

Intel Introduces New Atom Processors for Mobile Internet Devices



Intel Corporation today introduced five new Intel Atom processors and Intel Centrino Atom processor technology for Mobile Internet Devices (MIDs) and embedded computing solutions.

The technology package includes the Intel Atom processor (formerly codenamed "Silverthorne") plus a single-chip with integrated graphics called the Intel System Controller Hub that enables PC-like capabilities, an uncompromised Internet experience and long battery life in smaller devices that can fit in your pocket. Manufacturers around the world are planning to ship Intel-based MIDs beginning this summer.

MIDs are truly mobile devices that enable the best Internet experience in pocketable devices. MIDs will allow consumers to communicate, entertain, access information and be productive on-the-go, and are expected to represent a new class of next-generation, Internet-based portable video players, navigation devices, converged tablets and other consumer products.

Formerly codenamed "Menlow," Intel Centrino Atom processor technology includes the company's first-ever Intel Atom processor (formerly "Silverthorne"). The processor – Intel's smallest and the world's fastest chip under 3 watts – has a thermal design power range of 0.65 to 2.4 watts (versus 35 watts for today's typical laptop), average power range of 160-220 milliwatts (mW) and idle power range of 80-100mW.

These dramatic low-power levels are achieved as a result of several major processor design power management techniques such as Intel Deep Power Down Technology (C6), CMOS mode, and Split I/O power supply. When combined with Intel's unique and reinvented 45nm high-k metal gate transistor formula, the chips are very energy efficient and smaller in size, and enable longer battery life and sleek designs.

"Today is a historic day for Intel and the high-tech industry as we deliver our first-ever Intel Atom processor and surround it with a great package of technology," said Anand Chandrasekher, Intel senior vice president and general manager of the Ultra Mobility Group. "Mix in the incredible innovation coming from our fellow device makers and software vendors, and we will change the way consumers will come to know and access the World Wide Web. These forthcoming MIDs, and some incredible longer-term plans our customers are sharing with us, will show how small devices can deliver a big Internet experience."

As the Internet becomes more pervasive, the desire to be constantly connected via wireless broadband will continue to drive exciting new compute-intensive consumer products. Intel processors are designed for and already are the backbone for the majority of the computers that run and access the Internet, and today's Intel Centrino Atom processor technology will enable users to access this Internet while on-the-go.

The Intel Atom processor (formerly codenamed "Silverthorne") will come in speeds up to 1.86 GHz,

support Enhanced Intel SpeedStep technology, and select SKUs will support Intel Hyper-Threading technology. These capabilities make it the fastest processor in the sub-3 watt space, enabling a rich user experience with fast Web page downloads and support for the latest Web technologies such as Adobe Flash and JavaScript. The Intel System Controller Hub is a ground-up, highly integrated low-power solution that features advanced low-power 3-D graphics features, hardware accelerated 720p and 1080i HD video decode capabilities, Intel High Definition Audio, and a combination of PC and handheld I/O capabilities such as PCI Express, USB Host and Client, and SDIO. Intel Centrino Atom processor technology also enables manufacturers to integrate a range of wireless connectivity options, including Wi-Fi, WiMAX and cellular data.

The technical features of the Intel Atom processor and Intel System Controller Hub will help to create an array of MIDs that offer a range of functions and variety of pocketable devices. The processors are also designed for fan-less, small form factor devices for embedded applications such as in-vehicle infotainment systems, portable point-of-sale devices for retail and more rugged computing devices such as robotics for industrial manufacturing. For embedded applications, Intel will include longer 7-year life cycle support.

Gelsinger: Milliwatts to Petaflops

During his keynote, Pat Gelsinger, senior vice president and general manager of Intel's Digital Enterprise Group, 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 of five processors in the HPC market, including one of the most powerful in China, the SINOPEC system used for petroleum exploration.

Gelsinger provided some technical details of Intel's next-generation processor family, codenamed "Nehalem," which will begin production in the fourth quarter. Nehalem will first be seen in high-end desktop processors and dual processor server systems, and expand to other market segments in 2009. Nehalem is designed to scale from two to eight cores. Gelsinger also disclosed Intel's Advanced Vector Extension new instructions that are planned for a family of processors due after Nehalem, codenamed "Sandy Bridge" in 2010.

Honglin Zhang, deputy chief director of the IT Center for the China Ministry of Railways, joined Gelsinger onstage 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 be run on Intel Xeon processors. Gelsinger concluded his keynote talking about Intel's Visual Computing vision and need for more compute performance, higher memory and I/O bandwidth, improved graphics, better software tools and libraries in order to deliver photo-realistic 3-D rendering, high-definition video and audio, and computer modeling, all leading to a better computing experience. One critical element will be the "Larrabee" Architecture, which will feature many Intel architecture cores, a new cache architecture and new vector processing instruction set.

Perlmutter: Personalized Mobility On The Way

Also at IDF, Dadi Perlmutter, executive vice president and general manager of Intel's Mobility Group, discussed the wave of personalization on tap that takes advantage of new notebook and netbook products coming to market later this year. Intel will deliver its next-generation "Montevina" Intel Centrino 2 processor technology for notebooks in June providing faster performance and longer battery life.

Centrino 2 will be the first platform from Intel to offer an integrated Wi-Fi and WiMAX wireless access option that is expected to be available in certain notebooks in the second half of the year. Other options for Centrino 2 include the processor and other components that are about 40 percent smaller, making them

ideal for the mini- and sub-notebook categories. Perlmutter shared details in graphics quality and native hardware support for high-definition entertainment using Blu Ray*, and demonstrated Intel solid state drive technology.

Looking ahead Perlmutter offered a first peek at Intel's 2009 notebook platform codenamed "Calpella." Before that and toward the end of 2008, Perlmutter said the company will bring Intel Anti-theft Technology to complement and enhance existing solutions by leading computer makers and software vendors. The technology focuses on asset recovery, theft management and data protection and will arrive in laptops by year's end.

Perlmutter also showcased two laptops called "netbooks" while articulating Intel's strategy for this emerging class of affordable, easy-to-use computers. These simple, low-cost Internet-centric devices will be powered by Intel's new purpose-built low power architecture, forthcoming "Diamondville" Intel Atom processors and unique transistor and manufacturing process that is perfectly suited for this new market opportunity.

Source: Intel

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