

## Graphics Solutions for Professionals

Supported Matrox Multi-display Graphics Cards  
In the Lenovo Advanced Dock for ThinkPad T61 & T60 Notebooks

## Introduction

This document covers the use and installation of Matrox multi-display graphics cards supported in the Lenovo Advanced Dock for the ThinkPad® T61 and T60 notebooks. The outlined procedures were performed using these notebooks with the following specifications:

	ThinkPad T61 Notebook	ThinkPad T60 Notebook	ThinkPad T60 Notebook
Processor	Intel® Core™ 2 Duo processor T7300 - 2.00GHz	Intel Core Duo processor T2400 - 2.0GHz	Intel Core Duo processor T7200 - 2.0GHz
System Memory	998MB	2.00 GB	1.00 GB
Operating System	Microsoft® Windows Vista® Ultimate	Microsoft Widows® XP Professional	Microsoft Widows XP Professional
Onboard Graphic Chipset	Mobile Intel 965 Express Chipset Family	Mobile Intel 945 GM Express Chipset Family	ATI™ Mobility Radeon™ X1400

## Lenovo Advanced Dock Station Features

The following information outlines the feature set of the Advanced Dock used:

- 6-in-1 media card reader
- Standard device ports
- Communication ports - gigabit Ethernet (RJ-45) and modem (RJ-11)
- Integrated key lock and security lock slot to secure both the ThinkPad notebook and the Advanced Dock
- Integrated power supply - recharges the ThinkPad system battery while fueling all functions of the ThinkPad Advanced Dock

### Matrox Multi-display Graphics Cards

The following Matrox graphics cards are supported in the Advanced Dock for Lenovo ThinkPad T61 and T60 notebooks:

	P650 PCIe 128	QID LP PCIe
Part number	P65-MDDE128F	QID-E128LPAF
Number of displays supported	1 or 2	1,2,3 or 4
Bus type	PCIe x16	PCIe x16
OS supported	Microsoft Windows 2000, XP, XPe Vista (XDDM)	Microsoft Windows 2000, XP, XPe Vista (XDDM)
Memory	128 MB DDR	128 MB DDR
Maximum display resolution – analog (Number of displays: Maximum desktop resolution)	One: 2048 x 1536 Two: 3840 x 1440	One: 1600 x 1200 Two: 3200 x 1200 Three: 4800 x 1200 Four: 6400 x 1200
Maximum display resolution – digital (Number of displays: Maximum desktop resolution)	One: 1920 x 1200 Two: 3840 x 1200	One: 1600 x 1200 Two: 3200 x 1200 Three: 4800 x 1200 Four: 6400 x 1200
Independent mode	✓	✓ <sup>1</sup>
Stretched mode	✓	✓
Clone mode	✓	✓
Pivot support	✓	✓
Board dimensions (height / length)	6.4" / 4.4"	6.6" / 2.7"
Connectors	2 x DVI	KX20 to 4 x DVI
EMC certifications	Class B – ACA, CE, CSA, FCC, ICES, VCCI	Class A – ACA, CE, CSA, FCC, ICES, VCCI
Warranty	3 years	3 years
List price (USD)	\$249	\$799

<sup>1</sup> Support for pairs of independent resolution with driver revision 2.03 and above.

## Matrox Graphics Display Drivers

Before installing a graphics card in your docking station, make sure to download the latest display drivers from the Matrox website: <http://www.matrox.com/graphics/en/corpo/support/drivers/home.php>

Display drivers are available as self-extracting executables. For example, the file for the Windows 2000/XP display driver version 2.04.00.179 is xp2k\_204\_00\_179\_se\_u\_whql.exe.

### Notes:

#### HF and SE driver packages

For the Matrox Millennium P650 PCIe 128 graphics card only, 2 distinct display driver packages are available from Matrox, HF and SE. The HF display driver package offers more features and a more elaborate graphical user interface to configure your graphics card but requires the .NET framework version 2.0. The SE driver package offers only multi-display setup and desktop management features but requires no additional .NET framework.

#### Unified driver package

To facilitate the deployment and installation of different classes of Matrox graphics cards, Matrox provides a unified display driver package. This package eliminates the need to manage different driver files for the various Matrox products.

#### Stretched mode versus independent mode

Matrox drivers can setup displays in stretched mode or independent mode. In stretched mode, Windows combines the multiple Matrox displays into 1 single display. All Matrox displays must be set to the same display resolution. In independent mode with the P650 PCIe 128, Windows manages each Matrox display separately allowing them to have different display resolutions. In independent mode with the QID LP PCIe, the displays must either all have the same resolution or run as a pair of independent resolutions (i.e., two displays with one resolution and two displays in another resolution).

## Installing your Matrox graphics Card and Configuring the Advanced Dock

### Enabling Matrox displays to be the primary monitor

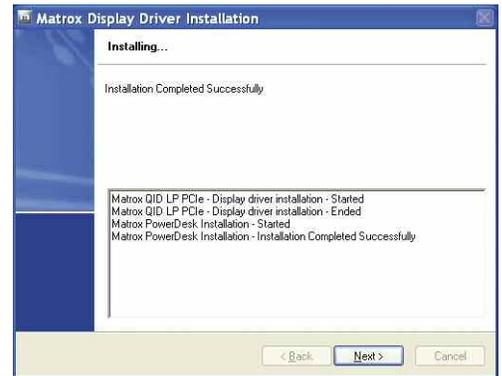
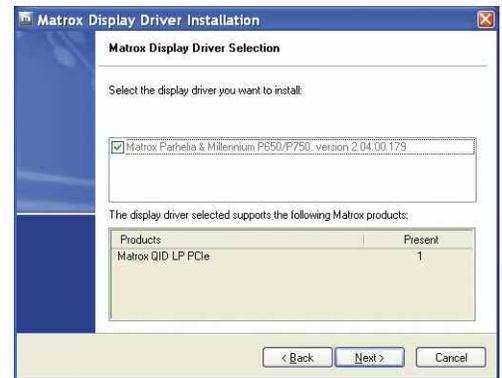
If the built-in graphics hardware in the BIOS is not disabled, the Matrox graphics card will not be detected by Windows as the primary graphics card even in stretched mode. To set the Matrox graphics card as the primary graphics hardware, turn the notebook on, go into the BIOS of your notebook and set the **Default Primary Video Adaptor to External PCIe**. Then save the settings by pressing **F10**.

To install your Matrox multi-display card:

1. Turn your docking station over and loosen the 2 screws holding the bottom door of your station.
2. Remove the slot screw and slot cover. Insert your Matrox graphics card in the slot. Put the slot screw back in, close the cover, then tighten the 2 screws.
3. Connect your monitor cables to the connectors on your graphics card.
4. Before you connect your notebook to your docking station, make sure you update your notebook BIOS. For more information, see your system documentation.
5. Next, connect your notebook to your docking station. Turn the notebook on.
6. Windows will detect the new hardware and start the New Hardware Wizard. Click **Cancel** to exit the Wizard.



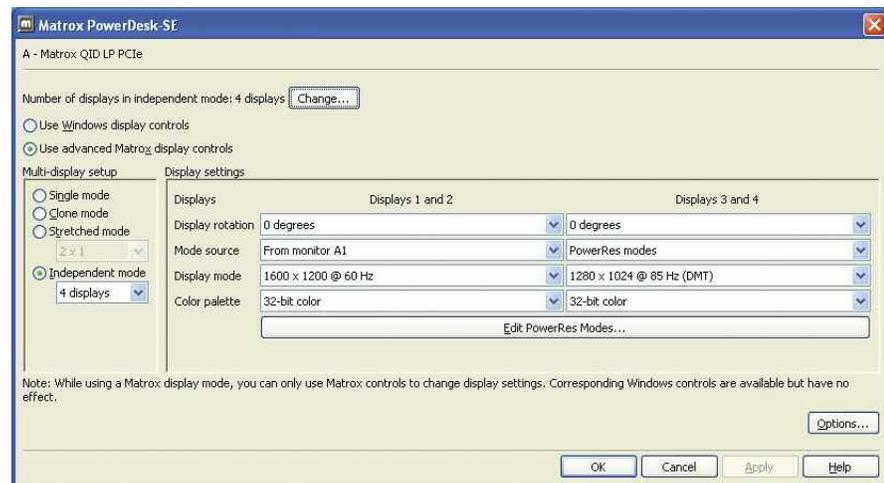
7. Install the display drivers downloaded from the Matrox Web site by double clicking the program icon.
8. The following screen captures, from an SE 2.04 package installed under Windows XP for a QID LP PCIe product, will guide you through the remainder of the graphics card installation process\*.



\* During the installation process on Microsoft Vista, you may receive an alert message about Windows Logo testing compatibility. If this occurs, simply select "Continue Anyway" and proceed with the installation.

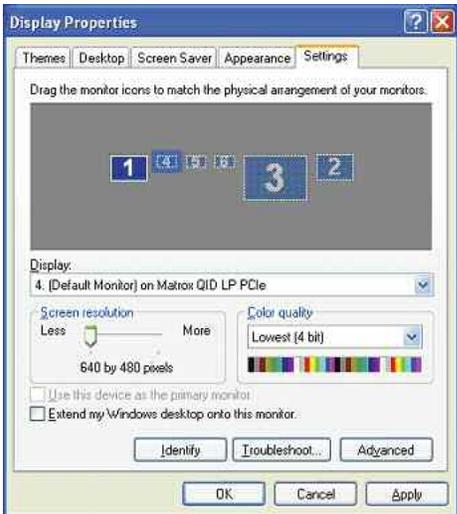


- Restart your computer for the changes to take effect. The Matrox PowerDesk icon  should appear in your taskbar notification area.
- To see the Matrox PowerDesk menu, click the Matrox PowerDesk icon. Select **Multi-display setup** and the name of your graphics card. Select **Use advanced Matrox display controls**.

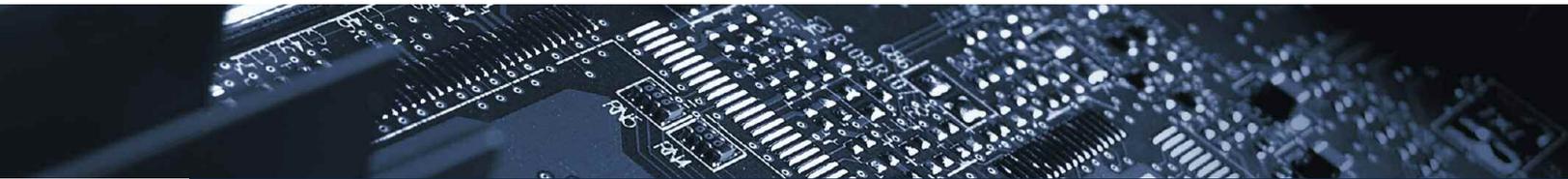


If you are using a T60 notebook with either ATI Mobility Radeon X1400 or Intel integrated graphics, you can enable up to 6 displays (4 from your Matrox graphics card, 1 from the analog graphics output of the laptop, and the actual laptop display).

On the Microsoft Displays Properties page, select each monitor and enable **Extend my Windows desktop onto this monitor.**\*



\* With Intel Integrated graphics, this configuration (with 4 or 6 displays) is only possible if the Default Primary Video Adapter in the BIOS is set to the built-in graphics hardware.



### Learn More or Purchase

Matrox Graphics offers a wide range of specialized graphics solutions for professional markets such as finance, digital media, medical imaging, and enterprise computing. For more information about the entire Matrox Graphics product line, visit [www.matrox.com/graphics](http://www.matrox.com/graphics).

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