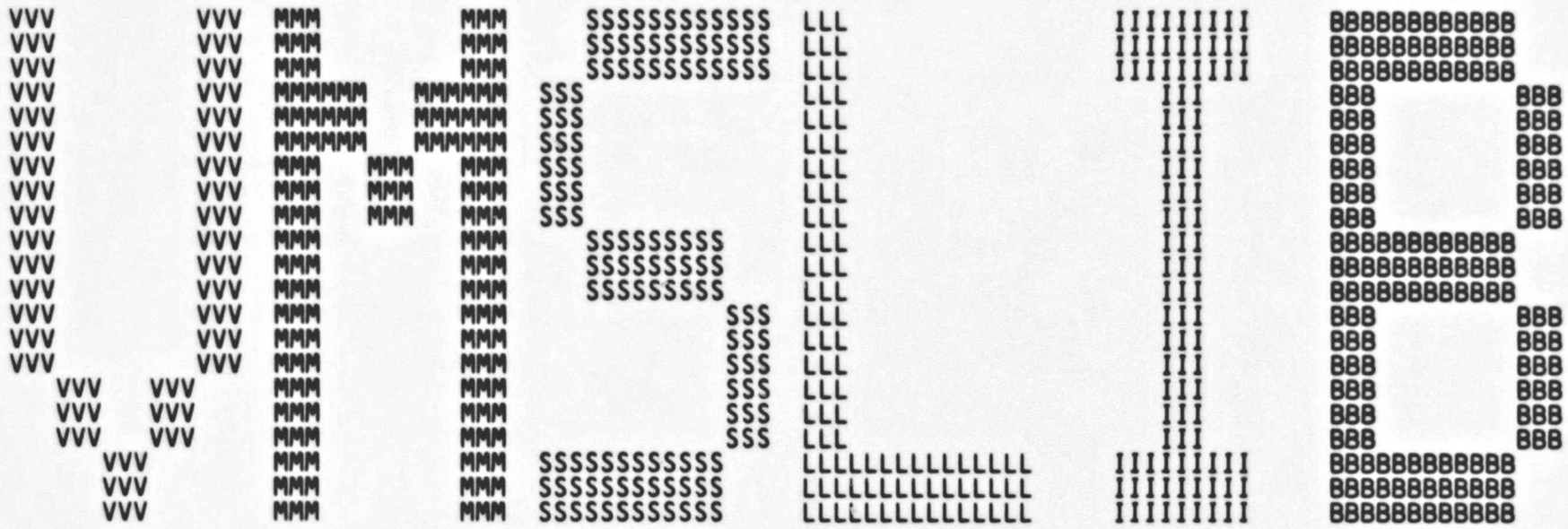
VVV VVV MMM MMM SSSSSSSSSSS LLL IIIIIIIII BBBBBBBBBBB
VVV VVV MMM MMM SSSSSSSSSSS LLL IIIIIIIII BBBBBBBBBBB
VVV VVV MMM MMM SSSSSSSSSSS LLL IIIIIIIII BBBBBBBBBBB
VVV VVV MMMMMM MMMMMM SSS LLL III BBB BBB
VVV VVV MMMMMM MMMMMM SSS LLL III BBB BBB
VVV VVV MMMMMM MMMMMM SSS LLL III BBB BBB
VVV VVV MMM MMM MMM SSS LLL III BBB BBB
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VVV MMM MMM SSSSSSSSSSS LLLLLLLLLLLLLLL IIIIIIIII BBBBBBBBBBB
VVV MMM MMM SSSSSSSSSSS LLLLLLLLLLLLLLL IIIIIIIII BBBBBBBBBBB
VVV MMM MMM SSSSSSSSSSS LLLLLLLLLLLLLLL IIIIIIIII BBBBBBBBBBB
VVV MMM MMM SSSSSSSSSSS LLLLLLLLLLLLLLL IIIIIIIII BBBBBBBBBBB

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  000000    FFFFFFFFFF  FFFFFFFFFF    SSSSSSSS  EEEEEEEEEE  TTTTTTTTTT
  000000    FFFFFFFFFF  FFFFFFFFFF    SSSSSSSS  EEEEEEEEEE  TTTTTTTTTT
00      00  FF          FF          SS          EE              TT
00      00  FF          FF          SS          EE              TT
00      00  FF          FF          SS          EE              TT
00      00  FF          FF          SS          EE              TT
00      00  FFFFFFFF    FFFFFFFF      SSSSSS    EEEEEEEE        TT
00      00  FFFFFFFF    FFFFFFFF      SSSSSS    EEEEEEEE        TT
00      00  FF          FF                  SS  EE              TT
00      00  FF          FF                  SS  EE              TT
00      00  FF          FF                  SS  EE              TT          ....
00      00  FF          FF                  SS  EE              TT          ....
  000000    FF          FF          SSSSSSSS    EEEEEEEEEE      TT          ....
  000000    FF          FF          SSSSSSSS    EEEEEEEEEE      TT          ....

MM      MM    AAAAAA    RRRRRRRR
MM      MM    AAAAAA    RRRRRRRR
MMMM  MMMM  AA      AA  RR      RR
MMMM  MMMM  AA      AA  RR      RR
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MM  MM  MM  AA      AA  RR      RR
MM      MM  AA      AA  RRRRRRRR
MM      MM  AA      AA  RRRRRRRR
MM      MM  AAAAAAAAAA  RR  RR
MM      MM  AAAAAAAAAA  RR  RR
MM      MM  AA      AA  RR    RR
MM      MM  AA      AA  RR    RR
MM      MM  AA      AA  RR      RR
MM      MM  AA      AA  RR      RR
```

```
;
; Version:      'V04-000'
;
;*****************************************************************************
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;
;++
; MACRO TO GENERATE A OFFSET LIST FOR A DATA STRUCTURE
;
;       IT IS USEFUL FOR INPUT ARGUMENT LISTS POSITIVELY INDEXED FROM AP, AND
;       WORK AREAS ALLOCATED IN CALL STACK AND NEGATIVELY INDEXED FROM FP.
;
; CALL: $OFFSET INITIAL,DIRECTION,<<LAB1,[SIZE]>,...,<LABN,[SIZE]>>
;
; WHERE:        INITIAL IS A REQUIRED VALUE FOR THE INTIAL INDEX WHEN
;               ORIGINATING A DATA STRUCTURE DEFINITION.  IT IS NORMALLY
;               (+) 4 FOR ARGUMENT LISTS AND 0 FOR WORK AREAS.
;
;               DIRECTION IS A KEYWORD THAT MUST BE:
;                       POSITIVE - FOR STRUCTURES GROWING UP IN MEMORY
;                       NEGATIVE - FOR STRUCTURES GROWING DOWN IN MEMORY
;                       OR BLANK, IN WHICH CASE "POSITIVE" IS ASSUMED.
;
;               THE LABEL, SIZE LIST IS THE SYMBOLIC NAME FOR THE LOCATION
;               AND THE OPTIONAL SIZE OF THE ELEMENT.  IF BLANK, SIZE IS
;               ASSUMED TO BE 4 ( ONE LONGWORD ).
;
;       TO PERMIT THE DEFINITION OF AN INDEFINITLY LARGE NUMBER OF LABELS,
;       THE MACRO MAY BE CONTINUED.  IN THIS CASE THE "INITIAL" AND
;       "DIRECTION" ARGUMENTS MUST BE BLANK.
;--
        .MACRO  $OFFSET INITVALUE,DIRECTION,SYMLST
        .SAVE
        .PSECT $ABS$ ABS
        .IF  B,INITVALUE
        .=SAVABS...
        .IF NB,DIRECTION
```

```
        .ERROR  ; DIRECTION MUST BE BLANK WHEN CONTINUING;
        .MEXIT
        .ENDC
        .IFF
        DIR...=1
        .=INITVALUE
        .IF NB,DIRECTION
        .IF IDN <DIRECTION>,<POSITIVE>
        .IFF
        .IF IDN <DIRECTION>,<NEGATIVE>
        DIR...=-1
        .IFF
        .ERROR  ; "DIRECTION" MUST BE "POSITIVE","NEGATIVE", OR BLANK;
        .ENDC
        .ENDC
        .ENDC
        .ENDC
        .IRP SYM,<SYMLST>
        $OFFST1 SYM
        .ENDR
        SAVABS...=.
        .RESTORE
        .ENDM $OFFSET

        .MACRO $OFFST1 SYM,SIZ=4
        .IF     LT,SIZ
        .ERROR                  ;***** SIZ PARAMETER NEGATIVE *****;
        .ENDC
        .IF     LT,DIR...
        .BLKB   -SIZ
        .ENDC
        .IF NB,SYM
        .LIST   MEB
SYM:
        .NLIST  MEB
        .ENDC
        .IF     GT,DIR...
        .BLKB   SIZ
        .ENDC
        .ENDM $OFFST1
```

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REQ

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REQ

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B32

STARMISC
MAR

EQDEFM
MAR

TPAMAR
MAR

CALBYNAME
LIS

SCRPROLOG
REQ

STARLET
SDL

SCRTCB
REQ

OFFSET
MAR

SYITABLE
MAR

EQDEFB
B32

JPITABLE
MAR

DVITABLE
MAR

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