NVIDIA®

GeForce2 Ultra™

THE FIRST GIGAPIXEL GPU

PRODUCT OVERVIEW

GeForce2 Ultra™ is the first graphics processing unit (GPU) able to break the one billion pixels per second barrier — providing two to three times the pixel processing power of any other graphics processor at any price. Its powerful transform and lighting engines can render more than 31 million sustained triangles per second. With this amazing level of power and realism-enhancing features such as per-pixel shading, the GeForce2 Ultra provides the stunning graphics consumers have come to expect from NVIDIA® products.

GeForce2 Ultra is the world's first product to ship with 230MHz (460MHz effective) DDR memories, producing an astounding 7.36GB per second of bandwidth — further proof of NVIDIA's ongoing leadership in designing high-speed memory systems which are critical for high-performance graphics applications.

The GeForce2 Ultra GPU includes the NVIDIA Shading Rasterizer™ (NSR), ground-breaking technology that enables advanced per-pixel shading capabilities. The NSR allows per-pixel control of all the visual and material components used to create amazingly realistic scenes and objects, for example: color, shadow, light, reflectivity, and dirt. Another key feature of GeForce2 Ultra is its High-Definition Video Processor (HDVP), which enables a variety of crystal-clear HDTV solutions when combined with a mainstream CPU and a DTV receiver. The HDVP allows mainstream high-performance processors to support all 18 Advanced Television Standards Committee (ATSC) formats with a simple, cost-effective DTV receiver card.

Image provided courtesy of iEntertainment Network

GeForce2 Ultra takes full advantage of NVIDIA's Unified Driver Architecture (UDA). The UDA driver is backward and forward compatible with past, present, and future NVIDIA GPUs, as well as top-to-bottom compatible with all currently manufactured versions of NVIDIA's graphics processors. This greatly simplifies system administration. For example, you could remove a NVIDIA TNT2™ from a system and replace it with a GeForce2 Ultra without changing the graphics software driver. Only NVIDIA offers this level of complete compatibility.

GeForce2 Ultra delivers the industry's fastest Microsoft® Direct3D® and SGI™ OpenGL® acceleration and continues NVIDIA's tradition of providing leading-edge, single-chip, integrated VGA, 2D, 3D, and high-definition digital video performance. This enables end users to enjoy a range of applications including: 3D games, HDTV, DVD, digital content creation, Internet browsing, and general productivity.

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GEFORCE2 ULTRA FEATURES

- Second generation 256-bit GPU architecture
- 32-bit color
- 32-bit Z/stencil buffer
- Integrated hardware transform engine
- Integrated hardware lighting engine
  - 8 lights per rendering pass
  - Any combination of infinite, local, directional or spot
  - Colored lights
- NVIDIA Shading Rasterizer
  - Real-time per-pixel effects
  - Dot3 bump mapping
  - Emboss bump mapping
  - BRDF
  - Multitexture and multipass
  - Procedural textures
  - Stencil
  - Stipple
  - Fog – radial or linear
  - Depth cueing
- Cube environment mapping
  - Reflection maps
  - Accurate, real-time environment reflections
- Microsoft® DirectX® and S3 texture compression
- High-performance 2D rendering engine
  - Optimized for 32-, 24-,16-, 15- and 8-bpp modes
  - True-color hardware cursor
  - Multi-buffering (double, triple or quad) for smooth animation and video playback
- High-quality HDTV/DVD playback
  - High-Definition Video Processor for full-screen, full-frame video playback of HDTV and DVD content
  - Independent hardware color controls for video overlay
  - Hardware color-space conversion (YUV 4:2:2 and 4:2:0)
  - Motion compensation
  - 5-tap horizontal by 3-tap vertical filtering
  - 8:1 up/down scaling
  - Per-pixel color keying
  - Multiple video windows supported for CSC and filtering
  - DVD sub-picture alpha-blended compositing
- Operating Systems
  - Windows 2000
  - Windows NT (all)
  - Windows 98, 95
  - Linux
- API Support
  - OpenGL 1.2 and lower
  - DirectX 7 and lower

QUALITY

- NVIDIA Unified Driver Architecture
- Industry's first fully compliant professional OpenGL 1.2 support for all Linux™ and Windows® operating systems
- WHQL-certified Windows 2000, WindowsNT®, Windows 3.5
- Complete Linux drivers, including full OpenGL

PERFORMANCE

- 4 anisotropic filtered pixels/clock
- 128-bit DDR memory interface
- 1 billion pixels/sec (textured, anisotropic filtered)
- 31M triangles/sec
- 7.4 GB/sec memory bandwidth

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