

OCIPUG Hardware SIG

June 10, 2008

OCIPUG Hardware SIG

- Agenda – June 10, 2008
 - 7:00 – 7:05 Administration
 - 7:05 – 8:30 Featured Topic: Building Your Own System (2008 Series) – Planning (Phase)
 - 8:30 – 9:00 Hardware News
 - 9:00 – 9:10 Break
 - 9:10 – 9:55 Hardware Submission and Random Access (Q&A)
 - 9:55 – 10:00 Recap, Preview, and Close

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- Administration
 - Welcome! Please Sign In.
 - This SIG is a resource for computer users and potential computer users.
 - Random Access “Log” – sets response sequence
 - Hardware Assistance **RELEASE** Form
 - This presentation will be posted on the OCIPUG Hardware SIG web site:
 - Click the “Hardware” link at <http://www.ocipug.org/>

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- Administration (continued)
 - Also posted on that web site:
 - SIG info and meeting schedule
 - Prior presentations (back to “Day One”, April 11, 2000)
 - Hardware links (to press releases and product pages)
 - “Resource” links (to product reviews, product news, “self help”, PC technology and industry/standard organizations, e-tailers, and pricing engines)

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- Building...('08): Planning
 - This session is intended to assist you in planning for your new system. The specific objective is to help you develop your preliminary system specification (preliminary system spec).
 - We will focus on “Mainstream” through “Performance” solutions, not “exotics”. That said, the process for developing a preliminary system spec is essentially the same for all types of PCs, including notebooks.

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- Building...('08): Planning (continued)
 - The Process
 - Answer “four” basic questions.
 - Develop short lists for key components – CPU, chipset, RAM, graphics solution, storage, and power supply.
 - Review key component specs (feature sets).
 - Review 3rd-party assessments.
 - Identify the balance of the components you’ll need.
 - Draft your preliminary spec (a set of minimums) – the prelude to sourcing your components (next month).

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- Building...('08): Planning (continued)
 - Answer “four” basic questions:
 1. What are the PRIMARY intended uses of the system, i.e., what will the system be used for 80-90% of the time?
 2. How long does the system need to last?
 3. What’s your budget (excluding monitor)?
 4. “Other”:
 - Anything that “must” to be carried over?
 - Anything that will dictate any significant part of the solution (software and/or carry-over hardware compatibility, physical constraints, etc.)?

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- Building...('08): Planning (continued)
 - Answer “four” basic questions (continued):
 1. What are the **PRIMARY intended uses of the system**, i.e., what will the system be used for 80-90% of the time?
 - General “business” apps (word processor, spreadsheet, database, presentation)
 - Personal finance
 - Multimedia processing (video, music)
 - Photo editing
 - Internet browsing
 - Entertainment (“games” – “simple” or “demanding”)

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- Building...('08): Planning (continued)
 - Answer “four” basic questions (continued):
 2. **How long does the system need to last?**
 - If 2 years or less, tend to the upper mainstream for your spec.
 - If over 2 years, tend to the performance end for your spec.
 3. What's your **budget** (excluding monitor)? [suggestions]
 - Mainstream (< \$800) [max RAM (up to 4GB) and storage]
 - Upper mainstream (> \$800 < \$1500) [max RAM (up to 4GB), storage, graphics solution (card), CPU, chipset, and power supply]
 - Performance (\$1500+) [enjoy yourself!]

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- Building...('08): Planning (continued)
 - Answer “four” basic questions (continued):
 4. **“Other”**:
 - Anything that “must” to be carried over?
 - Consider how your “primary intended use” will be impacted.
 - Consider how your options and functionality may be limited.
 - Establish “hard” requirements.
 - Anything that will dictate any significant part of the solution (software and/or carry-over hardware **compatibility**/support, physical constraints, etc.)?
 - Compatibility/support – operating system (driver support), expensive or “critical” application software
 - Physical – space, noise

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- Building...('08): Planning (continued)
 - Develop short lists for key components
 - CPU (boxed)
 - Mainstream – AMD Phenom X3 (socket AM2+), Intel Core 2 Duo or Quad (45nm technology); < \$200
 - Upper mainstream – AMD Phenom X4 (socket AM2+), Intel Core 2 Duo or Quad (45nm technology); < \$300
 - Performance – up to and including the fastest, non-enthusiast-class AMD Phenom, Intel Core 2 Quad; \$300+

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- Building...('08): Planning (continued)
 - Develop short lists for key components (continued)
 - Chipset
 - Mainstream – AMD 770 (discrete) or 780G (integrated), Intel P31/P35 (discrete) or G31/G33 (integrated), NVIDIA 720a/730a (for AMD, discrete/integrated) or 7100/7150 (for Intel, discrete or integrated); motherboard < \$100
 - Upper mainstream – AMD 790X (discrete) or 780G (integrated), Intel P35 (discrete) or G33/G35 (integrated), NVIDIA 750a SLI (for AMD, either discrete or integrated) or 780i SLI (for Intel, discrete); motherboard < \$175
 - Performance – AMD 790FX (discrete), Intel X38 (discrete), NVIDIA 780a SLI (for AMD, discrete) or 790i SLI (for Intel, discrete); motherboard \$175+ (NVi \$300+)

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- Building...('08): Planning (continued)
 - Develop short lists for key components (continued)
 - RAM type (primarily dictated by chipset)/**quantity**
 - Mainstream – DDR2-800, **4GB**
 - Upper mainstream – DDR2-800, **4GB**
 - Performance – DDR2-800, 4GB or DDR2-1066 (JEDEC spec, not OC'd, and assuming a DDR2-1066 spec-compliant chipset motherboard), **4GB**
 - NOTE: Unless you are planning on using a **64-bit operating system**, your computer will not recognize more than 3-3.5GB (with 4GB installed). If you are going to be using a 64-bit OS, and you expect to use applications that are 64-bit, **get 8GB** of RAM (all levels).

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- Building...('08): Planning (continued)
 - Develop short lists for key components (continued)
 - Graphics solution (discrete)
 - Mainstream – 512MB RAM, PCIe 2.0
 - AMD/ATI HD 3650, NVIDIA 8600 GT; < \$100
 - Upper mainstream – 512MB RAM, PCIe 2.0
 - AMD/ATI HD 3850/3870, NVIDIA 8800 GT; < \$175
 - Performance – 1GB RAM, PCIe 2.0, single or multiple cards depending on budget and the balance of the system
 - AMD/ATI HD 3870 X2, NVIDIA 9800 GX2; \$350+ (ATI), \$500+ (NVIDIA)

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- Building...('08): Planning (continued)
 - Develop short lists for key components (continued)
 - Storage
 - Mainstream – 320GB, SATA II/300 internal
 - Upper mainstream – 500 GB, SATA II/300 internal + 320-500GB SATA II/300 eSATA (external)
 - Performance – 2 x 500GB, SATA II/300 internal (RAID 0) + 1TB SATA II/300 eSATA (external)
 - Power supply
 - Mainstream – as included with a good quality chassis
 - Upper mainstream – 550-650W, good brand/model
 - Performance – 750-1000W, good brand/model

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- Building...('08): Planning (continued)
 - Review key component specs (feature sets)
 - CPUs – [AMD Phenom](#), [Intel Core 2 Duo and Core 2 Quad](#)
 - Chipsets – [AMD](#), [Intel](#), [NVIDIA](#)
 - Graphics solutions (discrete) – [AMD](#), [NVIDIA](#)
 - RAM, storage, and power supplies – work backwards from product reviews.
 - Key specialty items (TV tuner, etc.)

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- Building...('08): Planning (continued)
 - Review 3rd-party assessments
 - Major product review sites:
 - [AnandTech](#), [Tom's Hardware](#), [hardOCP](#), [ExtremeTech](#), [PC World](#)
 - [Other](#) review sites
 - Retailer/e-tailer reviews (e.g., NewEgg)
 - Check forums for your primary application software products to get an idea of what hardware works well in general and with other components – read and post questions.
 - Check reviews of acceptable “branded” solutions – work back from there.

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- Building...('08): Planning (continued)
 - Identify the balance of the components you'll need
 - See prior SIG presentations ([2007-08 Updates](#))
 - See [hardware manufacturer links](#)
 - Draft your preliminary spec (a set of minimums)
 - CPU (boxed)
 - Motherboard (chipset and RAM)
 - Graphics solution
 - Storage (HDDs)
 - Power supply
 - Other components, as needed – chassis, ODD(s), TV tuner, etc.

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- Hardware News
 - Processors
 - Intel introduced the **“Atom”** microarchitecture and the **32-bit** Atom 230 processor for **“Nettops”**
 - Nettop – “...an affordable option for education, photo and video **viewing**, social networking, voice over IP, e-mail, messaging, browsing and other Internet activities **as well as for basic applications.**”

Intel® Atom™ Processor 230

Specification Summary

Feature	Intel® Atom™ Processor 230
Microarchitecture	Intel® Atom™ microarchitecture
Manufacturing Technology	45nm
Package	FCBGA8 22mm x 22mm x 1.6mm (height)
Frequency	1.6GHz
Threading	1 Core 2 Threads
Power Management	C0, C1
Thermal Design Power	4.0W
Voltage Regulator	VRD11
L1 Cache	32kB instruction cache 24kB data cache
L2 Cache	512 KB
Front Side Bus Speed	533 MHz
Streaming SIMD Extensions	SSE, SSE2, SSE3

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- Hardware News (continued)
 - Processors (continued)
 - VIA introduced the “VIA Nano” 64-bit, low power processor for desktops and notebooks – 1.6GHz (L2200) and 1.8GHz (L2100), 2 x 64KB L1 + 1MB exclusive L2 cache, 800MHz FSB, 17-25W TDP, 21mm x 21mm, NanoBGA2 (surface mount) package, 65nm process technology

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- Hardware News (continued)
 - Core Logic (Chipsets)
 - Intel released additional 4 series Express chipsets:
 - G45 – integrated graphics (GMA 4500HD)
 - G43 – integrated graphics (GMA 4500), max 1 DIMM/channel
 - P45 – discrete graphics, 1 x x16 PCIe 2.0 or 2 x x8 PCIe 2.0
 - P43 – discrete graphics, 1 x x16 PCIe 2.0
 - All support up to a 1333MHz FSB processor and provide support for up to DDR2-800 or DDR3-1066 system memory (up to a maximum of 16GB, 8GB for the G43)
 - They are paired with the ICH10/10R southbridge – up to 6 SATA II/300 ports (incl eSATA), RAID 0, 1, 0+1, and 5 (“R” version), 12 USB ports, and high definition audio (HDA)

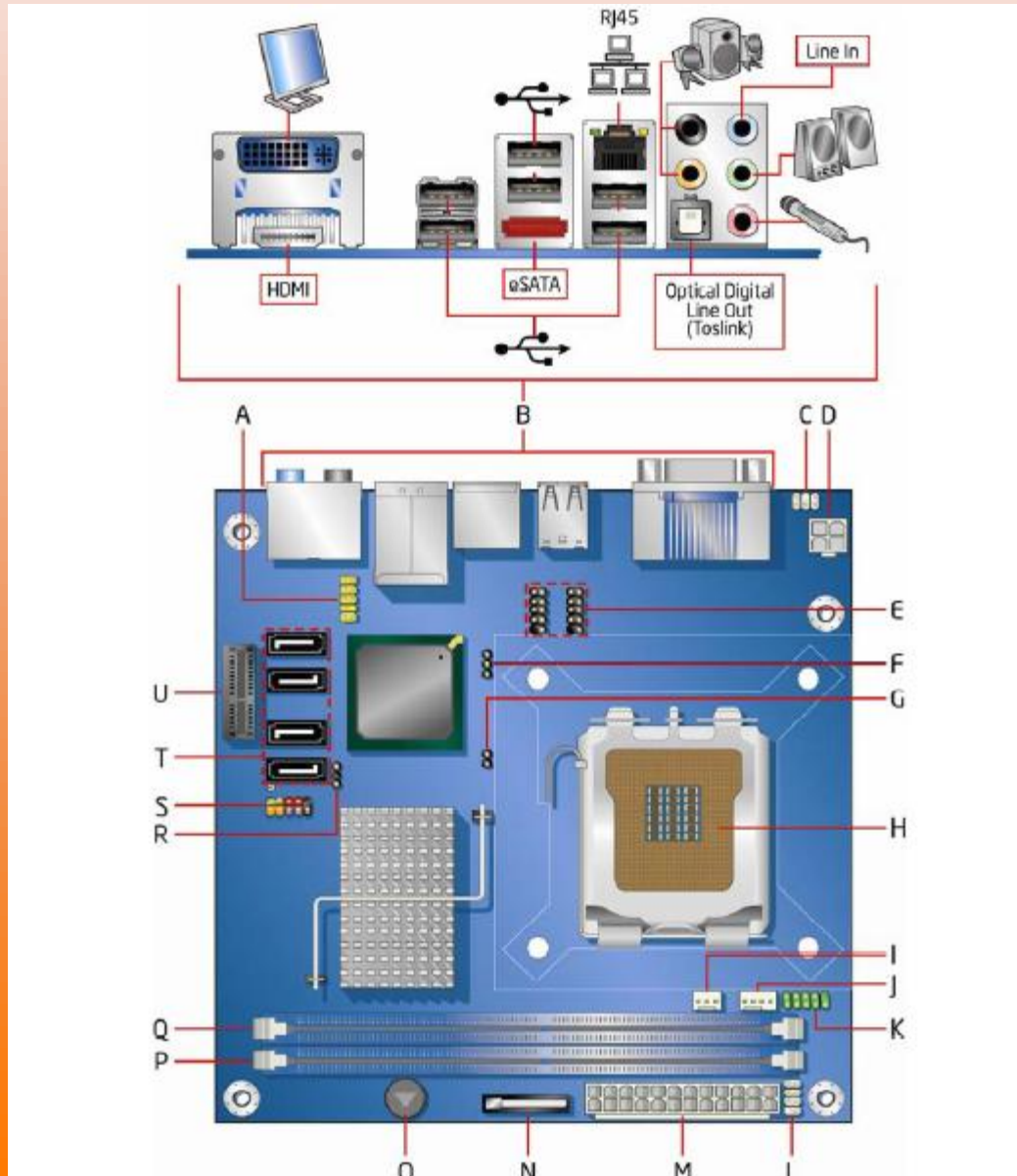
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- Hardware News (continued)
 - Motherboards
 - Intel P45-based boards released by ASUS, Biostar, ECS, Gigabyte, Intel, and MSI.
 - Intel released the D945GCLF **mini-ATX** (6.75" x 6.75") board with **INTEGRATED Atom 230 processor** – 945GC w/ ICH7, single DIMM socket, 1 x PCI slot
 - Intel released the **DG45FC mini-ITX** (6.70" x 6.70") board with integrated HDMI port

Intel D945GCLF



Intel DG45FC



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- Hardware News (continued)
 - System RAM
 - Corsair announced a 4GB (2 x 2) kit of Dominator PC3-16000 (2GHz) DDR3 memory – **MSRP: \$675**
 - Graphics Processors and Cards
 - BFG introduced the water-cooling-capable and overclocked “9800 GTX H²OC” card – single slot, 512MB RAM (see photo)
 - S3 announced the “S3 Graphics Chrome 440 GTX” card – 256MB RAM, 64-bit memory interface, HDMI port, MSRP: \$70 (direct from S3)

BFG 9800 GTX H²OC



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- Hardware News (continued)
 - Graphics Processors and Cards (continued)
 - Sapphire introduced the “HD 3870 Ultimate Edition” card – single GPU, 512MB GDDR4 RAM, single slot, passive cooling solution; MSRP: unk



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- Hardware News (continued)
 - Hard Drives – nothing new
 - Hard Drive Controllers
 - Adaptec released “Series 2” Unified Serial (SAS/SATA) RAID controllers:
 - 2405 – four internal ports (via optional SAS 4-port fan-out cable); 800MHz, dual core, ROC (RAID on Chip) processor; 128MB cache; PCIe x8 interface; supports RAID 0, 1, and 10; SRP: \$250
 - 2045 – as above but with four external ports (via optional SAS 4-port fan-out cable)

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- Hardware News (continued)
 - Optical and Other Drives – nothing new
 - Sound Processors and Cards
 - ASUS introduced additional Xonar sound cards:
 - “Xonar HDAV1.3 Audio/Video Enhancement Card” – 120 dB SNR, HDMI output (1.3), PCIe x1 interface
 - “Xonar HDAV1.3 Deluxe 7.1 Audio/Video Enhancement Card” – as above with additional audio-out jack (break-out board)
 - No product pages; MSRP: unk
 - Azuentech released the “Azuen X-Plosion 7.1 Cinema” card - C-Media CMI8770 processor, Dolby Digital and DTS Digital support, PCI interface, MSRP: \$120

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- Hardware News (continued)
 - Sound Processors and Cards (continued)
 - Creative Labs introduced additional PCIe sound cards:
 - Sound Blaster X-FI Titanium Fatal1ty Professional Series – full compliment of Sound Blaster features, MSRP: \$150
 - Sound Blaster X-FI Titanium Fatal1ty Champion Series – adds break-out box for front-of-chassis connections, MSRP: \$200
 - Modems and NICs – nothing new
 - Power Supplies – nothing new

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- Hardware Assistance & Random Access (Q&A)
 - Hardware Assistance **RELEASE** Form
 - Random Access Log

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- Recap, Preview, and Close
 - Recap
 - Preview
 - Featured Topic for July 8, 2008: Building Your Own System (2008 Series) - Sourcing (Phase)
 - Close (please police up the area)