

Section 11: Machine Language Linkage

You may find it necessary to perform a task with a routine written in assembly language. You might need the speed of an assembly language routine, or need to conserve memory, or need to use a machine control feature not provided by XYBASIC, or you may want to use an already written assembly language program (for example to process hardware interrupts). XYBASIC lets you access machine language routines stored anywhere in your computer's memory with the CALL and SCALL commands.

CALL

CALL lets you access an assembly language routine. For example,

```
CALL #A000
```

executes an assembly language CALL to the routine at location 0A000H. When the routine executes an assembly language RETURN instruction, the next command after the CALL in the XYBASIC program is performed. The location may be specified by any numeric formula.

One of the few machine control functions which is not directly executable under XYBASIC is to enable and disable the computer's hardware interrupt facility. You can accomplish this with machine language linkage. Suppose you have the following machine language routines stored in ROM at location 0FC00H.

```
FC00          ORG      0FC00H  ;ROM ROUTINE ADDRESS
FC00 FB      ENAB:  EI          ;ENABLE INTERRUPTS
FC01 C9          RET          ;RETURN TO XYBASIC
FC02 F3      DISAB: DI          ;DISABLE INTERRUPTS
FC03 C9          RET          ;RETURN TO XYBASIC
```

These routines may be called with the CALL command. For example,

```
CALL #FC00
```

will enable hardware interrupts. The following program fragment assigns the addresses of the machine language routines to variables to make the function of the CALLs clear.

```
10 ENAB = #FC00      'ADDRESS OF ENABLE ROUTINE
20 DISAB = #FC02     'ADDRESS OF DISABLE ROUTINE
...
100 CALL DISAB      'DISABLE INTERRUPTS FOR SENSITIVE CODE
...
190 CALL ENAB       'ENABLE INTERRUPTS
...
```

This example did not require the passing of information between XYBASIC and machine language. But it is often necessary to pass information to a machine language routine.

To make CALL more useful, XYBASIC lets you pass information, called parameters. You can specify as many parameters as you wish on the same