NVIDIA NFORCE3 SPECIFICATIONS

NETWORKING

- NVIDIA IEEE 802.3 Media Access Control (MAC)
  - Supports 10/100/1000Base-T Ethernet/Fast Ethernet/Gigabit Ethernet*
    - Supports HomePNA 2.0 PHYs
    - Advanced Communication Riser (ACR) and Communications and Networking Riser (CNR) interface support
- High performance networking features
  - TCP segmentation offloads*
  - Jumbo frames*
  - Checksum offloads*
- NVIDIA StreamThru technology
  - Isochronous controller paired with HyperTransport results in fastest networking performance

SECURITY

- NVIDIA Firewall technology*
  - Industry's only native firewall solution
  - Unmatched performance and protection
  - Advanced management features
    - Remote access, configuration, monitoring
    - Command line interface (CLI)
    - WMI scripts

STORAGE

- RAID 0 disk striping support for highest system and application performance
- RAID 1 disk mirroring support for fault tolerance
- RAID 0 +1 disk striping and mirroring support for highest performance with fault tolerance
- Support for both SATA and ATA-133 disk controller standards
- Dual independent SATA controllers**
  - Supports up to 4 SATA disk drives simultaneously
- Integrated SATA PHY with support for two drives**
- Digital SATA interface for external PHY with support for two drives**
- Fast Ultra ATA-133 Disk Drive Controllers
  - Each interface supports two devices, for support for up to six devices
  - Supports UltraDMA modes 6-0 (UltraDMA 33/66/100/133)
  - Industry-standard PCI bus master IDE register set
  - Separate independent IDE connections for 5V-tolerant primary and secondary interfaces

CONNECTIVITY

- AGP interface
  - Supports AGP3.0 - 0.8 V signaling for 8x and 4x with Fast Writes data transfers
  - Supports AGP2.0 - 1.5 V signaling for 4x, 2x, and 1x modes with 4x and 2x Fast Writes data transfers
  - Supports graphics address remapping table (GART) features
  - The AGP3.0 8x 533 MT/s. (million transfers per second) interface provides the user with the ability to upgrade the external graphics card, thus avoiding obsolescence. An external AGP add-in card achieves higher performance than it would on existing platforms.
  - AGP interface is backward compatible with the AGP2.0 specification.
- USB 2.0
  - Single USB 2.0 Enhanced Host Controller Interface (EHCI)/Dual USB 1.1 Open Host Controller Interface (OHCI)
  - Support for up to 8 ports
  - Supports transfer rates at high speed (480 Mbps), full speed (12 Mbps), and low speed (1.2 Mbps)
  - Dynamically configures slower devices for best utilization of bandwidth
  - Allows USB concurrency
- PCI interface
  - Integrates a fast PCI-to-PCI bridge running at 33 MHz. It includes an arbiter that supports six external master PCI slots.
    Features of the PCI interface include:
    - PCI 2.3-compliant, 5 V tolerant
    - Supports six external PCI slots at 33 MHz
    - Supports six bus master arbitration
    - PCI master and slave interfaces
    - Supports both master-initiated and slave-initiated terminations
    - Bidirectional write posting support for concurrency
    - Flexible routing of all four PCI interrupts
    - Supports read ahead: memory read line (MRL) and memory read multiple (MRM)

PERFORMANCE

- HyperTransport technology
  - High throughput (8.0GB/sec)***
  - Low voltage
  - Differential

AUDIO

- AC '97 2.1 compliant interface
- 7.1 surround sound audio
- Supports 2, 4, 6, or 8-channel audio
- Dual AC-Link – supports up to two codecs
- 16-bit or 20-bit stereo output and 16-bit input streams
- Supports input, output, and general purpose input/output (GPIO) channels for host-based modems
- Separate independent functions for audio and modem
- Supports ACR and CNR interface
- S/PDIF output (stereo or AC-3 output)

MOBILITY

- Power management
- Full support for AMD PowerNow! technology
- ACPI 2.0 compliant
- Support for ACPI C3 state
- Low power 0.15 µ process
- Maximizing real estate efficiency enabling small form factor designs
  - Single chip solution
  - Lower latency for higher performance

* NVIDIA nForce3 Ultra and 250Gb only.
** NVIDIA nForce3 Ultra, 250Gb, and 250 only.
*** NVIDIA nForce3 Ultra only.

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

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Powering the Digital Media Experience

The digital media revolution is here. Millions of people use their PCs to create and edit digital content—pictures and home videos, make-it-yourself CDs and DVDs—and then to share these files in a convenient manner. These customer demands introduce a new set of challenges for PCs: processing, storing, and distributing large amounts of digital content. The NVIDIA nForce™3 media and communications processors (MCPs) deliver the computing power necessary to tackle these challenges through streamlined connections with the latest digital devices, high-speed storage solutions, advanced security technology, and broadband network connectivity.

The NVIDIA nForce3 MCPs combine innovative features in a unique single-chip design that leverages the remarkable processing power of AMD's new line of 64-bit CPUs—the AMD Athlon™ 64 FX and Athlon 64 processors. This combined architecture ensures the longevity of today's PCs with designs tuned for emerging 64-bit operating systems and applications. Built-in connections for high-speed networks and disk controllers, up to eight USB 2.0 ports, and integrated RAID solutions accelerate performance in multiple dimensions. The robust NVIDIA® ForceWare™ unified software environment (USE) completes the digital media experience with the most optimized, stable platform software solution in the industry.

TAKING SYSTEM PERFORMANCE TO THE NEXT LEVEL

PCs, motherboards, and notebooks designed with NVIDIA nForce3 MCPs deliver true-to-life digital entertainment experiences through a myriad of innovative architectural advances. With unprecedented support for both 32-bit and 64-bit operating systems, games, and applications, NVIDIA nForce3 MCPs optimize the movement of data throughout the PC, and deliver the power to host high-end file systems. NVIDIA nForce3 MCPs eliminate system bottlenecks and speed up everyday media-rich applications to help you work and play faster. By evolving beyond traditional PC multichip designs, the NVIDIA nForce3 MCP single-chip solution offers improved reliability, reduced system latencies, and increased throughput for all computing environments. The NVIDIA nForce3 design also incorporates other advanced technologies including HyperTransport™ for maximized internal data throughput, and AGP 8X support for connection to the latest NVIDIA® GeForce™ graphics solution.

THE PREMIERE MEDIA AND COMMUNICATIONS PLATFORM

The NVIDIA nForce3 MCPs integrate the industry's fastest and most versatile suite of networking solutions for the ultimate in connectivity and efficient handling of digital media. NVIDIA Gigabit Ethernet technology efficiently handles large files and speeds up the movement of data over a network, and NVIDIA Firewall protects your PC by filtering unauthorized traffic. Up to eight USB 2.0 ports support fast transfers to and from the latest digital devices including DVD players, cameras, and camcorders. Built-in Ultra ATA-133 and Serial ATA (SATA) capabilities optimize access speeds for today's high-speed disk drives. NVIDIA® StreamThru™ technology delivers jitter-free streaming video without sacrificing PC performance. For users that need to get the most out of their disk storage, NVIDIA nForce3 MCPs also integrate easy-to-use and versatile RAID storage solutions.

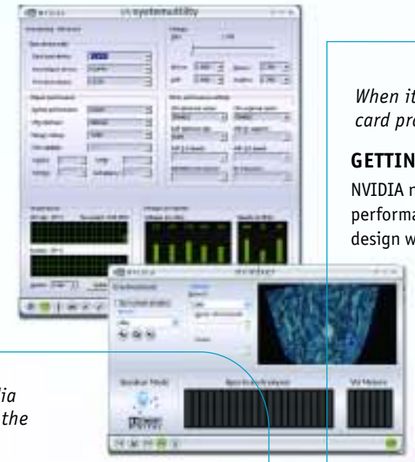
ROCK-SOLID SOFTWARE

The NVIDIA ForceWare software suite is the perfect complement to the NVIDIA nForce3 MCPs. A single ForceWare driver simplifies software updates and lowers total cost of ownership, and continual performance and feature improvements ensure the longevity of NVIDIA nForce-based systems. With the NVIDIA System Utility users now have control of their PC resources in an easy to use interface, including the power to overclock without entering the BIOS. The NVIDIA NVMixer application enables users to control all aspects of their audio experience—including volume adjustment, recording options, and speaker configuration—through easy to follow wizards. With ForceWare's optimized drivers, powerful audio functionality, and foolproof overclocking capabilities, gamers can be sure that they are playing their game "the way it's meant to be played." Through a complementary set of software features and industry-leading drivers, NVIDIA ForceWare platform software delivers high-speed system performance, unparalleled security, and incredible audio quality for NVIDIA nForce MCP-based systems.

NVIDIA nForce3 Product Overview
FEBRUARY 2004 v03

Powering the Digital Media Experience

The NVIDIA nForce3 MCPs provide a resoundingly fast, more efficient, and more robust digital media experience—without sacrificing features, affordability, compatibility, or future upgradeability. Systems powered by NVIDIA nForce3 MCPs, provide the best PC value while delivering stunning levels of system performance and cutting-edge features.



Home

With an NVIDIA nForce3 MCP powering your home office or family room PC, you can have the ultimate digital media experiences—complete with high-speed connectivity for today's networks, enterprise-class storage solutions, and the feature set required to take advantage of today's latest digital devices and applications.

ADVANCED NETWORKING CAPABILITIES

A built-in **Gigabit Ethernet** port simplifies the process of setting up a network, and provides the fastest access to the network for sharing movies, photos, and games with other users in your home. **NVIDIA Firewall**—a hardware-optimized solution—provides unmatched performance and protection for home networks. **NVIDIA StreamThru** technology delivers excellent streaming video while maintaining PC performance. **USB 2.0** ports support fast data exchange with the latest digital devices.

ENTERPRISE SOLUTIONS FOR THE HOME USER

The NVIDIA nForce3 MCP brings big-system capabilities to the home PC. The choice of **SATA** and **ATA-133** disk controllers and **NVIDIA RAID** disk-striping technology speed access to disk files, accelerating system performance by eliminating bottlenecks associated with data retrieval and storage. **NVIDIA RAID** disk-mirroring technology protects the priceless family photo and video archives and other content stored on the PC.

EXTENDING THE LIFE OF YOUR PC

Today, the advanced NVIDIA nForce3 single-chip architecture with 64-bit support gives you an optimized user experience and a multitasking platform so that you can start one task (downloading a file from the Web) and then the next (writing e-mail or updating the family budget), simultaneously. And your PC is ready for the newest 64-bit games, future applications, and next-generation operating systems.

SIMPLIFYING THE SOFTWARE SCENE

NVIDIA ForceWare simplifies system updates and support with a single driver, delivering a trouble-free, stable computing experience. The **NVIDIA System Utility** software helps you monitor and control your PC with easy-to-use settings and an intuitive view of your PC resources.

Play

When its time to take a break, the combination of the NVIDIA nForce3 MCPs and the latest NVIDIA-based graphics card provides the most tricked-out PC for escaping into the cinematic worlds of the latest 3D games.

GETTING MIND-BLOWING PERFORMANCE

NVIDIA nForce3 MCP-based PCs deliver blistering performance thanks to a high-performance, single-chip design with high-speed, direct HyperTransport connections to 64-bit AMD Athlon processors, and RAID 0 disk striping for maximized storage bandwidth. In addition, the **NVIDIA System Utility** allows you to easily overclock without accessing the BIOS.

NEW 3D EXPERIENCES

NVIDIA nForce3 MCPs provide the perfect foundation for screaming through the complex 3D worlds of the latest games and multimedia applications. Games written specifically for a **64-bit** platform will run faster and be able to handle larger texture files more efficiently.

UPGRADING AND ADDING ON

An **AGP 8X** port for the latest GPUs and up to eight **USB 2.0** ports for game controllers and other devices give you a PC configuration that can be upgraded or expanded whenever a faster, better technology hits the market.

AMAZING ONLINE EXPERIENCES

The NVIDIA nForce3 MCPs deliver high-performance networking to eliminate lags when playing your favorite online games. **NVIDIA StreamThru** technology and **NVIDIA Gigabit Ethernet** make it fast and easy to share your digital content, like music, videos, and photos.

Work

The NVIDIA nForce3 MCPs make it easy to get more work done by delivering the best system performance, a complete suite of advanced functionality, and simplified management choices for your PC.

GETTING THE BEST PERFORMANCE TODAY AND TOMORROW

Breakthrough performance for all of your business applications—existing and emerging—make the AMD-NVIDIA combination the best choice for your work PC. In particular, applications that manipulate large data sets benefit from **64-bit** virtual memory design.

BOOSTING YOUR NETWORK CAPABILITIES

NVIDIA nForce3 MCPs deliver proven advanced hardware and software networking technologies to the corporate environment. These enterprise-class **NVIDIA Gigabit Ethernet** features enable collaborative efforts over the network, simplify network management, and contribute to the rock-solid performance, stability, and reliability required by professionals today and in the future. **NVIDIA Firewall** provides traffic inspection capabilities and advanced management features including remote access, configuration, and monitoring.

PROTECTING CRITICAL DATA

NVIDIA ForceWare delivers the stability and reliability that you need to work without interruption, and the **NVIDIA RAID** technology lets businesses protect their mission-critical content with easy to use proven disk-mirroring techniques.

MINIMIZING ADMINISTRATION

Installation and upgrades are simplified with a single version of the NVIDIA driver software, decreasing maintenance time and lowering total cost of ownership.
The NVIDIA System Utility provides the ability to support and tune your PC to your specific job requirements.

On the Go

NVIDIA nForce3 MCPs turn your mobile PC into a personalized, all-purpose platform that provides uncompromised features and performance with the advantages of portability.

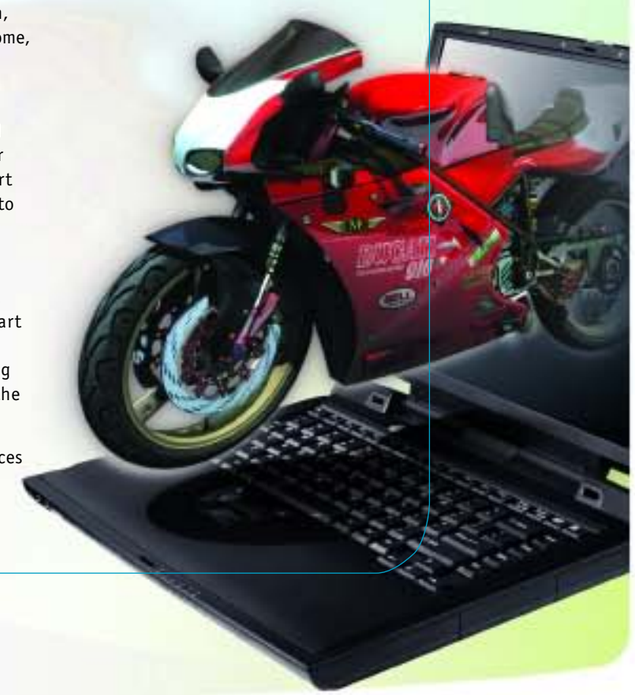
SAME PERFORMANCE—ON THE GO

Equipped with blazing power and screaming bandwidth, NVIDIA-AMD mobile platforms can go to work, come home, and power the latest high-end gaming environments.

FULLY LOADED

High-performance networking, the latest **SATA and ATA-133** disk technologies, and **AGP 8X** support for the fastest graphics solutions bring state-of-the-art communications, storage, and display capabilities to the world of mobile PCs.

MOBILITY AND PORTABILITY

In addition to providing the ultimate performance, crisp video and graphics display, and state-of-the-art features, NVIDIA nForce3 MCP-based mobile PCs provide sophisticated power management, including support for AMD PowerNow! Technology, enabling the "on the go" user to:

- Enjoy the latest games and multimedia experiences
- Run demanding CAD and DCC applications
- Experience crisp DVD and video playback
- Distribute large media files