**Intel Corporation**
2200 Mission College Blvd.
P.O. Box 58119
Santa Clara, CA 95052-8119



# News Fact Sheet

CONTACTS:    Claudine Mangano           George Alfs              Connie Brown
             408-765-0146               408-219-7588             503-791-2367
             claudine.a.mangano@intel.com  george.alfs@intel.com   connie.m.brown@intel.com

## INTEL DEVELOPER FORUM DAY 1 NEWS DISCLOSURES FROM SHANGHAI

*April 2, 2008*: Intel Corporation is holding its Intel Developer Forum in Shanghai on April 2-3.  Below are brief summaries of each executive's Day 1 keynote speech and news highlights.

◆   ◆   ◆   ◆   ◆

**Anand Chandrasekher, "The Heart of a New Generation"**
**Intel Senior Vice President and General Manager, Ultra Mobility Group**
Describing how the Internet continues to grow and flourish globally, Chandrasekher said that personal mobility is a key catalyst driving people to embrace the Internet in new places and ways. Chandrasekher formally introduced five Intel® Atom™ processors (formerly codenamed "Silverthorne") and Intel Centrino® Atom™ processor technology for Mobile Internet Devices (MIDs), outlined a series of innovations in the new platform and highlighted the growing momentum in the MID software and device ecosystem. Also covered were the benefits of the new Atom Microarchitecture, including performance features, Internet and software compatibility, and the drastic reductions that Intel has made in power and packaging to achieve this new technology platform. Chandrasekher also offered insight into the company's future silicon roadmap.

*Intel Launches Centrino Atom Processor Technology* – Chandrasekher introduced Intel Centrino Atom Processor Technology, the company's first-generation low-power platform for MIDs designed to enable the best Internet experience in a device that fits in your pocket. Formerly codenamed "Menlow," Intel Centrino Atom processor technology includes the company's first-ever Intel Atom processor (formerly "Silverthorne") and the Intel® System Controller Hub (SCH) formerly "Poulsbo," both of them designed from the ground up specifically for the MID segments.

*Intel Atom Microarchitecture Forms Basis of Processor Announcement*  – The Intel Atom Microarchitecture has been designed from the ground up to deliver high performance-per-watt efficiency while maintaining full compatibility with the Core 2 Duo instruction set including support for Hyper-Threading technology, Virtualization technology and Intel Digital Media Boost (SSE3). The microarchitecture, based on Intel's 45nm high-k process technology, implements ground-breaking power management techniques such as Intel Deep power down state (C6), Enhanced Intel SpeedStep technology, aggressive clock gating, CMOS mode and Split IO power supply to aggressively reduce average, idle, active,  and leakage power consumption levels.

*New Intel Atom™ Processor Family for MIDs* (formerly codenamed "Silverthorne") – Chandrasekher outlined five new Intel Atom processors which are the foundation for Centrino Atom processor technology. The Atom processor is Intel's smallest processor to date, represents the fastest processor in the sub-3watt space, and packs more than 47 million transistors in a single silicon die measuring less than 25mm$^2$. The new chips launching today support a thermal design power (TDP) range[1] of 0.65-2.4 watts, consume 160-220 milliwatts in average power[2], and 80-100 milliwatts in idle power[3]. Intel Centrino Atom processor technology pricing includes the Intel System Controller Hub, and the Intel Atom Processor at speeds of 800MHz, 1.1, 1.33, 1.6, 1.86 GHz priced at $45, $45, $65, $95 and $160 respectively in 1,000-unit quantities. Additional information is available at www.intel.com/pressroom/IDF.

*New Intel® System Controller Hub (SCH) Family for MIDs* (formerly codenamed "Poulsbo") – The Intel SCH is designed from the ground up to deliver a high-performance solution while substantially reducing power consumption in a highly integrated single-chip package. The Intel SCH integrates low-power 3-D graphics, supports hardware accelerated 720p and 1080i video decode capability, along with a combination of PC and handheld I//O capabilities such as PCI Express*, SDIO* and USB Host and Client*. Intel announced three SKUs for the SCH, which support a range of operating systems (Windows* and Linux*), DDR2 400/533 MHz, 512MB/1GB memory, standard/high-definition video decode, Intel High Definition Audio, DX9L and OpenGL.

*Intel Demonstrates Customer Momentum Behind Centrino Atom Processor Technology* – Intel is working with a range of system manufacturers from the PC, CE, and phone industries on Centrino Atom processor technology-based designs. Chandrasekher announced support from a range of customers that are planning to ship MIDs based on the new technology later this quarter and into the second half of 2008, including Aigo*, Asus*, BenQ*, Clarion*, Fujitsu*, Gigabyte*, Hanbit*, KJS*, Lenovo*, LG-E*, NEC*, Panasonic*, Samsung*, Sharp*, Sophia Systems*, Tabletkoisk*, Toshiba*, USI*, WiBrain* and Yuk Yung*.  Additionally, Chandrasekher welcomed executives from Aigo, Lenovo, Sharp, and Willcom on stage who discussed their upcoming Centrino Atom-based MID plans.

*Intel Demonstrates Service Provider Momentum Behind MIDs* – Intel is collaborating with service providers around the world to deploy Centrino Atom processor technology based-MIDs on their networks. Chandrasekher highlighted support from China Mobile*, China Unicom*, Clearwire*, Korea Telecom*, NTT DoCoMo*, SK Telecom*, Sprint*, T-Mobile*, UQ Communications* and Willcom.

*Intel Announces Atom Processor Support for Embedded Applications* – Intel also announced support for the embedded market segments with the Intel Atom processor and the Intel SCH. Intel indicated that it will offer two SKUs of the Intel Atom processor, Z530 at 1.6GHz and Z510 at 1.1GHz, with extended lifecycle support of 7 years and complete set of software drivers available beginning in July for the platform. This will enable embedded customers to expand their current product lines of mid-range to high-end by adding smaller form factor fan-less designs. This two-chip embedded platform provides more than 80 percent reduction in total footprint over the previous-generation three-chip solution, based on the Intel® Celeron® M processor Ultra Low Voltage 423 with Mobile Intel® 945GME Express chipset. Intel also outlined support from more than 20 companies, including Beckhoff Automation with controllers for industrial automation systems. Applied Data Systems and RadiSys also released Intel Atom processor-based application-ready platforms for gaming, test and measurement, military and medical systems.

*Continued Innovation with Next-Generation Moorestown Platform* – Chandrasekher highlighted Intel's Moorestown platform which is targeted to launch in 2009/10. Moorestown consists of an SOC and an I/O Hub. The SOC, codenamed "Lincroft," will integrate a 45nm Silverthorne core, graphics, video, and memory controller on to a single chip. The I/O Hub, codenamed "Langwell," will support a range of I/O blocks such as storage and display, and will interface with a third-party PMIC and wireless solutions.

***Adobe Highlights Benefits of Adobe AIR Cross-Platform Capability for MIDs*** – Kevin Lynch, Adobe SVP and CTO, appeared in Chandrasekher's keynote and indicated that Adobe is well on its way to delivering Adobe AIR for Linux-based MIDs. Lynch emphasized the benefits of AIR by highlighting the cross-platform availability of AIR-based applications for PCs and MIDs without any of the traditional porting effort required for different operating systems, pointing to AOL's Top 100 Music Videos application as a good example.

***RealNetworks Announces One-Stop-Shop Media Solution for MIDs*** – Real announced availability of "RealPlayer for MID," a comprehensive solution for system developers to deliver digital media on Intel-based MIDs using Moblin compliant Linux. This solution is enabled to decode the most popular proprietary and standard media formats (RealMedia, Windows Media, MP3, MPEG4, H.264, AAC, AAC+, VC-1 and Ogg). More information is available at www.helixcommunity.org.

***PMIC Vendors Announce Support for Mobile Internet Devices*** – Maxim Integrated Products announced that it is developing a highly integrated power-management and multimedia solutions for Intel-based MIDs. Previously, Freescale Semiconductor and NEC had announced they are pursuing a PMIC designed to efficiently manage power at the system level for next-generation MIDs. Solutions from these companies will enable system manufacturers to deliver increasingly small form factors with longer battery life.

◆　◆　◆　◆　◆

**David Perlmutter, "Personalizing Your Computing Experience"**
**Intel Senior Vice President and General Manager, Mobility Group**
Describing the latest trends in mobile computing, Perlmutter said there is growing significance of form factor, personalization and style in computing devices. He cited Intel technology that has prompted innovation in the mobile computing market.

***Intel unveils new Intel® Anti-theft Technology to enhance existing solutions by leading OEMs and ISVs:*** In an effort to address the costly impact of identity theft, data breaches and computer theft, Perlmutter announced that Intel is developing a comprehensive set of security capabilities called Intel® Anti-Theft Technology. This technology will enhance existing solutions in the areas of theft management and data protection. This collaborative effort is taking place with industry leaders Absolute Software, Fujitsu Siemens Computers, Lenovo, McAfee, Phoenix Technologies, and Utimaco Safeware. Expected availability for laptops is the fourth quarter of 2008.

***Intel® Centrino® 2 processor technology details***: Perlmutter provided additional details including significant gains in visualization, 3-D graphics and native hardware support for high-definition with Blu-ray Disc DVDs. In addition, Dadi demonstrated the processor performance increase and the benefits of including Intel solid state drive technology in the platform. Intel Centrino 2 processor technology will debut on laptops in June.

***"Calpella"***: Perlmutter provided a first look at Intel's 2009 notebook platform, codenamed "Calpella." This next-generation Centrino platform will include a processor based on "Nehalem." Nehalem will bring leading-edge performance advantages and enhanced power efficiency.

***Demonstrated Netbooks***: Two Intel-based concept netbooks were shown by Perlmutter. Intel is leading the industry and enabling a new class of affordable, easy-to-use laptops called "netbooks." These simple, low-cost, Internet-centric devices are designed for basic tasks such as browsing, video viewing, social networking and education. Intel's new purpose-built low-power architecture, coupled with its industry-leading high-K manufacturing process, is perfectly suited for this new market opportunity. Intel based netbooks will be available in June.

**Client Virtualization Technology**: Perlmutter welcomed on stage George He, senior ice president and chief technology officer of Lenovo. He and Perlmutter talked about joint Intel-Lenovo advances in client virtualization technology and demonstrated a secure ebanking application based on this technology.

◆　◆　◆　◆　◆

**Patrick Gelsinger, "Milliwatts to Petaflops"**
**Intel Senior Vice President; General Manager, Digital Enterprise Group**
During his keynote, Gelsinger said Intel Architecture (IA) processors now span MIDs to High-Performance Servers (HPC). In HPC, Intel's Xeon processors power three of the world's top five HPC systems and in 2007 Intel supplied roughly four out of five processors in the HPC market. Honglin Zhang, deputy chief director of the IT Center for the China Ministry of Railways joined Gelsinger on stage to talk about IA-based systems playing a pivotal role in providing cost-effective, flexible, and reliable end-to-end solutions. Beijing officials also discussed how the upcoming Olympics* IT infrastructure and Web portal will run on Intel® Xeon™ processors.

*Dunnington for Expandable (Multi-Processor) servers* – Intel's current 7300 chipset-based platform, combined with the Quad-Core Xeon 7300 processor, is the industry's virtualization platform of choice for MP servers. Dunnington is socket-compatible with the Caneland platform and will be available in the second half of 2008. Dunnington is the first IA (Intel Architecture) processor with six cores, is based on the 45nm high-k process technology, and has large shared caches. Another supported feature is FlexMigration technology, which allows a single compatible virtualization pool that supports live VM (Virtual Machine) migration across both 65nm and 45nm high-k Intel Core™ microarchitecture-based servers and 45nm-based servers.

*Tukwila delivers performance to the world's most powerful computers* – Tukwila is Intel's next-generation Itanium processor with four cores, 30MB total cache, QuickPath Interconnect, dual Integrated Memory Controller and mainframe-class RAS features. It is the world's first 2 billion transistor microprocessor and is projected to deliver more than double the performance of the current generation Itanium processor.

*Nehalem is Intel's dynamically scalable and innovative new processor microarchitecture* – Starting production in the fourth quarter of 2008, Nehalem will provide dramatic performance and energy improvements to Intel's current industry-leading microprocessors. Nehalem is scalable with future versions having anywhere from two to eight cores, with Simultaneous Multi-threading, resulting in four-to 16-thread capability. Nehalem will deliver four times the memory bandwidth compared to today's highest-performance Intel Xeon processor-based systems. With up to 8 MB level-3 cache, 731 million transistors, Quickpath interconnects (up to 25.6GB per second), integrated memory controller and optional integrated graphics, Nehalem will eventually scale from notebooks to high-performance servers. Other features discussed include support for DDR3-800, 1066, and 1333 memory, SSE4.2 instructions, 32KB instruction cache, 32KB Data Cache, 256K L2 data and instruction low-latency cache per core and new 2-level TLB (Translation Lookaside Buffer) hierarchy. Gelsinger also discussed the new Tylersburg platform, which can be configured for both one socket High End Desktop (HEDT) and two socket (HPC and dual processing server) operation.

*Visual Computing: Graphics Re-defined.* Visual Computing is redefining the visual and immersive high definition experience for computer users. Next-generation techniques for delivering naturally realistic gaming, graphics and high definition video and audio are driving increasing performance and architecture demands on the PC. In order to deliver on the promise of Visual Computing, a complete platform is required. This includes high-performance microprocessors, chipset and graphics plus software and associated developer tools. Intel continues to increase its investment and pace in developing technologies, products and platforms that are fueling the pace of visual computing advancements.

***Larrabee Architecture for Visual Computing.*** With plans for the first demonstrations later this year, the Larrabee architecture will be Intel's next step in evolving the visual computing platform. The Larrabee architecture includes a high-performance, wide SIMD vector processing unit (VPU) along with a new set of vector instructions including integer and floating point arithmetic, vector memory operations and conditional instructions. In addition, Larrabee includes a major new hardware coherent cache design enabling the many-core architecture. The architecture and instructions have been designed to deliver performance, energy efficiency and general purpose programmability to meet the demands of visual computing and other workloads that are inherently parallel in nature. Tools are critical to success and key Intel® Software Products will be enhanced to support the Larrabee architecture and enable unparalleled developer freedom. Industry APIs such as DirectX™ and OpenGL will be supported on Larrabee-based products.

***Intel AVX: The next step in the Intel instruction set*** -- Gelsinger disclosed the Intel AVX (Advanced Vector Extensions) specification, which when used by software programmers, will increase performance in floating point, media, and processor intensive software. AVX can also increase energy efficiency, and is backwards compatible to existing Intel processors. Key features include wider vectors, increasing from 128-bit to 256-bit wide, resulting in up to 2x peak FLOPs output. Enhanced data rearrangement, resulting allowing data to be pulled more efficiently and three operand, non-destructive syntax for a range of benefits. The instructions will be implemented in the microarchitecture codenamed "Sandy Bridge" in the 2010 timeframe.

**-- 30 --**

[1] TDP specification should be used to design the processor thermal solution. Thermal solutions not designed to provide this level of thermal capability may affect the long-term reliability of the processor and system.
[2] Average power is defined as measured CPU power whilst running BAPCo MobileMark'05 Office Productivity suite on Microsoft* Windows* XP for a period of 90min at 50°C. Assumes top bin frequency, median leakage, Adaptive mode. By median leakage device it means that 50% of the CPUs will have leakage values below the median value and 50% will have leakage values above the median.
[3] Idle power on the Intel Atom processor is defined as the power in the Intel Deep Power Down state (C6 state). Intel Deep Power Down Technology (C6) is the lowest power state of the CPU when the core clock, PLL, L1 cache, and L2 cache are off. Z510, Z520, Z530, Z540 is measured while running Idle under Microsoft* Windows Vista* Home Premium for a period of 30mins. Z500 is measured while running Idle under MIDINUX Linux* for a period of 30mins. By median leakage device it means that 50% of the CPUs will have leakage values below the median value and 50% will have leakage values above the median.