



Intel® E7520 and Intel® E7320 Chipsets for Embedded Computing

For Intel® Pentium® M and Intel® Celeron® M processors on 90nm process

Product Overview

The Intel® E7520 and Intel® E7320 chipsets enable a variety of high-performance, low-power designs with improved platform reliability and system manageability. These chipsets utilize revolutionary PCI Express*1 serial I/O technology and next-generation DDR2 memory technology to help increase I/O bandwidth and reduce system latency for data-intensive applications. The 533 MHz (E7520 chipset only) and 400 MHz bus allows these chipsets to support Intel® Pentium® M processors and Intel® Celeron® M processors on 90nm process.



Advanced Technology Enhances Price/Performance and Flexibility

The Intel E7520 and E7320 chipsets act as the central hub for all data passing between the core system elements including processors, memory, PCI Express I/O, and legacy I/O subsystems. Designed specifically for high-performance and volume applications, these chipsets support a variety of balanced platform configuration options, addressing a wide range of price points and unique application environments.

Memory

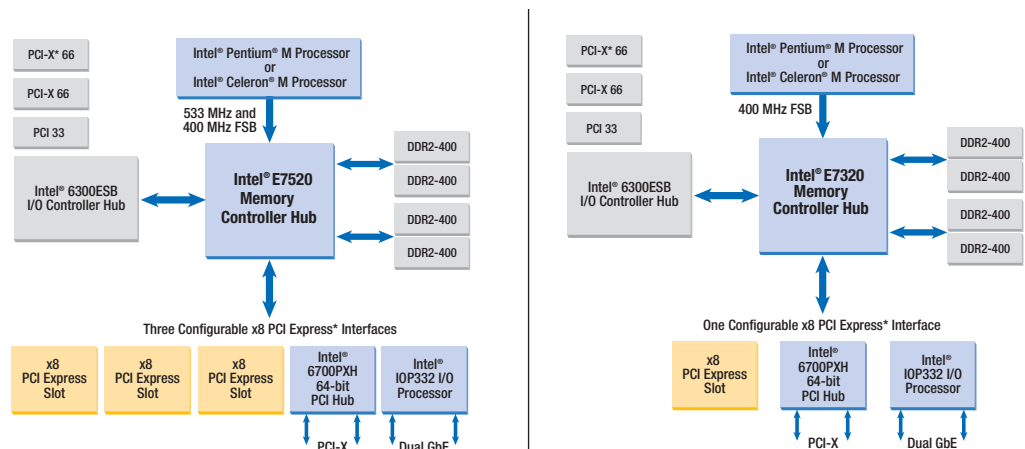
Platforms based on the Intel E7520 and E7320 chipsets can be designed to support DDR 266 or DDR2-400 memory. DDR2-400 memory technology is ideal for memory-intensive applications, providing up to 20 percent increase in memory bandwidth, and up to 40 percent

decrease in power consumption over DDR 266 memory. The memory subsystem interface to the Memory Controller Hub (MCH) for both chipsets is dual channel, supporting two registered DIMMs per channel—depending on memory technology—for a total system bandwidth of up to 6.4 GB/second. The MCH supports up to 4 GB of DDR2-400 memory.

PCI Express*

For demanding I/O and networking applications, PCI Express interfaces attach a variety of Intel and third-party I/O solution components and adapters directly to the MCH at throughput speeds of up to 4 GB/second on each x8 interface, allowing I/O to keep pace with the rest of the platform. The MCH has up to three x8 PCI Express interfaces (E7520 only), which can be bifurcated into two x4 interfaces for additional configuration flexibility.

Figure 1. The Intel® E7520 and Intel® E7320 chipsets support a variety of platform configurations.



Intel® 6300ESB I/O Controller Hub

Available as the I/O controller hub for legacy I/O support, the Intel® 6300ESB I/O Controller Hub (ICH) attaches directly to the MCH through the Intel® Hub Interface 1.5 connection at 266 MB/second. For the most demanding storage data transfers and support for optional third-party software RAID 0, 1 technology, the Intel 6300ESB ICH integrates dual independent SATA

controllers with 32-bit PCI connectivity, each capable of up to 150 MB/second transfer rate. Four Hi-Speed USB 2.0 ports allow easy I/O connection, while offering improved bandwidth compared to USB 1.1 devices. Unlike the Intel® 82801ER I/O Controller Hub (ICH5R), the Intel 6300ESB ICH includes a PCI-X* 64/66 bus supporting up to 4 PCI-X 64/66 MHz devices.

Features	Benefits
Supports Intel® Pentium® M processors or Intel® Celeron® M processors on 90nm process	Optimized performance, larger L2 cache, and lower thermal envelopes allowing denser design opportunities
533 MHz and 400 MHz system bus capability	Increased platform bus bandwidth delivers increased system performance
PCI Express**	Direct connection between the MCH and PCI Express component/adapters; bandwidth up to 4 GB/second on each x8 PCI Express interface; higher bandwidth and less I/O bottlenecks than PCI-X*
DDR2-400 memory interface	<ul style="list-style-type: none"> Maximum memory bandwidth of 6.4 GB/second Decreased power consumption
Intel® 6700PXH 64-bit PCI Hub (optional)	<ul style="list-style-type: none"> Next-generation PCI/PCI-X performance and significant enhancements to platform flexibility Supports two independent 64-bit, 133 MHz PCI-X segments and two hot-plug controllers (one per segment)
Intel® Hub Interface 1.5 connection to the MCH	Point-to-point connection between the MCH and the Intel® 6300ESB I/O Controller Hub provides 266 MB/second of bandwidth
Advanced Platform RAS	<ul style="list-style-type: none"> Features such as memory ECC, Intel® x4 Single Device Data Correction² (x4 SDDC), DIMM sparing, DIMM scrubbing and memory mirroring can improve system reliability 32-bit CRC on PCI Express Hot swap PCI Express enhances serviceability SMBus port for remote management operation and support for a variety of third-party Base Management Controller (BMC) and BIOS solutions

Product	Product Code	Package
Intel® E7520 Memory Controller Hub	NQE7520MC	1077 Flip Chip-Ball Grid Array (FC-BGA)
Intel® E7320 Memory Controller Hub	NQE7320MC	1077 Flip Chip-Ball Grid Array (FC-BGA)
Intel® 6700PXH 64-bit PCI Hub	RG82870P2	567 Flip Chip-Ball Grid Array (FC-BGA)
Intel® 6300ESB I/O Controller Hub	FWE6300ESB	689 Plastic Ball Grid Array (PBGA)

PCI Express reduced power-state L0s not supported.

²In an x4 DDR memory device, the Intel® x4 Single Device Data Correction (x4 SDDC), provides error detection and correction for 1 to 4 data bit within a single device and provides error detection for up to 8 data bits within two devices.

Intel Access

Embedded Intel® Architecture Home Page:	intel.com/design/intarch
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