THE INFINITE EFFECTS GPUs

The NVIDIA® GeForce3™ family of Graphics Processing Units (GPUs) shakes up the gaming industry with unprecedented visual effects and sizzling frame rates—injecting life into the previously artificial world of computer-generated graphics. Powered by the new NVIDIA nfiniteFX™ Engine and the Lightspeed Memory Architecture™, the GeForce3 Ti 500 and GeForce3 Ti 200 GPUs enable users to experience a rich environment instead of just looking at it on a computer screen. 3D scenes have ambiance with GeForce3 GPUs because textures appear photo-realistic, custom lighting heightens the drama, and dynamic shadows add depth. Characters and living creatures have organic imperfections, unique expressions, and even cast realistic shadows; users can see their personality. Special features, programmability, and performance have been combined to provide the catalyst for this graphics revolution.

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SHADOW BUFFERS

The new members of the GeForce3 GPU family bring two new features to end users: shadow buffer technology and 3D textures. Shadow buffer technology adds cinematic-style shadow effects to real-time graphics. For example, shadow buffer technology was used in the production of the movie, *Final Fantasy: The Spirits Within* — representing state-of-the-art graphics technology for realistic shadow effects. NVIDIA shadow buffers make dynamic shadows with soft edges feasible for the first time ever.

3D TEXTURES

Make hollow objects solid with true three-dimensional material properties such as wood grain or marbling. Traditional 2D textures only describe the surface, but 3D textures define the interior of the object too. A vein of color that runs through a marble statue cannot be described with a standard 2D texture because it runs through the center of the statue and emerges on the other side. 3D textures enable a host of other special effects that require data to be stored in three dimensions, such as function lookups for localized wind directions, volumetric fog, or an advanced rendering technique called imposters that can cache different views of objects to speed up rendering.

PROGRAMMABILITY: THE NFINITEFX ENGINE

The GeForce3 GPU nfiniteFX Engine gives developers the ability to program a virtually infinite number of special effects and custom looks. Instead of choosing from the same hard-coded palette of effects and ending up with the same generic look and feel, developers can specify personalized combinations of graphics operations to create their own custom effects. Games and other graphics-intensive applications offer more exciting and stylized visual effects. Two patented architectural advancements enable the nfiniteFX Engine's programmability and its multitude of effects: Vertex Shaders and Pixel Shaders.

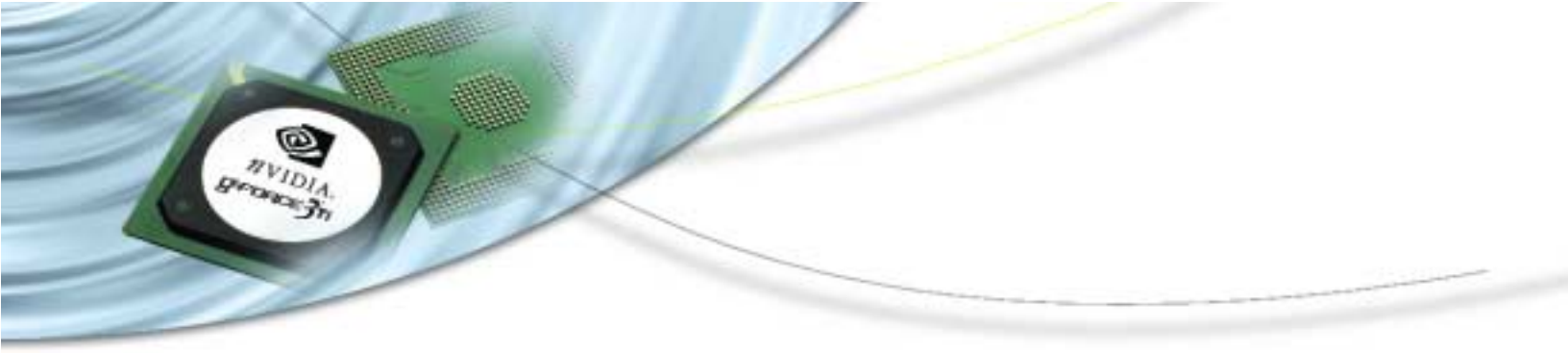
Vertex Shaders inject personality into characters and environments. The vertex processing capabilities allow characters to show facial emotions and materials to stretch, making the virtual scene come alive.

Pixel Shaders create ambiance with materials and surfaces that mimic reality. Characters now have facial hair and blemishes, golf balls have dimples, a red chair gains a subtle leather look, and wood exhibits texture and grain. By altering the lighting and surface effects, artists are able to generate complex, realistic scenes.

PERFORMANCE: LIGHTSPEED MEMORY ARCHITECTURE

The Lightspeed Memory Architecture brings power to the GeForce3, delivering earth-shattering performance and fluid motion for even the most complex scenes. NVIDIA's patented technology delivers antialiasing (AA) samples at nearly four times the rate of the GeForce2™ Ultra, enabling high-resolution antialiasing (HRAA) with fluid frame rates.

Combine the nfiniteFX Engine and the Lightspeed Memory Architecture, and the results are superior visual effects and game play. No other technology provides as much functionality. That's why the NVIDIA GeForce3 Ti family is the reference platform of choice for both the Microsoft® DirectX® 8.1 and the SGI™ OpenGL® application programming interfaces (APIs), as well as the technology foundation for the Microsoft Xbox™ game console. GeForce3 Ti 500 and GeForce3 Ti 200 deliver the most visually compelling and complete graphics experience available today.



GEFORCE3 Ti FEATURES

- nfiniteFX Engine for full programmability
- Lightspeed Memory Architecture for unmatched performance
- Programmable Vertex Shaders
  - Procedural deformations
  - Programmable matrix palette skinning
  - Keyframe animation interpolation
  - Morphing
  - Fog effects: Radial, Elevation, Non-linear
  - Lens effects: Fish-eye, Wide-angle, Fresnel effects, Water refraction
- Programmable Pixel Shaders
  - Phong-style lighting for per-pixel accuracy
  - Dot3 bump mapping
  - Environmental bump mapping (EMBM)
  - Procedural textures
  - Per-pixel reflections
- HRAA—high-resolution antialiasing
  - Featuring Quincunx AA mode
- Integrated hardware transform engine
- Integrated hardware lighting engine
- DirectX® and S3TC® texture compression
- Dual cube environment mapping capability
  - Reflection maps
  - Accurate, real-time environment reflections
- Hardware accelerated real-time shadows
- True, reflective bump mapping
  - Z-correct bump mapping
  - Phong-style lighting effects on bump maps with reflections
- High-performance 2D rendering engine
  - Optimized for 32-, 24-, 16-, 15- and 8bpp modes
  - True-color hardware cursor with alpha
  - Multi-buffering (double, triple or quad) for smooth animation and video playback
- High-quality HDTV/DVD playback
- High-definition video processor (HDVP) 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® XP
  - Windows 2000
  - Windows Me
  - Windows NT® (all)
  - Windows 98, Windows 95
  - Linux Compatible
  - Mac® OS Compatible
- API support
  - OpenGL 1.3 and lower
  - DirectX 8.1 and lower

COMPATIBILITY

- NVIDIA Unified Driver Architecture (UDA)
- Fully-compliant professional OpenGL 1.3 support for all Linux and Windows operating systems
- WHQL-certified for Windows XP, Windows Me, Windows 2000, Windows NT, and Windows 98
- Complete Linux drivers
- Mac OS

PERFORMANCE

FEATURES	GEFORCE3 Ti 200	GEFORCE3 Ti 500
GRAPHICS CORE	256-BIT	256-BIT
FILL RATE (AA SAMPLES/SEC.)	2.8 BILLION	3.84 BILLION
OPERATIONS/SEC.	700 BILLION	960 BILLION
MEMORY BANDWIDTH	6.4GB/SEC.	8.0GB/SEC.
MAXIMUM MEMORY	64MB	64MB

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