SID and ZSID Enhancements under the MP/M Operating System

The following commands have been added or modified in SID and ZSID to allow the user to alter page relocatable files and to write the changed files to disk.

6.1 The Assemble (A) Command

The A command has been modified to allow the user to specify address operands as absolute or relative to the beginning of a page relocatable module and to automatically update the bitmap associated with a page relocatable module. When a file of type PRL, SPR, or RSP has been loaded by SID or ZSID and code is inserted with the A command, address operands which are prefixed with a '*' are assumed to be relocatable addresses and all other addresses are assumed to be absolute addresses. All changes to the bit relocation map which result from this code insertion are automatically made by the debuggers.

See section 3.1 of the SID User's Guide for examples of valid assemble commands.

Given that a file of type PRL, SPR or RSP has been loaded when SID was invoked or loaded by using the I and R commands the following code insertion could be made by the operator:

```
-a950
0950  lxi h,*820
0953  lxi d,40
0946  nop
0957  nop
0958  push d
0959  jmp *2b0
095A
```

where addresses 0820h and 02b0h are relative to the beginning of the module while 0040h is an absolute address.

6.2 The Bit Set/Reset (B) command.

The B command is included in SID and ZSID for compatibility with DDT under the MP/M operating system. The purpose of the command is to enable the user to update the bitmap of a page relocatable file. (Note that this update is automatic with the enhancements to the Assemble command). The user can load a page relocatable file, make changes with the S or A commands, and then after determining which bytes require changes in the relocation map, use the B command to make these changes. The forms are:

(a) Bs,Ø
(b) Bs,1

Form (a) specifies that the bit associated with the address given by s is to contain a Ø thus indicating that the byte at this address in absolute.

Form (b) specifies that the bit assocated with the address given by s is to contain a 1 thus indicating that this byte will require modification when the image is loaded.

Examples of valid commands are:

```
B95Ø,Ø
B952,1
```

6.3 The Normalize (N) Command.

The N command is used to relocate a page relocatable file which has been read into memory by the debugger. After a program in relocatable format has been read by the R command the operator can use the N command to move the program to the transient area of the user's region and adjust all relative addresses. The command form is:

N

6.4 The Value (V) Command.

The V command allows the user to recall the statistics printed when a file is successfully loaded by the debuggers and also to determine the number of records to specify for the W command. Command forms are:

(a) V
(b) Vs

Form (a) displays the following values:

```
NEXT   PC   END   NO. REC
nnnn  pppp  eeee    rrrr
```

where nnnn, pppp, and eeee and the values displayed when the file was loaded by the debugger and rrrr indicated the parameter to specify in the write file (W) command. Note the value of Next (nnnn) is used to determine the value of rrrr.

Form (b) uses s to calculate the number to sectors to write in the W command. When this form of the command is used, only the value of rrrr is displayed.

Valid examples are:

```
V
V2230
```

6.5 The Write Disk (W) Command.

The W command is used to write a changed program image to disk. This command must be preceded with an I command to specifed the name and type of the file to be written. The debuggers will respond with a '?' when a valid I command has not been issued prior to the W command. The form is:

```
Wn
```

where n is the number of 128 byte sectors to be written. The value is entered in hexadecimal.

A valid example is:

```
IABC.PRL
W20
```

which would write 32 sectors to file ABC.PRL. This would be equivalent to saving 16 pages under the CP/M operating system.