

VGA W O N D E RTM

XL SERIES



User's Guide

VGAWONDER XL

User's Guide

Version 1.0 - May 1991

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Written by L.B.F.

Production and Design by B.L.F.

FCC Compliance Statement

Warning

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

Note

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning

The use of shielded cables for connection of the monitor to the card is required to assure compliance with FCC regulations.

DOC Compliance Statement

This digital apparatus does not exceed the class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Avis De Conformation MDC

Cet appareil numérique respecte les limites de rayonnement de bruits radioélectriques applicables aux appareils numériques de classe B, prévues au Règlement sur le brouillage radioélectrique du ministère des Communications du Canada.

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VGAWONDER XL

1

Introduction

Congratulations on your purchase of the **VGAWONDER XL**, the fastest and most versatile VGA card on the market today. Available in 256K, 512K and 1.0MB memory configurations, the **VGAWONDER XL** has been designed with many advanced features, superior performance and resolution.

The **VGAWONDER XL** displays high resolution 1024x768 and 800x600 graphics in interlaced and non-interlaced modes. In addition, it supports ergonomic refresh rates in 60Hz, 70Hz and 72Hz for reduced eyestrain. Plus, full 256 color support in all high resolutions, can display including 640x480, 800x600 and 1024x768. In addition the **VGAWONDER XL** can display 32,768 colors in 640x480 resolution.

Perfect for today's powerful 80286/386/486 computers, the **VGAWONDER XL** features a high speed architecture and a 16-bit datapath to accelerate CAD, Desktop Publishing and graphics intensive applications. With its advanced design, the **VGAWONDER XL** provides superior performance, without the expense of VRAM memory.

The **VGAWONDER XL** is 100% register-level compatible with VGA, EGA, CGA, Hercules and MDA. Being register compatible ensures that all software written for these modes will run with the **VGAWONDER XL**.

Along with its many sophisticated features, the **VGAWONDER XL**'s switchless design eliminates the need to set all jumpers and switches, making installation quick and easy, simply a Plug-and-Go operation. Menu driven software utilities are included to further enhance the operation of the **VGAWONDER XL**.

Your **VGAWONDER XL** maintains a high level of reliability and performance for years of video enjoyment and productivity.

Features

- 1. Displays High Resolution 1024x768 and Super-VGA 800x600 on Multisync and 8514 monitors¹.**
 - VGAWONDER XL displays up to 1024x768 and 800x600 in 256 colors as well as 32,768 colors in 640x480.
 - Supports both interlaced and non-interlaced 1024x768 and 800x600 resolution.
- 2. High Performance Design.**
 - Zero wait state performance using page mode memory, extensive FIFOs and dynamic CRT/CPU memory interleaving.
 - 16-bit bus support and internal 16-bit RAM.
- 3. Ergonomic 72Hz High Refresh in ALL High Resolutions.**
 - Provides fast 72Hz/70Hz/60Hz refresh rate in 1024x768, 800x600 and 640x480 for less flicker and reduced eyestrain.
- 4. Displays VGA, EGA, CGA, MDA, and Hercules on Analog/VGA, Multisync and compatible monitors.**
 - Displays modes not normally available on these monitors.
 - Additional modes of 640x480² in 256 colors from a palette of 256K colors and 640x480³ in 32,768 colors from a palette of 32,768 colors.
 - All 17 VGA modes up to 640x480 in 16 colors from a palette of 256K colors.
 - 132 columns by 44 or 25 row text⁴.
- 5. 100% Register-Level Compatibility.**
 - Provides both register-level and BIOS compatibility in VGA, EGA, CGA, MDA and Hercules modes for full compatibility with software written for any of these modes.

¹ 1024x768 not available on NEC Multisync 2A and other dual-mode monitors.

² 512K or 1.0MB version only; 16 colors with 256K.

³ 1.0MB version only.

⁴ 512K or 1.0MB versions only.

6. Plug-&-Go Switchless Installation.

- Automatic configuration makes installation easy. The VGAWONDER XL has software utilities that allow the user to easily create and change configurations.

7. Supports Analog and Digital Monitors.

- Supports both Analog and Digital monitor types. For a description of the video modes supported on each monitor, refer to Chapter 3 "Monitor Selection".

8. Displays EGA, CGA, MDA, Hercules and 132 Column Software on EGA, RGB and TTL Monitors.

- Displays modes not normally supported by monitor.
- CGA text is converted from an 8x8 character to a more readable 8x14 character. CGA graphics are double scanned on an EGA monitor from 640x200 to display 640x350.
- On TTL Monochrome monitors, colors of software are converted into monochrome gray scale.
- 640x350 EGA and 720x348 Hercules software are interlaced on RGB monitors to produce higher resolution.

9. Mouse and Interface.

- The VGAWONDER XL has integrated mouse support. A Microsoft-compatible, three button, 400 dpi Inport mouse is included. (Any Microsoft software compatible mouse with a 9 pin circular connector can be used).

10. Advanced CMOS VLSI Gate Array Technology.

- Built around the proprietary ATI/VGA chip, the VGAWONDER XL features low power consumption, high speed performance and complete reliability.

11. Extensive Software Driver Support.

- VGAWONDER XL comes with a variety of software drivers. The VGAWONDER XL is supported by over 100 software packages.

12. Available in 256K, 512K and 1.0MB Video Memory.

- VGAWONDER XL 256K and 512K are user upgradeable to 1.0MB. (refer to Appendix D) 512K and 1.0MB versions will support more colors at a given resolution as shown below:

Resolution ¹	Colors with 256K memory	Colors with 512K memory	Colors with 1.0MB memory
1024x768	4	16	256
800x600	16	256	256
640x480	16	256	256 and 32,768

13. VESA² Compliant.

- Supports software drivers written to VESA Super-VGA 800x600 and 1024x768 modes.
- Supports VESA 800x600 72Hz operation.

14. Warranty.

- Two Year Limited Warranty.

How To Use This Manual

- Refer to the README file on disk #1 for the latest changes.
- Refer to Chapter 3, "Monitor Selection" for information on your specific monitor.
- To install the graphics card, use Chapter 5 "Installing the VGAWONDER XL" (Chapter 4, for experienced users).
- To install the utilities and software drivers, refer to Chapter 6, "Software Installation" to ensure correct configuration and optimum performance.

¹ Actual color support is dependent on the software driver used.

² Video Electronic Standards Association.

Command Syntax

When prompted to use the **VGAWONDER XL** utilities in this guide, the following convention is used:

Example: C>COMMAND [keyword] [option] <enter>

C>	- Refers to the DOS command prompt.
COMMAND	- Is an executable file (i.e. VCONFIG).
[keyword]	- Denotes an optional keyword.
[Option]	- Denotes an optional argument or condition.
<enter>	- Specifies an actual key to be used.

README Files

On diskette #1 is a README file containing the latest revisions. In addition, there is a README.XXX file in each driver subdirectory that contains specific instructions for each driver.

To examine the README[.XXX] files, at the DOS prompt type:

```
A>TYPE README[.XXX] <enter>
```

or use a word processor to print this file.

CONTENTS OF THE PACKAGE

2

Your **VGAWONDER XL** package includes the following:

- **VGAWONDER XL** Video Adapter.
- User's Guide, including Warranty Registration Card.
- Four software diskettes:
 - Disk 1 - **VGAWONDER XL** Utility diskette.
 - Disk 2 - **VGAWONDER XL** Software Drivers diskette.
 - Disk 3 - **VGAWONDER XL** Software Drivers diskette.
 - Disk 4 - **VGAWONDER XL** Software Drivers diskette (high density diskette).
- Microsoft Inport compatible mouse.

If your package does not include the above items, contact your dealer immediately.

If installing the **VGAWONDER XL** into a system which requires 3.5" diskettes, please call ATI Technologies Technical Support and we will send the appropriate diskettes, or contact your dealer to have the software transferred to your diskette format.

Be sure to make working copies of the original diskettes to prevent accidental erasure of important files.

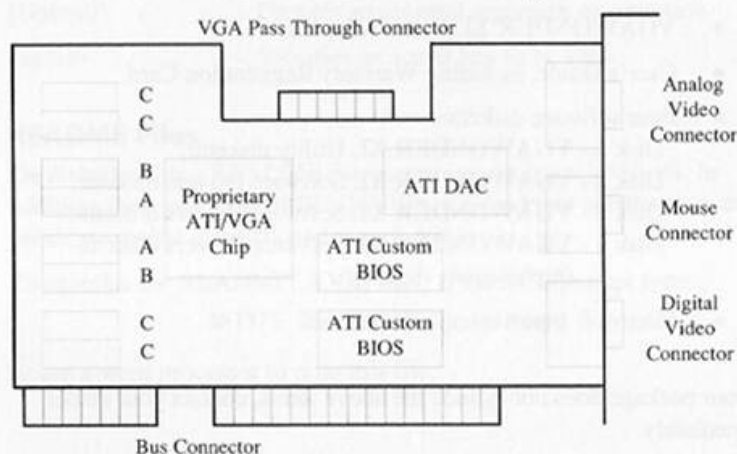
To make a backup copy of the diskettes, use the following procedure:

1. Format four diskettes (3 Low Density and 1 High Density).
2. Insert diskette into Drive A:
3. Type the DOS command:
C>DISKCOPY A: B: <enter>
4. When prompted for your SOURCE diskette, insert one of the original diskettes.

5. When prompted for your TARGET diskette, be sure to use a formatted blank diskette.
6. Repeat steps 3 - 5 for the other diskettes. Use a high density diskette when duplicating Disk #4.

Completion of your warranty card, contained at the back of this manual, is important in order to validate your warranty and to use Technical Support Services.

VGAWONDER XL Block Diagram



Sockets A used for standard 256K memory.
Sockets B used for upgrade to 512K memory.
Sockets C used for upgrade to 1.0MB memory.

Monitor Selection

3

Automatic Monitor Detection

VGAWONDER XL uses automatic monitor detection to configure the card for the type of monitor being used. Connect the monitor to the VGAWONDER XL and turn on the monitor before the computer system or an incorrect monitor will be detected.

Software - Monitor Compatibility Chart

SOFTWARE		MONITORS					
Modes/ Resolutions	Colors/ Palette ¹	Digital			Analog		
		TTL ²	RGB	EGA	VGA	IBM 8514	Multisync
1024x768 NI*	256/256K						✓ ³
1024x768 I*	256/256K					✓	✓ ⁴
800x600	256/256K					✓ ⁵	✓
640x480	32,768/32,768 256/256K				✓	✓	✓
VGA	16/256K				✓	✓	✓
EGA	16/64	✓	✓	✓	✓	✓	✓
CGA	B/W 4/16	✓	✓	✓	✓	✓	✓
Hercules	Mono Attributes	✓	✓	✓	✓	✓	✓
MDA	Mono Attributes	✓	✓	✓	✓	✓	✓
Lines in 132 Columns ⁶		25/44	25	25/44	25/44	25/44	25/44

* NI = Non-Interlaced, I = Interlaced.

1 Color palette based on 1.0MB version.

2 Displayed in shades on monochrome monitors.

3 Non-interlaced monitor such as Multisync Plus, XL, 4D, 5D.

4 1024x768 not supported on the Multisync 2A and other dual mode monitors.

5 Interlaced.

6 Requires at least 512K memory.

Video Default Modes

The **VGAWONDER XL** comes pre-configured for various video modes and resolutions depending on the type of monitor detected, as shown in the following table:

Monitor Attached	Video Resolution	Video Mode	Monitor Detected
Multisync Analog ¹	VGA	CV80	PS/2 Color ²
Multisync Digital ³	EGA	CE80	EGA
8514	VGA	CV80	PS/2 8514
Color VGA/Analog	VGA	CV80	PS/2 Color
Mono VGA/Analog	VGA	MV80	PS/2 Mono
EGA	EGA	CE80	EGA
RGB	EGA	C80	RGB
TTL Monochrome	EGA	CE80	Monochrome
No Monitor Attached	VGA	MV80	PS/2 Mono

The video modes listed above refer to the following display formats:

Video Mode	Video Resolution	Text Format
CV80	Color VGA	80 columns x 25 rows
CE80	Color Enhanced EGA	80 columns x 25 rows
MV80	Mono VGA	80 columns x 25 rows
C80	Color EGA	80 columns x 25 rows

Warning

Do not change monitors or connect a monitor (if one is not attached) when your computer is on. Serious damage can result to the monitor.

Use the utility **VSETUP** (Refer to Chapter 6) to permanently change many of these selections.

- Some Multisync monitors are detected as an 8514 monitor.
- When using a Multisync monitor, run **VSETUP** to ensure the correct type of Multisync monitor is selected. This will provide you with the optimum performance from your Multisync monitor.
- Using the digital mode is not recommended for a Multisync monitor.

TTL Monochrome (18.43KHz)

These monitors are designed to be used with Hercules or MDA cards.

If connected to the **VGAWONDER XL**, the following software standards can be displayed:

- Monochrome text mode.
- Hercules text and graphics modes 720x348.
- CGA text and graphics mode - 320x200 in 4 or 16 shades.
- EGA text and graphics mode - 640x350 in 2 or 16 shades.
- 132 column x 44 (or 25) row text¹.

RGB Color (15.75KHz)

These monitors are designed to work with CGA cards. With the **VGAWONDER XL**, RGB monitors can display the above modes with the following differences:

- CGA and EGA are displayed in colors instead of shades.
- 132 column x 25 row text¹.

Note

To display the EGA or Hercules resolution on RGB monitors, an interlacing technique is used. This can result in some "flickering" of the image.

EGA (15.75 & 21.85 KHz)

(Enhanced Graphics Adapter Monitors)

EGA monitors are designed to work with either CGA or EGA cards. Using the **VGAWONDER XL**, EGA monitors can display:

- Hercules text and graphics modes - 720x348.
- CGA graphics mode - 320x200 in 16/64 colors.
- EGA text and graphics modes - 640x350 in 16/64 colors.
- 132 column x 44 (or 25) row text¹.

¹ 512K or 1.0MB versions only.

VGA/Analog Monitors (31.5KHz) (or PS/2 display)

In addition to displaying the same modes as an EGA monitor, the VGA/Analog monitor will allow the following modes:

- All 17 of the IBM VGA modes.
- 640x480¹ in 256/256,000 colors and 640x480² in 32,768/32,768 colors.
- 132 column x 44 (or 25) row text¹.

IBM 8514 (43.5KHz) (or compatible)

The IBM 8514 monitor is a high resolution Analog color monitor. The 8514 will allow the use of the following modes:

- 640x480 in 32,768² colors.
- VGA, EGA, CGA, Hercules and MDA.
- 1024x768 in 256 colors interlaced.
- 800x600 in 256 colors interlaced.
- 132 column x 44 (or 25) row text¹.

Multisync Or Multifrequency Monitors

Multisync monitors will operate at a range of frequencies and will provide the widest graphics support. Multisync monitors should be used in the Analog mode for optimum results with the **VGAWONDER XL**. Connect the 15 pin VGA/Analog cable from the monitor to the **VGAWONDER XL** and move the signal switch (if applicable) on your monitor to ANALOG.

- Hercules text & graphics modes 720x348.
- CGA graphics mode - 320x200 - 4/16 colors.
- EGA text & graphics modes - 640x350 - 16/64 colors.
- 132 columns x 44 (or 25) row text¹.
- All the IBM 17 VGA/Analog modes.

¹ 512K or 1.0MB versions only.

² 1.0MB versions only.

Note

Refer to the Operating Manual of the monitor for more details or call your dealer to obtain the necessary cables and adapters if required.

Also, Multisync monitors can display high resolution ATI modes. Software drivers are included by ATI Technologies or by the software manufacturer to support these resolutions:

- 640x480 in 256¹/256K colors.
- 640x480 in 32,768²/32,768 colors.
- 800x600 in 256¹/256K colors.
- 1024x768³ in 256⁴/256K colors (interlaced or non-interlaced).

Your monitor must be able to support the horizontal and vertical frequencies to display these high resolution modes. Check the **VGAWONDER XL** specifications section for signal compatibility with your monitor.

Note

When using a Multisync monitor, run VSETUP to ensure the correct monitor has been selected. This will provide you with the optimum performance for your Multisync monitor. Refer to VSETUP in Chapter 6 for details on monitor selection.

72HZ Refresh Rate

In addition to the high resolution modes supported, the **VGAWONDER XL** supports faster 72Hz vertical refresh rates. The use of 72Hz refresh rate is ergonomically pleasing for the human eye as screen updates occur at 72 times a second, therefore reducing eyestrain due to perceived flicker. In addition, 70Hz and 60Hz operation is supported, as shown below:

¹ 512K or 1.0MB versions only; with 256K, 16 colors only.

² Requires 1.0MB memory.

³ 1024x768 is not supported by all Multisync monitors (NEC Multisync 2A).

⁴ Requires 1.0MB memory, 16 colors with 512K, 4 colors with 256K.

640x480 Resolution			
Refresh Rates/Colors	Memory Required		
	256K	512K	1.0MB
60Hz			
16 Colors	✓ ¹	✓	✓
256 Colors	-	✓	✓
32,768 Colors	-	-	✓
72Hz			
16 Colors	-	✓	✓
256 Colors	-	✓	✓
32,768 Colors	-	-	✓

800x600 Resolution			
Refresh Rates/Colors	Memory Required		
	256K	512K	1.0MB
60Hz			
16 Colors	✓	✓	✓
256 Colors	✓	✓	✓
32,768 Colors	-	-	✓
70Hz			
256 Colors	-	✓	✓
72Hz			
16 Colors	-	✓	✓
256 Colors	-	-	✓

1024x768 Resolution			
Refresh Rates/Colors	Memory Required		
	256K	512K	1.0MB
60Hz			
16 Colors	✓	✓	✓
256 Colors	-	-	✓
70Hz			
16 Colors	-	✓	✓
72Hz			
16 Colors	-	-	✓

To use the faster refresh rates, your monitor must be capable of supporting the higher vertical scan frequencies. Consult the

¹ IBM uses 60Hz refresh in VGA mode.

VGAWONDER XL specifications and your monitor manual for further information. If the monitor cannot support 72Hz it will fall back to the highest refresh rate that it can support.

The resolution selected for your software application program is independent of the refresh rate. The refresh rate depends on the Analog Monitor Setup in VSETUP (see Chapter 6 and Appendix E), while the resolution depends on the software driver installed.

Quick Start (Experienced Users Only) **4**

This chapter can be used as quick reference for the experienced user. Refer to Chapter 5 for complete instructions.

1. Unplug computer and remove the cover. Remove any video cards and install the **VGAWONDER XL** into any available slot except slot 8 in an IBM XT. Seat and secure with a mounting screw.
2. Set Switches.
For IBM PC, PC/XT and Compatible Users.
Set switches 5 and 6 on switch block 1 to the "ON/CLOSED" position.
For IBM AT and Compatible Users.
If applicable, set the video selection switch or jumper to the "COLOR" position.
3. Re-install cover of computer and connect power cord. Connect monitor to video port on the **VGAWONDER XL**. Multisync or VGA monitors use the upper Analog 15 pin port. EGA, RGB or TTL monitors use lower 9 pin port. Do not connect monitors to both ports.
4. Turn on the computer.
For IBM PC/AT and Compatible Users.
Run the "SETUP" program using the System Diagnostics Disk or System ROM and define the video card as EGA or color. Refer to Appendix B for dual monitor configurations.

Warning

Changing monitors after powering up your computer could damage your monitor.

5. Run VDRIVER to install the utilities and high resolution drivers onto your hard disk. (Refer to Chapter 6 for further details).
6. Run VSETUP to optimize the configuration for your system and enable the mouse.

Installing The **VGAWONDER XL** **5**

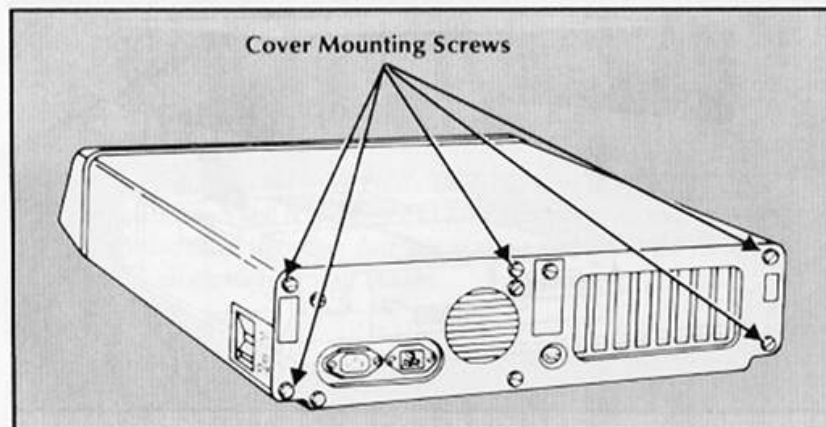
The **VGAWONDER XL** is designed for use in any 8 or 16 bit expansion slot in an IBM PC/XT/AT or compatible or the IBM System/2 Model 30.

In order to install the **VGAWONDER XL**, it may be necessary to change the switch settings on the computer system. If you do not feel comfortable in making these changes, you should consult a qualified computer technician. Installing the **VGAWONDER XL** is an easy process that can be completed in 15 minutes. Read the following instructions before you start.

Note

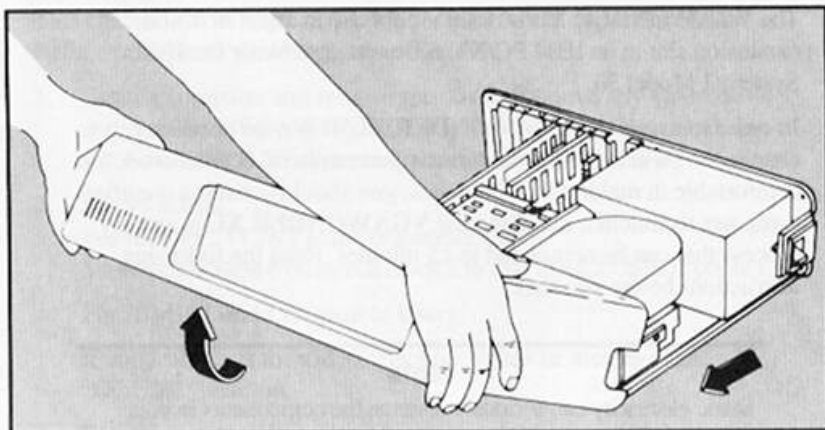
Static electricity can seriously damage the components in your computer. Ensure that you have discharged any static electricity by grounding yourself to the chassis of the PC before you begin.

1. Ensure that the system is switched off and the power cord removed before starting. Damage to the system and the **VGAWONDER XL** may result if the power is left on. Remove the cover mounting screws from the rear of the PC. On the IBM/AT, unlock the keylock before removing the cover.

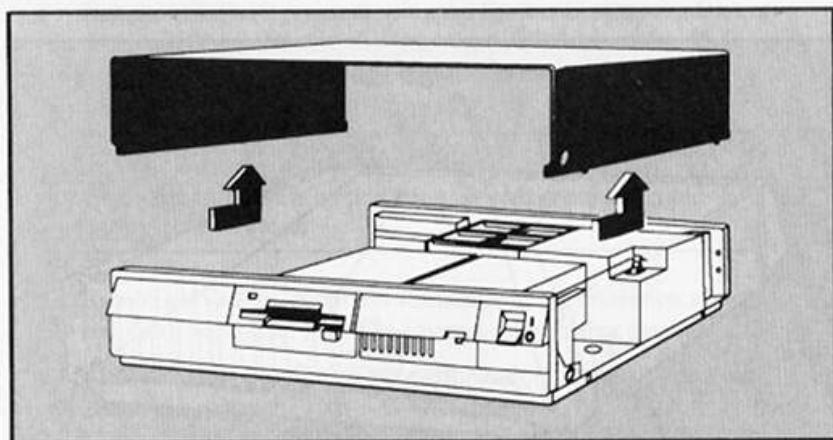


Some compatible PC's have a hinged top for convenience. If your system appears to be different, consult your System User's Manual for instructions on board installations.

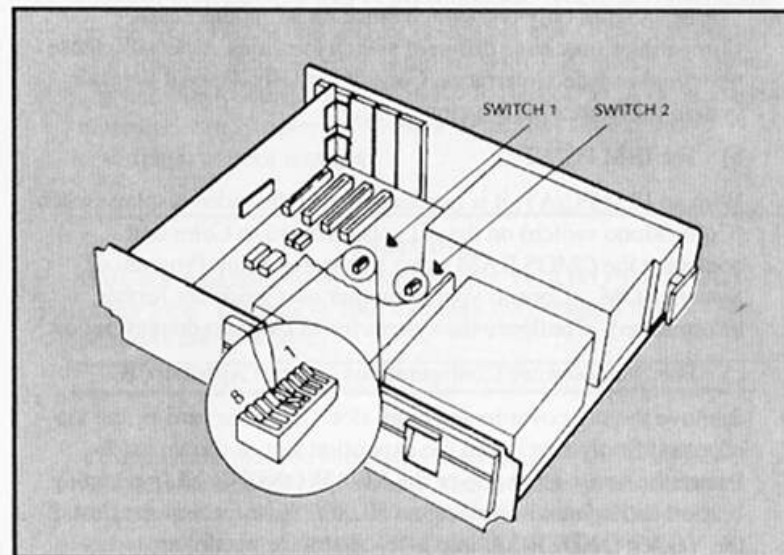
2. Carefully slide the cover forward, until it will go no further, then tilt the cover away from the system unit and remove it from the system.



For IBM Personal System/2 Model 30
Remove the cover mounting screws located on each side of the system. Slide the cover backwards and remove by lifting straight up. Put the screws in a safe place, you will need them later.



3. There are no switches or jumpers to set on the VGAWONDER XL, the card will automatically adjust itself for your system upon power up. It is however necessary to set your system for an EGA video card (or no display).



a) For IBM PC/XT

Switch Settings
IBM PC/XT Switch Block 1

								OFF/OPEN
								ON/CLOSED
1	2	3	4	5	6	7	8	

When installing the VGAWONDER XL in an IBM PC, PC/XT, set switches 5 and 6 to the ON/CLOSED position as shown above. Do not change any other switches as these will affect the memory and configuration of your system.

Note

Do not use a pencil to set the switches, as the graphite residue can damage your computer.

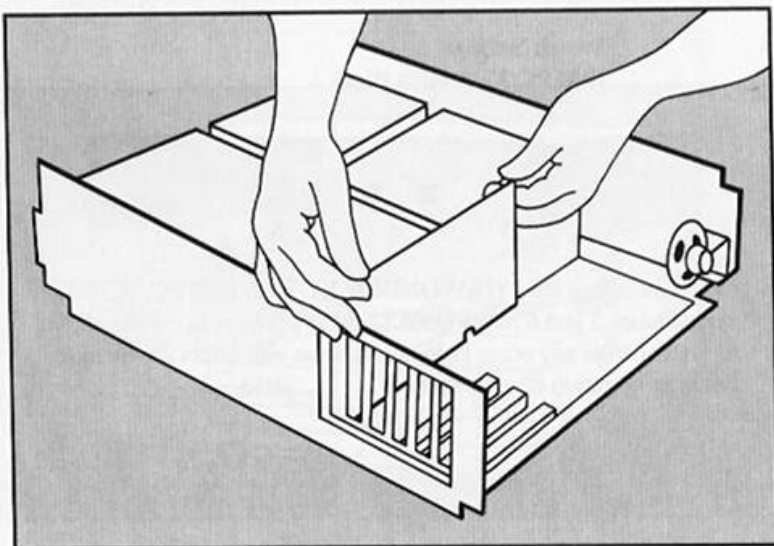
The PC/XT has only one switch block on its motherboard. Compatibles may have different switch locations, especially those with built in video interfaces. Consult the User Manual for your system for further information.

b) For IBM PC/AT

With an IBM PC/AT, it is necessary to set the video display switch (Color/Mono switch) on the AT motherboard to Color and configure the CMOS RAM using a Systems Setup Program or System ROM. (Consult your computer user guide for further information). Configure the system for EGA or no display option.

c) For Dual Monitor Configurations, refer to Appendix B.

4. Remove the slot cover in an empty slot. Grasp the card by the top edge and firmly seat it into the expansion slot as shown below. Fasten the screw at the top of the **VGAWONDER XL**'s retaining bracket and tighten it. If using an 80286/386/486 computer, install the **VGAWONDER XL** into a 16-bit slot for maximum performance. 16-bit slots will accommodate both gold edge connectors on the bottom of the **VGAWONDER XL**.



5. Replace the cover and fasten the screws.
6. If you have correctly installed the **VGAWONDER XL**, your system is now ready to run, however, you are advised to read Chapter 6, "Software Installation" before proceeding.
7. Connect your monitor to a video connector. There are provisions on the **VGAWONDER XL** for both 9 pin and 15 pin connectors. The (lower) 9 pin connector is for use with TTL monitors, and the (upper) 15 pin connector is for use with Analog VGA or Multisync monitors. See Chapter 3, "Monitor Selection" for a detailed description of your monitor.

Warning

Only one monitor can be attached to the **VGAWONDER XL** at any time. Damage to your monitors may result if two monitors are attached.

Note

Your monitor must be connected to the **VGAWONDER XL** before switching on your system. The monitor type is detected at the power up stage only. Do not change monitors without turning off the power as serious damage can result to the monitor.

8. Run VDRIVER to install the utilities and VSETUP to optimize the configuration for your system and enable the mouse.
9. The system is now ready to run. To test the **VGAWONDER XL**, use VGATEST. Follow the menu driven instructions (a series of screens will be displayed). For more information on VGATEST, see Appendix A.

Software Installation

6

The **VGAWONDER XL** is shipped with software utilities to change the hardware default settings and high resolution drivers to enhance the operation of graphics programs on Multisync type monitors. It is recommended that you go through the software installation process to get peak performance from your video board.

Utilities

The **VGAWONDER XL** Diskette #1 contains the following utilities:

- RAMBIOS.SYS¹** - RAM version of video BIOS.
- CLR.COM¹** - clear screen utility for 132 column mode.
- L43.COM¹** - 43 line mode utility.
- README** - addendum and driver installation instruction - use a word processor or DOS to examine or print.
- VANSI.SYS¹** - replaces ANSI.SYS for 132 column text modes.
- VCONFIG.EXE** - mode switching software.
- VGATEST.EXE** - diagnostic software.
- VDRIVER.EXE** - installs ATI's software drivers and utilities on your hard disk.
- VSETUP.EXE** - setup and configuration utility.
- V-INFO.EXE¹** - utility program to display configuration information for diagnostic purposes. Please run this program and record the information on the Problem Report before calling our Technical Support Department.
- VVESA.COM¹** - utility for compatibility with VESA drivers.
- GAMES <DIR>** - subdirectory with instructions to run some game programs.

¹ Refer to "README" file for further details.

- LOTUS <DIR>** - subdirectory with Lotus 1-2-3 & Symphony drivers.
- PRTSCRN.COM** - print screen utility for non-standard modes.
- MOUSE.COM** - executable mouse driver.
- MOUSE.SYS** - mouse device driver.

The following drivers are included on disks #2 to #4¹:

- ACAD <DIR>** - subdirectory with AutoCAD drivers, includes support for Display List Manager for Release 10 and 11 provided you have at least 256K of expanded memory.
- VCAD <DIR>** - subdirectory with VersaCAD drivers.
- GEM <DIR>** - subdirectory with GEM drivers.
- VENTURA <DIR>** - subdirectory with Ventura drivers.
- OS2 <DIR>** - subdirectory with Presentation Manager drivers.
- WINDOWS** - drivers for Windows 3.0 are included in the root directory of disk #4.
- ACAD 386 <DIR>** - subdirectory with AutoCAD 386 Display List Driver.

Note

Be sure to use the utilities that were shipped with the **VGAWONDER XL** as previous versions of the utilities may cause severe operating problems.

VDRIVER

VDRIVER is used to install VSETUP, VCONFIG and special video drivers.

Unlike the other utilities, VDRIVER cannot be executed from your hard drive. To start VDRIVER, insert the **VGAWONDER XL** utility diskette into drive A and type:

A> VDRIVER <enter>

¹ Diskette #4 is provided in high density format.

Note

VDRIVER requires that a path be established to the root directory of your hard disk if so equipped.

The following is a diagram of the VDRIVER menu:

High Resolution Video Driver Installation (ver. x.xx)	
A.	Video Utilities
B.	AutoCAD
C.	AutoShade
D.	AutoSketch
E.	GEM Desktop
F.	Lotus 1-2-3
G.	Lotus Symphony
H.	Xerox Ventura Publisher
I.	Microsoft Windows
J.	VersaCAD

Use <↑↓>, <space> or <letter> to select option, <J> to confirm, <esc> to exit.

For further detailed information on the submenu contained within the VDRIVER menu, consult the README file.

Note

The OS/2 Presentation Manager Driver is not installed using VDRIVER. To install the OS/2 Presentation Manager Driver, follow the detailed instructions contained in the file README.PM that is included on diskette #4.

VSETUP

VSETUP is used to configure the onboard EEPROM which retains the setup information even after the power is turned off. It is also used to change or store the default information used by the VAWONDER XL. Use VSETUP in the following situations:

1. To change the default setup video mode.
2. To change default monitor selection on power-up.

To start VSETUP, type at the DOS prompt:

C> VSETUP <enter>

The following menu will be displayed:

ATI TECHNOLOGIES INC ATI TECHNOLOGIES INC A TI TECHNOLOGIES INC ATI TECHNOLOGIES INC AT I TECHNOLOGIES INC ATI TECHNOLOGIES INC ATI © Copyright 1988-91 VGAWONDER XL Advanced Setup Program VSETUP Version x.xx		VIDEO MODE VGA EGA CGA MDA/720x348 MDA/640x400
POWER UP MODE SELECTION [A] ANALOG MONITOR SELECTION [B] POWER UP VIDEO MODE SELECTION [C] 8/16 BIT ROM OPERATION [D] ADJUST TTL MONOCHROME GRAYSCALE [E] MOUSE CONFIGURATION [F] EXIT AND SAVE CONFIGURATION		
Monitor detected Multisync Use <←↑↓→> or <letter> and <ret> to select option, <esc> to abort.		

The following is a description of the VSETUP menu:

[A] MONITOR SELECTION

The VAWONDER XL monitor detection circuitry cannot differentiate between different types of analog monitors. You must specify which type of analog monitor is attached. This selection allows the user to specify which type of analog monitor is attached and it must be correctly set in order to display the extended resolution modes supported by your monitor. Refer to Appendix E for further instructions on analog monitor selection.

Note

If using NEC Multisync, Seiko or TVM monitors, you must specify the monitor type.

[B] POWER UP MODE SELECTION

Allows you to change the default video mode to one of the following five selections:

- VGA** - Starts the **VGAWONDER XL** in VGA mode only when using an Analog monitor. Another menu will appear with **COLOR** or **MONO¹** choice.
- EGA** - Selects EGA as default mode. Options are EGA (C80), EGA (CE80), EGA (M80) or DUAL. Refer to Appendix B if using two monitors.
- CGA** - Starts the **VGAWONDER XL** in CGA mode. As this mode has the lowest resolution and colors, use CGA as a default only if the majority of your software is CGA self-booting.
- MDA/720x348** - Starts the **VGAWONDER XL** in MDA and Hercules mode. Another menu will appear with **COLOR** or **MONO¹** choice. Use as a default only if most of your software requires Hercules monochrome compatibility.
- MDA/640x400** - Selects a special Hercules mode. Use only if MDA/720x348 fails to run your Hercules compatible program. Only a limited number of programs such as PrintMaster and some Oriental Word processing programs use this mode.

[C] 8/16 BIT ROM OPERATION

This option sets the **VGAWONDER XL** to default to 8-bit or 16-bit ROM operation. Before selecting 16-bit ROM operation, refer to VCONFIG, item [J] in section 3.

[D] ADJUST TTL MONOCHROME GRAYSCALE

Allows the user to manually adjust the grayscale levels that result from CGA and EGA color conversion. Functional only when using a TTL monochrome monitor or an RGB (CGA) monitor.

[E] MOUSE CONFIGURATION

Used to configure the mouse port for your computer environment. You will be given the option, of choosing either **PRI** (primary) Address, **SEC** (secondary) Address or **DISABLE**.

- ¹ If using a color monitor with the **MONO** option, you must specify the foreground color (white, amber or green).

The factory default setting for the mouse port is **Disable**. To activate the mouse port, select **Pri** (primary) Address. **Sec** (secondary) Address is used only if there is an address conflict at 23Ch - 23Fh (some serial cards may use this address).

If your system has card(s) at both port addresses 23Ch - 23Fh and 238h - 23Bh, the mouse port must be disabled, unless the other card(s) can be reconfigured for different addresses.

Upon selecting the mouse port address, you must define the **IRQ** (interrupt request) level to be used by the mouse. The **IRQ** level can only be used by a single device in the system. The choices available are **IRQ 2, 3, 4, or 5**.

Use the following interrupt settings for your computer:

1. **IRQ2** for IBM PC, XT or compatibles.
2. **IRQ5** for IBM AT or compatibles.

If the above settings do not work, refer to the chart below to select an unused **IRQ** level. Only one device or card can use a given interrupt. Contact your computer dealer if you are unsure of your computer configuration.

Refer to Appendix C for further instructions on mouse installation and configuration.

IRQ Level	IBM AT ¹	IBM PC, XT ¹
2	Reserved	Open*
3	COM 2 & 4**	COM 2 & 4**
4	COM 1 & 3	COM 1 & 3
5	LPT 2*	Hard Disk

* First choice for **IRQ**.

** Second choice for **IRQ**.

¹ Also includes compatibles.

[F] EXIT AND SAVE CONFIGURATION

This option records the last configuration sequence into the **EEPROM**. If you do not use this option to leave **VSETUP**, your configuration information is not saved. **VSETUP** will recognize multiple changes at a time. The hardware configuration changes are shown in a summary

when the "Exit and Save" option is highlighted. It is necessary to "Exit and Save Configuration" after all changes are complete.

Note

Power the system off and on again to allow the new setting to take effect.

VCONFIG

VCONFIG is a menu driven utility that is used to:

1. Change the current video mode to a different mode;
2. Automatically turn your screen display off during long periods of inactivity.

VCONFIG is automatically copied onto your hard disk drive or your boot disk by using the video utilities selection in VDRIVER.

To start VCONFIG, type at the DOS prompt:

C> VCONFIG <enter>

The following menu will be displayed:

ATI TECHNOLOGIES INC ATI TECHNOLOGIES INC A TI TECHNOLOGIES INC ATI TECHNOLOGIES INC AT I TECHNOLOGIES INC ATI TECHNOLOGIES INC ATI © Copyright 1988-91 VGAWONDER XL Configuration Program VCONFIG Version x.xx	
SELECTION	KEYWORDS
[A] VGA	VGA
[B] EGA	EGA
[C] CGA	CGA
[D] MONOCHROME TEXT 720x350	MDA
[E] MDA MONO GRAPHICS 720x348	H720
[F] MDA MONO GRAPHICS 640x400	H640
[G] 132x25 ¹	25
[H] 132x44 ¹	44
[I] SCREEN SAVE	SAVE
[J] 8/16 BIT ROM OPERATION	ROM
[K] EXIT	
Current configuration Monitor detected VGA in CV80 Multisync Use <↑↓> or <letter> and <ret> to select option, <esc> to abort.	

MODE SELECTION
COLOR
MONO

Each of the options in VCONFIG can be selected by typing in the letter to the left of the selection and then depressing the <enter> key or by using the arrow keys to move the highlighted selection bar. As you get familiar with the operation of VCONFIG, you can bypass the menu completely by typing:

C> VCONFIG [KEYWORD] [Option] <enter>

The keywords are indicated on the right hand side of the screen: VGA, EGA, CGA, MDA, H720, H640, 25, 44, SAVE or ROM (options appear in the submenus).

Note

VCONFIG utility selections are for current session and do not affect EEPROM status. Selections are lost when system is turned off.

A description of each of the options under VCONFIG follows:

[A] VGA

Selects the VGA mode and is functional only with VGA, 8514 and Multisync monitors. Software configured for VGA will run under this mode.

[B] EGA

Selects the EGA mode and is functional on all monitors. Software configured for EGA mode will run under this mode.

[C] CGA

Selects the CGA mode. The **VGAWONDER XL** enhances this mode by improving the text to 8x14 and graphics are double scanned on all monitors except for RGB.

[D] MONOCHROME TEXT 720x350

Selection of this option will put the **VGAWONDER XL** into MDA Text mode. If you are using a color monitor, you will have a choice of text colors¹.

[E] MDA MONO GRAPHICS 720x348

Selects Hercules graphics mode. If you are using a color monitor, you will have a choice of text colors¹.

¹ Either white, amber or green.

[F] MDA MONO GRAPHICS 640x400

This option will put the **VGAWONDER XL** into a special Hercules graphics mode. Only a limited number of programs use this resolution. Use only if you have a problem with option [E].

[G] 132x25

Selects 132 column x 25 row text mode¹.

[H] 132x44

Selects 132 column x 44 row text mode¹.

Note

132 column modes can only be used by software which is written to support 132 columns on the screen. Check your software Users Manual or call your dealer to confirm that the application will run in this mode.

[I] SCREEN SAVE

The Screen Save option will activate a utility which will turn off the screen display after a predetermined time interval to prevent accidental phosphor etching on your monitor. At your option, Screen Save is automatically installed during the utility installation process.

Note

Screen Save is not compatible with graphics programs that run under the GEM or Windows environments. Type "VCONFIG SAVE OFF" before you start these programs, and type "VCONFIG SAVE ON" after you leave these programs. You can also incorporate these commands into a batch file to have the command automatically executed.

[J] 8/16 BIT ROM OPERATION

Toggles between 8-bit and 16-bit ROM operation. The **VGAWONDER XL** will automatically select 8-bit operation if installed in an 8-bit slot. When installed in a 16-bit slot, **VGAWONDER XL** always uses a 16-bit RAM access but may use an 8 or 16-bit datapath for ROM (video BIOS) access.

¹ Requires at least 512K of memory.

Note

Not all AT systems are compatible with 16-bit ROM operation. When 16-bit ROM operation is selected, VCONFIG will test for 16-bit operation and display a message if it is not possible. If your system does not support 16-bit ROM operation, this does not indicate a problem with the **VGAWONDER XL** or your system. It simply means that the system manufacturer has chosen not to implement the IBM standard for ROM address timing in the interest of higher performance in other areas.

[K] EXIT

Selection of this option will execute the last mode chosen that is supported by the monitor you are using. If you do not use EXIT to leave the menu, all selections you made will be ignored.

Appendix A

Diagnostics And Troubleshooting

The VGATEST diagnostics program should be used when the VGAWONDER XL produces a display, but does not work properly. For example:

- does not display graphics,
- has missing characters,
- has no color,
- does not display in all modes.

Follow the menu driven instructions and a series of screens will be displayed. If these screens are displayed properly, the functions of the VGAWONDER XL are in good working order.

The VGATEST program will prompt you to select the appropriate test functions. The main menu will appear as follows:

VGAWONDER XL Video Test ATI Technologies Inc. 1. Test Monochrome Mode 2. Test Color Mode 3. Test Mouse 0. Exit Enter Option: _____	Version x.xx Copyright, 1988-91
---	------------------------------------

Select monochrome mode option to test monochrome attributes and mono graphics modes. Select test color mode option to test color attributes, video memory, and display resolutions. Errors, if any, are reported at the end of each test.

Note

Some modes may not be functional on the monitor you are using due to the limitations of the monitor. Refer to Table 1 - Software - Monitor Compatibility Chart in Chapter 3 for the video modes available on your monitor.

If problems are still encountered after the VGAWONDER XL passes VGATEST, they are most likely installation, compatibility or operation related.

Hardware compatibility related problems can be isolated by trying the VGAWONDER XL on another monitor and/or another computer as appropriate.

Installation Related Problems

No Display Problems

- **Problem:**
No display, no fan noise.

Diagnosis:
No power to computer.

Action:
Check that computer is plugged in and turned on. If the power indicator light does not come on when power is switched on, the power supply may be defective.
- **Problem:**
No display, fan noise, computer beeps (1 long and 2 short tones)

Diagnosis:
Video card not recognized.

Action:
Check installation. Refer to Chapter 6. Check that the VGAWONDER XL is properly seated in the slot. Check PC ROM BIOS date (IBM PC only). Get new BIOS if earlier than 10/16/82.

- **Problem:**

No display, computer beeps once, floppy drive light flashes on and goes off.

Diagnosis:

Computer works, signal not reaching monitor, possible defective monitor.

Action:

Check monitor; is it switched on and monitor cable connected properly.

Turn up monitor brightness and contrast controls.

Turn monitor off and on, then reboot system. Try monitor on another system.

- **Problem:**

No display, dual monitor configuration.

Diagnosis:

Incorrect installation.

Action:

Check installation, run VSETUP. If problem not solved, remove other video card and install VGAWONDER XL as single monitor setup to confirm operation before attempting dual monitor configuration.

- **Problem:**

Rolling screen; loss of sync.

Diagnosis:

Certain modes may not operate on certain monitors.

Action:

Try a different monitor selection using VSETUP. Check your monitor specification for support at the required frequencies listed in the VGAWONDER XL specification. If the mode is supposed to run, and colors or patterns are missing, card may be defective.

Error Messages

- **Problem:**

Error message - 'Invalid configuration press F1 to continue.' (IBM PC/AT only).

Diagnosis:

Incorrect configuration file, or dead AT battery.

Action:

Run AT diagnostics software, install for EGA or No Display; reboot; problem should disappear; power down, if problem appears on power up again, battery is dead.

Operational Problems

- **Problem:**

Screen goes blank in Windows, GEM or games.

Diagnosis:

Program incompatible with SCREEN SAVE.

Action:

Disable SCREEN SAVE, by typing 'VCONFIG SAVE OFF' at DOS prompt before using program.

- **Problem:**

Software does not work or garbage appears on screen and system hangs.

Diagnosis:

Software mode incorrect or not supported by monitor.

Action:

Use VCONFIG to change mode to match what software is installed for. Check that mode is supported by your monitor.

Diagnosis:

Possible device driver or memory resident program conflict.

Action:

Disable programs by unloading them from memory or by renaming the AUTOEXEC.BAT file to *.BAK and CONFIG.SYS to *.BAK and reboot. If the problem disappears, there is a conflict with one of your programs.

Diagnosis:

Monitor may not switch modes without resetting.

Action:

Reset monitor by turning it off and on.

- Problem:**

Memory resident programs (i.e. SideKick) work when initially loaded, but not later when needed.

Diagnosis:

Current video mode different from installation of TSR program.

Action:

Use VCONFIG to switch mode to whatever the TSR program (i.e. SideKick) is installed for.

- Problem:**

Programs vary in screen size.

Diagnosis:

Programs may be using different video modes.

Action:

Adjust the horizontal and vertical height controls on your monitor.

- Problem:**

Screen flickers on RGB monitor.

Diagnosis:

Interlacing of image.

Action:

Use a screen filter or install software for lower resolution.

- Problem:**

Junk characters on screen or system halts with nothing but cursor on screen. **VGAWONDER XL** configured for 16-bit ROM operation.

Diagnosis:

System is not compatible with 16-bit ROM operation.

Action:

If system is still working, use VSETUP to select 8-bit ROM operation. If system will not work, install **VGAWONDER XL** in an 8-bit slot and use VSETUP to select 8-bit ROM operation. The card can then be reinstalled in a 16-bit slot.

- Problem:**

System will not boot or acts strangely after installing the ATI software. System will work fine if booted from floppy drive with plain DOS disk.

Diagnosis:

Changes to CONFIG.SYS file in root directory of hard drive causing problems.

Action:

Edit CONFIG.SYS with EDLIN or any other ASCII editor. If using ATI RAMBIOS device driver, make sure that the line "DEVICE = C:\VGAUTIL\RAMBIOS.SYS" is the first device driver loaded. If there is more than one line loading the RAMBIOS.SYS and/or the MOUSE.SYS device drivers, delete the duplicated lines.

- Problem:**

Mouse not operational.

Diagnosis:

Mouse driver not loaded or incorrectly configured.

Action:

Ensure that the mouse is securely plugged into the circular port on the **VGAWONDER XL**. Use VDRIVER to check the installation of the mouse driver as outlined in Appendix C. User VSETUP to ensure that the bus mouse is enabled and that the correct address is selected as outlined on page 26. Run VGATEST to test the operation of the mouse.

If none of the above have helped to solve the problem, contact the Dealer who sold you the computer or the **VGAWONDER XL**. If they are unable to solve the problem, fill out the Problem Report Form located on the following pages, and call our Technical Support Department.

Problem Report Form

Before calling ATI Technical Support please fill out this form and have it available when talking to one of our representatives. This form must be filled out before placing the call to ATI Technologies Inc. If you write, please complete both pages of this report and mail to the address given on the back of this manual or fax to (416) 756-0720.

Note

ATI Technologies Inc. Will Be Unable To Process Your Call Without This Information.

Name:	
Address:	
Phone No.:	Fax No.:
Serial Number ¹ :	
VGA BIOS Version ² :	
DOS Version:	
VCONFIG Version:	
VSETUP Version:	
Type & Model of Computer:	
Type & Model of Monitor:	
Other Add-on Boards Installed and Version:	
Memory Board:	
Mouse (make):	
Driver Version:	
Network (Make/Model):	
Software & Version:	

1 Serial Number appears on sticker on back of card.

2 BIOS Version is displayed on the screen upon power up.

The ATI Technical Support Department hours:

Monday, Wednesday to Friday 9:00 a.m. - 5:30 p.m. E.S.T.

Tuesday 10:30 a.m. - 5:30 p.m. E.S.T.

Phone: (416) 756-0711

Fax: (416) 756-0720

VGAWONDER XL Problem Report (con't)

Memory Resident Programs/Device Drivers Loaded (Versions):
Contents of AUTOEXEC.BAT:
Contents of CONFIG.SYS:
Problem Description:
Steps to Re-Create the Problem:

The ATI Technical Support Department hours:

Monday, Wednesday to Friday 9:00 a.m. - 5:30 p.m. E.S.T.

Tuesday 10:30 a.m. - 5:30 p.m. E.S.T.

Phone: (416) 756-0711

Fax: (416) 756-0720

Appendix B

Dual Monitor Installation

The **VGAWONDER XL** must be installed in an 8-bit slot for dual monitor configurations. When using the **VGAWONDER XL** in dual monitor operation, one monitor must be in a color mode and the other monitor must be in a monochrome mode.

The **VGAWONDER XL** will co-exist with 3 types of video cards: either an MDA, Hercules or CGA card. **VGAWONDER XL** cannot be installed with another EGA or VGA card.

You must select which card will be primary video card (the card on which the system boots).

Primary Card

The **VGAWONDER XL** is automatically the primary card in all modes except EGA. In EGA mode, it may be either primary or secondary.

If you plan to use the **VGAWONDER XL** as the primary card, you must configure the **VGAWONDER XL** according to the following configurations:

Primary Card (VGAWONDER XL)	Secondary Card
VGA all color modes	MDA
VGA all mono modes	CGA
EGA (CE80) for EGA text ¹	MDA
EGA (C80) for CGA text ¹	MDA
EGA (M80) ² for monochrome text ¹	CGA
CGA	MDA
MDA	CGA

¹ Chosen by selecting EGA-Dual monitor.

² The **VGAWONDER XL** powers up as a MDA card. You must specify a foreground color.

Secondary Card

To use the **VGAWONDER XL** as the secondary card use **VSETUP** and select EGA - Dual Monitor. The following combinations are possible:

Primary Card	Secondary (VGAWONDER XL)
MDA	EGA (CE80)
MDA	EGA (C80)
CGA	EGA (M80) ¹

¹ The **VGAWONDER XL** powers up as an MDA card.

To change between the primary and secondary card, use the mode command in DOS. At the DOS prompt type:

A>MODE [KEYWORD] <enter>

where keyword is CO80 or MONO.

Note

In dual monitor configurations, **VCONFIG** can change the current mode. However, the **VGAWONDER XL** cannot emulate MDA or Hercules if an MDA or Hercules card is installed in the system. Similarly, the **VGAWONDER XL** cannot emulate EGA or CGA if a CGA card is installed in the system. It is not recommended to use the **VGAWONDER XL** with a CGA card since all of its color modes would be disabled.

Appendix C

Mouse Installation And Driver Selection

To install the mouse:

1. Insert mouse ball into compartment in bottom of mouse.
2. Plug bus mouse into mouse port on **VGAWONDER XL**.
3. Configure the mouse port. See VSETUP [I] page 19.
4. Install mouse driver (see below).
5. Use VGATEST to test mouse.
6. Configure your software applications for mouse support. Some applications do not support a mouse directly, but may do so using external software.

The driver diskette contains two different mouse drivers - MOUSE.SYS and MOUSE.COM.

MOUSE.SYS is a device driver installed by selecting VIDEO UTILITIES within VDRIVER. This procedure alters the CONFIG.SYS file on your boot drive and is activated every time you boot your system. Keywords can be used with MOUSE.SYS (except for the OFF option).

MOUSE.COM is an executable program used to install a resident mouse driver if MOUSE.SYS is not already installed. It can be used to change the existing mouse configurations.

To enable the mouse with MOUSE.COM type:

```
MOUSE [keyword(s)] [/Pn] [/Sn]
```

where optional keyword(s) are:

- [HELP]** - Displays current status and command syntax of the mouse driver.
- [STATUS]** - Same as HELP.

- [OFF]** - Disables the mouse driver. If MOUSE.COM was installed rather than MOUSE.SYS and MOUSE.COM was the last resident program installed, approximately 10K of memory will be released.

The following keywords can only be used during initial installation:

- [3BUTTONS]** - Configures the mouse driver for a 3 button mouse. This is the default unless 2BUTTONS is used.
- [2BUTTONS]** - Configures the mouse driver for a 2 button mouse. Only use if your physical mouse has only 2 buttons.

The PROFILE and SENSITIVITY of the mouse are selected as follows:

- /Pn** - Sets the ballistic profile,
 n = 1 (slow),
 2 (moderate, this is the default setting),
 3 (fast),
 4 (unaccelerated).
- /Sn** - Sets the sensitivity, n = 1 to 100. The default setting is 50. Higher numbers indicate increased sensitivity.

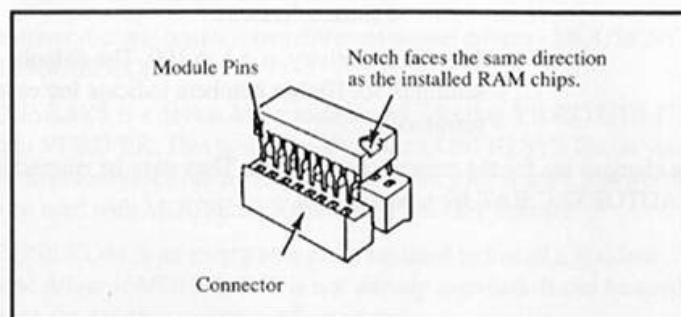
These changes are for the current session only. They may be entered in your AUTOEXEC.BAT for repeated use.

Appendix D

Memory Upgrade

To upgrade the memory to 512K or 1.0MB, it is required that you use one of the following DRAM chip types: Part number UPD424256-80 or UPD424256-70 from NEC; TC514256-80 or TC514256-70 from Toshiba; or TMS44C256-80 from Texas Instruments.

Install the DRAM chips in the empty sockets on the left hand side of the **VGAWONDER XL** board (see block diagram in Chapter 2). Install 2 pieces of DRAM in sockets B to expand from 256K to 512K; an additional 4 pieces of DRAM is required to expand from 512K to 1.0MB. Care should be taken to ensure that the key on the chip indicated by a notch at one end, as shown below, is installed in the same direction as the other DRAM chips adjacent to the chips you are installing. After installation, inspect each chip carefully for bent pins or reverse insertion.



Warning

DRAM chips are static sensitive devices. Discharge any static electricity by grounding yourself to the chassis of the PC before handling the chips.

To check that the DRAM chips installed are in working order, run **VGATEST**. Select option (2), "Test Color Mode", followed by option (a), "Display Adapter Test". If a problem exists with the upgraded memory, it will be reported here. For more information on **VGATEST**, refer to Appendix A.

Appendix E

Analog Monitor Selection (VSETUP)

The monitor chosen in **VSETUP** for the Analog Monitor Selection menu will determine which resolutions and refresh rates are available. If your monitor appears in the Analog Monitor Selection table in **VSETUP**, choose it as your Analog Monitor; if your monitor does not appear, check your Owner's Manual to determine the maximum resolution your monitor can display. Choose your Monitor as follows:

Maximum Monitor Resolution	Analog Monitor Selection
1024x768 Non-interlaced	NEC XL/PLUS/4D/5D or Sony CPD-1304
1024x768 Interlaced	MULTISYNC/TVM 4A (60Hz Multisync)
1024x768 (8514 compatible)	PS/2 8514
800x600 (H- V-)	MULTISYNC ¹
800x600 (H+ V+)	NEC 3D ¹
640x480 (VGA color)	PS/2 COLOR
640x480 (VGA mono)	PS/2 MONO

In addition to the resolution support, the **VGAWONDER XL** supports a variety of 60, 70 and 72Hz refresh rates, provided your monitor can support the faster vertical scan rates. For the higher resolution modes, your monitor choice will also determine the vertical refresh rate used. The **VGAWONDER XL** will always use the fastest refresh rate supported by your monitor.

To enable 70 or 72Hz operation, use the keyword "72" in **VSETUP**. Type:

C > VSETUP 70 <enter>

The **VSETUP** menu will appear. Select option [A] ANALOG MONITOR SELECTION (see page 21). Monitors that support 70Hz refresh are shown with the suffix "/70" or "/72" (e.g. Sony CPD-1304/70). If your monitor can support a 72Hz refresh rate but is not listed, choose NEC 4D/5D/72 option.

¹ See footnote on page 41.

Select the monitor that matches your monitor and exit VSETUP using option [F] EXIT AND SAVE CONFIGURATION. Remember to reboot your computer in order for the new configuration to take effect.

On some computers, 70Hz/72Hz operation may cause a decrease in video performance. If this occurs, use 60Hz refresh.

The following table shows which monitor selections support 60Hz, 70Hz and 72Hz refreshrates and in which modes:

Refresh Rates Based on Monitor Selection

Monitor ¹	Resolution	640x480	800x600	1024x768
NEC 3D (default)		60Hz (H- V-)	56Hz (H- V-)	87Hz I
NEC 3D/70		72Hz (H+ V+)	60Hz (H+ V+)	87Hz I
NEC 4D/5D (default)		60Hz (H- V-)	60Hz (H+ V+)	60Hz (H- V-) NI
NEC 4D/5D/70		-	70Hz (H+ V+)	70Hz (H- V-) NI
NEC 4D/5D/72		72Hz (H- V-)	72Hz (H+ V+)	72Hz (H- V-) NI
Sony CPD-1304 (default)		60Hz (H- V-)	60Hz (H- V-)	60Hz (H- V-) NI
Sony CPD-1304/70		72Hz (H+ V+)	72Hz (H+ V+)	60Hz (H- V-) NI
TVM 4A (60Hz Multisync)		60Hz (H- V-)	60Hz (H+ V+)	87Hz I

default = original setting

/70 = 70Hz setting

/72 = 72Hz setting

¹ Consult your monitor owner's guide to determine its polarity. If your choice does not work properly, try the opposite polarity. (- = negative polarity; + = positive polarity; H = horizontal; V = vertical; NI = non-interlaced; I = interlaced)

Specifications

System Requirements: IBM PC/XT/AT/386/483, PS/2 Model 30 or compatible system.

Bus: IBM PC or AT standard, 8- or 16-bit slots.

Video Display Buffer: **VGAWONDER XL 256:** 256K video memory (80ns, 256Kx4 DRAM). **VGAWONDER XL 512:** 512K video memory, 256K and 512K versions are upgradeable to 1.0MB.

VGAWONDER XL 1.0MB: 1.0MB video memory.

Video Display Modes: See Software/Monitor Compatibility Chart for monitor support.

Sync Signals: Separate horizontal and vertical sync in TTL levels.

Horizontal Vertical

57.9kHz 72.0Hz	1024x768/72Hz non-interlaced.
56.5kHz 70.0Hz	1024x768/70Hz non-interlaced.
48.4kHz 60.0Hz	1024x768/60Hz non-interlaced.
48.0kHz 72.0Hz	800x600/72Hz non-interlaced.
44.2kHz 70.0Hz	800x600/70Hz non-interlaced.
37.9kHz 60.0Hz	800x600/60Hz non-interlaced.
37.7kHz 72.0Hz	640x480/72Hz non-interlaced.
35.5kHz 87.0Hz	Multisync & 8514 monitors 1024x768 interlaced.
35.2kHz 56.0Hz	Multisync monitors 800x600 non-interlaced.
33.8kHz 96.0Hz	8514 monitors 800x600 interlaced.
31.0kHz 88.0Hz	Seiko 1440 monitors 800x600 interlaced.
31.5kHz 60.0Hz	640x480 non-interlaced

Sync signals for VGA, EGA, RGB and TTL monitors conform to IBM standard.

Video Memory Address: A0000 - BFFFF

Video BIOS Address: C0000 - C7FFF

Video Port Address: 3B0 - 3DF, 1CE, 1CF

Connectors: *Analog Video:* 15 pin D shell (female) IBM standard.

Digital Video: 9 pin D shell (female) IBM standard. *Mouse:* 9 pin circular connector Microsoft mouse compatible

Mouse Port Address: 23Ch-23Fh or 238h - 23Bh software selectable.

Mouse Interrupt: IRQ 2-5 or none.

Monitor Compatibility: IBM PS/2 85XX analog monitors. IBM 5151 TTL monochrome, 5153 RGB color, 5154 EGA color monitors. Multisync and other monitors compatible with above standards.

Size: 4.2" (W) x 6.25" (D).

Power: +5V +/-5%, @ 500mA typical.
+12V @ 16mA typical.
-12V @ 12mA typical.

Environment

Ambient Temperature: 50° to 122° F (10° to 50° C) operation.
32° to 162° F (0° to 70° C) storage.
Relative Humidity: 5% to 90% non-condensing operation.
0% to 95% storage.

Bus Loading: No more than 2 LS TTL load.

MTBF: 100,000 hrs.

Warranty: Two year limited warranty.

Connector Specifications

DB9 Connector

Pin No.	Signal
1	Ground
2	Secondary Red/Ground
3	Primary Red
4	Primary Green
5	Primary Blue
6	Secondary Green/Intensity
7	Secondary Blue/Mono Video
8	Horizontal Retrace
9	Vertical Retrace

DB15 Connector

Pin No.	Signal
1	Red
2	Green
3	Blue
5	Self Test
6	Red Return
7	Green Return
8	Blue Return
10	Digital Gnd
11	Digital Gnd
13	Hsync
14	Vsync

Mouse Connector

Pin No.	Signal
1	+5V
2	XA
3	XB
4	YA
5	YB
6	SW1
7	SW2
8	SW3
9	Ground
E	Chassis Ground

Video Feature Connector

13x2 edge connector located at the top of the VGAWONDER XL card.

Warranty

ATI Technologies Inc. warrants that the hardware product is in good working condition, according to its specifications at the time of shipment, for a period of two years from the date of purchase. Should the product, in ATI Technologies Inc.'s opinion, malfunction within the warranty period, ATI Technologies Inc. will repair or replace the product without charge. Any replaced parts become the property of ATI Technologies Inc. This warranty does not apply to the software component of a product or a product which has been damaged due to accident, misuse, abuse, improper installation, usage not in accordance with product specifications and instructions, natural or personal disaster or unauthorized alterations, repairs or modifications.

Limitations

All Warranties For This Product, Expressed Or implied, Are Limited To Two Years From The Date Of Purchase And No Warranties, Expressed Or Implied, Will Apply After That Period.

No Warranties For This Product, Expressed Or implied, Shall Extend To Any Person Who Purchases The Product In A Used Condition.

The Liability Of ATI Technologies Inc. In Respect Of Any Defective Product Will Be Limited To The Repair Or Replacement Of Such Product. ATI Technologies Inc. May Use New Or Equivalent To New Replacement Parts.

ATI Technologies Inc. Makes No Other Representations Or Warranties As To Fitness For Purpose, Merchantability Or Otherwise In Respect Of The Product. No Other Representations, Warranties Or Conditions, Shall Be Implied By Statute Or Otherwise.

In No Event Shall ATI Technologies Inc. Be Responsible Or Liable For Any Damages Arising

- (a) From The Use Of The Product;
 - (b) From The Loss Of Use, Revenue Or Profit Of The Product; Or
 - (c) As A Result Of Any Event, Circumstance, Action Or Abuse Beyond The Control Of ATI Technologies Inc.;
- Whether Such Damages Be Direct, Indirect, Consequential, Special Or Otherwise And Whether Such Damages Are Incurred By The Person To Whom This Warranty Extends Or A Third Party.

Warranty Service

Units requiring repair under warranty require an RMA number. To obtain service under this warranty, first contact:

ATI TECHNOLOGIES INC.
TECHNICAL SUPPORT
Phone: (416) 756-0711
Fax: (416) 756-0720

or by writing:

ATI TECHNOLOGIES INC.
TECHNICAL SUPPORT
3761 Victoria Park Avenue
Scarborough, Ontario
Canada M1W 3S2

and request a Return Material Authorization Number (RMA). This number must be clearly displayed on the unit's external packaging. Units shipped without an RMA number will not be accepted. Include with the unit, proof of purchase (including date of purchase), a note outlining the problem, and the RMA number.

Product should be sent to:

ATI TECHNOLOGIES INC.
SERVICE CENTRE
60 Valleybrook Drive
Don Mills, Ontario
Canada M3B 2S9

Important

When shipping your unit, pack securely and ship prepaid and insured. ATI Technologies Inc. will not be held liable for damage or loss to the product in shipment.

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VGAWONDER XL WARRANTY REGISTRATION CARD

Configuration ☐ 256K ☐ 512K ☐ 1.0MB

Name: _____ Serial No. (see back of the card): _____
 Title: _____ Purchase Date: _____ / _____ / _____ Price: _____
 Company: _____ Purchased From: _____
 Address: _____ Address: _____

State _____ Zip _____ State _____ Zip _____ Telephone _____ Telephone _____

1. I've decided to buy because of:
 Price ☐ Driver Support ☐ 3. Monitor used:
 High Res. ☐ Analog/Digital Monitors ☐ Brand: _____
 Compatibility ☐ Dealer Recommendation ☐ Model: _____
 Brand Name ☐ Availability ☐ Mono ☐ Color
 32,768 Colors ☐ Other: (specify) _____ Digital ☐ Color
 VGA Analog ☐ Multisync ☐ 8514

4. I read:
 PC Magazine ☐ 5. My Principal Software Applications are:
 PC World ☐ 1. _____
 PC Week ☐ 2. _____
 InfoWorld ☐ 3. _____
 Other: (specify) _____
 6. I heard about this product from:
 Dealer ☐
 Referral ☐
 Trade Show ☐
 Ad in: (specify) _____
 7. Do you use:
 Modern-Mdl.: _____
 Brand: _____
 Fax - Mdl.: _____
 Brand: _____
 Plan to Buy: _____
 Modern ☐ Fax ☐

Warranty Registration Card

Technical Support is only available to registered users. Please complete the Warranty Card and return within 30 days of purchase. Proof of purchase including date and place of purchase must accompany product returned for service. A two year limited warranty is provided by ATI Technologies Inc.

affix
stamp
here

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Scarborough, Ontario
Canada M1W 3S2



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