

## Product Brief

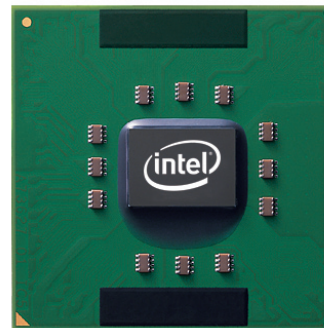
### Intel® Celeron® and Intel® Celeron® M Processors on 45nm

Embedded Computing

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

## 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<sup>A</sup> 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<sup>A</sup> at 1.2 GHz core speed, 800 MHz FSB and 5.5 W TDP.
- Intel® Celeron® M processor ULV 723<sup>A</sup> 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 embedded, 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,<sup>1</sup> 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 overrun 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](http://intel.com/products/processor/manuals/index.htm)).
- Intel® 64 Architecture<sup>2</sup> 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](http://intel.com/go/eca)), Intel helps developers cost-effectively meet design challenges and shorten time-to-market.

## Software Overview

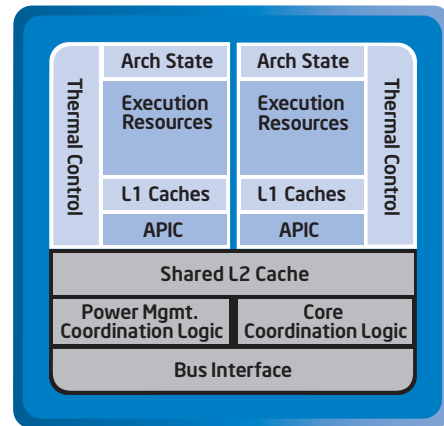
A number of independent operating system and BIOS vendors provide support for these platforms:

### Operating System

Operating System	Contact
Microsoft Windows* XP	Intel provides drivers <sup>3</sup>
Microsoft Windows* Embedded Standard	Intel provides drivers <sup>3</sup>
Microsoft Windows* Embedded POSReady	Intel provides drivers <sup>3</sup>
Red Hat Enterprise Linux* 5	Red Hat
Novell SUSE Linux* Enterprise 10	Novell
Wind River Linux*	Wind River
Wind River VxWorks* 6.6	Wind River

### BIOS

American Megatrends  
Insyde Software  
Phoenix Technologies



Block diagram for the Intel® Celeron® processor T3100<sup>A</sup> with two cores on 45nm

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

Product Number	Core Speed	Number of Cores	Front-Side Bus Speed	L2 Cache	Thermal Design Power	VID	Tjunction	Package <sup>4</sup>
<b>Intel® Celeron® processor T3100<sup>A</sup></b>								
AV80577NG0371M	1.9 GHz	2	800 MHz	1 MB	35 W	0.8 V - 1.25 V	0-105° C	479 µFC-BGA
AW80577GG0371ML	1.9 GHz	2	800 MHz	1 MB	35 W	0.8 V - 1.25 V	0-105° C	478 µFC-PGA
<b>Intel® Celeron® M processor ULV 722<sup>A</sup></b>								
AV80585VG0091MP	1.2 GHz	1	800 MHz	1 MB	5.5 W	0.775 V - 1.1 V	0-100° C	956 µFC-BGA (SFF)
<b>Intel® Celeron® M processor ULV 723<sup>A</sup></b>								
AV80585VG0091M	1.2 GHz	1	800 MHz	1 MB	10 W	0.775 V - 1.1 V	0-100° C	956 µFC-BGA (SFF)

## Intel in Embedded and Communications: [intel.com/embedded](http://intel.com/embedded)

<sup>A</sup> Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See [http://www.intel.com/products/processor\\_number](http://www.intel.com/products/processor_number) for details.

<sup>1</sup> Enabling Execute Disable Bit functionality requires a PC 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.

<sup>2</sup> 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel® 64 architecture. Performance will vary depending on your hardware and software configurations. Consult with your system vendor for more information.

<sup>3</sup> Drivers available at: [downloadcenter.intel.com](http://downloadcenter.intel.com) (enter chipset name).

<sup>4</sup> SFF=small form factor package.

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 [www.intel.com](http://www.intel.com).

Copyright © 2009 Intel Corporation. All rights reserved. Intel, the Intel logo, and Celeron are trademarks of Intel Corporation in the U.S. and other countries.

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

Printed in USA

0609/KSC/OCG/XX/PDF

♻ Please Recycle

320329-004US

