FEROCIOUS GRAPHICS POWER

The NVIDIA® GeForce4™ Ti Graphics Processing Unit (GPU) is the first consumer GPU capable of driving complex geometries and character animations. With its advanced nfiniteFX™ II Engine, superior Accuview Antialiasing™ techniques, and flexible nView™ display technology, the GeForce4 Ti GPU allows end users to experience radically immersive graphical environments complete with unique visual effects, and the most realistic, life-like images ever experienced on a desktop PC.

SCREAMING PERFORMANCE

With an amazing 128MB frame buffer; a 650MHz DDR memory—the world's fastest; a 300MHz core clock—for unmatched clock speeds; and 63 million transistors—the GeForce4 Ti GPU delivers nearly twice the memory bandwidth of the previous high-performance GPU, and enables end users to run applications at high resolutions with astonishingly fast frame rates.

FIERCE PROCESSING POWER

The GeForce4 Ti GPU features NVIDIA's Lightspeed Memory Architecture™ (LMA) II, an advanced 128-bit DDR memory interface, delivering double the effective memory bandwidth and improved performance up to three times more than previous-generation solutions. Some of the GeForce4 Ti's memory enhancements include 4:1 lossless Z-compression technology, which saves crucial memory bandwidth; and second-generation Z-occlusion culling, a hardware technique that uses memory bandwidth more efficiently by not rendering pixels that are hidden behind other objects in the scene. And only the GeForce4 Ti GPU features Quad Cache—four individually dedicated and optimized memory caches allowing for almost instant pipeline access and reuse of bandwidth.

THE NFINITEFX II ENGINE

The nfiniteFX II Engine is a groundbreaking new technology enabling unprecedented levels of real-time character animation, and delivers up to three times the performance of the GeForce3™. The nfiniteFX II's dual Vertex Shaders inject personality into characters and environments like never before, and the GeForce4 Ti GPU's advanced Pixel Shaders with new Z-correct bump mapping, enable surface detail never before seen on the desktop, so that the resulting images are as life-like as possible.

Delivering more than three times the Vertex Shader geometry power and nearly two times the Pixel Shader performance over previous-generation GPUs, the GeForce4 Ti GPU also processes shading effects faster than any other GPU on the market today, ensuring developers have the graphics horsepower required to create effects that were previously not imaginable.
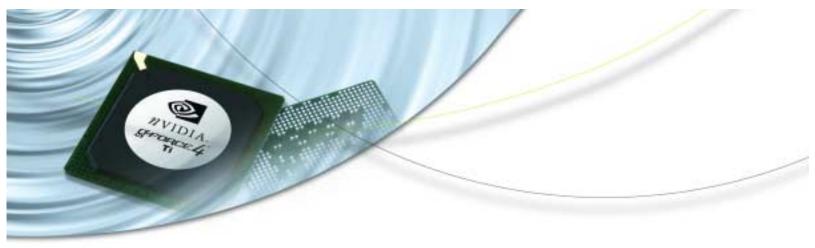
ACCUVIEW ANTIALIASING ENGINE

For the best possible performance, compatibility and visual quality without the dreaded "jaggies," the GeForce4 Ti features NVIDIA's patent-pending Accuview Antialiasing engine, which utilizes hardware-implemented, high-resolution multisampling techniques, including 2x, 4x, Quincunx and a new 4XS mode. Accuview's flexible architecture affords end users the greatest choice in AA modes and performance, delivering two to three times the antialiased performance of all other high-end graphics desktop solutions. This level of performance enables full-scene antialiasing to be viable as the default mode of display.

NVIDIA nVIEW DISPLAY TECHNOLOGY

NVIDIA's nView hardware and software technology combination leverages NVIDIA's industry-leading design expertise to deliver multi-display functionality of immense flexibility. Users now have the ability to drive any combination of analog, digital or television displays from one video card. nView incorporates built-in attribute and performance tuning for each of the different display devices—including CRTs, televisions, and flat panel LCDs—and provides for completely intuitive and flexible work environments.

The GeForce4 Ti GPU delivers the most artistic, compelling, interactive and immersive experiences available today, and is the only GPU capable of enabling a new generation of 3D desktop PC applications.

FEATURES

- nfiniteFX II Engine for full programmability
  - Dual programmable Vertex Shaders
  - Procedural deformations
  - Programmable matrix palette skinning
  - Real-time hair and fur shading
  - 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
    - Anisotropic lighting
    - Environmental bump mapping (EMBM)
    - Procedural textures
    - Per-pixel reflections
- Accuview—high-resolution antialiasing
  - Accuview technology delivers highest performance and no-penalty Quincunx AA quality
  - Advanced technology ensures rock-solid compatibility with all applications
  - New sub pixel sample locations provide improved AA quality
  - High quality 4XS mode for incredible image quality
- nView display technology
  - nView delivers the maximum flexibility and control in display options
  - nView allows for one card to drive multiple displays of any type (Analog, Digital, TV)
  - Allows for multiple configurations of CRTs and digital flat panels
  - Multi-desktop integration
  - Advanced window management
  - Individual application control
- Lightspeed Memory Architecture II engine for unmatched performance
  - Four independent memory controllers
  - Lossless Z-compression
  - Z-occlusion culling

- Fast Z-clear
- Auto-precharge
- Shadow Buffers
- 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
- Motion adaptive deinterlacing compositing
- Operating systems
  - Windows® XP
  - Windows 2000
  - Windows Me
  - Windows NT® (all)
  - Windows 98, Windows 95
  - Linux compatible
  - Mac® OS compatible
- API support
  - Complete DirectX® support, including DirectX 8.1
  - Full OpenGL® 1.3 support

COMPATIBILITY

- NVIDIA Unified Driver Architecture (UDA)
- Fully compliant professional OpenGL 1.3 API with NVIDIA extensions, on all Linux and Windows operating systems
- WHQL-certified for Windows XP, Windows Me, Windows 2000, Windows NT, and Windows 98
- Complete Linux XFree86 drivers
- MAC 9/X OS support

PERFORMANCE

SPECIFICATIONS/PERFORMANCE	GEFORCE4 Ti 4600	GEFORCE4 Ti 4400
FILL RATE (AA SAMPLE/SEC.)	4.8 BILLION	4.4 BILLION
TRIANGLES/SEC.	136 MILLION/SEC.	125 MILLION/SEC.
MEMORY BANDWIDTH	10.4GB/SEC.	8.8GB/SEC.
MAX MEMORY	128MB	128MB

NVIDIA Corporation
2701 San Tomas Expressway
Santa Clara, CA 95050
T 408.486.2000
F 408.486.2200
www.nvidia.com