

## Setting Up the QiDi Tech 1 for SailFish 7.2 and above

Background: The controller board for the QiDi Tech 1 is based on the open source Makerbot MightyBoard Rev E. The files for this board are available on Thingiverse. The main controller of the MightyBoard is an Atmega1280.

Unfortunately QiDi did not program the control fuse bits in the 1280 into the standard configuration used by most of the other 3D printer companies (Makerbot, FlashForge, CTC, etc). The QiDi fuse configuration put it into the largest memory model for the bootloader zone. For this reason, the QiDi Tech 1, unlike the other clones, could not be programmed above SailFish 7.1.

The fuse bits can be reprogrammed using an ISP programmer. This is sort of a surgical strike into the Atmega1280, the ISP reprogramming of the fuse bits can be done without altering any of the control program (like Creator, Marlin or SailFish) or the bootloader program. Once the fuse bits are set to the "clone" standard setting, the QiDi Tech 1 can be reprogrammed thru ReplicatorG just like the other 3D printers to support the higher versions of SailFish.

This document is a quick step thru of the steps required to reprogram the fuse bits of the Atmega1280 controller on the QiDi's MightyBoard. More information will be added as the document evolves. The basic requirements for resetting the fuse bits are:

1. An Atmel ISP programmer that supports the Atmega1280 (not all programmers do, check before you buy one). The programmer must support the standard 6 pin interface. I used an Atmel STK500, which is very old but works just fine.
2. An installed copy of AVR Studio. I used version 4 but anything version 4 thru 6 should work.

CAUTIONS: 1. If you are uncomfortable with reprogramming microcontrollers or working with electronics, don't attempt it. 2. Use good static suppression methods when working with the MightyBoard. 3. I did all of this with the QiDi Tech 1 3D printer UNPLUGGED from the wall, the STK500 provides all of the 5V required to keep the Atmega1280 powered up to reprogram it. 4. Move the print carriage to the side you are tilting the printer to.

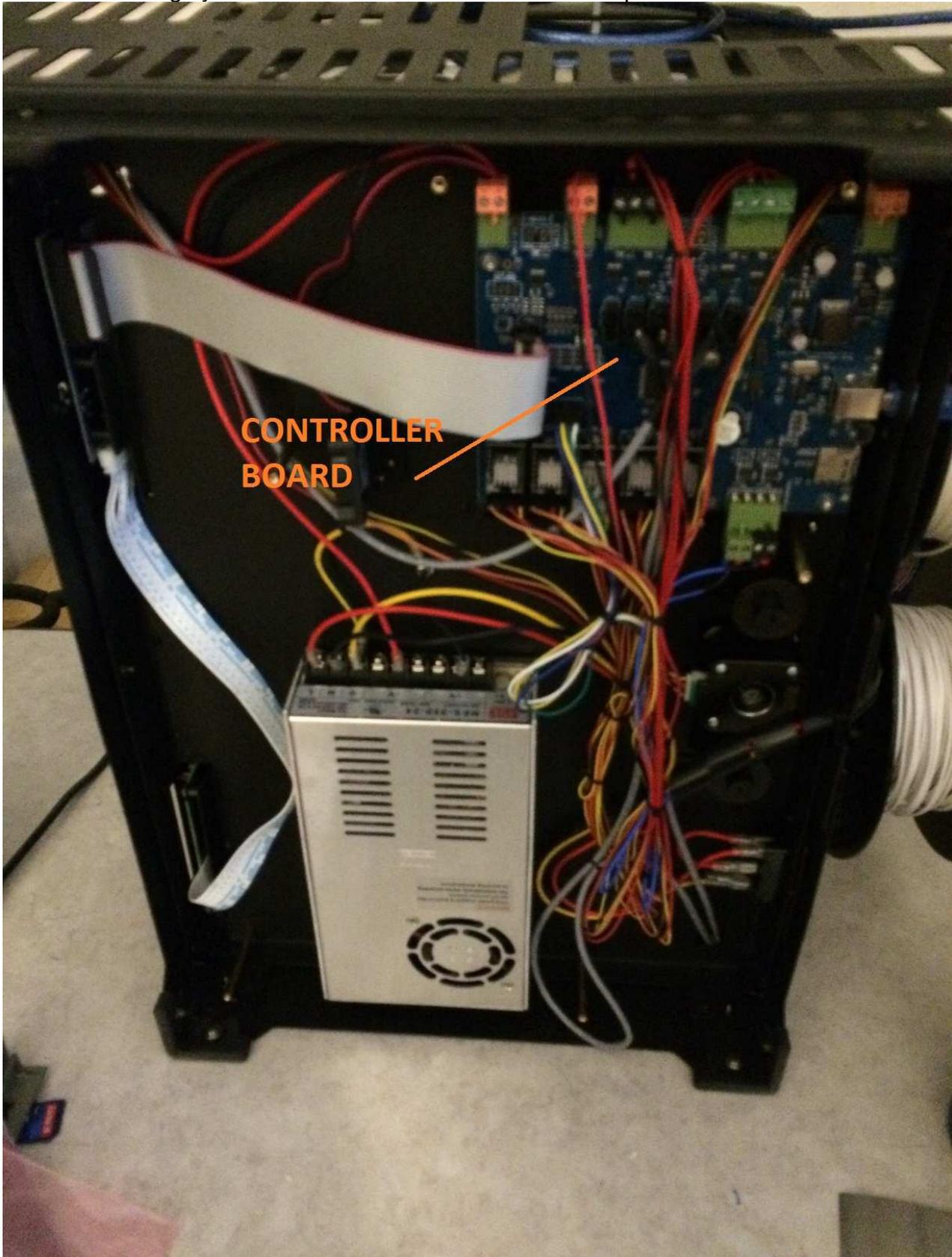
If you brick your controller, don't blame me. You have been warned.

So here we go:

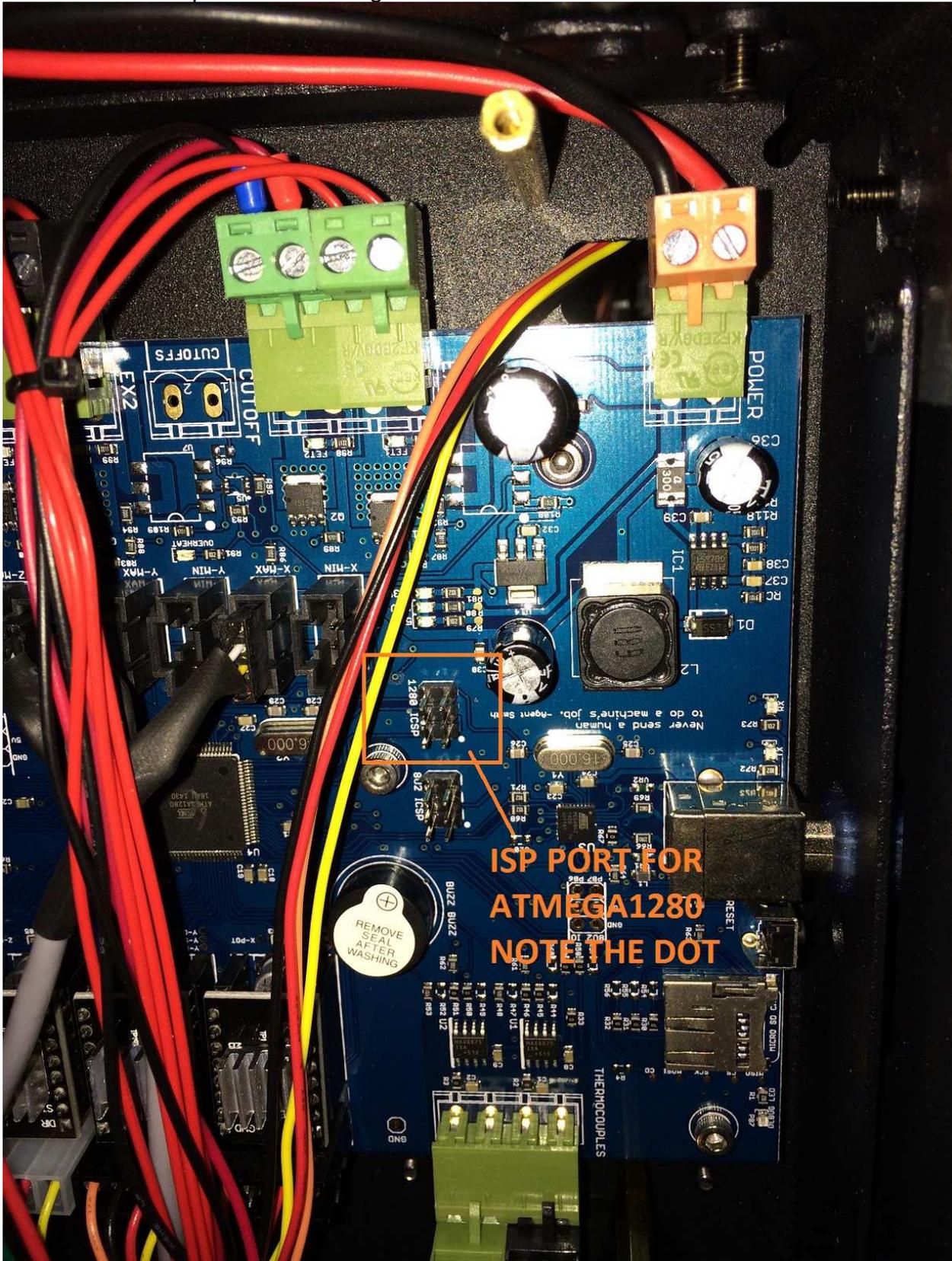
1. Tilt the QiDi Tech 1 on its side to expose the under belly. Remove the bottom cover by removing the 6 3mm allen head screws. Note the allen wrench was supplied with the printer.



2. Locate the MightyBoard controller board once the bottom panel is removed:



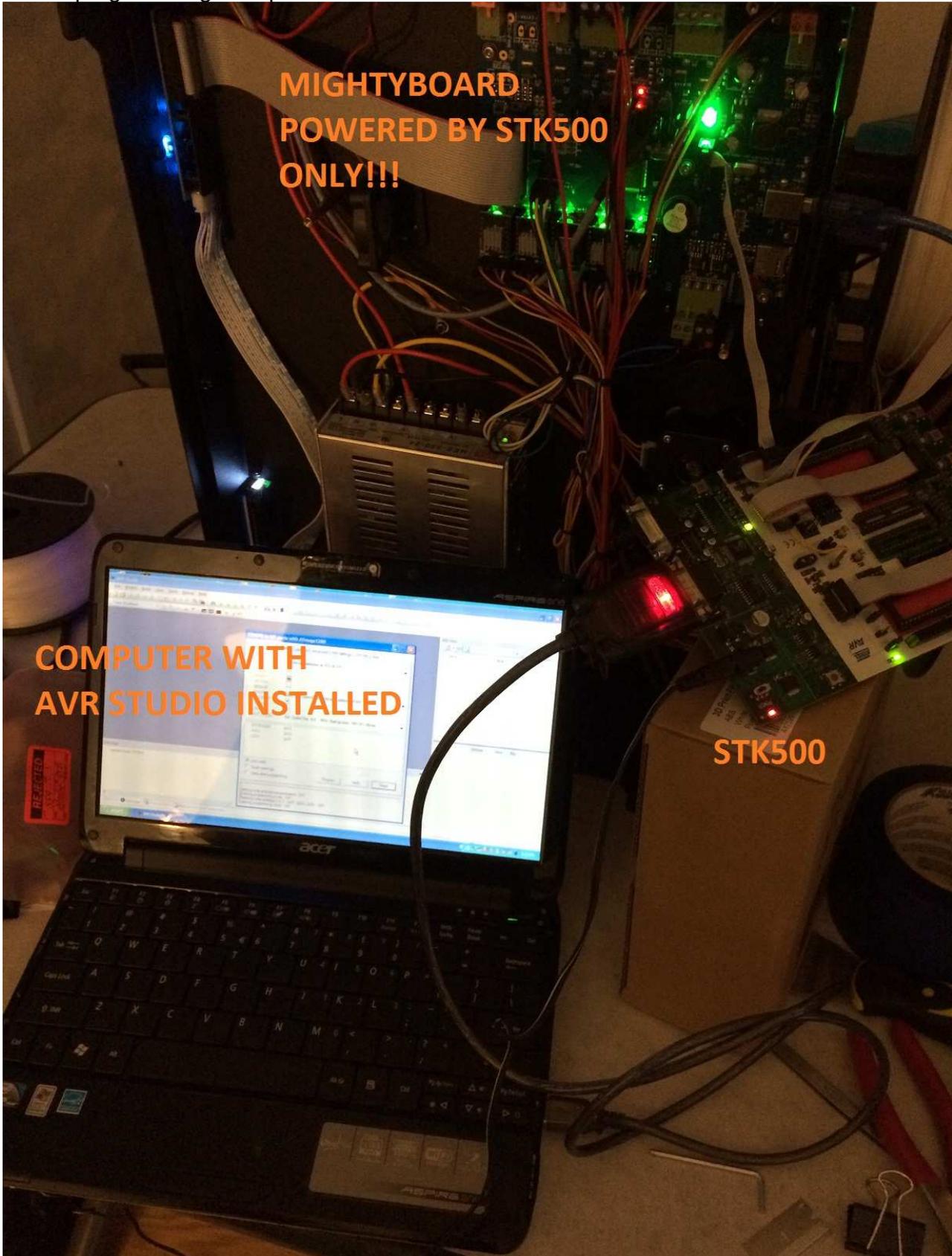
3. Locate the ISP port for the Atmega1280:



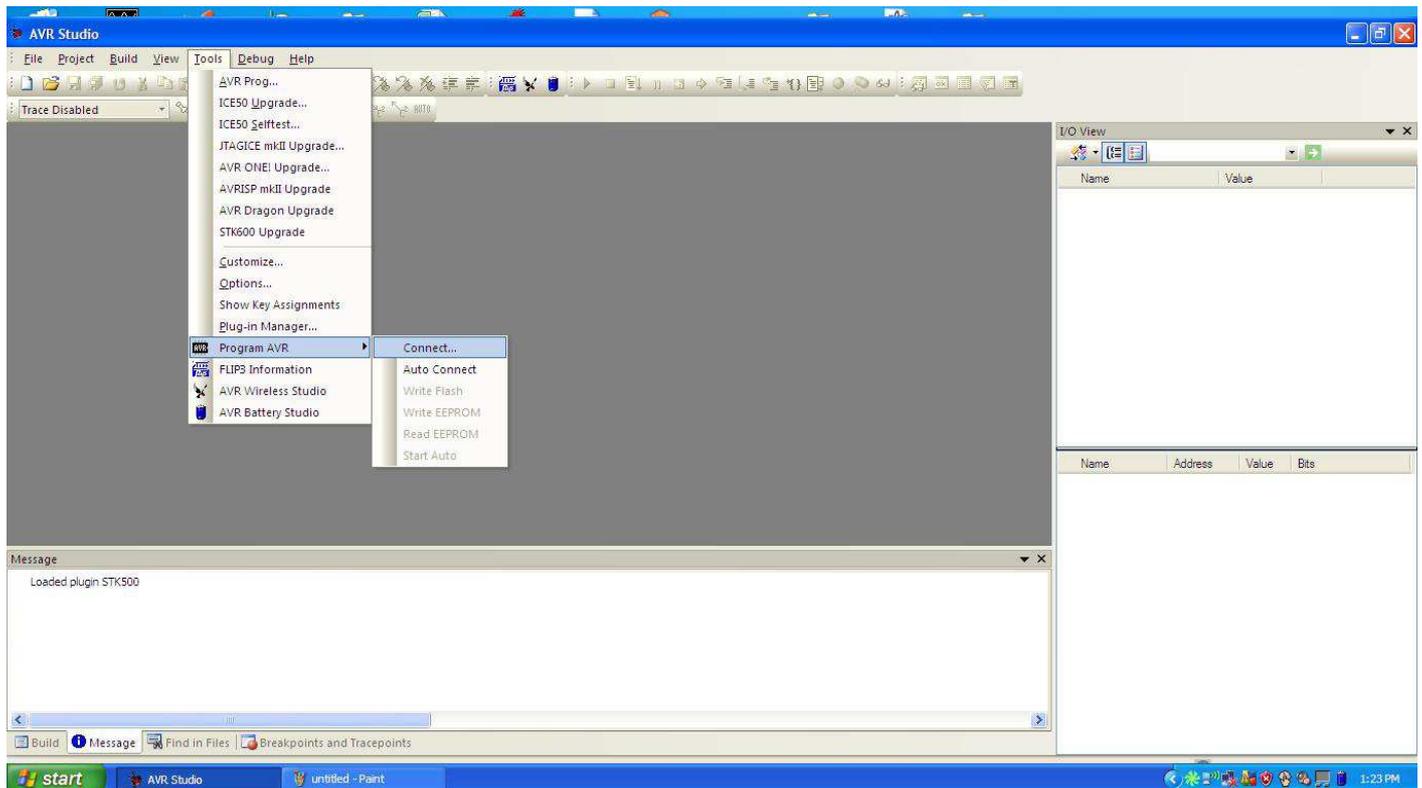
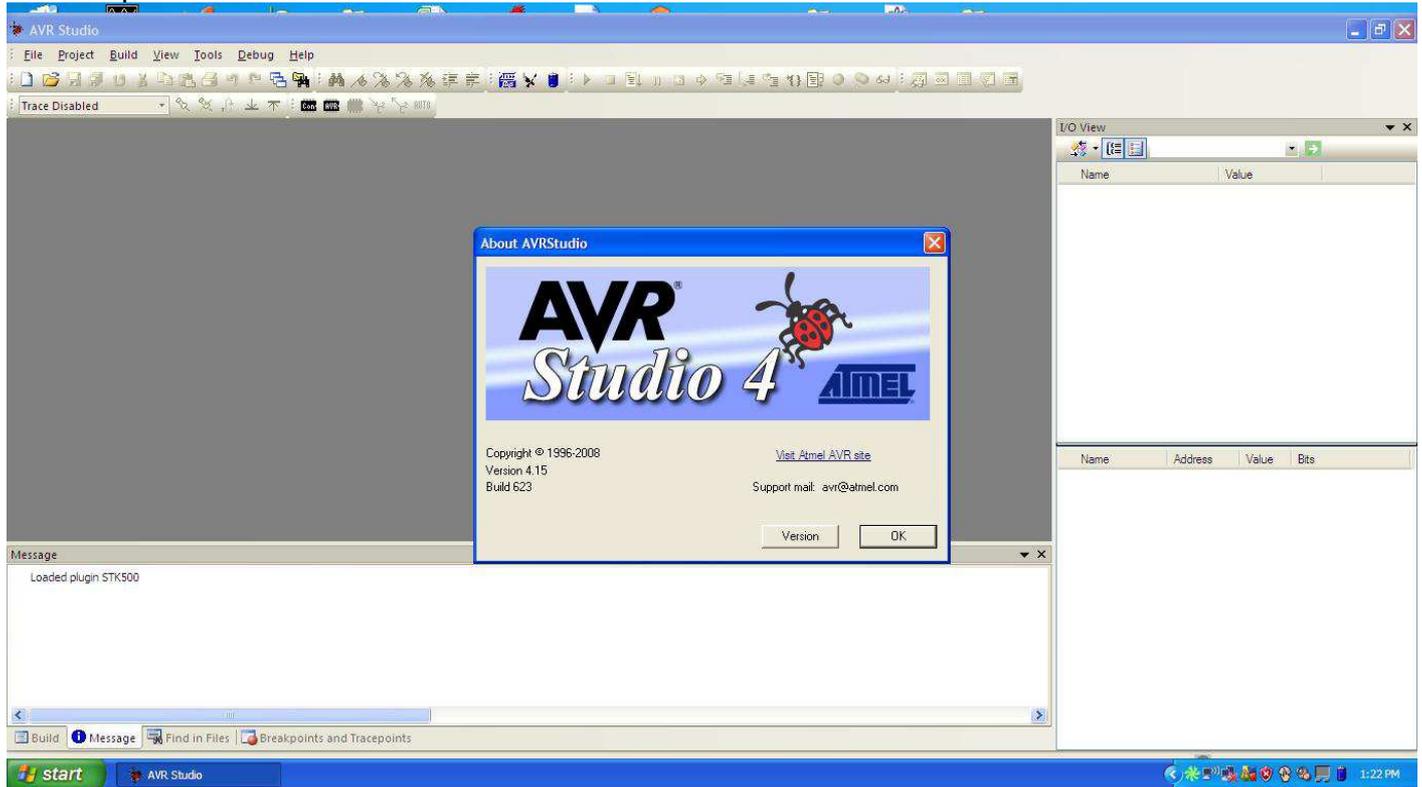
4. Attach the 6 pin ISP programming cable from your programmer:

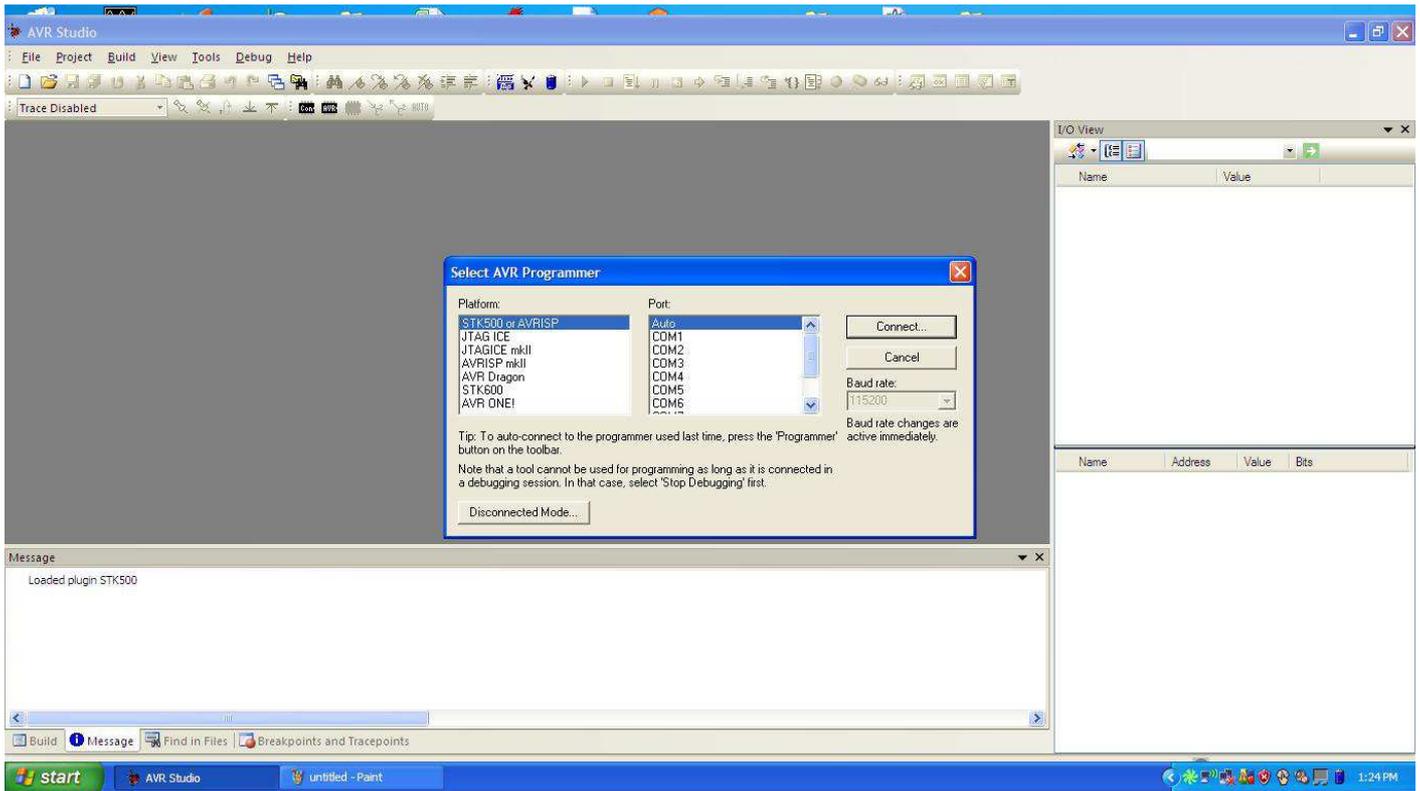


5. The programming set up looks like this:

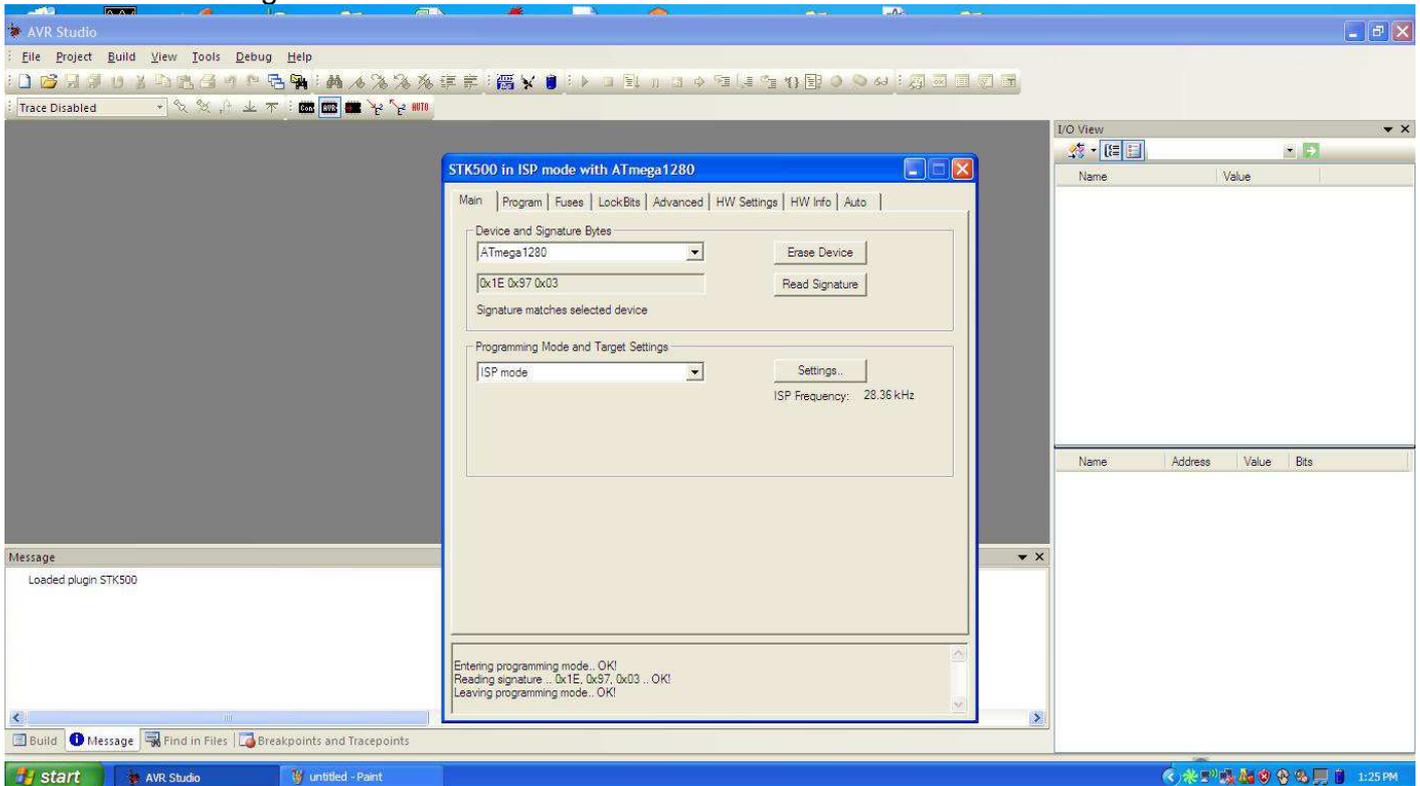


## 6. Fire up AVR STUDIO and CONECT TO THE PROGRAMMER:

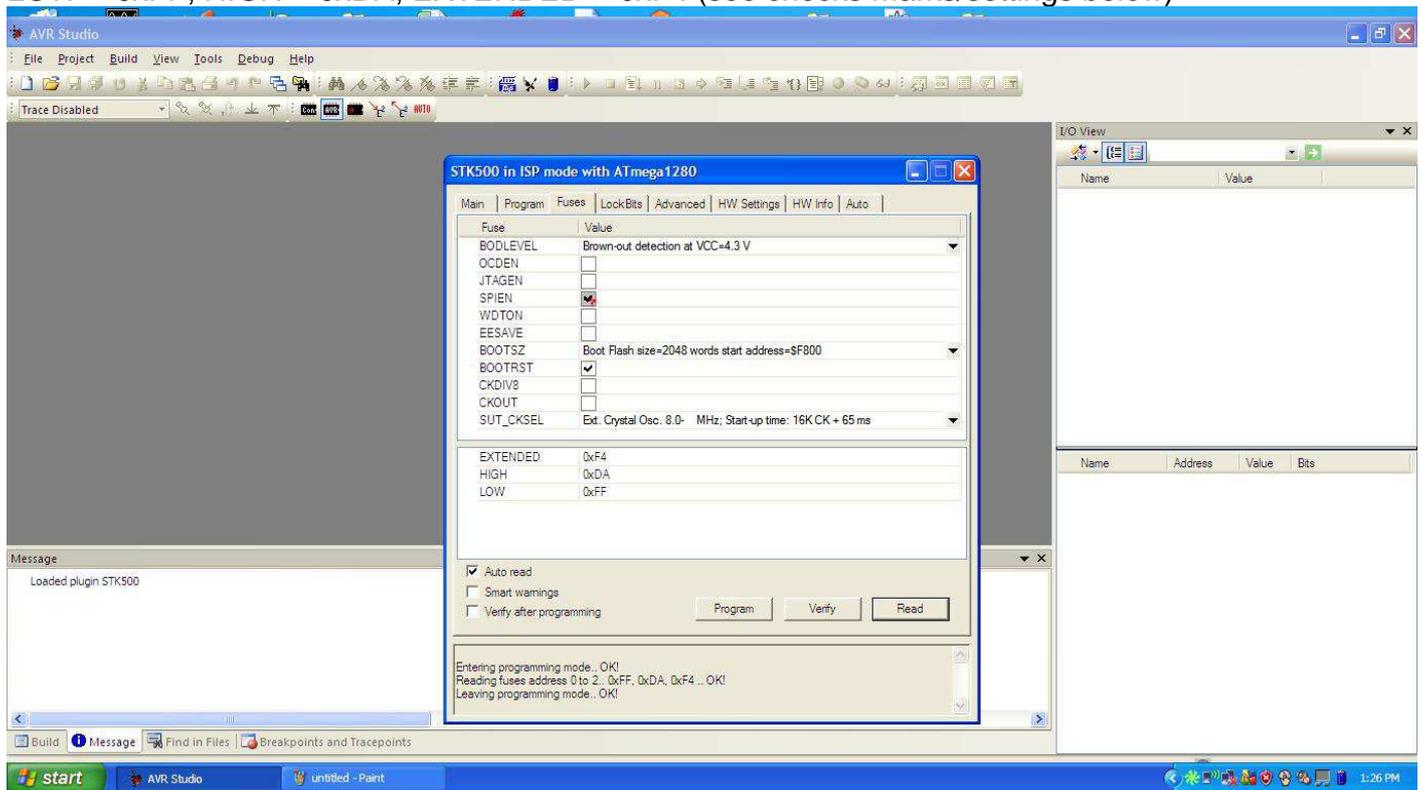




## 7. Select the Atmega1280 from the main menu:



8. Go to the Fuses page, read the current fuses, then set the fuses to:  
LOW = 0xFF, HIGH = 0xDA, EXTENDED = 0xF4 (see checks marks/settings below)



Program and verify the fuse bits. Detach the six pin ISP cable. Put the bottom cover back on. Right the printer. Plug the printer power cord back into the wall.

Attach the USB cable. Fire up ReplicatorG. Use the instructions listed elsewhere to program a higher level of SailFish.