



SGI® Foundation Software 2.7 Start
Here

007-5641-008

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Record of Revision

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About This Guide

This guide provides information about the SGI® Foundation Software 2.7 release.

The SGI Foundation Software CD includes the following in the `/docs` directory:

- A PDF version of this document, the *SGI Foundation Software Start Here*.
- A text file named `SGI-Foundation-Software-X.X-readme.txt`, which contains the release notes. The release notes contain the latest information about the software and documentation in this release.
- A text file named `SGI-Foundation-Software-X.X-rpms.txt`, which lists the RPMs included in this release.

Helpful Online Resources

This section describes the electronic support services available for your SGI system running SGI Foundation Software. These are as follows:

- Supportfolio

Supportfolio is the SGI support web site. It contains links for software support and updates.

<https://support.sgi.com/login>

- Supportfolio SGI Knowledgebase

The SGI Knowledgebase available from Supportfolio has answers to common questions, problem resolutions, how-to documents, and many other useful articles for system administrators.

<https://support.sgi.com/kb/publisher.asp>

- SGI Update Server

The SGI update server is available for your convenience. Get updates to the SGI Foundation Software releases using update tools (for example, YaST, zypper, and yum) available in your operating system environment. Refer to the product release notes for more information about specific product details on the SGI update server.

<https://update.sgi.com/>

- Supportfolio Software Updates

You can check for updates to your purchased SGI software and download or order CDs all in one convenient place. Supportfolio Software Updates provide one-stop shopping to check for and get new updates for your SGI software.

<https://support.sgi.com/software?cmd=order>

- SGI Customer Support Center

You can open calls to the SGI Customer Support Center online, keep track of all your cases, and receive automatic update information when your case is updated via the Supportfolio Problem Resolution Tools.

<https://support.sgi.com/caselist>

- SGI Software Licensing

You can order your SGI software licenses conveniently via e-mail or online. If you send a blank e-mail to license@sgi.com, SGI responds via e-mail by sending you a template to fill out. SGI sends you your license quickly with complete instructions for license installation.

Alternatively, go online to the SGI Key-O-Matic.

<http://www.sgi.com/support/licensing/>

SUSE Documentation

Documentation for SUSE Linux Enterprise Server 11 (SLES11) is located on your system in the `/docu/en` directory. SUSE documentation is also available online at the following website:

<https://www.suse.com/documentation>

The following SLES11 documentation is available:

- *SUSE Linux Enterprise Server 11 Installation Quick Start*
`art_sles_installquickstart.pdf`
- *SUSE Linux Enterprise Server 11 Deployment Guide*

book_sle_deployment.pdf

- *SUSE Linux Enterprise Server 11 Administration Guide*

book_sle_admin.pdf

- *SUSE Linux Enterprise Server SLES11: Storage Administration Guide*

stor_admin.pdf

SUSE Linux Enterprise Server 11 package descriptions are available online at the following website:

<http://www.novell.com/products/linuxenterpriseserver/packages.html>

Red Hat Documentation

Documentation for Red Hat Enterprise Linux 6.3 (RHEL 6.3) or RHEL 6.2 is located in the `/usr/share/doc` directory. It contains package-specific documentation. If you install the `zisofs` module, additional documentation in the form of READMEs can be found in `/usr/share/doc/zisofs-tools-1.x.x`.

On the RHEL6 DVD, `README-{lang}` and `RELEASE-NOTES-{lang}` files are found in the root directory.

Note: Red Hat makes Red Hat Enterprise Linux 6 (RHEL 6) documentation available online at the following website:

<http://www.redhat.com/docs/manuals/enterprise/RHEL-6-manual/index.html>

The following documentation is available:

- Release Notes for x86_64 architecture
- *Red Hat Enterprise Linux Deployment Guide*
- *Red Hat Enterprise Linux Installation Guide*
- *Red Hat Virtualization*

Intel Compiler Documentation

Documentation for the Intel compilers is located on your system in the `/docs` directory that resides within each compiler's installation directory. If you installed the Intel compilers, the following documentation is available:

- *Intel C++ Compiler User's Guide* (`c_ug_lnx.pdf`)
- *Intel Fortran Compiler User's Guide* (`for_ug_lnx.pdf`)
- *Intel Fortran Programmer's Reference* (`for_prg.pdf`)
- *Intel Fortran Libraries Reference* (`for_lib.pdf`)

Other Intel Documentation

Intel server processor information is available online at the following website:

<http://www.intel.com/support/processors/sb/CS-029807.htm>

SGI Documentation

Online and postscript versions of SGI documentation are available at the SGI Technical Publications Library at the following website:

<http://docs.sgi.com>

The following topics describe the SGI documentation.

SGI Performance Suite Software Manuals

For information about manuals that support the SGI Performance Suite products, such as SGI[®] MPI, SGI[®] REACT[™], SGI[®] UPC, and SGI[®] Accelerate[™], see the *SGI Performance Suite X.X Start Here*.

Additional SGI Software Manuals

The following documentation describes current SGI software products:

- *SGI UV System Management Node Administrator Guide*

Describes the system management node (SMN) installation, configuration, and operation for SGI® UV™ 2000, SGI UV 1000, and SGI UV 100 systems.

- *SGI Management Center for SGI ICE*

Describes how to perform general system installation, configuration, and operations on the SGI ICE 8400 and SGI ICE 8200 systems.

For other SGI hardware platforms, see the *SGI Management Center (SMC) System Administrator Guide* and *SGI Management Center (SMC) Installation and Configuration*.

- *SGI Management Center for SGI ICE X*

Describes how to perform general system installation, configuration, and operations on the SGI® ICE™ X systems.

- *SGI Management Center (SMC) Installation and Configuration*

This guide is intended for system administrators. It describes how to install and configure the SGI Management Center. A companion manual, the *SGI Management Center (SMC) System Administrator Guide*, describes general cluster administration.

For SGI ICE platforms, use one of the following manuals: the *SGI Management Center for SGI ICE* (for SGI ICE 8400 or SGI ICE 8200 systems) or the *SGI Management Center for SGI ICE X*.

- *SGI Management Center (SMC) System Administrator Guide*

This guides describes how to monitor and control a cluster using the SGI Management Center. A companion manual, the *SGI Management Center (SMC) Installation and Configuration Guide*, describes how to install and configure the SGI Management Center.

For SGI ICE platforms, use one of the following manuals: the *SGI Management Center for SGI ICE* (for SGI ICE 8400 or SGI ICE 8200 systems) or the *SGI Management Center for SGI ICE X*.

- *SGI Management Center Quick Start Guide*

The guide explains how to deploy your SGI Management Center software.

- *XFS for Linux Administration*

Describes XFS, an open-source, fast recovery, journaling filesystem that provides direct I/O support, space preallocation, access control lists, quotas, and other commercial file system features.

- *XVM Volume Manager Administrator Guide*
Describes the configuration and administration of XVM logical volumes using the XVM Volume Manager.
- *CXFS 6 Administration Guide for SGI InfiniteStorage*
Documents CXFS running on a storage area network (SAN). CXFS is clustered XFS, a parallel-access, shared, clustered filesystem for high-performance computing environments.
- *CXFS 6 Client-Only Guide for SGI InfiniteStorage*
Provides an overview of the installation and configuration procedures for CXFS client-only nodes running SGI CXFS clustered filesystems.
- *Guaranteed-Rate I/O Version 2 for Linux Guide*
Provides information about GRIO version 2, the second-generation guaranteed-rate I/O product from SGI.
- *High Availability Extension and SGI InfiniteStorage*
Provides information about creating resources for the high-availability (HA) SGI resource agents that SGI provides for use with the SUSE Linux Enterprise High Availability Extension (HAE) product.
- *DMF 5 Administrator Guide for SGI InfiniteStorage*
Describes how to administer the Data Migration Facility (DMF). DMF is a hierarchical storage management system for SGI environments. Its primary purpose is to preserve the economic value of storage media and stored data. This manual describes DMF components, features, and architecture; it focuses on the tasks of configuration and ongoing administrative duties.
- *SGI InfiniteStorage Appliance Manager User Guide*
Describes the operation of SGI InfiniteStorage Appliance Manager, which is a web-based interface that lets you configure, manage, and monitor a storage server.
- *SGI UV CMC Software User Guide*
Documents the chassis manager controller (CMC) command line interface (CLI) for the SGI UV 2000 , SGI UV 1000, and SGI UV 100 series systems.
- *Windows on SGI UV Software Install Guide*

Describes how to install Windows Server 2008 R2 Datacenter software on an SGI UV 2000, SGI UV 1000, or SGI UV 100 system. This manual does not apply to SGI UV 20 or SGI UV 10 systems.

SGI Hardware Manuals

The following documentation describes current SGI hardware products:

- *SGI Altix UV 10 System User's Guide*

This guide provides an overview of the SGI UV 10 system architecture and describes the major components. It also provides the standard procedures for powering on and powering off the system, basic troubleshooting information, and important safety and regulatory specifications.

- *SGI Altix UV 100 System User's Guide*

This guide provides an overview of the SGI UV 100 system architecture and describes the major components. It also provides the standard procedures for powering on and powering off the system, basic troubleshooting information, and important safety and regulatory specifications.

- *SGI Altix UV 1000 System User's Guide*

This guide provides an overview of the SGI UV 1000 system architecture and describes the major components. It also provides the standard procedures for powering on and powering off the system, basic troubleshooting information, and important safety and regulatory specifications.

- *SGI UV 2000 System User Guide*

This guide provides an overview of the SGI UV 2000 system architecture and describes the major components. It also provides the standard procedures for powering on and powering off the system, basic troubleshooting information, and important safety and regulatory specifications.

- *SGI Altix ICE 8200 Series System Hardware User's Guide*

This guide describes the features of the SGI ICE 8200 systems and provides operating instructions and general troubleshooting information.

- *SGI Altix ICE 8400 Series System Hardware User's Guide*

This guide describes the features of the SGI ICE 8400 systems and provides operating instructions and general troubleshooting information.

- *SGI ICE X System Hardware User Guide*

This guide describes the features of the SGI ICE X systems and provides operating instructions and general troubleshooting information.

- *SGI Rackable C1104-2TY9 System User's Guide*

This guide describes the features of the SGI Rackable C1104-2TY9 server system as well as troubleshooting, upgrading, and repairing.

- *SGI Rackable C2108-TY11 System User's Guide*

This guide describes the features of the SGI Rackable C2108-TY11 server system as well as troubleshooting, upgrading, and repairing.

- *SGI Rackable C3108-TY11 System User's Guide*

This guide describes the features of the SGI Rackable C3108-TY11 server system as well as troubleshooting, upgrading, and repairing.

- *SGI C1103-TY12 System User's Guide*

This guide provides an overview of the SGI C1103-TY12 system architecture and describes the major components. It also provides the standard procedures for powering on and powering off the system, basic troubleshooting information, and important safety and regulatory specifications.

- *SGI CloudRack X2 System User's Guide*

This guide provides an overview of the SGI CloudRack X2 workgroup cluster server's architecture and describes the major components. It also provides the standard procedures for powering on and powering off the system, basic troubleshooting information, and important safety and regulatory specifications.

- *SGI Origin 400 System User's Guide*

This manual is written for system technicians who are responsible for troubleshooting, upgrading, and repairing SGI Origin 400 systems. This document provides reference information, feature information, and step-by-step instructions for adding and replacing components in the SGI Origin 400 system.

Obtaining SGI Publications

You can obtain SGI documentation in the following ways:

- Visit the SGI Technical Publications Library at the following website:

<http://docs.sgi.com>

This library contains the most recent and most comprehensive set of online books, release notes, man pages, and other information.

- You can view man pages by typing `man title` on a command line.

Conventions

The following conventions are used throughout this document:

Convention	Meaning
<code>command</code>	This fixed-space font denotes literal items such as commands, files, routines, path names, signals, messages, and programming language structures.
<i>variable</i>	Italic typeface denotes variable entries and words or concepts being defined.
user input	This bold, fixed-space font denotes literal items that the user enters in interactive sessions. (Output is shown in nonbold, fixed-space font.)

Reader Comments

If you have comments about the technical accuracy, content, or organization of this publication, contact SGI. Be sure to include the title and document number of the publication with your comments. (Online, the document number is located in the front matter of the publication. In printed publications, the document number is located at the bottom of each page.)

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`techpubs@sgi.com`
- Contact your customer service representative and ask that an incident be filed in the SGI incident tracking system.

- Send mail to the following address:

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Fremont, CA 94538

SGI values your comments and will respond to them promptly.

SGI Foundation Software Installation

This chapter describes the contents of the SGI Foundation Software 2.7 (SFS 2.7) release, how to install the release, and how to configure the release.

Table of Disk Partitions

SGI ships systems with X86-64 processors from the factory running SFS 2.7 with SUSE Linux Enterprise Server 11 SP2 (SLES 11 SP2). Table 1-1 on page 1 shows the partition layout.

Table 1-1 Disk Partitions for X86-64 Systems with SFS 2.7 and SLES 11 SP2

Partition	Type	Mount Point	Size
part1	ext3	/boot/efi	200 MB
part2	XFS	/	250 GB
part3	SWAP	/swap	10 GB
part4			Remainder of the disk with file system mounted as /data1

SGI ships systems with X86-64 processors from the factory running SGI Foundation 2.7 with Red Hat Enterprise Linux 6.3 (RHEL 6.3). Table 1-2 on page 2 shows the partition layout.

Table 1-2 Disk Partitions for X86-64 Systems with SFS 2.7 and RHEL 6.3 or CentOS 6

Partition	Type	Mount Point	Size
part1	ext4	/boot/efi	200 MB
part2	ext4	/	250 GB
part3	SWAP	/swap	10 GB
part4	ext4	/data1	Remainder of the disk with file system mounted as /data1

SGI ships SGI UV systems from the factory running SFS 2.7 with SLES11 SP2. Table 1-3 on page 2 shows the partition layout.

Table 1-3 Disk Partitions for SGI UV Systems with SFS 2.7 and SLES 11 SP2

Partition	Type	Mount Point	Size
part1	vfat	/boot/efi	500 MB
part2	ext3	/	250 GB
part3	swap	swap	10 GB
part4	ext3	/data1	Remainder of the disk with file system mounted as /data1

SGI ships SGI UV systems from the factory running SFS 2.7 with RHEL 6.3 or CentOS 6. Table 1-4 on page 3 shows the partition layout.

Table 1-4 Disk Partitions for UV Systems with SFS 2.7 and RHEL 6.3 or CentOS 6

Partition	Type	Mount Point	Size
part1	vfat	/boot/efi	500 MB
part2	ext4	/	250 GB
part3	swap	swap	10 GB
part4	ext4	/data1	Remainder of the disk with file system mounted as /data1

Linux Kernel Crash Dump

In the event of a system crash running SLES11 SP2 or RHEL 6.3, the system uses the `kexec/kdump` crash dump utility. The `kexec/kdump` utility creates a Linux kernel crash dump at `/var/crash/timestamp/vmcore` if `kexec/kdump` is installed, enabled, and configured. In order to analyze a crash dump, you need the `debuginfo` packages installed. For more information, see the appropriate operating system documentation.

Installing SGI Foundation Software

The following set of instructions is based on an install using the physical product media. For other installation methods, see the product release notes.

Installing on SUSE Linux Enterprise Server 11 SP2

For an overview of SLES11 SP2 installation, see the *SUSE Linux Enterprise Server 11 Installation Quick Start* (`installquick.pdf`). This document provides a quick overview of how to run through the default installation of SLES and walks you through a number of installation screens. For detailed installation instructions, see the *SUSE Linux Enterprise Server 11 Deployment Guide* (`deployment.pdf`).

Note: Documentation for SUSE Linux Enterprise Server 11 SP2 is located on your install media in the `/docu/en` directory.

There are a number of ways to install SGI Foundation Software 2.7 on top of the SUSE Linux Enterprise Server 11 Service Pack 2 (SLES 11 SP2) operating system. One method is to install it at the same time as you install SLES11 SP2. Another method is to install SGI Foundation Software 2.7 after SLES 11 SP2 has been completely installed. The two procedures are quite similar and are described in this section, as follows:

- "Installing SLES 11 SP2 and SGI Foundation Software 2.7 Together" on page 4
- "Installing SGI Foundation Software 2.7 on a Previously Installed SLES 11 SP2 System" on page 7

Installing SLES 11 SP2 and SGI Foundation Software 2.7 Together

To install SUSE Linux Enterprise Server 11 Service Pack 1 (SLES 11 SP2) from the DVD media and SGI Foundation Software 2.7 as an add-on product, perform the following steps:

1. Insert the SLES 11 SP2 Installation DVD in the DVD drive and reboot your system.
2. Follow the steps in the *SUSE Linux Enterprise Server 11 Installation Quick Start*. When you get to the **Installation Mode** screen, as shown in Figure 1-1 on page 5, click the button next to **Include Add-On Products from Separate Media** and then click **Next** to continue.

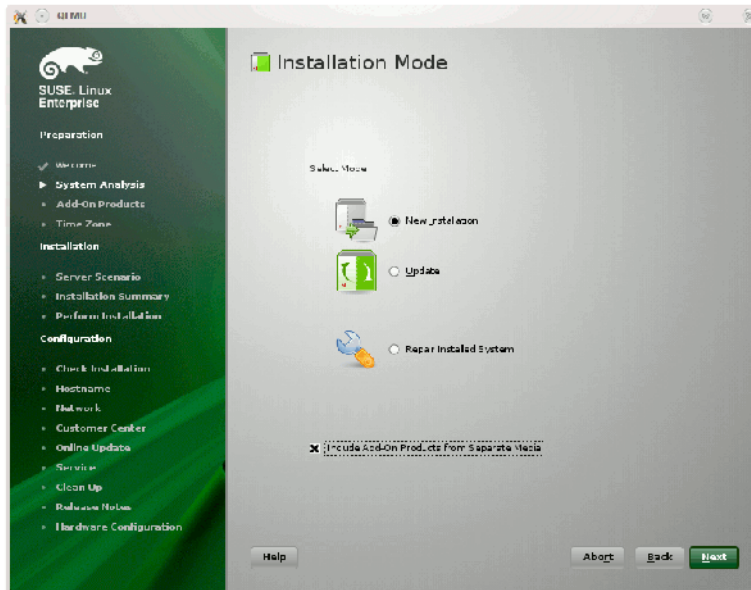


Figure 1-1 SLES11 Installation Mode Screen

3. From the **Media Type** screen, shown in Figure 1-2 on page 6, click the button to the left of **CD**.

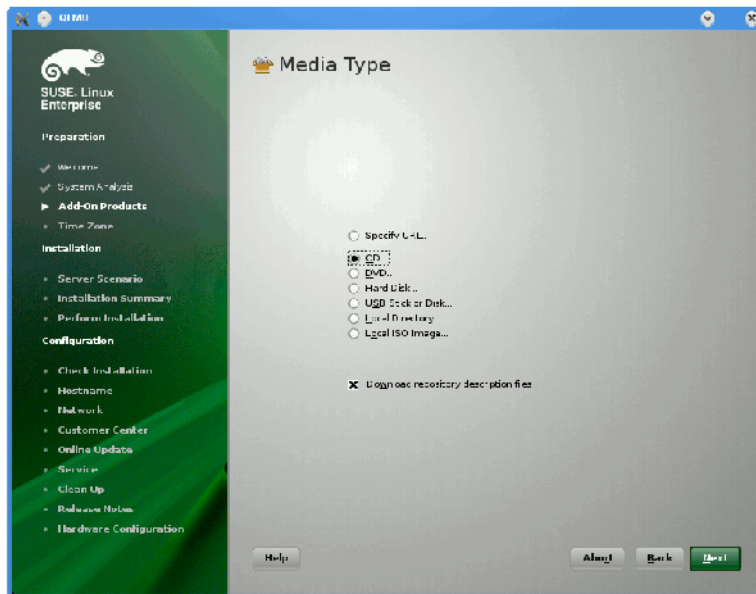


Figure 1-2 SLES11 Media Type Screen

4. The **Insert the add-on product CD** dialog box appears. Insert the SGI-Foundation-x86_64 CD into the drive, click the **Continue** button, and click **Next** to proceed.
5. From the **Add-On Product Installation** screen, as shown in Figure 1-3 on page 7, click **SGI-Foundation-x86_64 1-6 cd:///Directory**, click **Add**, and click **Next** to proceed
6. Follow the SLES11 SP2 instructions to complete the installation.

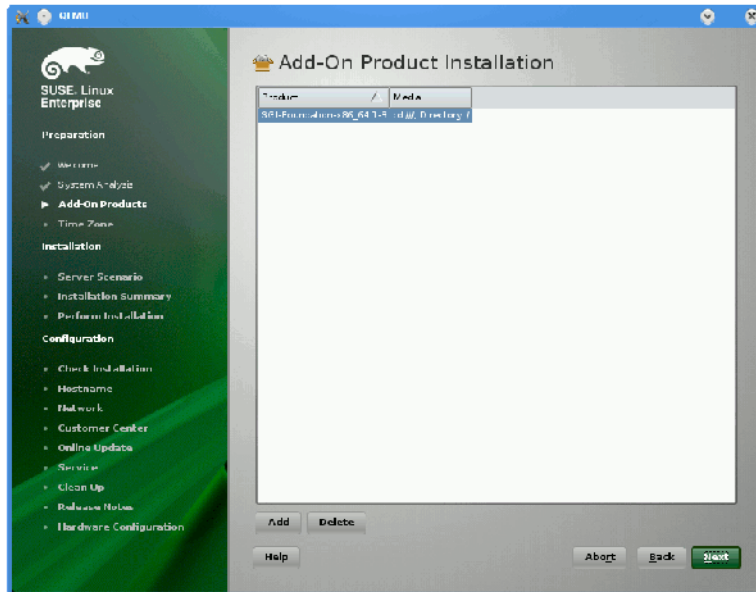


Figure 1-3 SLES11 SP2 Add-On Product Installation Screen Showing SGI Foundation

Installing SGI Foundation Software 2.7 on a Previously Installed SLES 11 SP2 System

To install SGI Foundation Software 2.7 on a previously installed SLES 11 SP2 system, perform the following steps:

1. Start the graphical (`yast2`) version of the YaST install tool.
2. Under the **Software** section, choose **Add-On Products**.
3. From the **Add-On Product Installation** screen, press the **Add** button on the bottom left side.
4. The **Media Type** screen appears, as shown in Figure 1-2 on page 6. Insert the SGI-Foundation-x86_64 CD into the drive, click **Continue**, and click **Next** to proceed.
5. Enter your SGI SupportFolio login and password. This enables you to set up an install source for software updates from SGI Foundation Software 2.7.

6. If you wish to simply install suggested defaults, click **Accept** in the screen that lists available patterns. The software installs.

Installing on Red Hat Enterprise Linux 6.3

These instructions assume that you have a VGA display or that you are able to remotely display X11 graphics. If you do not have a VGA display, type the following command to connect from your workstation to the target server:

```
% ssh -X root@target-server
```

To install SGI Foundation Software 2.7 on Red Hat Enterprise Linux (RHEL 6.3), perform the following steps:

1. Make sure you have registered with the Red Hat Network (RHN). If you have not yet registered, run the following command:

```
% /usr/bin/rhn_register
```

2. Insert the product media and enter the following command to mount it:

```
% mount /dev/cdrom/mnt
```

3. Run the following command and follow the examples provided:

```
% /mnt/create-yum-config-file
```

Additional installation instructions are provided in the release notes file.

Upgrading from Earlier Releases

For information on upgrading from SLES10 SPx to SLES 11 SP2, see the appropriate SUSE documentation.

For information about upgrading from a previous RHEL release to RHEL 6.3, see the appropriate Red Hat, Inc. documentation.

Upgrade instructions for the SGI Foundation Software 2.7 release are contained in the product release notes. The release notes reside in a file named *SGI-product-release-readme.txt* in the `/docs` directory on the product CD.

Reinstalling Your Software

To reinstall all of the software on your system, follow the entire set of installation instructions listed previously and use the latest SGI Foundation Software 2.7 CD.

SGI Foundation Software Overview

This chapter describes how to install, configure, and administer the SGI Foundation Software 2.7 release. It contains the following topics:

- "Software Introduction" on page 11
- "SGI Foundation Software CD Contents" on page 12
- "Accessing SGI Foundation Software Manuals" on page 13
- "Getting Updates" on page 13
- "Getting the Latest Firmware/Software for Your SGI Rackable or SGI ICE Series System" on page 14
- "Getting the Latest BIOS for Your SGI UV 2000, SGI UV 1000, or SGI UV 100 Series System" on page 14
- "License Information" on page 15
- "Topology API" on page 15
- "Check Feature Utility" on page 15

Software Introduction

SGI provides two primary software packages to enable your SGI systems to run with improved performance and enhanced technical support features. These software packages are as follows:

- SGI Foundation Software

The SGI Foundation Software suite provides the core set of tools and utilities, as described in "SGI Foundation Software CD Contents" on page 12.

SGI supports the SGI Foundation Software 2.7 release on the SUSE Linux Enterprise Server 11 Service Pack 2 (SLES 11 SP2) base distribution, the Red Hat Enterprise Linux 6.3 (RHEL 6.3) base distribution, and the RHEL 6.2 distribution. It also runs on the Community ENTerprise Operating System (CentOS 6) base distribution. The SGI support team answers questions relating to any of these

products, but they do not provide technical support for the CentOS operating system.

The SGI Foundation Software 2.7 release supports X86-64 systems only.

- SGI Performance Suite

The SGI Performance Suite products provide additional performance enhancements, as described in the *SGI Performance Suite 1.5 Start Here*.

For information about SGI support for SGI hardware platforms and operating system configuration settings, see the following website:

<http://www.sgi.com/products/servers/>

SGI Foundation Software CD Contents

The major contents of the SGI Foundation Software 2.7 CD are as follows:

- Device driver libraries
- LSI Logic LSIUtil (`lsiutil`) configuration utility
- Memory logging utility
- Open source Performance Co-Pilot
- SGI support tools
- SGI LK software licensing mechanism
- Environment modules
- SGI recommended system and boot-time configuration changes
- Check feature utility
- SGC - DVI graphics input capture

Accessing SGI Foundation Software Manuals

The SGI Foundation Software manuals are installed in the following location on your SGI system:

```
/usr/share/doc/packages/sgi-foundation-2
```

The following shows the manuals in the directory:

```
figures      index.html  LX_UVConfigOps_AG  LX_XFS_AG  Start_Here_Fond_2
UVcontroller_UG  UV_Install_AG
```

Each manual directory contains a PDF and an HTML copy of the manual. For example, you can change to the `Start_Here_Fond_2` directory, list its contents, and retrieve the following information:

```
/usr/share/doc/packages/sgi-foundation-2 # ls
pdf sgi_html
```

You can also access the following local URL on your SGI system using the Mozilla Firefox browser, as follows:

```
# firefox -no-remote file:///usr/share/doc/packages/sgi-foundation-2/index.html
```

Getting Updates

This section describes how to get software updates for the SGI Foundation Software 2.7 release.

Detailed instructions for downloading and installing SGI Foundation Software 2.7 updates are available from the SGI Foundation Software product pages on Supportfolio at the following website:

https://support.sgi.com/content_request/194480/index.html.

Note: You must have a Supportfolio account to access this page and the SGI update server.

Customers that received SGI Foundation Software 2.7 pre-installed on their new SGI system can run the following command to add the proper update source for SGI Foundation Software 2.7:

```
$ /usr/sbin/sgi-foundation-update-source
```

This script will prompt you for your Supportfolio login and then add the proper SGI update source for the given architecture and base operating system.

Getting the Latest Firmware/Software for Your SGI Rackable or SGI ICE Series System

For information on the basic input/output system (BIOS), Baseboard Management Controller (BMC) firmware, Intelligent Platform Management Interface (IPMI) control utility, Field Replaceable Unit/Sensor Data Record (FRUSDR) software, Hierarchical Storage Controller (HSC) software, LSI RAID firmware, Platform Manager cluster management software, InfiniBand drivers, INTEL MPI Runtime Environment Kit for Linux, and Java Runtime Environment (JRE), see the SGI XE Firmware/Software page on SGI Supportfolio at the following website:

https://support.sgi.com/browse_request/firmware_diagnostic_software

For information about SGI ICE system firmware, see the *SGI Management Center for SGI ICE* or *SGI Management Center for SGI ICE X* available at the following website:

<http://docs.sgi.com>

Getting the Latest BIOS for Your SGI UV 2000, SGI UV 1000, or SGI UV 100 Series System

Get the latest BIOS for your SGI UV 2000, SGI UV 1000, or SGI UV 100 series system at SGI Supportfolio at the following website:

<https://support.sgi.com>

For instructions for flashing compute blade BIOS, see the *SGI UV CMC Software User Guide*.

License Information



Warning: Remember to back up your license key files before you install SLES11 SP2, RHEL 6.3, and/or SGI software products. A license key file is not included in these RPMs.

You need to restore your original license key files after you complete your installation.

In terms of software licensing support, the operating system distributors do not ship any licensing code. Independent software vendors (ISVs) are responsible for obtaining and including software licensing components into their products. SGI products ship with SGI licensing software.

For more information, see the specific product release notes or the FAQ at the following website:

<http://www.sgi.com/support/licensing/faq.html>

If you encounter any license-related problems, contact your local support center at the following website:

<http://www.sgi.com/support/supportcenters.html>

Topology API

The SGI topology application programming interface (API) allows a workload management system (WMS) to obtain topology information from SGI systems. For more information on the SGI topology API, see the `sgitopo(8)` and `topology(1)` man pages.

Check Feature Utility

The check feature utility, `chkfeature(8)`, checks the contents of the `/etc/opt/sgi/features` directory and provides status. Without arguments, it

prints a list of all the files. To use the `chkfeature` command, you must first load the `chkfeature` module, as follows:

```
sys:~ # module load chkfeature

sys:~ # chkfeature
sgi-accelerate      status      on
sgi-array           status      on
sgi-cpuset          status      on
sgi-foundation      status      on
sgi-libbitmask      status      on
sgi-libcpuset       status      on
sgi-libnuma         status      on
sgi-lk              status      on
sgi-memacct         status      on
sgi-mpi             status      on
sgi-mpiplace        status      on
sgi-mpt             status      on
sgi-scotch          status      on
sgi-upc             status      on
```

To determine if a feature is active, type the following command:

```
sys:~ # chkfeature -a
sgi-accelerate      active      on
sgi-array           active      on
sgi-cpuset          active      on
sgi-foundation      active      on
sgi-libbitmask      active      on
sgi-libcpuset       active      on
sgi-libnuma         active      on
sgi-lk              active      off    Not applicable
sgi-memacct         active      on
sgi-mpi             active      on
sgi-mpiplace        active      off
sgi-mpt             active      off
sgi-scotch          active      off
sgi-upc             active      on
```

To determine the version level of a software module, type the following command:

```
sys:~ # chkfeature -v
sgi-accelerate      version      on      1.1.5 Build 707a141.sles11sp2-1210101905
sgi-array           version      on      sgi-arraysvcs 3.7
sgi-cpuset          version      on      2.0
sgi-foundation      version      on      2.2.7 Build 707a141.sles11sp2-1210101905
sgi-hel             version      on      1.0
sgi-libbitmask      version      on      2.0sgi sgi707a14.sles11sp2
sgi-libcpuset       version      on      1.0sgi sgi707a15.sles11sp2
sgi-lk              version      on      2.2
sgi-memacct         version      on      1.3
sgi-mpi             version      on      1.1.5 Build 707a141.sles11sp2-1210101905
sgi-mpiplace        version      on      1.02
sgi-mpt             version      on      2.07
sgi-react           version      on      1.1.5 Build 707a141.sles11sp2-1210101905
sgi-scotch          version      on      5.1.11
sgi-upc             version      on      1.1.5 Build 707a141.sles11sp2-1210101905
```

For more information, see the `chkfeature(8)` man page.

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