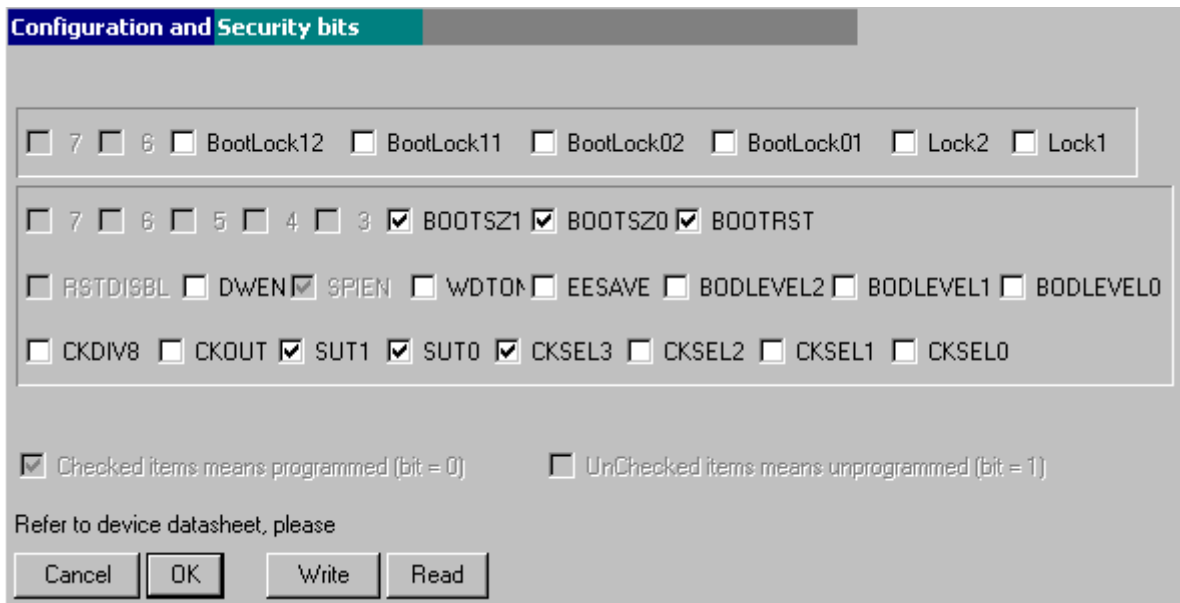
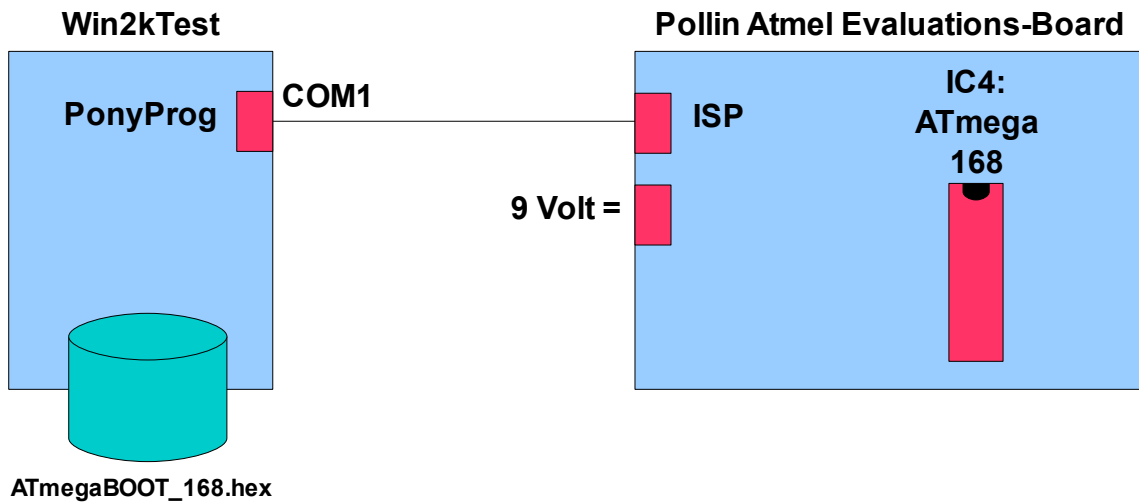


Selfmade-Arduino mit ATmega 168 und 328

Inhaltsverzeichnis

1. Atmega 168 – Serial Setup am 19.12.2009.....	2
1.1. Hardware.....	3
1.2. Software.....	3
1.2.A. PONYPROG2000.....	3
1.2.B. ATmega168 Fuse Settings.....	3
2. Burn mit USB-RS232 Kabel.....	4
2.1. Hardware.....	4
3. Anschluß ATmega 168 auf Breadboard.....	5
4. Burn 328 / Duecimila.....	6
4.1. Bootloader.....	6
4.2. Fuses.....	6

1. Atmega 168 – Serial Setup am 19.12.2009



Selfmade-Arduino mit ATmega 168 und 328

1.1. Hardware

- ATmega 168
- Pollin AVR Evaluation Board mit ISP

1.2. Software

- Arduino 015 - kein Erfolg
- ARV Studio 4.x - kein Erfolg

1.2.A. PONYPROG2000

- Calibration
- Setup >> COM1
- Device >> AVR 168
- Open File:
 - P:\Bastel\prj_Arduino\AXL burn 168\bootloader168\bootloader168
 - ATmegaBOOT_168.hex
- Write Device

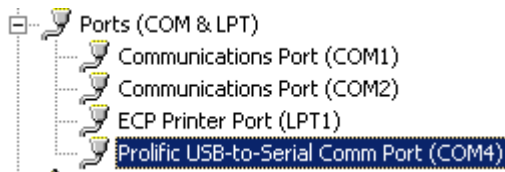
1.2.B. ATmega168 Fuse Settings

- <http://www.engbedded.com/fusecalc>
- SET Fuses:
 - **BOOTSZ1, BOOTSZ0, BOOTRST**
 - **SPIEN** (ausgegraut)
 - **SUT1, SUT0, CKSEL3** --- nicht CKSEL2!
- Once set the fuses should read 0xF8, 0xDF and 0xFF, which is equivalent to:
 - Boot Flash section size = 1024 words Boot start address = \$1C00; [BOOTSZ=00]; default value
 - Boot Reset Vector Enabled (default address = \$0000); [BOOTRST=0]
 - Brown-out detection disabled; [BODLEVEL=111]
 - Ext. Crystal Osc.; Frequency 8.0 - MHz; Startup time PWRDWN/RESET: 16K CK/14 CK + 64ms; [CKSEL=1111 SUT=0]
- AVRdude: -Uhfuse:w:0xdf:m -Ulfuse:w:0xc7:m -Uefuse:w:0x08:m

2. *Burn mit USB-RS232 Kabel*

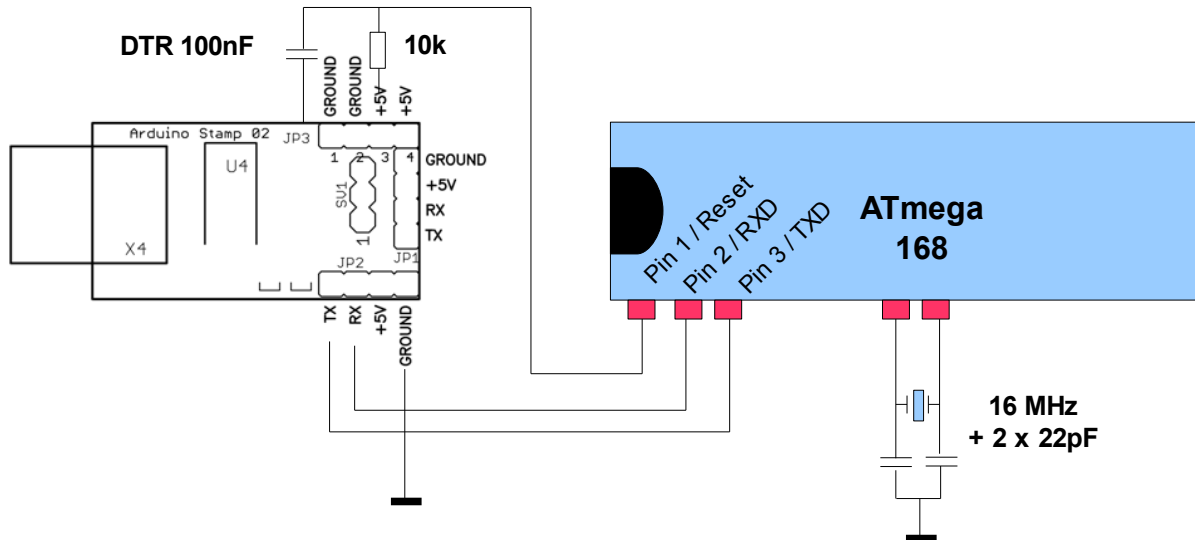
2.1. Hardware

- ATmega 168
- Pollin AVR Evaluation Board mit ISP
- Pollin USB nach RS232 Kabel



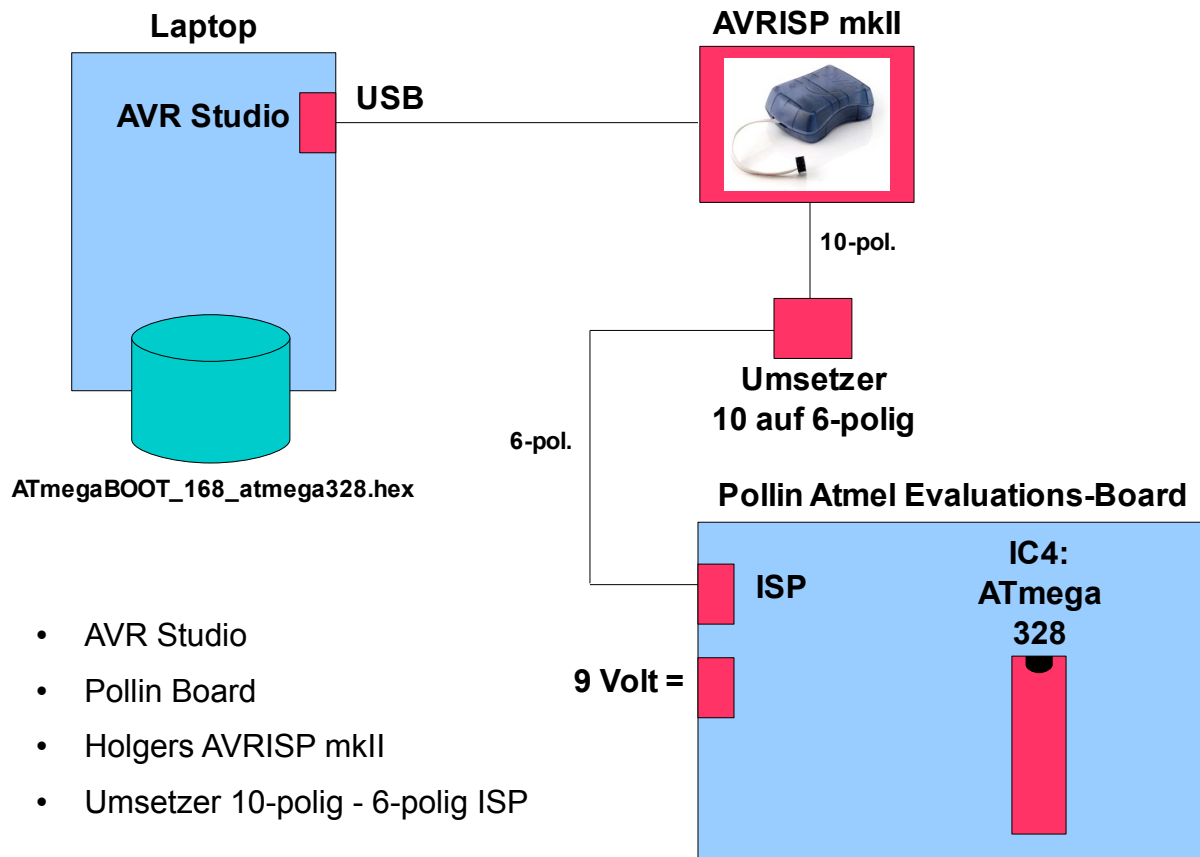
- PonyProg
 - COM4
 - **extrem langsames Schreiben & Verify - ungetestet**

3. Anschluß ATmega 168 auf Breadboard



4. Burn 328 / Duedecimila

02.01.2009



4.1. Bootloader

C:\Programme\Arduino\hardware\bootloaders\atmega

ATmegaBOOT_168_atmega328.hex

4.2. Fuses

EXTENDED: 0xFD

HIGH: 0xDA

LOW: 0xFF

<http://blog.modifiedelectronics.com/2009/08/arduino-atmega328-fuse-settings.html>