This week….

- Grading caught up (almost):
  - HW 1 & 2
  - Project 1
  - Quiz 2
  - Quiz 1 still coming (answers posted to main web page)
- Project 2 due this week
- Midterm on Thursday

Midterm Preparation

- Exam discussion on D2L
  - Post sample questions (and answers)
- Look to homework assignments and exams from last year (both the midterm and final) for the types of questions

Midterm Exam

- No books
- No electronic devices
- You may bring 1 page of **your own** notes
  - Double-sided
- Assigned seating

Digital Logic

- Digital circuits
  - Truth table
  - Symbols used in circuit diagrams
  - NOT, AND, OR, NAND, NOR, XOR
  - Cascading basic gates
  - Multiplexers, demultiplexers
- Tri-state buffers

Number Representations

- Conversion between binary and:
  - Decimal
  - Hexidecimal
- Bit-wise operations

Sequential Logic

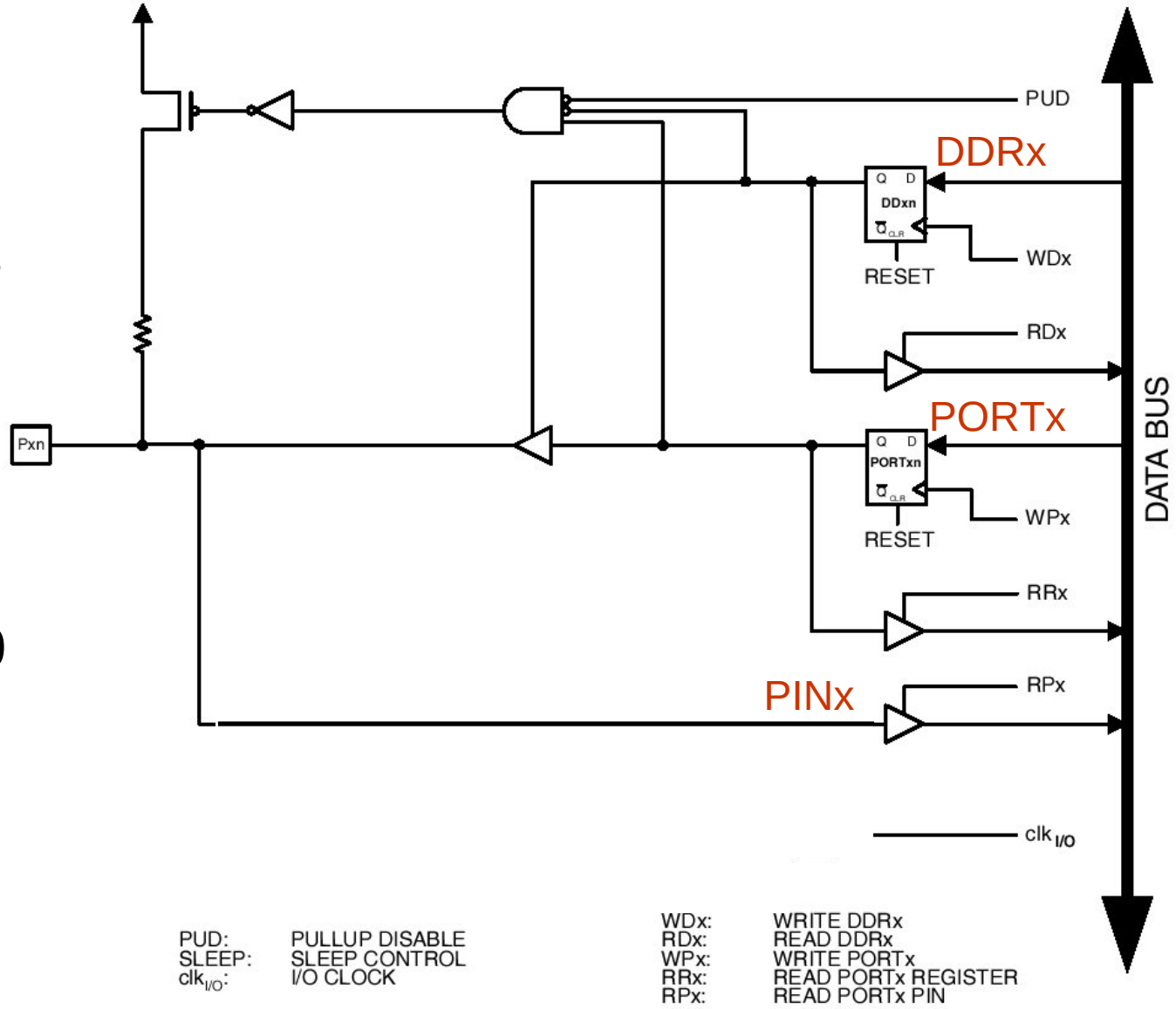
- Notation
  - Timing diagrams
- D flip flops
- Circuits with flip flops
  - Shifters
  - Counters
  - Memory
- Circuit analysis
  - How does the circuit behave?

Microprocessor Components

- Memory
- Registers:
  - General purpose
  - Special purpose, e.g.:
    - Program counter
    - Instruction register
- Instruction decoder
- Arithmetic logical unit
- Data bus

Microcontroller I/O

- Function of the primary components
  - DDRx
  - PORTx
  - PINx
- Relationship to C code



Memory

- Components and behavior
- Types of memory
- Memory elements
- Primary I/O lines
  - Address
  - Data
  - Chip select
  - R/W
  - Clock

Serial Communication

- Bits are spread out in time on a single signal line
- Start bit:
  - Signals the receiver that a byte is coming
  - Allows the sender and receiver to synchronize their clocks
- Stop bit(s): allows the receiver to check that a byte is valid