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# Vanguard PCI

## Bus Analyzer Installation Guide

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# *Before You Begin*

## Inspection

Make sure that the Vanguard you have received is according to your purchase order with respect to model.

The Vanguard package consists of the following:

- Installation Guide (this document).
- Busview® CD-ROM with License Key (Authorization Code).
- The Vanguard PCI assembly inside an anti-static bag.
- A Trigger Output cable with BNC Coax connector (4945-K-24).
- 8 patch leads of various colors for pin header I/O and 4 micrograbber test clips (401-VG-TL).
- External Temperature Probe (401-VG-ETS).
- USB cable (401-VG-USB).
- Ethernet Cable (401-VG-ETH).Adapter to connect a 3.3 V PCI board to a legacy 5 V (33MHz) only slot including a replacement front panel, and a bracket with two plastic screws.



Warning**!** Check that the SAM and optional Exerciser are properly seated. Ensure that the power cable is **disconnected.** It is **not** enough to turn off the power switch on the system. If the system has power management, there is still power on a few of the pins in the system. This can potentially damage the board and/or the system.



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**Note –** You should also inspect the board to verify that no mechanical damage has occurred. Please report any discrepancies or damage to your distributor or to VMETRO immediately.

## Precautions in Handling and Storage



Static electricity can permanently damage your Vanguard. Prevent electrostatic damage by taking proper precautions.

- Make sure your body is grounded when coming into contact with the board by wearing an anti-static wrist strap.
- If an anti-static wrist strap is not available, touch a grounded surface, such as the bare metal chassis, before touching the Vanguard.
- Only leave the board on surfaces with controlled static characteristics, i.e. specially designed anti-static table covers.
- When handing the board to another person, first touch this person's hand, wrist etc. to discharge any static potential.
- Always store the board in an anti-static bag or other static resistant container.
- If an electric screwdriver is used, it should be grounded and shielded to prevent sparks.


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# 2 *Assembling the 5 V adapter*



Warning**!** The following instructions are for using your Vanguard in a 5 V, 0-33 MHz PCI slot only.

1. Wear an anti-static wrist strap or follow the instructions under “Precautions in Handling and Storage” on page 5.
2. Remove the Vanguard from its anti-static bag and hold it by the brackets only.
3. Unscrew the front panel from the Vanguard.
4. Gently, but firmly, press the Vanguard into the adapter card.
5. Screw the adapter card front panel to the Vanguard.
6. Attach the bracket to the front of the assembly using the two plastic screws.

The front panel will now cover up the 3.3 V external power supply pins on the Vanguard. The adapter card has a similar external power connector available.


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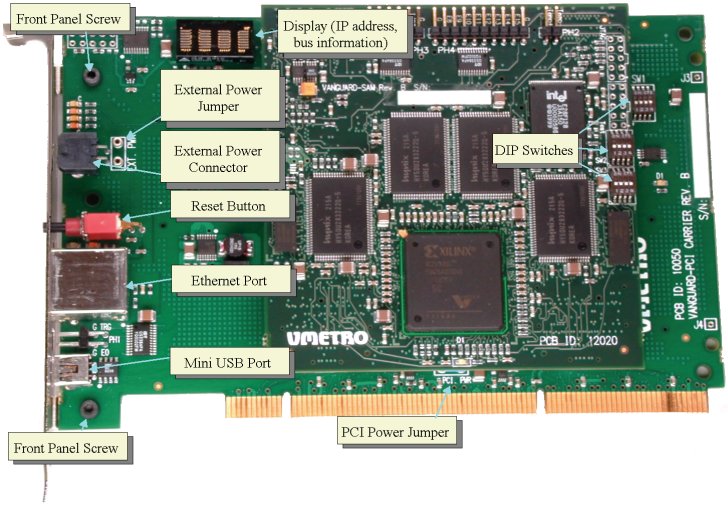



**FIGURE 1.** *Vanguard PCI assembly*

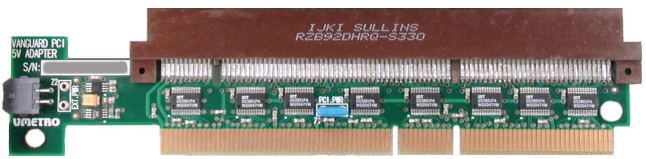



**FIGURE 2.** *5V PCI Adapter Card*


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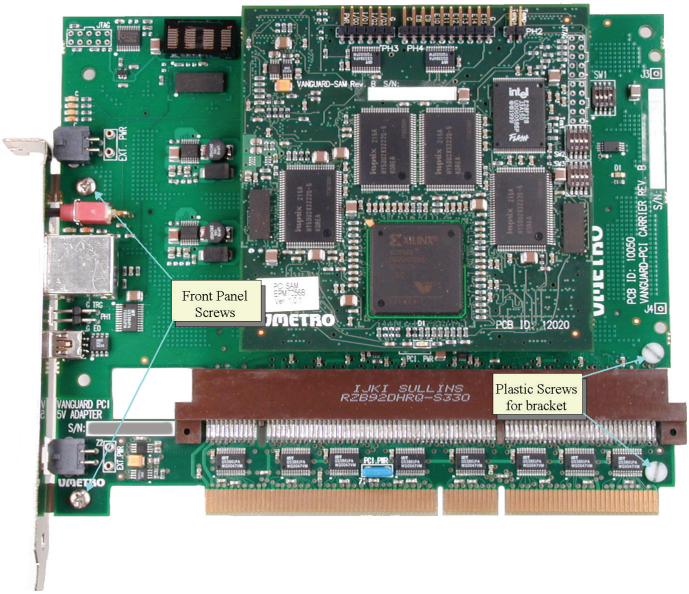



**FIGURE 3.** *Vanguard PCI assembly*

**Note –** We recommend placing the bracket on the front of the assembly so that it does not block access to other PCI slots.


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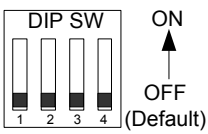
# 3 *Installing the Hardware*

## Slot Selection

- The Vanguard can be installed in any 32 or 64 bit slot in a PCI/ PCI-X motherboard.
- If you wish to use the Exerciser in a “Target Only” slot, then the Enhanced Exerciser (Part Number: VG-E2) is required.
- If the Vanguard is to be inserted into a 5 V slot, then the 5 V adapter must be used. Follow the instructions in section 2 to assemble the 5 V adapter with your Vanguard.

## Default Configuration

Before installing the Vanguard, ensure that all DIP switches indicated in Figure 1 are in the default ‘off” position.




Warning**!** Do not install the board into a powered system! Ensure that the power cable is **disconnected.** It is **not** enough to turn off the power switch on the system. If the system has power management, there is still power on a few of the pins in the system. This can potentially damage the board and/or the system.


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## Inserting the Vanguard PCI Assembly



Warning**!** Never install the Vanguard in a PCI slot without the front panel attached.

1. Ensure the power is disconnected to the system in which the Vanguard is to be installed.
2. Wear an anti-static wrist strap or follow the instructions on “Precautions in Handling and Storage” on page 5.
3. Remove the Vanguard from its anti-static bag and hold it by the brackets only.
4. Touch a bare metal surface on your system to ensure you are static free and grounded.
5. Locate the PCI slot in which the Vanguard is to be inserted and ensure there is enough room to fit the card.
6. Take the card and line up the gold connectors with the PCI slot. The slot is shaped so that the card will only fit one way.
7. Firmly, but gently, push the card into the slot until it is all the way in.
8. Secure the Vanguard to the system by mounting the screw on the front panel.



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# *Power Consumption*

It is important to make sure that the power supply has sufficient capacity to power the board. Power consumption is dependent on operating mode. See Table 1 .

**TABLE 1. Power consumption, Vanguard 3.3 V**

| Min(Idle) | Max | PCI Clock frequency |
|---|---|---|
| 1.8A | 5A | 133.33MHz |

Power Consumption for the 5 V Adapter Card is 33mA @ 3.3 V.

**Note –** When using the 5 V Adapter, the Vanguard still draws its power from the 3.3 V rail.

**Note –** The on-board LED display draws power from the 5 V rail. If there is no 5 V supply, then the LED display will not function.



Warning**!** In systems based on PCI spec. 2.1 and earlier, 3.3 V was optional. An external power supply is required in this case.



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# *Installing the Software*

## System Requirements

- Computer with Pentium 800 MHz or higher processor; Pentium IV recommended.
- 256 MB RAM recommended (64 MB minimum supported; may limit performance).
- CD-ROM drive.
- Super VGA (1024x768) or higher resolution is recommended.
- Windows 2000, Windows XP or Windows Vista operating system.
- Minimum of 1 GB of free hard disk space.
- USB port or Ethernet network.

## Installing BusView

1. Insert the CD-ROM into the CD-ROM drive.
2. If the installation program does not start automatically, run the file Setup.exe on the BusView CD-ROM.
3. Follow the instructions given by the Installation Wizard.
4. When the installation is finished, the BusView icon will be found on the desktop and in the Windows Start menu.

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**Note – License Agreement:** By selecting “I accept the terms of the license agreement” and clicking Next, you agree to and accept the terms stated.

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# 6 *Connecting to the Vanguard*

BusView can communicate with the Vanguard using an Ethernet or a USB (Universal Serial Bus) connection.

Before starting Busview do the following:

## Connecting via Ethernet

- **DHCP:** If your network includes a DHCP server, then the Vanguard is listed in the Device Information window after BusView is started.
- **STATIC IP:** If the Vanguard is not listed, or if your network does not use a DHCP server, see "Getting Started with BusView®" in the Vanguard User Guide for instructions on how to configure your Vanguard with a static IP address.

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**Note –** A Crossover Ethernet cable (not supplied) is required if you are connecting to the Vanguard Ethernet port directly from your PC.

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If your Vanguard model has a display, it will show the IP address of the Vanguard once connected via a network.


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## Connecting via USB Cable

1. Connect a USB cable from the USB port on the front panel of your Vanguard to a free USB port on your PC.
2. Once connected, let the “New Hardware Wizard” install the necessary drivers automatically.

   If the New Hardware Wizard does not start, you can start it manually as follows:

   **Windows 2000 -** Click Start, Settings, and Control Panel and double-click Add/Remove Hardware. In the Add/Remove Hardware dialog box, click Next. Then choose “Add/ Troubleshoot a device” and click Next again.

   **Windows XP -** Click Start, Control Panel, Add Hardware. In the Found New Hardware Wizard dialog box, click Next.

   **Windows Vista -** Click Start, Control Panel, select ‘System & Maintenance’, select ‘Device Manager’. In Device Manager, select Action then Scan for Hardware.
3. The operating system may ask you to confirm the driver because it has not been digitally signed by Microsoft. Choose accept.

If a driver cannot be found, refer to “Troubleshooting” on page 16.

Once the driver is installed, BusView is ready to communicate with your Vanguard.



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# 7 Starting BusView®

Start BusView by double-clicking on the BusView icon on the desktop.

1. BusView will begin by performing a scan to find available connections and will display these in the Device Information dialog box.

   The scan can be started manually by selecting “Hardware Connection” from the “Tools” menu or by pressing the Scan button from the toolbar.

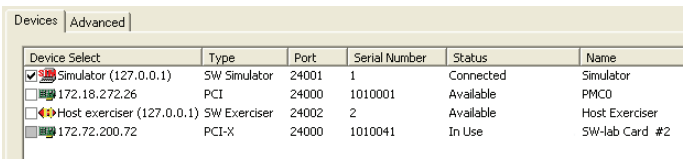



**FIGURE 4.** *Device Information dialog*

2. Select the required device and click OK.
3. You may be prompted for a license key. This can be found on the DVD case.
4. BusView should now automatically connect to the Vanguard. Connection status is shown in the Status window.

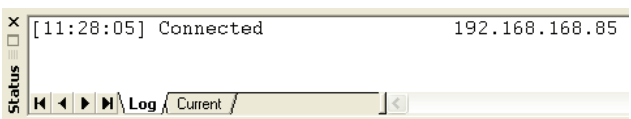



**FIGURE 5.** *Connection Status*


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# 8 Troubleshooting

## Connection Problems

There are several reasons why a connection attempt may fail, but incorrect cabling and communication settings are the most common.

- Reset the Vanguard by pressing the Reset button on the front panel and try connecting manually by entering its IP address in the Advanced tab of the Device Information dialog box.
- Check that the Vanguard is booting by performing the following test:
  1. Remove all cabling from the Vanguard.
  2. Press the Reset button on the front panel of the Vanguard.
  3. Once the Vanguard has booted, the green LED on the Vanguard should flash slowly and the dot matrix display (if available) will show
     `IP: Invalid.`
     If this is not the case, then the analyzer is not booting due to a hardware malfunction or insufficient power.
- Verify that the cables used are the correct ones and not damaged.
- Check that the PC runs a compatible version of Windows (**Window 2000, Windows XP** or **Windows Vista**).


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## USB Related problems

- Is the USB driver properly installed? The driver should be installed automatically when Windows detects the Vanguard as a new USB device. Follow the instructions from the Windows driver installation Wizard. If Windows fails to locate the USB driver, direct the New Hardware Wizard to the following directory on the BusView CD-ROM:
  `Drivers/x32 (for 32 bit operating system)`
  `Drivers/x64 (for 64 bit operating system)`
- Try using a different USB device (Such as a mouse or keyboard), to verify that the USB port is functioning properly. If not, check that USB is enabled in the BIOS.

## Windows Firewall Issues

***For Windows Vista, or Windows XP Service Pack 2.***

When BusView is started for the first time (per user), you may be asked if BusView network traffic should be blocked or unblocked. Select ‘unblocked’. Failing to do so will result in BusView not being appended to the Windows Firewall exception list, which will result in BusView not being able to see any Vanguard Analyzers on the network.

If ‘blocked’ is selected, you can add BusView to the exception list by opening the Windows Firewall options and select BusView 5 in the Firewall exception list.


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## BusView Problems

The Exerciser is enabled by default. The Exerciser can be disabled from within the Exerciser menu. See the Exerciser section in the Vanguard User Guide for more information.

To begin a new session once BusView has started, right click the appropriate folder in the Workspace window and select New.

Be sure to read the **readme.txt** file for the latest release information.

## General Problems

- Verify that the software key issued is correct for the modules ordered. You can do this by viewing the Authorization dialog box opened from the Tools menu in BusView.
- **To use the Vanguard hardware without Busview**: See the **readme.txt** file in the Drivers directory (BusView CD-ROM) for instructions.


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# 9 Accessories

Vanguard Cables and Accessories:

| Part Number | Description |
|---|---|
| 401-VG-ETH | Ethernet cable |
| 401-VG-ETS | External Temperature Sensor |
| 401-VG-USB | USB cable |
| 401-VG-EPSU | External Power Supply (cable included) |
| 4945-K-24 | Square pin receptacle to BNC male cable (0.6m/2ft) |
| 401-VG-TL | 8 patch leads of various colors for pin header I/O, 4 micrograbber test clips. |


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# *Notes*


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