Product Brief

Intel® Celeron® Processor 440

Embedded Computing

Intel® Celeron® Processor 440 for Embedded Computing

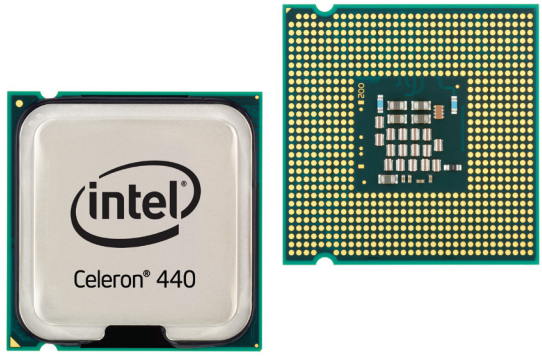
Product Overview

The Intel® Celeron® processor 440[Δ] balances proven technology with exceptional value for embedded computing designs such as print imaging, retail and transaction terminals, gaming, and industrial automation. Featuring Intel® Intelligent Power Capability, it supports smaller, quieter, more energy-efficient embedded systems with improved performance over previous Intel Celeron processors.

Manufactured on 65nm process technology, the Intel Celeron processor 440 at 2.0 GHz offers 512 KB of L2 cache with a thermal design power (TDP) of 35 watts, providing a 45% power savings over the Intel® Celeron® processor 352[Δ] at 65 watts TDP. It features Execute Disable Bit[1] for built-in security support, and Intel® 64 architecture,[2] enabling applications to access larger amounts of memory when used with appropriate 64-bit supporting hardware and software.

The Intel Celeron processor 440 is available in an LGA-775 package with integrated heat spreader. When combined with any of the following chipsets, the resulting platform provides scalability, along with exceptional value for mid-range performance and reduced power applications.

- Intel® G45 Express chipset
- Intel® G41 Express chipset
- Intel® Q45 Express chipset
- Intel® Q35 Express chipset
- Intel® Q965 Express chipset
- Intel® 3210 chipset
- Intel® 3010 chipset



Product Highlights

- **800 MHz front-side bus** provides accelerated access to data from the processor core.
- **Intel® Wide Dynamic Execution** improves execution speed and efficiency, delivering more instructions per clock cycle.
- **Intel® Smart Memory Access** optimizes use of data bandwidth from the memory subsystem to accelerate out-of-order execution, keeping the pipeline full while improving instruction throughput and performance. Newly designed prediction mechanism reduces the time in-flight instructions must wait for data. Pre-fetch algorithms move data from system memory into fast L2 cache in advance of execution.
- **Intel® Advanced Digital Media Boost** accelerates execution of Streaming SIMD Extension (SSE) 2/3 instructions to significantly improve media boost performance on a broad range of applications. 128-bit SSE instructions are issued at a throughput rate of one/clock cycle, effectively doubling speed of execution over previous-generation processors.

- **Execute Disable Bit** enhances virus protection when deployed with supported operating system. Allows memory to be marked as executable or non-executable, allowing the processor to raise an error to the operating system, thereby preventing malicious code from infecting the system.
- **Intel® 64 Architecture** enables access to larger amounts of memory and provides flexibility for 32-bit and 64-bit applications. With appropriate hardware and software, platforms supporting 64-bit computing can use extended virtual and physical memory.
- **Embedded lifecycle** protects system investment by enabling extended product availability for embedded 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 cost-effectively meet development challenges and speed time-to-market.

Software Overview

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

Operating System	Contact
Microsoft Windows* XP	Intel provides drivers[3]
Microsoft Windows* XP embedded	Intel provides drivers[3]
Microsoft Windows* WEPOS	Intel provides drivers[3]
Microsoft Windows* Server 2003	Intel provides drivers[3]
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

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Product Number	Core Speed	Front-Side Bus Speed	L2 Cache	Thermal Design Power	VID[4]	Tcase (Max[5])	Package
HH80557RG041512	2.0 GHz	800 MHz	512 KB	35 watts	1.000V – 1.3375V	60.4° C	LGA-775

Intel in Embedded and Communications: intel.com/embedded

Δ 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 for details.

[1] 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.

[2] 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.

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

[4] Variable VID voltage. The Intel Celeron processor 440 ships with different voltage settings. For detailed product specifications, please refer to the Intel Web site- http://developer.intel.com/design/celeron/documentation.htm

[5] Tcase specification is based on Intel thermal profile. See processor data sheet for details.

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