Product Brief

Intel® G35 Express Chipset

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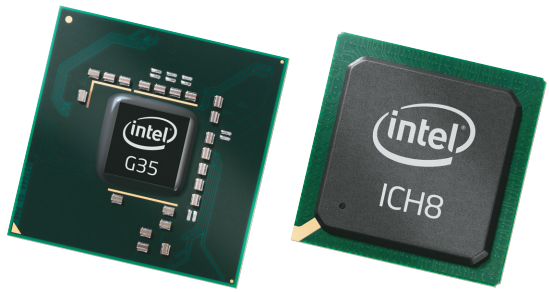
Delivering the ultimate home entertainment experience

Desktop PC platforms based on the Intel® G35 Express Chipset, combined with either the Intel® Core™2 Duo or Intel® Core™2 Quad processor, and with support for next-generation 45nm Intel® Core™2 processor family, deliver innovative capabilities and usages for digital home consumers and new levels of 3D and media performance while enabling lower power and quieter systems.



The Intel G35 Express Chipset

The Intel G35 Express Chipset continues the Intel® chipset legacy and extends it to new levels with purpose-built capabilities designed specifically to address the key needs of the home user. With advancements in graphics, video, and system responsiveness, the Intel G35 Express Chipset allows your PC to be the center of home computing, communication, and entertainment.

Intel® Viiv™ processor technology

Intel® Viiv™ processor technology[1] is a set of PC technologies designed for the enjoyment of digital entertainment in the home. Intel G35 Express Chipset has support for Intel Viiv processor technology with either the ICH8R or ICH8DH SKUs.

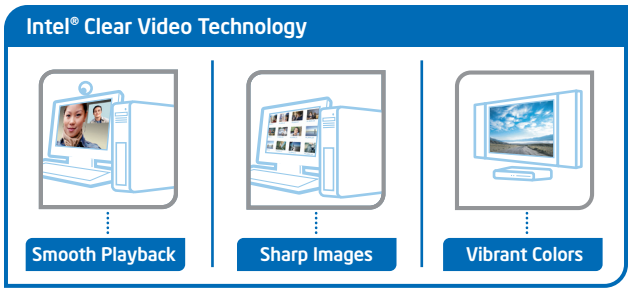
Advanced Graphics Performance

The Intel G35 Express Chipset delivers a new generation of graphics capabilities with the Intel® Graphics Media Accelerator X3500 (Intel® GMA X3500). With 667 MHz core performance and support for Microsoft DirectX* 10.0, Shader Model 4.0, and OpenGL* 1.5, Intel GMA X3500 delivers enhanced game compatibility and spectacular 3D graphics. This enhanced graphics core provides performance on par with mainstream graphics card solutions that would typically cost significantly more. Intel GMA X3500 also includes support for the latest PC operating systems, including Windows Vista* Home Premium, which includes integration of the Media Center Edition* (MCE) features and video controls.

Enhanced Video Playback

In addition, the Intel G35 Express Chipset supports Intel® Clear Video Technology, a set of capabilities that delivers an excellent visual experience for the end-user. Intel Clear Video Technology delivers enhanced high-definition video playback, sharper images, precise color control and advanced display support for a wide range of digital displays. This technology allows users to experience high-definition playback on the PC without the need for expensive add-in video cards or decoders.

For consumers seeking the ultimate media PC, the Intel G35 Express Chipset supports HD-DVD and Blu-ray playback, delivering smooth playback for next-generation 1080p high-definition content.



Intel® Clear Video Technology
Intel Clear Video Technology delivers enhanced video playback, sharper images, and precise color control for a premium visual experience.

Advanced Digital Display Support

The Intel G35 Express Chipset with Intel Clear Video Technology allows the PC to connect to a wide range of digital displays by supporting the latest digital display interfaces, including the High-Definition Multimedia Interface[2] (HDMI). HDMI carries uncompressed HD video and uncompressed multi-channel audio in a single cable, supporting all HD formats including 720p, 1080i, and 1080p, and up to eight channels of audio. The Intel G35 Express Chipset also supports up to 2048 x 1536 screen resolution at 75 Hz. Additional display capabilities on the Intel® G35 Express chipset are provided via various SDVO devices, using either an ADD2 or Media Expansion Card (MEC). In addition, the Intel G35 Express Chipset supports the Intel® TV Wizard which enables seamless setup and configuration to TVs.

Faster System Performance

With the growing imbalance between CPU and memory performance, it becomes critical to optimize the memory controller features to obtain the maximum possible performance out of the memory subsystem. The Intel G35 Express Chipset incorporates Intel® Fast Memory Access, an updated Graphics Memory Controller Hub (GMCH) backbone architecture that significantly increases overall system performance through the optimization of available bandwidth and reduction of memory access latency. The GMCH in the Intel G35 also includes wider internal data buses that support dual-channel DDR2 memory technology at 800 MHz (up to 12.8 Gb/s of peak memory bandwidth) for greater platform performance[3] and memory flexibility.

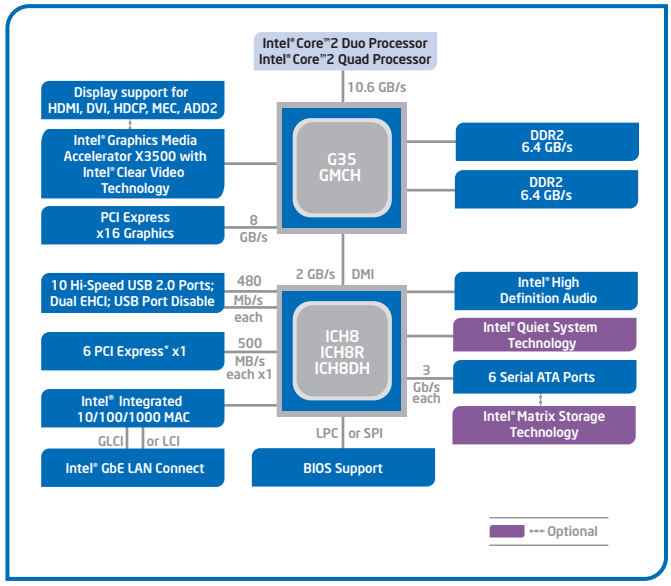
Intel® I/O Controller Hub (Intel® ICH8/R/DH)

The Intel® I/O controller hub of the Intel G35 Express Chipset integrates several capabilities designed to improve data protection, audio, and performance in the PC.

- **Intel® Matrix Storage Technology[4] (Intel® MST):** With new support for external SATA* ports (eSATA), Intel MST provides flexibility to add a second external drive for increased data protection with up to 6 times faster performance than USB* or Firewire* 400.[5] Support for eSATA enables the full SATA interface speed outside the chassis, up to 3 Gb/s. Support for RAID levels 0, 1, 5 and 10 enable greater reliability for personal data, or maximum storage performance for intensive applications. The Advanced Host Controller Interface (AHCI) provides easier expandability with support for eSATA devices and native hot plug, while boosting boot and multi-tasking performance with Native Command Queuing (NCQ).
- **Intel® High Definition Audio[6] (Intel® HD Audio)** enables premium digital sound in the PC for an immersive surround sound home theater experience. Support for multiple audio streams enables users to listen to two different audio streams simultaneously in two separate rooms.
- **Intel® Quiet System Technology** integrated into the Intel G35 Express Chipset can help reduce system noise and heat through more intelligent fan speed control algorithms.

Intel® G35 Express Chipset with Intel® Clear Video Technology

Enhanced HD Playback	Dedicated hardware acceleration for MPEG2, WMV9, and VC1 content enables smooth playback of high-bitrate high-definition video content and multi-stream playback (up to 1 HD and 1 SD stream) for picture-in-picture.
Sharper Image Quality	Advanced de-interlacing algorithms provide superior picture clarity for interlaced content. Directional motion detection and phase algorithms minimize artifacts of de-interlaced video. In addition, support for film mode detection, sharpness, and noise reduction deliver sharper, more detailed images.
Precise Color Control	Support for ProcAmp color control settings allow user adjustment of hue, saturation, brightness, and contrast.
Advanced Digital Display Support	Built-in High Definition Multimedia Interface[2] (HDMI) allows a simple and easy connection between the PC and set-top box, DVD player, and video monitor/DTV.



Intel® G35 Express Chipset Block Diagram

Intel® G35 Express Chipset Features at a Glance

Feature	Benefit
1333/1066/800 MHz System Bus	▪ Supports the Intel® Core™2 Duo and Intel® Core™2 Quad processors with Intel® Virtualization Technology,[7] Dual-Core Intel® Pentium® processor, and Intel® Celeron® processor.
PCI Express* Interface	▪ The PCI Express 1.1 provides 8 Gb/s bandwidth for platform graphics.
Intel® Fast Memory Access	▪ Updated Graphics Memory Controller Hub (GMCH) backbone architecture that improves system performance by optimizing the use of available memory bandwidth and reducing the latency of the memory accesses.
Dual-Channel DDR2 Memory Support	▪ Delivers up to 12.8 Gb/s of bandwidth and 8 GB memory addressability for faster system responsiveness and support of 64-bit computing.
Intel® Flex Memory Technology	▪ Facilitates easier upgrades by allowing different memory sizes to be populated and remain in dual-channel mode.
Intel® Graphics Media Accelerator X3500	▪ 3D enhancements enable greater game compatibility with support for hardware vertex processing, and improved realism with support for Microsoft DirectX* 10, Shader Model 4.0, and OpenGL* 1.5. Intel® Graphics also support the highest levels of the Windows Vista* Aero experience.
Intel® Clear Video Technology	▪ Video processing hardware and software delivers enhanced high-definition video playback, sharper images with advanced de-interlacing, and bright media playback with color control.
High Definition Multimedia Interface[2] (HDMI) with HDCP	▪ Built-in HDMI delivers uncompressed HD video and uncompressed multi-channel audio in a single cable, supporting all HD formats including 720p, 1080i and 1080p.
Intel® High Definition Audio[6]	▪ Integrated audio support enables premium digital sound and delivers advanced features such as multiple audio streams and jack re-tasking. Supports High Bandwidth Digital Content Protection for premium content playback.
Intel® Matrix Storage Technology[4]	▪ With a second hard drive added, provides quicker access to digital photo, video and data files with RAID 0, 5, and 10, and greater data protection against a hard disk drive failure with RAID 1, 5, and 10. Support for external SATA* (eSATA) enables the full SATA interface speed outside the chassis, up to 3 Gb/s.
Serial ATA (SATA) 3 Gbp/s	▪ High-speed storage interface supports faster transfer rate for improved data access.
USB* Port Disable	▪ Enables individual USB ports to be enabled or disabled as needed. This feature provides added protection of data by preventing malicious removal or insertion of data through USB ports.
Intel® Quiet System Technology	▪ Intelligent system fan speed control algorithms use operating temperature ranges more efficiently to reduce perceived system noise by minimizing fan speed changes.
Intel® TV Wizard	▪ Enables seamless setup and configuration to TVs and resolves overscan issues with a simple step-by-step guide to automatically or manually configure your PC to any TV.

For more information, visit the Intel Web site: www.intel.com/products/desktop/chipsets

[1] Home networking capability and many Intel® Viiv™ technology-based usage models will require additional hardware devices, software, or services. Functionality of Intel Viiv technology verified devices will vary; check product details for desired features. System and component performance and functionality will vary depending on your specific hardware and software configurations. See www.intel.com/go/viiv_info for more information.

[2] Support for the latest digital display interfaces, including HDMI and DVI, may require the use of a third-party SDVO card with the appropriate drivers installed.

[3] Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing. For more information on performance tests and on the performance of Intel products, visit Intel Performance Benchmark Limitations.

[4] Intel® Matrix Storage Technology requires the computer have an MST-enabled Intel chipset, RAID controller in the BIOS enabled and the Intel Matrix Storage Technology software driver installed. Please consult your system vendor for more information.

[5] Performance based on interface speed and data transfer rate specifications for eSATA, USB 2.0 and Firewire 400.

[6] 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.

[7] Intel® Virtualization Technology requires a computer system with a processor, chipset, BIOS, virtual machine monitor (VMM) and applications enabled for virtualization technology. Functionality, performance or other virtualization technology benefits will vary depending on hardware and software configurations. Virtualization technology-enabled BIOS and VMM applications are currently in development.

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