

OVERVIEW

Frequently, it is necessary to start your 8051 program at an address other than 0000h. This is typically the case when using a ROM monitor that starts at 0000h. To relocate your 8051 programs, you must perform the following three steps.

1. Adjust the address of the reset vector.
2. Adjust the addresses of the interrupt vectors.
3. Locate program code above the reset and interrupt vectors.

These steps are easy to accomplish and each is discussed in the following sections. The following examples assume that your new starting address is 4000h.

RESET VECTOR ADDRESS

Keil C51 comes with source for the startup code. This is where the reset vector is initialized. The startup code can be found in \C51\LIB\STARTUP.A51. You should first make a copy of this file to use with each individual project you create.

The relevant lines of STARTUP.A51 appear as follows:

```
.
.
.
        PUBLIC  ?C_STARTUP
?C_STARTUP:  CSEG      AT          0
              LJMP     STARTUP1
.
.
.
```

Change the line that reads `CSEG AT 0` to read `CSEG AT 4000h`. This tells the assembler that the reset vector is at 4000h.

INTERRUPT VECTOR ADDRESS

Normally, interrupt vectors are located at $3 + \text{offset} + 8 * n$ where n is the interrupt number. C51 provides the **INTVECTOR** directive you can use to adjust where interrupt vectors are located.

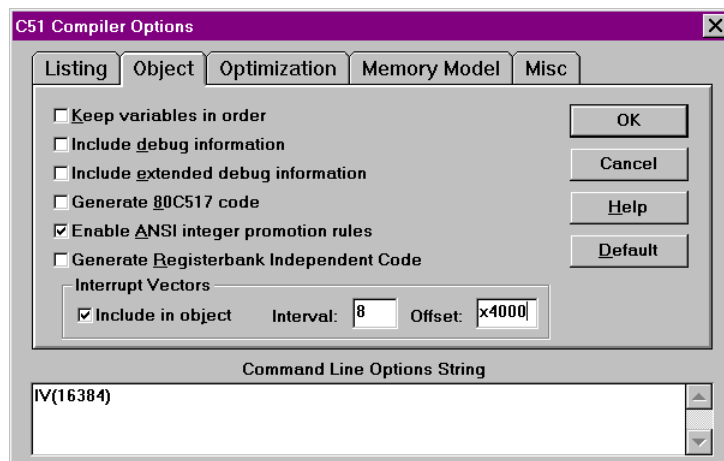
The **INTVECTOR** directive accepts the new offset for the interrupt vector table as an argument. To set the interrupt vector offset to 4000h, compile your program using the following command line:

```
C51 PROGRAM.C INTVECTOR(0x4000)
```

Relocating 8051 Programs

APNT_104

If you use μ Vision, it is easy to set the interrupt vector offset. Select the C51 Compiler Options command from the Options window. Then select the Object tab from the C51 Compiler Options dialog box and set the Interrupt Vector Offset to 0x4000.

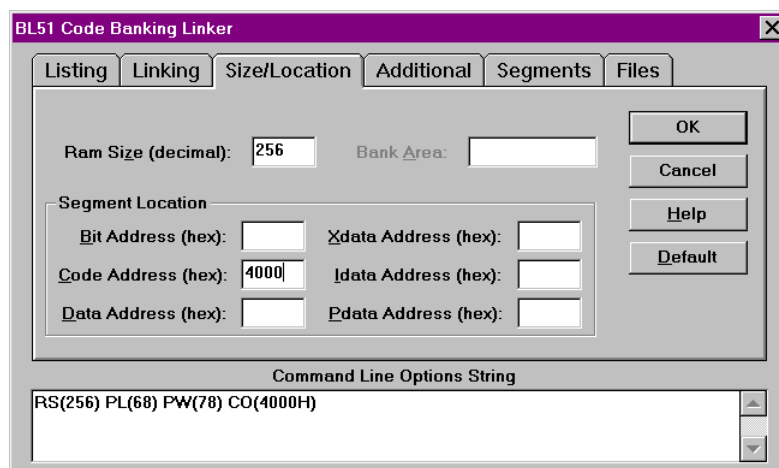


LOCATING PROGRAM CODE

When you link your 8051 program, the BL51 Linker assumes that code memory starts at 0000h. You can use the **CODE** directive to specify the starting location for code memory. Use the following command line to link your program and have code start at 4000h:

```
BL51 PROGRAM.OBJ CODE(0x4000)
```

μ Vision also lets you set the starting code location for the linker. Select the BL51 Linker Options command from the Options window. Then select the Size/Location tab from the BL51 Code Banking Linker Options dialog box and set the Code Address to 4000.



CONCLUSION

If you follow the steps defined above, you can relocate practically all 8051 programs for use with a special monitor or hardware configuration.

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