Silicon Graphics® Visual Workstations

System Firmware User's Guide

For Windows NT®

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Welcome to Your Silicon Graphics Visual Workstation

This *System Firmware User's Guide* explains how to configure and update your visual workstation's system firmware. This guide is for advanced users with experience configuring system software settings.

For instructions on setting up Windows NT for the first time, and using the SGI CDs to reinstall Windows NT and the SGI system software, refer to your *Software Installation Guide*.

For hardware installation instructions, refer to your visual workstation's *Installation Poster*. For startup and shutdown procedures, and instructions for adding or replacing hardware components, refer to your *Owner's Guide.*

Configuring System Firmware

Your visual workstation provides a graphical user interface that allows you to configure the system firmware settings. To access these settings, follow these steps:

1. Start your visual workstation.
2. Press the **Esc** key within a few seconds after the first startup messages appear on your screen (a progress bar indicates the elapsed time). The System Firmware Welcome screen appears, as shown in Figure 1.

Figure 1 System Firmware Welcome Screen

Following is a description of each of the buttons in the System Firmware Welcome screen:

Clicking **Start System** boots the workstation using the current settings.

Clicking **Startup Settings** displays the boot configuration settings. See "Configuring the Startup Settings" on page 4 for a description of each of these settings.

Clicking **System Settings** displays the system settings. See "Configuring the System Settings" on page 6 for a description of each of these settings.

Clicking **Install System Software** allows you to install system software from *Recovery CDs 1* and *2*. See your *Software Installation Guide* for a description of this procedure.

Clicking **Run System Utilities** displays the updating system firmware and system utilities settings. In this screen, you can flash the PROM or run special system utilities.

Clicking **Hardware Inventory** displays a list of your workstation's hardware components. Use the **Up** and **Down** buttons to navigate through the list.

Configuring the Startup Settings

Click the Startup Settings button to display the firmware startup settings, as shown in Figure 2.

Caution: This screen is for advanced users only. If you adjust values in this screen incorrectly, your workstation may not start up successfully.

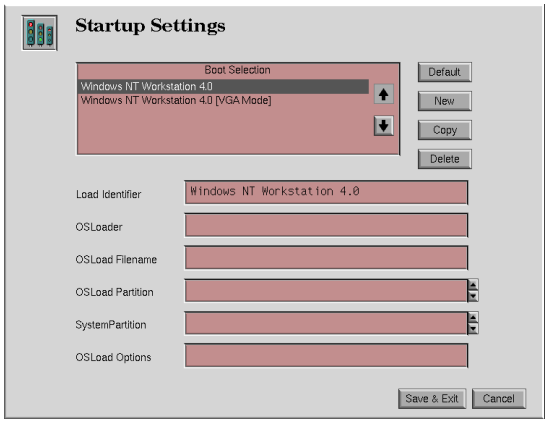

Figure 2 Startup Settings Screen

Following is a description of each of the startup settings.

Boot Selection lists the available boot configuration options. Use the up and down arrow buttons to select the configuration you want to view or modify.

Load Identifier describes the selected boot configuration.

OSLoader displays the filesystem path to the boot files (*arcldr.exe* and *hal.dll*) used by the current boot configuration.

OSLoad Filename displays the name of the directory containing the operating system. (The loader appends *System32*\ to this path.)

OSLoad Partition displays all the partitions detected by the system firmware. Select the partition that contains the operating system kernel (by default, partition 1).

SystemPartition displays all the partitions detected by the system firmware. Select the partition that contains the boot files *arcldr.exe* and *hal.dll* (by default, partition 2).

OSLoad Options displays the flags (if any) that are passed to the operating system. The default shows no flags.

The table below shows the appropriate Startup Settings for systems that boot from an IDE drive and systems that boot from a SCSI drive. This information follows the PROM's Hardware Inventory panel conventions.

Field	IDE Boot Drive	SCSI Boot Drive
OSLoader	\os\winnt40\ arcldr.exe	\os\winnt40\ arcldr.exe
OSLoad Filename	\WINNT	\WINNT
OSLoad Partition	IDE 0 Disk 0 Partition 1	SCSI 2 Disk 0 Partition 1
System Partition	IDE 0 Disk 0 Partition 2	SCSI 2 Disk 0 Partition 2
OSLoad Options	For normal operation, this should be blank.	

Following is a description of each button in the Startup Settings screen:

Clicking **Default** moves the selected boot configuration to the top of the list. The first configuration in the list starts up your workstation.

Clicking **New** creates a blank form where you must name your new boot configuration and enter the required values.

Clicking **Copy** makes a duplicate copy of your selected configuration. You must rename the new configuration and modify one or more of its values.

Clicking **Delete** deletes the selected configuration.

Clicking **Save** & **Exit** saves your changes, then displays the Welcome screen.

Clicking **Cancel** discards any of your changes, then displays the Welcome screen.

Configuring the System Settings

Click the System Settings button to display the *system settings, as shown in Figure 3.

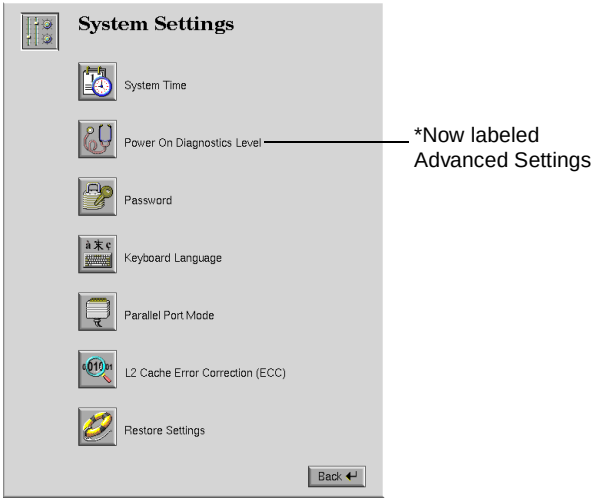

Figure 3 System Settings Screen

Following is a description of each button in the System Settings screen:

System Time

Clicking **System Time** allows you to set the system clock, as shown in Figure 4. This is equivalent to setting the clock in the Windows NT Date/Time Properties control panel.

Except for unusual circumstances, the system clock rarely requires resetting.

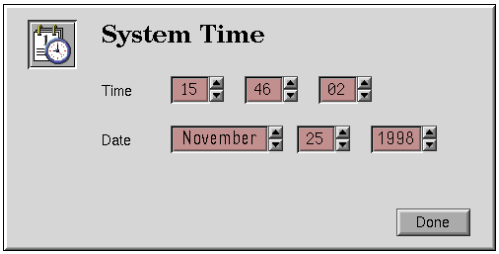

Figure 4 System Time Screen

Advanced Settings

Clicking **Advanced Settings** provides you with three options, **Power On Diagnostics Level**, **Recovery from Electrical Power Loss**, and **CPU Serial Number**.

Clicking **Power On Diagnostics Level** allows you to specify the level of Power On Self Test (POST) diagnostics performed at boot time, as shown in Figure 5. The two options are **Extensive Tests** and **Quick Boot** (the default).

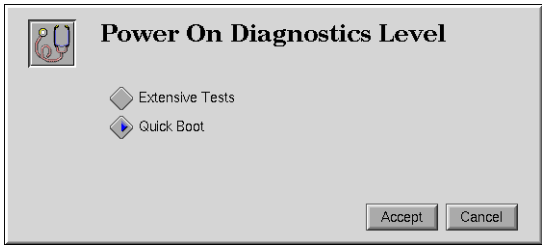

Figure 5 Power On Diagnostics Screen

In Extensive Test mode, the boot sequence tests RAM memory in addition to the other tests performed in Quick Boot mode. This increases system startup time by adding approximately one tenth of a second for each megabyte of RAM installed in your system.

The system may automatically switch from Quick Boot mode to Extensive Test mode if the boot sequence fails to complete normally. If this happens, you must manually reset your system for Quick Boot mode.

Clicking **Recovery from Electrical Power Loss** allows you to specify the behavior of your workstation if the power source is interrupted. If you select **Automatically power on**, your workstation turns itself on after a power interruption. If you select **Leave system powered off**, your workstation does not turn itself on after a power interruption. If you select **Restore to state before power loss,** your workstation turns itself on after a power interruption only if it was powered on at the time of the power loss. You can disable these settings if your workstation hardware doesn't support them.

Clicking **CPU Serial number** provides you with two options, **Disable** and **Enable**. This setting allows you to enable or disable the CPU serial number feature available on Intel Pentium III microprocessors. If your workstation uses a different processor, this feature is disabled.

Password

Clicking **Password** allows you to configure password protection for your system firmware, as shown in Figure 6.

Figure 6 Password Screen

You can choose from the following password options:

Clicking **No Password** specifies that no password is required to change the firmware settings or boot configurations.

Clicking **Password for PROM setup** specifies that a password is required to modify the firmware settings.

Clicking **Password for PROM setup and boot** specifies that a password is required to modify the firmware settings or start the system.

Note: If you specify a password, it can be overridden via the password jumper, as described in your *Owner's Guide*.

Keyboard Language

Clicking **Keyboard Language** allows you to specify your keyboard's language-specific layout, as shown in Figure 7.

Figure 7 Keyboard Language Screen

Note: This setting is used only by the system firmware, not by Windows NT. For information on modifying this setting in NT, refer to your Microsoft documentation.

Parallel Port Mode

Clicking **Parallel Port Mode** allows you to configure your workstation's parallel port, as shown in Figure 8. The options are: **Extended Capabilities Port** (the default), **Enhanced Parallel Port, Standard Parallel Port-Extended**, and **Standard Parallel Port-Compatible**. Change the mode only if you attach a device to your parallel port that requires a mode other than the default.

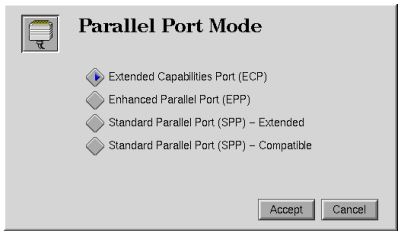

Figure 8 Parallel Port Mode Screen

L2 Cache Error Correction (ECC)

Clicking **L2 Cache Error Correction** allows you to turn error correction for L2 cache memory on or off (the default), as shown in Figure 9. If L2 cache error correction is turned off, performance improves slightly. If L2 cache error correction is turned on, stability may improve.

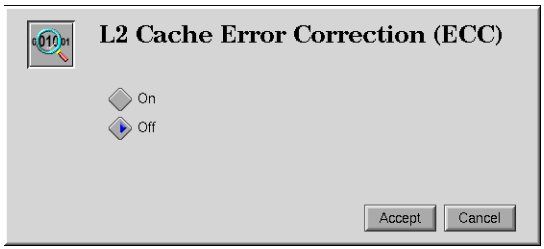

Figure 9 L2 Cache Error Correction Screen

Clicking **Restore Settings** allows you to restore all system settings to their default factory values or to the values saved on your emergency repair disk.

Updating SGI Firmware

This procedure shows you how to update the SGI system firmware. You begin this process using *Recovery CD 2* to copy a PROM image to a floppy disk. You can use this floppy to flash the PROM if you need to update your system firmware. The second part of this procedure shows you how to flash the PROM.

Copying a PROM Image to a Floppy Disk

1. Make sure you are logged in as an Administrator.
2. Insert *Recovery CD 2* in your CD-ROM drive.

   The SGI Recovery CD 2 Welcome window appears with four buttons: **Install**, **Product Info**, **Contact Info**, and **Exit**, as shown in Figure 10.

Figure 10 SGI Recovery CD 2 Welcome Window

3. Click the **Install** button.

   The Install window appears with three installation options: **SGI Firmware**, **SGI Software**, and **Other Software**, as shown in Figure 11.

Figure 11 SGI Recovery CD 2 Install Window

4. Click the **SGI Firmware** button.

   SGI contact information appears.

5. Click the **Next** Button

   A prompt appears that asks you to insert an unlocked floppy disk into Drive A.

6. Insert your floppy disk, then click **OK**.

   A dialog box asks if you want to format your floppy disk.

7. Click **Yes** if you need to format or **No** if your disk is already formatted.

   The SGI Firmware window appears with a progress bar that monitors the PROM image being copied to your floppy disk.

   A dialog box provides directions for flashing the PROM, and tells you that you must restart to perform this operation.

8. Remove your floppy disk from its drive, choose **Yes** to restart, and then click the **Finish** button.

9. If you need to update your firmware, continue with the "Flashing the PROM" procedure, below. If you do not need to update your firmware immediately, place the floppy with the PROM image in a secure place for possible use in the future.

Flashing the PROM

1. After restarting, press the **Esc** key within a few seconds after the first startup messages appear on your screen (a progress bar tells you how much time has elapsed). The System Firmware Welcome screen appears, as shown earlier in Figure 1.
2. Click the **Run System Utilities** button.

   The Run System Utilities screen appears.
3. Click **Upgrade System Firmware**, then click the **Accept** button.

   You are prompted to insert an upgrade floppy, and then to click **Continue**.
4. Insert your floppy with the PROM image, then click **Continue**.

   A message tells you that the system is scanning for an image, then another message confirms that the firmware image is detected, and asks if you want to start the upgrade process.
5. Click **Continue** to start the upgrade process.

   A progress message tells you that the system is flashing the PROM, then another message confirms a successful upgrade and tells you to eject the floppy and click **Continue**.

   If the upgrade is not successful, contact SGI Technical Support (refer to your *Software Installation Guide* for contact information).
6. Click **Continue**.

   Your workstation restarts with the updated system firmware.

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