

SGIconsole™ Hardware Connectivity Guide

Document Number 007-4340-003

Contributors

Written by Eric Zamost and Francisco Razo

Updated by Mark Schwenden

Illustrated by Dan Young and Chrystie Danzer

Production by Karen Jacobson

Additional contributions by Jagdish Bhavsar, Michael T. Brown, Dick Brownell, Jason Chang, Steven Dean, Jim Friedl, Jim Grisham, Karen Johnson, Tony Kavadias, Paul Kinyon, Jenny Leung, Laraine MacKenzie, Sonny Oh, Keith Rich, Laura Shepard, David Smith, Paddy Sreenivasan, and Rebecca Underwood.

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Record of Revision

Version	Description
001	November, 2001 Initial Revision
002	July, 2003 Reorganized flow of document. Added instructions for using additional host systems to run SGIconsole. Added information about using remote workstations with SGIconsole. Added Origin 350 and Onyx 350 products. Added Altix 3300 and Altix 3700 products. Added instructions for connecting unlisted systems. Added Appendix detailing tested host systems.
003	July, 2004 Updates for SGIconsole 2.1 including new software references, and inclusion of Altix 350 information.

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About This Guide

This guide describes how to connect the SGIconsole host system to the servers and graphics systems it can manage. This guide is written for users and system administrators of these managed systems.

Additional Information

Figure i illustrates additional sources of information about the SGIconsole, which are discussed in the sections that follow and in “Location of Information” on page xxi. Note that the -003 version of the *SGIconsole Hardware Connectivity Guide* is available only as a softcopy document.

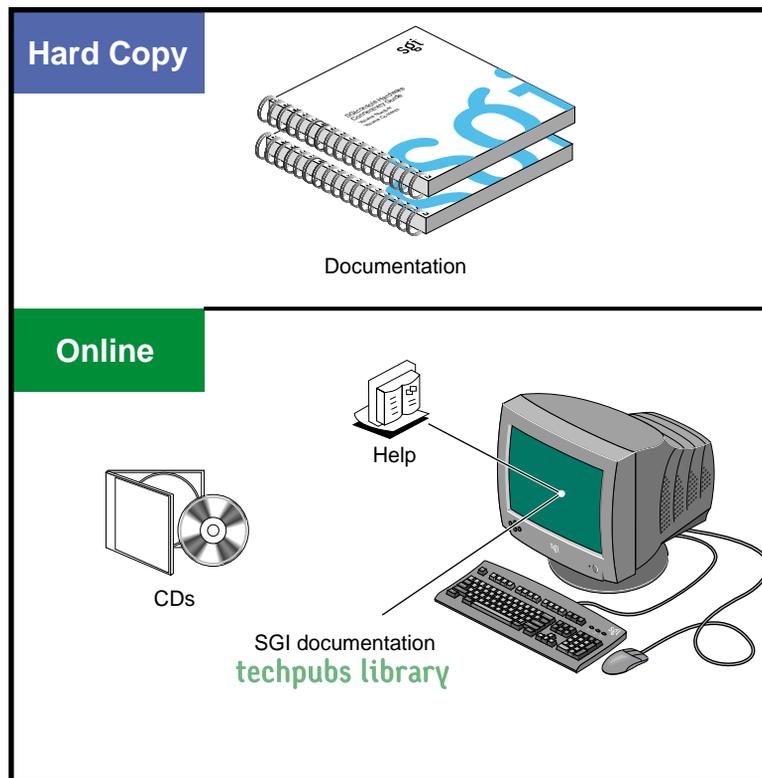


Figure i Sources of Additional Information

Additional Documentation

The following documentation may be helpful in setting up and connecting your SGIconsole system:

- *SGIconsole Hardware Connectivity Guide* (this guide) describes how to cable the SGIconsole server host system to the various SGI servers and graphic systems supported by the SGIconsole. In some hardware configurations, you need to use Silicon Graphics Ethernet serial port servers or Ethernet hubs to connect the SGIconsole to the servers.
- *SGI 1100 Server User's Guide* describes how to install and use the SGI 1100 server (one of the tested legacy hardware platforms which can run as a server host for SGIconsole).

- *SGI 1100 Server QuickStart Guide* provides quick instructions on how to install and use the SGI 1100 server (one of the legacy hardware platforms which can run as a server host for SGIconsole).

Depending on the server to which you are connecting your SGIconsole, you may also need to consult one or more of the following documents:

- *Origin200 Owner's Guide* describes how to set up and use the Origin 200 server system. It also describes how to install hardware and software options and troubleshoot the hardware.
- *SGI Origin 300 User's Guide* describes how to set up and use the Origin 300 server system. It also describes how to install hardware and software options and troubleshoot the hardware.
- *SGI Origin 300 with NUMALink Module User's Guide* describes how to set up and use the Origin 300 server system with NUMALink Module. It also describes how to install hardware and software options and troubleshoot the hardware.
- *SGI Onyx 300 Graphics System User's Guide* describes how to set up and use the Onyx 300 graphics system. It also describes how to install hardware and software options and troubleshoot the hardware.
- *SGI Origin 350 Server User's Guide* describes how to set up and use the Origin 350 server system. It also describes how to install hardware and software options and troubleshoot the hardware.
- *SGI Altix 350 System User's Guide* describes how to set up and use the Altix 350 products. It also describes how to install optional hardware, upgrades, and basic troubleshooting of the system.
- *SGI Onyx 350 Visualization System User's Guide* describes how to set up and use the Onyx 350 visualization system. It also describes how to install hardware and software options and troubleshoot the hardware.
- *SGI 2100 Owner's Guide* describes how to set up and use the SGI 2100 server (a deskside SGI Origin 2000 server).
- *SGI 2200 Server Owner's Guide* describes how to set up and use the SGI 2200 server (a deskside SGI Origin 2000 server).
- *SGI 2400 and 2800 Server Owner's Guide* describes how to set up and use the rackmountable SGI Origin 2000 (SGI 2400 and SGI 2800) servers. It also describes how to install peripherals, install and remove software, and troubleshoot and maintain your servers.
- *SGI Origin 3000 Series Owner's Guide* describes how to operate, install parts in, and maintain the SGI Origin 3000 servers.

- *SGI Onyx 3000 Series Graphics System Hardware Owner's Guide* describes how to use and administer the SGI Onyx 3000 rackmount graphics system.
- *SGI Altix 3000 User's Guide* describes how to operate, install parts in, and maintain the SGI Altix 3000 servers.
- *SGI Altix 350 User's Guide* describes how to operate, install parts in, and maintain the SGI Altix 350 servers.
- *Silicon Graphics Onyx2 Deskside Workstation Owner's Guide* describes how to use, manage, troubleshoot, and upgrade the Silicon Graphics Onyx2 deskside graphics workstation.
- *Silicon Graphics Onyx2 Rackmount Owner's Guide* describes how to use, manage, and troubleshoot the Silicon Graphics Onyx2 rackmount graphics system.

For information about accessing these manuals, see “Location of Information” on page xxi.

Software Guides

This section discusses software guides related to SGIconsole.

- The *SGIconsole Software CD Information Card* describes how to check to see if your software is already preinstalled in your SGIconsole.
- *IRISconsole to SGIconsole Migration Guide* describes the comparisons between the IRISconsole and the SGIconsole. This guide is intended to help those using IRISconsole to make a smooth transition from IRISconsole to an SGIconsole.
- *SGIconsole 2.1 Start Here* introduces the SGIconsole, describes the software tools and functionality, describes how to configure, install, and make the SGIconsole operable. It also describes how to use the SGIconsole website to operate the SGIconsole.
- *Console Manager for SGIconsole Administrator's Guide* documents the Console Manager for SGIconsole release 2.x running on SGI systems. The Console Manager software graphical interface allows you to control multiple servers, SGI partitioned systems, and large single-system image servers.

These guides can be viewed by the methods discussed in “Location of Information” on page xxi.

Location of Information

This section explains how to find manuals and other information. To view or locate manuals, use the following methods:

- Consult your hard copy (printed) user guide if available.
- Check the CD that came with your system for PDF copies of applicable SGI manuals.
- Use a Web browser to view the Silicon Graphics Technical Publications Library on the World Wide Web at:

<http://docs.sgi.com>.

You can either view the HTML versions of the manuals or download postscript or PDF files.

Documentation Conventions

This guide uses these conventions:

- References to document titles are in *italics*.
- SGIconsole commands and names of files appear in text as `Courier` font.
- References to other chapters and sections within this guide are in quotation marks.
- Anything that you type on the keyboard is in **Courier bold**.
- Anything displayed on the screen is in `Courier`.
- Anything shown on a hardware label is in **Helvetica bold**.
- Steps to perform tasks are in numbered sentences. When a numbered step needs more explanation, the explanation follows the step and is preceded by a bullet.

Introducing the SGIconsole

SGIconsole 2.1 is a software product used to monitor and manage SGI Origin 200 servers, SGI Origin 300 servers, SGI Origin 350 servers, the SGI Origin 2000 series of servers, the SGI Origin 3000 series of servers, the SGI Altix 3000 and SGI Altix 350 series of servers, Silicon Graphics Onyx2 deskside workstations, Silicon Graphics Onyx2 rackmount graphics systems, Silicon Graphics Onyx 300 systems, Silicon Graphics Onyx 350 systems, SGI Onyx 3000 graphics systems, and selected other SGI and non-SGI systems.

SGIconsole is used with one or more Silicon Graphics EL serial port servers to manage and monitor the various hardware configurations that connect via serial port.

The SGIconsole is used with one or more Ethernet hubs to manage and monitor the various hardware configurations that connect via Ethernet.

Figure 1-1 shows the SGIconsole server host connected to an Ethernet hub to which are connected various systems that may be managed by SGIconsole. A second SGIconsole at another location is shown connected to the first SGIconsole through the general Ethernet. A remote workstation is shown connected to these two SGIconsoles via the general Ethernet.

In addition to running and viewing Console Manager on the SGIconsole host system, you may also monitor and manage your servers and graphics systems using a remote workstation running selected versions of IRIX, Linux, or Microsoft Windows. For more information on this, see “Controlling SGIconsole from a Remote Workstation” on page 32.

A monitor, keyboard, and mouse may also be connected directly to the SGIconsole at the local site.

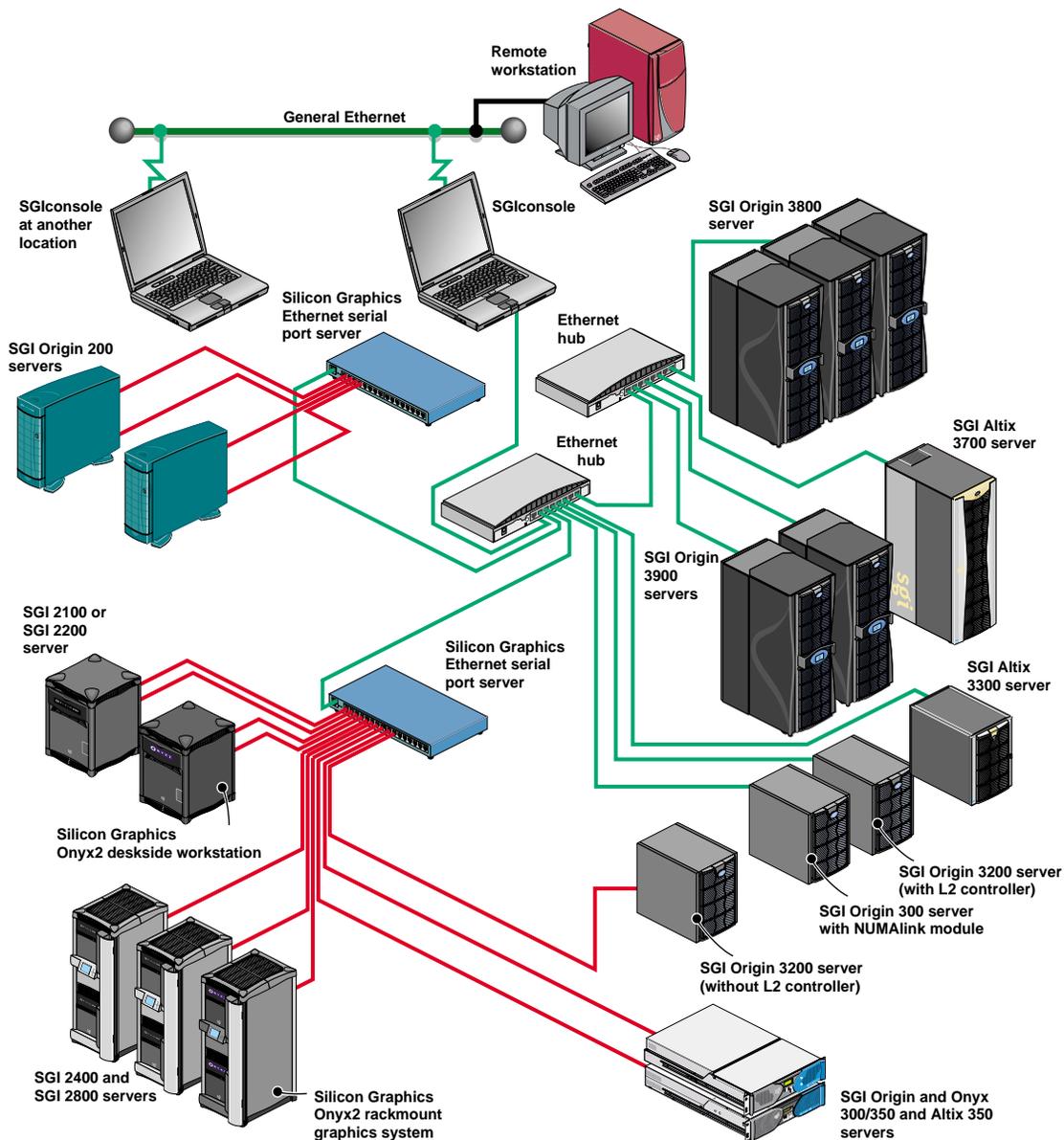


Figure 1-1 SGIconsole in a Multiple-Server Hardware Configuration

Connection Types

This section describes the various devices to which SGIconsole may be connected. This section is intended only to provide an overview. For the details of the connections, refer to the appropriate sections of Chapter 4, “Connecting Managed Systems to SGIconsole via Ethernet,” and Chapter 5, “Connecting Managed Systems to SGIconsole via Serial Ports.”

SGIconsole is designed to manage SGI systems with MSCs (module system controllers), MMSCs (multi-module system controllers), L1s (level 1 system controllers), and L2s (level 2 system controllers). Each controller type is outlined below.

MSC (Module System Controller)

The MSC (module system controller) is used in all SGI Origin 200, SGI Origin 2000-series, and Onyx2 systems. The following systems contain one MSC, but do not contain any MMSCs (which are described in the next section):

- SGI Origin 200 systems,
- SGI Origin 2100 deskside systems,
- SGI Origin 2200 deskside systems,
- Onyx2 deskside systems

In all such systems, SGIconsole connects to the MSC with a serial cable, and connects to the console port with a second serial cable.

All systems with an MSC but with no MMSCs therefore require two serial connections to SGIconsole.

MMSC (Multi-Module System Controller)

The MMSC (multi-module system controller) is used in systems that contain more than one MSC¹. The MMSCs connect to a console port on one of the modules in the system, connect to the MSCs in both the upper and lower bays in each rack, and connect to MMSCs in other racks, if any.

The following systems contain one or more MMSCs:

- SGI Origin 2400 rack systems,
- SGI Origin 2800 rack systems,
- Onyx2 rack systems.

In all such systems, SGIconsole connects to one of the MMSCs via a single serial cable. Through the MMSC, SGIconsole is able to communicate with any other MMSCs in the system, with the system console, and with the MSCs in every module in the system.

All systems with at least one MMSC therefore require one serial connection to SGIconsole.

L1 (Level 1 System Controller)

The L1 (level 1 system controller) is used in SGI Origin 300/350, Altix 350, SGI Origin 3000-series, and Onyx 3000 systems. The following systems contain at least one L1, but do not contain any L2s:

- SGI Origin 300 systems without NUMAlink module,
- SGI Origin 350 systems without NUMAlink module,
- SGI Altix 350 server systems,
- Silicon Graphics Onyx 300 systems without NUMAlink module,
- Silicon Graphics Onyx 350 systems without NUMAlink module,
- SGI Origin 3200 systems without L2.

In all such systems, SGIconsole connects to the L1 with a single serial cable.

All systems with an L1 but with no L2s therefore require one serial connection to SGIconsole.

¹ SGI Origin 200 systems configured in a dual-chassis (master/slave) arrangement actually contain two MSCs, but do not contain an MMSC. They therefore require two serial connections, as described in “MSC (Module System Controller)” on page 5, just as a single-chassis SGI Origin 200 does.

L2 (Level 2 System Controller)

The L2 (level 2 system controller) is used in many SGI systems that contain more than one L1. The L2s connect to each of the L1s in their rack and can connect to any L2s in other racks.

The following systems contain one or more L2s:

- SGI Origin 300 with NUMAlink Module,
- SGI Origin 350 with NUMAlink Module,
- SGI Origin 3000-series servers (except SGI Origin 3200 system without L2),
- SGI Onyx 3000 systems,
- SGI Altix 3000-series servers (except 3700 Bx2 series).

In all such systems SGIconsole connects to the L2 dedicated Ethernet subnet via a single Ethernet cable. Through this connection, SGIconsole is able to communicate with all L2s in the system, and through those L2s, with all L1s in the system.

All systems with at least one L2 therefore require one Ethernet connection to SGIconsole.

Planning an SGIconsole Installation

Before installing an SGIconsole system, it is helpful to plan the details of that installation. This Chapter provides information necessary to create such a plan.

Determining Ethernet Hub and Serial Port Server Requirements

SGIconsole 2.1 will manage a maximum of 64 systems of types that connect directly via serial port and a maximum of 19 systems of types that connect directly via Ethernet (note that certain configurations reduce these maximums slightly).

SGIconsole 2.1 is recommended for use with a maximum of 64 partitions. Most server and graphics systems contain exactly one partition. Certain systems, however, such as some Origin 3000-series systems, some Altix 3000-series systems, and some Origin 300 systems, may be configured to contain more than one partition. When you connect SGIconsole to multi-partition systems, the total number of partitions in all connected systems should not exceed this maximum of 64.

Depending on your configuration, SGIconsole may require one or more Silicon Graphics EL-16 serial port servers, one or more Ethernet hubs, or a combination of both serial port servers and Ethernet hubs. To determine which hardware is required for your configuration, follow the steps in this section.

Though this section allows you to calculate the exact number of serial and Ethernet connections your particular configuration will require, SGI recommends installing additional capacity for future expansion.

Follow these steps to determine the number of Silicon Graphics EL-16 serial port servers and Ethernet hubs you will need for your configuration:

1. Determine the number of serial connections needed for your configuration using Table 2-1.

Table 2-1 Number of Serial Connections Required for Each Managed System Type

For Each System of Type:	You Need This Many Serial Connections:
Selected unlisted systems (RS-232 console only)	1 serial connection
SGI Origin 200 server	2 serial connections
SGI Origin 300 server	1 serial connection
SGI Onyx 300 system	1 serial connection
SGI Origin 300 server with NUMAlink Module	no serial connections (uses Ethernet)
SGI Origin 350 server	1 serial connection
SGI Altix 350 server	1 serial connection
SGI Onyx 350 system	1 serial connection
SGI Origin 350 server with NUMAlink Module	no serial connections (uses Ethernet)
SGI Origin 2100 server (deskside)	2 serial connections
SGI Origin 2200 server (deskside)	2 serial connections
SGI Origin 2400 server (rack)	1 serial connection
SGI Origin 2800 server (rack)	1 serial connection
SGI Onyx2 graphics system (deskside)	2 serial connections
SGI Onyx2 graphics system (rack)	1 serial connection
SGI Origin 3200 server (short rack, without L2)	1 serial connection
SGI Origin 3200 server (short rack, with L2)	no serial connections (uses Ethernet)
SGI Origin 3400 server (rack)	no serial connections (uses Ethernet)
SGI Origin 3800 server (rack)	no serial connections (uses Ethernet)
SGI Origin 3900 server (rack)	no serial connections (uses Ethernet)
SGI Altix 3300 server (rack)	no serial connections (uses Ethernet)
SGI Altix 3700 server (rack)	no serial connections (uses Ethernet)

2. Based on the number of serial connections you will need, use Table 2-2 to determine the quantity of Silicon Graphics EL-16 serial port servers you will need.

Table 2-2 Quantity of Serial Port Servers Required for Various Configurations

For This Quantity of Serial Connections: You Need This Many EL-16 Serial Port Servers:

No serial connections	No EL-16 serial port servers required (see Table 2-3 for Ethernet connections)
1 to 16 serial connections	One EL-16 serial port server
17 to 32 serial connections	Two EL-16 serial port servers
33 to 48 serial connections	Three EL-16 serial port servers
49 to 64 serial connections	Four EL-16 serial port servers

3. Each EL-16 serial port server connects to the SGIconsole (or to an Ethernet hub) via Ethernet. Each EL-16 therefore requires one Ethernet connection. Note the number of EL-16 serial port servers (and thus the number of Ethernet connections required), as this information will be used in step 5.

4. Determine the number of direct Ethernet connections required for your configuration using Table 2-3.

Table 2-3 Number of Ethernet Connections Required for Each System Type

For Each System of Type:	You Need This Many Direct Ethernet Connections:
Selected unlisted systems (RS-232 console only)	no direct Ethernet connections (uses serial)
SGI Origin 200 server	no direct Ethernet connections (uses serial)
SGI Origin 300 server	no direct Ethernet connections (uses serial)
SGI Onyx 300 system	no direct Ethernet connections (uses serial)
SGI Origin 300 server with NUMAlink Module	1 Ethernet connection
SGI Origin 350 server	no direct Ethernet connections (uses serial)
SGI Altix 350 server	no direct Ethernet connections (uses serial)
SGI Onyx 350 system	no direct Ethernet connections (uses serial)
SGI Origin 350 server with NUMAlink Module	no serial connections (uses Ethernet)
SGI Origin 2100 server (deskside)	no direct Ethernet connections (uses serial)
SGI Origin 2200 server (deskside)	no direct Ethernet connections (uses serial)
SGI Origin 2400 server (rack)	no direct Ethernet connections (uses serial)
SGI Origin 2800 server (rack)	no direct Ethernet connections (uses serial)
SGI Onyx2 graphics system (deskside)	no direct Ethernet connections (uses serial)
SGI Onyx2 graphics system (rack)	no direct Ethernet connections (uses serial)
SGI Origin 3200 server (short rack, without L2)	no direct Ethernet connections (uses serial)
SGI Origin 3200 server (short rack, with L2)	1 Ethernet connection
SGI Origin 3400 server (rack)	1 Ethernet connection
SGI Origin 3800 server (rack)	1 Ethernet connection
SGI Origin 3900 server (rack)	1 Ethernet connection

Table 2-3 Number of Ethernet Connections Required for Each System Type **(continued)**

For Each System of Type:	You Need This Many Direct Ethernet Connections:
SGI Altix 3300 server (rack)	1 Ethernet connection
SGI Altix 3700 server (rack)	1 Ethernet connection

Note: If you connect to one or more partitioned systems (such as partitioned SGI Origin 300 or 3000-series servers), each partitioned system needs only one connection, and thus should be counted as only one system for connection purposes. This is true regardless of the number of partitions into which the system is configured.

- Calculate the total number of Ethernet connections required by adding the number of ethernet connections required for serial port servers determined in steps 3 plus the number of direct Ethernet connections determined in step 4. Using this total, determine the quantity of Ethernet hubs required by using Table 2-4.

Table 2-4 Quantity of Ethernet Hubs Required for Various Configurations

For This Quantity of Ethernet Connections:	You Need This Many Ethernet Hubs:
1 ethernet connection	No Ethernet hubs (connects directly to SGIconsole)
2 to 7 Ethernet connections	One 8-port Ethernet hub
8 to 13 Ethernet connections	Two 8-port Ethernet hubs
14 to 19 Ethernet connections	Three 8-port Ethernet hubs

Note: Although the host system (on which the SGIconsole software runs) will have two Ethernet ports, only one of those ports (port 2) is used for the connection of managed systems. The other port (port 1) is used to connect the SGIconsole system to the general Ethernet network. Any configuration of managed systems that requires more than one Ethernet connection will therefore also require at least one Ethernet hub.

Sample Hardware Configurations

Once you have determined the number of EL-16 serial port servers and Ethernet hubs required for your configuration, as described above, the illustrations in this section (Figure 2-1 through Figure 2-17) show how those EL-16 serial port servers and Ethernet hubs may be cabled together. The figures included here are intended to provide examples of possible cabling arrangements. Depending on your particular configuration, there may also be other valid arrangements.

As part of your planning process, SGI recommends that you make a drawing similar to the ones in this section, but reflecting your particular configuration.

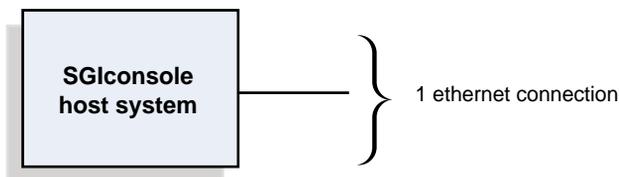


Figure 2-1 Sample Cabling Configuration: No Ethernet Hub, No Serial Port Server

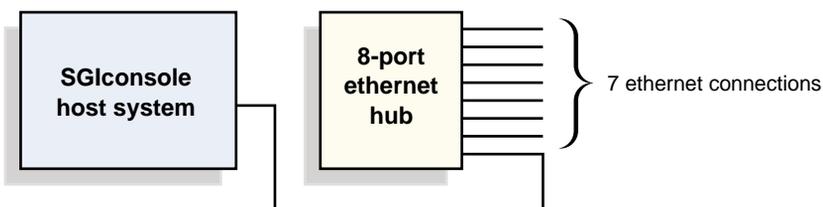


Figure 2-2 Sample Cabling Configuration: One Ethernet Hub, No Serial Port Server

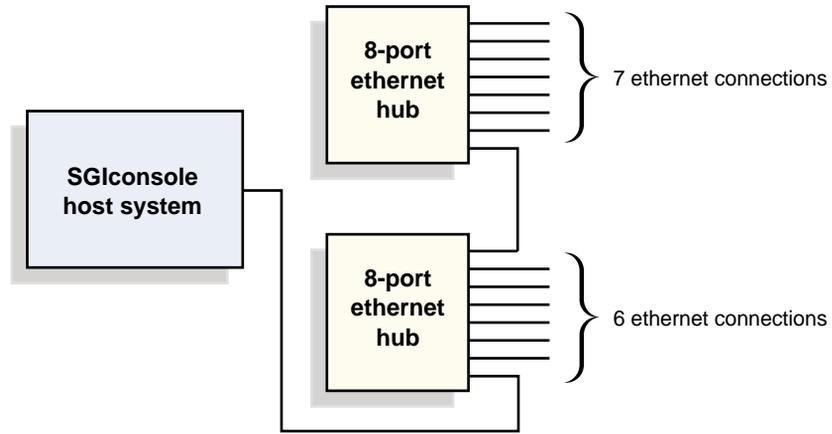


Figure 2-3 Sample Cabling Configuration: Two Ethernet Hubs, No Serial Port Server

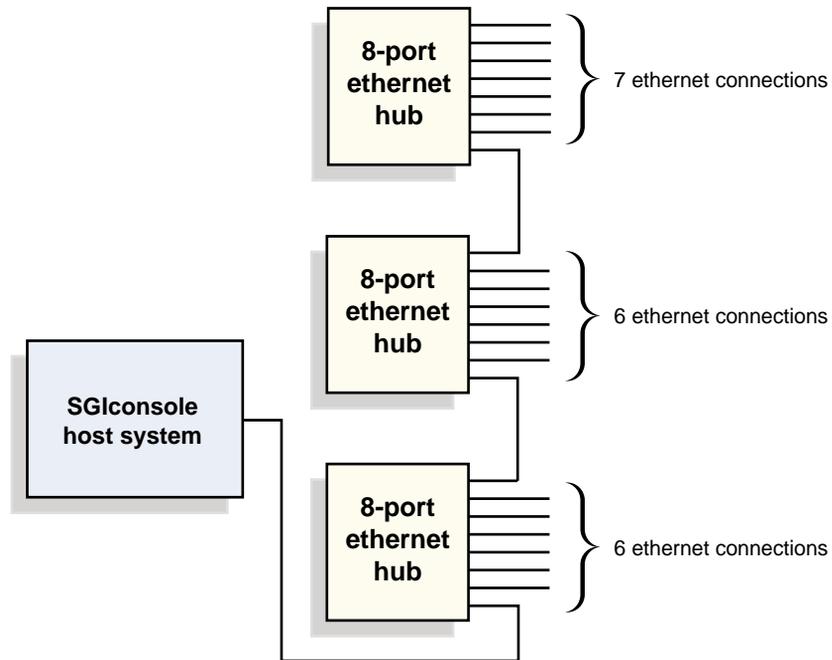


Figure 2-4 Sample Cabling Configuration: Three Ethernet Hubs, No Serial Port Server

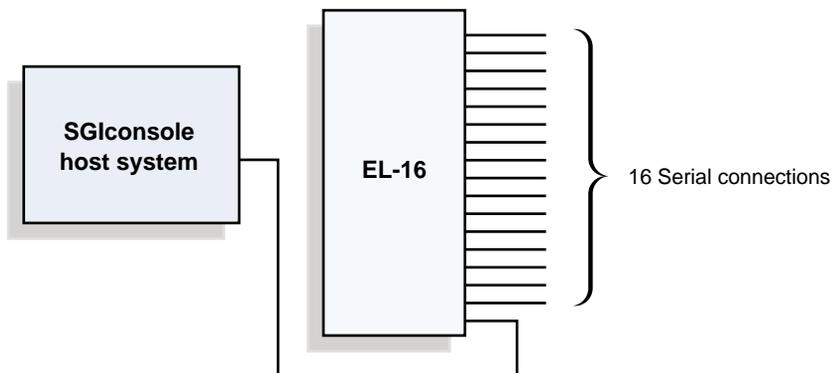


Figure 2-5 Sample Cabling Configuration: No Ethernet Hub, One Serial Port Server

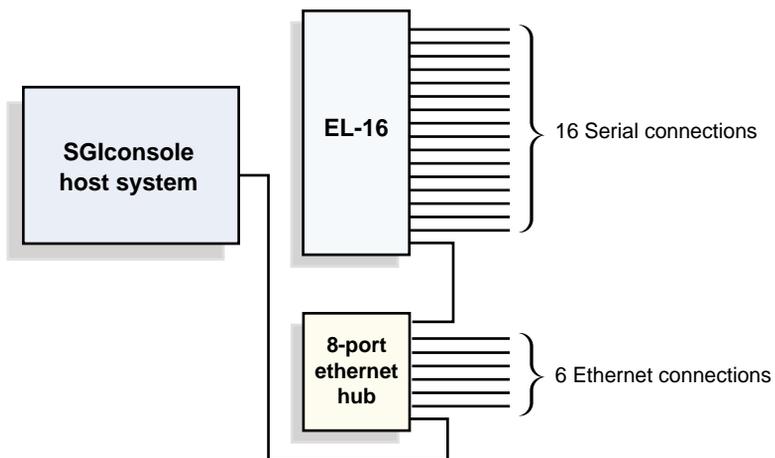


Figure 2-6 Sample Cabling Configuration: One Ethernet Hub, One Serial Port Server

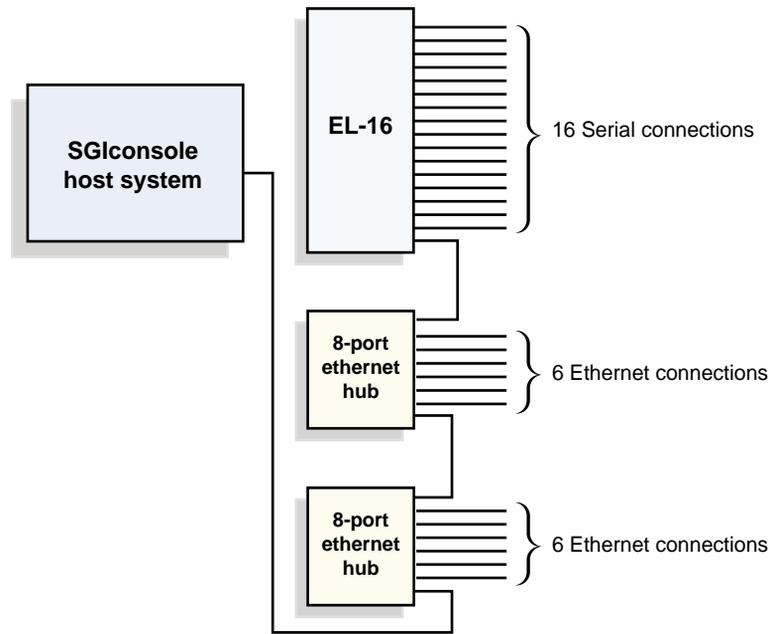


Figure 2-7 Sample Cabling Configuration: Two Ethernet Hubs, One Serial Port Server

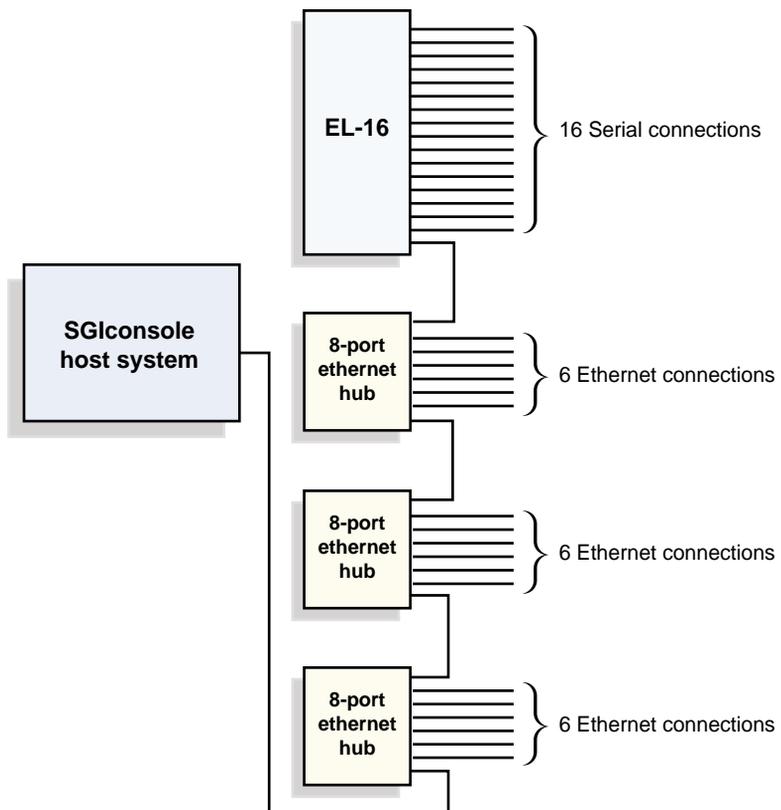


Figure 2-8 Sample Cabling Configuration: Three Ethernet Hubs, One Serial Port Server

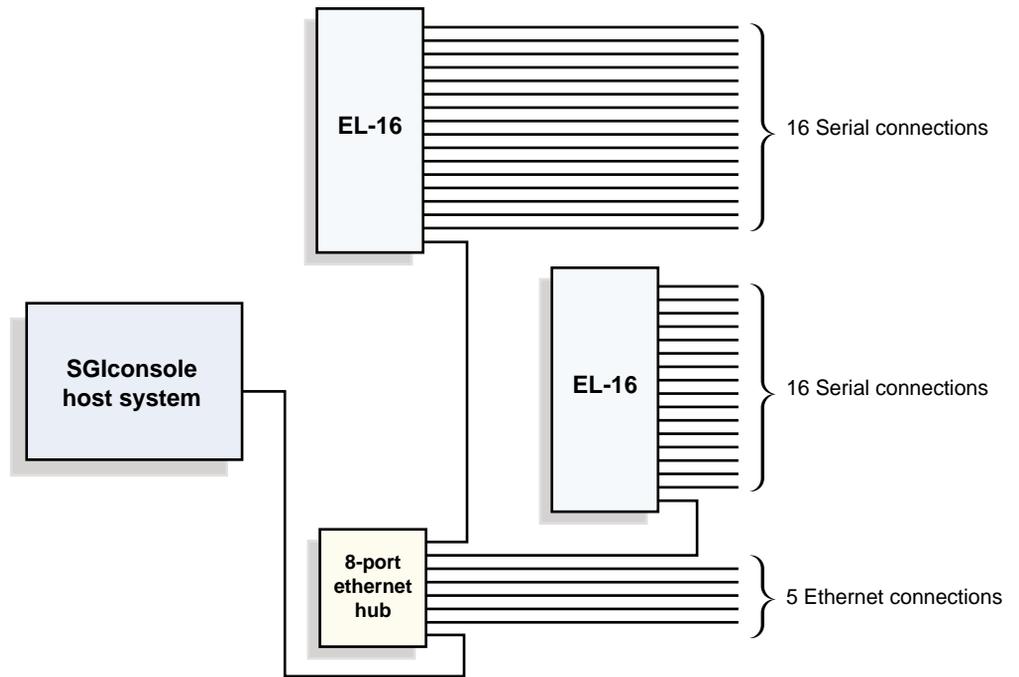


Figure 2-9 Sample Cabling Configuration: One Ethernet Hub, Two Serial Port Servers

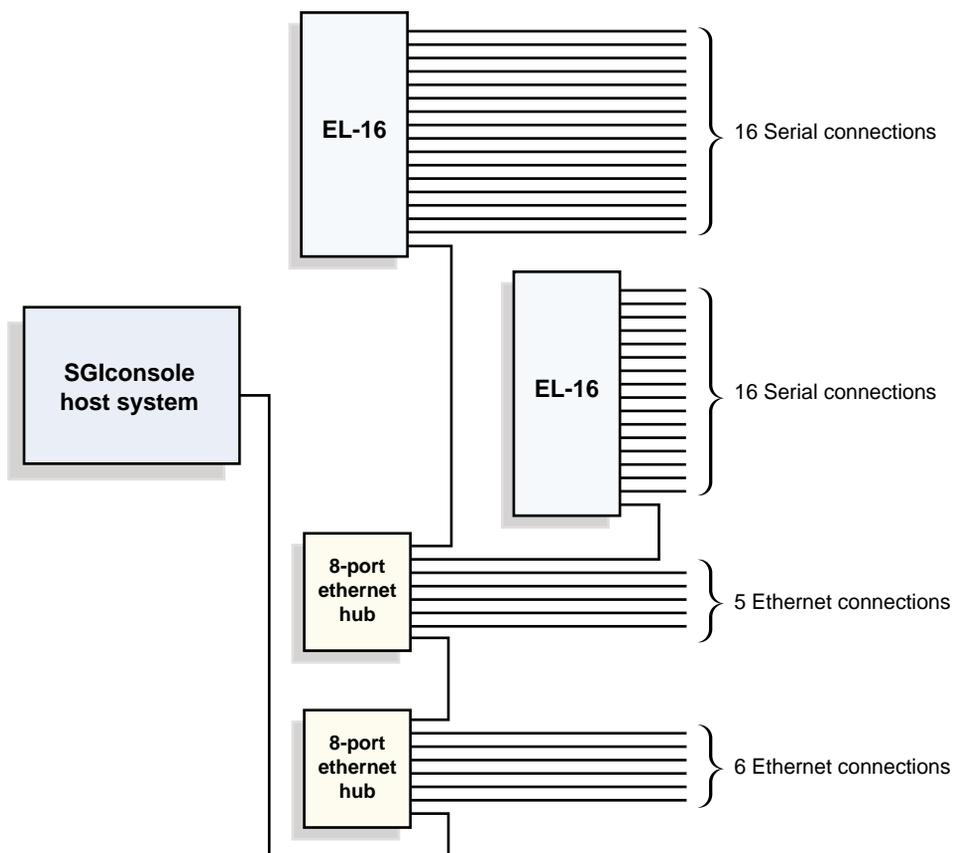


Figure 2-10 Sample Cabling Configuration: Two Ethernet Hubs, Two Serial Port Servers

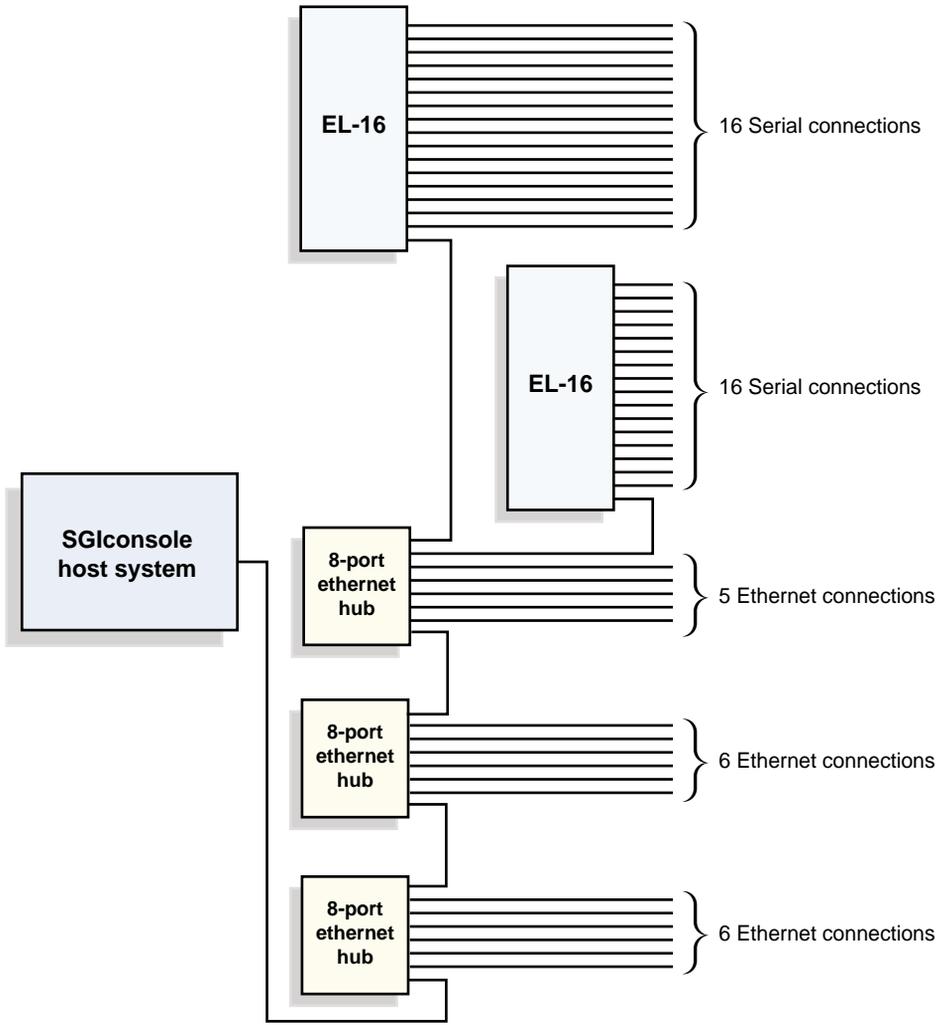


Figure 2-11 Sample Cabling Configuration: Three Ethernet Hubs, Two Serial Port Servers

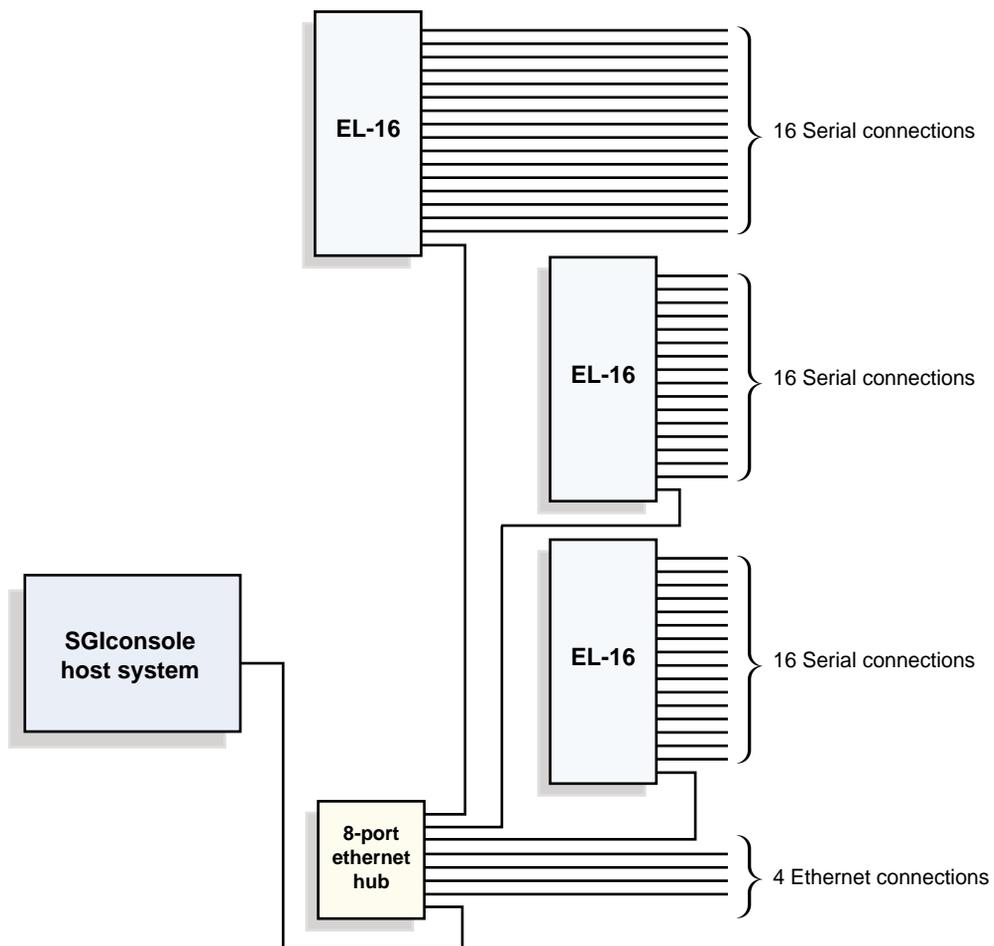


Figure 2-12 Sample Cabling Configuration: One Ethernet Hub, Three Serial Port Servers

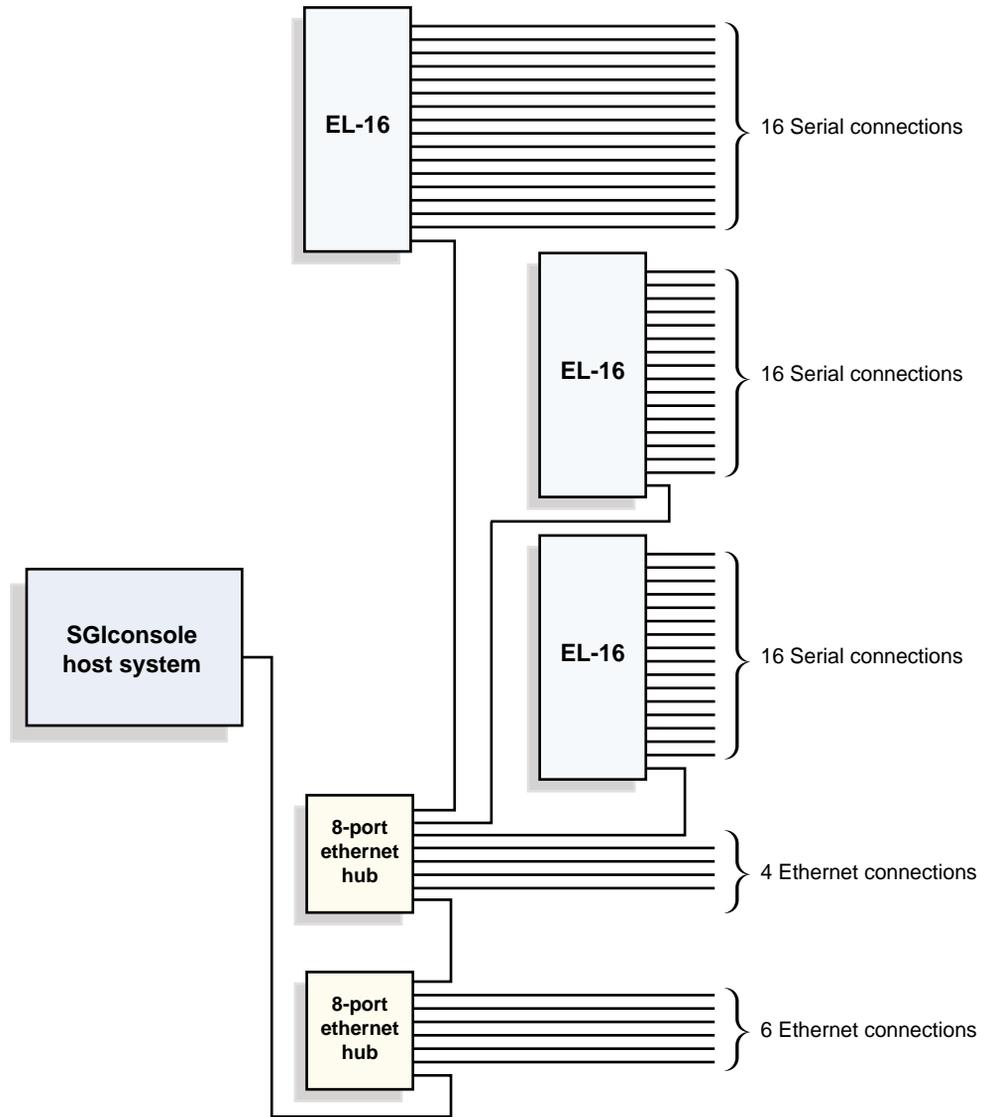


Figure 2-13 Sample Cabling Configuration: Two Ethernet Hubs, Three Serial Port Servers

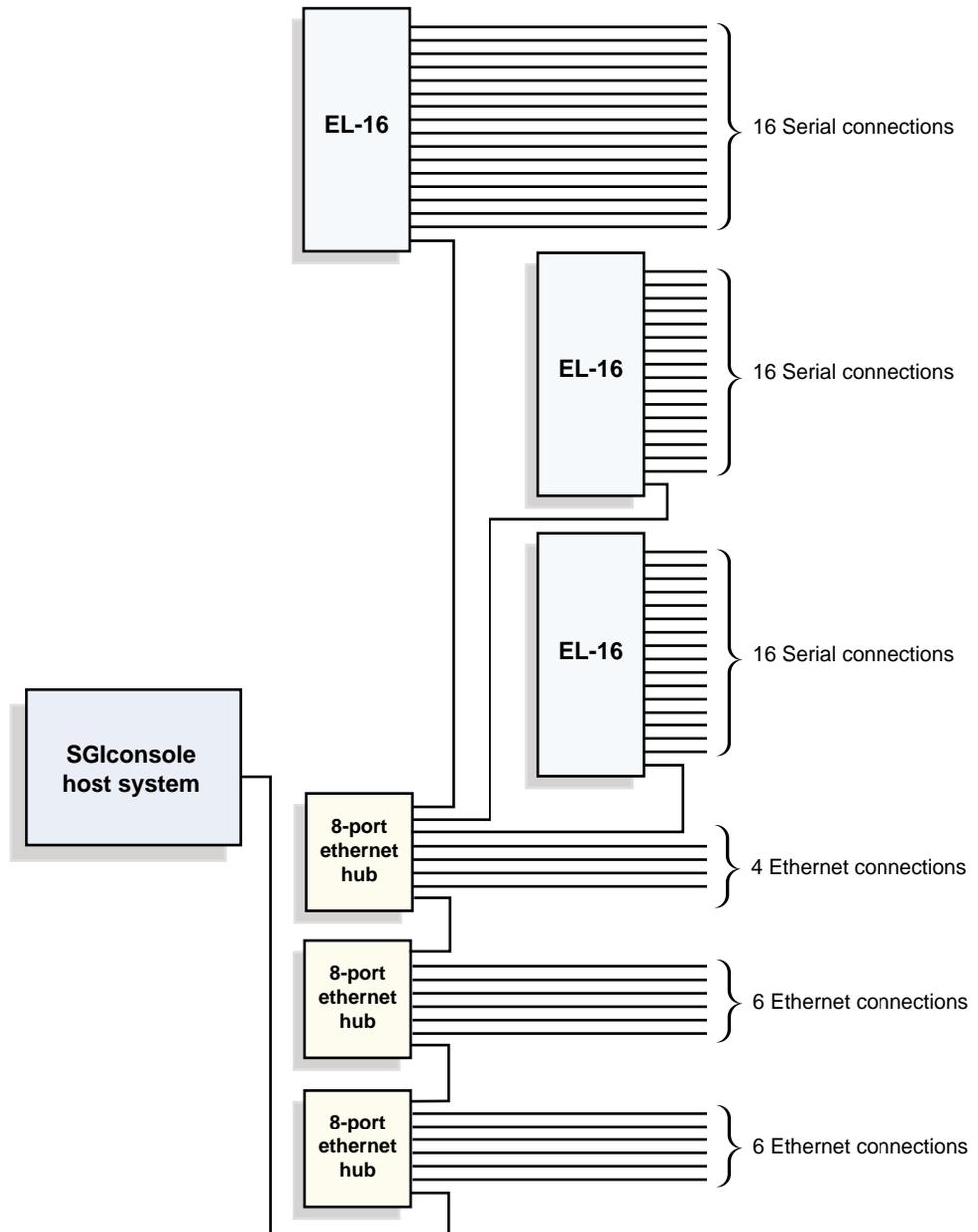


Figure 2-14 Sample Cabling Configuration: Three Ethernet Hubs, Three Serial Port Servers

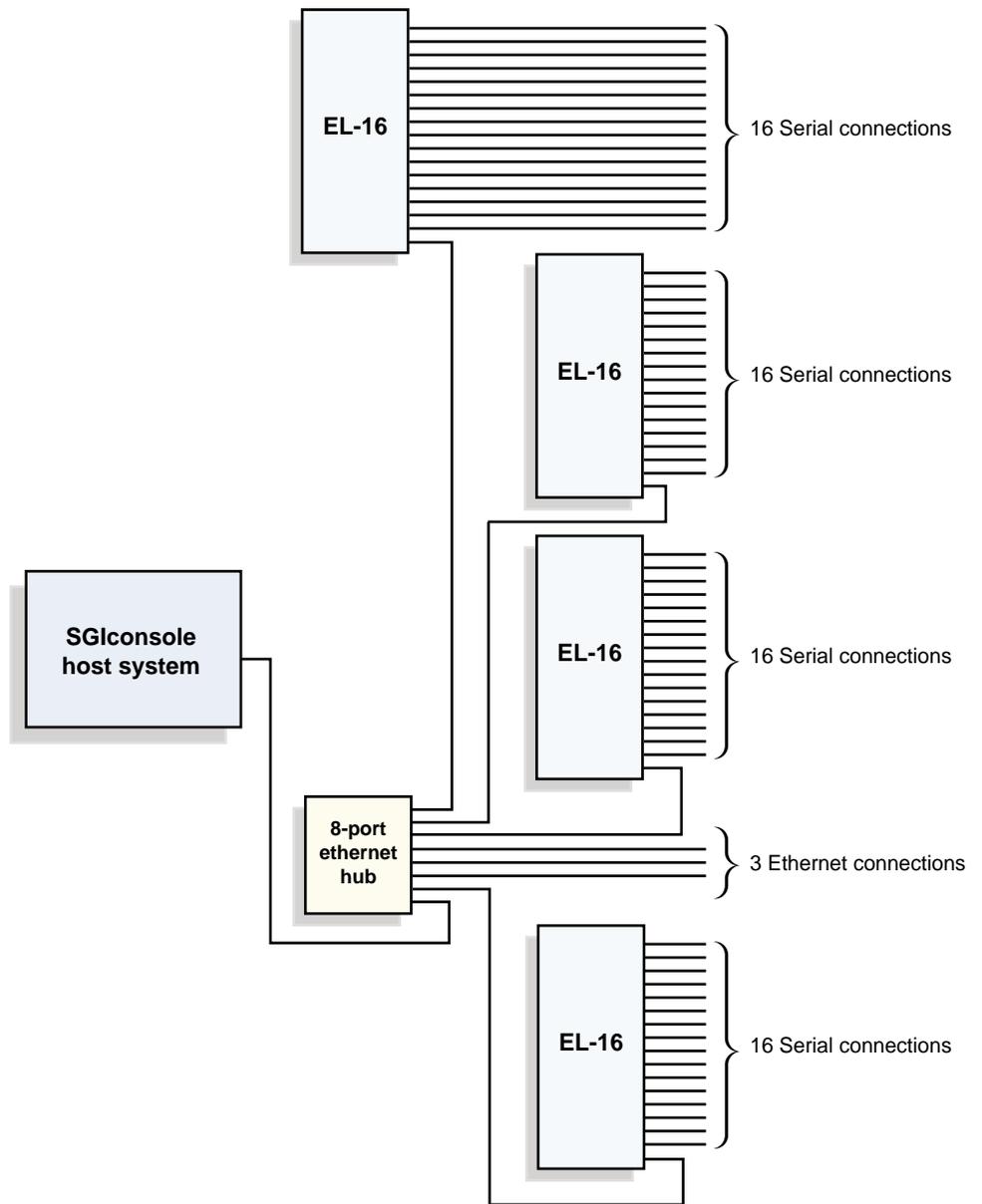


Figure 2-15 Sample Cabling Configuration: One Ethernet Hub, Four Serial Port Servers

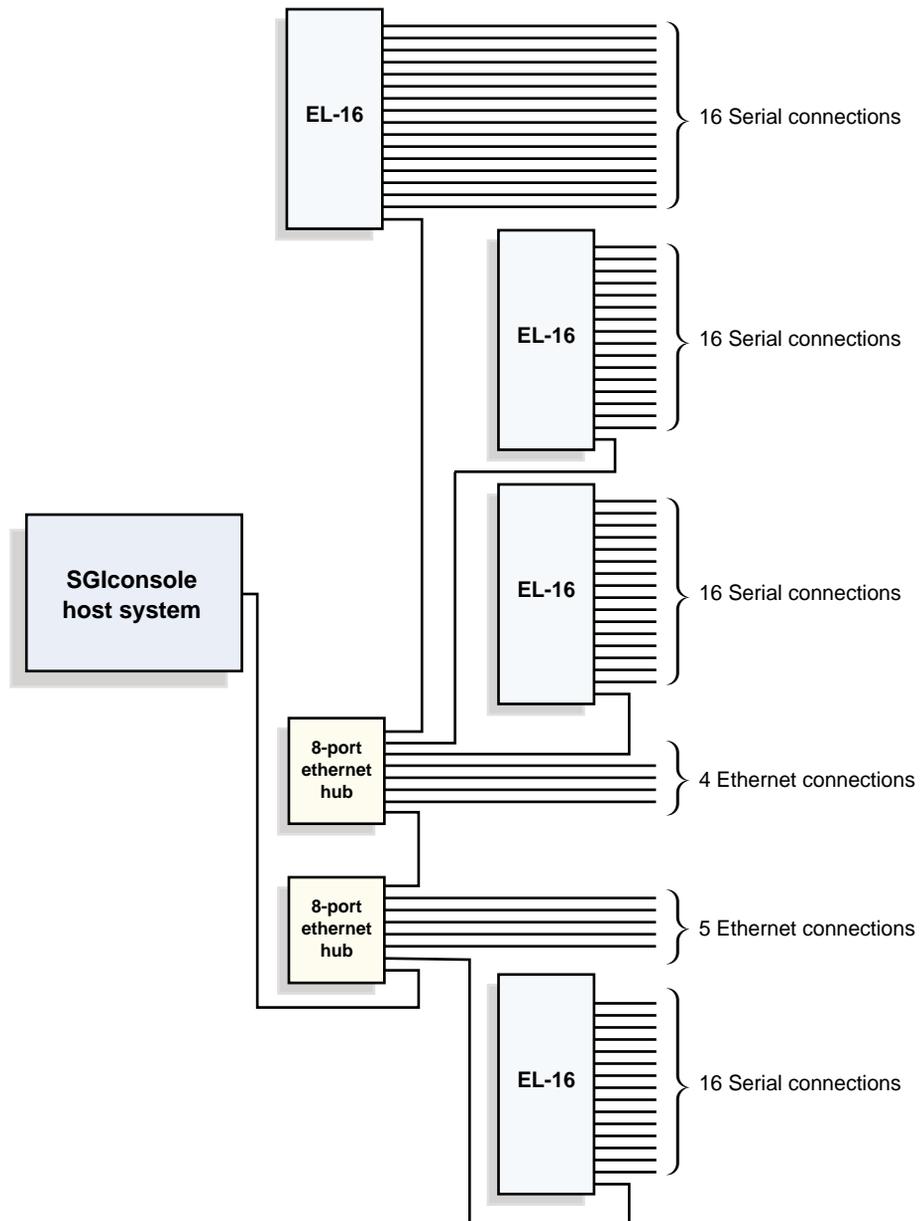


Figure 2-16 Sample Cabling Configuration: Two Ethernet Hubs, Four Serial Port Servers

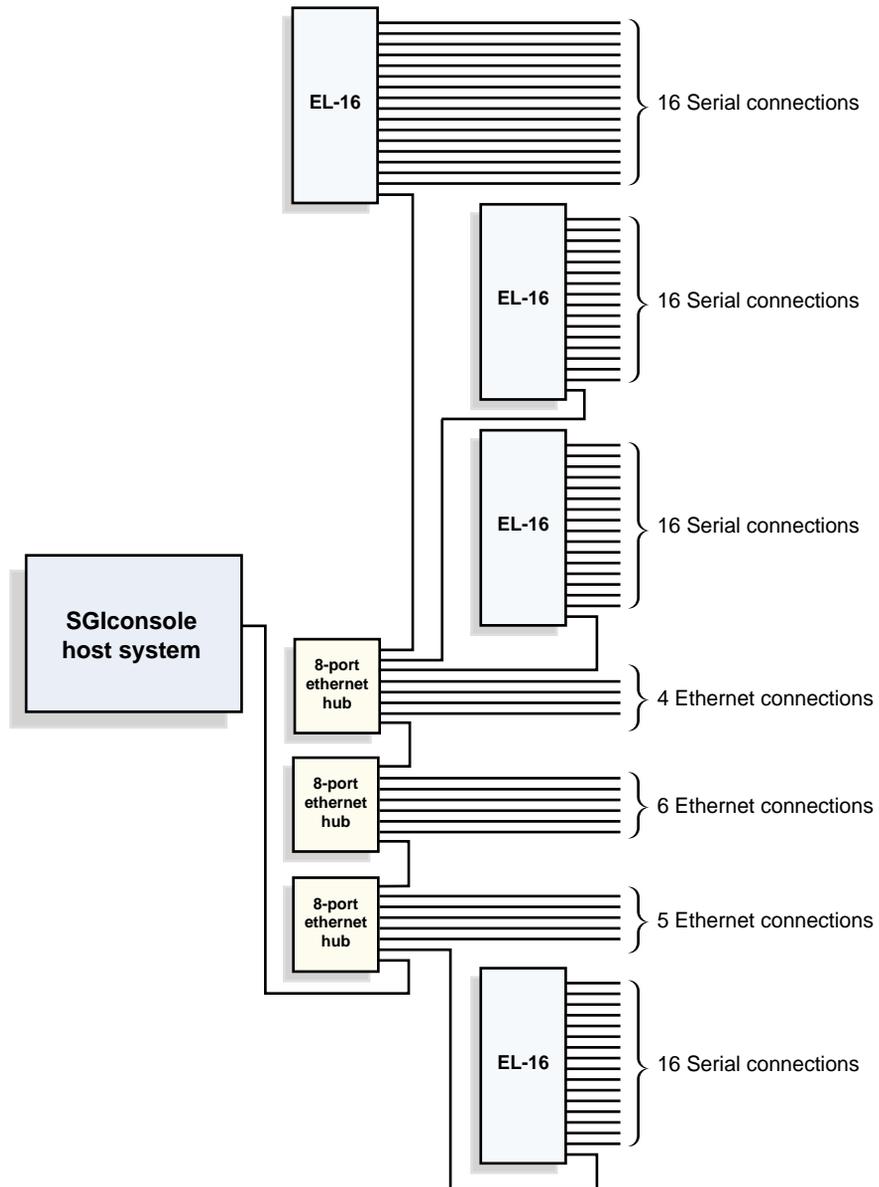


Figure 2-17 Sample Cabling Configuration: Three Ethernet Hubs, Four Serial Port Servers

Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers

This chapter provides a description of the steps you must follow to set up the SGIconsole host system to manage and monitor all the servers and graphics systems it supports.

This information is covered in the following sections:

- “Preparing the SGIconsole Host System” on page 28
- “Connecting One or More Ethernet Hubs to the SGIconsole” on page 34
- “Connecting One or More Serial Port Servers to the SGIconsole” on page 38

Preparing the SGIconsole Host System

The SGIconsole software runs on a host system meeting certain basic requirements. This section lists these requirements, then describes setting up the host system.

Selecting a Host System for SGIconsole

SGI has tested the SGIconsole software on the following host systems:

- Dell Latitude D600 laptop
- SGI 1100 1U rack-mount server
- SGI 230 Visual Workstation
- SGI 330 Visual Workstation
- SGI 550 Visual Workstation
- Dell PowerEdge 650 1U rack-mount server
- Dell Latitude C640 laptop

Note: For more information on tested systems, please see Appendix C, “Tested Host Systems”.

Though compatibility can only be guaranteed with these tested systems, the SGIconsole software should run on any system that meets the following minimum requirements:

- An Intel Pentium III or later CPU, (1 GHz or higher recommended)
- A minimum of 512 Megabytes RAM or more recommended, especially if more than 32 systems will be managed)
- A minimum of 500 Megabytes of available hard disk space (after OS overhead)
- A CD-ROM drive
- A 3.5” floppy drive
- A minimum display resolution of 800x600 (1024x768 or higher recommended)
- Two Ethernet ports, each capable of both 10-BaseT and 100-BaseT
- Must run Red Hat Enterprise Linux ES or WS 3.0 distribution

Setting up the SGIconsole Host System

To set up a host system for your SGIconsole software, follow these steps:

1. Gather the host server (the hardware on which the SGIconsole software runs), the cables you received to connect the SGIconsole hardware to the server and graphics systems it will manage and monitor, the documentation, and other items you received to set up your SGIconsole. (See “Additional Documentation” on page xviii for a listing of documents you may need to set up the SGIconsole.)
2. If the host server is not already installed, using the documentation that came with your host server, install it in a location that enables you to easily connect it to the servers and graphic systems it will manage and monitor.

Caution: To assure a smooth installation of your SGIconsole, please do not power on your SGIconsole until you are instructed to do so.

Caution: Before connecting the SGIconsole host system to either a 120 VAC or 220 VAC outlet, be sure that the electrical rating on the UL-CSA label is in either the 100-120 VAC range or the 200-240 VAC range, whichever applies. In locations without either a 120 VAC or 220 VAC outlet, contact your hardware supplier before connecting the power cable.

3. Proceed to “Connecting a Local Monitor, Keyboard, and Mouse to the SGIconsole Host” on page 30.

Connecting a Local Monitor, Keyboard, and Mouse to the SGIconsole Host

This section describes how to connect a monitor, keyboard, and mouse to a tested SGIconsole host legacy system at the site where the host system and the servers and graphics systems reside. This gives you the option of monitoring and managing your servers and graphics systems at the local site. SGIconsole laptop host systems (such as the Dell D600) will not require connection of keyboard, mouse, or monitor.

You will need a local monitor, keyboard, and mouse connected to most legacy SGIconsoles to perform the software configuration of your SGIconsole. If you do not want these items, disconnect them only after you have performed all the software configuration of the SGIconsole.

Note: The instructions presented here are, by necessity, general. Different host systems will have different connection requirements. Laptops, in particular, may be significantly different than what is described in this section. For more specific information, see the documentation that came with your host system.

To connect a monitor, keyboard, and mouse to the SGIconsole host system, see Figure 3-1 as you follow these steps:

1. Make sure that the power switch on your SGIconsole host system is off and that the host system and the monitor are disconnected from the power source.
2. Using the cable that comes with your monitor, connect one of the DB-15HD connectors to the VGA port on the SGIconsole host system. Connect the other end of this cable to the connector designated by your monitor documentation (in some cases, the other end will be permanently attached to the monitor).
3. Connect the keyboard cable to the PS/2 keyboard port on the SGIconsole host system.
4. Connect the mouse cable to the PS/2 mouse port on the SGIconsole host system.
5. Connect the monitor to a power source.
6. Proceed to “Controlling SGIconsole from a Remote Workstation” on page 32.

Note: If the local monitor, keyboard, and mouse will be located more than a few feet from the SGIconsole host system, and if your SGIconsole host system uses standard PS/2-style cables, use SGI cable extension kit DM-KBD-EXT-025-SU to extend these cables by 25 feet (7.5 meters). See Table A-2 on page 129 for details.

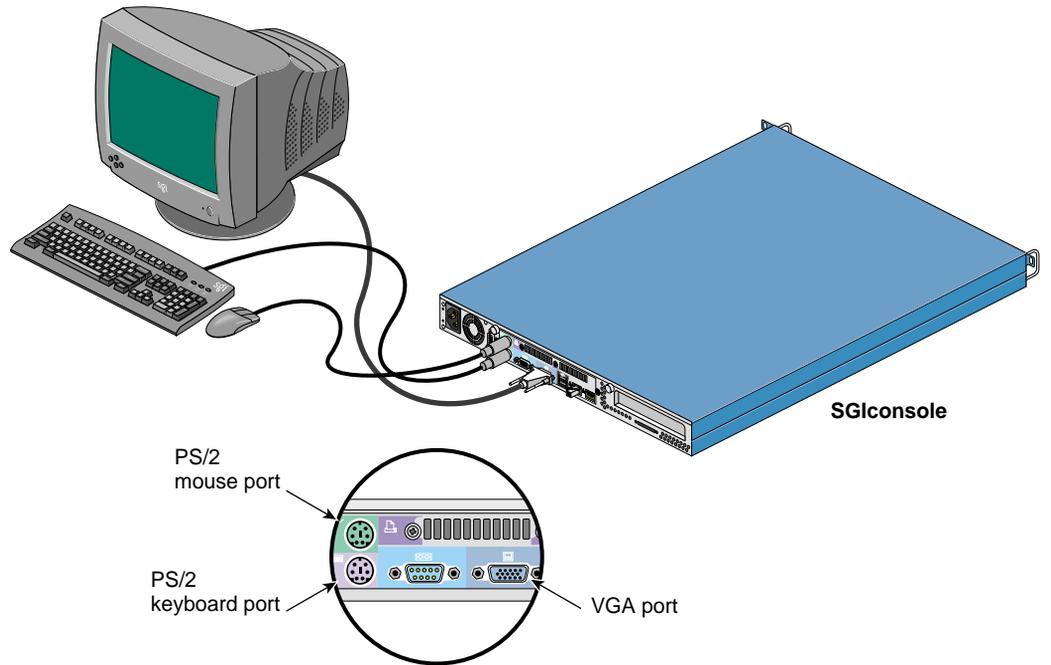


Figure 3-1 Connecting a Local Monitor, Keyboard, and Mouse to an SGI 1100 Server Host System

Controlling SGIconsole from a Remote Workstation

In addition to running and viewing Console Manager on the SGIconsole host system, you may also monitor and manage your servers and graphics systems using a remote workstation.

There are two methods of controlling SGIconsole from a remote workstation. The first method is to run the Console Manager GUI client on the remote workstation. This method is preferred, as it uses the least network bandwidth. The GUI client can be installed on workstations running selected versions of IRIX, Microsoft Windows, or Linux. For further details and system requirements, see the *Console Manager for SGIconsole Administrator's Guide* (SGI part number 007-4477-00x) or the SGIconsole README file.

The second method is to run the Console Manager on the SGIconsole host system and to remote-display it to a workstation running an X Windows server. This method, however, can use significant network bandwidth. The remote workstation can be an SGI system running an appropriate version of IRIX or an Intel-based system running an appropriate version of Linux. Again, for further details and system requirements, see the *Console Manager for SGIconsole Administrator's Guide* (SGI part number 007-4477-00x) or the SGIconsole README file.

Follow the steps in this section and see the example in Figure 3-2 on page 33 to connect a remote workstation to the SGIconsole.

1. Prepare your remote workstation according to the instructions in your workstation's owner's guide.
2. Connect your remote workstation to the general Ethernet.
3. Connect the SGIconsole to the general Ethernet by using a standard twisted-pair RJ-45 to RJ-45 Ethernet cable (for example, SGI part number 018-0830-001) to connect the SGIconsole's **LAN 1** port (RJ-45 jack) to your local area network.
4. Proceed to "Connecting One or More Ethernet Hubs to the SGIconsole" on page 34.

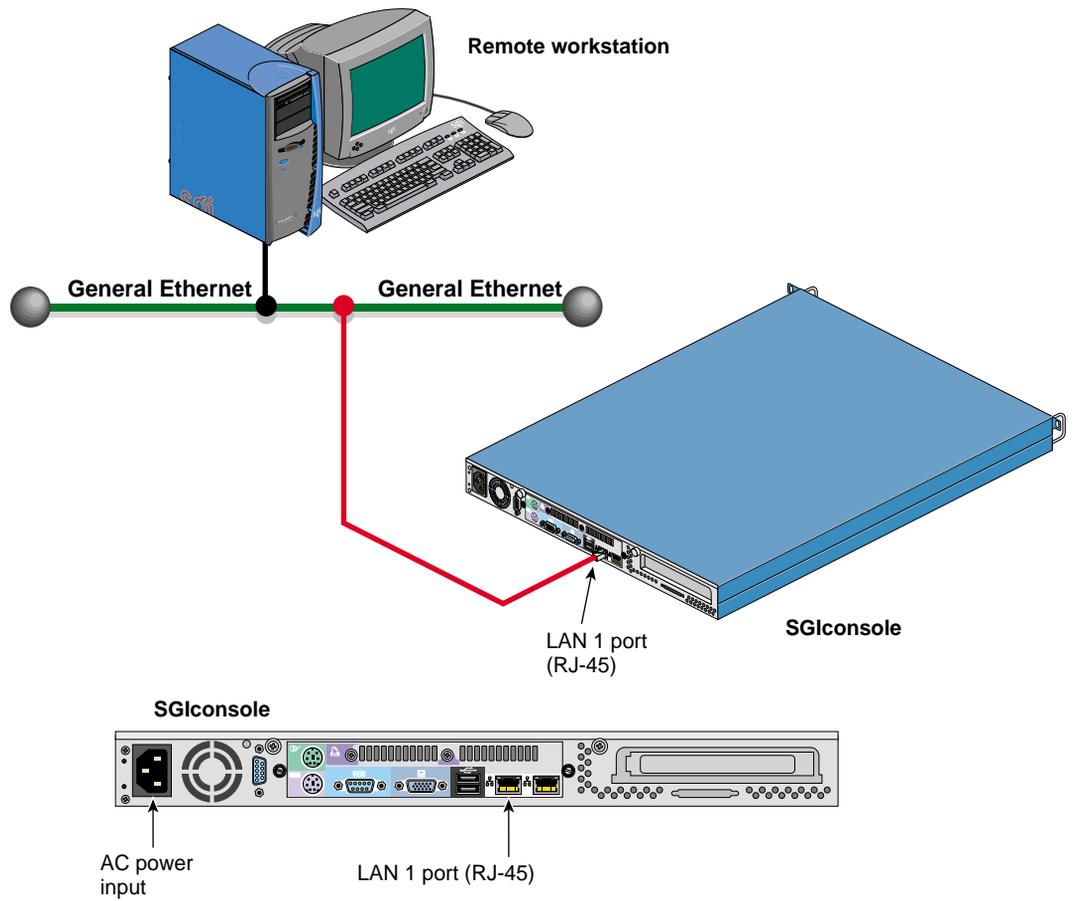


Figure 3-2 Example Connection of Remote Workstation to SGIconsole

Connecting One or More Ethernet Hubs to the SGIconsole

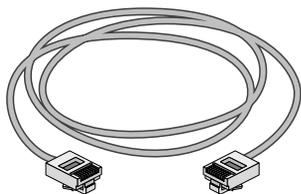
This section describes how to connect one or more Ethernet hubs to an SGIconsole host system.

Before connecting the Ethernet hubs, you should first have determined how many such hubs you will need, as described in “Determining Ethernet Hub and Serial Port Server Requirements” on page 7.

Connecting the First Ethernet Hub to the SGIconsole Host System

To connect the first Ethernet hub to SGIconsole host system, follow these steps:

1. Make sure that the power switch on your SGIconsole host system is off and that the SGIconsole host system and the Ethernet hub are disconnected from a power source.
2. Make sure that you have a standard RJ-45 to RJ-45 twisted-pair Ethernet cable (10 feet (3 meters), part number 018-0830-001), as shown in Figure 3-3, to make your cabling connections to one Ethernet hub. If you are connecting the SGIconsole to multiple Ethernet hubs, you need one standard RJ-45 to RJ-45 twisted-pair Ethernet cable for each additional hub you are connecting.



Standard RJ-45 twisted-pair cable

Figure 3-3 Items Needed to Connect SGIconsole to One Ethernet Hub

3. Connect one end of one of the standard RJ-45 Ethernet cables to the **LAN 2** port RJ-45 jack (the rightmost RJ-45 jack) on your SGIconsole host system. Connect the other end of the RJ-45 cable to an RJ-45 jack on the Ethernet hub. Figure 3-4 and Figure 3-5 show the SGIconsole connected to the leftmost jack of the Ethernet hub. If you are going to use the leftmost Ethernet hub jack to connect to the SGIconsole, make sure that the Uplink button (next to the leftmost jack) is set to **Normal** (not pushed in).
4. Connect the Ethernet hub to an appropriate power source.

Note: Ensure that the power source voltage is appropriate for the Ethernet hub.

5. If you will be connecting additional Ethernet hubs, proceed to “Connecting Additional Ethernet Hubs to the SGIconsole Host System” on page 35. Otherwise, proceed to “Connecting One or More Serial Port Servers to the SGIconsole” on page 38.

Connecting Additional Ethernet Hubs to the SGIconsole Host System

To connect additional Ethernet hubs to your SGIconsole host system, follow these steps:

1. Connect one end of a standard RJ-45 cable to one of the remaining RJ-45 jacks on the first Ethernet hub. Connect the other end of the RJ-45 cable to an RJ-45 jack on the additional Ethernet hub. Figure 3-4 shows the additional Ethernet hubs connected via their leftmost jacks.
2. Repeat Step 1 for each additional Ethernet hub you will be connecting.

Note: When cascading Ethernet hubs (that is, connecting an Ethernet hub to another Ethernet hub), using a standard RJ-45 to RJ-45 twisted-pair cable (10 feet (3 meters), part number 018-0830-001), as you face the jacks, connect one end of the cable to the leftmost jack (uplink port) of the secondary Ethernet hub. Connect the other end of the cable to any RJ-45 jack available on the primary Ethernet hub, which is connected to the SGIconsole. Make sure that the Uplink button located next to the leftmost jack of the secondary Ethernet hub is set to **Uplink** (button is pushed in).

Hint: For more information about the use of standard and crossover twisted-pair Ethernet cables, see “Standard Versus Crossover Ethernet Cables” on page 138.

3. Connect the Ethernet hubs to an appropriate power source.

Note: Ensure that the power source voltage is appropriate for the Ethernet hubs.

4. Proceed to “Connecting One or More Serial Port Servers to the SGIconsole” on page 38.

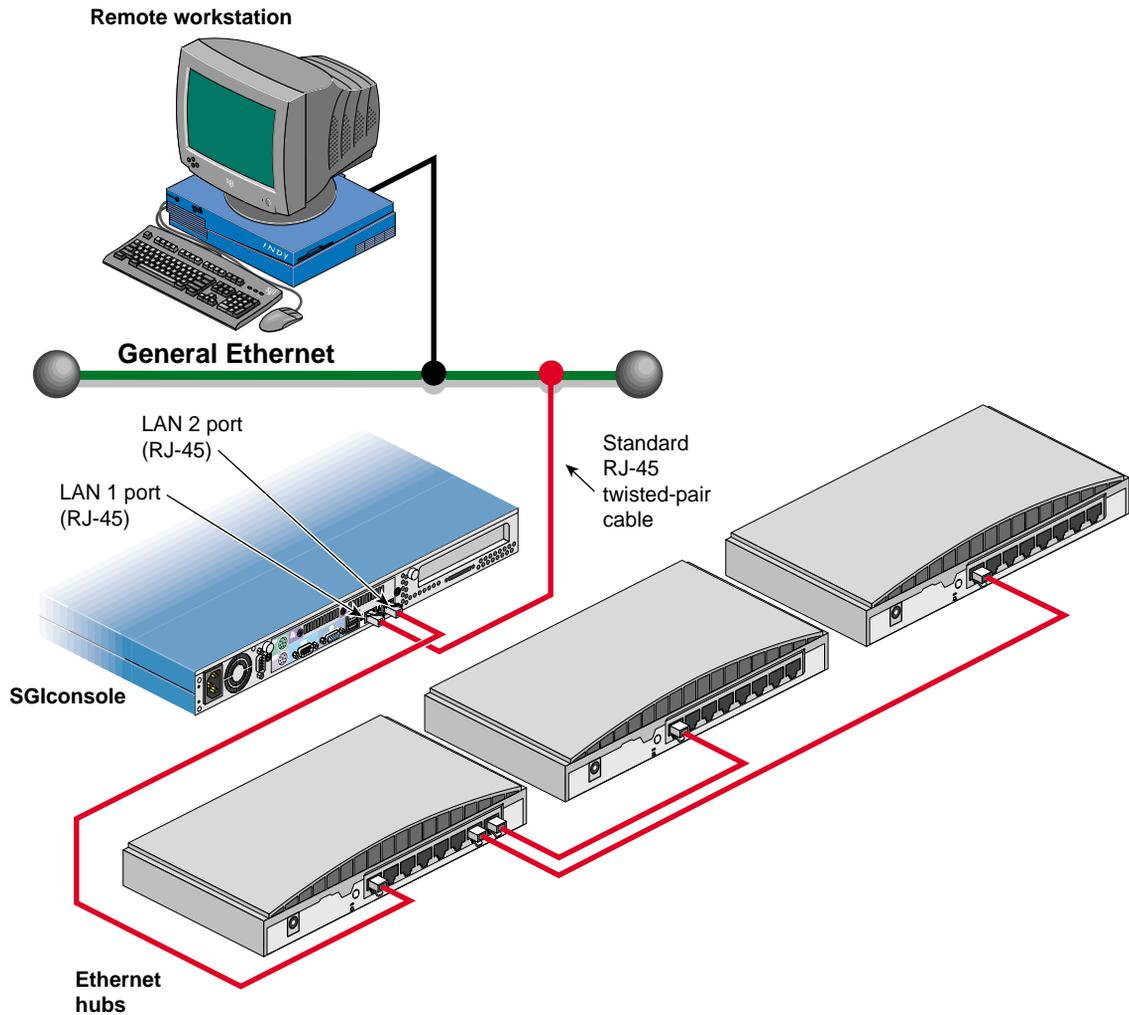


Figure 3-4 Example Connection of SGIconsole to Multiple Ethernet Hubs (SGI 1100 Shown)

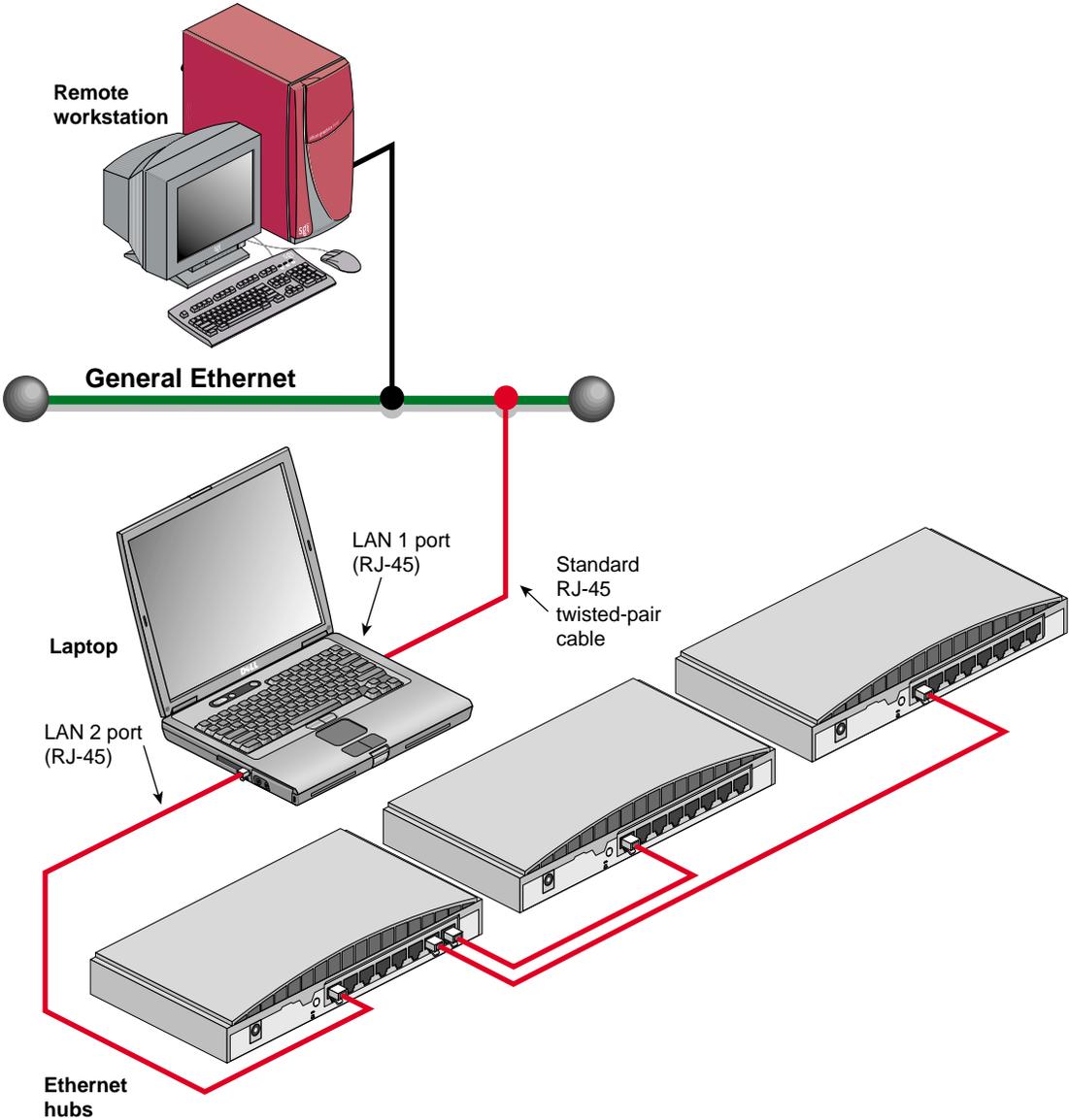


Figure 3-5 Example Connection of SGIconsole to Multiple Ethernet Hubs (Laptop Shown)

Connecting One or More Serial Port Servers to the SGIconsole

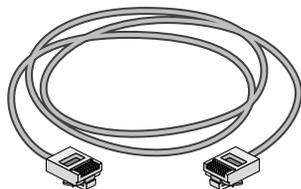
This section describes how to connect one or more serial port servers to an SGIconsole host system.

Before connecting the serial port servers, you should first have determined how many such hubs you will need, as described in “Determining Ethernet Hub and Serial Port Server Requirements” on page 7, and connected any needed Ethernet hubs, as described in “Connecting One or More Ethernet Hubs to the SGIconsole” on page 34.

Connecting the Serial Port Servers to the SGIconsole Host System

To connect the a serial port server to the SGIconsole host system, follow these steps:

1. Make sure that the power switch on your SGIconsole host system is off and that the SGIconsole host system, the Ethernet hub, and the serial port server are disconnected from a power source.
2. Make sure that you have a crossover RJ-45 to RJ-45 twisted-pair Ethernet cable (10 feet (3 meters), part number 018-0830-001), as shown in Figure 3-6, to make your cabling connections to one serial port server. If you are connecting multiple serial port servers to the SGIconsole, you need one crossover RJ-45 to RJ-45 twisted-pair Ethernet cable for each additional serial port server you are connecting.



Crossover RJ-45 twisted-pair cable

Figure 3-6 Items Needed to Connect SGIconsole to One Serial Port Server

3. Connect one end of the crossover RJ-45 cable to an RJ-45 jack on one of the Ethernet hubs, and connect the other end to the leftmost RJ-45 jack on the Silicon Graphics EL serial port server. See Figure 3-7.

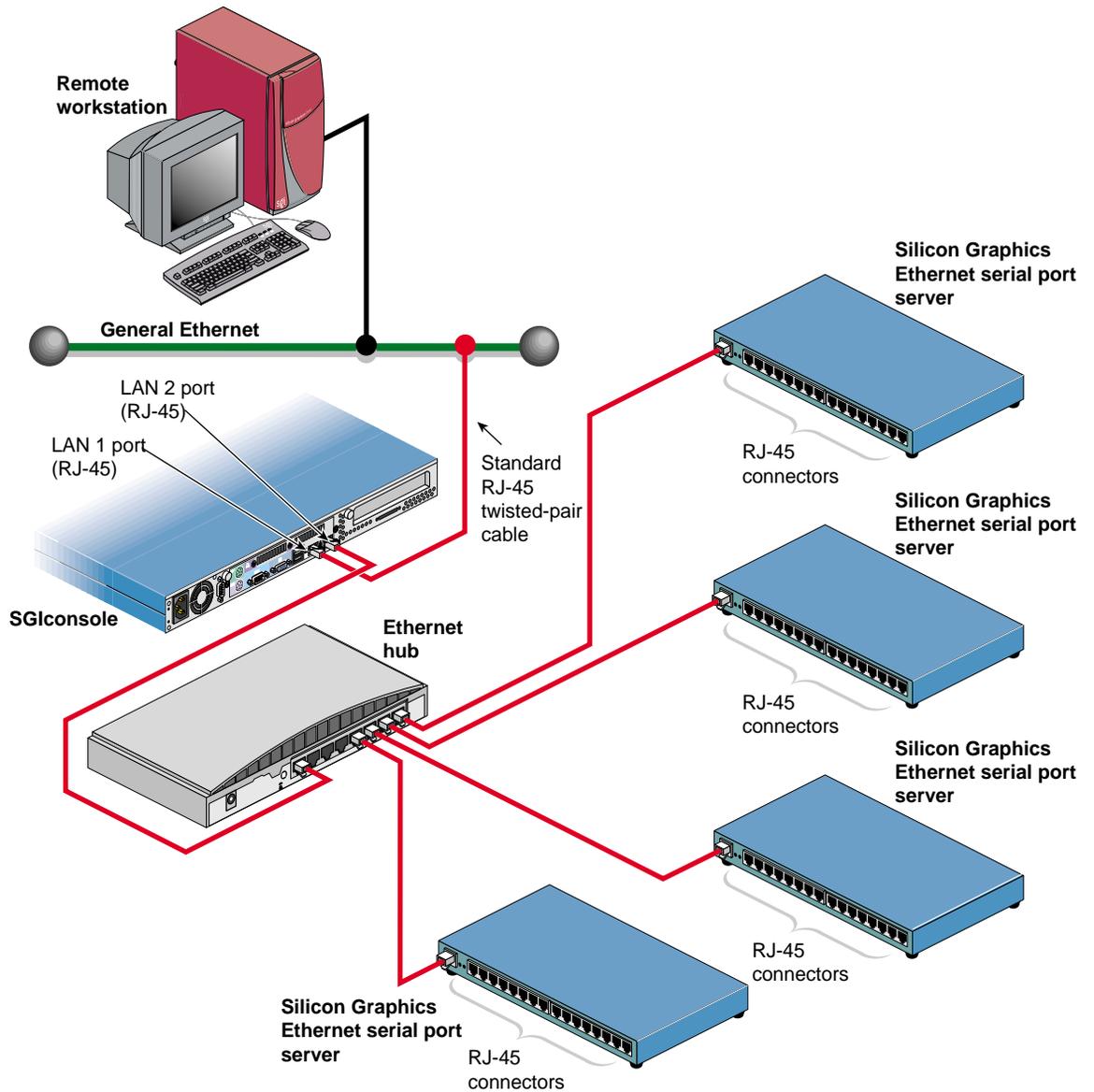


Figure 3-7 Example Connection of Serial Port Servers to an SGIconsole via an Ethernet Hub

Note: If you will be using just one serial port server and no Ethernet hubs, you would instead connect one end of the crossover RJ-45 cable to the **LAN 2** port RJ-45 jack on your SGIconsole, and connect the other end to the leftmost RJ-45 jack on the Silicon Graphics EL serial port server. See Figure 3-8.

4. Connect the serial port server to an appropriate power source.

Note: Ensure that the power source voltage is appropriate for the serial port server.

5. If you will be connecting additional serial port servers, repeat steps 1 through 4. Otherwise, proceed to “Powering-Up Your SGIconsole Host System” on page 42.

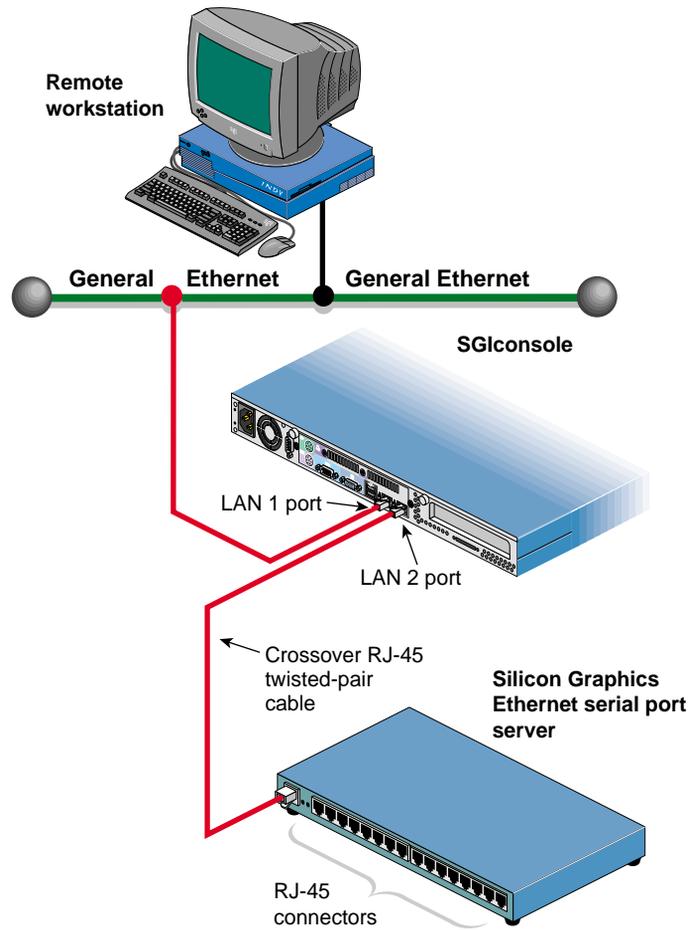


Figure 3-8 Connecting a Serial Port Server to an SGIconsole Host System with no Ethernet Hub

Powering-Up Your SGIconsole Host System

Once you have connected all required Ethernet hubs and serial port servers to your SGIconsole host system, you can power up all the devices, as described in this section.

Caution: Before connecting the SGIconsole host system to either a 120 VAC or 220 VAC outlet, be sure that the electrical rating on the UL-CSA label is in either the 100-120 VAC range or the 200-240 VAC range, whichever applies. In locations without either a 120 VAC or 220 VAC outlet, contact your hardware supplier before connecting the power cable.

1. Power on your SGIconsole according to the instructions in that came with your host system.
2. Power on your Ethernet hubs.
3. Power on your serial port servers.
4. Proceed to Chapter 4, “Connecting Managed Systems to SGIconsole via Ethernet.”

Connecting Managed Systems to SGIconsole via Ethernet

This chapter provides a description of the steps you must follow to connect managed systems to SGIconsole via Ethernet.

Before following the steps detailed in this Chapter, it is necessary to set up the SGIconsole host system and Ethernet hub(s) as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”

For managed systems that connect to SGIconsole via serial port server, see Chapter 5, “Connecting Managed Systems to SGIconsole via Serial Ports.”

This chapter describes detailed steps to connect the SGIconsole to the following SGI servers and graphics systems:

- “Connecting SGI Origin 300 and Origin 350 Servers with NUMALink Module to SGIconsole” on page 44
- “Connecting SGI Origin 3000 Series Servers With L2 Controllers to SGIconsole” on page 48
- “Connecting SGI Onyx 3000 Series Graphics Systems to SGIconsole” on page 54
- “Connecting SGI Altix 3000 Series Servers (With L2) to SGIconsole” on page 55

Connecting SGI Origin 300 and Origin 350 Servers with NUMAlink Module to SGIconsole

If you will be connecting one or more SGI Origin 300 or Origin 350 servers with NUMAlink Modules to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting SGI Origin 3000 Series Servers With L2 Controllers to SGIconsole” on page 48.

Note: SGI Origin 300 servers, Origin 350 servers, Onyx 300 graphics systems, and Onyx 350 graphics systems without a NUMAlink module are managed via serial connection, as described in Chapter 5, “Connecting Managed Systems to SGIconsole via Serial Ports.”

Methods for connecting an SGI Origin 300 server with NUMAlink Module or an Origin 350 server with NUMAlink Module to an SGIconsole are identical. Figure 4-1 shows the connection of three SGI Origin 300 and Origin 350 servers with NUMAlink Modules through an Ethernet hub to an SGIconsole.

Note: In order for your SGIconsole to operate successfully with your Origin 300 or Origin 350 servers with NUMAlink Module, your servers must be running L1 firmware revision 1.18.0 or later.

Note: If you connect to one or more partitioned systems (such as partitioned SGI Origin 300 or 3000 series servers), each partitioned system needs only one hardware connection. This is true regardless of the number of partitions into which the system is configured.

Note: In connecting a managed system to your SGIconsole you may want to consult the user’s guide for the managed system, which describes how to set up and use that particular system.

Caution: Before connecting the SGIconsole host system to either a 120 VAC or 220 VAC outlet, be sure that the electrical rating on the UL-CSA label is in either the 100-120 VAC range or the 200-240 VAC range, whichever applies. In locations without either a 120 VAC or 220 VAC outlet, contact your SGI system support engineer before connecting the power cable.

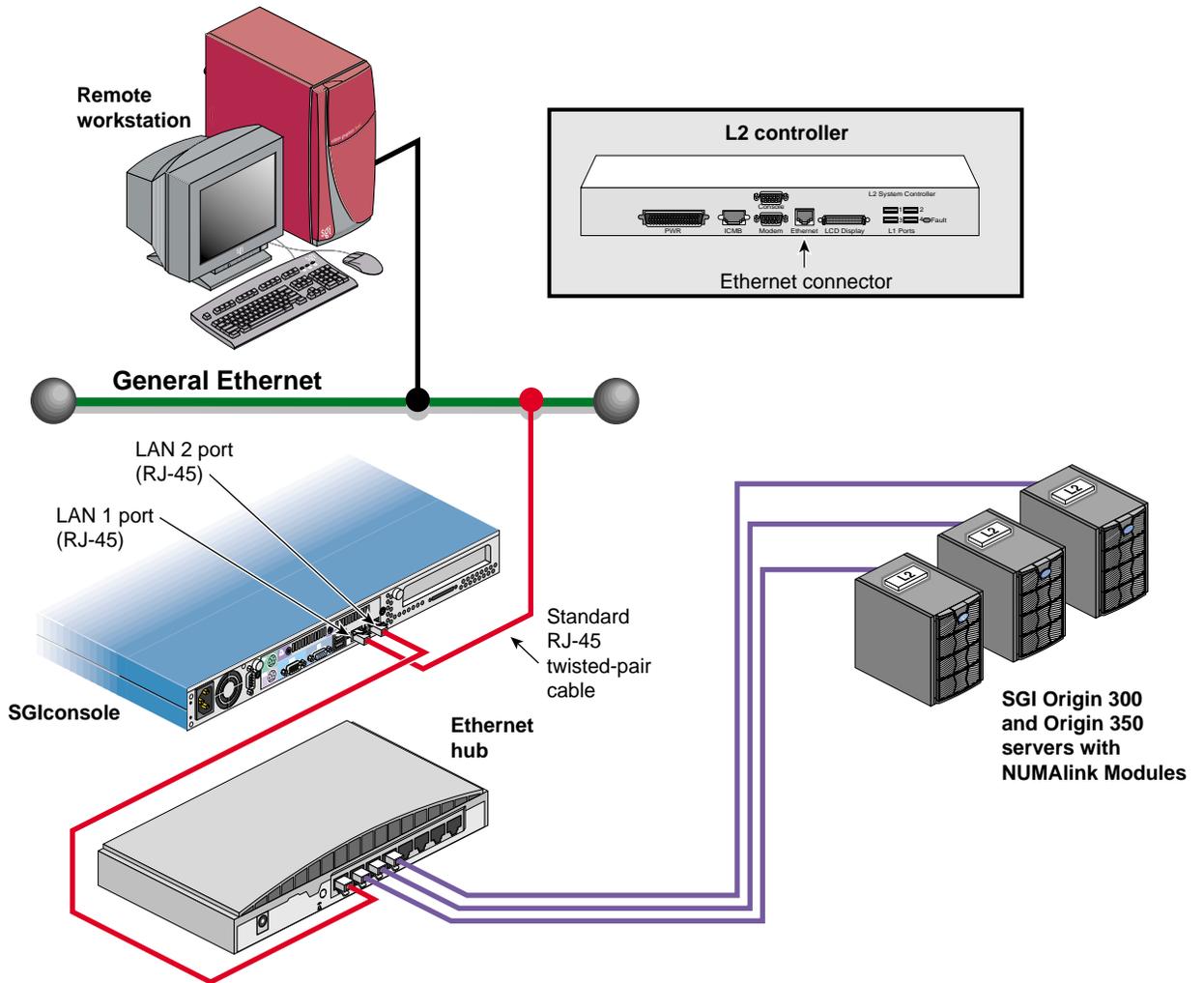
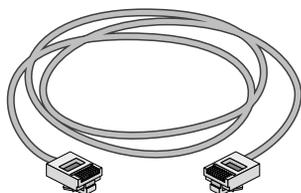


Figure 4-1 Connecting SGI Origin 300 and Origin 350 Servers with NUMalink Modules to an SGIconsole (SGI 1100 shown)

To connect an SGI Origin 300 or Origin 350 server with NUMAlink Module to the SGIconsole, follow these steps:

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole and the Ethernet hub are disconnected from a power source.
4. Make sure that the SGI Origin 300 or Origin 350 server which you are connecting to the SGIconsole is powered off according to the instructions in *SGI Origin 300 User’s Guide* or *SGI Origin 350 User’s Guide*.
5. Make sure that you have a standard RJ-45 to RJ-45 twisted-pair Ethernet cable (10 feet (3 meters), part number 018-0830-001), as shown in Figure 4-2, to make your cabling connections to one server. If you are connecting multiple servers to the SGIconsole, you need one standard RJ-45 to RJ-45 twisted-pair Ethernet cable for each additional server you are connecting.



Standard RJ-45 twisted-pair cables

Figure 4-2 Items Needed to Connect an SGI Origin 300 or Origin 350 Server with NUMAlink Module to SGIconsole

- Connect one end of the standard RJ-45 cable to one of the RJ-45 jacks on the Ethernet hub. Connect the other RJ-45 connector end to the L2 controller's RJ-45 Ethernet jack. See Figure 4-3.

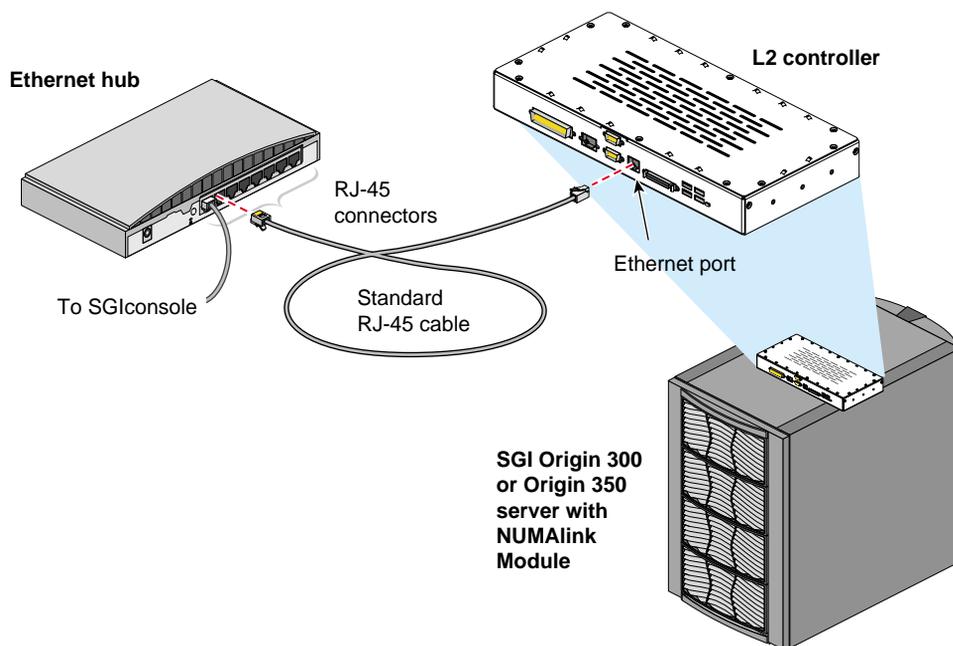


Figure 4-3 Connecting an Origin 300 or Origin 350 Server with NUMalink Module L2 Controller to an Ethernet Hub

- Connect the cables for any other SGI Origin 300 or Origin 350 servers with NUMalink Module at your location as you did in steps 4 through 6.
- If you will be connecting other managed systems to the SGIconsole, proceed to “Connecting SGI Origin 3000 Series Servers With L2 Controllers to SGIconsole” on page 48.
- If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the managed systems, and the SGIconsole host system to a power source.
- Power on all your managed systems according to the instructions in their respective user’s guides.
- Power on your SGIconsole according to the instructions in your host system user’s guide.

Connecting SGI Origin 3000 Series Servers With L2 Controllers to SGIconsole

If you will be connecting one or more SGI Origin 3000 series servers with L2 controllers to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting SGI Onyx 3000 Series Graphics Systems to SGIconsole” on page 54.

Methods for connecting the various SGI Origin 3000 series server with L2 controller to an SGIconsole are identical. Figure 4-4 shows the connection of the following SGI Origin 3000 series servers with L2 controllers through an Ethernet hub to an SGIconsole: the SGI Origin 3200, the SGI Origin 3400, and the SGI Origin 3800.

If you are connecting the SGIconsole to an SGI Origin 3200 server without an L2 controller, refer to “Connecting SGI Origin 3200 Servers Without L2 Controllers to SGIconsole” on page 104. Alternately, you may acquire an L2 controller (part number HU-L2-SYSCTLR) and a USB A to USB B cable (part number 018-0809-001) to connect the L1 USB port on the C-brick to one of the L1 USB ports on the L2 controller. Once these parts are added, you may connect your SGI Origin 3200 server as described in this section.

Note: In order for your SGIconsole to operate successfully with your Origin 3000 series servers, your servers must be running L1 firmware revision 1.18.0 or later.

Note: If you connect to one or more partitioned systems (such as SGI partitioned Origin 300 or 3000 series servers), each partitioned system needs only one hardware connection. This is true regardless of the number of partitions into which the system is configured.

Note: In connecting a managed system to your SGIconsole you may want to consult the user’s guide for the managed system, which describes how to set up and use that particular system.

Caution: Before connecting the SGIconsole host system to either a 120 VAC or 220 VAC outlet, be sure that the electrical rating on the UL-CSA label is in either the 100-120 VAC range or the 200-240 VAC range, whichever applies. In locations without either a 120 VAC or 220 VAC outlet, contact your SGI system support engineer before connecting the power cable.

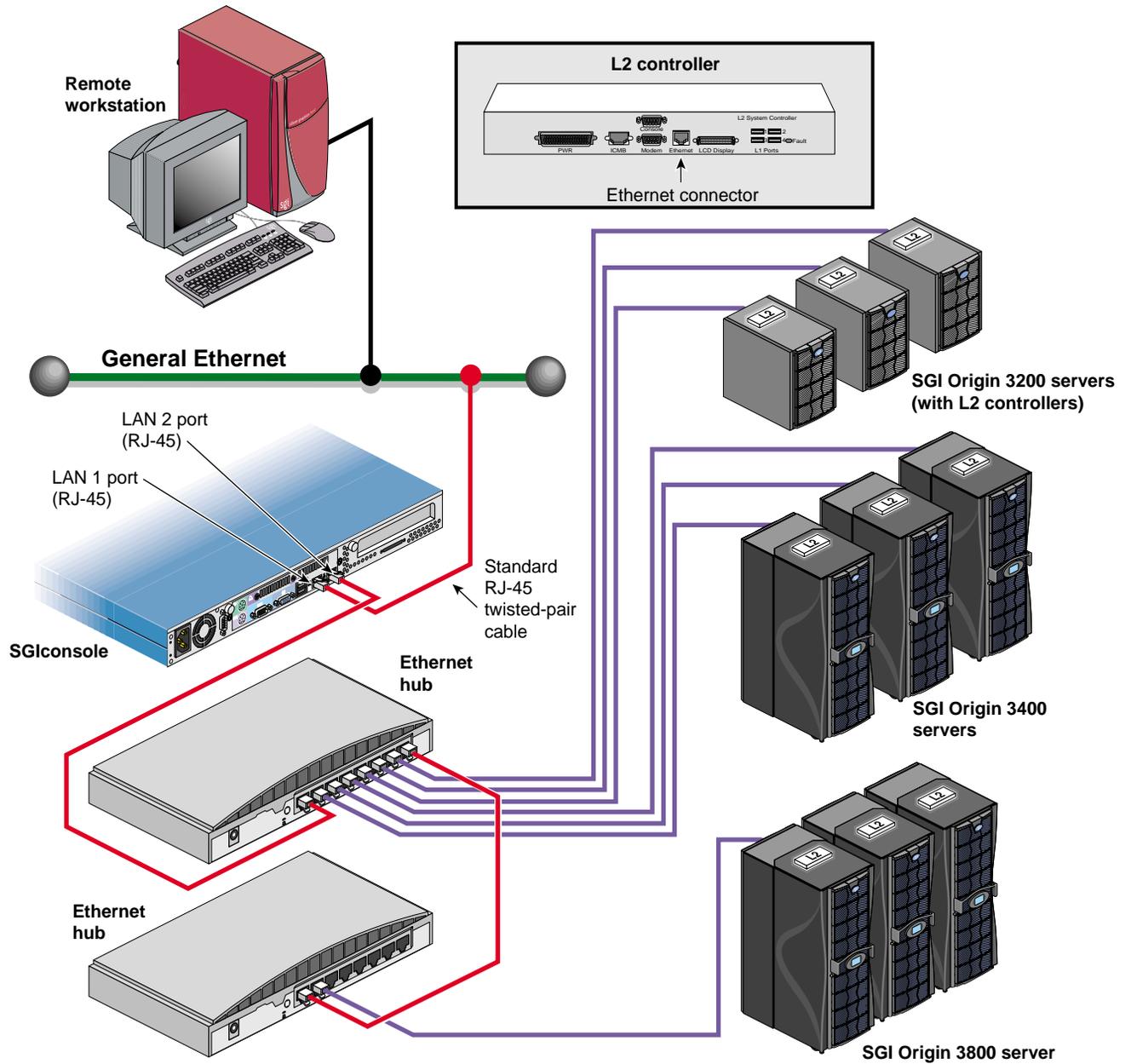


Figure 4-4 Connecting SGI Origin 3000 Series Servers with L2 Controllers to SGIconsole

Working with Multiple Origin 3000 Series Server Systems

When connecting multiple Origin 3000 series systems to the same Ethernet network, all the L2 controllers in those 3000 series systems must be configured as described in this section.

Normally all the L2 system controllers on an Ethernet network seek out all other L2 controllers on that network and share configuration information, assuming that they are all in the same Origin 3000 series system. If L2 controllers from multiple systems are connected to the same Ethernet network (as they would be if they are being controlled by the same SGIconsole), each such L2 controller must have the multisys option enabled, and must have the system serial number set.

Follow the steps in this section for each L2 system controller in every system to prepare them for use in a multi-system configuration.

1. Connect a serial console to the console serial port on the L2.
2. To enable the multisys option, type the following at the L2 command prompt:

```
L2> msys on
```

3. To set a system serial number, type the following at the L2 command prompt:

```
L2> serial serial number
```

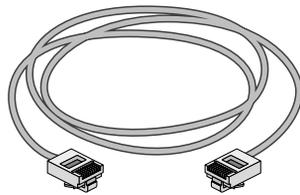
where *<serial number>* is a letter followed by seven digits.

For more information about L2 controller commands, see the *SGI Origin 3000 Series Owner's Guide*.

Making the Connections for SGI Origin 3000 Series Server Systems

To connect an SGI Origin 3000 series server with an L2 controller to the SGIconsole, follow these steps:

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole and the Ethernet hubs are disconnected from a power source.
4. Make sure that the SGI Origin 3000 series server which you are connecting to the SGIconsole is powered off according to the instructions in *SGI Origin 3000 User’s Guide*.
5. Make sure that you have a standard RJ-45 to RJ-45 twisted-pair Ethernet cables (10 feet (3 meters), part number 018-0830-001), as shown in Figure 4-5, to make your cabling connections to one server. If you are connecting multiple servers to the SGIconsole, you need one standard RJ-45 to RJ-45 twisted-pair Ethernet cable for each additional server you are connecting.



Standard RJ-45 twisted-pair cables

Figure 4-5 Items Needed to Connect SGIconsole to an SGI Origin 3000 Series Server with an L2 Controller

6. Connect one end of the standard RJ-45 cable to one of the RJ-45 jacks on the Ethernet hub. Connect the other RJ-45 connector end to the L2 controller's RJ-45 Ethernet jack. See Figure 4-6.

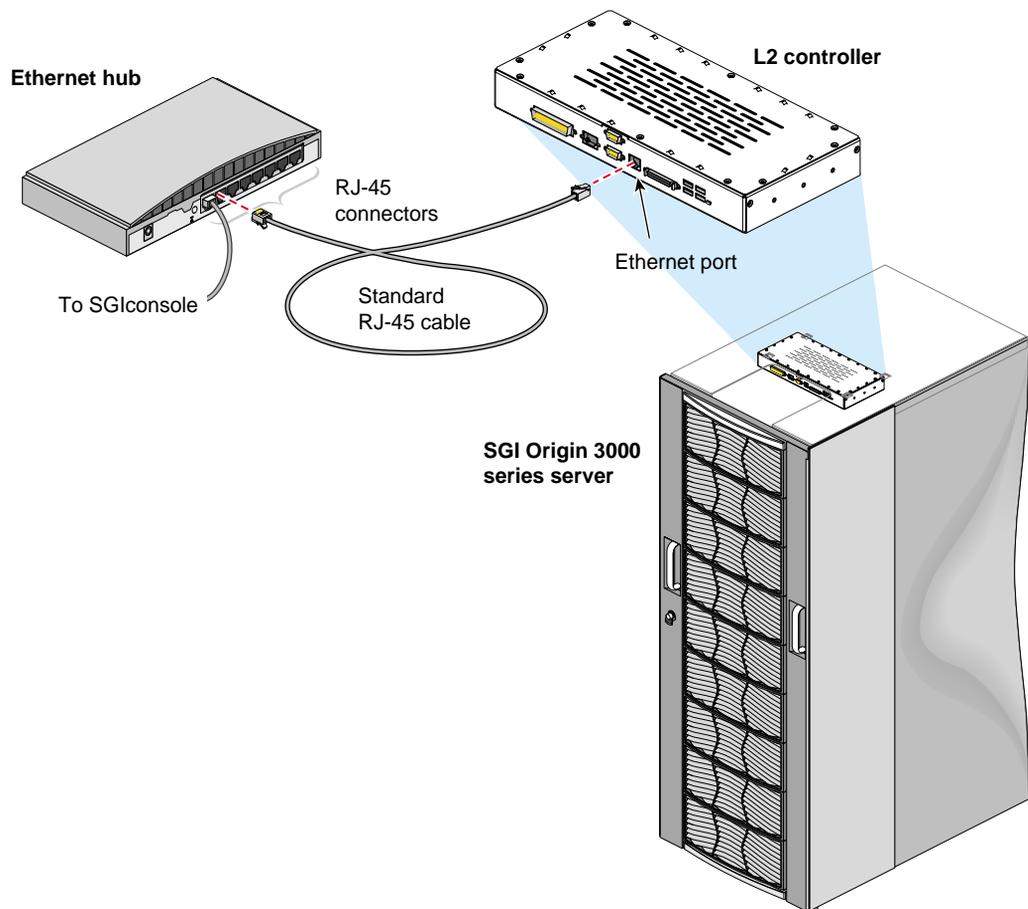


Figure 4-6 Connecting an Origin 3000 Series Server with L2 Controller to an Ethernet Hub

7. Connect the cables for any other SGI Origin 3000 series servers with L2 modules at your location as you did in steps 4 through 6.

8. If you will be connecting other managed systems to the SGIconsole, proceed to “Connecting SGI Onyx 3000 Series Graphics Systems to SGIconsole” on page 54.
9. If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the managed systems, and the SGIconsole host system to a power source.
10. Power on all your managed systems according to the instructions in their respective user’s guides.
11. Power on your SGIconsole according to the instructions in your host system user’s guide.

Connecting SGI Onyx 3000 Series Graphics Systems to SGIconsole

If you will be connecting one or more SGI Onyx 3000 series graphics systems to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting SGI Altix 3000 Series Servers (With L2) to SGIconsole” on page 55.

The SGI Onyx 3000 series graphics system is actually the G-brick for the SGI Origin 3000 series servers. Management and monitoring of the SGI Onyx 3000 series graphics systems is performed through the SGIconsole connections to the SGI Origin 3000 series servers. See “Connecting SGI Origin 3000 Series Servers With L2 Controllers to SGIconsole” on page 48 for details on how to connect an SGIconsole to the SGI Origin 3000 series servers.

Once you have finished connecting your Onyx 3000 graphics system, proceed to “Connecting SGI Altix 3000 Series Servers (With L2) to SGIconsole” on page 55.

Note: In order for your SGIconsole to operate successfully with your SGI Onyx 3000 series graphics system, your system must be running L1 firmware revision 1.18.0 or later.

Connecting SGI Altix 3000 Series Servers (With L2) to SGIconsole

If you will be connecting one or more SGI Altix 3000 series servers to the SGIconsole, follow the directions in this section. Otherwise, proceed to Chapter 5, “Connecting Managed Systems to SGIconsole via Serial Ports.”

Methods for connecting the various SGI Altix 3000 series servers to an SGIconsole are identical. Figure 4-7 shows the connection of Altix 3300 and Altix 3700 servers through an Ethernet hub to an SGIconsole.

Note: In order for your SGIconsole to operate successfully with your Altix 3000 series servers, your servers must be running L1 firmware revision 1.18.0 or later.

Note: If you connect to one or more partitioned systems (such as partitioned SGI Origin 300 or 3000 series servers), each partitioned system needs only one hardware connection. This is true regardless of the number of partitions into which the system is configured.

Note: In connecting a managed system to your SGIconsole you may want to consult the user’s guide for the managed system, which describes how to set up and use that particular system.

Caution: Before connecting the SGIconsole host system to either a 120 VAC or 220 VAC outlet, be sure that the electrical rating on the UL-CSA label is in either the 100-120 VAC range or the 200-240 VAC range, whichever applies. In locations without either a 120 VAC or 220 VAC outlet, contact your SGI system support engineer before connecting the power cable.

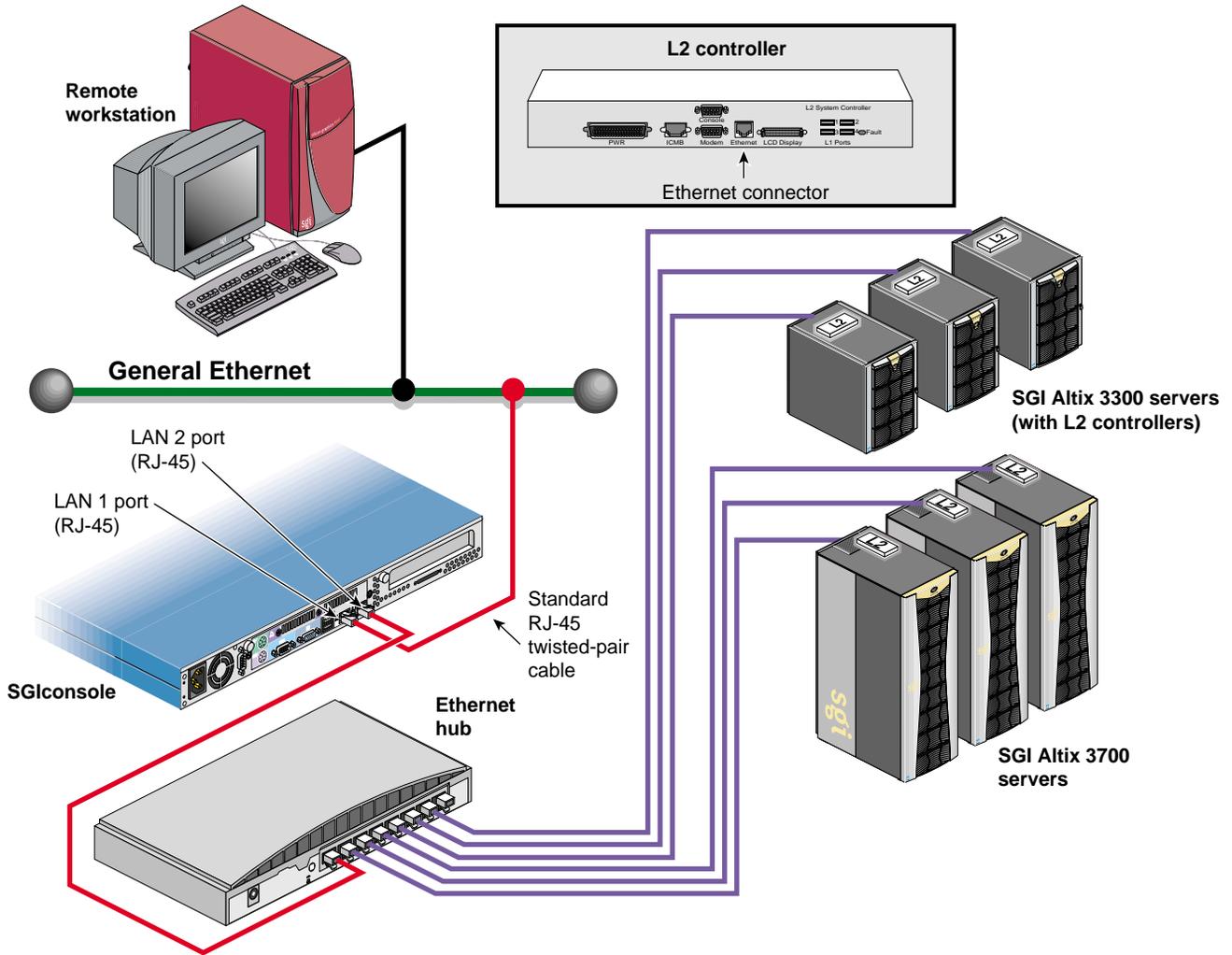


Figure 4-7 Connecting SGI Altix 3000 Series Servers (With L2) to an SGIconsole

Working with Multiple Altix 3000 Series Server Systems

When connecting multiple Altix 3000 series systems to the same Ethernet network, all the L2 controllers in those 3000 series systems must be configured as described in this section.

Normally all the L2 system controllers on an Ethernet network seek out all other L2 controllers on that network and share configuration information, assuming that they are all in the same Altix 3000 series system. If L2 controllers from multiple systems are connected to the same Ethernet network (as they would be if they are being controlled by the same SGIconsole), each such L2 controller must have the multisys option enabled, and must have the system serial number set.

Follow the steps in this section for each L2 system controller in every system to prepare them for use in a multi-system configuration.

1. Connect a serial console to the console serial port on the L2.
2. To enable the multisys option, type the following at the L2 command prompt:

```
L2> msys on
```

3. To set a system serial number, type the following at the L2 command prompt:

```
L2> serial serial number
```

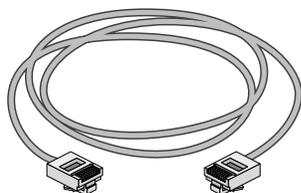
where *<serial number>* is a letter followed by seven digits.

For more information about L2 controller commands, see the *SGI Origin 3000 Series Owner's Guide*.

Making the Connections for SGI Altix 3000 Series Server Systems

To connect the SGIconsole to an SGI Altix 3000 series server, follow these steps:

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole and the Ethernet hubs are disconnected from a power source.
4. Make sure that the SGI Altix 3000 series server to which you are connecting the SGIconsole is powered off according to the instructions in the *SGI Altix 3000 User’s Guide*.
5. Make sure that you have a standard RJ-45 to RJ-45 twisted-pair Ethernet cable (10 feet (3 meters), part number 018-0830-001), as shown in Figure 4-8, to make your cabling connections to one server. If you are connecting the SGIconsole to multiple servers, you need one standard RJ-45 to RJ-45 twisted-pair Ethernet cable for each additional server you are connecting.



Standard RJ-45 twisted-pair cables

Figure 4-8 Items Needed to Connect an SGI Altix 3000 Series Server to an SGIconsole

6. Connect one end of the standard RJ-45 cable to one of the RJ-45 jacks on the Ethernet hub. Connect the other RJ-45 connector end to the L2 controller's RJ-45 Ethernet jack. See Figure 4-9.

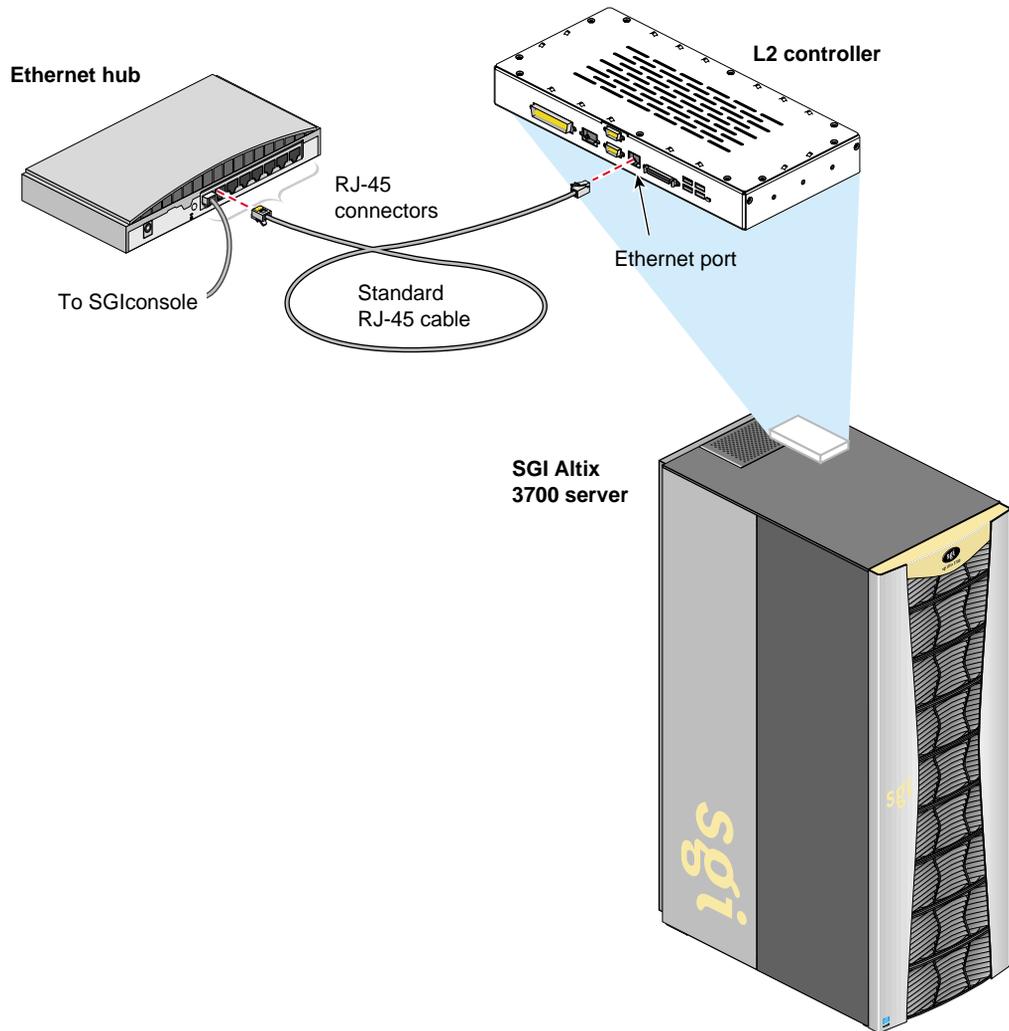


Figure 4-9 Connecting an Altix 3000 Series Server to an Ethernet Hub (3700 Shown, 3300 Similar)

7. Connect the cables for any other SGI Altix 3000 series servers with L2 modules at your location as you did in steps 4 through 6.
8. If you will be connecting other managed systems to the SGIconsole, proceed to Chapter 5, “Connecting Managed Systems to SGIconsole via Serial Ports.”
9. If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the managed systems, and the SGIconsole host system to a power source.
10. Power on all your managed systems according to the instructions in their respective user’s guides.
11. Power on your SGIconsole according to the instructions in your host system user’s guide.

Connecting Managed Systems to SGIconsole via Serial Ports

This chapter provides a description of the steps you must follow to connect managed systems to SGIconsole via one or more Silicon Graphics EL-16 serial port servers.

Before following the steps detailed in this Chapter, it is necessary to set up the SGIconsole host system, Ethernet hub(s) (if required), and serial port server(s), as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”

For systems that connect to SGIconsole via Ethernet, see Chapter 4, “Connecting Managed Systems to SGIconsole via Ethernet.”

This chapter describes detailed steps to connect SGIconsole to the following servers and graphics systems:

- “Connecting SGI Origin 200 Servers to SGIconsole” on page 62
- “Connecting SGI Origin 300 Servers to SGIconsole” on page 68
- “Connecting SGI Onyx 300 Graphics Systems to SGIconsole” on page 74
- “Connecting SGI Origin 350 Servers to SGIconsole” on page 75
- “Connecting SGI Altix 350 Servers to SGIconsole” on page 81
- “Connecting SGI Onyx 350 Graphics Systems to SGIconsole” on page 87
- “Connecting SGI 2100 or SGI 2200 Servers to SGIconsole” on page 88
- “Connecting SGI 2400 or SGI 2800 Servers to SGIconsole” on page 93
- “Connecting SGI Origin 3200 Servers Without L2 Controllers to SGIconsole” on page 104
- “Connecting Silicon Graphics Onyx2 Deskside Graphics Workstations to SGIconsole” on page 108
- “Connecting Silicon Graphics Onyx2 Rackmount Graphics Systems to SGIconsole” on page 114
- “Connecting Other Systems to SGIconsole” on page 125

Connecting SGI Origin 200 Servers to SGIconsole

If you will be connecting one or more SGI Origin 200 servers to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting SGI Origin 300 Servers to SGIconsole” on page 68.

The hardware configurations of the Origin 200 server setup will vary from site to site. For example, the Origin 200 servers are rackmounted in some sites, the Origin 200 servers are set up as separate towers in other sites, and two Origin 200 server towers are connected in a master/slave relationship in other sites. Figure 5-1 shows the connection of a single Origin 200 server tower through a Silicon Graphics EL-16 serial port server to an SGIconsole.

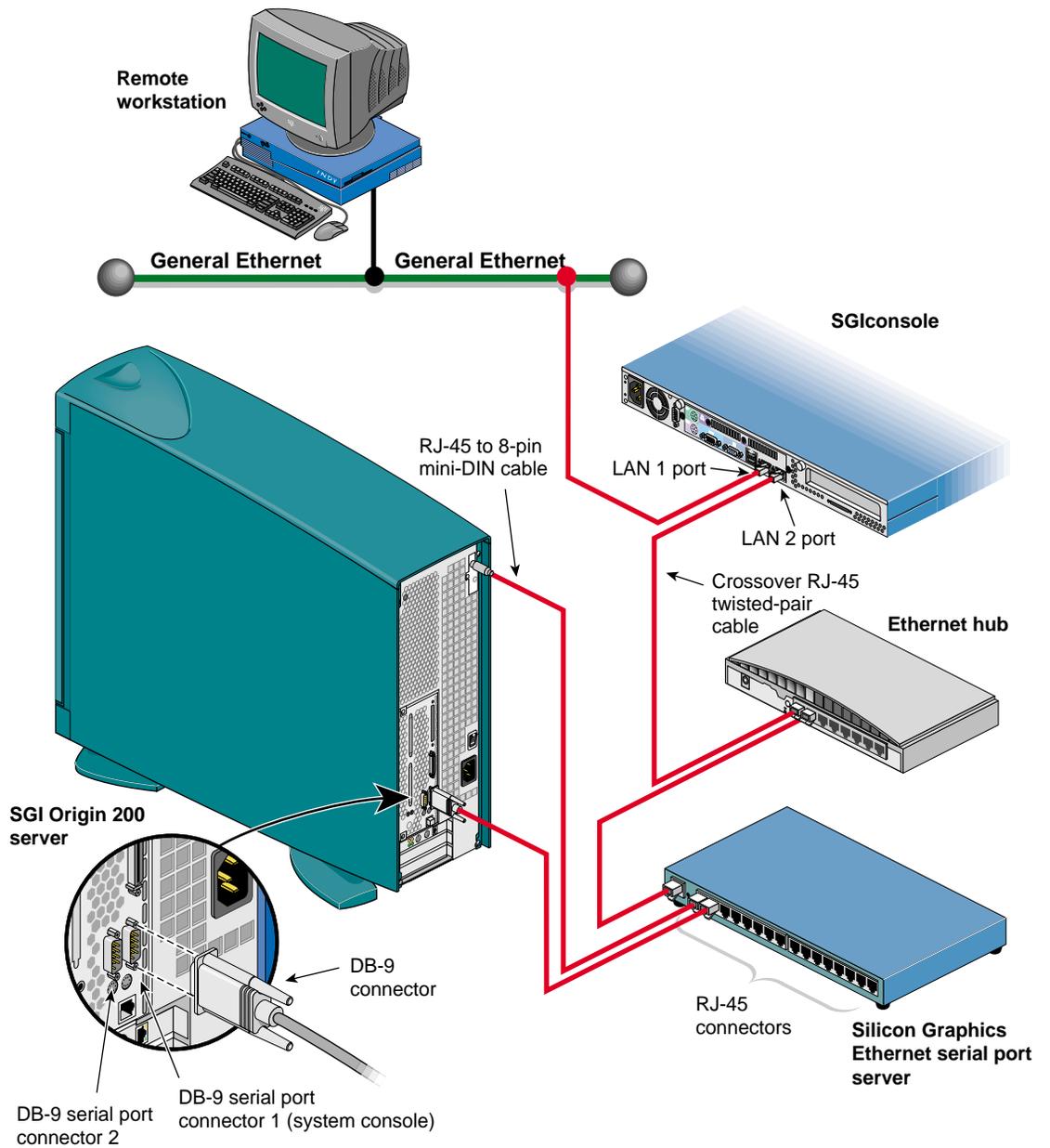


Figure 5-1 Connecting an SGI Origin 200 Server to an SGIconsole (SGI 1100 Shown)

Although the hardware configurations of Origin 200 server setups will vary, the methods for connecting the SGIconsole are similar (unless two Origin 200 towers are connected in a master/slave relationship, in which case you connect the SGIconsole only to the master).

Note: In connecting your SGIconsole to your Origin 200 server, you may want to consult *Origin200 Owner's Guide*, which describes how to set up and use the Origin 200 server system. It also describes how to install hardware and software options and troubleshoot the hardware.

Note: Use only the specified cables to connect the SGIconsole to the system chassis. The server uses PC-style serial ports. You cannot use older-style SGI serial cables. See Appendix B, "Connector Pin Assignments" for cable pin assignment information.

Note: This product requires the use of external shielded cables to maintain compliance with Part 15 of the FCC rules. Serial cables from different vendors are not compatible. Verify the pin assignments of your cable before making the connection.

To connect an Origin 200 server to the SGIconsole, follow these steps:

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole, the Ethernet hubs, and the Silicon Graphics EL-16 serial port servers are disconnected from a power source.
4. Power off your Origin 200 server according to the instructions in *Origin200 Owner’s Guide*. If you have two Origin 200 servers connected in a master/slave relationship, make sure that you power off both servers.
5. Make sure that you have the following items (shown in Figure 5-2):
 - One RJ-45 to 8-pin mini-DIN serial cable (25 feet (7.5m), part number 9290166) per server.
 - One RJ-45 to DB-9 twisted-pair serial cable (25 feet (7.5m), part number 9290165) per server.

Note: As an alternative to the RJ-45 to DB-9 twisted-pair serial cable, you can use a standard RJ-45 to RJ-45 twisted-pair cable with an RJ-45 to DB-9 adapter. See “RJ-45 to DB-9 Serial Adapter” on page 133 for adapter pin assignments.

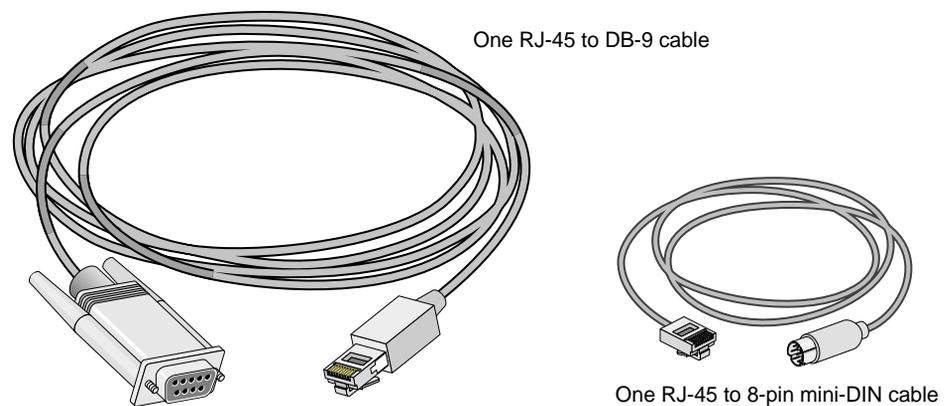


Figure 5-2 Items Needed to Connect an SGI Origin 200 Server to an SGIconsole

6. Connect the RJ-45 connector end of the RJ-45 to DB-9 cable to one of the RJ-45 serial jacks on the Silicon Graphics EL-16 serial port server. Connect the DB-9 connector to the Origin 200 server's serial port jack labeled "Serial Port Connector 1." See Figure 5-3.

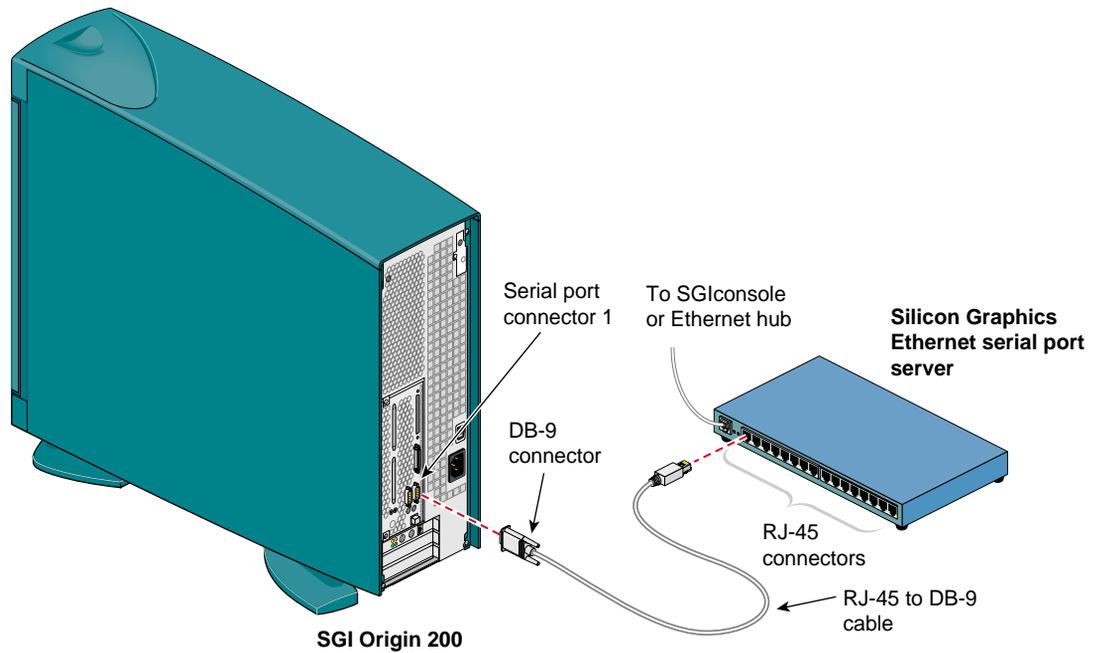


Figure 5-3 Connecting the SGI Origin 200 Server Serial Port Connector to the Serial Port Server

7. Connect the RJ-45 end of the RJ-45-to-8-pin mini-DIN cable to one of the RJ-45 serial jacks on the Silicon Graphics EL-16 serial port server. Connect the 8-pin end of the cable into the SGI Origin 200 server Aux port that connects to the server module system controller (MSC). See Figure 5-4.

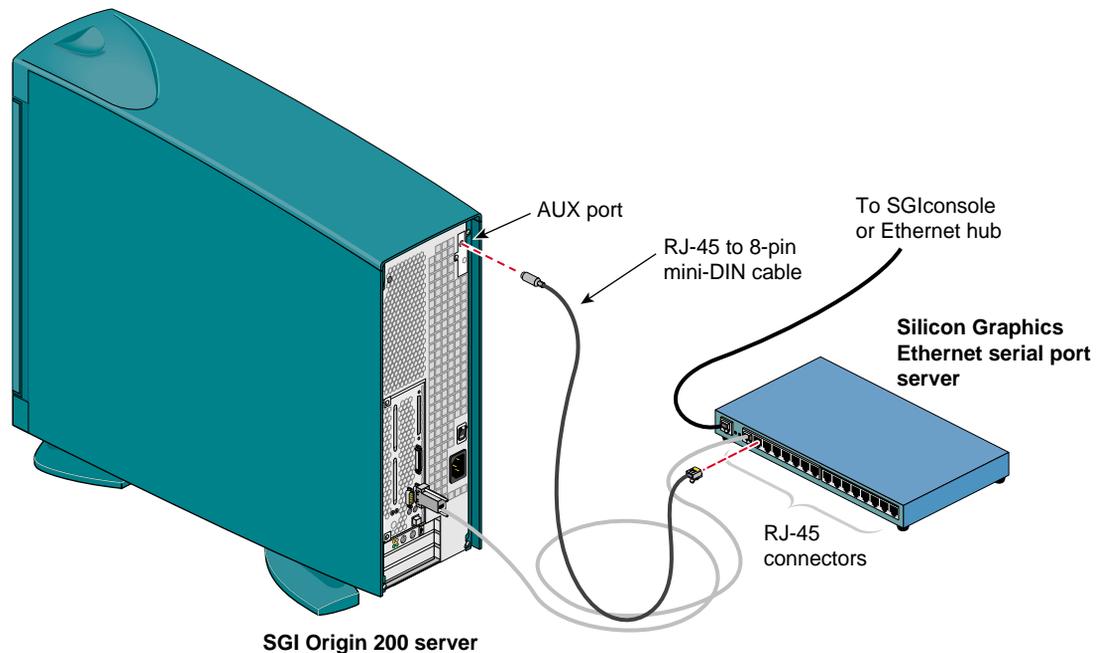


Figure 5-4 Connecting the SGI Origin 200 Server AUX Port to the Serial Port Server

8. Connect the cables for any other Origin 200 servers at your location as you did in steps 6 and 7.
9. If you will be connecting other managed systems to the SGIconsole, proceed to “Connecting SGI Origin 300 Servers to SGIconsole” on page 68.
10. If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the Silicon Graphics EL-16 serial port servers, the managed systems, and the SGIconsole host system to a power source.
11. Power on all your managed systems according to the instructions in their respective user’s guides.
12. Power on your SGIconsole according to the instructions in your host system user’s guide.

Connecting SGI Origin 300 Servers to SGIconsole

If you will be connecting one or more SGI Origin 300 servers to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting SGI Onyx 300 Graphics Systems to SGIconsole” on page 74.

The hardware configurations of the Origin 300 server setup will vary from site to site. For example, the Origin 300 servers are rackmounted in some sites, the Origin 300 servers are placed on a table top in other sites, and two Origin 300 servers are connected in a master/slave relationship in other sites. Figure 5-5 shows the connection of a single Origin 300 server through a Silicon Graphics EL-16 serial port server to an SGIconsole.

Note: SGI Origin 300 servers with a NUMAlink module are managed via an Ethernet connection, as described in Chapter 4, “Connecting Managed Systems to SGIconsole via Ethernet.” Origin 300 systems with a NUMAlink module and L2 controller must use L2 firmware 1.30.0 or later. L2 firmware 1.30.0 and L1 firmware greater than 1.18.0 are included in System Controller release 1.7.

Note: In order for your SGIconsole to operate successfully with your SGI Origin 300 series system, your system must be running L1 firmware revision 1.18.0 or later.

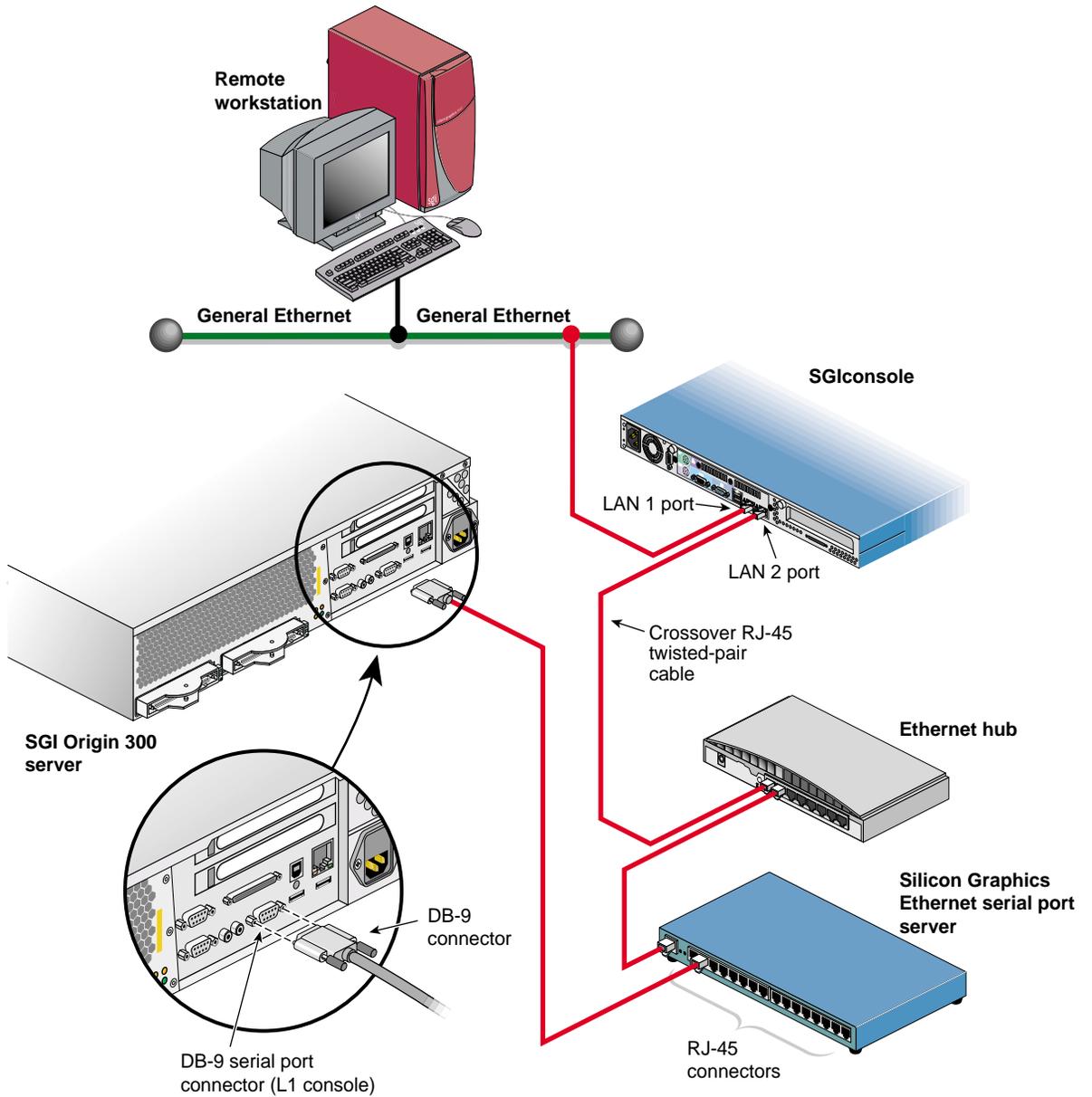


Figure 5-5 Connecting an SGI Origin 300 Server to an SGIconsole (SGI 1100 shown)

Although the hardware configurations of Origin 300 server setups will vary, the methods for connecting the SGIconsole are similar (unless two Origin 300 towers are connected in a master/slave relationship, in which case you connect the SGIconsole only to the master).

Note: In connecting your SGIconsole to your Origin 300 server, you may want to consult the *SGI Origin 300 User's Guide*, which describes how to set up and use the Origin 300 server system. It also describes how to install hardware and software options and troubleshoot the hardware.

Note: Use only the specified cables to connect the SGIconsole to the system chassis. The server uses PC-style serial ports. You cannot use older-style SGI serial cables. See Appendix B, "Connector Pin Assignments" for cable pin assignment information.

Note: This product requires the use of external shielded cables to maintain compliance with Part 15 of the FCC rules. Serial cables from different vendors are not compatible. Verify the pin assignments of your cable before making the connection.

To connect an Origin 300 server to the SGIconsole, follow these steps:

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole, the Ethernet hubs, and the Silicon Graphics EL-16 serial port servers are disconnected from a power source.
4. Power off your Origin 300 server according to the instructions in the *SGI Origin 300 User’s Guide*. If you have two Origin 300 servers connected in a master/slave relationship, make sure that you power off both servers.
5. Make sure that you have the following items (shown in Figure 5-6):
 - One RJ-45 to DB-9 twisted-pair flow-control cable (25 feet (7.5 meters), part number 7261215) per server.

Note: As an alternative to the RJ-45 to DB-9 twisted-pair cable, you can use a standard RJ-45 to RJ-45 twisted-pair cable with an RJ-45 to DB-9 adapter. See “RJ-45 to DB-9 Serial Adapter With Flow Control” on page 136 for adapter pin assignments.

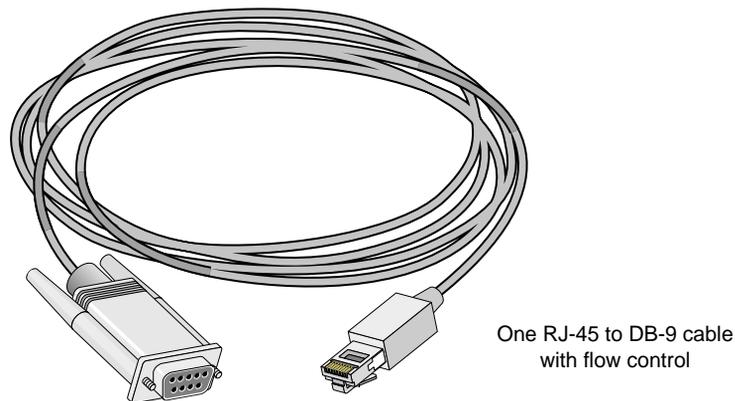


Figure 5-6 Items Needed to Connect an SGI Origin 300 Server to an SGIconsole

6. Connect the RJ-45 connector end of the RJ-45 to DB-9 cable to one of the RJ-45 serial jacks on the Silicon Graphics EL-16 serial port server. Connect the DB-9 connector to the Origin 300 server's serial port jack labeled "Console." See Figure 5-7.

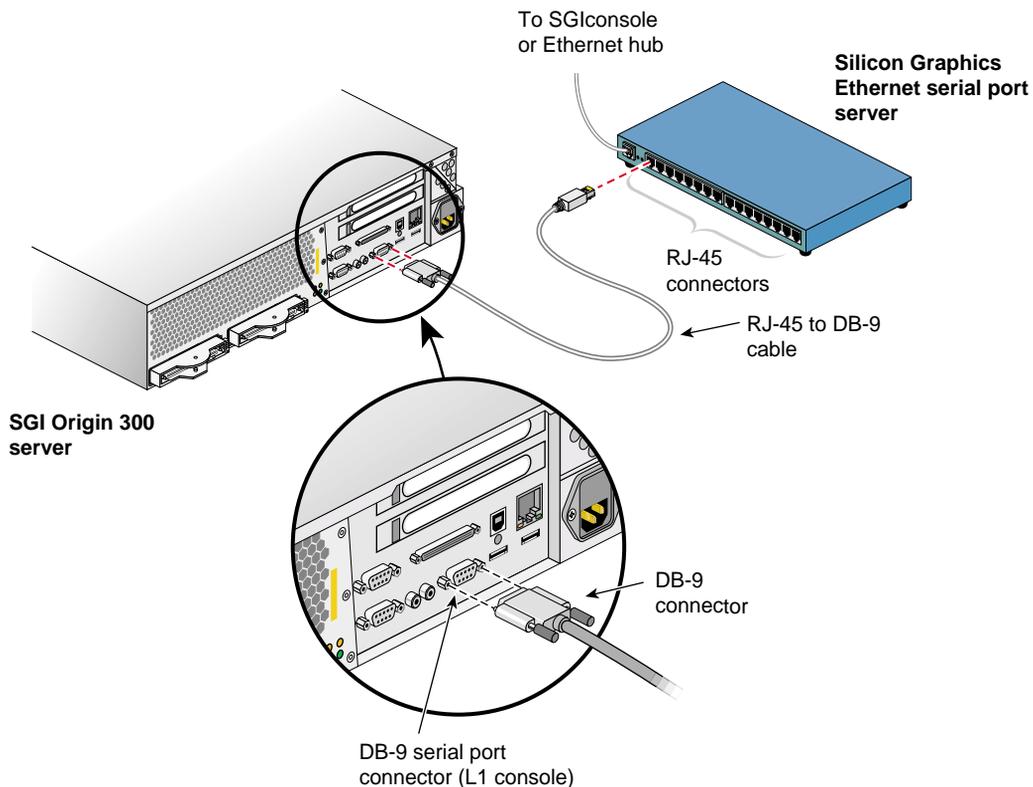


Figure 5-7 Connecting the Origin 300 Server Serial Port Connector to the Serial Port Server

7. Connect the cables for any other Origin 300 servers at your location as you did in step 6.
8. If you will be connecting other managed systems to the SGIconsole, proceed to “Connecting SGI Onyx 300 Graphics Systems to SGIconsole” on page 74.
9. If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the Silicon Graphics EL-16 serial port servers, the managed systems, and the SGIconsole host system to a power source.
10. Power on all your managed systems according to the instructions in their respective user’s guides.
11. Power on your SGIconsole according to the instructions in your host system user’s guide.

Connecting SGI Onyx 300 Graphics Systems to SGIconsole

If you will be connecting one or more SGI Onyx 300 graphics systems to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting SGI Origin 350 Servers to SGIconsole” on page 75.

The SGI Onyx 300 graphics system is actually the G-brick for the SGI Origin 300 series servers. Management and monitoring of the SGI Onyx 300 series graphics systems is performed through the SGIconsole connections to the SGI Origin 300 series servers. See “Connecting SGI Origin 300 Servers to SGIconsole” on page 68 for details on how to connect an SGIconsole to the SGI Origin 300 series servers.

Once you have finished connecting your Onyx 300 graphics system, proceed to “Connecting SGI Origin 350 Servers to SGIconsole” on page 75.

Note: In order for your SGIconsole to operate successfully with your SGI Onyx 300 graphics system, your system must be running L1 firmware revision 1.18.0 or later. Systems with a NUMAlink module and L2 controller must use L2 firmware 1.30.0 or later. L2 firmware 1.30.0 and L1 firmware greater than 1.18.0 are included in System Controller release 1.7.

Connecting SGI Origin 350 Servers to SGIconsole

If you will be connecting one or more SGI Origin 350 servers to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting SGI Onyx 350 Graphics Systems to SGIconsole” on page 87.

The hardware configurations of the Origin 350 server setup will vary from site to site. For example, the Origin 350 servers are rackmounted in some sites, the Origin 350 servers are placed on a table top in other sites, and two Origin 350 servers are connected in a master/slave relationship in other sites. Figure 5-8 shows the connection of a single Origin 350 server through a Silicon Graphics EL-16 serial port server to an SGIconsole.

Note: SGI Origin 350 servers with a NUMAlink module are managed via an Ethernet connection, as described in Chapter 4, “Connecting Managed Systems to SGIconsole via Ethernet.” Origin 350 systems with a NUMAlink module and L2 controller must use L2 firmware 1.30.0 or later. L2 firmware 1.30.0 and L1 firmware greater than 1.18.0 are included in System Controller release 1.7.

Note: In order for your SGIconsole to operate successfully with your SGI Origin 350 server, your system must be running L1 firmware revision 1.18.0 or later.

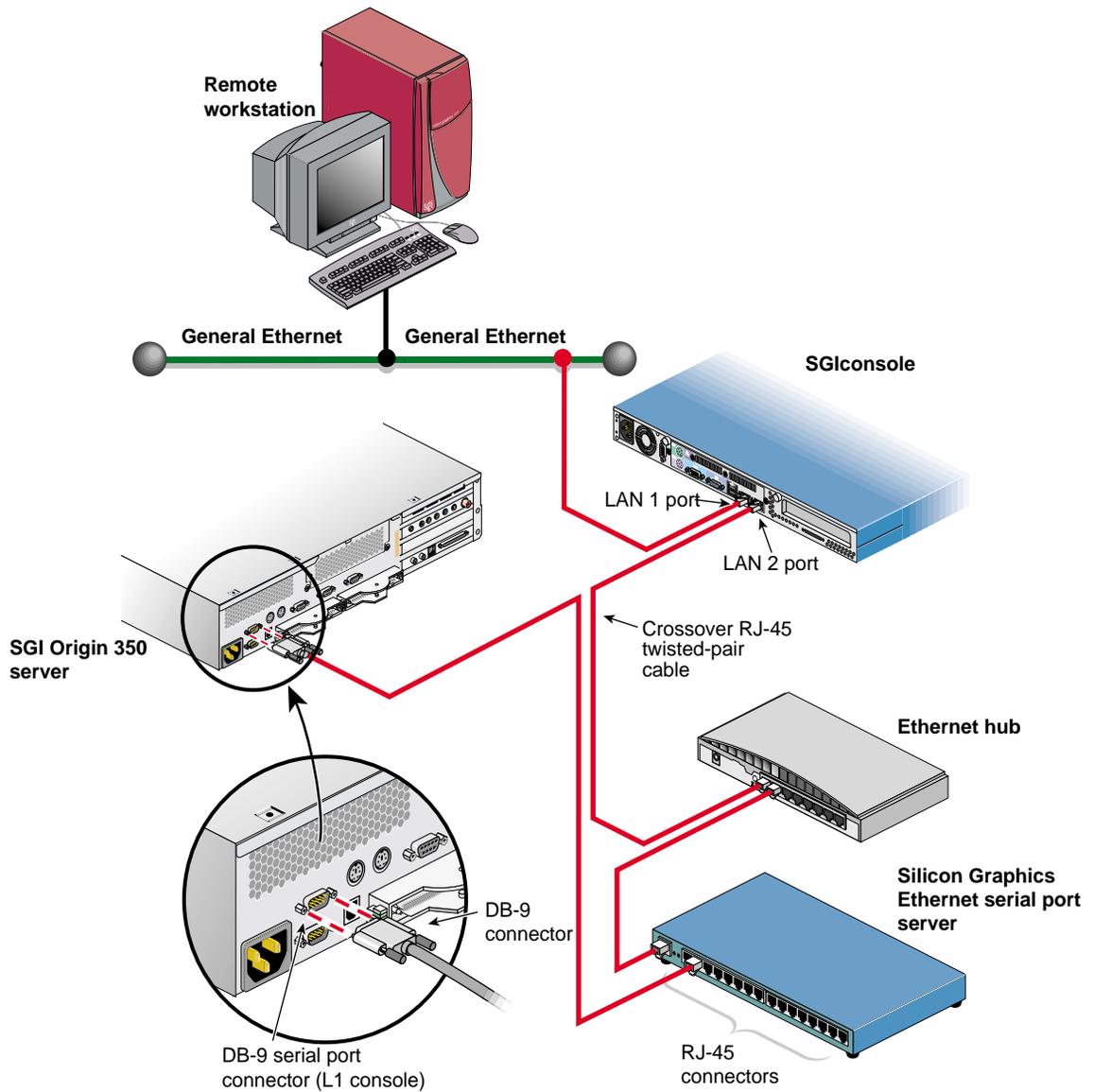


Figure 5-8 Connecting an SGI Origin 350 Server to an (SGI 1100) SGIconsole

Although the hardware configurations of Origin 350 server setups will vary, the methods for connecting the SGIconsole are similar (unless two Origin 350 towers are connected in a master/slave relationship, in which case you connect the SGIconsole only to the master).

Note: In connecting your SGIconsole to your Origin 350 server, you may want to consult the *SGI Origin 350 User's Guide*, which describes how to set up and use the Origin 350 server system. It also describes how to install hardware and software options and troubleshoot the hardware.

Note: Use only the specified cables to connect the SGIconsole to the system chassis. The server uses PC-style serial ports. You cannot use older-style SGI serial cables. See Appendix B, "Connector Pin Assignments" for cable pin assignment information.

Note: This product requires the use of external shielded cables to maintain compliance with Part 15 of the FCC rules. Serial cables from different vendors are not compatible. Verify the pin assignments of your cable before making the connection.

To connect an Origin 350 server to the SGIconsole, follow these steps:

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole, the Ethernet hubs, and the Silicon Graphics EL-16 serial port servers are disconnected from a power source.
4. Power off your Origin 350 server according to the instructions in the SGI *Origin 350 User’s Guide*. If you have two Origin 350 servers connected in a master/slave relationship, make sure that you power off both servers.
5. Make sure that you have the following items (shown in Figure 5-9):
 - One RJ-45 to DB-9 twisted-pair flow-control cable (25 feet (7.5 meters), part number 7261215) per server.

Note: As an alternative to the RJ-45 to DB-9 twisted-pair cable, you can use a standard RJ-45 to RJ-45 twisted-pair cable with an RJ-45 to DB-9 adapter. See “RJ-45 to DB-9 Serial Adapter With Flow Control” on page 136 for adapter pin assignments.

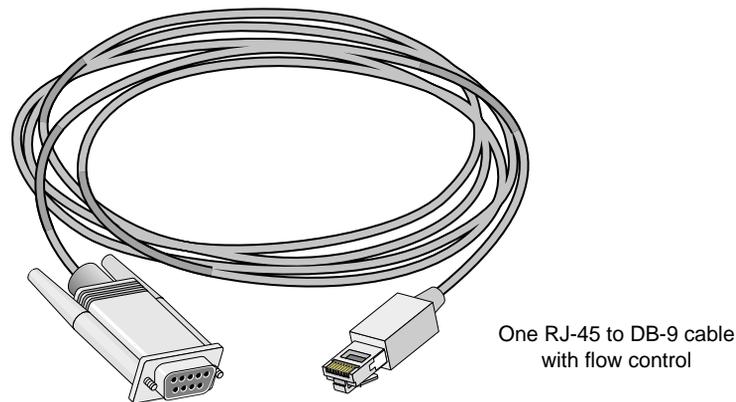


Figure 5-9 Items Needed to Connect an SGI Origin 350 Server to an SGIconsole

6. Connect the RJ-45 connector end of the RJ-45 to DB-9 cable to one of the RJ-45 serial jacks on the Silicon Graphics EL-16 serial port server. Connect the DB-9 connector to the Origin 350 server's serial port jack labeled "Console." See Figure 5-10.

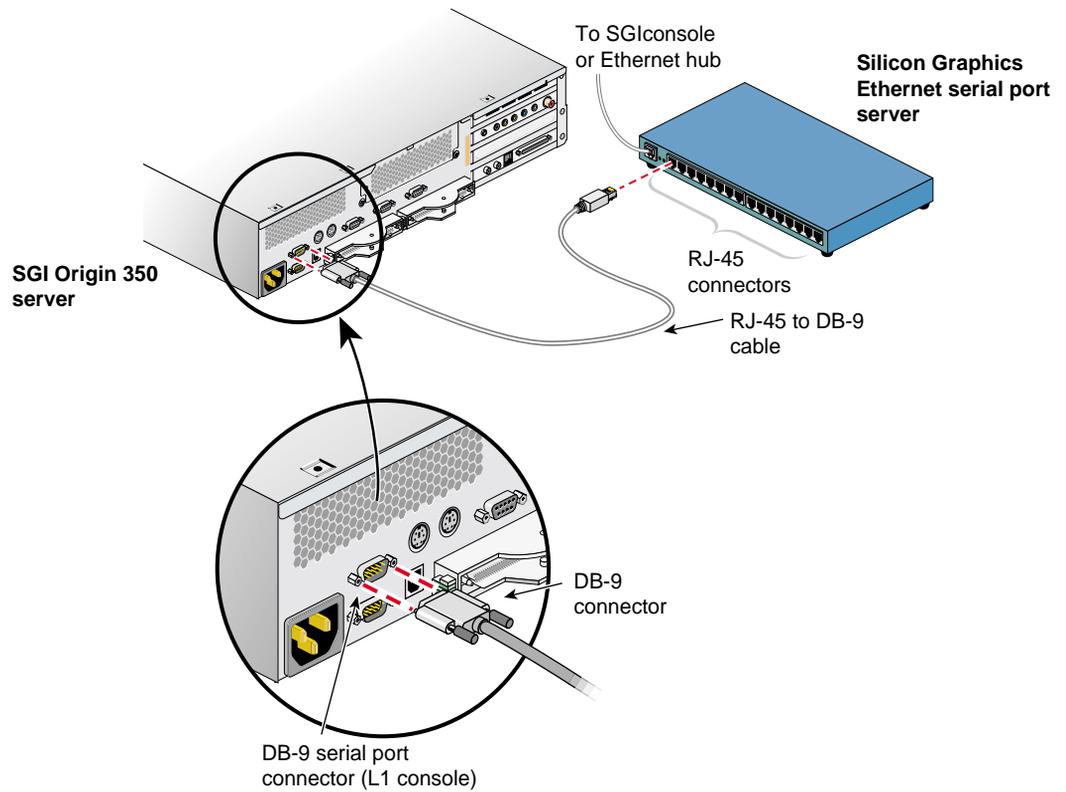


Figure 5-10 Connecting the Origin 350 Server Serial Port Connector to the Serial Port Server

7. Connect the cables for any other Origin 350 servers at your location as you did in step 6.
8. If you will be connecting other managed systems to the SGIconsole, proceed to “Connecting SGI Altix 350 Servers to SGIconsole” on page 81 or the next applicable section.
9. If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the Silicon Graphics EL-16 serial port servers, the managed systems, and the SGIconsole host system to a power source.
10. Power on all your managed systems according to the instructions in their respective user’s guides.
11. Power on your SGIconsole according to the instructions in your host system user’s guide.

Connecting SGI Altix 350 Servers to SGIconsole

If you will be connecting one or more SGI Altix 350 servers to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting SGI Onyx 350 Graphics Systems to SGIconsole” on page 87 or the next applicable section.

The hardware configurations of the Altix 350 server setup will vary from site to site. For example, the Altix 350 servers are rackmounted in some sites, the Altix 350 servers are placed on a table top in other sites, and two Altix 350 servers are connected in a master/slave relationship in other sites. Figure 5-8 shows the connection of a single Altix 350 server through a Silicon Graphics EL-16 serial port server to an SGIconsole.

Note: In order for your SGIconsole to operate successfully with your SGI Altix 350 server, your system must be running L1 firmware revision 1.18.0 or later.

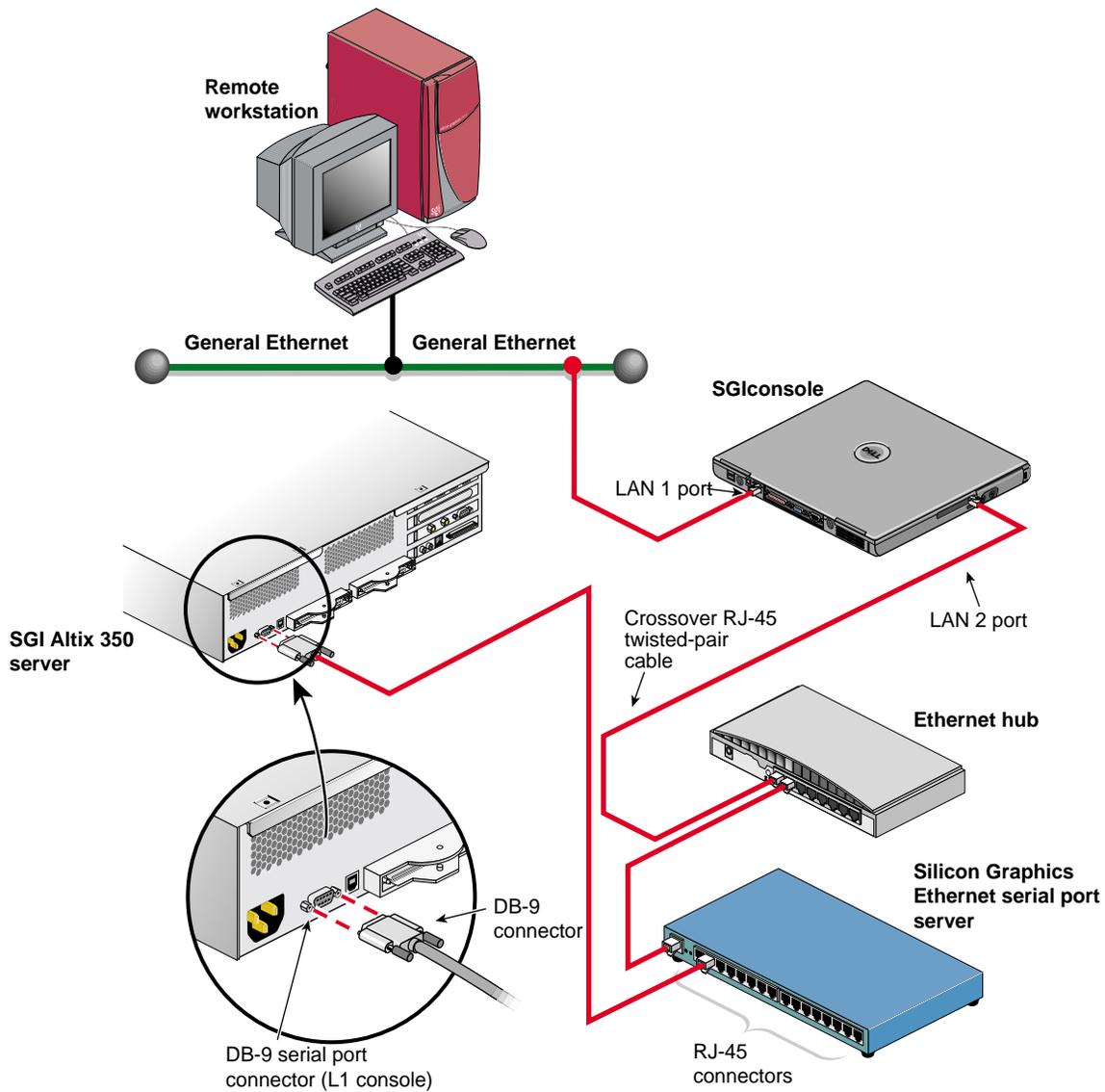


Figure 5-11 Connecting an SGI Altix 350 Server to a (Dell D600 Laptop) SGIconsole

Although the hardware configurations of Altix 350 server setups will vary, the methods for connecting the SGIconsole are similar (unless two Altix 350 towers are connected in a master/slave relationship, in which case you connect the SGIconsole only to the master).

Note: In connecting your SGIconsole to your Altix 350 server, you may want to consult the *SGI Altix 350 System User's Guide*, which describes how to set up and use the Altix 350 server system. It also describes how to install hardware and software options and troubleshoot the hardware.

Note: Use only the specified cables to connect the SGIconsole to the system chassis. The server uses PC-style serial ports. You cannot use older-style SGI serial cables. See Appendix B, "Connector Pin Assignments" for cable pin assignment information.

Note: This product requires the use of external shielded cables to maintain compliance with Part 15 of the FCC rules. Serial cables from different vendors are not compatible. Verify the pin assignments of your cable before making the connection.

To connect an Altix 350 server to the SGIconsole, follow these steps:

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole, the Ethernet hubs, and the Silicon Graphics EL-16 serial port servers are disconnected from a power source.
4. Power off your Altix 350 server according to the instructions in the *SGI Altix 350 System User's Guide*. If you have two Altix 350 servers connected in a master/slave relationship, make sure that you power off both servers.
5. Make sure that you have the following items (shown in Figure 5-9):
 - One RJ-45 to DB-9 twisted-pair flow-control cable (25 feet (7.5 meters), part number 7261215) per server.

Note: As an alternative to the RJ-45 to DB-9 twisted-pair cable, you can use a standard RJ-45 to RJ-45 twisted-pair cable with an RJ-45 to DB-9 adapter. See “RJ-45 to DB-9 Serial Adapter With Flow Control” on page 136 for adapter pin assignments.

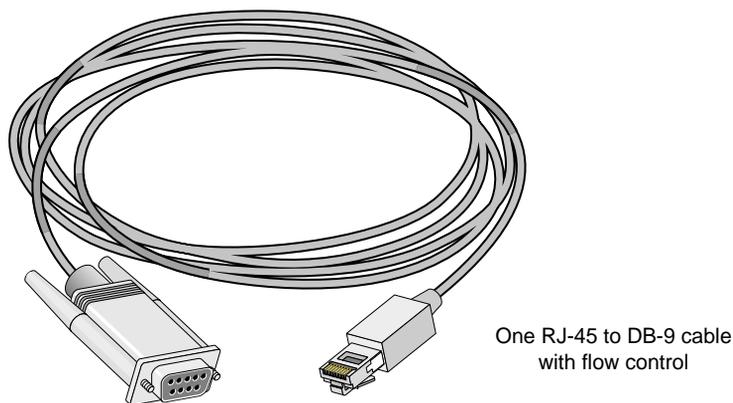


Figure 5-12 Items Needed to Connect an SGI Altix 350 Server to an SGIconsole

6. Connect the RJ-45 connector end of the RJ-45 to DB-9 cable to one of the RJ-45 serial jacks on the Silicon Graphics EL-16 serial port server. Connect the DB-9 connector to the Altix 350 server's serial port jack labeled "Console." See Figure 5-10.

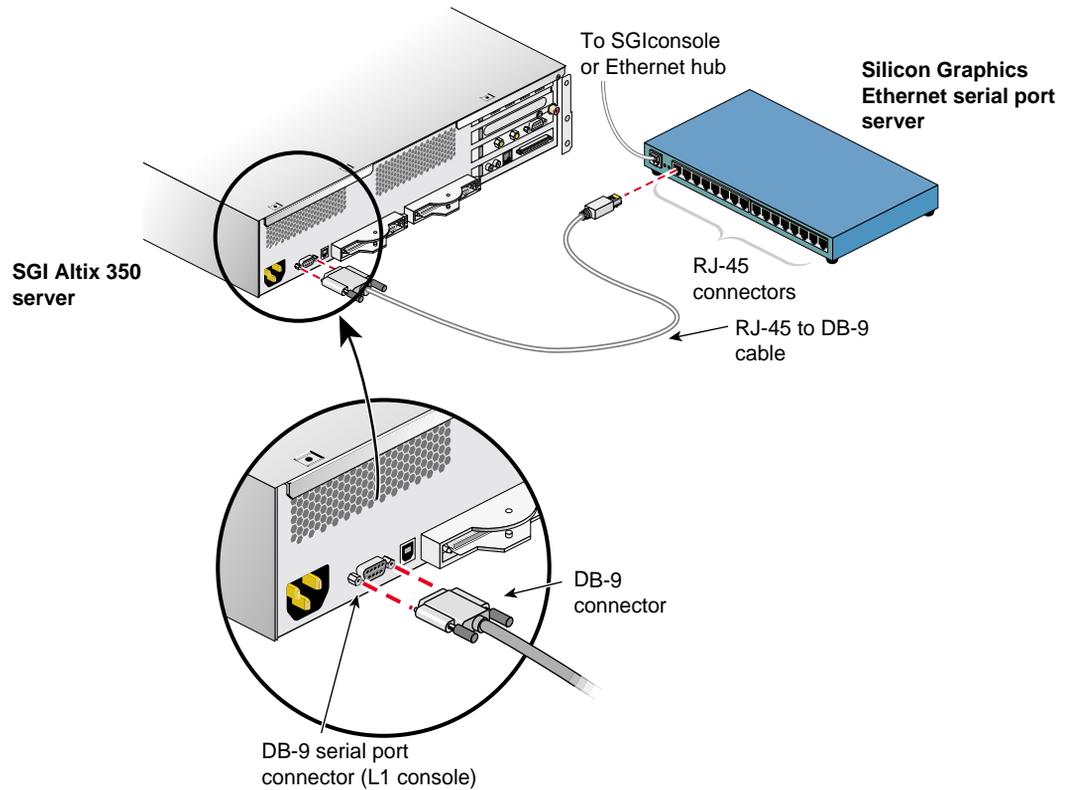


Figure 5-13 Connecting the Altix 350 Server Serial Port Connector to the Serial Port Server

7. Connect the cables for any other Altix 350 servers at your location as you did in step 6.
8. If you will be connecting other managed systems to the SGIconsole, proceed to “Connecting SGI Onyx 350 Graphics Systems to SGIconsole” on page 87.
9. If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the Silicon Graphics EL-16 serial port servers, the managed systems, and the SGIconsole host system to a power source.
10. Power on all your managed systems according to the instructions in their respective user’s guides.

Power on your SGIconsole according to the instructions in your host system user’s guide.

Connecting SGI Onyx 350 Graphics Systems to SGIconsole

If you will be connecting one or more SGI Onyx 350 graphics systems to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting SGI 2100 or SGI 2200 Servers to SGIconsole” on page 88.

The SGI Onyx 350 graphics system is actually the G-brick for the SGI Origin 350 series servers. Management and monitoring of the SGI Onyx 350 series graphics systems is performed through the SGIconsole connections to the SGI Origin 350 series servers. See “Connecting SGI Origin 350 Servers to SGIconsole” on page 75 for details on how to connect an SGIconsole to the SGI Origin 350 series servers.

Once you have finished connecting your Onyx 350 graphics system, proceed to “Connecting SGI 2100 or SGI 2200 Servers to SGIconsole” on page 88.

Note: In order for your SGIconsole to operate successfully with your SGI Onyx 350 graphics system, your system must be running L1 firmware revision 1.18.0 or later. Onyx 350 systems with a NUMAlink module and L2 controller must use L2 firmware 1.30.0 or later. L2 firmware 1.30.0 and L1 firmware greater than 1.18.0 are included in System Controller release 1.7.

Connecting SGI 2100 or SGI 2200 Servers to SGIconsole

If you will be connecting one or more SGI 2100 or SGI 2200 servers to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting SGI 2400 or SGI 2800 Servers to SGIconsole” on page 93.

The hardware configurations of the SGI 2100 and SGI 2200 servers will vary from site to site. For example, the SGI 2100 or SGI 2200 servers are rackmounted in some sites, while the SGI 2100 or SGI 2200 servers are set up separately as deskside systems in other sites. Figure 5-14 shows the connection of a single SGI 2100 through a Silicon Graphics EL-16 serial port server to an SGIconsole.

Although the hardware configurations of SGI 2100 and SGI 2200 server setups will vary, the methods for connecting to the SGIconsole are identical for all hardware configurations.

Note: In order for your SGIconsole to operate successfully with your SGI 2100 or SGI 2200 server, your servers must be running MSC firmware revision 3.1 or later.

Note: In connecting your SGIconsole to an SGI 2100 server, you may want to consult *SGI 2100 Owner's Guide*, which describes how to set up and use the SGI 2100 server. Likewise, in connecting your SGIconsole to an SGI 2200 server, you may want to consult *SGI 2200 Server Owner's Guide*.

Note: Use only the specified cables to connect the SGIconsole to the system chassis. The server uses PC-style serial ports. You cannot use older-style SGI serial cables. See Appendix B, “Connector Pin Assignments” for cable pin assignment information.

Note: This product requires the use of external shielded cables to maintain compliance with Part 15 of the FCC rules. Serial cables from different vendors are not compatible. Verify the pin assignments of your cable before making the connection.

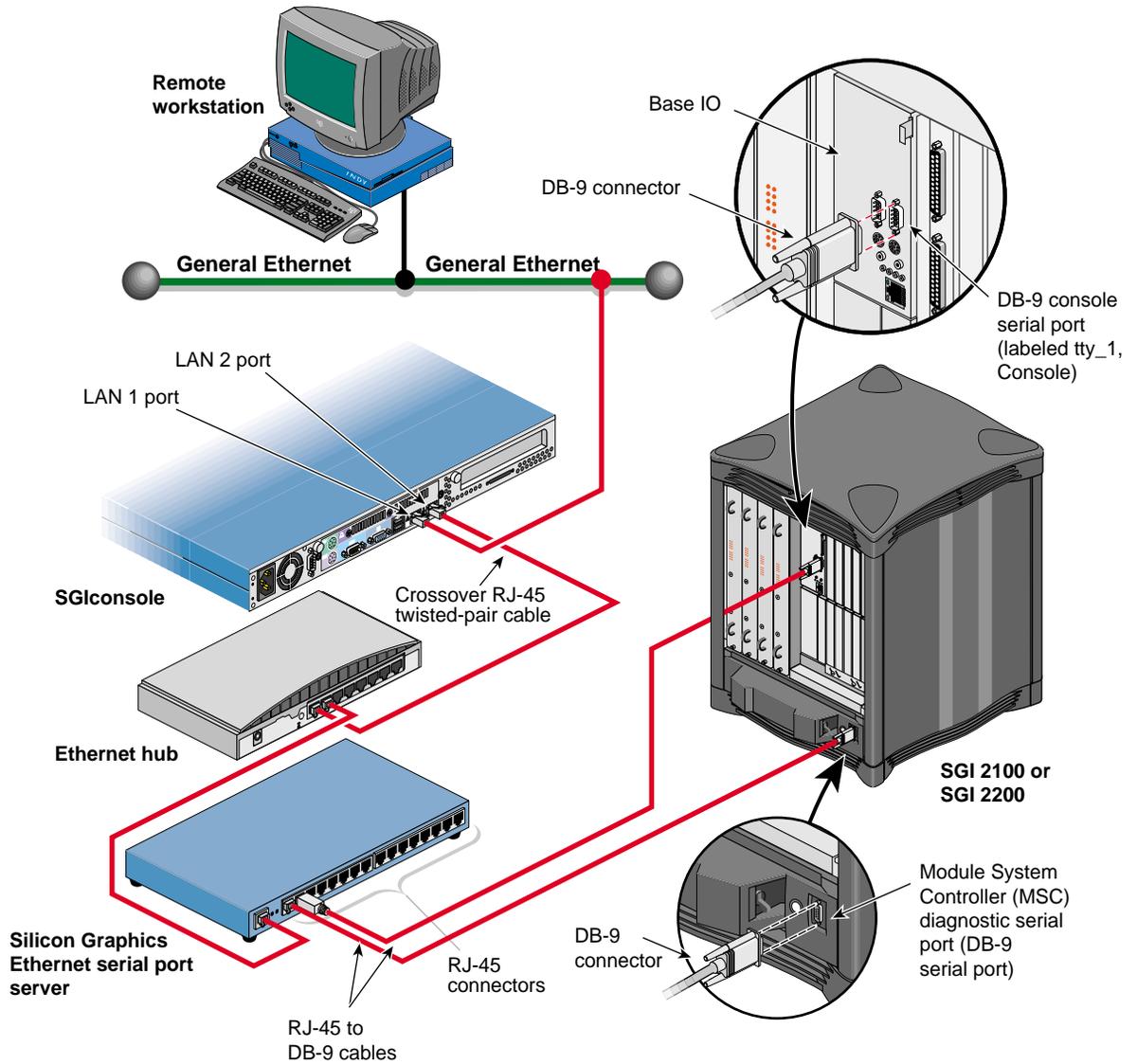
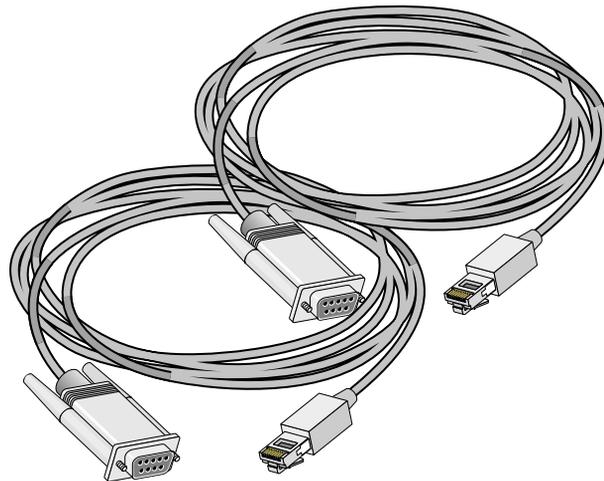


Figure 5-14 Connecting an SGI 2100 or SGI 2200 Server to an SGIconsole (SGI 1100 Shown)

To connect the SGIconsole to the SGI 2100 or SGI 2200 server, follow these steps:

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole, the Ethernet hubs, and the Silicon Graphics EL-16 serial port servers are disconnected from a power source.
4. Make sure that the SGI 2100 or SGI 2200 server is powered off according to the instructions in *SGI 2100 Owner’s Guide* or *SGI 2200 Owner’s Guide*.
5. Make sure that you have the following items (see Figure 5-15):
 - Two RJ-45 to DB-9 twisted-pair serial cables (25 feet (7.5 meters), part number 9290165) per server.

Note: As an alternative to the RJ-45 to DB-9 twisted-pair serial cable, you can use a standard RJ-45 to RJ-45 twisted-pair cable with an RJ-45 to DB-9 adapter. See “RJ-45 to DB-9 Serial Adapter” on page 133 for adapter pin assignments.



Two RJ-45 to DB-9 cables

Figure 5-15 Items Needed to Connect an SGI 2100 or SGI 2200 Server to an SGIconsole

6. Connect the RJ-45 end of one of the RJ-45 to DB-9 cable to one of the RJ-45 jacks on the Silicon Graphics EL-16 serial port server. Connect the DB-9 connector to the SGI 2100 or SGI 2200 serial port jack labeled “tty_1, Console.” See Figure 5-16.

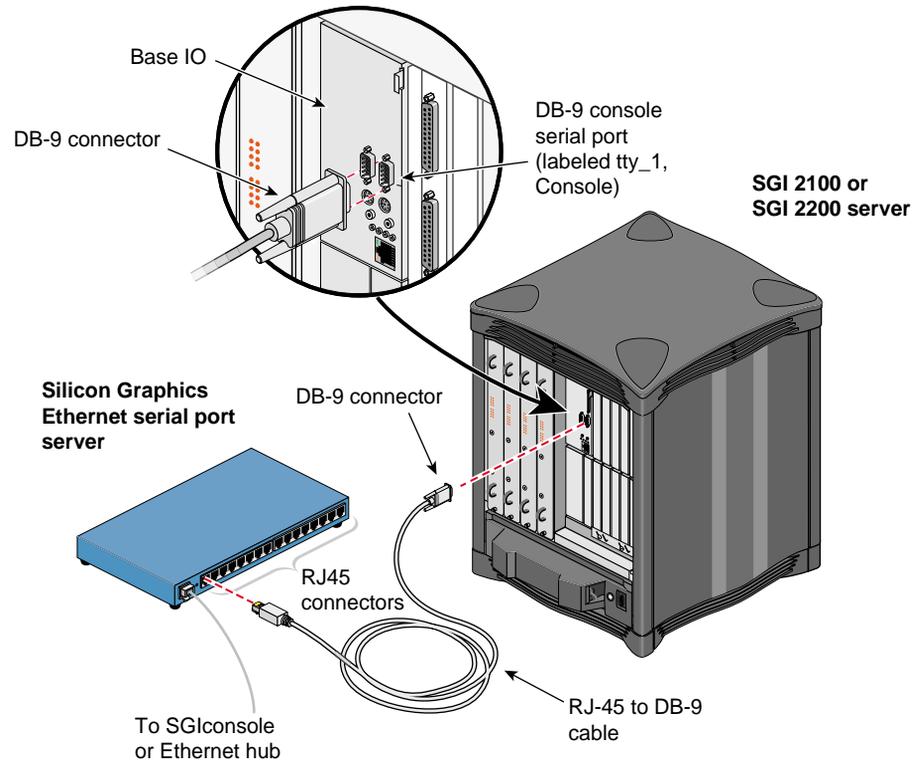


Figure 5-16 Connecting the SGI 2100 or SGI 2200 tty_1, Console Connector to the Serial Port Server

7. Connect the RJ-45 end of the second RJ-45 to DB-9 cable to one of the RJ-45 serial jacks on the Silicon Graphics EL-16 serial port server. Connect the DB-9 connector to the DB-9 jack on the SGI 2100 or SGI 2200 server Module System Controller (MSC) diagnostic serial port. See Figure 5-17.

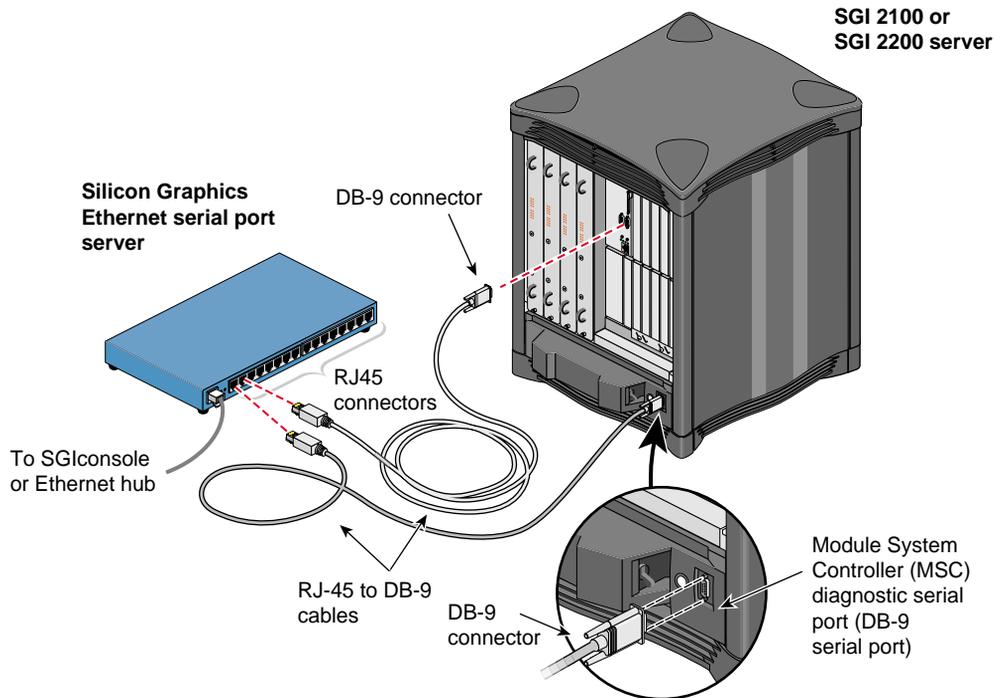


Figure 5-17 Connecting the SGI 2100 or SGI 2200 Server MSC Serial Port to the Serial Port Server

8. Connect the cables for any other SGI 2100 or SGI 2200 servers at your location as you did in steps 6 and 7.
9. If you will be connecting other managed systems to the SGIconsole, proceed to “Connecting SGI 2400 or SGI 2800 Servers to SGIconsole” on page 93.
10. If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the Silicon Graphics EL-16 serial port servers, the managed systems, and the SGIconsole host system to a power source.
11. Power on all your managed systems according to the instructions in their respective user’s guides.
12. Power on your SGIconsole according to the instructions in your host system user’s guide.

Connecting SGI 2400 or SGI 2800 Servers to SGIconsole

If you will be connecting one or more SGI 2400 or SGI 2800 servers to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting SGI Origin 3200 Servers Without L2 Controllers to SGIconsole” on page 104.

The hardware configurations for the rackmountable SGI 2400 and SGI 2800 servers are similar to each other and from site to site. Therefore, methods for connecting the SGIconsole to a server are similar for all hardware configurations of these servers. Figure 5-18 shows the connection of an SGI 2400 or an SGI 2800 server through a Silicon Graphics EL-16 serial port server to an SGIconsole. (These servers are positioned with module B above module A in the rack, and it is assumed that module A is the master module.)

Note: In order for your SGIconsole to operate successfully with your SGI 2400 or SGI 2800 servers, your servers must be running MSC firmware revision 3.1 or later.

Note: In connecting your SGIconsole to an SGI 2400 server or an SGI 2800 server, you may want to consult *SGI 2400 and 2800 Owner's Guide*, which describes how to set up and use these servers.

Note: Use only the specified cables to connect the SGIconsole to the system chassis. The server uses PC-style serial ports. You cannot use older-style SGI serial cables. See Appendix B, “Connector Pin Assignments” for cable pin assignment information.

Note: This product requires the use of external shielded cables to maintain compliance with Part 15 of the FCC rules. Serial cables from different vendors are not compatible. Verify the pin assignments of your cable before making the connection.

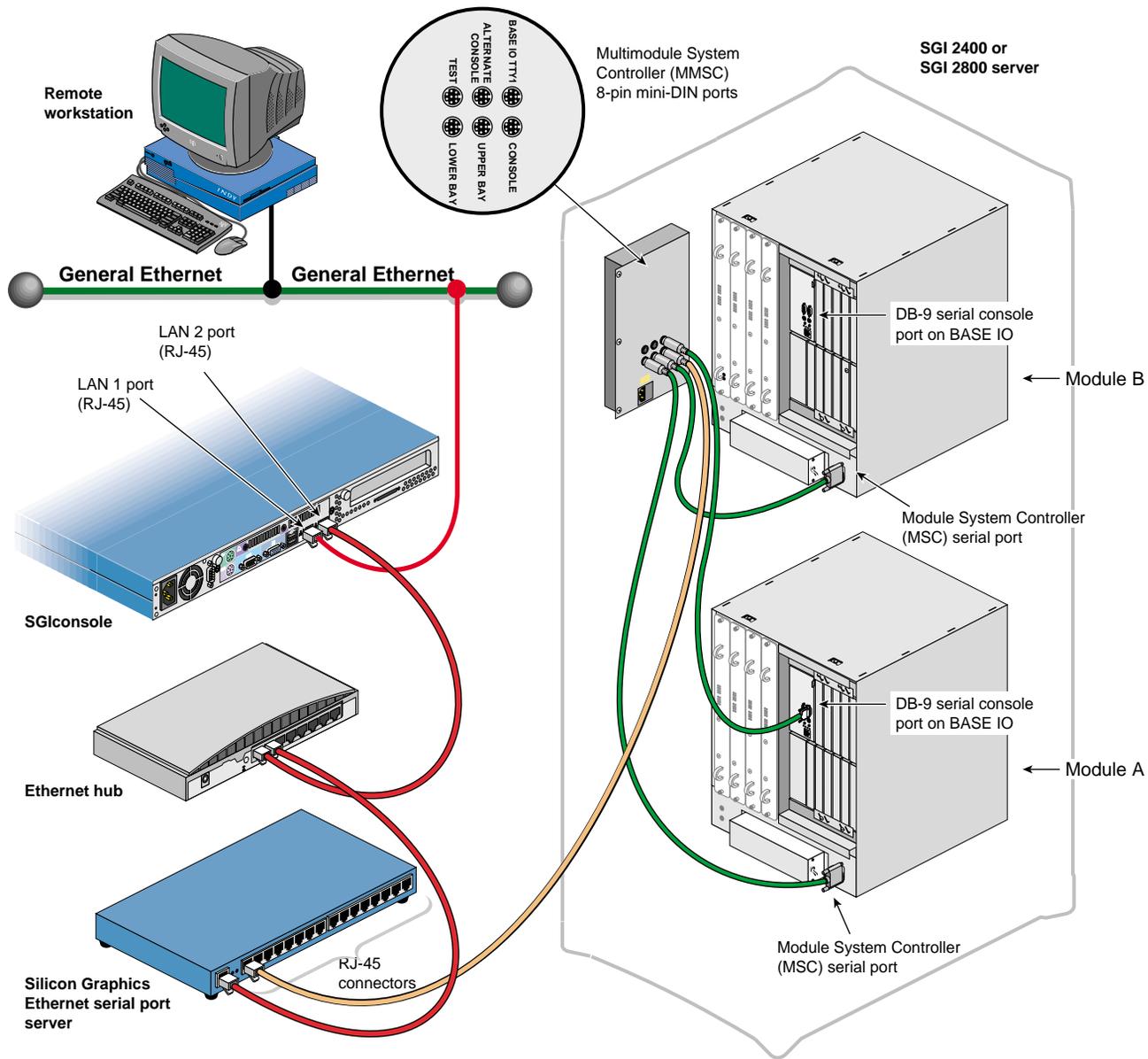


Figure 5-18 Connecting an SGI 2400 or SGI 2800 Server to an SGIconsole (SGI 1100 Shown)

To connect an SGI 2400 or SGI 2800 server to an SGIconsole, follow these steps (it is assumed that module B is located above module A in the rack and that module A is the master module):

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole, the Ethernet hubs, and the Silicon Graphics EL-16 serial port servers are disconnected from a power source.
4. Make sure that you power off the SGI 2400 or SGI 2800 server according to the instructions in *SGI 2400 and 2800 Server Owner’s Guide*.
5. Make sure that you have the following items as shown in Figure 5-19:
 - One twisted-pair serial cable with an RJ-45 connector on one end and an 8-pin mini-DIN at the other (25 feet (7.5 meters), part number 9290166) per server.
 - Three twisted-pair serial cables with a DB-9 connector at one end and an 8-pin mini-DIN at the other (20 feet (6 meters), part number 018-0668-001) per server.

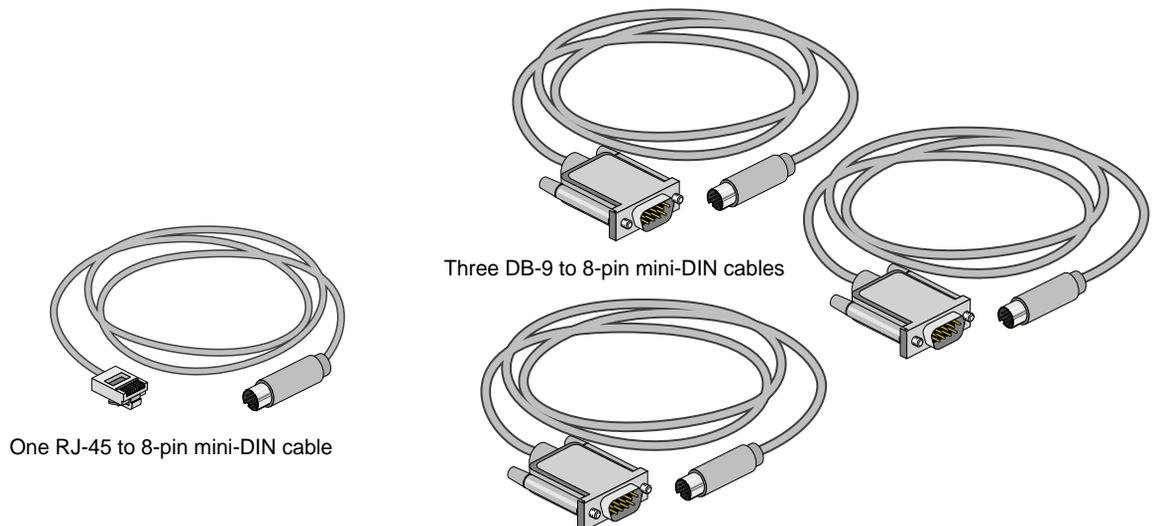


Figure 5-19 Items Needed to Connect an SGI 2400 or SGI 2800 Server to an SGIconsole

6. Connect the RJ-45 connector end of the RJ-45 to 8-pin mini-DIN twisted-pair serial cable to one of the RJ-45 serial jacks on the Silicon Graphics EL-16 serial port server. Then connect the 8-pin mini-DIN end of the cable to the 8-pin connector on the MMSC labeled “Console.” See Figure 5-20.

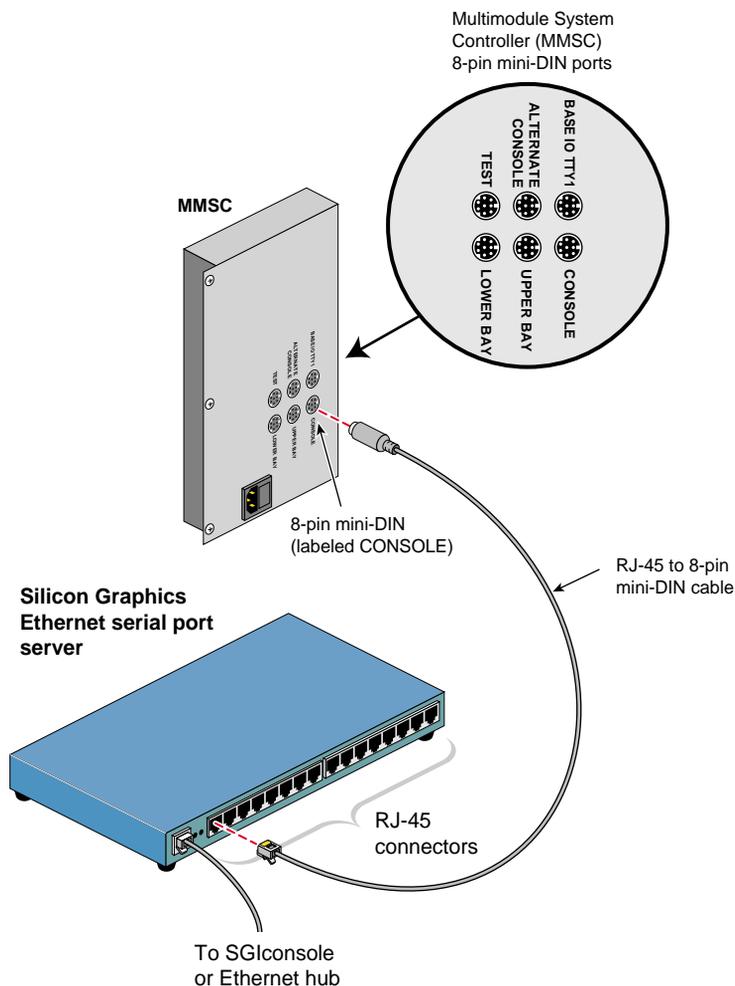


Figure 5-20 Connecting the MMSC 8-pin Console Port to the Serial Port Server

7. Connect the 8-pin mini-DIN connector end of one of the 8-pin mini-DIN to DB-9 cables to the 8-pin connector on the MMSC labeled "BASE IO TTY1." Connect the DB-9 connector end of this same cable to the serial port connector labeled "tty_1, Console" of the SGI 2400 or SGI 2800 server module A located in the lower bay of the rack. See Figure 5-21.

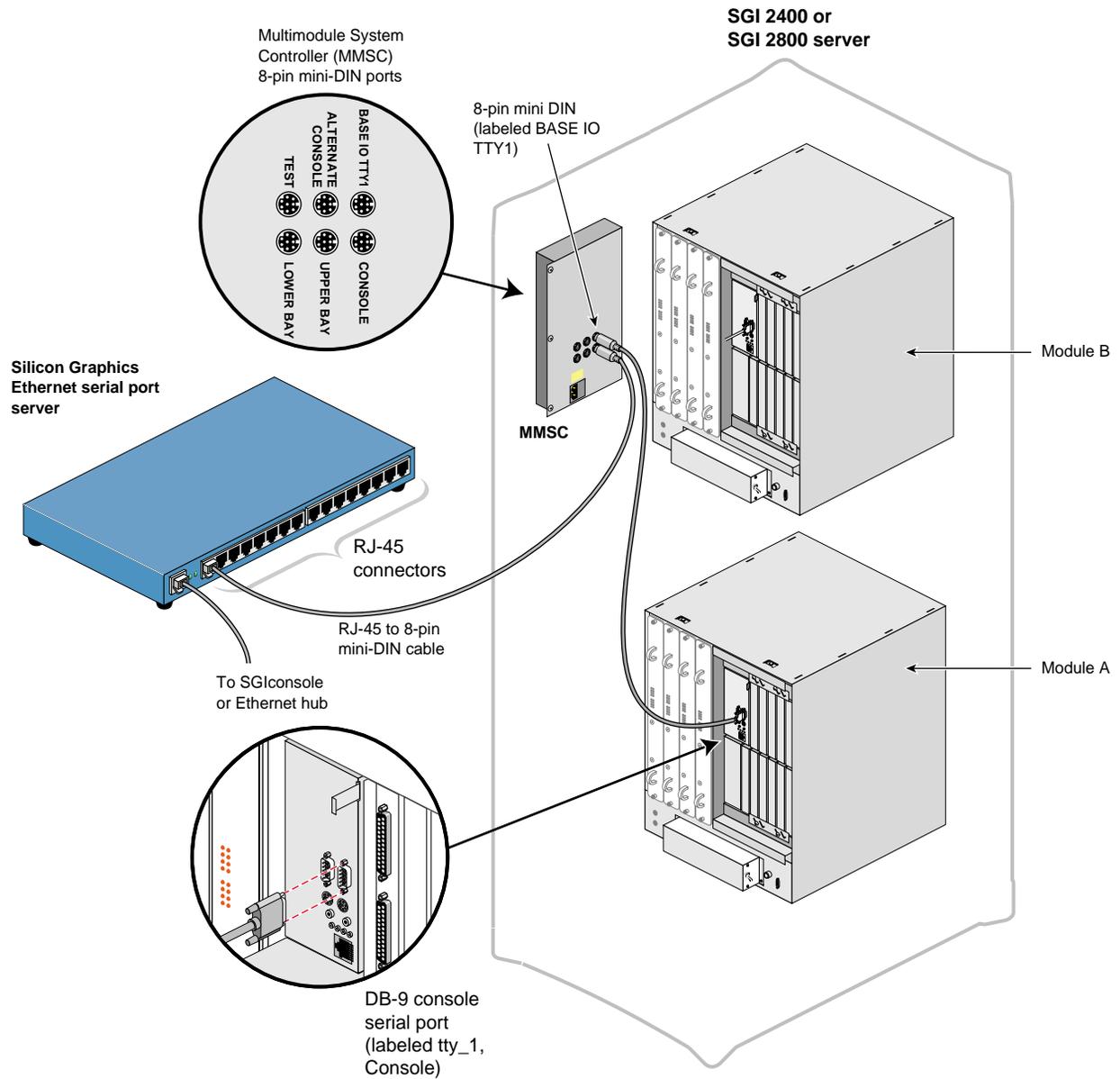


Figure 5-21 Connecting the MMSC Base I/O TTY1 to the Module A tty_1, Console Connector

8. Connect the 8-pin connector of the second 8-pin mini-DIN to DB-9 cable to the MMSC connector labeled “Upper Bay.” Connect the DB-9 connector end of the same cable to the Module System Controller (MSC) serial port rear panel connector of the SGI 2400 or SGI 2800 server module B located in the upper bay of the rack. See Figure 5-22.

Note: If you connect a device to the Module System Controller (MSC) serial port rear panel connector, you cannot connect a device to the MSC diagnostic port located on your server front panel at the same time. (The rear panel MSC port and the front panel MSC port use the same circuitry, and signals cannot be accepted or sent through both ports at the same time.)

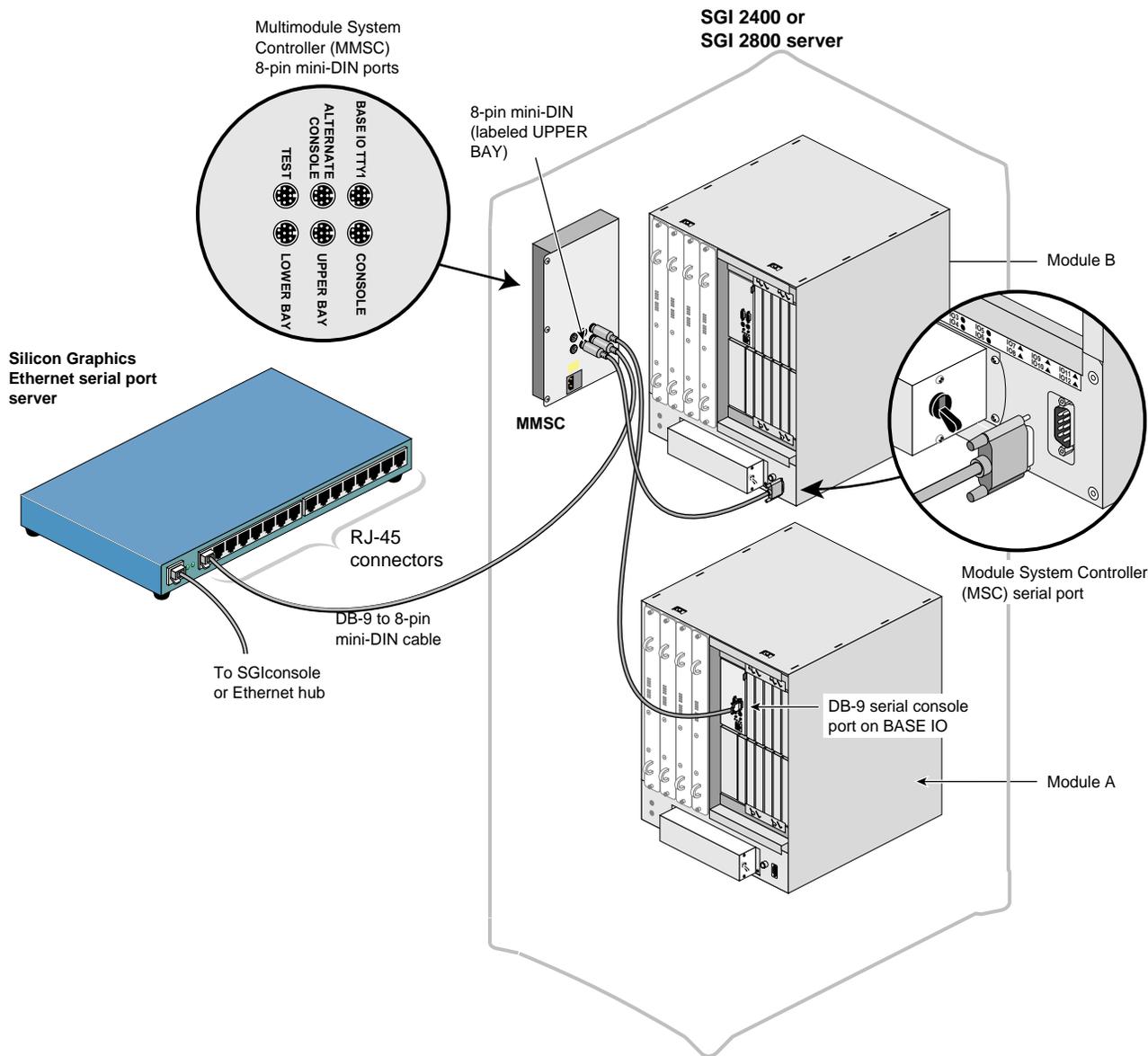


Figure 5-22 Connecting the MMSC Upper Bay Connector to the Module B MSC Serial Port

9. Connect the 8-pin connector of the third 8-pin mini-DIN to DB-9 cable to the MMSC connector labeled “Lower Bay.” Connect the DB-9 connector end of the same cable to the Module System Controller (MSC) serial port connector of the SGI 2400 or SGI 2800 server module A located in the lower bay of the rack. See Figure 5-23.

Note: If you connect a device to the Module System Controller (MSC) serial port rear panel connector, you cannot connect a device to the MSC diagnostic port located on your server front panel at the same time. (The rear panel MSC port and the front panel MSC port use the same circuitry, and signals cannot be accepted or sent through both ports at the same time.)

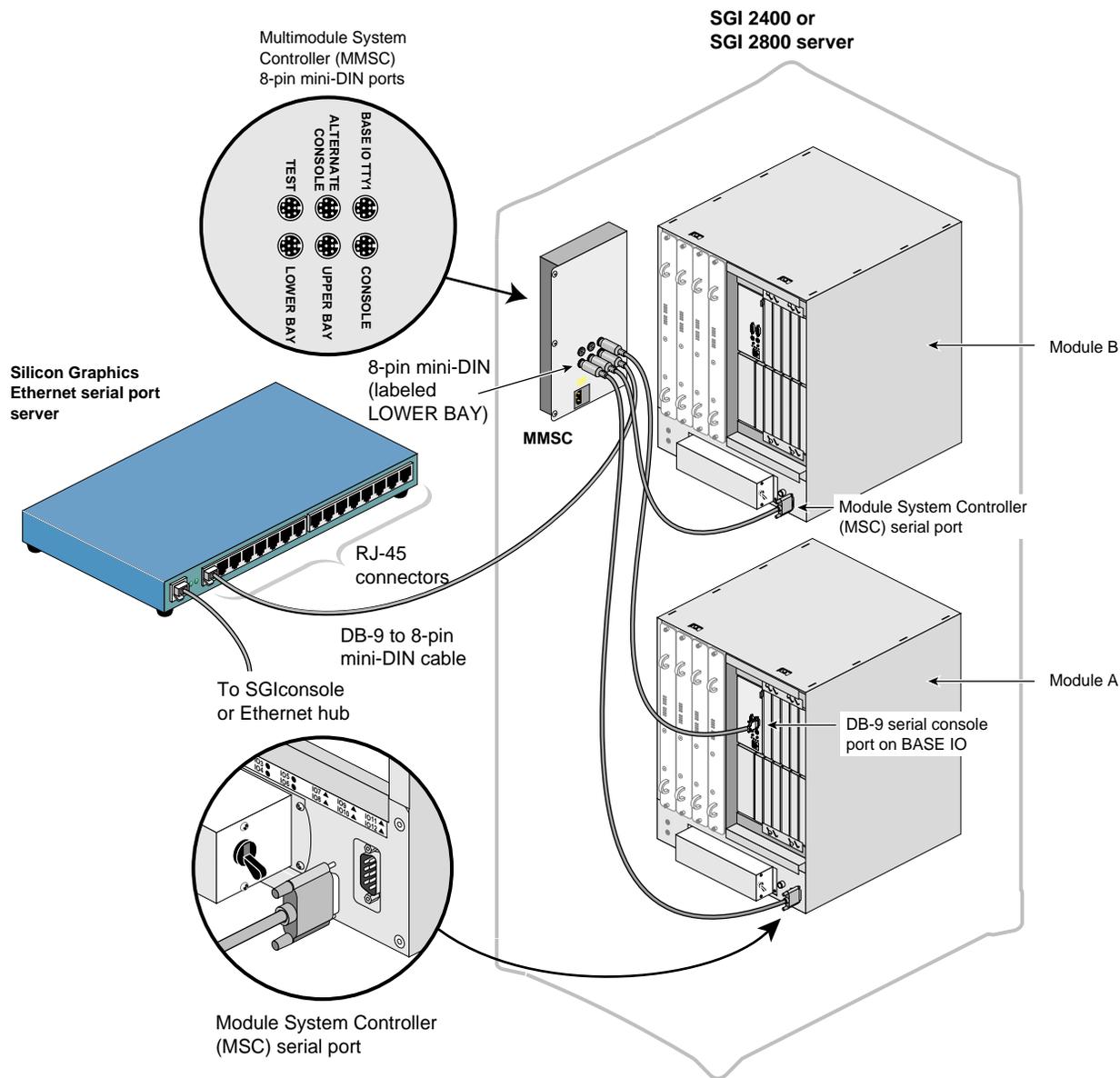


Figure 5-23 Connecting the MMSC Lower Bay Connector to the Module A MSC Serial Port

10. Connect the cables for any other SGI 2400 or SGI 2800 servers at your location as you did in steps 6 through 9. If you want to interconnect the racks, see *SGI 2400 and 2800 Server Owner's Guide* for instructions.
11. If you will be connecting other managed systems to the SGIconsole, proceed to “Connecting SGI Origin 3200 Servers Without L2 Controllers to SGIconsole” on page 104.
12. If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the Silicon Graphics EL-16 serial port servers, the managed systems, and the SGIconsole host system to a power source.
13. Power on all your managed systems according to the instructions in their respective user's guides.
14. Power on your SGIconsole according to the instructions in your host system user's guide.

Connecting SGI Origin 3200 Servers Without L2 Controllers to SGIconsole

If you will be connecting one or more SGI Origin 3200 servers without L2 controllers to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting Silicon Graphics Onyx2 Deskside Graphics Workstations to SGIconsole” on page 108.

The hardware configurations of the SGI 3200 servers will vary from site to site. For example, the SGI 3200 servers are rackmounted in some sites, while the SGI 3200 servers are set up separately as deskside systems in other sites. Figure 5-24 shows the connection of a single SGI 3200 through a Silicon Graphics EL-16 serial port server to an SGI 1100 as the SGIconsole.

Although the hardware configurations of SGI 3200 server setups will vary, the methods for connecting the SGIconsole are similar for all hardware configurations.

Note: Some SGI Origin 3200 servers include L2 controllers. If you have an SGI Origin 3200 server with an L2 controller, do not use this section. Instead, refer to “Connecting SGI Origin 3000 Series Servers With L2 Controllers to SGIconsole” on page 48.

Note: In order for your SGIconsole to operate successfully with your Origin 3200 servers, your servers must be running L1 firmware revision 1.18.0 or later.

Note: In connecting your SGIconsole to an SGI 3200 server, you may want to consult the *SGI 3200 Owner's Guide*, which describes how to set up and use the SGI 3200 server. Likewise, in connecting your SGIconsole to an SGI 3200 server, consult the *SGI 3200 Server Owner's Guide*.

Note: Use only the specified cables to connect the SGIconsole to the system chassis. The server uses PC-style serial ports. You cannot use older-style SGI serial cables. See Appendix B, “Connector Pin Assignments” for cable pin assignment information.

Note: This product requires the use of external shielded cables to maintain compliance with Part 15 of the FCC rules. Serial cables from different vendors are not compatible. Verify the pin assignments of your cable before making the connection.

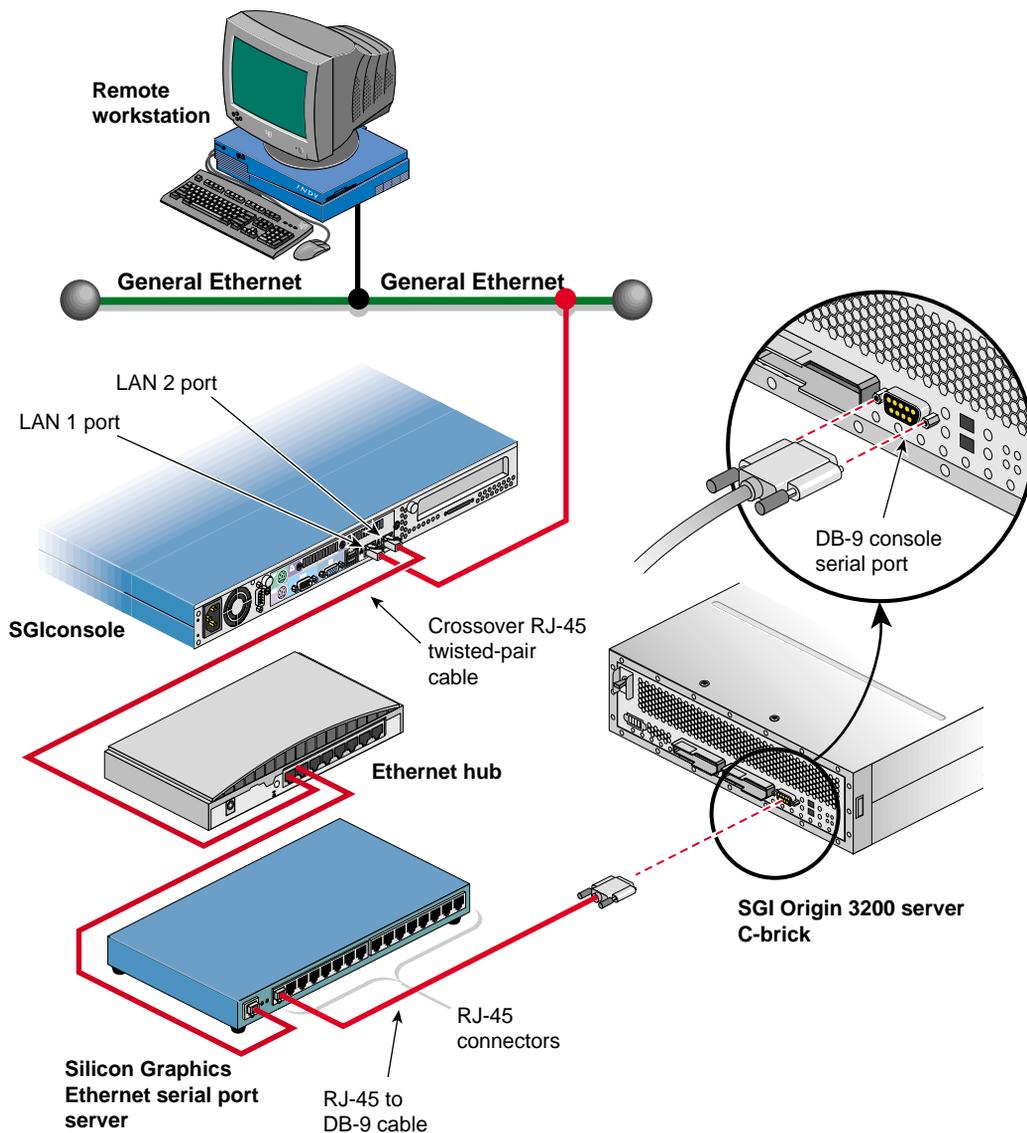
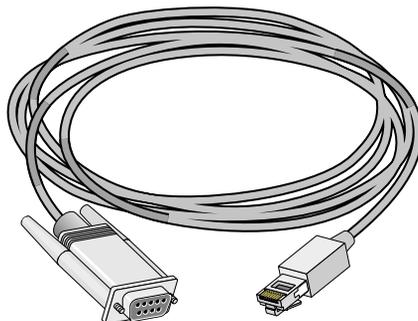


Figure 5-24 Connecting an SGI Origin 3200 Server Without an L2 Controller to an SGIconsole

To connect an SGI 3200 to an SGIconsole, follow these steps:

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole, the Ethernet hubs, and the Silicon Graphics EL-16 serial port servers are disconnected from a power source.
4. Make sure that the SGI 3200 server is powered off according to the instructions in *SGI 3200 Owner’s Guide*.
5. Make sure that you have the following items (as shown in Figure 5-25):
 - One RJ-45 to DB-9 twisted-pair flow-control serial cable (25 feet (7.5 meters), part number 7261215) per server.

Note: As an alternative to the RJ-45 to DB-9 twisted-pair serial cable, you can use a standard RJ-45 to RJ-45 twisted-pair cable with an RJ-45 to DB-9 adapter. See “RJ-45 to DB-9 Serial Adapter With Flow Control” on page 136 for adapter pin assignments.



One RJ-45 to DB-9 cable
with flow control

Figure 5-25 Items Needed to Connect an SGI Origin 3200 Server to an SGIconsole

6. Connect the RJ-45 end of one of the RJ-45 to DB-9 cable to one of the RJ-45 serial jacks in the Silicon Graphics EL-16 serial port server. Connect the DB-9 connector to the SGI 3200 serial port jack labeled “Console.” See Figure 5-26.

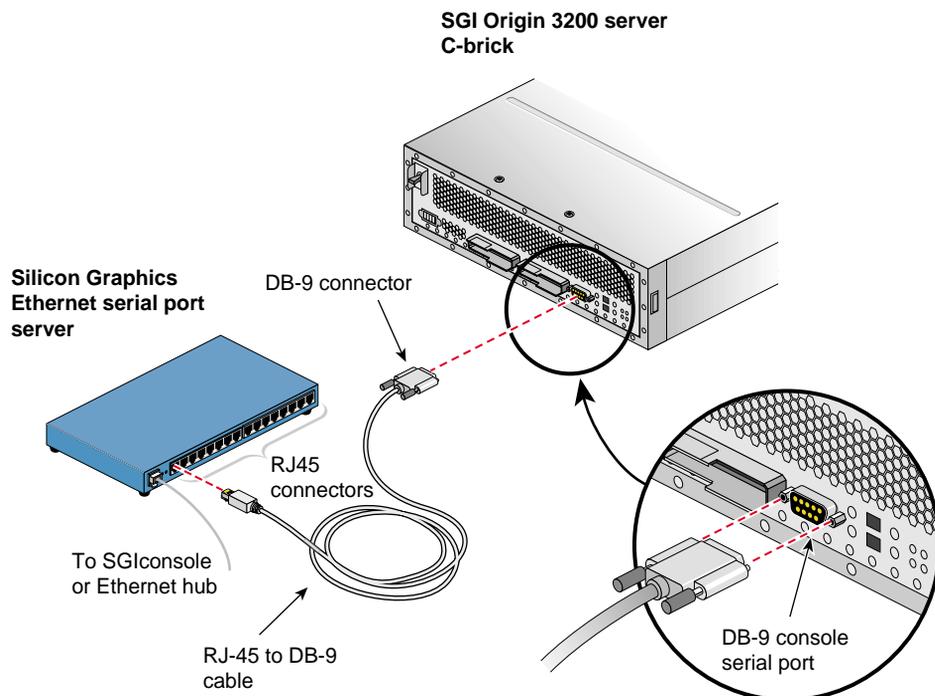


Figure 5-26 Connecting the SGI Origin 3200 Server Console Port to the Serial Port Server

7. Connect the cables for any other SGI 3200 servers at your location as you did in step 6.
8. If you will be connecting other managed systems to the SGIconsole, proceed to “Connecting Silicon Graphics Onyx2 Deskside Graphics Workstations to SGIconsole” on page 108.
9. If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the Silicon Graphics EL-16 serial port servers, the managed systems, and the SGIconsole host system to a power source.
10. Power on all your managed systems according to the instructions in their respective user’s guides.
11. Power on your SGIconsole according to the instructions in your host system user’s guide.

Connecting Silicon Graphics Onyx2 Deskside Graphics Workstations to SGIconsole

If you will be connecting one or more Silicon Graphics Onyx2 deskside workstations to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting Silicon Graphics Onyx2 Rackmount Graphics Systems to SGIconsole” on page 114.

The hardware configurations of Silicon Graphics Onyx2 deskside workstations will vary from site to site, but these workstations are generally set up separately as deskside systems. Figure 5-27 shows the connection of a single Silicon Graphics Onyx2 deskside workstation through a Silicon Graphics EL-16 serial port server to an SGIconsole.

Note: In order for your SGIconsole to operate successfully with your Silicon Graphics Onyx2 deskside workstation, your workstation must be running MSC firmware revision 3.1 or later.

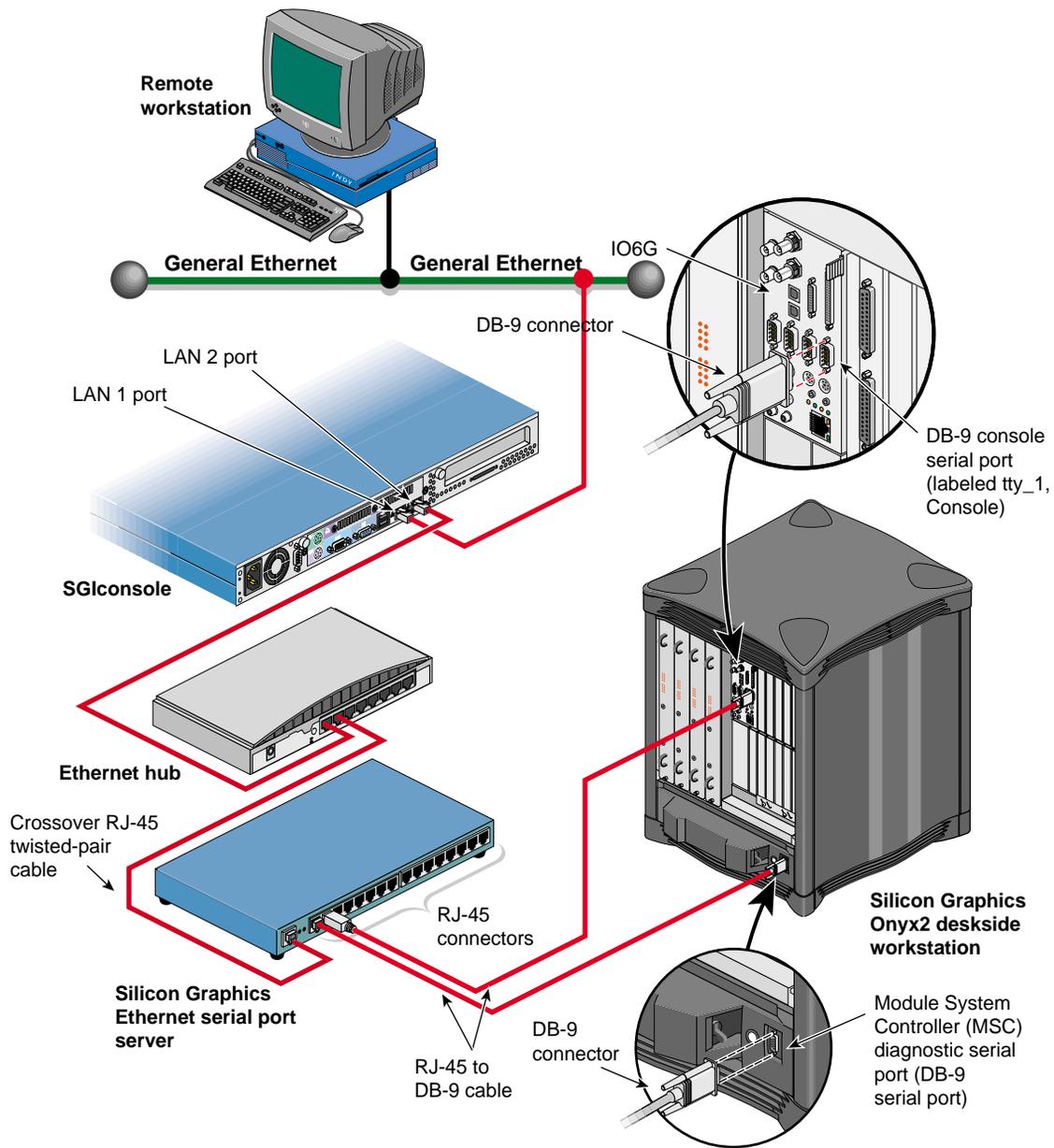


Figure 5-27 Connecting a Silicon Graphics Onyx2 Deskside Workstation to an SGIconsole

Although the hardware configurations of Silicon Graphics Onyx2 deskside workstation setups vary, the methods for connecting the SGIconsole are similar for all hardware configurations.

Note: In connecting your SGIconsole to a Silicon Graphics Onyx2 deskside workstation, you may want to consult *Silicon Graphics Onyx2 Deskside Workstation Owner's Guide*, which describes how to set up and use the Silicon Graphics Onyx2 deskside workstation.

Note: Use only the specified cables to connect the SGIconsole to the system chassis. The server uses PC-style serial ports. You cannot use older-style SGI serial cables. See Appendix B, "Connector Pin Assignments" for cable pin assignment information.

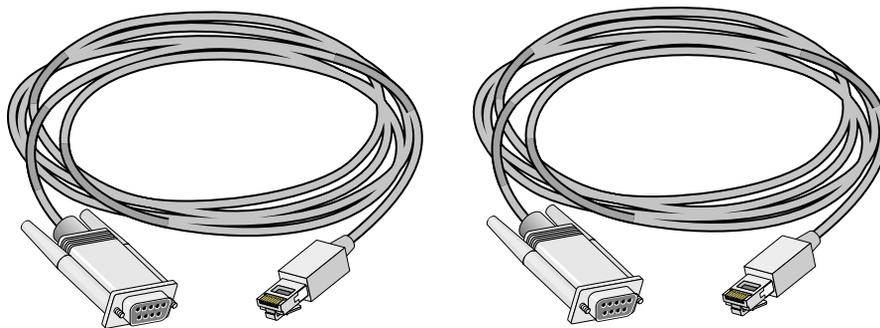
Note: This product requires the use of external shielded cables to maintain compliance with Part 15 of the FCC rules. Serial cables from different vendors are not compatible. Verify the pin assignments of your cable before making the connection.

Note: Do not run cables through areas that are electrically noisy, such as places where large electric motors, welding apparatus, or X-ray machines operate. Bury outside wiring in conduit, as lightning strikes can damage the system.

To connect the SGIconsole to the Silicon Graphics Onyx2 deskside workstation, follow these steps:

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole, the Ethernet hubs, and the Silicon Graphics EL-16 serial port servers are disconnected from a power source.
4. Make sure that the Silicon Graphics Onyx2 deskside workstation is powered off according to the instructions in *Silicon Graphics Onyx2 Deskside Workstation Owner’s Guide*.
5. Make sure that you have the following items (see Figure 5-28):
 - Two RJ-45 to DB-9 twisted-pair serial cables (25 feet (7.5 meters), part number 9290165) per deskside workstation.

Note: As an alternative to the RJ-45 to DB-9 twisted-pair serial cable, you can use a standard RJ-45 to RJ-45 twisted-pair cable with an RJ-45 to DB-9 adapter. See “RJ-45 to DB-9 Serial Adapter” on page 133 for adapter pin assignments.



Two RJ-45 to DB-9 cables

Figure 5-28 Items Needed to Connect a Silicon Graphics Onyx2 Deskside Workstation to an SGIconsole

6. Connect the RJ-45 end of the RJ-45 to DB-9 serial cable to one of the RJ-45 serial jacks on the Silicon Graphics EL-16 serial port server. Connect the DB-9 connector to the Silicon Graphics Onyx2 deskside workstation serial port jack labeled “tty_1, Console.” See Figure 5-29.

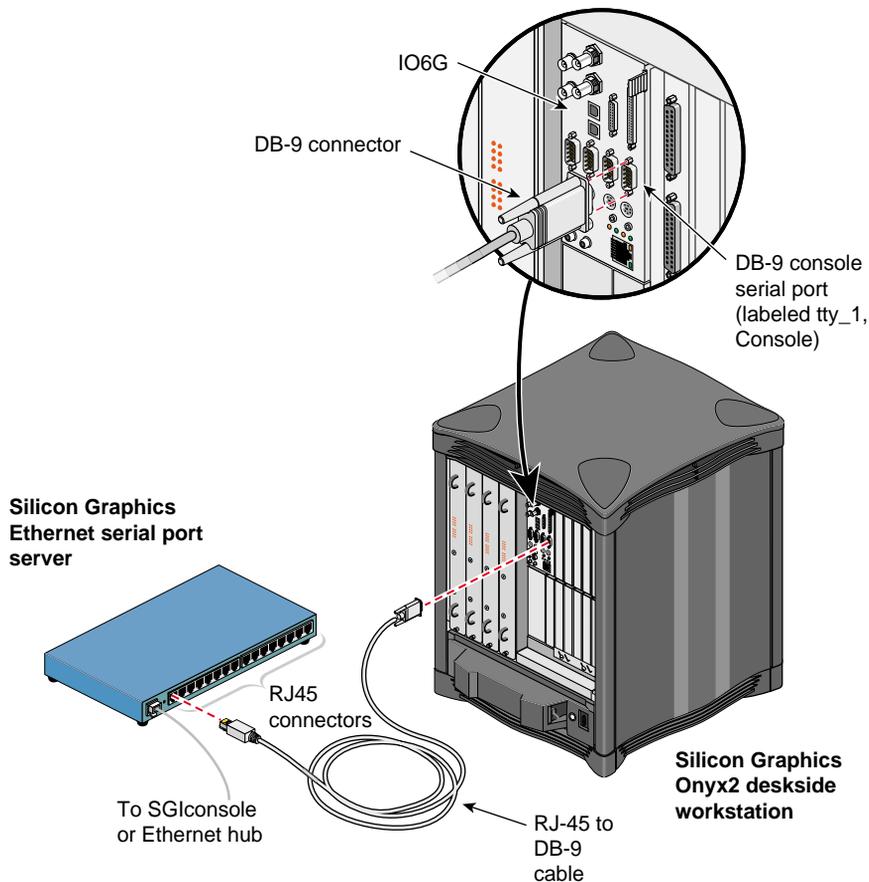


Figure 5-29 Connecting the tty_1, Console Connector to the Serial Port Server

7. Connect the RJ-45 end of the second RJ-45 to DB-9 cable to one of the RJ-45 serial jacks on the Silicon Graphics EL-16 serial port server. Connect the DB-9 connector to the DB-9 jack on the Silicon Graphics Onyx2 deskside workstation Module System Controller (MSC) diagnostic serial port. See Figure 5-30.

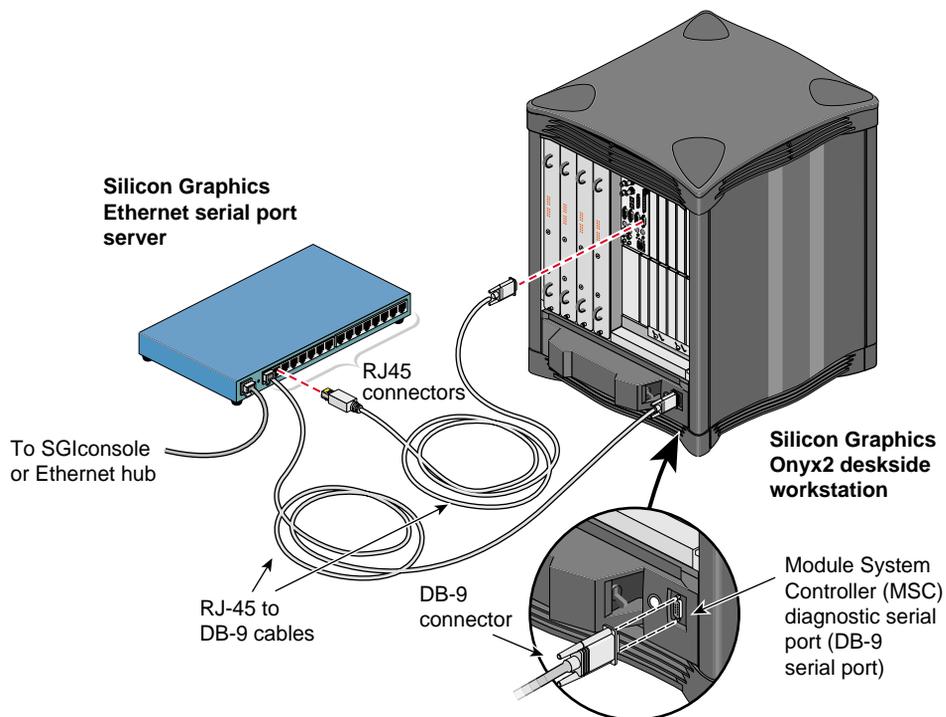


Figure 5-30 Connecting the MSC Serial Port Connector to the Serial Port Server

8. Connect the cables for any other Silicon Graphics Onyx2 deskside workstations at your location as you did in steps 6 and 7.
9. If you will be connecting other managed systems to the SGIconsole, proceed to “Connecting Silicon Graphics Onyx2 Rackmount Graphics Systems to SGIconsole” on page 114.
10. If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the Silicon Graphics EL-16 serial port servers, the managed systems, and the SGIconsole host system to a power source.
11. Power on all your managed systems according to the instructions in their respective user’s guides.
12. Power on your SGIconsole according to the instructions in your host system user’s guide.

Connecting Silicon Graphics Onyx2 Rackmount Graphics Systems to SGIconsole

If you will be connecting one or more Silicon Graphics Onyx2 rackmount graphics systems to the SGIconsole, follow the directions in this section. Otherwise, proceed to “Connecting Other Systems to SGIconsole” on page 125.

The hardware configurations for the Silicon Graphics Onyx2 rackmount graphics systems are similar to each other and from site to site. Therefore, methods for connecting the SGIconsole to an Onyx2 rackmount system are similar for all hardware configurations of these graphics systems.

Figure 5-31 shows the connection of a Silicon Graphics Onyx2 rackmount graphics system through a Silicon Graphics EL-16 serial port server to the SGIconsole (an SGI 1100 in this example). The system is composed of the graphics module, which resides in the upper bay of the rack, and the processor module, which resides in the lower bay of the rack.

Note: In order for your SGIconsole to operate successfully with your Silicon Graphics Onyx2 rackmount graphics system, it must be running MSC firmware revision 3.1 or later.

Note: In connecting your SGIconsole to a Silicon Graphics Onyx2 rackmount graphics system, you may want to consult *Silicon Graphics Onyx2 Rackmount Owner's Guide*, which describes how to set up and use these systems.

Note: Use only the specified cables to connect the SGIconsole to the system chassis. The server uses PC-style serial ports. You cannot use older-style SGI serial cables. See Appendix B, “Connector Pin Assignments” for cable pin assignment information.

Note: This product requires the use of external shielded cables to maintain compliance with Part 15 of the FCC rules. Serial cables from different vendors are not compatible. Verify the pin assignments of your cable before making the connection. Do not run cables through areas that are electrically noisy, such as places where large electric motors, welding apparatus, or X-ray machines operate. Bury outside wiring in conduit, as lightning strikes can damage the system.

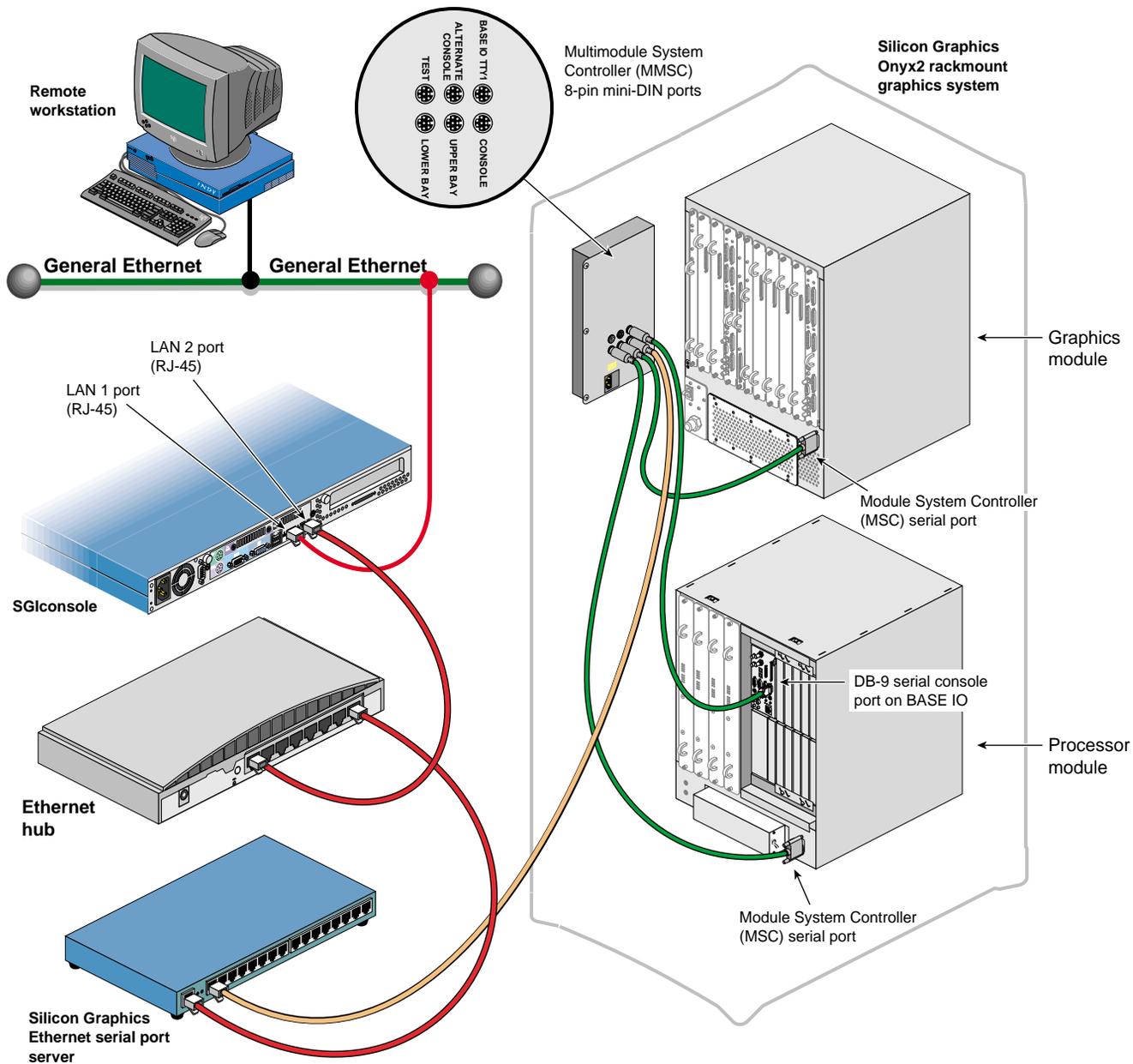


Figure 5-31 Connecting a Silicon Graphics Onyx2 Rackmount System to an SGIconsole

To connect the Silicon Graphics Onyx2 rackmount graphics system to the SGIconsole, follow these steps:

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole, the Ethernet hubs, and the Silicon Graphics EL-16 serial port servers are disconnected from a power source.
4. Make sure that the Silicon Graphics Onyx2 rackmount graphics system is powered off according to the instructions in *Silicon Graphics Onyx2 Rackmount Owner’s Guide*.
5. Make sure that you have the following items as shown in Figure 5-32:
 - One twisted-pair serial cable with an RJ-45 connector on one end and an 8-pin mini-DIN at the other (25 feet (7.5 meters), part number 9290166) per graphics system.
 - Three twisted-pair serial cables with a DB-9 connector at one end and an 8-pin mini-DIN at the other (20 feet (6 meters), part number 018-0668-001) per graphics system.

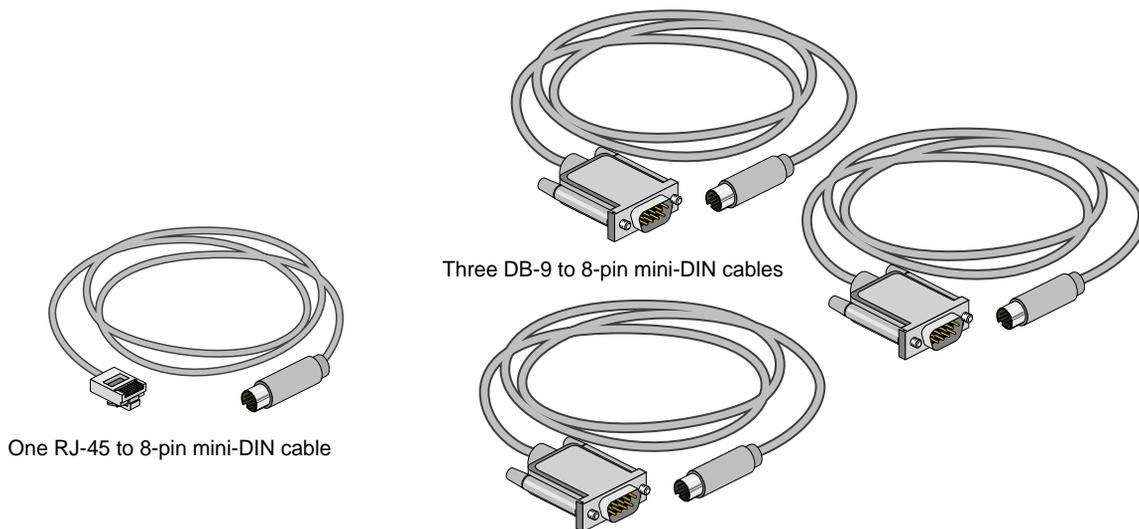


Figure 5-32 Items Needed to Connect a Silicon Graphics Onyx2 Rackmount Graphics System to an SGIconsole

6. Connect the RJ-45 connector end of the RJ-45 to 8-pin mini-DIN twisted-pair serial cable to one of the RJ-45 serial jacks on the Silicon Graphics EL-16 serial port server. Then connect the 8-pin mini-DIN end of the cable to the MMSC 8-pin mini-DIN jack labeled “Console.” See Figure 5-33.

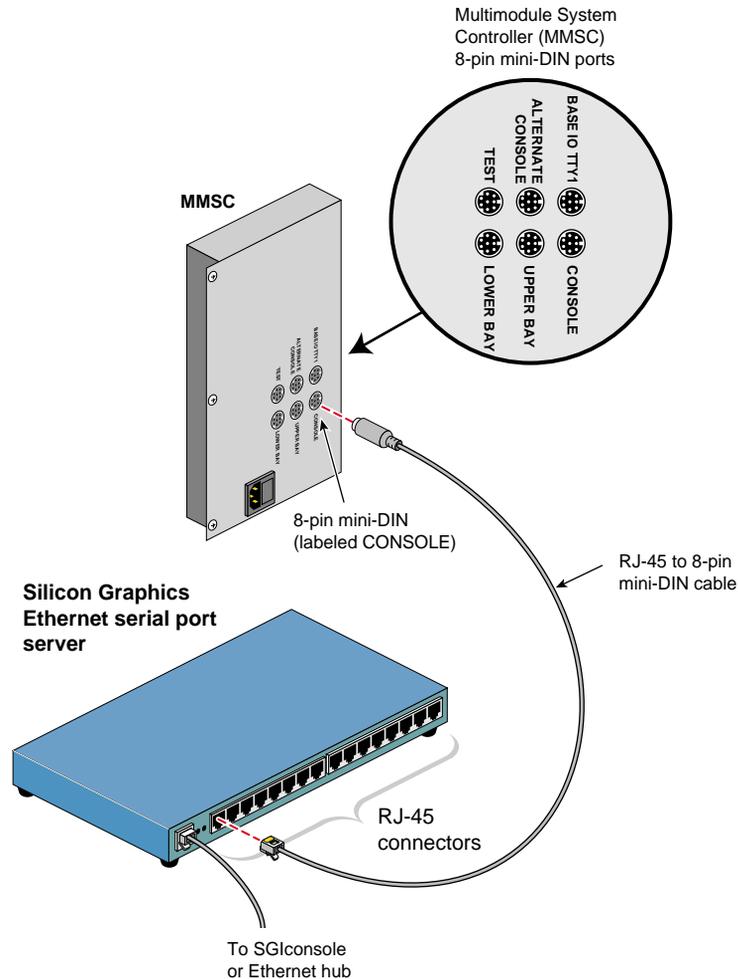


Figure 5-33 Connecting the MMSC 8-pin mini-DIN Console Port to the Serial Port Server

7. Connect the 8-pin mini-DIN connector end of one of the 8-pin mini-DIN to DB-9 cables to the 8-pin connector on the MMSC labeled "BASE IO TTY1." Connect the DB-9 connector end of this same cable to the serial port connector labeled "tty_1, Console" of the Silicon Graphics Onyx2 rackmount graphics system processor module located in the lower bay of the rack. See Figure 5-34.

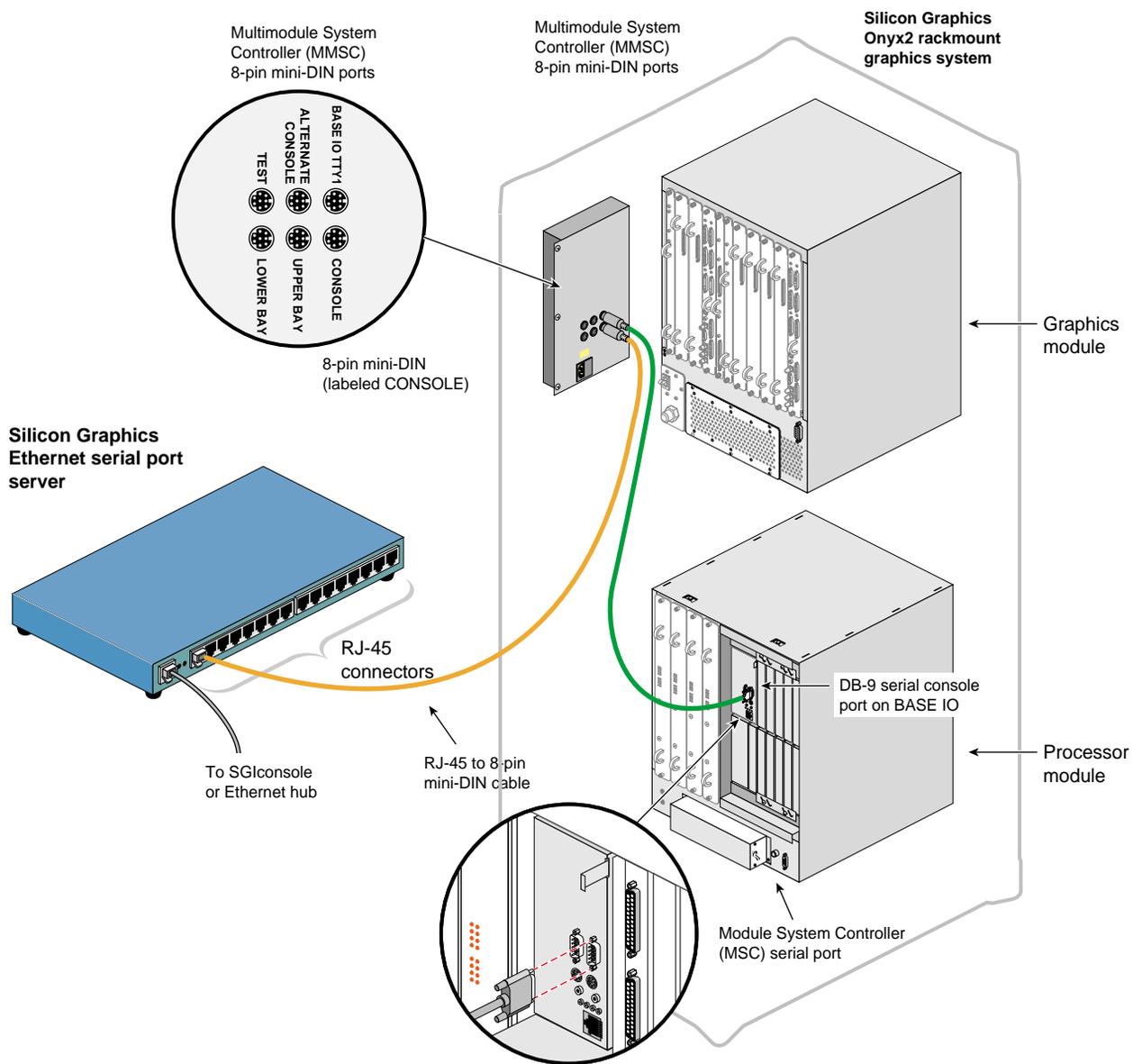


Figure 5-34 Connecting the MMSC Base I/O TTY1 to the Processor Module tty_1, Console Connector

8. Connect the 8-pin mini-DIN connector of the second 8-pin mini-DIN to DB-9 cable to the MMSC connector labeled "Upper Bay." Connect the DB-9 connector end of the same cable to the Module System Controller (MSC) serial port rear panel connector of the Silicon Graphics Onyx2 rackmount graphics system graphics module located in the upper bay of the rack. See Figure 5-35.

Note: If you connect a device to the Module System Controller (MSC) serial port rear panel connector, you cannot connect a device to the MSC diagnostic port located on your server front panel at the same time. (The rear panel MSC port and the front panel MSC port use the same circuitry, and signals cannot be accepted or sent through both ports at the same time.)

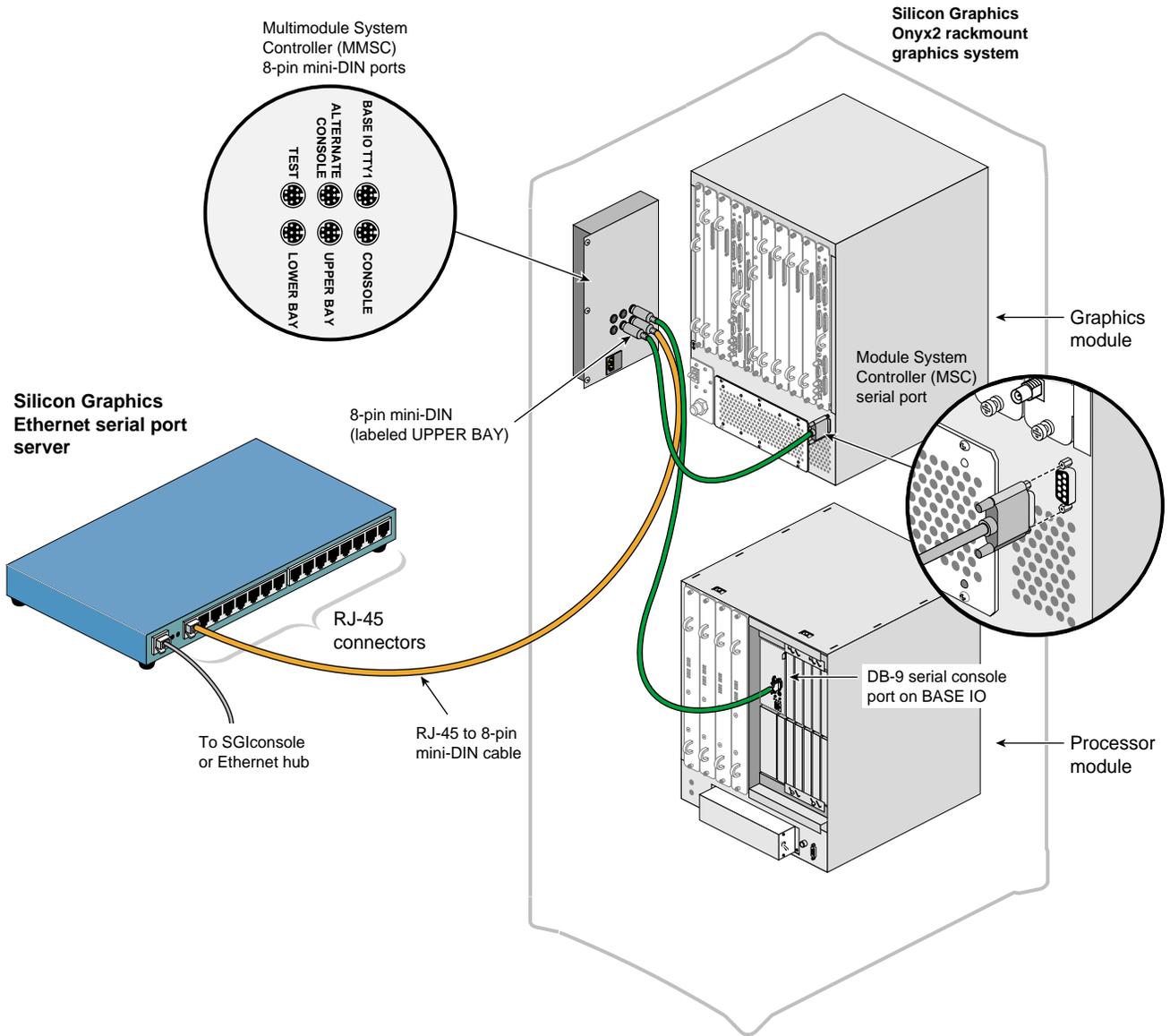


Figure 5-35 Connecting the MMSC Upper Bay Connector to the Graphics Module MSC Serial Port

9. Connect the 8-pin mini-DIN connector of the third 8-pin mini-DIN to DB-9 cable to the MMSC connector labeled “Lower Bay.” Connect the DB-9 connector end of the same cable to the Module System Controller (MSC) serial port connector of the Silicon Graphics Onyx2 rackmount graphics system processor module located in the lower bay of the rack. See Figure 5-36.

Note: If you connect a device to the Module System Controller (MSC) serial port rear panel connector, you cannot connect a device to the MSC diagnostic port located on your server front panel at the same time. (The rear panel MSC port and the front panel MSC port use the same circuitry, and signals cannot be accepted or sent through both ports at the same time.)

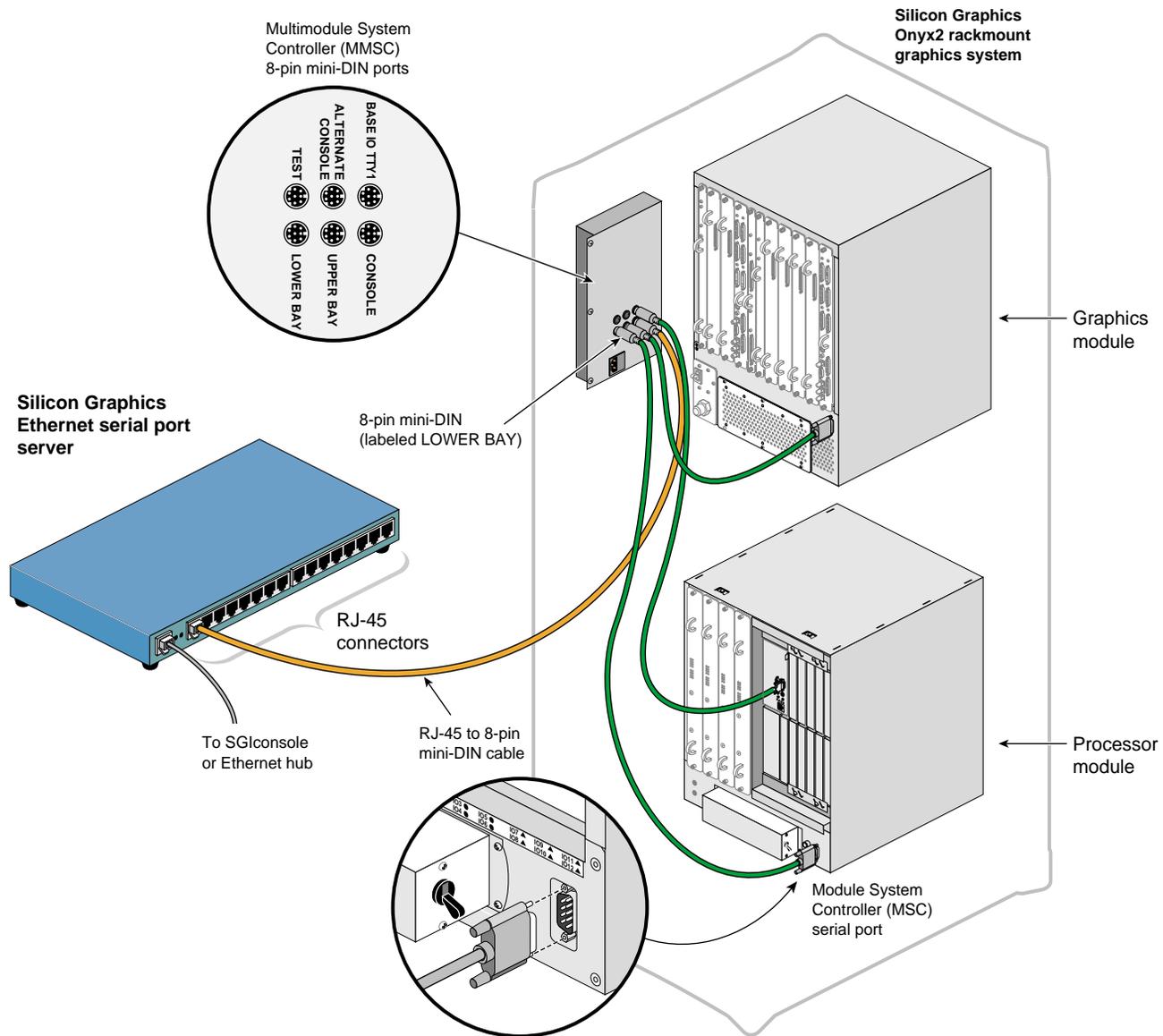


Figure 5-36 Connecting the MMSC Lower Bay Connector to the Processor Module MSC Serial Port

10. Connect the cables for any other Silicon Graphics Onyx2 rackmount graphics systems at your location as you did in steps 6 through 9. If you want to interconnect the racks, see *Silicon Graphics Onyx2 Rackmount Owner's Guide* for instructions.
11. If you will be connecting other managed systems to the SGIconsole, proceed to "Connecting Other Systems to SGIconsole" on page 125.
12. If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the Silicon Graphics EL-16 serial port servers, the managed systems, and the SGIconsole host system to a power source.
13. Power on all your managed systems according to the instructions in their respective user's guides.
14. Power on your SGIconsole according to the instructions in your host system user's guide.

Connecting Other Systems to SGIconsole

SGIconsole can provide a serial console connection for many systems not listed elsewhere in this guide. In general, any system that uses a standard RS-232 serial console may be connected to the SGIconsole in this way. This includes both selected SGI systems and selected non-SGI systems.

Note: While SGIconsole can provide a console connection for many otherwise-unlisted systems, it will not perform administration operations for these other systems, such as NMI, reset, powercycle, etc.

If you will be connecting one or more unlisted systems, follow the directions in this section. Otherwise, proceed to step 8.

Since there are numerous other systems, this section will provide an overview of the connection procedures. The details for each type of system will vary slightly.

Note: This product requires the use of external shielded cables to maintain compliance with Part 15 of the FCC rules. Serial cables from different vendors are not compatible. Verify the pin assignments of your cable before making the connection.

To connect an unlisted system to the SGIconsole, follow these steps:

1. Plan your SGIconsole host system, as described in Chapter 2, “Planning an SGIconsole Installation.”
2. Set up your SGIconsole host system, as described in Chapter 3, “Setting Up the SGIconsole Host, Ethernet Hubs, and Serial Port Servers.”
3. Make sure that the power switch on your SGIconsole host system is off, and that the SGIconsole, the Ethernet hubs, and the Silicon Graphics EL-16 serial port servers are disconnected from a power source.
4. Power off your unlisted system according to the instructions supplied with that system.
5. Make sure that you have the following items (shown in Figure 5-37):
 - One RJ-45 to DB-9 twisted-pair flow-control cable (25 feet (7.5 meters), part number 7261215) per server.

Note: As an alternative to the RJ-45 to DB-9 twisted-pair cable, you can use a standard RJ-45 to RJ-45 twisted-pair cable with an RJ-45 to DB-9 adapter. See “RJ-45 to DB-9 Serial Adapter With Flow Control” on page 136 for adapter pin assignments.

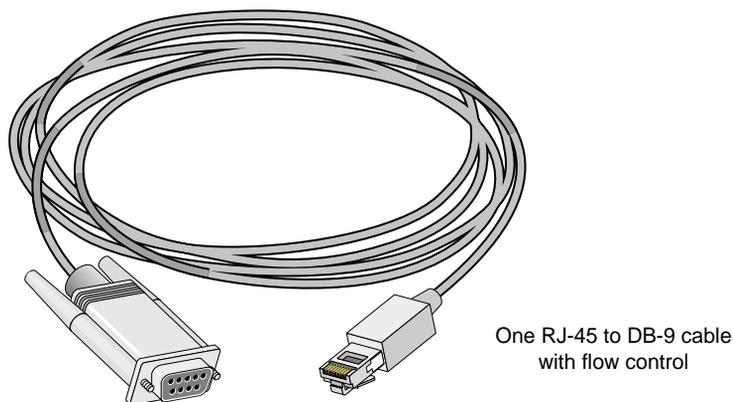


Figure 5-37 Items Needed to Connect an Unlisted System to an SGIconsole

6. Connect the RJ-45 connector end of the RJ-45 to DB-9 cable to one of the RJ-45 serial jacks on the Silicon Graphics EL-16 serial port server. Connect the DB-9 connector to the RS-232 console serial port on the system to be managed.

7. Connect the cables for any other unlisted systems at your location as you did in step 6.
8. If you are finished connecting managed systems to the SGIconsole, connect the power cables for your Ethernet hubs, the Silicon Graphics EL-16 serial port servers, the managed systems, and the SGIconsole host system to a power source.
9. Power on all your managed systems according to the instructions in their respective user's guides.
10. Power on your SGIconsole according to the instructions in your host system user's guide.

Marketing Codes and Part Numbers

This Appendix provides a cross reference among marketing codes, part numbers, and descriptions.

Table A-1 SGIconsole, Ethernet Hub, & Serial Port Server Marketing Codes & Descriptions

Marketing Code	Description
SC5-SGICONS-2.1	SGIconsole 2.1 software for managing systems. No hardware or cables included.
EL-16-1.1-SU	Standalone upgrade: 16 port serial server.
RPWRCORD-U	Stand alone upgrade power cord to plug the EL-16 into a rack PSU/PDU.
UTILSHELF-KIT-SU	Standalone upgrade. Universal utility tray and mount kit for EL-16 and/or Ethernet Hub. Note that all Onyx 3000 systems, and Altix or Origin 3000 systems with more than 9 compute bricks ship with a shelf and Ethernet hub standard.
EHUB-CONSOLE-SU	Standalone upgrade: 8-Port 10/100 Ethernet Hub, including Ethernet cable to connect to SGIconsole.

Table A-2 Cable Marketing Codes, Part Numbers, & Descriptions

Marketing Code	Part Number	Description
DM-KBD-EXT-025-SU	018-1014-001	25 ft (7.5m) DB9HD extension cable (for VGA monitor).
	018-0592-001	25 ft (7.5m) dual PS/2 extension cable (for keyboard & mouse).
XVIE-EL-CONSOLE	018-0625-001	6 ft (1.8m) RJ-45 to RJ-45 crossover Ethernet cable, connects EL-16 to SGIconsole.
XVIE-EL-CONSOLE-SU	018-0625-001	Standalone upgrade: 6 ft (2m) RJ-45 to RJ-45 crossover Ethernet cable, connects EL-16 to SGIconsole.
XVIE25-O200	9290165	25 ft (7.5m) RJ45 to DB9 serial cable, connects Origin 200 systems to EL-16.

Table A-2 Cable Marketing Codes, Part Numbers, & Descriptions **(continued)**

Marketing Code	Part Number	Description
	9290166	25 ft (7.5m) RJ45 to MiniDIN8 serial cable, connects Origin 200 systems to EL-16.
XVIE25-3200/300	7261215	25 ft (7.5m) RJ45 to DB9 serial cable, connects Origin 3200 (without L2) or Origin 300 (without L2) systems to EL-16.
XVIE25-3200/300-SU	7261215	Standalone upgrade: 25 ft (7.5m) RJ45 to DB9 serial cable, connects Origin 3200 (without L2) or Origin 300 (without L2) systems to EL-16.
XVIE25-O2K-RM1-SU	9290166	Standalone Upgrade: 25 ft (7.5m) RJ45 to MiniDIN8 serial cable, connects Origin 2000/Onyx2 rack MMSC to EL-16.
XVIE25-O2000-DS	9290165	25 ft (7.5m) RJ45 to DB9 serial cable, connects Origin 2000/Onyx2 deskside MSC to EL-16.
	9290165	25 ft (7.5m) RJ45 to DB9 serial cable, connects Origin 2000/Onyx2 deskside BaseIO console port to EL-16.
XVIE10-O3000	018-0830-001	10 ft (3m) RJ45 to RJ45 Ethernet cable, connects L2 controller on Origin 3000-series (with L2) or Origin 300 (with L2) to Ethernet hub. This cable may also be used to connect SGIconsole to the general Ethernet.
XVIE10-O3000-SU	018-0830-001	Standalone upgrade: 10 ft (3m) RJ45 to RJ45 Ethernet cable, connects L2 controller on Origin 3000-series (with L2) or Origin 300 (with L2) to Ethernet hub. This cable may also be used to connect SGIconsole to the general Ethernet.

Connector Pin Assignments

This appendix provides information about serial and Ethernet cables used in SGI console installations, and provides pinouts for the ports on the managed systems.

This appendix describes the pin assignments for the following items:

- “RJ-45 to DB-9 Twisted-Pair Serial Cable” on page 132
- “RJ-45 to DB-9 Serial Adapter” on page 133
- “Standard Twisted-Pair RJ-45 to RJ-45 Ethernet Cable” on page 141
- “Crossover Twisted-Pair RJ-45 to RJ-45 Ethernet Cable” on page 143
- “SGI Origin 200 Server Pin Assignments” on page 145
- “SGI Altix 350 and Origin and Onyx 300 and 350 Server Pin Assignments” on page 148
- “SGI 2100 and SGI 2200 Server Pin Assignments” on page 150
- “SGI 2400 and SGI 2800 Server Pin Assignments” on page 152
- “SGI Origin and Altix 3000 Series Server Pin Assignments” on page 156
- “Silicon Graphics Onyx2 Deskside Workstation Pin Assignments” on page 158
- “Silicon Graphics Onyx2 Rackmount Graphics System Pin Assignments” on page 160

Serial Cables and Adapters

This section describes some of the serial cables and serial adapters used in an SGIconsole installation.

RJ-45 to DB-9 Twisted-Pair Serial Cable

This section lists the pin assignments for an RJ-45 to DB-9 serial cable (see Figure B-1), which is needed to connect the Silicon Graphics Ethernet serial port server to the DB-9 serial port on the SGI Origin 200, the SGI 2000 series server, the Silicon Graphics Onyx2 deskside workstation, and the Silicon Graphics Onyx2 rackmount graphics system.

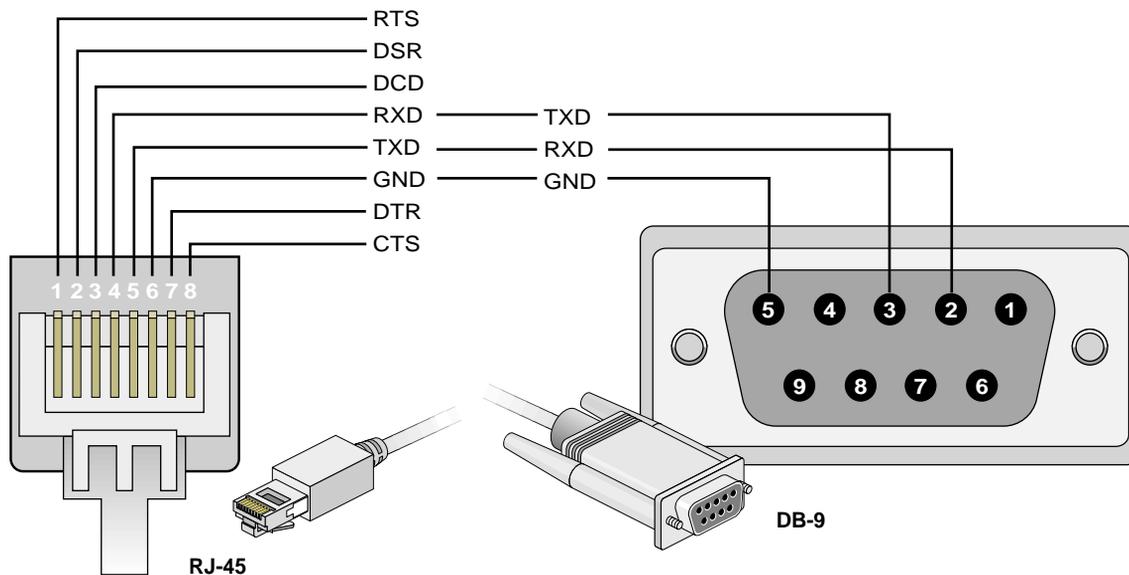


Figure B-1 RJ-45 to DB-9 Serial Cable Pin Assignments

RJ-45 to DB-9 Serial Adapter

This section lists the pin assignments for an RJ-45 to a DB-9 serial adapter (see Figure B-2), which can be used with a standard RJ-45 to RJ-45 twisted-pair cable as an alternative to the RJ-45 to DB-9 cable. This cabling is needed to connect the Silicon Graphics Ethernet serial port server to the DB-9 serial port on the SGI Origin 200, the SGI 2000 series server, the Silicon Graphics Onyx2 desktside workstation, and the Silicon Graphics Onyx2 rackmount graphics system.

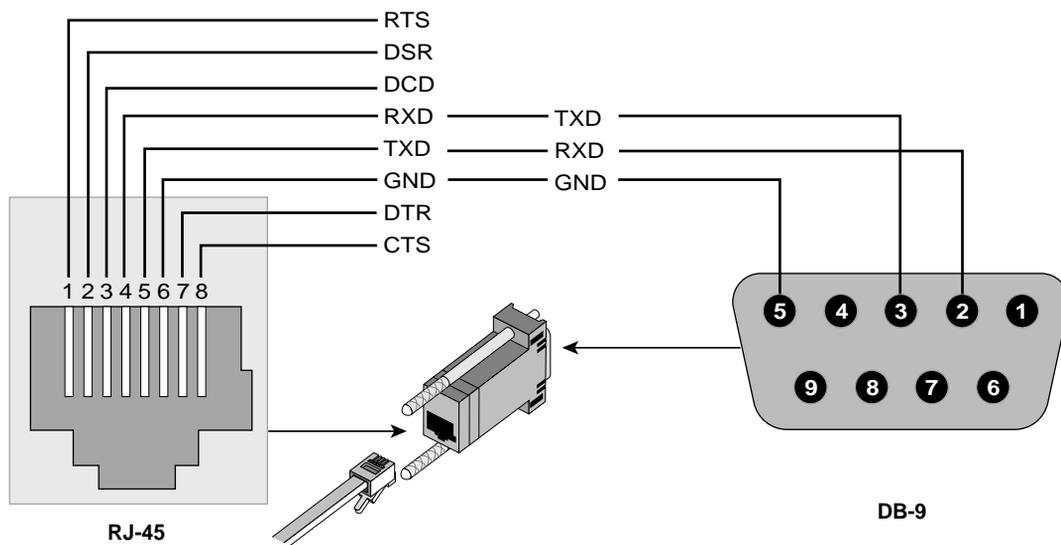


Figure B-2 RJ-45 to DB-9 Serial Adapter Pin Assignments

Table B-1 shows the RJ-45 to DB-9 serial adapter pin assignments.

Table B-1 RJ-45 to DB-9 Serial Adapter Pin Signals

RJ-45 Signals	RJ-45 Pins	DB-9 Pins	DB-9 Signals
Request to send (RTS)	1		
Data set ready (DSR)	2		
Data carrier detect (DCD)	3		
Receive data (RxD)	4	3	Transmit data (TxD)
Transmit data (TxD)	5	2	Receive data (RxD)
Ground (GND)	6	5	Ground (GND)
Data terminal ready (DTR)	7		
Clear to send (CTS)	8		
(Not connected)	9		

RJ-45 to DB-9 Twisted-Pair Serial Cable With Flow Control

This section lists the pin assignments for an RJ-45 to DB-9 serial cable with flow control (see Figure B-3), which is needed to connect the Silicon Graphics Ethernet serial port server to the DB-9 serial port on the SGI Origin 300 server without NUMAlink Module and on the SGI Origin 3200 server without L2.

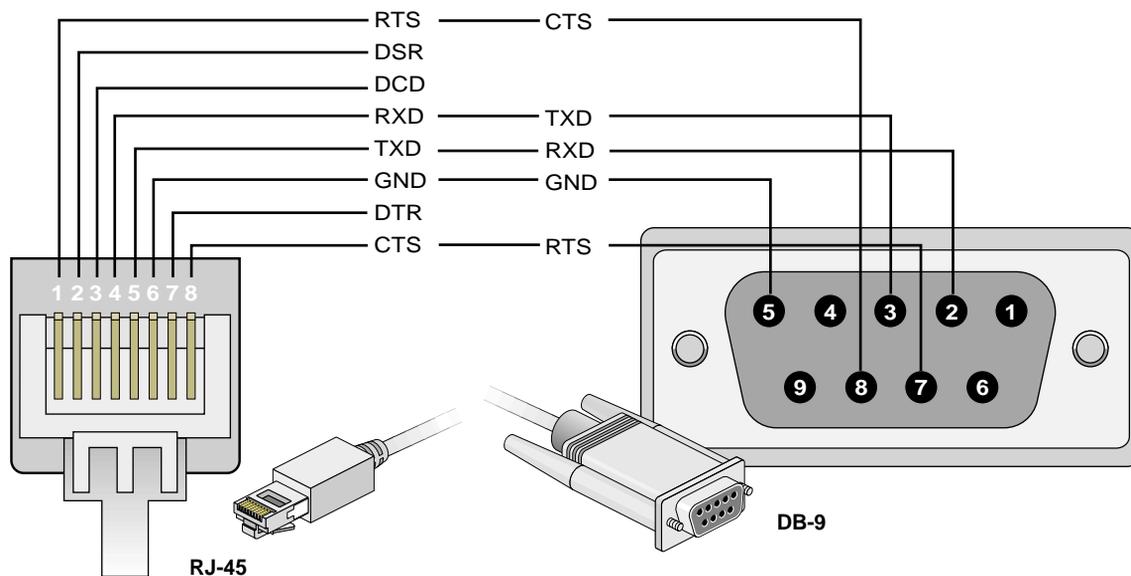


Figure B-3 RJ-45 to DB-9 Serial Cable With Flow Control Pin Assignments

RJ-45 to DB-9 Serial Adapter With Flow Control

This section lists the pin assignments for an RJ-45 to a DB-9 serial adapter with flow control (see Figure B-4), which can be used with a standard RJ-45 to RJ-45 twisted-pair cable as an alternative to the RJ-45 to DB-9 cable. This cabling is needed to connect the Silicon Graphics Ethernet serial port server to the DB-9 serial port on the SGI Origin 200, the SGI 2000 series server, the Silicon Graphics Onyx2 deskside workstation, and the Silicon Graphics Onyx2 rackmount graphics system.

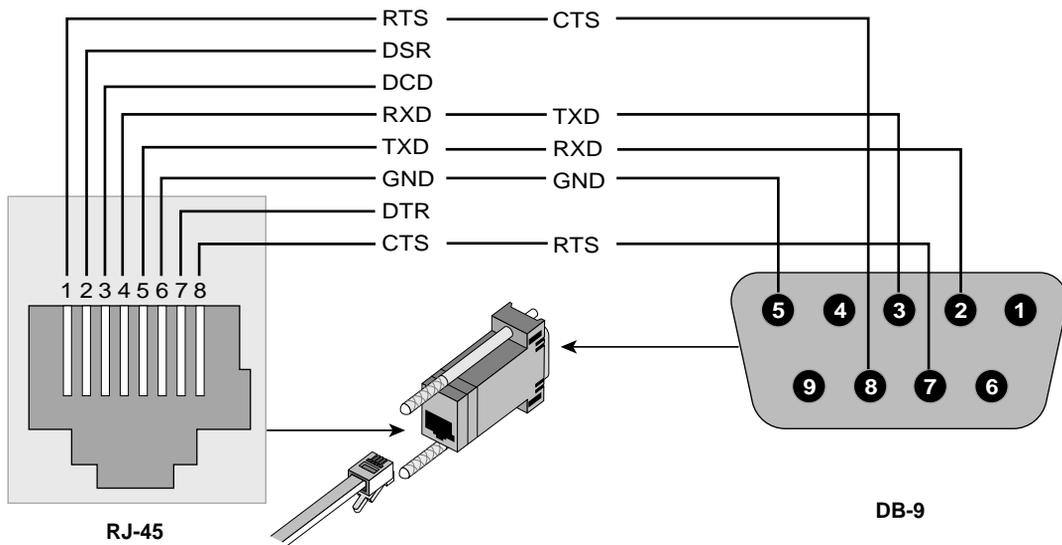


Figure B-4 RJ-45 to DB-9 Serial Adapter With Flow Control Pin Assignments

Table B-2 shows the RJ-45 to DB-9 serial adapter with flow control pin assignments.

Table B-2 RJ-45 to DB-9 Serial Adapter With Flow Control Pin Signals

RJ-45 Signals	RJ-45 Pins	DB-9 Pins	DB-9 Signals
Request to send (RTS)	1	8	Clear to send (CTS)
Data set ready (DSR)	2		
Data carrier detect (DCD)	3		
Receive data (RxD)	4	3	Transmit data (TxD)
Transmit data (TxD)	5	2	Receive data (RxD)
Ground (GND)	6	5	Ground (GND)
Data terminal ready (DTR)	7		
Clear to send (CTS)	8	7	Request to send (RTS)
(Not connected)	9		

Ethernet Cables

This section describes the Ethernet cables used in an SGIconsole installation and provides guidance in selecting the correct cable for each connection.

Standard Versus Crossover Ethernet Cables

When connecting Ethernet hubs, serial port servers, and managed systems to an SGIconsole host system, you will at various times use a “standard” Ethernet cable and at other times use a “crossover” Ethernet cable. This section explains the difference between the two types of cables and explains when you would use each type.

Ethernet over twisted pair wires, officially called 10-BaseT (the 10 Megabits/second version) or 100-BaseTX (100 Mb/s version), is a point-to-point protocol. This means that each twisted pair Ethernet cable connects exactly two devices, no more.

The RJ-45 Ethernet jack in each of these two device has a pair of contacts for transmit (to transmit data to the other computer) and a pair of contacts for receive (to receive data from the other computer), as shown in Figure B-6. Note that though the RJ-45 jack has eight contacts, the twisted pair Ethernet standards only uses four of them. When any two twisted-pair Ethernet devices are connected together, they will only communicate if the transmit contacts on one device are “crossed over” in order to connect to the receive contacts on the other, and vice versa, as shown in Figure B-5.

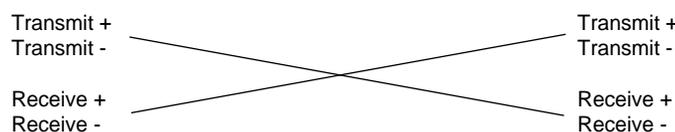


Figure B-5 Twisted-Pair Ethernet Crossover Concept

Two “crossovers” cancel each other out. Thus three crossovers are effectively the same as one crossover. More generally, a combination that includes any odd number of crossovers is effectively the same as a single crossover, and a combination that includes any even number of crossovers is effectively the same as a straight-through cable (that is, no crossover).

When connecting two devices, it doesn’t really matter where the crossover is, so long as there is one somewhere in the connection. Some devices have this crossover built in to the device. If you

use a standard cable to connect a device with a built-in crossover to a device with no built-in crossover, the total number of crossovers is one, and the devices communicate.

If you connect two devices with no built-in crossover, you must use a crossover cable.

Similarly, if you connect two devices that each have built-in crossovers, the two built-in crossovers cancel each other out, and you must use a crossover cable.

Which Devices Have Built-in Crossovers?

Typically computers do not have a built-in crossover in their Ethernet ports. Typically routers, switches, and hubs do have a built-in crossover in their Ethernet ports.

Since a typical installation has computers connected to routers, this allows the use of standard twisted-pair cables for most purposes.

When a computer is connected to another computer, or a router to another router, you will typically have either zero or two crossovers. Either way, you would need to use a crossover cable.

Some routers, switches, and hubs have a dedicated port that can be switched between crossover and straight-through. This is often called an “uplink port,” and the switch is often called an uplink switch.

Ethernet Jack Pinout

The pin assignments for a 10-BaseT or 100-BaseTX Ethernet jack are shown in Figure B-6 and described in Table B-3.

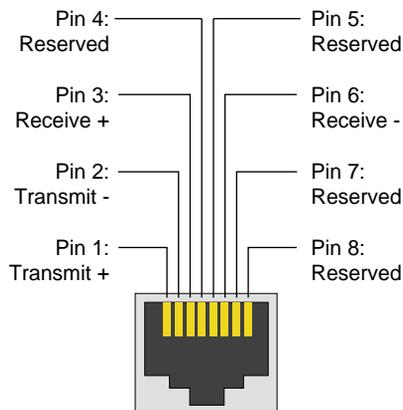


Figure B-6 RJ-45 Ethernet Jack Pin Assignments

Table B-3 RJ45 Ethernet Jack Pin Assignments

Pin	Assignment
1	Transmit + (TX+)
2	Transmit - (TX-)
3	Receive + (RX+)
4	Reserved
5	Reserved
6	Receive - (RX-)
7	Reserved
8	Reserved

Standard Twisted-Pair RJ-45 to RJ-45 Ethernet Cable

A standard twisted-pair Ethernet cable is wired the same on both ends, as shown in Figure B-7 and described Table B-4. Though other wiring color codes are occasionally used, the T-568B color codes shown here are the most common.

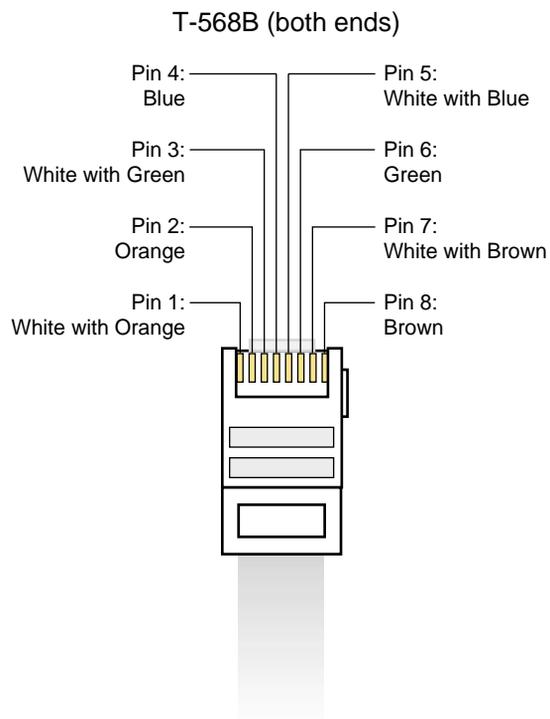


Figure B-7 Typical Color Codes for a Standard RJ-45 Ethernet Cable

Table B-4 Typical Color Codes for a Standard Twisted-Pair Ethernet Cable

Pin	T-568B Color Codes (Both Ends)
1	White with Orange
2	Orange
3	White with Green
4	Blue
5	White with Blue
6	Green
7	White with Brown
8	Brown

Crossover Twisted-Pair RJ-45 to RJ-45 Ethernet Cable

A crossover twisted-pair Ethernet cable is wired differently on each end. Only one end of the cable is wired like a standard twisted-pair Ethernet cable. Though other wiring color codes are occasionally used, the T-568B and T-568A color codes shown in Figure B-8 and described in Table B-5 are the ones most commonly used for crossover Ethernet cables (T-568B on one end, T-568A on the other).

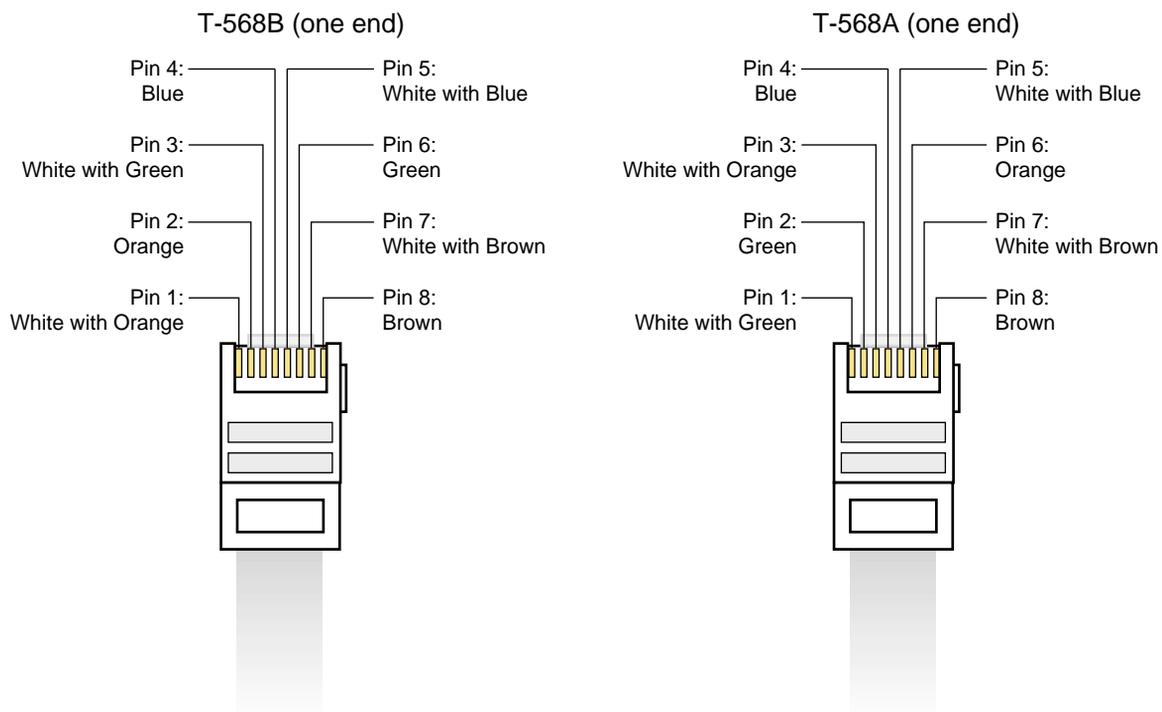


Figure B-8 Typical Color Codes for a Crossover RJ-45 Ethernet Cable

Table B-5 Typical Color Codes for a Crossover Twisted-Pair Ethernet Cable

Pin	T-568B Color Codes (One End)	T-568A Color Codes (One End)
1	White with Orange	White with Green
2	Orange	Green
3	White with Green	White with Orange
4	Blue	Blue
5	White with Blue	White with Blue
6	Green	Orange
7	White with Brown	White with Brown
8	Brown	Brown

SGI Origin 200 Server Pin Assignments

Figure B-9 shows the pin assignments for the serial port connector 1 and serial port connector 2 on the rear panel of the Origin 200 servers.

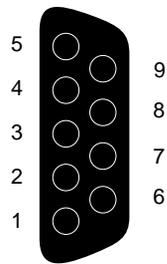


Figure B-9 SGI Origin 200 Server Serial Port Pin Assignments

Table B-6 lists the pin assignments for the serial port pin numbers in RS-232 mode.

Table B-6 Origin 200 Server Serial Port Pin Assignments, RS-232 Mode

Pin	Assignment
1	Data carrier detect (DCD)
2	Receive data (RXD)
3	Transmit data (TXD)
4	Data terminal ready (DTR)
5	Ground (GND)
6	Data set ready (DSR)
7	Request to send (RTS)
8	Clear to send (CTS)
9	(Not connected)

Table B-7 lists the pin assignments for the serial port pin numbers in the RS-422 mode.

Table B-7 Origin 200 Server Serial Port Pin Assignments, RS-422 Mode

Pin	Assignment
1	(Reserved)
2	Receive data- (RXD-)
3	Transmit data- (TXD-)
4	Transmit data+ (TXD+)
5	Signal ground (GND)
6	Receive data+ (RXD+)
7	Output handshake (HSKo)
8	Input handshake (HSKi)
9	(Reserved)

SGI Altix 350 and Origin and Onyx 300 and 350 Server Pin Assignments

This section lists the pin assignments for the following SGI Altix 350, Origin and Onyx 300 and 350 connectors:

- DB-9 serial port connector labeled “Console.”
- Ethernet connector on the L2 controller hardware (only present in SGI Origin 300 server with NUMALink Module systems).

Figure B-10 shows the pin number locations and pin assignments for the DB-9 serial port connector on the SGI Altix 350, Origin and Onyx 300 and 350 labeled “Console.”

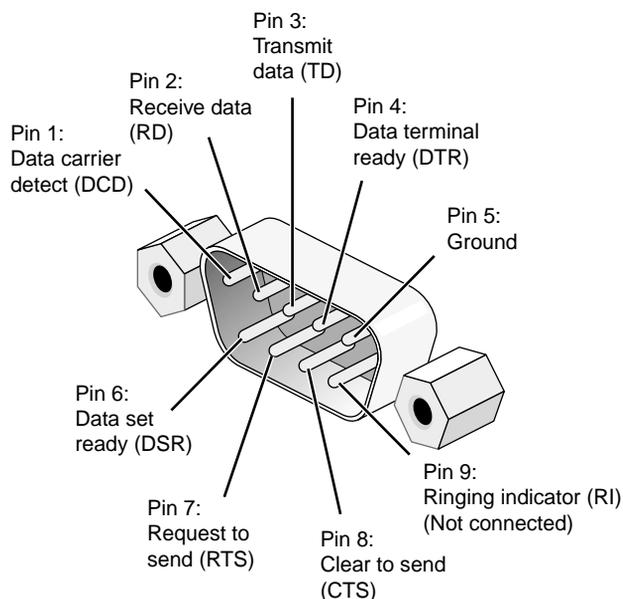


Figure B-10 SGI Altix 350, Origin and Onyx 300 and 350 DB-9 Serial Port Connector Pin Assignments

Figure B-11 shows the pin number locations and pin assignments for the Ethernet connector on the L2 controller hardware for the SGI Origin and Onyx 300 and 350 with NUMAlink Module.

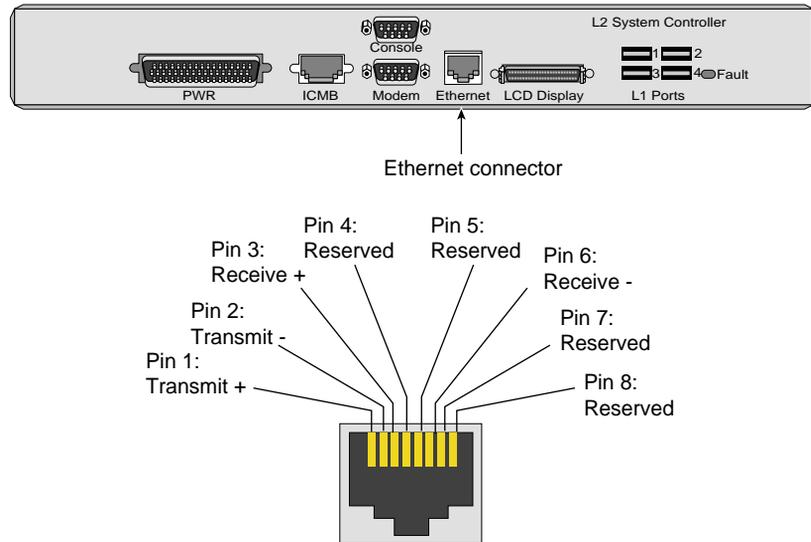


Figure B-11 L2 Controller Ethernet Connector Pin Assignments

SGI 2100 and SGI 2200 Server Pin Assignments

Figure B-12 shows the pin number locations and pin assignments for the DB-9 serial port connectors labeled “tty_2” and “tty_1, Console” on the SGI 2100 and SGI 2200 servers.

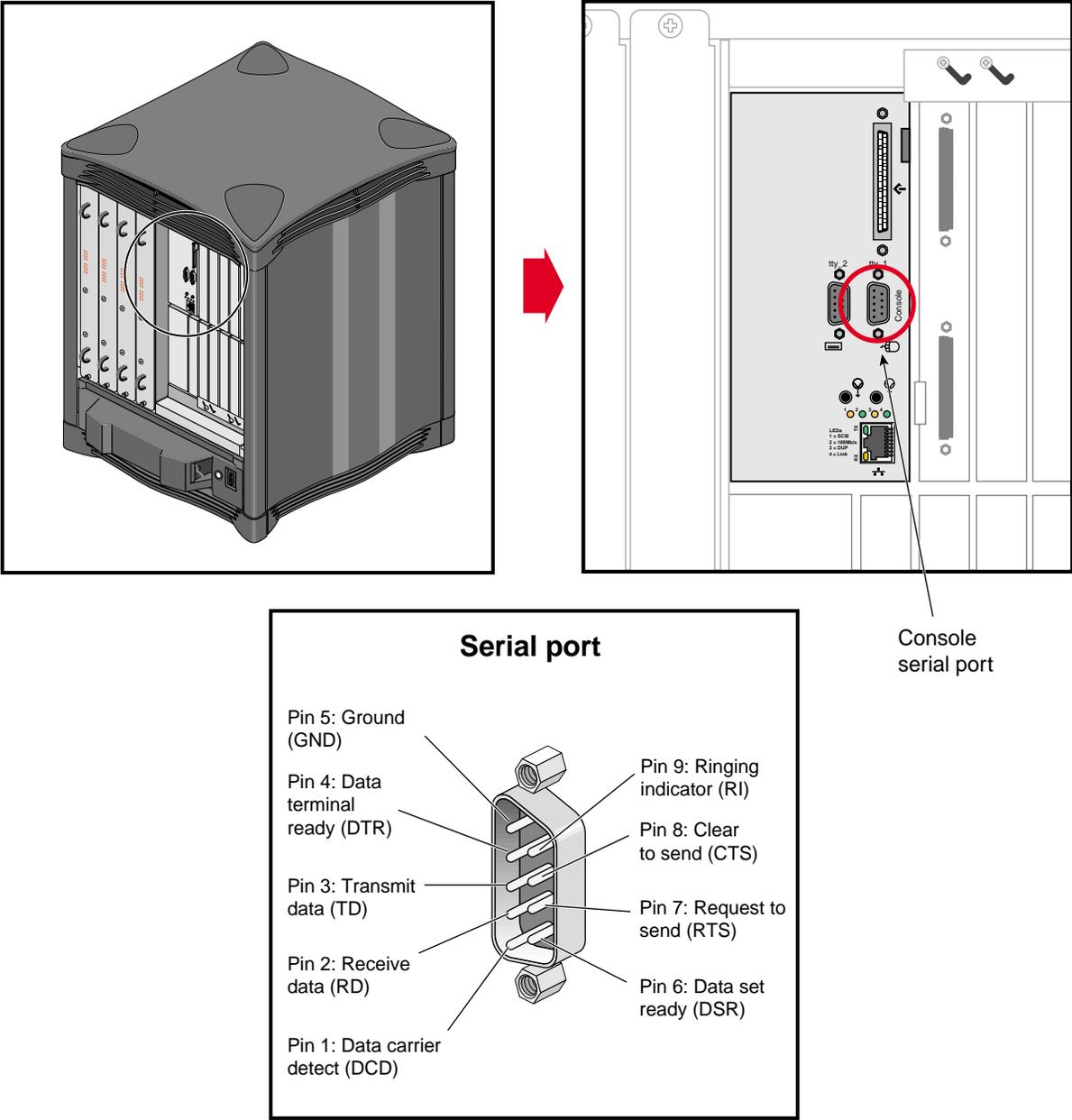


Figure B-12 SGI 2100 and SGI 2200 Server Serial Port Pin Location and Assignments

SGI 2400 and SGI 2800 Server Pin Assignments

This section lists the pin assignments for the following SGI 2400 and SGI 2800 server connectors:

- DB-9 serial port connectors labeled “tty_2” and “tty_1, Console.”
- Module System Controller (MSC) serial port.
- Multimodule System Controller (MMS) 8-pin mini-DIN connectors.

Figure B-13 shows the pin number locations and pin assignments for the DB-9 serial port connectors labeled “tty_2” and “tty_1, Console.”

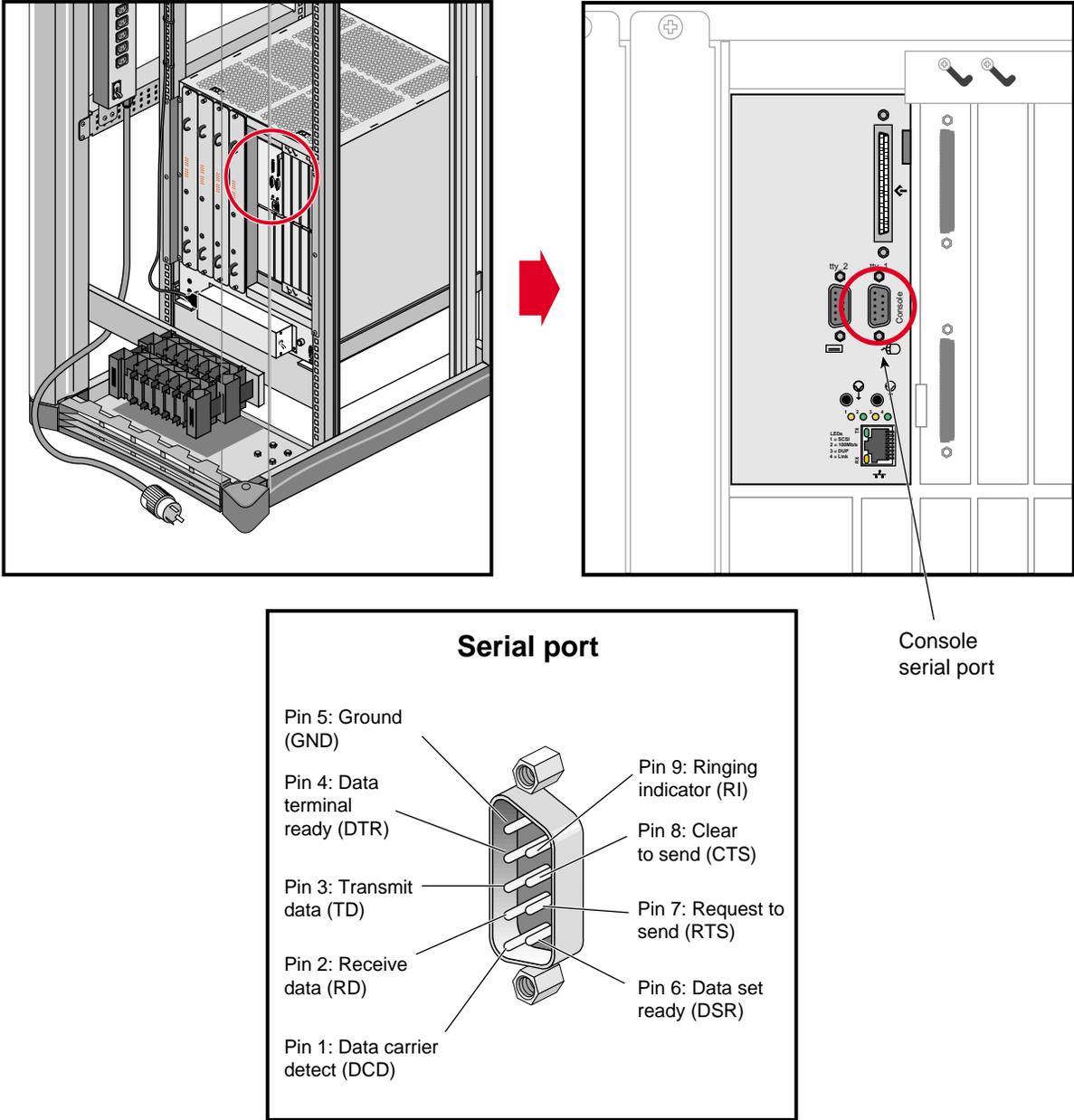
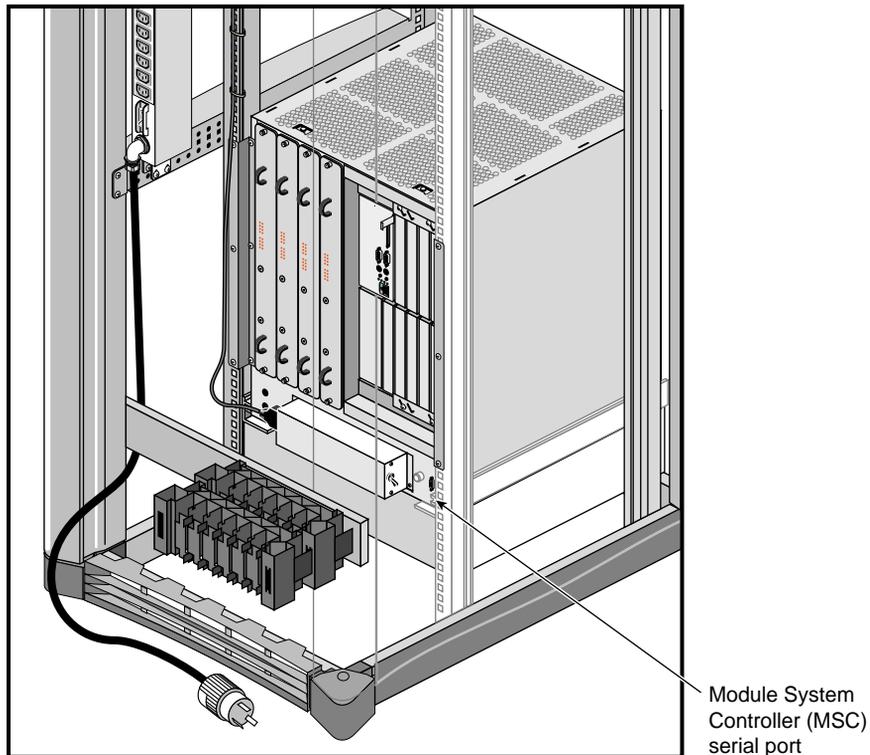


Figure B-13 SGI 2400 and SGI 2800 Server Serial Port Pin Location and Assignments

Figure B-14 shows the pin locations and assignments for the Module System Controller (MSC) serial port (DB-9 connector).



Module System Controller (MSC) serial port (DB-9)

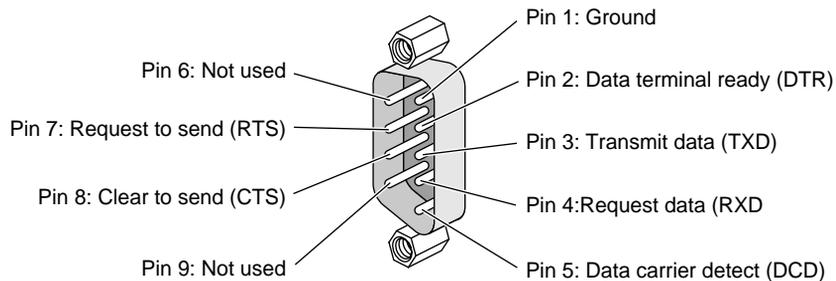


Figure B-14 Module System Controller (MSC) Serial Port Pin Locations and Assignments

Figure B-15 shows the MMSC 8-pin mini-DIN connectors.

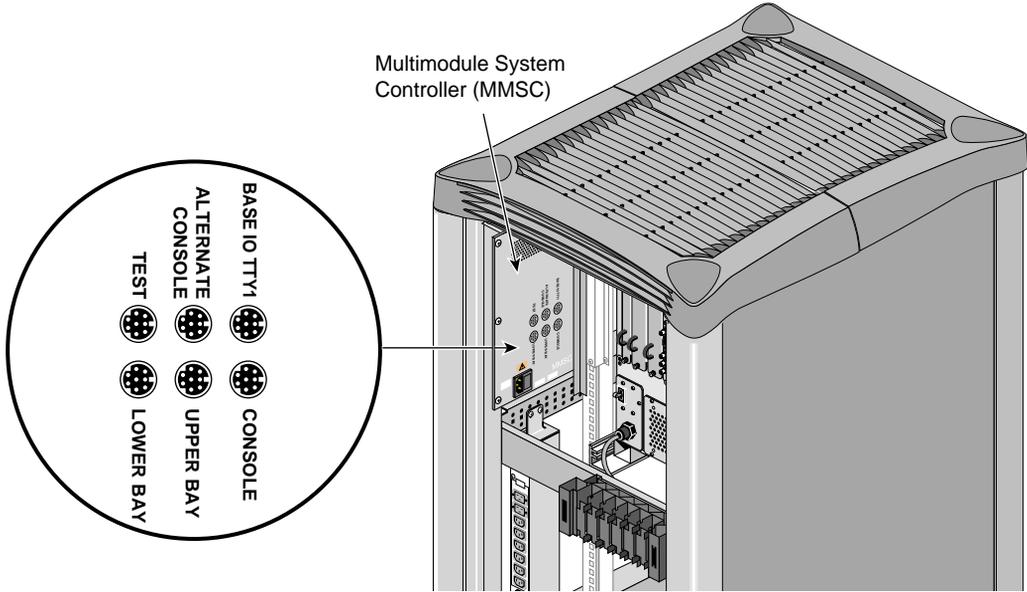


Figure B-15 MMSC 8-pin Mini-DIN Connector Locations

Figure B-16 shows the pin number locations and pin assignments for the MMSC 8-pin mini-DIN connectors.

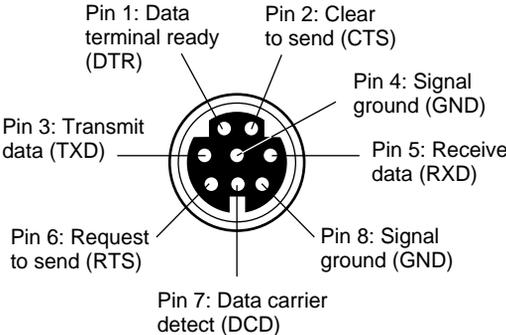


Figure B-16 MMSC 8-pin Mini-DIN Connector Pin Assignments

SGI Origin and Altix 3000 Series Server Pin Assignments

This section lists the pin assignments for the following SGI Origin and Altix 3000 series server connectors:

- DB-9 serial port connector on the C-brick labeled “Console.”
- Ethernet connector on the L2 controller hardware.

Figure B-17 shows the pin number locations and pin assignments for the DB-9 serial port connector on the C-brick labeled “Console.”

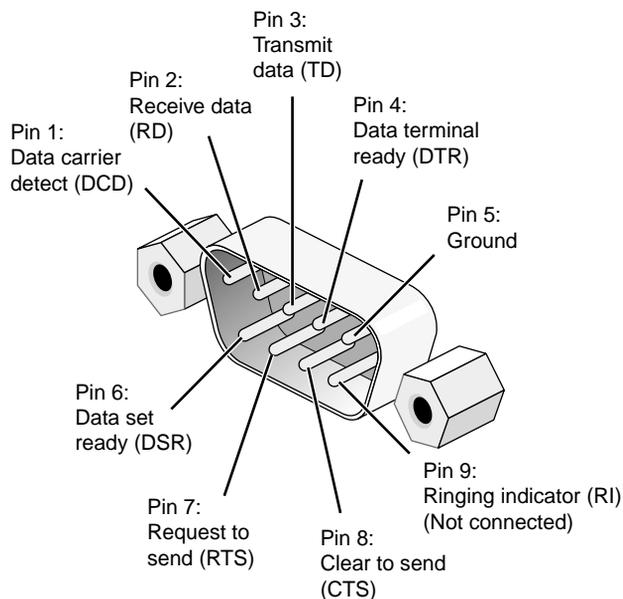


Figure B-17 SGI Origin and Altix 3000 Series C-brick DB-9 Serial Port Connector Pin Assignments

Figure B-18 shows the pin number locations and pin assignments for the Ethernet connector on the L2 controller hardware available for the SGI Origin and Altix 3000 series servers.

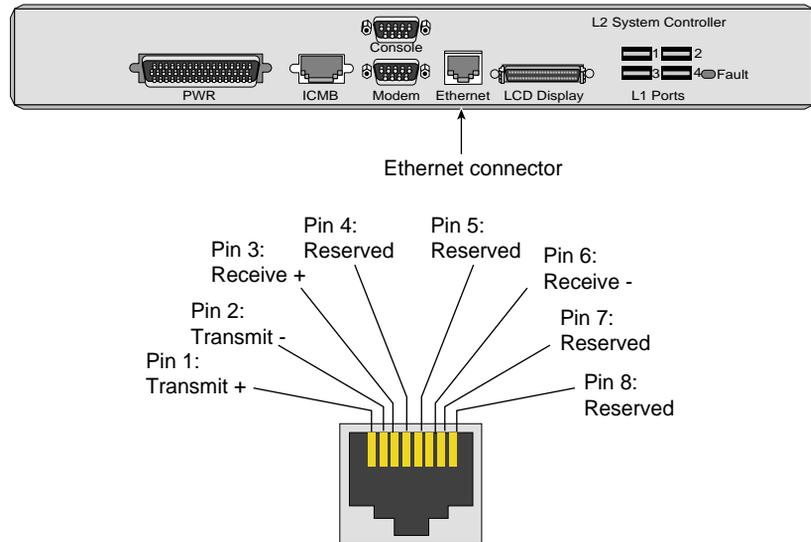


Figure B-18 L2 Controller Ethernet Connector Pin Assignments

Silicon Graphics Onyx2 Deskside Workstation Pin Assignments

Figure B-19 shows the pin number locations and pin assignments for the DB-9 serial port connectors labeled “tty_2” and “tty_1, Console” on the Silicon Graphics Onyx2 deskside workstation.

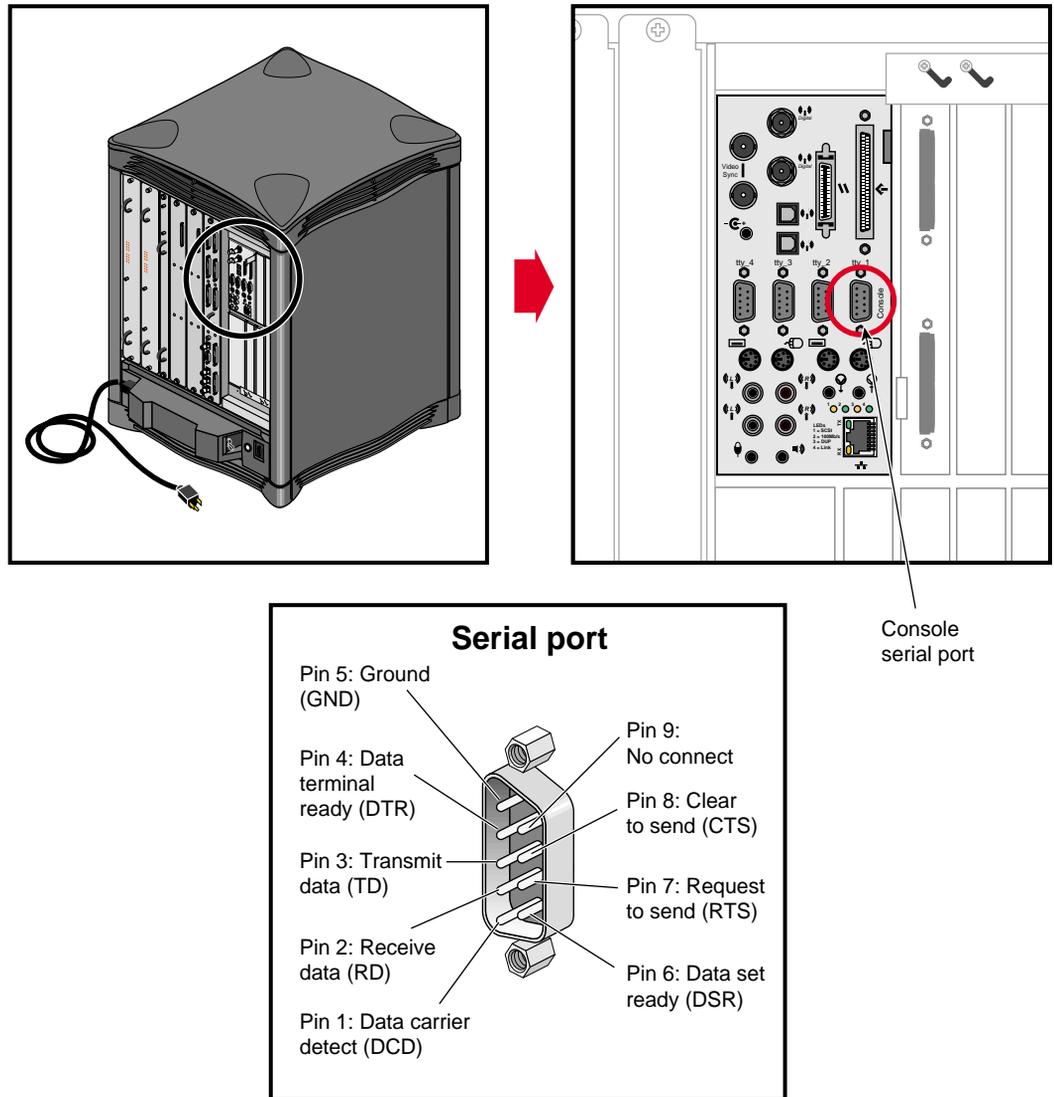


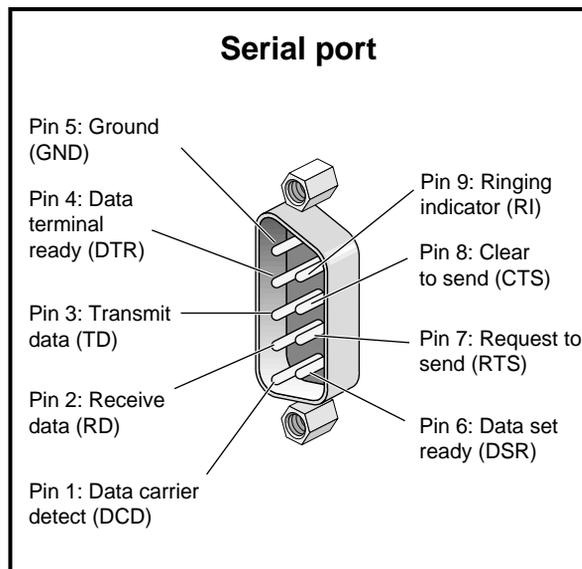
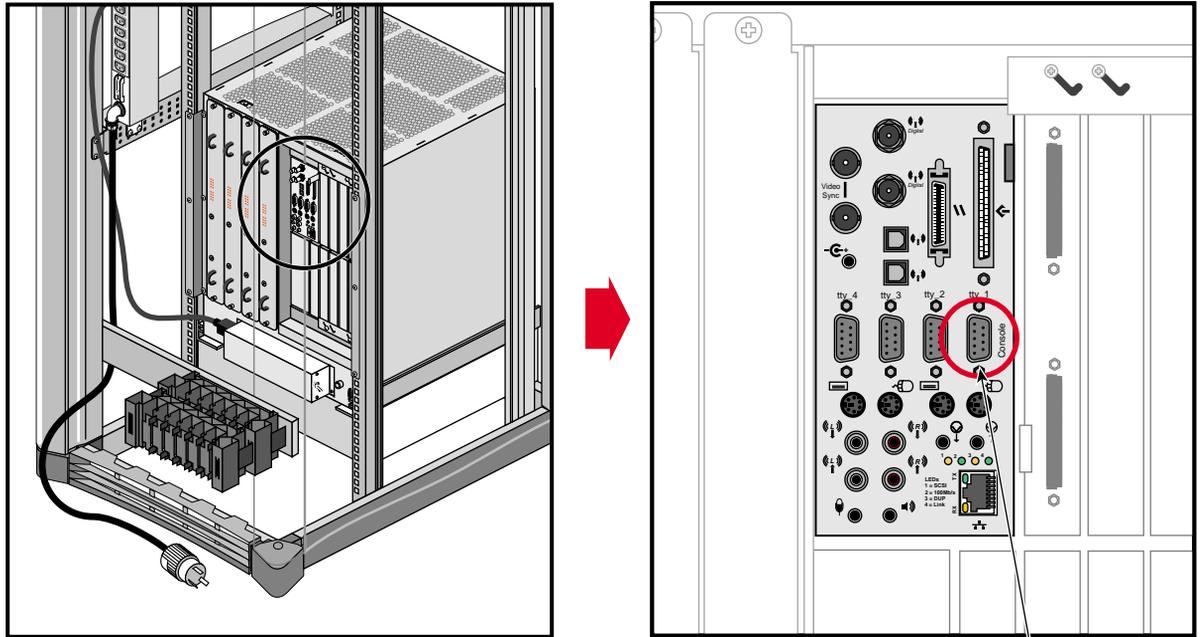
Figure B-19 Silicon Graphics Onyx2 Deskside Serial Port Pin Locations and Assignments

Silicon Graphics Onyx2 Rackmount Graphics System Pin Assignments

This section lists the pin assignments for the following Silicon Graphics Onyx2 rackmount graphics system connectors:

- DB-9 serial port connectors labeled “tty_1 (Console).”
- Module System Controller (MSC) serial port.
- Multimodule System Controller (MMS) 8-pin mini-DIN connectors.

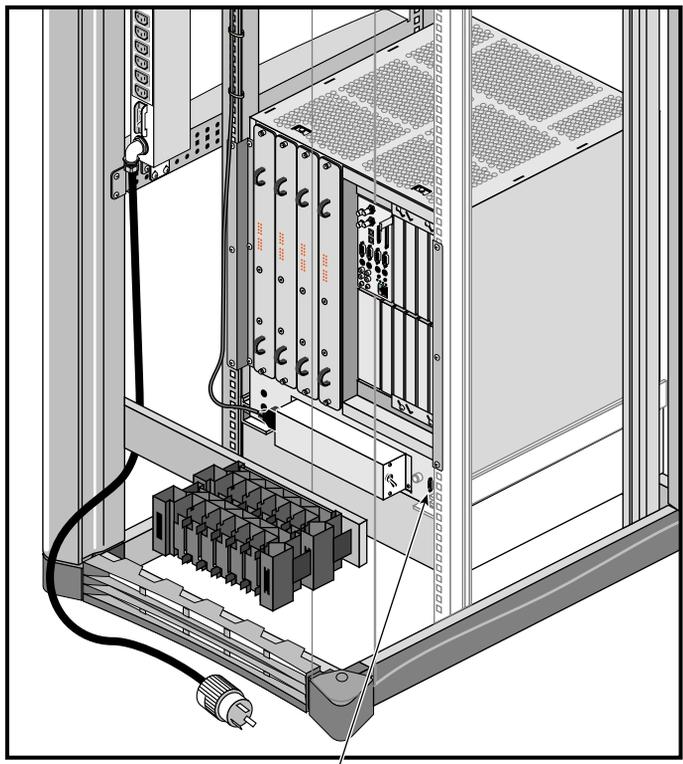
Figure B-20 shows the pin number locations and pin assignments for the DB-9 serial port connector labeled “tty_1 (Console).”



Console serial port

Figure B-20 Silicon Graphics Onyx2 Rackmount Serial Port Pin Locations and Assignments

Figure B-21 shows the pin locations and assignments for the module system controller (MSC) of the Silicon Graphics Onyx2 rackmount graphics system.



**Module System
Controller (MSC)
serial port (DB-9)**

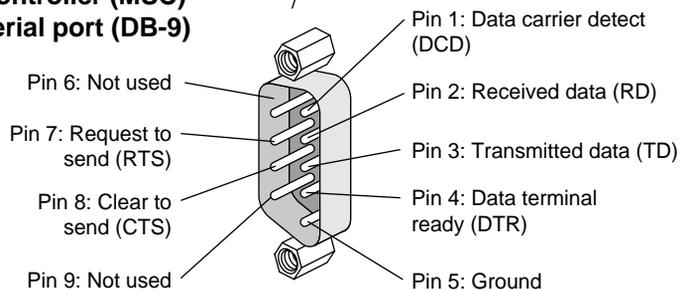


Figure B-21 Silicon Graphics Onyx2 Rackmount System MSC Pin Locations and Assignments

Figure B-22 shows the MMSC 8-pin mini-DIN connectors of the Silicon Graphics Onyx2 rackmount graphics system.

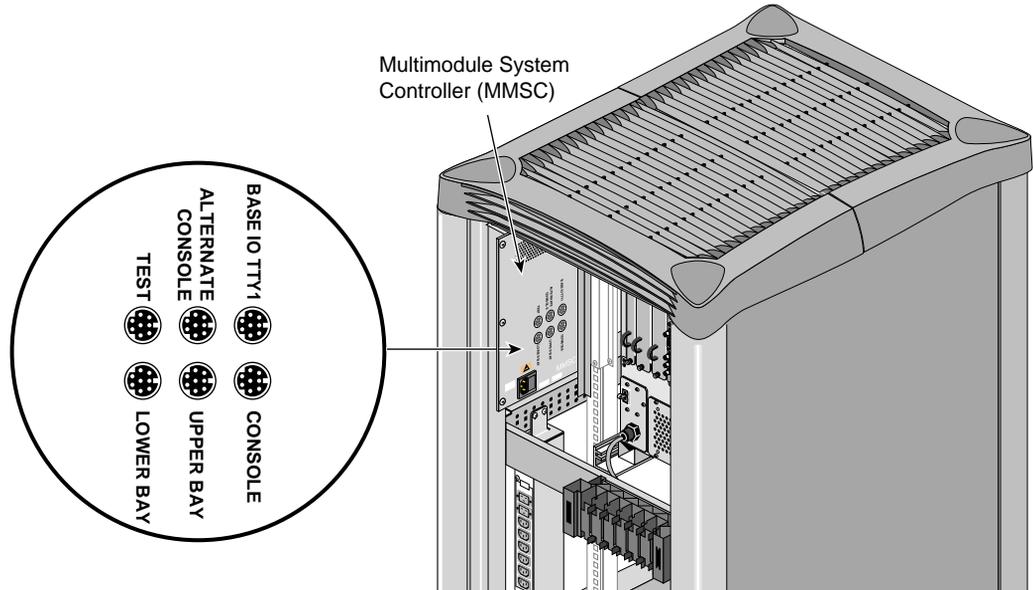


Figure B-22 Silicon Graphics Onyx2 Rackmount MMSC 8-pin Mini-DIN Connector Locations

Figure B-23 shows the pin number locations and pin assignments for the MMSC 8-pin mini-DIN connectors of the Silicon Graphics Onyx2 rackmount graphics system.

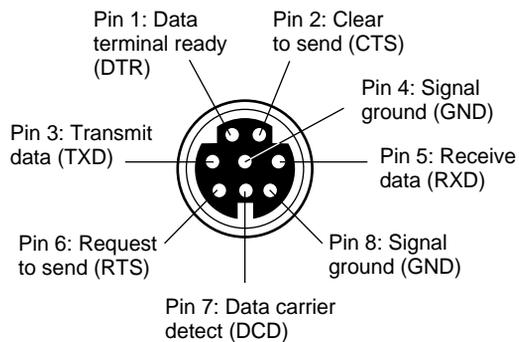


Figure B-23 Silicon Graphics Onyx2 Rackmount System MMSC 8-pin Mini-DIN Connector Pin Assignments

Tested Host Systems

SGIconsole software should run on any system that meets the minimum requirements listed in “Selecting a Host System for SGIconsole” on page 28. Note that all the systems listed in this appendix (except the Dell Latitude D600) are considered “legacy” systems, and availability may be limited. Compatibility can only be guaranteed, however, with the following tested systems:

- Dell Latitude D600 laptop
- SGI 1100 1U rack-mount server
- Silicon Graphics 230 Visual Workstation
- Silicon Graphics 330 Visual Workstation
- Silicon Graphics 550 Visual Workstation
- Dell PowerEdge 650 1U rack-mount server
- Dell Latitude C640 laptop

Additional details about the Dell rack-mount server and the Dell laptops are provided below.

Dell Latitude D600 Laptop Configuration

The Dell Latitude D600 laptop has been tested as a hardware console platform using the following configuration:

- 1.6 GHz Intel Pentium M CPU
- 512 Megabytes of DDR SDRAM
- 24X CD-ROM drive
- 3.5" floppy drive
- 20 Gigabyte hard drive
- 14.1-inch SXGA+ display (1400x1050 resolution)
- Standard built-in network interface card
- D-Link DFE-690TXD Type II Card Bus Adapter

Dell PowerEdge 650 1U Rack-Mount Server Configuration

The Dell PowerEdge 650 1U rack-mount server was tested using the following configuration:

- 2.4 GHz Intel Pentium 4 CPU, with 512K cache and 533 MHz front side bus
- 512 Megabytes of 266 MHz DDR SDRAM
- 40 Gigabyte hard drive
- CD-ROM drive
- 3.5" floppy drive
- Intel Pro 10/100 dual-port network adapter
- Rapid Rails for 26-inch Dell racks

Note: The Dell PowerEdge 650 1U rack-mount server with Dell Rapid Rails is intended for use in a rack with square mounting holes. Some SGI racks (such as those intended for 3000-series systems) have round mounting holes.

Adapters for round mounting holes may be available in the future. Ask your SGI sales representative for details.

Dell Latitude C640 Laptop Configuration

The Dell Latitude C640 laptop was tested using the following configuration:

- 2.0 GHz Intel Pentium 4 CPU
- 512 Megabytes of DDR SDRAM
- 40 Gigabyte hard drive
- 24x CD-ROM drive
- 3.5" floppy drive
- 14.1-inch SXGA+ display (1400x1050 resolution)
- Standard built-in network interface card
- Xircom Realport Type III PC Card combo LAN/modem

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