CDU

```
CCCCCCCC  LL            IIIIII  5555555555  DDDDDDD     EEEEEEEEEE  FFFFFFFFFF
CCCCCCCC  LL            IIIIII  5555555555  DDDDDDD     EEEEEEEEEE  FFFFFFFFFF
CC        LL              II    55          DD     DD   EE          FF
CC        LL              II    55          DD     DD   EE          FF
CC        LL              II    555555      DD     DD   EE          FF
CC        LL              II    555555      DD     DD   EE          FF
CC        LL              II         55     DD     DD   EEEEEEEE    FFFFFFFF
CC        LL              II         55     DD     DD   EEEEEEEE    FFFFFFFF
CC        LL              II          55    DD     DD   EE          FF
CC        LL              II          55    DD     DD   EE          FF
CC        LL              II    55    55    DD     DD   EE          FF
CC        LL              II    55    55    DD     DD   EE          FF              ....
CCCCCCCC  LLLLLLLLLL    IIIIII    555555    DDDDDDD     EEEEEEEEEE  FF              ....
CCCCCCCC  LLLLLLLLLL    IIIIII    555555    DDDDDDD     EEEEEEEEEE  FF              ....

RRRRRRRR       333333      222222
RRRRRRRR       333333      222222
RR      RR   33     33   22      22
RR      RR   33     33   22      22
RR      RR          33           22
RR      RR          33           22
RRRRRRRR          33           22
RRRRRRRR          33           22
RR   RR          33          22
RR   RR          33          22
RR      RR   33     33   22
RR      RR   33     33   22
RR        RR   333333    2222222222
RR        RR   333333    2222222222
```

```
        Command language interpreter command table structures
        These definitions are now obsolete (see below)

  IDENT V04-000
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 ++
  FACILITY:  DCL & MCR Command language interpreters

  ABSTRACT:

        These are the command table structure definitions
        which describe the generic command table format used
        by the DCL and MCR command interpreters.

  ENVIRONMENT:

        VAX/VMS operating system. supervisor mode.

  AUTHOR:  Tim Halvorsen, Feb 1980

  Modified by:

        V04-000 PCA0000        Paul C. Anagnostopoulos  8-Mar-1983
                These definitions are now obsolete.  However, they are still
                needed to upgrade format level 5 CLI tables to the latest
                format level.  They are used only by the UPGRADE module of
                the CDU facility.

        V03-003 PCG0005        Peter George    22-Nov-1982
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        Add INT_W_PMPTLEN and INT_L_PMPTADDR and remove
        INT_L_PROMPT.

    V03-002 PCG0004   Peter George   18-Oct-1982
        Add VEC_C_PROMPTMAX, INT_L_PROMPT, and ENT_V_SPELL.

    V03-001 PCG0003   Peter George   15-Jul-1982
        Add INT data structure for CLI$INTERFACE routines.
--

Note that the term "SRO" stands for self-relative offset.
The actual address is computed by adding the signed contents
of the field to the address of the structure.

If the offset is zero, then there is no associated data.

```
!
!       DEFINE VECTOR AT FRONT OF COMMAND TABLES DESCRIBING
!       OFFSETS INTO THE SECTION FOR VARIOUS TABLES.
!
!...$VEC5DE:
MACRO           VEC5_L_IMAGETBL = 0,0,32,0%;            ! OFFSET TO IMAGE TABLE
MACRO           VEC5_L_PROMPTBL = 4,0,32,0%;            ! OFFSET TO PROMPT TABLE
MACRO           VEC5_L_QUALTBL  = 8,0,32,0%;            ! OFFSET TO QUALIFIER TABLE
MACRO           VEC5_L_VERBTBL  = 12,0,32,0%;           ! OFFSET TO BUILT-IN VERB TABLE
MACRO           VEC5_L_VERBEND  = 16,0,32,0%;           ! OFFSET TO END OF VERBTBL
MACRO           VEC5_L_USRCMD   = 20,0,32,0%;           ! OFFSET TO USER VERB TABLE
MACRO           VEC5_L_USREND   = 24,0,32,0%;           ! OFFSET TO END OF USER VERB TABLE
MACRO           VEC5_L_COMDPTR  = 28,0,32,0%;           ! OFFSET TO BUILT-IN POINTER TABLE
MACRO           VEC5_L_USERPTR  = 32,0,32,0%;           ! OFFSET TO USER POINTER TABLE
MACRO           VEC5_L_FREE     = 36,0,32,0%;           ! OFFSET TO NEXT FREE BYTE
MACRO           VEC5_B_STRLVL   = 40,0,8,0%;            ! TABLE STRUCTURE LEVEL
LITERAL
$EQULST (VEC5_C_,GBL,0,1
        ,(STRLVL,5)                             ! CURRENT STRUCTURE LEVEL
        );
MACRO           VEC5_B_PROMPTMAX        = 41,0,8,0%;            ! MAXIMUM SIZE OF ANY PROMPT STRING
LITERAL         VEC5_C_LENGTH3  = 42;
LITERAL         VEC5_K_LENGTH3  = 42;                           ! LENGTH OF STR LEVEL 3 AND BEFORE VEC
MACRO           VEC5_B_CLI      = 42,0,8,0%;                    ! CLI TYPE
LITERAL
$EQULST (VEC5_C_,GBL,0,1
        ,(DCL,0)                                ! TABLES ARE FOR DCL
        ,(MCR,1)                                ! TABLES ARE FOR MCR
        );
MACRO           VEC5_W_SIZE     = 44,0,16,0%;                   ! SIZE IN BYTES OF VECTOR AREA
LITERAL         VEC5_C_LENGTH   = 60;
LITERAL         VEC5_K_LENGTH   = 60;                           ! LENGTH OF VECTOR AREA
LITERAL         VEC5_C_PROMPTMAX        = 32;                   ! MAXIMUM SIZE OF ANY PROMPT STRING
```

```
!
!         DEFINE COMMAND DESCRIPTOR BLOCK
!
!
!...$CMD5DEF
MACRO           CMD5_B_SIZE     = 0,0,8,0%;                ! SIZE OF COMMAND DESCRIPTOR BLOCK
MACRO           CMD5_B_VERBTYP  = 1,0,8,0%;          ! VERB GENERIC TYPE
MACRO           CMD5_B_PARMCNT  = 2,0,8,0%;          ! MIN/MAX PARAMETER COUNTS

MACRO           CMD5_V_MINPARM  = 2,0,4,0%;          ! MINIMUM NUMBER OF PARAMETERS REQUIRED
MACRO           CMD5_V_MAXPARM  = 2,4,4,0%;          ! MAXIMUM NUMBER OF PARAMETERS ALLOWED

MACRO           CMD5_B_FLAGS    = 3,0,8,0%;               ! COMMAND FLAGS

MACRO           CMD5_V_ABREV    = 3,0,1,0%;             ! COMMAND MAY BE ABBREVIATED NON-UNIQUELY
LITERAL         CMD5_M_ABREV    = 1^1 - 1^0;
                                ! TO A SINGLE CHARACTER
MACRO           CMD5_V_NOSTAT   = 3,1,1,0%;             ! COMMAND DOES NOT RETURN VALID STATUS
LITERAL         CMD5_M_NOSTAT   = 1^2 - 1^1;
MACRO           CMD5_V_FOREIGN  = 3,2,1,0%;            ! FOREIGN COMMAND - NO PARSING IS DONE
LITERAL         CMD5_M_FOREIGN  = 1^3 - 1^2;
MACRO           CMD5_V_IMMED    = 3,3,1,0%;             ! COMMAND IS IMMEDIATELY DISPATCHED W/O PARSING
LITERAL         CMD5_M_IMMED    = 1^4 - 1^3;
MACRO           CMD5_V_MCRPARSE = 3,4,1,0%;        ! COMMAND IS MCR STYLE COMMAND (OUT=IN)
LITERAL         CMD5_M_MCRPARSE = 1^5 - 1^4;
                                ! (THIS FLAG ONLY EXAMINED BY MCR CLI)

MACRO           CMD5_W_IMAGE    = 4,0,16,1%;         ! SRO TO ASCIC IMAGE NAME
MACRO           CMD5_W_QUALS    = 6,0,16,1%;         ! SRO TO FIRST NONPOSITIONAL ENTITY
MACRO           CMD5_W_PARMS    = 8,0,16,1%;         ! SRO TO FIRST POSITIONAL ENTITY
MACRO           CMD5_W_OUTPUTS  = 10,0,16,1%;        ! SRO TO LIST OF "OUTPUT" ENTITIES
MACRO           CMD5_W_MUTEXSET = 12,0,16,1%;        ! SRO TO MUTUAL EXCLUSION SET
MACRO           CMD5_W_IMPSET   = 14,0,16,1%;        ! SRO TO IMPLICATION SET
LITERAL         CMD5_C_LENGTH   = 16;
LITERAL         CMD5_K_LENGTH   = 16;                     ! LENGTH OF FIXED PORTION
!
! OUTPUT LIST FORMAT:
!
! FIRST BYTE CONTAINS COUNT OF ENTRIES IN LIST EACH ENTRY IS ONE BYTE,
! SIGNED, DESCRIBING THAT "OUTPUT NUMBER".  NEGATIVE VALUES INDICATE THE
! OUTPUT IS A PARAMETER AND THE ABS(VALUE) IS THE PARAMETER NUMBER.
! POSITIVE VALUES INDICATE THE OUTPUT IS A QUALIFIER AND THE VALUE IS A
! QUALIFIER NUMBER.
!
! QUAL IS (0:MAXQUALS-1),PARM IS (MAXQUALS:255)
!
LITERAL         CMD5_C_MAXPARMS = 8;                ! MAXIMUM POSSIBLE PARAMETERS
LITERAL         CMD5_C_MAXQUALS = 248;              ! MAXIMUM POSSIBLE QUALIFIERS (256-8)
```

```
!
!       DEFINE ENTITY DESCRIPTOR BLOCK
!
!
!...$ENT5DEF
MACRO           ENT5_B_NEXT     = 0,0,8,0%;             ! OFFSET TO NEXT BLOCK IN CHAIN
MACRO           ENT5_B_SIZE     = 1,0,8,0%;             ! SIZE OF THIS BLOCK IN BYTES
MACRO           ENT5_B_TYPE     = 2,0,8,0%;
LITERAL
$EQULST (ENT5_C_,GBL,0,1
        ,(PARAMETER,)           ! POSITIONAL VALUE DELIMITED BY SPACE
        ,(QUALIFIER,)           ! NONPOSITIONAL KEYWORD DELIMITED BY SLASH
        );
MACRO           ENT5_B_VALTYPE  = 3,0,8,0%;     ! TYPE OF VALUE
LITERAL
$EQULST (ENT5_C_,GBL,1,1                        ! (STARTING AT #1)
        ,(INFILE,)                              ! INPUT FILE SPECIFICATION
        ,(OUTFILE,)                             ! OUTPUT FILE SPECIFICATION
        ,(NUMBER,)                              ! DECIMAL INTEGER NUMBER
        ,(PRIVILEGE,)           ! PRIVILEGE KEYWORD
        ,(DATETIME,)            ! DATE/TIME SPECIFICATION
        ,(PROTECTION,)          ! PROTECTION SPECIFICATION
        ,(PROCESS,)                             ! PROCESS NAME
        ,(INLOG,)                               ! INPUT LOGICAL NAME
        ,(OUTLOG,)                              ! OUTPUT LOGICAL NAME
        ,(INSYM,)                               ! INPUT SYMBOL NAME
        ,(OUTSYM,)                              ! OUTPUT SYMBOL NAME
        ,(NODE,)                                ! NODE NAME
        ,(DEVICE,)                              ! NODE/DEVICE NAME
        ,(DIR,)                                 ! NODE/DEVICE/DIRECTORY NAME
        ,(UIC,)                                 ! UIC SPECIFICATION
        ,(RESTOFLINE,)          ! GOBBLE REST OF COMMAND STRING AS VALUE
        );

MACRO           ENT5_W_NAME     = 4,0,16,1%;    ! SRO TO ASCIC ENTITY NAME (USER SPELLING)
MACRO           ENT5_W_NUMBER   = 4,0,16,0%;    ! OR, PARAMETER NUMBER (POSITIONAL)
MACRO           ENT5_W_LABEL    = 6,0,16,1%;    ! SRO TO ASCIC ENTITY LABEL (FOR PGM USE)
MACRO           ENT5_W_DEFVAL   = 8,0,16,1%;    ! SRO TO ASCIC DEFAULT VALUE
MACRO           ENT5_W_SYNTAX   = 10,0,16,1%;   ! SRO TO SYNTAX LIST
MACRO           ENT5_W_KEYWORDS = 12,0,16,1%;   ! SRO TO VALUE KEYWORD LIST
                                                ! IF ZERO, ALL VALUES ARE LEGAL
MACRO           ENT5_W_PROMPT   = 14,0,16,1%;   ! SRO TO VALUE PROMPT
MACRO           ENT5_L_FLAGS    = 16,0,32,0%;           ! ENTITY FLAGS

MACRO           ENT5_V_FILE     = 16,0,1,0%;            ! VALUE IS FILE SPECIFICATION
LITERAL         ENT5_M_FILE     = 1^1 - 1^0;
MACRO           ENT5_V_VAL      = 16,1,1,0%;            ! CAN HAVE A VALUE
LITERAL         ENT5_M_VAL      = 1^2 - 1^1;
MACRO           ENT5_V_NEG      = 16,2,1,0%;            ! VALUE CAN BE NEGATED
LITERAL         ENT5_M_NEG      = 1^3 - 1^2;
MACRO           ENT5_V_DEFTRUE  = 16,3,1,0%;            ! TRUE BY DEFAULT
LITERAL         ENT5_M_DEFTRUE  = 1^4 - 1^3;
MACRO           ENT5_V_BATDEF   = 16,4,1,0%;            ! PRESENT BY DEFAULT IF BATCH JOB
LITERAL         ENT5_M_BATDEF   = 1^5 - 1^4;
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```
MACRO        ENT5_V_VALREQ   = 16,5,1,0%;        ! VALUE IS REQUIRED
LITERAL      ENT5_M_VALREQ   = 1^6 - 1^5;
MACRO        ENT5_V_LIST     = 16,6,1,0%;        ! COMMA-SEPARATED LIST OF VALUES ALLOWED
LITERAL      ENT5_M_LIST     = 1^7 - 1^6;
MACRO        ENT5_V_CONCAT   = 16,7,1,0%;        ! CONCATENATED VALUES ALLOWED
LITERAL      ENT5_M_CONCAT   = 1^8 - 1^7;
MACRO        ENT5_V_IMPCAT   = 16,8,1,0%;        ! VALUES ARE IMPLICITLY CONCATENATED
LITERAL      ENT5_M_IMPCAT   = 1^9 - 1^8;
MACRO        ENT5_V_VERB     = 16,9,1,0%;        ! QUALIFIER CAN APPEAR ON COMMAND VERB
LITERAL      ENT5_M_VERB     = 1^10 - 1^9;
MACRO        ENT5_V_PARM     = 16,10,1,0%;       ! QUALIFIER CAN APPEAR ON PARAMETER
LITERAL      ENT5_M_PARM     = 1^11 - 1^10;
MACRO        ENT5_V_MCROPTDLM     = 16,11,1,0%;  ! VALUE DELIMITER IS OPTIONAL (MCR)
LITERAL      ENT5_M_MCROPTDLM     = 1^12 - 1^11;
MACRO        ENT5_V_MCRIGNORE     = 16,12,1,0%;  ! IGNORE THIS ENTITY BLOCK (MCR)
LITERAL      ENT5_M_MCRIGNORE     = 1^13 - 1^12;
MACRO        ENT5_V_SPELL    = 16,13,1,0%;       ! ONLY CHECK FIRST FOUR CHARS OF KEYWORD VALUES
LITERAL      ENT5_M_SPELL    = 1^14 - 1^13;

LITERAL      ENT5_C_LENGTH   = 20;
LITERAL      ENT5_K_LENGTH   = 20;               ! LENGTH OF FIXED LENGTH PORTION
```

```
!           DEFINE CHANGE LIST STRUCTURE
!

!...$CHG5DEF
MACRO           CHG5_B_SIZE      = 0,0,8,0%;            ! SIZE OF CHANGE LIST BLOCK
MACRO           CHG5_B_FLAGS     = 1,0,8,0%;            ! FLAGS

MACRO           CHG5_V_IMAGE     = 1,0,1,0%;            ! IMAGE CHANGE
LITERAL         CHG5_M_IMAGE     = 1^1 - 1^0;
MACRO           CHG5_V_PARMS     = 1,1,1,0%;            ! PARAMETER(S) CHANGE
LITERAL         CHG5_M_PARMS     = 1^2 - 1^1;
MACRO           CHG5_V_QUALS     = 1,2,1,0%;            ! QUALIFIER(S) CHANGE
LITERAL         CHG5_M_QUALS     = 1^3 - 1^2;
MACRO           CHG5_V_MCRIGNORE     = 1,3,1,0%;        ! IGNORE IF CLI IS MCR
LITERAL         CHG5_M_MCRIGNORE     = 1^4 - 1^3;

MACRO           CHG5_W_IMAGE     = 2,0,16,1%;           ! SRO TO NEW IMAGE
MACRO           CHG5_B_PARMCNT   = 4,0,8,0%;            ! MIN/MAX PARAMETER COUNTS

MACRO           CHG5_V_MINPARM   = 4,0,4,0%;            ! MINIMUM NUMBER OF PARAMETERS REQUIRED
MACRO           CHG5_V_MAXPARM   = 4,4,4,0%;            ! MAXIMUM NUMBER OF PARAMETERS ALLOWED

MACRO           CHG5_W_PARMS     = 5,0,16,1%;           ! SRO TO FIRST PARAMETER DESCRIPTOR
MACRO           CHG5_W_QUALS     = 7,0,16,1%;           ! SRO TO FIRST QUALIFIER DESCRIPTOR
LITERAL         CHG5_C_LENGTH    = 9;
LITERAL         CHG5_K_LENGTH    = 9;
```