



Building an Affordable Home PC

NVIDIA GPU Motherboard Solutions

2005 Version – November 2005

Introduction

This paper provides guidelines, recommendations, and additional resources for system builders, OEMs, ODMs, and others who want to design and deploy affordable home PCs based on NVIDIA GPU Motherboard Solutions. System manufacturers can deliver a complete computing solution for entry-level home users at affordable prices by using NVIDIA GPU Motherboard Solutions and recommendations in this paper.

NVIDIA GPU Motherboard Solutions: Featuring NVIDIA GeForce 6 Series GPUs and NVIDIA nForce4 MCPs

If you want to build a great PC in a small form factor or for a low price, consider NVIDIA GPU motherboard solutions featuring an NVIDIA® GeForce® 6 Series graphics processing unit (GPU), an NVIDIA® PureVideo™ video processor, and an NVIDIA nForce®4 media and communications processor (MCP). This unique combination creates a single motherboard featuring a world-class Microsoft® DirectX® 9.0 Shader Model 3.0 GPU, a standard definition video processing engine, and the industry's most highly demanded core logic solution.

The NVIDIA GeForce 6 Series of GPUs provides a groundbreaking feature set for computing, including full support for Microsoft DirectX 9.0 Shader Model 3.0, to offer unparalleled graphics effects. Delivering a revolutionary superscalar architecture and an advanced on-chip video processor, GeForce 6 Series GPUs power the ultimate PC experiences.

NVIDIA PureVideo technology is a combination of the GeForce 6 Series GPUs video processor and NVIDIA PureVideo decoder software that delivers unprecedented picture clarity, smooth video, accurate color, and precise image scaling for all standard-definition video content.

NVIDIA nForce4 MCPs include cutting-edge technology featuring NVIDIA® MediaShield™ storage, NVIDIA native 10/100 Mbps Ethernet, SATA 3Gb/s drive support, and more. NVIDIA nForce4 MCPs are designed to deliver world-class system performance.

Advantages of NVIDIA GPU Motherboard Solutions

Experience Crisp, Vibrant Video

NVIDIA PureVideo technology allows you to experience lifelike video playback on your PC. With dedicated hardware to accelerate MPEG-2/DVD as well as the new Microsoft® Windows Media® standard, your DVDs come to life! Using NVIDIA PureVideo technology, the GPU offloads video decoding from the CPU, resulting in smooth, stutter-free, standard-definition video playback.

Award-Winning GeForce 6 Series GPUs—Play the Latest Games with Microsoft DirectX 9.0 Shader Model 3.0

The NVIDIA GeForce 6100 GPUs feature a revolutionary design that delivers best-in-class performance on today's digital media and graphics applications. The only GPUs available on a motherboard to support Microsoft DirectX 9.0 Shader Model 3.0, the GeForce 6150 and 6100 GPUs power cutting-edge effects without compromising performance.

NVIDIA MediaShield—Confidently Store Your Digital Assets

Through a simple user interface, NVIDIA MediaShield storage lets you easily manage multiple hard disk drives so you can safely store your digital assets. With support for RAID 0 and RAID 1 hard disk drive configurations, including the latest SATA 3Gb/s hard drives, MediaShield offers one of the most advanced storage solutions available for desktop PCs. MediaShield's unique interface allows you to easily configure or modify your multidisk arrays.

Designing for NVIDIA Home PC Experience—System Configurations

CPU and Memory

NVIDIA GPU Motherboard Solutions support the latest AMD Sempron and AMD Athlon 64 series CPUs, which provide great desktop performance at affordable prices to cost-conscious consumers.

NVIDIA recommends using the combination of AMD Sempron 3200+ and 512M PC-3200 DDR RAM for entry-level Home PC.

Motherboard Form Factor

NVIDIA GPU Motherboard Solutions provide solid system performance and advanced storage solutions for every home user. It is an ideal platform for home entertainment, gaming, and media-rich business applications.

NVIDIA recommends using the standard micro-ATX form factor motherboard to build micro-tower, compact, or slim entry-level Home PCs.

Audio

NVIDIA GPU Motherboard Solutions support all the major multichannel audio (5.1, 7.1) solutions, including high-definition audio (HDA), to deliver a surround sound entertainment experience into the entry-level home PC.

NVIDIA recommends using AC97 audio for the entry-level home PC.

NVIDIA MediaShield Storage

MediaShield offers one of the most advanced storage solutions for desktop PCs. MediaShield's unique interface allows you to easily configure or modify your multidisk arrays. NVIDIA recommends offering RAID 0 and RAID 1 to meet the requirements of home PCs.

NVIDIA recommends using a single 80 GB 7200 rpm IDE hard disk and let consumers choose RAID as an upgrade option.

NVIDIA PureVideo Decoder—Optical Storage

A recordable CD driver and DVD combo will help users record personal photos, TV shows, and other multimedia files on a CD and also enjoy the experience of DVD video playback. NVIDIA PureVideo decoder software delivers unprecedented picture clarity and smooth video playback for DVD viewing.

NVIDIA recommends using a branded CDRW/DVD combo driver for the entry-level home PCs.

Internet Connectivity

The NVIDIA GPU Motherboard Solutions provide high-speed internet connection through industry standard 10/100 Mbps Ethernet technology.

Input Devices

NVIDIA recommends using a PS2 or a USB keyboard and mouse as an input device.

Software Applications

The software application package is important for demonstrating the power of NVIDIA GPU Motherboard Solutions–based home PCs. NVIDIA recommends system builders include the following software categories as a basic software package. Additional software will depend on the price point of the home PC.

Operation System: Microsoft Windows XP Home version

Office Productivity: Microsoft Works 8

Adobe Acrobat Reader

Finance: Microsoft Money 2005

Media: Microsoft Media Player 10

RealPlayer

Apple iTunes

Game: WildTangent Game Channel

Selected 2D/3D game

Nvidia Software: NVIDIA nView multi-display software

NVIDIA nTune

NVIDIA NVMixer

NVIDIA PureVideo DVD decoder

NVIDIA MediaShield

Antivirus: Symantec Norton Antivirus 2005

Premium Application: Adobe Photoshop Album Starter Edition

Adobe Photoshop Elements 2.0

Greeting Card Factory Deluxe

Summary of Hardware Specifications for Home PCs

The following table lists the recommended hardware configurations and options. NVIDIA strongly encourages system builders to differentiate entry-level home PCs that use a differentiated chassis design, noise and heat control, and hardware configuration.

	Recommendations	Other Choices
Processor	AMD Sempron(TM) 3200+	AMD Sempron(TM) 3200+
Core logic	NVIDIA nForce 410	NVIDIA nForce 410
Memory	512 MB PC-3200 RAM	512 MB ~ 2 GB PC-3200 RAM
Memory expansion	2 DIMMs, up to 2 GB	2 DIMMs, up to 2 GB
Graphics card	GeForce 6100	GeForce 6100
Display	17" flat screen	17" CRT or 15"/17" LCD
Hard disk	80 GB ATA-133	40 GB ~250 GB, RAID 0,1
Optical driver	CDRW/DVD (52 x 24 x 52 x+16x)	DVD driver/CDRW driver/DVD RW
Sound	AC 97 audio	AC 97 audio
Speakers	Optional	2.1, 5.1, or 7.1 audio system
Mouse and keyboard	PS/2 keyboard + mouse	PS/2, USB, or wireless
Chassis	Micro ATX	Micro ATX
Power	250 W	250 W
Expansion slots	(1) PCI (1) PCI Express x1 (1) PCI Express x16	(1) PCI (1) PCI Express x1 (1) PCI Express x16
Front productivity	USB 2.0, audio connector 9-in-1 card reader	USB 2.0, audio connector 9-in-1 card reader, 1394 connector
Network	10/100M	10/100/1000M
Case	Tower	Tower