Building an Affordable SOHO 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 SOHO PCs based on NVIDIA GPU Motherboard Solutions. NVIDIA-based SOHO PCs deliver a complete computing solution for entry-level home office or small office users. System manufacturers can deliver better customer experience 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 are looking 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), 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 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

NVIDIA GPU Motherboard Solutions for entry-level SOHO PC is an all-in-one solution for cost-conscious home office consumers that delivers better customer experience.

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—Experience media-rich applications 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 SOHO PC Experience—System Configurations

CPU and Memory

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

NVIDIA recommends using the combination of an 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 home office and small office systems. It is an ideal platform for media-rich business applications.

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

Audio

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

NVIDIA recommends using AC97 audio for the entry-level SOHO PCs.

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 80GB 7200rpm IDE hard disk and let consumers choose RAID as an upgrade option.

Optical Storage

8X DVD-ROM is suitable to handle most day-to-day requirements in home office and small office environment. Recordable CD drive and DVD combo will help users easily transfer Excel sheet, PowerPoint presentation, and other data files onto CD.

NVIDIA recommends using a branded 8X DVD-ROM for the entry-level SOHO PCs and keep CDRW / DVD combo drive as an option.

Internet Connectivity

The NVIDIA GPU Motherboard Solutions provide high-speed internet connection through industry standard 10/100Mbps 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 SOHO PCs. NVIDIA recommends system builders to include the following software categories as a basic software package. Additional software will depend on price point.

Operation System:	Microsoft Windows XP Home version
Office Productivity:	Microsoft Works 8
	Adobe Acrobat Reader
Finance:	Microsoft Money 2005
Media:	Microsoft Media Player 10
Game:	WildTangent Game Channel
	Selected 2D/3D game
NVIDIA Software:	NVIDIA nView multi-display software
	NVIDIA nTune
	NVIDIA MediaShield
Antivirus:	Symantec Norton Antivirus 2005
	SpamSubtract Basic

Premium Application: Adobe Photoshop Professional Edition

Adobe Photoshop Album Starter Edition

Adobe Photoshop Elements 2.0

AutoCad LT 2006

Microsoft Office 2003 Small Business Edition

FrontPage 2003 - Full Version

ScanSoft - PDF Converter Professional 3

CorelDRAW Graphics Suite 12

Executive Software Undelete Pro

Nova Development Invoices and Estimates Pro

Peachtree Complete Accounting 2005

Quicken 2005

Norton System Works 2005

Symantec Ghost

Roxio Easy Media Creator 7.1

Summary of Hardware Specifications for SOHO PCs

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

	Recommends	Other Choice
Processor	AMD Sempron(TM) 3200+	AMD Sempron(TM) 2800+ ~ 3300+
Core logic	NVIDIA nForce 410	NVIDIA nForce 410
Memory	512MB PC-3200 RAM	512MB ~ 2GB PC-3200 RAM
Memory expansion	2 DIMM, up to 2GB	2 DIMM, up to 2GB
Graphics card	NVIDIA GeForce 6100	NVIDIA GeForce 6100
Display	17" Flat Screen	17" CRT or 15"/17" LCD
Hard Disk	P80 80GB ATA-133	40GB ~250GB, RAID 0,1
Optical Driver	8X DVD-ROM	CD-ROM or DVD/CDRW Combo
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	250W	250W
Expansion slots	(1) PCI (1) PCI Express ×1 (1) PCI Express ×16	(1) PCI (1) PCI Express ×1 (1) PCI Express ×16
Front productivity	1 USB 2.0, audio connector	1 USB 2.0, audio connector
Network	10/100M	10/100/1000M
Case	Tower	Tower