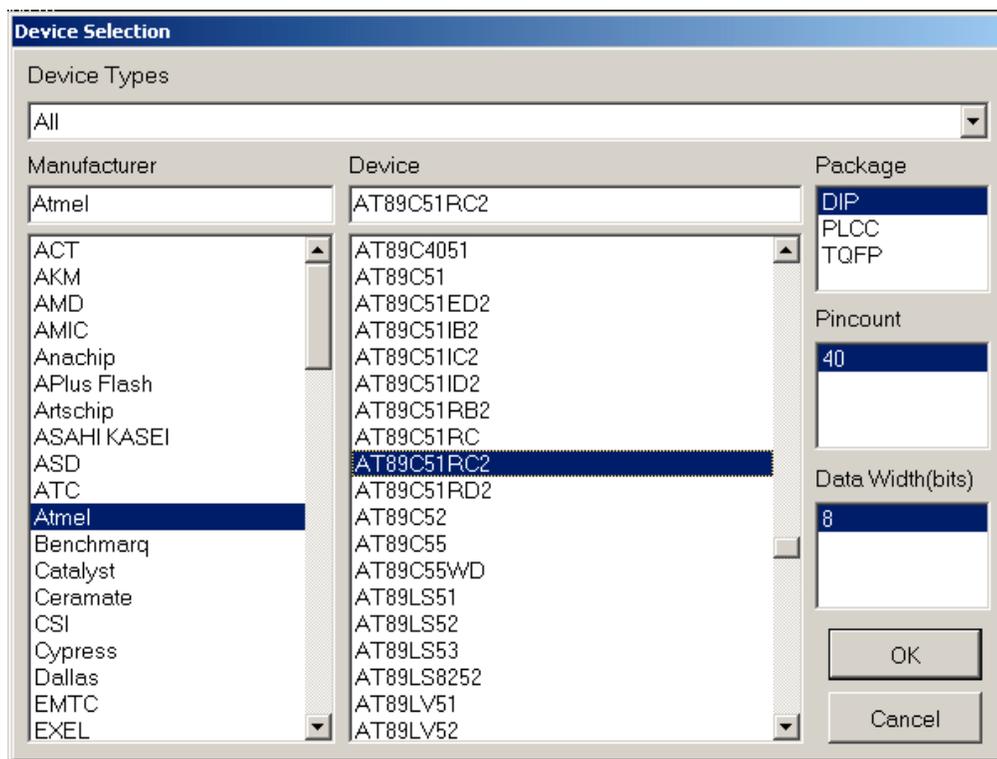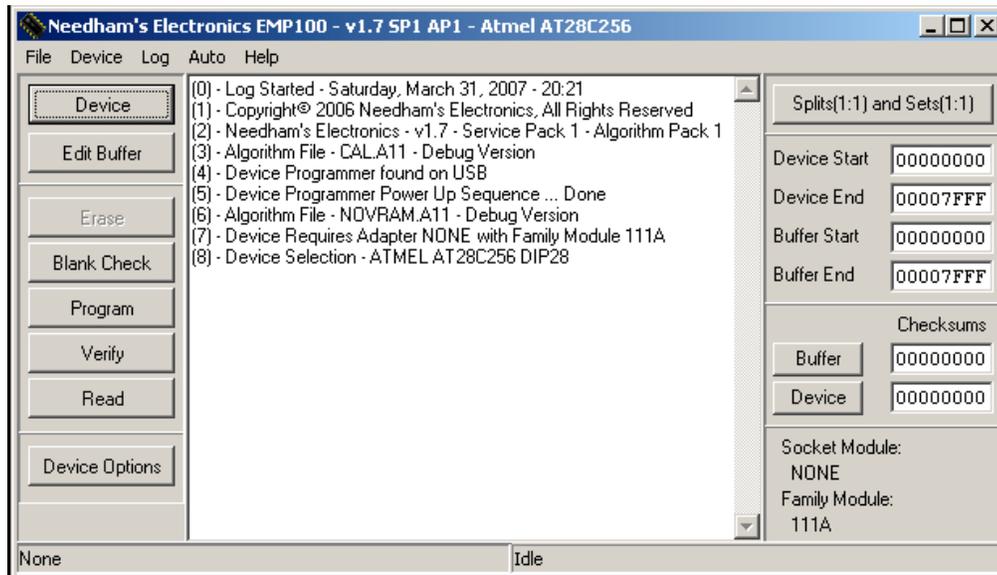# Programming an AT89C51RC2 using an EMP-100 Parallel Programmer

**Step 1: Make sure the correct configuration module is inserted into the programmer. Then carefully insert the processor into the device programmer's slot. Select the device using the NE EMP-100 programmer's software.**





- Make sure that you have selected the proper device package and data width.
- It may give an error if the module on the programmer is incompatible with the device you selected. All programmers in the lab are set up with the 111A family module that supports the AT89C51RC2.

**Step 2: Load hex file and perform erase, blank check.**

- Click on Edit Buffer to load a hex file. It will open a Buffer Editor window in which you can load a file to be programmed by opening that particular file. After opening appropriate file, close the window.
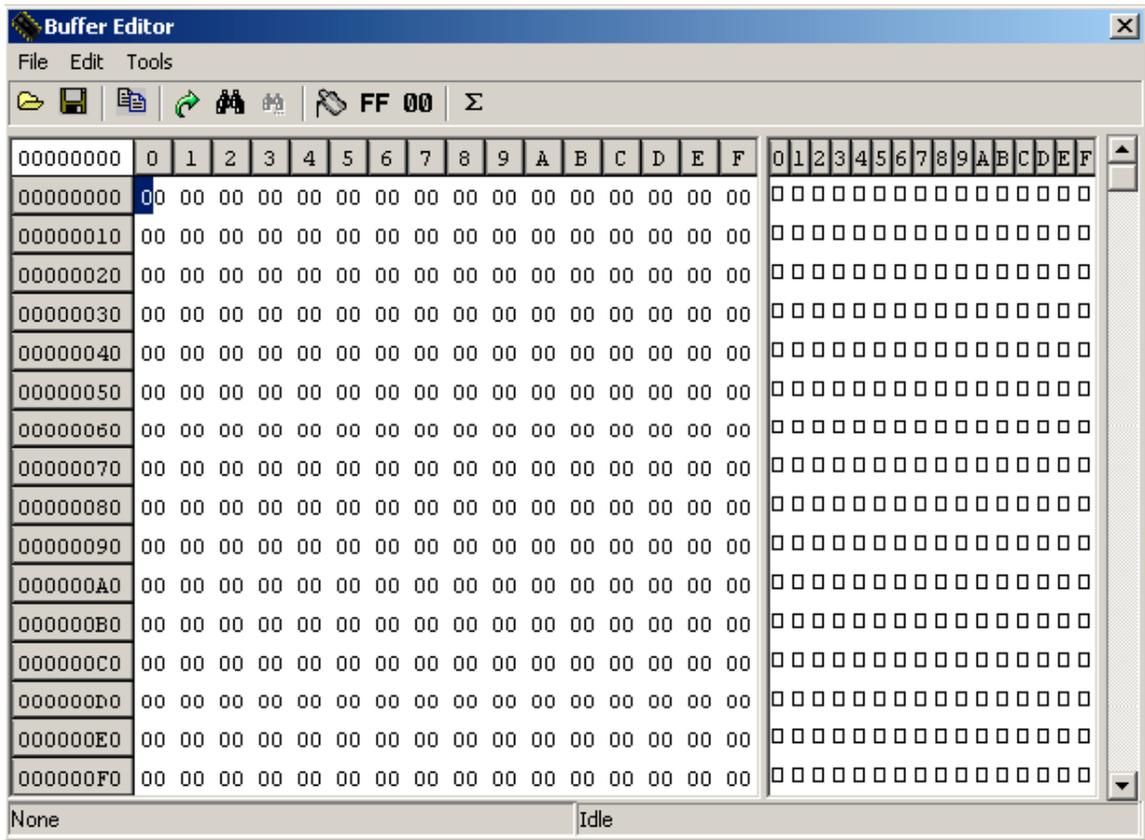


- Before programming the IC, verify that it is blank. If not, then erase it using the Erase button.

**Step 3: Program and verify**

By default (e.g. with a new chip), the AT89C51RC2 starts execution from the bootloader location and not from 0000h. Hence, if you replace the C501 with the AT89C51RC2 and expect to execute code from external memory location 0000h (assuming /EA is low), it will not quite work that way and will instead jump to the bootloader. In order make the Atmel part act like a C501 and execute a program from external memory location 0000h automatically after reset, the Boot Loader Jump Bit (BLJB) of AT89C51RC2 has to be programmed such that reset address is set at 0000h.

To program Boot Loader Jump Bit:
- ➔ Select device
- ➔ Click on Device option
- ➔ Check the auto program check box under the Options tab as shown in the following figure.
- ➔ Select Reset at address 0000h for Boot Loader Jump Bit
- ➔ Press Program.
- ➔ Once programmed, you can read the boot loader status by clicking device options again.