PC Platform Technologies
Glossary of Terms

A computer's platform is what makes a computer work. It consists of dozens of components -- built into the chipset, microprocessor or motherboard -- that send and receive the electrical signals that operate the computer and all the devices connected to it.

The **microprocessor** is the computer's "brain." The **chipset** is the computer's "nervous system" that directs information between the microprocessor and other parts of the computer. As the speed that microprocessors transmit information increases, chipsets' parts and their functions evolve to balance the processor's speed. This is needed to improve the computer's overall performance. For example, a person couldn't function normally if it had a head the size of a 40-year-old person and the body the size of a 6-month-old child. The **motherboard** is the PC's "skeletal system." It's a board that contains the computer's microprocessor, chipset, other support components, and the connections between all the parts.

Chipset and microprocessor parts and features

Cache memory – A small unit of ultra-fast memory that is used to store recently accessed or frequently accessed data so the microprocessor doesn't have to retrieve the data from the random access memory. It is essential to all computers and dramatically improves overall performance because it eliminates the delay caused by the processor sending information to and receiving information from the random access memory over the system bus. For example, when you open a new email message, the instructions required to do this can be stored in cache. The next time you open a new email, the processor may be able to access these instructions from the cache rather than having to go to slower random access memory, or worse yet, to the hard drive. Being able to access data and software instructions in cache decreases the time needed to access data and software instructions, making your programs operate more quickly. **L1** and **L2 cache** are the most common kinds of cache used. Both the L1 and L2 cache are located on the processor. The main difference between them is their size and location on the processor. The L1 cache is smaller and faster than the L2 cache.

Graphics – Technology that accelerates the processing of images and improves how video images look on a computer's screen. **Integrated graphics** are built into chipsets used in mainstream or value computers and deliver great graphics performance for the display of most images and video. A **discrete graphics** card contains a separate processor with separate memory and is specially designed to improve how high-resolution video images look on-screen. Discrete graphics chips are used most in high-end computers used by gaming enthusiasts.

Hyper-Threading Technology – A new feature available on certain Intel® Pentium® 4 processors that allows computer users to do more things simultaneously on their computers and accomplish more in less time, such as burning a CD, trading instant messages with friends and playing an online game all at the same time. It works by making a computer's operating system and applications believe it is outfitted with two processors when there is only one. This ability to execute tasks in parallel by weaving together multiple instruction threads can boost performance

by as much as 25 percent. Hyper-Threading Technology requires a computer system with an Intel® Pentium® 4 processor with HT technology, a chipset and BIOS that utilize this technology, and an operating system that includes optimizations for this technology. Performance will vary depending on the specific hardware and software you use. For more information, see Hyper-Threading Technology <http://www.intel.com/info/hyperthreading/index.htm?iid=ipp_dlc_procp4p+body_ht_foot&> .

I/O – The common abbreviation for the portion of the computer that deals with receiving and sending signals to the computer's peripherals. The **I/O controller hub** is a part of the chipset and contains slots for the various peripheral devices and technologies, such as printers, speakers, keyboards and network connections. Common connections that Intel uses on its newest chipsets include:

- **AC-97 Codec** – Enables the computer to have full surround sound capabilities.
- **PCI Express* Bus Architecture** – A high-speed data connection for graphics and input/out (I/O) devices
- **Peripheral component interface (PCI) bus** – Allows you to add components to your computer. PCI works best for components, such as a 56k modem, that don't transmit large amounts of information.
- **Serial ATA** – Enables hard drives to transfer data about 1.5 times faster than before.
- **USB 2.0** – A high-speed way to connect and transmit information between peripheral devices, such as video cameras and digital cameras, and the computer. Intel's newest chipsets enable a computer to connect up to eight devices to the computer.

Memory control hub – The memory control hub is part of the chipset and is connected to the microprocessor via the system bus. It sends and receives data related to memory and graphics.

Memory – Memory and the memory control hub play a key role in improving a computer's overall performance. **Random access memory (RAM)** is connected to the memory controller hub and stores program instructions and data so they can be accessed by the processor via the high-speed system bus, rather than going to the slower hard drive. RAM doesn't retain its contents when the computer's power is turned off. For example, if you are working on writing a letter and you turn off the computer, your word processing program and your letter will have to be loaded from the hard drive when you turn on the computer. Once they are loaded from the hard drive into RAM, the processor can access them from the RAM, rather than having to go to the hard drive again. **Read Only Memory (ROM)** is "built-in" computer memory containing data that normally can be accessed and read but cannot be modified. ROM contains the programming that allows your computer to "boot up" when you turn it on. Unlike a computer's random access memory (RAM), the data in ROM is not lost when the computer power is turned off. **Dual dynamic random access memory (DDR memory)** is a type of RAM that Intel uses on its existing chipsets. The faster version of the memory, **DDR2 memory**, which also consumes less power, is now being used in the new Intel chipsets.

System bus – An internal pathway along which signals are sent from one part of the computer to another. The width of buses is measured in bits, which are small pieces of information, and determines how much data can be sent at one time. The wider the bus, the faster it can move data. For example, the bits are like cars and a system bus is like a freeway. A six-lane freeway allows cars to drive along it at one time and reach their destination faster than the same number of cars driving along a three-lane freeway. The system bus connects the microprocessor and the random access memory to the chipset's memory control hub. The memory controller hub acts

like a stoplight that controls the flow of traffic, or data, between the processor and the random access memory.

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