NVIDIA GeForce 7 Series Specifications

NVIDIA® CineFX® 4.0 Shading Architecture
- Vertex Shaders
  - Support for Microsoft DirectX 9.0 Vertex Shader 3.0
  - Displacement mapping
  - Geometry instancing
  - Infinite length vertex programs
- Pixel Shaders
  - Support for DirectX 9.0 Pixel Shader 3.0
  - Full pixel branching support
  - Support for Multiple Render Targets (MRTs)
  - Infinite length pixel programs
- Next-Generation Texture Engine
  - Accelerated texture access
  - Up to 16 textures per rendering pass
  - Support for 16-bit floating point format and 32-bit floating point format
  - Support for non-power of two textures
  - Support for sRGB texture format for gamma textures
  - DirectX and S3TC texture compression
- Full 128-bit studio-quality floating point precision through the entire rendering pipeline with native hardware support for 32bpp, 64bpp, and 128bpp rendering modes

64-Bit Texture Filtering and Blending
- Delivers true high dynamic-range (HDR) lighting support
- Full floating point support throughout entire pipeline
- Floating point filtering improves the quality of images in motion
- Floating point texturing drives new levels of clarity and image detail
- Floating point frame buffer blending gives detail to special effects like motion blur and explosions

NVIDIA® Intellisample™ 4.0 Technology
- Advanced 16x anisotropic filtering (with up to 128 taps)
- Blistering-fast antialiasing and compression performance
- Gamma-adjusted rotated-grid antialiasing removes jagged edges for incredible image quality
- Transparent multisampling and transparent supersampling modes boost antialiasing quality to new levels
- Support for normal map compression
- Support for advanced lossless compression algorithms for color, texture, and z-data at even higher resolutions and frame rates
- Fast z-clear

NVIDIA® UltraShadow™ II Technology
- Designed to enhance the performance of shadow-intensive games

NVIDIA® SLI™ Technology[1]
- Patented hardware and software technology allows two GeForce-based graphics cards to run in parallel to scale performance and enhance image quality on today's top titles
- Quad SLI technology enables SLI support for four GPUs, providing mind-blowing performance and image quality at extreme resolutions

NVIDIA® PureVideo™ Technology
- Dedicated on-chip video processor
- High-definition H.264, MPEG2 and WMV9 decode acceleration
- Advanced spatial-temporal de-interlacing
- Inverse telecine (2:2 and 3:2 pull-down correction)
- High-quality video scaling
- Video color correction
- Microsoft® Video Mixing Renderer (VMR) supports multiple video windows with full video quality and features in each window

NVIDIA® TurboCache™ Technology[2]
- Combines the capacity and bandwidth of dedicated video memory with dynamically allocated system memory to dramatically turbocharge performance

Built for Microsoft® Windows Vista™
- Third-generation GPU architecture built for Windows Vista
- Delivers best possible experience when running Windows Vista 3D graphical user interface
- New OS supported by renowned NVIDIA® Unified Driver Architecture (UDA) for maximum stability and reliability
- NVIDIA® PureVideo™ technology delivers high-quality VMR pipeline for best-in-class video for Windows Vista

Advanced Display Functionality
- Dual integrated 400MHz RAMDACs for analog display resolutions up to and including 2048x1536 at 85Hz
- Dual-link DVI capability to drive the industry's largest and highest resolution digital flat panel displays up to 2560x1600[3]
- Integrated HDTV encoder provides analog TV-output (Component/ Composite/S-Video) up to 1080i resolution
- Full NVIDIA® nView® multi-display technology capability

High Speed Interfaces
- Designed for PCI Express x16
- Designed for high-speed GDDR3 memory[1]

NVIDIA® Digital Vibrance Control® (DVC) 3.0 Technology
- DVC color controls
- DVC image sharpening controls

Operating Systems
- Windows XP/Windows XP 64
- Built for Microsoft Windows Vista
- Windows 2000
- Linux
- Macintosh OS X

API Support
- Complete DirectX support, including the latest version of Microsoft DirectX 9.0 Shader Model 3.0
- Full OpenGL support, including OpenGL 2.0

1 Feature available on select GeForce 7 Series GPUs only.

2 Feature available on GeForce 7300 GS and LE GPUs only.

3 Feature available on GeForce 7900, 7800, and 7600 GPUs only.

NVIDIA Corporation | www.nvidia.com

NVIDIA GeForce 7 Series

FULL-THROTTLE GRAPHICS

Traditionally, PC gamers have had to choose between performance and image quality in order to maintain playable performance on advanced PC games and video playback. That was then. This is now...

The NVIDIA® GeForce® 7 Series of graphics processing units (GPUs) represent a significant leap forward in 3D graphics design, delivering the unparalleled horsepower and revolutionary technologies you need to tackle the latest games and video applications.

The GeForce 7 Series GPUs deliver blazing frame rates *and* outstanding image quality—so you can experience full-throttle graphics performance.

FULL-THROTTLE GRAPHICS

Mind-Blowing Performance

Built to deliver mind-blowing graphics performance on even the most graphics-intensive games, the GeForce 7 Series GPUs feature a next-generation superscalar architecture and an all new NVIDIA® CineFX® 4.0 engine. The CineFX 4.0 engine includes a redesigned vertex shader unit that shortens the time required to set up complex geometry processing. In addition, a new pixel shader unit delivers up to 2x the floating point shading power of previous generation products, while an advanced texture unit incorporates new hardware algorithms to speed filtering and blending operations. All of these features combine to deliver advanced visual effects at unimaginable speeds. And with support for dual-link DVI[1], GeForce 7 Series GPUs deliver this next level of performance at extreme HD resolutions up to 2560x1600, making big-screen, high-definition gaming a reality.

The GeForce 7 Series GPUs are designed to reach even higher levels of performance through NVIDIA® SLI™ and NVIDIA Quad SLI technology[1]. With NVIDIA SLI, you can combine two GeForce 7 Series-based graphics cards in a single system to scale performance by up to 4x[2]. Through an intelligent combination of software and hardware, NVIDIA SLI is able to offer this unbelievable performance on today's top PC game titles.

The GeForce 7 Series GPUs are backed by the NVIDIA® ForceWare® Unified Driver Architecture (UDA)—the industry's most stable software platform. The ForceWare UDA delivers rock-solid reliability and compatibility with the widest range of games and applications so you can enjoy the ultimate "install-and-play" experience.

Realistic Gaming Experiences

Powered by breakthrough visual effects technology, the GeForce 7 Series GPUs blur the line between fictional game worlds and reality. Featuring the advanced NVIDIA® Intellisample™ 4.0 technology, the GeForce 7 Series GPUs deliver exceptional visual quality through new antialiasing modes and advanced anisotropic filtering.

With support for true high dynamic-range (HDR) rendering—including advanced 64-bit filtering and blending—the GeForce 7 Series GPUs deliver the ultimate lighting effects to bring environments to life for a truly immersive, ultra-realistic experience on today's most advanced games.

The GeForce 7 Series GPUs also include full support for Microsoft® DirectX® 9.0 Shader Model 3.0—the standard for today's PCs and next-generation consoles—so you can play all the latest DirectX 9.0-based games while experiencing the most realistic effects possible. NVIDIA GPUs provide the most complete implementation of the Shader Model 3.0 feature set including vertex texture fetch (VTF)—a key feature used in many of today's shipping games. GPUs that don't support this feature will not be able to run these games or will have to default back to Shader Model 2.0, resulting in the loss of cool effects and details made possible by Shader Model 3.0.

Above: *Timeshift*™ image courtesy of Atari.

Left: *The Lord of the Rings: The Battle for Middle-earth II*™ image courtesy of Electronic Arts.

High-Definition Home-Theater Quality Video

Watching TV, DVDs, and high-definition video on the PC is quickly becoming commonplace amongst PC users. In addition to providing the performance and advanced features for an amazing gaming experience, the GeForce 7 Series GPUs also deliver a high-definition home-theater quality video experience with NVIDIA® PureVideo™ technology[3].

The combination of a dedicated hardware video processor and video decode software, NVIDIA PureVideo technology delivers stunning HD video to any display. NVIDIA PureVideo supercharges your PC experience with high-definition video and crystal-clear picture quality. PureVideo provides support for the latest high-definition video standards — H.264, MPEG-2, and WMV — with enhanced HDTV processing and the industry's most advanced video algorithms. Integrated HDTV-output allows you to connect your PC to a high-definition TV for direct-to-TV playback, turning your PC into a high-end home theater system.

Equip Yourself with Full-Throttle Graphics Performance

Raising the bar for performance, visual effects, image quality, and video functionality, the GeForce 7 Series GPUs power an extreme PC experience. No longer do you have to choose between frame rates and the highest image quality. Further, all NVIDIA GeForce 7 Series are built for Microsoft® Windows Vista™, to give you the best possible experience with the 3D graphical user interface in the upcoming operating system (OS) from Microsoft. By equipping your PC with a GeForce 7 Series GPU, you can experience the power of full-throttle graphics performance on the top games and applications today and into the future.

1 Available on select models only.
2 Scaling performance based on testing at 2560x1600 with all the image quality settings on maximum.
3 Some features may require additional software.

GeForce 7 Series GPUs Model Comparison

Feature	GeForce 7900 Models	GeForce 7800 Models	GeForce 7600 Models	GeForce 7300 Models
Graphics Bus Technology	PCI Express®	AGP 8X/PCI Express	PCI Express	PCI Express
Microsoft® DirectX® 9.0	Shader Model 3.0	Shader Model 3.0	Shader Model 3.0	Shader Model 3.0
NVIDIA® Intellisample™ Technology	4.0	4.0	4.0	4.0
NVIDIA® SLI™ Technology	√	√	√	n/a
NVIDIA® TurboCache™ Technology	n/a	n/a	n/a	√
High Dynamic-Range (HDR) Support	√	√	√	√
Effective Memory Interface	256-bit	256-bit	128-bit	64-bit
Memory	GDDR3	GDDR3	GDDR3/DDR2	GDDR3/DDR2
Process	0.09 µ	0.11 µ	0.09 µ	0.09 µ
RAMDACs	400MHz	400MHz	400MHz	400MHz