New Hardware We Need to Know About
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SATA

- Serial ATA (SATA) is a computer bus interface for connecting host bus adapters to mass storage devices such as hard disk drives and optical drives
- SATA advantages over PATA (40 wire ribbon): faster (PATA 133 MBps vs. SATA 3-6 GBps), smaller more convenient connectors and cables, hot pluggable (handy for eSATA connected external HDDs),

PCIe

- PCI Express (Peripheral Component Interconnect Express), officially abbreviated as PCIe (or PCI-E, as it is commonly called), is a computer expansion card standard designed to replace the older PCI, PCI-X, and AGP standards
- Advantages: faster (16 GB/s vs. 2133 MB/s for AGP and 533MB/s for PCI), 1x PCIe is smaller than PCI and AGP

RAM DDR2/DDR3

- DDR is older- won't see it in new machines
- DDR2 is common currently, but quickly being replaced by DDR3. DDR3 is what you will see in upper-end PCs and laptops
- DDR2 3200MBps max transfer DDR3 6400MBps max transfer (lower in practice)
- Prices per GB are very similar around $50/2GB; upgrade your older DDR PCs now before prices rise

Intel Core i3/i5/i7, AMD Phenom

- A "core" is the term used for an individual computer processor in a multi core CPU
- Largest number of cores in a current popular CPU? Nine in the Cell processor used in the Sony PS3
- Intel processors range from single (Celeron D, Atom) through 8-16 with hyperthreading (Core i7 extreme). Dual and Quad cores are most common and preferable
- Intel's hyperthreading: For each processor core that is physically present, the operating system addresses two virtual processors, and shares the workload between them when possible. A hyperthreaded dual core processor appears as 4 processors to Windows. Hyper threading confuses how many physical cores you have
- Core i3 and i5 often have GPUs built into the processor, saving space
- Handy Intel processor comparison page: http://ark.intel.com/ProductCollection.aspx?familyId=42912
- AMD Athlon/Phenom/II processors range from 1-4 cores, easier to tell core count by sticker: x2/x3/x4 indicates core count.

- Intel has the fastest processors at the top end currently, AMD are the better value in the low to mid-range (more performance at a given price point, quad core starting at lower price points)

SSD

- SSD: Solid state drive, a hard disk drive made of flash memory instead of a spinning platter with moving read head
- Advantages vs. spinning drives: dramatically faster, better battery life in laptops, great impact resistance
- Disadvantages vs. spinning drives: price per GB. 32GB SSD goes for $90 ($2.80/GB), about the same price as a 1000GB (1TB) ($.07/GB) spinning drive; 30-50 times more expensive. $270 for 128gb SSD ($2.10/GB), 256GB goes for about $500, 128GB goes for about $250
  http://www.pricewatch.com/hard_removable_drives/
- Why upgrade to an SSD? HUGE performance improvement: 2x-3x faster performance in boot and app start http://www.tomshardware.com/reviews/windows-ssd-performance,2518.html
- Kingston makes kits specifically designed to easily copy your existing spinning drive to an SSD, you can then use your spinning drive for backups or non-vital extra storage