

## AVRUSBBoot - USB bootloader for Atmel AVR controllers

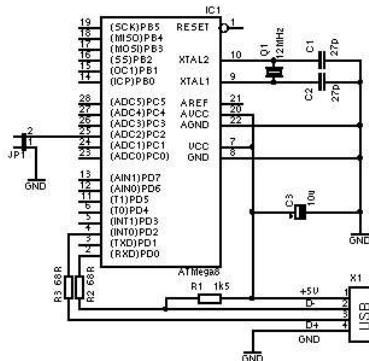
AVRUSBBoot is a bootloader for the Atmel AVR controllers. It uses a firmware-only USB driver to transfer binary data from the PC to the flash of the controller. Once the AVR is flashed with the bootloader, no other ISP programmer is needed; then the microcontroller can be reprogrammed over USB.

### Features

- Software works under multiple platforms. Linux, Mac OS X and Windows are tested.
- Tested with ATmega8-16
- No special USB controllers or smd components are needed.
- Bootloader fits into 1024 word bootloader block

### Hardware

Basically AVRUSBBoot can be used with all circuits which are supported by the AVR USB driver. To switch between the bootloader and the application, an additional jumper is necessary. Here is an example (Here the levels on the data lines are 5V which doesn't meet the USB specification! The supply voltage should be regulated to 3,3V - 3,6V):



### Firmware and adaptation

The firmware has to be adapted to your hardware. All necessary changes has to be done in the following two files:

- `bootloaderconfig.h`: Define the condition when the bootloader should be started, e.g. if a special pin is put to ground with a jumper, and the initialisation of the hardware.
- `usbconfig.h`: Define the used data line pins. You have to adapt `USB_CFG_IOPORT`, `USB_CFG_DMINUS_BIT` and `USB_CFG_DPLUS_BIT` to your hardware. The rest should be left unchanged.

Compile the firmware. You need `avr-gcc`, `avr-binutils` and `avr-libc`:

```
$ cd firmware
$ make
```

The bootloader firmware has to be written to the controller with a ISP programmer. Once the bootloader is flashed, you don't need a programmer and you can download the binary data over USB. Don't forget to set the fuses for the external clock source when flashing the bootloader for the first time!

### Software

A C++ tool for downloading hex files is provided. To compile the program, you need `libusb`.

```
$ cd software
$ make
```

When the device is connected and the bootloader is started (set the jumper before connecting the device), hex files can be written to the flash of the microcontroller:

```
$ ./avrusboot test.hex
```

### Download

[avrusboot.2006-06-25.tar.gz](#) (128 kB)

### Links

<http://www.obdev.at/products/avrusb/> Firmware-only AVR USB driver  
<http://libusb.sourceforge.net/> libusb  
<http://libusb-win32.sourceforge.net/> LibUsb-Win32