



Performance. Compatibility. Reliability.



CINEMATIC COMPUTING FOR EVERY USER

CINEFX SHADING ARCHITECTURE

- Support for DX 9.0 pixel shader 2.0+
- Support for DX 9.0 vertex shader 2.0+
- Advanced pixel shaders allow floating-point pixel shader operations to run 2x faster (CineFX 2.0)**
- Very long pixel programs up to 1024 instructions
- Very long vertex programs with up to 256 static instructions and up to 65,536 instructions executed before termination
- Looping and subroutines with up to 256 loops per vertex program
- Subroutines in shader programs
- Dynamic flow control
- Conditional write masking
- Conditional execution
- Procedural shading
- Full instruction set for vertex and pixel programs
- Z-correct bump mapping
- Hardware-accelerated shadow effects with shadow buffers
- UltraShadow technology to accelerate shadow computations**
- Two-sided stencil
- Programmable matrix palette skinning
- Keyframe animation
- Custom lens effects: fish eye, wide angle, fresnel effects, water refraction

HIGH-PERFORMANCE, HIGH-PRECISION 3D RENDERING ENGINE

- Up to 8 pixels per clock rendering engine
- 128-bit, studio-quality floating point precision through the entire graphics pipeline
- Native support for 128-bit floating point, 64-bit floating point and 32-bit integer rendering modes
- Up to 16 textures per pass
- Support for sRGB texture format for gamma textures
- DirectX and S3TC texture compression

HIGH-PERFORMANCE 2D RENDERING ENGINE

- Optimized for 32-, 24-, 16-, 15- and 8-bpp modes
- True-color, 64x64 hardware cursor with alpha
- Multi-buffering (double, triple or quad) for smooth animation and video playback

INTELLISAMPLE TECHNOLOGY

- Blistering-fast antialiasing performance
- Adaptive texture filtering
- Support for advanced lossless compression algorithms for both color and z-data**
- Fast z-clear
- Intellisample HCT extends performance and quality gains to higher resolutions and frame rates**

DISPLAY PIPELINE WITH FULL NVVIEW CAPABILITIES

- Dual RAMDACs (up to 400 MHz) for display resolutions up to and including 2048x1536@85Hz
- Integrated NTSC/PAL TV encoder support resolutions up to 1024x768 without the need for panning with built-in Macrovision copy protection
- DVD and HDTV-ready MPEG-2 decoding up to 1920x1080i resolutions
- DVI support for compatibility with next-generation flat panel displays with resolutions up to and including 1600x1200

- NVIDIA® NVRotate™ application for advanced viewing flexibility
- NVIDIA® NVKeystone™ application for advanced display correction

DIGITAL VIBRANCE CONTROL (DVC) 3.0

- DVC color controls
- DVC image sharpening controls

ROCKET SCIENCE FOR A SYSTEM-LEVEL SOLUTION

- 0.13µ process technology for higher levels of integration and higher operating clock speeds**
- Copper vias and wiring**
- Advanced thermal monitoring and thermal management**
- 256-bit memory interface*
- Support for up to 256MB
- AGP 8X including Fast Writes and sideband addressing
- Flip-chip BGA packaging*

OPERATING SYSTEMS

- Windows® XP
- Windows 2000
- Windows Me
- Windows NT® (all)
- Windows 98, Windows 95
- Linux compatible

API SUPPORT

- Complete DirectX support, including DirectX 9.0 and lower
- OpenGL 1.5 and lower support

COMPATIBILITY

- NVIDIA Unified Driver Architecture (UDA)
- Fully compliant professional OpenGL 1.5 API with NVIDIA extensions, on all Linux and Windows operating systems
- WHQL-certified for Windows XP, Windows Me, Windows 2000
- Complete Linux XFree86 drivers

*GeForce FX 5900 models only.

**GeForce FX 5900 and 5700 models only.

FEATURE	GEFORCE FX 5900 MODELS	GEFORCE FX 5700 MODELS	GEFORCE FX 5200 MODELS
CineFX Engine	√CineFX 2.0	CineFX 2.0	CineFX
Intellisample Technology	Intellisample HCT	Intellisample HCT	N/A
DirectX 9.0	√	√√	√√
AGP	8X	8X	8X
UDA	√	√√	√
Process	0.13µ	0.13µ	0.15µ
Pixels/Clock	8	4	4
Memory Interface	256-bit	128-bit	128-bit
Maximum Memory	256MB	256MB	128MB
RAMDAC	400	400	350



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NVIDIA GeForce FX Product Overview October 2003 v05



Cinematic Computing for Every User

POWERED BY PURE ADRENALINE

With the NVIDIA GeForce FX GPUs powering your graphics experiences, you can run your applications and games at speeds and resolutions never before possible. Everything you need has been combined into this powerhouse graphics processor. With impressive performance—up to 8 pixels per clock performance, expansive AGP 8X pipeline and a 256-bit memory bus*—the GeForce FX GPUs are proof of how powerful GPUs can be. These amazing GPUs also feature NVIDIA® Intellisample™ technology**, z-culling, anisotropic filtering, and powerful antialiasing. These advances in compression and antialiasing techniques ensure realistic color and smooth edges at all resolutions without sacrificing performance. The second-generation Intellisample high-resolution compression technology (HCT)** extends the performance and quality gains to even higher resolutions and quality levels. You will see the most fluid frame rates possible at unmatched speeds for a truly realistic visual experience.

ENGINEERED WITH A PASSION FOR PERFECTION

Quality and stability are hallmarks of NVIDIA graphics— which can only be achieved by incorporating leading-edge engineering process and design techniques. The GeForce FX GPUs take advantage of the latest and most sophisticated 0.13 micron process technology by

packing up to twice the transistors into the same space as the GeForce4 Ti GPU**. The GeForce FX GPUs were engineered with optimizations that enable spectacular content and take full advantage of a new generation of software tools and APIs, including the new Cg high-level shader language, Microsoft® DirectX® 9.0, and OpenGL® 1.5. The resulting products enable game developers to design higher quality content faster than ever before. The commitment to engineering excellence has made the GeForce FX GPUs the development platforms of choice for next-generation, cinematic-quality games.

CINEMATIC EFFECTS BEYOND IMAGINATION

Powered by the NVIDIA CineFX engine, the GeForce FX GPUs shift PC special effects toward cinematic quality thanks to a new level of advanced shading techniques. The CineFX engine allows designers and creators to easily convert their artistic visions into visual content, achieving cinematic visual effects in real time. The GeForce FX GPUs eliminate many programming barriers previously associated with pixel shaders by supporting long programs for the most elaborate effects, and conditional branching capabilities for better program flow. The result is more advanced effects that were once impossible to create in real time. In addition, the innovative graphics pipeline of the CineFX engine has the built-in capacity to deliver true studio-quality 128-bit color processing. The new CineFX 2.0 engine** further advances pixel shaders delivering double the floating-point pixel shader performance compared to the previous generation.

The revolutionary new NVIDIA® UltraShadow™ technology** accelerates shadow computation to power the complex effects in today's cutting-edge games. By matching film-industry levels of precision processing and delivering advanced techniques, the GeForce FX GPUs enable 3D worlds and characters to come alive—making Hollywood dreams on the desktop a reality.

gaming nirvana

UNLEASH THE EXPERIENCE

Get more out of your PC graphics with a powerful suite of complementary NVIDIA software. The GeForce FX GPUs leverage the NVIDIA ForceWare software solution to unleash the full potential of your PC graphics experience. An industry-leading software feature set, ForceWare delivers advanced technologies—including NVIDIA® nView™ multi-display technology for increased screen real estate, and NVIDIA® Digital Vibrance Control™ (DVC) technology for richer colors and brighter images and text. Built on the foundation of the NVIDIA Unified Driver Architecture (UDA), ForceWare's simple software installations and upgrades consistently deliver compatibility with future software applications and APIs for long-term reliability and stability. Delivering the most complete software feature set, a rock-solid driver architecture, and continual performance and feature updates over the life of the product, ForceWare unleashes the full graphics potential of your GPU.

GAMING NIRVANA!

Power and realism, the two elements every gamer craves, are the heart and soul of the GeForce FX GPUs. Representing a watershed achievement in graphics history, NVIDIA's innovative engineering will inspire new levels of creativity from developers, and raise the quality of the visual experience for all users. The GeForce FX GPUs, powered by the CineFX engine, drive elaborate visual effects on par with Hollywood movies. For the first time, developers can give users exactly what they want—games and other interactive applications that look more like what they see in the film world. The GeForce FX GPUs also include rock-solid drivers—packed with all kinds of tweakable features to allow fine-tuning of gaming rigs for maximum frame rates with minimum fuss.



Look for games displaying this logo for the best gaming experience.

The performance, compatibility, and reliability of NVIDIA GPUs make them the platform of choice for PC gamers worldwide. That's why today's hottest games are developed on NVIDIA, to be played on NVIDIA. With GeForce FX, unleash stunning cinematic graphics and lifelike characters at blazing speeds. Look for the "NVIDIA®: The way it's meant to be played™" seal on games and PC hardware for the ultimate "install-and-play" experience. Equip yourself with an NVIDIA GeForce FX GPU so you can play your game the way it's meant to be played.

*GeForce FX 5900 models only.
**GeForce FX 5900 and 5700 models only.



software excellence



- ENTHUSIAST**
Unparalleled performance
- MAINSTREAM**
Cinematic gaming power
- VALUE**
DX9 for every user