

Computer Hardware: System Components



ICS3U: Introduction to
Computer Science

What Is Computer Science?

Computers



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- Interface controllers (parallel, serial, USB, Firewire) – connect to external peripherals.

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Many people mistakenly refer to the case as the *CPU*.

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Typical desktop case

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Case

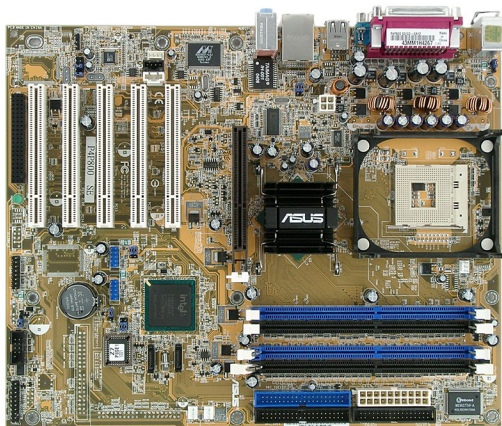


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Like cases, there are many different form-factors for motherboards.

Motherboard



ASUS P4P800 Motherboard

Central Processing Unit (CPU)



- The CPU is the “brain” of the computer.

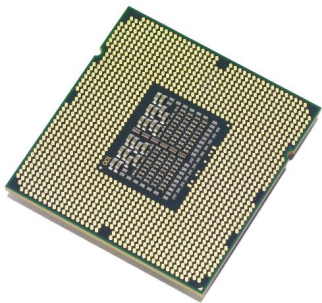
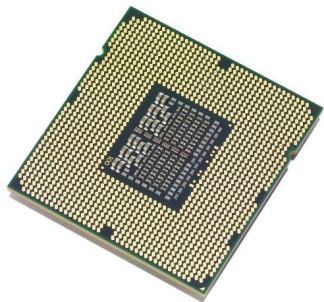


Figure: Intel Core 7 CPU

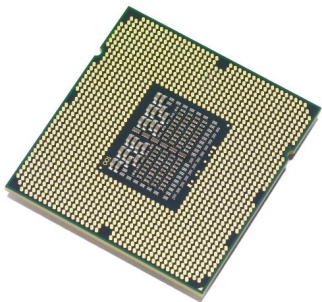
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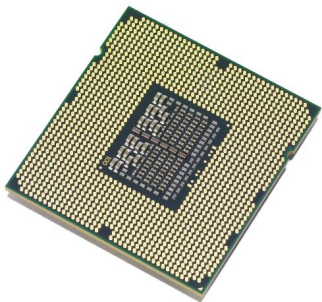


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- Popular vendors are Intel, AMD and VIA.

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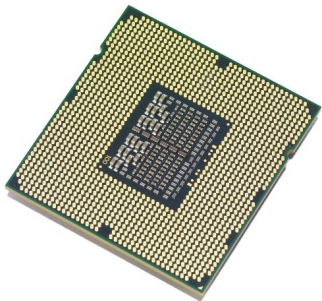


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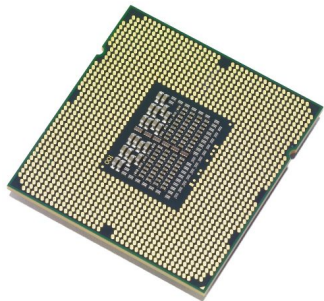
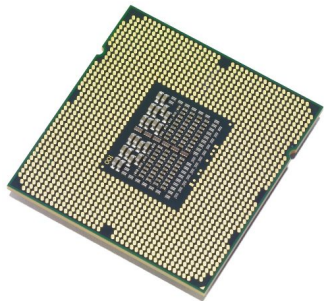


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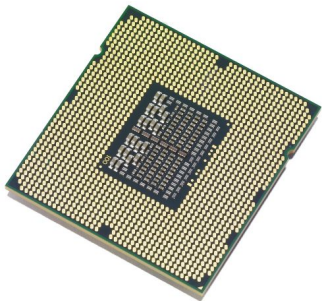


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- Some CPUs contain multiple *cores*, which allow multiple tasks to be run in parallel.

Main Memory



Memory temporarily holds data, program instructions and information.

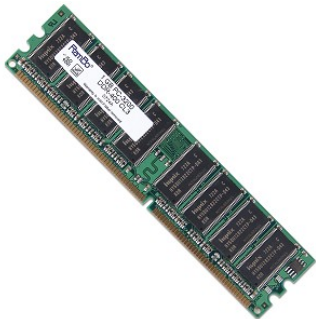


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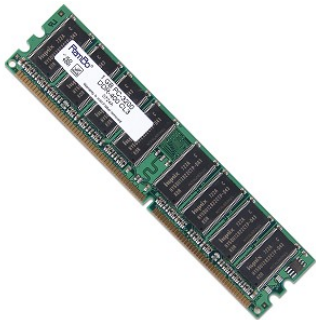


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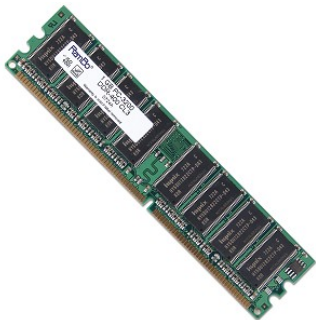


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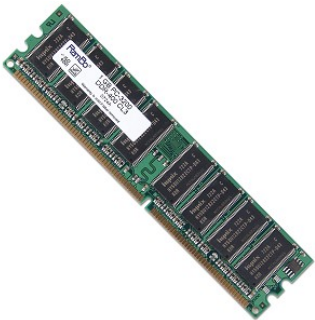


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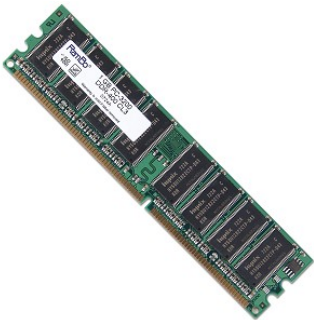


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It retains information when the computer is switched off and is used to keep a permanent copy of programs and data.

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- Newer hard drives may be *solid-state* drives, similar to flash memory.

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- communications devices such as modems and network units

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Common input and output devices

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All output is sent by the CPU to the buffer for re-transmission by the device controller to the device. Similarly input from devices is sent to the buffer from where the CPU can transfer it at high speed to main memory.

Sound and Video



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This allows for more powerful graphics or sound-processing capabilities.

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A video card, with cooling fan

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Some computers are wired, while some are wireless.

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A cable modem

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The system bus speed is important, since a slow bus may restrict the speed of the CPU.

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- Transmitting information from external memory to main memory.

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