Product Overview

Intel® Celeron® and Intel® Celeron® M processors on 45nm process technology deliver both proven technology and exceptional value for thermally sensitive embedded, communication and storage applications. Available in both dual-core and single-core options, these high-performance, low-power processors offer several enhancements over previous-generation processors. They create ideal solutions for small-to-medium business and enterprise communications applications, storage appliances, gaming platforms, and other embedded devices. While incorporating advanced processor technology, they remain software-compatible with previous IA-32 processors.

Product Highlights

- Processors:
  - Intel® Celeron® processor T3100\(^a\) with two cores at 1.9 GHz core speed, 800 MHz front-side bus (FSB) and 35 W thermal design power (TDP).
  - Intel® Celeron® M processor ULV 722\(^a\) at 1.2 GHz core speed, 800 MHz FSB and 5.5 W TDP.
  - Intel® Celeron® M processor ULV 723\(^a\) at 1.2 GHz core speed, 800 MHz FSB and 10 W TDP.

- Chipset support:
  - Intel Celeron M processors ULV 722 and ULV 723 are validated with the Mobile Intel® GS45 Express chipset, while the T3100 processor is validated with the Mobile Intel® GM45 Express chipset. Both chipsets include the Mobile Intel® Graphics Media Accelerator 4500MHD and Intel® Clear Video Technology. Enhanced graphics and 3D rendering performance make the platform ideal for embedded applications such as industrial control, retail and transaction solutions, gaming platforms, and digital signage.
  - Intel Celeron processor T3100 is also validated with the Mobile Intel® GL40 Express chipset, making it an excellent choice for value-oriented applications.
  - Intel Celeron M processor ULV 722 is also validated with the Intel® 3100 chipset, which combines server-class memory and I/O controller functions into a single component. This integrated chipset supports a wide range of performance-intensive, thermally sensitive, communications and storage applications.

- On-die, 1 MB L2 cache with Advanced Transfer Cache (ATC) architecture delivers a high data throughput channel between the Level 2 cache and processor cores.

- Data Prefetch Logic speculatively fetches data to the L2 cache before the L1 cache requests occur, reducing bus cycle penalties. Data Cache Unit Streamer enhances performance of the L2 pre-fetcher by requesting L1 warm-ups earlier. Write Order Buffer depth is enhanced to help with write-back latency performance.

- New Streaming SIMD Extensions 4 instruction set delivers expanded capabilities, enhanced performance and greater energy efficiency for most embedded applications involving graphics, video encoding and processing, 3D imaging, gaming, web servers, and application servers.

- Execute Disable Bit (EDB) when combined with a supporting operating system, allows memory to be marked as executable or non-executable. If code attempts to run in non-executable memory, the processor raises an error to the operating system. This feature can prevent some classes of viruses or worms that exploit buffer over-run vulnerabilities and can thus help improve the overall security of the system. Please refer to the IA-32 Intel® Architecture Software Developer’s Manual for more details (intel.com/products/processor/manuals/index.htm).

- Intel® 64 Architecture\(^2\) supports 64-bit instructions, providing flexibility for 64-bit and 32-bit applications and operating systems.
Product Overview (continued)

- Embedded lifecycle support protects system investment by enabling extended product availability for embedded, storage and communications customers.
- 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 developers cost-effectively meet design challenges and shorten time-to-market.

Software Overview

A number of independent operating system and BIOS vendors provide support for these platforms:

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Windows® XP</td>
<td>Intel provides drivers¹</td>
</tr>
<tr>
<td>Microsoft Windows® Embedded Standard</td>
<td>Intel provides drivers¹</td>
</tr>
<tr>
<td>Microsoft Windows® Embedded POSReady</td>
<td>Intel provides drivers¹</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux® 5</td>
<td>Red Hat</td>
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<tr>
<td>Novell SUSE Linux® Enterprise 10</td>
<td>Novell</td>
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<tr>
<td>Wind River Linux®</td>
<td>Wind River</td>
</tr>
<tr>
<td>Wind River VxWorks® 6.6</td>
<td>Wind River</td>
</tr>
</tbody>
</table>

BIOS

- American Megatrends
- Insyde Software
- Phoenix Technologies

Intel® Celeron® and Intel® Celeron® M Processors on 45nm for Embedded Computing

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Core Speed</th>
<th>Number of Cores</th>
<th>Front-Side Bus Speed</th>
<th>L2 Cache</th>
<th>Thermal Design Power</th>
<th>VID</th>
<th>Tjunction</th>
<th>Package²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Celeron® processor T3100³</td>
<td>1.9 GHz</td>
<td>2</td>
<td>800 MHz</td>
<td>1 MB</td>
<td>35 W</td>
<td>0.8 V - 1.25 V</td>
<td>0-105°C</td>
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<td>1</td>
<td>800 MHz</td>
<td>1 MB</td>
<td>5.5 W</td>
<td>0.775 V - 1.1 V</td>
<td>0-100°C</td>
<td>956 µFC-BGA (SFF)</td>
</tr>
<tr>
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Intel in Embedded and Communications: Intel.com/embedded

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

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²SFF=small form factor package.

³In this document, all processors are assumed to be compliant with the ASIP (Application-Specific Instruction Set Processing) instruction set. Intel does not warrant any features for ASIP instructions that are not supported by Intel processors.

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BIOS

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