Intel® Celeron® Processor-Based Platforms for Intelligent Systems

Ideal for Intelligent Systems—context-aware, securely managed embedded devices that connect seamlessly to networks, clouds and each other.

Product Overview
Based on 2nd generation Intel® Core™ microarchitecture on 32nm process technology, these Intel® Celeron® processors feature enhanced power efficiency and processor graphics with new levels of performance for embedded applications. Processors include:

- Intel® Celeron® processor B810
- Intel® Celeron® processor B810E
- Intel® Celeron® processor 827E
- Intel® Celeron® processor 847E
- Intel® Celeron® processor 807UE

When paired with the Mobile Intel® QM67 Express or Mobile Intel® HM65 Express chipset, these two-chip platforms provide excellent media, graphics, and I/O flexibility to meet the requirements of a broad range of embedded applications, including retail and transaction solutions, signage, gaming platforms, industrial automation, and medical equipment.

The processors offer dual- and single-core options with a range of thermal design power (TDP) of 10W, 17W and 35W to deliver excellent performance and value. While incorporating advanced technology, they remain software-compatible with previous IA-32 processors.

The next-generation graphics engine, Intel® HD Graphics, provides improved graphics performance compared with previous Intel Celeron processor-based platforms. Full integration of the CPU, media/graphics capabilities and memory controller helps reduce overall platform footprint and provides faster performance as well as board real estate savings.

Product Highlights

- **Intel® HD Graphics**: Supports enhanced media/graphics capabilities and performance while reducing overall platform power requirements and footprint.

- **Intel® Intelligent Power Technology**: Reduces idle power consumption through architectural improvements such as integrated power gates and automated low-power states.

- **Intel® Virtualization Technology (Intel® VT)**: Combined with software-based virtualization solutions, Intel VT provides maximum system utilization by consolidating multiple environments into a single embedded system.
Software Overview

The following independent operating system and BIOS vendors provide support for this platform.

<table>
<thead>
<tr>
<th>OPERATING SYSTEM</th>
<th>CONTACT</th>
<th>BIOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Windows* 7</td>
<td>Intel provides drivers(^1)</td>
<td>American Megatrends</td>
</tr>
<tr>
<td>Microsoft Windows* XP SP3</td>
<td>Intel provides drivers(^1)</td>
<td>Insyde Software</td>
</tr>
<tr>
<td>Microsoft Windows Embedded Standard 7</td>
<td>Intel provides drivers(^1)</td>
<td>Phoenix Technologies</td>
</tr>
<tr>
<td>Microsoft Windows Embedded Standard 2009</td>
<td>Intel provides drivers(^1)</td>
<td>Byosoft</td>
</tr>
<tr>
<td>Microsoft Windows Embedded POSReady (WEPOS)</td>
<td>Intel provides drivers(^1)</td>
<td></td>
</tr>
<tr>
<td>Red Hat Enterprise Linux* 6.1</td>
<td>Red Hat</td>
<td></td>
</tr>
<tr>
<td>SUSE SLE* 11 SP1</td>
<td>Novell</td>
<td></td>
</tr>
<tr>
<td>Wind River Linux* 3.0</td>
<td>Wind River</td>
<td></td>
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<tr>
<td>Wind River VxWorks* 6.8</td>
<td>Wind River</td>
<td></td>
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</tbody>
</table>

*Feature not supported on Intel® Celeron® processor 807UE.

\(^1\)Intel® Celeron® processor 807UE supports single channel memory. All other processors support dual.
### Platform Features and Benefits

#### FEATURES

<table>
<thead>
<tr>
<th>Supports key embedded platform requirements</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal for compute-intensive embedded applications.</td>
<td></td>
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<table>
<thead>
<tr>
<th>Extended life cycle product support</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protects system investment by enabling extended product availability for embedded customers.</td>
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</table>

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<thead>
<tr>
<th>Embedded ecosystem support</th>
<th>Benefits</th>
</tr>
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<tbody>
<tr>
<td>Along with a strong ecosystem of hardware and software vendors, including members of the Intel® Embedded Alliance (<a href="http://intel.com/go/eca">intel.com/go/eca</a>), Intel helps to cost-effectively meet development challenges and speed time-to-market.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intelligent performance</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivers optimum efficiency by adapting performance to embedded application needs.</td>
<td></td>
</tr>
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<thead>
<tr>
<th>Intel® Smart Cache Technology</th>
<th>Benefits</th>
</tr>
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<tbody>
<tr>
<td>Large on-die shared last-level cache reduces latency to data, improving performance and power efficiency.</td>
<td></td>
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<thead>
<tr>
<th>Intel® Intelligent Power Technology¹</th>
<th>Benefits</th>
</tr>
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<tbody>
<tr>
<td>Automated energy efficiency reduces power consumption.</td>
<td></td>
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</tbody>
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<tr>
<th>Integrated power gates</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusts idle processor cores to near zero power when not in use to help conserve power and lower operating costs.</td>
<td></td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Automated low-power states</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increases system power consumption based on real-time processor loads.</td>
<td></td>
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</tbody>
</table>

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<tr>
<th>Virtualization</th>
<th>Benefits</th>
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<tr>
<td>Increases performance of virtual computing environments enabling more robust embedded applications.</td>
<td></td>
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<thead>
<tr>
<th>Intel® Virtualization Technology²</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speeds the transfer of platform control and movement of data between the virtual machine monitor (VMM) and other platform agents (including guest operating systems and I/O devices). By lowering the workload on the VMM, this technology addresses many embedded system design challenges, like migrating legacy software, increasing real-time performance, and making applications more secure.</td>
<td></td>
</tr>
</tbody>
</table>

### Intel® Celeron® Processors for Embedded Computing

<table>
<thead>
<tr>
<th>PRODUCT NAME³</th>
<th>CORES</th>
<th>CORE FREQUENCY</th>
<th>LAST-LEVEL CACHE</th>
<th>THERMAL DESIGN POWER</th>
<th>PACKAGE</th>
<th>ERROR CORRECTING CODE</th>
<th>INTEL® VIRTUALIZATION TECHNOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Celeron® Processor B810</td>
<td>2</td>
<td>1.6 GHz</td>
<td>2 MB</td>
<td>35 W</td>
<td>FCPGA 988</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Intel® Celeron® Processor B810E</td>
<td>2</td>
<td>1.6 GHz</td>
<td>2 MB</td>
<td>35 W</td>
<td>FCBGA 1023</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Intel® Celeron® Processor 827E</td>
<td>1</td>
<td>1.4 GHz</td>
<td>1.5 MB</td>
<td>17 W</td>
<td>FCBGA 1023</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Intel® Celeron® Processor 847E</td>
<td>2</td>
<td>1.1 GHz</td>
<td>2 MB</td>
<td>17 W</td>
<td>FCBGA 1023</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Intel® Celeron® Processor 807UE</td>
<td>1</td>
<td>1.0 GHz</td>
<td>1 MB</td>
<td>10 W</td>
<td>FCBGA 1023</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Mobile Intel® QM67 Express and Mobile Intel® HM65 Express Chipsets for Embedded Computing

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>PRODUCT CODE</th>
<th>PACKAGE</th>
<th>FEATURES</th>
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</thead>
<tbody>
<tr>
<td>Intel® BD82QM67 Platform Controller Hub</td>
<td>BD82QM67</td>
<td>FCBGA 989</td>
<td>Six SATA ports; 14 Hi-Speed USB 2.0 ports; eight PCI Express® I/O ports</td>
</tr>
<tr>
<td>Intel® BD82HM65 Platform Controller Hub</td>
<td>BD82HM65</td>
<td>FCBGA 989</td>
<td>Six SATA ports; 12 Hi-Speed USB 2.0 ports; eight PCI Express I/O ports</td>
</tr>
</tbody>
</table>
Intel in Embedded and Communications: intel.com/embedded

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.

Intel® Intelligent Power Technology requires a computer system with an enabled Intel® processor, chipset, BIOS and for some features, an operating system enabled for it. Functionality or other benefits may vary depending on hardware implementation and may require a BIOS and/or operating system update. Please check with your system vendor for details.

Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM). Functionality, performance or other benefits will vary depending on hardware and software configurations. Software applications may not be compatible with all operating systems. Consult your PC manufacturer. For more information, visit http://www.intel.com/go/virtualization.

Drivers available at: downloadcenter.intel.com (enter chipset name).

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