

Gigabit Installation Guide

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About This Guide

This manual provides installation instructions for System 3 workstations with a Gigabit interface. It is intended primarily for users who already have a TDT system and need to reinstall drivers or set-up the system to work on a different PC.

Important! Support for the Gigabit interface is available in TDT Drivers version 70 or earlier. This version of the drivers is available on the TDT Website, www.tdt.com.

Important! TDT Drivers must be installed before connecting any TDT hardware to your PC.

RZ series devices, such as the RZ2, RZ5 or RZ6; use an integrated Optibit interface. RM form factor devices, such as the RM1 or RM2, use a USB interface. If your system includes any of these devices you cannot use the Gigabit interface. See the *System 3 Installation Guide* for instructions on installing these devices using the Optibit or USB interface or contact TDT for assistance.

If your system includes System II instrumentation, such as XBUS device caddie, an AP2 card, or OP2 card; please use the *Quick Start System II/3 Installation Guide*, available from TDT.

For more information about each device in your system, see the *System 3 manual*.

System Requirements

All System 3 workstations are PC based.

32-bit Windows XP® is the recommended operating system. The Gigabit interfaces require Windows XP or Windows 2000.

The Gigabit (PI5) PCI interface cards require a 3.3 Volt compliant PCI slot (v 2.2 or greater). Most PCs include suitable PCI slots.

The TDT Drivers

The TDT Drivers are required for all System 3 devices under computer control.

Uninstalling Previous TDT Driver Versions

If you have previously installed the TDT drivers, use Add/Remove Programs in the Windows Control Panel to uninstall the previous version before proceeding.

Identifying the Hardware

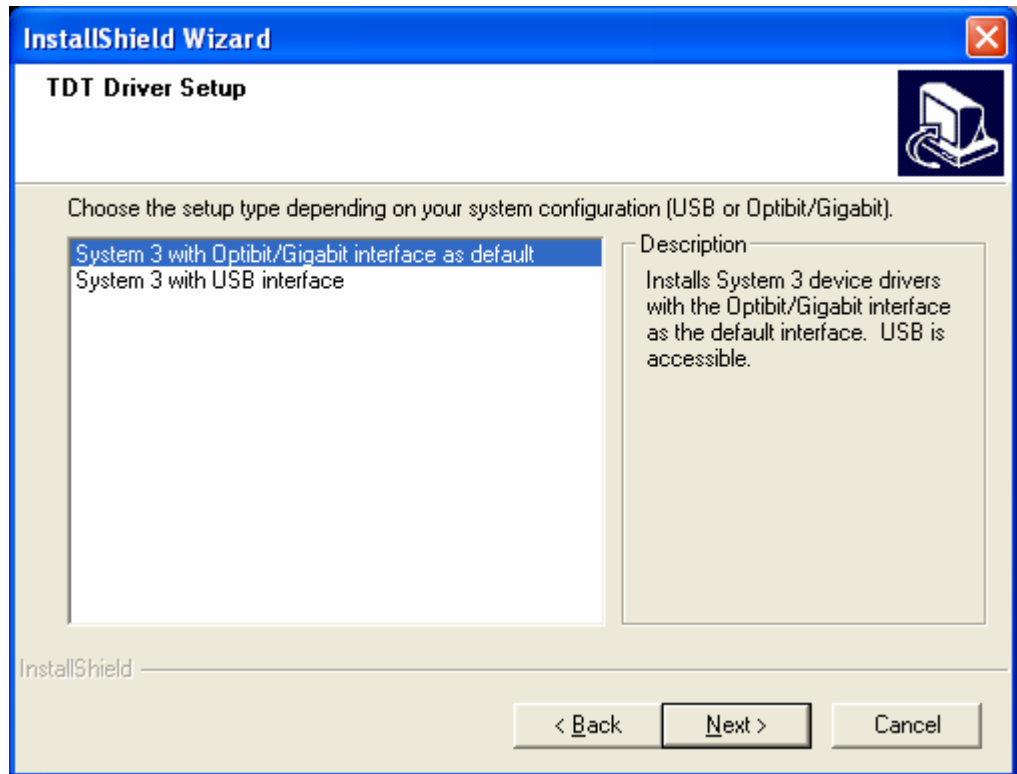
Before you install the TDT drivers check the back of the zBUS chassis to verify what interface your system uses. This guide is only for systems using the Gigabit (PI5/FI5) interface.

Installing TDT Drivers

The TDT Drivers must be installed before connecting any TDT hardware to your PC.

To install the TDT Drivers:

1. Download v70 from the TDT website downloads page the launch the installation.
2. The InstallShield Wizard opens and will guide you through the installation.



The option chosen on the TDT Driver Setup page of the wizard determines the setup files that are activated. Choose the **System 3 with Optibit/Gigabit interface as default** option.

3. Restart the computer to complete the driver installation.

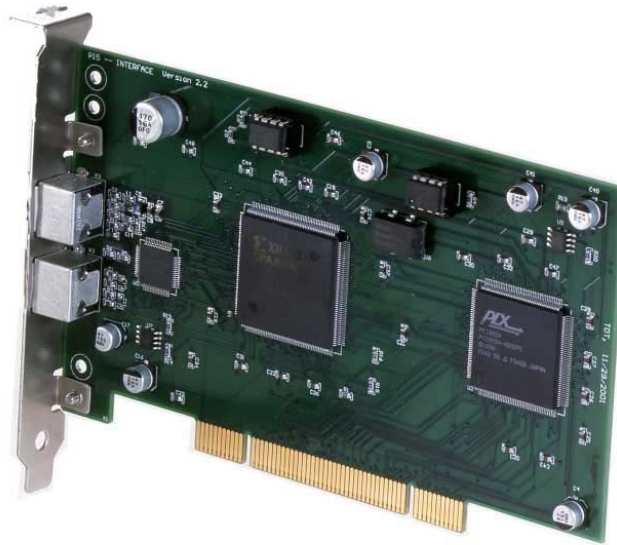
After the TDT Drivers have been installed, the system interface and hardware should be set-up and tested. After you have installed your hardware you can download and install any other software you have previously purchased for your system. Contact TDT for assistance in determining which version of the application software you should use.

Hardware Set-up

The modular nature of the system supports flexible configuration. Most devices are shipped in a device chassis, such as ZB1PS, along with an interface module mounted in the back slot of the chassis.

Installing the Gigabit Interface

Systems with Gigabit interfaces include one or more FI5 zBUS modules (often pre-installed in the zBUS device chassis), connector cables (two 5 meter cables to connect the PI5 to the TDT modules and possibly one or more 30 cm cables to connect multiple TDT chassis) and a PI5 PCI card.



PI5 Gigabit Interface Card

The PI5 Gigabit interface card is a PCI card to be installed in the PC that you will use with your System 3 devices. If the PI5 card is already installed in the computer you can skip to the Assembling zBUS Chassis with Gigabit Interface section (page 5).

To install the PI5 Gigabit Interface card:

1. Turn off the PC and open the cover.



WARNING!: To prevent damage to the PI5 card and computer, turn off the computer before installing the PI5 card. Leave the computer plugged in so that it remains grounded.

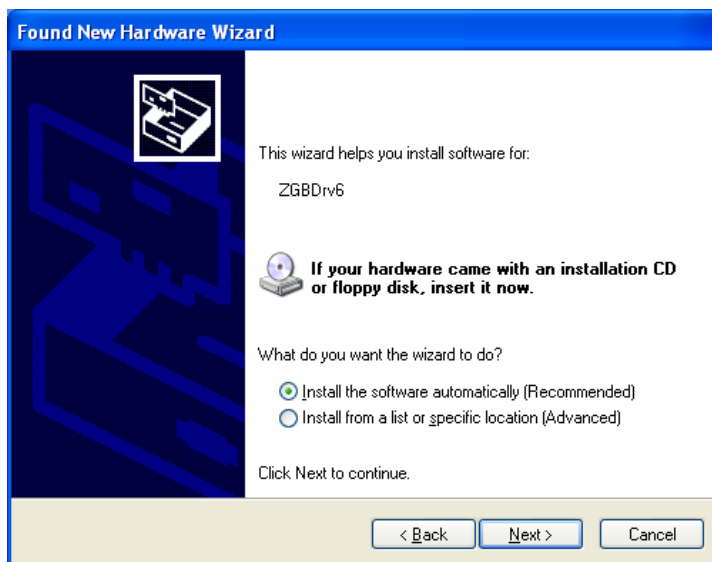
2. Insert the PI5 card in an empty, 3.3V compliant PCI slot (v 2.2 or greater) in the computer. Make sure that the card is firmly seated in the slot. You may experience communication

problems if you install a PI5 card in a PCI-X slot.

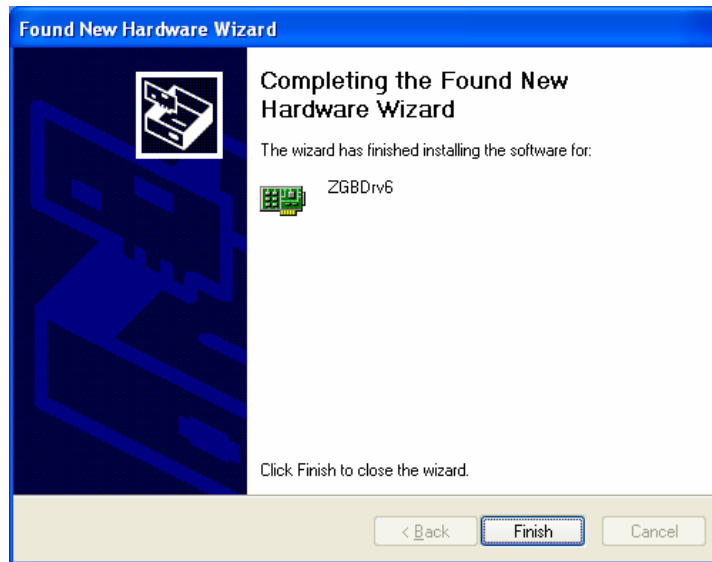
3. Reconnect hardware devices such as monitors, mice, and keyboards as needed.
4. Restart the PC. Once the computer has gone through its start up sequence the Found New Hardware Wizard will open.



5. On the first page of the Found New Hardware Wizard, select **No**, not at this time and click **Next**.
6. On the next page (see below) make sure that the **Install the software automatically (Recommended)** option is selected, and then click **Next**.



The wizard searches for the device drivers.



7. Click **Finish** on the final page of the Wizard to complete driver installation.

You can now connect the PI5 Gigabit interface card to the FI5 interface on the zBUS device chassis.

Assembling zBUS Chassis with Gigabit Interface

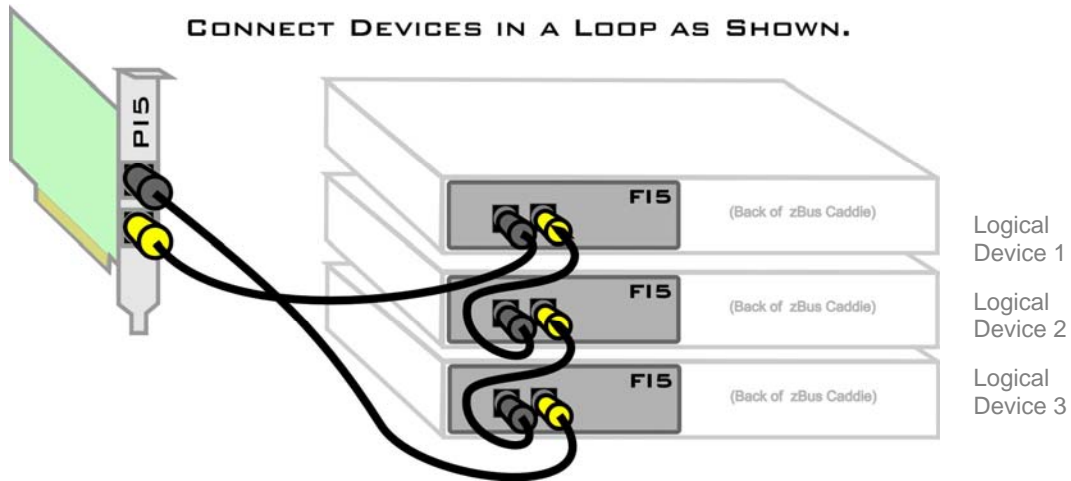


PI5 and FI5 Gigabit Interface

The zBUS chassis connect to the PI5 (Gigabit interface card) through the FI5 Gigabit interface modules. The connection between PI5 and FI5s form a loop.

Connect the output from the PI5 (yellow connector) to the input on the FI5 (black connector) via the included cable.

Connect the output from the FI5 (yellow connector) to either the input on another FI5 (black connector) or to the input on the PI5 card (black connector) via included cable(s). The diagram below shows the connections between devices.



Powering the Gigabit System On

To test the Gigabit interface, turn on the PC and the zBUS device chassis. The zBUS chassis do not need to be powered on in any particular order. Once powered, the green indicator light on the power switch of the zBUS chassis will flash regularly (~1 Hz) until communication is initiated by TDT software such as zBUSmon, RPvdsEx or OpenEx. After this initial communication, the green light will glow steadily. You will also notice the power indicator light pulsing when data is being transferred to or from the zBUS rack.

Important!: The PI5 is not compatible with the Windows XP and 2000 Standby and Hibernate features. TDT recommends configuring PC Power Options to never use these modes for any PC used to run TDT applications.

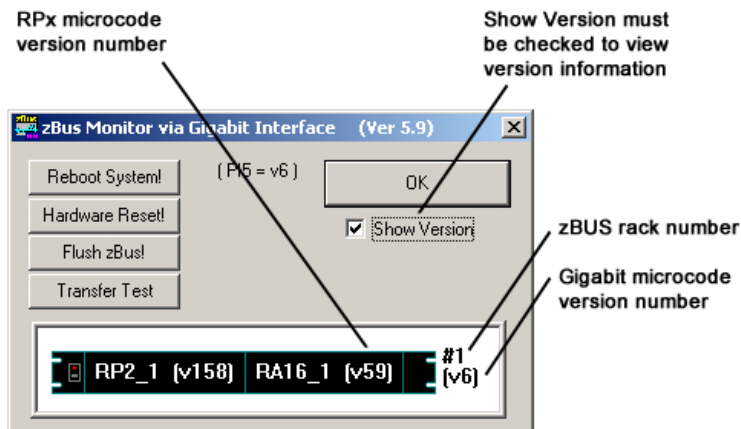
Testing the Gigabit Interface

To test the interface, turn on the PC and the zBUS device chassis. The zBUS chassis do not need to be powered on in any particular order. A steady green indicator light on the power switch means the connection is good. A steady flashing light indicates a bad connection. If the indicator light is flashing, turn the chassis on and off. If this does not fix the problem check all connections.

When all devices are connected correctly open up the zBUSmon program.

To open zBUSmon:

- Click the **Start** button on the Windows taskbar, point to **Programs**, point to **TDT Sys3**, and click **zBUSmon**.



The device name and microcode version number for each programmable device are displayed in the hardware diagram. The Gigabit version number is displayed to the right of each chassis in the diagram. The logical device number of the zBUS chassis is also displayed to the right of the chassis. The order should reflect the order of the connections between devices (see diagram page 6).

A Transfer Test can be used to test data transfer both to and from the PC.

To perform a transfer test:

- Ensure the **Show Statistics** check box is selected.
- Click the **Transfer Test** button in zBUSmon.

If successful, you should see the amount of data transferred to and from the PC with no errors.

Updating Your System

Typically, when adding new modules to an existing system, you will need to update the microcode on existing devices to match the latest version of drivers supplied with your new modules.

About the Microcode

The microcode is low-level software that resides in flash memory on the System 3 processor devices. The microcode contains the DSP instructions for the RPvdsEx processing components. Because the System 3 design allows users to update this software quickly and efficiently, users can take advantage of the latest software tools available without purchasing new equipment or sending devices to our manufacturing facility for upgrades.

When should the microcode be updated?

Every time a new version of RPvdsEx is installed on the host PC, the microcode should be updated on all processors in the system. This includes programmable devices that may have been purchased prior to your new system. New versions of the files need to update the microcode are always

included in the TDT Drivers installation.

How is the microcode updated?

Users must update the microcode using the System 3 Device Programmer (PrgG21K.exe). This program is copied to the host PC during TDT Drivers installation and is stored in the following directory: C:\TDT\RPvdsEx\RPProg. For detailed instructions on how the microcode is updated for specific TDT processors check the Updating Microcode Fast Facts guide available on the TDT website Support page.

Adding and Rearranging zBUS Modules

The zBUS is TDT's high-speed, low-noise bus for System 3 modules. Each zBUS device chassis has two bays for System 3 modules in the front. (**Note:** some devices, such as the RX5 and other high performance processors, require two slots for a single device.) There is one bay in the back for the interface module. The integrated Power Supply is used to power one zBUS chassis and all of the modules in that chassis.

Removing Modules from the zBus

Make sure the zBus is powered off. To remove a module from the zBus, unscrew the two thumbscrews on the corner of the module faceplate. Then pull straight out on the front-panel BNC connectors to remove the module from the zBus. A BNC 'T' connector makes a great handle for removing zBus devices.

Adding Modules to the zBus

Make sure the zBus is powered off. To add a module, insert the module into an empty bay and push straight back until it seats onto the connector. Hold the module in place with the thumbscrews.

Hardware Warranty

TDT System 3 hardware carries a five-year warranty on parts and labor. Custom hardware carries a one-year warranty on parts and labor. ES1 and EC1 carry a two-year warranty. Contact TDT to obtain an RMA (return merchandise authorization) number before returning any hardware. Repairs are usually completed within one week of receipt. Package the hardware carefully and label the outside of the box with the RMA number.

Ship to:

TDT
11930 Research Circle
Alachua, FL 32615

PDF Manuals and Electronic Documents

The TDT manuals include technical details about your system.

Every system includes the following two manuals:

- System 3 Manual, for information on system hardware.
- RpvdsEx Manual, for information on processor control.

Note: The System 3 and RpvdsEx Manuals are automatically installed on your computer when you install the TDT drivers

The latest electronic documents and PDF versions of all TDT manuals are always available on our website at <http://www.tdt.com/downloads/sys3docs.htm>.

To view TDT manuals or electronic documents after installation:

- After installation, TDT Manuals are stored in the default help directory:
C:\TDT\TDTHelp\

Installation Anomalies and Tech Notes

A complete listing of anomalies is also maintained in the Support area of the TDT Website. It can be found at: <http://www.tdt.com/support.htm>

TDT Driver Anomalies and Tech Notes

Installing TDT drivers (with the Optibit/Gigabit as the default option) on a PC running Windows 2000 SP4 causes the PC to crash on start-up. If possible, upgrade to Window XP to avoid this issue.

During installation, the following messages may appear:

- Locked file cannot be deleted; do you want to try again?
- Shared file, do you want to delete?
- Read-only file, do you want to delete?

Choose Ignore for locked files, Yes for shared files, and Yes for read-only files.

Attempting to close the zBUSmon program may cause the following error to occur: Device in Debug mode. This makes it impossible to close zBUSmon. Instead of shutting down your system try unplugging the USB cable from the device chassis. This should cause the monitor to close, however, sometimes a "Blue Screen" will occur.

Gigabit Anomalies and Tech Notes

Problems loading drivers may occur when the C:WINNT\inf folder is not visible. In Windows Explorer choose Tools|Folder Options, then choose View|Hidden Files and Folders, and select Make Visible.

After installing the Gigabit PCI card in your computer, there may be a conflict with how the PC communicates with the card and other devices in the system. This could lead to the following error message when performing a transfer test in zBUSmon: "System Test Error: Cycle power on system and test again." If you experience system problems and find the IRQ number to be the same on another device, then you should move the PI5 card to another PCI slot in your machine.

Troubleshooting

Windows 2000, XP, and Digital Signatures

Windows checks the hardware drivers for a digital signature. If Windows blocks installation of the drivers do the following:

1. Right-click the My Computer icon on your desktop, and click Properties on the shortcut menu.
2. In the System Properties dialog box click the Hardware tab, and click the Driver Signing button. Select a setting option that will ignore digital signatures or warn you if the driver is not signed. For more information on this issue go to the following Web page:

http://www.microsoft.com/resources/documentation/Windows/XP/all/reskit/en-us/Default.asp?url=/resources/documentation/Windows/XP/all/reskit/en-us/prdh_dmt_qrxm.asp

Programmable Devices Not Found

If you do not see any programmable modules in the zBUS Monitor program and you are using a USB interface, turn off all zBUS chassis, check the USB connections, and then turn the zBUS chassis back on.

Other Issues

Contact TDT at 386-462-9622 or support@tdt.com if you continue to have trouble.