

OCIPUG Hardware SIG

August 12, 2008

OCIPUG Hardware SIG

- Agenda – August 12, 2008
 - 7:00 – 7:05 Administration
 - 7:05 – 8:30 Featured Topic: Building Your Own System: Setting Up/Installing Your Motherboard, CPU, and RAM
 - 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): Set-Up/Assembly Part 1
 - Givens (from the last two meetings) – you have:
 - Established your “budget”
 - Developed and “finalized” your system spec
 - Acquired your components – for the purpose of this session, acquired at least the CPU (including heatsink/fan assembly and thermal interface compound), motherboard, and RAM
 - If you will be setting up a system during this session, you will need a power supply; you may also need a video card and a DVI-to-VGA adapter – all appropriate to boot the system

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - The Process
 - Review the component docs
 - Set up the motherboard
 - Install the CPU and heatsink/fan assembly (HFA)
 - Install the system RAM
 - Provide video output and power
 - Bench test

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - Review the Component Docs
 - Check the motherboard manual or set-up “poster” for:
 - Jumper and/or DIP switch settings
 - Power connector locations - as applicable, for main power, processor power, CPU fan, and power supply fan
 - Front panel header location(s) – specifically, check for the power switch header location
 - Component installation instructions – review the “step-by-step” for CPU, HFA, and RAM installation
 - NOTE: Boxed CPUs typically come with a “manual” for motherboard and HFA installation. The motherboard manual/set-up poster MAY be better for these steps.

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - Set up the Motherboard
 - Prepare an open workplace with good light
 - Ground yourself before handling the components
 - Support the motherboard with a non-conductive material
 - a sheet of high density foam is ideal, the motherboard box is an alternate
 - As applicable, remove “stickers” and/or “plugs”
 - As applicable, set jumpers or confirm settings

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - Set up the Motherboard (continued)
 - As applicable, install the CPU retention mechanism – see motherboard or HFA documentation
 - As applicable, remove the CPU socket cover (Intel Socket 775) – see motherboard documentation

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - Install the CPU and HFA
 - Lift the socket handle – to the side and then extend it to the full upright position
 - Note CPU “pin” pattern (orientation) – identify the unique corner(s)/edge(s) and/or “notches”
 - Note the corresponding unique corner(s)/edge(s)/notches in the socket
 - Align the CPU “pin” pattern to the socket pattern and place the CPU gently into the socket – do NOT force!!!

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - Install the CPU and HFA (continued)
 - Seat the CPU in the socket – pin grid array (PGA) CPUs should seat to full depth without applying any pressure
 - Hold the CPU in place with one hand (finger) and engage the socket handle with the other – the handle will “snap” into place
 - Install the HFA per the manufacturer’s instruction sheet – make sure the thermal interface material is properly applied/installed and that all points of HFA engagement are secure

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - Install the CPU and HFA (continued)
 - Online CPU/RMA setup docs for BOXED CPUs:
 - AMD – none, use what comes with the PIB or the motherboard docs
 - Intel Socket 775 –
<http://download.intel.com/support/processors/sb/install775.pdf>
 - Connect the CPU fan cable to the appropriate power socket on the motherboard – watch the orientation.

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - Install the System RAM
 - “Open” the end clips on the RAM module socket
 - Note the RAM socket cross brace location
 - Note the corresponding slot in the RAM module
 - Align each RAM module to match the RAM socket and insert the module – using even force along the top edge of the RAM module, push the module fully into place – the end clips will “snap” into place (ensure they are fully engaged)

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - Provide Video Output and Power
 - If applicable, elevate the motherboard for video card bracket clearance – the end of the bracket needs to hang over an “edge”
 - If applicable, install your video card; if applicable, connect the video card power cable(s) – watch the connector orientation; connect the system to an appropriate monitor; turn on the monitor
 - Attach your power supply - check/set the voltage switch; if applicable, set the on-off switch to OFF; watch the connector keying (power supply and motherboard)

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - Provide Video Output and Power (continued)
 - Connect the power supply to a grounded power outlet via a good surge suppressor; turn on the surge suppressor and, if applicable, the power supply on-off switch

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - Bench Test
 - Bridge the two “power-on/power-switch” pins in the front panel header with a metal-point pen or screwdriver – the system “should” start up
 - Watch the monitor screen, the sequence should halt when the system determines that there is no bootable device is installed
 - If there is a problem, retrace your steps. See next slide for “beep codes”.

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - Bench Test (continued)
 - “Beep codes” (may vary by motherboard manufacturer):
NOTE: Assumes an onboard speaker or attached chassis speaker
 - No beep - motherboard short, no power, bad CPU or motherboard, CPU is not correctly installed
 - One (1) or two (2) beeps - normal (no problem)
 - One (1) long + two (2) short - video (reseat the video card and retry)
 - Continuous high/low - CPU overheating (power off and recheck – HFA installed, thermal compound used?)
 - Repeated long - memory (run memtest86+ from a floppy)
 - Other - typically memory related (run memtest86+)

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- Building...('08): Set-Up/Assembly Part 1 (cont)
 - If you need to do any “hands-on” to resolve a problem, turn the power off and disconnect the power cable before starting (green light OUT)!
 - Disconnect the video output and power cables; if applicable, turn the power supply OFF; if applicable, remove the video card
 - You are now ready for next month – “Building Your Own System: Installing the Balance of Your Components” (alias, “Assembly – Part 2”)

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- Hardware News
 - Processors – nothing new
 - Core Logic (Chipsets)
 - AMD (ATI) released the AMD 790GX integrated graphics chipset for AM2/AM2+ processors – ATI Radeon HD 3300 graphics (DX10, PCIe 2.0, **support for dedicated frame buffer (Side Port)**, Hybrid CrossFireX, CrossFireX, and HDCP/HDMI 1.2); HT3; direct support for overclocking (AMD OverDrive with Advanced Clock Calibration); SB750 (southbridge) supports up to 6 SATA II, including eSATA, RAID 0, 1, 0+1, and 5, and up to 12 USB 2.0 ports. No audio or LAN MAC.

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- Hardware News (continued)
 - Motherboards
 - AMD 790GX-based board released by ASUS, Foxconn, Gigabyte, and MSI – all include 128MB “Side Port” RAM (dedicated frame buffer) and an HDMI port.
 - Intel’s BOX945GCLF motherboard with Atom 230 CPU now on sale (\$80 + shipping at Newegg); similar boards (possibly higher priced) available from ECS, Gigabyte, and MSI.

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- Hardware News (continued)
 - System RAM
 - Corsair released the Dominator Series TW3X2G2133C9DF 2GB kit (2 x 1GB) for NVIDIA 790i-based motherboards – **2133MHz** DDR3, 9-9-9-24 at 2.0V, DHX heat spreaders, **MSRP: \$575**

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- Hardware News (continued)
 - Graphics Processors and Cards
 - NVIDIA (formally) released three new GPUs:
 - 9800 GTX+ – 128 processor cores at 1836MHz, 738MHz graphics clock, target 512MB GDDR3 RAM, 1100MHz memory clock, 256-bit GDDR3, dual slot, 141W max power, 2 & 3-way SLI; target MSRP unk (Newegg **as low as \$170, after rebate**)
 - 9800 GT – 112 processor cores at 1500MHz, 600MHz graphics clock, target 512MB GDDR3 RAM, 900MHz memory clock, 256-bit GDDR3, single slot, 105W max power, 2-way SLI ; target MSRP unk (Newegg as low as \$140, after rebate)
 - 9500 GT – 32 processor cores at 550MHz, 800MHz graphics clock, target 512MB GDDR3 RAM, 900MHz memory clock, 128-bit GDDR3, single slot, 50W max power, 2-way SLI ; target MSRP unk (Newegg as low as \$73, after rebate)

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- Hardware News (continued)
 - Graphics Processors and Cards (continued)
 - NVIDIA release three new GPUs (continued):
 - Cards released by GPU model (majors):
 - 9800 GTX+ (13) – ASUS (1), BFG (1), EVGA (3), Gigabyte (1), Leadtek (1), MSI (2), and XFX (4)
 - 9800 GT (20) – BFG (2), EVGA (5), Gigabyte (2), Leadtek (3), MSI (4), and XFX (4)
 - 9500 GT (21) – ASUS (2), BFG (1), EVGA (2), Gigabyte (3), Leadtek (4), MSI (6), and XFX (3)
 - Albatron released three “retro-technology”, NVIDIA 8 series-based, **PCI** cards – 256MB RAM plus dual-link DVI and HDMI outputs. Interesting!

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- Hardware News (continued)
 - Hard Drives
 - Hitachi announced new drive series:
 - Deskstar 7K1000.B – 160GB-1TB, 7200 rpm, 8 or 16MB cache, max internal transfer rate of 1388 Mbps, SATA II only; includes BDE (“bulk data encryption” – as implemented it has the strongest level commercially available, per NIST); neither MTBF nor warranty stated; MSRP not stated
 - Deskstar E7K1000 – 500GB, 750GB, and 1TB models; 7200 rpm, 32MB cache, max internal transfer rate of 1388 Mbps, SATA II only; 1.2 million hour MTBF, 5 year warranty; MSRP not stated
 - CinemaStar 7K1000.B (DVR) – 160GB-1TB, 7200 rpm, 8MB cache, max internal transfer rate of 1388 Mbps, SATA II only; 1.2 million hour MTBF; warranty not stated; MSRP not stated

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- Hardware News (continued)
 - Hard Drives (continued)
 - Hitachi announced new drive series (continued):
 - CinemaStar 5K320 (DVR) – 250 and 320GB, 7200 rpm, 8MB cache, max internal transfer rate of 1065 Mbps, SATA II only; 1.2 million hour MTBF; warranty not stated; MSRP not stated
 - Seagate released the 1.5TB Barracuda 7200.11 drive (ST31500341AS), the highest capacity ever offered in a single drive – 7200 rpm, 32MB cache, 120MB/s sustained transfer rate, SATA-II only, 5 year warranty; MSRP not stated (\$300 on ZipZoomFly).

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- Hardware News (continued)
 - Hard Drive Controllers – nothing new
 - Optical and Other Drives
 - Samsung “released” the SH-S223F 22X Dual Layer DVD burner – 2MB buffer, SATA-I interface (spec via online manual).
 - Sound Processors and Cards
 - ASUS released the “Zonar D1” PCI, 7.1 channel sound card (PCI version of the PCIe “Zonar DX”) – ASUS (?) processor, 112-116dB SNR

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- Hardware News (continued)
 - Modems and NICs – nothing new
 - Power Supplies
 - Silverstone released the “ZM1200” – 1200W peak, 6 +12V rails or single +12V rail (switchable), 95A on +12V, +/- 1% voltage regulation, all cables are modular, support for 3-way SLI (NVIDIA GTX 280s); also released the “ZU1200” – same spec except non-modular cable set

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- Hardware News (continued)
 - Misc – the launch of the first integrated memory controller version of Intel’s Nehalem microarchitecture processors (branded “Intel Core i7”) has been pulled in to September. It will use (socket) LGA1366 packing. In Q4 additional processors will be introduced, some in (socket) LGA1160 packaging. [DDR3/3 channel and DDR3/DDR2/2 channel, respectively?]

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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 September 9, 2008: “Building Your Own System: Installing the Balance of Your Components” (alias, “Assembly – Part 2”)
 - Close (please police up the area)