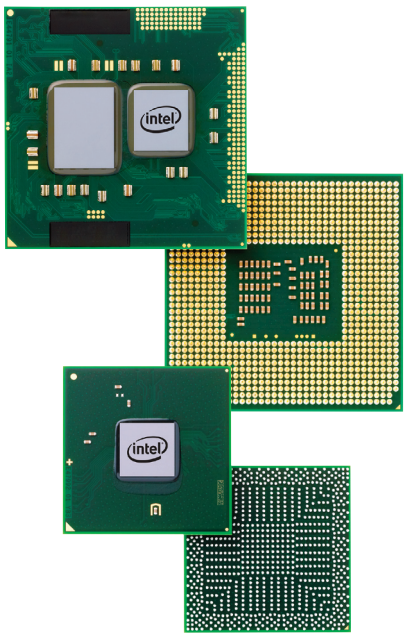
PLATFORM BRIEF
Intel® Celeron® Processors with Mobile Intel® QM57 and Mobile Intel® HM55 Express Chipsets
Embedded Computing

Intel® Celeron® Processors U3405, P4500, and P4505-based Platforms for Embedded Computing



Product Overview

Based on 32nm process technology, Intel® Celeron® processors U3405, P4500, and P4505[A] feature power efficiency, integrated graphics, and Error Correcting Code (ECC) memory[1] on industry-standard x86 architecture. When paired with the Mobile Intel® QM57 or Mobile Intel® HM55 Express chipset, this integrated two-chip platform provides excellent graphics, memory, and I/O bandwidth to meet the requirements of a broad range of embedded applications, including retail and transaction solutions, gaming platforms, and industrial automation equipment. While incorporating advanced technology, these processors remain software-compatible with previous IA-32 processors.

The graphics engine is integrated into the processor, providing a two-chip solution with enhanced graphics performance compared with previous Intel® platforms. The memory controller hub is also integrated into the processor, providing faster performance and board real estate savings.

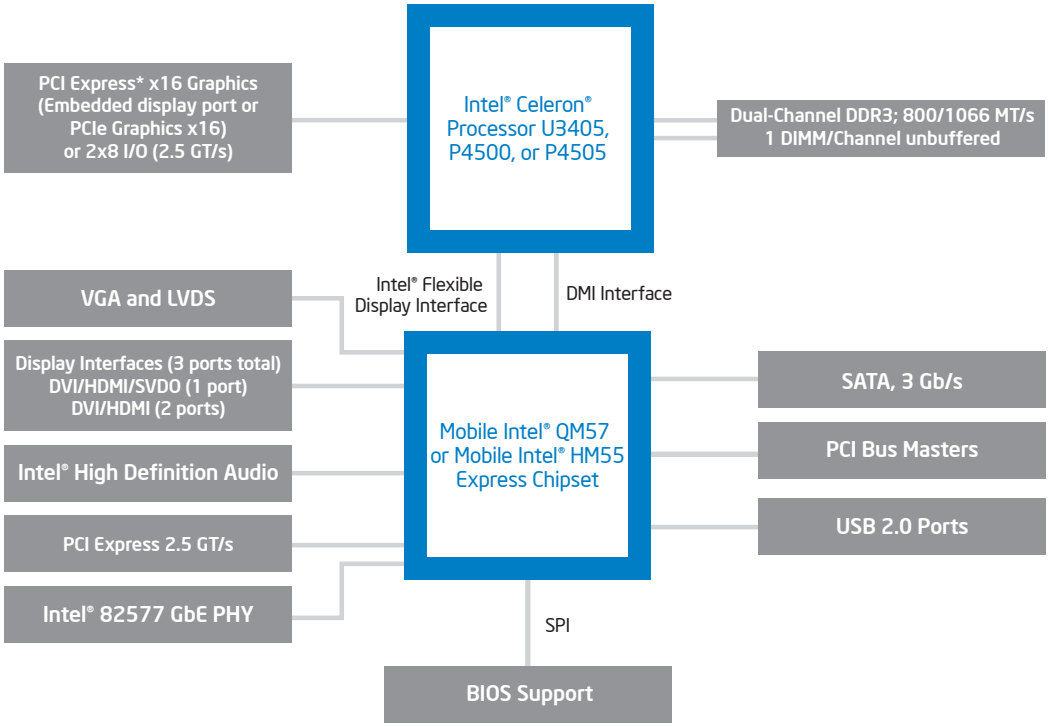
Product Highlights

Integrated graphics engine: Supports enhanced graphics capabilities and performance while reducing overall platform power requirements and footprint.

Memory Error Correction: ECC memory provides a high level of data integrity, reliability, and system uptime (U3405 and P4505).

Intel® Intelligent Power Technology[2]: Reduces idle power consumption through architectural improvements such as integrated power gates and automated low-power states.

Intel® Virtualization Technology[3] (Intel® VT): Combined with software-based virtualization solutions, Intel VT provides maximum system utilization by consolidating multiple environments into a single server or PC.



Software Overview

The following independent operating system and BIOS vendors provide support for these platforms.

OPERATING SYSTEM	CONTACT
Microsoft Windows Vista* SP2	Intel provides drivers[4]
Microsoft Windows* 7	Intel provides drivers[4]
Microsoft Windows* XP SP3	Intel provides drivers[4]
Microsoft Windows Embedded Standard 2009	Intel provides drivers[4]
Microsoft Windows Embedded POSReady (WEPOS)	Intel provides drivers[4]
Red Hat Enterprise Linux* 5.5	Red Hat
SUSE SLE* 11	Novell
Wind River Linux* 3.0	Wind River
Wind River VxWorks* 6.8	Wind River

BIOS
American Megatrends
Insyde Software
Phoenix Technologies

Platform Features and Benefits

FEATURES	BENEFITS
Supports key embedded platform requirements	Ideal for compute-intensive embedded applications.
Extended life cycle product support	Protects system investment by enabling extended product availability for embedded customers.
Embedded ecosystem support	Along with a strong ecosystem of hardware and software vendors, including members of the Intel® Embedded Alliance (intel.com/go/eca), Intel helps to cost-effectively meet development challenges and speed time-to-market.
Intelligent performance	Delivers optimum efficiency by adapting performance to embedded application needs.
Intel® QuickPath Technology	Delivers bandwidth improvement for data-intensive applications.
Intel® Smart Cache Technology	Large on-die shared last-level cache reduces latency to data, improving performance and power efficiency.
Error Correcting Code memory[1]	Detects multiple-bit memory errors; locates and corrects single-bit errors to keep the system up and running.
Intel® Intelligent Power Technology[2]	Automated energy efficiency reduces power consumption.
Integrated power gates	Reduces idle processor cores to near zero power when not in use to help conserve power and lower operating costs.
Automated low-power states	Adjusts system power consumption based on real-time processor loads.
Virtualization	
Intel® Virtualization Technology[3]	Speeds the transfer of platform control and movement of data between the virtual machine monitor (VMM) and other platform agents (including guest OSs 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.

Intel® Celeron® Processors U3405, P4500, and P4505 for Embedded Computing[Δ]

	CORES	CORE FREQUENCY (GHZ)	LAST-LEVEL CACHE	THERMAL DESIGN POWER	PACKAGE	ERROR CORRECTING CODE	INTEL® VIRTUALIZATION TECHNOLOGY
Intel® Celeron® Processor U3405	2	1.06	2 MB	18 W	1288 FCBGA	Yes	Yes
Intel® Celeron® Processor P4500	2	1.86	2 MB	35 W	988 FCPGA	No	Yes
Intel® Celeron® Processor P4505	2	1.86	2 MB	35 W	1288 FCBGA	Yes	Yes

Mobile Intel® QM57 and Mobile Intel® HM55 Express Chipsets for Embedded Computing

PRODUCT	PRODUCT CODE	PACKAGE	FEATURES
Intel® BD82QM57 Platform Controller Hub	BD82QM57	1071 FCBGA	Supports Intel® vPro™ technology; six eSATA ports; 14 USB ports; eight PCIe Express* I/O ports
Intel® BD82HM55 Platform Controller Hub	BD82HM55	1071 FCBGA	Four eSATA ports; 12 USB ports; six PCIe Express* I/O ports

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 www.intel.com/products/processor_number for details.

[1] Error Correcting Code memory is available only on Intel® Core™ processors which come in a Ball Grid Array (BGA) package and these SKUs were specifically developed by the Intel® Embedded and Communication Group.

[2] 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.

[3] Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM) and, for some uses, certain computer system software enabled for it. Functionality, performance, or other benefits will vary depending on hardware and software configurations and may require a BIOS update. Software applications may not be compatible with all operating systems. Please check with your application vendor.

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

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