

IMU6410 stk500v2.02 bootloader Release Notes V1.11

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This is a new version of the stk500V2 bootloader with the ability to remain in the bootloader if the running application sets EEPROM location 1 to 0x55. The latest version of the IMU6410 Data Logger V0.97 has this functionality built-in. It is no longer necessary to use a jumper to keep the bootloader active on power up.

The latest bootloader is in folder stk500v2_newsoc. This bootloader was built using AVR Studio 4.19.

This AVR Studio 4.19 project contains an stk500v2 compatible bootloader for the ATmega1284P processor used on the IMU6410 10DOF sensor platform. With this bootloader installed it is possible to use either Arduino AVRdude or AVR Studio 4.19 programming tools to load new applications into the IMU6410. The source code is a modified version of code developed by others and was only slightly modified to work with the IMU6410.

The bootloader autostarts an installed application approximately 2 seconds after power up. To prevent the bootloader from automatically starting the application install a jumper between pins PB6 (MISO) and GND on connector J2 or have the application modify EEPROM location 1 to 0x55 and jump to the starting address of the bootloader. The stk500v2 bootloader will then wait for programming commands on the USB serial line. If the jumper is used it can be removed after or during the programming step.

The USB chip is the XR21V1410 - a suitable CDC serial driver is available from the EXAR web site. Note that AVRdude and AVR Studio both work with low COM channel numbers so if the COM channel selected by the driver exceeds 10 remove all the phantom serial drivers.

Included with the distribution is the SOC Robotics parallel port programming utility isprog.exe. This utility can ISP program the ATmega1284p via a PC's parallel port using a CISP programming adapter on connector J2. ISProg.exe automatically detects the type of AVR chip so no setting is required.

Make sure the fuses are set correctly - the IMU6410 runs at 3.08V so disable or correctly set the low voltage reset fuses. The default is 0xFF.

The Fuse Lock Byte is set to 0xEF preventing the bootloader from overwriting itself.

The Fuse Bytes are set to 0xFF, 0xDA and 0xE7

The bootloader now starts at 0x1F000 rather than 0x1E000 giving more space to the application.