ELEC327: Lecture 8

Midterm Project, Schematics, Datasheets
Logistics

• **Next labs:**
  – Midterm projects (demo 2/19, written 2/21)
  – PCB design (design #1 due 3/7)

• **Thursday - Prof. Ashu Sabharwal visit**
  – *(please be on time!)*
Midterm Project Tidbits

• As part of your presentation/report
  – Find and read the datasheet
  – Theory of operation?
  – Interesting/important details of circuit

• As part of your written report
  – Include commented code
  – Include circuit diagram / “schematic”
  – Include “BOM” (“bill of materials”) and cost estimate for complete system.
PCB design

- Schematic / “netlist”
- PCB layout
- Software checks between them
Lab 6

- Schematic / PCB design for your midterm project using EAGLE Cad
- INCLUDE – MSP430, clock crystal, interface elements
- EXCLUDE – Modules that you will connect to (unless you want to include them as part of project)
- Will assemble and test PCBs for Lab 7.
More logistics

• Next class – using EAGLE Cad
• Labs 8, 9
  – digital filtering / signal processing
  – encryption
  – error correction
  – wireless communications protocols
  – suggestions?
MSP430G2553

Functional Block Diagram, MSP430G2x53

- Clock System
- 16MHz CPU incl. 16 Registers
- Emulation 2BP
- JTAG Interface
- Spy-Bi-Wire
- Brownout Protection
- Comp_A+ 8 Channels
- Watchdog
- WDT+ 15-Bit
- Timer0_A3 3 CC Registers
- Timer1_A3 3 CC Registers
- USCI A0 UART/LIN, IrDA, SPI
- USCI B0 SPI, I2C
- Port P1 8 I/O Interrupt capability pullup/down resistors
- Port P2 8 I/O Interrupt capability pullup/down resistors
- Port P3 8 I/O pullup/pulldown resistors