

Homework: _____ Points: _____

Bonus Work: _____ Points: _____

Microcontroller VL

Protocol for Part I

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Declaration of Academic Honesty

I hereby declare that this protocol (text and code) is my own original work, that I have completed this work using only the sources cited in the text, and that neither this protocol nor parts of it have ever before been submitted to this or any other course.

(Date)

(Signature of Student)

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Note: This template is provided to show you how Latex works and may not contain all subsections your protocol should contain. See the homepage to find out what entries your protocol should contain.

1 A.B Digital Output (DL1)

1.1 Task

Pin Assignment

Simple I/O board	
LED0	PC0
CC_LEDS	PB0

Connect LED0 of the Simple I/O board to pin PC0 of the ATmega16 controller board. Connect pin CC_LEDS to PB0. Write a program that turns on LED0 and then enters an infinite empty loop. Make sure you only set the bits you need, not the whole port!

1.2 Questions

1. How do you have to set CC_LEDS and LED0 to turn on the LED and why?

The answer to this question. If you have to include graphics (EPS files generated by gnuplot), here is how to do it: Figure 1 shows the characteristic curve of ...

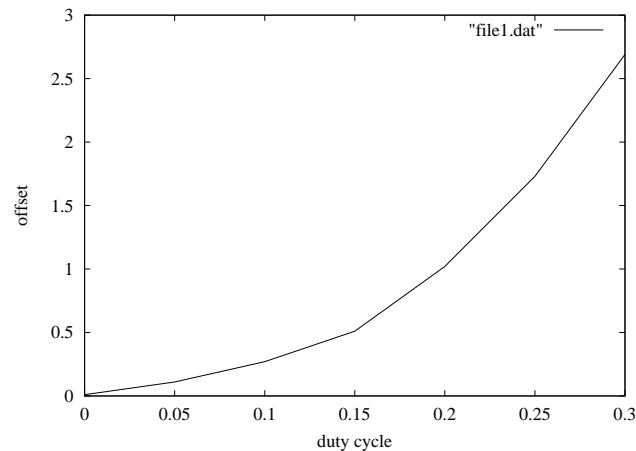


Figure 1: Characteristic curve of ...

2. Do you need to activate the internal pull-up resistors? Why or why not?

3. Why does the LED stay on even though the controller only sets PB0 once and then does not touch it again?

4. Which register did you set first, DDRx or PORTx? Explain your choice.
5. If you reset the board, what happens to LED0 during and after the reset?

1.3 Problems

Put all problems you encountered into this section. This is important information, which allows us to determine where there are problems. (Don't worry, we don't take points.)

1.4 Work

reading manuals, datasheets	1 h
program design	0.5 h
programming	1 h
debugging	3 h
questions, protocol	1.0 h
Total	6.5 h

2 X.Y Next Exercise (DLn)

Write subsequent exercises like shown above. Again, remember that you may need more subsections than shown above.

A Listings

A.1 A.B Digital Output (DL1)

```
; your source code
```

A.2 X.Y Next Exercise (DLn)