

High_speed_USI user documentation

A project is supplied that enables this software (SW) USI implementation to be tested. This program can be used as a template of others to employ or they can use copy and paste to retrieve bits of interest.

It has been tested on the ATtiny 461, 861 and ATtiny 44, 84 devices which provide 14 and 20 pin hardware with 4kB or 8kB of program memory.

Recommended steps for getting things going are:

- Open project UNO_AVR_programmer_V2 posted here on 21 Oct 2020.

- Download

 - UNO_AVR_programmer_V2

 - Cal_ATtiny_44_461_V2

- Use Arduino to upload the programmer to the UNO development board

- Calibrate the target as described in the project documentation

- Download Project “High_speed_USI” from here.

- Use the UNO_AVR programmer to upload the High speed USI to a target.

When programming is complete the target should automatically run. It generates user prompt “R.....R.....R.....”.

Press “r” to run a series of USI tests or “R” to read a text file saved to flash.

Note: The Project.h file requires user input:

- The baud rate can be selected (options have been set up for 9600, 19200, 38400, 57600, 76800, 115200, 128000, 144000 and 256000 Baud).

- There are two sections, one for ATtiny 44/84 devices and one for 461/861 devices. The unwanted section should be commented out.

Two sample text files are provided to be saved to program memory. One is suitable for 4K devices and the other for 8K.

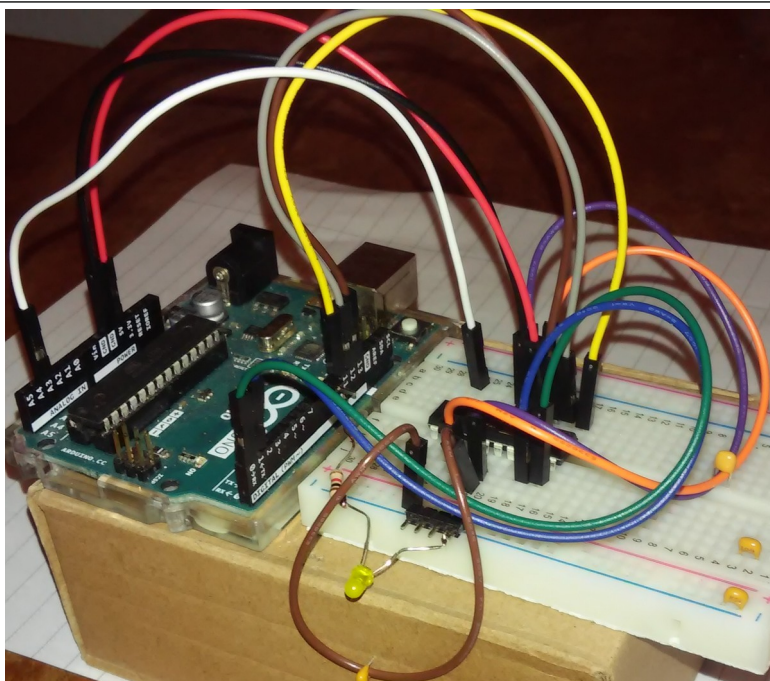


Photo of the development setup for the ATtiny 461/861

Wires are RS part no
791-6463

Breadboard is
RS part no
102-9147

5V
Decoupling has not been used
with the ATtiny

Interconnections

Wire Colour	UNO		ATtiny 461/861	
				Pin
Red	5V		+5	5
Black	GND		0V	6
White	A3	PORTC3	PB7 (RESET)	10
Yellow	Digital IO 11	MOSI	MOSI PB0	1
Grey	Digital IO 12	MISO	MISO PB1	2
Brown	Digital IO 13	SCK	SCL PB2	3
Blue	Digital IO 1	Tx	USI DO PA1	19
Green	Digital IO 0	Rx	USI DI PA1	20
Orange 2			5V AVCC	Pins 5 to 15
Brown 2			AGND	Pins 6 to 16
Brown 3	Digital IO 8	LED + Res	AGND	Pin 16