Registers
- CPU working space
- Top-level hierarchy
- Number & function vary

User Visible
- Programmer
- Minimize MM references

General Purpose
- Can be assigned variety of function
- May be true GP: operands for any opcode
- May be restricted: floating-point & stack operation
- Can be used for data or addressing (register indirect, displacement)

Data
- May only hold data, cannot be used for operand address (Acc.)

Address
- May be used for an addr. mode (Index Reg.)

Condition
- A set of bits set by the processor hardware
- Cannot (usually) be set by programs
- Can be read by programs

Control & Status
- Control unit
- Control the operation of processor
- Not visible to users

Control & Status
- PC, IR, MAR, MBR
- Program Status Word (PWS)
Design Issues

- Completely use GPRs v. specialized their use
  - *Flexibility, programmer options; instruction size, complexity*
  - Smaller (faster) instruction; less flexibility

- Num. of registers
  - Fewer = more memory references
  - More != less memory references; more operand specifier bits

- Register length
  - Registers for addresses hold the largest address (full address)
  - Registers for data hold the values of most data types (full word)
  - Combine two data registers to hold one double-length value (C, int & double)