VANGUARD PCI0SL Bus Analyzer

Installation Guide

Document No. A-T-MI-BAPCI0SL-A-0-A2

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Revised: May 4, 2017

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VANGUARD Bus Analyzer

1 TECHNICAL SUPPORT

1.1 Technical Documentation and Contact Information

Technical documentation is provided with all of our products. This documentation describes the technology, its performance characteristics, and includes some typical applications. It also includes comprehensive support information, designed to answer any technical questions that might arise concerning the use of this product. We also publish and distribute technical briefs and application notes that cover a wide assortment of topics. Although we try to tailor the applications to real scenarios, not all possible circumstances are covered.

While we have attempted to make this document comprehensive, you may have specific problems or issues this document does not satisfactorily cover. Our goal is to offer a combination of products and services that provide complete, easy-to-use solutions for your application.

If you have any technical or non-technical questions or comments, contact us. Hours of operation are from 8:00 a.m. to 5:00 p.m. Eastern Standard/Daylight Time.

- Phone: (937) 252-5601 or (800) 252-5601
- E-mail: **DTN_support@curtisswright.com**
- Fax: (937) 252-1465
- World Wide Web address: www.cwcdefense.com

1.2 Ordering Process

To learn more about Curtiss-Wright Defense Solutions' products or to place an order, please use the following contact information.

- E-mail: **DTN_info@curtisswright.com**
- World Wide Web address: http://www.cwcdefense.com/

To contact a local Curtiss-Wright sales representative go to: http://www.cwcdefense.com/sales.html and point to your location on the map presented, then click on the pop-up with the sales representative's name.

1.3 Quality Assurance

Curtiss-Wright's Corporate policy is to provide our customers with the highest quality products and services. In addition to the physical product, the company provides documentation, sales and marketing support, hardware and software technical support, and timely product delivery. Our quality commitment begins with product concept, and continues after receipt of the purchased product.

Curtiss-Wright's Quality System conforms to the ISO 9001 international standard for quality systems. ISO 9001 is the model for quality assurance in design, development, production, installation and servicing. The ISO 9001 standard addresses all 20 clauses of the ISO quality system, and is the most comprehensive of the conformance standards.
Our Quality System addresses the following basic objectives:

- Achieve, maintain, and continually improve the quality of our products through established design, test, and production procedures.
- Improve the quality of our operations to meet the needs of our customers, suppliers, and other stakeholders.
- Provide our employees with the tools and overall work environment to fulfill, maintain, and improve product and service quality.
- Ensure our customer and other stakeholders that only the highest quality product or service will be delivered.

The British Standards Institution (BSI), the world's largest and most respected standardization authority, assessed Curtiss-Wright's Quality System. BSI's Quality Assurance division certified we meet or exceed all applicable international standards, and issued Certificate of Registration, number FM 31468, on May 16, 1995. The scope of Curtiss-Wright's registration is: "Design, manufacture and service of high technology hardware and software computer communications products." The registration is maintained under BSI QA's bi-annual quality audit program.

Customer feedback is integral to our quality and reliability program. We encourage customers to contact us with questions, suggestions, or comments regarding any of our products or services. We guarantee professional and quick responses to your questions, comments, or problems.

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VANGUARD Bus Analyzer

2 INSPECTION

2.1 Before Beginning

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 CompactPCI 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).

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 Curtiss-Wright immediately.

2.2 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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3 CONFIGURATION and INSTALLATION

3.1 Removing and Isserting the SAM

The SAM (State Analyzer Module) can be used with the VG-PCI0SL as well as the VME, PCI, and CompactPCI carrier boards. The following instructions describe how to remove the SAM from one of these carrier boards, and install it onto a different one.

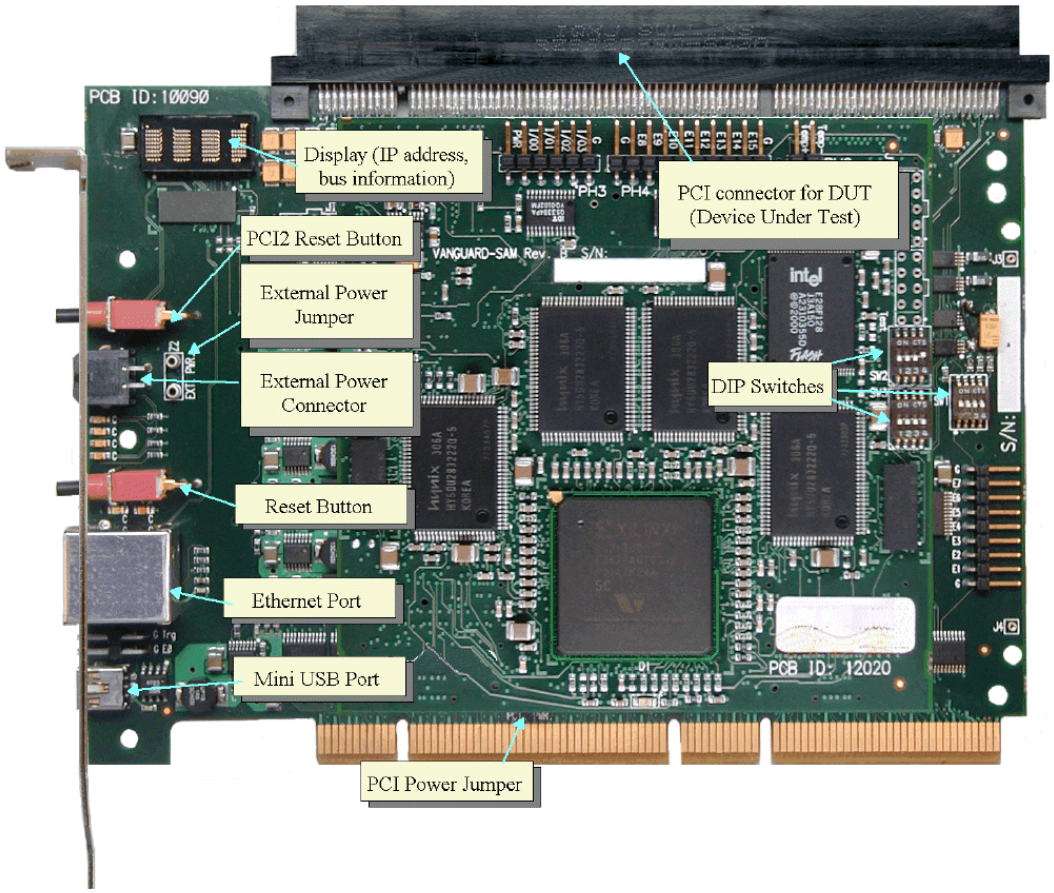
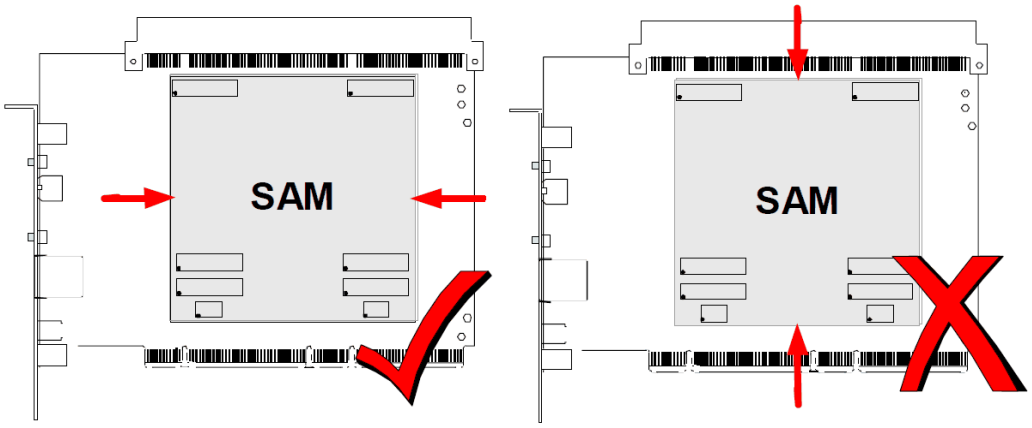


Figure 3-1 VG- PCI0SL Assembly with SAM Mounted

Removing the SAM

1. Wear an anti-static wrist strap or follow the instructions under “Precautions in Handling and Storage” section.
2. Ensure the carrier board containing the SAM is placed on a surface with suitably controlled anti-static properties.
3. Lift the SAM off the carrier board by carefully rocking the SAM off from the sides that are not connected to the carrier board as shown.

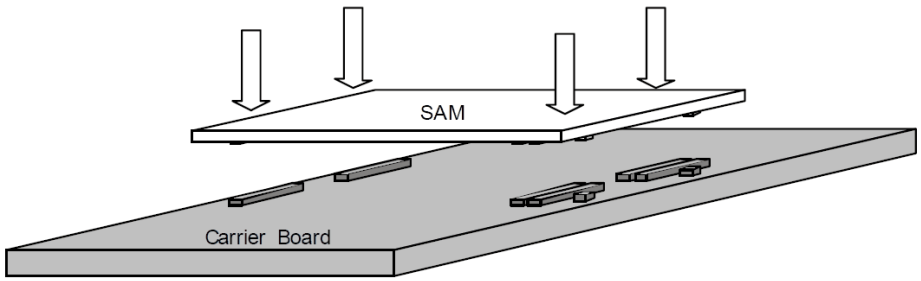
NOTE: Be careful when removing the SAM. The connectors may become damaged if they are forced at an angle.



4. Place the SAM inside an anti-static bag.

Installing the SAM

1. Wear an anti-static wrist strap or follow the instructions under “Precautions in Handling and Storage” section.
2. Ensure that the carrier board in which the SAM is to be installed is on a surface with suitably controlled anti-static properties.
3. Remove the SAM from its anti-static bag and and line up the connectors with the receptors on the carrier board.
4. Firmly but gently press the SAM onto the carrier board. You should hear a “snap” as the connectors slot together.
5. Inspect the connectors to ensure that they are all seated correctly.



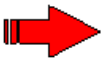
NOTE: The SAM will automatically detect the carrier card. There are no jumper, switch or software changes required when moving the SAM to another carrier.

3.2 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 3-1.

Table 3-1 Power consumption, VG-PCI0SL 3.3 V

Min(Idle)	Max
2.70 A	5.20 A



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. The Vanguard is compliant with PCI spec. 2.2 and requires 3.3 V to be supplied in the slot.

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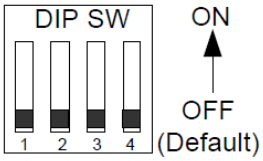
3.3 Installing the Hardware

Slot Selection

- The Vanguard can be installed in any 32 or 64 bit slot in a PCI/ PCI-X motherboard.

Default Configuration

Before installing the VG-PCI0SL, ensure that all DIP switches indicated in Figure 3-1 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.

Insertion the Vanguard PCI0SL Assembly

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 in the "Precautions in Handling and Storage" section.
3. Remove the VG-PCI0SL 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.
7. Firmly, but gently, push the card into the slot until it is all the way in.
8. Secure the VG-PCI0SL to the system by mounting the screw on the front panel.

Mounting another PCI Device

A PCI card can be mounted on top of the VG-PCI0SL.

1. Ensure the power is disconnected to the system.
2. Wear an anti-static wrist strap or follow the instructions in the "Precautions in Handling and Storage" section.
3. Take the card and line up the gold connectors with the DUT slot on the VG-PCI0SL. The slot is shaped so that the card will only fit one way.
4. Firmly, but gently, push the card into the slot until it is all the way in.

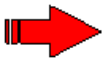
3.4 Installing the Software

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 7, Windows 8, or Windows 10 operating system.
- Minimum of 1 GB of free hard disk space.
- USB port or Ethernet network.

Installing Bus View

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.



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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4 CONNECTING to the VANGUARD

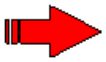
4.1 Connecting via Ethernet

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.



NOTE: A Crossover Ethernet cable (not supplied) is required if you are connecting to the Vanguard Ethernet port directly from your PC

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

4.2 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: Click Start, Control Panel, select 'System', select 'Device Manager'. In Device Manager, select Action then Scan for hardware changes (this may require administrative privilege).
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 the "Troubleshooting" section. Once the driver is installed, BusView is ready to communicate with your Vanguard.

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5 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.

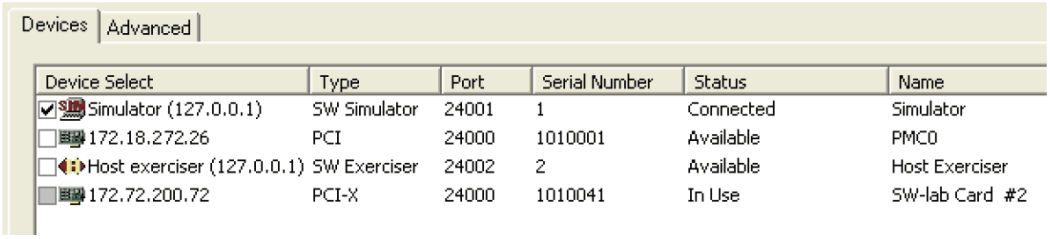

Figure 5-1 Device Information Dialog

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.

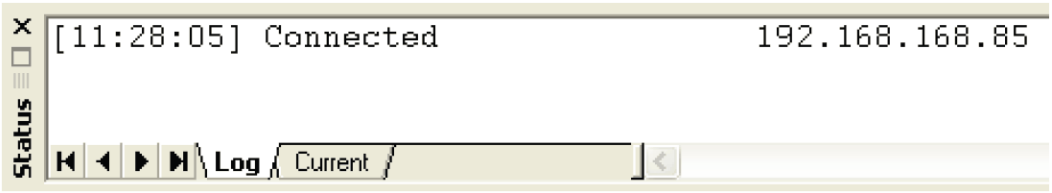

Figure 5-2 Connection Status

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6 TROUBLESHOOTING

6.1 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 **(Windows 7, Windows 8, or Windows 10)**.

6.2 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.

6.3 Windows Firewall Issues

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.

6.4 BusView Problems

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.

6.5 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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7 ACCESSORIES

7.1 Vanguard Cables and Accessories

Part Number	Description
401-VG-ETH	Ethernet cable.
401-VG-ETS	External Temperature Sensor.
401-VG-USB	USB cable.
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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