PATCH

```
PPPPPPPP        AAAAAA      TTTTTTTTTT    GGGGGGGG  EEEEEEEEEEE  NN         NN
PPPPPPPP        AAAAAA      TTTTTTTTTT    GGGGGGGG  EEEEEEEEEEE  NN         NN
PP       PP    AA      AA        TT      GG         EE           NN         NN
PP       PP    AA      AA        TT      GG         EE           NN         NN
PP       PP    AA      AA        TT      GG         EE           NNNN       NN
PP       PP    AA      AA        TT      GG         EE           NNNN       NN
PPPPPPPP       AA      AA        TT      GG         EEEEEEEE     NN   NN    NN
PPPPPPPP       AA      AA        TT      GG         EEEEEEEE     NN   NN    NN
PP            AAAAAAAAAA         TT      GG  GGGGGG  EE          NN      NNNN
PP            AAAAAAAAAA         TT      GG  GGGGGG  EE          NN      NNNN
PP             AA      AA        TT      GG      GG  EE          NN         NN
PP             AA      AA        TT      GG      GG  EE          NN         NN
PP             AA      AA        TT        GGGGGG   EEEEEEEEEEE  NN         NN
PP             AA      AA        TT        GGGGGG   EEEEEEEEEEE  NN         NN


RRRRRRRR   EEEEEEEEEEE    QQQQQ
RRRRRRRR   EEEEEEEEEEE    QQQQQQ
RR      RR  EE          QQ        QQ
RR      RR  EE          QQ        QQ
RR      RR  EE          QQ        QQ
RR      RR  EE          QQ        QQ
RRRRRRRR    EEEEEEEE    QQ        QQ
RRRRRRRR    EEEEEEEE    QQ        QQ
RR  RR      EE          QQ   QQ   QQ
RR  RR      EE          QQ   QQ   QQ
RR     RR   EE          QQ      QQ
RR     RR   EE          QQ      QQ
RR       RR  EEEEEEEEEEE  QQQQ   QQ
RR       RR  EEEEEEEEEEE  QQQQ   QQ
```

```
!++
!       PATGEN.REQ      - require file for PATCH facility
!
! Version:      'V04-000'
!
!***********************************************************************
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!*                                                                    *
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!***********************************************************************
!
! Modified by:
!
!       V03-01  MTR0006         Mike Rhodes             07-Jun-1982
!               Add a new context flag for processing I^ immediate literals.
!
!       V0203   MTR0001         Mike Rhodes             01-Oct-1981
!               Add new context bit definition, INIT_PAT_BIT to signify
!               that the user had issued the /INITIALIZE qualifier to the
!               SET PATCH_AREA command.  Its also added to the command
!               qualifier bit definitions.
!
!       V0202   CNH0013         Chris Hume              12-Sep-1979    14:00
!               Increase maximum symbol length to 31 characters.
!
!       V0201   KDM0013         KATHLEEN D. MORSE       01-FEB-1979    15:00
!               Increase size of lexeme buffers from 20 to 25 (CHS_PER_LEXEME).
!               (PATGEN.REQ V0201)
!--

MACRO
        ALONGWORD       =0, 0, 32%,     ! OFFSET, POSITION, AND SIZE FOR A LONGWORD
        NULL_POS_SIZE   =0, 0, 0%,      ! NULL PSE FOR UNDOTTED REFERENCES TO BLOCKS
        TBIT_FIELD      =4, 1, 0%,      ! field in PSL containing the tbit
        OPERAND_MODE    =0, 4, 4, 0%,   ! MODE PART OF AN OPERAND
        OPERAND_VALUE   =0, 0, 4, 0%;   ! VALUE PART OF AN OPERAND

LITERAL
        ADD_THE_OFFSET  =1,             ! ADD OFFSET TO VALUE
```

```
        SUB_THE_OFFSET  =0,              ! SUBTRACT OFFSET FROM VALUE

        !++
        ! VALUES FOR REGISTER NAME TABLES
        !--
        REGISTER_COUNT  =17,            ! Seventeen REGISTERS COUNTING PSL
        REG_ENTRY_LEN   =1,             ! LENGTH IN LONGWORDS OF A REGISTER NAME ENTRY

        BYTES_PER_LONGW =4,             ! BYTES PER VAX LONGWORD

        A_BYTE          =1,             ! ADDRESS OFFSET FOR A BYTE
        A_WORD          =2,             ! ADDRESS OFFSET FOR A WORD
        A_LONGWORD      =4,             ! ADDRESS OFFSET FOR A LONGWORD
        A_QUADWORD      =8,             ! ADDRESS OFFSET FOR A QUADWORD
        A_PAGE          =512,           ! ADDRESS OFFSET FOR A PAGE

        !++
        ! SIZE PARAMETERS
        !--
        NO_OF_INP_CHARS =132,           ! MAX NUMBER OF CHARACTERS IN INPUT LINE
                                        ! ***MUST BE DIVISIBLE BY 4***
        CHS_PER_LEXEME  =25,            ! MAX NUMBER OF CHARACTERS IN A SINGLE LEXEME
                                        ! ***MUST BE DIVISIBLE BY 4***
        NO_OF_TOKENS    =30,            ! MAX NUMBER OF TOKENS PERMITTED
                                        ! ***MUST BE AN EVEN NUMBER***

        NUM_MAX_LENGTH  =20,            ! MAXIMUM NUMBER OF CHARACTERS PER NUMERIC STRING
        SYM_MAX_LENGTH  =31,            ! MAXIMUM NUMBER OF CHARACTERS PER SYMBOL
        UPPER_CASE_DIF  ='a' - 'A',     ! DIFFERENCE BETWEEN ASCII REPRESENTATION OF UPPER AND LOWER CASE
        ASCII_OFFSET    =%O'60',        ! OFFSET FROM NUMERIC VALUE TO ASCII VALUE

        !++
        ! ASCII CHARACTER REPRESENTATIONS
        !--
        LINEFEED        =%O'12',        ! ASCII REPRESENTATION OF LINEFEED
        CARRIAGE_RET    =%O'15',        ! ASCII REPRESENTATION OF CARRIAGE RETURN
        ASC_AT_SIGN     =%ASCII 'a',    ! ASCII REPRESENTATION OF AN AT SIGN
        ASC_CLOS_PAREN  =%ASCII ')',    ! ASCII REPRESENTATION OF CLOSED PARENTHESIS
        ASC_COMMA       =%ASCII ',',    ! ASCII REPRESENTATION OF A COMMA
        ASC_MINUS       =%ASCII '-',    ! ASCII REPRESENTATION OF A MINUS SIGN
        ASC_OPEN_PAREN  =%ASCII '(',    ! ASCII REPRESENTATION OF OPEN PARENTHESIS
        asc_period      =%ASCII '.',    ! ASCII representation of a period
        ASC_PLUS        =%ASCII '+',    ! ASCII REPRESENTATION OF A PLUS SIGN
        ASC_POUNDS      =%ASCII '#',    ! ASCII REPRESENTATION OF A POUNDS SIGN
        ASC_QUOTE       =%ASCII '"',    ! ASCII REPRESENTATION OF A QUOTE CHARACTER
        ASC_SPACE       =%ASCII ' ',    ! ASCII REPRESENTATION OF A SPACE
        ASC_SQ_CLO_BRAK =%ASCII ']',    ! ASCII REPRESENTATION OF A CLOSED SQUARE BRACKET
        ASC_SQ_OPN_BRAK =%ASCII '[',    ! ASCII REPRESENTATION OF AN OPEN SQUARE BRACKET
        ASC_TAB         =%ASCII '        ',    ! ASCII REPRESENTATION OF A TAB
        asc_up_arrow    =%ASCII '^',    ! ASCII representation of an up arrow

        ! THE 'MODE' DATA STRUCTURE IS REALLY JUST
        ! A BYTE VECTOR WITH THE FOLLOWING CHARACTERISTICS.

        MODE_LVL_SIZE   =7,             ! NUMBER OF BYTES IN EACH 'LEVEL'.
        MODE_LEVELS     =4,             ! NUMBER OF LEVELS FOR MODE SETTINGS
```

```
! EACH LEVEL OF THE MODE DATA STRUCUTRE HAS
! THE FOLLOWING ENTRIES

MODE_RADIX      =0,            ! RADIX - DEC,HEX,OCT, ETC.
MODE_LENGTH     =1,            ! LENGTH - LONG,WORD,BYTE, ETC.
MODE_SYMBOLS    =2,            ! BOOLEAN -> WHETHER WE KNOW VALUES
                              !    AS "EXTERN + OFFSET" OR NOT.
MODE_INSTRUC    =3,            ! BOOLEAN -> WHETHER WE INPUT/OUTPUT
                              !    VALUES AS MACHINE INSTRUCTION.
MODE_ASCII      =4,            ! BOOLEAN -> WHETHER WE OUTPUT (ONLY!)
                              !    VALUES AS ASCII STRINGS OR NOT.
MODE_SCOPE      =5,            ! Whether or not there is a CSP,
                              ! (and whether we should apply it)
MODE_GLOBALS    =6,            ! Whether or not we should apply
                              ! global scope first in the search rules.


! THE FOUR LEVELS HAVE THE FOLLOWING
! NAMES AND INDICES.

DEFAULT_MODE    =0,            ! DEFAULT SYSTEM INITIALIZED MODE
USER_DEF_MODE   =1,            ! USER-SET DEFAULT MODE
OVERRIDE_MODE   =2,            ! ONE-LINE OVERRIDE MODE
LOCAL_MODE      =3,            ! LOCAL MODE

! THE MODE_LENGTH FIELD SHOULD BE ONE OF THE FOLLOWING

BYTE_LENGTH     =1,            ! BYTE LENGTH
WORD_LENGTH     =2,            ! WORD LENGTH
LONG_LENGTH     =4,            ! LONGWORD LENGTH

! AND THE MODE_RADIX FIELD SHOULD BE ONE OF:

DECIMAL_RADIX   =10,           ! DECIMAL RADIX
HEX_RADIX       =16,           ! HEXADECIMAL RADIX
OCTAL_RADIX     =8,            ! OCTAL RADIX
binary_radix    =2,            ! binary radix

! THE DEFAULT SETTINGS (SEE PAT$INIT_MODES IN PATMOD.B32)
! FOR THE FIELDS ARE:

DEF_MODE_RADIX  =HEX_RADIX,    ! HEX IS DEFAULT RADIX
DEF_MODE_LENGTH =LONG_LENGTH,  ! LONG IS DEFAULT LENGTH


!++
! BIT CONFIGURATIONS FOR CONTEXT FLAGS.
!--
CONTEXT_BITS    =32,           ! NUMBER OF CONTEXT BITS

MODE_BIT        =0,            ! MODE KEYWORD BIT
SET_NOT_ECO     =1,            ! check not eco indicator
ALIGN_LONG      =2,            ! ALIGNMENT ON LONGWORD BOUNDARY
ALIGN_QUAD      =3,            ! ALIGNMENT ON QUADWORD BOUNDARY
ALIGN_WORD      =4,            ! ALIGNMENT ON WORD BOUNDARY
ALIGN_PAGE      =5,            ! ALIGNMENT ON PAGE BOUNDARY
ALIGN_BYTE      =6,            ! ALIGNMENT ON BYTE BOUNDARY
```

```
        MODULE_BIT        =7,              ! MODULE KEYWORD BIT
        EXAMINE_BIT       =8;              ! EXAMINE COMMAND

LITERAL
        OVERRIDE          =10,             ! OVERRIDE HAS BEEN SET
        SCOPE_BIT         =16,             ! Command was SET SCope.
        INIT_PAT_BIT      =17,             ! /INITIALIZE indicator
        SET_ECO           =18,             ! SETTING ECO LEVEL OF THIS PATCH
        PAT_AREA_BIT      =19,             ! PATCH AREA INDICATOR
        INST_SUBST        =20,             ! ENABLE INSTRUCTION SUBSTITUTION
        VERIFY_BIT        =21,             ! VERIFY COMMAND BIT
        DELETE_BIT        =22,             ! DELETE COMMAND BIT
        INSERT_BIT        =23,             ! INSERT COMMAND BIT
        OPN_COM_FILE      =24,             ! OPEN COMMAND FILE BIT
        LITERAL_BIT       =25,             ! /LITERAL INDICATOR
        I_HAT_SEEN        =26,             ! PROCESS I^ immediate mode operand in context.

        ! QUALIFIER BITS FOR COMMAND LINE QUALIFIERS
        !
        MIN_QUAL          = 0,             ! MINIMUM QUALIFIER BIT USED
        INSTR_QUAL        = 0,             ! /INSTRUCTION
        DECIMAL_QUAL      = 1,             ! /DECIMAL
        WORD_QUAL         = 2,             ! /WORD
        BYTE_QUAL         = 3,             ! /BYTE
        PATCH_QUAL        = 4,             ! /PATCH AREA
        NOINSTR_QUAL      = 5,             ! /NOINSTRUCTION
        LONG_QUAL         = 6,             ! /LONG
        HEX_QUAL          = 7,             ! /HEX
        ASCII_QUAL        = 8,             ! /ASCII
        NOASCII_QUAL      = 9,             ! /NOASCII
        OCTAL_QUAL        = 10,            ! /OCTAL
        LITER_QUAL        = 11,            ! /LITERAL
        INITIALIZE_QUAL   = 12,            ! /INITIALIZE
        MAX_QUAL          = 12,            ! MAXIMUM QUALIFIER BIT USED

        ! LOCATION TYPES FOR END RANGE ARGUMENTS
        !
        MEMORY_LOC        =0,              ! MEMORY LOCATION
        REGISTER_LOC      =1;              ! REGISTER LOCATION

MACRO
        !++
        ! OUT_DIAG_INFO OUTPUTS A DIAGNOSTIC MESSAGE TO THE TERMINAL. THIS
        ! MACRO CAN BE REDEFINED TO NULL WHEN THE DEBUGGER SEEMS TO FUNCTION
        ! MORE OR LESS AS DESIGNED.
        !--
        OUT_DIAG_INFO (MESSAGE) =
            BEGIN
!           $FAO_TT_OUT ('!/!AC!/', UPLIT BYTE (%CHARCOUNT (MESSAGE), %ASCII MESSAGE));
            END%;


!       PATGEN.REQ - last line
```

LISTEL
REQ

PATTAB
.REQ

PREFIX
REQ

SYSSER
REQ

VXSMAC
REQ

DATBAS
REQ

PATACS
REQ

PATPCT
REQ

VAXERR
REQ

DYNMEM
LIS

PATPRE
REQ

PATTER
REQ

SCALIT
REQ

PATGEN
REQ

VAXOPS
REQ

PATACT
LIS

OLLNAM
REQ

SYMFMT
REQ

PATRTS
REQ

IMGDEF
REQ

PATTBL
REQ

PATTOK
REQ

PATKEY
REQ

SYSLIT
REQ

VXPALT
REQ