

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



# Fact Sheet

CONTACT: Connie Brown  
503-791-2367  
[connie.m.brown@intel.com](mailto:connie.m.brown@intel.com)

## **Intel® Atom™ Processor for Netbooks and Nettops**

The Intel® Atom™ processor is Intel's smallest processor. It is built with the world's smallest transistors based on industry-leading 45nm high-k metal gate technology. Intel® Atom is purpose-built for netbooks and nettops, which is a new category of simple, affordable devices for the Internet. Netbooks and nettops offer both emerging and mature markets an easy-to-use device with simple interfaces and targeted performance for a good online experience. Netbooks are rugged and compact in design, and offer the freedom and flexibility of wireless connectivity<sup>1</sup>, whereas nettops offer an affordable at-home experience on a reliable computing device.

Great for the Internet, netbooks and nettops are 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.

A typically configured netbook includes the Intel® Atom™ processor N270 at 1.6GHz, the Mobile Intel® 945GSE Express Chipset with the ICH7M, a 7"-10" screen, 802.11b/g WLAN, a mini-keyboard, 400MHz or 533MHz memory, 256 to 512MB RAM, Linux or MS XP Home\* OS, 2-4GB of flash based storage and no hard drive or optical drive, at an estimated system price point of approximately \$250.

Additionally, Intel offers as an option the Intel® Z-P230 PATA Solid-State Drive for nettops and netbooks. The Intel® Z-P230 PATA Solid-State Drive (SSD) is a cost-effective storage solution designed to replace traditional hard disk drives in netbook and nettop systems, yet is four times smaller and lighter than a standard 1.8-inch hard disk drive with the same industry-standard PATA (IDE) connector. The solid-state design eliminates all moving parts, making it more rugged and reliable for mobile designs. It also requires less power to extend battery life and enhance Intel computing platforms such as the Netbook Platform '08.

**For Netbooks:**

- **Intel® Atom™ processor N270:** Ground-breaking High-K metal gate 45nm process technology providing low power, small package size, low thermals, and targeted performance to provide a basic Internet experience as well as purpose-driven usages for netbooks.
- **Mobile Intel® 945GSE Chipset:** A small, low-power and cost-effective chipset, specifically designed for small form factors with cost-effective integrated graphics, multiple I/O ports including PCI Express and USB, and Intel® High Definition (HD) Audio.

**For Nettops:**

- **Intel® Atom™ processor 230:** 45nm High-k metal gate 45nm based process technology providing low power, small package size, low thermals, and performance to provide a basic Internet experience for Nettops.
- **Intel® 945GC Chipset:** A cost-effective chipset, featuring integrated graphics, multiple I/O ports including PCI Express and USB, and Intel® High Definition (HD) Audio.

**Simple, Affordable, Netbooks:**

Key features in the Intel® Atom processor N270 for netbooks:

- **Small form factor CPU package:** the new lead-free<sup>2</sup>, halogen-free<sup>3</sup> micro-flip chip package is 60 percent smaller (22mm<sup>2</sup>) than a typical notebook CPU (35mm<sup>2</sup>), saving system board real estate in a much thinner and smaller industrial design, enabling small netbook form factors.
- **Intel® Enhanced Deeper Sleep (C4):** Saves power by flushing cache data to system memory during periods of inactivity to reduce power consumption and enable longer battery life.
- **Enhanced Intel SpeedStep® Technology:** Multiple voltage and frequency operating points provide optimal performance at the lowest power, allowing for better matching of performance to application demand.
- **Low TDP (2.5W):** Low thermal design power enables thinner, lighter, portable netbook devices as it reduces the cooling requirements.
- **Power-Optimized Front Side Bus:** Minimizes power needed to transmit data to the processor, resulting in significant power savings and enabling longer battery life – all without impacting performance.
- **Enhanced Data Prefetcher and Enhanced Register Access Manager:** Anticipates data the processor is likely to need and stores the information within the processor's L2 cache, resulting in improved performance since the processor doesn't have to wait as long for data.
- **Intel® Advanced Smart Cache:** Cache and bus design for efficient data sharing, providing enhanced performance, responsiveness and power savings.

**Key features in the Intel® 945GSE Express Chipset for netbooks:**

- **Intel® Rapid Memory Power Management:** saves power by allowing all rows of memory to be in self-refresh during C3 state to reduce power consumption.

- **Intel® Smart 2D Display Technology:** optimizes display frame buffer space, thus reducing memory reads, increasing system performance and reducing power consumption.
- **Intel® Display Power Saving Technology:** Combines backlight image adaptation and backlight modulation, enhancing the displayed image, reducing the power consumption while maintaining the users backlight brightness preference.
- **Intel® Automatic Display Brightness:** Optimizes the backlight level automatically according to surrounding ambient light to reduce power consumption in low light environments.
- **Intel® Matrix Storage Manager:** Longer battery life is enabled through Link Power Management, which can reduce the power consumption of the chipset and SATA\* drive.

### **Simple, Affordable Nettops:**

#### **Key features in the Intel® Atom™ processor 230 for Nettops:**

- **Small Form Factor CPU Package:** The new lead-free<sup>1</sup>, halogen-free<sup>2</sup> Micro-Flip Chip package is 70 percent smaller (22x22mm) than a desktop CPU (37.5x37.5mm), saving system board real estate in a much thinner and smaller industrial design, enabling small nettop form factors.
- **Low Thermal Design Power:** The low TDP enables smaller form factor computing devices due to the lower cooling requirements.
- **Power Optimized Front Side Bus:** Minimizes power needed to transmit data to the processor, resulting in increased power savings without impacting performance.
- **Enhanced Data Prefetcher & Enhanced Register Access Manager:** Anticipates data the processor is likely to need and stores the information within the processor's L2 cache, resulting in improved performance since the processor doesn't have to wait as long for data.
- **Intel® Advanced Smart Cache:** Cache & bus design for efficient data sharing, providing enhanced performance, responsiveness and power savings.

#### **Key features in the Intel® 945GC Chipset for Nettops:**

- **Intel® Graphics Media Accelerator:** Boosts graphics performance to deliver good visual color and picture clarity without the need for additional discrete graphics cards.
- **Intel® High Definition Audio:** Integrated audio support enables home theater sound and delivers advanced features such as multiple audio streams and jack re-tasking.
- **PCI Express\* x1 Interface:** Offers up to 3.5 times the bandwidth over traditional PCI architecture. Supports LPC serial interface, ExpressCard and mini-card, and delivers fast access to peripheral devices and networking.

-- 30 --

<sup>1</sup> Wireless connectivity is not an Intel® Atom™ processor brand requirement. See your manufacturer for details.

<sup>2</sup> Intel 45nm product is manufactured on a lead-free process. Lead-free per EU RoHS Directive (2002/95/EC, Annex A). Some RoHS exemptions may apply to other components used in the product package.

<sup>3</sup> Applies to components containing flame retardants and PVC only. Halogens are below 900 PPM bromine, 900 PPM chlorine, and 1500 PPM combined bromine and chlorine.

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