Xgig1000

Hardware Guide

Xgig1000

Hardware Guide

Viavi Solutions
1-844-GO-VIAVI
www.viavisolutions.com

Notice

Every effort was made to ensure that the information in this manual was accurate at the time of printing. However, information is subject to change without notice, and Viavi reserves the right to provide an addendum to this manual with information not available at the time that this manual was created.

Copyright/Trademarks

Copyright release

Terms and conditions

Specifications, terms, and conditions are subject to change without notice. The provision of hardware, services, and/or software are subject to Viavi’s standard terms and conditions, available at www.viavisolutions.com/en/terms-and-conditions.

Federal Communications Commission (FCC) Notice

This product was tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

The authority to operate this product is conditioned by the requirements that no modifications be made to the equipment unless the changes or modifications are expressly approved by Viavi.

WEEE and Battery Directive Compliance

Viavi has established processes in compliance with the Waste Electrical and Electronic Equipment (WEEE) Directive, 2002/96/EC, and the Battery Directive, 2006/66/EC.

This product, and the batteries used to power the product, should not be disposed of as unsorted municipal waste and should be collected separately and disposed of according to your national regulations. In the European Union, all equipment and batteries purchased from Viavi after 2005-08-13 can be returned for disposal at the end of its useful life. Viavi will ensure that all waste equipment and batteries returned are reused, recycled, or disposed of in an environmentally friendly manner, and in compliance with all applicable national and international waste legislation.

It is the responsibility of the equipment owner to return equipment and batteries to Viavi for appropriate disposal. If the equipment or battery was imported by a reseller whose name or logo is marked on the equipment or battery, then the owner should return the equipment or battery directly to the reseller.

Instructions for returning waste equipment and batteries to Viavi can be found in the Environmental section of Viavi's web site at www.viavisolutions.com. If you have questions concerning disposal of your equipment or batteries, contact Viavi's WEEE Program Management team.

Contents

About This Guide

Purpose and Scope

The purpose of this guide is to help you successfully use the Xgig1000 features and capabilities. This guide includes task-based instructions that describe how to install, configure, use, and troubleshoot the Xgig1000. Additionally, this guide provides a complete description of Viavi's warranty, services, and repair information, including terms and conditions of the licensing agreement.

Assumptions

This guide is intended for novice, intermediate, and experienced users who want to use the Xgig1000 effectively and efficiently. We are assuming that you have basic computer and mouse/track ball experience and are familiar with basic telecommunication concepts and terminology.

What this Guide Contains

The chapters contain the following information:

Chapter 1 "Xgig1000 System Overview" describes each of the Xgig1000 system chassis in detail, including a description, an illustration, and a description of front and rear panel ports, connectors, buttons, and indicators. System specifications are also included.

Chapter 2 "Xgig1000 System Setup" provides information on how to unpack and place your system, how to set up your system, as well as discovery information and system startup and shutdown sequences.

Chapter 3 "Administration" describes how to perform administrative tasks on your system, as well as licensing and upgrades.

Chapter 4 "Tips and Troubleshooting" provides information on basic troubleshooting and restarting your system from a recovery drive. Additional tips are also provided.

Appendix A "Accessories for the Xgig1000 System" describes additional accessories provided with your system.

Appendix B "Tips and Troubleshooting for First Generation Chassis" provides information on basic troubleshooting and restarting your system from a recovery drive if you have a first generation chassis. Additional tips are also provided.

Safety and Compliance Information

Safety and compliance information for the instrument are provided in printed form and ship with your instrument.

It is mandatory to permanently connect this device to the protective earth.

When powering this device, always use an AC power cable that includes an earth (safety) ground connection.

WARNING

Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage and other hazards. Refer all servicing to qualified service personnel.

CAUTION

This equipment contains parts and assemblies sensitive to electrostatic discharge (ESD). Use ESD precautionary procedures when touching, removing, or inserting ESD sensitive parts and assemblies, or damage to components could result.

An electrostatic-sensitive device can only withstand voltage spikes of 10 to 100 volts. Any discharge greater than this can damage or effectively destroy such a device while going unnoticed by a technician. Common plastics (synthetic insulating materials), clothing, and paper or cardboard are the most common source of static charges.

Conventions

This guide uses typographical and symbols conventions as described in the following tables.

Table 1 Text formatting and other typographical conventions

Item(s)	Example(s)
Buttons, keys, or switches that you press or flip on a physical device.	Press the **On** button. – Press the **Enter** key. – Flip the **Power** switch to the on position.
Buttons, links, menus, menu options, tabs, or fields on a PC-based or Web-based user interface that you click, select, or type information into.	Click **Start**. – Click **File > Properties**. – Click the **Properties** tab. – Type the name of the probe in the **Probe Name** field.
Directory names, file names, and code and output messages that appear in a command line interface or in some graphical user interfaces (GUIs).	`$NANGT_DATA_DIR/results` (directory) – `test_products/users/defaultUser.xml` (file name) – `All results okay.` (output message)
Text you must type exactly as shown into a command line interface, text file, or a GUI text field.	– Restart the applications on the server using the following command: **`$BASEDIR/startup/npiu_init restart`** Type: **`a:\set.exe`** in the dialog box.
References to guides, books, and other publications appear in *this typeface*.	Refer to *Newton's Telecom Dictionary.*
Command line option separators.	`platform [a|b|e]`
Optional arguments (text variables in code).	`login [platform name]`
Required arguments (text variables in code).	`<password>`

Table 2 Symbol conventions

This symbol indicates a note that includes important supplemental information or tips related to the main text.

This symbol represents a general hazard. It may be associated with either a DANGER, WARNING, or CAUTION message. See Table 3 for more information.

This symbol represents hazardous voltages. It may be associated with either a DANGER, WARNING, or CAUTION message. See Table 3 for more information.

This symbol represents a risk of explosion. It may be associated with either a DANGER, WARNING, or CAUTION message. See Table 3 for more information.

This symbol, located on the equipment, battery, or the packaging indicates that the equipment or battery must not be disposed of in a land-fill site or as municipal waste, and should be disposed of according to your national regulations.

Table 3 Safety definitions

Term	Definition
DANGER	Indicates a potentially hazardous situation that, if not avoided, *will* result in death or serious injury. It may be associated with either a general hazard, high voltage, or other symbol. See Table 2 for more information.
WARNING	Indicates a potentially hazardous situation that, if not avoided, *could* result in death or serious injury. It may be associated with either a general hazard, high voltage, or other symbol. See Table 2 for more information.
CAUTION	Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury and/or damage to equipment. It may be associated with either a general hazard, high voltage, or risk of explosion symbol. See Table 2 for more information. When applied to software actions, indicates a situation that, if not avoided, could result in loss of data or a disruption of software operation.

Technical Assistance

If you require technical assistance, call 1-844-GO-VIAVI (1-844-468-4284) or e-mail Techsupport-snt@viavisolutions.com.

For the latest TAC information, go to http://www.viavisolutions.com/en/services-and-support/support/technical-assistance.

1

Xgig1000 System Overview

This chapter provides a general description of the Xgig1000. Topics discussed in this chapter include the following:

Xgig1000 Systems

The Xgig1000 Distributed Systems for Monitoring, Analysis, and Testing are multi-purpose systems designed for product development, field service, and network operations personnel. These chassis are bench setups but can be rack mounted. You can place them at your data center or anywhere on your network. The Xgig1000 chassis can also be directly connected to a PC to create a portable instrument for test or analysis.

The Xgig1000 systems can be accessed remotely using a LAN connection and software to perform tasks. System administration and configuration can be performed over the network.

NOTE

There are two generations of Xgig1000 chassis.

- The first generation does not have a power switch on the back of the chassis.
- The second generation has a power switch on the back of the chassis and comes with a USB System Recovery Drive. This guide assumes you are using a second generation chassis. Early versions of the second generation chassis require that the **Front Panel Reset** button be pressed when the chassis is initially powered up. However, later versions do not require the **Front Panel Reset** button to be pressed when initially powered up.

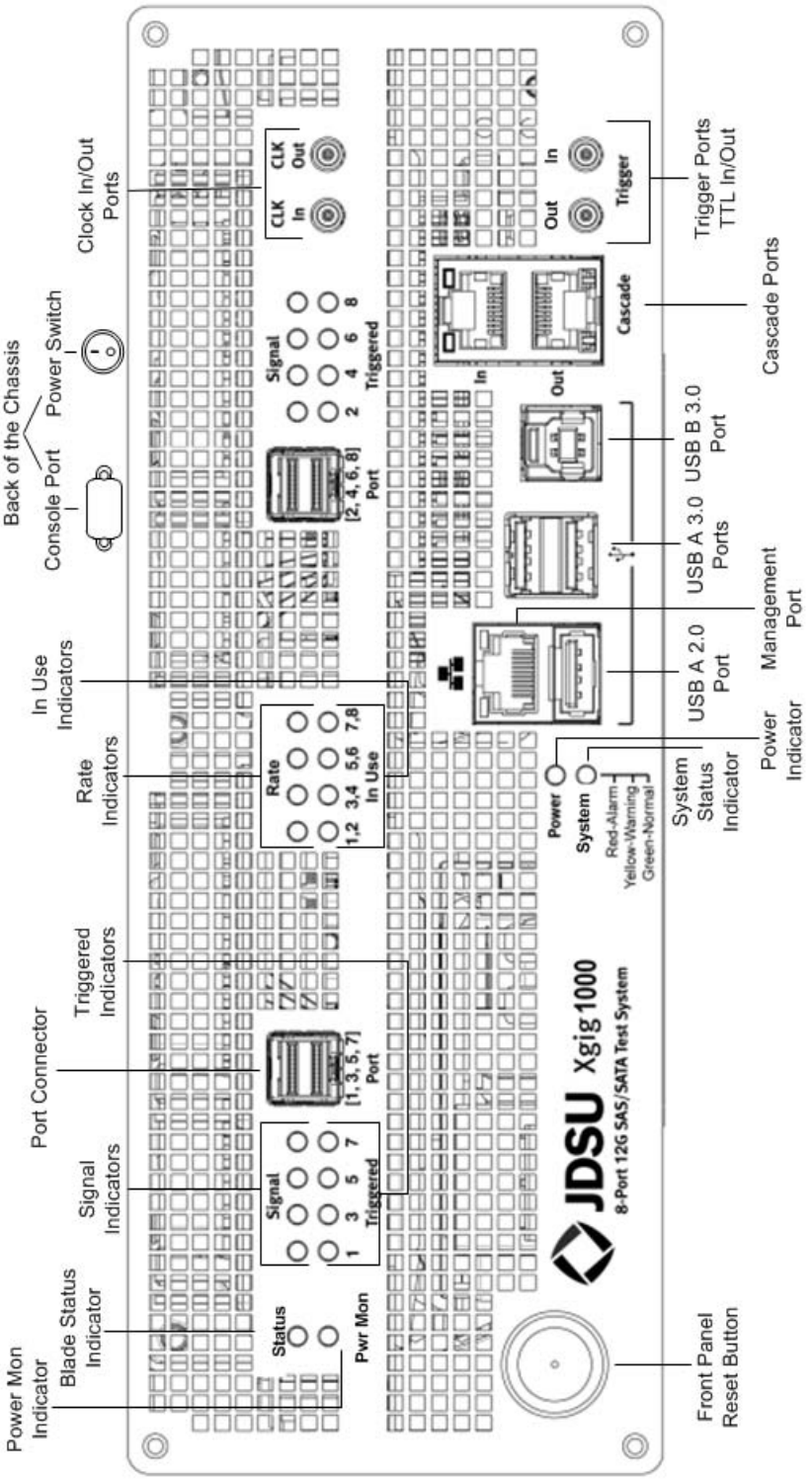
The primary difference in the instructions is in the start up and shutdown sequences. The troubleshooting chapter in this guide is designed for the new generation chassis and includes instructions for the use of the USB System Recovery Drive. Troubleshooting information for first generation chassis is located in the appendix.

Xgig1000 12G SAS Chassis

The Xgig1000 12G SAS is a fixed blade chassis that houses one Xgig 12G SAS blade with 8 ports (four links) that support the Analyzer, Generator, and Jammer functions in Analog Passthrough mode only. The line rates supported are 3.0000, 6.0000, and 12.0000 Gbps. This fixed-blade system does not require or accept Xgig or Xgig5000 blades. The 12G SAS blade in the chassis is designed for use with the SAS-3 protocol. The 12G SAS blade also supports the SATA protocol at 6.0000 Gbps and 3.0000 Gbps. Xgig provides the necessary software tools running in a PC environment to perform the application task using the blade fixed within the chassis.

The Xgig1000 12G SAS chassis is shown in Figure 1.

Figure 1 Xgig1000 12G SAS Chassis



12G SAS System Ports/Connections/Front Panel Reset Button

Management Port

The Management port provides a connection to the 10/100/1000 network or a direct connection to a PC's 10/100/1000 Ethernet adapter. The Management port is used for the following:

- Configuring the Xgig1000 chassis using the Xgig Web Utility
- Controlling the operation of Xgig application-specific blades
- Retrieving data collected by Xgig application-specific blades

Console Port

The Console port is a 9-pin serial port on the back of the chassis. The Console port is used for the following:

- Configuring the Xgig1000 chassis
- Minor troubleshooting
- Selecting the Xgig1000 boot image (this functionality is not available through the Console port for second generation chassis. Instead, these chassis use the USB system recovery drive.)
- Basic administration

The Console port can be used for all system configuration through a command line interface. Configuration commands are passed to Xgig by connecting the Console port to a terminal or to a PC with a terminal emulation program using a cross-over cable. However, configuration is usually performed using the Xgig Web Utility over the internet through the 10/100/1000 Ethernet management port.

Trigger/TTL Ports

The TTL Input and TTL Output ports provide a means of sending or receiving an electrical signal between the Xgig and other instruments for triggering purposes.

The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V). The trigger-in can handle 3.3V or 5.0V inputs, also active-high. Use 50 ohm cables with these ports.

Cascade Ports

The Cascade In and Cascade Out ports provide a means of time-synchronizing up to four Xgig, Xgig5000, and/or Xgig1000 chassis. Cascade Ports are used to share domains and send triggers between chassis.

Cascade ports use standard RJ-45 connectors and straight through CAT5 cables to connect chassis, but use Viavi proprietary protocol to communicate between cascaded units.

USB Ports

Standard USB type A connector may be used with any USB 2.0 device. This includes the USB system recovery drive for second generation Xgig1000 chassis.

3.0 USB type A connectors may be used with any USB 3.0 device.

3.0 USB type B connector may be used with an external host as a Management port for USB administration.

NOTE

A USB driver is installed as part of the installation package. If you choose to connect the chassis using a USB extension cable, you may be prompted to re-install the USB driver.

Clock Ports

The Clock Out port provides a means of using the clock out signal to measure the eye diagram of the output signal from the Analyzer. The Clock Out port accepts a SMA-type cable.

The Clock In port functionality is TBD. This port is reserved for future use.

Port Connectors

The Xgig1000 has two female mini-SAS HD connectors on the front. One connector is typically used for connection to the target, and the other is used for connection to the host. Either port can be used for the host or the target. Standard mini-SAS cables are supplied with the system.

The signals from a mini-SAS connector can be split into single-port outputs (or, single-port inputs can be consolidated into a mini-SAS connector) by using a “hydra” type cable. Using a hydra cable, the chassis can be configured to monitor between a single host and up to four drives.

Front Panel Reset Button

To safely shutdown the operating system and power off the chassis, press and hold the **Front Panel Reset** button for two seconds until the System LED starts blinking yellow. Stop pressing the button as soon as you see the System LED blink. This will allow the system to do a graceful shutdown.

- **For Xgig 1000 units with the original motherboard** (no rear power switch on the back panel), the System LED will become steady yellow when the system has shut-down. This is the indication that you can remove the power cable.
- **For Xgig 1000 units with the new motherboard** (rear power switch on back panel), all LEDs will go dark and the motherboard will show no power when the system has completed the shutdown. At this point the power to both the protocol board and the motherboard has been removed. The only power going into the chassis at that point is into the Power Supply. This is the indication that you can switch the power switch to the off position.

If you press and hold the **Front Panel Reset** button down for six seconds or longer, it forces an abrupt termination and a graceful shutdown may not have completed.

- **For Xgig 1000 units with the original motherboard** (no rear power switch on the back panel), holding the **Front Panel Reset** button for 6 seconds will force the System LED to a steady yellow.
- **For Xgig 1000 units with the new motherboard** (rear power switch on back panel), holding the **Front Panel Reset** button for 6 seconds will turn off the power to both the protocol board and the motherboard.

NOTE

The six second shutdown is not recommended; it is meant to be a last resort option similar to pulling the power plug.

Rear Power Switch

The power switch on the back of the chassis (the **Rear Power** switch) powers on the chassis, but it does not boot up the operating system. To boot up the operating system, turn on the **Front Panel Reset** button. When the operating system has booted up, the System LED changes to green. If the operating system does not boot up automatically, press the **Front Panel Reset** button.

Use the **Rear Power** switch to remove power from the chassis only when the LED on the **Front Panel Reset** button is solid yellow indicating the system has shut down, and it is safe to remove power from the chassis.

12G SAS System/Port Indicators

Power Indicator

This LED is green when the power is on. When the Power LED is off, there is no power to the system such as when the chassis power cable is unplugged and/or the power switch is turn off.

System Status Indicator

This LED is green when the power is on, and the system is in a normal state. When power is applied to the chassis, this LED will go from blue to green. Once the LED turns green, check the Cascade port LEDs to make sure they have stopped flashing indicating that Sync Discovery is complete. A yellow System LED indicates a warning, for example, a pending over temperature condition. A red LED indicates an alarm. This means that a fault exists, for example, an over temperature condition that could cause a system shutdown. The System LED is off when the system is running diagnostic tests, for example on the memory, or when the system is being upgraded.

Status Indicator (for the blade)

The Status LED is for the blade within the Xgig1000 chassis. A solid blue LED indicates the blade is ready to be used. A flashing green LED or a red/purple alternating LED indicates that firmware is being updated. Take care not to disturb the chassis during this process as it will corrupt the firmware. If this process fails, the Status LED is a steady red. If the Status LED starts to blink red, you must power cycle the chassis to complete the firmware upgrade by turning the chassis off using the power switch on the back of the chassis or unplugging the chassis power cord, waiting for 10 seconds, then plugging the power cord back in or turning the chassis on using the power switch. Unpredictable behavior can result if the chassis is not properly power cycled.

If you use the Xgig client to update your chassis, the GUI message will indicate that the upgrade is complete even though there may be a subsequent Xgig1000 blade upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

If you use the web initiated chassis upgrade, the user is directed to the Upgrade Status tab once the upgrade has started. The log displayed in this tab will also indicate the application install has completed, even though there may be a subsequent blade firmware upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

In order to make sure the blade upgrade process is complete, check the Status LED on the blade, or open the Xgig1000 URL, and select the **Status** tab.

NOTE

In the case of a blade upgrade failure, contact the “Technical Assistance” team.

Power Mon Status Indicator

The functionality of this LED is TBD in a future release.

In Use Indicator

For each port, this LED is blue when the port is in use and off when it is not in use.

Signal/Triggered/Rate Indicators

These LEDs are for each port. The meaning of the LEDs is defined in Table 4.

Table 4 12G SAS Blade LEDs

12G SAS Blade LEDs for Analyzer Ports				
LED	**Green**	**Orange/Yellow**	**ON**	**OFF**
Signal	Link present (solid) Traffic coming (flashing)	Error Traffic coming (flashing orange)	N/A	No traffic
Triggered	N/A	N/A	Triggered	Not triggered
Rate	Rate Link speed is not set to the highest rate	Link speed is set to the highest rate (yellow)	N/A	N/A
12G SAS Blade LEDs for Jammer Ports				
LED	**Green**	**Orange**	**Blue**	**OFF**
Signal	Link present (solid) Traffic coming (flashing)	Error Traffic coming (flashing)	N/A	No traffic
Triggered	N/A	N/A	N/A	N/A
Rate	Link speed is 6Gbps	Link speed is 12Gbps	Link speed is 3Gbps	N/A
12G SAS Blade LEDs for Generator Ports				
LED	**Green**	**Orange**	**ON**	**OFF**
Signal	Link present (solid) Traffic coming (flashing)	Error Traffic coming (flashing)	N/A	No Traffic
Triggered	N/A	N/A	Triggered	Not triggered
Rate	Link speed is not set to the highest rate	Link speed is set to the highest rate	N/A	N/A

12G SAS System Specifications

Table 5 Physical Specifications

Height	3.46 in. / 8.79 cm.
Width	9.50 in. / 24.13 cm.

Table 5 Physical Specifications

Depth	15.25 in. / 38.74 cm.
Weight	12.0 lbs. / 5.44 kg
Mount	18.84 in. / 47.85 cm

Table 6 Power Specifications

Power Consumption	375 W
Fuse Protection	5 A 250 V
Input Voltage Range	100–240 VAC
Input Frequency	50/60 Hz
Inrush Current (Peak)	3.5 A @ 100 VAC

Table 7 Port Specifications

Console Port	9-pin serial port connects to PC (cross over cable only)
Management Ports	10/100/1000 RJ-45
Cascade Ports	RJ-45 connection to additional units (straight-through cable only)
TTL Inputs	MCX Connector for Trigger IN (thin coaxial cable only), The trigger-in can handle 3.3V or 5.0V inputs, active-high.
TTL Outputs	MCX Connector for Trigger OUT (thin coaxial cable only), The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V).
USB A 2.0 Port	Type A, version 2.0, Capable of up to 480 Mbps
USB A 3.0 Ports	Type A version 3.0, Capable of up to 5 Gbps
USB B 3.0 Port	Type B version 3.0, Capable of up to 5 Gbps
Clock In	MCX Connector for Transmit Reference Clock Input, 375 MHz, AC-coupled, Typ. 0.8V, Max 1.2V peak-peak
Clock Out	MCX Connector for Transmit Reference Clock Output, 375 MHz, AC-coupled, Typ. 0.8V peak-peak
Port Connectors	mini-SAS HD ports connect to DUT(s)

Table 8 Environmental Specifications

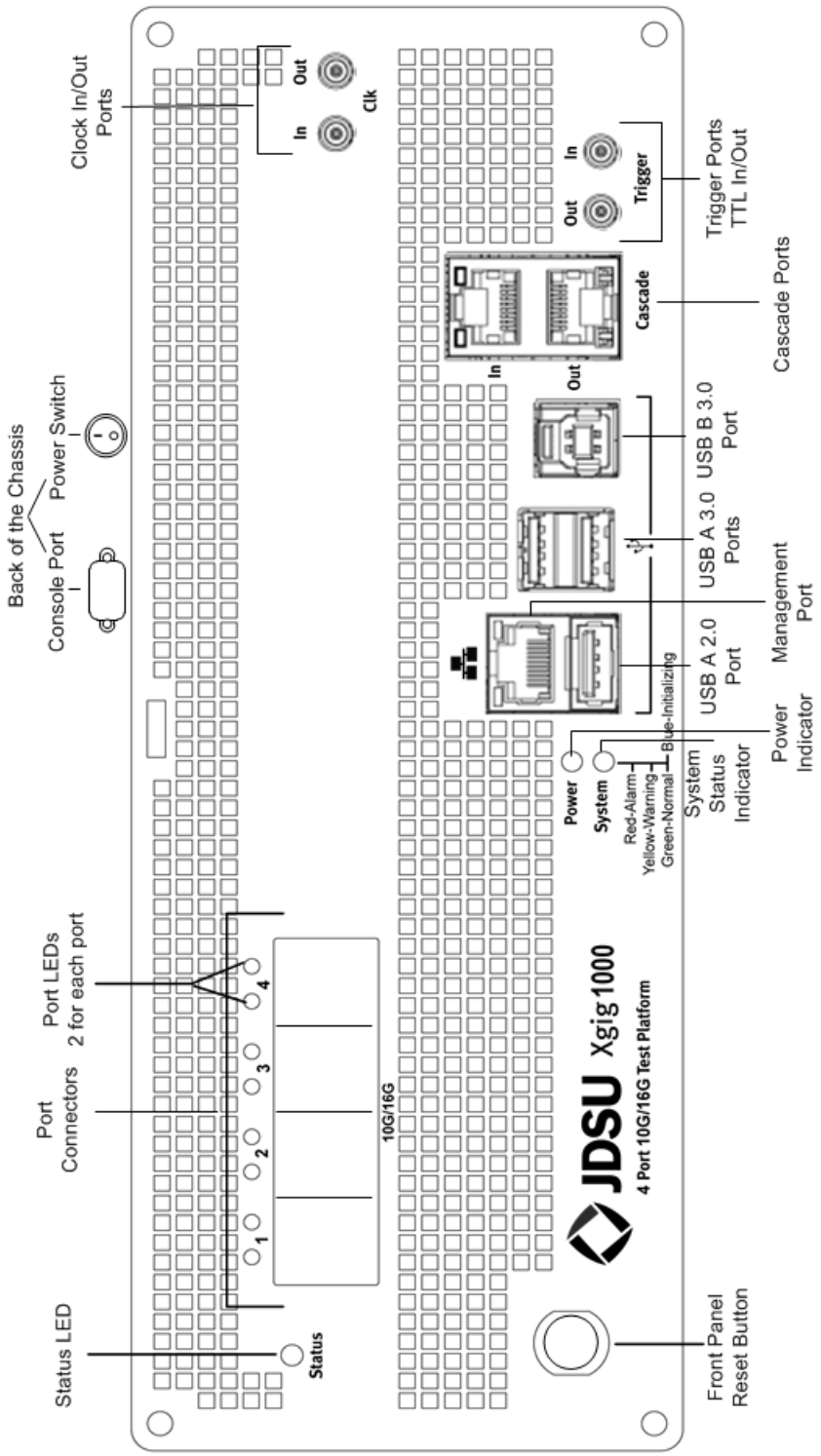
Temperature Operational Non-operational	 10 to +40° C (50 to +104° F) –40 to +70° C (–40 to +158° F)
Humidity Operational Non-operational	 Up to 90% humidity (non-condensing) at +40° C Up to 95% humidity at +65° C.
Vibration Operational Non-operational	 Random Vibration 5–500 Hz, 10 minutes per axis, 2.41g (rms) Random vibration 5–500 Hz, 10 minutes per axis, 0.3 g (rms) Resonant search, 5–500 Hz swept sine, 1 octave/min. sweep rate, 0.75 g, 5 minute resonant dwell at 4 resonances/axis
Electromagnetic Compliance	FCC Class A, CE Compatibility
Safety	UL

Xgig1000 4 Port 10G/16G Chassis

The Xgig1000 4 Port 10G/16G system is a fixed blade chassis that houses one Xgig 10G/16G blade with four ports (two links). The Xgig1000 4 Port 10G/16G system supports the Analyzer, Jammer, and Load Tester functions at 10.3125 Gbps in the 10 Gigabit Ethernet protocol. Analyzer and Load Tester are supported in Analog Passthrough and Digital Retime. Jammer is supported in Digital Retime only. This system also supports the Analyzer, Jammer, and Load Tester functions at 4.2500, 8.5000, or 14.0250 Gbps in the Fibre Channel protocol in Analog Passthrough or Digital Retime. This system supports a 4GB trace buffer per port. This fixed-blade system does not require or accept Xgig or Xgig5000 blades. Xgig provides the necessary software tools running in a PC environment to perform the application task using the blade fixed within the chassis.

The Xgig1000 4 Port 10G/16G chassis is shown in Figure 2.

Figure 2 Xgig1000 4 Port 10G/16G Chassis



4 Port 10G/16G System Ports/Connections/Front Panel Reset Button

Management Port

The Management port provides a connection to the 10/100/1000 network or a direct connection to a PC's 10/100/1000 Ethernet adapter. The Management port is used for the following:

- Configuring the Xgig1000 chassis using the Xgig Web Utility
- Controlling the operation of Xgig application-specific blades
- Retrieving data collected by Xgig application-specific blades

Console Port

The Console port is a 9-pin serial port on the back of the chassis. The Console port is used for the following:

- Configuring the Xgig1000 chassis
- Selecting the Xgig1000 boot image (this functionality is not available through the Console port for second generation chassis. Instead, these chassis use the USB system recovery drive.)
- Minor troubleshooting
- Basic administration

The Console port can be used for all system configuration through a command line interface. Configuration commands are passed to Xgig by connecting the Console port to a terminal or to a PC with a terminal emulation program using a cross-over cable. However, configuration is usually performed using the Xgig Web Utility over the internet through the 10/100/1000 Ethernet management port.

Trigger/TTL Ports

The TTL Input and TTL Output ports provide a means of sending or receiving an electrical signal between the Xgig and other instruments for triggering purposes.

The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V). The trigger-in can handle 3.3V or 5.0V inputs, also active-high. Use 50 ohm cables with these ports.

Cascade Ports

The Cascade In and Cascade Out ports provide a means of time-synchronizing up to four Xgig, Xgig5000, and/or Xgig1000 chassis. Cascade Ports are used to share domains and send triggers between chassis.

Cascade ports use standard RJ-45 connectors and straight through CAT5 cables to connect chassis, but use Viavi proprietary protocol to communicate between cascaded units.

USB Ports

Standard USB type A connector may be used with any USB 2.0 device. This includes the USB system recovery drive for second generation Xgig1000 chassis.

3.0 USB type A connectors may be used with any USB 3.0 device.

3.0 USB type B connector may be used with an external host as a Management port or for USB administration.

NOTE

A USB driver is installed as part of the installation package. If you choose to connect the chassis using a USB extension cable, you may be prompted to re-install the USB driver.

Clock Ports

The Clock Out port provides a means of using the clock out signal to measure the eye diagram of the output signal from the Analyzer. The Clock Out port accepts a SMA-type cable.

The Clock In port functionality is TBD. This port is reserved for future use.

Port Connectors

The Xgig1000 has four female SFP connectors on the front.

Front Panel Reset Button

To safely shutdown the operating system and power off the chassis, press and hold the **Front Panel Reset** button for two seconds until the System LED starts blinking yellow. Stop pressing the button as soon as you see the System LED blink. This will allow the system to do a graceful shutdown.

- **For Xgig 1000 units with the original motherboard** (no rear power switch on the back panel), the System LED will become steady yellow when the system has shut-down. This is the indication that you can remove the power cable.
- **For Xgig 1000 units with the new motherboard** (rear power switch on back panel), all LEDs will go dark and the motherboard will show no power when the system has completed the shutdown. At this point the power to both the protocol board and the motherboard has been removed. The only power going into the chassis at that point is into the Power Supply. This is the indication that you can switch the power switch to the off position.

If you press and hold the **Front Panel Reset** button down for six seconds or longer, it forces an abrupt termination and a graceful shutdown may not have completed.

- **For Xgig 1000 units with the original motherboard** (no rear power switch on the back panel), holding the **Front Panel Reset** button for 6 seconds will force the System LED to a steady yellow.
- **For Xgig 1000 units with the new motherboard** (rear power switch on back panel), holding the **Front Panel Reset** button for 6 seconds will turn off the power to both the protocol board and the motherboard.

NOTE

The six second shutdown is not recommended; it is meant to be a last resort option similar to pulling the power plug.

Rear Power Switch

The power switch on the back of the chassis (the **Rear Power** switch) powers on the chassis, but it does not boot up the operating system. To boot up the operating system, turn on the **Front Panel Reset** button. When the operating system has booted up, the System LED changes to green. If the operating system does not boot up automatically, press the **Front Panel Reset** button.

Use the **Rear Power** switch to remove power from the chassis only when the LED on the **Front Panel Reset** button is solid yellow indicating the system has shut down, and it is safe to remove power from the chassis.

4 Port 10G/16G System/Port Indicators

Power Indicator

This LED is green when the power is on. When the Power LED is off, there is no power to the system such as when the chassis power cable is unplugged and/or the power switch is turn off.

System Status Indicator

This LED is green when the power is on, and the system is in a normal state. When power is applied to the chassis, this LED will go from blue to green. Once the LED turns green, check the Cascade port LEDs to make sure they have stopped flashing indicating that Sync Discovery is complete. A yellow System LED indicates a warning, for example, a pending over temperature condition. A red LED indicates an alarm. This means that a fault exists, for example, an over temperature condition that could cause a system shutdown. The System LED is off when the system is running diagnostic tests, for example on the memory, or when the system is being upgraded.

Status Indicator (for the blade)

The Status LED is for the blade within the Xgig1000 chassis. A solid blue LED indicates the blade is ready to be used. A flashing green LED or a red/purple alternating LED indicates that firmware is being updated. Take care not to disturb the chassis during this process as it will corrupt the firmware. If this process fails, the Status LED is a steady red. If the Status LED starts to blink red, you must power cycle the chassis to complete the firmware upgrade by turning the chassis off using the power switch on the back of the chassis or unplugging the chassis power cord, waiting for 10 seconds, then plugging the power cord back in or turning the chassis on using the power switch. Unpredictable behavior can result if the chassis is not properly power cycled.

If you use the Xgig client to update your chassis, the GUI message will indicate that the upgrade is complete even though there may be a subsequent Xgig1000 blade upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

If you use the web initiated chassis upgrade, the user is directed to the Upgrade Status tab once the upgrade has started. The log displayed in this tab will also indicate the application install has completed, even though there may be a subsequent blade firmware upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

In order to make sure the blade upgrade process is complete, check the Status LED on the blade, or open the Xgig1000 URL, and select the **Status** tab.

NOTE

In the case of a blade upgrade failure, contact the “Technical Assistance” team.

Blade LEDs

There are two LEDs for each port on the blade. The two LEDs are under the control of Xgig application software.

Table 9 provides a description of the LEDs for the ports of the 4 Port 10G/16G system. There is one LED of each type for each port on the blade.

Table 9 4 Port 10G/16G Blade LEDs

4 Port 10G/16G Blade LEDs for Analyzer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Analyzer port is locked for use by Trace-Control.	N/A	N/A	Not Locked. The Analyzer port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)

Table 9 4 Port 10G/16G Blade LEDs

4 Port 10G/16G Blade LEDs for Jammer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Jammer port is locked for use by Xgig Maestro.	N/A	N/A	Not Locked. The Jammer port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)
4 Port 10G/16G Blade LEDs for Load Tester Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Load Tester port is locked for use by Xgig Maestro.	N/A	N/A	Not Locked. The Load Tester port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)

Port 10G/16G System Specifications

Table 10 Physical Specifications

Height	3.50 in. / 8.89 cm.
Width	9.50 in. / 24.13 cm.
Depth	15.25 in. / 38.74 cm.
Weight	10.50 lbs. / 4.76 kg
Mount	18.84 in. / 47.85 cm

Table 11 Power Specifications

Power Consumption	375 W
Fuse Protection	5 A 250 V
Input Voltage Range	100–240 VAC

Table 11 Power Specifications

Input Frequency	50/60 Hz
Inrush Current (Peak)	3.5 A @ 100 VAC

Table 12 Port Specifications

Console Port	9-pin serial port connects to PC (cross over cable only)
Management Ports	10/100/1000 RJ-45
Cascade Ports	RJ-45 connection to additional units (straight-through cable only)
TTL Inputs	MCX Connector for Trigger IN (thin coaxial cable only), The trigger-in can handle 3.3V or 5.0V inputs, active-high.
TTL Outputs	MCX Connector for Trigger OUT (thin coaxial cable only), The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V).
USB A 2.0 Port	Type A, version 2.0, Capable of up to 480 Mbps
USB A 3.0 Ports	Type A version 3.0, Capable of up to 5 Gbps
USB B 3.0 Port	Type B version 3.0, Capable of up to 5 Gbps
Clock In	MCX Connector for Transmit Reference Clock Input, 375 MHz, AC-coupled, Typ. 0.8V, Max 1.2V peak-peak
Clock Out	MCX Connector for Transmit Reference Clock Output, 375 MHz, AC-coupled, Typ. 0.8V peak-peak
Port Connectors	4 SFPs containing FPGAs

Table 13 Environmental Specifications

Temperature	
Operational	10 to +40° C (50 to +104° F)
Non-operational	–40 to +70° C (–40 to +158° F)
Humidity	
Operational	Up to 90% humidity (non-condensing) at +40° C
Non-operational	Up to 95% humidity at +65° C.

Table 13 Environmental Specifications

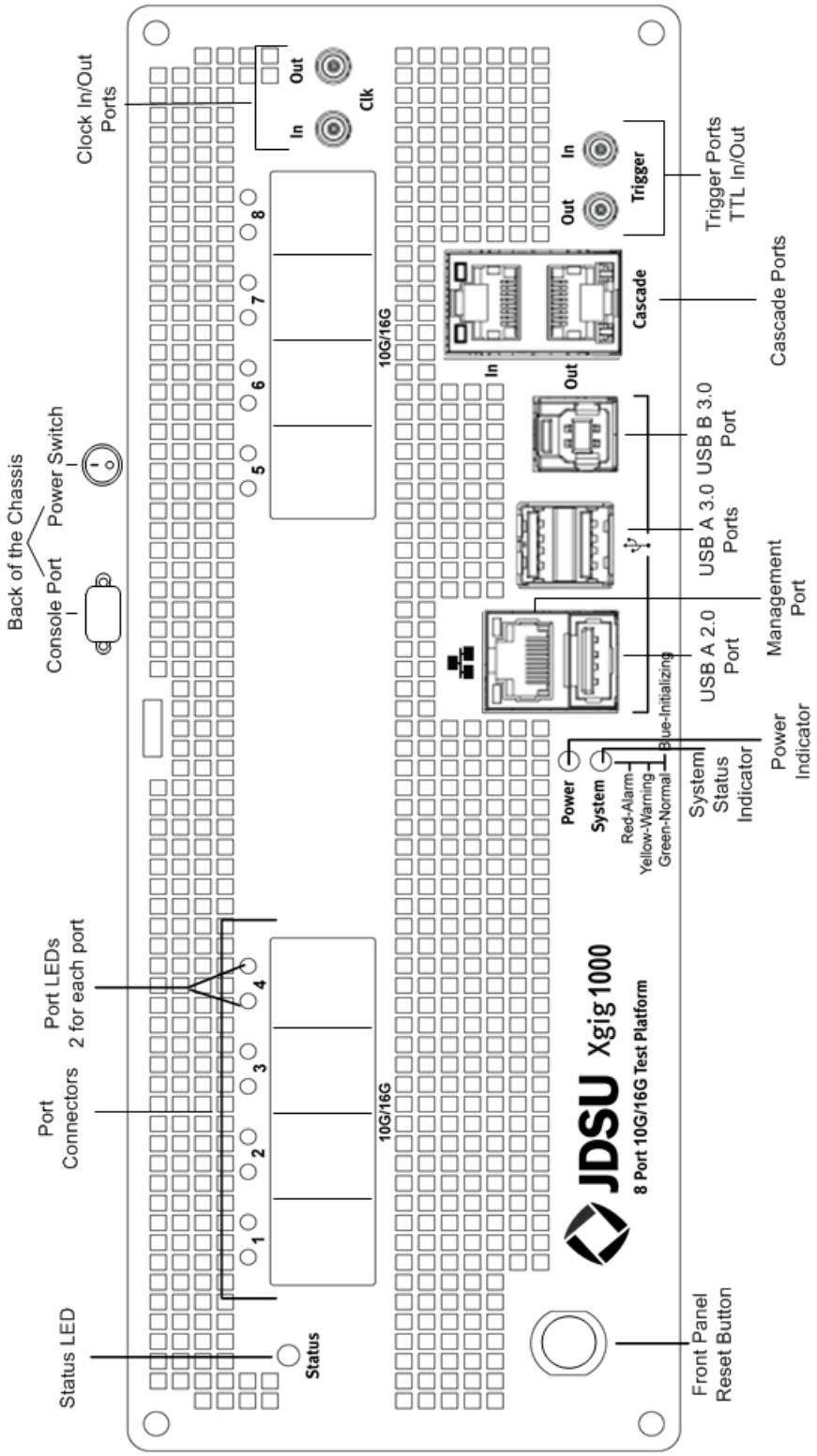
Vibration Operational Non-operational	 Random Vibration 5–500 Hz, 10 minutes per axis, 2.41g (rms) Random vibration 5–500 Hz, 10 minutes per axis, 0.3 g (rms) Resonant search, 5–500 Hz swept sine, 1 octave/min. sweep rate, 0.75 g, 5 minute resonant dwell at 4 resonances/axis
Electromagnetic Compliance	FCC Class A, CE Compatibility
Safety	UL

Xgig1000 8 Port 10G/16G Chassis

The Xgig1000 8 Port 10G/16G system is a fixed blade chassis that houses one Xgig 10G/16G blade with eight ports (four links). The Xgig1000 8 Port 10G/16G system supports the Analyzer, Jammer, and Load Tester functions at 10.3125 Gbps in the 10 Gigabit Ethernet protocol. Analyzer and Load Tester are supported in Analog Passthrough and Digital Retime. Jammer is supported in Digital Retime only. This system also supports the Analyzer, Jammer, and Load Tester functions at 4.2500, 8.5000, or 14.0250 Gbps in the Fibre Channel protocol in Analog Passthrough or Digital Retime. This system supports a 4GB trace buffer per port. This fixed-blade system does not require or accept Xgig or Xgig5000 blades. Xgig provides the necessary software tools running in a PC environment to perform the application task using the blade fixed within the chassis.

The Xgig1000 8 Port 10G/16G chassis is shown in Figure 3.

Figure 3 Xgig1000 8 Port 10G/16G Chassis



8 Port 10G/16G System Ports/Connections/Front Panel Reset Button

Management Port

The Management port provides a connection to the 10/100/1000 network or a direct connection to a PC's 10/100/1000 Ethernet adapter. The Management port is used for the following:

- Configuring the Xgig1000 chassis using the Xgig Web Utility
- Controlling the operation of Xgig application-specific blades
- Retrieving data collected by Xgig application-specific blades

Console Port

The Console port is a 9-pin serial port on the back of the chassis. The Console port is used for the following:

- Configuring the Xgig1000 chassis
- Selecting the Xgig1000 boot image (this functionality is not available through the Console port for second generation chassis. Instead, these chassis use the USB system recovery drive.)
- Minor troubleshooting
- Basic administration

The Console port can be used for all system configuration through a command line interface. Configuration commands are passed to Xgig by connecting the Console port to a terminal or to a PC with a terminal emulation program using a cross-over cable. However, configuration is usually performed using the Xgig Web Utility over the internet through the 10/100/1000 Ethernet management port.

Trigger/TTL Ports

The TTL Input and TTL Output ports provide a means of sending or receiving an electrical signal between the Xgig and other instruments for triggering purposes.

The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V). The trigger-in can handle 3.3V or 5.0V inputs, also active-high. Use 50 ohm cables with these ports.

Cascade Ports

The Cascade In and Cascade Out ports provide a means of time-synchronizing up to four Xgig, Xgig5000, and/or Xgig1000 chassis. Cascade Ports are used to share domains and send triggers between chassis.

Cascade ports use standard RJ-45 connectors and straight through CAT5 cables to connect chassis, but use Viavi proprietary protocol to communicate between cascaded units.

USB Ports

Standard USB type A connector may be used with any USB 2.0 device. This includes the USB system recovery drive for second generation Xgig1000 chassis.

3.0 USB type A connectors may be used with any USB 3.0 device.

3.0 USB type B connector may be used with an external host as a Management port or for USB administration.

NOTE

A USB driver is installed as part of the installation package. If you choose to connect the chassis using a USB extension cable, you may be prompted to re-install the USB driver.

Clock Ports

The Clock Out port provides a means of using the clock out signal to measure the eye diagram of the output signal from the Analyzer. The Clock Out port accepts a SMA-type cable.

The Clock In port functionality is TBD. This port is reserved for future use.

Port Connectors

The Xgig1000 has eight female SFP connectors on the front.

Front Panel Reset Button

To safely shutdown the operating system and power off the chassis, press and hold the **Front Panel Reset** button for two seconds until the System LED starts blinking yellow. Stop pressing the button as soon as you see the System LED blink. This will allow the system to do a graceful shutdown.

- **For Xgig 1000 units with the original motherboard** (no rear power switch on the back panel), the System LED will become steady yellow when the system has shut-down. This is the indication that you can remove the power cable.
- **For Xgig 1000 units with the new motherboard** (rear power switch on back panel), all LEDs will go dark and the motherboard will show no power when the system has completed the shutdown. At this point the power to both the protocol board and the motherboard has been removed. The only power going into the chassis at that point is into the Power Supply. This is the indication that you can switch the power switch to the off position.

If you press and hold the **Front Panel Reset** button down for six seconds or longer, it forces an abrupt termination and a graceful shutdown may not have completed.

- **For Xgig 1000 units with the original motherboard** (no rear power switch on the back panel), holding the **Front Panel Reset** button for 6 seconds will force the System LED to a steady yellow.
- **For Xgig 1000 units with the new motherboard** (rear power switch on back panel), holding the **Front Panel Reset** button for 6 seconds will turn off the power to both the protocol board and the motherboard.

NOTE

The six second shutdown is not recommended; it is meant to be a last resort option similar to pulling the power plug.

Rear Power Switch

The power switch on the back of the chassis (the **Rear Power** switch) powers on the chassis, but it does not boot up the operating system. To boot up the operating system, turn on the **Front Panel Reset** button. When the operating system has booted up, the System LED changes to green. If the operating system does not boot up automatically, press the **Front Panel Reset** button.

Use the **Rear Power** switch to remove power from the chassis only when the LED on the **Front Panel Reset** button is solid yellow indicating the system has shut down, and it is safe to remove power from the chassis.

8 Port 10G/16G System/Port Indicators

Power Indicator

This LED is green when the power is on. When the Power LED is off, there is no power to the system such as when the chassis power cable is unplugged and/or the power switch is turn off.

System Status Indicator

This LED is green when the power is on, and the system is in a normal state. When power is applied to the chassis, this LED will go from blue to green. Once the LED turns green, check the Cascade port LEDs to make sure they have stopped flashing indicating that Sync Discovery is complete. A yellow System LED indicates a warning, for example, a pending over temperature condition. A red LED indicates an alarm. This means that a fault exists, for example, an over temperature condition that could cause a system shutdown. The System LED is off when the system is running diagnostic tests, for example on the memory, or when the system is being upgraded.

Status Indicator (for the blade)

The Status LED is for the blade within the Xgig1000 chassis. A solid blue LED indicates the blade is ready to be used. A flashing green LED or a red/purple alternating LED indicates that firmware is being updated. Take care not to disturb the chassis during this process as it will corrupt the firmware. If this process fails, the Status LED is a steady red. If the Status LED starts to blink red, you must power cycle the chassis to complete the firmware upgrade by turning the chassis off using the power switch on the back of the chassis or unplugging the chassis power cord, waiting for 10 seconds, then plugging the power cord back in or turning the chassis on using the power switch. Unpredictable behavior can result if the chassis is not properly power cycled.

If you use the Xgig client to update your chassis, the GUI message will indicate that the upgrade is complete even though there may be a subsequent Xgig1000 blade upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

If you use the web initiated chassis upgrade, the user is directed to the Upgrade Status tab once the upgrade has started. The log displayed in this tab will also indicate the application install has completed, even though there may be a subsequent blade firmware upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

In order to make sure the blade upgrade process is complete, check the Status LED on the blade, or open the Xgig1000 URL, and select the **Status** tab.

NOTE

In the case of a blade upgrade failure, contact the "Technical Assistance" team.

Blade LEDs

There are two LEDs for each port on the blade. The two LEDs are under the control of Xgig application software.

Table 14 provides a description of the LEDs for the ports of the 8 Port 10G/16G system. There is one LED of each type for each port on the blade.

Table 14 8 Port 10G/16G Blade LEDs

8 Port 10G/16G Blade LEDs for Analyzer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Analyzer port is locked for use by Trace-Control.	N/A	N/A	Not Locked. The Analyzer port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)

Table 14 8 Port 10G/16G Blade LEDs (Continued)

8 Port 10G/16G Blade LEDs for Jammer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Jammer port is locked for use by Xgig Maestro.	N/A	N/A	Not Locked. The Jammer port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)
8 Port 10G/16G Blade LEDs for Load Tester Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Load Tester port is locked for use by Xgig Maestro.	N/A	N/A	Not Locked. The Load Tester port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)

8 Port 10G/16G System Specifications

Table 15 Physical Specifications

Height	3.50 in. / 8.89 cm.
Width	9.50 in. / 24.13 cm.
Depth	15.25 in. / 38.74 cm.
Weight	12.00 lbs. / 5.44kg
Mount	18.84 in. / 47.85 cm

Table 16 Power Specifications

Power Consumption	375 W
Fuse Protection	5 A 250 V
Input Voltage Range	100–240 VAC

Table 16 Power Specifications

Input Frequency	50/60 Hz
Inrush Current (Peak)	3.5 A @ 100 VAC

Table 17 Port Specifications

Console Port	9-pin serial port connects to PC (cross over cable only)
Management Ports	10/100/1000 RJ-45
Cascade Ports	RJ-45 connection to additional units (straight-through cable only)
TTL Inputs	MCX Connector for Trigger IN (thin coaxial cable only). The trigger-in can handle 3.3V or 5.0V inputs, active-high.
TTL Outputs	MCX Connector for Trigger OUT (thin coaxial cable only). The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V).
USB A 2.0 Port	Type A, version 2.0, Capable of up to 480 Mbps
USB A 3.0 Ports	Type A version 3.0, Capable of up to 5 Gbps
USB B 3.0 Port	Type B version 3.0, Capable of up to 5 Gbps
Clock In	MCX Connector for Transmit Reference Clock Input, 375 MHz, AC-coupled, Typ. 0.8V, Max 1.2V peak-peak
Clock Out	MCX Connector for Transmit Reference Clock Output, 375 MHz, AC-coupled, Typ. 0.8V peak-peak
Port Connectors	eight SFPs containing FPGAs

Table 18 Environmental Specifications

Temperature	
Operational	10 to +40° C (50 to +104° F)
Non-operational	–40 to +70° C (–40 to +158° F)
Humidity	
Operational	Up to 90% humidity (non-condensing) at +40° C
Non-operational	Up to 95% humidity at +65° C.

Table 18 Environmental Specifications

Vibration Operational Non-operational	 Random Vibration 5–500 Hz, 10 minutes per axis, 2.41g (rms) Random vibration 5–500 Hz, 10 minutes per axis, 0.3 g (rms) Resonant search, 5–500 Hz swept sine, 1 octave/min. sweep rate, 0.75 g, 5 minute resonant dwell at 4 resonances/axis
Electromagnetic Compliance	FCC Class A, CE Compatibility
Safety	UL

Xgig1000 8+2 Port 10G/16G/40G Chassis

The Xgig1000 8+2 Port 10G/16G/40G system is a fixed blade chassis that houses one Xgig 10G/16G/40G blade with eight SFP ports (four links) and two QSFP ports (one link).

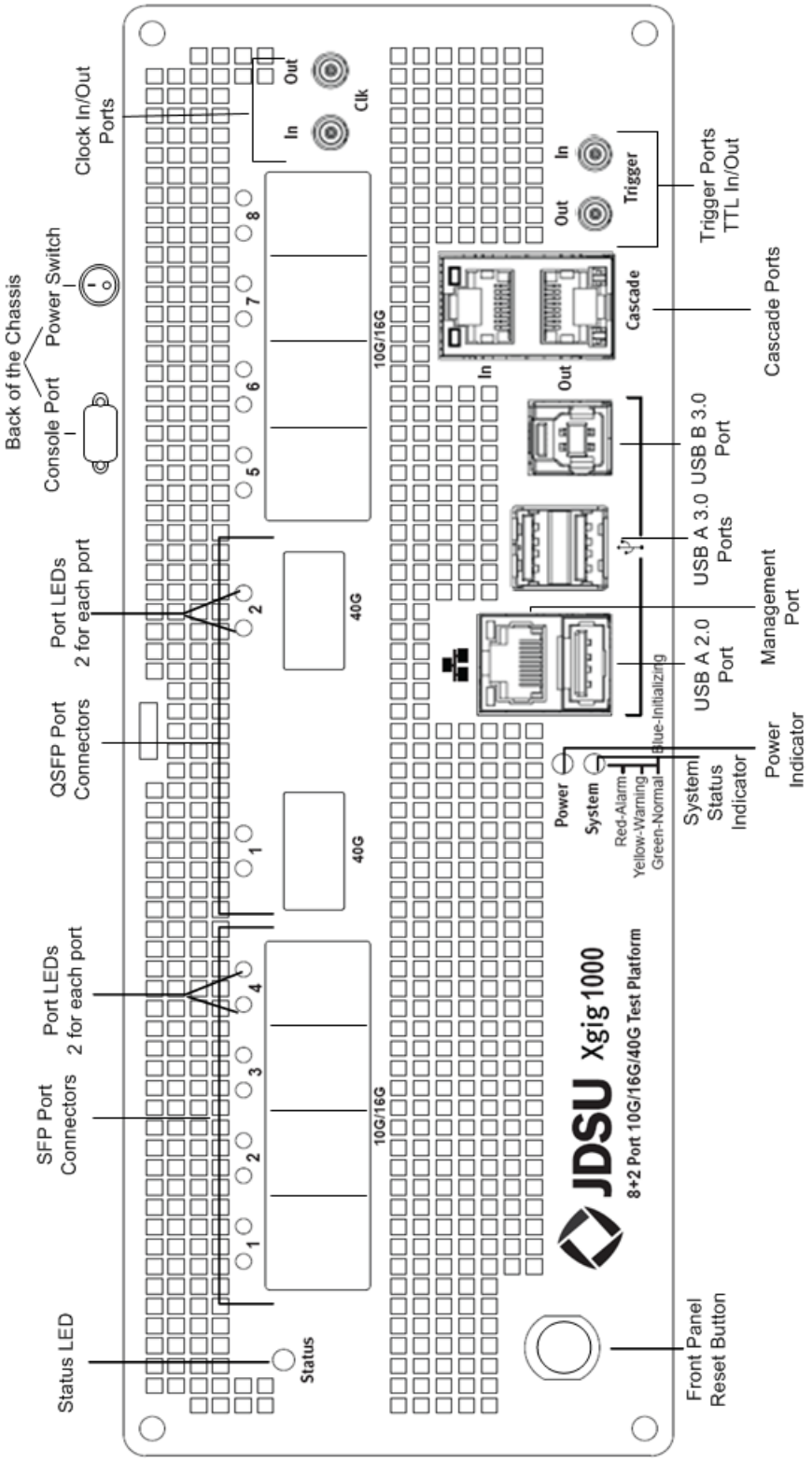
The eight SFP ports support the Analyzer, Jammer, and Load Tester functions at 10.3125 Gbps in the 10 Gigabit Ethernet protocol. Analyzer and Load Tester are supported in Analog Passthrough and Digital Retime. Jammer is supported in Digital Retime only. The SFP ports also support the Analyzer, Jammer, and Load Tester functions at 4.2500, 8.5000, or 14.0250 Gbps in the Fibre Channel protocol in Analog Passthrough or Digital Retime.

The two QSFP ports support the Analyzer function at 41.2500 Gbps in the 10 Gigabit Ethernet protocol in Analyzer Passthrough only.

This system supports a 4GB trace buffer per port. This fixed-blade system does not require or accept Xgig or Xgig5000 blades. Xgig provides the necessary software tools running in a PC environment to perform the application task using the blade fixed within the chassis.

The Xgig1000 8+2 Port 10G/16G/40G chassis is shown in Figure 4.

Figure 4 Xgig1000 8+2 Port 10G/16G/40G Chassis



8+2 Port 10G/16G/40G System Ports/Connections/Front Panel Reset Button

Management Port

The Management port provides a connection to the 10/100/1000 network or a direct connection to a PC's 10/100/1000 Ethernet adapter. The Management port is used for the following:

- Configuring the Xgig1000 chassis using the Xgig Web Utility
- Controlling the operation of Xgig application-specific blades
- Retrieving data collected by Xgig application-specific blades

Console Port

The Console port is a 9-pin serial port on the back of the chassis. The Console port is used for the following:

- Configuring the Xgig1000 chassis
- Selecting the Xgig1000 boot image (this functionality is not available through the Console port for second generation chassis. Instead, these chassis use the USB system recovery drive.)
- Minor troubleshooting
- Basic administration

The Console port can be used for all system configuration through a command line interface. Configuration commands are passed to Xgig by connecting the Console port to a terminal or to a PC with a terminal emulation program using a cross-over cable. However, configuration is usually performed using the Xgig Web Utility over the internet through the 10/100/1000 Ethernet management port.

Trigger/TTL Ports

The TTL Input and TTL Output ports provide a means of sending or receiving an electrical signal between the Xgig and other instruments for triggering purposes.

The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V). The trigger-in can handle 3.3V or 5.0V inputs, also active-high. Use 50 ohm cables with these ports.

Cascade Ports

The Cascade In and Cascade Out ports provide a means of time-synchronizing up to four Xgig, Xgig5000, and/or Xgig1000 chassis. Cascade Ports are used to share domains and send triggers between chassis.

Cascade ports use standard RJ-45 connectors and straight through CAT5 cables to connect chassis, but use Viavi proprietary protocol to communicate between cascaded units.

USB Ports

Standard USB type A connector may be used with any USB 2.0 device. This includes the USB system recovery drive for second generation Xgig1000 chassis.

3.0 USB type A connectors may be used with any USB 3.0 device.

3.0 USB type B connector may be used with an external host as a Management port or for USB administration.

NOTE

A USB driver is installed as part of the installation package. If you choose to connect the chassis using a USB extension cable, you may be prompted to re-install the USB driver.

Clock Ports

The Clock Out port provides a means of using the clock out signal to measure the eye diagram of the output signal from the Analyzer. The Clock Out port accepts a SMA-type cable.

The Clock In port functionality is TBD. This port is reserved for future use.

Port Connectors

The Xgig1000 has eight female SFP connectors and two QSFP connectors on the front.

Front Panel Reset Button

To safely shutdown the operating system and power off the chassis, press and hold the **Front Panel Reset** button for two seconds until the System LED starts blinking yellow. Stop pressing the button as soon as you see the System LED blink. This will allow the system to do a graceful shutdown.

- **For Xgig 1000 units with the original motherboard** (no rear power switch on the back panel), the System LED will become steady yellow when the system has shut-down. This is the indication that you can remove the power cable.
- **For Xgig 1000 units with the new motherboard** (rear power switch on back panel), all LEDs will go dark and the motherboard will show no power when the system has completed the shutdown. At this point the power to both the protocol board and the motherboard has been removed. The only power going into the chassis at that point is into the Power Supply. This is the indication that you can switch the power switch to the off position.

If you press and hold the **Front Panel Reset** button down for six seconds or longer, it forces an abrupt termination and a graceful shutdown may not have completed.

- **For Xgig 1000 units with the original motherboard** (no rear power switch on the back panel), holding the **Front Panel Reset** button for 6 seconds will force the System LED to a steady yellow.
- **For Xgig 1000 units with the new motherboard** (rear power switch on back panel), holding the **Front Panel Reset** button for 6 seconds will turn off the power to both the protocol board and the motherboard.

NOTE

The six second shutdown is not recommended; it is meant to be a last resort option similar to pulling the power plug.

Rear Power Switch

The power switch on the back of the chassis (the **Rear Power** switch) powers on the chassis, but it does not boot up the operating system. To boot up the operating system, turn on the **Front Panel Reset** button. When the operating system has booted up, the System LED changes to green. If the operating system does not boot up automatically, press the **Front Panel Reset** button.

Use the **Rear Power** switch to remove power from the chassis only when the LED on the **Front Panel Reset** button is solid yellow indicating the system has shut down, and it is safe to remove power from the chassis.

8+2 Port 10G/16G/40G System/Port Indicators

Power Indicator

This LED is green when the power is on. When the Power LED is off, there is no power to the system such as when the chassis power cable is unplugged and/or the power switch is turn off.

System Status Indicator

This LED is green when the power is on, and the system is in a normal state. When power is applied to the chassis, this LED will go from blue to green. Once the LED turns green, check the Cascade port LEDs to make sure they have stopped flashing indicating that Sync Discovery is complete. A yellow System LED indicates a warning, for example, a pending over temperature condition. A red LED indicates an alarm. This means that a fault exists, for example, an over temperature condition that could cause a system shutdown. The System LED is off when the system is running diagnostic tests, for example on the memory, or when the system is being upgraded.

Status Indicator (for the blade)

The Status LED is for the blade within the Xgig1000 chassis. A solid blue LED indicates the blade is ready to be used. A flashing green LED or a red/purple alternating LED indicates that firmware is being updated. Take care not to disturb the chassis during this process as it will corrupt the firmware. If this process fails, the Status LED is a steady red. If the Status LED starts to blink red, you must power cycle the chassis to complete the firmware upgrade by turning the chassis off using the power switch on the back of the chassis or unplugging the chassis power cord, waiting for 10 seconds, then plugging the power cord back in or turning the chassis on using the power switch. Unpredictable behavior can result if the chassis is not properly power cycled.

If you use the Xgig client to update your chassis, the GUI message will indicate that the upgrade is complete even though there may be a subsequent Xgig1000 blade upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

If you use the web initiated chassis upgrade, the user is directed to the Upgrade Status tab once the upgrade has started. The log displayed in this tab will also indicate the application install has completed, even though there may be a subsequent blade firmware upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

In order to make sure the blade upgrade process is complete, check the Status LED on the blade, or open the Xgig1000 URL, and select the **Status** tab.

NOTE

In the case of a blade upgrade failure, contact the “Technical Assistance” team.

Blade LEDs

There are two LEDs for each port on the blade. The two LEDs are under the control of Xgig application software.

Table 19 provides a description of the LEDs for the ports of the 8+2 Port 10G/16G/40G system. There is one LED of each type for each port on the blade.

Table 19 8+2 Port 10G/16G/40G Blade LEDs

8 Port 10G/16G Blade LEDs for Analyzer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Analyzer port is locked for use by Trace-Control.	N/A	N/A	Not Locked. The Analyzer port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)

Table 19 8+2 Port 10G/16G/40G Blade LEDs (Continued)

8 Port 10G/16G Blade LEDs for Jammer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Jammer port is locked for use by Xgig Maestro.	N/A	N/A	Not Locked. The Jammer port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)
8 Port 10G/16G Blade LEDs for Load Tester Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Load Tester port is locked for use by Xgig Maestro.	N/A	N/A	Not Locked. The Load Tester port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)

8+2 Port 10G/16G/40G System Specifications

Table 20 Physical Specifications

Height	3.50 in. / 8.89 cm.
Width	9.50 in. / 24.13 cm.
Depth	15.25 in. / 38.74 cm.
Weight	12.00 lbs. / 5.44kg
Mount	18.84 in. / 47.85 cm

Table 21 Power Specifications

Power Consumption	375 W
Fuse Protection	5 A 250 V
Input Voltage Range	100–240 VAC

Table 21 Power Specifications

Input Frequency	50/60 Hz
Inrush Current (Peak)	3.5 A @ 100 VAC

Table 22 Port Specifications

Console Port	9-pin serial port connects to PC (cross over cable only)
Management Ports	10/100/1000 RJ-45
Cascade Ports	RJ-45 connection to additional units (straight-through cable only)
TTL Inputs	MCX Connector for Trigger IN (thin coaxial cable only), The trigger-in can handle 3.3V or 5.0V inputs, active-high.
TTL Outputs	MCX Connector for Trigger OUT (thin coaxial cable only), The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V).
USB A 2.0 Port	Type A, version 2.0, Capable of up to 480 Mbps
USB A 3.0 Ports	Type A version 3.0, Capable of up to 5 Gbps
USB B 3.0 Port	Type B version 3.0, Capable of up to 5 Gbps
Clock In	MCX Connector for Transmit Reference Clock Input, 375 MHz, AC-coupled, Typ. 0.8V, Max 1.2V peak-peak
Clock Out	MCX Connector for Transmit Reference Clock Output, 375 MHz, AC-coupled, Typ. 0.8V peak-peak
Port Connectors	eight SFPs and two QSFPs containing FPGAs QSFPs support optical and copper cables

Table 23 Environmental Specifications

Temperature	
Operational	10 to +40° C (50 to +104° F)
Non-operational	–40 to +70° C (–40 to +158° F)
Humidity	
Operational	Up to 90% humidity (non-condensing) at +40° C
Non-operational	Up to 95% humidity at +65° C.

Table 23 Environmental Specifications

Vibration Operational Non-operational	 Random Vibration 5–500 Hz, 10 minutes per axis, 2.41g (rms) Random vibration 5–500 Hz, 10 minutes per axis, 0.3 g (rms) Resonant search, 5–500 Hz swept sine, 1 octave/min. sweep rate, 0.75 g, 5 minute resonant dwell at 4 resonances/axis
Electromagnetic Compliance	FCC Class A, CE Compatibility
Safety	UL

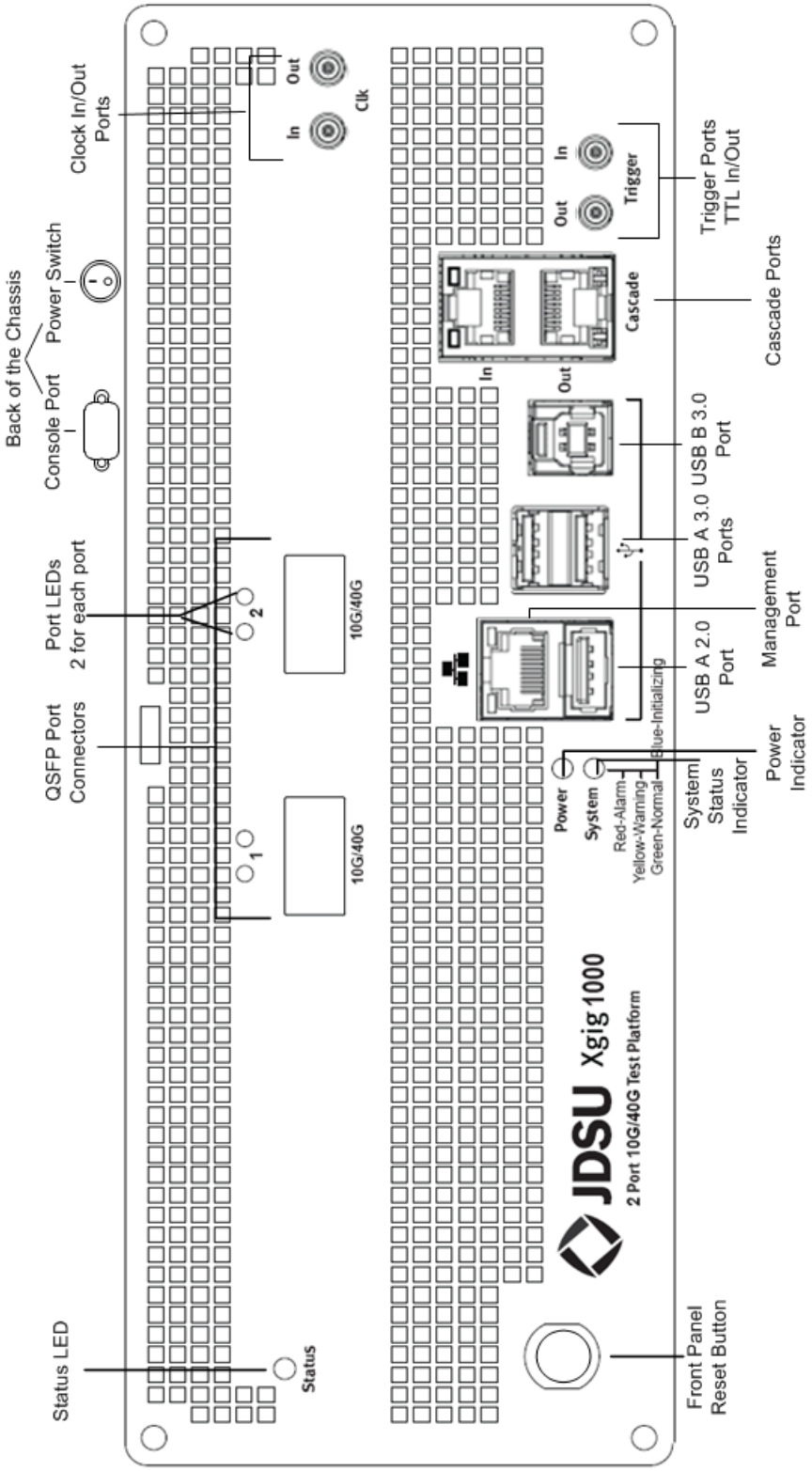
Xgig1000 2 Port 10G/40G Chassis

The Xgig1000 2 Port 10G/40G system is a fixed blade chassis that houses one Xgig 10G/40G blade with two QSFP ports (one link). The two QSFP ports support the Analyzer function at 41.2500 Gbps in the 10 Gigabit Ethernet protocol in Analyzer Passthrough only. The two QSFP ports can be used as eight SFP ports at 10.3125 Gbps by using two one-to-four break out cables (one for each QSFP port) with male QSFP and female SFP connectors.

This system supports a 4GB trace buffer per port. This fixed-blade system does not require or accept Xgig or Xgig5000 blades. Xgig provides the necessary software tools running in a PC environment to perform the application task using the blade fixed within the chassis.

The Xgig1000 2 Port 10G/40G chassis is shown in Figure 5.

Figure 5 Xgig1000 2 Port 10G/40G Chassis



2 Port 10G/40G System Ports/Connections/Front Panel Reset Button

Management Port

The Management port provides a connection to the 10/100/1000 network or a direct connection to a PC's 10/100/1000 Ethernet adapter. The Management port is used for the following:

- Configuring the Xgig1000 chassis using the Xgig Web Utility
- Controlling the operation of Xgig application-specific blades
- Retrieving data collected by Xgig application-specific blades

Console Port

The Console port is a 9-pin serial port on the back of the chassis. The Console port is used for the following:

- Configuring the Xgig1000 chassis
- Selecting the Xgig1000 boot image (this functionality is not available through the Console port for second generation chassis. Instead, these chassis use the USB system recovery drive.)
- Minor troubleshooting
- Basic administration

The Console port can be used for all system configuration through a command line interface. Configuration commands are passed to Xgig by connecting the Console port to a terminal or to a PC with a terminal emulation program using a cross-over cable. However, configuration is usually performed using the Xgig Web Utility over the internet through the 10/100/1000 Ethernet management port.

Trigger/TTL Ports

The TTL Input and TTL Output ports provide a means of sending or receiving an electrical signal between the Xgig and other instruments for triggering purposes.

The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V). The trigger-in can handle 3.3V or 5.0V inputs, also active-high. Use 50 ohm cables with these ports.

Cascade Ports

The Cascade In and Cascade Out ports provide a means of time-synchronizing up to four Xgig, Xgig5000, and/or Xgig1000 chassis. Cascade Ports are used to share domains and send triggers between chassis.

Cascade ports use standard RJ-45 connectors and straight through CAT5 cables to connect chassis, but use Viavi proprietary protocol to communicate between cascaded units.

USB Ports

Standard USB type A connector may be used with any USB 2.0 device. This includes the USB system recovery drive for second generation Xgig1000 chassis.

3.0 USB type A connectors may be used with any USB 3.0 device.

3.0 USB type B connector may be used with an external host as a Management port or for USB administration.

NOTE

A USB driver is installed as part of the installation package. If you choose to connect the chassis using a USB extension cable, you may be prompted to re-install the USB driver.

Clock Ports

The Clock Out port provides a means of using the clock out signal to measure the eye diagram of the output signal from the Analyzer. The Clock Out port accepts a SMA-type cable.

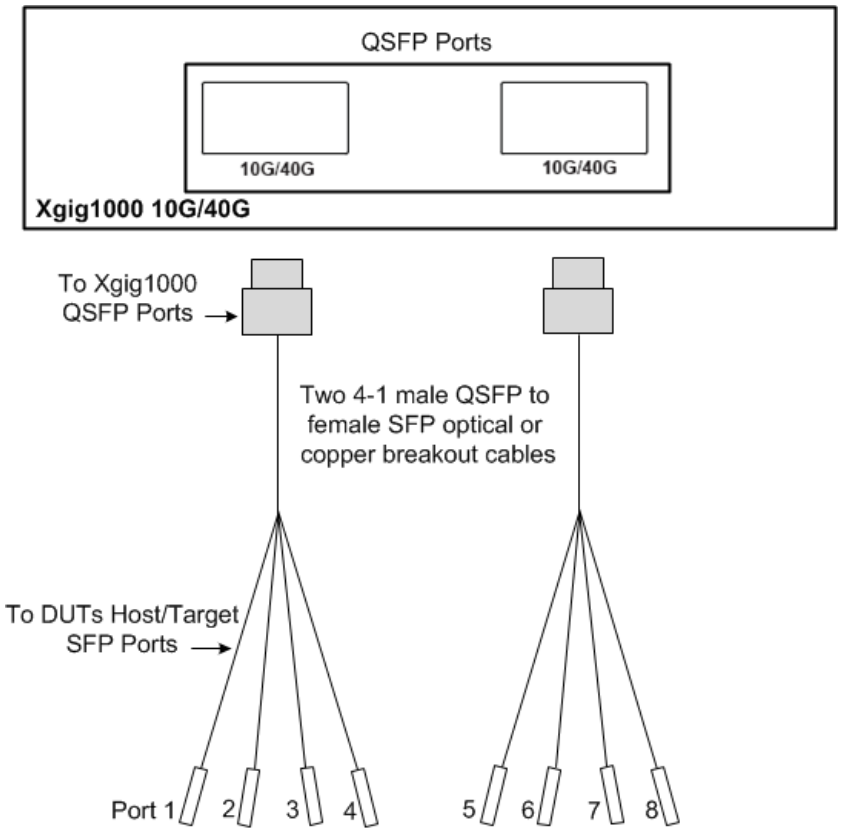
The Clock In port functionality is TBD. This port is reserved for future use.

Port Connectors

The Xgig1000 has two QSFP connectors on the front. These ports support copper and optical cabling. You can use the two 40G QSFP ports as eight 10G SFP ports by using two one-to-four copper or optical QSFP male to SFP female breakout cables. To purchase these cables, see the contact information for the Sales department in the front of this manual.

The eight SFP ports are numbered, 1,2,3,4 and 5,6,7,8. Ports 1 and 2 are a port pair, as are ports 3 and 4, and so on. You can create up to four SFP links. Figure 6 shows how to connect the breakout cables between the two QSFP ports on the Xgig1000 chassis and the host/target SFP devices.

Figure 6 Cabling the 40G QSFP Ports For Use As 10G SFP Ports



Front Panel Reset Button

To safely shutdown the operating system and power off the chassis, press and hold the **Front Panel Reset** button for two seconds until the System LED starts blinking yellow. Stop pressing the button as soon as you see the System LED blink. This will allow the system to do a graceful shutdown.

- **For Xgig 1000 units with the original motherboard** (no rear power switch on the back panel), the System LED will become steady yellow when the system has shut-down. This is the indication that you can remove the power cable.
- **For Xgig 1000 units with the new motherboard** (rear power switch on back panel), all LEDs will go dark and the motherboard will show no power when the system has completed the shutdown. At this point the power to both the protocol board and the motherboard has been removed. The only power going into the chassis at that point is into the Power Supply. This is the indication that you can switch the power switch to the off position.

If you press and hold the **Front Panel Reset** button down for six seconds or longer, it forces an abrupt termination and a graceful shutdown may not have completed.

- **For Xgig 1000 units with the original motherboard** (no rear power switch on the back panel), holding the **Front Panel Reset** button for 6 seconds will force the System LED to a steady yellow.
- **For Xgig 1000 units with the new motherboard** (rear power switch on back panel), holding the **Front Panel Reset** button for 6 seconds will turn off the power to both the protocol board and the motherboard.

NOTE

The six second shutdown is not recommended; it is meant to be a last resort option similar to pulling the power plug.

Rear Power Switch

The power switch on the back of the chassis (the **Rear Power** switch) powers on the chassis, but it does not boot up the operating system. To boot up the operating system, turn on the **Front Panel Reset** button. When the operating system has booted up, the System LED changes to green. If the operating system does not boot up automatically, press the **Front Panel Reset** button.

Use the **Rear Power** switch to remove power from the chassis only when the LED on the **Front Panel Reset** button is solid yellow indicating the system has shut down, and it is safe to remove power from the chassis.

2 Port 10G/40G System/Port Indicators

Power Indicator

This LED is green when the power is on. When the Power LED is off, there is no power to the system such as when the chassis power cable is unplugged and/or the power switch is turn off.

System Status Indicator

This LED is green when the power is on, and the system is in a normal state. When power is applied to the chassis, this LED will go from blue to green. Once the LED turns green, check the Cascade port LEDs to make sure they have stopped flashing indicating that Sync Discovery is complete. A yellow System LED indicates a warning, for example, a pending over temperature condition. A red LED indicates an alarm. This means that a fault exists, for example, an over temperature condition that could cause a system shutdown. The System LED is off when the system is running diagnostic tests, for example on the memory, or when the system is being upgraded.

Status Indicator (for the blade)

The Status LED is for the blade within the Xgig1000 chassis. A solid blue LED indicates the blade is ready to be used. A flashing green LED or a red/purple alternating LED indicates that firmware is being updated. Take care not to disturb the chassis during this process as it will corrupt the firmware. If this process fails, the Status LED is a steady red. If the Status LED starts to blink red, you must power cycle the chassis to complete the firmware upgrade by turning the chassis off using the power switch on the back of the chassis or unplugging the chassis power cord, waiting for 10 seconds, then plugging the power cord back in or turning the chassis on using the power switch. Unpredictable behavior can result if the chassis is not properly power cycled.

If you use the Xgig client to update your chassis, the GUI message will indicate that the upgrade is complete even though there may be a subsequent Xgig1000 blade upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

If you use the web initiated chassis upgrade, the user is directed to the Upgrade Status tab once the upgrade has started. The log displayed in this tab will also indicate the application install has completed, even though there may be a subsequent blade firmware upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

In order to make sure the blade upgrade process is complete, check the Status LED on the blade, or open the Xgig1000 URL, and select the **Status** tab.

NOTE

In the case of a blade upgrade failure, contact the "Technical Assistance" team.

Blade LEDs

There are two LEDs for each port on the blade. The two LEDs are under the control of Xgig application software.

Table 24 provides a description of the LEDs for the ports of the 2 Port 10G/40G system. There is one LED of each type for each port on the blade.

Table 24 2 Port 10G/40G Blade LEDs

2 Port 10G/40G Blade LEDs for Analyzer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Analyzer port is locked for use by Trace-Control.	N/A	N/A	Not Locked. The Analyzer port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)

2 Port 10G/40G System Specifications

Table 25 Physical Specifications

Height	3.50 in. / 8.89 cm.
Width	9.50 in. / 24.13 cm.
Depth	15.25 in. / 38.74 cm.
Weight	12.00 lbs. / 5.44kg
Mount	18.84 in. / 47.85 cm

Table 26 Power Specifications

Power Consumption	375 W
Fuse Protection	5 A 250 V
Input Voltage Range	100–240 VAC
Input Frequency	50/60 Hz
Inrush Current (Peak)	3.5 A @ 100 VAC

Table 27 Port Specifications

Console Port	9-pin serial port connects to PC (cross over cable only)
Management Ports	10/100/1000 RJ-45
Cascade Ports	RJ-45 connection to additional units (straight-through cable only)
TTL Inputs	MCX Connector for Trigger IN (thin coaxial cable only), The trigger-in can handle 3.3V or 5.0V inputs, active-high.
TTL Outputs	MCX Connector for Trigger OUT (thin coaxial cable only), The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V).
USB A 2.0 Port	Type A, version 2.0, Capable of up to 480 Mbps
USB A 3.0 Ports	Type A version 3.0, Capable of up to 5 Gbps
USB B 3.0 Port	Type B version 3.0, Capable of up to 5 Gbps
Clock In	MCX Connector for Transmit Reference Clock Input, 375 MHz, AC-coupled, Typ. 0.8V, Max 1.2V peak-peak

Table 27 Port Specifications

Clock Out	MCX Connector for Transmit Reference Clock Output, 375 MHz, AC-coupled, Typ. 0.8V peak-peak
Port Connectors	two QSFPs containing FPGAs QSFPs support optical and copper cables

Table 28 Environmental Specifications

Temperature	
Operational	10 to +40° C (50 to +104° F)
Non-operational	–40 to +70° C (–40 to +158° F)
Humidity	
Operational	Up to 90% humidity (non-condensing) at +40° C
Non-operational	Up to 95% humidity at +65° C.
Vibration	
Operational	Random Vibration 5–500 Hz, 10 minutes per axis, 2.41g (rms)
Non-operational	Random vibration 5–500 Hz, 10 minutes per axis, 0.3 g (rms) Resonant search, 5–500 Hz swept sine, 1 octave/min. sweep rate, 0.75 g, 5 minute resonant dwell at 4 resonances/axis
Electromagnetic Compliance	FCC Class A, CE Compatibility
Safety	UL

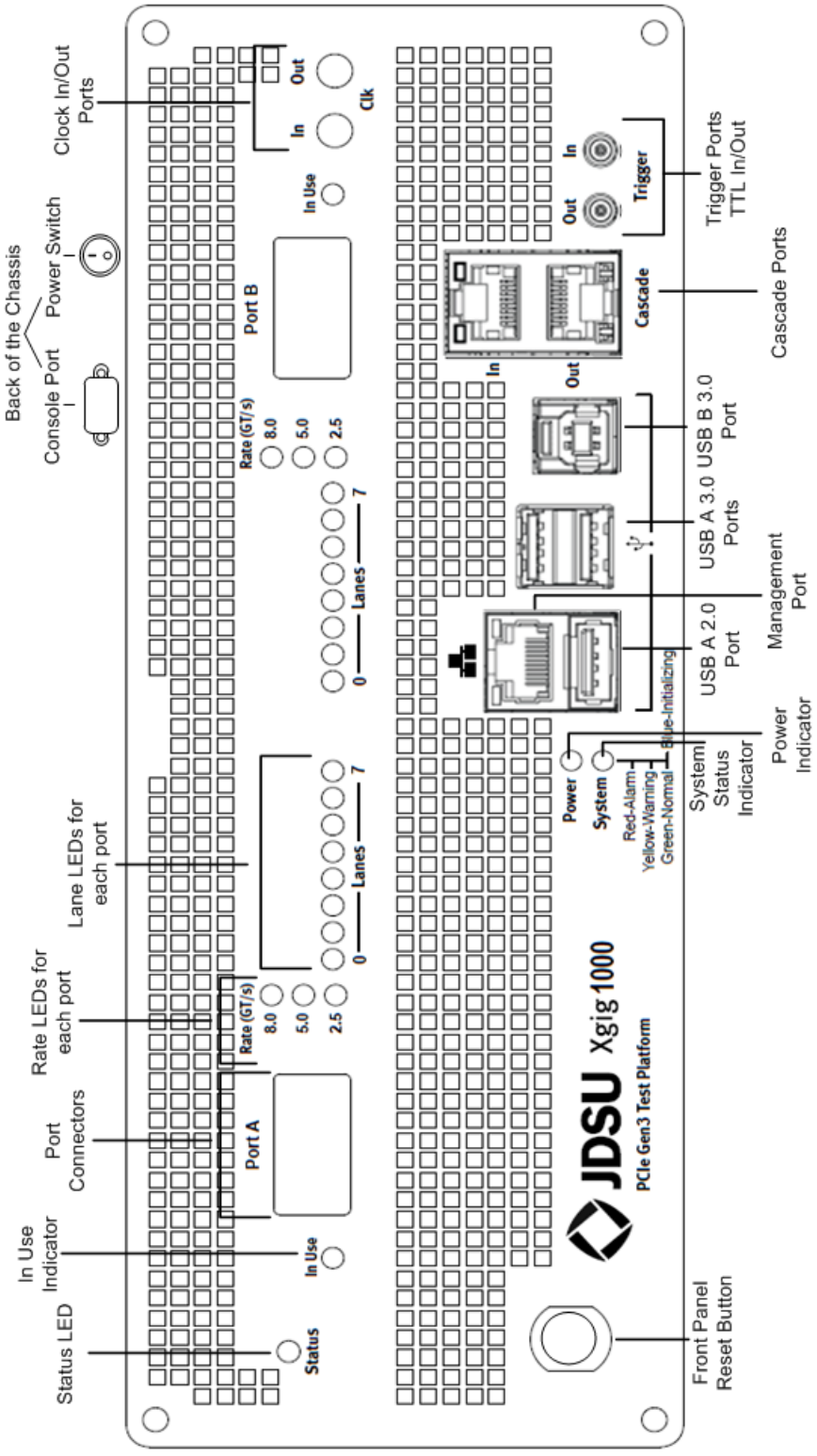
Xgig1000 PCIe Chassis

The Xgig1000 PCIe system is a fixed blade chassis that houses one Xgig 8GT/s PCIe blade with two CXP ports (16 lanes). The Xgig1000 PCIe system supports the Analyzer function at 2.5, 5.0, and 8.0 GT/s in the PCIe protocol in Analog Passthrough only. This system supports a trace buffer of 32GB upstream and 32GB downstream per port. This fixed-blade system does not require or accept Xgig or Xgig5000 blades. Xgig provides the necessary software tools running in a PC environment to perform the application task using the blade fixed within the chassis.

To use the Xgig1000 PCIe chassis, you must connect it to an interposer. For complete information on compatible interposers, refer to the *Xgig1000 PCIe Interposers Hardware Guide*.

The Xgig1000 PCIe chassis is shown in Figure 7.

Figure 7 Xgig1000 PCIe Chassis



PCIe System Ports/Connections/Front Panel Reset Button

Management Port

The Management port provides a connection to the 10/100/1000 network or a direct connection to a PC's 10/100/1000 Ethernet adapter. The Management port is used for the following:

- Configuring the Xgig1000 chassis using the Xgig Web Utility
- Controlling the operation of Xgig application-specific blades
- Retrieving data collected by Xgig application-specific blades

Console Port

The Console port is a 9-pin serial port on the back of the chassis. The Console port is used for the following:

- Minor troubleshooting
- Basic administration

The Console port can be used for all system configuration through a command line interface. Configuration commands are passed to Xgig by connecting the Console port to a terminal or to a PC with a terminal emulation program using a cross-over cable. However, configuration is usually performed using the Xgig Web Utility over the internet through the 10/100/1000 Ethernet management port.

Trigger/TTL Ports

The TTL Input and TTL Output ports provide a means of sending or receiving an electrical signal between the Xgig and other instruments for triggering purposes.

The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V). The trigger-in can handle 3.3V or 5.0V inputs, also active-high. Use 50 ohm cables with these ports.

Cascade Ports

The Cascade In and Cascade Out ports provide a means of time-synchronizing up to four Xgig, Xgig5000, and/or Xgig1000 chassis. Cascade Ports are used to share domains and send triggers between chassis.

Cascade ports use standard RJ-45 connectors and straight through CAT5 cables to connect chassis, but use Viavi proprietary protocol to communicate between cascaded units.

USB Ports

Standard USB type A connector may be used with any USB 2.0 device. This includes the USB system recovery drive for second generation Xgig1000 chassis.

3.0 USB type A connectors may be used with any USB 3.0 device.

3.0 USB type B connector may be used with an external host as a Management port or for USB Administration.

NOTE

In the case of a blade upgrade failure, contact the "Technical Assistance" team.

Clock Ports

The Clock Out port provides a means of using the clock out signal to measure the eye diagram of the output signal from the Analyzer. The Clock Out port accepts a SMA-type cable.

The Clock In port functionality is TBD. This port is reserved for future use.

Port Connectors

The Xgig1000 has two CXP connectors on the front.

Front Panel Reset Button

To safely shutdown the operating system and power off the chassis, press and hold the **Front Panel Reset** button for two seconds until the System LED starts blinking yellow. Stop pressing the button as soon as you see the System LED blink. This allows the system to do a graceful shutdown.

All LEDs will go dark and the motherboard will show no power when the system has completed the shutdown. At this point the power to both the protocol board and the motherboard has been removed. The only power going into the chassis at that point is into the Power Supply. This is the indication that you can switch the power switch to the off position.

If you press and hold the **Front Panel Reset** button down for six seconds or longer, it forces an abrupt termination and a graceful shutdown may not have completed.

Holding the **Front Panel Reset** button for 6 seconds will turn off the power to both the protocol board and the motherboard.

NOTE

The six second shutdown is not recommended; it is meant to be a last resort option similar to pulling the power plug.

Rear Power Switch

The power switch on the back of the chassis (the **Rear Power** switch) powers on the chassis. When the operating system has booted up, the System LED changes to green. If the operating system does not boot up automatically, press the **Front Panel Reset** button.

Use the **Rear Power** switch to remove power from the chassis only when the LED on the **Front Panel Reset** button is solid yellow indicating the system has shut down, and it is safe to remove power from the chassis.

PCIe System/Port Indicators

Power Indicator

This LED is green when the power is on. When the Power LED is off, there is no power to the system such as when it is unplugged.

In Use Indicators (for each port)

These LEDs indicate that the port is locked for use. When the LED is lit, the port is locked. When the LED is off, the port is available.

System Status Indicator

This LED is green when the power is on, and the system is in a normal state. When power is applied to the chassis, this LED will go from blue to green. Once the LED turns green, check the Cascade port LEDs to make sure they have stopped flashing indicating that Sync Discovery is complete. A yellow System LED indicates a warning, for example, a pending over temperature condition. A red LED indicates an alarm. This means that a fault exists, for example, an over temperature condition that could cause a system shutdown. The System LED is off when the system is running diagnostic tests, for example on the memory, or when the system is being upgraded.

Status Indicator (for the blade)

The Status LED is for the blade within the Xgig1000 chassis. A solid blue LED indicates the blade is ready to be used. A flashing green LED or a red/purple alternating LED indicates that firmware is being updated. Take care not to disturb the chassis during this process as it will corrupt the firmware. If this process fails, the Status LED is a steady red. If the Status LED starts to blink red, you must power cycle the chassis to complete the firmware upgrade by unplugging the chassis power cord, waiting for 10 seconds, then plugging the power cord back in. Unpredictable behavior can result if the chassis is not properly power cycled.

If you use the Xgig client to update your chassis, the GUI message will indicate that the upgrade is complete even though there may be a subsequent Xgig1000 blade upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

If you use the web initiated chassis upgrade, the user is directed to the Upgrade Status tab once the upgrade has started. The log displayed in this tab will also indicate the application install has completed, even though there may be a subsequent blade firmware upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

In order to make sure the blade upgrade process is complete, check the Status LED on the blade, or open the Xgig1000 URL, and select the **Status** tab.

NOTE

In the case of a blade upgrade failure, contact the "Technical Assistance" team.

Rate LEDs

There are three Rate LEDs for each port on the blade. The Rate LED indicates the current rate for the port, 2.5, 5.0, and 8.0 GT/s. The LEDs are under the control of Xgig application software.

Lane LEDs

There are eight Lane LEDs for each port on the blade. The LEDs are under the control of Xgig application software.

Table 29 provides a description of the lane LEDs for the ports of the PCIe system. There is one LED of each type for each port on the blade.

Table 29 Xgig1000 PCIe Blade LEDs

Xgig1000 PCIe Blade LEDs for Analyzer Ports			
LED	**Color Green**	**Color Orange**	**OFF**
Lane LED	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable)
Xgig1000 PCIe Blade LEDs for Jammer Ports			
LED	**Color Green**	**Color Orange**	**OFF**
Lane LED	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable)

PCIe System Specifications

Table 30 Physical Specifications

Height	3.50 in. / 8.89 cm.
Width	9.50 in. / 24.13 cm.
Depth	15.25 in. / 38.74 cm.
Weight	11.70 lbs. / 5.31kg
Mount	18.84 in. / 47.85 cm

Table 31 Power Specifications

Power Consumption	375 W
Fuse Protection	5 A 250 V
Input Voltage Range	100–240 VAC
Input Frequency	50/60 Hz
Inrush Current (Peak)	3.5 A @ 100 VAC

Table 32 Port Specifications

Console Port	9-pin serial port connects to PC (cross over cable only)
Management Ports	10/100/1000 RJ-45
Cascade Ports	RJ-45 connection to additional units (straight-through cable only)
TTL Inputs	MCX Connector for Trigger IN (thin coaxial cable only), The trigger-in can handle 3.3V or 5.0V inputs, active-high.
TTL Outputs	MCX Connector for Trigger OUT (thin coaxial cable only), The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V).
USB A 2.0 Port	Type A, version 2.0, Capable of up to 480 Mbps
USB A 3.0 Ports	Type A version 3.0, Capable of up to 5 Gbps
USB B 3.0 Port	Type B version 3.0, Capable of up to 5 Gbps
Clock In	MCX Connector for Transmit Reference Clock Input, 375 MHz, AC-coupled, Typ. 0.8V, Max 1.2V peak-peak

Table 32 Port Specifications

Clock Out	MCX Connector for Transmit Reference Clock Output, 375 MHz, AC-coupled, Typ. 0.8V peak-peak
Port Connectors	two x16 PCIe Gen 3 CXP connectors

Table 33 Environmental Specifications

Temperature	
Operational	10 to +40° C (50 to +104° F)
Non-operational	–40 to +70° C (–40 to +158° F)
Humidity	
Operational	Up to 90% humidity (non-condensing) at +40° C
Non-operational	Up to 95% humidity at +65° C.
Vibration	
Operational	Random Vibration 5–500 Hz, 10 minutes per axis, 2.41g (rms)
Non-operational	Random vibration 5–500 Hz, 10 minutes per axis, 0.3 g (rms) Resonant search, 5–500 Hz swept sine, 1 octave/min. sweep rate, 0.75 g, 5 minute resonant dwell at 4 resonances/axis
Electromagnetic Compliance	FCC Class A, CE Compatibility
Safety	UL

Xgig1000 4 Port 25G/32G Chassis

The Xgig1000 4 Port 25G/32G system is a fixed blade chassis that houses one Xgig 25G/32G blade with four SFP ports (two links). The Xgig1000 4 Port 25G/32G system supports:

- **Gigabit Ethernet protocol:**

  Analyzer and Jammer functions at 10GigE (10.3125 Gbps) and 25GigE (25.78125 Gbps) using the four SFP ports. Analyzer is supported in Analog Passthrough and Digital Retime modes. Jammer is supported in Digital Retime mode only. The capture buffer size is approximately 32 GB for each SFP port.

  Each Gigabit Ethernet speed (10G and 25G) requires a separate license.

- **Fibre Channel protocol:**

  Analyzer and Jammer functions at 8G (8.5 Gbps), 16G (14.025 Gbps), or 32G (28.05 Gbps) using the four SFP ports. Analyzer is supported in Analog Passthrough and Digital Retime modes. Jammer is supported in Digital Retime mode only. The capture buffer size is approximately 32 GB for each SFP port.

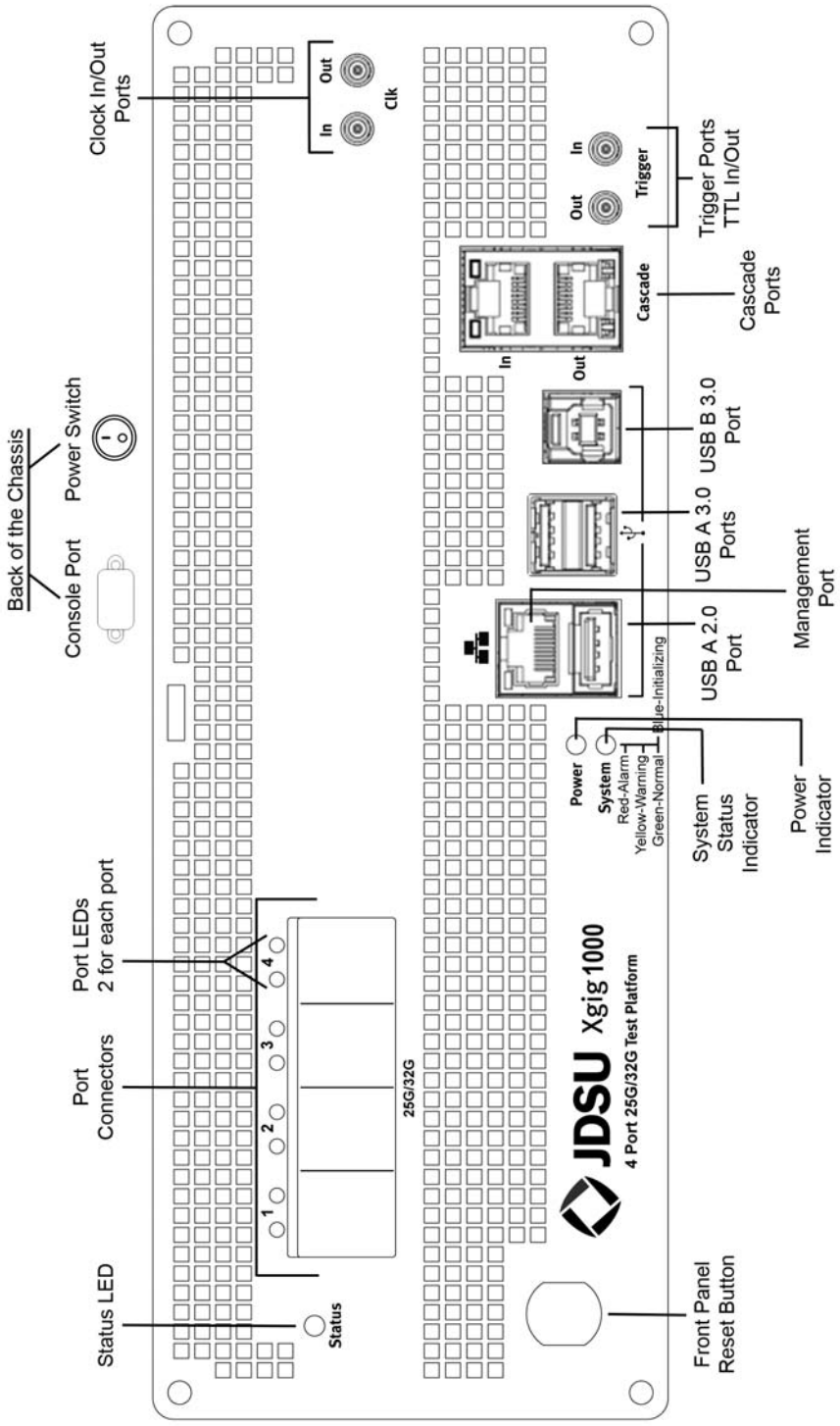
NOTE

This fixed-blade system does not require or accept Xgig or Xgig5000 blades. Xgig provides the necessary software tools running in a PC environment to perform the application task using the blade fixed within the chassis.

Analog Passthrough mode requires separate adapters. The 4 SFP ports require Analog Passthrough Adapters. Refer to “Analog Passthrough Adapters” on page 138 for information on these adapters.

The Xgig1000 4 Port 25G/32G chassis is shown in Figure 8.

Figure 8 Xgig1000 4 Port 25G/32G Chassis



4 Port 25G/32G System Ports/Connections/Front Panel Reset Button

Management Port

The Management port provides a connection to the 10/100/1000 network or a direct connection to a PC's 10/100/1000 Ethernet adapter. The Management port is used for the following:

- Configuring the Xgig1000 chassis using the Xgig Web Utility
- Controlling the operation of Xgig application-specific blades
- Retrieving data collected by Xgig application-specific blades

Console Port

The Console port is a 9-pin serial port on the back of the chassis. The Console port is used for the following:

- Minor troubleshooting
- Basic administration

The Console port can be used for all system configuration through a command line interface. Configuration commands are passed to Xgig by connecting the Console port to a terminal or to a PC with a terminal emulation program using a cross-over cable. However, configuration is usually performed using the Xgig Web Utility over the internet through the 10/100/1000 Ethernet management port.

Trigger/TTL Ports

The TTL Input and TTL Output ports provide a means of sending or receiving an electrical signal between the Xgig and other instruments for triggering purposes.

The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V). The trigger-in can handle 3.3V or 5.0V inputs, also active-high. Use 50 ohm cables with these ports.

Cascade Ports

The Cascade In and Cascade Out ports provide a means of time-synchronizing up to four Xgig, Xgig5000, and/or Xgig1000 chassis. Cascade Ports are used to share domains and send triggers between chassis.

Cascade ports use standard RJ-45 connectors and straight through CAT5 cables to connect chassis, but use Viavi proprietary protocol to communicate between cascaded units.

USB Ports

Standard USB type A connector may be used with any USB 2.0 device. This includes the USB system recovery drive for second generation Xgig1000 chassis.

3.0 USB type A connectors may be used with any USB 3.0 device.

3.0 USB type B connector may be used with an external host as a Management port or for USB administration.

NOTE

A USB driver is installed as part of the installation package. If you choose to connect the chassis using a USB extension cable, you may be prompted to re-install the USB driver.

Clock Ports

The Clock Out port provides a means of using the clock out signal to measure the eye diagram of the output signal from the Analyzer. The Clock Out port accepts a SMA-type cable.

The Clock In port functionality is TBD. This port is reserved for future use.

Port Connectors

The Xgig1000 4 Port 25G/32G has four female SFP connectors on the front.

Front Panel Reset Button

To safely shutdown the operating system and power off the chassis, press and hold the **Front Panel Reset** button for two seconds until the System LED starts blinking yellow. Stop pressing the button as soon as you see the System LED blink. This will allow the system to do a graceful shutdown.

All LEDs will go dark and the motherboard will show no power when the system has completed the shutdown. At this point the power to both the protocol board and the motherboard has been removed. The only power going into the chassis at that point is into the Power Supply. This is the indication that you can switch the power switch to the off position.

If you press and hold the **Front Panel Reset** button down for six seconds or longer, it forces an abrupt termination and a graceful shutdown may not have completed.

Holding the **Front Panel Reset** button for 6 seconds will turn off the power to both the protocol board and the motherboard.

NOTE

The six second shutdown is not recommended; it is meant to be a last resort option similar to pulling the power plug.

Rear Power Switch

The power switch on the back of the chassis (the **Rear Power** switch) powers on the chassis. When the operating system has booted up, the System LED changes to green. If the operating system does not boot up automatically, press the **Front Panel Reset** button.

Use the **Rear Power** switch to remove power from the chassis only when the LED on the **Front Panel Reset** button is solid yellow indicating the system has shut down, and it is safe to remove power from the chassis.

4 Port 25G/32G System/Port Indicators

Power Indicator

This LED is green when the power is on. When the Power LED is off, there is no power to the system such as when the chassis power cable is unplugged and/or the power switch is turn off.

System Status Indicator

This LED is green when the power is on, and the system is in a normal state. When power is applied to the chassis, this LED will go from blue to green. Once the LED turns green, check the Cascade port LEDs to make sure they have stopped flashing indicating that Sync Discovery is complete. A yellow System LED indicates a warning, for example, a pending over temperature condition. A red LED indicates an alarm. This means that a fault exists, for example, an over temperature condition that could cause a system shutdown. The System LED is off when the system is running diagnostic tests, for example on the memory, or when the system is being upgraded.

Status Indicator (for the blade)

The Status LED is for the blade within the Xgig1000 chassis. A solid blue LED indicates the blade is ready to be used. A flashing green LED or a red/purple alternating LED indicates that firmware is being updated. Take care not to disturb the chassis during this process as it will corrupt the firmware. If this process fails, the Status LED is a steady red. If the Status LED starts to blink red, you must power cycle the chassis to complete the firmware upgrade by turning the chassis off using the power switch on the back of the chassis or unplugging the chassis power cord, waiting for 10 seconds, then plugging the power cord back in or turning the chassis on using the power switch. Unpredictable behavior can result if the chassis is not properly power cycled.

If you use the Xgig client to update your chassis, the GUI message will indicate that the upgrade is complete even though there may be a subsequent Xgig1000 blade upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

If you use the web initiated chassis upgrade, the user is directed to the Upgrade Status tab once the upgrade has started. The log displayed in this tab will also indicate the application install has completed, even though there may be a subsequent blade firmware upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

In order to make sure the blade upgrade process is complete, check the Status LED on the blade, or open the Xgig1000 URL, and select the **Status** tab.

NOTE

In the case of a blade upgrade failure, contact the "Technical Assistance" team.

Blade LEDs

There are two LEDs for each port on the blade. The two LEDs are under the control of Xgig application software.

Table 34 provides a description of the LEDs for the ports of the 4 Port 25G/32G system. There is one LED of each type for each port on the blade.

Table 34 4 Port 25G/32G Blade LEDs

4 Port 25G/32G Blade LEDs for Analyzer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Analyzer port is locked for use by Trace-Control.	N/A	N/A	Not Locked. The Analyzer port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)
4 Port 25G/32G Blade LEDs for Jammer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Jammer port is locked for use by Xgig Maestro.	N/A	N/A	Not Locked. The Jammer port is available.
Right LED	N/A	Data present	Data present with Physical Errors	Loss of Signal (No cable or transceiver)

4 Port 25G/32G System Specifications

Table 35 Physical Specifications

Height	3.50 in. / 8.89 cm.
Width	9.50 in. / 24.13 cm.
Depth	15.25 in. / 38.74 cm.
Weight	10.50 lbs. / 4.76 kg
Mount	18.84 in. / 47.85 cm

Table 36 Power Specifications

Power Consumption	375 W
Fuse Protection	5 A 250 V
Input Voltage Range	100–240 VAC
Input Frequency	50/60 Hz
Inrush Current (Peak)	3.5 A @ 100 VAC

Table 37 Port Specifications

Console Port	9-pin serial port connects to PC (cross over cable only)
Management Ports	10/100/1000 RJ-45
Cascade Ports	RJ-45 connection to additional units (straight-through cable only)
TTL Inputs	MCX Connector for Trigger IN (thin coaxial cable only) The trigger-in can handle 3.3V or 5.0V inputs, active-high.
TTL Outputs	MCX Connector for Trigger OUT (thin coaxial cable only) The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V).
USB A 2.0 Port	Type A, version 2.0 Capable of up to 480 Mbps
USB A 3.0 Ports	Type A version 3.0 Capable of up to 5 Gbps
USB B 3.0 Port	Type B version 3.0 Capable of up to 5 Gbps

Table 37 Port Specifications

Clock In	MCX Connector for Transmit Reference Clock Input 375 MHz AC-coupled, Typ. 0.8V, Max 1.2V peak-peak
Clock Out	MCX Connector for Transmit Reference Clock Output 375 MHz AC-coupled, Typ. 0.8V peak-peak
Port Connectors	Four SFP connectors (or 2 Analog Passthrough Modules)

Table 38 Environmental Specifications

Temperature Operational Non-operational	 10 to +40° C (50 to +104° F) –40 to +70° C (–40 to +158° F)
Humidity Operational Non-operational	 Up to 90% humidity (non-condensing) at +40° C Up to 95% humidity at +65° C.
Vibration Operational Non-operational	 Random Vibration 5–500 Hz, 10 minutes per axis, 2.41g (rms) Random vibration 5–500 Hz, 10 minutes per axis, 0.3 g (rms) Resonant search, 5–500 Hz swept sine, 1 octave/min. sweep rate, 0.75 g, 5 minute resonant dwell at 4 resonances/axis
Electromagnetic Compliance	FCC Class A, CE Compatibility
Safety	UL

Xgig1000 8 Port 25G/32G Chassis

The Xgig1000 8 Port 25G/32G system is a fixed blade chassis that houses one Xgig 25G/32G blade with eight SFP ports (four links). The Xgig1000 8 Port 25G/32G system supports:

- **Gigabit Ethernet protocol:**

  Analyzer and Jammer functions at 10GigE (10.3125 Gbps) and 25GigE (25.78125 Gbps) using the eight SFP ports. Analyzer is supported in Analog Passthrough and Digital Retime modes. Jammer is supported in Digital Retime mode only. The capture buffer size is approximately 32 GB for each SFP port.

  Each Gigabit Ethernet speed (10G and 25G) requires a separate license.

- **Fibre Channel protocol:**

  Analyzer and Jammer functions at 8G (8.5 Gbps), 16G (14.025 Gbps), or 32G (28.05 Gbps) using the eight SFP ports. Analyzer is supported in Analog Passthrough and Digital Retime modes. Jammer is supported in Digital Retime mode only. The capture buffer size is approximately 32 GB for each SFP port.

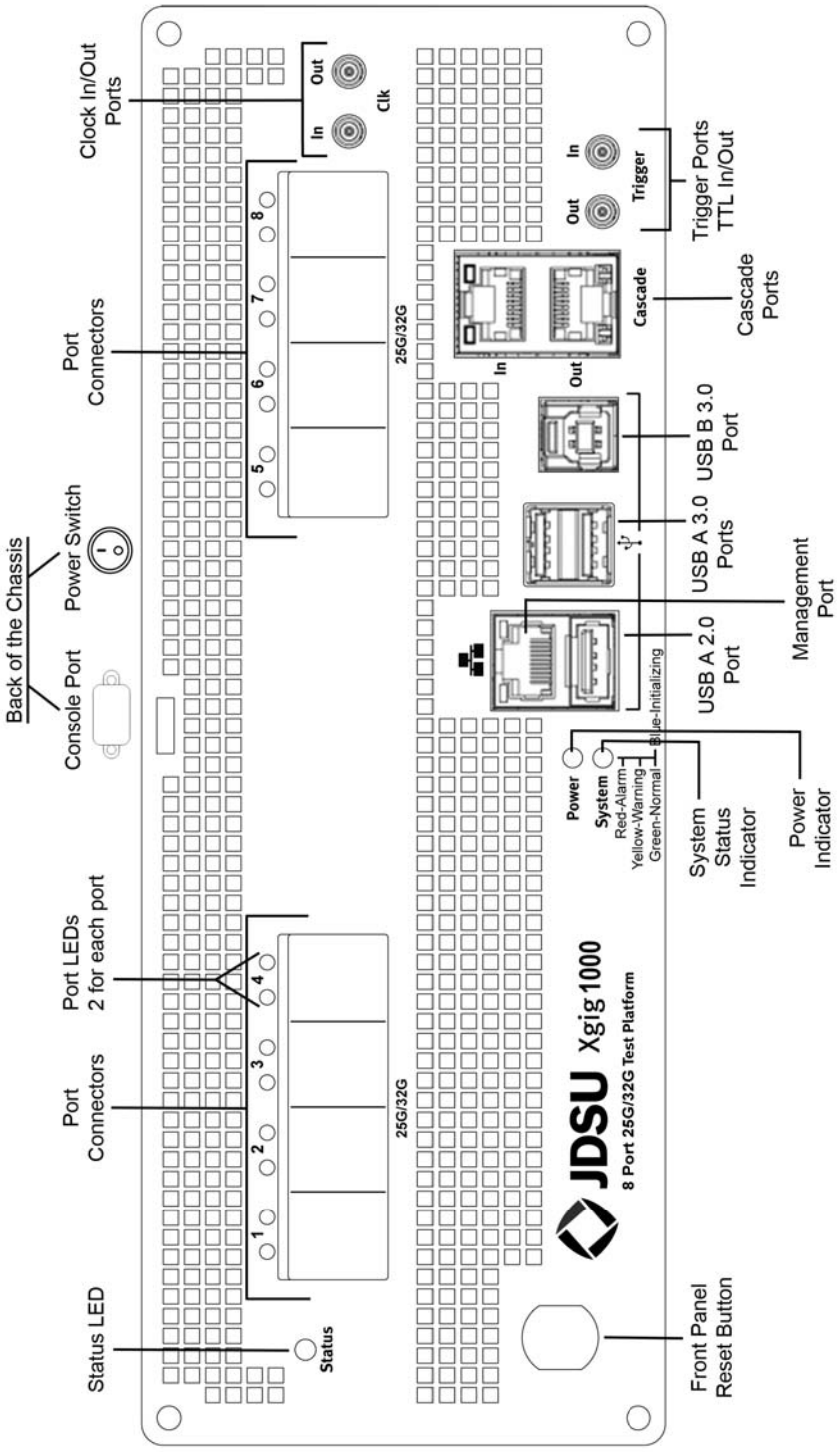
NOTE

This fixed-blade system does not require or accept Xgig or Xgig5000 blades. Xgig provides the necessary software tools running in a PC environment to perform the application task using the blade fixed within the chassis.

Analog Passthrough mode requires separate adapters. The 8 SFP ports require Analog Passthrough Adapters. Refer to “Analog Passthrough Adapters” on page 138 for information on these adapters.

The Xgig1000 8 Port 25G/32G chassis is shown in Figure 9.

Figure 9 Xgig1000 8 Port 25G/32G Chassis



8 Port 25G/32G System Ports/Connections/Front Panel Reset Button

Management Port

The Management port provides a connection to the 10/100/1000 network or a direct connection to a PC's 10/100/1000 Ethernet adapter. The Management port is used for the following:

- Configuring the Xgig1000 chassis using the Xgig Web Utility
- Controlling the operation of Xgig application-specific blades
- Retrieving data collected by Xgig application-specific blades

Console Port

The Console port is a 9-pin serial port on the back of the chassis. The Console port is used for the following:

- Minor troubleshooting
- Basic administration

The Console port can be used for all system configuration through a command line interface. Configuration commands are passed to Xgig by connecting the Console port to a terminal or to a PC with a terminal emulation program using a cross-over cable. However, configuration is usually performed using the Xgig Web Utility over the internet through the 10/100/1000 Ethernet management port.

Trigger/TTL Ports

The TTL Input and TTL Output ports provide a means of sending or receiving an electrical signal between the Xgig and other instruments for triggering purposes.

The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V). The trigger-in can handle 3.3V or 5.0V inputs, also active-high. Use 50 ohm cables with these ports.

Cascade Ports

The Cascade In and Cascade Out ports provide a means of time-synchronizing up to four Xgig, Xgig5000, and/or Xgig1000 chassis. Cascade Ports are used to share domains and send triggers between chassis.

Cascade ports use standard RJ-45 connectors and straight through CAT5 cables to connect chassis, but use Viavi proprietary protocol to communicate between cascaded units.

USB Ports

Standard USB type A connector may be used with any USB 2.0 device. This includes the USB system recovery drive for second generation Xgig1000 chassis.

3.0 USB type A connectors may be used with any USB 3.0 device.

3.0 USB type B connector may be used with an external host as a Management port or for USB administration.

NOTE

A USB driver is installed as part of the installation package. If you choose to connect the chassis using a USB extension cable, you may be prompted to re-install the USB driver.

Clock Ports

The Clock Out port provides a means of using the clock out signal to measure the eye diagram of the output signal from the Analyzer. The Clock Out port accepts a SMA-type cable.

The Clock In port functionality is TBD. This port is reserved for future use.

Port Connectors

The Xgig1000 8 Port 25G/32G has eight female SFP connectors on the front.

Front Panel Reset Button

To safely shutdown the operating system and power off the chassis, press and hold the **Front Panel Reset** button for two seconds until the System LED starts blinking yellow. Stop pressing the button as soon as you see the System LED blink. This will allow the system to do a graceful shutdown.

All LEDs will go dark and the motherboard will show no power when the system has completed the shutdown. At this point the power to both the protocol board and the motherboard has been removed. The only power going into the chassis at that point is into the Power Supply. This is the indication that you can switch the power switch to the off position.

If you press and hold the **Front Panel Reset** button down for six seconds or longer, it forces an abrupt termination and a graceful shutdown may not have completed.

Holding the **Front Panel Reset** button for 6 seconds will turn off the power to both the protocol board and the motherboard.

NOTE

The six second shutdown is not recommended; it is meant to be a last resort option similar to pulling the power plug.

Rear Power Switch

The power switch on the back of the chassis (the **Rear Power** switch) powers on the chassis. When the operating system has booted up, the System LED changes to green. If the operating system does not boot up automatically, press the **Front Panel Reset** button.

Use the **Rear Power** switch to remove power from the chassis only when the LED on the **Front Panel Reset** button is solid yellow indicating the system has shut down, and it is safe to remove power from the chassis.

8 Port 25G/32G System/Port Indicators

Power Indicator

This LED is green when the power is on. When the Power LED is off, there is no power to the system such as when the chassis power cable is unplugged and/or the power switch is turn off.

System Status Indicator

This LED is green when the power is on, and the system is in a normal state. When power is applied to the chassis, this LED will go from blue to green. Once the LED turns green, check the Cascade port LEDs to make sure they have stopped flashing indicating that Sync Discovery is complete. A yellow System LED indicates a warning, for example, a pending over temperature condition. A red LED indicates an alarm. This means that a fault exists, for example, an over temperature condition that could cause a system shutdown. The System LED is off when the system is running diagnostic tests, for example on the memory, or when the system is being upgraded.

Status Indicator (for the blade)

The Status LED is for the blade within the Xgig1000 chassis. A solid blue LED indicates the blade is ready to be used. A flashing green LED or a red/purple alternating LED indicates that firmware is being updated. Take care not to disturb the chassis during this process as it will corrupt the firmware. If this process fails, the Status LED is a steady red. If the Status LED starts to blink red, you must power cycle the chassis to complete the firmware upgrade by turning the chassis off using the power switch on the back of the chassis or unplugging the chassis power cord, waiting for 10 seconds, then plugging the power cord back in or turning the chassis on using the power switch. Unpredictable behavior can result if the chassis is not properly power cycled.

If you use the Xgig client to update your chassis, the GUI message will indicate that the upgrade is complete even though there may be a subsequent Xgig1000 blade upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

If you use the web initiated chassis upgrade, the user is directed to the Upgrade Status tab once the upgrade has started. The log displayed in this tab will also indicate the application install has completed, even though there may be a subsequent blade firmware upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

In order to make sure the blade upgrade process is complete, check the Status LED on the blade, or open the Xgig1000 URL, and select the **Status** tab.

NOTE

In the case of a blade upgrade failure, contact the "Technical Assistance" team.

Blade LEDs

There are two LEDs for each port on the blade. The two LEDs are under the control of Xgig application software.

Table 39 provides a description of the LEDs for the ports of the 8 Port 25G/32G system. There is one LED of each type for each port on the blade.

Table 39 8 Port 25G/32G Blade LEDs

8 Port 25G/32G Blade LEDs for Analyzer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Analyzer port is locked for use by Trace-Control.	N/A	N/A	Not Locked. The Analyzer port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)
8 Port 25G/32G Blade LEDs for Jammer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Jammer port is locked for use by Xgig Maestro.	N/A	N/A	Not Locked. The Jammer port is available.
Right LED	N/A	Data present	Data present with Physical Errors	Loss of Signal (No cable or transceiver)

8 Port 25G/32G System Specifications

Table 40 Physical Specifications

Height	3.50 in. / 8.89 cm.
Width	9.50 in. / 24.13 cm.
Depth	15.25 in. / 38.74 cm.
Weight	12.00 lbs. / 5.44kg
Mount	18.84 in. / 47.85 cm

Table 41 Power Specifications

Power Consumption	375 W
Fuse Protection	5 A 250 V
Input Voltage Range	100–240 VAC
Input Frequency	50/60 Hz
Inrush Current (Peak)	3.5 A @ 100 VAC

Table 42 Port Specifications

Console Port	9-pin serial port connects to PC (cross over cable only)
Management Ports	10/100/1000 RJ-45
Cascade Ports	RJ-45 connection to additional units (straight-through cable only)
TTL Inputs	MCX Connector for Trigger IN (thin coaxial cable only) The trigger-in can handle 3.3V or 5.0V inputs, active-high.
TTL Outputs	MCX Connector for Trigger OUT (thin coaxial cable only) The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V).
USB A 2.0 Port	Type A, version 2.0 Capable of up to 480 Mbps
USB A 3.0 Ports	Type A version 3.0 Capable of up to 5 Gbps

Table 42 Port Specifications

USB B 3.0 Port	Type B version 3.0 Capable of up to 5 Gbps
Clock In	MCX Connector for Transmit Reference Clock Input 375 MHz AC-coupled, Typ. 0.8V, Max 1.2V peak-peak
Clock Out	MCX Connector for Transmit Reference Clock Output 375 MHz AC-coupled, Typ. 0.8V peak-peak
Port Connectors	Eight SFP connectors (or 4 Analog Passthrough Modules)

Table 43 Environmental Specifications

Temperature Operational Non-operational	 10 to +40° C (50 to +104° F) –40 to +70° C (–40 to +158° F)
Humidity Operational Non-operational	 Up to 90% humidity (non-condensing) at +40° C Up to 95% humidity at +65° C.
Vibration Operational Non-operational	 Random Vibration 5–500 Hz, 10 minutes per axis, 2.41g (rms) Random vibration 5–500 Hz, 10 minutes per axis, 0.3 g (rms) Resonant search, 5–500 Hz swept sine, 1 octave/min. sweep rate, 0.75 g, 5 minute resonant dwell at 4 resonances/axis
Electromagnetic Compliance	FCC Class A, CE Compatibility
Safety	UL

Xgig1000 10 Port 25G/32G/50G/100G/128G Chassis

The Xgig1000 10 Port 25G/32G/50G/100G/128G system is a fixed blade chassis that houses one Xgig 25G/32G/50G/100G/128G blade with eight SFP ports (four links) and two QSFP ports (one link). The Xgig1000 10 Port 25G/32G/50G/100G/128G system supports:

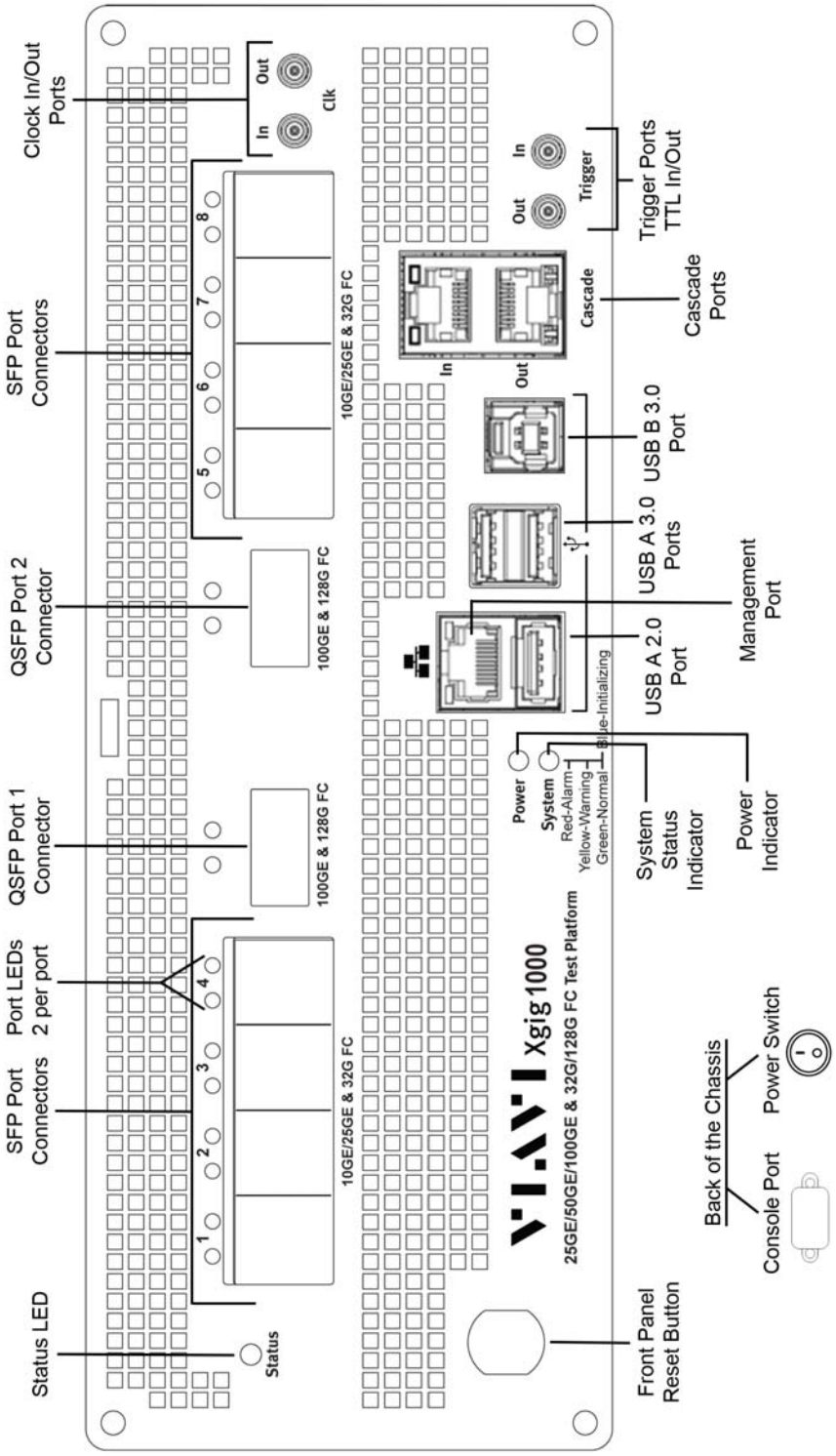
- **Gigabit Ethernet protocol:**
  - Analyzer and Jammer functions at 10GigE (10.3125 Gbps) and 25GigE (25.78125 Gbps) using the eight SFP ports. Analyzer is supported in Analog Passthrough and Digital Retime modes. Jammer is supported in Digital Retime mode only. The capture buffer size is approximately 32 GB for each SFP port.
  - Analyzer functions at 50G (51.5625 Gbps) and 100G (103.125 Gbps) using the two QSFP ports. Analyzer is supported in Analog Passthrough and Digital Retime modes. The maximum capture size is limited to approximately 32 GB per capture and the total capture memory size is approximately 128 GB for each QSFP port; however using multiple segments in Xgig-Analyzer TraceControl, you can combine these multiple segments for trace captures of approximately the 128 GB memory size.
  - Each Gigabit Ethernet speed (10G, 25G, 50G, and 100G) requires a separate license.
  - Analog Passthrough mode requires separate adapters. The 8 SFP ports require Analog Passthrough Adapters; the 2 QSP ports require a Quad Analog Passthrough Adapter. Refer to “Analog Passthrough Adapters” on page 138 for information on these adapters.
- **Fibre Channel protocol:**
  - Analyzer and Jammer functions at 8G (8.5 Gbps), 16G (14.025 Gbps), or 32G (28.05 Gbps) using the eight SFP ports. Analyzer is supported in Analog Passthrough and Digital Retime modes. Jammer is supported in Digital Retime mode only. The capture buffer size is approximately 32 GB for each SFP port.
  - Analyzer functions at 128G (112.200 Gbps) using the two QSFP ports. Analyzer is supported in Analog Passthrough and Digital Retime modes. The capture buffer size is approximately 128 GB for each QSFP port. The maximum capture size is limited to approximately 32 GB per capture and the total capture memory size is approximately 128 GB for each QSFP port; however using multiple segments in Xgig-Analyzer TraceControl, you can combine these multiple segments for trace captures of approximately the 128 GB memory size.
  - Analog Passthrough mode requires separate adapters. The 8 SFP ports require AnalogPassthrough Adapters; the 2 QSP ports require a Quad Analog Passthrough Adapter. Refer to “Analog Passthrough Adapters” on page 138 for information on these adapters.

NOTE

This fixed-blade system does not require or accept Xgig or Xgig5000 blades. Xgig provides the necessary software tools running in a PC environment to perform the application task using the blade fixed within the chassis.

The Xgig1000 10 Port 25G/32G/50G/100G/128G chassis is shown in Figure 10.

Figure 10 Xgig1000 10 Port 25G/32G/50G/100G/128G Chassis



10 Port 25G/32G/50G/100G/128G System Ports/Connections/Front Panel Reset Button

Management Port

The Management port provides a connection to the 10/100/1000 network or a direct connection to a PC's 10/100/1000 Ethernet adapter. The Management port is used for the following:

- Configuring the Xgig1000 chassis using the Xgig Web Utility
- Controlling the operation of Xgig application-specific blades
- Retrieving data collected by Xgig application-specific blades

Console Port

The Console port is a 9-pin serial port on the back of the chassis. The Console port is used for the following:

- Minor troubleshooting
- Basic administration

The Console port can be used for all system configuration through a command line interface. Configuration commands are passed to Xgig by connecting the Console port to a terminal or to a PC with a terminal emulation program using a cross-over cable. However, configuration is usually performed using the Xgig Web Utility over the internet through the 10/100/1000 Ethernet management port.

Trigger/TTL Ports

The TTL Input and TTL Output ports provide a means of sending or receiving an electrical signal between the Xgig and other instruments for triggering purposes.

The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V). The trigger-in can handle 3.3V or 5.0V inputs, also active-high. Use 50 ohm cables with these ports.

Cascade Ports

The Cascade In and Cascade Out ports provide a means of time-synchronizing up to four Xgig, Xgig5000, and/or Xgig1000 chassis. Cascade Ports are used to share domains and send triggers between chassis.

Cascade ports use standard RJ-45 connectors and straight through CAT5 cables to connect chassis, but use Viavi proprietary protocol to communicate between cascaded units.

USB Ports

Standard USB type A connector may be used with any USB 2.0 device. This includes the USB system recovery drive for second generation Xgig1000 chassis.

3.0 USB type A connectors may be used with any USB 3.0 device.

3.0 USB type B connector may be used with an external host as a Management port or for USB administration.

NOTE

A USB driver is installed as part of the installation package. If you choose to connect the chassis using a USB extension cable, you may be prompted to re-install the USB driver.

Clock Ports

The Clock Out port provides a means of using the clock out signal to measure the eye diagram of the output signal from the Analyzer. The Clock Out port accepts a SMA-type cable.

The Clock In port functionality is TBD. This port is reserved for future use.

Port Connectors

The Xgig1000 10 Port 25G/32G/50G/100G/128G has eight female SFP connectors and two QSFP connectors on the front.

Front Panel Reset Button

To safely shutdown the operating system and power off the chassis, press and hold the **Front Panel Reset** button for two seconds until the System LED starts blinking yellow. Stop pressing the button as soon as you see the System LED blink. This will allow the system to do a graceful shutdown.

All LEDs will go dark and the motherboard will show no power when the system has completed the shutdown. At this point the power to both the protocol board and the motherboard has been removed. The only power going into the chassis at that point is into the Power Supply. This is the indication that you can switch the power switch to the off position.

If you press and hold the **Front Panel Reset** button down for six seconds or longer, it forces an abrupt termination and a graceful shutdown may not have completed.

Holding the **Front Panel Reset** button for 6 seconds will turn off the power to both the protocol board and the motherboard.

NOTE

The six second shutdown is not recommended; it is meant to be a last resort option similar to pulling the power plug.

Rear Power Switch

The power switch on the back of the chassis (the **Rear Power** switch) powers on the chassis. When the operating system has booted up, the System LED changes to green. If the operating system does not boot up automatically, press the **Front Panel Reset** button.

Use the **Rear Power** switch to remove power from the chassis only when the LED on the **Front Panel Reset** button is solid yellow indicating the system has shut down, and it is safe to remove power from the chassis.

10 Port 25G/32G/50G/100G/128G System/Port Indicators

Power Indicator

This LED is green when the power is on. When the Power LED is off, there is no power to the system such as when the chassis power cable is unplugged and/or the power switch is turn off.

System Status Indicator

This LED is green when the power is on, and the system is in a normal state. When power is applied to the chassis, this LED will go from blue to green. Once the LED turns green, check the Cascade port LEDs to make sure they have stopped flashing indicating that Sync Discovery is complete. A yellow System LED indicates a warning, for example, a pending over temperature condition. A red LED indicates an alarm. This means that a fault exists, for example, an over temperature condition that could cause a system shutdown. The System LED is off when the system is running diagnostic tests, for example on the memory, or when the system is being upgraded.

Status Indicator (for the blade)

The Status LED is for the blade within the Xgig1000 chassis. A solid blue LED indicates the blade is ready to be used. A flashing green LED or a red/purple alternating LED indicates that firmware is being updated. Take care not to disturb the chassis during this process as it will corrupt the firmware. If this process fails, the Status LED is a steady red. If the Status LED starts to blink red, you must power cycle the chassis to complete the firm-

ware upgrade by turning the chassis off using the power switch on the back of the chassis or unplugging the chassis power cord, waiting for 10 seconds, then plugging the power cord back in or turning the chassis on using the power switch. Unpredictable behavior can result if the chassis is not properly power cycled.

If you use the Xgig client to update your chassis, the GUI message will indicate that the upgrade is complete even though there may be a subsequent Xgig1000 blade upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

If you use the web initiated chassis upgrade, the user is directed to the Upgrade Status tab once the upgrade has started. The log displayed in this tab will also indicate the application install has completed, even though there may be a subsequent blade firmware upgrade that could last for 15 more minutes. If this process fails, the Status LED is a steady red.

In order to make sure the blade upgrade process is complete, check the Status LED on the blade, or open the Xgig1000 URL, and select the **Status** tab.

NOTE

In the case of a blade upgrade failure, contact the "Technical Assistance" team.

Blade LEDs

There are two LEDs for each port on the blade. The two LEDs are under the control of Xgig application software.

Table 39 provides a description of the LEDs for the ports of the 10 Port 25G/32G/50G/100G/128G system. There is one LED of each type for each port on the blade.

Table 44 10 Port 25G/32G/50G/100G/128G Blade LEDs

10 Port 25G/32G/50G/100G/128G Blade LEDs for Analyzer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**
Left LED	Locked Indicates that the Analyzer port is locked for use by Trace-Control.	N/A	N/A	Not Locked. The Analyzer port is available.
Right LED	N/A	Data present when blinking	Data present with Physical Errors if blinking	Loss of Signal (No cable or transceiver)
10 Port 25G/32G Blade LEDs for Jammer Ports				
LED	**Color Blue**	**Color Green**	**Color Orange**	**OFF**

Table 44 10 Port 25G/32G/50G/100G/128G Blade LEDs

Left LED	Locked Indicates that the Jammer port is locked for use by Xgig Maestro.	N/A	N/A	Not Locked. The Jammer port is available.
Right LED	N/A	Data present	Data present with Physical Errors	Loss of Signal (No cable or transceiver)
Note that Jammer is available on SFP ports only				

10 Port 25G/32G/50G/100G/128G System Specifications

Table 45 Physical Specifications

Height	3.50 in. / 8.89 cm.
Width	9.50 in. / 24.13 cm.
Depth	15.25 in. / 38.74 cm.
Weight	12.00 lbs. / 5.44kg
Mount	18.84 in. / 47.85 cm

Table 46 Power Specifications

Power Consumption	375 W
Fuse Protection	5 A 250 V
Input Voltage Range	100–240 VAC
Input Frequency	50/60 Hz
Inrush Current (Peak)	3.5 A @ 100 VAC

Table 47 Port Specifications

Console Port	9-pin serial port connects to PC (cross over cable only)
Management Ports	10/100/1000 RJ-45

Table 47 Port Specifications

Cascade Ports	RJ-45 connection to additional units (straight-through cable only)
TTL Inputs	MCX Connector for Trigger IN (thin coaxial cable only), The trigger-in can handle 3.3V or 5.0V inputs, active-high.
TTL Outputs	MCX Connector for Trigger OUT (thin coaxial cable only), The trigger-out pulse is approximately 200ns wide, active-high, LVTTL (3.3V).
USB A 2.0 Port	Type A, version 2.0, Capable of up to 480 Mbps
USB A 3.0 Ports	Type A version 3.0, Capable of up to 5 Gbps
USB B 3.0 Port	Type B version 3.0, Capable of up to 5 Gbps
Clock In	MCX Connector for Transmit Reference Clock Input 375 MHz, AC-coupled, Typ. 0.8V, Max 1.2V peak-peak
Clock Out	MCX Connector for Transmit Reference Clock Output 375 MHz, AC-coupled, Typ. 0.8V peak-peak
Port Connectors	Eight SFP connectors (or 4 Analog Passthrough Modules) Two QSFP connectors

Table 48 Environmental Specifications

Temperature	
Operational	10 to +40° C (50 to +104° F)
Non-operational	–40 to +70° C (–40 to +158° F)
Humidity	
Operational	Up to 90% humidity (non-condensing) at +40° C
Non-operational	Up to 95% humidity at +65° C.
Vibration	
Operational	Random Vibration 5–500 Hz, 10 minutes per axis, 2.41g (rms)
Non-operational	Random vibration 5–500 Hz, 10 minutes per axis, 0.3 g (rms) Resonant search, 5–500 Hz swept sine, 1 octave/min. sweep rate, 0.75 g, 5 minute resonant dwell at 4 resonances/axis
Electromagnetic Compliance	FCC Class A, CE Compatibility
Safety	UL

2

Xgig1000 System Setup

This chapter describes how to set up the Xgig1000 system. The topics discussed in this chapter are as follows:

Unpacking the System

Inspect Xgig1000 system packaging and its contents for visible damage. If you notice any damage, please contact the "Technical Assistance" team immediately.

When you receive your Xgig1000 system, the package will contain the following items:

- Xgig1000 chassis
- Xgig System Server Software USB Drive
- USB A recovery boot drive
- 100-120 V Power cord
- RJ-45 straight-through cable
- DB-9 Null modem cable
- USB cable (Type A connector to Type B connector)
- Warranty
- Rack mounts and mounting screws
- Replacement screws for removal of rubber feet for rack mount

Please check the contents of your Xgig1000 system package to make certain you have received all the components on this list. If any items are missing, please contact the "Technical Assistance" team immediately.

Customers that do not have access to a 100–120V power supply will need to supply their own power cord.

The Xgig chassis should only be serviced by Viavi or an authorized Viavi service provider. Customers should not attempt to service the product. The printed circuit board assemblies internal to the chassis contain batteries assemblies.

CAUTION

Risk of explosion if battery is replaced by an incorrect type. Dispose of used Batteries according to the instructions of the battery manufacturer.

Locating the System in Your Environment

Place your Xgig1000 system in a location where you have easy access to the following:

- Physical connection to your local area network
- A socket outlet supplying 110–115V power (or 200–240V for international).

The socket outlet shall be installed near the equipment and shall be easily accessible. Surge protection should be provided between the Xgig1000 chassis and the power supply.

If you want to rack-mount your Xgig1000 system, follow the instructions below. If you want a bench setup, you don't need to do anything to the chassis.

Rack Mounting Instructions

If you want to rack mount your Xgig1000 chassis, follow these steps.

1. Use a screw driver to remove the 16 screws holding the rubber feet on, and set screws aside.

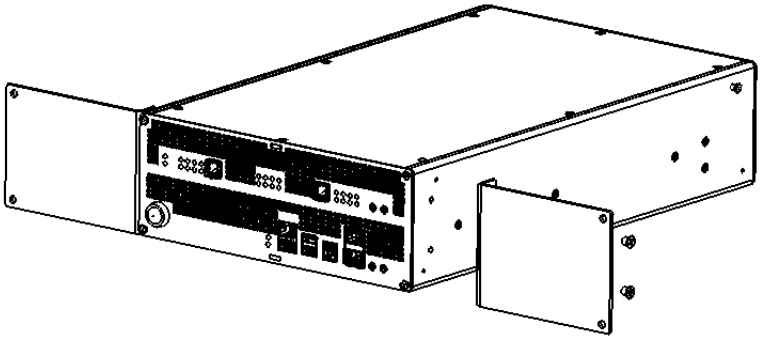
   Be careful to not re-insert the same screws for the rubber feet into the chassis once the rubber feet are removed. They may interfere with the chassis' operation. You must use the shorter replacement screws provided instead.

2. Use a screw driver to insert the 16 replacement screws in the holes where the rubber feet were attached.

3. Align one rack mount so that the short end is aligned with the two screw holes on the side of the chassis and the long end is flush with the front of the chassis.

4. Attach the mounting bracket to the chassis with two of the four screws provided.

Figure 11 Mounting Brackets



5. Repeat with the second mounting bracket on the other side of the chassis with the remaining two screws.

6. Use a screw driver to tighten all mounting screws. Fasten securely, but do not over tighten.

7. Mount the Xgig1000 chassis in your equipment rack. Use the screws provided to attach the mounting bracket to the rack, two screws for each side.

Safety Protocol for Rack Mounting

Please adhere to the following guidelines when rack mounting your Xgig1000 chassis.

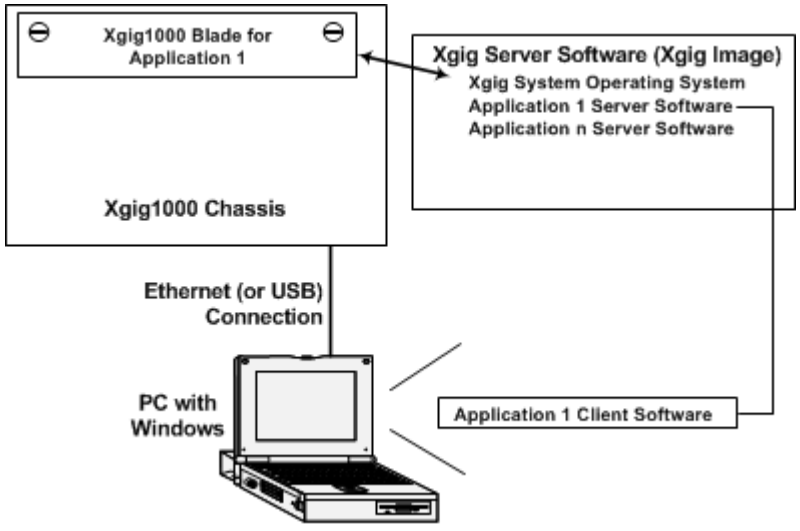
- Elevated Operating Ambient - If installed in a closed or multi-rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

- Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.
- Mechanical Loading - Mounting the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable Earthing- Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Xgig1000 System Overview

The Xgig1000 chassis is a hardware platform that includes one fixed blade – it is part of a larger system. Performing application tasks requires PC hardware, installation of software at the PC, and making proper connections. There is a client-server relationship between the Xgig1000 chassis (server) and the Xgig application software (client) used to perform tasks. The software on the Xgig server interacts with the internal blade hardware and services the requests made from the Xgig client software.

Figure 12 Xgig Client-Server Relationship



There are two methods of connecting and working with the Xgig1000 system: standalone and network. A standalone environment implies a “work bench” installation where the Xgig1000 chassis is connected to a single PC (via Ethernet or a USB cable) for management and interface with Xgig software applications. A network environment implies an installation where the Xgig1000 chassis is connected to an Ethernet network. The Xgig1000 chassis can be reached on the network from many different clients running Xgig

software applications. To set up the Xgig1000 chassis, follow the instructions in the following section, depending on the environment of your Xgig1000 system.

Figure 13 shows the relationships of the components to use, update, and configure an Xgig1000 chassis in a network environment. Note that all PC-installed software does not necessarily need to reside on different PC systems.

Figure 13 Xgig1000 Components in a Network Environment

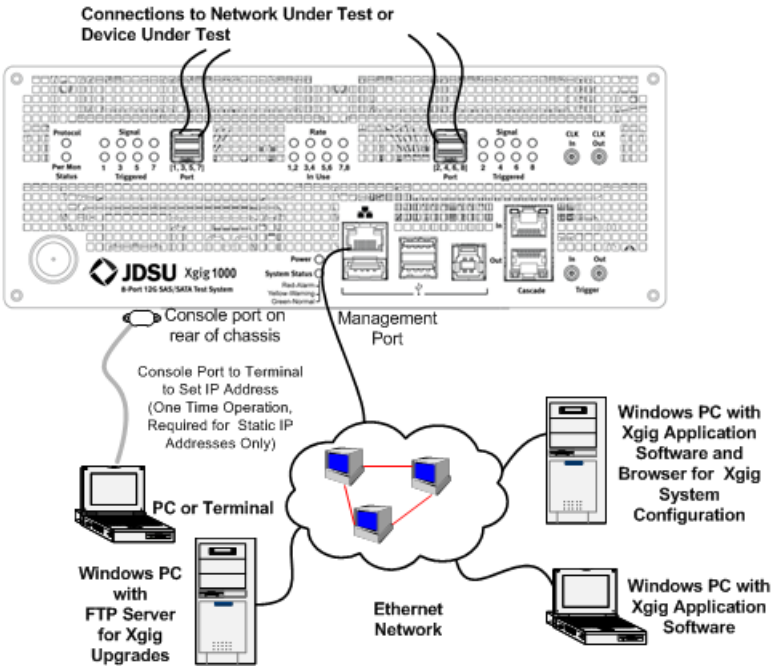
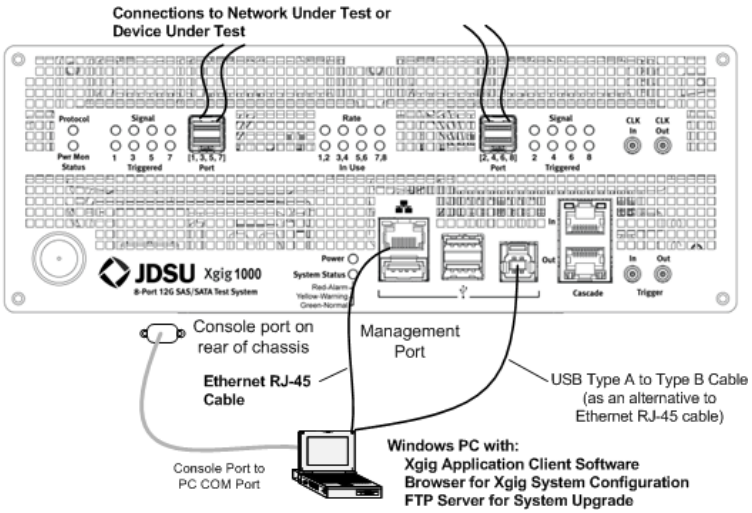


Figure 14 shows the relationships of components to use, update, and configure an Xgig1000 chassis in a standalone environment.

Figure 14 Xgig1000 Components in a Standalone Environment



Xgig1000 System and Application Images

NOTE

The Xgig1000 chassis has two software images, one for system software and one for applications. All software required to run the Xgig1000 chassis comes pre-installed.

All software required to run the Xgig1000 chassis comes pre-installed. Update of Xgig1000 chassis software is required with new releases. There are two images that reside within the Xgig1000 chassis:

- System Image
- Application Image

The system image is the operating system for the Xgig1000 chassis. The application image is the software that communicates with Xgig client applications and controls the blade within the Xgig1000 chassis. Software for all client applications is contained in a single application image.

Xgig1000 Server Software

All server software required to run the Xgig1000 chassis comes pre-installed. The *Xgig System Server Software* USB Drive should autorun when you insert it in the USB port. A screen will appear with a menu of options.

The *Xgig System Server Software* USB Drive contains:

- **FTP Server Program**
  An FTP server program is included for upgrades to the Xgig1000 chassis. Installation of the FTP server program supplied on the USB Drive is optional; you can use your own FTP server program and FTP site. An FTP server is required ONLY for system upgrades.
- **Xgig System and Application Images (Kits Folder)**
  Duplicate images of the pre-installed software are included on the USB Drive. There is one image for the Xgig system software and one image for all application software. Upgrade images are also referred to as “kits”.
- **Java Runtime Environment (JRE) Software**
  The JRE is typically downloaded from a web site, and is provided on the USB Drive for those without internet access. The correct version of the JRE software is required ONLY for system upgrades.
- **PDF Versions of System Manuals**
  PDF versions of system manuals are included on the USB Drive.
- **Acrobat Reader**
  A version of Acrobat Reader is included for viewing system manuals in PDF format.

Xgig Client Software

Xgig Application client software is distributed on a USB memory drive in a separate package. Applications are installed on a PC running Windows 2008 Server, Windows 7 Professional, Windows 7 Enterprise, Windows 8.1, or Microsoft Windows Server 2012 R2. Refer to the *Software Installation Guide* that accompanies the application client software for installation information.

Xgig Access Through a Firewall

In general, Xgig client software should be able to access an Xgig1000 chassis that lies behind a firewall. Ports must be open as described in the following table to permit operation across a firewall for Xgig applications:

Table 49 Requirements for Xgig Access Through a Firewall

Application	TCP/UDP	Port Direction	Server Application on Port
Administration Web Pages	80 (HTTP)	In	Apache Web Server
Administration Web Pages	21 (FTP)	Out	None
Xgig Analyzer	2000	In/Out	Xgig Analyzer Server
Xgig Analyzer	52000	In/Out	Xgig Analyzer Server
Xgig Maestro	2000	In/Out	Xgig Maestro Server
Xgig Maestro	52000	In/Out	Xgig Maestro Server
Xgig Maestro	6000	In/Out	Xgig Maestro Server
Xgig Maestro	135 (DCOM)	In/Out	Xgig Maestro Server

You can edit the TCP port for the client applications by selecting **Edit Xgig TCP Port** from the **Start** menu. A dialog appears where you can type in a value for the TCP port. Click **Apply** to change the port. You can also change the TCP port for the most recently used chassis by clicking the chassis name in the Most Recently Used Chassis section of the dialog.

For sites where the Xgig Analyzer is the only application, it is suggested that the DCOM port remain closed.

Network Address Translation (NAT) is not supported. An Xgig1000 chassis protected by a firewall that uses Network Address Translation (NAT) cannot be accessed from Xgig clients outside the firewall.

For Windows users, ICMPv4 ‘Allow incoming echo request’ (used for Ping) is disabled by default. To use the Xgig Web Utility to upgrade an Xgig1000 chassis, this option must be enabled.

Setup Instructions

To prepare the Xgig1000 chassis for use, follow one of the three paths below depending on your environment:

NOTE

The Xgig1000 chassis comes ready-to-use in a DHCP-configured network. This is the easiest way to setup the Xgig1000 chassis. Follow Path 1 unless you are required to setup the system differently.

WARNING

Serious errors may occur if the Xgig1000 chassis is not shutdown properly. **If you have a problem during setup and need to shutdown, follow either shutdown procedure in** “Xgig1000 Chassis Shutdown Sequence” on page 99 **before removing power to the chassis.**

PATH 1: Setting Up the Xgig1000 Chassis in a DHCP Network

Follow the steps below to use the Xgig1000 chassis in a DHCP-configured network. Connect the Xgig1000 chassis to the network and verify that the chassis can be accessed from another node on the network.

The default name for the Xgig1000 chassis is “XGIG1K” followed by the eight-digit serial number; for example, **XGIG1K78234335**. The serial number is located on the bottom of the Xgig1000 chassis.

1. Use the RJ-45 Ethernet straight-through cable to attach the Xgig to the network.

   The Ethernet connection is required for management of the Xgig1000 chassis through application software and for configuration through the Xgig Web Utility.

2. Plug in the Xgig1000 chassis. Attach the female end of the power cord to the Xgig1000 chassis power receptacle and the male end into an appropriate power source.

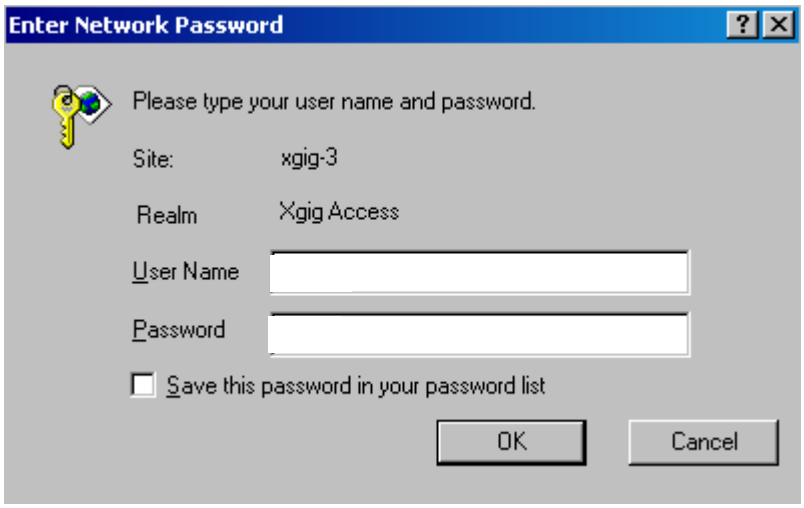
3. Turn the chassis on using the power switch on the back of the chassis. If the chassis does not have a power switch on the back, skip this step.

4. Press the **Front Panel Reset** button to initiate the power on sequence.

5. From the PC attached to the network, launch the browser. Access the Xgig1000 chassis using the default name as the URL. For example, **http://XGIG1K78234335**.

If the operation is successful, you will see the screen asking for the user name and password to access the Xgig Web Utility. The default user name is “**JDSU**” and the default password is “**JDSUsnt**”.

Figure 15 Xgig1000 System Login



If you cannot see the Xgig1000 chassis, see Chapter 4 “Tips and Troubleshooting” for information on how to troubleshoot connections.

The setup for the Xgig1000 chassis is complete. Install application client software you will be using with the Xgig1000 chassis. Install application client software on a PC that can reach the Xgig1000 chassis on your Ethernet network. Refer to the *Software Installation Guide* for your application client software for installation information.

Refer to Chapter 3 “Administration”” for instructions on administrating the chassis.

PATH 2: Setting Up the Xgig1000 Chassis with a Static IP Address in a Non-DHCP Network

NOTE

The Xgig1000 chassis comes ready-to-use in a DHCP-configured network. You must use the serial interface to disable DHCP to set a Static IP Address.

Follow the steps below to disable DHCP, set the IP address, and connect the Xgig1000 chassis for use. In most environments, you will also need to set the subnet mask and the default gateway address for the Xgig1000 chassis as well as the IP address.

If you have a DNS name server, assign a name to the Xgig1000 chassis so users can easily locate the system. The default name for the Xgig1000 chassis is “XGIG1K” followed by the eight-digit serial number, for example, **XGIG1K78256743**. The serial number is located on the bottom of the Xgig1000 chassis.

1 Use the DB-9 Null Modem Cable to connect Xgig1000 chassis to either a VT-100 terminal or a desktop or laptop computer running VT-100 terminal emulation software such as Windows HyperTerminal. Plug one end of the cable into the Console port (9-pin port on the back), and the other into a COM port on the computer.

2 Use the supplied RJ-45 Ethernet straight-through cable to attach the Xgig1000 chassis to the network.

The Ethernet connection is required for management of the Xgig1000 chassis through application software and for configuration through the Xgig Web Utility.

3 Plug in the Xgig1000 chassis. Attach the female end of the power cord to the Xgig1000 system power receptacle and the male end into an appropriate power source.

4 Turn the chassis on using the power switch on the back of the chassis. If the chassis does not have a power switch on the back, skip this step.

5 Press the **Front Panel Reset** button to initiate the power on sequence.

6 If you are using a PC, start a terminal emulation software program on the PC, such as HyperTerminal.

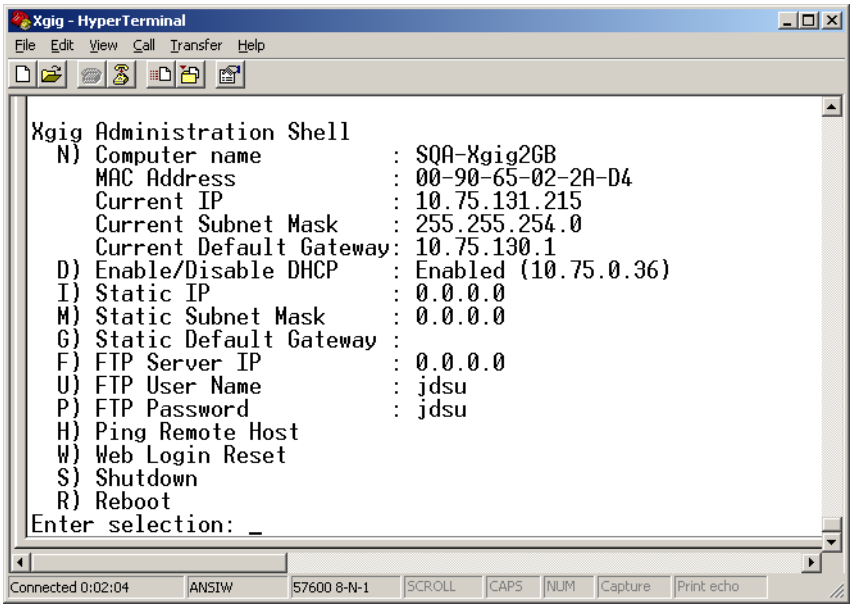
7 Configure the terminal or terminal emulation software to communicate with Xgig1000 chassis. The terminal device must be connected to the Xgig console serial port with the following settings:

– 57600 Baud, 8 Data Bits, 1 Stop Bit, No Parity

– Flow control = none

8 When you launch the terminal emulation program, a screen such as the following will appear.

Figure 16 Xgig1000 Command Line Options



9 Determine if DHCP is enabled or disabled. If it is currently enabled, type **D** to disable DHCP. The addresses in the Static IP, Static Subnet Mask, and Static Default Gateway are not used if DHCP is enabled.

10 Consult your network administrator to obtain an appropriate Static IP Address, Static Subnet Mask, and Static Default Gateway for the Xgig1000 chassis. These values will be specific to the network segment to which the Xgig1000 chassis is attached.

11 Type I and press Enter to set the IP address. Type in the Static IP address in IP dotted notation.

Record the static IP address assigned to the Xgig1000 chassis. You will need this address to verify the connect to the Xgig1000 chassis and to use the Xgig Web Utility to set configuration parameters.

12 Type **M** and press Enter to set the Static Subnet Mask. Type in the IP address in IP dotted notation (for example, 255.255.255.0).

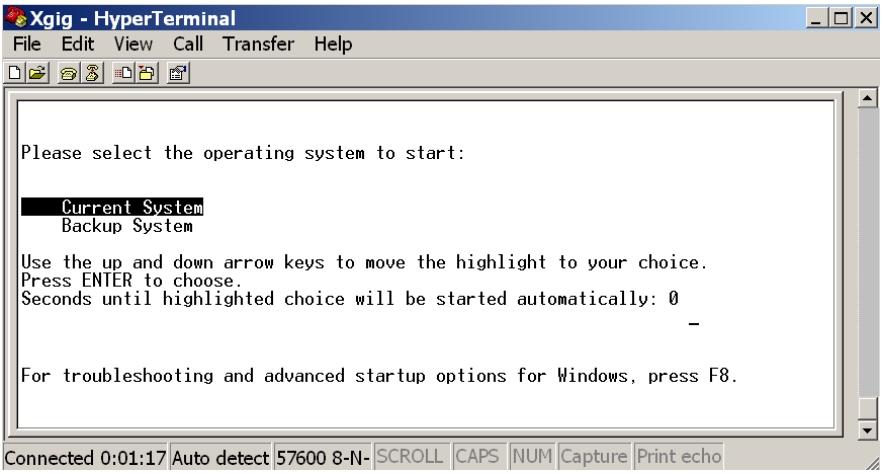
13 Type **G** and press Enter to set the Static Default Gateway. Type in the IP address in IP dotted notation.

14 Type **R** to reboot the system. The message "**Do you want to reboot?**" appears. Press Y to continue with the reboot. When the screen shown below appears, press **Enter**.

NOTE

You must reboot for changes to take affect. Wait several minutes for the Xgig1000 chassis to boot. During boot, the HyperTerminal screen below will show no activity.

Figure 17 HyperTerminal Screen During Xgig1000 Boot



15 Check the connection using either of the steps below.

   a "Ping" the host PC from the Xgig1000 chassis using the H command. The terminal emulation program must be running and you must be connected to the Xgig1000 through the serial cable to use the H command. Enter the host name or the IP address of the remote host at the prompt. For example: > **ping 10.10.4.2**

   b You can also "ping" the Xgig1000 chassis from the PC to check the connection. From the Start menu in Windows, select **Run** and type in **CMD**. From the Command prompt, type the ping command with the new Static IP address as the argument. For example: > **ping 10.10.4.34**

   If the ping is successful, you are ready to access the Xgig1000 chassis from the Xgig Web Utility and from Xgig software applications. If your request times out, see Chapter 4 "Tips and Troubleshooting" for information on how to troubleshoot connections.

16 Close the serial port connection to the Xgig1000 chassis from the PC.

17 Remove the DB-9 Null Modem cable between the terminal/PC and the Xgig1000 chassis (optional).

   Once the IP address is set, the use of the DB-9 Null Modem cable is no longer required. The console interface using the DB-9 Null Modem cable can be used to set other configuration values. However, all other configuration can be accomplished through a browser from the Xgig Web Utility. Refer to "Administration of the Xgig1000 System over the Internet" on page 102" for information on running the Xgig Web Utility.

The setup for the Xgig1000 chassis is complete. Install the application client software you will be using with the Xgig1000 chassis. Install application client software on a PC that can reach the Xgig1000 chassis on your Ethernet network. Refer to the *Software Installation Guide* for your application client software for installation information.

Refer to Chapter 3 "Administration"" for instructions on administrating the chassis.

PATH 3: Setting Up the Xgig1000 Chassis in a Standalone Environment

NOTE

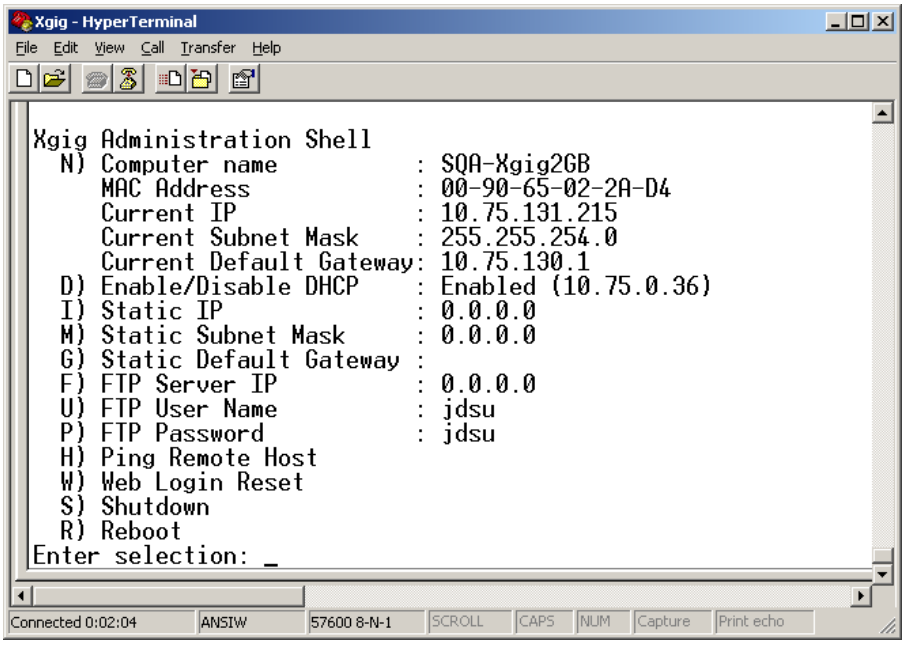
The Xgig1000 chassis comes ready-to-use in a DHCP-configured network. You must use the serial interface to disable DHCP and set a Static IP Address to setup the Xgig1000 chassis for a standalone environment.

Follow the steps below to disable DHCP, set the IP address, and connect the Xgig1000 chassis for use in a standalone environment.

1. Use the DB-9 Null Modem Cable to connect Xgig1000 chassis to either a VT-100 terminal or a desktop or laptop computer running VT-100 terminal emulation software such as Windows HyperTerminal. Plug one end of the cable into the Console port (9-pin port on the back), and the other into a COM port on the computer. This can be the same PC that will be used to connect with the Xgig1000 chassis through the Ethernet port.
2. Use the supplied RJ-45 Ethernet straight-through cable to attach the Xgig1000 chassis directly to a PC with an Ethernet port.

   The Ethernet connection is required for management of the Xgig1000 chassis through application software and for configuration through the Xgig Web Utility.
3. Plug in the Xgig1000 chassis. Attach the female end of the power cord to the Xgig1000 system power receptacle and the male end into an appropriate power source.
4. Turn the chassis on using the power switch on the back of the chassis. If the chassis does not have a power switch on the back, skip this step.
5. Press the **Front Panel Reset** button to initiate the power on sequence.
6. Turn on the PC connected to the Xgig1000 chassis and log in as the administrator.
7. Set a static IP address for the PC connected to Xgig1000 chassis. From Windows go to **Start > Control Panel> Network Connections** and select the **Local Area Connection**. From the **Status** dialog, select **Properties**. From the **Properties** dialog box, highlight **Internet Protocol (TCP/IP)** and select **Properties**. Select the **Use the following IP address:** option and enter the static IP address and subnet mask, such as 10.10.4.3 and 255.255.255.0. Write down the IP address.
8. Start a terminal emulation software program on the PC, such as HyperTerminal.
9. Configure the terminal or terminal emulation software to communicate with Xgig1000 chassis. For most systems, the terminal emulation program is accessible form **Start > Accessories > Communications > Hyperterminal**. The terminal device must be connected to the Xgig console serial port with the following settings:
   - 57600 Bits/second, 8 Data Bits, 1 Stop Bit, No Parity
   - Flow control = none
10. Wait several minutes for the Xgig1000 chassis to boot.
11. When you launch the terminal emulation program, a screen such as the following will appear:

Figure 18 Xgig1000 Command Line Options



12 Determine if DHCP is enabled or disabled. If it is currently enabled, type **D** to disable DHCP. The addresses in the Static IP Address, Static Subnet Mask, and Static Default Gateway fields are not used if DHCP is enabled.

13 Type I to set the IP address. Type in the Static IP address in IP dotted notation. The IP address should match the IP address for the PC you set in step 5, except for changing the last portion of the address.

For example, if the PC address from step 5 is 10.10.4.3, then assign an address such as 10.10.4.4.

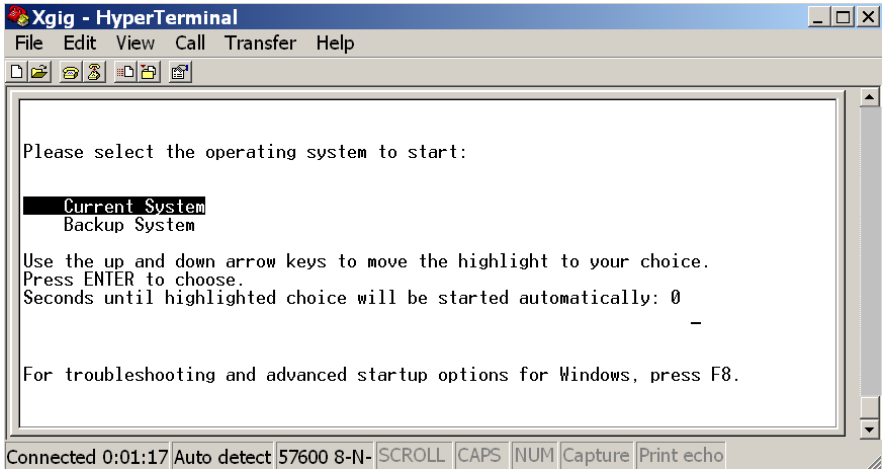
14 Type **M** to set the Static Subnet Mask. For example, use 255.255.255.0 as the Subnet Mask.

15 Type **R** to reboot the system. The message "**Do you want to reboot?**" appears. Press **Y** to continue with the reboot. When the screen shown below appears, press Enter.

NOTE

You must reboot for changes to take affect. Wait several minutes for the Xgig1000 chassis to boot. During boot, the HyperTerminal screen below will show no activity.

Figure 19 HyperTerminal Screen During Xgig1000 Boot



16 Check the connection using either of the steps below.

a "Ping" the host PC from the Xgig1000 chassis using the H command. The terminal emulation program must be running and you must be connected to the Xgig through the serial cable to use the H command. Enter the IP address of the PC at the prompt. For example: > **ping 10.10.4.3**

b You can also "ping" the Xgig1000 chassis from the PC to check the connection. From the Start menu in Windows, select **Run** and type in **CMD**. From the Command prompt, type the ping command with the new Static IP address as the argument. For example: > **ping 10.10.4.4**

If the ping is successful, you are ready to access the Xgig1000 chassis from the Xgig Web Utility and from Xgig software applications.

If your request times out, see Chapter 4 "Tips and Troubleshooting" for information on how to troubleshoot connections.

17 Close the serial port connection to the Xgig1000 chassis from the PC.

18 Remove the DB-9 Null Modem cable between the PC and Xgig1000 chassis.

Once the IP address is set, the use of the DB-9 Null Modem cable is no longer required. The console interface using the DB-9 Null Modem cable can be used to set other configuration values. However, all other configuration can be accomplished through a browser from the Xgig Web Utility. Refer to "Administration of the Xgig1000 System over the Internet" on page 102" for information on running the Xgig Web Utility.

The setup for the Xgig1000 chassis is complete. Install the application client software you will be using with the Xgig1000 chassis. Install application client software on a PC that can reach the Xgig1000 chassis on your Ethernet network. Refer to the *Software Installation Guide* for your application client software for installation information.

PATH 4: Setting Up the Xgig1000 Chassis using USB Direct Connect

As a alternative to controlling the Xgig1000 chassis using an Ethernet connection, some Xgig software applications support controlling the chassis using a USB cable connection. Refer to your software's users guide to determine if the chassis can be supported using the USB.

Traditionally, this chassis has been controlled using an Ethernet connection. If your chassis is already connected using the Ethernet connection and you now want to control it using the USB, you do not need to remove the Ethernet connection. However, you will only be able control the chassis using one cable at a time. The client software allows you to select the desired control method.

NOTE

To control the chassis using a USB connection, you must upgrade the chassis software to the most recent software version. Refer to "System Upgrades" on page 121 for instructions on upgrading the system software.

The following steps instruct you on how to set up the Xgig1000 chassis to be controlled from a host computer using a USB cable connected directly to the chassis.

1. Using a USB cable (Type A to Type B connectors), connect the host computer to the Xgig1000 chassis front panel USB connector. Attach the cable's Type A connector to the computer; attach the cable's Type B connector to the chassis.

2. With the Xgig software running on the computer, use the Select Ports for Domain Creation window to turn on the USB mode. Refer to the software's users guide for instructions.

NOTE

When the software turns the USB connection on or off, a Sync Discovery on the chassis is triggered destroying all the domains and restarting all the server applications. An information box is displayed advising you that the current chassis port will be disabled, all client applications will be disconnected, and any traces captured in the chassis buffer will be lost. You must select the **OK** button to complete the control port change.

If ports on the chassis are locked by another application, a message will be displayed asking to unlock all ports before changing the USB mode.

The Xgig Web Utility is not supported over USB. To use the Xgig remote administrator, refer to "Remote Administration of the Xgig1000 System via USB" on page 106.

Cascading Xgig1000 chassis

Once single Xgig1000 chassis are set up for operation, it is possible to cascade several chassis together using CAT-5 straight-through cables and the Cascade ports on the Xgig1000 chassis. Up to four chassis can be cascaded together to form a Sync Group. You can cascade Xgig1000 chassis together with Xgig chassis.

NOTE

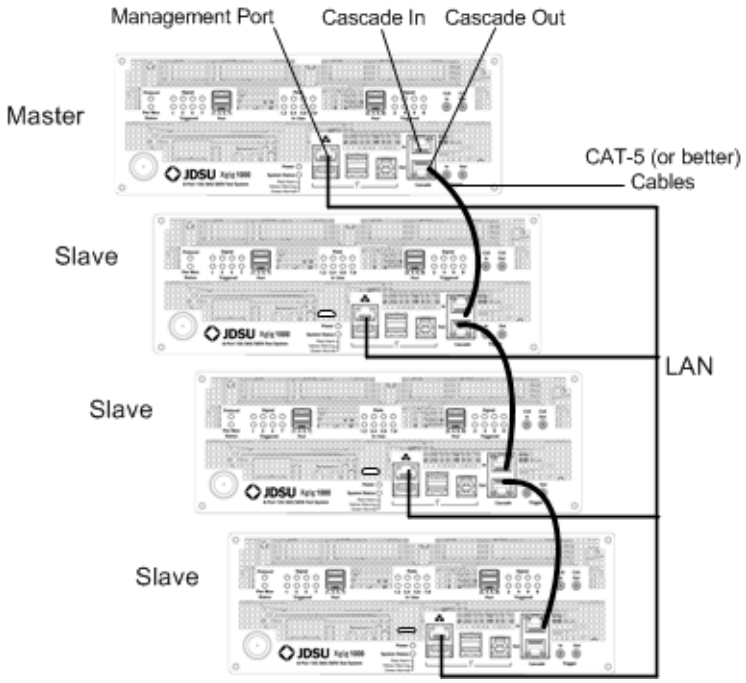
Cascading is not supported when the chassis is controlled via USB.

Xgig1000 chassis uses standard RJ-45 connectors and CAT-5 cable to connect, as with any standard Ethernet connection; however, the chassis communicate using a proprietary Viavi protocol. You can specify the length of the sync cable(s) between chassis in Analyzer's or Maestro's discovery control window if you are required to use sync cables other than the ones provided with a chassis. The minimum is 1ft, and the maximum is 100ft. The default is 3ft, which is the length of the cable provided with the chassis.

For cascaded units, as shown in the figure below, the first chassis in the sequence is called the master. All other chassis in the cascade are slaves. The entire cascaded sequence is always addressed by the IP address or DNS name of the master unit.

Connect the **Cascade Out** port on the master Xgig1000 chassis to the **Cascade In** port on the next chassis in the chain. Continue cabling from **Cascade Out** to **Cascade In** as you move down the chain. The management ports of all chassis in the cascade must be connected to the same LAN subnet for the chassis to be in the same Sync Group.

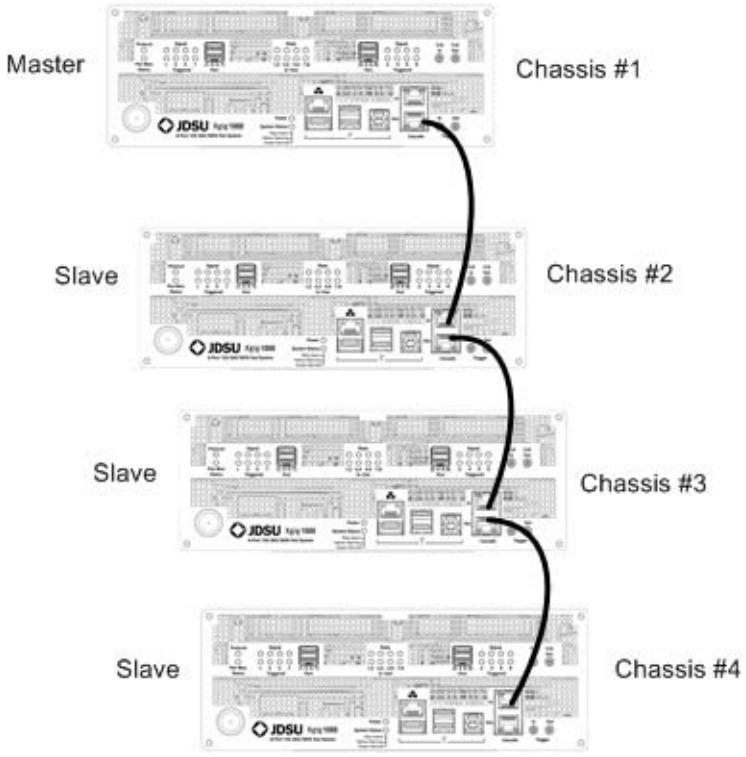
Figure 20 Cascade Cabling for Xgig



Note that there is no connection to the **Cascade In** port of the master Xgig1000 chassis. Do not connect the **Cascade Out** port on the last Xgig in the cascade to the **Cascade In** port of the master in a “loop”.

Chassis are numbered consecutively starting with the master. The ports are addressed in a cascaded configuration by chassis number, blade number within the chassis, and port number within the blade – for example, FC Port(1,2,3) refers to port 3 on blade 2 in chassis 1. Figure 21 shows how chassis are numbered for port addressing when they are cascaded together.

Figure 21 Chassis Numbering for Cascaded Xgig chassis



Sync Discovery Process

The Xgig chassis can be cascaded together to form a Sync Group. A Sync Discovery process is run to establish the Sync Group topology. When Sync Discovery starts, all connections to the Sync Group will be severed. Port captures may or may not be preserved depending on each situation. The rules of a Sync Group are:

- The IP addresses of all chassis in the Sync Group must reside on the same subnet.
- All chassis must have the same App Kit version.

The Sync Discovery Process occurs under the following conditions:

- Sync Discovery is done automatically at boot up to learn the topology of the Sync Group.
- Removing a member from a Sync Group will always cause Sync Discovery to start. This includes rebooting or shutting down a member within a Sync Group or any interruption to the management port of any member within the group when the chassis operating system determines it has lost its IP address. When the Sync Discovery Process is notified of an IP Address change, it will then start Sync Discovery. For a Management cable removal, it is usually approximately nine seconds, but this time could vary.

  Examples of IP Address Changes are:

  – Original IP address == 10.75.131.10 Then, the Sync Discovery Process is notified the address has changed to 10.75.131.11
  – Original IP address == 10.75.131.10 Then, the Sync Discovery Process is notified the address has changed to 0.0.0.0 and then back to 10.75.131.10. Sync Discovery must run in this case, because the chassis has lost communications with the other chassis, and the Sync Group in is an UNKNOWN State.
- Breaking the Cascade link will always initiate Sync Discovery. The timing is indeterminate, as this is not a real time operating system. The thread that detects this runs every 10ms, but under Windows, this can vary by as much as 20 to 50 milliseconds or more if a high priority process is utilizing all of the CPU time. Under normal conditions, Sync Discovery will start with in 100 ms, but this cannot be guaranteed.
- Adding member(s) to a Sync Group may start the Sync Discovery. Sync Discovery will not start if any ports in the group have ever been locked, even if the ports are unlocked afterward. A Sync Reset operation must be initiated to force a Sync Discovery operation to start.
- If there are chassis cascaded together, and the master chassis detects it can not longer communicate with any of the slave chassis, it will initiate Sync Discovery. The timing on this cannot be stated absolutely. The master chassis tries to connect to the slaves three times at five second intervals before a failure is declared. The amount of time this process takes depends on the network. We estimate it takes from 15 seconds to a minute seconds, but it is not possible to pinpoint.
- A Sync Reset can be initiated to re-discover the members within a Sync Group. When you initiate Sync Reset on one of the sync chassis, it will initiate a group Sync Reset.This operation can only be done by the administrator via the web utility.

Xgig1000 Chassis Startup Sequence

The following is the start up sequence that you will observe when you power on the Xgig1000 chassis.

1. Plug the chassis in to start up the Xgig1000 chassis.
2. Turn the chassis on using the power switch on the back of the chassis. If the chassis does not have a power switch on the back, skip this step.
3. If the power on sequence is not initiated automatically, press the **Front Panel Reset** button.
4. Wait several minutes.
5. When the Management Port is connected to the network, the remainder of the start up sequence continues.
6. All of the following events occur at the same time. The Sync Discovery operation takes the longest to complete.
   a. The Management Port activates.
   b. The blade initializes, and LEDs for the ports activate (not all LEDs for all ports will activate).
   c. The Sync Discovery operation starts, and the LEDs on the Cascade port blink. During a Sync Discovery, the cascaded chassis go through the process of discovering how many units are cascaded together and reset ports accordingly. Sync Discovery may take several minutes.
7. When the Xgig1000 chassis has finished booting and Sync Discovery has completed, the Cascade ports stop blinking and turn solid green if there are cascaded chassis. Otherwise, no LEDs are lit for the Cascade ports.

Note that when a reboot or a Sync Discovery is initiated, all existing data in the capture buffer of any Xgig blade within the chassis is lost. Sync Discovery can also be initiated by a command from the Xgig Web interface utility.

Xgig1000 Chassis Shutdown Sequence

The following are the proper shutdown sequences for the Xgig1000 chassis.

NOTE

The LED behavior at shutdown is different between the two generations of the Xgig1000 chassis (see "Xgig1000 Systems" on page 2).

- When the first generation chassis is shutdown, the left management port LED goes out, while the "right" management port LED stays lit yellow, and the System LED changes from green to yellow.
- When the second generation chassis is shutdown, all LEDs and power will be turned off.

You must follow one of these procedures before removing power from the chassis.

WARNING

Serious errors may occur if the Xgig1000 chassis is not shutdown properly. **You must follow one of the procedures below before removing power from the chassis.**

If you experience problems with restarting the chassis after powering down and then reapplying power to the unit, see "Power up problems following chassis shutdown" on page 130 in the Troubleshooting section.

Shutdown Using the Web Utility Interface

1. Determine the IP address of the unit.
2. From the Internet Explorer application, connect to the unit.
3. From the **Server** drag down menu, select **Shutdown**.
4. Wait until the chassis shuts down completely before removing power. When the unit has completely shutdown, the behavior of the LEDs varies based on the generation of the chassis (see the note above.)

Shutdown Using the Console Interface

1. Ensure that the direct communication with the unit is achieved by:
   a. Connect a null modem cable to the console port of the Xgig1000 chassis.
   b. Open the console interface by using HyperTerminal or an equivalent interface.
   c. Press **Enter** and verify that the unit information refreshes.
2. Type in "**S**" to initiate system shutdown.

3 Wait until the chassis shuts down completely before removing power. When the unit has completely shutdown, the behavior of the LEDs varies based on the generation of the chassis (see the note above.)

Shutdown Using Xgig Application

1 Right-click the chassis in the Port Discovery window.

2 Select “Shutdown Sync Group”.

3 Wait until the chassis shuts down completely before removing power. When the unit has completely shutdown, the behavior of the LEDs varies based on the generation of the chassis (see the note above.)

NOTE

The remote administrator also allows you to shut down the chassis. Refer to “Chassis Shutdown” on page 112.

3

Administration

This chapter describes how to perform the administrative tasks on the Xgig1000 chassis. The topics discussed in this chapter are as follows:

Administration of the Xgig1000 System over the Internet

NOTE

The Xgig1000 comes with a web-based system administration utility that performs upgrades and other configuration activities over the Internet.

Xgig Web Utility

You can perform administration and configuration activities over the Internet using the Xgig Web Utility. The Xgig Web Utility performs the following functions:

- Configure
  - set chassis IP addresses and select/remove DHCP addressing
  - set the system IP address/account name/password for the FTP server used to upgrade application and system images
  - change the TCP port number for the chassis. We recommend 52000.
  - synchronize the Xgig1000 system clock to the time on your local system
  - assign or change licensing for a blade within the chassis
- Get chassis status
  - blade information, including location and firmware revision level
  - chassis system information, including current system image version
  - application image information, including revision levels of all application software at the Xgig1000 chassis
- Perform upgrades
  - system image
  - application image
  - upgrade status, check for available upgrade versions
- Perform chassis administration
  - system reboot
  - system shutdown
  - sync reset
- Change the web access login user name and password
- Enable user authentication and set the password for remote users
- Set management port speed (pre-set to auto-detect the speed)

Accessing the Xgig1000 System for Administration

Once the IP address is set or assigned for the Xgig1000 chassis, use the IP address or the DNS name as the URL to reach the chassis over the Internet. For example, if the:

- Name of the Xgig1000 chassis is XGIG78344987, use:
  `https://XGIG78344987`
- IP address of the Xgig1000 chassis is 10.24.233.6:, use:
  `https://10.24.233.6`

Refer to the previous sections on setting up your Xgig1000 chassis for information on setting/obtaining the correct IP address.

Connections use the Secure Sockets Layer (SSL) protocol to protect your resources. The use of a secure connection requires validation by a certificate authority. The first time you enter the URL, you may receive the following security alert.

Figure 22 Security Alert Message

The security alert gives you a warning that the security authority is not in your browser's list of trusted authorities. Press **Yes** to continue. You can use the **View Certificate** button to install an Xgig Certificate Authority (CA) certificate in your browser. If you do not install the certificate, you will continue to get this security alert from your browser when you use HTTPS to access the Xgig1000 chassis.

Other security messages may be posted by your browser when you leave or enter the secure connection to the Xgig1000 chassis. These messages may vary depending on the version of JRE or the version of the browser that you have installed.

When you log in using a secure connection, a lock icon appears on the status bar at the bottom of the web page.

It is highly recommended that you access the Xgig using a secure connection, especially when changing the Xgig Web Utility password or when setting up Client Authentication. Note that you can also access the chassis over an unsecured connection (HTTP); for example, `http://10.24.233.6`.

Logging In and Logging Out

Use the default account and password to log in. Logging into the administrator web page provides you with full administration privileges. The factory defaults are shown below:

User Name: JDSU
Password: JDSUsnt

Once you are logged in, refer to the on-line help for information about the functions available from the Xgig Web Utility.

User names and passwords are case sensitive. To provide system security, you should change the default user name and password from the **Security** menu of the Xgig Web Utility. If you forget the user name or password for the Xgig1000 chassis, you must use the **Web Login Reset** option from the console to reset the user name and password to the factory defaults.

When you log out, you must close the browser to completely break the connection with the Xgig1000 chassis. There is no time out when you are logged into the Xgig Web Utility; always log out and then close the browser when the utility is not being used.

NOTE

When you are finished using the Xgig Web Utility, log out and close the browser. The browser must be closed to ensure that security is not compromised with the Xgig1000 chassis.

System Requirements for Internet Administration

Web administration is performed through Java applets and HTML forms. You must use Internet Explorer version 6.0 or greater, or Firefox version 1.5 or greater when using the web console.

The upgrade portion of the Web utility requires the Java Runtime Environment (JRE). If you do not have the correct version of JRE and you are connected to the internet, you are asked to install the latest auto-install version of JRE when you access the upgrade portion of the Xgig Web utility. Follow the simple steps to install a new JRE version.

If you do not already have JRE installed and you are not connected to the Internet, you will need to manually install the correct version of the JRE. JRE can be installed using the *Xgig System Server Software* USB Drive.

Note that Windows 7 Professional and Enterprise use Internet Explorer 7.0. IE 7.0 has higher default levels of security, and pop-ups are disabled by default. Some software functions of the Xgig Web Utility use pop-ups, such as displaying the upgrade log. Pop-ups must be enabled before using the Xgig Web Utility. Also, higher levels of security in the browser may require you to re-enter the username and password for the Xgig1000 system when you enter the applet for upgrading the Xgig1000 chassis.

Setting Client Authentication

Use the **Security > Client Authentication** menu of the Xgig Web Utility to set the password for the Xgig1000 chassis. If authentication is not set for the Xgig1000, any user of Xgig Client software will be able to access and use the Xgig1000 chassis.

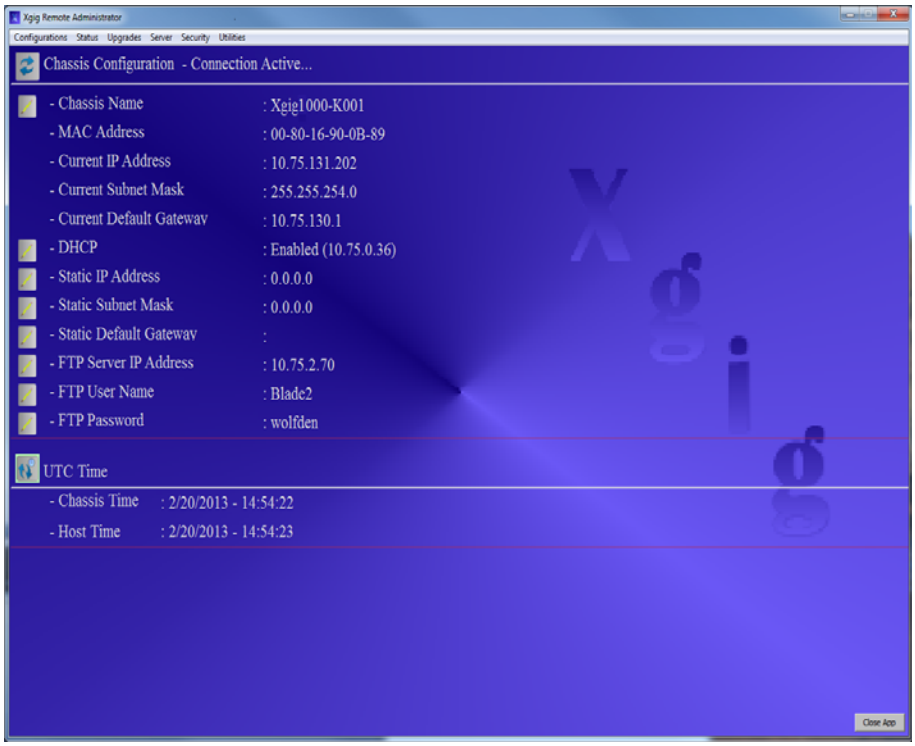
The password for client access can only be assigned by the Xgig Web Utility. The password cannot be set or reset from Xgig Client software.

Remote Administration of the Xgig1000 System via USB

This feature provides a client application in the Windows environment that allows you to perform the same configuration tasks as from the WEB Interface from the host computer using the USB interface through the USB 3.0 Type B port on the Xgig1000 chassis.

Chassis Configuration Dialog Box

This is the application's main dialog box. When an Active Connection has been obtained from the Xgig1000 chassis, the chassis' current connection is read and displayed on this dialog box.



To refresh the data on the dialog box, press the **Chassis Configuration** button.

To edit one of the fields that can be modified, press the **Edit** button associated with the field.

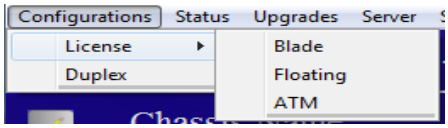
Then, fill in the required information in the Edit dialog box that is opened, press the **Apply** button to save the new information. An Xgig chassis reboot will be required to complete the change.

To Synchronize the Xgig chassis and the host computer's clock, press the **Synchronize** button.

Blade License Configuration

To view or add blade licenses:

From the Main dialog box, select the Menu item **Configurations\License\Blade.**

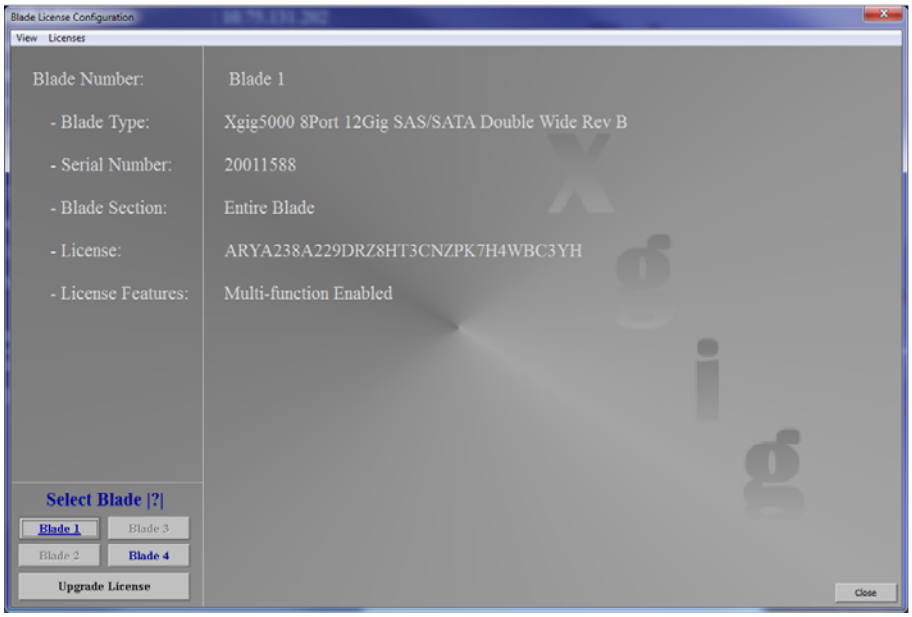


A dialog box showing the first blade found, and the first license on that blade will be shown.

To view other licenses on this blade, use the menu item **License/ License 1 – License n.**

You can also use the keyboard Ctrl + N (not case sensitive).

Use the button for the Blade (1-4) to select which blade to view. The buttons that have blue text are the blades that are installed in the chassis. The blade that is shown as underlined is the one currently selected.

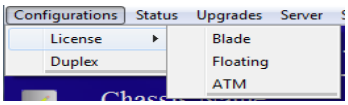


To add a new license, click the **Upgrade License** button, a dialog box will pop up asking you to enter a 32 character license string. When entered, click the **Apply** button. When the process is complete, a dialog box will pop up and display the status.

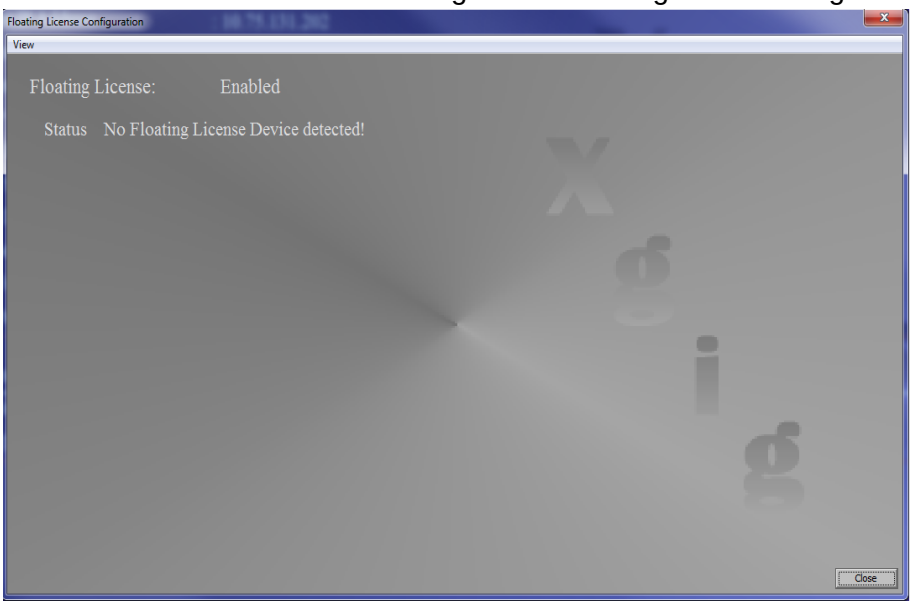
Floating License Status

To view floating license status:

From the Main dialog box, select the menu item **Configurations\License\Floating**:



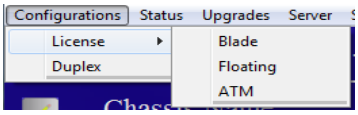
Status will be shown on the Floating License Configuration dialog box.



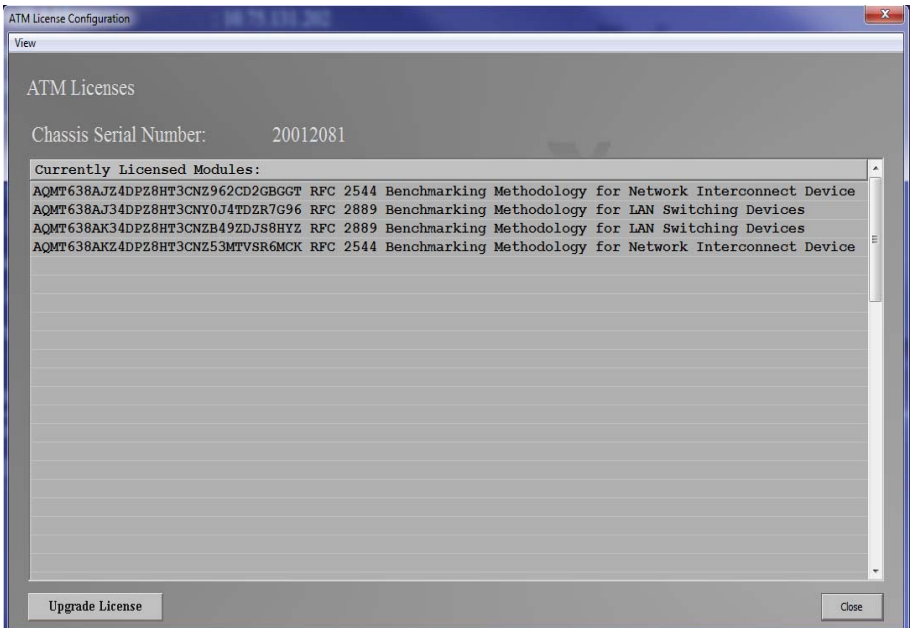
ATM License Configuration

To view or add ATM licenses:

From the Main dialog box, select the menu item **Configurations\License\ATM**.



The current ATM license status will be shown on the ATM License Configuration dialog box.

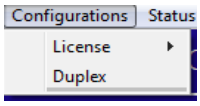


To add a new license, click the **Upgrade License** button. A dialog box will pop up asking you to enter a 32 character license string. When entered, click the **Apply** button. When the process is complete, a dialog box will pop up and display the status.

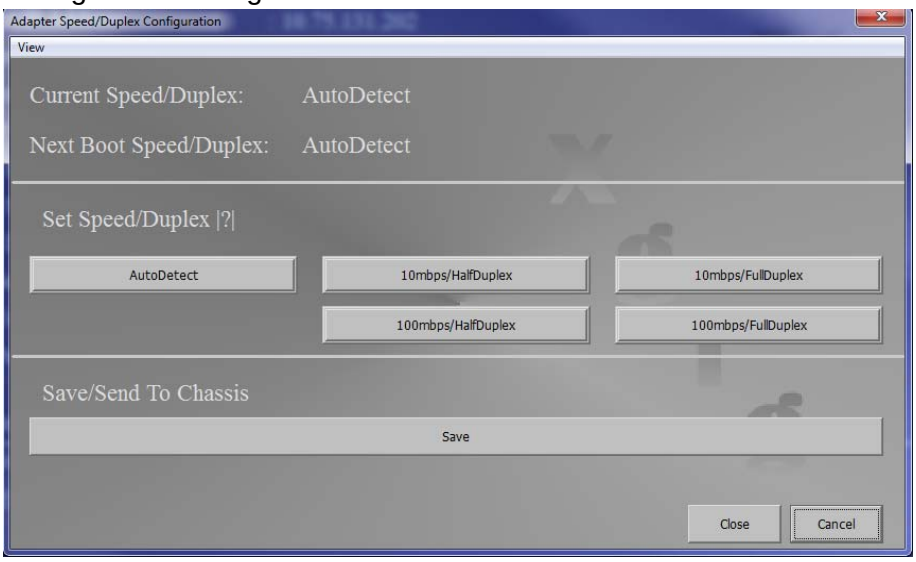
Adapter Speed/Duplex Configuration

To view or modify adapter speed or duplex configuration:

From the Main dialog box, select the menu item **Configurations\Duplex**.



The current Speed/Duplex Configuration will be shown on the Adapter Speed/Duplex Configuration dialog box.

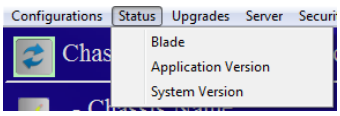


To modify the current configuration, first click the button with the desired configuration, then click the **Save** button. When the configuration has been sent to the chassis, a dialog box will pop up informing you that the new configuration will be applied on the next chassis reboot.

Blade Status

To view blade status:

From the Main dialog box, select the menu item **Status\Blade**.



The Blade Status dialog box will pop up, showing the following:

- A section containing the summary of all of the blades installed in the chassis.

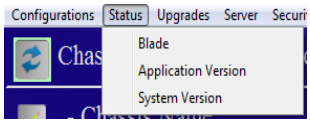
- A section containing the detailed information for the first blade found.

Detailed information for each blade can be viewed by either selecting the desired blade from the Blade Info menu, or using the keyboard, Ctrl + N (not case sensitive) to rotate through all of the installed blades.

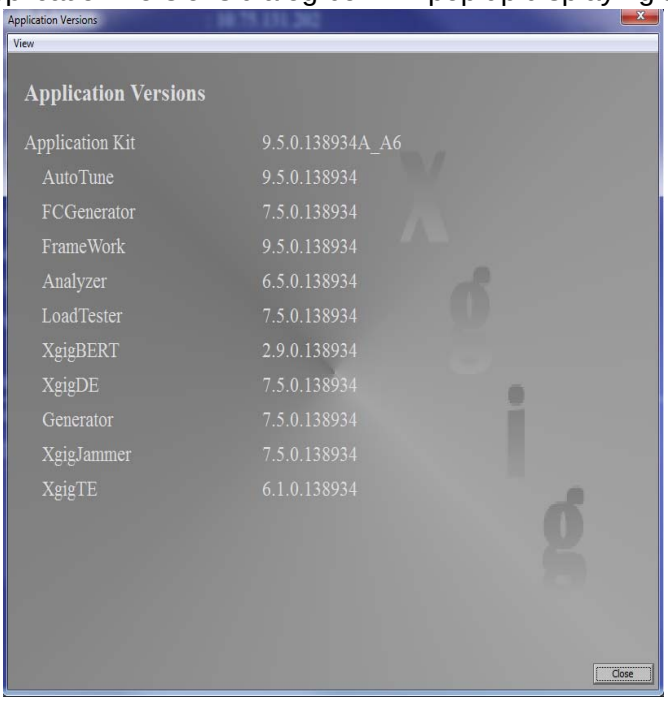
Application Version Status

To view the application versions:

From the Main dialog box, select the menu item **Status\Application Version**.



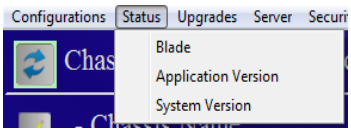
The Application Versions dialog box will pop up displaying the current version information.



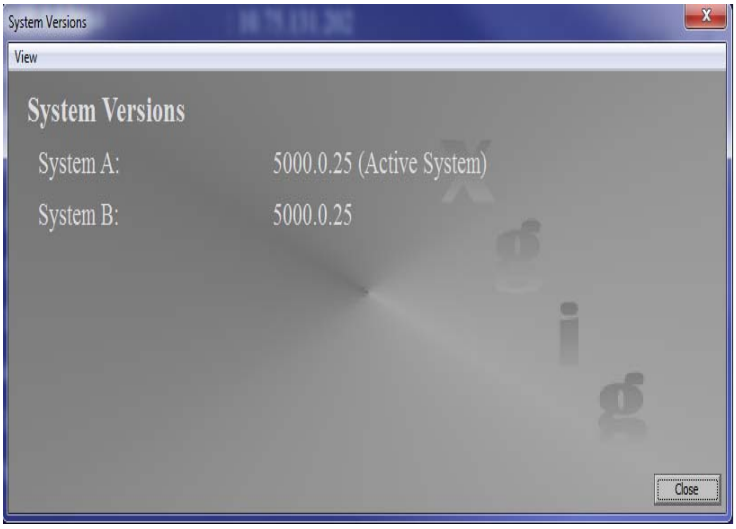
System Version Status

To view the application versions:

From the Main dialog box, select the menu item **Status\System Version.**



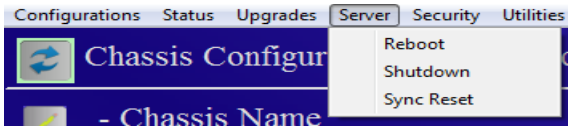
The System Versions dialog box will pop up displaying the current version information.



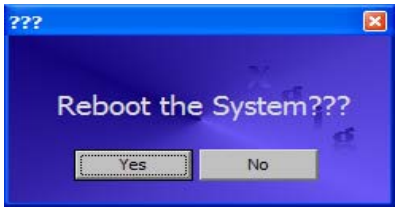
Chassis Reboot

To reboot the Xgig chassis:

From the main dialog box, select the menu item **Server\Reboot.**



A confirmation dialog box will open asking “Reboot the System???”.



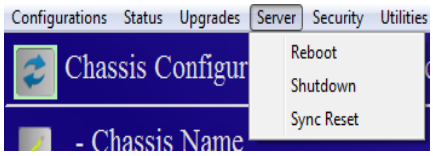
Pressing the **Yes** button will cause the Xgig chassis to reboot.

Pressing the **No** button cancels the action.

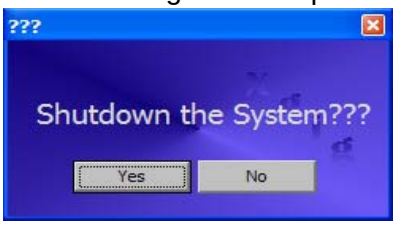
Chassis Shutdown

To shutdown the Xgig chassis:

From the Main dialog box, select the menu item **Server\Shutdown**.



A confirmation dialog box will open asking “Shutdown the System???”.



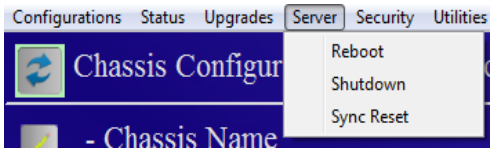
Pressing the **Yes** button will cause the Xgig chassis to shutdown.

Pressing the **No** button cancels the action.

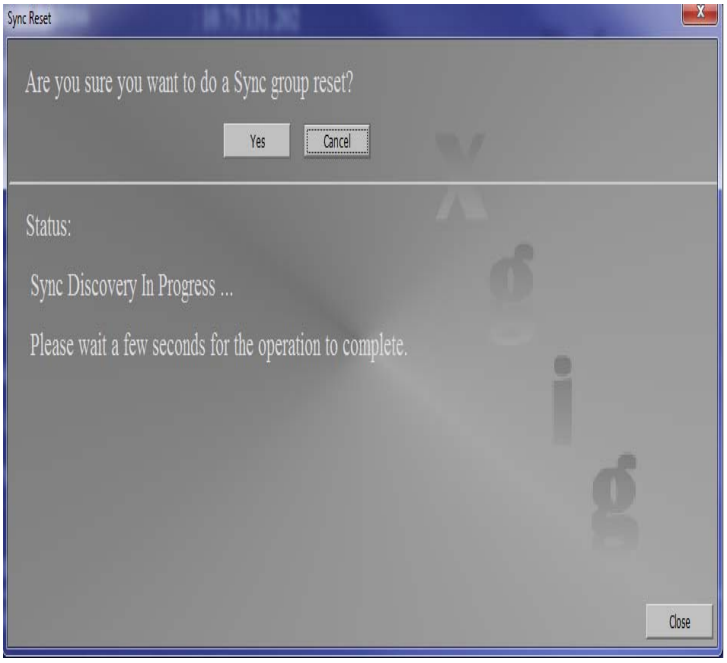
Sync Reset

To run Sync Reset on the Xgig chassis:

From the Main dialog box, select the menu item **Server\Sync Reset**.



A confirmation dialog box will open asking “Are you sure you want to do a Sync group reset”.



Pressing the **Yes** button will cause the Xgig chassis to run Sync Reset.

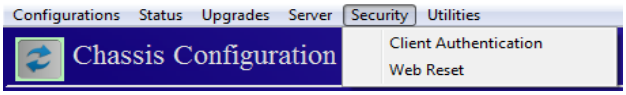
Status will then be displayed.

Pressing the **No** button cancels the action.

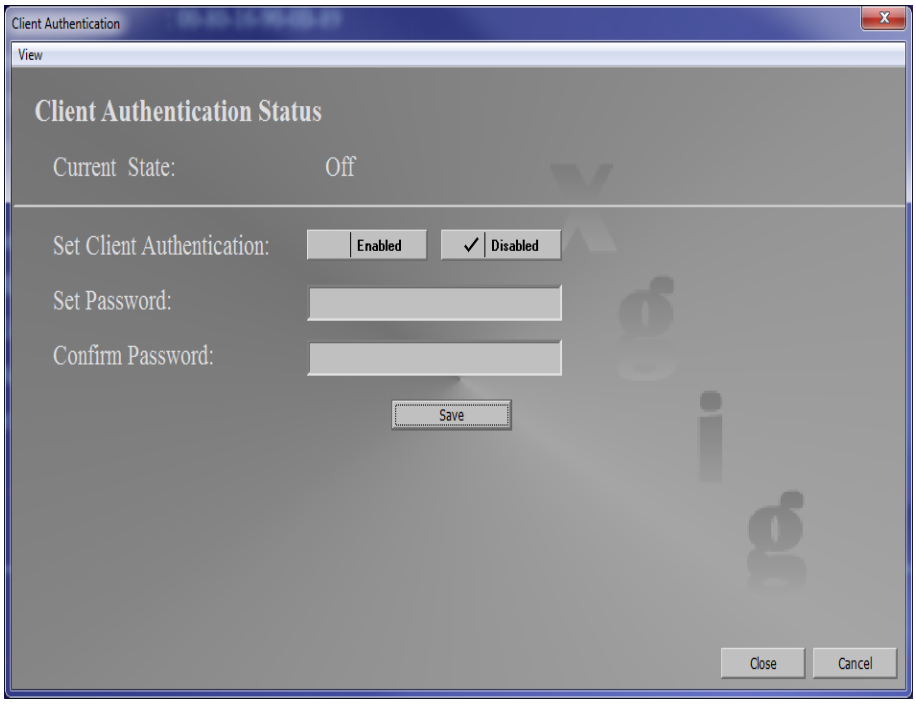
Client Authentication

To enable or disable client authentication:

From the Main dialog box, select the menu item **Security/Client Authentication.**



A dialog box will open and show the current status:



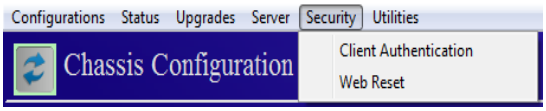
Click the button for the state you require, then enter the password and confirm the password if you have selected **Enabled.**

Then, click the **Save** button to send the new configuration to the chassis. You will receive a pop up dialog box informing you that a reboot is required for the state to become active.

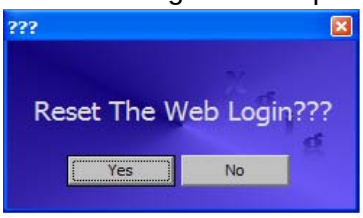
Web Reset

To reset the WEB login to factory default values:

From the Main dialog box select the menu item **Security/WEB Reset**.



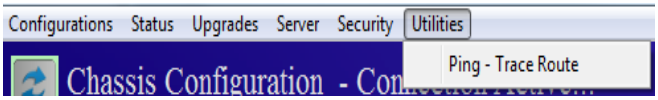
A confirmation dialog box will open asking “Reset The WEB Login???”



Pressing the **Yes** button will cause the WEB Login value on the Xgig chassis to be set to factory default values. Pressing the **No** button cancels the action.

Utilities

From the Main dialog box select the menu item **Utilities\Ping – Trace Route.**



The Utilities dialog box will be displayed.

The following utilities have been provided:

- Ping
  - Chassis to Host
  - Host to Chassis
- Trace Route
  - Chassis to Host

The ping and trace route utilities default to the Xgig chassis IP Address and the connected Host computer IP Address. The destination IP Address can be modified by the Current IP Address control.

Run a Test

Press the **Execute** button

The test status will show “Executing” then “Passed”

Press the Test Results button to view the entire results.

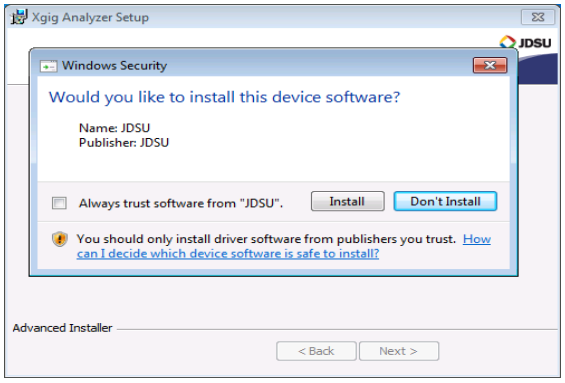
The results will be displayed.

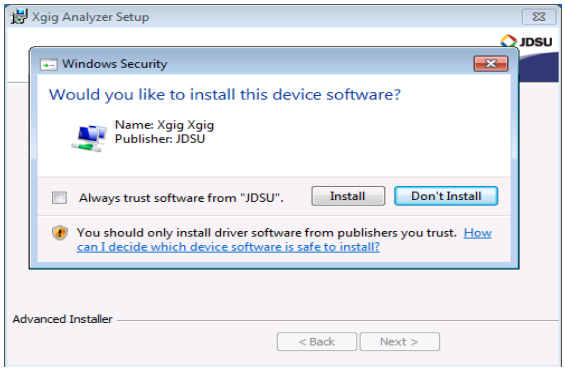
Operating System Support

The remote administration via USB feature is supported on the same OS as the Xgig Maestro and Analyzer software. However, this feature includes a USB driver. The driver is installed by the Xgig Maestro and the Analyzer software if it isn't already installed. The driver is not uninstalled when uninstalling the Maestro or Analyzer software. The purpose of this is that if you uninstall Xgig Analyzer, for example, the driver will remain for Maestro to use.

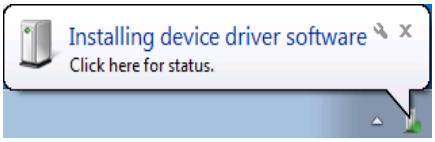
Windows 7 Driver Installation

For Windows 7, you will be prompted twice to install the device driver during the Maestro or Xgig-Analyzer installation. Click the **Install** button on both prompts:



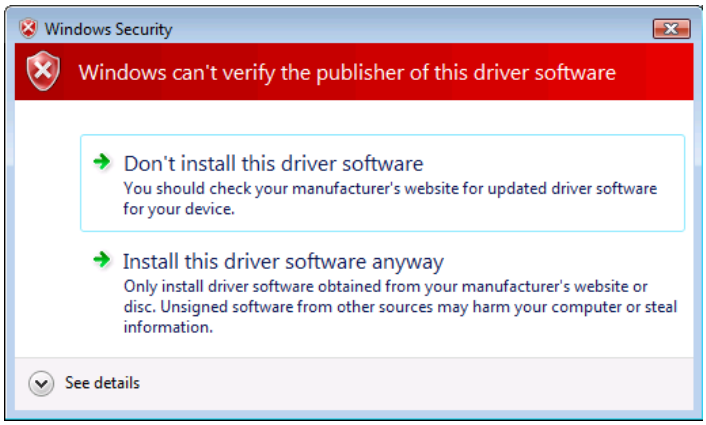


After the installation has completed, when you connect the Xgig chassis to the computer's USB port, Windows detects and automatically installs the Xgig USB device driver on the USB port without prompting you:

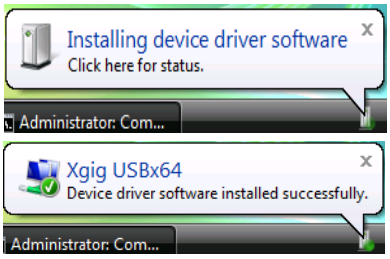


Windows 2008 Server Driver Installation

On those OS's, the following dialog box will popup twice during installation, and click "Install this driver software anyway":



After the installation has completed, when you connect the Xgig chassis to the computer's USB port, Windows detects and automatically installs the Xgig USB device driver on the USB port without prompting you:



How To Uninstall or Re-install the Xgig USB Device Driver

As mentioned earlier, the Xgig Analyzer and Maestro installers do not uninstall the Xgig USB Driver. To uninstall and re-install the driver:

1. Open a command prompt.
2. cd to the USBDriver\ folder under the installation folder (typically `C:\Program Files (x86)\Viavi\Xgig Analyzer`)
3. Run `Uninstall.bat` to uninstall the driver, or `Install.bat` to install the driver.

Licensing

There are three ways to license ports – blade licensing, port-pair licensing, and floating/mobile licensing via the USB type A port. Not all methods apply to all port functions.

From client application software, you can change the function of the port-pair only if the port-pair has a license for multiple functions. If a blade or port-pair does not have the ability or the license to perform a function, all menus and options related to that function will not be available from applications for the those ports/blades.

License keys assigned by Viavi are associated with each function of a blade/port. Use the license configuration page to view each blade's description, serial number, current license key, and licensed feature set. If a blade has an inherent, built-in feature, it will also be displayed. Check with the "Technical Assistance" team if you need to expand the functional capabilities of an Xgig blade or port-pair and require an additional license key.

Blade Licenses

Use the Web Utility to change the licensing of any Xgig1000 blade within a chassis. Blade licenses are assigned by the Xgig Web Utility ONLY and stored on the blade.

Port-Pair Licenses

Port-pair licenses are also assigned by the Xgig Web Utility ONLY and stored on the blade. For all Xgig blades there is a blade license key and, if required, a license key for each port-pair. The port-pair license key allows specific functions for each port-pair. The port-pair license is only assigned if port-pairs within the blade are licensed for different functions. This option alleviates the cost of purchase licenses for the entire blade when there is only a need for a port-pair(s).

Floating Licenses

Licensing for Xgig1000 ports is also supported through USB type A port dongle. The dongle is a small USB device that connects to the USB type A port on the chassis. The License web page for the chassis shows the dongle licenses and the dongle serial number when the dongle is attached.

The dongle contains licenses to enable functions for port-pairs in the chassis. At this time, only the Jammer port function is supported. The dongle can be moved between Xgig1000 chassis and provide licenses for different chassis. It is essentially a movable license – the dongle is not keyed in any way to a particular chassis or port-pair. However, the dongle license can apply to specific classes of blades. Existing license(s) on a blade will not be overridden by the license from the dongle.

The dongle provides license(s) for a number of additional port-pair(s) for a function in the chassis. When a dongle is attached to a chassis, all of the ports on that chassis that match the dongle type are enabled. So, you can choose any of the enabled ports to use the

dongle-enabled function. At some point, you may reach the maximum number of ports that the dongle enables. Then, all the remaining dongle-enabled ports will be disabled. When you unlock a dongle-enabled port pair, the remaining ports will be re-enabled.

The dongle must be attached to the USB type A port and remain plugged in as long as the functions are needed. If the dongle is removed while the dongle-enabled port-pairs are in use, all operations on those port-pairs will stop, and traffic going through those ports may be interrupted. When the dongle is re-inserted, you must resume operation manually.

A license from a dongle can only be applied to the ports within the chassis that the dongle is attached to. The maximum number of licenses for a chassis is 16 ports or 8 port-pairs. Attaching a dongle so that the number of licenses exceeds the maximum licenses allowed for the chassis will result in unused licenses.

System Upgrades

NOTE

Upgrades are not required when you initially install Xgig1000 chassis. You will receive a new version of the Xgig System Server Software USB Drive when upgrades become available.

An Xgig1000 chassis or cascaded set of chassis can be upgraded from the client software. Xgig client software is distributed on USB Drive or can be downloaded from the Internet. For instructions on downloading the Xgig client software from the internet, contact the "Technical Assistance" team. See the section "Chassis Software Upgrade" in the *Xgig Analyzer User's Guide* and the *Maestro Introduction Guide* for more information.

Setting Up the FTP Site for Upgrades

The *Xgig System Server Software* USB Drive contains software to set up the FTP site so you can upgrade software for the Xgig1000 chassis over the network. It installs the directories containing upgrade files and, if needed, installs an FTP server software program. It is not required that you use the FTP server program supplied by Viavi or set up the FTP site until you need to upgrade the software on your Xgig1000 chassis.

For Windows users, ICMPv4 'Allow incoming echo request' (used for Ping) is disabled by default. To use the Xgig Web Utility to upgrade an Xgig1000 chassis, this option must be enabled. Also, port 21 in the FTP server must be opened in the Firewall for upgrades using FTP. Refer to your Windows documentation for setting Firewall rules and opening ports.

If You Already Have an FTP Site

There are several things you must do to set up an FTP server for upgrades using the Xgig Web Utility:

- Copy the ***/*Kits** folder and all of its contents from the *Xgig System Server Software* USB Drive to the FTP server root or default login folder.
- Set up an account with read file access to the directory containing the upgrades so they can be reached over the Internet.
- Leave the server up and running to access upgrades.
- If the FTP account is password protected, the account and password must be supplied to the Xgig1000 administrator. The Xgig1000 administrator will use the account name and password to log-in to the FTP site to obtain upgrades.

Proceed to the section "Updating the FTP Server with Upgrade Images" on page 123 to perform an upgrade.

If You Need to Create an FTP Site

If you do not have an FTP site or wish to install a separate FTP site for upgrades, Viavi supplies a free-ware FTP application. To install the FTP software application, follow these steps. For an Xgig1000 chassis in a standalone environment, install the upgrade site on the same PC that contains your Xgig client applications.

1 Log on as Administrator of the system.

2 Insert the *Xgig System Server Software* USB Drive into your computer.

3 Click on **Install FTP Server** from the USB Drive menu.

4 Follow the steps in the Install Wizard to load the image files and directories to a location of your choice.

The FTP server can be started from the shortcut on the **Start** menu. You may also chose to install it as a Windows service and specify that it starts automatically upon boot of the system. To setup the FTP server as a Windows service, launch the FTP server, go to **Settings > Edit Server Options > Startup Options**, and place a check mark in the appropriate box.

The FTP server install program automatically creates the **/Kits** directory required for storing Xgig1000 system and application images. It also creates a shortcut within the **Viavi** folder in the **Start** menu to the **Xgig FTP Server.**

When using the Viavi-supplied FTP server, you have two choices when you receive an upgrade software USB Drive for the Xgig1000 chassis:

1 Copy the contents of the **/Kits** directory to the same directory on your server.

2 Reinstall your FTP server software.

- If you select the “repair” option, all older kits are saved and newer kits are added to the **/Kits** directory on the server. The login options are restored to their default values.
- If you select the “remove” option, the contents of the **/Kits** directory are replaced. The login options are restored to their default values.

Updating the FTP Server with Upgrade Images

Use this procedure to update Xgig1000 chassis software when new versions become available. There is no need to run this procedure when you first install the Xgig1000 chassis. Upgrades for the image software are distributed on the *Xgig System Server Software* USB Drive.

1. Insert the *Xgig System Server Software* USB Drive into the USB port of the system containing your FTP server.
2. Select the **Update Existing SW** option from the USB Drive. Follow the instructions on how to retrieve the new Xgig software images from the *Xgig System Server Software* USB Drive.

   When you log into the FTP server through the Xgig Web Utility, the upgrade page picks up the names of any kits in the ***/*Kits** directory on the FTP server and presents them as options for installation.
3. Write down the IP address of the system containing the FTP server. You will need this address to perform upgrades.

   To find the address, from the Windows Start menu of the FTP server select **Run...** and type in **CMD**. From the DOS prompt, type the **IPCONFIG** command. This command will return the IP address assigned to the system with the FTP server, such as 10.10.254.4.

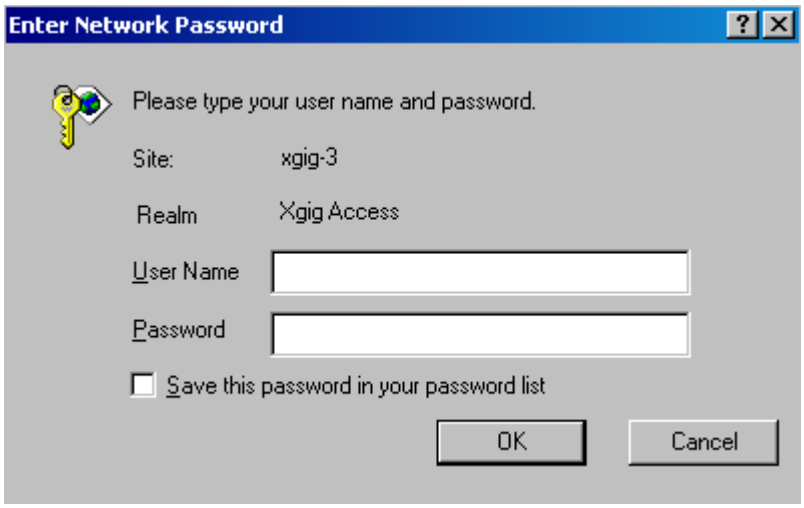
Upgrading the Xgig1000 System Image and Application Image Software

Once you have your FTP site set up with the latest version, use this procedure to update Xgig1000 chassis software.

1 From your browser, access the Xgig Web Utility. Enter the DNS name or IP address of the Xgig1000 chassis as the URL (for example, https://xgig-3, or https://10.10.254.3). See “Accessing the Xgig1000 System for Administration” on page 103 for more information about secure login.

2 A log-in screen appears. Enter the account name and password for the Xgig1000 chassis. The default account and password for the Xgig1000 system are “**JDSU**” for the account name and “**JDSUsnt**” for the password.

Figure 23 Xgig1000 System Login for Upgrade



If you are having a problem reaching the Xgig1000 chassis through the browser, see “Cannot connect to the Xgig1000 chassis using the web browser” on page 131 in the Tips and Troubleshooting chapter.

3 Select **FTP** from the **Configuration** section of the Xgig Web Utility. The FTP Configuration page appears.

Figure 24 Xgig1000 FTP Configuration

4 Set the IP address of the host running the FTP server with the software image(s). Set the correct account name and password and click **Save**.

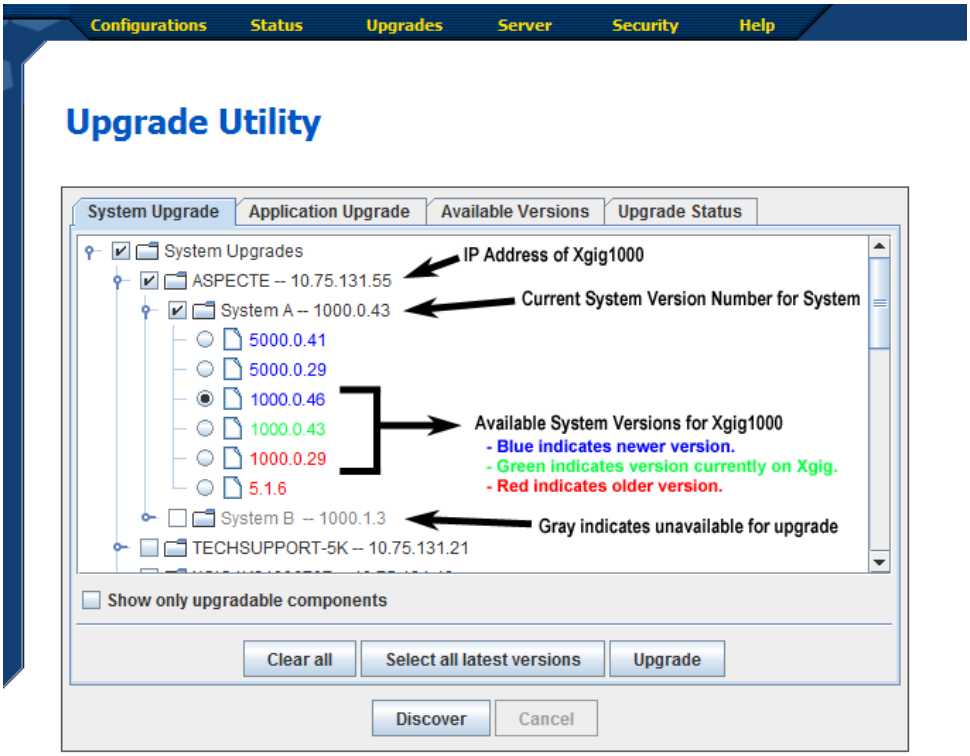
Account name and password set up are controlled at the FTP server. The default username and password should be modified as necessary to match the FTP server's account information. The defaults are “**jdsu**” for the account name and “**jdsu**” for the password. The upgrade utility uses the IP address, account name, and password entered on the FTP configuration page to access the FTP server when you perform an upgrade.

5 Select **Upgrades** from the Xgig Web Utility. The upgrade portion of utility appears with four tab stops. All chassis (including Xgig chassis) in the same subnet will also appear. The utility performs a discovery of all Xgig1000 chassis within your subnet.

NOTE

Only the chassis on the same subnet that have client authentication disabled will appear in the System Upgrade and Application Upgrade tabs of the Upgrade Utility page. For security reasons, if authentication is enabled for a chassis, you must login directly to that chassis to upgrade the images.

Figure 25 System Upgrade Tab



CAUTION

When selecting the Xgig System Image version, ensure that you only select a version from the available system versions for the Xgig1000. Do not select a version for the Xgig or the Xgig5000. Refer to Figure 25 and note how the software version vary between Xgig chassis platforms.

You may be asked to install the proper Java runtime version if you are connected to the Internet. Install the JRE software and continue. The correct JRE version can be installed from the *Xgig System Server Software* USB Drive if you are not connected to the Internet. See “System Requirements for Internet Administration” on page 104 for more information.

6 Select **System Upgrade or Application Upgrade**. For either type of upgrade, you can upgrade multiple chassis to the latest version. Press **Select all latest versions** to upgrade all chassis to the latest version. All chassis shown in the tree will be upgraded. To select specific chassis and software versions, use one of the steps below.

   a For **System Upgrade**, all versions of the system software image available on the FTP server are displayed. Check the box for System A or System B. The system has two image copies. If one of the system images is in use, you will not be allowed to select that image. Select the version of the new image to install.

   b For **Application Upgrade**, all versions of the application software image available on the FTP server are displayed. Select the version of the new image to install.

7 For either type of upgrade, press the **Upgrade** button. The new image is loaded to the Xgig1000 chassis. The time it takes to load the image will depend on the type of upgrade.

8 Do not refresh the **Upgrade Utility** page in the browser and wait until the Xgig1000 chassis has finished rebooting. Wait 2 minutes for an Application Image Upgrade, and 3 minutes for a System Image Upgrade.

NOTE

Do not refresh the Upgrade Utility page in the browser. This will cause the Xgig to restart its reboot routine.

9 The system automatically reboots after each upgrade. The Xgig1000 system will reboot twice as a normal boot sequence after a system image upgrade.

NOTE

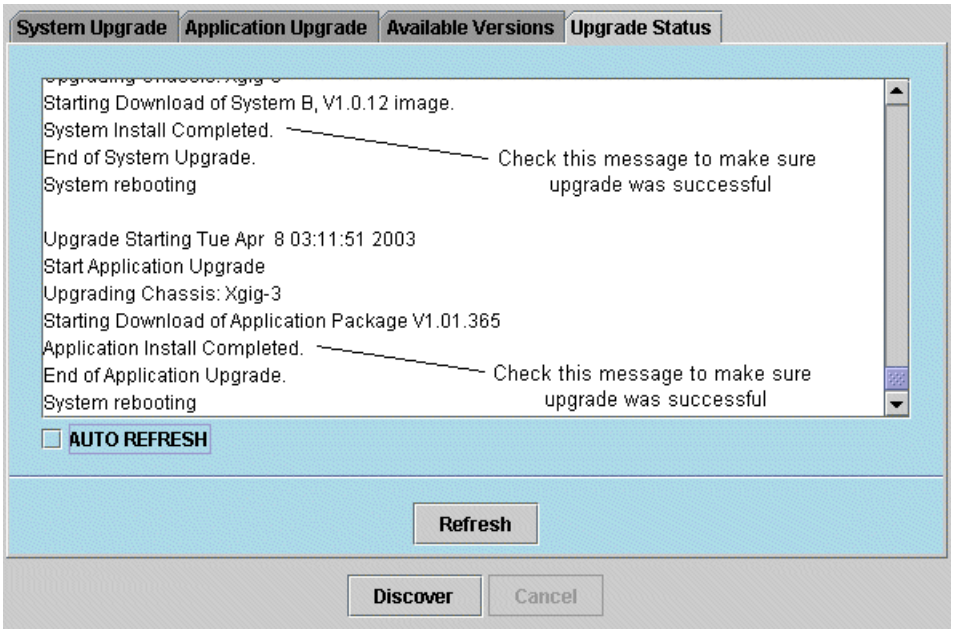
The Xgig1000 chassis has two software images, one for system software and one for applications. BOTH images may require update to bring your software to the required level. Repeat these steps after the reboot is completed to upgrade the second image.

10 After the system reboots, verify the latest software version is installed by checking the **Upgrade Status** page. See Figure 26 for an example.

NOTE

Always check the Upgrade Status tab after you complete an upgrade to verify that the upgrade was successful.

Figure 26 Verify System or Application Image Upgrade



To check on updates to the software image for versions of Xgig software, contact the "Technical Assistance" team.

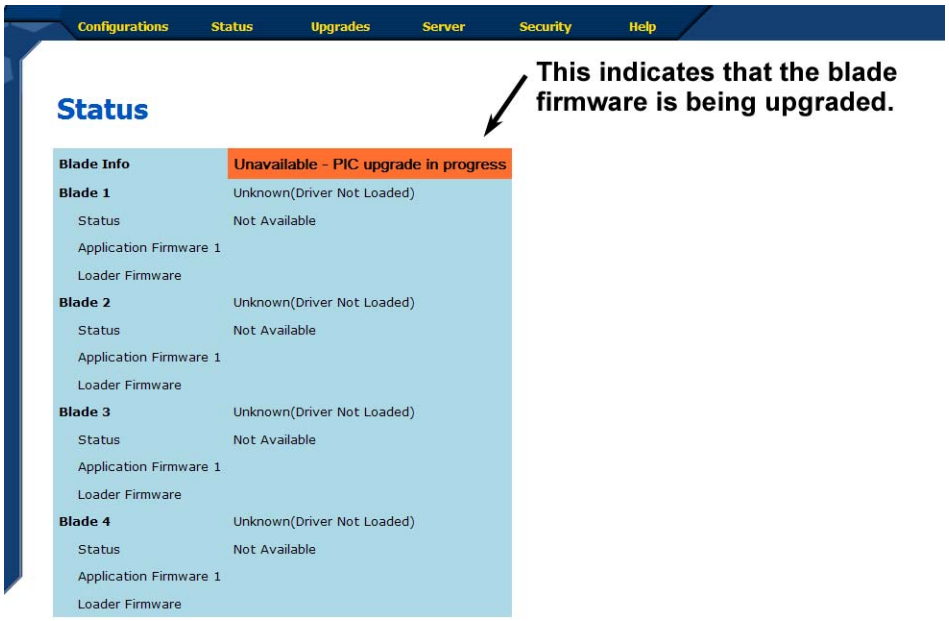
NOTE

Whenever you upgrade the Xgig1000 chassis, it is possible that there will be a subsequent upgrade on the Xgig1000 blade after the system is rebooted. This upgrade could take up to 15 minutes. The Status LED will be blinking green or red/purple alternating. Take care not to disturb the chassis during this process as it will corrupt the firmware.

Although the log in the **Upgrade Status** tab indicates that the system upgrade was successful, you need to do one of the following to ensure that any upgrades to the blade firmware have completed successfully.

- Open the Xgig1000 URL, and select the **Status** tab. If the blade upgrade is not yet complete, the tab will indicate that a blade firmware update is in progress, and the blade is not available for use.

Figure 27 Verify Blade Firmware Upgrade



- You can also verify the blade is ready for use by checking the Blade Status LED on the Xgig1000 chassis.

  During a normal upgrade process, the Xgig 1000 Blade Status LED blinks green/off at a once per second rate.

  If the Xgig1000 blade experiences problem the Spartan FPGA will try to go to a Recovery state, and the Blade Status LED blinks red/purple at a once per second rate. If this process fails, the LED is a Steady red.

  If the Status LED starts to blink red, you must power cycle the chassis to complete the firmware upgrade by unplugging the power cord from the back of the chassis, waiting 10 seconds, then plugging the cord back in. Unpredictable behavior can result if the chassis is not properly power cycled.

  When in the normal operational state the Blade LED is a neon blue.

4

Tips and Troubleshooting

This chapter describes how to correct some issues with your Xgig1000 chassis. The topics discussed in this chapter are as follows:

Troubleshooting

The information in this chapter provides tips and troubleshooting for second generation chassis; those with a power switch on the back of the chassis that came with a USB System Recovery Drive. For troubleshooting information for first generation chassis, refer to Appendix A "Accessories for the Xgig1000 System" .

Power up problems following chassis shutdown

If after removing and then reapplying power to the Xgig1000 chassis the system does not boot properly, you can try one of the following options.

If you can connect through the web interface but suspect a corrupt system image you should perform a system upgrade rather than use the USB system recovery drive.

If you cannot connect to the system at all, you can try booting the chassis using the Backup System Image on the USB system recovery drive. Refer to the "Restarting the Xgig1000 Chassis with the Backup System Image Using USB System Recovery Drive" on page 133 to bring the system back up. Once the system is booted up using the backup image, replace the system's image by going through the system upgrade process.

You should use the USB system recovery drive only as a last resort when you cannot connect to the system at all. If the operating system has been corrupted, the recovery drive can allow you to access the system by installing the latest system image onto the partition that had not been is use and then configuring the chassis to boot to that unused partition. To prevent these problems, follow the shutdown procedures as described in "Xgig1000 Chassis Shutdown Sequence" on page 99.

Cannot ping the Xgig1000 chassis

The connection between the Xgig1000 chassis and the PC is down as indicated by the failure of the Ping operation.

- Verify the Ethernet cables are securely plugged in for both the Xgig1000 chassis and the PC you are using.
- Try the Ping operation with IP address instead of the Xgig1000 chassis name. If the address is not known, use the console port to get its IP address. See Chapter 2 "Xgig1000 System Setup" for instructions.
- If DHCP information is used to address devices:
  - Verify that your PC has a valid IP address.
  - Verify the Xgig1000 chassis has a valid IP address. See Chapter 2 for instructions on using the Console port to check the Xgig1000 chassis IP address.
  - If either device does not have a valid IP address, contact your network administrator.

- If static IP addresses are used, verify the IP addresses, Subnet mask, and Gateway IP addresses are correctly entered.
- Ping other devices on the same subnet as the PC. If the Xgig1000 chassis is on a different subnet, ping other devices on the same subnet as the Xgig1000 chassis. This will ensure that your network is still functional.
- As an alternate solution, setup the PC and the Xgig1000 chassis as “Standalone” configuration. See “PATH 3: Setting Up the Xgig1000 Chassis in a Standalone Environment” on page 90 for instructions.
- Try booting the Xgig1000 chassis with the backup image. See “Restarting the Xgig1000 Chassis with the Backup System Image Using USB System Recovery Drive” on page 133 for instructions. If successful, the current image is damaged. You need to replace the current system image. See “Updating the FTP Server with Upgrade Images” on page 123 for instructions.
- If all above steps have been performed and you still cannot ping the Xgig1000 chassis, contact the “Technical Assistance” team.

Cannot connect to the Xgig1000 chassis using the web browser

The Xgig1000 chassis can be pinged, but the web browser returns an error message. The web application is not responding to the connection request.

- Make sure you are using the correct version of the browser: IE 6.0 or greater or Firefox 1.5 or greater.
- Make sure the correct chassis name or chassis IP address is used.
- Make sure both the connecting computer and the Xgig1000 chassis are on the same network. Refer to Chapter 2 “Xgig1000 System Setup” for information on how to discover the Xgig1000 chassis address settings using the console port.
- On a rare occasion, a web application file of the current boot image is damaged; use the USB system recovery drive to boot the system with the backup image as described in the “Restarting the Xgig1000 Chassis with the Backup System Image Using USB System Recovery Drive” on page 133. Once the system is booted up with the backup image and the web-based connection is re-established, replace the current system’s image by going through the system upgrade process. This method should be used only as a last resort.

Can’t find the system or application upgrade on FTP server

The chassis cannot find the specified image or the system is unable to logon to the FTP server.

- Make sure the FTP server is on-line and available to the chassis.
- Make sure the FTP server has the applicable images.
- Make sure you have both the OS and the app kit installed.

- Make sure the system image and application image folders are visible at login. Contact your Network System Administrator for information and refer to "Setting Up the FTP Site for Upgrades" on page 121 for information on where to place the folders.
- Verify that the FTP server IP address is correctly entered on the web's **Configuration – FTP** page.
- Verify that the user name and password information on the web's **Configuration – FTP** page are correct. User name and password are case sensitive.

The system is rebooting repeatedly

The chassis is triggered to reboot.

- With system image upgrading, the chassis will be rebooted twice as a normal operation.
- Don't refresh the web browser as the system is rebooting.
- If the chassis keeps on rebooting after all necessary steps are observed, turn off the chassis and contact the "Technical Assistance" team.

The Cascade Port LEDs do not blink after initiating Sync Discovery

Indicates that no Sync Discovery sequence is taking place.

- Check to make sure all cables are correct and in good working order. Straight-through CAT-5 cables are required.
- Check to make sure that all connections are secure.
- Check to make sure that the cabling between the cascade ports is correct. A cable should exist from the Cascade OUT port of the master (first) chassis in the sequence to the Cascade IN port of the second (slave) chassis. This Cascade OUT to Cascade IN cabling must be repeated for additional chassis in the chain. The last chassis in the chain only requires a cable to its Cascade IN port.

Sync Discovery does not complete

The Cascade Port LEDs continue to blink, and Sync Discovery does not complete.

- Check to make sure all cables are correct and in good working order. **Straight-through CAT-5 cables are required.** Use of cross-over cables between chassis may result in the Sync Discovery being unable to complete.
- If you are cascading chassis, make sure all the chassis have the application image version.
- Power cycle the chassis.

Cannot find an Xgig1000 chassis using the discover button in the port selection window

You are attempting to find a single Xgig1000 chassis or cascaded Xgig1000 chassis on the network using the discovery operation in Xgig application software. You cannot discover the Sync Group or the discovery process is taking an extremely long time.

The discovery operation may take an extremely long time if you have moved the Sync Group to a different subnet. After moving an Xgig1000 chassis to another subnet, it is recommended that you use the IP address the first time you attempt to discover it. This prevents a potential Domain Name Server (DNS) issue.

- Check to make sure you have the correct name of the Xgig1000 chassis.
- If the Xgig1000 chassis cannot be found by name, use the IP address. For cascaded chassis, the IP address of any of the chassis in the cascade should result in the Sync Group being discovered.
- Attempt to discover another Sync Group on the same subnet as the Sync Group you are trying to discover. This operation should discover all Sync Groups on the same subnet.
- If you still cannot discover the Sync Group, use the Ping operation to see if the Sync Group is on the network. If the Ping operation fails, see “Cannot ping the Xgig1000 chassis” on page 130. You can also connect to the console port on the Xgig1000 chassis to verify its IP address. See “PATH 2: Setting Up the Xgig1000 Chassis with a Static IP Address in a Non-DHCP Network” on page 87, steps 1 through 8, for information on getting the IP address through the console port.

Restarting the Xgig1000 Chassis with the Backup System Image Using USB System Recovery Drive

If you cannot connect to the Xgig1000 chassis and access the system through any of the administrations interfaces, such as the serial port, USB type A, or web interface, and you have ruled out a network configuring or App kit issue, you may be able to reestablish operations by booting the Xgig1000 chassis with the alternate version of the Xgig1000 operating system on the USB recovery boot drive included in the chassis’ accessory kit.

You should use the USB system recovery drive only as a last resort when you cannot connect to the system at all. If you can connect through the web interface but suspect a corrupt system image, you should perform a system upgrade rather than use the USB system recovery drive.

If the operating system has been corrupted, the recovery drive can allow you to access the system by switching to the backup system image on the partition that is not in use and then configuring the chassis to boot to that unused partition.

Note:

Note that the system that is not usable is still installed on the now inactive partition. After the recovery completes, you can either use the chassis from the new partition or try and perform a system upgrade for the inactive partition that has the unusable image installed.

To reboot the Xgig1000 chassis using the alternate version of the operating system with the USB system recovery drive, perform the following steps:

1. Power down the Xgig1000 chassis.
2. Plug the USB recovery boot drive provided with the chassis accessory kit into the USB type A 2.0 port under the Management port. Note that this is the only USB port that can detect the USB recovery drive and boot from it.
3. Plug one end of the DB-9 Null Modem cable to the Console port (9-pin port on the back of the chassis) and the other end to the COM port on a computer running VT-100 terminal emulation software such as Windows HyperTerminal.
4. Start a terminal emulation software program on the computer, and ensure that the settings are correct. Refer to “PATH 2: Setting Up the Xgig1000 Chassis with a Static IP Address in a Non-DHCP Network” on page 87 for the correct setting.
5. Power on the chassis.
6. The USB drive will boot the chassis and automatically switches to the backup operating system. You will receive the following messages:
   - Xgig Recovery Shell
   - Recovery started - switching system to boot from System A
   - Recovery running on chassis type X1K
   - X1K system board type Mark2
   - System is shutting down
   - Once unit automatically powers off, remove the USB recovery drive, then power on

The recovery process takes approximately five minutes.

1. Once the system has shut down, remove power from the chassis.
2. Remove the USB system recovery drive.
3. Power the chassis on.
4. After the Xgig1000 chassis has started, re-check the communication between the application client software and Xgig1000 server. If you still cannot get a connection, call the “Technical Assistance” team.

Tips

Pinging the Xgig1000 Chassis

To “ping” the Xgig1000 chassis, click on the **Start** menu, select **Run,** and type in **CMD**. From the Command prompt, type the ping command with the IP address as the argument. For example: **> ping 10.10.4.34**

Naming the Xgig1000 Chassis

The default name for the Xgig1000 chassis is “XGIG1K” followed by the eight-digit serial number; for example, **XGIG1K78234335**. The serial number is located on the bottom of the Xgig1000 chassis.

When changing the name for the Xgig1000 chassis, make sure you choose a name not used elsewhere in your network.

Using Wireless Connections

For operation of client applications, it is not recommended that wireless connections be used as the type of Ethernet connection between the PC running Xgig client software and the network. The software can require bursts of high bandwidth which can cause dropped connections and performance degradation when using a wireless connection. However, this is totally dependent on the capabilities and robustness of the wireless network; there is nothing to prohibit the use of wireless connections with Xgig1000 chassis.

Network Bandwidth Considerations

High bandwidth demands during some Xgig operations may cause unacceptable loads on the network. It may be necessary to configure instrument usage on a special subnet to circumvent this problem. It is also possible to use a 1Gb/s dedicated link or switch for peak performance.

Recommended System for More than 16 Ports

Please follow the recommended system requirements listed in the *Xgig Analyzer Software Installation Guide* for using cascaded Xgig1000 chassis (more than 16 ports).

- Pentium 4 multicore and/or multi process: clock speed 2 GHz
- 2GB RAM (4GB to 8GB RAM is recommended for use with Traffic Summary View and Exchange View)
- At least 200GB SAS, SATA II, SCSI U320 storage
  If .NET Framework and Visual C++ Redistributable software are not installed on your system, 200MB disk space is required for their installation.
- Gigabit Ethernet network - 1000 Mbps data rate

Client systems without enough power will show performance degradation as more ports are added.

A

Accessories for the Xgig1000 System

This appendix describes the accessories associated with your Xgig1000 system. Topics discussed in this appendix are as follows:

Analog Passthrough Adapters

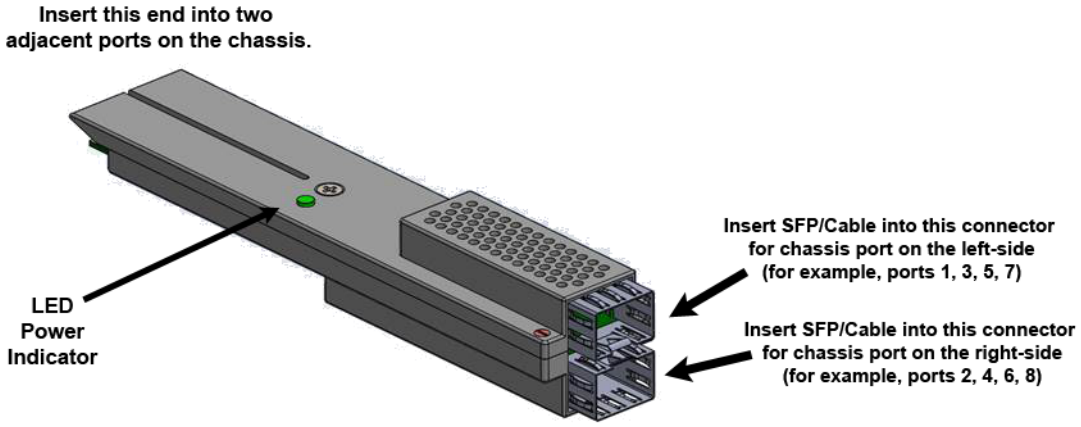
Analog Passthrough Adapters for SFP Connectors

Xgig1000 chassis with 25 Gbps and 32 Gbps SFP ports are shipped with the appropriate number of analog passthrough (APT) adapters (Figure 28}. This adapter acts as a passthrough tap for both optical and electrical (copper) links.

- The Xgig1000 25G/32G 4-port chassis is shipped with 2 APT adapters.
- The Xgig1000 25G/32G 8-port chassis and the Xgig1000 25G/32G/50G/100G/128G 10-port chassis are shipped with four APT adapters.

Each adapter is designed to be inserted into two adjacent ports (e.g., ports 1-2 or 3-4 on chassis with four SFP ports and ports 1-2, 3-4, 5-6, or 7-8 on chassis with eight SFP ports). See Figure 31 on page 140.

Figure 28 Analog Passthrough Adapter for SFP Ports



The bidirectional APT adapter supports analog pass-through mode through an external adapter with a SFP28 for 25GE and SFP+ for 32G FC interfaces. This external adapter is a passive adapter meaning that it has no external power supply.

A bracket is also supplied with the chassis which is used to support the APT adapters at the front of the chassis. In addition to supporting the adapters on the shelf-like bracket, thumbscrews secure the adapters to the bracket. Refer to Figure 30.

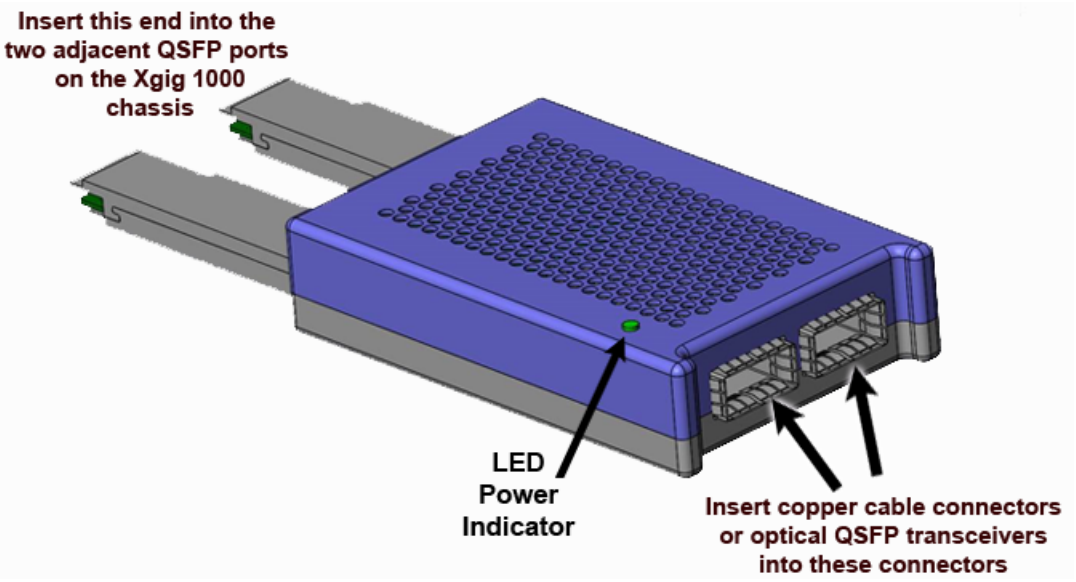
Quad Analog Passthrough (QAPT) Adapter for QSFP Connectors

The Xgig1000 10 Port 25G/32G/50G/100G/128G chassis supports the Quad Analog Passthrough (QAPT) adapter (Figure 29} that plugs into its two front-panel QSFP ports. This QAPT adapter acts as a passthrough tap for both electrical (copper) and optical links for the 50GigE, 100GigE, and 128G FC protocols.

For electrical (copper) links, insert the cable connectors directly into the QAPT connectors.

For optical links, insert the optical QSFP transceivers into the QAPT connectors. These QSPF transceivers are specialized and are available by ordering the QSFP K-Kit from Viavi. Each K-kit includes two optical QSFP transceivers and two optical cables. You need to order Viavi part number 22110920 (which has the following description: XGIG1K-10002-MM;100GE/128G FC QSFP28 K-Kit Includes SFP28 and MM Cables).

Figure 29 QAPT Adapter



CAUTION

To protect the adapter from damage, keep the plastic covers in place on the adapter's two QSFP arms until you are ready to plug the adapter into the two adjacent QSFP ports on the front panel of the chassis.

The bidirectional QAPT adapter supports analog pass-through mode for 50GigE, 100GigE, and 128G FC interfaces. The QAPT adapter is a passive adapter meaning that it has no external power supply.

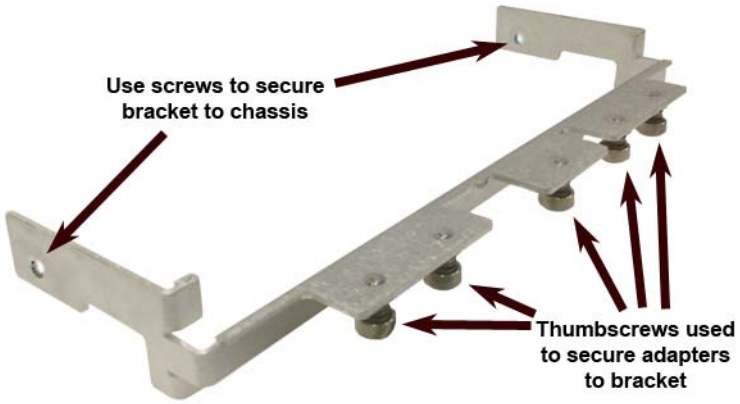
A bracket is also supplied with the chassis which is used to support the QAPT adapter at the front of the chassis. In addition to supporting the QAPT adapters on the shelf-like bracket, thumbscrews secure the adapters to the bracket. Refer to Figure 30.

Connecting the Analog Passthrough Adapters

When using the APT adapters, follow these steps:

1 Secure the bracket to the chassis.

Figure 30 Analog Passthrough Adapter Shelf/Bracket



a Remove the screws on each side of the chassis that corresponds to the side screw locations on the bracket.

b Slide the bracket onto the front of the chassis.

c Align the bracket and reinsert the screws through the bracket into the locations on the chassis that the screws were removed from. See Figure 32.

d Tight the screws to 5 inch-pounds.

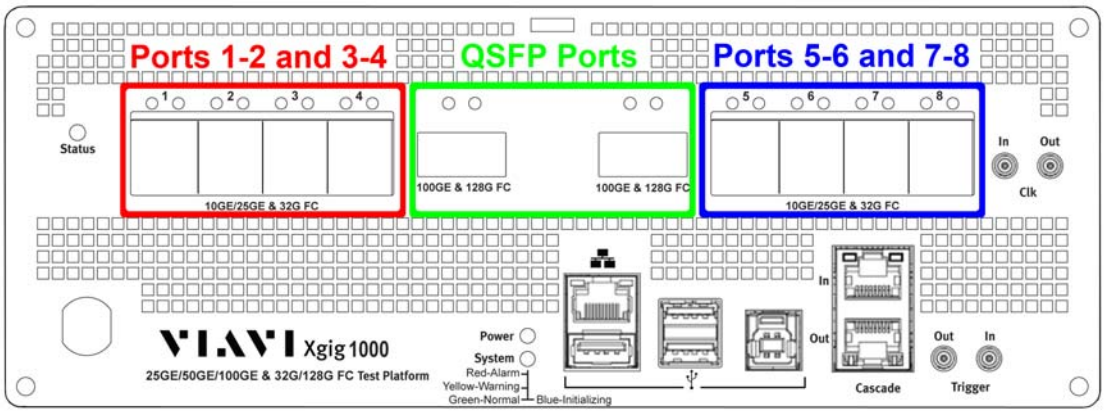
2 Insert the adapter(s) into the adjacent ports on the chassis. See Figure 31.

– For the 4-port chassis, use ports 1-2 or 3-4.

– For the 8-port and 10-port chassis, use SFP ports 1-2, 3-4, 5-6, or 7-8.

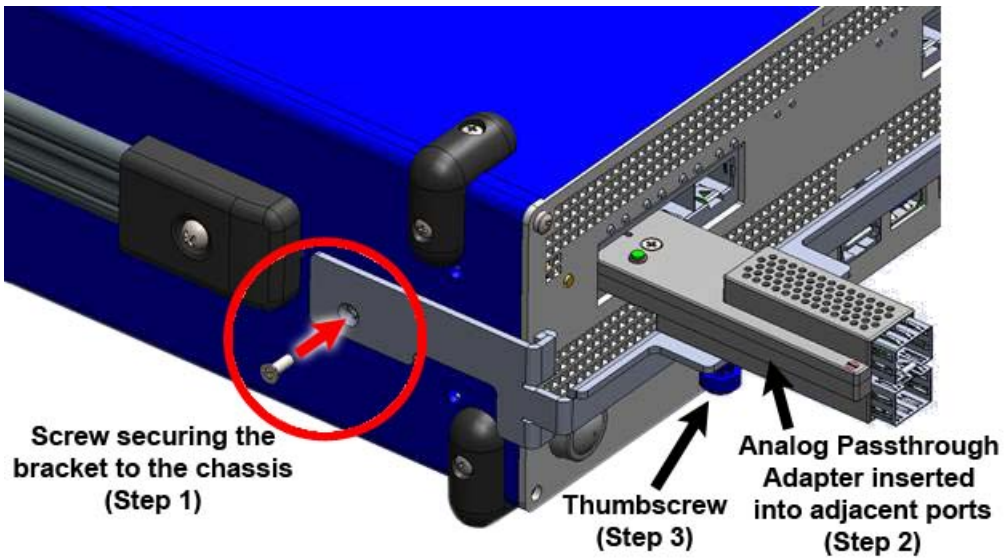
– For the 10-port chassis, use the two QSFP ports.

Figure 31 Ports on Xgig1000 25G/32G & Xgig1000 25G/32G/50G/100G/128G Chassis



3 Secure each adapter to the bracket using the thumbscrew on the bottom of the bracket.

Figure 32 Installed Analog Passthrough Adapter



4 Insert the SFPs/QSFPs/cables into the APT adapter(s).

When the APT adapter is inserted into the chassis, the chassis is switched to analog passthrough mode. When the analog passthrough adapter is removed from the chassis, the chassis is switched to digital retime mode.

B

Tips and Troubleshooting for First Generation Chassis

This appendix describes how to correct some issues with your first generation Xgig1000 chassis. Topics discussed in this appendix are as follows:

Troubleshooting

The information in this chapter provides tips and troubleshooting for first generation chassis; those without a power switch on the back of the chassis.

Power up problems following chassis shutdown

If after removing and then reapplying power to the Xgig1000 chassis the system does not boot properly, start the chassis using the Backup System Image. Refer to the “Restarting the Xgig1000 Chassis with the Backup System Image” on page 148 to bring the system back up. Once the system is booted up using the backup image, replace the system’s image by going through the system upgrade process.

To prevent these problems, follow the shutdown procedures as described in “Xgig1000 Chassis Shutdown Sequence” on page 99.

Cannot ping the Xgig1000 chassis

The connection between the Xgig1000 chassis and the PC is down as indicated by the failure of the Ping operation.

- Verify the Ethernet cables are securely plugged in for both the Xgig1000 chassis and the PC you are using.
- Try the Ping operation with IP address instead of the Xgig1000 chassis name. If the address is not known, use the console port to get its IP address. See Chapter 2 for instructions.
- If DHCP information is used to address devices:
  - Verify that your PC has a valid IP address.
  - Verify the Xgig1000 chassis has a valid IP address. See Chapter 2 “Xgig1000 System Setup” for instructions on using the Console port to check the Xgig1000 chassis IP address.
  - If either device does not have a valid IP address, contact your network administrator.
- If static IP addresses are used, verify the IP addresses, Subnet mask, and Gateway IP addresses are correctly entered.
- Ping other devices on the same subnet as the PC. If the Xgig1000 chassis is on a different subnet, ping other devices on the same subnet as the Xgig1000 chassis. This will ensure that your network is still functional.
- As an alternate solution, setup the PC and the Xgig1000 chassis as “Standalone” configuration. See “PATH 3: Setting Up the Xgig1000 Chassis in a Standalone Environment” on page 90 for instructions.

- Try booting the Xgig1000 chassis with the backup image. See “Restarting the Xgig1000 Chassis with the Backup System Image” on page 148 for instructions. If successful, the current image is damaged. You need to replace the current system image. See “Updating the FTP Server with Upgrade Images” on page 123 for instructions.
- If all above steps have been performed and you still cannot ping the Xgig1000 chassis, contact the “Technical Assistance” team.

Cannot connect to the Xgig1000 chassis using the web browser

The Xgig1000 chassis can be pinged, but the web browser returns an error message. The web application is not responding to the connection request.

- Make sure you are using the correct version of the browser: IE 6.0 or greater or Firefox 1.5 or greater.
- Make sure the correct chassis name or chassis IP address is used.
- Make sure both the connecting computer and the Xgig1000 chassis are on the same network. Refer to Chapter 2 “Xgig1000 System Setup” for information on how to discover the Xgig1000 chassis address settings using the console port.
- On a rare occasion, a web application file of the current boot image is damaged; use the console port to boot the system with the backup image as described in the “Restarting the Xgig1000 Chassis with the Backup System Image” on page 148. Once the system is booted up with the backup image and the web-based connection is re-established, replace the current system’s image by going through the system upgrade process.

Can’t find the system or application upgrade on FTP server

The chassis cannot find the specified image or the system is unable to logon to the FTP server.

- Make sure the FTP server is on-line and available to the chassis.
- Make sure the FTP server has the applicable images.
- Make sure you have both the OS and the app kit installed.
- Make sure the system image and application image folders are visible at login. Contact your Network System Administrator for information and refer to “Setting Up the FTP Site for Upgrades” on page 121 for information on where to place the folders.
- Verify that the FTP server IP address is correctly entered on the web’s **Configuration – FTP** page.
- Verify that the user name and password information on the web’s **Configuration – FTP** page are correct. User name and password are case sensitive.

The system is rebooting repeatedly

The chassis is triggered to reboot.

- With system image upgrading, the chassis will be rebooted twice as a normal operation.
- Don't refresh the web browser as the system is rebooting.
- If the chassis keeps on rebooting after all necessary steps are observed, turn off the chassis and contact the "Technical Assistance" team.

The Cascade Port LEDs do not blink after initiating Sync Discovery

Indicates that no Sync Discovery sequence is taking place.

- Check to make sure all cables are correct and in good working order. Straight-through CAT-5 cables are required.
- Check to make sure that all connections are secure.
- Check to make sure that the cabling between the cascade ports is correct. A cable should exist from the Cascade OUT port of the master (first) chassis in the sequence to the Cascade IN port of the second (slave) chassis. This Cascade OUT to Cascade IN cabling must be repeated for additional chassis in the chain. The last chassis in the chain only requires a cable to its Cascade IN port.

Sync Discovery does not complete

The Cascade Port LEDs continue to blink, and Sync Discovery does not complete.

- Check to make sure all cables are correct and in good working order. **Straight-through CAT-5 cables are required.** Use of cross-over cables between chassis may result in the Sync Discovery being unable to complete.
- If you are cascading chassis, make sure all the chassis have the application image version.
- Power cycle the chassis.

Cannot find an Xgig1000 chassis using the discover button in the port selection window

You are attempting to find a single Xgig1000 chassis or cascaded Xgig1000 chassis on the network using the discovery operation in Xgig application software. You cannot discover the Sync Group or the discovery process is taking an extremely long time.

The discovery operation may take an extremely long time if you have moved the Sync Group to a different subnet. After moving an Xgig1000 chassis to another subnet, it is recommended that you use the IP address the first time you attempt to discover it. This prevents a potential Domain Name Server (DNS) issue.

- Check to make sure you have the correct name of the Xgig1000 chassis.
- If the Xgig1000 chassis cannot be found by name, use the IP address. For cascaded chassis, the IP address of any of the chassis in the cascade should result in the Sync Group being discovered.
- Attempt to discover another Sync Group on the same subnet as the Sync Group you are trying to discover. This operation should discover all Sync Groups on the same subnet.
- If you still cannot discover the Sync Group, use the Ping operation to see if the Sync Group is on the network. If the Ping operation fails, see “Cannot ping the Xgig1000 chassis” on page 144. You can also connect to the console port on the Xgig1000 chassis to verify its IP address. See “PATH 2: Setting Up the Xgig1000 Chassis with a Static IP Address in a Non-DHCP Network” on page 87, steps 1 through 8, for information on getting the IP address through the console port.

Restarting the Xgig1000 Chassis with the Backup System Image

If you cannot connect to the Xgig1000 chassis, you may be able to reestablish operations by booting the Xgig1000 chassis with the alternate version of the Xgig1000 operating system. This operation can fix problems where the operating system has been corrupted.

To reboot the Xgig1000 chassis using the alternate version of the operating system, perform the following steps:

1. Power down the Xgig1000 chassis.
2. Connect the DB-9 Null Modem cable supplied with the Xgig1000 chassis from the Console port on the Xgig1000 chassis to a VT-100 Terminal or to a COM port on PC with terminal emulation software.
3. Configure the terminal or terminal emulation software to communicate with Xgig1000 chassis. The terminal device must be connected to the Xgig1000 console serial port with the following settings:
   - 57600 Baud, 8 Data Bits, 1 Stop Bit, No Parity
   - Flow control = none
4. Turn on the power to the Xgig1000 chassis.
5. From the terminal emulation program you will see a boot message.

```
Please select the operating system to start:

Current System
Backup System
```

If the boot selection message does not appear, check the cable between the PC or terminal and the Xgig1000 chassis. If it appears to be correctly cabled and you still do not see the Xgig Command Line Options menu, contact the “Technical Assistance” team.

1. Use the arrow keys to highlight the Backup System. Press Enter.
2. After the Xgig1000 chassis has started, re-check the communication between the application client software and Xgig1000 server. If you still cannot get a connection, call the “Technical Assistance” team.

NOTE

The system may reboot a second time. If it does, make sure to select “Backup System” when prompted on the second boot.

Tips

Pinging the Xgig1000 Chassis

To “ping” the Xgig1000 chassis, click on the **Start** menu, select **Run,** and type in **CMD**. From the Command prompt, type the ping command with the IP address as the argument. For example: **> ping 10.10.4.34**

Naming the Xgig1000 Chassis

The default name of the Xgig1000 chassis is the serial number on the bottom of the chassis. The format for the serial number is “Xgignnnnnnnn” where nnnnnnnn is a eight-digit number.

When changing the name for the Xgig1000 chassis, make sure you choose a name not used elsewhere in your network.

Using Wireless Connections

For operation of client applications, it is not recommended that wireless connections be used as the type of Ethernet connection between the PC running Xgig client software and the network. The software can require bursts of high bandwidth which can cause dropped connections and performance degradation when using a wireless connection. However, this is totally dependent on the capabilities and robustness of the wireless network; there is nothing to prohibit the use of wireless connections with Xgig1000 chassis.

Network Bandwidth Considerations

High bandwidth demands during some Xgig operations may cause unacceptable loads on the network. It may be necessary to configure instrument usage on a special subnet to circumvent this problem. It is also possible to use a 1Gb/s dedicated link or switch for peak performance.

Recommended System for More than 16 Ports

Please follow the recommended system requirements listed in the *Xgig Analyzer Software Installation Guide* for using cascaded Xgig1000 chassis (more than 16 ports).

- Pentium 4 multicore and/or multi process: clock speed 2 GHz
- 2GB RAM (4GB to 8GB RAM is recommended for use with Traffic Summary View and Exchange View)
- At least 200GB SAS, SATA II, SCSI U320 storage
  If .NET Framework and Visual C++ Redistributable software are not installed on your system, 200MB disk space is required for their installation.
- Gigabit Ethernet network - 1000 Mbps data rate

Client systems without enough power will show performance degradation as more ports are added.

Index

F

I

L

M

O

P

Q

R

S

U

W

March 2017
English

Viavi Solutions

North America:	1.844.GO VIAVI / 1.844.468.4284
Latin America	+52 55 5543 6644
EMEA	+49 7121 862273
APAC	+1 512 201 6534
All Other Regions:	viavisolutions.com/contacts
email	TAC@viavisolutions.com