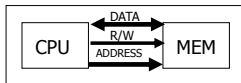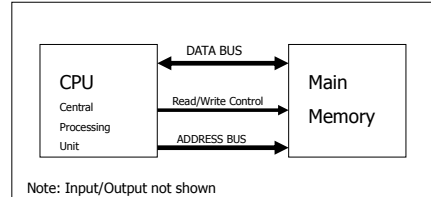# Conceptual Computer Architecture
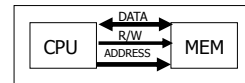
Dr. J. T. Wunderlich
Elizabethtown College

Conceptual Computer Architecture for typical PC

- Mother Board:

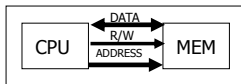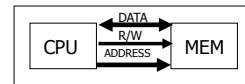| CPU Central Processing Unit	DATA BUS	Main Memory
	Read/Write Control	
	ADDRESS BUS	

Note: Input/Output not shown

- CPU (Central Processing Unit):
  - Processes all Machine Instructions
  - Contains some "fast-access" memory (usually static-RAM or "Latches" made from "D type Flip-Flops")
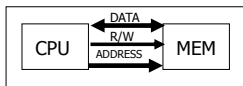
- MEMORY ("Main Memory"):
  - Stores Machine instructions
  - Stores Data (i.e., "operands" for instructions)
  - Typically made from Dynamic RAM (Random Access Memory)

- DATA BUS:
  - 8 to 128 bit wide electrical pathway
  - Exchange data between CPU and "Memory"
  - Exchange machine instructions from CPU to "Memory"

- ADDRESS BUS:
  - 16 to 40 bit wide electrical pathway
  - Takes Memory addresses generated by CPU to address memory locations

```
              DATA
        ┌──────────────┐
 CPU    │     R/W      │   MEM
        │   ADDRESS    │
        └──────────────┘
```

- Read/Write Control:
  - Wires from CPU to Memory which signal to memory when read or write is to happen