SGI™ Origin™ 3000 Series
L3 Controller 1.5
Update Guide

Overview

The L3 software consists of the following components:

- Kernel software
- L1 USB module for the Red Hat 7.1 kernel
- L1 USB module for the SGI ProPack 1.5 for Linux kernel
- L1 USB module for the SGI XFS 1.0 kernel
- L1 USB module for the SGI XFS 1.0.1 kernel
- L3 driver
- L1/L2 firmware utilities
- L3 install tool
- SGI 230 Red Hat 6.2 re-install script

This product provides a system control platform for field service and system maintenance applications. Its features include:

- Advanced diagnostic support
- Maintenance of the SGI Origin 3000 system serial number
- Maintenance of the SGI Origin 3000 router port enable
- Console for L1 and L2 controllers

This guide covers the following topics:

- Related Information
- Installing the Diagnostic Software
- Reinstalling Red Hat Linux on SGI 230
- Installing Software on Systems with Pre-installed Red Hat Linux
- New Features and Changes

Related Information

The SGI Origin 3000 Series L3 Controller 1.5 CD release automatically ships to sites receiving an SGI Origin 3000 series system. If you are an existing customer, contact your SGI account representative to obtain the SGI Origin 3000 Series L3 Controller 1.5 (P/N SC4-3000SUPPT-1.5) or download the software from the following location:

```
http://www.sgi.com/products/evaluation/
```

For more information on the SGI L1, L2, and L3 controllers, see the following guides:

- *SGI Origin 3000 L3 Controller Installation Guide*, P/N 007-4363-001
- *SGI Origin 3000 Series Owner's Guide*, P/N 007-4240-001

Installing the Diagnostic Software

To install the diagnostic software, follow these steps:

1. Log on to the L3 platform as root.

2. Insert the SGI Origin 3000 Series L3 Controller 1.5 CD-ROM into the CD-ROM drive.

3. Enter the following commands to load the diagnostic software:

    ```
    # cd /mnt/cdrom/RPMS
    # l3_install
    ```

4. Remove the CD-ROM from the CD-ROM drive.

5. To reboot the system, enter the following:

    ```
    # reboot
    ```

Reinstalling Red Hat Linux on SGI 230

If you install the L3 controller software on a Silicon Graphics 230 visual workstation, you must perform some additional steps to restore the Red Hat Linux 6.2 operating system to the state in which it was installed at the factory. The basic installation instructions are in *SGI Origin 3000 L3 Controller Installation Guide* (P/N 007-4363-001). After performing the steps in the section "Installing the Auxiliary Linux Software" (p. 18), choose between the following sets of instructions:

*   If Installing the L3 Controller Software from CD-ROM
*   If Installing the L3 Controller Software from Download Packages

If Installing the L3 Controller Software from CD-ROM

If you are installing the L3 controller software from the CD-ROM, perform these additional steps:

Note: The `sgi230_l3_reinstall` script described in step 1 is currently available only in the SGI Origin 3000 Series L3 Controller 1.5 release.

1. Prior to executing the `l3_install` script in the section "Installing the Software from the CD-ROM" (pp. 19-20), enter the following command to copy the script to the workstation:

    `# cp sgi230_l3_reinstall /tmp`

2. Remove the SGI Origin 3000 Series L3 Controller 1.5 CD-ROM from the workstation CD-ROM drive.

3. Insert the Red Hat Linux CD-ROM into the workstation CD-ROM drive.

4. Type the following command to change to the /tmp directory:

   ```
   # cd /tmp
   ```

5. Type the following command to make the sgi230_l3_reinstall script executable:

   ```
   # chmod 755 sgi230_l3_reinstall
   ```

6. Type the following command to run the script:

   ```
   # ./sgi230_l3_reinstall
   ```

   The sgi230_l3_reinstall script automatically installs additional Red Hat Linux components that are normally installed in the factory. This script installs additional required packages that are not part of the default Red Hat Linux installation. The script takes several minutes to run; it lists each package that it installs and displays a progress bar as it installs each package.

7. Remove the Red Hat Linux CD-ROM from the workstation CD-ROM drive.

8. Type the following command to delete the `sgi230_l3_install` script:

    `# rm sgi230_l3_reinstall`

9. Insert the SGI Origin 3000 Series L3 Controller 1.5 CD-ROM into the workstation CD-ROM drive.

10. Type the following command to change to the `/mnt/cdrom/RPMS` directory:

    `# cd /mnt/cdrom/RPMS`

11. Continue with the steps in the section "Installing the Software from the CD-ROM" (pp. 19-20) in *SGI Origin 3000 L3 Controller Installation Guide*, starting with step 4 (the execution of the `l3_install` script).

If Installing the L3 Controller Software from Downloaded Packages

If you are installing the L3 controller software from downloaded packages, follow these steps:

Note: The `sgi230_l3_reinstall` script described in step 1 is currently available only in the SGI Origin 3000 Series L3 Controller 1.5 release.

1. Prior to executing the `l3_install` script in section 4 of the "Installation Instructions" on the website, enter the following command to copy the script to the proper script name:

   `# cp sgi230_l3_reinstall-1.0 sgi230_l3_reinstall`

2. Type the following command to make the `sgi230_l3_reinstall` script executable:

   `# chmod 755 sgi230_l3_reinstall`

3. Type the following command to run the script:

   `# ./sgi230_l3_reinstall`

   The `sgi230_l3_reinstall` script automatically installs additional Red Hat Linux components that are normally installed in the factory. This script installs additional required packages that are not part of the default Red Hat Linux installation. The script takes several minutes to run; it lists each package that it installs and displays a progress bar as it installs each package.

4. Continue with the steps in section 4 of the "Installation Instruction" on the website (the execution of the `l3_install` script).

Installing Software on Systems
with Pre-installed Red Hat Linux

If you install the L3 Controller software on a Silicon Graphics 230 visual workstation that has the Red Hat Linux 6.2 operating system pre-installed during manufacturing, you must perform some additional steps. Instructions for performing these steps are in *SGI Origin 3000 L3 Controller Installation Guide* (P/N 007-4363-001).

See the following sections in *SGI Origin 3000 L3 Controller Installation Guide* for detailed installation instructions:

- Installation Overview (p. 2)
- Software Installation Requirements (pp. 2-4)
- Installing the Auxiliary Linux Software (p. 18)
- Installing the L3 Controller Software (p. 19)
- Installing the Software from the CD-ROM (pp. 19-20)

Note: To configure the network (using the Network Configurator GUI) after the workstation has booted to OS, see the "Configuring Network Settings" section (pp. 12-14). To configure user accounts (using the User Configurator GUI), see the "Configuring the Account" section (p. 15). To connect the Silicon Graphics 230 visual workstation to an SGI Origin 3000

series server, see the sections in the back of *SGI Origin 3000 L3 Controller Installation Guide* that are appropriate for your system configuration (pp. 21-27).

New Features and Changes

This section lists the new features and changes included in this release for the L1 firmware, L2 firmware, and the L3 software.

Note: BEFORE INSTALLING THIS FIRMWARE, FOLLOW THE INSTRUCTIONS AS OUTLINED IN SERVICE BULLETIN GIB 200215. If you are currently running L1 firmware version 1.4.1 or older, upgrading to this version of L1 firmware enables router port security and system serial number security features. If your system is not configured properly, these features can cause your R-bricks not to power on or boot.

L1 Firmware

This section lists the added commands, changed commands, added features, other changes, and bugs addressed for the L1 firmware.

Added Commands

partdb enable | disable   Enables/disables the access to system partition information from the partition daemon on the L2 controller. (The partition daemon is not currently available.)

Changed Commands

ioprt   Fixed a problem with reporting the port speed on P-bricks. The 400 MHz setting was reported on unconnected ports, when the 600 MHz should have been reported.

test i2c   Enhanced error reporting.

Added Features

Added support for recognizing new L1 brick types: Origin 300 and N-brick

For additional security, upgrading to this version of firmware will prevent the pre-security commands (for example, "security off") from operating, even if an older version of firmware is run. (Therefore, the user can no longer flash the firmware back to an older version of firmware to avoid the router port and system serial number security features.)

Added capability for OS to read power supply types and voltage readings.

Added names for I/O expanders to provide more explicit error messages. (Previously, only I/O expander index numbers were displayed.)

Restructured I/O expander interrupt handling to eliminate "recurring interrupt" I/O expander error messages.

Other Changes

Eliminated false low-voltage environmental warnings that occurred when resetting IP35 R14K processors.

Fixed UST clock selection errors on I- and X-bricks when one of the connected bricks is a G-brick. Because the G-brick does not source the UST clock, it cannot be set as the source.

Forced the N-brick to always use the C-brick port as the UST clock source on each of the four ports.

Fixed problems with I/O port speed selection. (In all 1.6.x versions, the I/O port speed could be set incorrectly if the I/O brick was powered on after the C-brick.)

Fixed P-brick port speed reporting problem in the `ioprt` command.

Fixed N-brick reset problem. (Resets were not being asserted properly.)

Removed the `ALERT: VRM not OK` messages that incorrectly appeared in version 1.6.0 when powering on an X-brick.

Removed blank output lines that are produced by some commands (for example, many of the flash commands, such as `flash default`).

Fixed problems with the L1 hanging during power-on and environmental tests in MFG. This ONLY occurred with C- and I/O-bricks with identical rack/slot numbers.

Re-added a `system not responding` error message when a timeout occurs while writing characters to the system console. This message was inadvertently removed in the 1.6.x firmware, which could lead users to believe that the system is correctly processing console input when it is actually hung.

Fixed system serial number and router port security "service mode." The serial number security was not properly disabled as part of the service mode initialization.

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Fixed problem that involved bricks with a NULL (blank) system serial number that did not learn a valid serial number automatically.

Fixed race condition that could occur between two SGI Origin 300 bricks or C-bricks in an SGI Origin 3200 series system with different system serial numbers. In the previous versions, if the systems were powered on simultaneously, a race could occur in which each brick would try to "learn" the system serial number from the other. In this current version, a system serial number mismatch causes an error message to print to the system controller console.

Bugs Addressed

798663   L1 ioprt clksrc problem

795421   I/O expander 3 recurring interrupt mask: 20 value: error message

817474   UST clk sourcing should default to active port

828224   Some L1 commands do not work on SPEEDO2

828293   IO8 EEPROM checksum error on Speedo2

832213   L1 v1.6.0 does not handle bricks with same rack/slot

834848   Speedo-II L1 FW not monitoring PS redundant fan

834924   L1 reports wrong temperature

L2 Firmware

This section lists the added commands, added features, other changes, and bugs addressed for the L2 firmware.

Added Commands

dhcps on | off   Provides a way to disable the DHCP server capability in an L2 controller. This is used only when an L2 controller connects to a public network and the L2 controller may conflict with another DHCP server on the network.

Added Features

Added support for recognizing new L1 brick types: Origin 300 and N-brick.

Data cache on the L2 processor (MPC860) is now enabled, which should result in better L2 performance.

Enabled the MPC860 processor's watchdog timer, which will automatically reboot the L2 controller if it is in a hung condition.

Other Changes

Fixed occasional hangs that occur in 1.6.0 when the L2 boots and has USB devices (L1 controllers) connected.

Fixed occasional network mis-configuration issues that occur when the L2 boots. These could prevent the L2s from communicating with each other, as well as prevent the `/stand/sysco/bin/l2find` command on the L3 from finding the L2s.

Eliminated the occasional `l2find: recvfrom: Resource temporarily unavailable...` messages. These messages did not specify the real problems.

Fixed bug in the L2 GUI that caused the slot displays for some racks to display incorrectly (for example, under the **DEST:** button when selecting a command destination).

Fixed bug that caused the L2 GUI to not honor the display enable/disable settings that were set with the `l2dsp enable|disable` commands.

Disabled all L2 GUI actions when the GUI is not connected to the L2 emulator (the core L2 control task).

Bugs Addressed

830163   hang and network problems in L2 firmware 1.6.0

835950   Need feature to lock L2 control panel

L3 Software

This section lists the added applications, changed applications, and bugs addressed for the L3 software.

Added Applications

flashpbay   This is a new utility that is used to re-flash the power bay firmware image. The `flashpbay` operates identically to the L1/L2 firmware update utility `flashsc`. The firmware binary (`pbay.bin`) is stored in the same directory as the L1 and L2 firmware binaries (`/usr/cpu/firmware/sysco`).

l2cmd   Fixed problem with truncating output on commands with a large amount (greater than 64K) of response data.

Changed Applications

l2   All changes listed for the L2 firmware in the "L2 Firmware" section on p. 14 also apply to the L2 emulator.

l2gui   All L2 GUI changes listed for the L2 firmware in the "L2 Firmware" section on p. 14 also apply to the L2 GUI display on the L3.

Bugs Addressed

803032   Include flash of pbay in flashsc command.

831682   Allow control of multiple SN1/2 systems from an L3 via USB