

Tooltron - Enhancement #1079

Network Programming Support

02/03/2010 10:57 PM - Kevin Woo

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|--|-------------|------------------------|------------|
| Status: | Fixed | Start date: | 02/03/2010 |
| Priority: | Normal | Due date: | |
| Assignee: | Brad Neuman | % Done: | 0% |
| Category: | | Estimated time: | 0.00 hour |
| Target version: | | | |
| Description | | | |
| Flesh out a system for network programming of tools. Perhaps look into how the Colony bootloader works as well as what the ATtiny2313 documentation says on bootloading or writing to program flash. | | | |

History

#1 - 02/06/2010 08:58 PM - Kevin Woo

We need to use the Self-Programming Flash feature of the ATtiny2313. Page 155 of the datasheet.

Notes from the datasheet:

- Need to make sure the SELFPRGEN fuse is set
 - Write to the flash 1 page at a time
 1. Fill temp page buffer
 2. Erase the page to write (Page Erase)
 3. Write the buffer to the page (Page Write)
 - Erasing a page
 1. Set page address in the Z-pointer (ZH + ZL, Z[15:0])
 2. Write 0x03 to SPMCSR and immediately execute SPM ASM instruction
 - Writing a temp page
 1. Set up address in Z-pointer
 2. Put data in R1:R0
 3. Write 0x01 to SPMCSR and execute SPM ASM instruction
 - Do not do any EEPROM writes as it will erase the temp page
 - Writing a page
 1. Set up the page address in Z-pointer
 2. Write 0x5 in SPMCSR and execute SPM ASM instruction
 - Must be page aligned address
 - Will pull the data from the temp buffer
- Notes about setting fuses:

This page describes how to set/read the fuses through AVRDUDE pretty clearly. We have to convert them to hex ourselves.

<http://electronics.psychogenic.com/modules/arms/art/14/AVRFusesHOWTOGuide.php>

Note that the self-program enable fuse is located in the efuse section, not fuseh or fusel as all the standard fuses.

#2 - 02/07/2010 03:19 PM - Kevin Woo

AVR-LIBC seems to have some macros to make this easier: http://www.nongnu.org/avr-libc/user-manual/group__avr__boot.html

#3 - 02/07/2010 08:56 PM - Kevin Woo

512byte boot loader. We can probably modify this. It's setup to use the uart protocol I believe. Need to login to avrfreaks to see it though.

http://www.avrfreaks.net/index.php?module=Freaks%20Academy&func=viewItem&item_type=project&item_id=625

#4 - 02/27/2010 02:25 PM - Kevin Woo

- *Status changed from Assigned to Fixed*

Network programming is implemented and works.