

# Product Brief

## Mobile Intel® 945GME Express Chipset

Embedded Computing



# Mobile Intel® 945GME Express Chipset for Embedded Computing

## Product Overview

The Mobile Intel® 945GME Express chipset provides excellent flexibility for developers of embedded applications by offering improved graphics and increased I/O bandwidth over previous Intel® chipsets, as well as remote asset management capabilities and improved storage speed and reliability.

Features include an integrated 32-bit 3D graphics engine based on Intel® Graphics Media Accelerator 950 (Intel® GMA 950) architecture, a 533/667 MHz front-side bus, 4 GB of 400/533/667 MHz DDR2 SODIMM system memory, Intel® Active Management Technology<sup>1</sup> (Intel® AMT), and Intel® Matrix Storage Technology.

The Mobile Intel 945GME Express chipset consists of the Intel® 82945GME Graphics Memory Controller Hub (GMCH) and Intel® I/O Controller Hub 7-M (ICH7-M), available in two SKUs. It delivers outstanding system performance through high-bandwidth interfaces such as PCI Express<sup>\*,2</sup> Serial ATA, and Hi-Speed USB 2.0 connectivity.

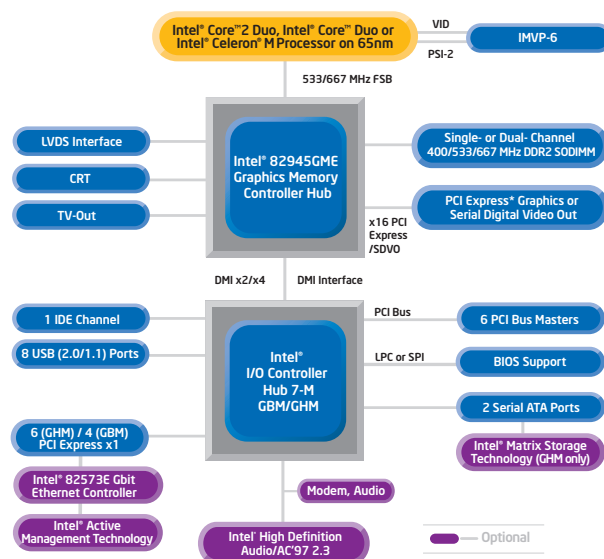
The chipset is designed for and validated with Intel® Core™2 Duo and Intel® Core™ Duo processors, and Intel® Celeron® M processors on 65nm. Mobile Intel 945GME Express chipset-based platforms are part of Intel's comprehensive validation process, enabling fast deployment of next-generation platforms to help developers maximize competitive advantage while minimizing development risks.

## Product Highlights

- Optimized on a variety of Intel® processors to address the requirements of a range of embedded applications such as interactive clients, gaming platforms and industrial automation equipment:
  - Intel Core 2 Duo processors: T7400<sup>A</sup> at 2.16 GHz with 34 watts thermal design power (TDP), L7400<sup>A</sup> at 1.5 GHz (17 watts TDP), and U7500<sup>A</sup> at 1.06 GHz (10 watts TDP)
  - Intel Core Duo processors: T2500<sup>A</sup> at 2.0 GHz (31 watts TDP) and L2400<sup>A</sup> at 1.66 GHz (15 watts TDP)
  - Intel Celeron M processor 440<sup>A</sup> at 1.86 GHz (27 watts TDP)
  - Intel Celeron M processor 530<sup>A</sup> at 1.73 GHz (31 watts TDP)
  - Intel Celeron M processor Ultra Low Voltage 423<sup>A</sup> (5.5 watts TDP)
- 533/667 MHz front-side bus delivers a high-bandwidth connection between the processor and platform
- Dual-channel non-ECC 667 MHz DDR2 SODIMM support provides high-speed system memory for greater platform performance
- Improved graphics with faster performing integrated graphics engine
- Dual independent display support, at graphics core speeds up to 250 MHz, provides a wealth of options for using high-resolution displays
- x16 PCI Express and dual-channel SDVO graphics interfaces 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
- Direct Media Interface (DMI) chip interconnect can be implemented at x4 or x2 widths, and provides up to 1 GB/s in each direction in full duplex
- Four USB host controllers provide high-performance peripherals with 480 Mb/s of bandwidth, while enabling support for up to eight USB 2.0 ports
- Up to four PCI Express ports configurable as one single x4 or four single x1 ports on the ICH7-M (product code NH82801GBM)
- Up to six PCI Express ports configurable as one single x4 and two x1 ports, or six x1 ports on the ICH7-M DH (Digital Home) (product code NH82801GHM)
- Intel® High Definition Audio<sup>3</sup> interface for full surround sound
- LAN Connect Interface (LCI) provides flexible network solutions such as 10/100 Mb/s Ethernet and 10/100 Mb/s Ethernet with LAN manageability
- Integrated Serial ATA host controller supports two ports and data transfers up to 150 MB/s
- Intel Matrix Storage Technology provides both AHCI and RAID functionality for improved storage speed and reliability, available with ICH7-M DH (product code NH82801GHM)

## Product Highlights (continued)

- Intel AMT, when used with the Intel® 82573E Gigabit Ethernet Controller, supports high-quality asset management capabilities such as remote management of unmanned sites
- Supported by the Intel® Embedded Graphics Drivers and videos BIOS, developed specifically for embedded products and applications ([developer.intel.com/design/intarch/Swsup/graphics\\_drivers.htm](http://developer.intel.com/design/intarch/Swsup/graphics_drivers.htm))
- Embedded lifecycle support enables extended product availability for embedded and communications customers, protecting system investment
- Along with a strong ecosystem of hardware and software vendors, including members of the Intel® Communications Alliance ([intel.com/go/ica](http://intel.com/go/ica)), Intel helps developers cost-effectively meet design challenges and speed time-to-market



## Mobile Intel® 945GME Express Chipset for Embedded Computing

Product	Product Code	Package	Features
Intel® 82945GME Graphics Memory Controller Hub (GMCH)	QG82945GME	1466 µFC-BGA	533/667 MHz front-side bus; Up to 4 GB of 667 MHz DDR2 SODIMM system memory; Intel® GMA 950; PCI Express* external graphics support
Intel® I/O Controller Hub 7-M (ICH7-M)	NH82801GBM	652 µ-BGA	Direct connection to GMCH via Direct Media Interface; Four PCI Express root ports; Two-port Serial ATA controller; Up to eight USB 2.0 ports; Intel® High Definition Audio <sup>3</sup> interface
Intel® I/O Controller Hub 7-M (ICH7-M DH) [with support for RAID]	NH82801GHM	652 µ-BGA	Direct connection to GMCH via Direct Media Interface; Six PCI Express root ports; Two-port Serial ATA controller; Up to eight USB 2.0 ports; Intel® High Definition Audio interface; RAID 0/1

<sup>1</sup>Intel® Active Management Technology requires the platform to have an Intel® AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. 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 <http://www.intel.com/technology/iamt>.

<sup>2</sup>PCI Express reduced-power state LOs not supported.

<sup>3</sup>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 <http://www.intel.com/>.

<sup>4</sup>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](http://www.intel.com/products/processor_number) for details.

## Intel Access

Embedded Intel® Architecture Home Page:	<a href="http://intel.com/design/intarch">intel.com/design/intarch</a>
Developer's Site:	<a href="http://intel.com/design">intel.com/design</a>
Intel in Embedded and Communications:	<a href="http://intel.com/go/embedded">intel.com/go/embedded</a>
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