

M S - 8816/8817/8818

nVIDIA GeForce2 MX™

Graphics Processing Unit

User's Guide

VERSION 1.0
2000/07/17 ROC



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.

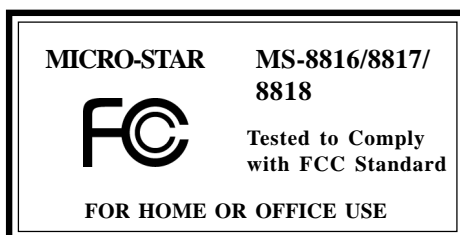
Notice 1

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.



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Chapter 1

MS-8816/8817/8818 nVIDIA GeForce2 MX™ GPU

1. Overview

MS-8816/8817/8818 nVIDIA GeForce2 MX™ GPU uses the first shading GPU (Graphics Processing Unit) with the new NVIDIA Shading Rasterizer and a High Definition Video Processor (HDVP). Incorporating a radical new per-pixel shading architecture, GeForce2 MX™ is the real-time, per-pixel shading processor, raising image quality to never-before-seen heights for interactive content.

GeForce2 MX™ delivers the industry fastest Direct3D™ and OpenGL acceleration and continues NVIDIA's tradition of providing leadership, single-chip, integrated VGA, 2D, 3D and high definition digital video performance, enabling a range of applications from 3D games to HDTV, DVD, digital content creation, internet browsing and general productivity.

2. Features

Chip List:

□ **nVIDIA GeForce2 MX™** : 2D & 3D accelerator processor.

General Features

- Optimized for Direct3D acceleration with complete support for Microsoft DirectX 5.0, 6.0 and 7.0
- 256-bit 2D and 3D graphics accelerator
- 350MHz Palette-DAC
- 128-bit Memory Interface
- Digital Dual Display Architecture
- Integrated Dual 135Mhz LVDS/TMDS Transmitter
- 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 Mtexel fill rate
- 20Mtriangles/sec setup
- 2.8GB/second memory bandwidth
- Support 64-bit DDR SDRAM and 64/128-bit SGRAM/SDRAM
- AGP 4x fast writes
- Supports up to 4 display interface-CRT, TV and Digital Panel Interface

High Quality Video Playback

- DVD and HDTV ready motion compensation for MPEG-2 decoding up to 1920x1080i ATSC format
- Support for VIP 2.0 interface

Full Software Support

- Windows® 95 and 98 Display Drivers
- Windows® 2000, Windows® NT 4.0 Display Drivers
- OpenGL ICD for Windows® 2000, Windows® NT 4.0, and Windows® 95 and 98
- Linux

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 bit colors with 60Hz

3. System Requirements

To install MS-8816/8817/8818 VGA card, your computer system needs to meet the following requirements:

Computer	Intel Pentium® processor, Intel Celeron or Pentium® II/III processor or compatible system
Expansion Slot	AGP slot
Monitor	VGA Support, minimum 640x480 resolution
Operating system	Windows® 95/98, Windows® NT 4.0, Windows® 2000.
CD-ROM	Double Speed or Higher

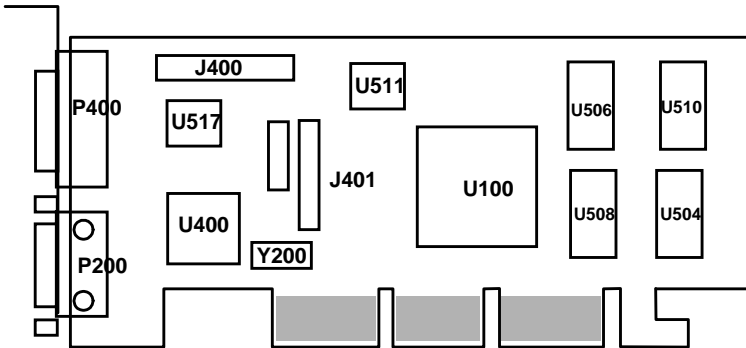
4. Package Contents

Before installing the MS-8816/8817/8818 VGA card, please check to make sure that your package is complete:

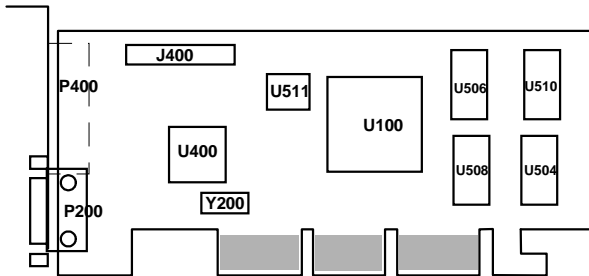
- VGA card
- CD
 - drivers and applications on CD
 - documentation on CD
 - Software DVD Player

5. Card Layout

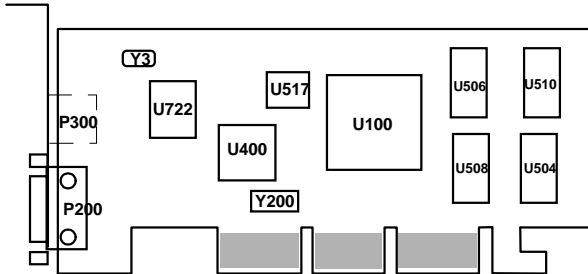
a. MS-8816



U100	nVIDIA GeForce2 MX
U400	VGA Flash BIOS
U511	Unisen 1150
U504/u506/ U508/U510	2M x32 SDRAM
Y200	Crystal 14.31818 MHz
J401	TV-Out Connector
P200	VGA Connector

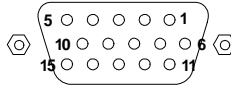
b. MS-8817

U100	nVIDIA GeForce2 MX
U400	VGA Flash BIOS
U511	Unisen 1150
U504/u506/ U508/U510	2M x32 SDRAM
Y200	Crystal 14.31818 MHz
P200	VGA Connector

c. MS-8818

U100	nVIDIA GeForce2 MX
U400	VGA Flash BIOS
U517	Unisen 1150
U504/u506/ U508/U510	2M x32 SDRAM
Y200	Crystal 14.31818 MHz
P200	VGA Connector
P300	S Video-Out
U722	Bt869/CH7007

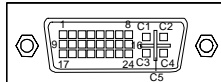
6. DB 15 Pin Connector



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	Not used
10	Ground
11	Not used
12	SDA
13	Horizontal Sync
14	Vertical Sync
15	SCL

7. DVI Connector

The mechanical interconnect includes 29 signals contacts, which are divided into two sections. The first section is organized as three rows of eight contacts. The second section contains five signals that are designed specifically for analog implementations.



Pin	Signal	Pin	Signal	Pin	Signal
1	T.M.D.S. Data 2-	9	T.M.D.S. Data 1-	17	T.M.D.S. Data 0-
2	T.M.D.S. Data 2+	10	T.M.D.S. Data 1+	18	T.M.D.S. Data 0+
3	T.M.D.S. Data 2/4 Shield	11	T.M.D.S. Data 1/3 Shield	19	T.M.D.S. Data 0/5 Shield
4	T.M.D.S. Data 4-	12	T.M.D.S. Data 3-	20	T.M.D.S. Data 5-
5	T.M.D.S. Data 4+	13	T.M.D.S. Data 3+	21	T.M.D.S. Data 5+
6	DDC Clock	14	+5V Power	22	T.M.D.S. Data Clock Shield
7	DDC Data	15	Ground	23	T.M.D.S. Clock+
8	Analog Vertical Sync	16	Hot Plug Detect	24	T.M.D.S. Clock-
C1	Analog Red	C2	Analog Green	C3	Analog Blue
C4	Analog Horizontal Sync	C5	Analog Ground		

8. Vertical Refresh Rate

Resolution	Color	Vertical Refresh (Hz)
640x480	8bit, 16bit, 32bit	60,75,85,100,120,140,160,200,240
800x600	8bit, 16bit, 32bit	60,75,85,100,120,140,160,200,240
1024x768	8bit, 16bit, 32bit	60,75,85,100,120,140,160,200
1280x1024	8bit, 16bit, 32bit	60,75,85,100,120
1600x1200	8bit, 16bit, 32bit	60,75,85
1920x1200	8bit, 16bit, 32bit	60,75
2048x1536	8bit, 16bit	60, 75

Chapter 2

Installation of nVIDIA Ge-Force2 MX VGA Driver

1. Driver

1.1 Install Enhanced Drivers for Windows® 95/98

After installing the MS-8816/8817 VGA card into the mainboard, Windows® 95/98 will auto-detect changes in your hardware configuration; this will install the Standard VGA Driver. To get the maximum performance, you need to install the MS-8816/8817 driver.

Before installing MS-8816/8817 driver, you need to install the Windows® 95 OSR2 USB supplement to support the AGP function. Windows® 98 need not install this.

To install MS-8816/8817 enhanced driver, please follow these steps:

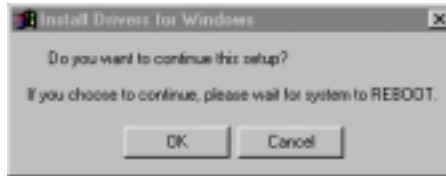
Step 1: Insert the **CD_Title** provided into your CD-ROM drive.



After inserting the **CD_Title**, this will auto-run showing this window.

Step 2: Click on **Install VGA Drivers** button.

Step 3: Click on the **OK** button. This will copy the necessary files into the hard drive.



New Display Properties:



This function is used for setting Color palette, and Desktop Area.



This function is used to show the Display Adapter Information, System Information and Driver Version Information.



This function is used for setting memory clock and GPU's core clock.



This function is used for setting Vertical Refresh rate.

1.2 Install Enhanced Drivers For Windows® NT

You need to install the Windows® NT 4.0 “Service Pack 3 or later version”, before installing the driver.

After installing MS-8816/8817 Card, Windows® NT will default to Standard VGA mode 640x480x16 colors.

To install MS-8816/8817 enhanced driver, please follow these step:

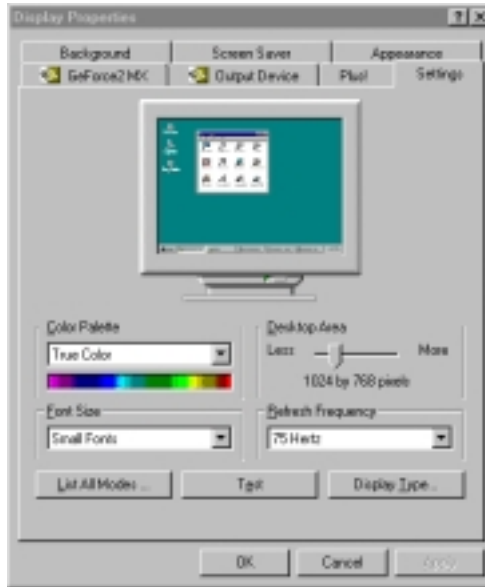
Step 1: Insert the **CD_Title** provided into your CD-ROM drive.



After inserting the **CD_Title**, this will auto-run showing this window.

Step 2: Click on **Install VGA Drivers** button.

Step 3: Click on the **OK** button. This will copy the necessary files into the hard drive.

Using Display Properties new function:

This function is used for setting Color palette, and Desktop Area.



This shows Display Adapter Information/
System Information/Driver Version Information.



This function is used for setting Brightness, Contrast and Gamma.

1.3 Install Enhanced Drivers For Windows® 2000

After installing MS-8816/8817 Card, Windows® 2000 will default to Standard VGA mode 640x480x16 colors.

To install MS-8816/8817 enhanced driver, please follow these steps:

Step 1: Insert the **CD_Title** provided into your CD-ROM drive.

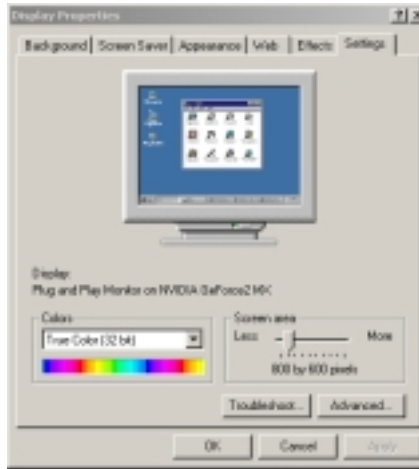
Step 2: Use the mouse right button, to click on **My Computer** icon.

Choose **Properties**.

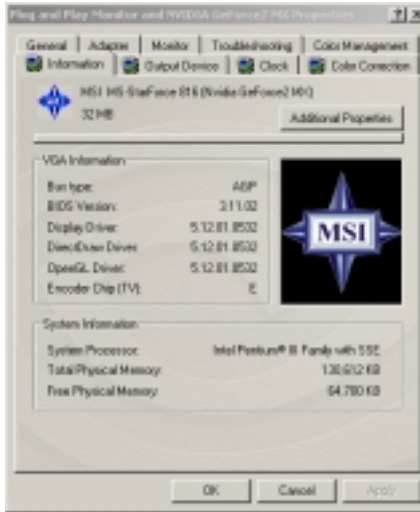
Step 3: Choose **Hardware**. Push the **Device Manager** Button.



Using Display Properties new function:



This function is used for setting Color palette, and Desktop Area.



This shows Display Adapter Information/
System Information/Driver Version Information.



This function is used for setting memory clock and GPU's core clock.

Using Display Properties Output Devices:

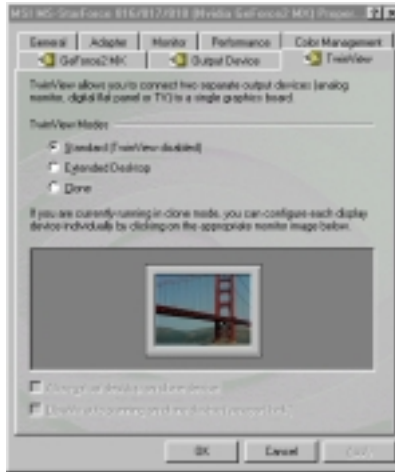


If you select Analog Monitor. The Display windows will use CRT(monitor) as the output device.

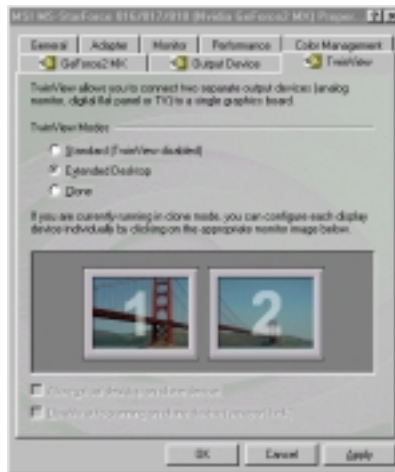


If you select TV. The Display windows will use the TV as the output device.

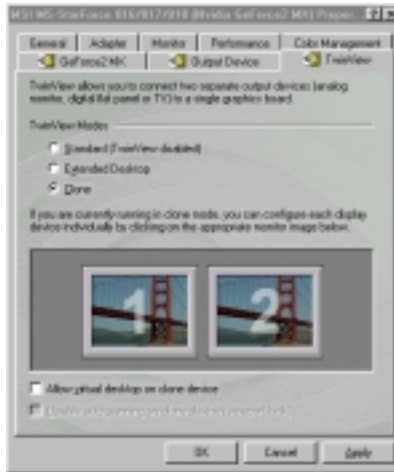
Using Display Properties Twinview:



If you select Standard. Only one Output Device can be used.



If you select Extended Desktop. The Display windows will allow you to use two separate output device.



If you select Clone. The Display windows will allow you to use two separate output device, but will show the same screen.