

What Is A Processor?

- Something that processes!



Example applications:

- Microwave oven controller
- CD or DVD player
- Hearing aid
- Personal computer
- Digital watch
- Cell phone
- Radar for an airplane
- Wireless network processor

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What Is Inside One?

- Three main components
 - Memory

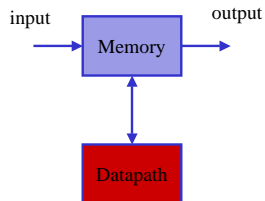


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What Is Inside One?

- Three main components
 - Memory
 - Datapath

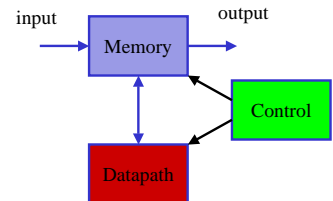


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What Is Inside One?

- Three main components
 - Memory
 - Datapath
 - Control

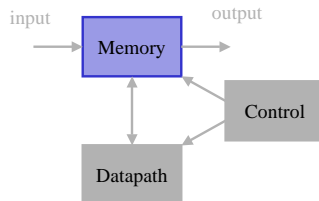


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Memory

- Stores information
- Examples
 - Temporary chip memory
 - "256 MB RAM"
 - Permanent chip memory
 - "Flash non-volatile memory"
 - Hard disk
 - "80 GB disk"

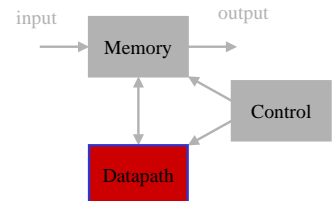


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Datapath

- Processes information
- Example tasks
 - Add
 - Multiply
 - Move
 - Compare

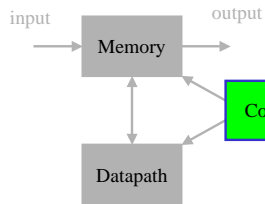


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Control

- Runs the show
- Examples
 - Software
 - Word, Excel
 - Large database
 - Hardware (best for simpler, fixed, high-speed tasks)
 - MP3 player
 - Signal processing



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Simple Blocks Working Together Example #1

- Auto cruise control
 - Watch car's speed (*input*)
 - Compare with set speed (*datapath, compare*)
 - If adjustment is needed, add or subtract (*datapath*) from setting and send update to gas pedal (*output*)



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Simple Blocks Working Together Example #2

- Google search
 - Type in search words (*input*)
 - Look through lar database of web pages (*memory*) until matches are found (*datapath, compare*)
 - When list is found, send it to user (*output*)



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Simple Blocks Working Together

- Key point
 - Simple operations alone can not do much, but billions of simple operations per second can do a lot!

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