Product Brief

Mobile Intel® GME965 and GLE960 Express Chipsets

Embedded Computing

Mobile Intel® GME965 and Mobile Intel® GLE960 Express Chipsets for Embedded Computing

Product Overview

The Mobile Intel® GME965 and Mobile Intel® GLE960 Express chipsets provide excellent flexibility for embedded developers by offering outstanding graphics and I/O bandwidth, asset management capabilities, storage speed and reliability. They are optimized for and validated with a variety of Intel® processors, addressing requirements of a broad range of applications such as interactive clients, gaming, medical and print imaging platforms, and industrial automation equipment. These chipset platforms are part of Intel's comprehensive validation process, enabling fast deployment of next-generation platforms to help developers maximize competitive advantage while minimizing development risks.

The Mobile Intel GME965 Express chipset includes an integrated 32-bit 3D graphics engine with eight graphics cores, enabling up to 500 MHz graphics frequency. Additional features include a 533/800 MHz front-side bus (FSB), delivering a high-bandwidth connection between the processor and platform, and up to 4 GB single- or dual-channel, non-ECC, 533/667 MHz DDR2 SODIMM high-speed system memory. It consists of the Intel® 82GME965 Graphics Memory Controller Hub (GMCH) and Intel® I/O Controller Hub 8-M (ICH8-M), available in two SKUs, delivering outstanding system performance through high-bandwidth interfaces such as PCI Express*, Serial ATA, and Hi-Speed USB 2.0 connectivity. The chipset also supports Intel® Active Management Technology (Intel® AMT)[1] and Intel® Matrix Storage Technology.

The Mobile Intel GLE960 Express chipset features a graphics core speed of 400 MHz, 533 MHz FSB, and up to 2 GB of 533 MHz DDR2 system memory. It is ideal for value-optimized embedded platforms not requiring Intel AMT.

Product Highlights

- Mobile Intel GME965 Express chipset is designed for and validated with:
  - Intel® Core™2 Duo processor T7500$^{\Delta}$ at 2.2 GHz with 35 watts thermal design power (TDP)
  - Intel Core 2 Duo processor L7500$^{\Delta}$ at 1.6 GHz (17 watts TDP)
  - Intel Core 2 Duo processor U7500$^{\Delta}$ at 1.06 GHz (10 watts TDP)
  - Intel® Celeron® M processor 550$^{\Delta}$ at 2.0 GHz (31 watts TDP)
  - Intel® Celeron® processor ULV 573$^{\Delta}$ at 1.0 GHz (10 watts TDP)
- Mobile Intel GLE960 Express chipset is designed for and validated with:
  - Intel Celeron M processor 550 at 2.0 GHz (31 watts TDP)
  - Intel Celeron processor ULV 573 at 1.0 GHz (10 watts TDP)
- Mobile Intel® Graphics Media Accelerator X3100 (Intel® GMA X3100), Intel® Clear Video Technology, and graphics core speeds up to 500 MHz provide enhanced graphics and 3D rendering performance, along with improved high-definition video playback (GLE960 graphics core speed is 400 MHz)
- Dual independent display support provides a wealth of options for high-resolution displays
- x16 PCI Express graphics (GME965 only) or a dual-channel Serial Digital Video Out (SDVO) graphics interface support high throughput for high-end graphics
- Advanced packaging technology and industry-leading electrical design innovations deliver long-term system reliability over a broad spectrum of operating conditions

Product Highlights (continued)

- Direct Media Interface chip interconnect between the GMCH and the ICH can be implemented at x4 or x2 widths, and provides up to 1 GB/s in each direction in full duplex
- Five UHCI host controllers and two EHCI host controllers provide up to 10 high-performance peripherals with 12 Mb/s of bandwidth for USB 1.1-compliant devices, and 480 Mb/s of bandwidth for USB 2.0-compliant devices
- Six PCI Express ports are configurable on the ICH8-M as follows:
  - Six (6) x1
  - One (1) x4 and two (2) x1
  - One (1) x2 and four (4) x1
- Intel® High Definition Audio[2] interface delivers premium digital multi-channel sound
- LAN connect interface (LCI) provides flexible network solutions such as 10/100/1000 Mb/s Ethernet with LAN manageability
- Integrated Serial ATA host controller supports three ports for increased storage capacity
- Intel Matrix Storage Technology provides both Advanced Host Controller Interface (AHCI) and RAID functionality for improved storage speed and data redundancy
- Intel AMT, when used with the Intel® 82566MM Gigabit Network Controller, supports asset management capabilities such as remote management of unmanned sites (GME965 only)
- Embedded lifecycle support protects system investment by enabling extended product availability for embedded 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), Intel helps developers cost-effectively meet design challenges and speed time-to-market

Software Overview

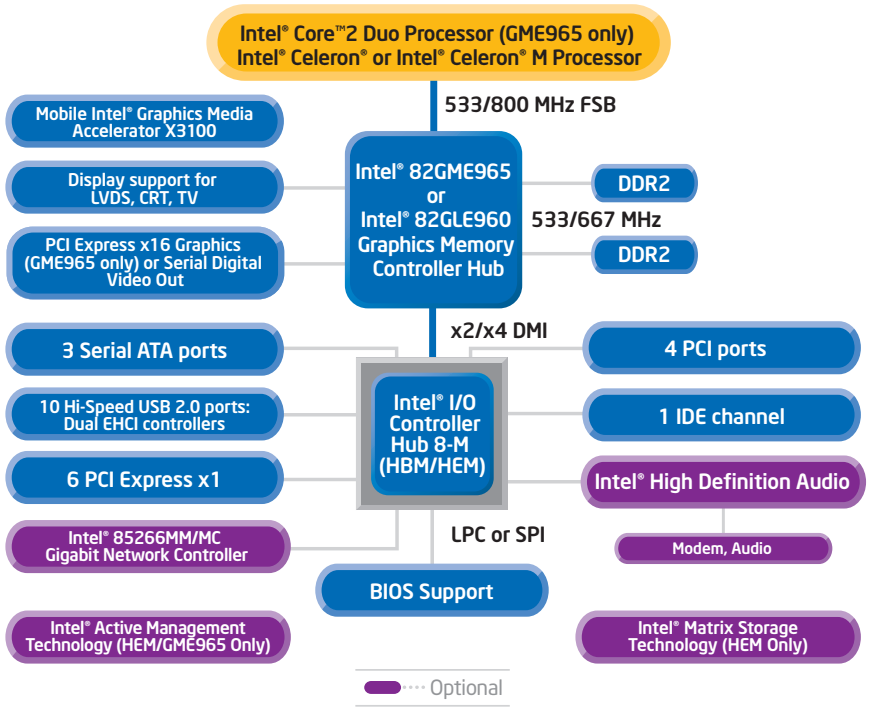
A number of independent operating system and BIOS vendors provide support for these platforms:

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]
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

These chipsets are supported by the Intel® Embedded Graphics Drivers and video BIOS, developed specifically for embedded products and applications (developer.intel.com/design/intarch/SWsup/graphics_drivers.htm).

For the most recent software updates, please visit downloadcenter.intel.com, and enter the product name.



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Product	Product Code	Package	Features
Intel® 82GME965 Graphics Memory Controller Hub (GMCH)	LE82GME965	1299 µFCBGA	533/800 MHz front-side bus; Up to 4 GB of 667 MHz DDR2 SODIMM system memory; Mobile Intel® GMA X3100; PCI Express* graphics support.
Intel® 82GLE960 Graphics Memory Controller Hub (GMCH)	LE82GLE960	1299 µFCBGA	533 MHz FSB; Up to 2 GB of 533 MHz DDR2 SODIMM system memory; Mobile Intel GMEX3100.
Intel® I/O Controller Hub 8-M (ICH8-M-Base)	NH82801HBM	676 mBGA	Direct connection to the GMCH via Direct Media Interface; Six PCI Express ports; Three-port Serial ATA controller; Up to ten USB 2.0 ports; Intel® High Definition Audio interface.
Intel® I/O Controller Hub 8-M Enhanced	NH82801HEM	676 mBGA	Direct connection to GMCH via Direct Media Interface; Six PCI Express ports; Three-port Serial ATA controller; Up to ten USB 2.0 ports; Intel High Definition Audio interface; RAID 0/1; Intel® Active Management Technology support.

Intel in Embedded and Communications: intel.com/embedded

[A] 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] Intel® Active Management Technology requires the computer system to have an Intel® AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. Setup requires configuration by the purchaser and may require scripting with the management console or further integration into existing security frameworks to enable certain functionality. It may also require modifications of implementation of new business processes. With regard to notebooks, Intel AMT may not be available or certain capabilities may be limited over a host OS-based VPN or when connecting wirelessly, on battery power, sleeping, hibernating or powered off. For more information, see www.intel.com/technology/platform-technology/intel-amt/.

[2] Intel® High Definition Audio requires a system with an appropriate Intel chipset and a motherboard with an appropriate codec and the necessary drivers installed. System sound quality will vary depending on actual implementation, controller, codec, drivers and speakers. For more information about Intel® HD audio, refer to www.intel.com.

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

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