

SGIconsole™ Hardware Connectivity Guide

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About This Guide

The SGIconsole contains a rackmountable SGI 1100 server running SGI proprietary software used to monitor and manage SGI Origin 200 servers, SGI Origin 300 servers, SGI Origin 2000 series servers, SGI Origin 3000 series servers, and Silicon Graphics Onyx2 and SGI Onyx 3000 graphics systems. This guide, *SGIconsole Hardware Connectivity Guide*, describes how to connect the SGIconsole to these servers and graphics systems. This guide is written for users and system administrators of these systems.

This guide describes the SGIconsole and the SGI server and graphic system hardware configurations to which you can connect the SGIconsole. It also explains how to connect the SGIconsole to the various server hardware configurations.

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 xvi.

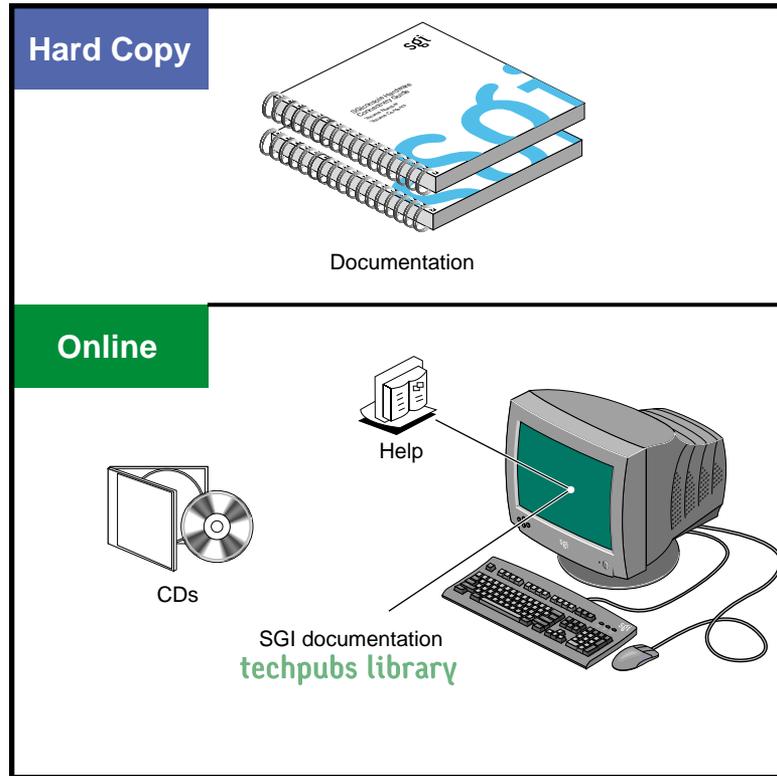


Figure i Sources of Additional Information

Hardware Guides

The following are SGI hardware guides related to the SGIconsole:

- *SGIconsole Hardware Connectivity Guide* (this guide) describes how to cable the SGIconsole (SGI 1100) to the various SGI servers and graphic systems supported by the SGIconsole. In some hardware configurations, you need to use a Silicon Graphics Ethernet serial port server or an Ethernet hub to connect the SGIconsole to the servers.
- *SGI 1100 Server User's Guide* describes how to install and use the SGI 1100 server (the SGIconsole).

- *SGI 1100 Server QuickStart Guide* provides quick instructions on how to install and use the SGI 1100 server (the SGIconsole).
- *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 2100 Owner's Guide* describes how to set up and use the SGI 2100 server (a desktide SGI Origin 2000 server).
- *SGI 2200 Server Owner's Guide* describes how to set up and use the SGI 2200 server (a desktide 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.
- *Silicon Graphics Onyx2 Desktide Workstation Owner's Guide* describes how to use, manage, troubleshoot, and upgrade the Silicon Graphics Onyx2 desktide graphics workstation.
- *Silicon Graphics Onyx2 Rackmount Owner's Guide* describes how to use, manage, and troubleshoot the Silicon Graphics Onyx2 rackmount graphics system.
- *EL Serial Port Server Installation Guide* describes how to install and use the Silicon Graphics Ethernet serial port server (the EL serial port server or EtherLite).

Note: Disregard the “Software Installation” section in *EL Serial Port Server Installation Guide* that describes how to install the serial port server driver software for an IRIX operating system environment. In order for the serial port server to operate properly with an SGIconsole, you need Linux driver software and DHCP software, which comes either preinstalled on your SGIconsole or on the SGIconsole software CD. See *EL Serial Port Server Installation Guide Errata* for instructions to configure the serial port server.

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

Software Guides

This section discusses software guides related to the 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 1.0 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 1.0 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 xvi.

Location of Information

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

- Use a Web browser to view the Silicon Graphics Technical Publications Library on the World Wide Web at <http://techpubs.sgi.com>. You can either view the HTML versions of the manuals or download postscript or PDF files.
- Order printed manuals from <http://www1.fatbrain.com/partners/sgi>.

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

The SGIconsole 1.0 contains a rackmountable SGI 1100 server running SGI proprietary software used to monitor and manage SGI Origin 200 servers, SGI Origin 300 servers, the SGI Origin 2000 series of servers, the SGI Origin 3000 series of servers, Silicon Graphics Onyx2 deskside workstations, Silicon Graphics Onyx2 rackmount graphics systems, and SGI Onyx 3000 graphics systems. Consult the following guides:

- *SGI 1100 Server User's Guide* describes how to install and use the SGI 1100 server.
- *SGIconsole 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.

The SGIconsole is used with a Silicon Graphics EL serial port server model EL-16-1.0 (EL [EtherLite] serial port server), to manage and monitor the various hardware configurations that contain the SGI Origin 200 servers, SGI Origin 300 servers, SGI Origin 2000 series servers, SGI Origin 3200 servers without L2 controllers, Silicon Graphics Onyx2 deskside workstations, and Silicon Graphics Onyx2 rackmount graphics systems.

The SGIconsole is used with an Ethernet hub to monitor and manage SGI Origin 3000 series servers that have an L2 controller.

Note: The SGI Onyx 3000 series graphics system is actually a brick in the SGI Origin 3000 series server and is managed and monitored through an SGIconsole connected to the SGI Origin 3000 series server.

Figure 1-1 shows the SGIconsole connected to an Ethernet hub to which are connected SGI Origin 3000 series servers and an SGI Origin 300 server with NUMALink Module. To this Ethernet hub are also connected three Silicon Graphics EL serial port servers. To these serial port servers are connected SGI Origin 200 servers, SGI 2000 series servers (SGI 2100, SGI 2200, SGI 2400, and SGI 2800 servers), an SGI 3200 server without L2 controller, a Silicon Graphics Onyx2 deskside workstation, and a Silicon Graphics Onyx2 rackmount graphics system. A second SGIconsole at another location is connected to the

first SGIconsole through the general Ethernet. A remote workstation is connected to these two SGIconsoles via the general Ethernet.

The Silicon Graphics 02 visual workstation, the Silicon Graphics Indy workstation, the Silicon Graphics 230 visual workstation, or another workstation running the IRIX or Linux operating system or running one of the many commercially-available X-display software packages may be used as a remote workstation for SGIconsole.

Note: While the SGIconsole remote-display feature should work with any remote workstation that meets these requirements, compatibility can only be assured with the SGI systems listed.

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

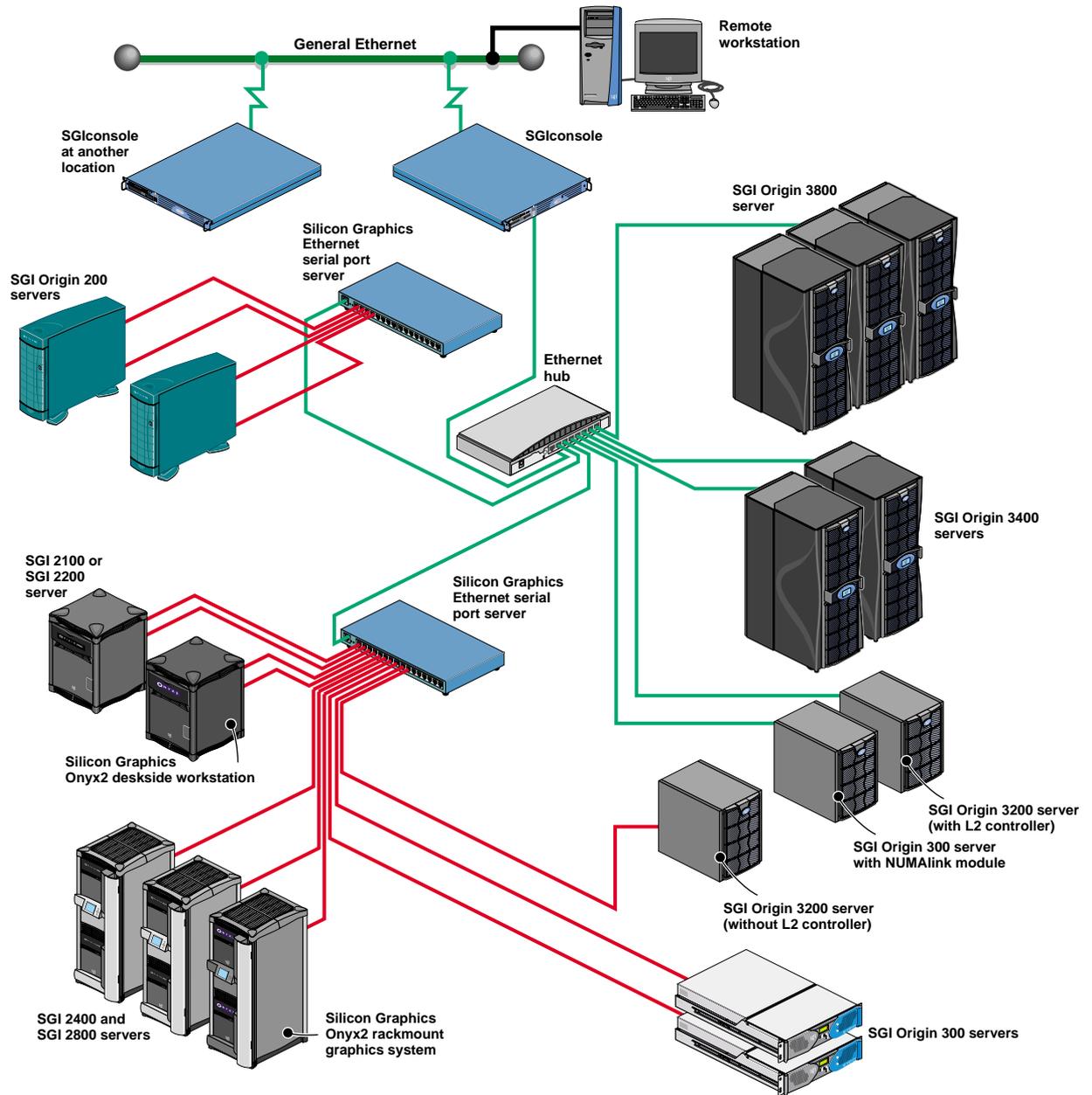


Figure 1-1 SGIconsole on a Multiple-Server Hardware Configuration

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 2, “Connecting SGIconsole to SGI Servers and Graphics Systems.”

SGIconsole is designed to connect to 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:

- 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,

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.

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, SGI Origin 3000-series, and Onyx 3000 systems. The following systems contain one L1, but do not contain any L2s:

- SGI Origin 300 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.

L2 (Level 2 System Controller)

The L2 (level 2 system controller) is used in systems that contain more than one L1². The L2s connect to each of the L1s in their rack and connect to any L2s in other racks.

² SGI Origin 300 systems configured in a dual-chassis (master/slave) arrangement actually contain two L1s, but do not contain an L2. They therefore require a single serial connection, as described in “L1 (Level 1 System Controller)” on page 6, just as a single-chassis SGI Origin 300 does.

The following systems contain one or more L2s:

- SGI Origin 300 with NUMALink Module,
- SGI Origin 3000-series systems (except SGI Origin 3200 system without L2),
- SGI Onyx 3000 systems.

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 section provides information necessary to create such a plan.

Determining Hardware Requirements

SGIconsole 1.0 will manage a maximum of 16 systems of types that connect directly via serial port and a maximum of 13 systems of types that connect directly via Ethernet (note that certain configurations reduce these maximums slightly). Only the system types shown in Table 1-1 are supported by SGIconsole 1.0. SGIconsole 1.0 does not manage non-SGI systems.

SGIconsole 1.0 is recommended for use with a maximum of 32 partitions. Most server and graphics systems contain exactly one partition. Certain systems, however, such as some Origin 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 32.

Depending on your configuration, SGIconsole may require one or more Silicon Graphics EL serial port servers (EL-16-1.0), 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 serial port servers (EL-16-1.0) and Ethernet hubs you will need for your configuration:

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

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

For Each System of Type:	You Need This Many Serial Connections:
SGI Origin 200 server	2 serial connections
SGI Origin 300 server	1 serial connection
SGI Origin 300 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)

2. Based on the number of serial connections you will need, use Table 1-2 to determine the quantity of Silicon Graphics EL serial port servers (EL-16-1.0) you will need.

Table 1-2 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 1-3 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

3. Each EL 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 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 1-3.

Table 1-3 Number of Ethernet Connections Required for Each System Type

For Each System of Type:	You Need This Many Direct Ethernet Connections:
SGI Origin 200 server	no direct Ethernet connections (uses serial)
SGI Origin 300 server	no direct Ethernet connections (uses serial)
SGI Origin 300 server with NUMALink Module	1 Ethernet connection
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

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.

5. 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 1-4.

Table 1-4 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

Note: Although the SGI 1100 Server (on which the SGIconsole software runs) has 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 serial port servers and Ethernet hubs required for your configuration, as described above, the figures in this section (Figure 1-2 through Figure 1-9) show how those EL 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.

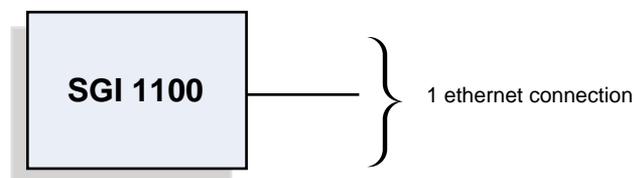


Figure 1-2 Sample Cabling Configuration: No Ethernet Hub, No Serial Port Server

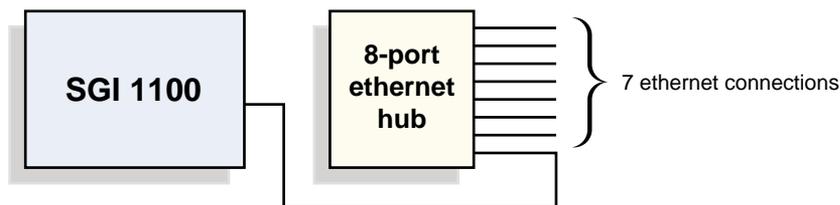


Figure 1-3 Sample Cabling Configuration: One Ethernet Hub, No Serial Port Server

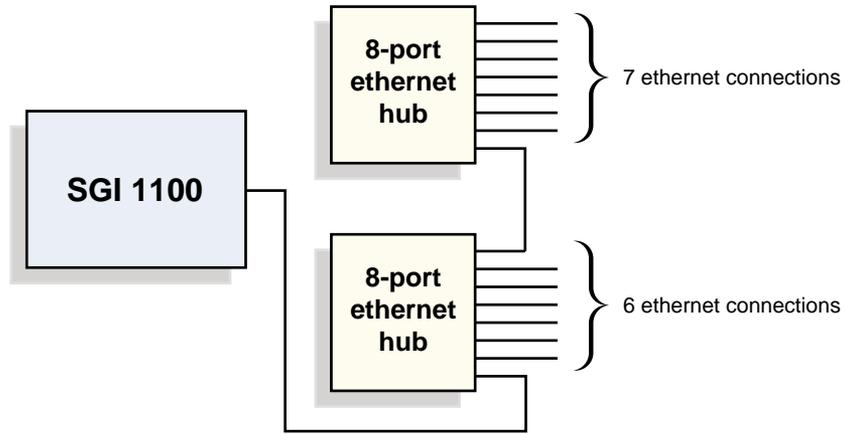


Figure 1-4 Sample Cabling Configuration: Two Ethernet Hubs, No Serial Port Server

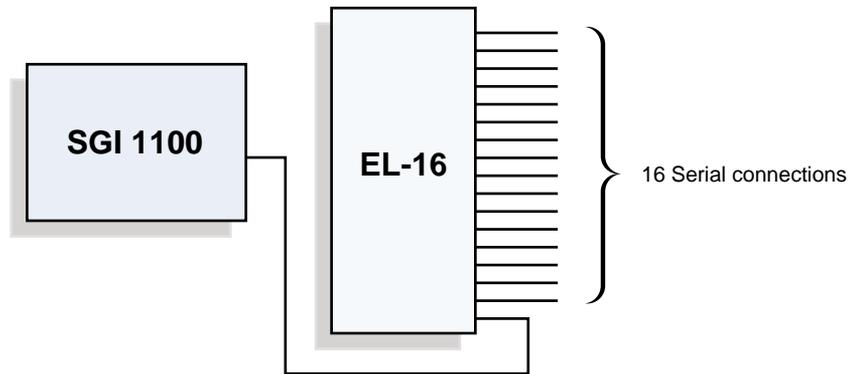


Figure 1-5 Sample Cabling Configuration: No Ethernet Hub, One Serial Port Server

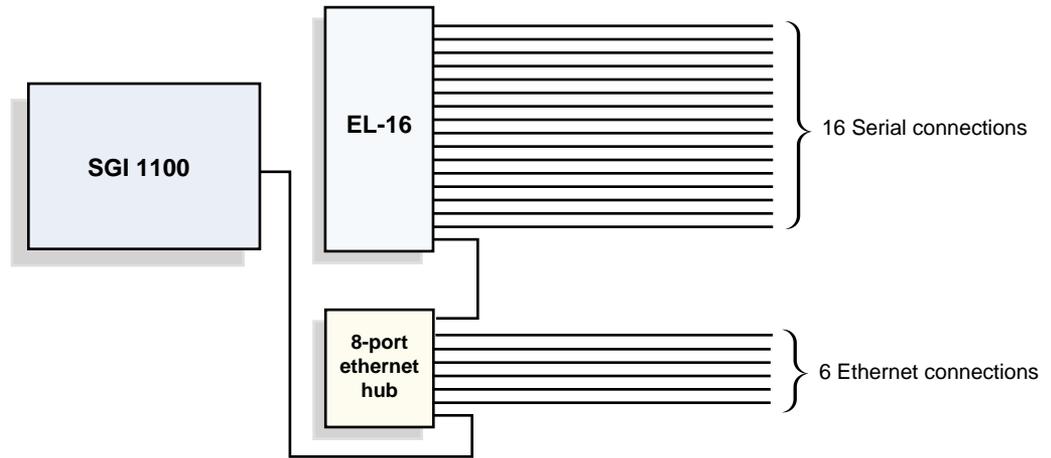


Figure 1-6 Sample Cabling Configuration: One Ethernet Hub, One Serial Port Server

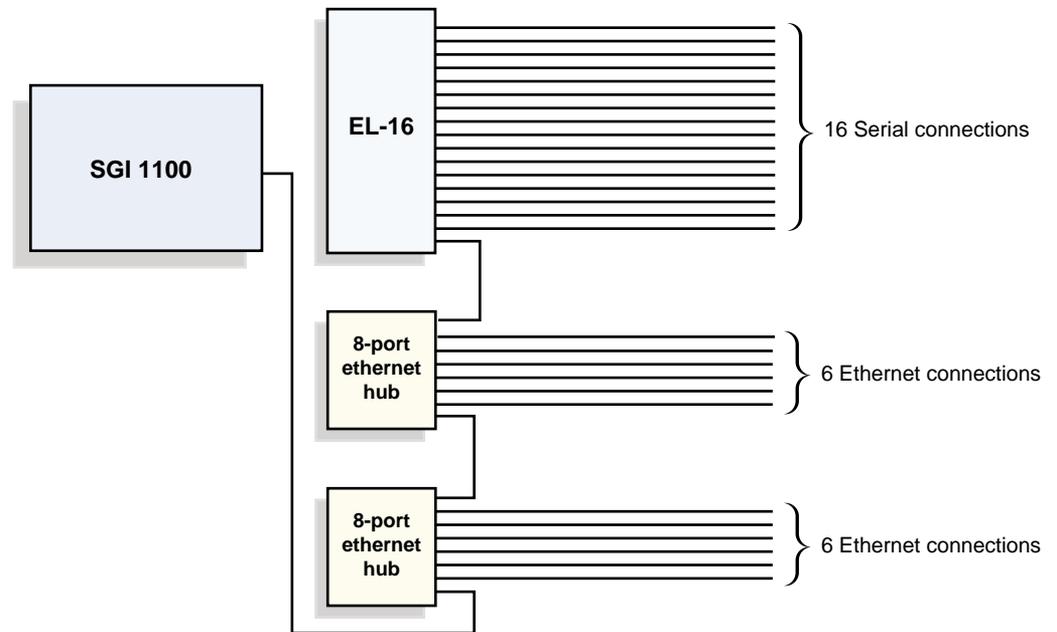


Figure 1-7 Sample Cabling Configuration: Two Ethernet Hubs, One Serial Port Server

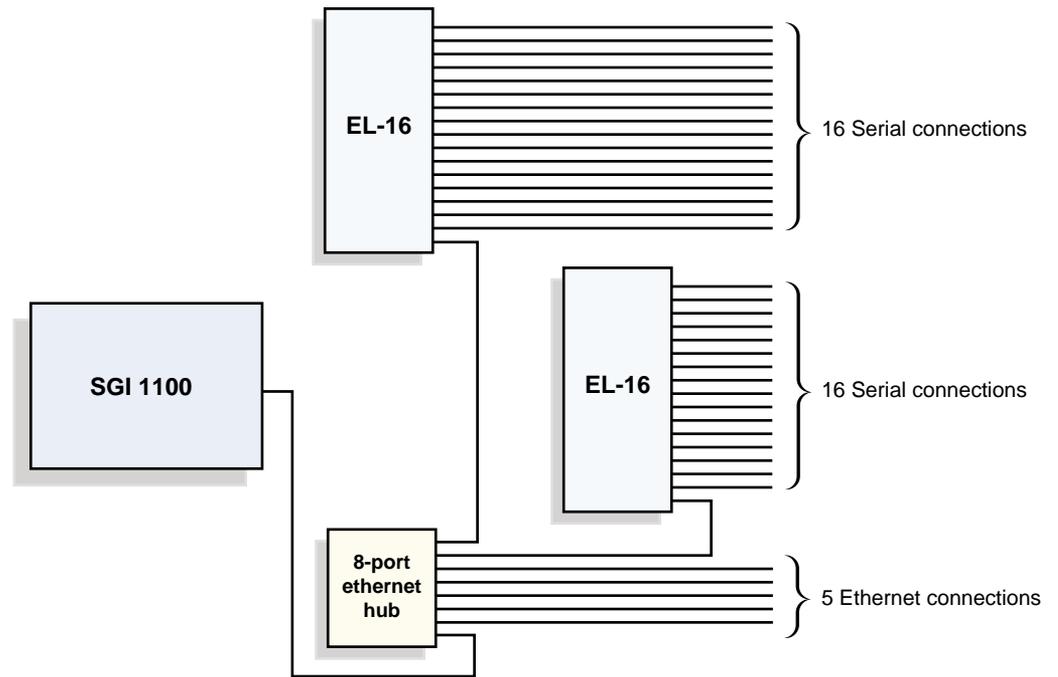


Figure 1-8 Sample Cabling Configuration: One Ethernet Hub, Two Serial Port Servers

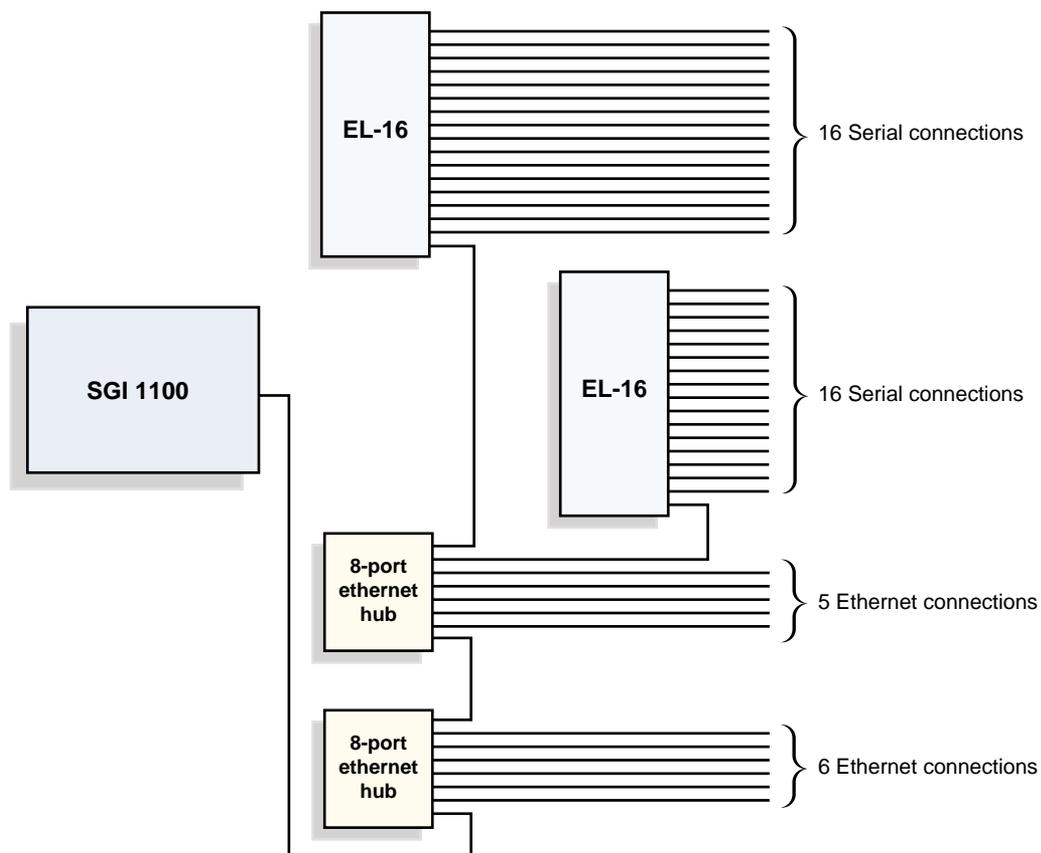


Figure 1-9 Sample Cabling Configuration: Two Ethernet Hubs, Two Serial Port Servers

Marketing Codes and Part Numbers

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

Table 1-5 SGIconsole, Ethernet Hub, & Serial Port Server Marketing Codes & Descriptions

Marketing Code	Description
SGIconsole-1.0	SGIconsole base system & software.
SGIconsole-1.0-SU	Standalone upgrade: SGIconsole base system & software.
EL-16-1.0	16 port serial server.
EL-16-1.0-SU	Standalone upgrade: 16 port serial server.
EHUB-console	8-Port 10/100 Ethernet Hub, including Ethernet cable to connect to SGIconsole.
EHUB-console-SU	Standalone upgrade: 8-Port 10/100 Ethernet Hub, including Ethernet cable to connect to SGIconsole.

Table 1-6 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.
	9290166	25 ft (7.5m) RJ45 to MiniDIN8 serial cable, connects Origin 200 systems to EL-16.

Table 1-6 (continued) Cable Marketing Codes, Part Numbers, & Descriptions

Marketing Code	Part Number	Description
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.

Connecting SGIconsole to SGI Servers and Graphics Systems

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

This chapter includes a listing of documents you may need to consult to set up your SGIconsole. This chapter also has detailed instructions on how to connect a remote workstation monitor, and a local monitor, mouse, and keyboard to the SGIconsole.

This chapter describes detailed steps to connect the rackmountable SGIconsole to the following SGI servers and graphics systems it supports: the SGI Origin 200 servers, the SGI Origin 300 servers, the SGI Origin 300 servers with NUMAlink Module, the SGI Origin 2000 series of servers (SGI 2100, SGI 2200, SGI 2400, and SGI 2800 servers), the SGI Origin 3000 series of servers (SGI Origin 3200, SGI Origin 3400, and the SGI Origin 3800), and the Silicon Graphics Onyx2 and SGI Onyx 3000 graphics systems.

This information is covered in the following sections:

- “Setting Up the SGIconsole Hardware” on page 21
- “Documentation You May Need to Consult” on page 23
- “Connecting a Remote Workstation to the SGIconsole” on page 27
- “Connecting a Local Monitor, Keyboard, and Mouse to the SGIconsole” on page 25
- “Connecting SGIconsole to SGI Origin 200 Servers” on page 29
- “Connecting SGIconsole to SGI Origin 300 Servers” on page 36
- “Connecting SGIconsole to SGI Origin 300 Servers with NUMAlink Module” on page 42
- “Connecting SGIconsole to SGI 2100 or SGI 2200 Servers” on page 48
- “Connecting SGIconsole to SGI 2400 or SGI 2800 Servers” on page 55
- “Connecting SGIconsole to SGI Origin 3200 Servers Without L2 Controllers” on page 69

- “Connecting SGIconsole to SGI Origin 3000 Series Servers With L2 Controllers” on page 75
- “Connecting SGIconsole to Silicon Graphics Onyx2 Deskside Graphics Workstations” on page 83
- “Connecting SGIconsole to Silicon Graphics Onyx2 Rackmount Graphics Systems” on page 90
- “Connecting SGIconsole to SGI Onyx 3000 Series Graphics Systems” on page 103

Setting Up the SGIconsole Hardware

To set up your SGIconsole hardware, follow these steps:

1. Gather the SGI 1100 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 “Documentation You May Need to Consult” on page 23 for a listing of documents you may need to set up the SGIconsole.)
2. If the SGI 1100 server is not already installed, using the *SGI 1100 Server User’s Guide* or the *SGI 1100 Server QuickStart Guide*, 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.

3. Connect a local monitor, keyboard, and mouse to your SGIconsole according to the instructions in “Connecting a Local Monitor, Keyboard, and Mouse to the SGIconsole” on page 25. You will need these items to perform the software configuration of your SGIconsole.

Note: If you do not want a local monitor, keyboard, and mouse connected to the SGIconsole, disconnect them only after you have performed all the software configuration of the SGIconsole.

4. Connect a remote workstation to your SGIconsole according to the instructions in “Connecting a Remote Workstation to the SGIconsole” on page 27.
5. If you are connecting the SGIconsole to SGI Origin 200 servers, SGI 2000 series servers, SGI Origin 3200 servers without L2 controllers, or SGI Onyx2 graphics systems, you need to mount the Silicon Graphics EL serial port server(s) at a location near a power source and the servers and graphics systems to which it connects. If you are not connecting the SGIconsole to these server types, skip to the next step.

Note: If your site requires more than one Silicon Graphics EL serial port server, connect each to an Ethernet hub, and connect the Ethernet hub to the SGIconsole. To connect the serial port server to the Ethernet hub, connect one end of a standard

RJ-45 to RJ-45 twisted-pair Ethernet cable (10 feet (3 meters), part number 018-0830-001) to the leftmost RJ-45 jack (Ethernet port) of the serial port server and connect the other end of the cable to any of the Ethernet ports available on the Ethernet hub.

6. If you are connecting the SGIconsole to multiple SGI Origin 3000 series servers or SGI Origin 300 servers with NUMAlink Module, install the Ethernet hub that you receive in a location near the SGIconsole and near the Ethernet hubs to which the L2 controllers of the multiple servers are connected.
7. Proceed to the appropriate sections in this chapter for instructions to connect the SGIconsole to the servers or graphics systems located at your site.
8. After you have connected the SGIconsole to all the servers and graphics systems at your site, proceed to the *SGIconsole Start Here* for instructions on how to configure, start up, and operate your SGIconsole.

Documentation You May Need to Consult

In connecting your SGIconsole to your server systems, you may need to consult the following documentation:

- *SGI 1100 Server User's Guide* describes how to install and use the SGI 1100 server (the SGIconsole).
- *SGI 1100 Server QuickStart Guide* provides quick instructions on how to install and use the SGI 1100 server (the SGIconsole).
- *EL Serial Port Server Installation Guide* describes how to install and use the Silicon Graphics EL serial port server (the EL serial port server).

Note: Disregard the "Software Installation" section in the *EL Serial Port Server Installation Guide* that describes how to install the serial port server driver software for an IRIX operating system environment. In order for the serial port server to operate properly with an SGIconsole, you need Linux driver software and DHCP software, which either comes preinstalled on your SGIconsole or you can install it together with the other SGIconsole software from the SGIconsole software CD. See *EL Serial Port Server Installation Guide Errata* for instructions to configure the serial port server.

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

- *Origin 200 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 2100 Owner's Guide* describes how to set up and use the SGI 2100 server (a deskside SGI Origin 2000 series server).
- *SGI 2200 Server Owner's Guide* describes how to set up and use the SGI 2200 server (a deskside SGI Origin 2000 series server).
- *SGI 2400 and 2800 Server Owner's Guide* describes how to set up and use the rackmountable SGI Origin 2000 series (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, and maintain the SGI Origin 3000 series servers.
- *SGI Onyx 3000 Series Graphics System Hardware Owner's Guide* describes how to use and administer the SGI Onyx 3000 rackmount graphics system.
- *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.

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

This section describes how to connect a monitor, keyboard, and mouse to the SGIconsole at the site where the SGIconsole 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.

To connect a monitor, keyboard, and mouse to the SGIconsole, see Figure 2-1 as you follow these steps:

1. Make sure that the power switch on your SGIconsole is off and that the SGIconsole 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. 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.
4. Connect the mouse cable to the PS/2 mouse port on the SGIconsole.
5. Connect the monitor to a power source.

Note: If the local monitor, keyboard, and mouse will be located more than a few feet from the SGIconsole, use SGI cable extension kit DM-KBD-EXT-025-SU to extend these cables by 25 feet (7.5 meters). See Table 1-6 for details.

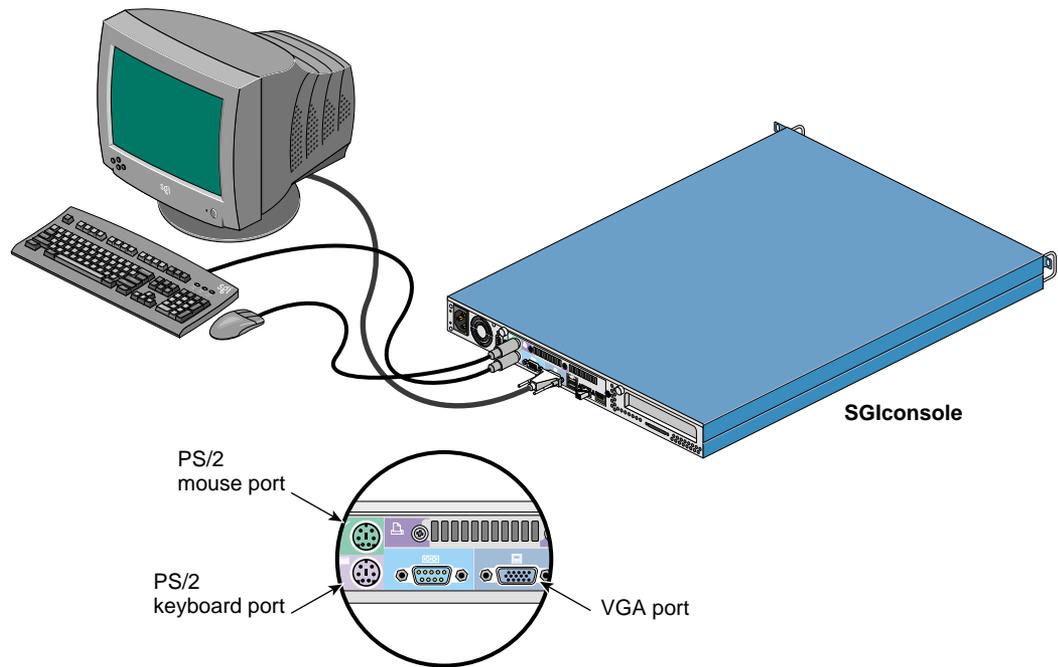


Figure 2-1 Connecting a Local Monitor, Keyboard, and Mouse to the SGIconsole

Connecting a Remote Workstation to the SGIconsole

You may wish to connect a workstation to the SGIconsole, so that you can monitor and manage your servers and graphics systems remotely.

The Silicon Graphics 02 visual workstation, the Silicon Graphics Indy workstation, the Silicon Graphics 230 visual workstation, or another workstation running the IRIX or Linux operating system or running one of the many commercially-available X-display software packages may be used as a remote workstation for SGIconsole.

Note: While the SGIconsole remote-display feature should work with any remote workstation that meets these requirements, compatibility can only be assured with the SGI systems listed.

Follow the steps in this section and see Figure 2-2 to connect a remote workstation to the SGIconsole.

1. Make sure that the power switch on your SGIconsole is off and that the SGIconsole and the remote workstation are disconnected from a power source.
2. Connect your remote workstation's monitor, keyboard, and mouse to the workstation according to the instructions in your workstation's owner's guide.
3. Connect your remote workstation to the general Ethernet.
4. 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.

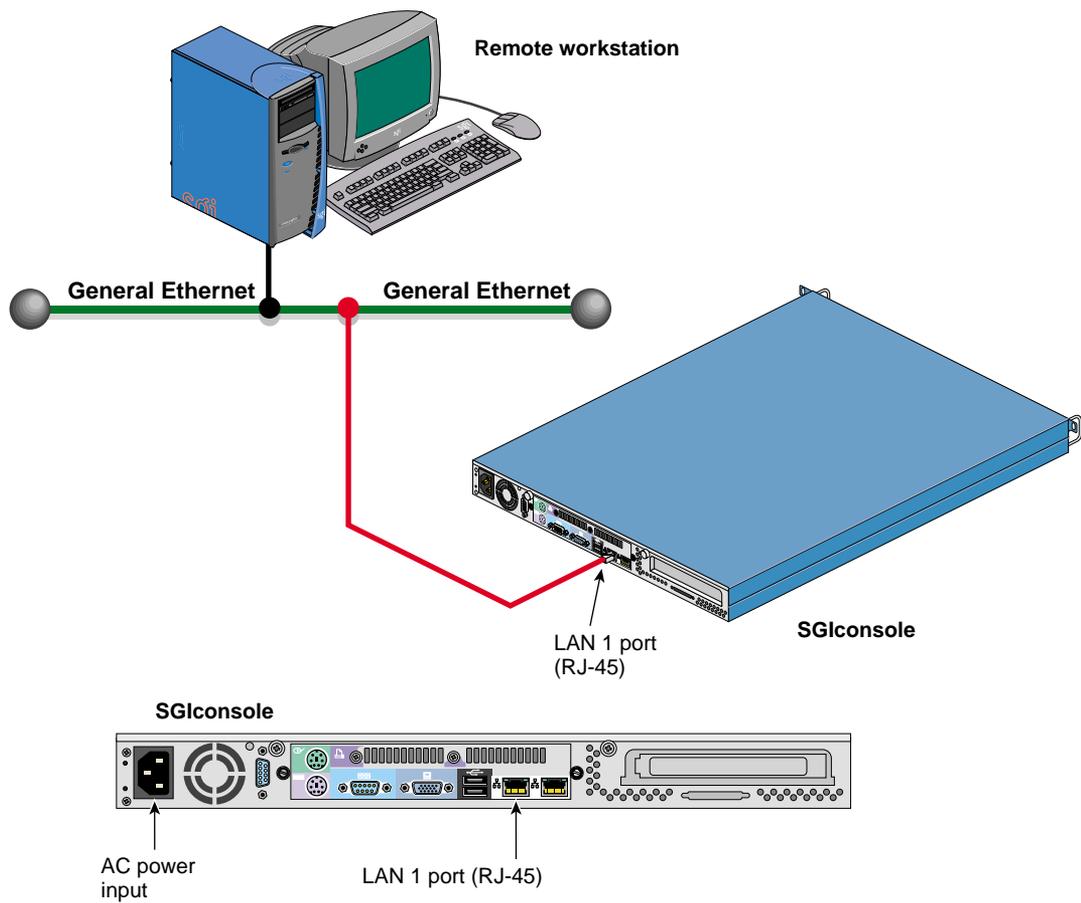


Figure 2-2 Connecting a Remote Workstation to the SGIconsole

Connecting SGIconsole to SGI Origin 200 Servers

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 2-3 shows the connection of an SGIconsole through a Silicon Graphics EL serial port server (EL-16-1.0) to a single Origin 200 server tower.

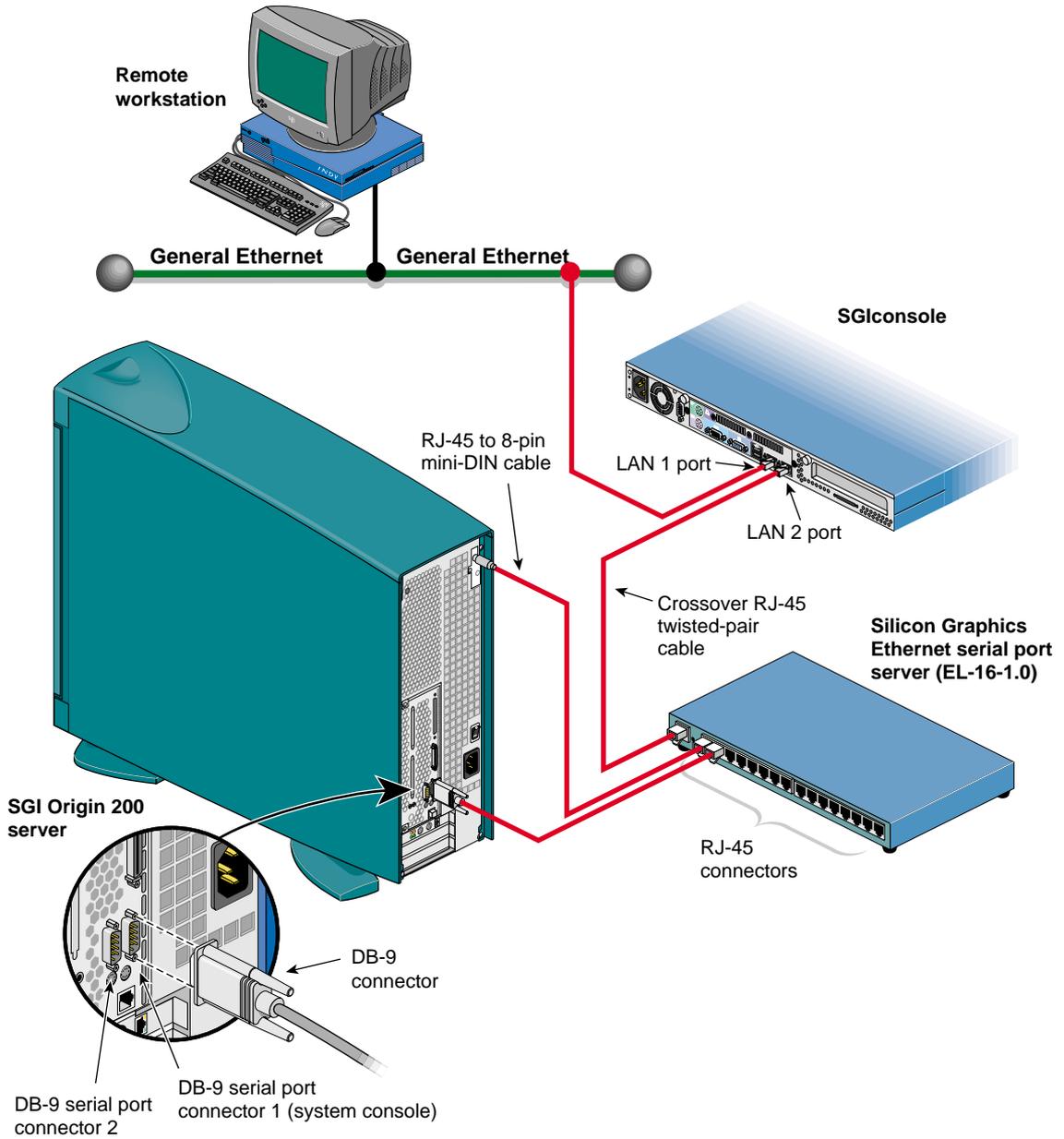


Figure 2-3 Connecting SGIconsole to an SGI Origin 200 Server

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.

See the following Caution and Notes before attempting to connect your SGIconsole to your SGI Origin 200 server:

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

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 A, "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 the SGIconsole to the Origin 200 server, follow these steps:

1. Make sure that the power switch on your SGIconsole is off and that the SGIconsole and the Silicon Graphics EL serial port server (EL-16-1.0) are disconnected from a power source.
2. 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.
3. Make sure that you have the following items (shown in Figure 2-4):
 - One “crossover” twisted-pair Ethernet cable with RJ-45 connectors at both ends (6 feet (1.8 meters), part number 018-0625-001).
 - 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 107 for adapter pin assignments.

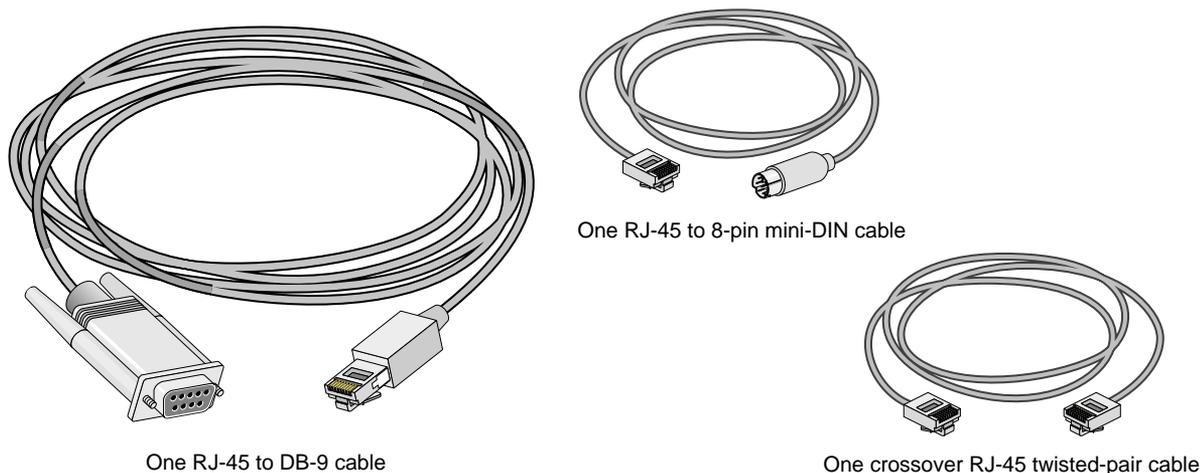


Figure 2-4 Items Needed to Connect SGIconsole to an SGI Origin 200 Server

4. If you have not already done so, 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 2-5.

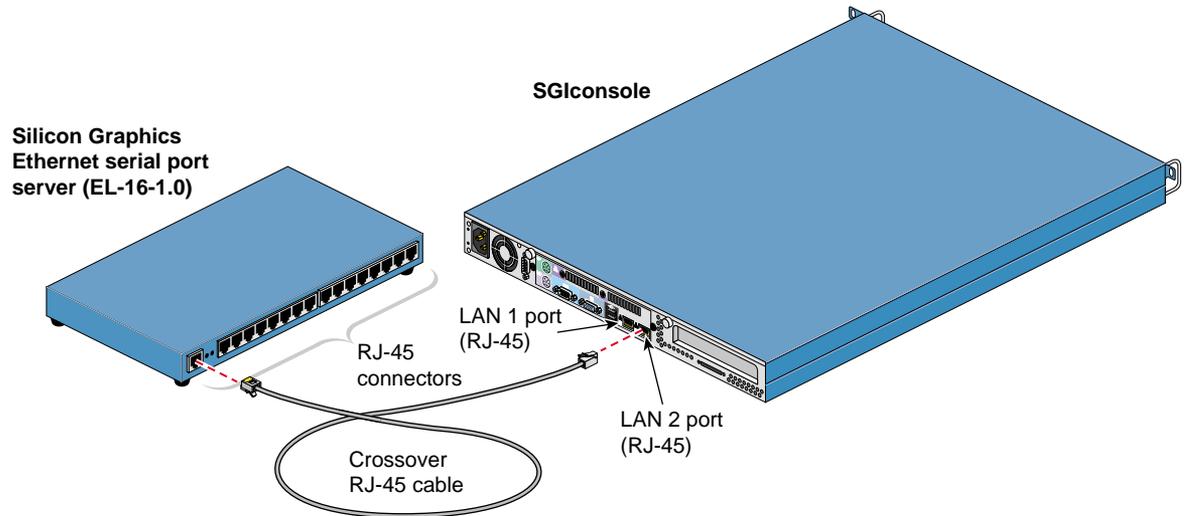


Figure 2-5 Connecting SGIconsole to the Silicon Graphics EL Serial Port Server

5. 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 serial port server. Connect the DB-9 connector to the Origin 200 server's serial port jack labeled "Serial Port Connector 1." See Figure 2-6.

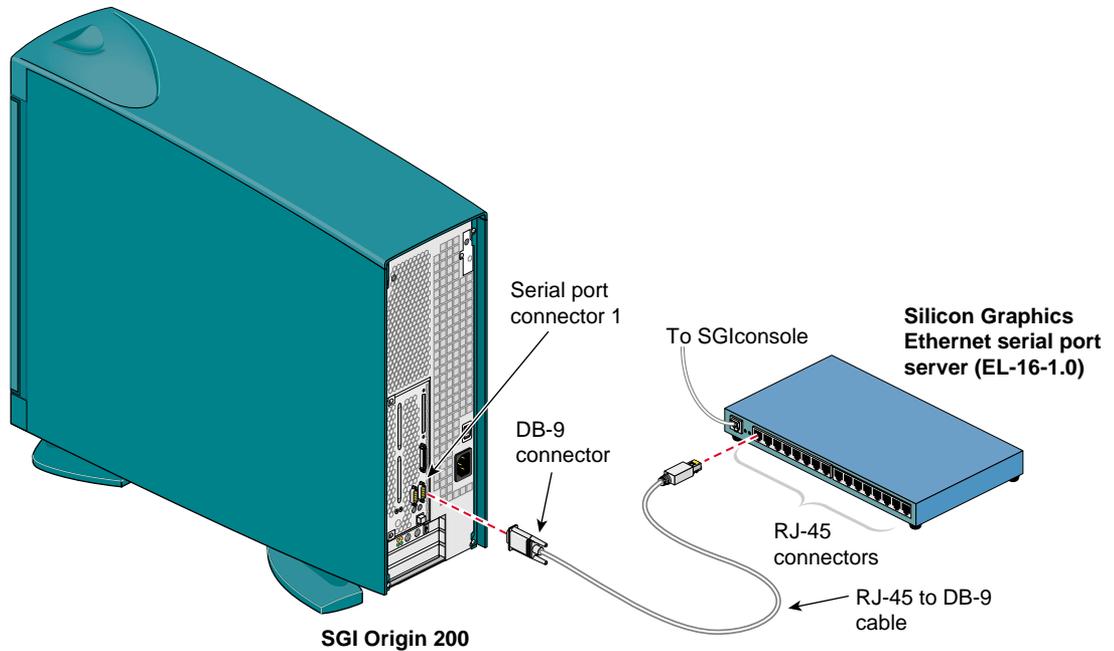


Figure 2-6 Connecting the Serial Port Server to the SGI Origin 200 Server Serial Port Connector

6. Connect the RJ-45 end of the RJ-45-to-8-pin mini-DIN cable to one of the Silicon Graphics EL serial port server RJ-45 serial jacks. 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 2-7.

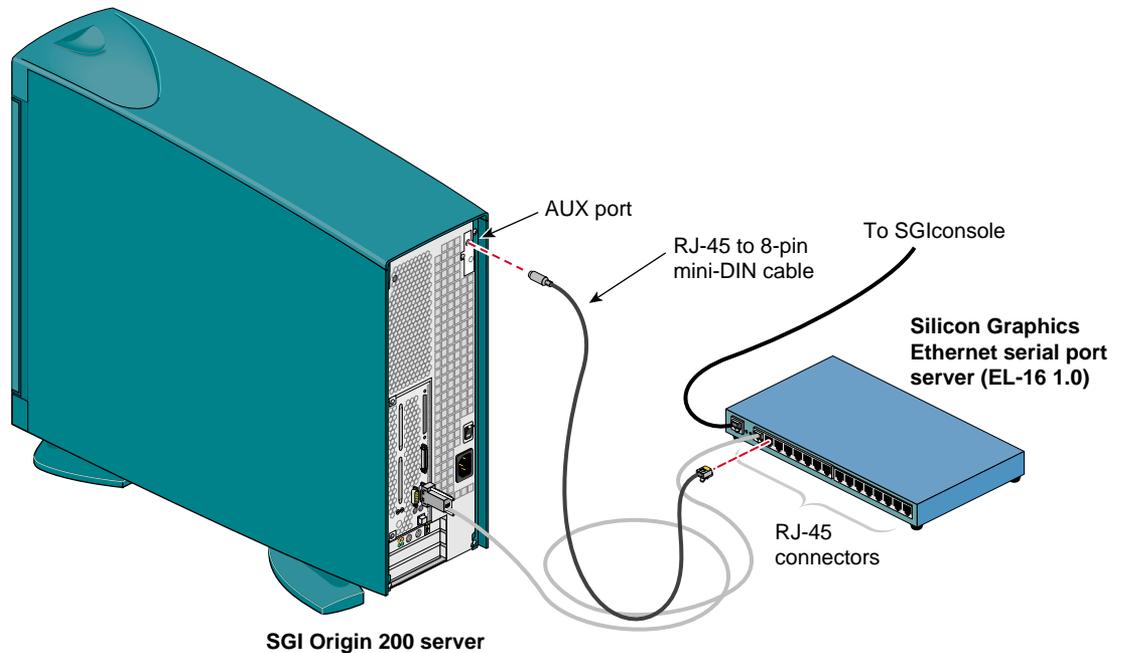


Figure 2-7 Connecting the Serial Port Server to the SGI Origin 200 Server AUX Port

7. Connect the cables for any other Origin 200 servers at your location as you did in steps 5 and 6.
8. After you have cabled all your Origin 200 servers, connect the power cable for your Silicon Graphics EL serial port server, the Origin 200 servers, and the SGIconsole to a power source.
9. Power on the Origin 200 servers according to the instructions in *Origin200 Owner's Guide*.
10. Power on your SGIconsole according to the instructions in *SGI 1100 Server User's Guide*.

Connecting SGIconsole to SGI Origin 300 Servers

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 2-8 shows the connection of an SGIconsole through a Silicon Graphics EL serial port server (EL-16-1.0) to a single Origin 300 server.

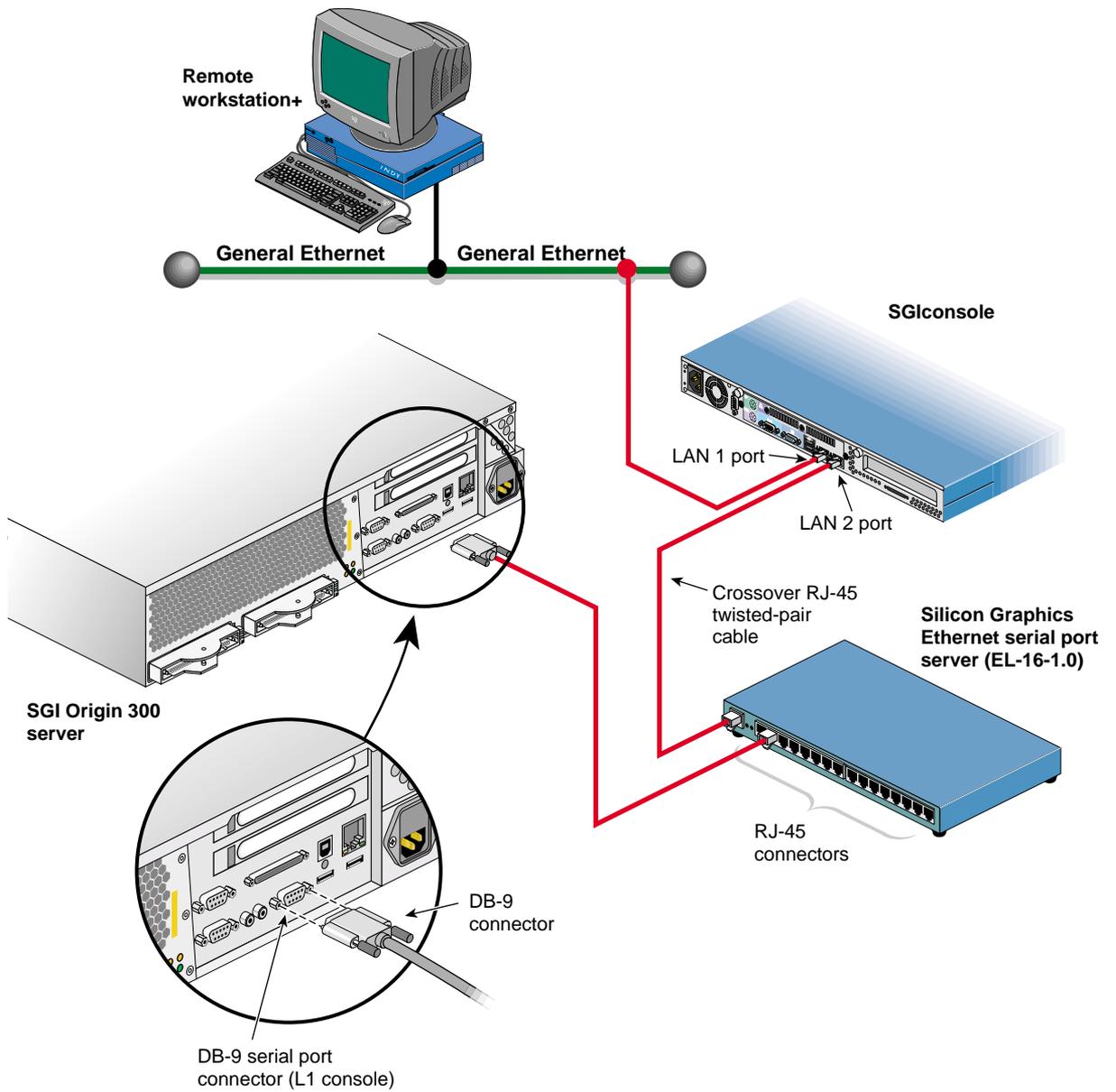


Figure 2-8 Connecting SGIconsole to an SGI Origin 300 Server

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.

See the following Caution and Notes before attempting to connect your SGIconsole to your SGI Origin 300 server:

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

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 A, "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 the SGIconsole to the Origin 300 server, follow these steps:

1. Make sure that the power switch on your SGIconsole is off and that the SGIconsole and the Silicon Graphics EL serial port server (EL-16-1.0) are disconnected from a power source.
2. 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.
3. Make sure that you have the following items (shown in Figure 2-9):
 - One “crossover” Ethernet twisted-pair cable with RJ-45 connectors at both ends (6 feet (1.8 meters), part number 018-0625-001).
 - 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 110 for adapter pin assignments.

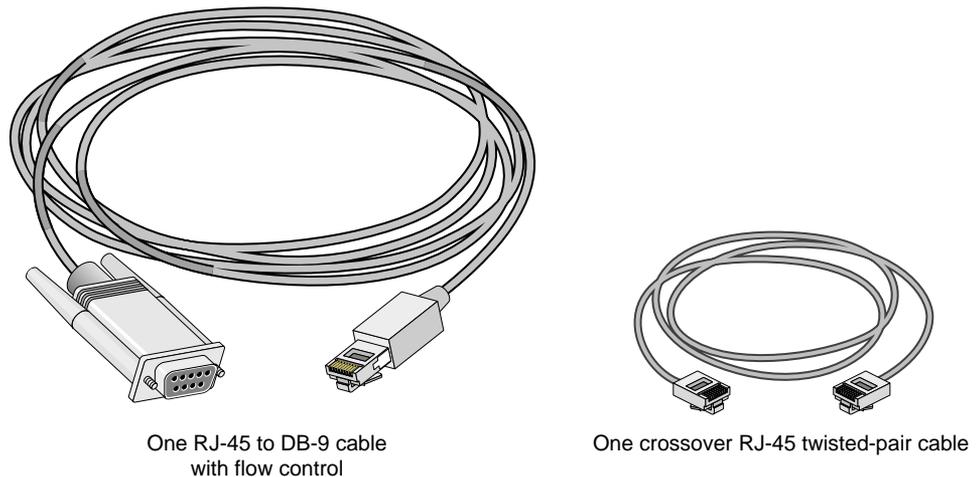


Figure 2-9 Items Needed to Connect SGIconsole to an SGI Origin 300 Server

4. If you have not already done so, 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 2-10.

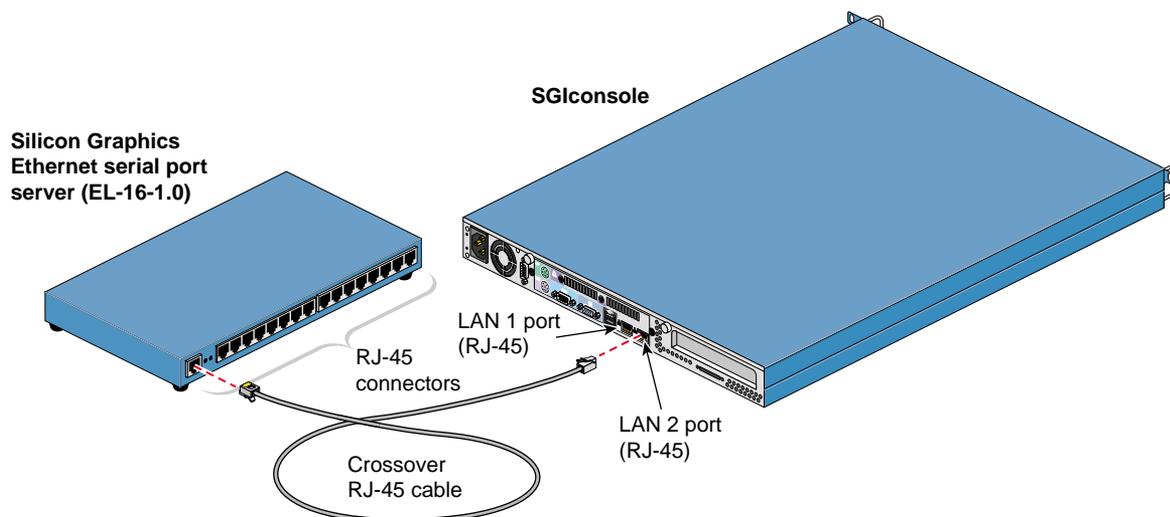


Figure 2-10 Connecting SGIconsole to the Silicon Graphics EL Serial Port Server

5. 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 serial port server. Connect the DB-9 connector to the Origin 300 server's serial port jack labeled "Console." See Figure 2-11.

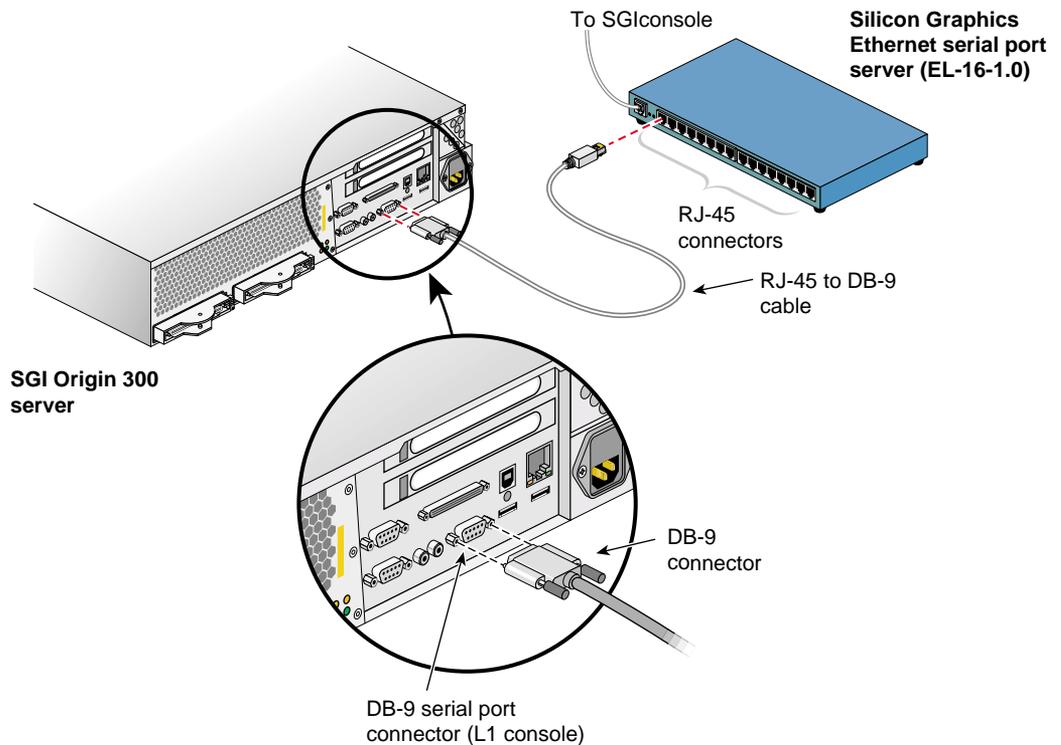


Figure 2-11 Connecting the Serial Port Server to the Origin 300 Server Serial Port Connector

6. Connect the cables for any other Origin 300 servers at your location as you did in step 5.
7. After you have cabled all your Origin 300 servers, connect the power cable for your Silicon Graphics EL serial port server, the Origin 300 servers, and the SGIconsole to a power source.
8. Power on the Origin 300 servers according to the instructions in the *SGI Origin 300 User's Guide*.
9. Power on your SGIconsole according to the instructions in *SGI 1100 Server User's Guide*.

Connecting SGIconsole to SGI Origin 300 Servers with NUMAlink Module

Methods for connecting an SGIconsole to SGI Origin 300 server with NUMAlink Module are similar for all server models. Figure 2-12 shows the connection of an SGIconsole through an Ethernet hub to a single SGI Origin 300 with NUMAlink Module server.

Note: In order for your SGIconsole to operate successfully with your Origin 300 servers with NUMAlink Module, your servers must be running L1 firmware revision 1.2.0 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.

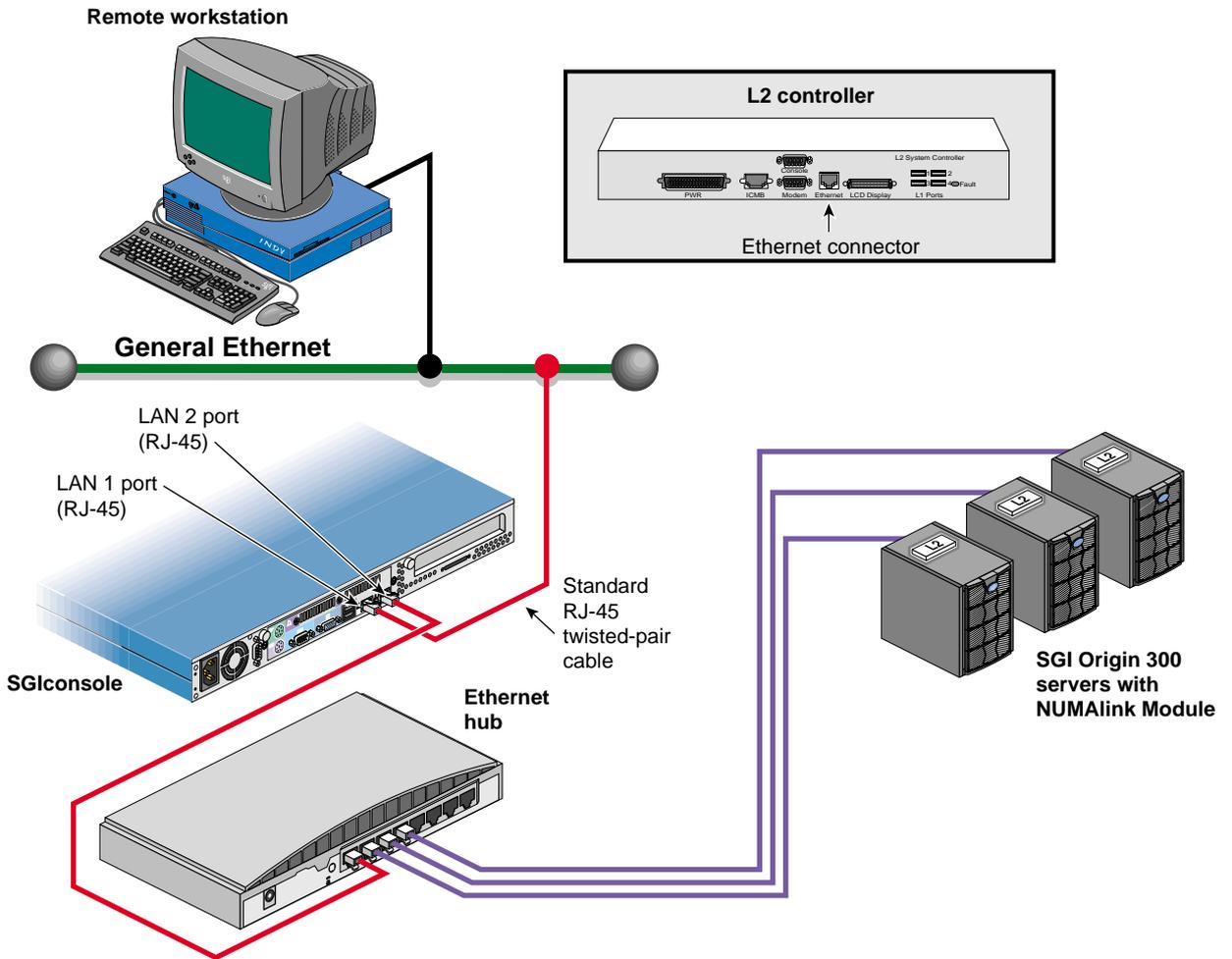


Figure 2-12 Connecting an SGIconsole to SGI Origin 300 Servers with NUMalink Module

Note: In connecting your SGIconsole to an SGI Origin 300 server with NUMAlink Module, you may want to consult *SGI Origin 300 with NUMAlink Module User's Guide*, which describes how to set up and use SGI Origin 300 servers with NUMAlink Modules.

See the following Caution and Notes before attempting to connect your SGIconsole to your SGI Origin 300 server:

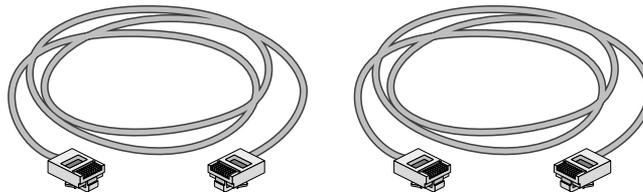
Caution: Before plugging the SGIconsole into either a 120 VAC or 220 VAC outlet, be sure that the electrical rating on the UL-CSA label is in either the 100 to 120 VAC range or the 200 to 240 VAC range, whichever applies. When using an SGIconsole in locations without either a 120 VAC or 220 VAC outlet,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

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 A, "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 pinout of your cable before making the connection.

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

1. Make sure that the power switch on your SGIconsole is off and that the SGIconsole and the Ethernet hub are disconnected from a power source.
2. Make sure that the SGI Origin 300 server to which you are connecting the SGIconsole is powered off according to the instructions in *SGI Origin 300 User's Guide*.
3. Make sure that you have two standard RJ-45 to RJ-45 twisted-pair Ethernet cables (10 feet (3 meters), part number 018-0830-001), as shown in Figure 2-13, 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.



Two standard RJ-45 twisted-pair cables

Figure 2-13 Items Needed to Connect SGIconsole to an SGI Origin 300 Server with NUMAlink Module

4. 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. Connect the other end of the RJ-45 cable to an RJ-45 jack on the Ethernet hub. Figure 2-14 shows 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).

Note: When cascading Ethernet hubs, 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).

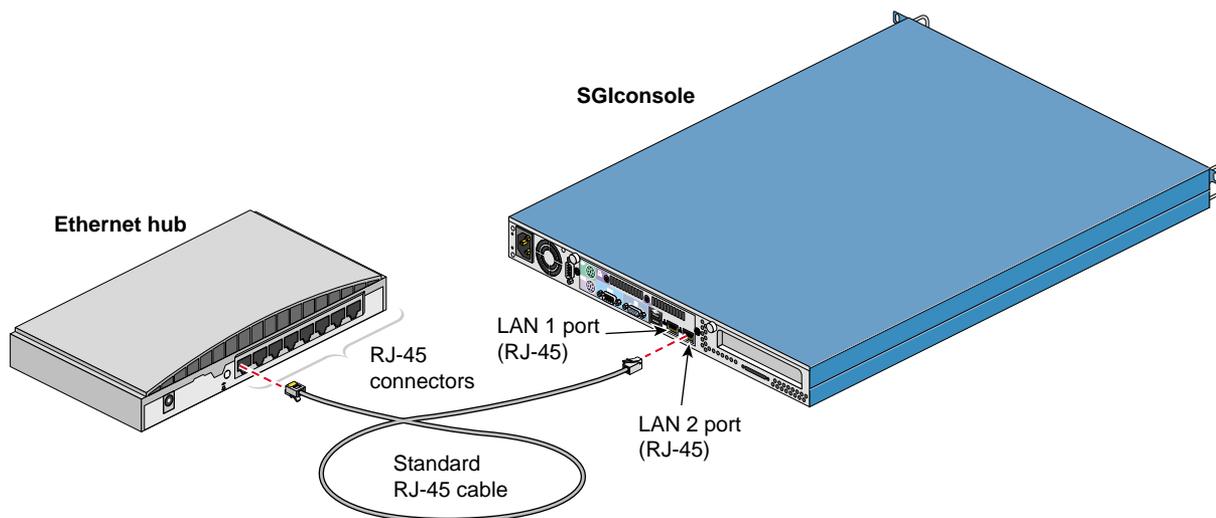


Figure 2-14 Connecting SGIconsole to the Ethernet Hub

5. Connect one end of the second 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 2-15.

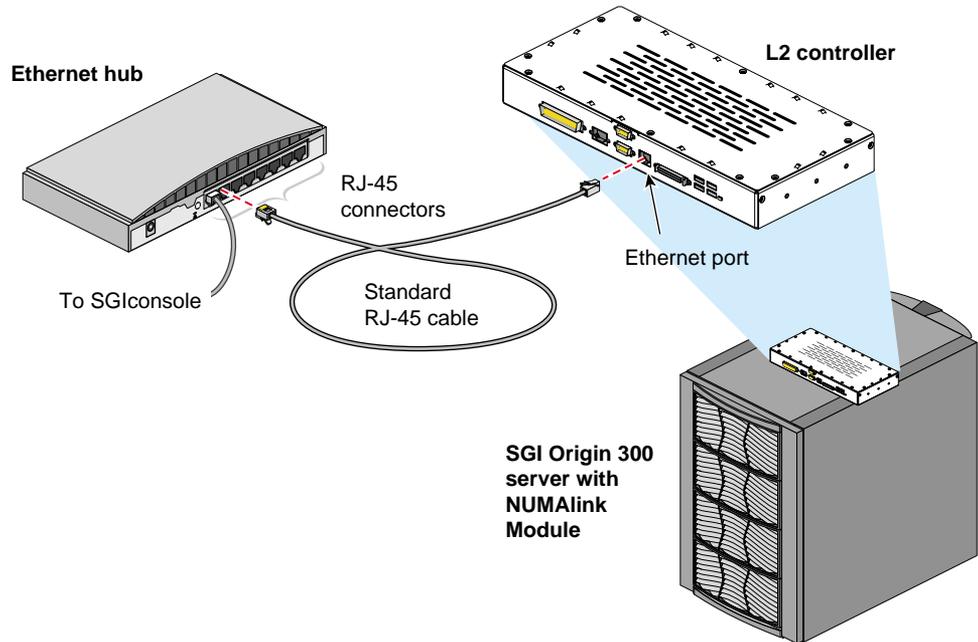


Figure 2-15 Connecting the Ethernet Hub to the Origin 300 Server with NUMAlink Module L2 Controller

6. Connect the cables for any other SGI Origin 300 servers with NUMAlink Module at your location as you did in steps 4 and 5.
7. After you have cabled all your SGI Origin 300 servers with NUMAlink Module, connect the power cable for your Ethernet hub, the SGI Origin 300 servers with NUMAlink Module, and the SGIconsole to a power source.
8. Power on all your SGI Origin 300 servers with NUMAlink Module according to the instructions in *SGI Origin 300 User's Guide*.
9. Power on your SGIconsole according to the instructions in *SGI 1100 Server User's Guide*.

Connecting SGIconsole to SGI 2100 or SGI 2200 Servers

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 desktside systems in other sites. Figure 2-16 shows the connection of an SGIconsole through a Silicon Graphics EL serial port server (EL-16-1.0) to a single SGI 2100. (The connection to the SGI 2200 is identical.)

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.

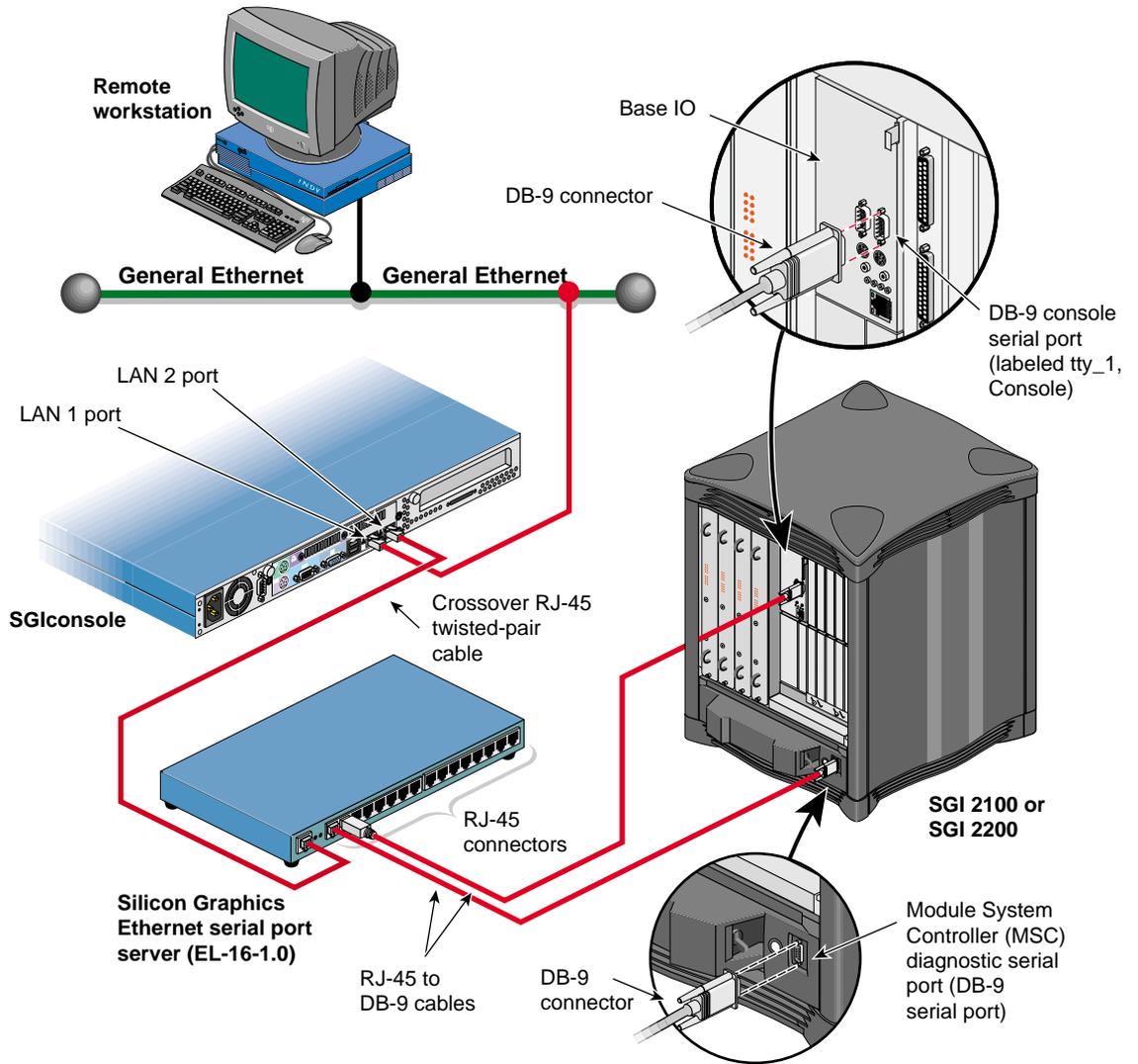


Figure 2-16 Connecting SGIconsole to an SGI 2100 or SGI 2200 Server

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

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*.

See the following Caution and Notes before attempting to connect your SGIconsole to your SGI 2100 or SGI 2200 server:

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

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 A, "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 the SGIconsole to the SGI 2100 or SGI 2200 server, follow these steps:

1. Make sure that the power switch on your SGIconsole is off and that the SGIconsole and the Silicon Graphics EL serial port server (EL-16-1.0) are disconnected from a power source.
2. 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*.
3. Make sure that you have the following items (see Figure 2-17):
 - One "crossover" twisted-pair Ethernet cable with RJ-45 connectors at both ends (6 feet (1.8 meters), part number 018-0625-001).
 - 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 107 for adapter pin assignments.

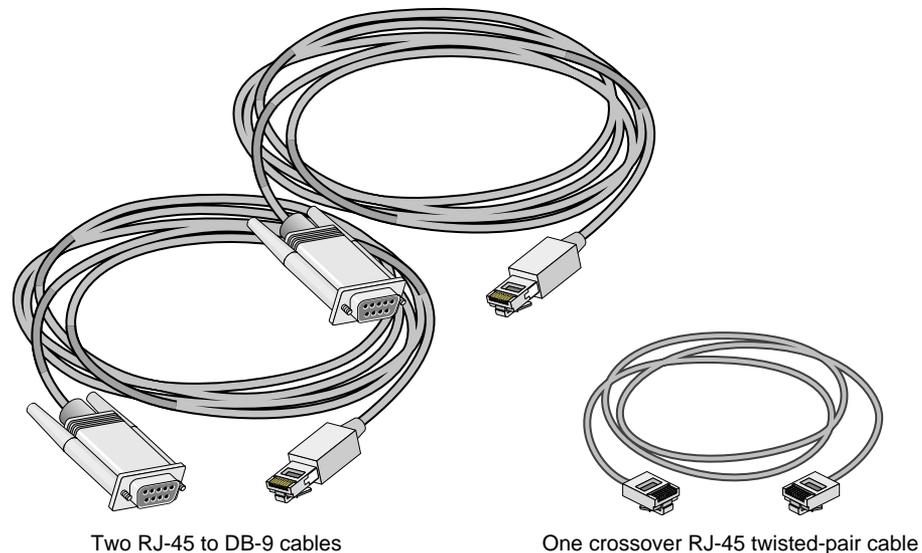


Figure 2-17 Items Needed to Connect SGIconsole to an SGI 2100 or SGI 2200 Server

4. If you have not already done so, connect one end of the crossover RJ-45 Ethernet 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 2-18.

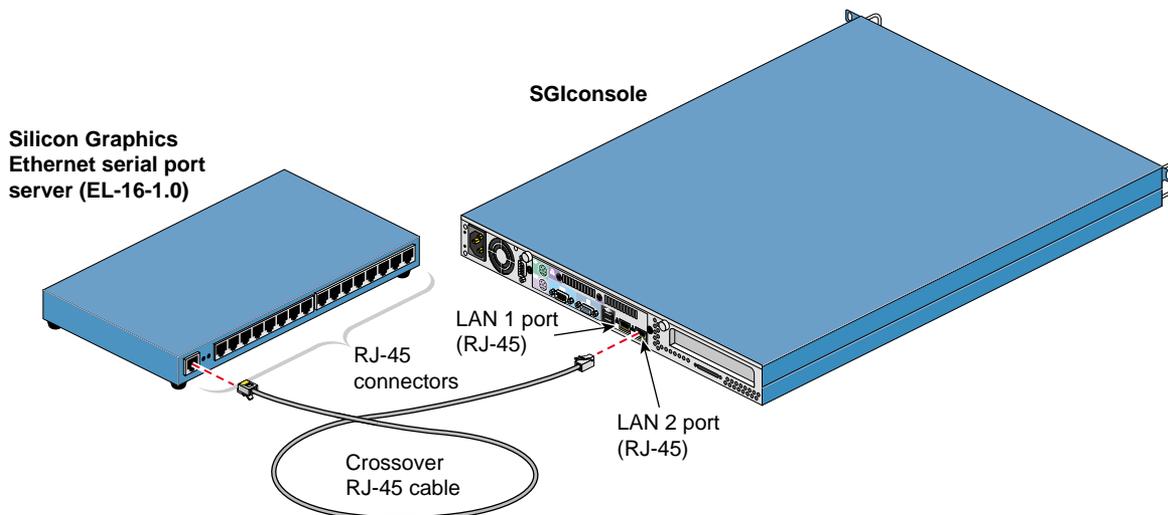


Figure 2-18 Connecting SGIconsole to the Silicon Graphics EL Serial Port Server

5. 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 serial port server. Connect the DB-9 connector to the SGI 2100 or SGI 2200 serial port jack labeled "tty_1, Console." See Figure 2-19.

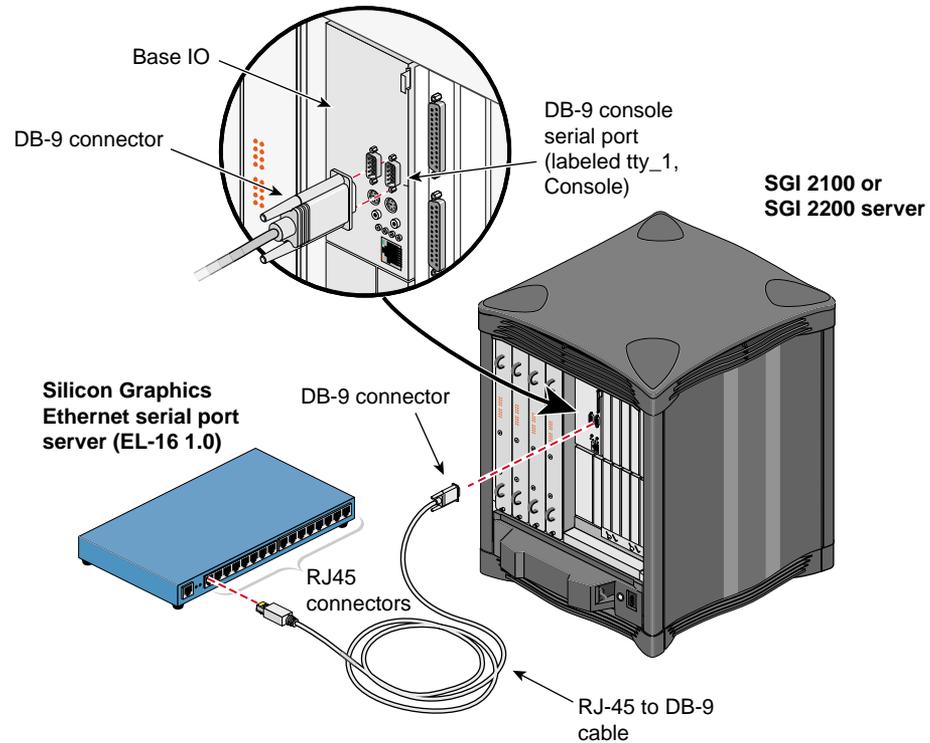


Figure 2-19 Connecting the Serial Port Server to the SGI 2100 or SGI 2200 tty_1, Console Connector

6. 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 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 2-20.

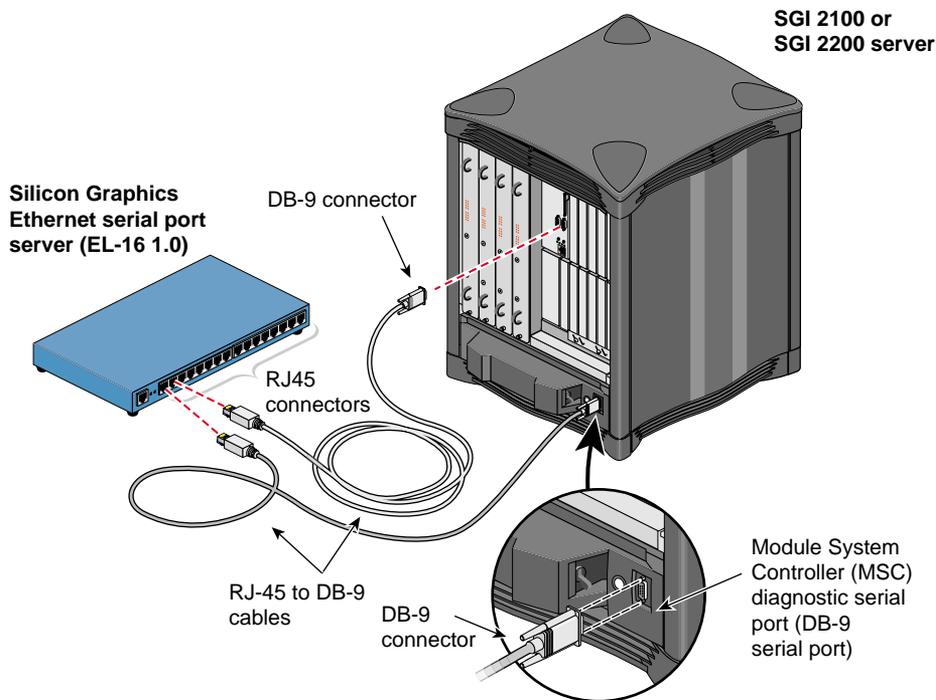


Figure 2-20 Connecting the Serial Port Server to the SGI 2100 or SGI 2200 Server MSC Serial Port

7. Connect the cables for any other SGI 2100 or SGI 2200 servers at your location as you did in steps 5 and 6.
8. After you have cabled all your SGI 2100 or SGI 2200 servers, connect the power cable for your Silicon Graphics EL serial port server, the SGI 2100 or SGI 2200 servers, and the SGIconsole to a power source.
9. Power on all your SGI 2100 or SGI 2200 servers according to the instructions in *SGI 2100 Owner's Guide* or *SGI 2200 Owner's Guide*.
10. Power on your SGIconsole according to the instructions in *SGI 1100 Server User's Guide*.

Connecting SGIconsole to SGI 2400 or SGI 2800 Servers

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 2-21 shows the connection of an SGIconsole through a Silicon Graphics EL serial port server (EL-16-1.0) to an SGI 2400 or an SGI 2800 server. (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.

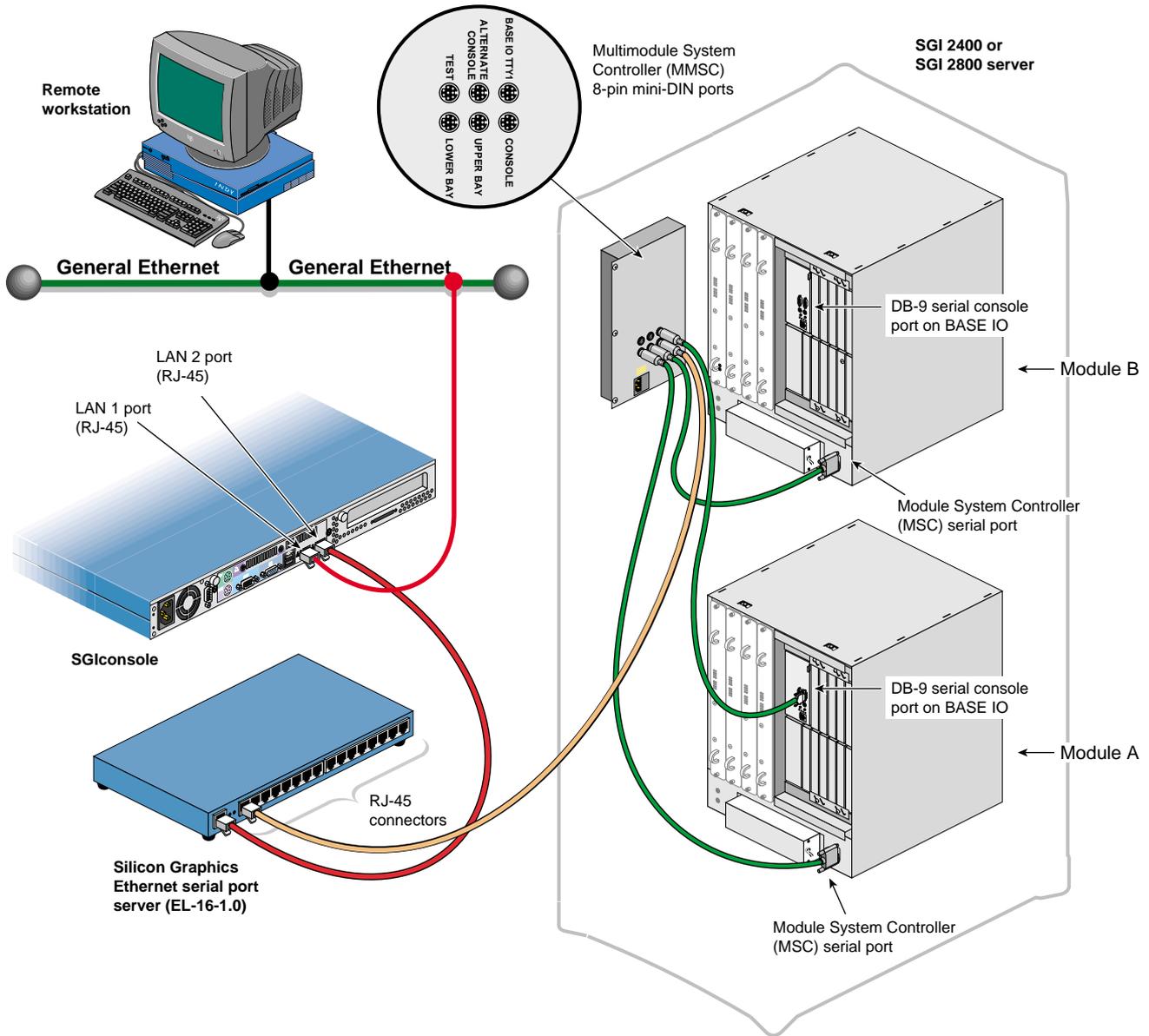


Figure 2-21 Connecting SGIconsole to an SGI 2400 or SGI 2800 Server

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.

See the following Caution and Notes before attempting to connect your SGIconsole to your SGI 2400 or SGI 2800 server:

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

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 A, "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 the SGIconsole to the SGI 2400 or SGI 2800 servers, 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. 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*.
2. Make sure that the power switch on your SGIconsole is off and that the SGIconsole and the Silicon Graphics EL serial port server (EL-16-1.0) are disconnected from a power source.

3. Make sure that you have the following items as shown in Figure 2-22:

- One “crossover” twisted-pair Ethernet cable with RJ-45 connectors at both ends (6 feet (1.8 meters), part number 018-0625-001).
- 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.

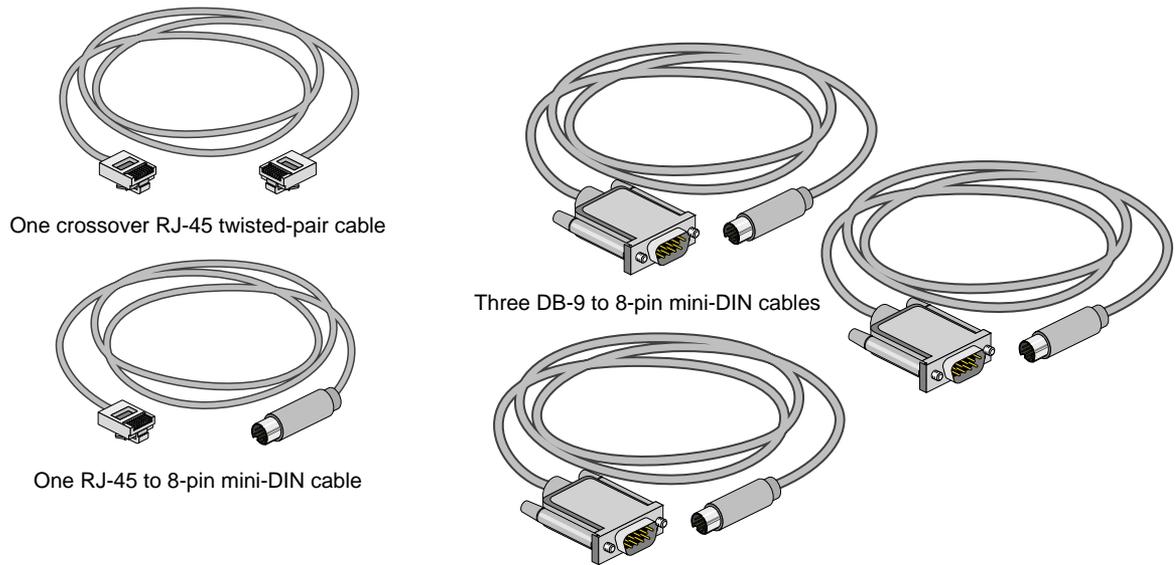


Figure 2-22 Items Needed to Connect SGIconsole to an SGI 2400 or SGI 2800 Server

4. If you have not already done so, connect one end of the crossover RJ-45 Ethernet 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 2-23.

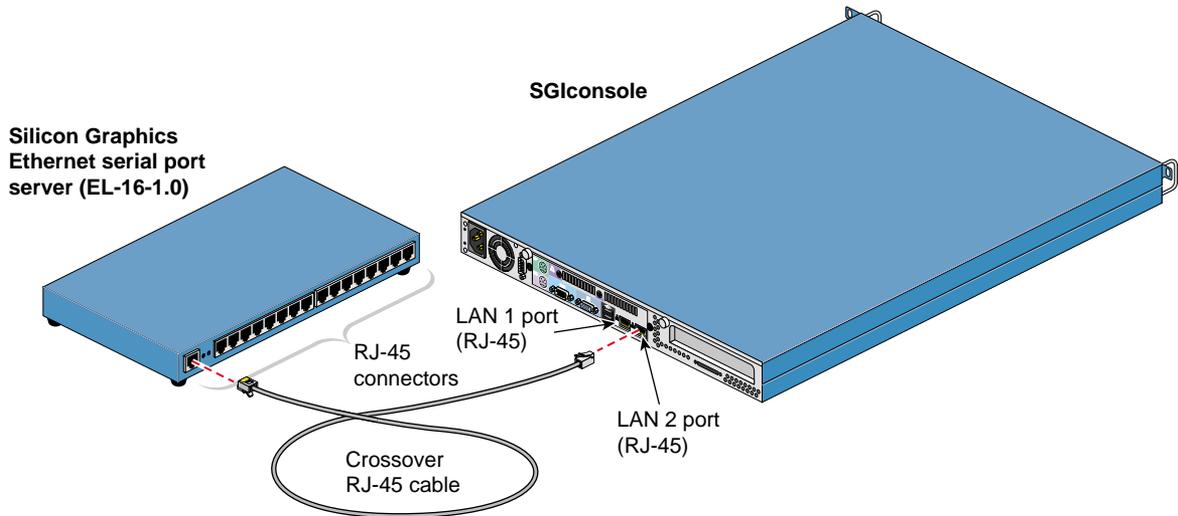


Figure 2-23 Connecting SGIconsole to the Silicon Graphics EL Serial Port Server

5. 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 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 2-24.

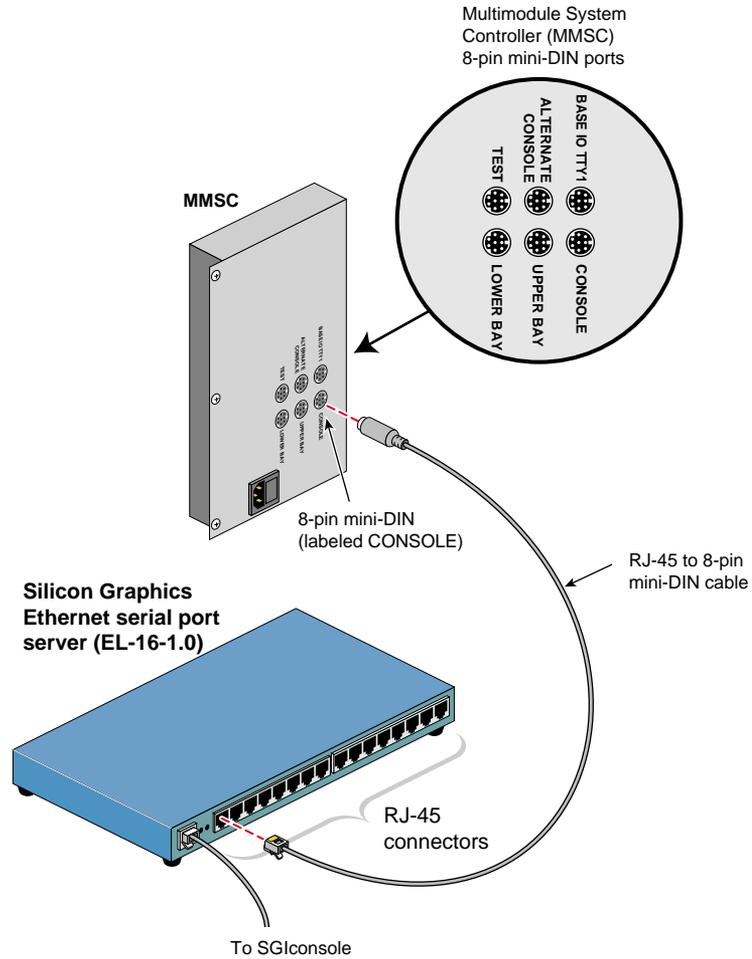


Figure 2-24 Connecting the Serial Port Server to the MMSC 8-pin Console Port

6. 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 2-25.

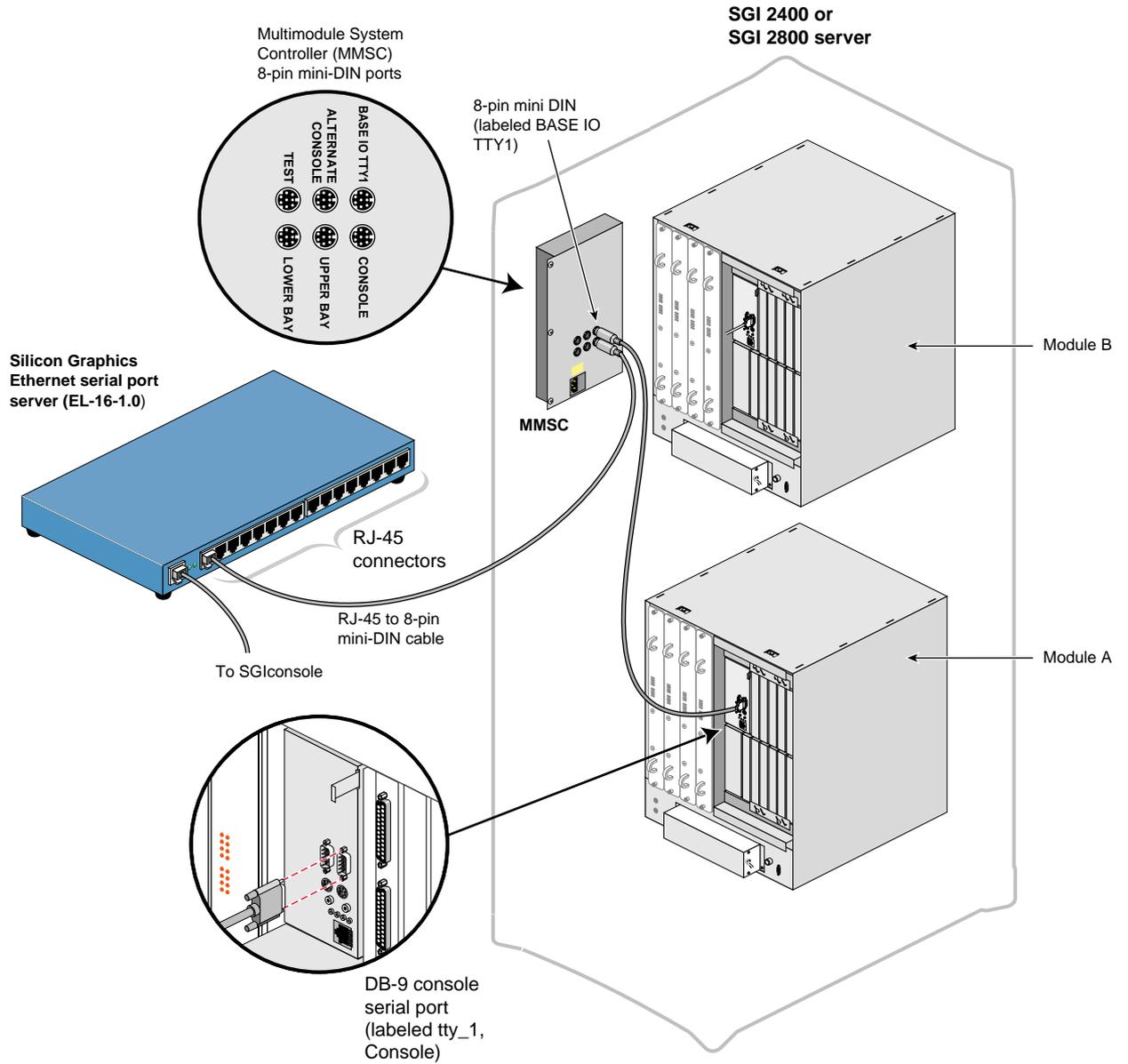


Figure 2-25 Connecting the MMSC Base I/O TTY1 to the Module A tty_1, Console Connector

7. 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 2-26.

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.)

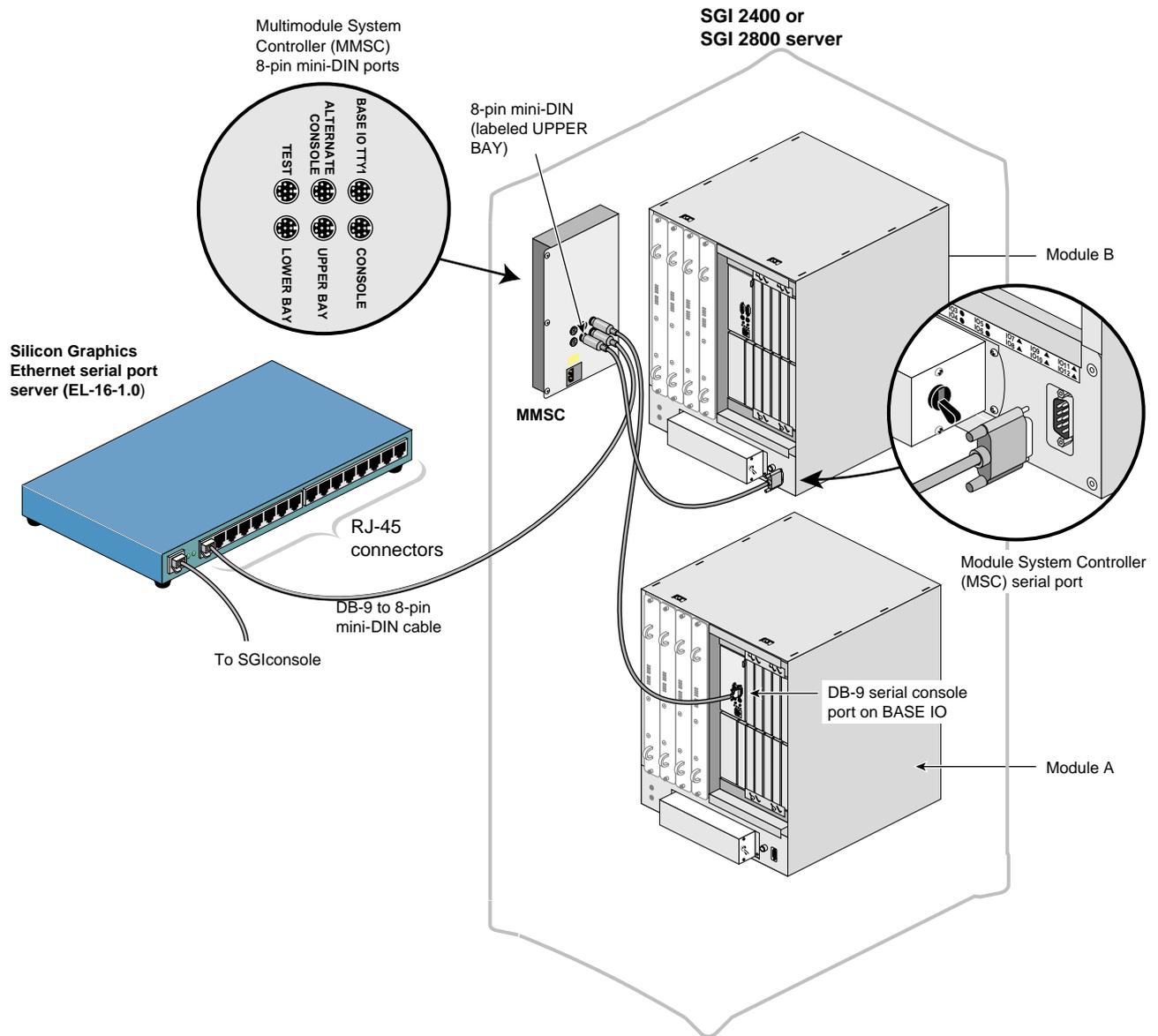


Figure 2-26 Connecting the MMSC Upper Bay Connector to the Module B MSC Serial Port

8. 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 2-27.

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.)

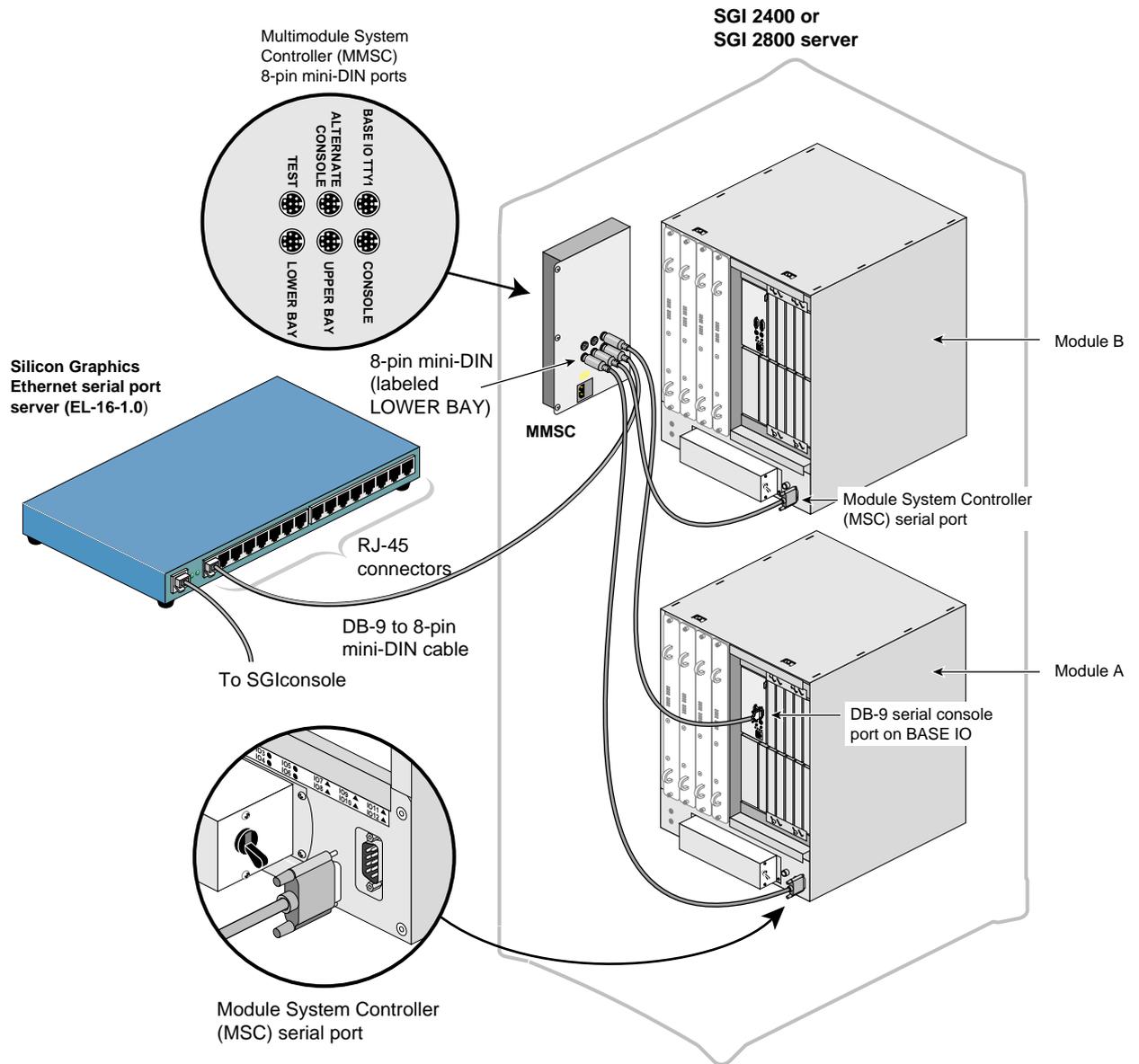


Figure 2-27 Connecting the MMSC Lower Bay Connector to the Module A MSC Serial Port

9. Connect the cables for any other SGI 2400 or SGI 2800 servers inat your location as you did in steps 5 through 8. If you want to interconnect the racks, see *SGI 2400 and 2800 Server Owner's Guide* for instructions.
10. After you have cabled all your SGI 2400 or SGI 2800 servers, connect the power cable for your Silicon Graphics EL serial port server, the SGI 2400 or SGI 2800 servers, and the SGIconsole to a power source.
11. Power on all your SGI 2400 or SGI 2800 servers according to the instructions in *SGI Origin 2400 and 2800 Server Owners' Guide*.
12. Power on your SGIconsole according to the instructions in *SGI 1100 Server User's Guide*.

Connecting SGIconsole to SGI Origin 3200 Servers Without L2 Controllers

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 2-28 shows the connection of an SGIconsole through a Silicon Graphics EL serial port server (EL-16-1.0) to a single SGI 3200.

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 SGIconsole to SGI Origin 3000 Series Servers With L2 Controllers” on page 75.

Note: In order for your SGIconsole to operate successfully with your Origin 3200 servers, your servers must be running L1 firmware revision 1.2.0 or later.

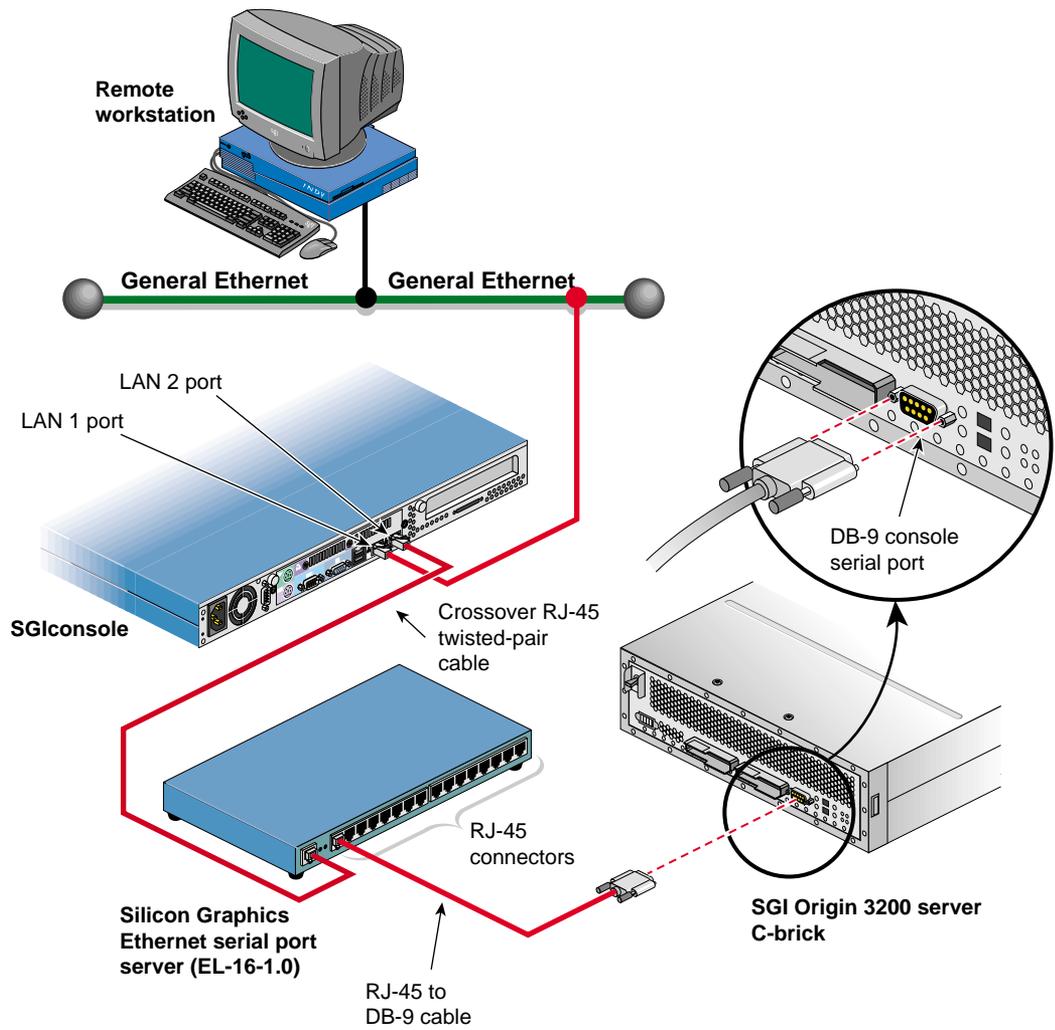


Figure 2-28 Connecting SGIconsole to an SGI Origin 3200 Server Without an L2 Controller

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

Note: In connecting your SGIconsole to an SGI 3200 server, you may want to consult *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, you may want to consult *SGI 3200 Server Owner's Guide*.

See the following Caution and Notes before attempting to connect your SGIconsole to your SGI 3200 server:

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

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 A, "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 the SGIconsole to the SGI 3200, follow these steps:

1. Make sure that the power switch on your SGIconsole is off and that the SGIconsole and the Silicon Graphics EL serial port server (EL-16-1.0) are disconnected from a power source.
2. Make sure that the SGI 3200 server is powered off according to the instructions in *SGI 3200 Owner's Guide*.
3. Make sure that you have the following items (as shown in Figure 2-29):
 - One “crossover” twisted-pair Ethernet cable with RJ-45 connectors at both ends (6 feet (1.8 meters), part number 018-0625-001).
 - 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 110 for adapter pin assignments.

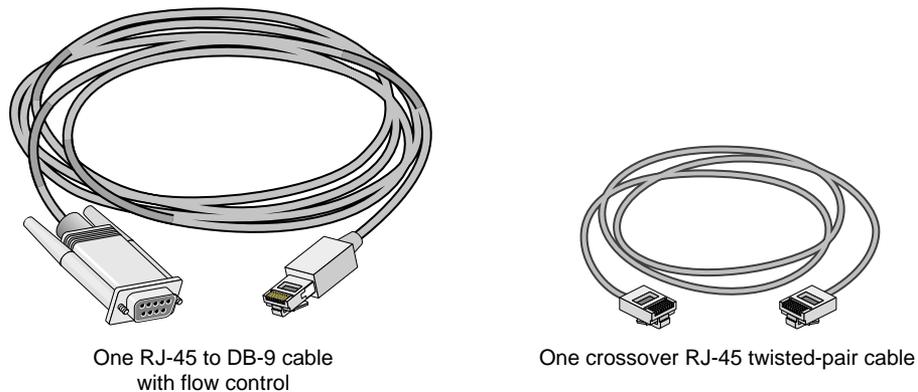


Figure 2-29 Items Needed to Connect SGIconsole to an SGI Origin 3200 Server

4. If you have not already done so, connect one end of the RJ-45 to RJ-45 crossover Ethernet 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 2-30.

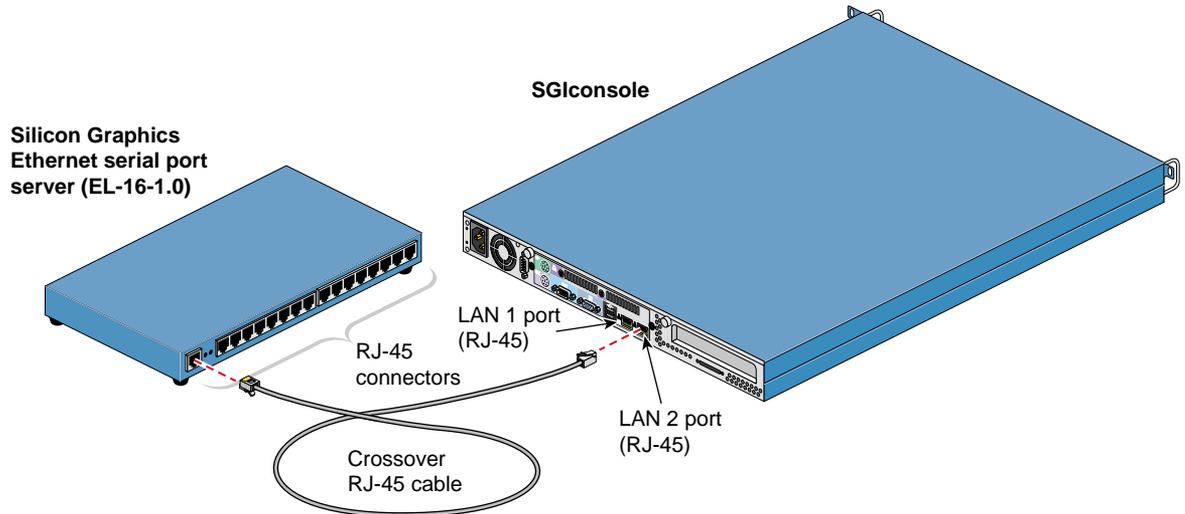


Figure 2-30 Connecting SGIconsole to the Silicon Graphics EL Serial Port Server

5. 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 serial port server. Connect the DB-9 connector to the SGI 3200 serial port jack labeled "Console." See Figure 2-31.

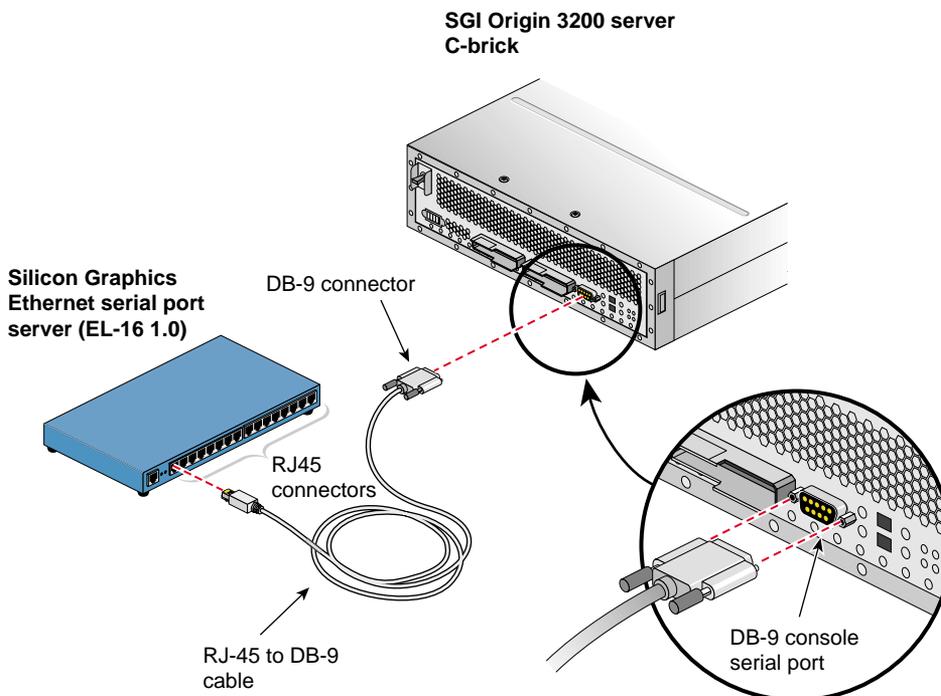


Figure 2-31 Connecting the Serial Port Server to the SGI Origin 3200 Server Console Port

6. Connect the cables for any other SGI 3200 servers at your location as you did in step 5.
7. After you have cabled all your SGI 3200 servers, connect the power cable for your Silicon Graphics EL serial port server, the SGI 3200 servers, and the SGIconsole to a power source.
8. Power on all your SGI 3200 servers according to the instructions in *SGI 3200 Owner's Guide*.
9. Power on your SGIconsole according to the instructions in *SGI 1100 Server User's Guide*.

Connecting SGIconsole to SGI Origin 3000 Series Servers With L2 Controllers

Methods for connecting an SGIconsole to SGI Origin 3000 series servers with L2 controllers are similar for all server models. Figure 2-32 shows the connection of an SGIconsole through an Ethernet hub to the following SGI Origin 3000 series servers with L2 controllers: 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 SGIconsole to SGI Origin 3200 Servers Without L2 Controllers” on page 69. Alternately, you may acquire an L2 controller (part number HU-L2-SYSCTLR) and a USBA to USBB 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 1.2.0 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.

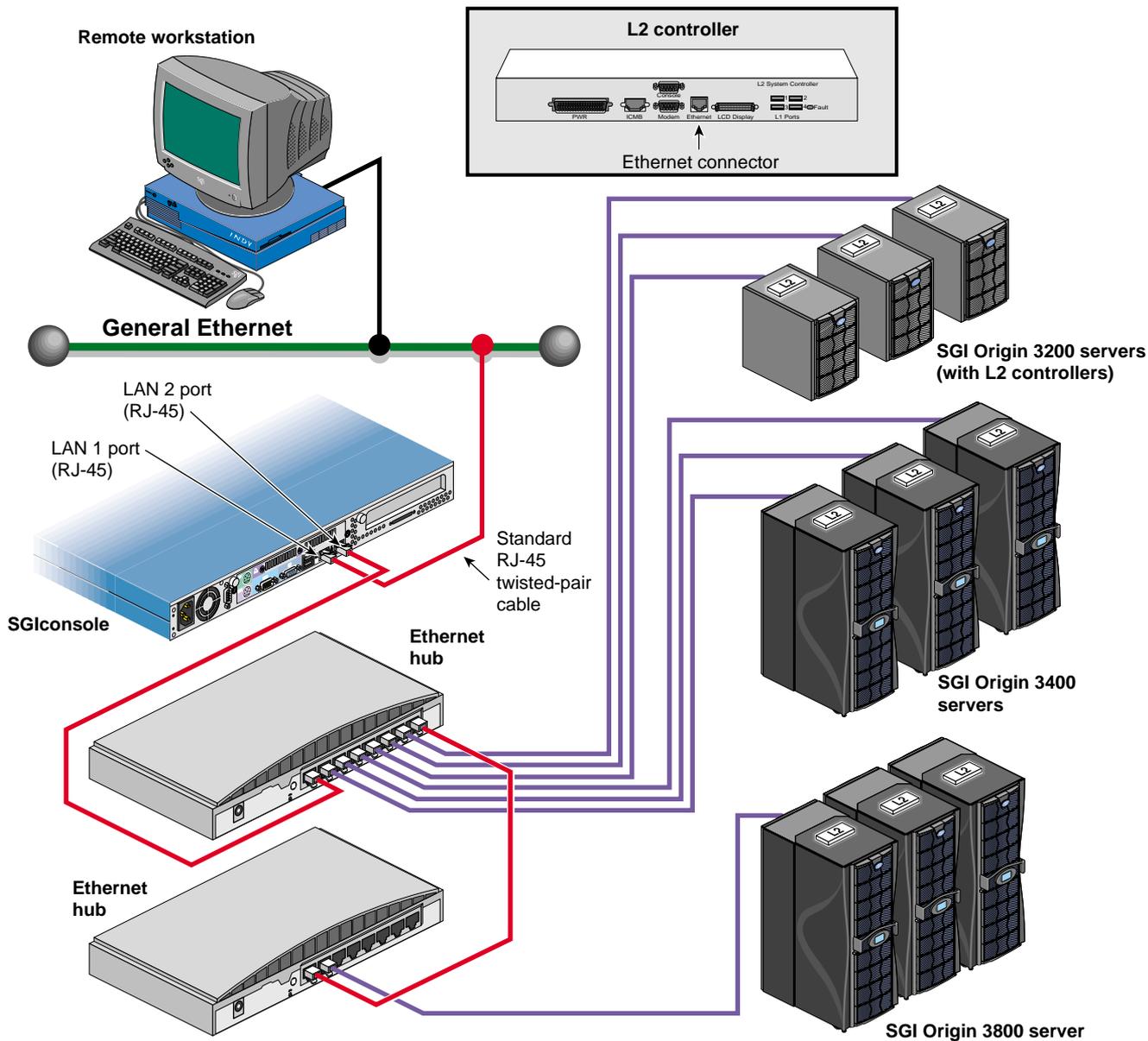


Figure 2-32 Connecting SGIconsole to SGI Origin 3000 Series Servers with L2 Controllers

Cautions and Notes for SGI Origin 3000 Series Server Systems

Note: In connecting your SGIconsole to an SGI Origin 3000 series server, you may want to consult *SGI Origin 3000 Series Owner's Guide*, which describes how to set up and use SGI Origin 3000 series servers.

See the following Caution and Notes before attempting to connect your SGIconsole to your SGI Origin 3000 series server:

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

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 A, "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 pinout of your cable before making the connection.

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
```

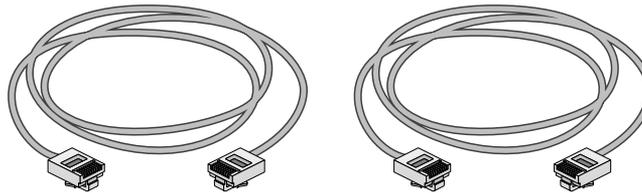
where *<serial number>* is a letter followed by seven digits.

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

1. Make sure that the power switch on your SGIconsole is off and that the SGIconsole and the Ethernet hub are disconnected from a power source.
2. Make sure that the SGI Origin 3000 series server to which you are connecting the SGIconsole is powered off according to the instructions in *SGI Origin 3000 Series Owner's Guide*.
3. Make sure that you have two standard RJ-45 to RJ-45 twisted-pair Ethernet cables (10 feet (3 meters), part number 018-0830-001), as shown in Figure 2-33, 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.



Two standard RJ-45 twisted-pair cables

Figure 2-33 Items Needed to Connect SGIconsole to an SGI Origin 3000 Series Server with an L2 Controller

4. Connect one end of one of the RJ-45 to RJ-45 standard Ethernet cables to the **LAN 2** port RJ-45 jack (the rightmost RJ-45 jack) on your SGIconsole. Connect the other end of the RJ-45 cable to an RJ-45 jack on the Ethernet hub. Figure 2-34 shows 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).

Note: When cascading Ethernet hubs, using a standard RJ-45 to RJ-45 twisted-pair Ethernet 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).

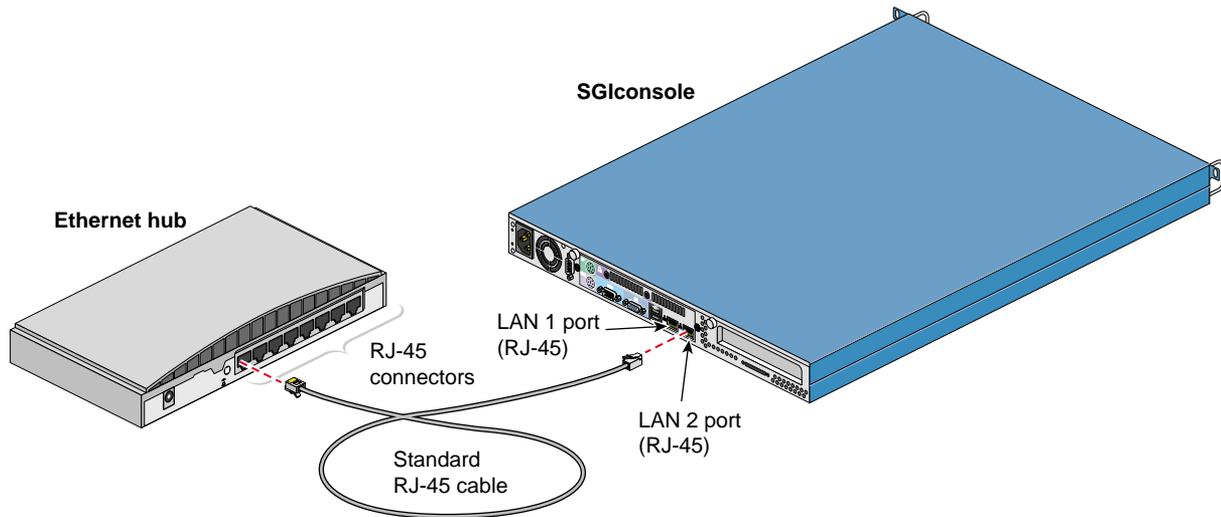


Figure 2-34 Connecting SGIconsole to the Ethernet Hub

5. Connect one end of the second RJ-45 to RJ-45 standard Ethernet cable to one of the RJ-45 jacks on the Ethernet hub. Connect the other end to the L2 controller's RJ-45 Ethernet jack. See Figure 2-35.

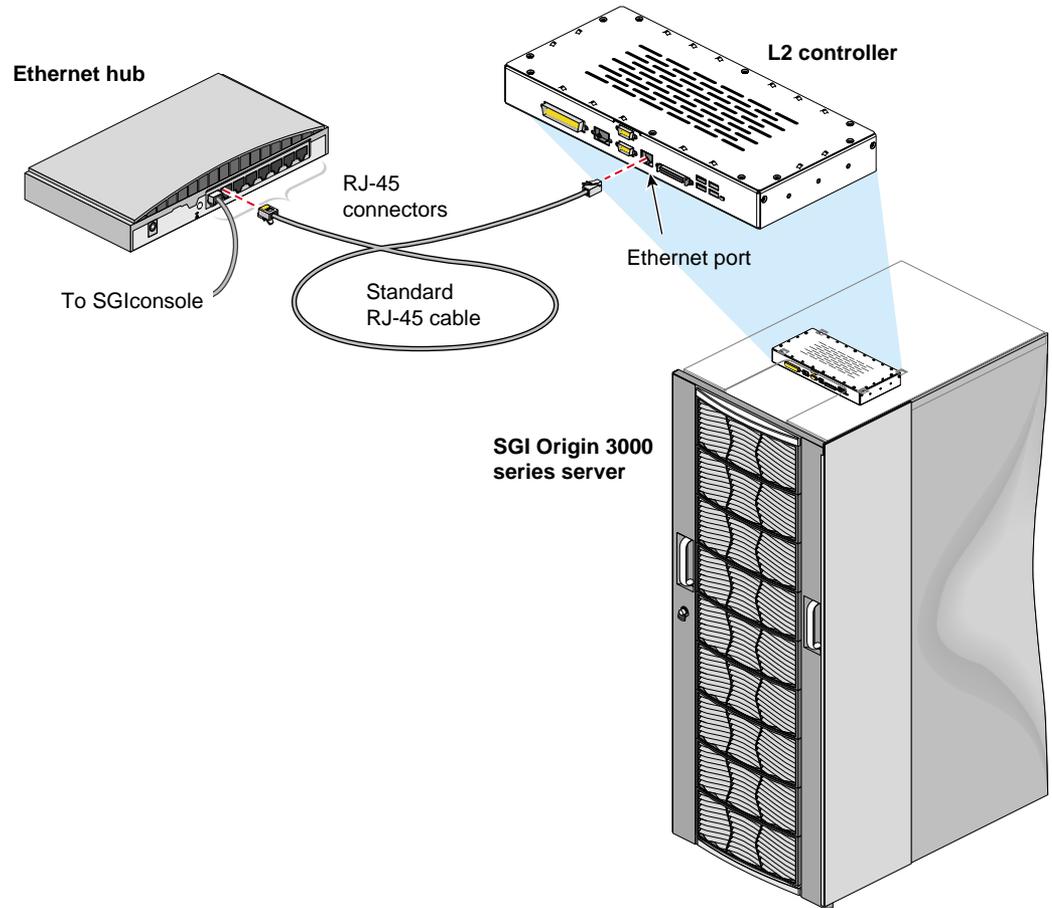


Figure 2-35 Connecting the Ethernet Hub to the Origin 3000 Series L2 Controller

6. Connect the cables for any other SGI Origin 3000 series servers with L2 controllers at your location as you did in step 5.
7. After you have cabled all your SGI Origin 3000 series servers with L2 controllers, connect the power cable for your Ethernet hub, the SGI Origin 3000 series servers, and the SGIconsole to a power source.

8. Power on all your SGI Origin 3000 series servers according to the instructions in *SGI Origin 3000 Series Owner's Guide*.
9. Power on your SGIconsole according to the instructions in *SGI 1100 Server User's Guide*.

Connecting SGIconsole to Silicon Graphics Onyx2 Deskside Graphics Workstations

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 2-36 shows the connection of an SGIconsole through a Silicon Graphics EL serial port server (EL-16-1.0) to a single Silicon Graphics Onyx2 deskside workstation.

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.

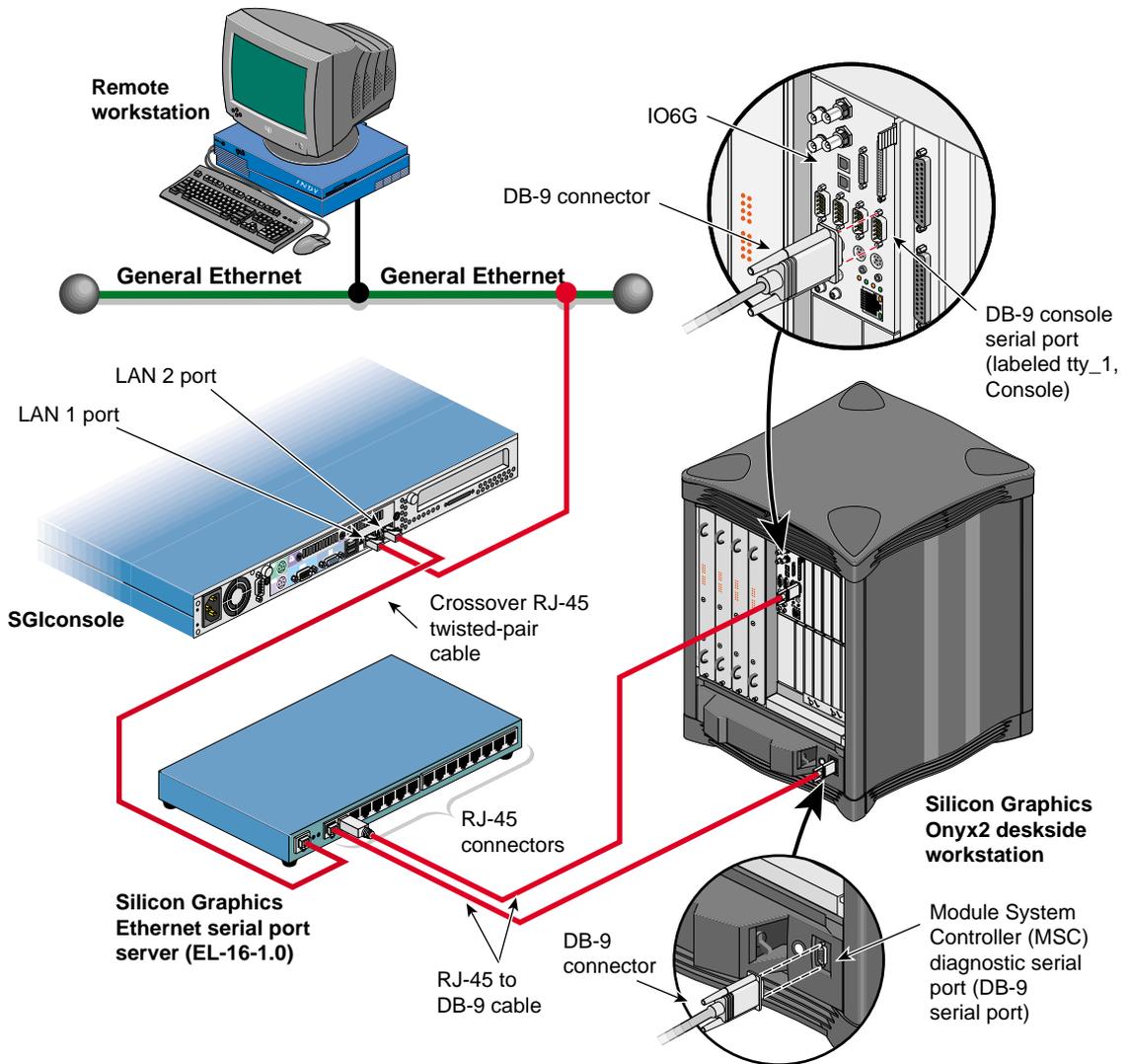


Figure 2-36 Connecting SGIconsole to a Silicon Graphics Onyx2 Deskside Workstation

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.

See the following Caution and Notes before attempting to connect your SGIconsole to your Silicon Graphics Onyx2 deskside workstation:

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

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 A, "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. Make sure that the power switch on your SGIconsole is off, and that the SGIconsole and the Silicon Graphics EL serial port server (EL-16-1.0) are disconnected from a power source.
2. 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*.
3. Make sure that you have the following items (see Figure 2-37):
 - One “crossover” twisted-pair Ethernet cable with RJ-45 connectors at both ends (6 feet (1.8 meters), part number 018-0625-001).
 - 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 107 for adapter pin assignments.

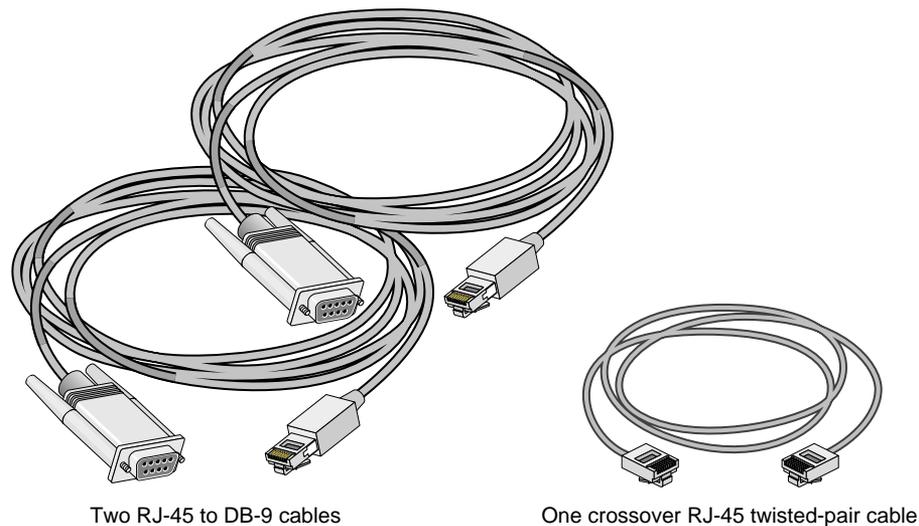


Figure 2-37 Items Needed to Connect SGIconsole to a Silicon Graphics Onyx2 Deskside Workstation

4. If you have not already done so, connect one end of the RJ-45 to RJ-45 crossover Ethernet 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 2-38.

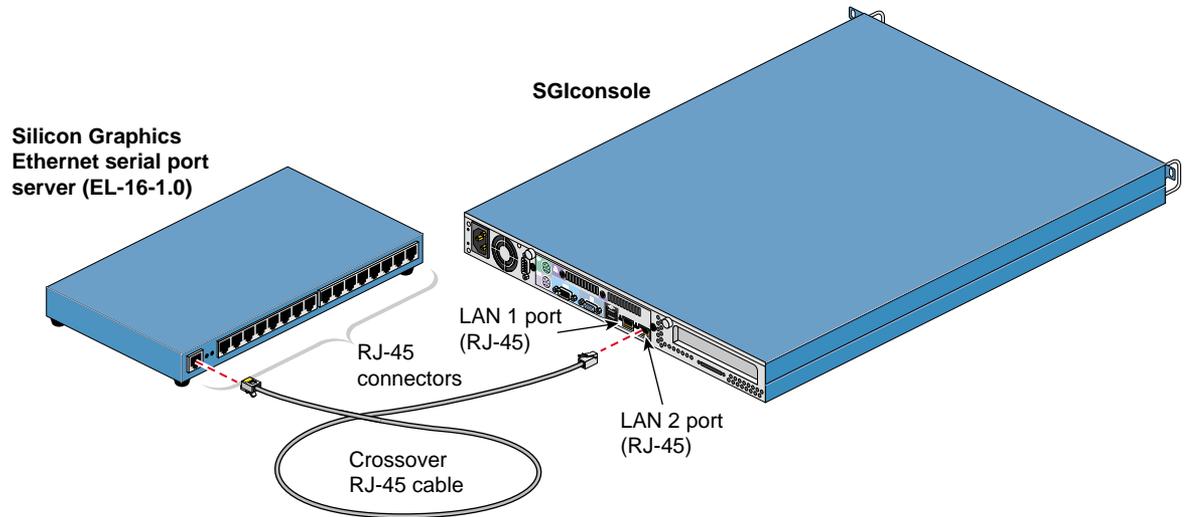


Figure 2-38 Connecting SGIconsole to the Silicon Graphics EL Serial Port Server

5. 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 serial port server. Connect the DB-9 connector to the Silicon Graphics Onyx2 deskside workstation serial port jack labeled "tty_1, Console." See Figure 2-39.

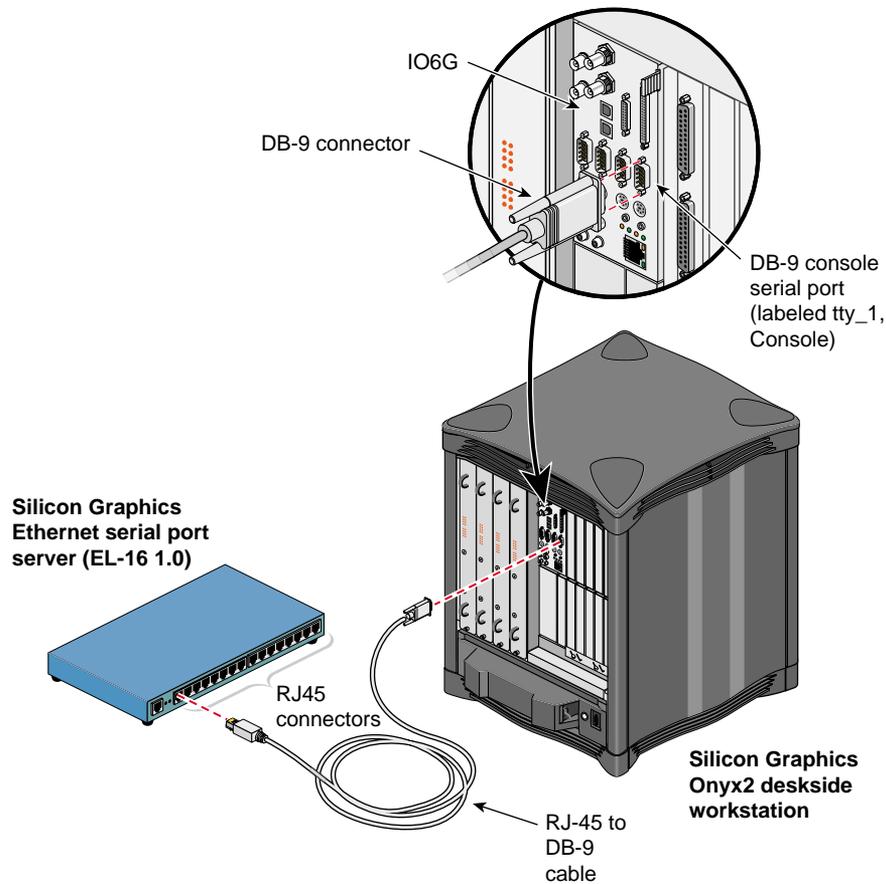


Figure 2-39 Connecting the Serial Port Server to the tty_1, Console Connector

6. 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 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 2-40.

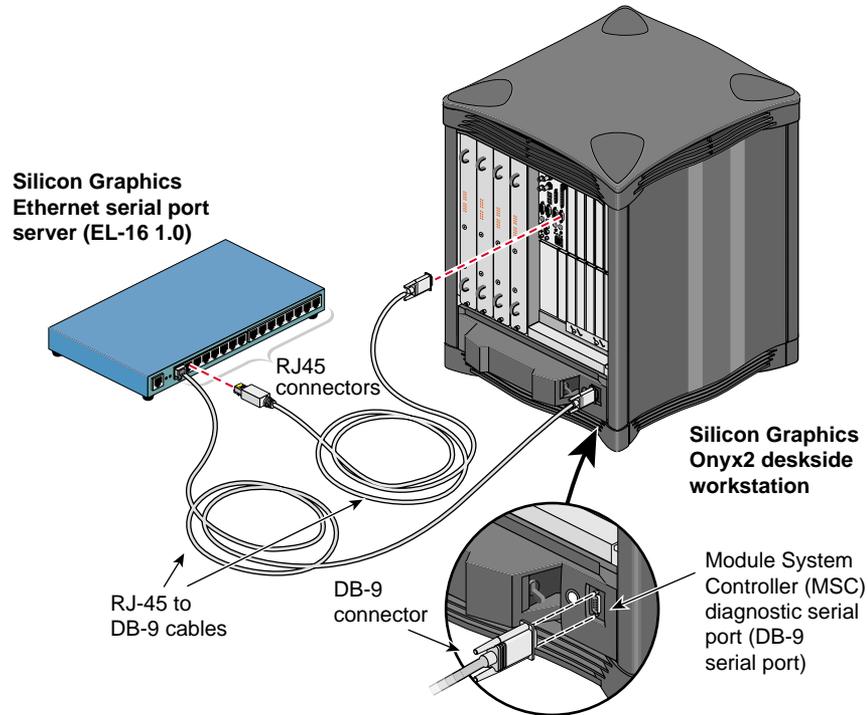


Figure 2-40 Connecting the Serial Port Server to the MSC Serial Port Connector

7. Connect the cables for any other Silicon Graphics Onyx2 deskside workstations at your location as you did in steps 5 and 6.
8. After you have cabled your Silicon Graphics Onyx2, connect the power cable for your Silicon Graphics EL serial port server, the Silicon Graphics Onyx2, and the SGIconsole to a power source.
9. Power on your Silicon Graphics Onyx2 deskside workstations according to the instructions in *Silicon Graphics Onyx 2 Deskside Workstation Owner's Guide*.
10. Power on your SGIconsole according to the instructions in *SGI 1100 Server User's Guide*.

Connecting SGIconsole to Silicon Graphics Onyx2 Rackmount Graphics Systems

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 a Silicon Graphics Onyx2 rackmount graphics system are similar for all hardware configurations of these graphics systems.

Figure 2-41 shows the connection of an SGIconsole through a Silicon Graphics EL serial port server (EL-16-1.0) to the Silicon Graphics Onyx2 rackmount graphics system. 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, your graphics system must be running MSC firmware revision 3.1 or later.

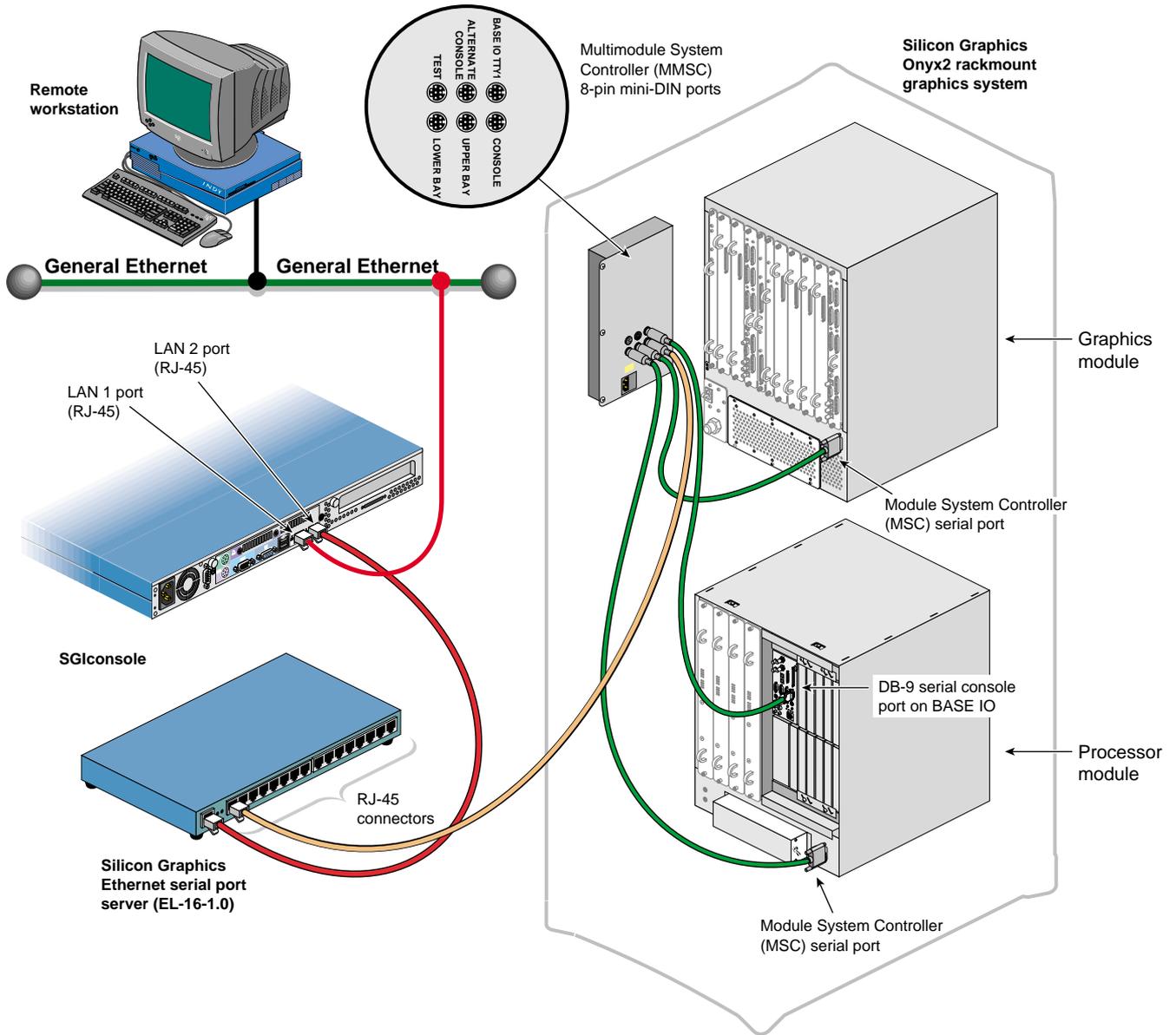


Figure 2-41 Connecting SGIconsole to a Silicon Graphics Onyx2 Rackmount System

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.

See the following Caution and Notes before attempting to connect your SGIconsole to your Silicon Graphics Onyx2 rackmount graphics system:

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

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 A, "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 rackmount graphics system, follow these steps:

1. Make sure that you power off the Silicon Graphics Onyx2 rackmount graphics system according to the instructions in *Silicon Graphics Onyx2 Rackmount Owner's Guide*.
2. Make sure that the power switch on your SGIconsole is off and that the SGIconsole and the Silicon Graphics EL serial port server (EL-16-1.0) are disconnected from a power source.
3. Make sure that you have the following items as shown in Figure 2-42:
 - One “crossover” twisted-pair Ethernet cable with RJ-45 connectors at both ends (6 feet (1.8 meters), part number 018-0625-001).
 - 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.

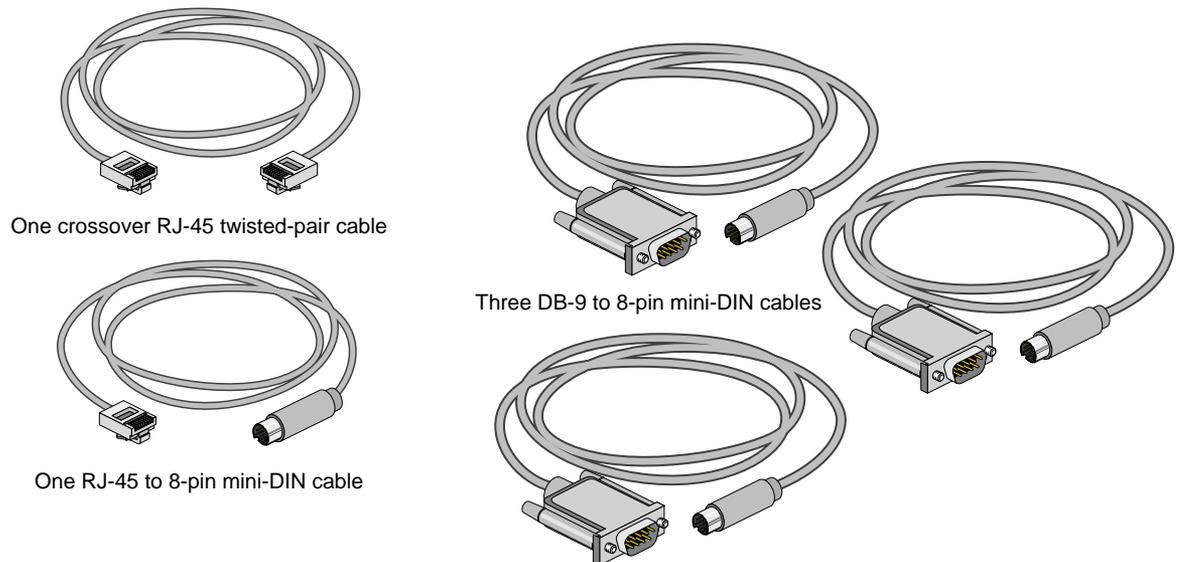


Figure 2-42 Items Needed to Connect SGIconsole to a Silicon Graphics Onyx2 Rackmount Graphics System

4. If you have not already done so, connect one end of the RJ-45 to RJ-45 crossover Ethernet 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 2-43.

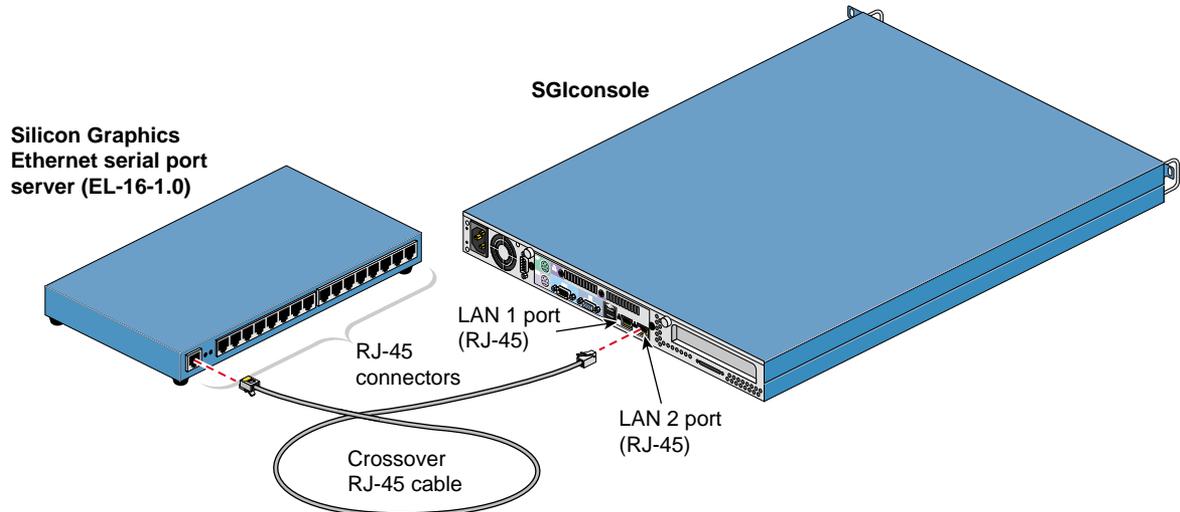


Figure 2-43 Connecting SGIconsole to the Silicon Graphics EL Serial Port Server

5. 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 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 2-44.

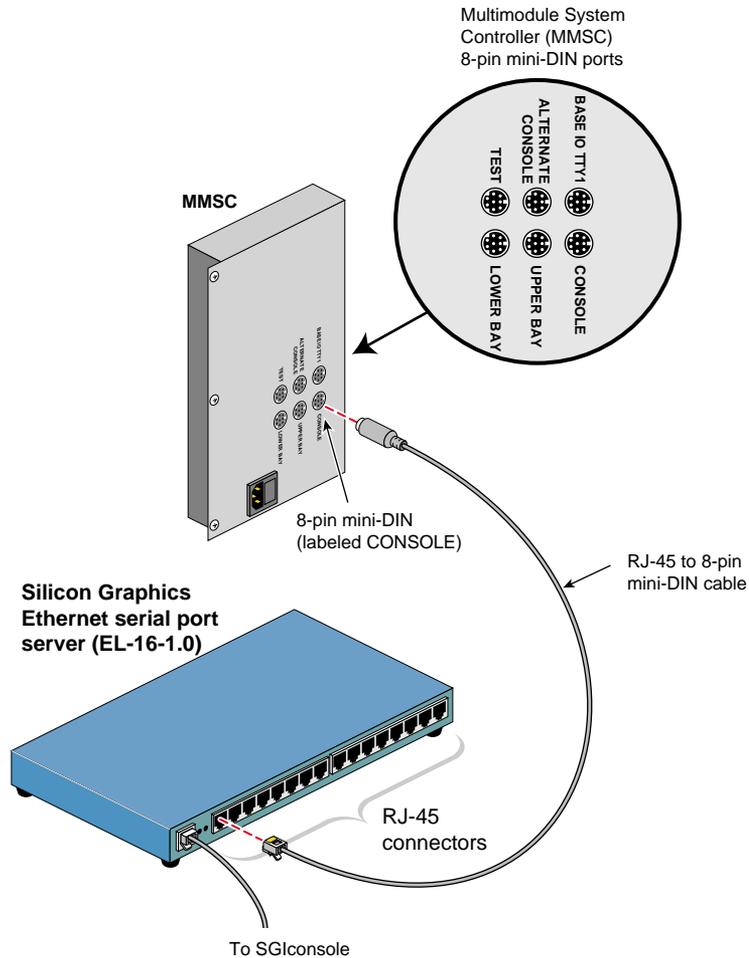


Figure 2-44 Connecting the Serial Port Server to the MMSC 8-pin mini-DIN Console Port

6. 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 2-45.

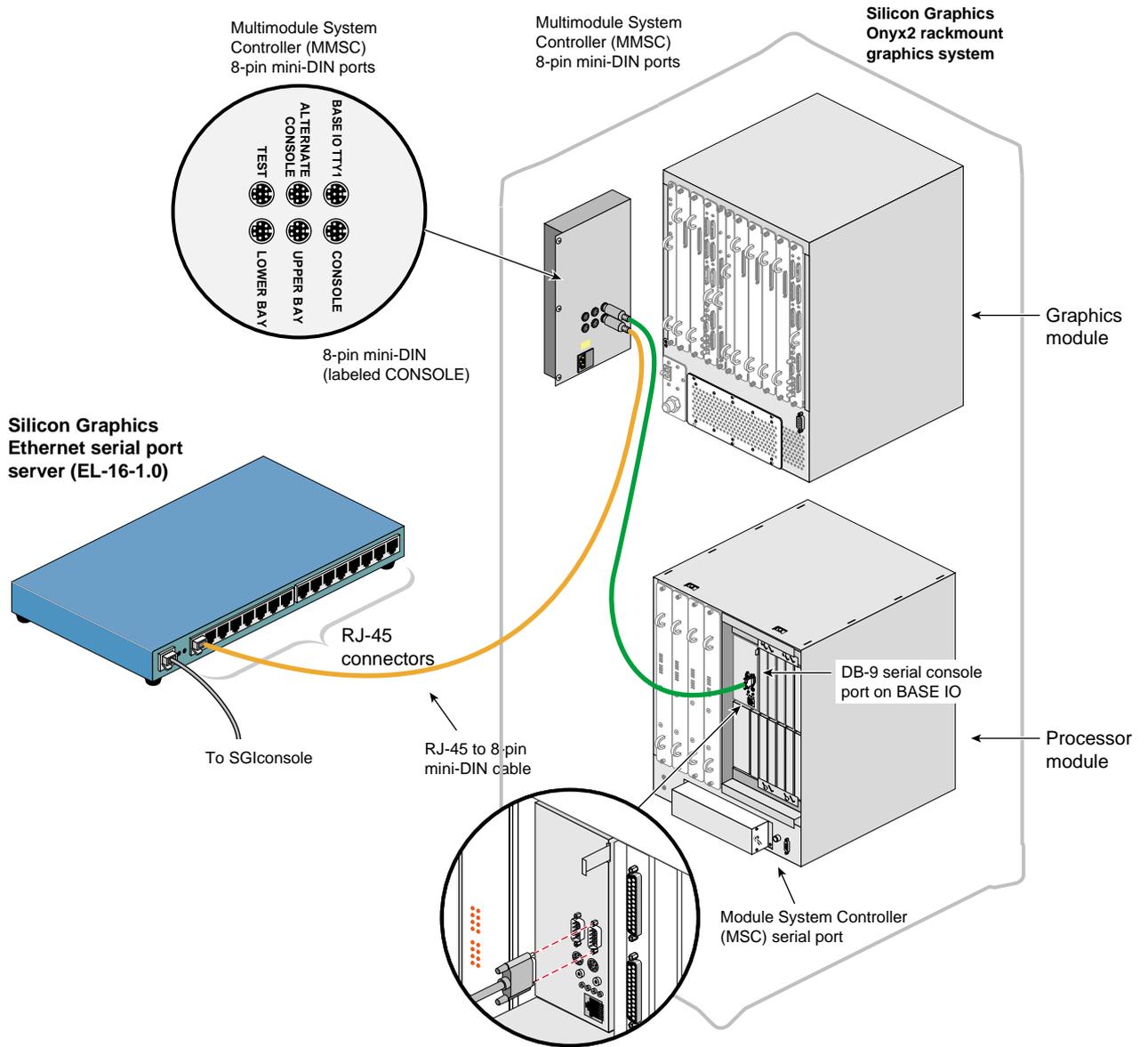


Figure 2-45 Connecting the MMSC Base I/O TTY1 to the Processor Module tty_1, Console Connector

7. 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 2-46.

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.)

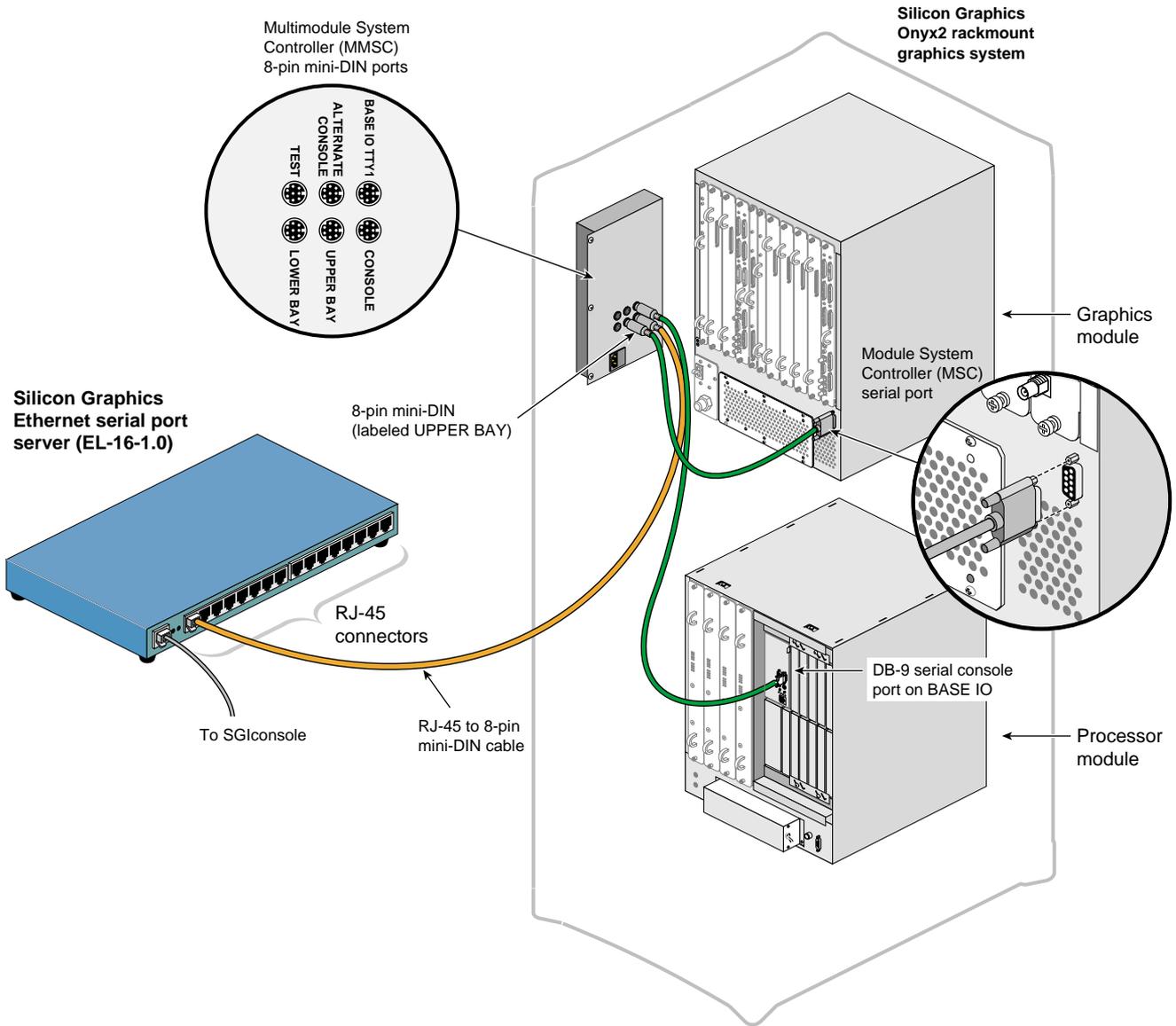


Figure 2-46 Connecting the MMSC Upper Bay Connector to the Graphics Module MSC Serial Port

8. 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 2-47.

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.)

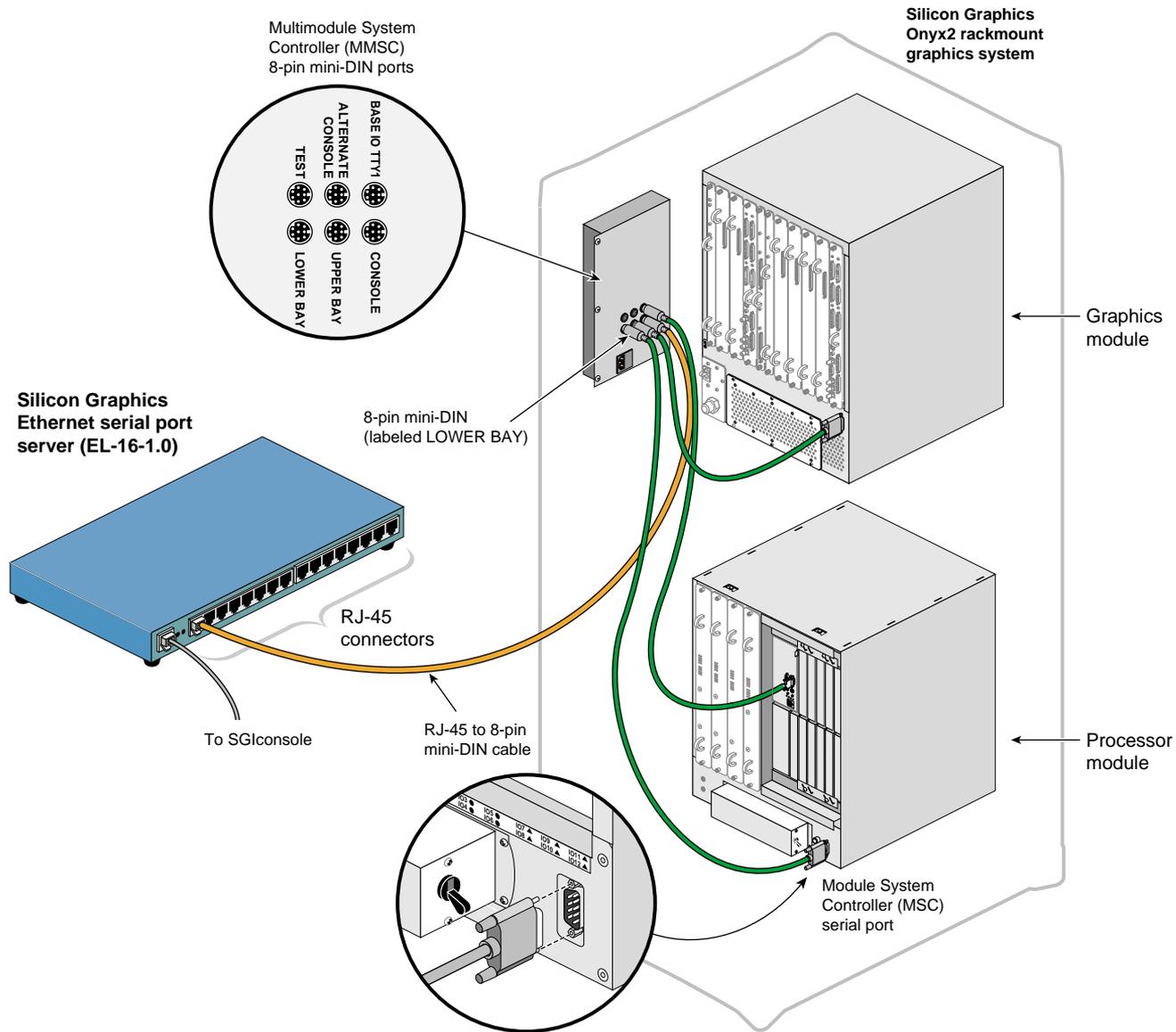


Figure 2-47 Connecting the MMSC Lower Bay Connector to the Processor Module MSC Serial Port

9. Connect the cables for any other Silicon Graphics Onyx2 rackmount graphics systems at your location as you did in steps 5 through 8. If you want to interconnect the racks, see *Silicon Graphics Onyx2 Rackmount Owner's Guide* for instructions.
10. After you have cabled all your Silicon Graphics Onyx2 rackmount graphics systems, connect the power cable for your Silicon Graphics EL serial port server, the graphics systems, and the SGIconsole to a power source.
11. Power on all your Silicon Graphics Onyx2 rackmount graphics systems according to the instructions in *Silicon Graphics Onyx2 Rackmount Owner's Guide*.
12. Power on your SGIconsole according to the instructions in *SGI 1100 Server User's Guide*.

Connecting SGIconsole to SGI Onyx 3000 Series Graphics Systems

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 SGIconsole to SGI Origin 3000 Series Servers With L2 Controllers” on page 75 for details on how to connect an SGIconsole to the SGI Origin 3000 series servers.

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 1.2.0 or later.

Connector Pin Assignments

This appendix describes the pin assignments for the following items:

- “RJ-45 to DB-9 Twisted-Pair Serial Cable” on page 106
- “RJ-45 to DB-9 Serial Adapter” on page 107
- “Crossover RJ-45 Ethernet Cable” on page 112
- “SGI Origin 200 Server Pin Assignments” on page 112
- “SGI Origin 300 Server Pin Assignments” on page 115
- “SGI 2100 and SGI 2200 Server Pin Assignments” on page 117
- “SGI 2400 and SGI 2800 Server Pin Assignments” on page 119
- “SGI Origin 3000 Series Server Pin Assignments” on page 123
- “Silicon Graphics Onyx2 Deskside Workstation Pin Assignments” on page 125
- “Silicon Graphics Onyx2 Rackmount Graphics System Pin Assignments” on page 127

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 A-1), which is needed to connect the Silicon Graphics Ethernet serial port server (EL-16-1.0) 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.

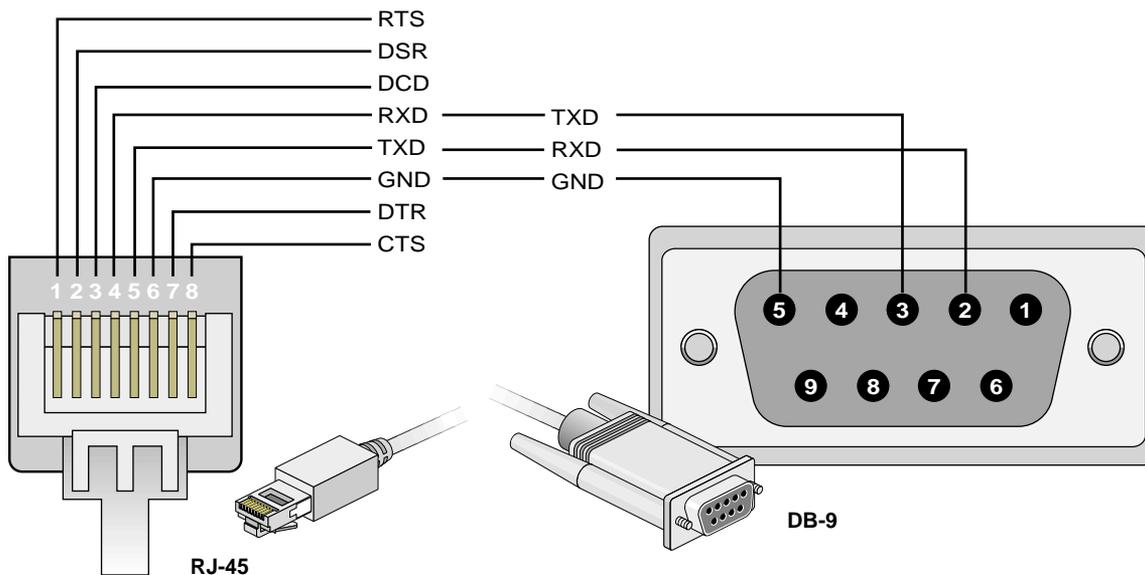


Figure A-1 RJ-45 to DB-9 Serial Cable Pin Assignments

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 A-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 (EL-16-1.0) 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.

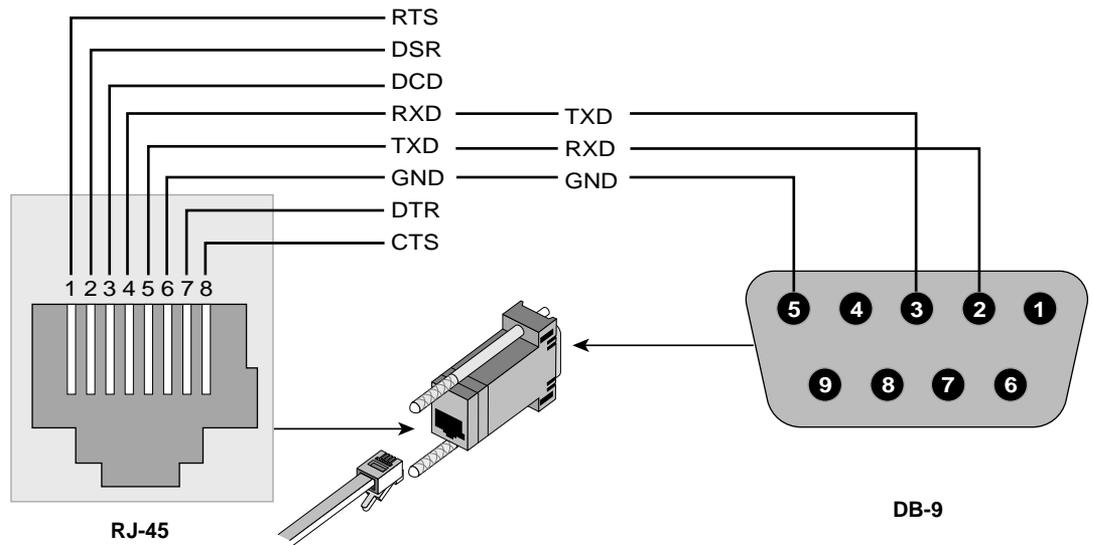


Figure A-2 RJ-45 to DB-9 Serial Adapter Pin Assignments

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

Table A-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 A-3), which is needed to connect the Silicon Graphics Ethernet serial port server (EL-16-1.0) to the DB-9 serial port on the SGI Origin 300 server without NUMAlink Module and on the SGI Origin 3200 server without L2.

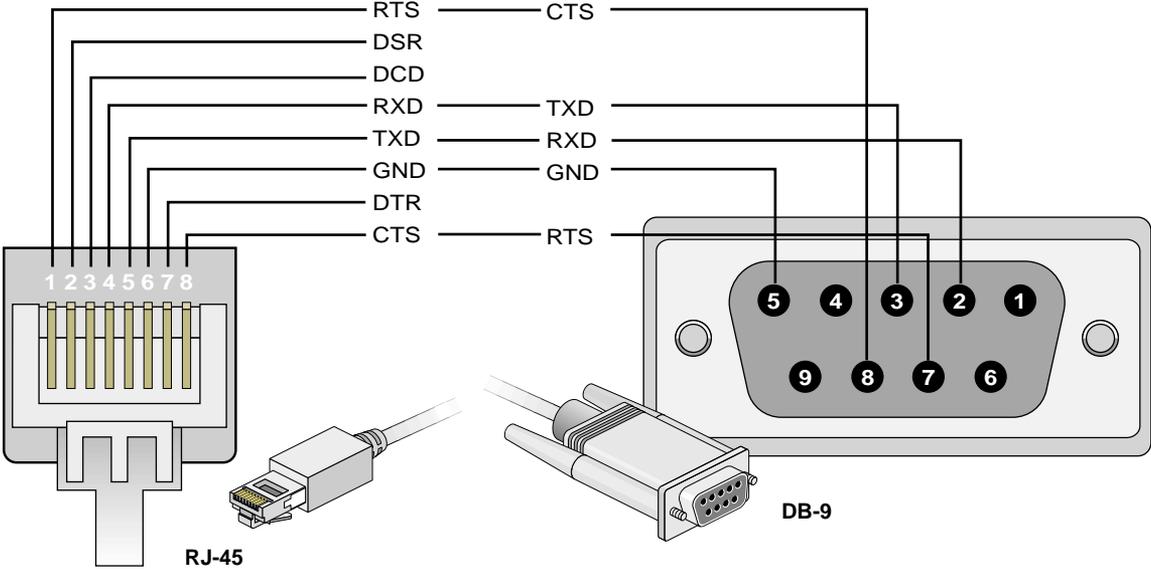


Figure A-3 RJ-45 to DB-9 Serial Cable With Flow Control Pin Assignments

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 A-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 (EL-16-1.0) 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.

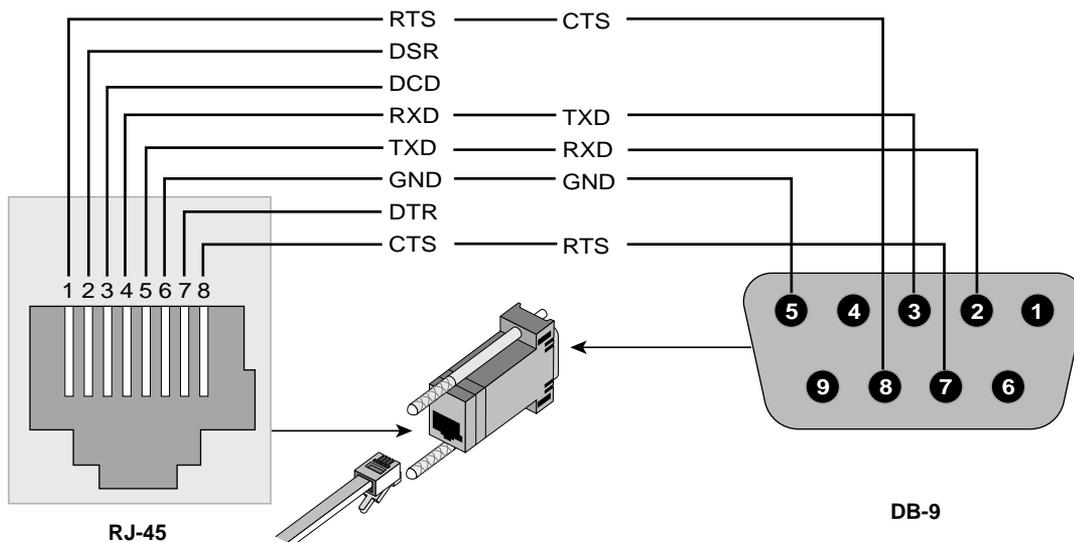


Figure A-4 RJ-45 to DB-9 Serial Adapter With Flow Control Pin Assignments

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

Table A-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		

Crossover RJ-45 Ethernet Cable

See *EL Serial Port Server Installation Guide* (91000932B) for the pin assignments for the crossover RJ-45 cable that connects the RJ-45 Ethernet connector on the SGIconsole to the RJ-45 Ethernet connector on the Silicon Graphics Ethernet serial port server (EL-16-1.0).

SGI Origin 200 Server Pin Assignments

Figure A-5 shows the pin assignments for the serial port connector 1 and serial port connector 2 on the rear panel of the Origin 200 servers.

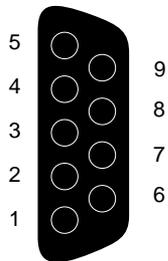


Figure A-5 SGI Origin 200 Serial Port Pin Assignments

Table A-3 lists the pin assignments for the serial port pin numbers in RS-232 mode.

Table A-3 Origin 200 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 A-4 lists the pin assignments for the serial port pin numbers in the RS-422 mode.

Table A-4 Origin 200 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 Origin 300 Server Pin Assignments

This section lists the pin assignments for the following SGI Origin 300 server 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 A-6 shows the pin number locations and pin assignments for the DB-9 serial port connector on the SGI Origin 300 labeled “Console.”

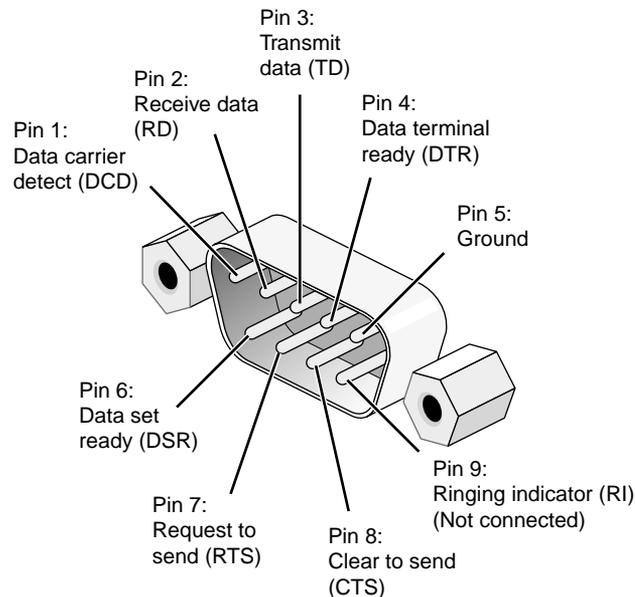


Figure A-6 SGI Origin 300 DB-9 Serial Port Connector Pin Assignments

Figure A-7 shows the pin number locations and pin assignments for the Ethernet connector on the L2 controller hardware for the SGI Origin 300 servers with NUMALink Module.

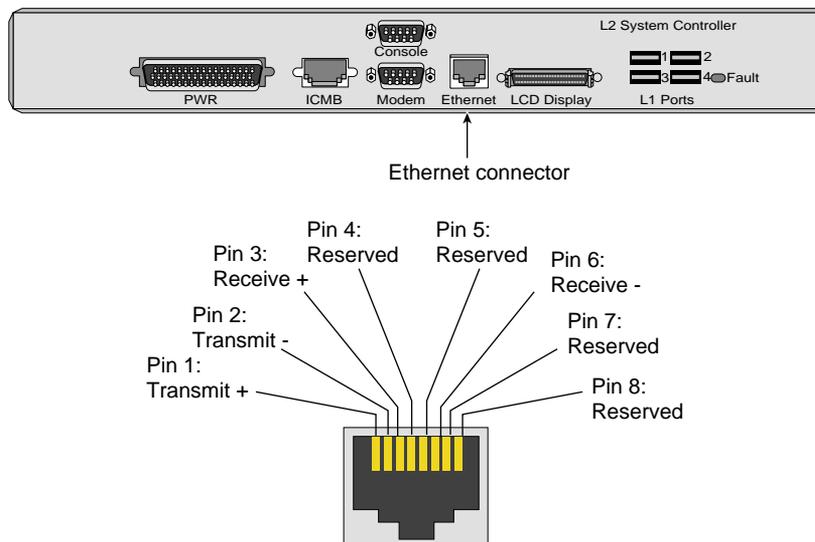


Figure A-7 L2 Controller Ethernet Connector Pin Assignments

SGI 2100 and SGI 2200 Server Pin Assignments

Figure A-8 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.

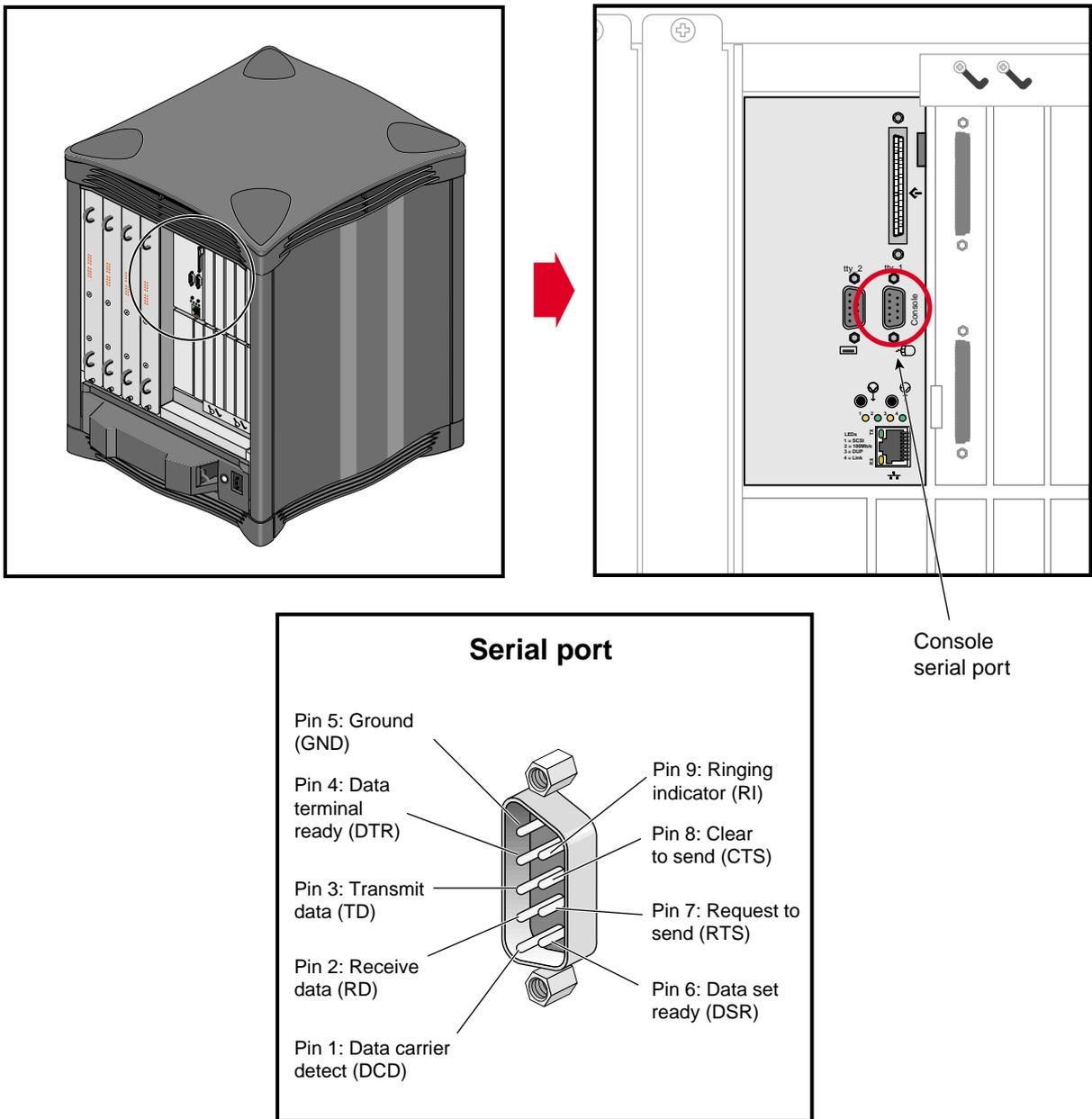


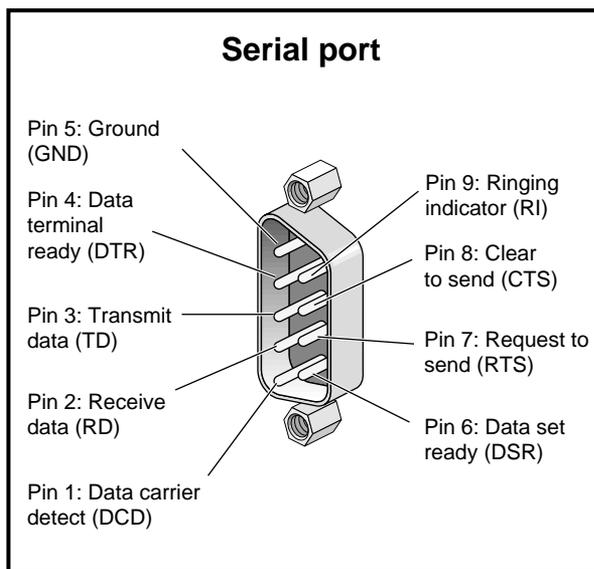
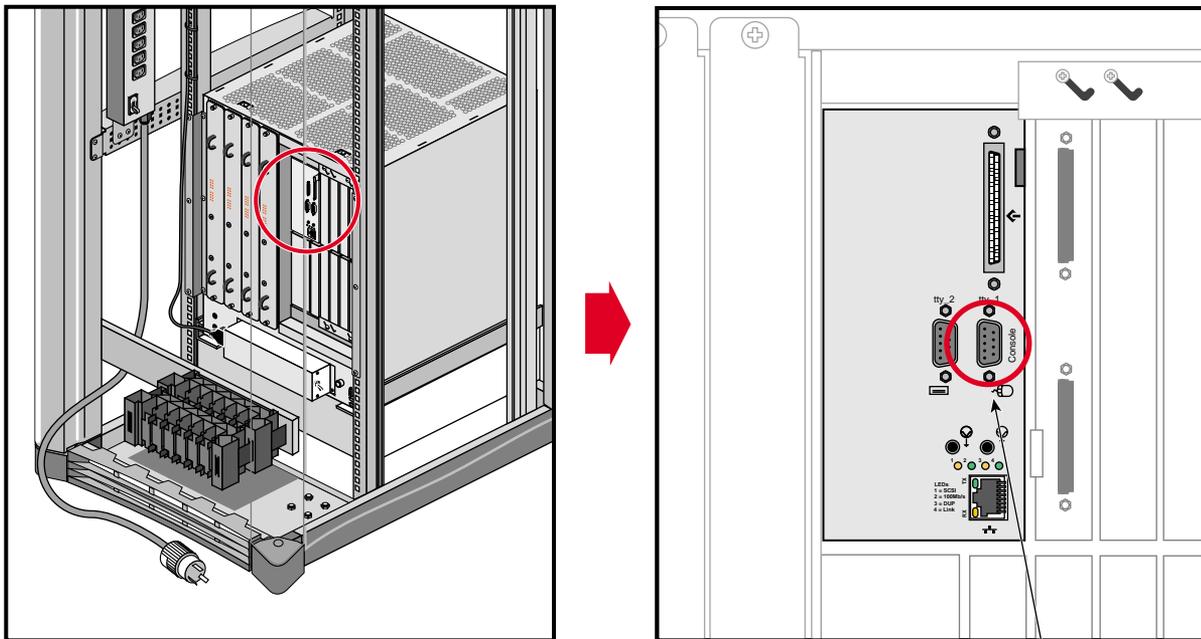
Figure A-8 SGI 2100 and SGI 2200 Serial Port Pin Location and Assignments

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 (MMSC) 8-pin mini-DIN connectors.

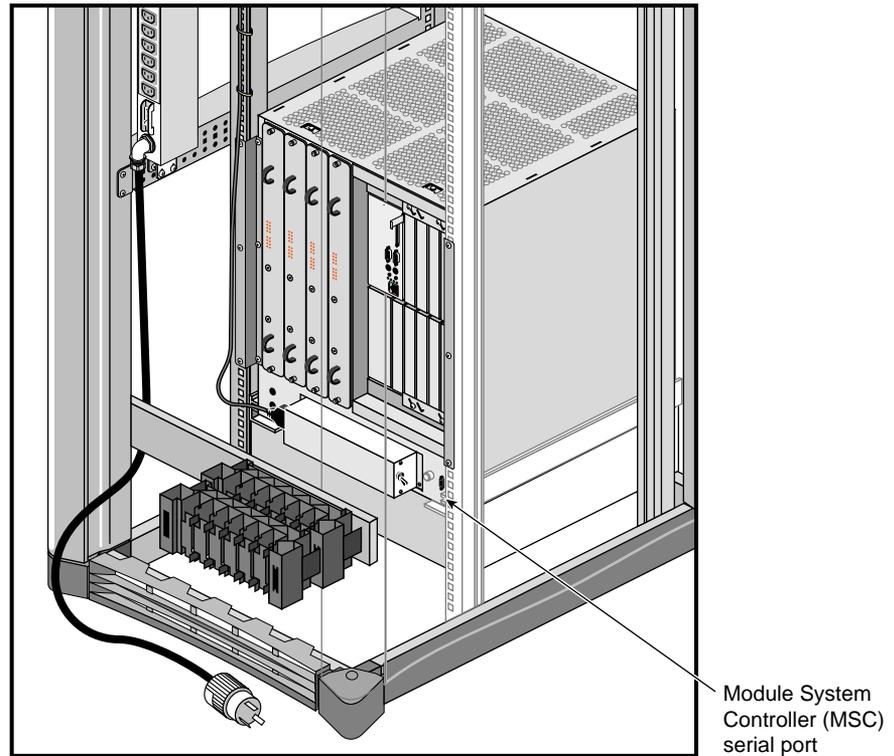
Figure A-9 shows the pin number locations and pin assignments for the DB-9 serial port connectors labeled “tty_2” and “tty_1, Console.”



Console serial port

Figure A-9 SGI 2400 and SGI 2800 Serial Port Pin Location and Assignments

Figure A-10 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)**

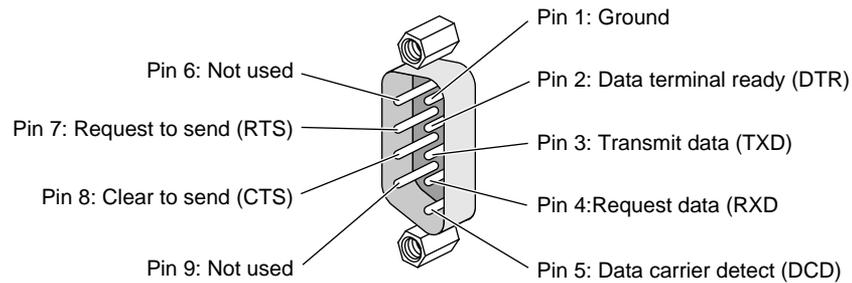


Figure A-10 Module System Controller (MSC) Serial Port Pin Locations and Assignments

Figure A-11 shows the MMSC 8-pin mini-DIN connectors.

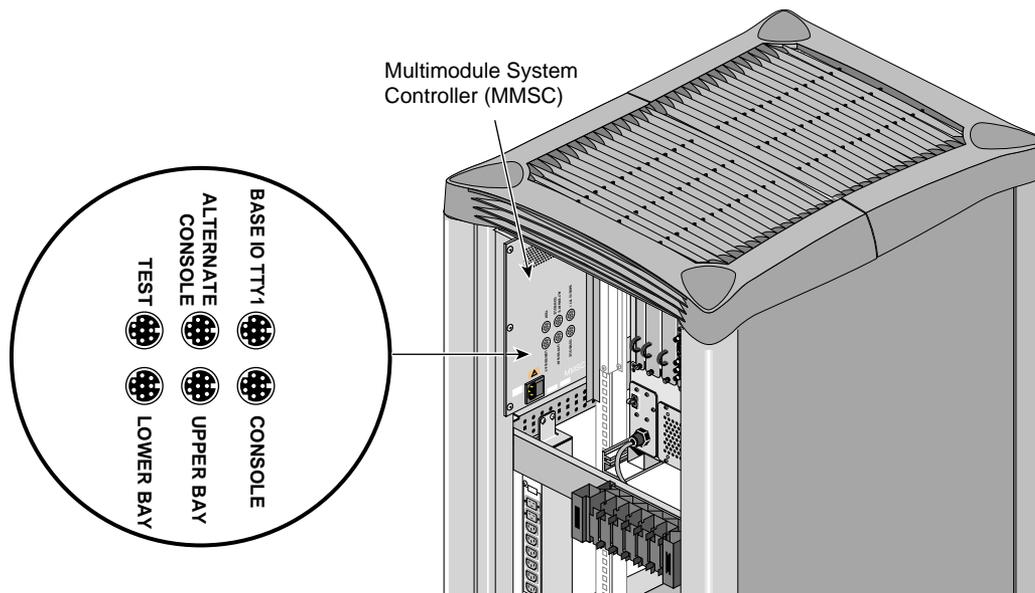


Figure A-11 MMSC 8-pin Mini-DIN Connector Locations

Figure A-12 shows the pin number locations and pin assignments for the MMSC 8-pin mini-DIN connectors.

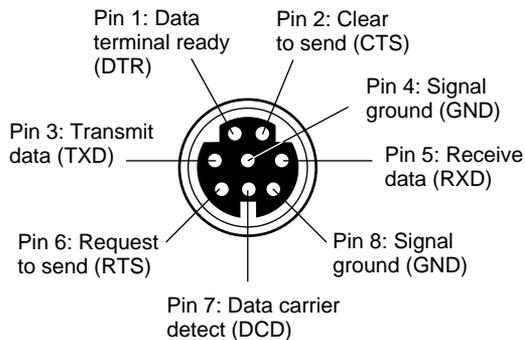


Figure A-12 MMSC 8-pin Mini-DIN Connector Pin Assignments

SGI Origin 3000 Series Server Pin Assignments

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

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

Figure A-13 shows the pin number locations and pin assignments for the DB-9 serial port connector on the C-brick labeled “Console.”

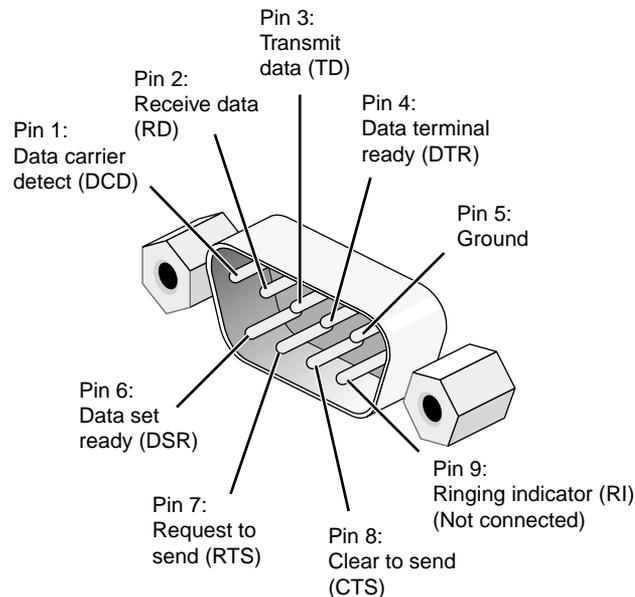


Figure A-13 SGI Origin 3000 Series C-brick DB-9 Serial Port Connector Pin Assignments

Figure A-14 shows the pin number locations and pin assignments for the Ethernet connector on the L2 controller hardware available for the SGI Origin 3000 series servers.

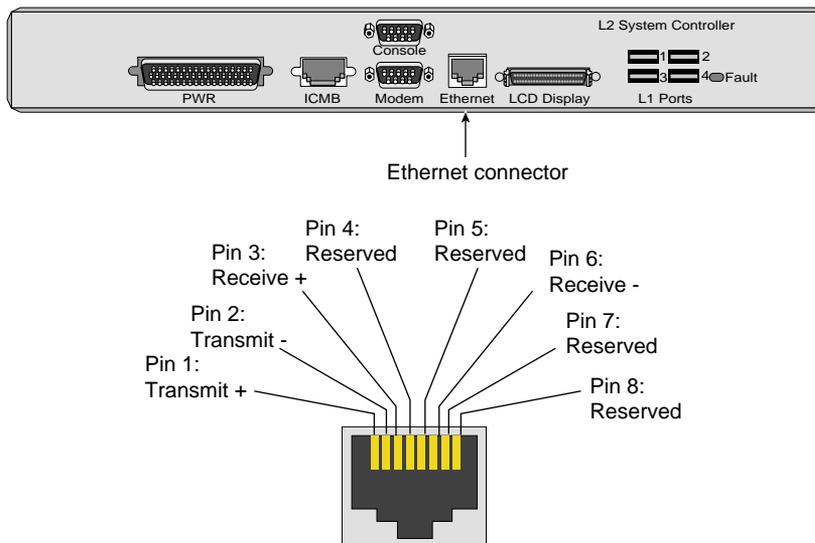


Figure A-14 L2 Controller Ethernet Connector Pin Assignments

Silicon Graphics Onyx2 Deskside Workstation Pin Assignments

Figure A-15 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.

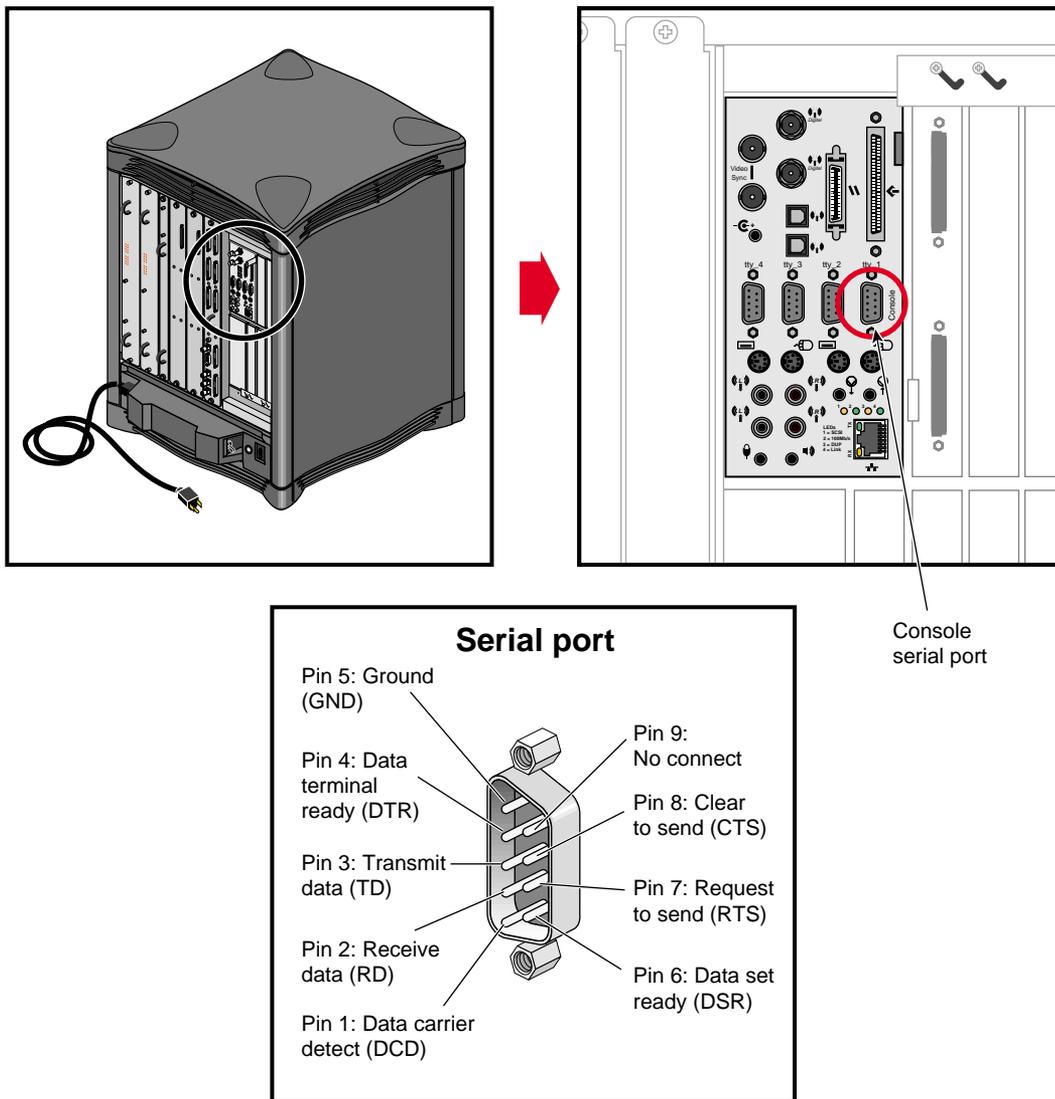


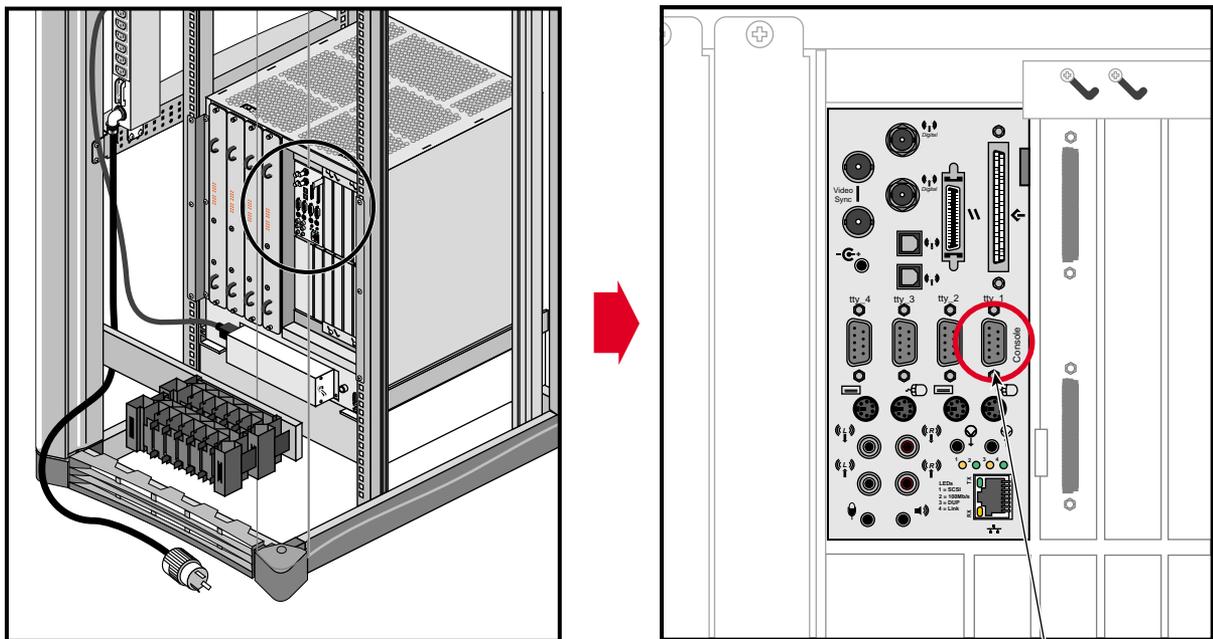
Figure A-15 Silicon Graphics Onyx2 Deskside Serial Port Pin Locations and Assignments

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 (MMSC) 8-pin mini-DIN connectors.

Figure A-16 shows the pin number locations and pin assignments for the DB-9 serial port connector labeled “tty_1 (Console).”



Console serial port

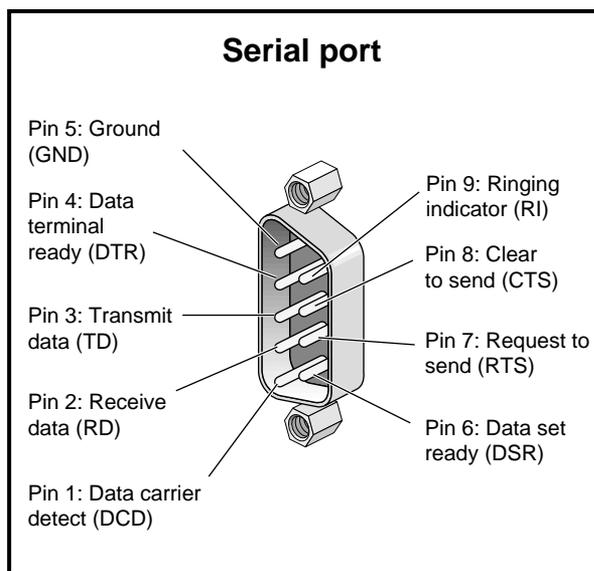
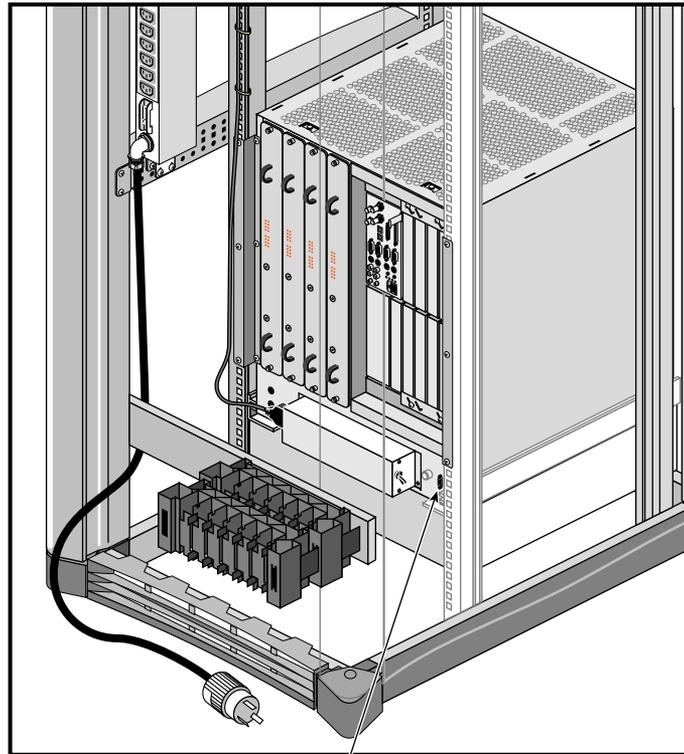


Figure A-16 Silicon Graphics Onyx2 Rackmount Serial Port Pin Locations and Assignments

Figure A-17 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)**

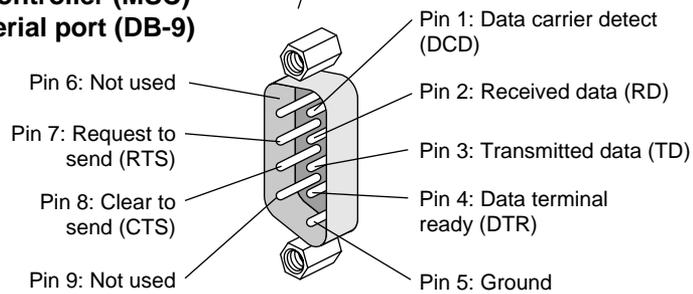


Figure A-17 Silicon Graphics Onyx2 Rackmount System MSC Pin Locations and Assignments

Figure A-18 shows the MMSC 8-pin mini-DIN connectors of the Silicon Graphics Onyx2 rackmount graphics system.

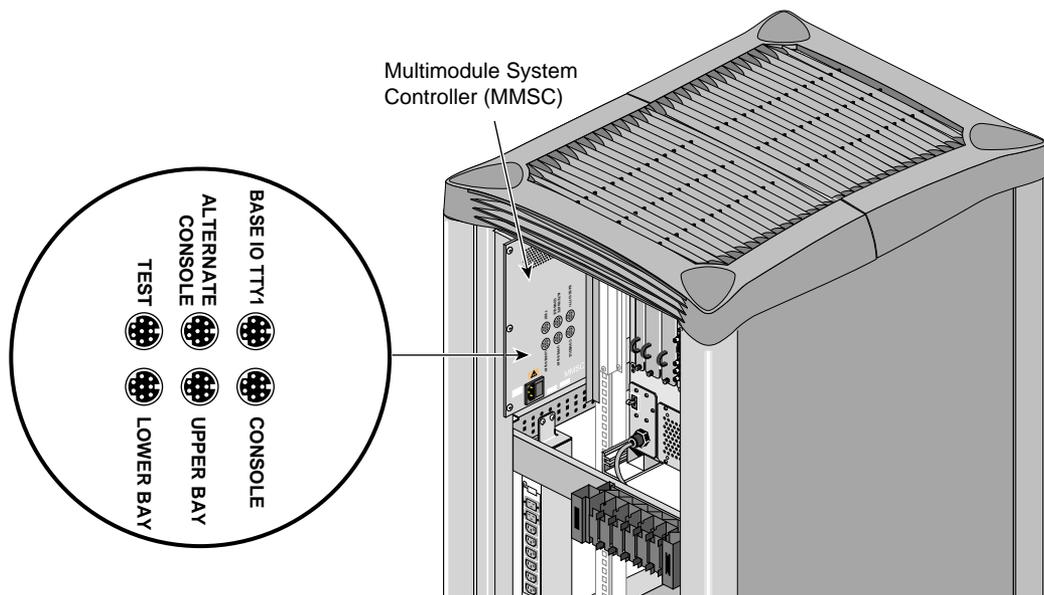


Figure A-18 Silicon Graphics Onyx2 Rackmount MMSC 8-pin Mini-DIN Connector Locations

Figure A-19 shows the pin number locations and pin assignments for the MMSC 8-pin mini-DIN connectors of the Silicon Graphics Onyx2 rackmount graphics system.

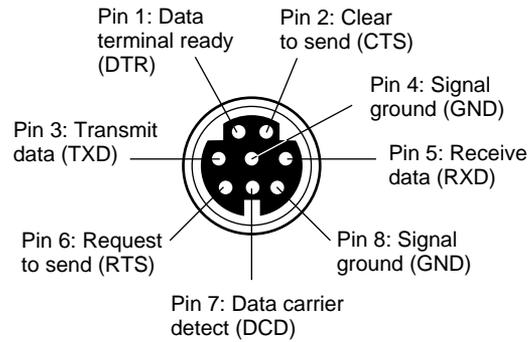


Figure A-19 Silicon Graphics Onyx2 Rackmount System MMSC 8-pin Mini-DIN Connector Pin Assignments

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