $MAC_INSERT_SYX .ASCIC, MAC$SET_ALL_CHR ::.ASCIC WITHIN MACRO DEF
005F 343 $MAC_INSERT_SYX .ASCID, MAC$SET_ALL_CHR ::.ASCID WITHIN MACRO DEF
006F 344 $MAC_INSERT_SYX .REPT, MAC$MAC_IN_MAC ::.REPT
007E 345 $MAC_INSERT_SYX .REPEAT, MAC$MAC_IN_MAC ::.REPEAT
008F 346 $MAC_INSERT_SYX .IRP, MAC$MAC_IN_MAC ::.IRP
009D 347 $MAC_INSERT_SYX .IRPC, MAC$MAC_IN_MAC ::.IRPC
00AC 348 $MAC_INSERT_SYX .ENDR, MAC$MAC_DEF_END ::.ENDR
00BB 349 $MAC_INSERT_SYX .END, MAC$MAC_DEF_END ::.END
00C9 350 $MAC_INSERT_SYX .MACRO, MAC$MAC_IN_MAC ::.MACRO
00D9 351 $MAC_INSERT_SYX .ENDM, MAC$MAC_DEF_END, -; .ENDM
00D9 352 MAC$G_SPLMC_DIR

```

```

00E8 354      .SBTTL CROSS REFERENCE QUALIFIER VALUE OPTIONS
00E8 355
00E8 356      :++
00E8 357      : THE /CROSS QUALIFIER WILL TAKE THE FOLLOWING VALUES:
00E8 358      :
00E8 359      :     ALL          ALL VALUES FOLLOWING
00E8 360      :     DIRECTIVES  CREF DIRECTIVES
00E8 361      :     MACROS      MACROS
00E8 362      :     OPCODES    OPCODES
00E8 363      :     REGISTERS  REGISTERS
00E8 364      :     SYMBOLS    SYMBOLS
00E8 365      :
00E8 366      :--
00E8 367
00000000 00E8 368      INSYMP =      0
00E8 369
00E8 370      $MAC_INSERT_SYX ALL,-
00E8 371      CRF$M_DIR!CRF$M_MACROS!CRF$M_OPCODES!CRF$M_REGISTERS!CRF$M_SYMBOLS ;ALL OF THEM
00F5 372      $MAC_INSERT_SYX DIRECTIVES,CRF$M_DIR ;DIRECTIVES
0109 373      $MAC_INSERT_SYX MACROS,CRF$M_MACROS ;MACROS
0119 374      $MAC_INSERT_SYX OPCODES,CRF$M_OPCODES ;OPCODES
012A 375      $MAC_INSERT_SYX REGISTERS,CRF$M_REGISTERS ;REGISTERS
013D 376      $MAC_INSERT_SYX NONE,CRF$M_MACROS!CRF$M_SYMBOLS ;/CROSS W/NO VALUES
014B 377      $MAC_INSERT_SYX SYMBOLS,CRF$M_SYMBOLS,MAC$CRF_OPTIONS ;SYMBOLS

```

```

015C 379 .SBTTL LIST/NLIST OPTION TABLE
015C 380
00000000 381 .PSECT MAC$ENBDSABLTAB,NOEXE,LONG
0000 382
FFFFFFFF 0000 383 ENABLE = -1
00000000 0000 384 DISABLE = 0
0000 385
0000 386
0000 387 : LISTING CONTROL DIRECTIVES. THE VALUE IS THE INITIAL SWITCH SETTING
0000 388
0000 389
0000 390 : NOTE: THE SYM$B TOKEN FIELD IS USED INTERNALLY TO STORE THE INITIAL
0000 391 : SETTING OF EACH OPTION (TRUE OF ENABLE OPTIONS ALSO). THESE
0000 392 : ARE SET UP IN PASS 1 AND THE SYM$L VAL FIELD IS RESET FROM THE
0000 393 : TOKEN FIELD AT THE BEGINNING OF PASS 2.
0000 394
00000000 0000 395 INSYMP = 0
0000 396
0000 397 $MAC_INSERT_SYM CND, ENABLE, 1, LST$G_CONDITION ; Conditional code
0011 398 :
0011 399 $MAC_INSERT_SYM MD, ENABLE, 2, LST$G_MACRODEF ; Macro defintions
0021 400 :
0021 401 $MAC_INSERT_SYM MC, ENABLE, 4, LST$G_MACROCALL ; Macro calls
0031 402 :
0031 403 $MAC_INSERT_SYM ME, DISABLE,8, LST$G_MACROXPAN ; Macro expansions
0041 404 :
0041 405 $MAC_INSERT_SYM MEB, DISABLE,16,LST$G_MACROBIN ; Macro binary code
0052 406 :
00000045 0052 407 LST$G_DIRLIST == LST$G_MACROBIN ;START OF TABLE
0052 408
0052 409 : LONG FORMS OF THE LISTING CONTROL DIRECTIVES. THE VALUE CONTAINED
0052 410 : IS A POINTER TO ONE OF THE ABOVE NAME BLOCKS.
0052 411 :
00000000 0052 412 INSYMP = 0
0052 413
0052 414 $MAC_INSERT_SYX NONE, 0 ;SPECIAL FOR /SHOW
0060 415 ;WITH NO VALUE
0060 416 $MAC_INSERT_SYX CONDITIONALS, LST$G_CONDITION ;CONDITIONAL CODE
0076 417 $MAC_INSERT_SYX DEFINITIONS, LST$G_MACRODEF ;MACRO DEFINITIONS
008B 418 $MAC_INSERT_SYX CALLS, LST$G_MACROCALL ;MACRO CALLS
009A 419 $MAC_INSERT_SYX EXPANSIONS, LST$G_MACROXPAN ;MACRO EXPANSIONS
00AE 420 $MAC_INSERT_SYX BINARY, LST$G_MACROBIN,-; Macro expansions
00AE 421 LST$G_LONGNAMES

```



```

00BE 423      .SBTTL  ENABLE/DISABLE OPTIONS
00BE 424
00BE 425      :
00BE 426      : ENABLE/DISABLE OPTIONS.  VALUE IS INITIAL SETTING.
00BE 427      :
00BE 428
00000000 00BE 429      INSYMP = 0
00BE 430
00BE 431      $MAC_INSERT_SYM  AMA, DISABLE, 256,- ; Absolute addressing
00BE 432      ENB$G_ABSADDR
00CF 433      :
00CF 434      $MAC_INSERT_SYM  FPT, DISABLE, 512,- ; Floating point truncation
00CF 435      ENB$G_FLPTRUNC
00E0 436      :
00E0 437      $MAC_INSERT_SYM  LSB, DISABLE, 0,- ; Local symbol block
00E0 438      ENB$G_LOCALSYMB
00F1 439      :
00F1 440      $MAC_INSERT_SYM  DBG, DISABLE, 2048,- ; Debugger symbol generation
00F1 441      ENB$G_DEBUG
0102 442      :
0102 443      $MAC_INSERT_SYM  GBL, ENABLE, 4096,- ; Undefined to externals
0102 444      ENB$G_GLOBAL
0113 445      :
0113 446      $MAC_INSERT_SYM  TBK, ENABLE, 8192,- ; Traceback/debug info output
0113 447      ENB$G_TRACEBACK
0124 448      :
0124 449      $MAC_INSERT_SYM  SUP, DISABLE, 16384,- ; Suppress of unreferenced symbols
0124 450      ENB$G_SUPPRESS
00000128 0135 451      :
0135 452      ENB$G_OPTIONS == ENB$G_SUPPRESS ;START OF TABLE
0135 453      :
0135 454      : LONG FORMS OF THE ENABLE OPTIONS.  THE VALUE CONTAINED
0135 455      : IS A POINTER TO ONE OF THE ABOVE NAME BLOCKS.
0135 456      :
00000000 0135 457      INSYMP = 0
0135 458
0135 459      $MAC_INSERT_SYX NONE, 0 ;SPECIAL FOR GETCMD
0143 460      ;(NEEDED FOR /ENABLE
0143 461      ;WITH NO VALUES)
0143 462      $MAC_INSERT_SYX ABSOLUTE, ENB$G_ABSADDR ;ABSOLUTE ADDRESSING
0155 463      $MAC_INSERT_SYX TRUNCATION, ENB$G_FLPTRUNC ;FLOATING POINT TRUNCATION
0169 464      $MAC_INSERT_SYX LOCAL_BLOCK, ENB$G_LOCALSYMB ;LOCAL SYMBOL BLOCK
017E 465      $MAC_INSERT_SYX DEBUG, ENB$G_DEBUG ;DEBUGGER SYMBOL GENERATION
018D 466      $MAC_INSERT_SYX TRACEBACK, ENB$G_TRACEBACK ;DEBUG/TRACEBACK INFO
01A0 467      $MAC_INSERT_SYX SUPPRESSION, ENB$G_SUPPRESS ;SUPPRESS UNREFERENCED SYMBO
01B5 468      $MAC_INSERT_SYX GLOBAL, ENB$G_GLOBAL,- ; Undefined globals
01B5 469      ENB$G_LONGNAMES
01C5 470
01C5 471      :
01C5 472      : LONG FORMS OF THE DEBUG OPTIONS.  THE VALUE CONTAINED IS AN INDEX USED
01C5 473      : TO SELECTIVELY SET AND/OR CLEAR COMBINATIONS OF THE DEBUG/TRACEBACK FLAGS
01C5 474      : SPECIFIED IN THE ENABLE/DISABLE OPTIONS TABLE ABOVE.  THE CORRESPONDING
01C5 475      : BITS IN MAC$GL_ENLISF ARE ALSO SET/CLEARED AS REQUIRED.
01C5 476      :
00000000 01C5 477
01C5 478      INSYMP - 0
01C5 479

```

```
01C5 480 $MAC_INSERT_SYX ALL, 3 ;ENABLE BOTH DBG AND TBK
01D2 481 $MAC_INSERT_SYX TRACEBACK, 2 ;ENABLE TBK DISABLE DBG
01E5 482 $MAC_INSERT_SYX SYMBOLS, 1 ;ENABLE DBG DISABLE TBK
01F6 483 $MAC_INSERT_SYX NONE, 0,- ;DISABLE BOTH DBG AND TBK
01F6 484 DBG$G_LONGNAMES
0204 485
0204 486 :
0204 487 : : NAMES FOR LOCAL SYMBOL BLOCK OPTION TO THE .PSECT_SAVE DIRECTIVE
0204 488 :
00000000 0204 489 INSYMP = 0
0204 490
0204 491 $MAC_INSERT_SYX LSB,0 ;ALLOW "LSB"
0211 492 $MAC_INSERT_SYX LOCAL_BLOCK,0,- ; or "LOCAL_BLOCK"
0211 493 MAC$G_LSBNAM
```

```
0226 495 .SBTTL SYMBOLS FOR .DEFAULT DIRECTIVE
0226 496
0226 497
0226 498 : THE .DEFAULT DIRECTIVE TAKES AN ARGUMENT DESCRIBING WHAT IS
0226 499 : BEING DEFAULTED.
0226 500 :
00000000 0226 501 INSYMP = 0
0226 502
0226 503 $MAC_INSERT_SYX DISPLACEMENT,0,- : PC-displacement
0226 504 MAC$DFLT_LIST
023C 505
023C 506 :
023C 507 : THE DISPLACEMENT CAN BE 'BYTE', 'WORD', OR 'LONG'
023C 508 : THE VALUE IS THE INDEX (1-3) INTO A TABLE.
023C 509 :
00000000 023C 510 INSYMP = 0
023C 511 $MAC_INSERT_SYX LONG, 3 ;LONGWORD--4 BYTES
024A 512 $MAC_INSERT_SYX WORD, 2 ;WORD--2 BYTES
0258 513 $MAC_INSERT_SYX BYTE, 1,MAC$DSPL_ARGS ;BYTE--1 BYTE
```


Address	Opcode	Symbol	Hex	Op1	Op2	Op3	Op4	Op5	Op6
016A	580	;++							
016A	581	::							
016A	582	::							
016A	583	::							
00000CA1	016A	584	BB==OPD\$M_BB	:DEFINE BRANCH BYTE					
000000C2	016A	585	BW==OPD\$M_BW	:DEFINE BRANCH WORD					
016A	586								
016A	587	OPDEF	HALT	<<<0>>>					
017C	588	OPDEF	NOP	<<<1>>>					
018D	589	OPDEF	REI	<<<2>>>					
019E	590	OPDEF	BPT	<<<3>>>					
01AF	591	OPDEF	RET	<<<4>>>					
01C0	592	OPDEF	RSB	<<<5>>>					
01D1	593	OPDEF	LDPCTX	<<<6>>>					
01E5	594	OPDEF	SVPCTX	<<<7>>>					
01F9	595								
01F9	596	OPDEF	CVTSP	<<<^X8>>>	<RW	AB	RW	AB>	
0214	597	OPDEF	CVTSP	<<<^X9>>>	<RW	AB	RW	AB>	
022F	598	OPDEF	INDEX	<<<^XA>>>	<RL	RL	RL	RL	RL WL>
024E	599	OPDEF	CRC	<<<^XB>>>	<AB	RL	RW	AB>	
0267	600	OPDEF	PROBER	<<<^XC>>>	<RB	RW	AB>		
0281	601	OPDEF	PROBEW	<<<^XD>>>	<RB	RW	AB>		
029B	602	OPDEF	INSQUE	<<<^XE>>>	<AB	AB>			
02B3	603	OPDEF	REMQUE	<<<^XF>>>	<AB	WL>			
02CB	604								
02CB	605	OPDEF	BSBB	<<<^X10>>>	BB				
02DF	606	OPDEF	BSB	<<<^X10>>>	BB				
02F2	607	OPDEF	BRB	<<<^X11>>>	BB				
0305	608	OPDEF	BNEQ	<<<^X12>>>	BB				
0319	609	OPDEF	BNEQU	<<<^X12>>>	BB				
032E	610	OPDEF	BEQL	<<<^X13>>>	BB				
0342	611	OPDEF	BEQLU	<<<^X13>>>	BB				
0357	612	OPDEF	BGTR	<<<^X14>>>	BB				
036B	613	OPDEF	BLEQ	<<<^X15>>>	BB				
037F	614	OPDEF	JSB	<<<^X16>>>	AB				
0392	615	OPDEF	JMP	<<<^X17>>>	AB				
03A5	616								
03A5	617	OPDEF	BGEQ	<<<^X18>>>	BB				
03B9	618	OPDEF	BLSS	<<<^X19>>>	BB				
03CD	619	OPDEF	BGTRU	<<<^X1A>>>	BB				
03E2	620	OPDEF	BLEQU	<<<^X1B>>>	BB				
03F7	621	OPDEF	BVC	<<<^X1C>>>	BB				
040A	622	OPDEF	BVS	<<<^X1D>>>	BB				
041D	623	OPDEF	BGEQU	<<<^X1E>>>	BB				
0432	624	OPDEF	BCC	<<<^X1E>>>	BB				
0445	625	OPDEF	BLSSU	<<<^X1F>>>	BB				
045A	626	OPDEF	BCS	<<<^X1F>>>	BB				
046D	627								
046D	628	OPDEF	ADDP4	<<<^X20>>>	<RW	AB	RW	AB>	
0488	629	OPDEF	ADDP	<<<^X20>>>	<RW	AB	RW	AB>	
04A2	630	OPDEF	ADDP6	<<<^X21>>>	<RW	AB	RW	AB>	RW AB>
04C1	631	OPDEF	SUBP4	<<<^X22>>>	<RW	AB	RW	AB>	
04DC	632	OPDEF	SUBP	<<<^X22>>>	<RW	AB	RW	AB>	
04F6	633	OPDEF	SUBP6	<<<^X23>>>	<RW	AB	RW	AB>	RW AB>
0515	634	OPDEF	CVTPT	<<<^X24>>>	<RW	AB	AB	RW	AB>
0532	635	OPDEF	MULP	<<<^X25>>>	<RW	AB	RW	AB	RW AB>
0550	636	OPDEF	CVTTP	<<<^X26>>>	<RW	AB	AB	RW	AB>

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0A09	693	OPDEF	MOVF	<<<^X50>>>	<RF	WF>			
0A1F	694	OPDEF	CMPF	<<<^X51>>>	<RF	RF>			
0A35	695	OPDEF	MNEGF	<<<^X52>>>	<RF	WF>			
0A4C	696	OPDEF	TSTF	<<<^X53>>>	RF				
0A60	697	OPDEF	EMODF	<<<^X54>>>	<RF	RB	RF	WL	WF>
0A7D	698	OPDEF	POLYF	<<<^X55>>>	<RF	RW	AB>		
0A96	699	OPDEF	CVTFD	<<<^X56>>>	<RF	WD>			
0AAD	700	:	RESERVED	57					
0AAD	701	:							
0AAD	702	OPDEF	ADAWI	<<<^X58>>>	<RW	MW>			
0AC4	703	:	RESERVED	59					
0AC4	704	:	RESERVED	5A					
0AC4	705	:	RESERVED	5B					
0AC4	706	OPDEF	INSQHI	<<<^X5C>>>	<AB	AQ>			
0ADC	707	OPDEF	INSQTI	<<<^X5D>>>	<AB	AQ>			
0AF4	708	OPDEF	REMQHI	<<<^X5E>>>	<AQ	WL>			
0B0C	709	OPDEF	REMQTI	<<<^X5F>>>	<AQ	WL>			
0B24	710	:							
0B24	711	OPDEF	ADDD2	<<<^X60>>>	<RD	MD>			
0B3B	712	OPDEF	ADDD	<<<^X60>>>	<RD	MD>			
0B51	713	OPDEF	ADDD3	<<<^X61>>>	<RD	RD	WD>		
0B6A	714	OPDEF	SUBD2	<<<^X62>>>	<RD	MD>			
0B81	715	OPDEF	SUBD	<<<^X62>>>	<RD	MD>			
0B97	716	OPDEF	SUBD3	<<<^X63>>>	<RD	RD	WD>		
0BB0	717	OPDEF	MULD2	<<<^X64>>>	<RD	MD>			
0BC7	718	OPDEF	MULD	<<<^X64>>>	<RD	MD>			
0BDD	719	OPDEF	MULD3	<<<^X65>>>	<RD	RD	WD>		
0BF6	720	OPDEF	DIVD2	<<<^X66>>>	<RD	MD>			
0C0D	721	OPDEF	DIVD	<<<^X66>>>	<RD	MD>			
0C23	722	OPDEF	DIVD3	<<<^X67>>>	<RD	RD	WD>		
0C3C	723	:							
0C3C	724	OPDEF	CVTDB	<<<^X68>>>	<RD	WB>			
0C53	725	OPDEF	CVTDW	<<<^X69>>>	<RD	WW>			
0C6A	726	OPDEF	CVTDL	<<<^X6A>>>	<RD	WL>			
0C81	727	OPDEF	CVTRDL	<<<^X6B>>>	<RD	WL>			
0C99	728	OPDEF	CVTBD	<<<^X6C>>>	<RB	WD>			
0CB0	729	OPDEF	CVTWD	<<<^X6D>>>	<RW	WD>			
0CC7	730	OPDEF	CVTLD	<<<^X6E>>>	<RL	WD>			
0CDE	731	OPDEF	ACBD	<<<^X6F>>>	<RD	RD	MD	BW>	
0CF8	732	:							
0CF8	733	OPDEF	MOVD	<<<^X70>>>	<RD	WD>			
0DOE	734	OPDEF	CMFD	<<<^X71>>>	<RD	RD>			
0D24	735	OPDEF	MNEGD	<<<^X72>>>	<RD	WD>			
0D3B	736	OPDEF	TSTD	<<<^X73>>>	RD				
0D4F	737	OPDEF	EMODD	<<<^X74>>>	<RD	RB	RD	WL	WD>
0D6C	738	OPDEF	POLYD	<<<^X75>>>	<RD	RW	AB>		
0D85	739	OPDEF	CVTDF	<<<^X76>>>	<RD	WF>			
0D9C	740	:	RESERVED	77					

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0D9C	742	OPDEF	ASHL	<<<^X78>>>	<RB	RL	WL>	
0DB4	743	OPDEF	ASHQ	<<<^X79>>>	<RB	RQ	WQ>	
0DCC	744	OPDEF	EMUL	<<<^X7A>>>	<RL	RL	RL	WQ>
0DE6	745	OPDEF	EDIV	<<<^X7B>>>	<RL	RQ	WL	WL>
0E00	746	OPDEF	CLRQ	<<<^X7C>>>	WQ			
0E14	747	OPDEF	CLRD	<<<^X7C>>>	WD			
0E28	748	OPDEF	CLRG	<<<^X7C>>>	WG			
0E3C	749	OPDEF	MOVQ	<<<^X7D>>>	<RQ	WQ>		
0E52	750	OPDEF	MOVAQ	<<<^X7E>>>	<AQ	WL>		
0E69	751	OPDEF	MOVAD	<<<^X7E>>>	<AD	WL>		
0E80	752	OPDEF	MOVAG	<<<^X7E>>>	<AG	WL>		
0E97	753	OPDEF	PUSHAQ	<<<^X7F>>>	AQ			
0EAD	754	OPDEF	PUSHAD	<<<^X7F>>>	AD			
0EC3	755	OPDEF	PUSHAG	<<<^X7F>>>	AG			
0ED9	756							
0ED9	757	OPDEF	ADDB2	<<<^X80>>>	<RB	MB>		
0EF0	758	OPDEF	ADDB	<<<^X80>>>	<RB	MB>		
0F06	759	OPDEF	ADDB3	<<<^X81>>>	<RB	RB	WB>	
0F1F	760	OPDEF	SUBB2	<<<^X82>>>	<RB	MB>		
0F36	761	OPDEF	SUBB	<<<^X82>>>	<RB	MB>		
0F4C	762	OPDEF	SUBB3	<<<^X83>>>	<RB	RB	WB>	
0F65	763	OPDEF	MULB2	<<<^X84>>>	<RB	MB>		
0F7C	764	OPDEF	MULB	<<<^X84>>>	<RB	MB>		
0F92	765	OPDEF	MULB3	<<<^X85>>>	<RB	RB	WB>	
0FAB	766	OPDEF	DIVB2	<<<^X86>>>	<RB	MB>		
0FC2	767	OPDEF	DIVB	<<<^X86>>>	<RB	MB>		
0FD8	768	OPDEF	DIVB3	<<<^X87>>>	<RB	RB	WB>	
0FF1	769							
0FF1	770	OPDEF	BISB2	<<<^X88>>>	<RB	MB>		
1008	771	OPDEF	BISB	<<<^X88>>>	<RB	MB>		
101E	772	OPDEF	BISB3	<<<^X89>>>	<RB	RB	WB>	
1037	773	OPDEF	BICB2	<<<^X8A>>>	<RB	MB>		
104E	774	OPDEF	BICB	<<<^X8A>>>	<RB	MB>		
1064	775	OPDEF	BICB3	<<<^X8B>>>	<RB	RB	WB>	
107D	776	OPDEF	XORB2	<<<^X8C>>>	<RB	MB>		
1094	777	OPDEF	XORB	<<<^X8C>>>	<RB	MB>		
10AA	778	OPDEF	XORB3	<<<^X8D>>>	<RB	RB	WB>	
10C3	779	OPDEF	MNEGB	<<<^X8E>>>	<RB	WB>		
10DA	780	OPDEF	CASEB	<<<^X8F>>>	<RB	RB	RB>	
10F3	781							
10F3	782	OPDEF	MOVB	<<<^X90>>>	<RB	WB>		
1109	783	OPDEF	CMPB	<<<^X91>>>	<RB	RB>		
111F	784	OPDEF	MCOMB	<<<^X92>>>	<RB	WB>		
1136	785	OPDEF	BITB	<<<^X93>>>	<RB	RB>		
114C	786	OPDEF	CLRB	<<<^X94>>>	WB			
1160	787	OPDEF	TSTB	<<<^X95>>>	RB			
1174	788	OPDEF	INCB	<<<^X96>>>	MB			
1188	789	OPDEF	DECB	<<<^X97>>>	MB			
119C	790							
119C	791	OPDEF	CVTBL	<<<^X98>>>	<RB	WL>		
11B3	792	OPDEF	CVTBW	<<<^X99>>>	<RB	WW>		
11CA	793	OPDEF	MOVZBL	<<<^X9A>>>	<RB	WL>		
11E2	794	OPDEF	MOVZBW	<<<^X9B>>>	<RB	WW>		
11FA	795	OPDEF	ROTL	<<<^X9C>>>	<RB	RL	RL>	
1212	796	OPDEF	ACBB	<<<^X9D>>>	<RB	RB	MB	BW>
122C	797	OPDEF	MOVAB	<<<^X9E>>>	<AB	WL>		
1243	798	OPDEF	PUSHAB	<<<^X9F>>>	AB			

1259	800	OPDEF	ADDW2	<<<^XA0>>>	<RW	MW>	
1270	801	OPDEF	ADDW	<<<^XA0>>>	<RW	MW>	
1286	802	OPDEF	ADDW3	<<<^XA1>>>	<RW	RW	WW>
129F	803	OPDEF	SUBW2	<<<^XA2>>>	<RW	MW>	
1286	804	OPDEF	SUBW	<<<^XA2>>>	<RW	MW>	
12CC	805	OPDEF	SUBW3	<<<^XA3>>>	<RW	RW	WW>
12E5	806	OPDEF	MULW2	<<<^XA4>>>	<RW	MW>	
12FC	807	OPDEF	MULW	<<<^XA4>>>	<RW	MW>	
1312	808	OPDEF	MULW3	<<<^XA5>>>	<RW	RW	WW>
132B	809	OPDEF	DIVW2	<<<^XA6>>>	<RW	MW>	
1342	810	OPDEF	DIVW	<<<^XA6>>>	<RW	MW>	
1358	811	OPDEF	DIVW3	<<<^XA7>>>	<RW	RW	WW>
1371	812						
1371	813	OPDEF	BISW2	<<<^XA8>>>	<RW	MW>	
1388	814	OPDEF	BISW	<<<^XA8>>>	<RW	MW>	
139E	815	OPDEF	BISW3	<<<^XA9>>>	<RW	RW	WW>
13B7	816	OPDEF	BICW2	<<<^XAA>>>	<RW	MW>	
13CE	817	OPDEF	BICW	<<<^XAA>>>	<RW	MW>	
13E4	818	OPDEF	BICW3	<<<^XAB>>>	<RW	RW	WW>
13FD	819	OPDEF	XORW2	<<<^XAC>>>	<RW	MW>	
1414	820	OPDEF	XORW	<<<^XAC>>>	<RW	MW>	
142A	821	OPDEF	XORW3	<<<^XAD>>>	<RW	RW	WW>
1443	822	OPDEF	MNEGW	<<<^XAE>>>	<RW	WW>	
145A	823	OPDEF	CASEW	<<<^XAF>>>	<RW	RW	RW>
1473	824						
1473	825	OPDEF	MOVW	<<<^XB0>>>	<RW	WW>	
1489	826	OPDEF	CMPW	<<<^XB1>>>	<RW	RW>	
149F	827	OPDEF	MCOMW	<<<^XB2>>>	<RW	WW>	
14B6	828	OPDEF	BITW	<<<^XB3>>>	<RW	RW>	
14CC	829	OPDEF	CLRW	<<<^XB4>>>	WW		
14E0	830	OPDEF	TSTW	<<<^XB5>>>	RW		
14F4	831	OPDEF	INCW	<<<^XB6>>>	MW		
1508	832	OPDEF	DECW	<<<^XB7>>>	MW		
151C	833						
151C	834	OPDEF	BISPSW	<<<^XB8>>>	RW		
1532	835	OPDEF	BICPSW	<<<^XB9>>>	RW		
1548	836	OPDEF	POPR	<<<^XBA>>>	RW		
155C	837	OPDEF	PUSHR	<<<^XBB>>>	RW		
1571	838	OPDEF	CHMK	<<<^XBC>>>	RW		
1585	839	OPDEF	CHME	<<<^XBD>>>	RW		
1599	840	OPDEF	CHMS	<<<^XBE>>>	RW		
15AD	841	OPDEF	CHMU	<<<^XBF>>>	RW		
15C1	842						
15C1	843	OPDEF	ADDL2	<<<^XC0>>>	<RL	ML>	
15D8	844	OPDEF	ADDL	<<<^XC0>>>	<RL	ML>	
15EE	845	OPDEF	ADDL3	<<<^XC1>>>	<RL	RL	WL>
1607	846	OPDEF	SUBL2	<<<^XC2>>>	<RL	ML>	
161E	847	OPDEF	SUBL	<<<^XC2>>>	<RL	ML>	
1634	848	OPDEF	SUBL3	<<<^XC3>>>	<RL	RL	WL>
164D	849	OPDEF	MULL2	<<<^XC4>>>	<RL	ML>	
1664	850	OPDEF	MULL	<<<^XC4>>>	<RL	ML>	
167A	851	OPDEF	MULL3	<<<^XC5>>>	<RL	RL	WL>
1693	852	OPDEF	DIVL2	<<<^XC6>>>	<RL	ML>	
16AA	853	OPDEF	DIVL	<<<^XC6>>>	<RL	ML>	
16C0	854	OPDEF	DIVL3	<<<^XC7>>>	<RL	RL	WL>

16D9	856	OPDEF	BISL2	<<<^XC8>>>	<RL	ML>		
16F0	857	OPDEF	BISL	<<<^XC8>>>	<RL	ML>		
1706	858	OPDEF	BISL3	<<<^XC9>>>	<RL	RL	WL>	
171F	859	OPDEF	BICL2	<<<^XCA>>>	<RL	ML>		
1736	860	OPDEF	BICL	<<<^XCA>>>	<RL	ML>		
174C	861	OPDEF	BICL3	<<<^XCB>>>	<RL	RL	WL>	
1765	862	OPDEF	XORL2	<<<^XCC>>>	<RL	ML>		
177C	863	OPDEF	XORL	<<<^XCC>>>	<RL	ML>		
1792	864	OPDEF	XORL3	<<<^XCD>>>	<RL	RL	WL>	
17AB	865	OPDEF	MNEGL	<<<^XCE>>>	<RL	WL>		
17C2	866	OPDEF	CASEL	<<<^XCF>>>	<RL	RL	RL>	
17DB	867							
17DB	868	OPDEF	MOVL	<<<^XD0>>>	<RL	WL>		
17F1	869	OPDEF	CMPL	<<<^XD1>>>	<RL	RL>		
1807	870	OPDEF	MCOML	<<<^XD2>>>	<RL	WL>		
181E	871	OPDEF	BITL	<<<^XD3>>>	<RL	RL>		
1834	872	OPDEF	CLRL	<<<^XD4>>>	WL			
1848	873	OPDEF	CLRF	<<<^XD4>>>	WF			
185C	874	OPDEF	TSTL	<<<^XD5>>>	RL			
1870	875	OPDEF	INCL	<<<^XD6>>>	ML			
1884	876	OPDEF	DECL	<<<^XD7>>>	ML			
1898	877							
1898	878	OPDEF	ADWC	<<<^XD8>>>	<RL	ML>		
18AE	879	OPDEF	SBWC	<<<^XD9>>>	<RL	ML>		
18C4	880	OPDEF	MTPR	<<<^XDA>>>	<RL	RL>		
18DA	881	OPDEF	MFPR	<<<^XDB>>>	<RL	WL>		
18F0	882	OPDEF	MOVPSL	<<<^XDC>>>	WL			
1906	883	OPDEF	PUSHL	<<<^XDD>>>	RL			
191B	884	OPDEF	POPL	<<<^XED0>>>	WL			
192F	885	OPDEF	MOVAL	<<<^XDE>>>	<AL	WL>		
1946	886	OPDEF	MOVAF	<<<^XDE>>>	<AF	WL>		
195D	887	OPDEF	PUSHAL	<<<^XDF>>>	AL			
1973	888	OPDEF	PUSHAF	<<<^XDF>>>	AF			
1989	889							
1989	890	OPDEF	BBS	<<<^XE0>>>	<RL	VB	BB>	
19A0	891	OPDEF	BBC	<<<^XE1>>>	<RL	VB	BB>	
19B7	892	OPDEF	BBSS	<<<^XE2>>>	<RL	VB	BB>	
19CF	893	OPDEF	BBCS	<<<^XE3>>>	<RL	VB	BB>	
19E7	894	OPDEF	BBSC	<<<^XE4>>>	<RL	VB	BB>	
19FF	895	OPDEF	BBCC	<<<^XE5>>>	<RL	VB	BB>	
1A17	896	OPDEF	BBSSI	<<<^XE6>>>	<RL	VB	BB>	
1A30	897	OPDEF	BBCCI	<<<^XE7>>>	<RL	VB	BB>	
1A49	898							
1A49	899	OPDEF	BLBS	<<<^XE8>>>	<RL	BB>		
1A5F	900	OPDEF	BLBC	<<<^XE9>>>	<RL	BB>		
1A75	901	OPDEF	FFS	<<<^XEA>>>	<RL	RB	VB	WL>
1A8E	902	OPDEF	FFC	<<<^XEB>>>	<RL	RB	VB	WL>
1AA7	903	OPDEF	CMPV	<<<^XEC>>>	<RL	RB	VB	RL>
1AC1	904	OPDEF	CMPZV	<<<^XED>>>	<RL	RB	VB	RL>
1ADC	905	OPDEF	EXTV	<<<^XEE>>>	<RL	RB	VB	WL>
1AF6	906	OPDEF	EXTZV	<<<^XEF>>>	<RL	RB	VB	WL>

1B11	908	OPDEF	INSV	<<<^XF0>>>	<RL	RL	RB	VB>				
1B2B	909	OPDEF	ACBL	<<<^XF1>>>	<RL	RL	ML	BW>				
1B45	910	OPDEF	AOBLSS	<<<^XF2>>>	<RL	ML	BB>					
1B5F	911	OPDEF	AOBLEQ	<<<^XF3>>>	<RL	ML	BB>					
1B79	912	OPDEF	SOBGEQ	<<<^XF4>>>	<ML	BB>						
1B91	913	OPDEF	SOBGTR	<<<^XF5>>>	<ML	BB>						
1BA9	914	OPDEF	CVTLB	<<<^XF6>>>	<RL	WB>						
1BC0	915	OPDEF	CVTLW	<<<^XF7>>>	<RL	WW>						
1BD7	916											
1BD7	917	OPDEF	ASHP	<<<^XF8>>>	<RB	RW	AB	RB	RW	AB>		
1BF5	918	OPDEF	CVTLP	<<<^XF9>>>	<RL	RW	AB>					
1C0E	919	OPDEF	CALLG	<<<^XFA>>>	<AB	AB>						
1C25	920	OPDEF	CALLS	<<<^XFB>>>	<RL	AB>						
1C3C	921	OPDEF	XFC	<<<^XFC>>>								
1C4D	922	OPDEF	ESCD	<<<^XFD>>>								
1C5F	923	OPDEF	ESCE	<<<^XFE>>>								
1C71	924	OPDEF	ESCF	<<<^XFF>>>								
1C83	925	OPDEF	BUGW	<<<^XFEFF>>>								
1C95	926	OPDEF	BUGL	<<<^XFDFF>>>								
1CA7	927	OPDEF	CVTDH	<<<^X32FD>>>	<RD	WH>						
1CBE	928	OPDEF	CVTGF	<<<^X33FD>>>	<RG	WF>						
1CD5	929	OPDEF	ADDG2	<<<^X40FD>>>	<RG	MG>						
1CEC	930	OPDEF	ADDG3	<<<^X41FD>>>	<RG	RG	WG>					
1D05	931	OPDEF	SUBG2	<<<^X42FD>>>	<RG	MG>						
1D1C	932	OPDEF	SUBG3	<<<^X43FD>>>	<RG	RG	MG>					
1D35	933	OPDEF	MULG2	<<<^X44FD>>>	<RG	MG>						
1D4C	934	OPDEF	MULG3	<<<^X45FD>>>	<RG	RG	WG>					
1D65	935	OPDEF	DIVG2	<<<^X46FD>>>	<RG	MG>						
1D7C	936	OPDEF	DIVG3	<<<^X47FD>>>	<RG	RG	WG>					
1D95	937	OPDEF	ADDH2	<<<^X60FD>>>	<RH	MH>						
1DAC	938	OPDEF	ADDH3	<<<^X61FD>>>	<RH	RH	WH>					
1DC5	939	OPDEF	SUBH2	<<<^X62FD>>>	<RH	MH>						
1DDC	940	OPDEF	SUBH3	<<<^X63FD>>>	<RH	RH	WH>					
1DF5	941	OPDEF	MULH2	<<<^X64FD>>>	<RH	MH>						
1E0C	942	OPDEF	MULH3	<<<^X65FD>>>	<RH	RH	WH>					
1E25	943	OPDEF	DIVH2	<<<^X66FD>>>	<RH	MH>						
1E3C	944	OPDEF	DIVH3	<<<^X67FD>>>	<RH	RH	WH>					
1E55	945	OPDEF	CVTGB	<<<^X48FD>>>	<RG	WB>						
1E6C	946	OPDEF	CVTGW	<<<^X49FD>>>	<RG	WW>						
1E83	947	OPDEF	CVTGL	<<<^X4AFD>>>	<RG	WL>						
1E9A	948	OPDEF	CVTRGL	<<<^X4BFD>>>	<RG	WL>						
1EB2	949	OPDEF	CVTBG	<<<^X4CFD>>>	<RB	WG>						
1EC9	950	OPDEF	CVTWG	<<<^X4DFD>>>	<RW	WG>						
1EE0	951	OPDEF	CVTLG	<<<^X4EFD>>>	<RL	WG>						
1EF7	952	OPDEF	ACBG	<<<^X4FFD>>>	<RG	RG	MG	BW>				
1F11	953	OPDEF	CVTHB	<<<^X68FD>>>	<RH	WB>						
1F28	954	OPDEF	CVTHW	<<<^X69FD>>>	<RH	WW>						
1F3F	955	OPDEF	CVTHL	<<<^X6AFD>>>	<RH	WL>						
1F56	956	OPDEF	CVTRHL	<<<^X6BFD>>>	<RH	WL>						
1F6E	957	OPDEF	CVTBH	<<<^X6CFD>>>	<RB	WH>						
1F85	958	OPDEF	CVTWH	<<<^X6DFD>>>	<RW	WH>						
1F9C	959	OPDEF	CVTLH	<<<^X6EFD>>>	<RL	WH>						
1FB3	960	OPDEF	ACBH	<<<^X6FFD>>>	<RH	RH	MH	BW>				
1FCD	961	OPDEF	MOVG	<<<^X50FD>>>	<RG	WG>						
1FE3	962	OPDEF	CMPG	<<<^X51FD>>>	<RG	RG>						
1FF9	963	OPDEF	MNEGG	<<<^X52FD>>>	<RG	WG>						
2010	964	OPDEF	TSTG	<<<^X53FD>>>	RG							

PERMANENT SYMBOL TABLE
OPCODE DEFINITIONS

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VAX/VMS Macro V04-00
[MACRO.SRC]SYMTAB.MAR;1

2024	965	OPDEF	EMODG	<<<^X54FD>>>	<RG	RW	RG	WL	WG>
2041	966	OPDEF	POLYG	<<<^X55FD>>>	<RG	RW	AB>		
205A	967	OPDEF	CVTGH	<<<^X56FD>>>	<RG	WH>			
2071	968	OPDEF	MOVH	<<<^X70FD>>>	<RH	WH>			
2087	969	OPDEF	CMPH	<<<^X71FD>>>	<RH	RH>			
209D	970	OPDEF	MNEGH	<<<^X72FD>>>	<RH	WH>			
20B4	971	OPDEF	TSTH	<<<^X73FD>>>	RH				
20C8	972	OPDEF	EMODH	<<<^X74FD>>>	<RH	RW	RH	WL	WH>
20E5	973	OPDEF	POLYH	<<<^X75FD>>>	<RH	RW	AB>		
20FE	974	OPDEF	CVTHG	<<<^X76FD>>>	<RH	WG>			
2115	975	OPDEF	CLRH	<<<^X7CFD>>>	WH				
2129	976	OPDEF	CLRO	<<<^X7CFD>>>	WO				
213D	977	OPDEF	MOVO	<< ^X7DFD>>>	<RO	WO>			
2153	978	OPDEF	MOVAH	<<<^X7EFD>>>	<AH	WL>			
216A	979	OPDEF	MOVAO	<<<^X7EFD>>>	<AO	WL>			
2181	980	OPDEF	PUSHAH	<<<^X7FFD>>>	AH				
2197	981	OPDEF	PUSHAO	<<<^X7FFD>>>	AO				
21AD	982	OPDEF	CVTFH	<<<^X98FD>>>	<RF	WH>			
21C4	983	OPDEF	CVTFG	<<<^X99FD>>>	<RF	WG>			
21DB	984	OPDEF	CVTHF	<<<^XF6FD>>>	<RH	WF>			
21F2	985	OPDEF	CVTHD	<<<^XF7FD>>>	<RH	WD>			

```

2209 987 .SBTTL DIRECTIVES
2209 988 :
2209 989 : LISTED BELOW ARE THE DIRECTIVES FOR THE MARS LANGUAGE.
2209 990 :
2209 991 :
2209 992 :
2209 993 SYM .ADDRESS, KADDRESS
221F 994 SYM .ALIGN, KALIGN
2233 995 SYM .ASCIC, KASCIC
2247 996 SYM .ASCID, KASCID
225B 997 SYM .ASCII, KASCII
226F 998 SYM .ASCIZ, KASCIZ
2283 999 SYM .BLKA, KBLKA
2296 1000 SYM .BLKB, KBLKB
22A9 1001 SYM .BLKD, KBLKD
22BC 1002 SYM .BLKF, KBLKF
22CF 1003 SYM .BLKG, KBLKG
22E2 1004 SYM .BLKH, KBLKH
22F5 1005 SYM .BLKL, KBLKL
2308 1006 SYM .BLKO, KBLKO
231B 1007 SYM .BLKQ, KBLKQ
232E 1008 SYM .BLKW, KBLKW
2341 1009 SYM .BYTE, KBYTE
2354 1010 SYM .CROSS, KCROSS
2368 1011 SYM .DEBUG, KDEBUG
237C 1012 SYM .DEFAULT, KDFLT
2392 1013 SYM .DISABLE, KDSABL
23A8 1014 SYM .DOUBLE, KDOUBLE
23BD 1015 SYM .DSABL, KDSABL
23D1 1016 SYM .D FLOATING, KDOUBLE
23EA 1017 SYM .ENABL, KENABL
23FE 1018 SYM .ENABLE, KENABL
2413 1019 SYM .END, KEND
2425 1020 SYM .ENDC, KENDC
2438 1021 SYM .ENDM, KENDM
244B 1022 SYM .ENDR, KENDR
245E 1023 SYM .ENTRY, KENTRY
2472 1024 SYM .ERROR, KERROR
2486 1025 SYM .EVEN, KEVEN
2499 1026 SYM .EXTERNAL, KEXTRN
24BC 1027 SYM .EXTRN, KEXTRN
24C4 1028 SYM .FLOAT, KFLOAT
24D8 1029 SYM .FIELD, KFIELD
24D8 1030 SYM .F FLOATING, KFLOAT
24F1 1031 SYM .GLOBAL, KGLOBL
2506 1032 SYM .GLOBL, KGLOBL
251A 1033 SYM .G FLOATING, KGFLOAT
2533 1034 SYM .H FLOATING, KHFLOAT
254C 1035 SYM .IDENT, KIDENT
2560 1036 SYM .IF, KIF
2571 1037 SYM .IFF, KIFF
2583 1038 SYM .IF FALSE, KIFF
259A 1039 SYM .IFT, KIFT
25AC 1040 SYM .IF TRUE, KIFT
25C2 1041 SYM .IFTF, KIFTF
25D5 1042 SYM .IF TRUE FALSE, KIFTF
25F1 1043 SYM .IIF, RIIF

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2603	1044	SYM	.IRPC,	KIRPC
2616	1045	SYM	.IRP,	KIRP
2628	1046	SYM	.LIBRARY,	KLIBRARY
263E	1047	SYM	.LINK,	KLINK
2651	1048	SYM	.LIST,	KLIST
2664	1049	SYM	.LONG,	KLONG
2677	1050	SYM	.MACRO,	KMACRO
268B	1051	SYM	.MASK,	KVECTOR
269E	1052	SYM	.MDELÉTE,	KMDELETE
26B4	1053	SYM	.MCALL,	KMCALL
26C8	1054	SYM	.MEXIT,	KMEXIT
26DC	1055	SYM	.NARG,	KNARG
26EF	1056	SYM	.NCHR,	KNCHR
2702	1057	SYM	.NLIST,	KNLIST
2716	1058	SYM	.NOCROSS,	KNCROS
272C	1059	SYM	.NOSHOW,	KNLIST
2741	1060	SYM	.NTYPE,	KNTYPE
2755	1061	SYM	.OCTA,	KOCTA
2768	1062	SYM	.ODD,	KODD
277A	1063	SYM	.OPDEF,	KOPDEF
278E	1064	SYM	.PACKED,	KPACKED
27A3	1065	SYM	.PAGE,	KPAGE
27B6	1066	SYM	.PRINT,	KPRINT
27CA	1067	SYM	.PSECT,	KPSECT
27DE	1068	SYM	.QUAD,	KQUAD
27F1	1069	SYM	.REF1,	KREF1
2804	1070	SYM	.REF2,	KREF2
2817	1071	SYM	.REF4,	KREF4
282A	1072	SYM	.REF8,	KREF8
283D	1073	SYM	.REF16,	KREF16
2851	1074	SYM	.REPEAT,	KREPT
2866	1075	SYM	.REPT,	KREPT
2879	1076	SYM	.RESTORE,	KRESTORE
288F	1077	SYM	.RESTORE PSECT,	KRESTORE
28AB	1078	SYM	.SAVE,	RSAVE
28BE	1079	SYM	.SAVE PSECT,	KSAVE
28D7	1080	SYM	.SBTTC,	KSBTTL
28EB	1081	SYM	.SHOW,	KLIST
28FE	1082	SYM	.SIGNED_BYTE,	KSGNB
2918	1083	SYM	.SIGNED_WORD,	KSGNW
2932	1084	SYM	.SUBTITLE,	KSBTTL
2949	1085	SYM	.TITLE,	KTITLE
295D	1086	SYM	.TRANSFER,	KXFER
2974	1087	SYM	.WARN,	KWARN
2987	1088	SYM	.WEAK,	KWEAK
299A	1089	SYM	.WORD,	KWORD
29AD	1090	SYM	.VECTOR,	KVECTOR
29C?	1091			
29C2	1092	.END		

MACSSYMTAB V04-000 B 13 16-SEP-1984 01:54:17 5-SEP-1984 01:49:57 VAX/VMS Macro V04-00 [MACRO.SRC]SYMTAB.MAR;1 Page 29 (23)

\$COUNT = 00000002
 AB = 00000001
 AD = 0000C008
 ADMS_ABSOLUTE = 00000002
 ADMS_BYTE_DISP = 0000000A
 ADMS_DFBYTEDISP = 0000000B
 ADMS_DFLONGDISP = 0000000F
 ADMS_DFRAUTOINC = 00000009
 ADMS_DFWORDDISP = 0000000D
 ADMS_IMMEDIATE = 00000001
 ADMS_INDEX = 00000004
 ADMS_LITERAL = 00000000
 ADMS_LONG_DISP = 0000000E
 ADMS_MAXMOD = 0000000F
 ADMS_PIC = 00000003
 ADMS_REGAUTODEC = 00C00007
 ADMS_REGAUTOINC = 00000008
 ADMS_REGISTER = 00000005
 ADMS_RRIND = 00000006
 ADMS_WORD_DISP = 0000000C
 AF = 00008004
 AG = 0000A008
 AH = 00009010
 AL = 00000004
 AO = 00000010
 AQ = 00000008
 ARG\$K_SIZE = 000003E8
 AUD\$K_SIZE = 00000010
 AW = 00000002
 B = 00000001
 BB = 000000A1
 BLNK = 00000020
 BW = 000000C2
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 C\$116 = 00000003
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G

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 C\$97 = 00000006
 C\$98 = 00000006
 C\$99 = 00000006
 CHR\$M_COMMA_CR = 00000020
 CHR\$M_ILL_CR = 00000040
 CHR\$M_NUM_BER = 00000010
 CHR\$M_SPA_MSK = 00000001
 CHR\$M_SYM_CH1 = 00000008
 CHR\$M_SYM_CHR = 00000004
 CHR\$M_SYM_DLM = 00000002
 CHR\$V_COMMA_CR = 00000005
 CHR\$V_CVTLWC = 00000061
 CHR\$V_ILL_CR = 00000006

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CHR\$V_NOCVT = 0000007F
 CHR\$V_NUM_BER = 00000004
 CHR\$V_SPA_MSK = 00000000
 CHR\$V_SYM_CH1 = 00000003
 CHR\$V_SYM_CHR = 00000002
 CHR\$V_SYM_DLM = 00000001
 CR = 0000000D
 CRFSM_DEFAULT = 00000012
 CRFSM_DIR = 00000001
 CRFSM_MACROS = 00000002
 CRFSM_OPCODES = 00000004
 CRFSM_REGISTERS = 00000008
 CRFSM_SYMBOLS = 00000010
 CRFSV_DIR = 00000000
 CRFSV_MACROS = 00000001
 CRFSV_OPCODES = 00000002
 CRFSV_REGISTERS = 00000003
 CRFSV_SYMBOLS = 00000004
 D = 0000C008
 DAND = 0000001D
 DANGCLS = 00000016
 DANGOPN = 00000015
 DAT = 00000020
 DBG\$G_LONGNAMES = 000001FB RG 09
 DBUP = 0000002B
 DCLS = 00000018
 DCOLON = 00000010
 DCOMMA = 0000000F
 DDIV = 0000001C
 DEOL = 0000000B
 DEQ = 00000011
 DGUP = 0000002C
 DINTEGER = 00000022
 DISABLE = 00000000
 DIUP = 0000002D
 DLUP = 0000002E
 DMASK = 00000032
 DMINUS = 0000001A
 DOPCODE = 0000000E
 DOPN = 00000017
 DOR = 0000001E
 DPC = 00000012
 DPLUS = 00000019
 DPOUND = 00000021
 DSQCLS = 00000014
 DSQOPN = 00000013
 DSUP = 0000002F
 DTIMES = 0000001B
 DUPA = 00000023
 DUPB = 00000024
 DUPC = 00000025
 DUPD = 00000026
 DUPF = 00000028
 DUPM = 00000029
 DUPO = 00000027
 DUPX = 0000002A
 DWUP = 00000030

DXOR = 0000001F
 ENABLE = FFFFFFFF
 ENB\$G_ABSADDR = 000000C2 RG 09
 ENB\$G_DEBUG = 000000F5 RG 09
 ENB\$G_FLPTRUNC = 000000D3 RG 09
 ENB\$G_GLOBAL = 00000106 RG 09
 ENB\$G_LOCALSYMB = 000000E4 RG 09
 ENB\$G_LONGNAMES = 000001BC RG 09
 ENB\$G_OPTIONS = 00000128 RG 09
 ENB\$G_SUPPRESS = 00000128 RG 09
 ENB\$G_TRACEBACK = 00000117 RG 09
 ERRO1 = 00000001
 ERRO2 = 00000002
 ERRO3 = 00000003
 ERRO4 = 00000004
 ERRO5 = 00000005
 ERRO6 = 00000006
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 ERRO9 = 00000009
 F = 00008004
 FF = 0000000C
 FLG\$M_ALLCHR = 00000001
 FLG\$M_BOL = 00000002
 FLG\$M_CHKLPND = 00100000
 FLG\$M_COMPEXPR = 00000004
 FLG\$M_CONT = 00000008
 FLG\$M_CRF = 40000000
 FLG\$M_CRSEEN = 00000001
 FLG\$M_DATRPT = 00000010
 FLG\$M_DBGOUT = 00004000
 FLG\$M_DLMSTR = 00008000
 FLG\$M_ENDMCH = 00000020
 FLG\$M_EVALEXPR = 00000040
 FLG\$M_EXPOPT = 00000080
 FLG\$M_EXTERR = 00010000
 FLG\$M_FXTWRN = 00020C00
 FLG\$M_FIRSTLN = 00000200
 FLG\$M_IFSTAT = 00800000
 FLG\$M_IIF = 00400000
 FLG\$M_INSERT = 00000100
 FLG\$M_IRPC = 20000000
 FLG\$M_LEXOP = 00000002
 FLG\$M_LSTXST = 00000200
 FLG\$M_MAC2COL = 00000800
 FLG\$M_MACL = 00000800
 FLG\$M_MACLTB = 08000000
 FLG\$M_MACTXT = 00010000
 FLG\$M_MEBLST = 00001000
 FLG\$M_MOREARG = 00002000
 FLG\$M_MOREINP = 00000008
 FLG\$M_NEWPND = 00000400
 FLG\$M_NOREF = 01000000
 FLG\$M_NTTYPEPC = 00000020
 FLG\$M_NULCHR = 00040000
 FLG\$M_OBJXST = 00200000
 FLG\$M_OPNDCHK = 00000100

FLG\$M_OPRND = 00002000
 FLG\$M_OPTVFLIDX = 00001000
 FLG\$M_ORDLST = 00020000
 FLG\$M_P2 = 00004000
 FLG\$M_RPTIRP = 10000000
 FLG\$M_SEQFIL = 02000000
 FLG\$M_SKAN = 00008000
 FLG\$M_SPECOP = 00000004
 FLG\$M_SPLALL = 04000000
 FLG\$M_STOIMF = 00040000
 FLG\$M_SYM2COL = 00000400
 FLG\$M_TOCFLG = 00080000
 FLG\$M_UPAFLG = 00000010
 FLG\$M_UPDFIL = 00000080
 FLG\$M_UPMARG = 00000040
 FLG\$M_XCRF = 80000000
 FLG\$V_ALLCHR = 00000000
 FLG\$V_BOL = 00000001
 FLG\$V_CHKLPND = 00000014
 FLG\$V_COMPEXPR = 00000002
 FLG\$V_CONT = 00000003
 FLG\$V_CRF = 0000001E
 FLG\$V_CRSEEN = 00000020
 FLG\$V_DATRPT = 00000004
 FLG\$V_DBGOUT = 0000002E
 FLG\$V_DLMSTR = 0000002F
 FLG\$V_ENDMCH = 00000005
 FLG\$V_EVALEXPR = 00000006
 FLG\$V_EXPOPT = 00000007
 FLG\$V_EXTERR = 00000030
 FLG\$V_FXTWRN = 00000031
 FLG\$V_FIRSTLN = 00000029
 FLG\$V_IFSTAT = 00000017
 FLG\$V_IIF = 00000016
 FLG\$V_INSERT = 00000008
 FLG\$V_IRPC = 0000001D
 FLG\$V_LEXOP = 00000021
 FLG\$V_LSTXST = 00000009
 FLG\$V_MAC2COL = 0000002B
 FLG\$V_MACL = 0000000B
 FLG\$V_MACLTB = 0000001B
 FLG\$V_MACTXT = 00000010
 FLG\$V_MEBLST = 0000000C
 FLG\$V_MOREARG = 0000002D
 FLG\$V_MOREINP = 00000023
 FLG\$V_NEWPND = 0000000A
 FLG\$V_NOREF = 00000018
 FLG\$V_NTTYPEPC = 00000025
 FLG\$V_NULCHR = 00000032
 FLG\$V_OBJXST = 00000015
 FLG\$V_OPNDCHK = 00000028
 FLG\$V_OPRND = 0000000D
 FLG\$V_OPTVFLIDX = 0000002C
 FLG\$V_ORDLST = 00000011
 FLG\$V_P2 = 0000000E
 FLG\$V_RPTIRP = 0000001C
 FLG\$V_SEQFIL = 00000019

MAC\$SYMTAB
Symbol table

PERMANENT SYMBOL TABLE

E 13

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5-SEP-1984 01:49:57 [MACRO.SRC]SYMTAB.MAR;1

Page 32
(23)

FLGSV_SKAN = 0000000F
 FLGSV_SPECOP = 00000022
 FLGSV_SPLALL = 0000001A
 FLGSV_STOIMF = 00000012
 FLGSV_SYM2COL = 0000002A
 FLGSV_TOCLG = 00000013
 FLGSV_UPAFLG = 00000024
 FLGSV_UPDFIL = 00000027
 FLGSV_UPMARG = 00000026
 FLGSV_XCRF = 0000001F
 G = 0000A008
 GOALSY = 0000000A
 H = 00009010
 HASHPT = 000029B5 R 03
 HASHSZ = 0000007F
 HASHVL = 00000008
 HYPHEN = 0000002D
 ID = 0000000C
 INPSK_BUFSIZ = 000003E8
 INSYM = 00000004
 INSYMP = 0000025D R 09
 INSYTM = 0000025D R 09
 INTSK_BUFSIZ = 000013F4
 INTSK_BUFWRN = 00001390
 KADDRESS = 00000037
 KALIGN = 0000005A
 KASCIC = 00000033
 KASCID = 00000078
 KASCII = 00000034
 KASCIZ = 00000035
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 KBLKH = 0000007F
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 KBLKO = 00000080
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 KCROSS = 00000079
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 KDFLT = 0000007B
 KDOUBLE = 00000039
 KDSABL = 00000056
 KENABL = 00000057
 KEND = 00000076
 KENDC = 0000004E
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 KENDR = 0000004F
 KENTRY = 00000058
 KERROR = 00000071
 KEVEN = 0000005B
 KEXTRN = 0000005D
 KFIELD = 0000003A
 KFLOAT = 0000003B

KGFLOAT = 00000081
 KGLOBL = 0000005E
 KHFLOAT = 00000082
 KIDENT = 0000006A
 KIF = 00000046
 KIFF = 00000048
 KIFT = 00000049
 KIFTF = 0000004A
 KIIF = 00000047
 KINCLUDE = 0000005F
 KIRP = 0000004B
 KIRPC = 0000004C
 KLIBRARY = 00000060
 KLINK = 00000085
 KLIST = 00000061
 KLONG = 0000003C
 KMACRO = 00000050
 KMCALL = 00000051
 KMDELETE = 00000054
 KMEXIT = 00000052
 KNARG = 00000063
 KNCHR = 00000064
 KNCROS = 0000007A
 KNLIST = 00000062
 KNTYPE = 00000074
 KOCTA = 00000083
 KODD = 0000005C
 KOPDEF = 00000075
 KPACKED = 00000036
 KPAGE = 00000065
 KPRINT = 00000072
 KPSECT = 00000066
 KQUAD = 0000003D
 KREF1 = 0000006D
 KREF16 = 00000084
 KREF2 = 0000006E
 KREF4 = 0000006F
 KREF8 = 00000070
 KREPT = 0000004D
 KRESTORE = 00000067
 KSAVE = 00000068
 KSBTTL = 0000006B
 KSGNB = 0000007C
 KSGNW = 0000007D
 KTITLE = 00000069
 KVECTOR = 00000059
 KWARN = 00000073
 KWEAK = 0000006C
 KWORD = 0000003E
 KXFER = 00000077
 L = 00000004
 LST\$G_CONDITION = 00000004 RG 09
 LST\$G_DIRLIST = 00000045 RG 09
 LST\$G_LONGNAMES = 000000B5 RG 09
 LST\$G_MACROBIN = 00000045 RG 09
 LST\$G_MACROCALL = 00000024 RG 09
 LST\$G_MACRODEF = 00000014 RG 09

LST\$G_MACROXPAN = 00000034 RG 09
 LST\$K_BUFSIZ = 00000086
 LST\$K_L_P_PAGE = 0000003C
 LST\$K_TITLE_SIZ = 00000028
 MAC\$AL_PRMHSHTB = 00000000 RG 04
 MAC\$AL_UMHSHTB = 00000000 RG 06
 MAC\$AL_UCYHSHTB = 00000000 RG 05
 MAC\$AW_ILLMODTB = 0000015C RG 03
 MAC\$CRF_OPTIONS = 00000153 RG 03
 MAC\$DFLT_LIST = 00000233 RG 09
 MAC\$DSPL_ARGS = 0000025D RG 09
 MAC\$G_LSNAM = 0000021D RG 09
 MAC\$G_SPLMC_DIR = 000000DF RG 03
 MAC\$MAC_DEF_END = ***** X 03
 MAC\$MAC_IN_MAC = ***** X 03
 MAC\$SET_ALL_CHR = ***** X 03
 MACTXT = 0000000D
 MAC_SUBSYS = 0000007D
 MB = 00000041
 MD = 0000C048
 MF = 00008044
 MG = 0000A048
 MH = 00009050
 ML = 00000044
 MO = 00000050
 MQ = 00000048
 MSK_LH = FFFF0000
 MSK_RH = 0000FFFF
 MW = 00000042
 O = 00000010
 OBJ\$K_BUFSIZ = 00000200
 OPD\$M_ADDR = 00000000
 OPD\$M_BB = 000000A1
 OPD\$M_BW = 000000C2
 OPD\$M_D_FLOAT = 0000C000
 OPD\$M_F_FLOAT = 00008000
 OPD\$M_G_FLOAT = 0000A000
 OPD\$M_H_FLOAT = 00009000
 OPD\$M_MODE = 000003E0
 OPD\$M_MODIFY = 00000040
 OPD\$M_NOT_32F = 00007000
 OPD\$M_READ = 00000020
 OPD\$M_VFIELD = 00000080
 OPD\$M_WRITE = 00000060
 OPD\$S_MODE = 00000005
 OPD\$S_SIZE = 00000005
 OPD\$V_D_FLOAT = 0000000E
 OPD\$V_F_FLOAT = 0000000F
 OPD\$V_G_FLOAT = 0000000D
 OPD\$V_H_FLOAT = 0000000C
 OPD\$V_MODE = 00000005
 OPD\$V_SIZE = 00000000
 OPF\$M_LASTOPR = 00002000
 OPF\$M_OPTEXP = 00001000
 OPF\$V_LASTOPR = 0000000D
 OPF\$V_OPTEXP = 0000000C
 PSC\$B_NAME = 00000004

S\$73	= 00001DB2 R	03	SYMSV_ABS	= 00000004
S\$74	= 00001B4C R	03	SYMSV_ASN	= 00000008
S\$75	= 00002631 R	03	SYMSV_CRFO	= 0000000D
S\$76	= 000015C7 R	03	SYMSV_DEBUG	= 00000005
S\$77	= 0000242B R	03	SYMSV_DEF	= 00000000
S\$78	= 0000229C R	03	SYMSV_DELMAC	= 00000009
S\$79	= 00002188 R	03	SYMSV_EPT	= 00000009
S\$8	= 000029B5 R	03	SYMSV_EXTRN	= 00000003
S\$80	= 000027A9 R	03	SYMSV_GLOBL	= 00000002
S\$81	= 00001725 R	03	SYMSV_LOCAL	= 00000006
S\$82	= 000022C2 R	03	SYMSV_ODBG	= 0000000A
S\$83	= 000022D5 R	03	SYMSV_REF	= 00000007
S\$84	= 000022E8 R	03	SYMSV_RELPSECT	= 0000000B
S\$85	= 00000C88 R	03	SYMSV_SUPR	= 0000000E
S\$86	= 0000219E R	03	SYMSV_WEAK	= 00000001
S\$87	= 0000243E R	03	SYMSV_XCRF	= 0000000C
S\$88	= 000022FB R	03	SYMSV_FLAG	= 00000009
S\$89	= 00001F5D R	03	SYMLN	= 00000007
S\$9	= 0000276D R	03	TAB	= 00000009
S\$90	= 00002882 R	03	VB	= 00000081
S\$91	= 0000298D R	03	VD	= 0000C088
S\$92	= 000025C8 R	03	VF	= 00008084
S\$93	= 00002796 R	03	VG	= 0000A088
S\$94	= 000027E4 R	03	VH	= 00009090
S\$95	= 00002691 R	03	VL	= 0000C084
S\$96	= 000011D1 R	03	VO	= 00000090
S\$97	= 00002644 R	03	VQ	= 00000088
S\$98	= 000028B1 R	03	VW	= 00000082
S\$99	= 0000266A R	03	W	= 00000002
SEMI	= 0000003B		WB	= 00000061
SHF LH	= 00000010		WD	= 0000C068
SIGN BIT	= 80000000		WF	= 00008064
STBSR_PG MISS	= 0000000A		WG	= 0000A068
SYMSB_NAME	00000004		WH	= 00009070
SYMSB_SEG	0000000C		WL	= 00000064
SYMSB_TOKEN	0000000B		WO	= 00000070
SYMSK_BLKSI2	0000000D		WQ	= 00000068
SYMSK_MAXLEN	= 0000001F		WW	= 00000062
SYMSK_TWOCOL	= 00000010		X	= 00000010
SYMSL_LINK	00000000		X1	= 00000033
SYMSL_VAL	00000005		X2	= 00080000
SYMSM_ABS	= 00000010		XXX	= 00000080
SYMSM_ASN	= 00000100		Z	= 0000ABFF
SYMSM_CRFO	= 00002000			
SYMSM_DEBUG	= 00000020			
SYMSM_DEF	= 00000001			
SYMSM_DELMAC	= 00000200			
SYMSM_EPT	= 00000200			
SYMSM_EXTRN	= 00000008			
SYMSM_GLOBL	= 00000004			
SYMSM_LOCAL	= 00000040			
SYMSM_ODBG	= 00000400			
SYMSM_REF	= 00000080			
SYMSM_RELPSECT	= 00000800			
SYMSM_SUPR	= 00004000			
SYMSM_WEAK	= 00000002			
SYMSM_XCRF	= 00001000			

! Psect synopsis !

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
. BLANK .	00000000 (0.)	01 (1.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC BYTE
\$ABSS	00000013 (19.)	02 (2.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
MAC\$PRMSYMTAB	00002902 (10690.)	03 (3.)	NOPIC USR CON REL GBL NOSHR NOEXE RD NOWRT NOVEC LONG
MAC\$PHASHTAB	00000200 (512.)	04 (4.)	NOPIC USR CON REL GBL NOSHR NOEXE RD NOWRT NOVEC LONG
MAC\$USERHASHTAB	00000200 (512.)	05 (5.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC LONG
MAC\$USRMACROHSH	00000200 (512.)	06 (6.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC LONG
MAC\$PSECT TAB	0000003A (58.)	07 (7.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC LONG
MAC\$PSC OPTIONS	00000154 (340.)	08 (8.)	NOPIC USR CON REL GBL NOSHR NOEXE RD NOWRT NOVEC LONG
MAC\$ENBDSABLTAB	00000266 (614.)	09 (9.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC LONG

! Performance indicators !

Phase	Page faults	CPU Time	Elapsed Time
Initialization	30	00:00:00.02	00:00:00.61
Command processing	103	00:00:00.37	00:00:03.70
Pass 1	1074	00:00:43.56	00:02:57.01
Symbol table sort	0	00:00:00.58	00:00:02.36
Pass 2	266	00:00:09.77	00:00:37.14
Symbol table output	64	00:00:00.35	00:00:01.70
Psect synopsis output	4	00:00:00.03	00:00:00.38
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	1543	00:00:54.68	00:03:44.90

The working set limit was 2550 pages.
456772 bytes (893 pages) of virtual memory were used to buffer the intermediate code.
There were 40 pages of symbol table space allocated to hold 784 non-local and 0 local symbols.
1092 source lines were read in Pass 1, producing 103 object records in Pass 2.
14 pages of virtual memory were used to define 9 macros.

! Macro library statistics !

Macro library name	Macros defined
-\$255\$DUA28:[MACRO.OBJ]MACRO.MLB;1	9
-\$255\$DUA28:[SYSLIB]STARLET.MLB;2	0
TOTALS (all libraries)	9

518 GETS were required to define 9 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$:SYMTAB/OBJ=OBJ\$:SYMTAB MSRC\$:SYMTAB/UPDATE=(ENH\$:SYMTAB)+LIB\$:MACRO/LIB

