



Sun Fire™ V890 Server Product Notes

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Sun Fire V890 Server Product Notes

These Product Notes provide late-breaking information about issues related to the Sun Fire™ V890 server.

Document Revision History

The first published version of this document is 817-3996-11, August 2004.

This version is 817-3996-12, September 2004. The differences in this version of the document consist of the following:

- updated versions of the software patches for the supported Solaris™ Operating System versions 8 and 9
- added the patch number to the firmware download information in “[Installing Sun Fire V890 FC-AL Backplane Firmware](#)” on page 9
- an addition to the section “[Open Issues](#)” on page 16

Available Online Documentation

A complete set of online documentation supporting Sun Fire V890 servers is available at either of these two sites:

- <http://www.sun.com/documentation>
- <http://docs.sun.com>

To find the information on docs.sun.com, click on the following links at the docs.sun.com site:

Frequently Requested Information → All Solaris Versions → Hardware → Servers

Check these sites periodically for the latest revisions of Sun Fire V890 product documentation, including the latest version of these Product Notes.

Preinstalled Software

Your Sun Fire V890 server comes preinstalled with the Solaris Operating System and Java Enterprise System software (formerly known as Sun ONE software). For important information about how to get started with the preinstalled software, go to:

<http://www.sun.com/software/preinstall>

Software and OpenBoot Firmware Requirements

The following table lists the minimum Solaris Operating System and OpenBoot™ PROM firmware requirements for Sun Fire V890 servers.

Minimum Required Solaris Operating System	Minimum Required OpenBoot Firmware Level*
Solaris 8 2/04* Solaris 9 4/04*	OpenBoot PROM Version 4.15.1*

* Or a compatible version that supports the system

To verify that the proper version of the operating system is installed on the Sun Fire V890 server, examine the `/etc/release` file. This file should contain the text "Solaris X X/XX" or identify a Solaris release that is compatible with the Sun Fire V890 system.

To determine the current OpenBoot firmware version on a server, use one of the following methods:

- **While the Solaris Operating System is running, type the following command:**

```
# /usr/sbin/prtconf -v
```

Or,

- From the `ok` prompt, type the following command:

```
ok .version
```

For more information about obtaining and installing OpenBoot firmware, see [“Required and Recommended Software Patches” on page 4](#).

OpenBoot PROM Enhancements for Diagnostic Operation

OpenBoot PROM Version 4.15 provides enhanced diagnostics that are enabled by default. Full OpenBoot Diagnostics run at power-on. For more information about these enhancements, the new and redefined configuration variables, and the new standard (default) configuration, refer to *OpenBoot PROM Enhancements for Diagnostic Operation*, which is available on the Sun Fire V890 Documentation CD included with the Sun Fire V890 server.

These diagnostics change the behavior of some applications that detect and report information about the server. For example, enhanced diagnostics change some reporting and console functionality in Sun™ Remote System Control (RSC) software. Refer to [“Software Issues” on page 14](#) for more information about these changes.

In addition, the diagnostics change the behavior of the server LEDs during startup. While power-on self-test (POST) is executing, the Power and System Fault LEDs blink simultaneously. After POST has completed and OpenBoot Diagnostics run, the LEDs return to normal function.

Note – These diagnostics can result in increased boot time.

CPU/Memory Board Hardware Requirements

The CPU/Memory board part number for the Sun Fire V890 server is as follows:

- Part Number: X7269A
- CPU/Memory board, 512-Mbyte or 1-Gbyte memory

Required and Recommended Software Patches

This section lists software patches for the Sun Fire V890 server. You can obtain these patches from your authorized Sun service provider or by downloading them from the SunSolve OnlineSM web site at:

<http://sunsolve.sun.com>

The patches described in these Product Notes are listed by the Solaris Operating System version you might have installed on your server. For patch installation instructions, see the README file that accompanies each patch.

Note – If you are using the version of Solaris 9 that comes preinstalled on your server, refer to the preinstalled software Web site at:

<http://www.sun.com/software/preinstall>

The patch information in this section applies if you have manually installed a different version of Solaris 9, or if you have installed Solaris 8.

Required Software Patches for Solaris 9

The following table lists the required patches that are specific to the Sun Fire V890 server with the Solaris 9 4/04 Operating System installed. These patches are available as of the publication date of these Product Notes.

Sun Fire V890 Required Patches for Solaris 9

Patch ID	Description
111847-08 or later	SAN Foundation Kit patch (MPxIO/leadville)*
113039-04 or later	SunOS 5.9: Sun StorEdge Traffic Manager patch*
113040-06 or later	SunOS 5.9: fctl/fp/fcp/usoc driver patch*
113041-04 or later	SunOS 5.9: fcip driver patch*
113042-04 or later	SunOS 5.9: qlc driver patch*
113043-05 or later	SunOS 5.9: luxadm, liba5k and libg_fc patch*
113044-04 or later	cfgadm patch*

Sun Fire V890 Required Patches for Solaris 9

Patch ID	Description
113447-21 or later	SunOS 5.9: libprtdiag_psr patch
117171-05 or later	SunOS 5.9: kernel patch
115553-11 or later	SunOS 5.9: USB Drivers and Framework patch

* Patches 111847, 113039, 113040, 113041, 113042, 113043 and 113044 require the package SUNWsan (SAN Foundation Kit). If you are using the preinstalled version of Solaris 9 that comes with your server, the SAN Foundation Kit and these patches are also preinstalled.

The SUNWsan package is available via the Sun Download Center at:

<http://www.sun.com/storage/san/>

From that site, download the latest SAN release software/firmware upgrade.

Recommended Software Patches for Solaris 9

The following table lists the recommended patches specific to the Sun Fire V890 server with the Solaris 9 4/04 Operating System installed. These patches are available as of the publication date of these Product Notes.

Sun Fire V890 Recommended Patch for Solaris 9

Patch ID	Description
112817-17 or later	SunOS 5.9: SunGigaSwift Ethernet 1.0 driver patch
116363-07 or later	RSC 2.2.2 patch

Required Software Patches for Solaris 8

The following table lists the required patches that are specific to the Sun Fire V890 server with the Solaris 8 02/04 Operating System installed. These patches are available as of the publication date of these Product Notes.

Sun Fire V890 Required Patches for Solaris 8

Patch ID	Description
109873-25 or later	SunOS 5.8: prtdiag and platform libprtdiag_psr.so.1 patch
109896-27 or later	USB drivers patch
111095-15 or later	SunOS 2.8: fctl/fp/fcp/usoc driver patch*
111096-08 or later	SunOS 2.8: fcip driver patch*

Sun Fire V890 Required Patches for Solaris 8

Patch ID	Description
111097-14 or later	SunOS 2.8: qlc driver patch*
111412-13 or later	SunOS 2.8: Sun StorEdge Traffic Manager patch*
111413-12 or later	SunOS 2.8: luxadm, liba5k, and libg_fc patch*
111846-08 or later	SunOS 2.8: cfgadm patch*
111847-08 or later	SAN Foundation Kit patch*
116962-01 or later	pcisch driver patch
117000-05 or later	SunOS 5.8: kernel patch
116975-01 or later	SunOS 5.8: kadb patch

* Patches 111095, 111096, 111097, 111412, 111413, and 111846 require the package SUNWsan (SAN Foundation Kit). The SUNWsan package is available from the Sun Download Center at:

<http://www.sun.com/storage/san/>

From that site, download the latest SAN release software/firmware upgrade.

Recommended Software Patches for Solaris 8

The following table lists the recommended patches specific to the Sun Fire V890 server with the Solaris 8 02/04 Operating System installed. These patches are available as of the publication date of these Product Notes.

Sun Fire V890 Recommended Patch for Solaris 8

Patch ID	Description
111883-24 or later	SunOS 5.8: GigaSwiftEthernet driver patch
117255-01 or later	RSC 2.2.2 patch

Hardware and Firmware Issues

The following sections describe various hardware and firmware issues associated with the Sun Fire V890 server product.

Sun PCI Cards That Support PCI Hot-Plug

For a PCI card to be successfully detached from a running operating system, each device on the card must have a detach-safe driver. A *detach-safe* driver enables a single instance of a driver to be closed while other instances are allowed to remain open to service similar devices used elsewhere in the server. To be considered detach-safe, a driver must be able to perform a basic Device Driver Interface/Device Kernel Interface (DDI/DKI) function called `DDI_DETACH`. Any driver that does not support the `DDI_DETACH` function is considered *detach-unsafe*.

Sun Microsystems offers a variety of hot-pluggable PCI cards that use detach-safe device drivers. For more information about the available PCI cards, contact your Sun representative.

Many third-party drivers (those purchased from vendors other than Sun Microsystems) do not support the `DDI_DETACH` function. Verify any third-party PCI card functionality and hot-plug compatibility with the vendor of the third-party card before using the card in a production environment.

Note – Always wait for a PCI hot-plug operation to complete before initiating a new operation.

For more information about Sun Fire V890 PCI hot-plug operations, refer to the *Sun Fire V890 Server Dynamic Reconfiguration Guide* (817-4166-10), which is available at the following web site under Solaris on Sun Hardware:

<http://docs.sun.com>

Caution on the Use of PCI Cards Not Specifically Qualified by Sun on the Sun Fire V890 Server

To maintain robust server operation, it is extremely important to ensure that any PCI cards and associated drivers installed in a Sun Fire V890 server are qualified by Sun for use on the platform. It is possible for interactions to occur between cards and drivers on a specific bus that can lead to potential server panics or other negative outcomes if the card and driver solution is not qualified.

For an updated list of qualified PCI cards and configurations for the Sun Fire V890 server, contact your Sun authorized sales representative or service provider. For additional information, refer to this web site:

<http://www.sun.com/io>

FC-AL Disk Drive Firmware Issues

All FC-AL disk drives installed in a Sun Fire V890 server must meet the minimum firmware revision levels for Sun Fire V890 servers. Incorrect firmware can cause a variety of server problems that are often difficult to diagnose. To determine a disk drive's firmware revision level, use the `inquiry` feature of the Solaris `format (1M)` utility. The following table lists the minimum firmware revision levels for Sun Fire V890 disk drives as of the publication date of these Product Notes.

Minimum Firmware Revision Levels

Sun Part No.	Capacity	Manufacturer	Minimum Firmware Revision Level
540-4905	72 Gbytes	Seagate ST373307FC	0638
540-5408		Seagate ST373405FC	0638
		Fujitsu MAN3735FC	1004
		Fujitsu MAP3735FC	0701

Note – Drive capacities lower than 72 Gbytes are not supported on the Sun Fire V890 server.

For the most current list of Sun Fire V890 supported disk drives, see the latest revision of these Product Notes at the following web site:

<http://www.sun.com/documentation>

Note – All Sun Fire V890 disk drives that are installed at the factory, shipped as customer-installable options, or installed as field-replaceable units (FRUs) meet the minimum firmware revision levels.

Installing Sun Fire V890 FC-AL Backplane Firmware

In the unlikely event that the firmware on a Sun Fire V890 FC-AL backplane becomes corrupted, you can use a backup image to flash update the backplane with its original firmware. The flash update procedure is performed with the Solaris `luxadm` utility and is described below.

Before you can flash update the backplane firmware, you need to download the firmware image from the SunSolve Online web site to the Sun Fire V890 system disk. The latest version of the backplane firmware is always available on the SunSolve Online web site at <http://sunsolve.sun.com>. The patch that contains the backplane firmware is patch ID 117814-01 (or later). To install the firmware from the SunSolve web site, see the instructions in the README file provided with the firmware image.

Note – A version of FC-AL backplane firmware for the Sun Fire V880 is included on the Solaris Supplement CD. *Do not* install this version of the firmware on the Sun Fire V890.

To install the firmware, use the following procedure.

Note – After beginning the flash update process in Step 3, you must wait at least 15 minutes after the superuser prompt appears for the update process to complete. While the server is updating the flash PROM, it might appear as though little or no activity is occurring on the server. Do not attempt any other operations until you verify that the update process has completed.

1. Become superuser and reboot your system into single-user mode.

```
# reboot -- -s
```

2. Turn the front panel keyswitch to the Unlocked position.

You need to move the keyswitch to the Unlocked position before you can program the server Flash PROMs.

3. Type the following `luxadm` subcommand to begin the flash update process:

```
# luxadm download -f firmware_path enclosure_name
```

Where:

- *firmware_path* is the location of the firmware image. This is the place on your system to which you downloaded the firmware patch. Make sure the file is untarred before you proceed. Refer to the README file that came with the patch.
- *enclosure_name* is the enclosure name assigned to the Sun Fire V890 internal storage array—by default, `FC1loop`. If you need to verify the enclosure name first, use the `luxadm probe` subcommand.

Note – For more information about the `luxadm` utility, see *Platform Notes: Using luxadm Software*, which is part of the Solaris on Sun Hardware Collection on the Supplement CD.

4. When the superuser prompt reappears, wait at least 15 more minutes for the flash process to complete.

This minimum wait time is required for the flash update process to propagate the firmware code to all SSC-100 controllers in the server.

5. To verify that the flash update process has successfully completed, type the following `luxadm` subcommand:

```
# luxadm display enclosure_name
```

Where *enclosure_name* is the enclosure name assigned to the Sun Fire V890 internal storage array.

The command output shows the status of each SSC-100 controller in the server. The following is an excerpt of sample output for a dual-backplane server.

```
SSC100's - 0=Base Bkpln, 1=Base LoopB, 2=Exp Bkpln, 3=Exp LoopB
SSC100 #0:   O.K. (922A/ 8D3C)
SSC100 #1:   O.K. (922A/ 8D3C)
SSC100 #2:   O.K. (922A/ 8D3C)
SSC100 #3:   O.K. (922A/ 8D3C)
```

a. Verify that each SSC-100 controller displays an `O.K.` status and that each displays the same firmware version in parentheses.

If so, the flash update process has successfully completed.

- b. Otherwise, wait another two minutes or so and repeat this step.
6. Once the flash update process is complete, restore the server to multiuser mode using the `exit` command.

For example, type:

```
# exit
```

7. Turn the front panel keyswitch back to the Locked position.

The Locked position is the recommended setting for normal day-to-day operations. The server can now resume normal operation.

Hardware Watchdog Mechanism and XIR

To detect and respond to system hang conditions, the Sun Fire V890 system features a hardware watchdog mechanism—a hardware timer that is continually reset as long as the operating system is running. In the event of a system hang, the operating system is no longer able to reset the timer. The timer will then expire and cause an automatic externally initiated reset (XIR), eliminating the need for operator intervention. When the watchdog mechanism issues the XIR, debug information is dumped to the system console.

Note – The hardware watchdog mechanism is not activated until you enable it, as described in the procedure that follows.

The XIR feature is also available for you to invoke manually, using your RSC console. You use the `xir` command manually when the system is absolutely hung and an L1-A (Stop-A) keyboard command does not work. When you issue the `xir` command manually by way of RSC, the system is immediately returned to the OpenBoot PROM `ok` prompt. From there, you can use OpenBoot PROM commands to debug the system.

You can set the OpenBoot configuration variables `post-trigger` and `obdiag trigger` to run POST or OpenBoot Diagnostics whenever the hardware watchdog mechanism resets. For more information about using the OpenBoot configuration variables with the hardware watchdog mechanism, refer to the *Sun Fire V890 Diagnostics and Troubleshooting Guide* (available at <http://docs.sun.com> under Sun on Sun Hardware).

How to Enable the Watchdog Mechanism and Its Options

To enable the hardware watchdog mechanism:

1. **Edit the `/etc/system` file to include the following entry.**

```
set watchdog_enable = 1
```

2. **Reboot the system so the changes can take effect.**

To have the hardware watchdog mechanism automatically reboot the system in case of system hangs:

- **At the system `ok` prompt, type the following.**

```
ok setenv error-reset-recovery = boot
```

To generate automated crash dumps in case of system hangs:

- **At the system `ok` prompt, type the following.**

```
ok setenv error-reset-recovery = sync
```


Updated Rackmounting Information for the Sun Fire V890 Server

Currently, the only supported Sun racks for the Sun Fire V890 server are the Sun StorEdge Expansion Cabinet (Sun part number SG-XARY030A), the Sun Fire Cabinet (Sun part number SF-XCAB), and the Sun Rack 900 (Sun part number SR9-KL038A-IP).

To rackmount a Sun Fire V890 server in the Sun Rack 900, use the Sun X9638A rackmounting kit.

To rackmount a Sun Fire V890 server in the Sun StorEdge Expansion Cabinet and the Sun Fire Cabinet, use the Sun X9628A rackmounting kit.

An optional door (Sun part number X9818A) is available for the Sun StorEdge Expansion Cabinet. This door is required for EMI purposes if you are rackmounting two Sun Fire V890 servers in this rack.

Note – You can install only one Sun Fire V890 server into the Sun Fire Expansion Cabinet.

Sun Fire V890 Server Rackmounting Safety Information



Caution – As stated in the *Sun Fire V890 Server Rackmounting Guide*, do not attempt to lift the server until you remove all CPU/Memory boards, all power supplies, all CPU fan trays, and all I/O fan trays. Once these components are removed, four persons are required to lift the server.

The four lifting handles included in the rackmounting kit are not designed to support the weight of a fully populated server.

Software Issues

The following sections describe various software issues associated with the Sun Fire V890 server product.

Sun Remote System Control (RSC) 2.2.2 Software

The Sun Fire V890 server comes with the system controller (SC) card installed. The following list summarizes how the RSC 2.2.2 software and the system controller hardware work together.

- The SC card does not have an on-board modem. The modem/pager commands and variables in the RSC 2.2.2 software do not work with the SC card. These commands and variables are documented in the *Sun Remote System Control (RSC) 2.2 User's Guide*, but they are not supported on the SC card in the Sun Fire V890 server.
- The SC card does not have a system backup battery. It receives its power directly from the server's 5V standby power. The card runs even when the server is powered down or on standby, as long as the server is plugged into an AC outlet.

For more information about using RSC 2.2.2 software with SC hardware, refer to the *Sun Fire V890 Server Owner's Guide*.

OpenBoot PROM Enhanced Diagnostics

OpenBoot PROM Version 4.15 comes with enhanced diagnostics that are enabled by default. Full OpenBoot Diagnostics run at power-on. For more information about these enhancements, the new and redefined configuration variables, and the new standard (default) configuration, refer to *OpenBoot PROM Enhancements for Diagnostic Operation*, which is available on the Sun Fire V890 Documentation CD included with the Sun Fire V890 server.

For instance, when the OpenBoot PROM enhanced diagnostics are enabled, the `rsc-console` connection diagnostic output gets sent to the server console without issuing a warning message. When this occurs, the RSC console may appear not to respond to RSC commands. This behavior can also happen when you are viewing `rsc-console` output while the front panel keyswitch of the Sun Fire V890 server is set to the Diagnostics position.

Sun Management Center Software Support

Sun Management Center software, Version 3.5 Product Update 1, supports the Sun Fire V890 server. For more information about the Sun Management Center software, refer to the *Sun Management Center 3.5 Supplement for VSP High-End Entry Servers (Workgroup Servers)*.

Sun StorEdge Traffic Manager Software

Sun StorEdge™ Traffic Manager software automates multipath I/O failover, fail-back, and SAN-wide load balancing on multiple platforms. It also allows you to perform dynamic database configuration. This software can help provide improved I/O performance, increased availability, and time-saving manageability on your mission-critical SAN.

To learn more about Sun StorEdge Traffic Manager software, to take an interactive tour of its features, and to price and purchase the product for your installation, go to:

http://www.sun.com/storage/software/storage_mgmt/traffic_manager/index.xml

Documentation Notes

OpenBoot Firmware Documentation

The Sun Fire V890 server uses OpenBoot PROM Version 4.15 system firmware. Instructions for using the firmware are provided in the *OpenBoot 4.x Command Reference Manual*, which is available at the following web site under Solaris on Sun Hardware:

<http://docs.sun.com>

Sun Management Center 3.5 Support

The *Sun Management Center 3.5 Supplement for VSP High-End Entry Servers (Workgroup Servers)* does not specify Sun Fire V890 support. However, this version of the software does support the Sun Fire V890 server.

Open Issues

This section describes bugs and anomalies associated with the Sun Fire V890 server. In many cases, software patches that provide fixes for these bugs are available. Visit the SunSolve Online web site, or contact your Sun authorized service provider for information about patch availability. For more information, see [“Required and Recommended Software Patches”](#) on page 4.

RSC Console Switches to the Server Console Without Warning When OpenBoot PROM Enhanced Diagnostics Are On or the Keyswitch Is in the Diagnostics Position

When the OpenBoot PROM enhanced diagnostics are enabled, the `rsc-console` connection gets sent to the server console without warning. When this occurs, the RSC console may appear not to respond to RSC commands. This behavior can also happen when you are using RSC while the front panel keyswitch of the Sun Fire V890 server is set to the Diagnostics position.

Disk Errors Are Reported in `loghistory` While Running SunVTS, But No Errors Are Reported in SunVTS or Solaris

If you run SunVTS™ software and RSC software simultaneously, you may see disk errors reported when you use the `loghistory` command that do not appear in SunVTS tests. This occurs because SunVTS cannot suspend RSC monitoring while tests are running. RSC reports each state change as a disk error. These messages do not appear when SunVTS is not running tests.

GEM Interface Drops Connections Under Heavy Load Using the sync-TTCP Test Suite

If you run the sync-TTCP Test Suite software while the server is experiencing heavy network loads, the Gigabit Ethernet (GEM) interface may drop connections. If this happens, perform the following procedure:

1. Use a text editor to open the `/etc/system` file.
2. Add the following lines to the file:

```
set ge:ge_put_cfg=0  
  
set ge:ge_nos_tmbs=8192
```

3. Save the file and close it.
4. Reboot your server.

Disabled PCI Slot Causes an `fcode_timer` Timeout During Solaris Boot

Using the `asr` command `asr-disable pci-slotn` (where `n` is 0-8) to disable a PCI slot with a card present in that slot is not recommended. If there is a failing card in a PCI slot, you should instead remove the card from the system.

If you do use the `asr-disable pci-slotn` command to disable a slot with a card present (whether or not the card is failing), the interpreter will pause, waiting for a response from the card. Since the card will not respond due to the fact it was disabled, the boot sequence will be delayed by several minutes.

Solaris 8 `cfgadm` Command Produces Harmless Warning

When using the Solaris 8 `cfgadm` command to perform PCI hot-plug operations on a Sun Fire V890 server, you may see the following warnings:

```
WARNING: mod_load: cannot load module 'sbd'  
WARNING: cannot load sbd
```

These warnings have no impact on PCI hot-plug operations and can be safely ignored.

