Midterm Preparation
Questions?
Administration

Project schedule has changed
• Launch project 6 after break
• Only have 6 – 9 left
  – A couple will be worth 2 programming credits
Information Sources

- In-class exercises
- Zyante book
- Pencasts
- Linked web pages
- Lecture notes
- Prior exams
Exam Parameters

• Closed notes, books, electronic devices
  – Exception: one page of personal notes
• Multiple choice
  – Can grade your exam as you leave
• Assigned seating
Number Representations

• Conversion between binary and:
  – Decimal
  – Hexadecimal
• Unsigned versus signed (2’s complement) representations
  – Two conversion methods
• Bit-wise operations: &, |, ~, ^
Arithmetic

• Adding/subtracting binary numbers
• Taking the 2’s complement of a number (taking its negative)
• Shifting left/right (multiplication/division by 2)
Atmel Digital Input/Output

How to use:

• DDRx
• PORTx
• PINx
Circuits

• Resistors
• Diodes
• Analog comparators
Moving Between Analog and Digital

Digital to Analog:
• Resistive network

Analog to Digital:
• Flash ADC (with analog comparators)
• Successive approximation
Motor Control

- H-bridges
- Pulse-width modulation
Not on this exam…

• Serial communication
• Timers/counters
• Finite state machines