Intel® Celeron® Processors
for Applied Computing

Value
Scalability
Low Power

Where to Buy

Product Highlights

- 2.8 GHz in 478-pin µFC-PGA2 (Intel® Celeron® D processor 335)
- 2.0 and 2.5 GHz in 478-pin FC-PGA2 package
- 1.2 GHz in 370-pin FC-PGA2 package
- 566, 733 and 850 MHz in 370-pin FC-PGA package
- 300, 366 and 433 MHz in 370-pin PPGA package
- 400A MHz in BGA2 package
- 400 and 650 MHz in µFCBGA package
- 400 MHz processor side bus for 2.0 GHz FC-PGA2
- 100 MHz processor side bus for BGA2, 850 MHz FC-PGA, 1.2 GHz FC-PGA2, 400 and 650 MHz µFCBGA
- 128K integrated L2 cache; 256K for 1.2 GHz, 650 MHz, and 400 MHz
- Compatible with Intel® 815E, 815, 810E2 and 810 chipsets; Intel® 82801E C-ICH; Intel 440BX AGPset and 440MX chipset; Intel 815E and 810E2 for 1.2 GHz, 845, 845E, 845GV, and 852GME for 2.0 and 2.5 GHz

Related Platforms

- Communications
- Industrial PC
- Intel® Interactive Learning Solution
- Interactive Clients

Intel® Celeron® processors — Documentation

Product Number	Core Speed (MHz)	L2 Cache	External Bus Speed (MHz)	Thermal Design Power (Max)	Voltage	Tcase	Package
RK80532RC060128	2500	128K	400	61.0W (TDP)	1.525V	72°C	FC-PGA2 478-pin
RK80532RC041128	2000	128K	400	52.8W (TDP)	1.525V	68°C	FC-PGA2 478-pin
RK80530RY009256	1200	256K	100	32.1W	1.5V	70°C	370 FC-PGA2
RB80526RY850128	850	128K	100	25.7W	1.75V	80°C*	370 FC-PGA
RB80526RX733128	733	128K	66	22.8W	1.75V	80°C*	370 FC-PGA
RB80526RX566128	566	128K	66	19.2W	1.75V	90°C*	370 FC-PGA
FV80524RX433128	433	128K	66	24.1W	2.0V	5-85°C	370 PPGA
FV80524RX366128	366	128K	66	21.7W	2.0V	5-85°C	370 PPGA
FV80524RX300128	300A	128K	66	17.8W	2.0V	5-85°C	370 PPGA

* = Tjunction, not Tcase

Intel® Celeron® D processor 335Δ — Documentation

Product Number	Core Speed (MHz)	L2 Cache	External Bus Speed (MHz)	Thermal Design Power (Max)	Voltage	Tcase	Package
RK80546RE072256	2.8	256 KB	533 MHz	73.0 W	1.25-1.4 V	67°C	µFC-PGA2 478-pin

+ Variable VID voltage. The Intel® Celeron® processor ships with different voltage settings. For detailed product specifications, please refer to http://developer.intel.com/design/celeron/datashts/302353.htm.

Intel® Celeron® processor - Low Power							Documentation
Product Number	Core Speed (MHz)	L2 Cache	External Bus Speed (MHz)	Thermal Design Power (Max)	Voltage	$T_{junction}$	Package
KC80526LY400128	400A	128K	100	10.1W	1.35V	0-100°C	495 BGA
KC80526LL300128	300	128K	100	5.7W	1.1V	0-100°C	495 BGA

Mobile Intel® Celeron® processors							Documentation
Product Number	Core Speed (GHz)	L2 Cache	External Bus Speed (MHz)	Thermal Design Power (Max)	Voltage	$T_{junction}$	Package
RH80532NC009256	1.2	256K	400	20.8W	1.3V	0-100°C	µFC-PGA 478

Ultra Low Voltage Intel® Celeron® processors							Documentation
Product Number	Core Speed (MHz)	L2 Cache	External Bus Speed (MHz)	Thermal Design Power (Max)	Voltage	$T_{junction}$	Package
RJ80530VY650256	650	256K	100	8.3W	1.1V	0-100°C	479 µFCBGA
RJ80530VY400256	400	256K	100	4.2W	0.95V	0-100°C	479 µFCBGA

Intel® Celeron® Processors

The Intel® Celeron® processor at 2.0 and 2.5 GHz delivers a scalable solution for value embedded applications. Designed for and built on Intel's state-of-the-art 0.13 micron manufacturing process, it brings new levels of performance at an exceptional value for developers of embedded computing products. Combined with the Celeron processors at 300, 366, 433, 566, 733, 850 MHz, and 1.2 GHz, Intel offers a complete line of socket-compatible solutions for embedded computing applications for communications, interactive clients, and industrial automation applications.

Product Description

The Intel Celeron processor at 2.0 and 2.5 GHz is packaged in Intel's latest processor package, the Flip-Chip Pin Grid Array 2 (FC-PGA2). Fully compatible with the mPGA478 Socket specification, the FC-PGA2 package is Intel's latest offering for processors targeted at form factor and cost-sensitive designs while still delivering maximum performance and scalability.

Scalable Performance

Scalability can play a significant role in system cost and time-to-market for embedded computing applications. The Celeron processor family offers a scalable path allowing developers to preserve their hardware and software investment. Using design guidelines from Intel's Scalable Performance Board Design Program, developers can easily increase performance while minimizing their total system cost. This allows developers to utilize a single system design while providing a wide range of price and performance options.

Development Kits

These Scalable Performance Board Development Kits reduce the design and validation effort for multiple designs and provides faster time to market.

- Intel® 845GV Scalable Performance Board Development Kit
  Supports Intel Celeron processors in a socket 478 package (FCPGA2).

- Intel® 815E Scalable Performance Board Development Kit
  Supports Intel Celeron processors in both the 370-pin Flip-Chip Pin Grid Array (FC-PGA) and 370-pin Flip-Chip Pin Grid Array 2 (FC-PGA2) packages.
- Intel® 440BX Scalable Performance Board Development Kit
  Supports Intel Celeron processors (0.18µ and 0.25µ process) in 370-pin Flip-Chip Pin Grid Array (FC-PGA) and Plastic Pin Grid Array (PPGA) packages.
- Intel® 440MX Scalable Low Power Board Development Kit
  Supports Intel Celeron processors (0.18µ) in a 495-pin µPGA package.

Intel® Celeron® Processor - Low Power, Ultra Low Power and Ultra Low Voltage

The Intel Celeron processor - Low Power, Ultra Low Power and Ultra Low Voltage provides an exceptional value for thermally sensitive and space constrained embedded computing applications by combining the optimal balance of cost, performance, and low power. Available in the small form factor BGA2 at 300 and 400 MHz with 128K of on-die L2 cache and µFCBGA packages at 400 and 650 MHz with 256K of on-die L2 cache.

The new 400 MHz processor, at just 0.95V and 4.2W TDP(max), and the 650 MHz processor, at just 1.1V and 8.3W TDP (max), is the ideal solution for communication appliances such as network attached storage, web pads and other applications with lower power envelopes and BOM requirements.

The 128K/256K of on-die cache combined with the efficiencies of the .18 and .13 micron manufacturing processes offers good low power processor performance for value-based systems. The compact form factor results in a low profile, meeting small space requirements. This enables a variety of value-based designs for thermally sensitive and space constrained environments.

The Ultra Low Voltage Intel Celeron processor at 400 MHz and 650 MHz is validated with the Intel 440MX and Intel 815E chipsets. The Celeron processor - Low Power at 400 MHz is validated with the 440BX AGPset and the 440MX chipset. The Celeron processor - Ultra Low Power at 300 MHz is validated with the 815E and 440MX chipset.

Intel Chipsets Optimized for Celeron Processors

The Celeron processors are validated with multiple chipsets to maximize scalability. The Intel® Celeron® processors at 2.0 and 2.5 GHz are validated with the the Intel® 875P chipset, Intel® 845 Chipset, the Intel® 845E Chipset, the Intel® 845GV Chipset, and the Intel® 852GME Chipset. The Intel 875P chipset supports DDR 266/333/400 SDRAM with ECC. ACP-8X, Communications Streaming Architecture (CSA), plus four PCI-x slots are provided for outstanding performance. The Intel® 845 and 845E chipsets expands the Intel® Celeron® processor platform with a great balance of price and performance for applied computing segments. The Intel® 845, 845E, and 845GV chipsets provide up to 2GB single channel (DDR200 or DDR 266) DDR memory. The Intel® 845 and 845E chipsets also feature configurable optional Error Correcting Code (ECC) operation. The Intel® 845GV chipset also offers integrated Intel® Extreme graphics with DDR333. The Intel 852GME chipset provides up to 2 GB of DDR 333 memory with configurable optional Error Correcting Code operation. It also offers integrated Intel® Extreme Graphics 2 technology, which provides enhanced graphics features including dual independent display support.

The Intel® 815E and 810E2 chipsets support Celeron processors in the FC-PGA2 package at 1.2 GHz. The Intel® 815 and 815E chipsets provide a high degree of scalability by supporting Celeron processors in BGA2 package at 300 MHz and 400MHz and in FC-PGA package at 566, 733 and 850 MHz. The chipsets support processor side bus speeds of 66 and 100 MHz, and provide graphics scalability using Intel graphics, an add-in Graphics Performance Accelerator (GPA) card, or an add-in ACP 4X card. The Intel 815/E GMCH is validated for use with the Intel® 82801E Communications I/O Controller Hub (C-ICH). The Intel 815E and Intel 440MX chipsets also support the Ultra Low Voltage Celeron at 400 MHz and 650 MHz processors in the µFCBGA package.

The Intel 815, 815E, 810 and 810E2 chipsets all provide 3D graphics integrated into the memory controller, significantly reducing system bill-of-materials cost for applications such as interactive clients that require multimedia capabilities in a small form factor. The 810 and 810E2 chipsets support processors in a PPGA or FC-PGA package with both 66 and 100 MHz processor side bus

speeds. The Intel 810 and 810E GMCHs are also validated for use with the Intel 82801E Communications I/O Controller Hub (C-ICH).

The Intel® 440BX AGPset also supports both 66 and 100 MHz processor side bus speeds, as well as ECC memory and legacy applied computing system requirements such as ISA bus.

The Intel® 440MX chipset supports Intel Celeron processors - Low Power and Ultra Low Voltage. It provides support for USB, ACPI power management and AC-97 link. A single component, it integrates the North Bridge and South Bridge into a single chip. The 440MX chipset features low power dissipation that makes it ideal for fanless applications.

The design guides for the 815, 815E, or 810 chipsets, or the 440BX AGPset, enable developers to design a single board for applied computing applications that support scalability across the entire breadth of Celeron and Pentium® III processors.

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.

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