MegaLoad Tutorial

Introduction

A bootloader is a software in a MCU who is need to change the main software in the MCU. Your PC computer use a BIOS, this BIOS can be upgraded to a newer version via a bootloader. MegaLoad do the same but for Atmel Mega MCU who have the possibility to use a bootloader. The way it's work, you need a small piece of software in a particulary location in the Flash ROM « Bootloader section » in the MCU. This software is use to program the main flash ROM software. MegaLoad is in two part, One software in the bootloader Flash ROM section and one software on your PC computer. The PC computer must be connected via a serial port to the MCU to program. Don't forget that you need a level translator for the serial port RS232 of the PC computer and your MCU, like a MAX232.

Where to start with the MCU Bootloader

The first thing to do is to READ the bootloader, fuse bit section in your AVR datasheet. If you open the code in C I have witten with ICCAVR you will see lots of #define. You must use the define that corespond to your MCU. All this information will came from your MCU datasheet and your hardware. Like if you have a ATMega8 it could look like that :

```
---------------------------------------------------------
#define MEGATYPE   Mega8
//#define MEGATYPE Mega16
//#define MEGATYPE Mega64
 …..
#define XTAL       16000000
  …..
#define UART       0
//#define UART      1
//#define UART      2
//#define UART      3
…..
#define BAUDRATE    57600
…..
//#define EEPROM
…..
//#define LOCKBIT
---------------------------------------------------------
```

#define MEGATYPE Mega8   -> will be define so it's your MCU
//#define MEGATYPE Mega8   -> will NOT be

MegaLoad Tutorial

At this point you must also define the good MCU in the assembly file named
« assembly.s » now you need to take the apropriate option in the ICCAVR compiler
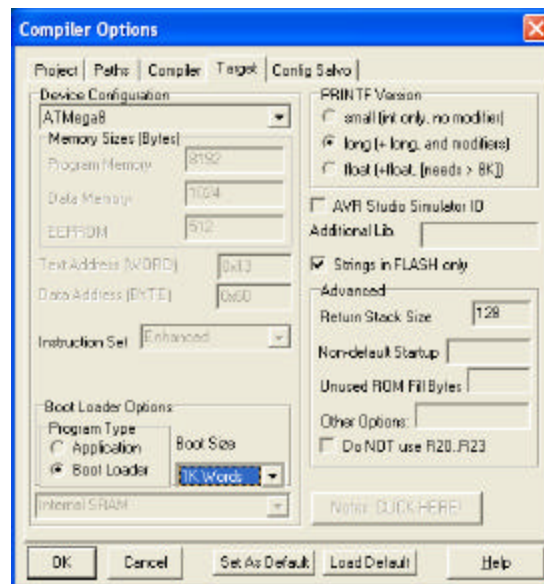
       You need to select the apropriate ATMega MCU Type, Set the BootLoader
Options to « Bootloader » and set the Bootloader size larger than your Bootloader code.
After that when you have a succesfull build, you just have to program this code in your
AVR.

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MegaLoad Tutorial

Now you need to set the apropriate fuse bit in your MCU. You can do that with AVR Studio. Select the good MCU in the Program tab, and in the fuses bit tab select the same size of bootloader you had select in your bootloader code and very imporant select the « Boot Reset » enable, if not your bootloader code will never be executed
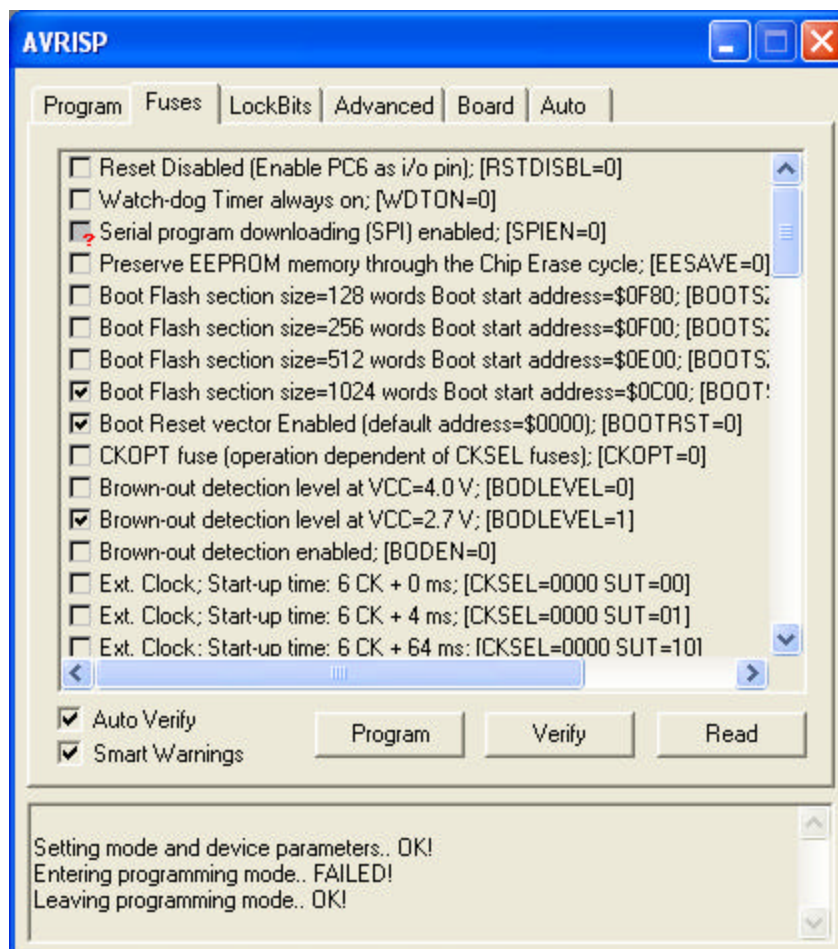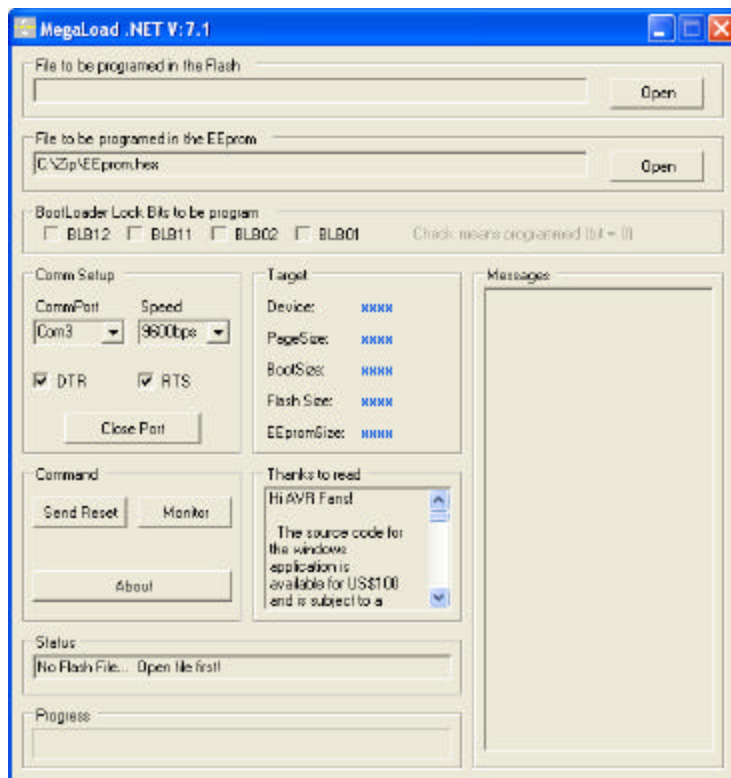
MegaLoad Tutorial

Where to start with the MCU Bootloader

First execute MegaLoad

If you need to only program the Flash ROM of your MCU select the .HEX file to program via the top first open dialog box. Select the port on your PC that is connected to your MCU, select the same speed as you have define in your MCU bootloader, now if you have your MCU connected to your PC, Megaload running, your PC connected to your AVR, the bootloader code programed in your AVR, and you power up your MCU MegaLoad will start programming your target at speed of light

MegaLoad Tutorial

Commun error.

- Wrong fuse bit setting, « Boot on reset, Boot size, Speed » .
- Wrong setting in ICCAVR option menu.
- Forget to define your MCU in the assembly.s file.
- Use the monitor windows in MegaLoad to see if there is communication.
- If you only need flash programing don't set the fusebit programin on.
- If you only need flash programing don't set the eeprom programin on.
- With some USB->Serial converter you can have problem

I wish this document will help you!
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