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EK-DGBTF-IN. A01

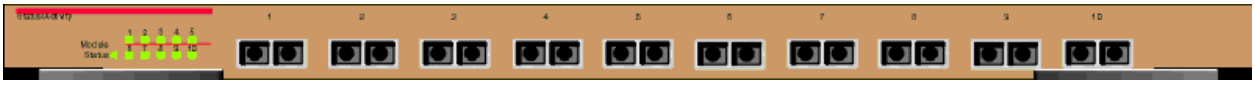
DIGITAL GIGAswitch/Ethernet System
Installing Fast Ethernet Modules

Introduction

This document describes installation and configuration of the following I/O modules:

- **20-Port 10/100BASE-TX Ethernet Module**, with 20 RJ45 Ports — 10/100, HDX/FDX

- **10-Port 100BASE-FX Ethernet Module**, with 10 Fast Ethernet Ports — Fiber, 1300 nM, HDX/FDX



Installation Procedure

Overview

This document describes the following processes:

- Making Sure That You Have Enough Power Available
- Installing the Modules
- Installing the Cables
- Configuring Port Parameters Using the Web Agent

Making Sure That You Have Enough Power Available

Each power supply powers approximately three media cards. It takes two power supplies to power a full chassis. Using three power supplies ensures that the system has fault-tolerant, load-sharing power capabilities. The precise values are:

Power Consumption for Fast Ethernet Modules

Device	Power Used
20-port 10/100 module	70 W
10-port 100BASE-FX module	50 W

Select **Power System** from the left side of the web agent menu to determine how much power is currently available in your system.

Installing the Modules

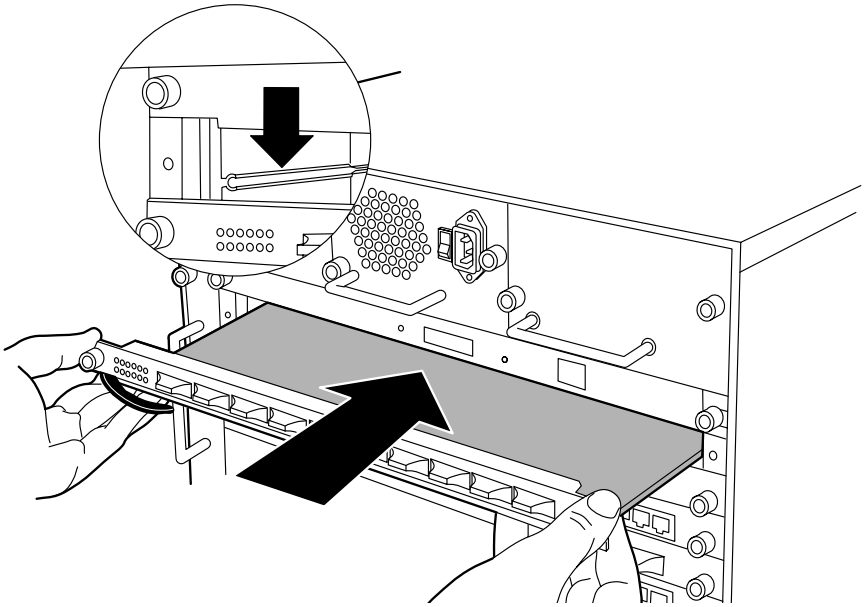
All I/O modules are hot swappable. You do not need to shut down the switch when adding I/O modules.

CAUTION

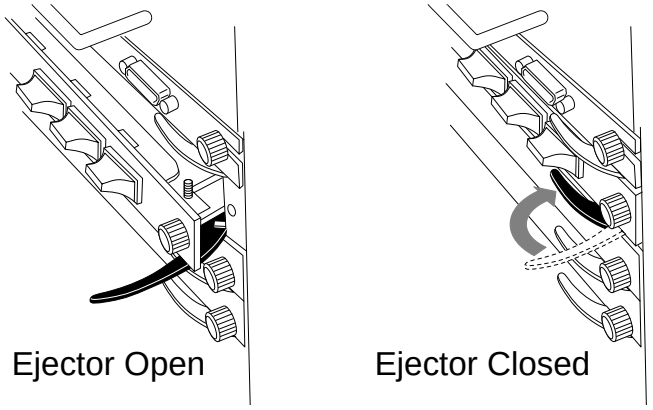
Static electricity can damage modules and electronic components. DIGITAL recommends using a grounded antistatic wrist strap and a grounded work surface when handling any modules.

To install a module in the switch chassis:

Step	Action
1	Carefully remove the module from its box, leaving the module in its antistatic wrapping.
2	After taking appropriate antistatic precautions, carefully remove the module from the antistatic wrap. (Refer to the *DIGITAL GIGAswitch/Ethernet System Installation and Operation Guide* for information about proper antistatic precautions).
3	Insert the module into the switch as shown below:



Step	Action
4	Push the module all the way into the switch chassis, then use the ejectors to lock the module into the switch backplane as shown below:



5	Tighten the black captive screws on the module.

As the module powers on, the LEDs should function as described in the *DIGITAL GIGAswitch/Ethernet System Installation and Operation Guide*. In general, you will observe the following on a properly functioning module:

LED	Normal Behavior
Module Status ◄	Solid green, indicating normal operation.
Port	Solid green, flashing yellow intermittently to indicate traffic. Inactive port LEDs will go off.

Contact your DIGITAL service representative if your module fails to function properly.

Installing the Cables

Install appropriate cables for your network configuration. Use the following cable types:

- Fiber cables with SC-type connectors.
- Straight-through 10BASE-T cables with male RJ45 connectors (end station/NIC card connections). All I/O ports are crossed over internally, so you can use straight-through cables to attach to end stations, and crossover cables to attach to repeaters.
- Crossover 10BASE-T cables with male RJ45 connectors (switch-to-switch connections).

Refer to the *DIGITAL GIGAswitch/Ethernet Installation and Operation Guide* for more information about cable types and configuration.

Guidelines for Cable Distances

NOTE

These figures describe maximum link distances only. When building half-duplex networks using Ethernet repeaters, you must also consider maximum network diameter, which is not discussed in this document.

Maximum Fiber Link Distances for 100 Mb/s Links

Fiber Cable Description	Maximum Cable Length
Half-duplex connection	412 m
Full-duplex connection	2 km

Maximum Copper Cable Lengths (10/100 Mb/s Links)

Cable Description	Maximum Cable Length
Category 5 twisted pair cable	100 m

Configuring Port Parameters Using the Web Agent

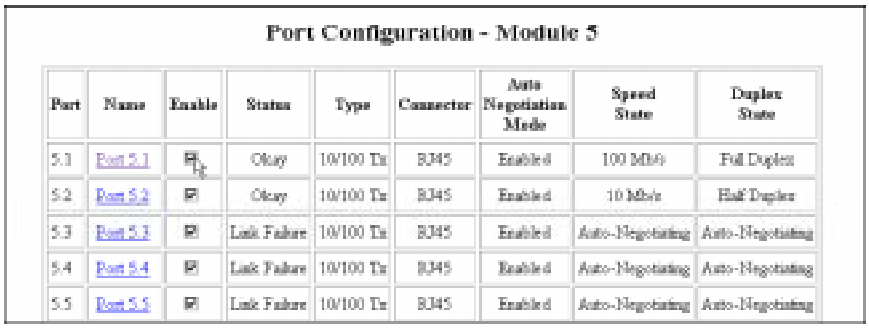
You can set the following attributes on Fast Ethernet ports:

10/100 Port Settable Attributes

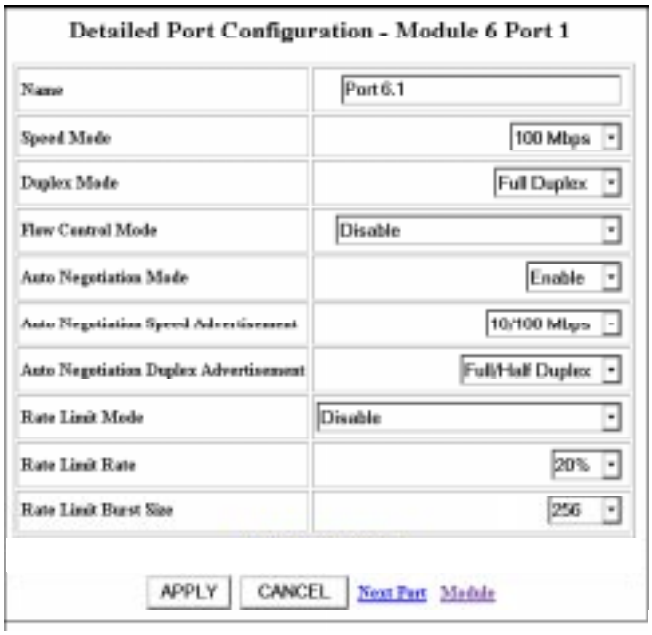
Attribute	Purpose
Enable/Disable	Determines whether the port is able to forward traffic.
Port Name	A user-assigned name for this port (possibly a drop name or the name of the station or other device connected to the port).
Speed Mode (10/100 ports)	Lets you select the speed of the port manually (to either 10 or 100 Mb/s). If auto-negotiation is enabled, this setting is ignored.
Port Duplex Mode (10/100 ports)	Lets you set the port duplex mode (half- or full-duplex). If auto-negotiation is enabled, this setting is ignored.
Flow Control Mode	If the port is set to half-duplex mode, this setting determines whether active backpressure is used on this port. Active backpressure jams the sending Ethernet channel until the port's buffers can receive more packets. If the port is set to full-duplex mode, this setting determines whether IEEE 802.3x pause control is used on this port. The pause mechanism allows the port to stop a sending station from sending more packets if the receiving port's buffers are full. Enabling flow control helps prevent lost or dropped packets.
Auto-negotiation Mode	Allows you to set the port to auto-negotiate a speed and duplex mode. Auto-negotiation works best when the connection on the other end of the link is set to auto-negotiate as well. If you set a port to auto-negotiate, and the connection is not successful, set the port speed and duplex mode manually.
Auto-negotiating Speed/Duplexity Advertisement	Determines what information the port advertises when it starts auto-negotiating. In most cases, **10/100** and **Half/Full** are the best settings, but there may be cases when you want to auto-negotiate one parameter, while keeping the other fixed.
Rate Limit Mode	This feature helps prevent the switch from overwhelming the output buffer on lower-speed ports by placing a threshold on the percentage of port traffic that can be flooded packets (unknown broadcasts, unicasts and multicasts). You can optionally include known multicast packets in this percentage to further decrease the possibility of the port's output buffer being overwhelmed.

To configure ports on a Fast Ethernet module:

Step	Action
1	From the menu on the left side of the browser window, select **Modules & Ports**. A list of modules in the switch displays.
2	On the module you are configuring, click the number of ports listed in the ports column (**10** for 100BASE-FX, for example). The Port Configuration form displays.



3	To enable or disable a port: a Click the box in the Enable column to enable a port, or click to uncheck Enable if you want to disable the port. b Click **Apply** to perform the operation. **Restore** returns the display to the current switch settings.
4	To set additional parameters, click on the port name in the **Name** column. The Detailed Port Configuration window displays.



5	Set the port name by typing a port name in the **Name** field.
6	If you want to set the port speed manually, select a speed (**10 Mb/s** or **100 Mb/s**) from the drop-down list. If you set the port to auto-negotiate, this setting is ignored.

Step	Action
7	If you want to set the port's duplex mode manually, select a mode (**Half-duplex** or **Full-duplex**) from the drop-down list. If you set the port to auto-negotiate, this setting is ignored.
8	If you want this port to use Flow Control to prevent buffer overflows, set Flow Control Mode to **enable** using the drop-down list. Disable this feature only when flow control is causing congestion in other areas of the network.
9	Set the Auto-negotiate Mode for the port (**enable** or **disable**) from the drop-down list. Note: This feature works best when the port or device on the other end of the connection auto-negotiates as well. If you are having problems with auto-negotiating connections, try setting the modes manually.
10	Set an Auto-negotiating Speed and Auto-negotiating Duplex Advertisement using the drop-down lists. The switch sends these values to the device on the other end of the connection at the start of the auto-negotiating process. In general, the defaults are best, but there may be situations when you want to fix one setting, but allow the other setting to auto-negotiate.
11	If you want this port to limit the number of unknown unicast and multicast (flooded) packets it tries to forward, set the Rate Limit Mode to **enable**, then: a Select the percentage of a port's traffic that can be unknown unicast and broadcast packets. Enter this value in the Rate Limit Rate field. Lower this value if the port is having overflow problems. b Set a Rate Limit Burst size to limit the number of packets allowed in a single burst. Legal values are 1 to 2048. For Fast Ethernet ports, set this value lower than 1024 (the output buffer's capacity). Set this value lower if the port is experiencing overflow problems.
12	To apply the settings to the port, click **Apply**. **Cancel** returns the display to the current switch settings.

Using the All Module Ports Configuration Screen

The All Module Ports Configuration screen lets you apply the same parameter settings to all ports in a module using a single command. To do this:

Step	Action
1	Select **All Module Ports Configuration** from the Port Configuration screen.
2	Set port parameters as described in Configuring Port Parameters Using the Web Agent on page 4.
3	Click **Apply** to apply the changes to all ports on the module.

For More Information

Refer to the *DIGITAL GIGAswitch/Ethernet System Installation and Operation Guide* for advanced module configuration options. This guide also provides safety, product specification, and regulatory compliance information. The guide is available in online format on the DIGITAL GIGAswitch/Ethernet System Information Library CD. This information is also available on the DIGITAL Network Products Home Page on the World Wide Web at:

North America: http://www.networks.digital.com
Europe: http://www.networks.europe.digital.com
Asia Pacific: http://www.networks.digital.com.au