- Fast Z-Buffer Clear.
- Z Cache optimized for real-time shadow rendering.
- Optimized for performance at high display resolutions, up to and including widescreen HDTV.

Avivo™ Video and Display Engine
- New advanced video capabilities, including high fidelity gamma, color correction and scaling.
- Dual independent display controllers that support true 30-bpp throughout the display pipe.
  - Full symmetry on both heads.
  - Each display controller supports display resolutions beyond 2560x1600.
- Advanced DVI capabilities, including 10-bit, 16-bit HDR output.
- YPrPb component output for direct drive of HDTV displays.
- Seamless integration of pixel shaders with video in real time.
- VIDEOSOAP™ noise removal filtering for captured video.
- MPEG1/2/4 decode and encode acceleration.
  - DXVA support.
  - Hardware motion compensation, iDCT, DCT and color space conversion.
- All-format DTV/HDTV decoding.
- Adaptive per-pixel de-interlacing and frame rate conversion (temporal filtering).

Anti-Aliasing and Anisotropic Filtering
- 2x/4x/6x Anti-Aliasing modes:
  - Sparse multi-sample algorithm with gamma correction, programmable sample patterns, and centroid sampling.
  - New adaptive anti-aliasing mode.
  - Temporal anti-aliasing.
  - Lossless color compression (up to 6:1) at all resolutions, up to and including wide screen HDTV.
- 2x/4x/8x/16x Anisotropic Filtering modes:
  - Up to 128-tap texture filtering.
 - Adaptive algorithm with performance and quality options.

Support CrossFire™
- Multi-GPU technology ready.
- Four modes of operation:
  - Alternate frame rendering for maximum performance.
  - Supertiling for optimal load-balancing.
  - Scissoring for compatibility.
  - Super AA for maximum image quality.

Hardware Installation

Follow the steps below to install the VGA card :

1. Remove the computer case.

2. Locate the PCI Express slot on your mainboard. Warning: Inserting the VGA card into a wrong slot (e.g. AGP slot) may damage your card (refer to your mainboard manual for more Information).

3. Put the card directly over the PCI Express 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 install the case.

6. Connect the monitor. Now, you are ready to install the software on your computer.
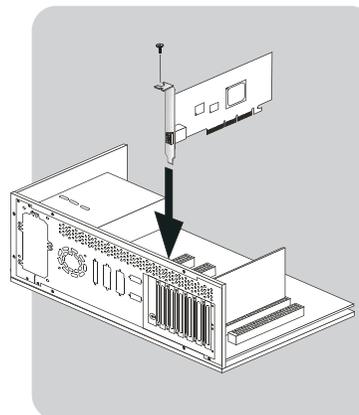
Software Installation (for Windows® XP/ 2000)

To install the driver of the VGA card to your computer running Windows® XP or 2000, 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:
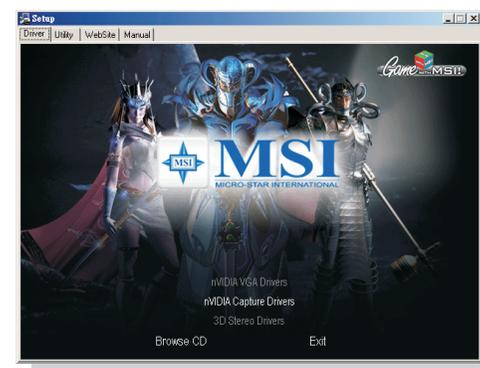
Tip : If, on your computer, the Autorun program does not execute automatically, please 1) enable the CD-ROM drive Auto-detect function from Control Panel; or 2) find and run the setup.exe file manually from the CD.

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

4. After finishing the installation, restart the computer as instructed.
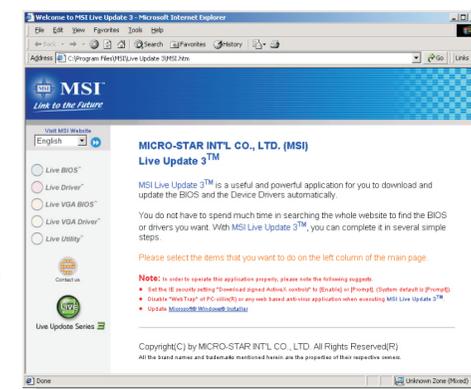
Installing MSI™ Live Update 3™

MSI™ Live Update 3™ 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 update the BIOS and the drivers on-line, without spending much time in searching many Web sites to find the BIOS or drivers you want.

Installing from the CD-Title

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 the **MSI™ Live Update 3™**. Follow the on-screen instructions to complete the Installation.

Installing from the MSI™ Web Site

1. Link to MSI's website at http://www.msi.com.tw

2. Select **/Download/ VGA** on the upper part of the MSI's homepage to enter the Download page.

3. Select **Utility** under the selections of VGA on the left side of the web page.

4. Find and click **MSI Live Update** to download the utility.

5. Unzip the downloaded utility first and then install this utility by clicking on **LiveUpdate.exe.**

6. Follow the on-screen instructions to complete the installation.

7. Launch MSI Live Update and to enter the main page of this utility as shown below.

The page of the MSI™ Live Update 3™

Using MSI™ Live VGA Driver™ Update

MSI™ Live VGA Driver™ Update
This service enables you to update the latest VGA driver for your VGA card.

1. To update the MSI™ Live VGA Driver™, click Live VGA Driver™ item on the lef column of the main page.

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 on the bottom to connect MSI Live Update Series Server. Then, it will automatically connect 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. Click the **InstallShield Wizard** button on the right side of the table to download and update the driver. All actions will proceed automatically.

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

Using MSI™ Live VGA BIOS™ Update

MSI™ Live VGA BIOS™ Update

This service enables you to update the latest VGA BIOS for your VGA card.

1. To update your VGA BIOS, click Live VGA BIOS™ item on the left column of the main page.

2. If your VGA card does not support the Live VGA BIOS™ function, you will receive a warning message on the screen.

3. If your VGA card do support the Live VGA BIOS™ function, please pay attention to the message shown on the screen telling you that in what circumstance flashing BIOS may fail to reboot.

4. Click Yes if you would like to try it at your own risk or No to return to the main page with everything unchanged.

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

6. Click the graph button at the bottom to connect the MSI™ Live Update 3™ Server.

7. The MSI™ Live VGA BIOS™ will automatically connect the Internet and search the supported BIOS in the database of MSI™.

8. 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 have the new BIOS downloaded and updated automatically.

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

N1996

MICRO-STAR INT'L
MS-V040

CERTIFIED FOR
Windows Vista™

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VGA is a trademark of International Business Machines Corporation.
Pentium® is a registered trademark of Intel® Corporation.
Windows® is a registered trademark of Microsoft® Corporation.

CAUTION!!
Do not force the GPU cooler against the fragile GPU to avoid damage to the GPU.

Under the European Union ("EU") Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC, which takes effect on August 13, 2005, products of "electrical and electronic equipment" cannot be discarded as municipal waste anymore and manufacturers of covered electronic equipment will be obligated to take back such products at the end of their useful life.

WARNING!!
DO NOT touch the cooling system since it may produce a certain heat while processing tasks.

HOT

Micro-Star International
MSI

TEL. 886-2-32345599
FAX. 886-2-32345488
http://www.msi.com.tw

G52-V0402XB
January 2007

MSI MICRO-STAR INTERNATIONAL

256MB DDR2 memory or 128MB DDR2 memory

ATI Radeon X1650PRO

PCI Express interface

Fan Connector

TV_Out Connector HDTV integrated

D-Sub port

DVI-I Port Dual-Link DVI output supported
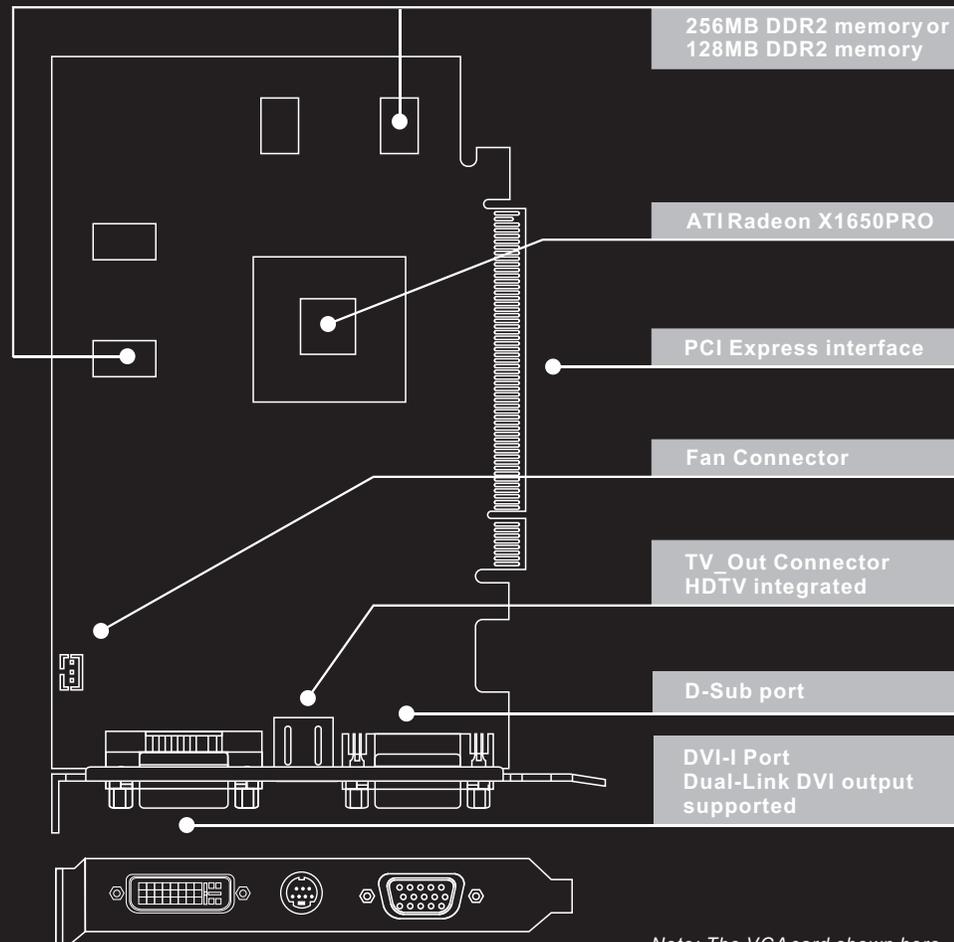
Note: The VGA card shown here may vary from the actual card. For further information, please visit MSI website at www.msi.com.tw

RX1650PRO-TD Series

Getting Started

Please check out the following items to make sure that you get the complete product:
● VGA card
● CDs; Drivers, documentation, and applications
   Consult your dealer immediately if anything is missing or damaged.

System Requirements

To install the VGA card, your computer system needs to meet the following requirements:
● Intel Pentium® III™ (and above), AMD® K7® (and above), or compatible with PCI Express slot
● 128MB of system memory
● Installation software requires CD-ROM drive
● Operation System Support: Windows XP / 2000
● Power supply of 350 (and up) watt is highly recommended for system stability.

Card Features   For reference only

HyperMemory™ Support for ATI IGP ASICs (for WinXP and Vista)
● HyperMemory™ is ATI's latest technology for utilizing and managing system memory as an extension to the UMA memory or side-port memory (where supported). HyperMemory™ provides manufacturers with unique branding options to increase growth in the mainstream and value desktop/notebook market segments. This feature allows customers to utilize system memory more efficiently and get better performance at lower cost.

**VGA Memory Enanced by HyperMemory™ Technology (for reference only)

		On-board Graphic Memory		
		64MB	128MB	256MB
System Memory	256MB	128MB	256MB	x
	512MB	256MB	256MB	512MB
	1G	512MB	512MB	512MB

Shader Technology
● Support for Microsoft® DirectX® 9.0 programmable vertex and pixel shaders in hardware.
● Shader Model 3.0 vertex and pixel shader support:
   - Full speed 32-bit floating point processing.
   - High dynamic range rendering with floating point blending and anti-aliasing support.
   - High performance dynamic branching and flow control.
● Complete feature set also supported in OpenGL® 2.0.

3Dc+™ Advanced Texture Compression
● High quality 4:1 compression for normal maps and luminance maps.
● Works with any single-channel or two-channel data format.

Next-Generation HYPER Z™ Technology
● Hierarchical Z-Buffer with Early Z Test.
● Lossless Z-Buffer Compression (up to 48:1).