Product Brief
Intel® Atom™ Processor
Embedded Computing

Intel® Atom™ Processor N270
for Embedded Computing

Product Overview

The Intel® Atom™ processor N270, 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 also includes a single channel for 400/533 MHz DDR2 system memory (SODIMM or memory down), and Intel® High Definition Audio 1 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 power (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:

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Contact</th>
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<tbody>
<tr>
<td>Microsoft Windows® XP Embedded SP2</td>
<td>Intel provides drivers</td>
</tr>
<tr>
<td>Microsoft Windows® Embedded CE 6.0</td>
<td>Adeneo, BSQUARE, WiPro</td>
</tr>
<tr>
<td>Fedora Core Linux®</td>
<td>Fedora Community</td>
</tr>
<tr>
<td>SUSE Linux®</td>
<td>Novell</td>
</tr>
</tbody>
</table>

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.

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<table>
<thead>
<tr>
<th>Product Number</th>
<th>Core Speed</th>
<th>Front-Side Bus</th>
<th>L2 Cache</th>
<th>L1 Cache</th>
<th>Thermal Design Power</th>
<th>Tjunction</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU80586GE025D</td>
<td>1.6 GHz</td>
<td>533 MHz</td>
<td>On-die 512 KB, 8-way</td>
<td>32 KB instruction cache, 24 KB write-back data cache</td>
<td>2.5 watts</td>
<td>0 to 90˚ C</td>
<td>437-ball lead-free FCBGA8 22 mm x 22 mm</td>
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* Other names and brands may be claimed as the property of others.

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