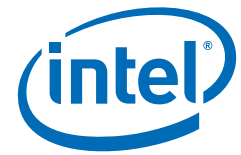


Product Brief

Intel® Atom™ Processor

Embedded Computing



Intel® Atom™ Processor N270 for Embedded Computing

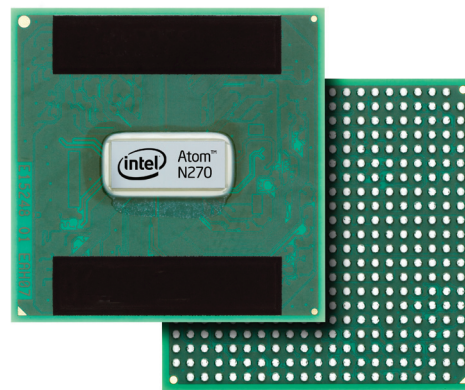
Product Overview

The Intel® Atom™ processor N270^A implemented in 45nm technology, is power-optimized and delivers robust performance-per-watt for cost-effective embedded solutions. Featuring extended lifecycle support, this processor offers an excellent solution for embedded market segments such as digital signage, interactive clients (kiosks, point-of-sale terminals), thin clients, digital security, residential gateways, print imaging, and commercial and industrial control. The processor remains software compatible with previous 32-bit Intel® architecture and complementary silicon.

This single-core processor is validated with the Mobile Intel® 945GSE Express chipset, consisting of the Intel® 82945GSE Graphics Memory Controller Hub and Intel® I/O Controller Hub 7-M. The chipset features power-efficient graphics with an integrated 32-bit 3D graphics engine based on Intel® Graphics Media Accelerator 950 architecture with SDVO, LVDS, CRT, and TV-Out display ports. It provides rich I/O capabilities and flexibility via high-bandwidth interfaces such as PCI Express,* PCI, Serial ATA, and Hi-Speed USB 2.0 connectivity. It also includes a single channel for 400/533 MHz DDR2 system memory (SODIMM or memory down), and Intel® High Definition Audio¹ interface.

Product Highlights

- Intel Atom processor N270 at 1.6 GHz core speed with 533 MHz AGTL+ front-side bus (FSB) and 2.5 watts thermal design power² (TDP)
- Intel's hafnium-based 45nm Hi-k metal gate silicon process technology reduces power consumption, increases switching speed, and significantly increases transistor density over previous 65nm technology
- Hyper-Threading Technology³ (two threads) provides high performance-per-watt efficiency in an in-order pipeline and increased system responsiveness in multi-tasking environments. One execution core is seen as two logical processors, and parallel threads are executed on a single core with shared resources



- Enhanced Intel SpeedStep® Technology reduces average system power consumption
- Enhanced low-power sleep states (C1E, C2E, C4E) are optimized for power by forcibly reducing the performance state of the processor when it enters a package low-power state
- Dynamic L2 cache sizing reduces leakage due to transistor sleep mode
- Intel® Streaming SIMD Extensions (SSE) 2 and Intel® SSE3 enable software to accelerate data processing in specific areas, such as complex arithmetic and video decoding
- FSB lane reversal enables flexible routing
- Execute Disable Bit⁴ prevents certain classes of malicious "buffer overflow" attacks
- Along with a strong ecosystem of hardware and software vendors, including members of the Intel® Embedded and Communications Alliance (intel.com/go/eca), Intel helps cost-effectively meet development challenges and speed time-to-market
- Embedded lifecycle support protects system investment by enabling extended product availability for embedded customers

Software

The following operating systems are supported on this platform:

Operating System	Contact
Microsoft Windows* XP Embedded SP2	Intel provides drivers
Microsoft Windows* Embedded CE 6.0	Adeneo, BSQUARE, WiPro
Fedora Core Linux*	Fedora Community
SUSE Linux*	Novell

The following BIOS vendors also support this platform:

- American Megatrends, Inc.
- General Software, Inc.
- Insyde Software
- Phoenix Technologies, including AwardCore*

Please contact your preferred vendor or an Intel representative for operating system and BIOS options. Or contact a member of the Intel® Embedded and Communications Alliance for application support.

Intel® Atom™ Processor N270 for Embedded Computing

Product Number	Core Speed	Front-Side Bus	L2 Cache	L1 Cache	Thermal Design Power ²	Tjunction	Package
AU80586GE025D	1.6 GHz	533 MHz	On-die 512 KB, 8-way	▪ 32 KB instruction cache ▪ 24 KB write-back data cache	2.5 watts	0 to 90° C	437-ball lead-free FCBGA8 22 mm x 22 mm

Intel in Embedded and Communications: intel.com/go/embedded

¹ Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See www.intel.com/products/processor_number for details.

² Intel® High Definition Audio requires a system with an appropriate Intel® chipset and a motherboard with an appropriate codec and the necessary drivers installed. System sound quality will vary depending on actual implementation, controller, codec, drivers and speakers. For more information about Intel® HD audio, refer to <http://www.intel.com/>.

³ The TDP specification should be used to design the processor thermal solution. TDP is not the maximum theoretical power the processor can generate.

⁴ Hyper-Threading Technology (HT Technology) requires a computer system with an Intel processor supporting HT Technology, and an HT Technology-enabled chipset, BIOS and operating system. Performance will vary depending on the specific hardware and software you use. See <http://www.intel.com/info/hyperthreading/> for more information including details on which processors support HT Technology.

⁵ Enabling Execute Disable Bit functionality requires a platform or system with a processor with Execute Disable Bit capability and a supporting operating system. Check with your PC manufacturer on whether your system delivers Execute Disable Bit functionality.

INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER, AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. UNLESS OTHERWISE AGREED IN WRITING BY INTEL, THE INTEL PRODUCTS ARE NOT DESIGNED NOR INTENDED FOR ANY APPLICATION IN WHICH THE FAILURE OF THE INTEL PRODUCT COULD CREATE A SITUATION WHERE PERSONAL INJURY OR DEATH MAY OCCUR.

Intel may make changes to specifications and product descriptions at any time, without notice. Designers must not rely on the absence or characteristics of any features or instructions marked "reserved" or "undefined." Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them. The information here is subject to change without notice. Do not finalize a design with this information. The products described in this document may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request. Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order. Copies of documents which have an order number and are referenced in this document, or other Intel literature, may be obtained by calling 1-800-548-4725, or by visiting Intel's Web Site www.intel.com/.

Intel, the Intel logo, Intel SpeedStep, and Atom are trademarks of Intel Corporation in the U.S. and other countries.

Copyright © 2008 Intel Corporation. All rights reserved.

*Other names and brands may be claimed as the property of others.

