G4 Ti/MX-Series

Graphics Accelerator

USER'S GUIDE

Version 4.0
Apr. 2002
G52-MA00605

CE N1996

FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.

Copyright Notice

Trademarks

Revision History

Revision	Date
V 1.0	January 2002
V 2.0	February 2002
V 3.0	March 2002
V 4.0	April 2002

Important Safety Precautions

Always read and follow these basic safety precautions carefully when handling any piece of electronic component.

1. Keep this User's Manual for future reference.
2. Keep this equipment away from humidity.
3. Lay this equipment on a stable, flat surface before setting it up.
4. The openings on the enclosure are for air convection, hence they protect the equipment from overheating.
5. Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
6. Place the power cord in a way that people are unlikely to step on it. Do not place anything on the power cord.
7. Always Unplug the Power Cord before inserting any add-on card or module.
8. All cautions and warnings on the equipment should be noted.
9. Never pour any liquid into the opening that could damage the equipment or cause an electrical shock.
10. If any of the following situations arise, get the equipment checked by a service personnel:
    - The power cord or plug is damaged
    - Liquid has penetrated into the equipment
    - The equipment has been exposed to moisture
    - The equipment has not functioned properly or in accordance with the User's Guide
    - The equipment was dropped and damaged
    - The equipment has obvious signs of breakage
11. DO NOT LEAVE THE EQUIPMENT IN AN UNCONDITIONED ENVIRONMENT WITH A STORAGE TEMPERATURE OF 60^0C (140^0F) OR ABOVE. IT MAY DAMAGE THE EQUIPMENT.

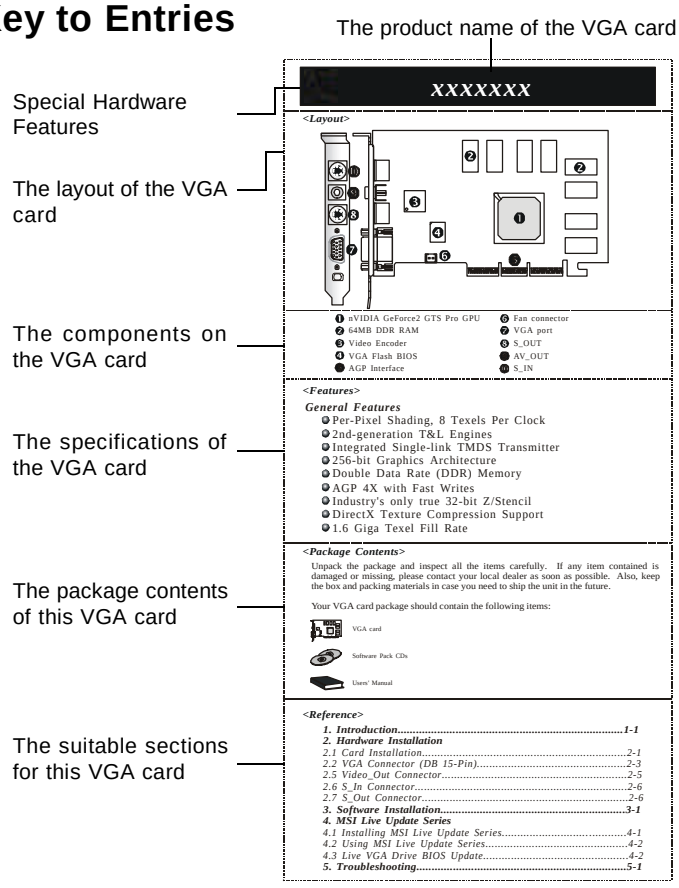
CONTENTS

How to Use this User's Guide

This user's guide is designed for a series of VGA cards. The layout of each VGA card may be different, and some functions are customized to meet your need.

In Chapter 1, the brief specification and function of each VGA card are listed whereas the detailed information can be found in the rest of chapters. We have collected all possible functions in Chapter 2-6, the rest of chapters; however, all functions are not suitable for your VGA card. So, in Chapter 1, the "Reference" item will index the proper sections. These sections may be useful while your are installing the hardware or software. We also list some solutions if you have trouble in using or updating your VGA card.

Key to Entries



1. Introduction

1.1 The nVIDIA GeForce4 Ti/MX-Series GPU

We cordially appreciate your purchase of the VGA card with nVIDIA GeForce4 Ti/MX-Series Graphics Processing Unit (GPU), a high performance graphics accelerator that enables you to experience the realistic and exciting 3D world.

The GeForce4 Ti/MX-Series Graphics Processing Unit (GPU), implementing a full 128-bit DDR memory interface, is designed to build on NVIDIA's performance leadership while providing an increased power efficiency and higher levels of component integration.

The GeForce4 Ti/MX-Series GPU improve the previous designing of the GeForce2 family of graphics processing units by providing higher levels of integration, visual quality improvements, and performance improvements.

1.2 System Requirements

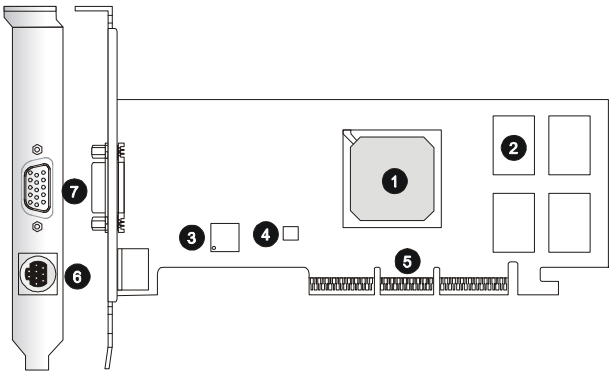
To install the VGA card, your system needs to meet the following requirements:

	Computer	Intel® Pentium II/III/4 processor, Intel® Celeron processor, or compatible system
	Expansion Slot	AGP slot
	Monitor	VGA support, minimum 640 x 480 resolution
	Operating System	Windows® 98/ME, Windows® NT 4.0, Windows® 2000, XP
	CD-ROM Drive	Double Speed or Higher

1.3 The G4 Ti/MX-Series

G4MX420-T

<Layout>



1. nVIDIA GeForce4 MX420 GPU
2. 64MB SDRAM
3. Video Encoder
4. VGA Flash BIOS
5. AGP Interface
6. TV_Out connector (S & C)
7. VGA port

<Features>

Performance

- 256-bit 3D and 2D graphics accelerator
- Integrated second-generation Transform and Lighting engines
- 31 million triangles per second setup engine with Z-cull and Z-clear
- 1 billion texels per second and 500 million pixels per second fill rate
- NVIDIA Shading Rasterizer with 24 of 26 DX8 pixel shading functions and full set of OpenGL 1.3 pixel combiner operations
- 32-bit color with 32-bit z/stencil
- Cube environment mapping
- DirectX and S3TC texture compression
- Digital Vibrance Control
- Enhanced TwinView dual-display architecture supporting any combination of notebook LCD, desktop VGA monitor, DVI display or TV set
- Dual CRTC/Simultaneous Dual Display (same or different surfaces)
- Integrated dual LVDS Transmitter supporting LCD panels up to 2048x1536

- Integrated 350 MHz Palette-DAC for analog VGA monitors up to 2048x1536
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- Integrated TMDS transmitter for Digital Visual Interface support with scaling and filtering for flat panels up to 1600x1200
- DVD- and HDTV-ready MPEG-2 decoding up to 1920x1080i ATSC format
- MPEG-2 hardware decode, including Inverse Discrete Cosine Transform and Motion Compensation

Compatibility

- Supports VIP1.1 interface
- Supports Microsoft DirectX 8.1, 8.0, 7.0, 6.0, and 5.0 (IDCT)
- Fully compliant support for OpenGL 1.3 for all Windows operating systems and Linux
- Up to 2.7 GB/second memory bandwidth
- Supports 128-bit DDR, 64-bit DDR, and 32-bit DDR SDRAM

Supports Super High Resolution Graphics Modes

640x480	8/16/32 bit colors with 150Hz
800x600	8/16/32 bit colors with 150Hz
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1920x1200	8/16/32 bit colors with 75Hz
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Note: The Display Modes listed above are for your reference; the actual settings may be different on your system because of using different monitors.

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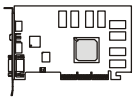
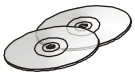


VGA card

TV-Out 1-to-2 connector



Software Pack CDs

User's Guide

<Reference>

G4MX420-T (S+C)

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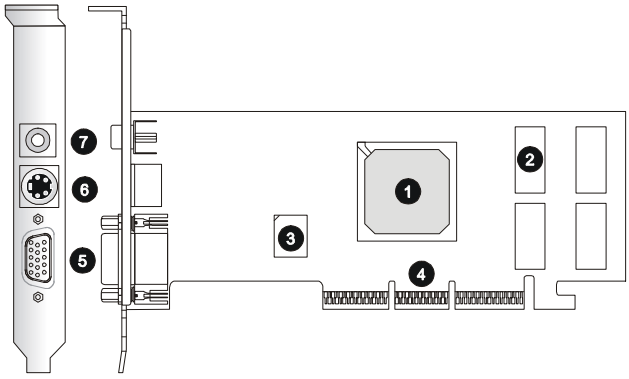

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2. 64MB SDRAM
3. VGA Flash BIOS
4. AGP Interface
5. VGA port
6. TV_Out connector (S)
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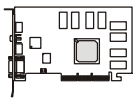
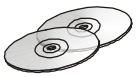


VGA card



Software
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<Reference>

G4MX420D-T

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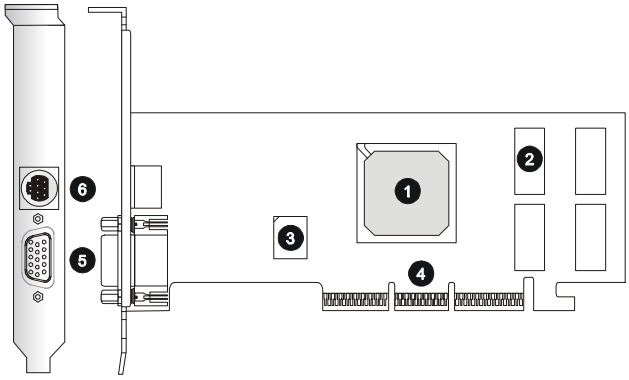

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5. VGA port
6. TV_Out connector (S & C)

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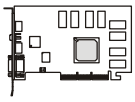
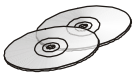


VGA card

TV-Out 1-to-2 connector



Software Pack CDs

User's Guide

<Reference>

G4MX420D-T32

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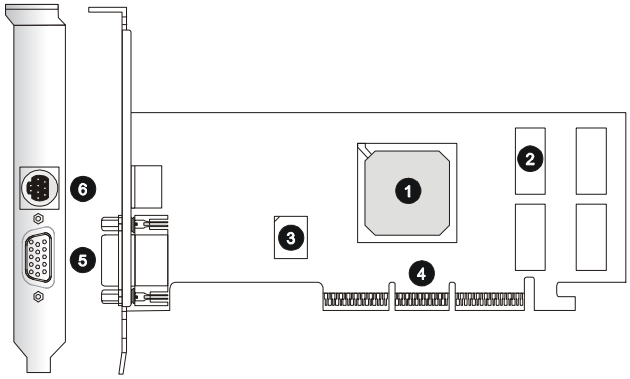

1. nVIDIA GeForce4 MX420 GPU
2. 32MB DDR RAM
3. VGA Flash BIOS
4. AGP Interface
5. VGA port
6. TV_Out connector (S & C)

<Features>

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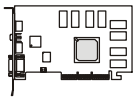
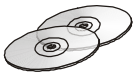


VGA card

TV-Out 1-to-2 connector



Software Pack CDs

User's Guide

<Reference>

G4MX440-T

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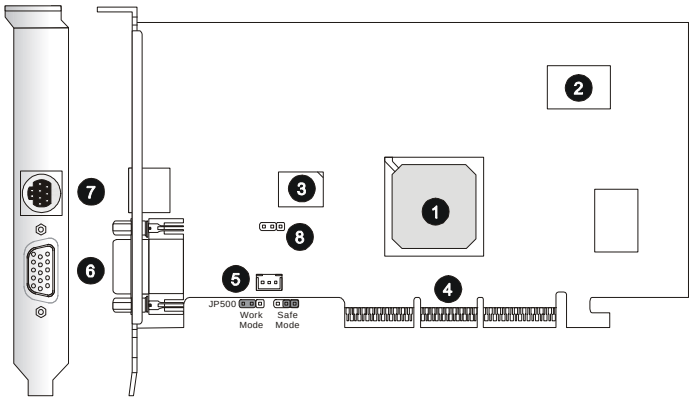

1. nVIDIA GeForce4 MX440 GPU
2. 64MB DDR RAM
3. VGA Twin-BIOS™
4. AGP Interface
5. Fan Connector
6. VGA port
7. TV_Out Connector (S & C)
8. TwinBIOS™ jumper

<Features>

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- Up to 6.4 GB/second memory bandwidth
- Supports 128-bit DDR, 64-bit DDR, and 32-bit DDR SDRAM

Supports Super High Resolution Graphics Modes

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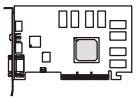
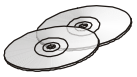


VGA card

TV-Out 1-to-2 connector



Software Pack CDs

User's Guide

<Reference>

G4MX440-P

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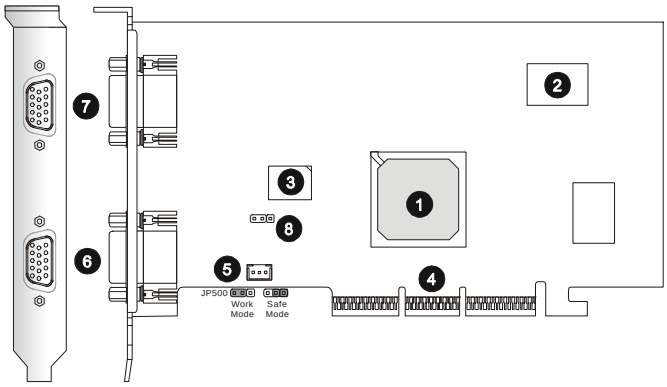

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3. VGA Twin-BIOS™
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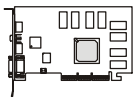
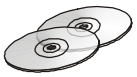


VGA card



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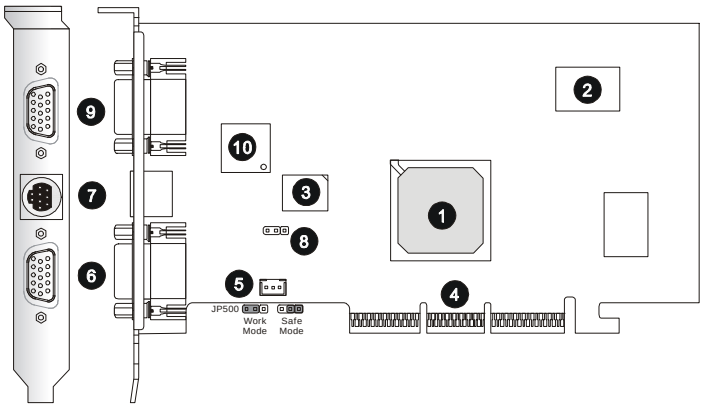
<Reference>

G4MX440-VTP

<Layout>



1. nVIDIA GeForce4 MX440 GPU
2. 64MB DDR RAM
3. VGA Twin-BIOS™
4. AGP Interface
5. Fan Connector
6. VGA port 1
7. TV_Out / Video_In Connector (S & C)
8. TwinBIOS™ jumper
9. VGA port 2
10. Video Encoder / Decoder

<Features>

Performance

- 256-bit 3D and 2D graphics accelerator
- Integrated second-generation Transform and Lighting engines
- 34 million triangles per second setup engine with Z-cull and Z-clear
- 1.1 billion texels per second and 540 million pixels per second fill rate
- NVIDIA Shading Rasterizer with 24 of 26 DX8 pixel shading functions and full set of OpenGL 1.3 pixel combiner operations
- 32-bit color with 32-bit z/stencil
- Cube environment mapping
- DirectX and S3TC texture compression
- Digital Vibrance Control
- Enhanced TwinView dual-display architecture supporting any combination of notebook LCD, desktop VGA monitor, DVI display or TV set
- Dual CRTC/Simultaneous Dual Display (same or different surfaces)
- Integrated dual LVDS Transmitter supporting LCD panels up to 2048x1536

- Integrated 350 MHz Palette-DAC for analog VGA monitors up to 2048x1536
- Integrated NTSC/PAL TV encoder supporting resolutions up to 1024x768
- Integrated TMDS transmitter for Digital Visual Interface support with scaling and filtering for flat panels up to 1600x1200
- DVD- and HDTV-ready MPEG-2 decoding up to 1920x1080i ATSC format
- MPEG-2 hardware decode, including Inverse Discrete Cosine Transform and Motion Compensation

Compatibility

- Supports VIP1.1 interface
- Supports Microsoft DirectX 8.1, 8.0, 7.0, 6.0, and 5.0 (IDCT)
- Fully compliant support for OpenGL 1.3 for all Windows operating systems and Linux
- Up to 6.4 GB/second memory bandwidth
- Supports 128-bit DDR, 64-bit DDR, and 32-bit DDR SDRAM

Supports Super High Resolution Graphics Modes

640x480	8/16/32 bit colors with 150Hz
800x600	8/16/32 bit colors with 150Hz
1024x768	8/16/32 bit colors with 120Hz
1152x864	8/16/32 bit colors with 120Hz
1280x1024	8/16/32 bit colors with 100Hz
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1920x1200	8/16/32 bit colors with 75Hz
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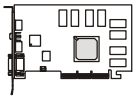
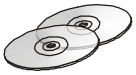


VGA card



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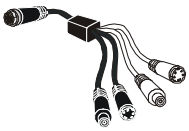
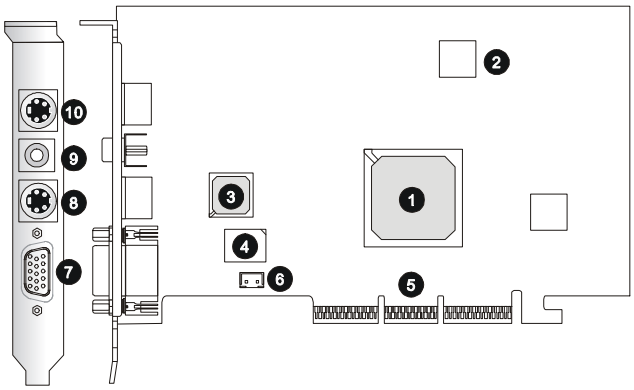


TV-Out / Video_In
1-to-4 connector

<Reference>

G4MX460-VT

<Layout>



1. nVIDIA GeForce4 MX460 GPU
2. 64MB DDR RAM
3. Video Encoder / Decoder
4. VGA Flash BIOS
5. AGP Interface
6. Fan connector
7. VGA port
8. TV_Out connector (S)
9. TV_Out connector (C)
10. Video_In connector (S)

<Features>

Performance

- 256-bit 3D and 2D graphics accelerator
- Integrated second-generation Transform and Lighting engines
- 38 million triangles per second setup engine with Z-cull and Z-clear
- 1.2 billion texels per second and 600 million pixels per second fill rate
- NVIDIA Shading Rasterizer with 24 of 26 DX8 pixel shading functions and full set of OpenGL 1.3 pixel combiner operations
- 32-bit color with 32-bit z/stencil
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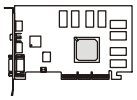
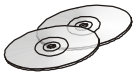


VGA card



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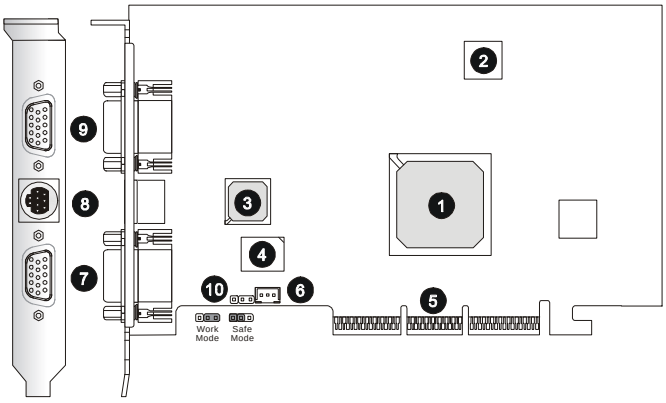
<Reference>

G4MX460-VTP

<Layout>



1. nVIDIA GeForce4 MX460 GPU
2. 64MB DDR RAM
3. Video Encoder / Decoder
4. VGA Twin-BIOS™
5. AGP Interface
6. Fan connector
7. VGA port 1
8. TV_Out / Video_In Connector (S & C)
9. VGA port 2
10. VGA TwinBIOS™ jumper

<Features>

Performance

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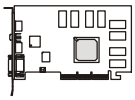
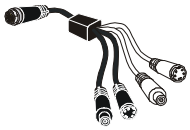
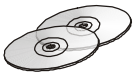


VGA card



TV-Out / Video_In
1-to-4 connector



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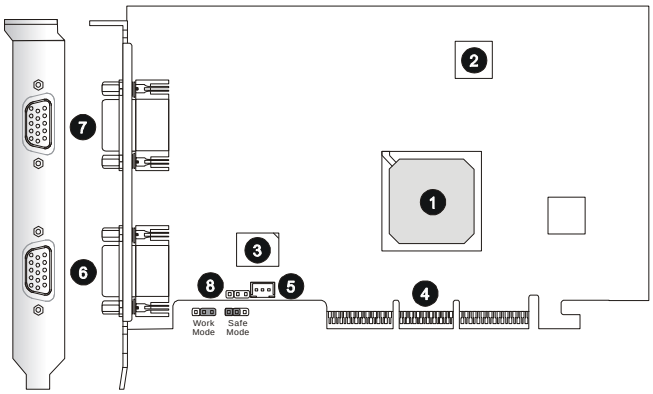
<Reference>

G4MX460-P

<Layout>



1. nVIDIA GeForce4 MX460 GPU
2. 64MB DDR RAM
3. VGA Twin-BIOS™
4. AGP Interface
5. Fan connector
6. VGA port 1
7. VGA port 2
8. VGA TwinBIOS™ jumper

<Features>

Performance

- 256-bit 3D and 2D graphics accelerator
- Integrated second-generation Transform and Lighting engines
- 38 million triangles per second setup engine with Z-cull and Z-clear
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1920x1200	8/16/32 bit colors with 75Hz
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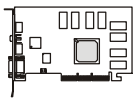
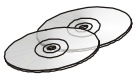


VGA card



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<Reference>

G4MX460-T

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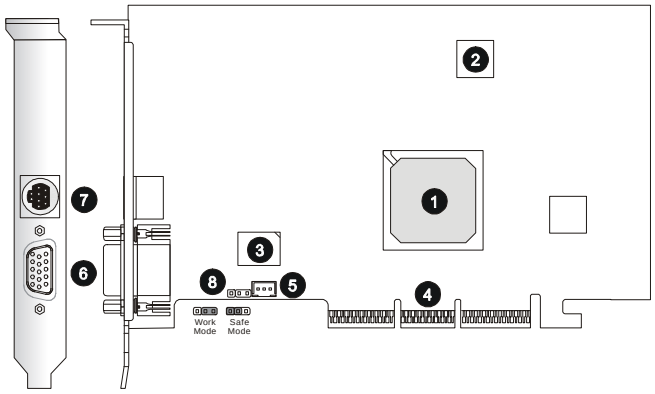

1. nVIDIA GeForce4 MX460 GPU
2. 64MB DDR RAM
3. VGA Twin-BIOS™
4. AGP Interface
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<Features>

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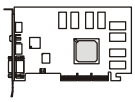
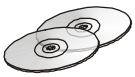


VGA card

TV-Out 1-to-2 connector



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<Reference>

G4Ti4400-VTD

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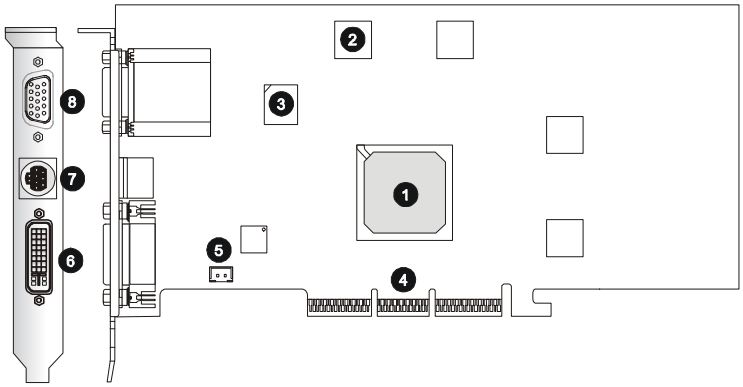

1. nVIDIA GeForce4 Ti4400 GPU
2. 128MB DDR RAM
3. VGA Flash BIOS
4. AGP Interface
5. Fan connector
6. DVI-I connector
7. TV_Out / Video_In Connector (S & C)
8. VGA port

<Features>

Performance

- The nVIDIA nfiniteFX™ II Engine enable a virtually infinite number of special effects that deliver the next leap in realism to 3D graphics
- Dual programmable Vertex Shaders
- Advanced programmable Pixel Shaders
- nVIDIA Lightspeed Memory Architecture™ II
- nVIDIA Accuview™ Antialiasing
- 3D Textures
- Shadow Buffers
- 4 dual-rendering pipelines
- 8 texels per clock cycle
- Dual cube environment mapping
- 128MB high-speed DDR RAM memory
- High-Definition Video Processor (HDVP)
- AGP 4X with Fast Writes
- AGP 4X / 2X and AGP Texturing support
- 32-bit color with 32-bit Z/stencil buffer
- Z-correct true, reflective bump mapping

- High-performance 2D rendering engine
- Hardware accelerated real-time shadows
- True-color hardware cursor
- Integrated hardware transform engine
- Integrated hardware lighting engine
- High-quality HDTV/DVD playback
- TV-Out and Video Modules
- Multibuffering (double, triple, quad) for smooth animation and video playback
- Microsoft DirectX® and S3TC® texture compression
- nVIDIA Unified Driver Architecture (UDA)
- Up to 8.8 GB/sec. memory bandwidth
- 125 million vertices/sec.
- 4.4 billion AA sample/sec. fill rate
- 1.12 trillion operations/sec.

Compatibility

- Complete Linux® drivers, including full OpenGL®
- Microsoft DirectX® optimizations and support
- Complete OpenGL® 1.3 and OpenGL® support
- WHQL-certified Windows® XP/2000/NT/ME/98/95
  - Windows® XP/2000/NT/ME/98/95 display drivers
  - Microsoft DirectDraw®, Direct3D®, DirectVideo® and DirectActiveX® drivers
  - OpenGL® ICD for Windows® XP/2000/NT/98/95
  - Complete Linux® display and OpenGL® drivers support
  - Fully P00, PC99 and PC99a compliant
- Support operation system under Windows® XP/2000/NT/ME/98/95
- Linux® compatible
- API support
- OpenGL® 1.3 and lower
- Microsoft DirectX® 8.1 and lower

Supports Super High Resolution Graphics Modes

640x480	8/16/32 bit colors with 150Hz
800x600	8/16/32 bit colors with 150Hz
1024x768	8/16/32 bit colors with 120Hz
1152x864	8/16/32 bit colors with 120Hz
1280x1024	8/16/32 bit colors with 100Hz
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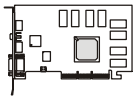
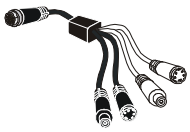
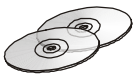


VGA card



TV-Out / Video_In
1-to-4 connector



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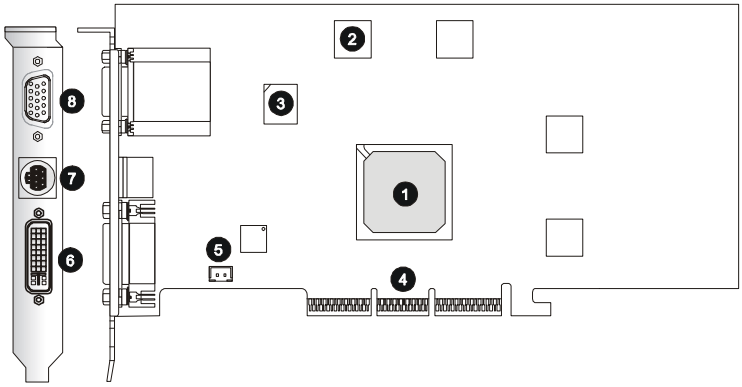
<Reference>

G4Ti4600-VTD

<Layout>



1. nVIDIA GeForce4 Ti4600 GPU
2. 128MB DDR RAM
3. VGA Flash BIOS
4. AGP Interface
5. Fan connector
6. DVI-I connector
7. TV_Out / Video_In Connector (S & C)
8. VGA port

<Features>

Performance

- The nVIDIA nfiniteFX™ II Engine enable a virtually infinite number of special effects that deliver the next leap in realism to 3D graphics
- Dual programmable Vertex Shaders
- Advanced programmable Pixel Shaders
- nVIDIA Lightspeed Memory Architecture™ II
- nVIDIA Accuview™ Antialiasing
- 3D Textures
- Shadow Buffers
- 4 dual-rendering pipelines
- 8 texels per clock cycle
- Dual cube environment mapping
- 128MB high-speed DDR RAM memory
- High-Definition Video Processor (HDVP)
- AGP 4X with Fast Writes
- AGP 4X / 2X and AGP Texturing support
- 32-bit color with 32-bit Z/stencil buffer
- Z-correct true, reflective bump mapping

- High-performance 2D rendering engine
- Hardware accelerated real-time shadows
- True-color hardware cursor
- Integrated hardware transform engine
- Integrated hardware lighting engine
- High-quality HDTV/DVD playback
- TV-Out and Video Modules
- Multibuffering (double, triple, quad) for smooth animation and video playback
- Microsoft DirectX® and S3TC® texture compression
- nVIDIA Unified Driver Architecture (UDA)
- Up to 10.4 GB/sec. memory bandwidth
- 136 million vertices/sec.
- 4.8 billion AA sample/sec. fill rate
- 1.23 trillion operations/sec.

Compatibility

- Complete Linux® drivers, including full OpenGL®
- Microsoft DirectX® optimizations and support
- Complete OpenGL® 1.3 and OpenGL® support
- WHQL-certified Windows® XP/2000/NT/ME/98/95
  - Windows® XP/2000/NT/ME/98/95 display drivers
  - Microsoft DirectDraw®, Direct3D®, DirectVideo® and DirectActiveX® drivers
  - OpenGL® ICD for Windows® XP/2000/NT/98/95
  - Complete Linux® display and OpenGL® drivers support
  - Fully P00, PC99 and PC99a compliant
- Support operation system under Windows® XP/2000/NT/ME/98/95
- Linux® compatible
- API support
- OpenGL® 1.3 and lower
- Microsoft DirectX® 8.1 and lower

Supports Super High Resolution Graphics Modes

640x480	8/16/32 bit colors with 150Hz
800x600	8/16/32 bit colors with 150Hz
1024x768	8/16/32 bit colors with 120Hz
1152x864	8/16/32 bit colors with 120Hz
1280x1024	8/16/32 bit colors with 100Hz
1600x1200	8/16/32 bit colors with 85Hz
1920x1200	8/16/32 bit colors with 75Hz
2048x1536	8/16/32 bit colors with 60Hz

Note: The Display Modes listed above are for your reference; the actual settings may be different on your system because of using different monitors.

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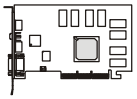
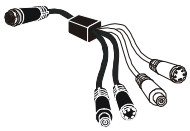
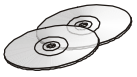


VGA card



TV-Out / Video_In
1-to-4 connector



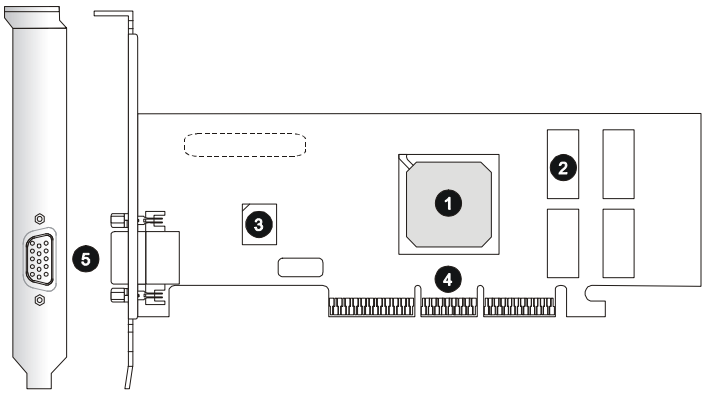
Software
Pack CDs

User's Guide

<Reference>

MX200D-32

<Layout>



1. nVIDIA GeForce2 MX200 GPU
2. 32MB DDR RAM
3. VGA Flash BIOS
4. AGP Interface
5. VGA port

<Features>

General Features

- Optimized for Direct3D acceleration with complete support for Microsoft DirectX 5.0, 6.0, 7.0
- 256-bit 2D and 3D graphics accelerator
- 350MHz Palette-DAC
- 128-bit Memory Interface
- Digital Dual Display Architecture
- nVIDIA Shading Rasteriser
- 4 Texels per Clock
- Integrated second-generation transform and lighting engine
- 32-bit color with 32-bit Z/stencil
- Cube Environment mapping
- DirectX and S3TC texture compression
- 700 million texels per second fill rate
- 20 million triangles per second setup

- 1.3GB/second memory bandwidth
- Support 128-bit SDRAM w/ 200MHz
- Supports NTSC, NTSC-EIA(Japan), and PAL(B, D, G, H, I, M, and N) TV formats
- Supports Video In (Capture) function (S/AV)
- MSI SafeBIOS™ Technology support

High quality video playback

- DVD and HDTV ready motion compensation for MPEG-2 decoding up to 1920x1080i ATSC format

Full Software Support

- Windows® 95 / 98 /ME / 2000 / NT / XP Display Drivers
- OpenGL ICD for Windows® 95 / 98 /ME / 2000 / NT / XP
- Linux® compatible
- Mac® OS compatible

Supports super high resolution graphics modes

640x480	8/16/32 bit colors with 150Hz
800x600	8/16/32 bit colors with 150Hz
1024x768	8/16/32 bit colors with 120Hz
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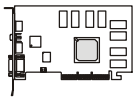
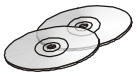


VGA card



Software
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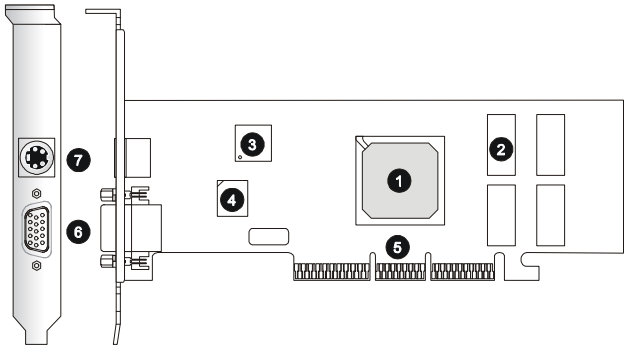
Users' Manual

<Reference>

MX200D-T64

<Layout>



1. nVIDIA GeForce2 MX200 GPU
2. 64MB DDR RAM
3. Video Encoder
4. VGA Flash BIOS
5. AGP Interface
6. VGA port
7. Video_Out Connector (S)

<Features>

General Features

- Optimized for Direct3D acceleration with complete support for Microsoft DirectX 5.0, 6.0, 7.0
- 256-bit 2D and 3D graphics accelerator
- 350MHz Palette-DAC
- 128-bit Memory Interface
- Digital Dual Display Architecture
- nVIDIA Shading Rasteriser
- 4 Texels per Clock
- Integrated second-generation transform and lighting engine
- 32-bit color with 32-bit Z/stencil
- Cube Environment mapping
- DirectX and S3TC texture compression
- 700 million texels per second fill rate
- 20 million triangles per second setup

- 1.3GB/second memory bandwidth
- Support 128-bit SDRAM w/ 200MHz
- Supports NTSC, NTSC-EIA(Japan), and PAL(B, D, G, H, I, M, and N) TV formats
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- MSI SafeBIOS™ Technology support

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- OpenGL ICD for Windows® 95 / 98 /ME / 2000 / NT / XP
- Linux® compatible
- Mac® OS compatible

Supports super high resolution graphics modes

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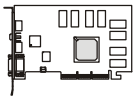
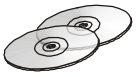


VGA card



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<Reference>

MX400D-32

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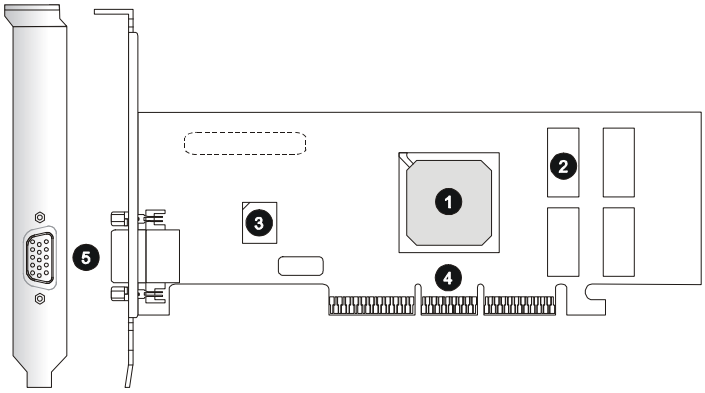

1. nVIDIA GeForce2 MX400 GPU
2. 32MB DDR RAM
3. VGA Flash BIOS
4. AGP Interface
5. VGA port

<Features>

General Features

- Optimized for Direct3D acceleration with complete support for Microsoft DirectX 5.0, 6.0, 7.0
- 256-bit 2D and 3D graphics accelerator
- 350MHz Palette-DAC
- 128-bit Memory Interface
- Digital Dual Display Architecture
- nVIDIA Shading Rasteriser
- 4 Texels per Clock
- Integrated second-generation transform and lighting engine
- 32-bit color with 32-bit Z/stencil
- Cube Environment mapping
- DirectX and S3TC texture compression
- 800 million texels per second fill rate
- 25 million triangles per second setup

- 2.7GB/second memory bandwidth
- Support 128-bit SDRAM w/ 200MHz
- Supports NTSC, NTSC-EIA(Japan), and PAL(B, D, G, H, I, M, and N) TV formats
- Supports Video In (Capture) function (S/AV)
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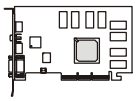
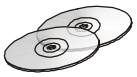


VGA card



Software
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Users' Manual

<Reference>

MX400D-T64

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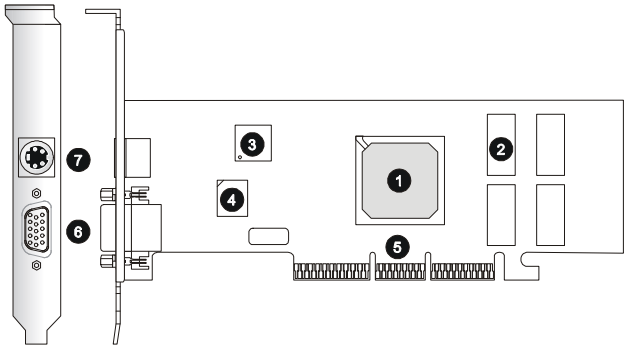

1. nVIDIA GeForce2 MX400 GPU
2. 64MB DDR RAM
3. Video Encoder
4. VGA Flash BIOS
5. AGP Interface
6. VGA port
7. Video_Out Connector (S)

<Features>

General Features

- Optimized for Direct3D acceleration with complete support for Microsoft DirectX 5.0, 6.0, 7.0
- 256-bit 2D and 3D graphics accelerator
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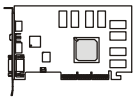
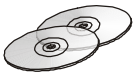


VGA card



Software
Pack CDs

Users' Manual

<Reference>

2. Hardware Installation

2.1 Card Installation

To install the VGA card to your computer, please follow the steps below:

Installation on new system

1. Remove the computer case.

2. Locate the AGP slot on your mainboard.

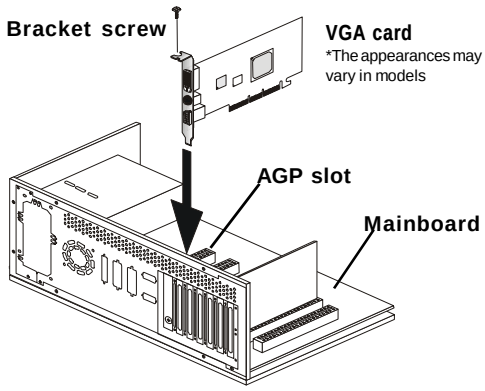
Warning: *Inserting your VGA card into a wrong slot (e.g. PCI slot) will damage your card (refer to your mainboard manual for more information).*

3. Put the card directly over the AGP slot and press one end of the card into the slot first. Gently but firmly press the other end until it is fully seated in the slot.

4. Secure the card with a bracket screw.

5. Install all other cards and devices and connect all the cables, and then replace the case.

6. Connect the monitor. Now, you are ready to install the software on your computer.



Installation on system with existing VGA card

To replace the existing VGA card in your computer, please follow the steps below:

1. If your operating environment is Windows® NT system, switch your display driver to standard VGA first (refer to Windows® NT documentation for more information). If you are using Windows® 98/ME/2000/XP, skip this step.

2. Turn off the computer and unplug all the cables and power cords.

3. Remove the computer case.

4. Remove the existing VGA card. Locate the AGP slot on your mainboard.

Warning: *Inserting the VGA card into a wrong slot (e.g. PCI slot) will damage your card (refer to your mainboard manual for more information).*

5. Put the card directly over the AGP slot and press one end of the card into the slot first. Gently but firmly press the other end until it is fully seated in the slot.

6. Secure the card with a bracket screw.

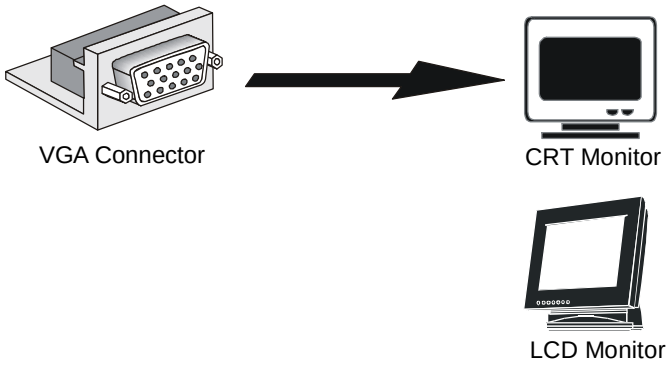
7. Replace the case.

8. Connect the monitor (see previous section).

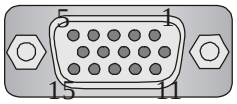
9. Restart the computer. Now, you are ready to install the driver for the VGA card.

2.2 VGA Connector (DB 15-Pin)

The VGA card provides a standard VGA connector, which allows you to connect a CRT or LCD monitor. Simply plug your monitor cable into the VGA connector on your VGA card, and make sure that the other end of the cable is properly connected to your monitor (refer to your monitor manual for more information).



VGA Connector Pin Definition



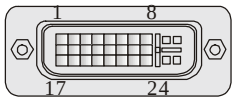
Analog Video Display Connector (DB15-S)	
Pin	**Signal Description**
1	Red
2	Green
3	Blue
4	Not used
5	Ground
6	Ground
7	Ground
8	Ground
9	5V
10	Ground
11	Not used
12	SDA
13	Horizontal Sync
14	Vertical Sync
15	SCL

2.3 Digital Panel Connector (DVI-I)

The VGA card provides a DVI (Digital Visual Interface) connector which allows you to connect an LCD monitor. The DVI connector provides a high-speed digital interconnection between the computer and its display device. To connect a LCD monitor, simply plug your monitor cable into the DVI connector on the VGA card, and make sure that the other end of the cable is properly connected to your monitor (refer to your monitor manual for more information).

DVI connector LCD Monitor

DVI-I Connector Pin Definition



DVI-I Connector			
Pin	**Signal Assignment**	**Pin**	**Signal Assignment**
1	T.M.D.S.* Data2-	13	T.M.D.S. Data3+
2	T.M.D.S. Data2+	14	+5V
3	T.M.D.S. Data2/4 Shield	15	GND (for +5V)
4	T.M.D.S. Data4-	16	Hot Plug Detect
5	T.M.D.S. Data4+	17	T.M.D.S. Data0-
6	DDC Clock	18	T.M.D.S. Data0+
7	DDC Data	19	T.M.D.S. Data0/5 Shield
8	N/C	20	T.M.D.S. Data5-
9	T.M.D.S. Data1-	21	T.M.D.S. Data5+
10	T.M.D.S. Data1+	22	T.M.D.S. Clock Shield
11	T.M.D.S. Data1/3 Shield	23	T.M.D.S. Clock+
12	T.M.D.S. Data3-	24	T.M.D.S. Clock-

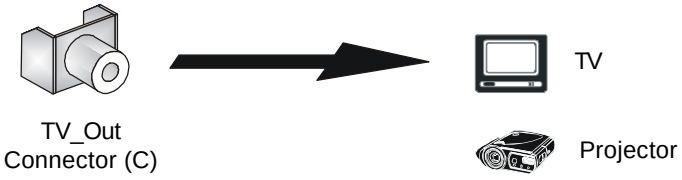
C 1	Analog Red	C 4	Analog Horizontal Sync
C 2	Analog Green	C 5	Analog Ground (analog R, G & B return
C 3	Analog Blue		

*T.M.D.S. Technology

The graphics data sent to the digital monitor use Transition Minimized Differential Signaling (T.M.D.S.)technology. TMDS uses an encoding algorithm to 8-bit of data into a 10-bit transition minimixed, DC balanced character, which are transition-minimized to reduce EMI with copper cables and DC-balanced for transmission over fiber optic cables. The TMDS algorithm also provides robust clock recovery for greater skew tolerance with longer cables or low cost short cables.

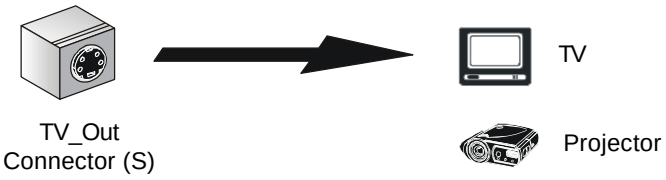
2.4 TV_Out Connector (C)

The VGA card provides a TV_Out connector for video-out function which allows you to output the image to a TV or video device. Simply plug one end of the RCA cable into the TV_Out connector on the VGA card, and the other end to the video input connector on your TV or video device. Most TVs and video devices support such kind of input connector. For the correct connection, please refer to the TV's and video devices' manuals for more information.



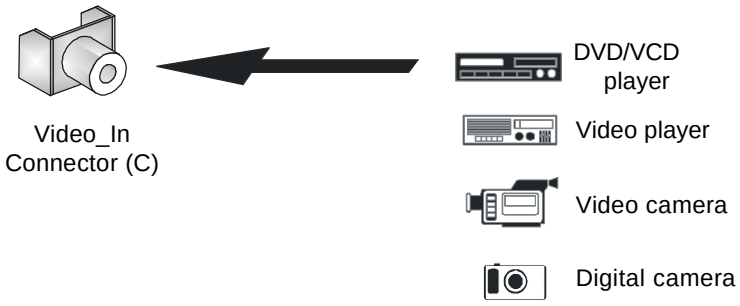
2.5 TV_Out Connector (S)

The VGA card provides a TV_Out connector for video-out function which allows you to output the image to a TV or video device. Simply plug one end of the S_Video cable into the TV_Out connector on the VGA card, and the other end to the video input connector on your TV or video device. Some TVs and video devices may support such kind of input connector. For the correct connection, please refer to the TV's and video devices' manuals for more information.



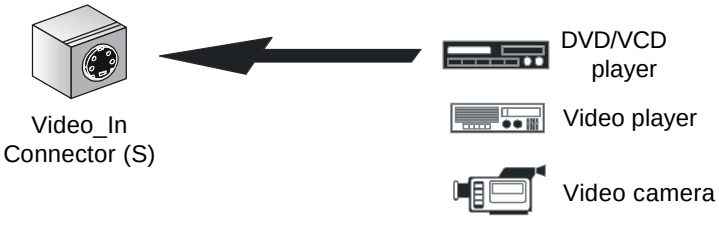
2.6 Video_In Connector (C)

The VGA card provides a Video_In connector for video-in function which allows you to input the image from video devices. Simply plug one end of the RCA cable into the Video_In connector on the VGA card, and the other end to the video output connector on your video devices. Most video devices support such kind of output connector. For the correct connection, please refer to the video devices' manuals for more information.



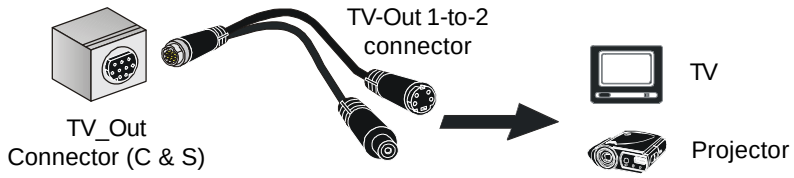
2.7 Video_In Connector (S)

The VGA card provides a Video_In connector for video-in function which allows you to input the image from video devices. Simply plug one end of the S_Video cable into the Video_In connector on the VGA card, and the other end to the video output connector on your video devices. Some video devices may support such kind of output connector. For the correct connection, please refer to the video devices' manuals for more information.



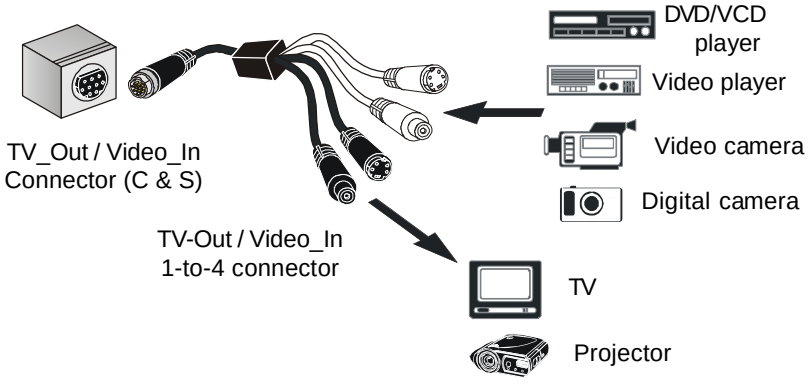
2.8 TV_Out Connector (S & C)

The VGA card provides a 9-pin TV_Out connector (S & C) for video-out function which allows you to output the image to a TV or video device. This type of connector can be used for either RCA cable or S_Video cable if the attached TV-Out 1-to-2 connector is plugged in. Simply plug one end of the RCA cable or S_Video cable into the proper connector provided by the TV-Out 1-to-2 connector, and the other end to the video input connector on your TV or video device. Most TVs and video devices support such kind of input connector. For the correct connection, please refer to the TV's and video devices' manuals for more information.



2.9 TV_Out / Video_In Connector (S & C)

The VGA card provides a 9-pin TV_Out / Video_In connector (S & C) for video-out / video-in function which allows you to output / input the image to / from a TV or video device. This type of connector can be used for either RCA cable or S_Video cable if the attached TV-Out / Video_In 1-to-4 connector is plugged in. Simply plug one end of the RCA cable or S_Video cable into the proper connector provided by the TV-Out / Video_In 1-to-4 connector, and the other end to the video input / output connector on your TV or video device. Most TVs and video devices support such kind of input / output connector. For the correct connection, please refer to the TV's and video devices' manuals for more information.



3. Software Installation

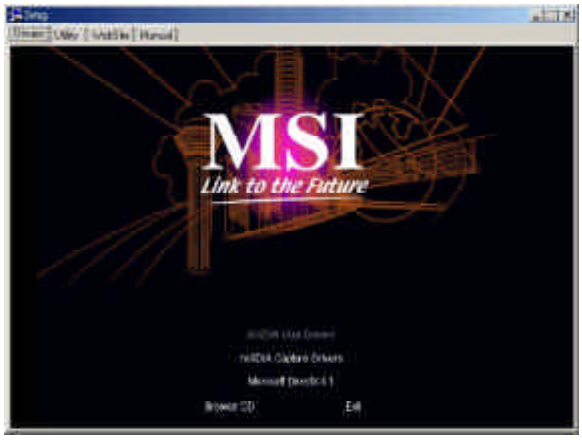
This chapter describes how to install MSI VGA card software for Windows® 98/ME/2000 or NT, including the driver and useful utilities.

3.1 Drivers for Windows® 98/ME

To install the driver for the VGA card to your computer running Windows® 98/ME, please follow the steps below:

1. Turn on the computer.

2. Insert the CD into the CD-ROM drive. The Autorun program will start the Setup program, and show the setup screen as follows:



Tip: *If, on your computer, the Autorun program does not execute automatically, please* ***1)*** *enable the CD-ROM drive's auto-detect function from* ***Control Panel****; or* ***2)*** *find and run the* ***setup.exe*** *file manually from the CD-ROM.*

Note: *The figures in this section are based on the tested platform and for reference only; the actual displays and information (such as settings, driver's version, etc.) on your system may be different.*

3. Click **nVIDIA VGA Drivers**. Follow the on-screen instructions to complete the installation.

4. After finishing the installation, restart the computer as instructed.

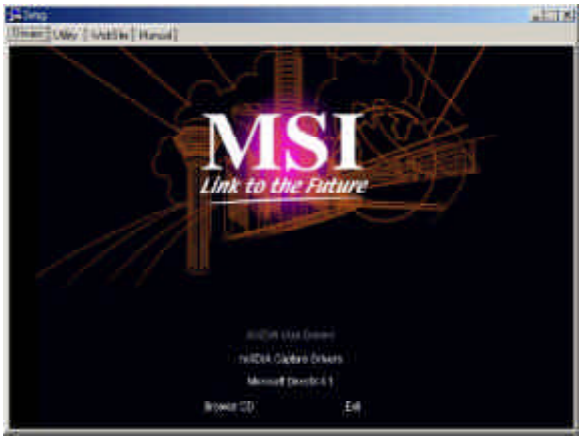
3.2 Drivers for Windows® XP/2000/NT

Note: *For Windows® NT 4.0 users, "Service Pack 3" or later version must be installed before installing the driver.*

To install the driver for the VGA card to your computer running Windows® 2000/NT, please follow the steps below:

1. Turn on the computer.

2. Insert the CD-ROM provided into the CD-ROM drive. The Autorun program will start the Setup program and show the setup screen as shown below:



Tip: *If, on your computer, the Autorun program does not execute automatically, please* ***1)*** *enable the CD-ROM drive's auto-detect function from* ***Control Panel****; or* ***2)*** *find and run the* ***setup.exe*** *file manually from the CD-ROM.*

3. Click **nVIDIA VGA Drivers**. Follow the on-screen instructions to complete the installation.

Note: *Under Windows® 2000, the* ***Digital Signature Not Found*** *dialog box (as shown below) will pop up during the installation. Press* ***Yes*** *to continue the installation.*

4. After finishing the installation, restart the computer as instructed.

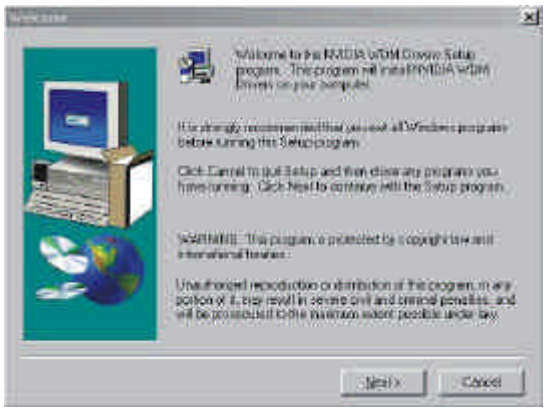
3.3 Installing nVIDIA Capture Driver

The VGA card provides a video-in function that allows you to connect the external video devices for images capture function. With this driver installed, you can capture the images on your computer through the video input port on the card.

1. Turn on the computer.

2. Insert the CD into the CD-ROM drive and enter the Setup program.

3. In the **MSI Installation** dialog box, click **nVIDIA Capture Drivers**. Follow the on-screen instructions to complete the installation.



4. After finishing the installation, restart the computer as instructed.

3.4 Installing Optional Software

After restarting the computer, you can install the optional software from the CD-ROM provided, such as *Microsoft DirectX 8.0, Adobe Acrobat Reader*, *and MSI 3D Turbo Experience*. Simply click to select the button and follow the on-screen instructions to complete the installation.

1. Insert the CD into the CD-ROM drive, and start the Setup program.

2. Choose the **Drivers** tab on the setup screen.

3. Click the software's button that you want to install, then follow the on-screen instructions to complete the installation.

3.5 Browsing the Web

Since our products are under continual improvement, there may be a later version of the driver and BIOS for your purchase. We encourage you to visit our website at http://www.msi.com.tw to get the latest news. In addition, we post lots of useful websites on the World Wide Web for you. Simply click to select the linkage and browse the website as you usually do.

1. Insert the CD into the CD-ROM drive, and start the Setup program.

2. Choose the **WebSite** tab on the setup screen.

3. Click the corresponding button to launch your browser and access the website.

Note: *To surf these websites, you have to make connection to the Internet first.*

3.6 More Information

To browse through the contents on the CD, simply click **Browse CD** under each tab. You can use the **Manual** tab to learn more about your MSI products.

1. Insert the CD into the CD-ROM drive and start the Setup program.

2. Click **About CD** to learn more about the CD-ROM.

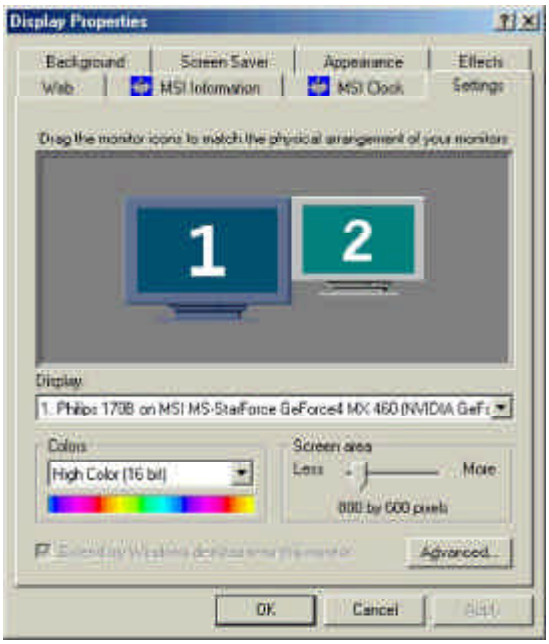
3. Choose the **Manual** tab on the setup screen.

4. Click the corresponding button to get more information.

3.7 Display Adjustment

After you have completed the driver installation, the Setup program adds many specific options to the Windows-based **Display Properties**. You can configure the specific display properties of the VGA card to obtain optimized performance.

To open the **Display Properties** window, click the Start button , and then point to **Settings**. Point to the folder that contains **Control Panel**, and then click **Control Panel**. In Control Panel, double-click the **Display** icon. Also, you may simply right-click the blank Windows® desktop area and choose **Properties** in the pop-up menu. The **Display Properties** window below will show on your screen:



Note: *The figures in this section are for reference only. The actual information on the* ***Display Properties*** *window may vary in operating systems.*

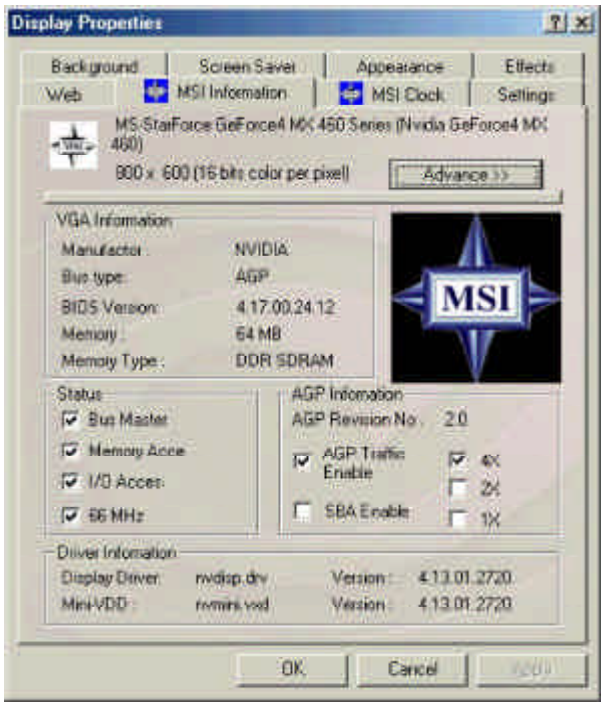
In this section, we list the most important information on how to configure these specific options of the VGA card.

Display Settings

Open the **Display Properties** window as instructed earlier, and click the **Settings** tab, and then you will see the figure as shown in *p. 3-7*. This screen shows information of the display adapter, colors, range of display area, and refresh rate.

MSI Information

This screen shows the detailed information of the VGA card, including the model name, display mode, version of the driver and BIOS, memory size, AGP mode and so on.



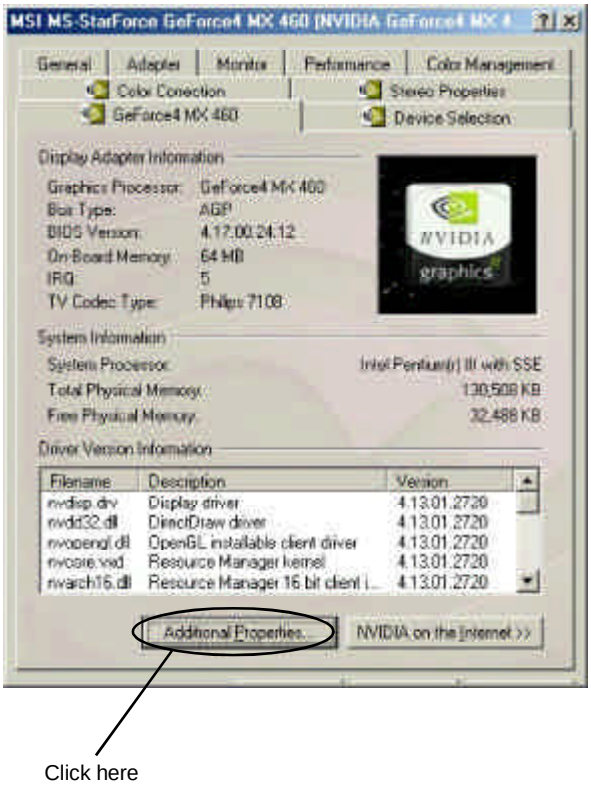
MSI Clock

This screen shows the settings of the VGA card's core clock and memory clock, and it provides you the overclocking function. Move the slider to adjust the value, and then click **Apply**.

WARNING: *Overclocking may cause the display to be abnormal. It is recommended to use the Default settings for the most stable performance.*

GPU Information

This screen shows the detailed information of GPU used on your VGA card, including the bus type, BIOS version, memory size and so on.



Click here

Click **Additional Properties** to access further settings on Direct3D and OpenGL.

Direct3D Settings

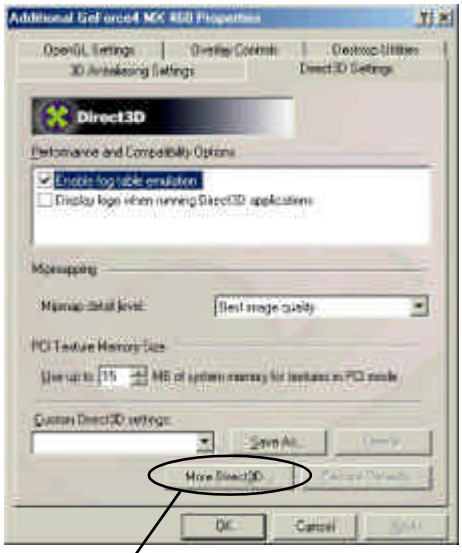
This tab allows you to adjust the values of **Performance and Compatibility Options**, **Mipmapping** and **PCI Texture Memory Size** for your 3D games.

Performance and Compatibility Options

This option contains many items that allow you to set up the options influencing the performance and compatibility in your 3D games.

Mipmapping

This option allows you to set up the mipmapping level for a higher performance or better image effects.



Click here

PCI Texture Memory Size

This option allows you to adjust the size of the PCI texture memory. For some applications using the Direct3D technology, typing a higher value in this spin box may significantly increase the performance. However, this option does not work on the display adapter using an AGP bus.

Click **More Direct3D** to gain access to additional settings of Direct3D.

Texel Alignment

This option allows you to change the addressing scheme of hardware texture for texel. Move the slider to adjust the value, which will change the texel origin between the upper-left corner and the center position.

OpenGL Settings

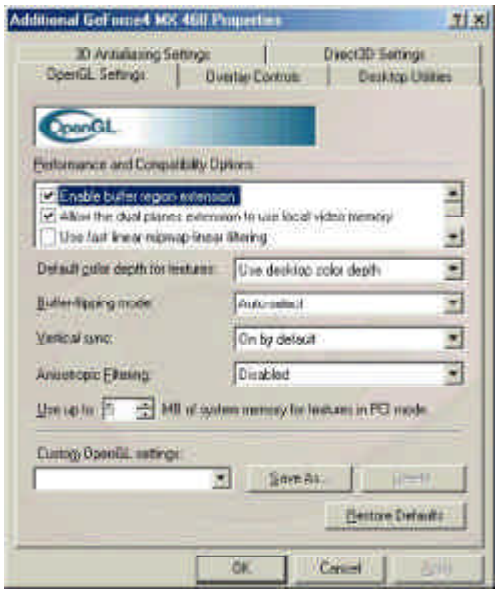
This tab allows you to adjust the Performance and Compatibility Options for your OpenGL application.

Performance and Compatibility Options

This option contains many items that allow you to set up the options influencing the performance and compatibility in your OpenGL application.

Default Color Depth for Textures

This option allows you to choose the default color depth for texture.



Buffer Flipping Mode

When running the OpenGL application under the Full-Screen mode, turning on the page flipping function may significantly increase the performance.

Vertical Sync

This option allows you to choose the type of vertical sync.

Full Scene Antialiasing Method

This option allows you to choose the method of full scene antialiasing.

nView

If your VGA card is equipped with a TV-Out connector, you can use a second output device (for example, a TV or a computer monitor) as a part of your operating desktop --- extending your desktop to the second device or copying your desktop onto the second device.

Copying the Desktop

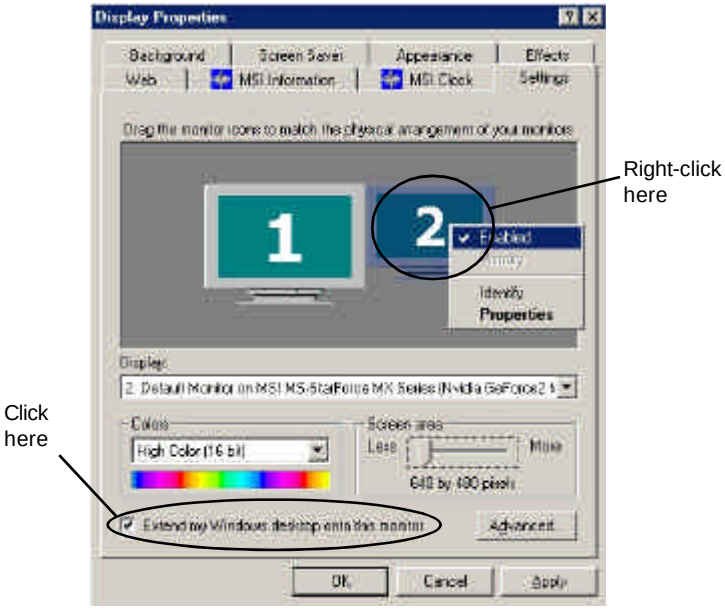
When the second video output device (TV or monitor) is connected:

1. Open the **Display Properties** window.
2. Under the **Settings** tab, click **Advanced**, and then choose the **nView** tab.
3. Click **Clone**, and then **Apply** to enable the function, or **OK** to accept and exit the setup screen.

Extending the Desktop

When the second video output device (TV or monitor) is connected:

1. Open the **Display Properties** window.



2. Under the **Settings** tab, right-click the second device icon on the main screen, and choose **Enabled** in the pop-up menu.

3. Click the **Extend my Windows desktop onto this monitor** check box as the default value.

4. Click **Apply** to enable the function, or **OK** to accept and exit the setup screen.

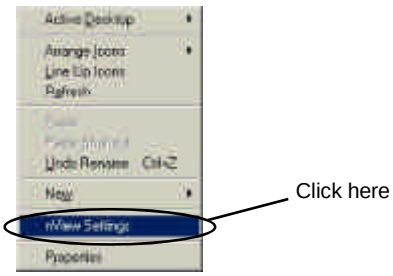
Note: When the extending function is enabled, you can move your mouse, place the icons and show program windows on the second device. However, some programs do not support this function. If your program stops running completely or intermittently when using more than one monitor, please disable the function.

Setting the nView

You can configure the extended desktop for your perference and convenience. You can enter the **nView Settings** window from two ways.

From the blank desktop:

1. Right-click the blank desktop and the pop-up window will show on the screen as following:



2. Click the **nView Settings** to open the setting window.

From Start button:

1. Click the Start button , and then point to **Settings**.

2. Point to the folder that contains **Control Panel**, and then click **Control Panel**.

3. In Control Panel, double-click the **nView** icon.

Profiles

This window allows you to load your previous settings or to save the current settings.

You can load your previous settings

Windows

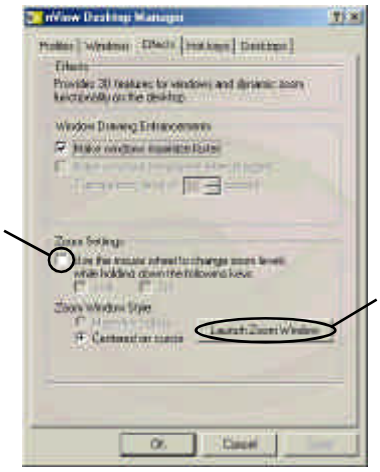
This window allows you to control the windows shown on the screen. You are also allowed to set the monitor in which the dialog box or an applocation will show.

You can assign the monitor in which the dialog boxes will show

Effects

This window provides 3D features for windows and a dynamic zoom window to view your desktop.

Check here. You can change the zoom levels (1x-10X) with the mouse wheel

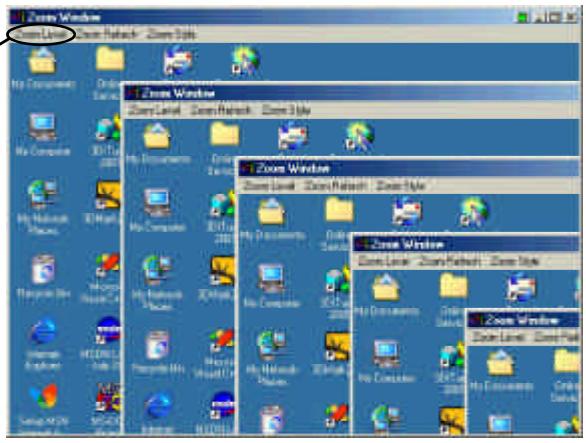


Click here to launch Zoom Window

Zoom Window

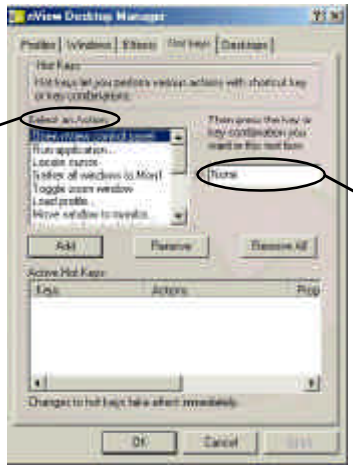
The Zoom Window is a dynamic zoom window which allows you to view your desktop. The window shows the image of the desktop where your mouse is.

You can change the zoom level from 1x to 10x. The current setting is 1x.



Hot Keys

This window provides a personalized setting which allows you to execute an action with just one click on your keyboard. The hot key can be a key combination.



Select an action that you would like to set a hot key for

Set a hot key for the action selected

Desktops

This window allows you to create up to 32 different desktops. You can shift your desktops between them.

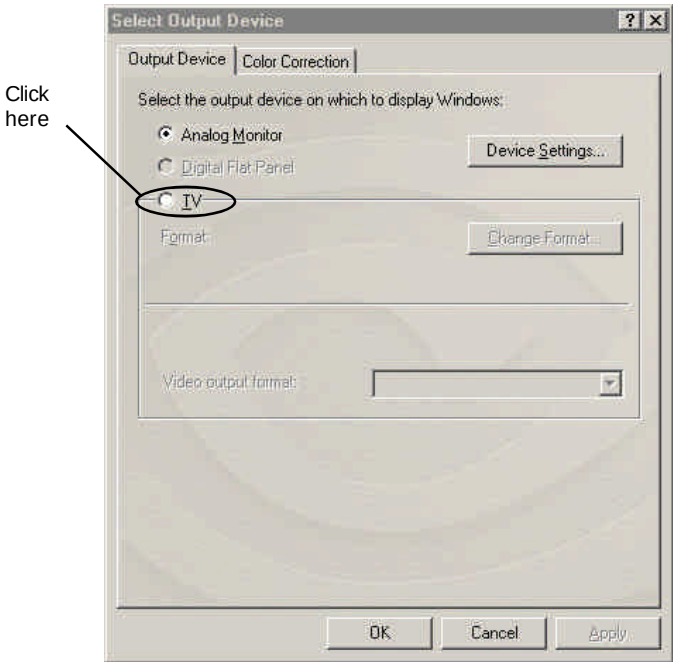
The desktops can be loaded from the wallpaper liberary

TV Mode Support: NTSC, NTSC-EIA (Japan) and PAL

The default setting for TV-out function is PAL (for Europe region). If you want to use this function in different areas, please adjust to a proper mode accordingly (for example, NTSC for the regions of Taiwan and USA). Otherwise, the display on TV may be abnormal.

1. Click **Device Settings** (*see the figure in p. 3-13*), and then choose **Output Device** in the pop-up window.

2. Under the **Output Device** tab, click **TV** and then select a proper output format in the **Video Output Format** box.

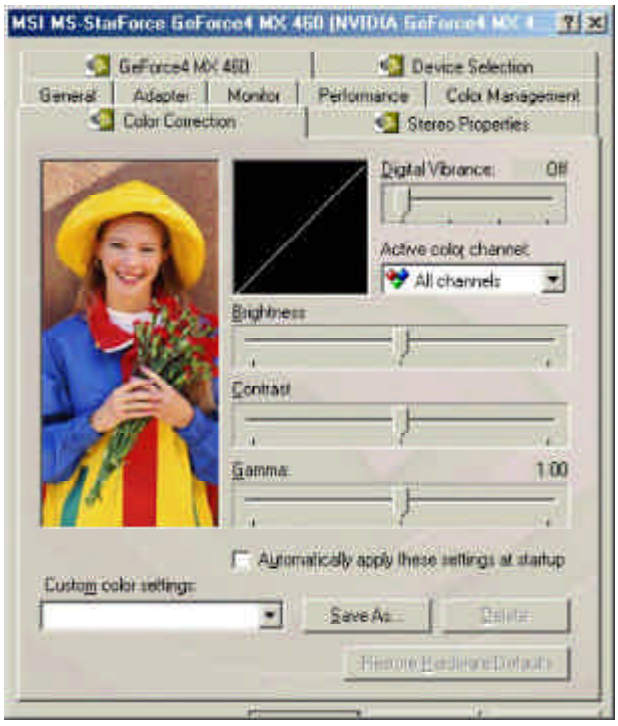


Color Correction

This tab allows you to adjust the proper values of ***Digital Vibrance***, ***Brightness***, ***Contrast*** and ***Gamma***.

1. Click **Device Settings** (*see the figure in p. 3-13*), and then choose **Color Correction** in the pop-up window.

2. Under the **Color Correction** tab, move the slider to set up a value from a continuous range in **Brightness**, **Contrast** and **Gamma**.

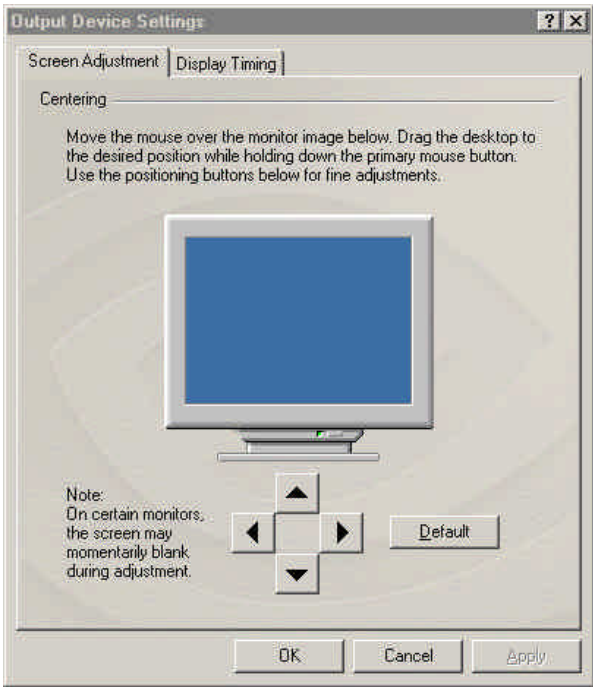


Screen Adjustment

This tab allows you to adjust the proper position of the display image.

1. Click **Device Settings** (*see the figure in p. 3-13*), and then choose **Screen Adjustment** in the pop-up window.

2. Click the UP ARROW , LEFT ARROW , DOWN ARROW and RIGHT ARROW keys to configure the position of the image.



4. MSI Live Update Series

MSI™ Live Update Series is a useful utility for you to upgrade your MSI mainboard and VGA card. Thanks to the powerful capacity of this utility, you can conveniently download and automatically upgrade the BIOS and drivers on-line, without spending much time on searching many Web sites to find the BIOS or drivers you want.

4.1 Installing MSI Live Update Series

To use this feature, you have to install the program first. You can download the program from: ***1)*** the software pack CDs in the package; or ***2)*** the MSI Web site.

Installing from CDs

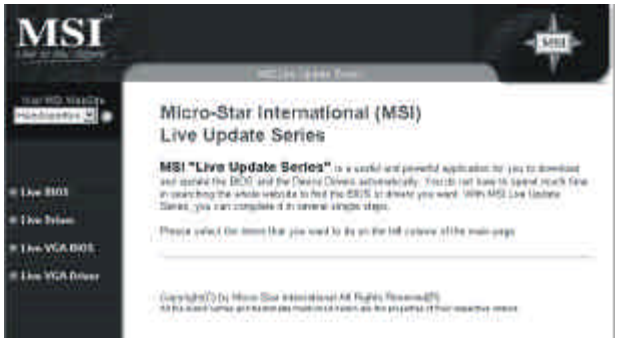
1. Insert the CD into the CD-ROM drive, and start the Setup program.
2. Click the **Utility** tab on the setup screen.
3. Click **MSI Live Update Series**. Follow the on-screen instructions to complete the installation.

Installing from the MSI Web site

1. Make connection to the MSI's Web site at *http://www.msi.com.tw*
2. Click **Live Update Series** on the upper of the MSI's homepage to enter the setup page.
3. Click the **InstallShield Wizard** button  from *FTP 1* or *FTP 2*. Follow the on-screen instructions to complete the installation.

4.2 Using MSI Live Update Series

After the installation is completed, you can launch the utility by ***1)*** double-click the **MSI Live Update Series** icon on the desktop; or ***2)*** click the **Start** button , and then point to **MSI Live Update Series**. The setup screen should appear as shown below, which contains four parts: ***Live BIOS***, ***Live Driver***, ***Live VGA BIOS*** and ***Live VGA Driver***.



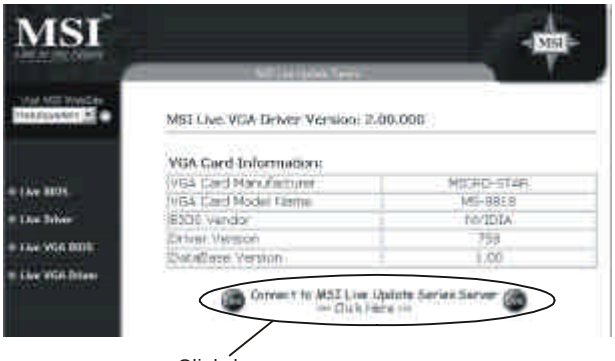
Tip: *The Live BIOS and Live Driver options are used for MSI mainboards, and the Live VGA BIOS and Live VGA Driver options are used for your MSI VGA cards.*

4.3 Live VGA Driver Update

1. To update the MSI Live VGA Driver, click **Live VGA Driver** on the left column of the main page.

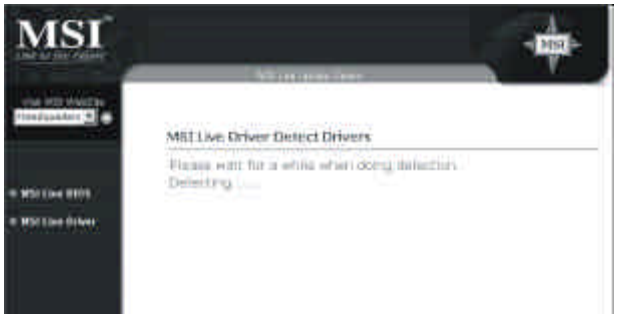
Note: *The model name and driver/BIOS version appear in the instruction are for reference only; the actual result should depend on the card you installed.*

2. This utility will start checking your platform and the information on the VGA card, and display the information in a list:

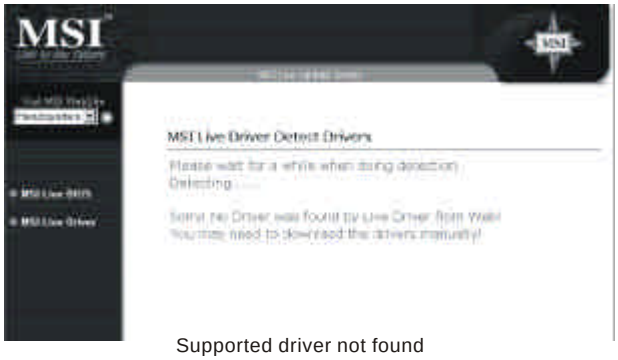


3. Click the graph button at the bottom to connect to the MSI Live Update Series Server. It will automatically connect to the Internet and compare the version of the driver in the database.

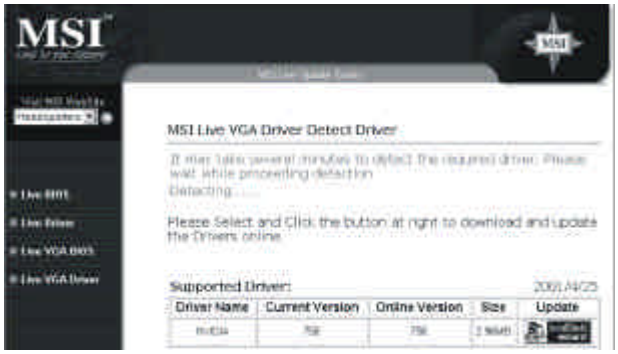
4. It may take several minutes to detect the required drivers. Please wait while proceeding detection.



5. The results are displayed as shown below:



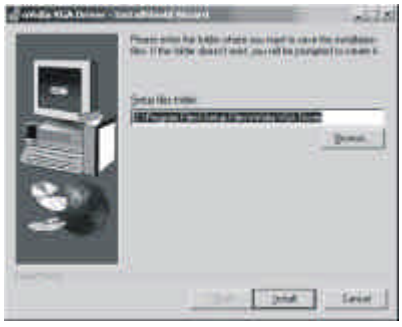
Supported driver not found



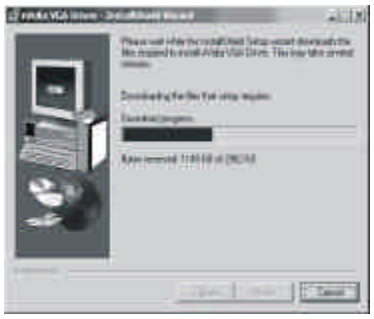
Supported driver found

6. Click the **InstallShield Wizard** button on the right side of the table to download and update the driver. All actions will proceed automatically.

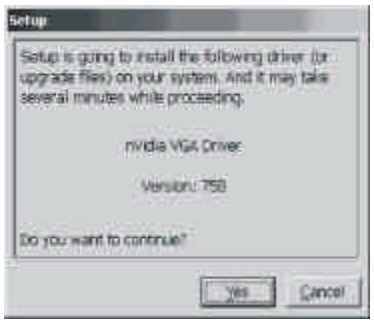
7***.*** Follow the on-screen instructions to complete the updating procedure.



Select a folder to save the driver file



Downloading



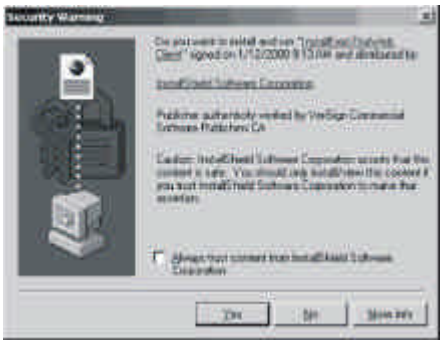
Driver updating

Restart the computer

Note:

1. *Always click **Yes** in the **Internet Explorer** dialog box below.*

2. *Click **Yes** in the **Security Warning** dialog box.*



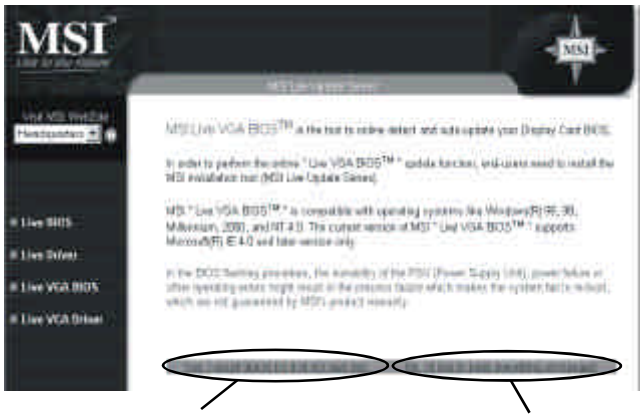
4.4 Live VGA BIOS Update

1. To update the MSI Live VGA BIOS, click **Live VGA BIOS** on the left column of the main page.

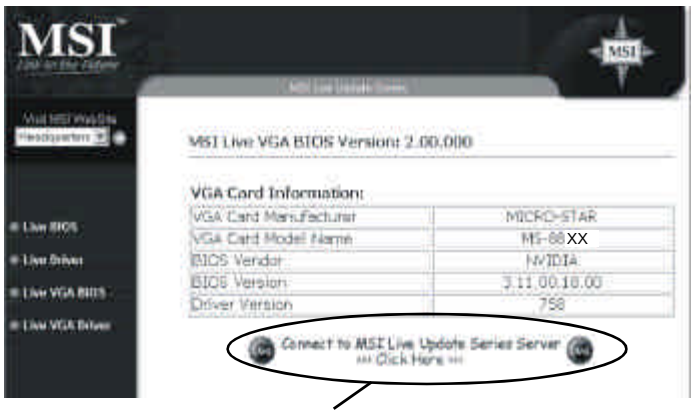
2. This utility will detect your system for the presence of the Live VGA BIOS function. If your VGA card does not support this function, the dialog box below will appear*:

** For more information on the **MSI Safe BIOS™**, please see p. 4-12.*

3. If your VGA card supports the Live VGA BIOS function, the screen will show a warning message about the risk of the BIOS flashing procedure, which makes the system fail to reboot. Click **Yes** to try it at user's own risk or **No** to return the the main page with everything unchanged.



4. If you click **Yes** to continue, it will check the information and BIOS version of your VGA card, and list them in a table:

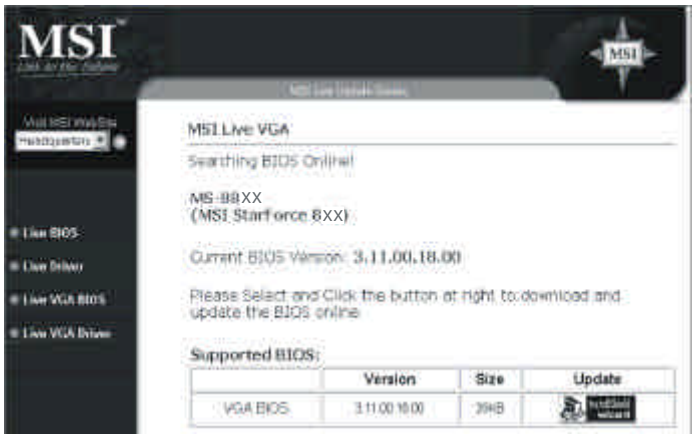


Click here

5. Click the graph button at the bottom to connect to the MSI Live Update Series Server.

6. The MSI Live VGA BIOS will automatically connect to the Internet and search the supported BIOS in the database of MSI. The following is an example of the research result:

Supported BIOS not found

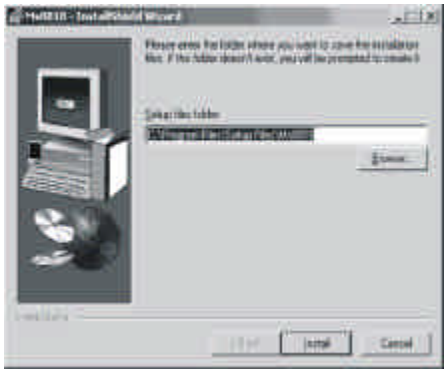


Supported BIOS found

7. If it has found one (or several) supported BIOS for your VGA card, click the **InstallShield Wizard** button on the right side of the table to download and update the BIOS. All actions will proceed automatically.

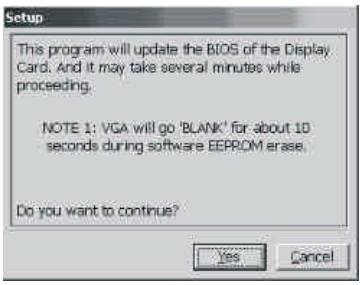
Note: *Your monitor may go **BLANK** while the software EEPROM has being erased. Please wait for a while before you proceed to the nest step.*

8. Follow the on-screen instructions to complete the updating procedure.



Select a folder to save the BIOS file

Downloading



Ask if users want to continue

Restart the computer after finishing the BIOS update

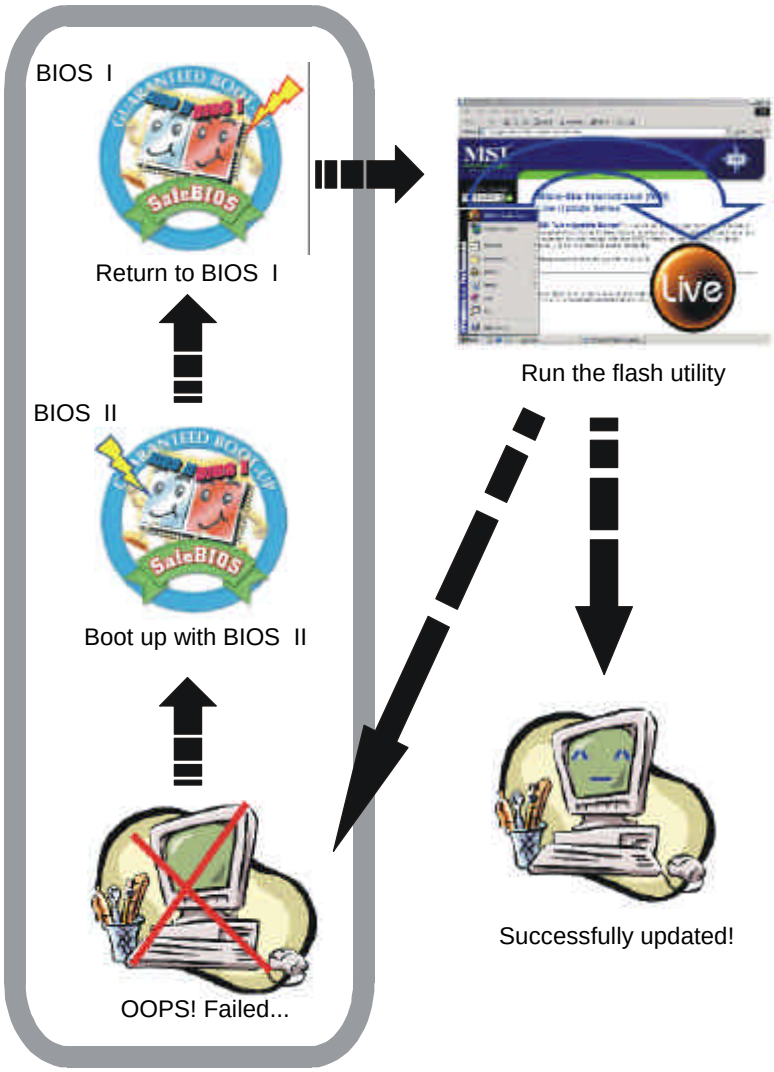
Note:

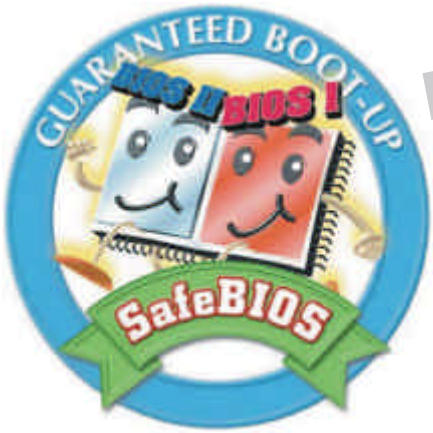
1. *Always click **Yes** in the **Internet Explorer** dialog box below.*

2. *Click **Yes** In the **Security Warning** dialog box.*

4.5 Twin-BIOS™

The diagram below describes the procedure in brief:





NEW

Our products are under continual improvement, and there may be a later version of the BIOS to solve the existing problems on displays or the installaton. When you use the flash utility* to update the BIOS on the card, it is inevitable that your devices may encounter some unexpected risks, such as power interruption, during the updating process. If, unfortunately, the updating procedure is failed and the VGA card cannot work anymore --- this powerful technology can solve your problems!

If you fail to update the BIOS successfully, and have to use this function to save your VGA card, please follow the steps below:

1. Turn off the power and remove the computer case.

2. Locate the jumper on the VGA card, and set it up to enter the BIOS II mode (safe mode) when restarting the system.

3. Do not replace the case first and turn on the power.

4. With the BIOS II, you should be able to start the system normally. After entering the operating system (OS), set up the jumper to enter the BIOS I mode (work mode). Now you can restore the original BIOS or you can try to update the BIOS using the flash utility* again.

Warning: *It is very dangerous to perform the procedure under such condition. To ensure your safety and prevent electric shocks and damages, please Do NOT touch any component in the computer.*

5. If the updating procedure still failed**, repeat Step 3 and 4. If the updating procedure is successful, that means the BIOS data is written onto the chip successfully.

6. Replace the case and restart the computer.

NOTE:
***** To update the BIOS, you must use the special flash utility (*MSI Live Update Series*) provided by MSI only, which can fully support the Twin-BIOS™ technology. If the third party's utility is used in the updating procedure, it will erase the data in BIOS II.

** If you always encounter problems while updating the BIOS and driver, check if the mainboard's chipset driver was properly installed. Please install the chipset driver from your mainboard vendor first and try again.

5. Troubleshooting

This chapter provides you the general methods to solve problems that might happen to your system. Before you consult our authorized dealer for further service, try these helpful hints to solve your problems first.

If you cannot find the effective solutions, or you still need help after reading this chapter, please contact your local dealer or visit our website for technical support and service.

5.1 General Help

Q: *Where can I find more information about my VGA card?*

Please visit our Web site at *http://www.msi.com.tw*

Q: *How do I know the driver version of my VGA card? How do I update it?*

To know the driver version of your VGA card, simply click the **Start** button  , and then point to **Settings.** Point to the folder that contains **Control Panel**, and then click **Control Panel**. In **Control Panel**, double-click **Display** to open the **Display Properties** window for more information. (Please refer to **Chapter 3 Software Installation** for details.)

If you need to update your VGA card's driver, please download the latest version for your VGA card from our Web site. Usually, the driver file is an executable (.exe) file. Simply double-click the file and follow the on-screen instructions to complete the updating procedure.

5.2 Display Problem

Q: *My monitor displays nothing after the system boots up.*

Your VGA card may not be installed correctly. Please check the installation procedure described in *Chapter 2 Hardware Installation*.

Make sure that your monitor are connected to the VGA card properly, and the power is turned on.

Q: *The image is of poor quality; the screen image is off-centered, and the image's shape becomes deformed.*

Your VGA card's driver may not be installed correctly. Please re-install the driver and restart the computer (*see instructions in Chapter 3 Software Installation*).

The **Display Properties** in your system may not be set up properly. Click the Start button , and then point to **Settings.** Point to the folder that contains **Control Panel**, and then click **Control Panel**. In **Control Panel**, double-click **Display** to set the optimized values.

Try to adjust your monitor's control settings (such as Brightness, Contrast and so on). Please refer to your monitor manual for more information.

Q: *How do I change the resolution settings on my computer?*

Click the Start button , and then point to **Settings.** Point to the folder that contains **Control Panel**, and then click **Control Panel**. In **Control Panel**, double-click **Display** to open the **Display Properties** window. Under the **Settings** tab, move the slider to a proper resolution value, and then click to select a different color setting on the drop-down menu (16-bit high color is recommended for most applications). When these changes are done, click **OK** to apply the new settings. The screen will go black for a while and then come back with the new size. You will be asked to confirm the changes, click **Yes** in the new **Display Properties** dialog box.

Q: *How do I know if my VGA card is running under AGP 4x mode? If not, how can I use AGP 4x mode?*

First of all, make sure that your mainboard supports AGP 4x mode. Refer to your mainboard documentation for relative information.

Secondly, check the BIOS setting for the AGP mode (*if any, please see your mainboard documentation*).

Finally, install the proper driver for your VGA card. If the driver is installed correctly, click the Start button 

, and then point to **Settings**. Point to the folder that contains **Control Panel**. In **Control Panel**, double-click **Display** to set the values. For example, when you installed the dedicated driver for your MSI VGA card, which is on the software CDs in your VGA card package, you will see the **MSI Information** tab in the **Display Properties** window. Click **4x** under **AGP Information** to enable this function (*see instructions in **Chapter 3 Software Installation***).

Q: *My monitor display becomes abnormal after the system running for minutes (blank screen, color blocks, flicking or overlapping screen image).*

Check the memory clock and core clock under **Display Properties**. If the values are set too high (exceeding the recommended spec.), please try the default values.

Keep your monitor away from magnetic objects, such as speakers without antimagnetic design or mobile phones. The magnet and electromagnetic wave will influence and damage your monitor.

If the problem happens continuously, please contact your local dealer for further service.

Q: *The DVD playback is of poor quality (skipping frames, color blocks and so on). Why?*

Change the refresh rate, color and resolution settings to proper values.

Enable the DMA mode for your DVD drive. However, not all DVD drives support this function. Please see your DVD drive's documentation for more information.

Q: *I have problems playing some DVDs with my system. Why?*

First of all, make sure that the DVD is inserted into your DVD drive properly.

Secondly, the DVD has region code limitations in its specification. For example, you have to play the DVDs coded Region 3 in Taiwan. Please contact your vendor for DVDs compatible with the region code of your DVD drive.

Q: *My VGA card has a video output connector connected to the TV, but I still saw nothing on TV. Why?*

This function is disabled by default. Please enable it by clicking **Clone** in the **TwinView** tab under **Display Properties**.

Check the connection between the video device and your computer carefully.

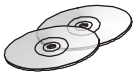
6. 3D Stereo²-Glasses™ (Optional)

The 3D stereo²-glasses™ provided by MSI is a Stereo3D™ visualization tool that allows you to view stereoscopic images or movies. You can have more fun wihle playing PC games which support 3D effects. The scenes, characters, objects look unbelievably lifelike through the 3D stereo²-glasses™. Now, let's enter the virtual world and enjoy the exciting experience with the 3D stereo²-glasses.

6.1 The 3D Stereo²-Glasses™ Package

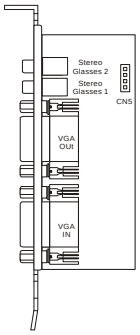
Unpack the package and inspect all the items carefully. If any item contained is damaged or missing, please contact your local dealer as soon as possible. Also, keep the box and packing materials in case you need to ship the unit in the future.

Your stereo glasses package should contain the following items:

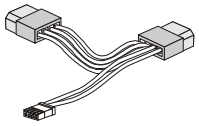


Software Pack CDs

VGA cable



3D Sstereo²-glasses™ Adaptor



Power Cord

3D stereo²-glasses™

6.2 Installing the 3D Stereo²-Glasses™

To install the 3D stereo²-glasses™ on your computer, please follow the steps below and refer to the diagram:

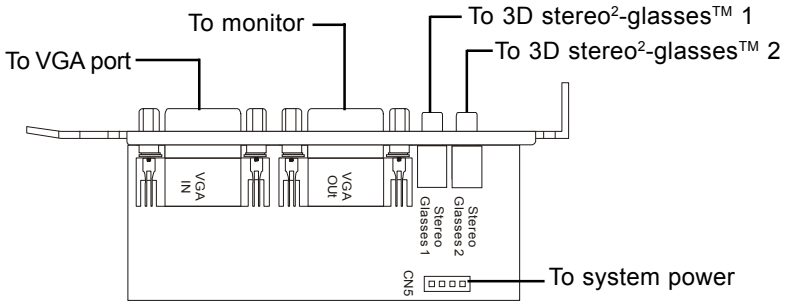
Installing the 3D stereo²-glasses™ adaptor

1. Turn off the power and remove the computer case.
2. Screw the 3D stereo²-glasses™ adaptor to your computer.

Note: *Place the 3D stereo²-glasses™ adaptor close to the VGA card so that they can be connected by the VGA cable.*

3. Plug the power cord in the adaptor, and then connect the other end of the cord to the ATX power supply.
4. Connect the VGA card to the adaptor with the VGA cable.
5. Connect the monitor to the adaptor.
6. Plug the cable of your 3D stereo²-glasses™ in the adaptor.
7. Replace the case and turn on the power. Now you are ready to install the software on your computer.

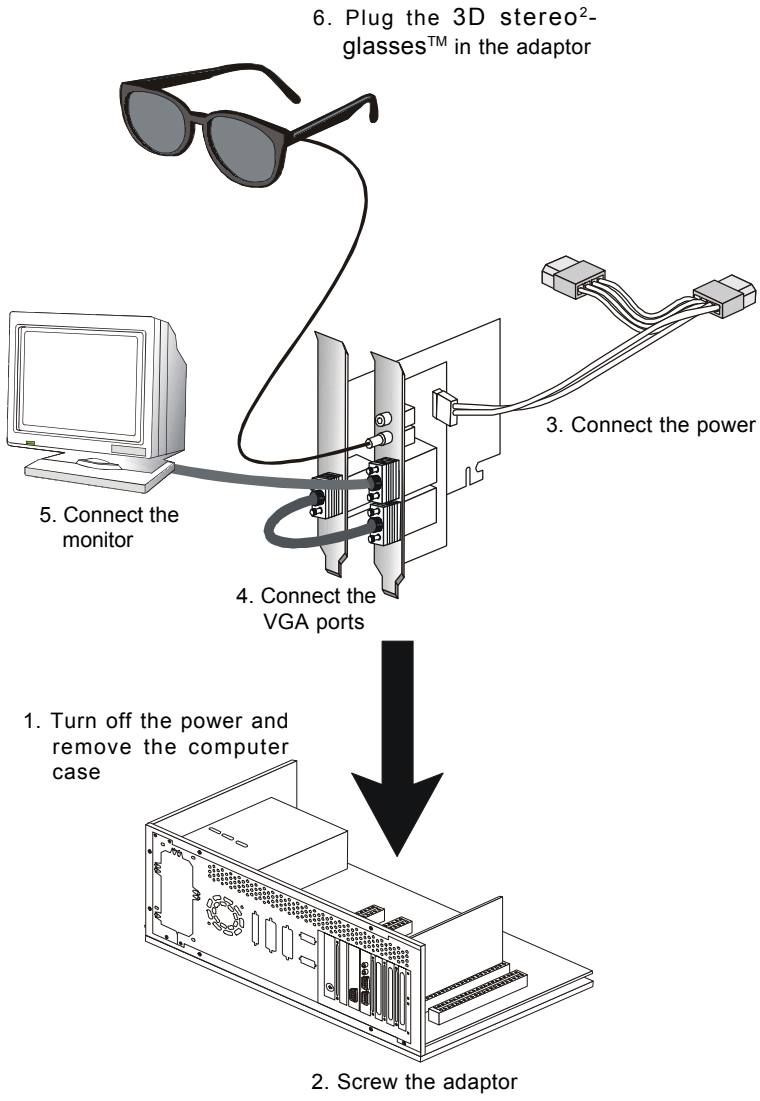
The components on the adaptor



You can refer to the diagram on the next page for easy installation.

The diagram for easy installing

The diagram below can help you to install the 3D stereo²-glasses™.



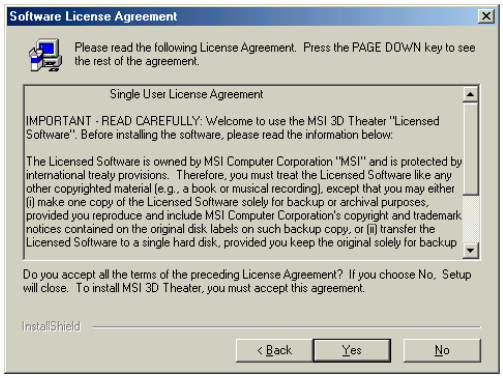
6.3 Installing the MSI 3D Theater™

To enjoy the 3D viewing experience on your PC, you definitely need a 3D software application. The MSI VGA card offers a soft VCD/DVD player, MSI 3D Theater™, for you to view 3D stereoscopic movies and images, or create your personal 3D presentation on the monitor. Follow the instructions below to install the software:

1. Start your Windows operating system.

2. Insert the CD into the CD-ROM drive. The following dialog box will automatically appear. Click **Next** to start the installation.

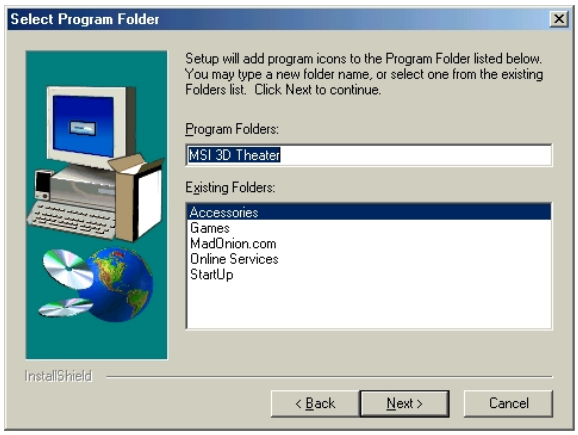
3. Click **Yes** to accept the software license agreement.



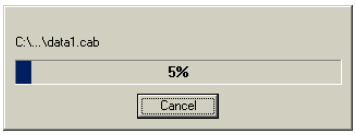
4. Enter your information, including the product's serial number, in the text boxes. Click **Next**.

5. Click **Next** to continue.

6. Click **Next**.

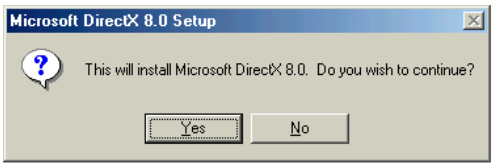


7. The installation program starts copying files to your system.

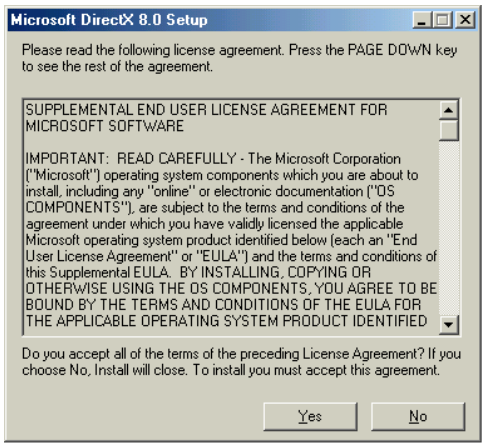


8. Click **Finish** to complete the installation.

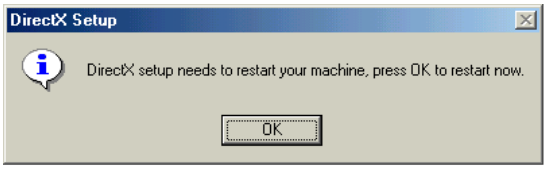
9. The Microsoft DirectX Setup dialog box will appear. If you have already installed DirectX 8.0 or the latest version, click **No** to skip this step. Otherwise, click **Yes** to install DirectX 8.0 or the latest version.



10. Click **Yes** to continue.



11. After finishing the file-copying and updating procedures, the following screen will appear. Click **OK** to restart the system.



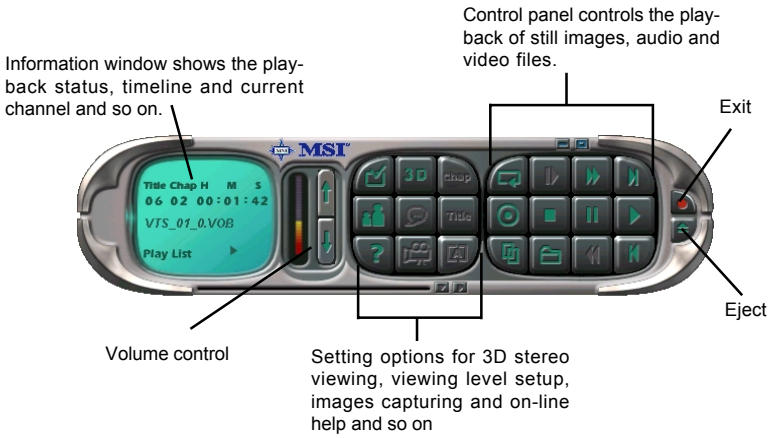
6.4 Using the MSI 3D Theater™

Now get ready to enjoy your personal 3D stereo presentation with the 3D stereo²-glasses™ and the MSI 3D Theater™—right on your PC monitor! To start the MSI 3D Theater™, double-click the **MSI 3D Theater™** on the desktop.

Note: *Before using the 3D* stereo²-glasses™*, the 3D function should be enabled in the VGA driver. In* ***Control Panel****, first click* ***Monitor****, and then the* ***Settings*** *tab. Under* ***Settings****, first click* ***Advanced****, and then* ***Stereo Properites****. Make sure to click* ***Enable*** *under Stereo Enable Mode.*

Brief Introduction to MSI 3D Theater™

The MSI 3D Theater™ uses a panel to control the playback of animated and still pictures.



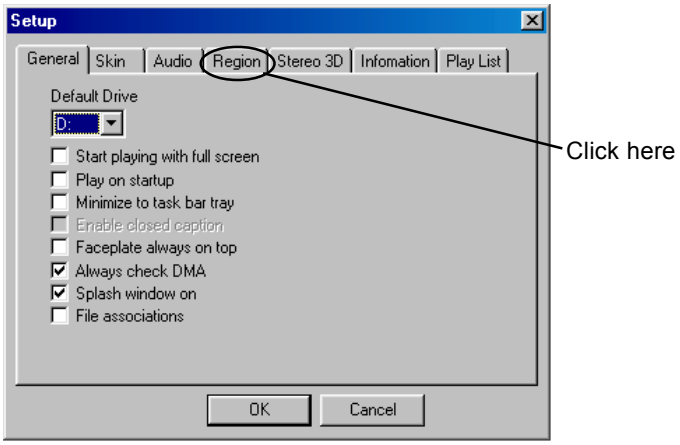
You can control and set up the program through the control panel, and the pop-up menu as well. Just right click anywhere on the MSI 3D Theater™, and the menu will appear. For more information on the menu, click the **Help** button and refer to the *Main Menu* topic.

Viewing 3D Contents

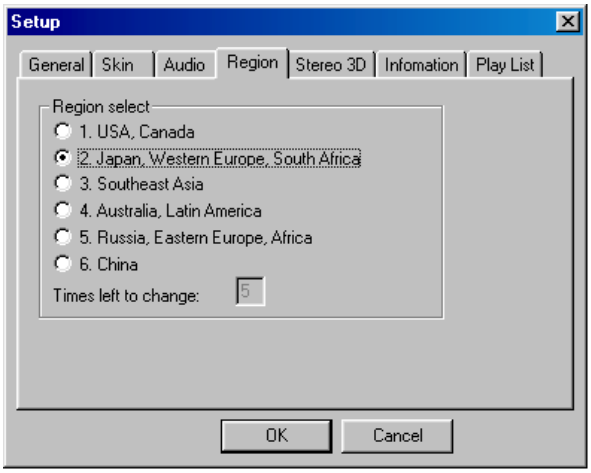
To activate 3D effect, you need to make sure that the 3D function is enabled in the MSI 3D Theater™.

1. Click the **Setup** button  .

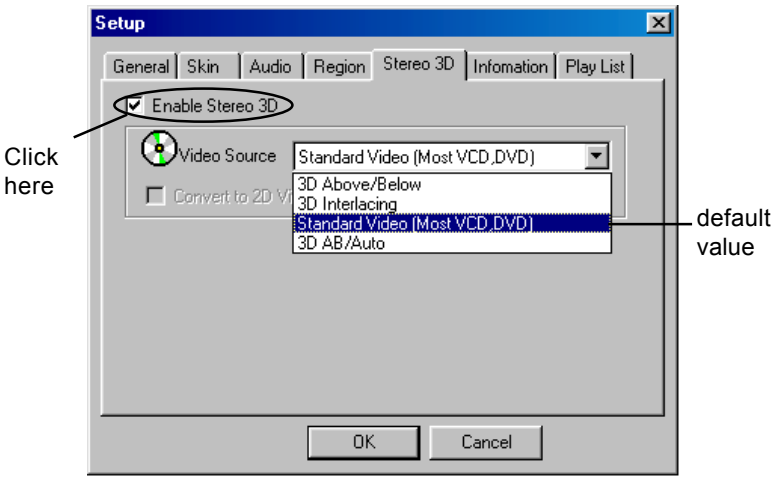
2. The Setup window appears. Click the **Region** tab.



3. Select the appropriate region for the decoder.



4. Click the **Stereo 3D** tab. Click **Enable Stereo 3D** and select the appropriate video format from **Video Source**.



If you want to view 3D contents in 2D fashion, click **Convert to 2D Video**. For more information on different video formats, refer to ***3D Setup*** in the on-line help.

5. Click **OK**.

Playing a Single Media File

1. Click the **Open** button  .

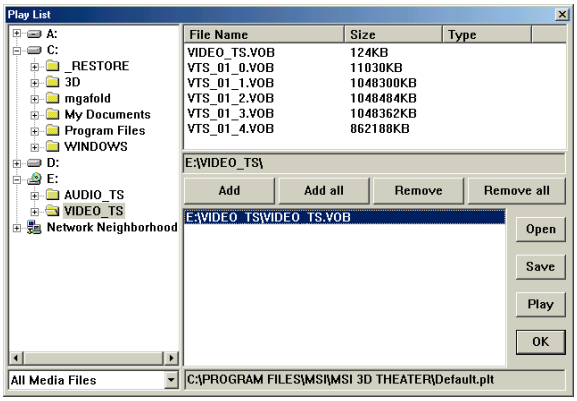
2. The **Open** dialog box appears. Select the media file you want and click **Open**.

Then the application will start to play the file.

Playing Multiple Media Files

1. Click the **Play List** button  .

2. The **Play List** dialog box appears.



3. Point to the file(s) you want and click **Add** or **Add all** to select all files under the same folder.

4. If you need to play these files frequently afterwards, click **Save** to add these files to your play list . Next time you can just click **Open** to locate the play list file without selecting these files once again.

5. Click **Play** to start playing.

Repeatedly Playing a Single File

1. Click the **Repeat** button  .

2. The icon  will appear on the information window.

3. The program will repeatedly play the current media file.

Repeatedly Playing Multiple Files

1. Click the **Repeat** button  twice.

2. The icon  will appear on the information window.

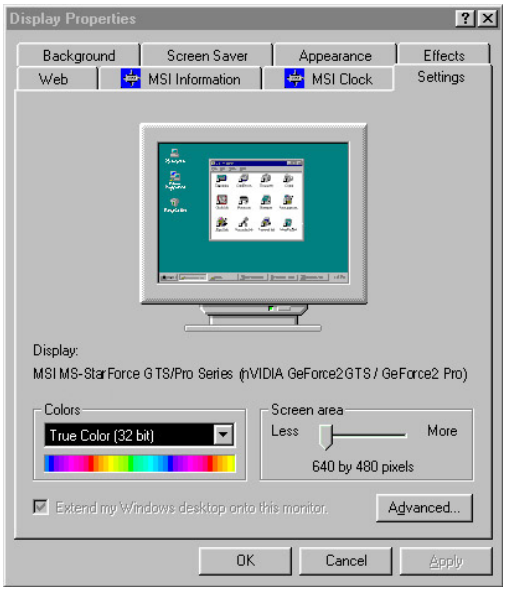
3. The program will repeatedly play the current selected files or play list.

6.5 Optimizing the 3D Stereo²-Glasses™

When the refresh rate of the monitor is too low to match the one of the 3D stereo²-glasses™, your eyes will feel uncomfortable with the flicking screen. It is thus in your best interests to scale up the monitor's refresh rate. Test each setting to find out the proper refresh rate for the 3D stereo²-glasses™. A refresh rate above 90Hz is preferred, and 120Hz is optimal.

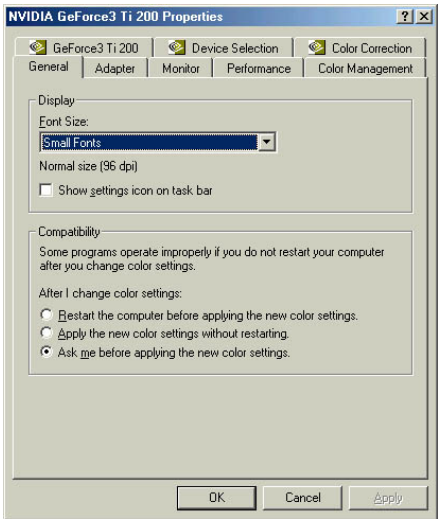
To adjust the monitor refresh rate, click the **Start** button 

, and then point to **Settings**. Point to the folder that contains **Control Panel**, and click **Control Panel**. In **Control Panel**, double-click **Display**. Also, you may simply right-click anywhere on the blank Windows® desktop and point to **Properties** in the pop-up menu. The **Display Properties** window below will show on your screen:

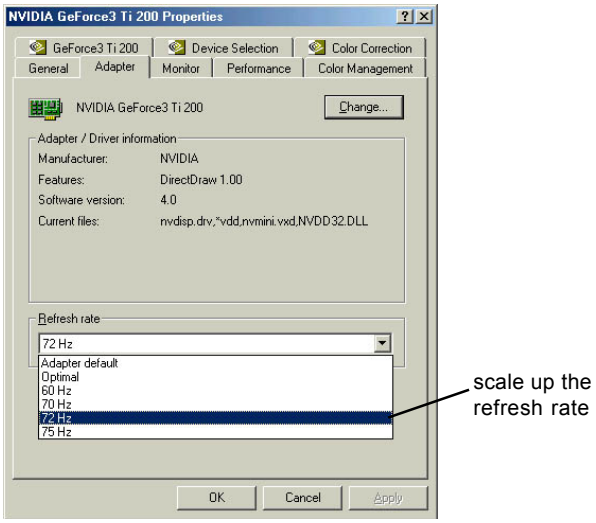


Note: *The figures in this section are for reference only. The actual information on the* ***Display Properties*** *window may vary in operating systems.*

1. Click **Advanced**.



2. Click the **Adapter** tab to open the window as shown below:



3. Test the refresh rate in an ascending order to find out the proper value, and then click **OK**.

6.6 Health Warning

Here we suggest that long periods of using the 3D stereo glasses may be associated with physical discomfort and injury to nerves, tendons and muscles.

If you experience symptoms such as persistent or recurring discomfort, pain, throbbing, aching, tingling, numbness, burning sensation or stiffness, DO NOT IGNORE THESE WARNING SIGNS. PROMPTLY SEE A QUALIFIED HEALTH PROFESSIONAL, even if symptoms occur when you are not working at your computer. Symptoms such as these can be associated with painful and sometimes permanently disabling injuries or disorders of the nerves, muscles, tendons, or other parts of the body. These musculoskeletal disorders (MSDs) include carpal tunnel syndrome, tendonitis, tenosynovitis and other conditions.

TO REDUCE THE RISK OF INJURY, FOLLOW THESE PRECAUTIONS:

- Take frequent short breaks. Get up and walk around several times every hour, especially when playing games.
- Vary your tasks throughout the day. Do something different with your eyes or arms from time to time.
- Keep your shoulders relaxed with your elbows at your side. Position your keyboard and mouse so you do not have to reach to use them.
- Adjust your monitor to acquire a comfortable view toward your eyes.
- Blink as possible as you could to refresh your eyes.

- If the health tips mentioned earlier do not help with your symptoms, please see your ophthalmologist for an eye check-up.