Sun Fire™ 3800 - 6800
Quick Reference Guide

Brian Jackson, July 2005

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Table of Contents

Additional Resources

Additional resources – The following references provide additional details on the topics discussed in this quick reference guide:

- *Sun Fire Systems Site Planning Guide*, 805-7365-xx

- *Sun Fire System Overview Manual*, 805-7362-xx

- *Sun Fire Systems Installation Guide*, 817-2353-xx

- *Sun Fire Systems Service Manual*, 805-7363-xx

- *Sun Fire 3800-6800 Troubleshooting Manual*, 805-7364-xx

- *Sun StorEdge™ D240 Media Tray Installation, Operation, and Service Manual*, 806-4211-xx

Refer to the *Platform Administration Manual* and *System Controller Commands Reference Manual* specific to the firmware you are using.

For an exhaustive list of all Sun Fire manuals, go to:

http://www.sun.com/products-n-solutions/hardware/docs/Servers/

- *SUN SYSTEM HANDBOOK available from* http://sunsolve

- *James Hsiehs "Best Practice" blueprints*

http://www.sun.com/solutions/blueprints/0901/sunfireconfig.pdf
http://www.sun.com/solutions/blueprints/1001/sunfire-admin.pdf
http://www.sun.com/blueprints/1002/817-0080-10.pdf

- *Peter Gonscherowskis & Tricia Wittsacks Auto Diagnosis blueprint*

http://www.sun.com/blueprints/0404/817-6212.pdf

- *Sun Fire Quick Reference Guide, latest rev available at the following link*

http://sale-wts.uk/~brianja/

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Sun Fire 3800, 4800, 4810, and 6800 Platforms

There are four models of Sun Fire platforms as shown below. They are **Midframe** servers built around UltraSPARC™-III processors and PCI or hot-swappable cPCI I/O.

They have been developed under the codename of **serengeti**. They have gone through a number of name changes since their inception; they are included below for your reference:

- K6 > Serengeti SP > Serengeti-8 > Sun Fire 3800

- K12 > Serengeti MD > Serengeti-12 > Sun Fire 4800

- R12 > Serengeti ME > Serengeti-12i > Sun Fire 4810

- R24 > Serengeti DS > Serengeti-24 > Sun Fire 6800

Sun Fire 3800   Sun Fire 4800   Sun Fire 4810   Sun Fire 6800

- All the Sun Fire 3800 - 6800 range require Solaris 8 Update 4, S8U4 (Solaris 8 4/01) as a minimum.

- Memory figures on pages 11 - 14 assume 1GB DIMMs, which are only supported on 900MHz and faster system boards.

Sun Fire 3800

The Sun Fire 3800 platform is a service-provider platform that is a Sun Fire cabinet or rack-mounted, highly available, compact system.

Up to three Sun Fire 3800 systems can be mounted in a Sun Fire cabinet.
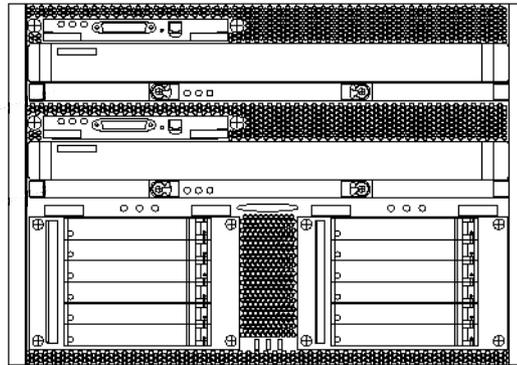
Front view

The Sun Fire 3800 has the following features:

- Support for 2 to 8 UltraSPARC™-III/III Cu processors, mounted on two system boards.

- Up to 64 Gbytes of error checking and correction (ECC) memory

- Twelve hot-swappable compact peripheral component interconnect (cPCI) slots mounted on two I/O boards.

- Support for up to two domains in either one or two segments.

- Three power supplies providing N+1 DC power redundancy.

- Four Fan Trays providing N+1 cooling redundancy.

- The Sun Fire Rack has N+1 AC input redundancy, assuming the customer has two separate supplies into his facility. (See page 45)

Sun Fire 4800

The Sun Fire 4800 is a highly available, flexible standalone or rack-mounted system. The Sun Fire 4800 has the following features:
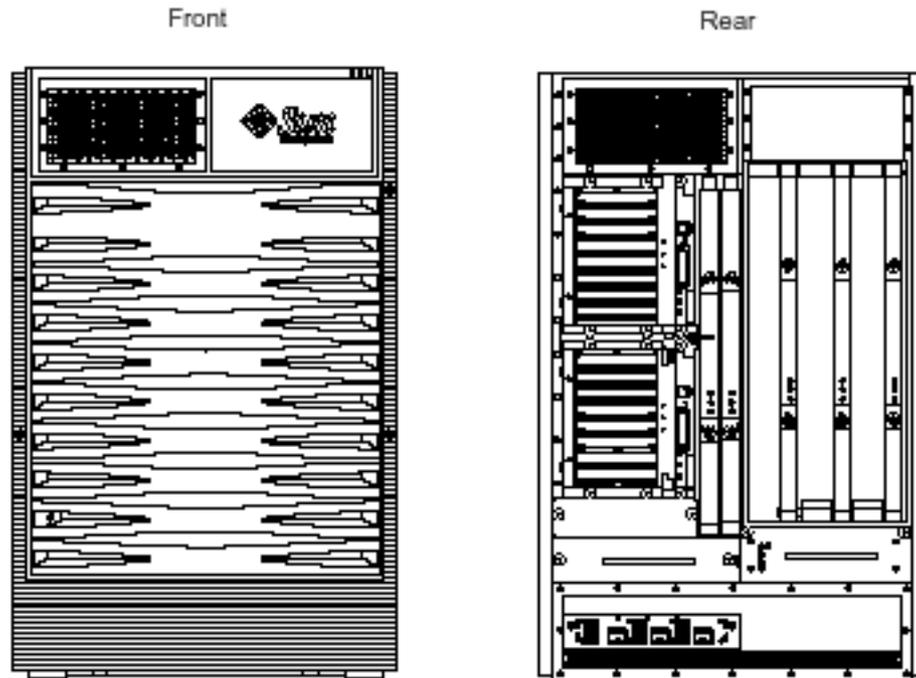
Front   Rear

- Support for 2 to 12 UltraSPARC™-III/III Cu processors, mounted on three system boards

- Up to 96 Gbytes of ECC memory.

- Sixteen PCI I/O slots mounted on two I/O boards, or eight hot-swappable cPCI slots mounted on two I/O boards or a combination of an eight-slot PCI and four-slot cPCI.

- Support for up to two domains in either one or two segments.

- Three power supplies providing N+1 DC power redundancy.

- Three Fan Trays providing N+1 cooling redundancy.

Sun Fire 4810

The Sun Fire 4810 is a highly available system for specialized environments.
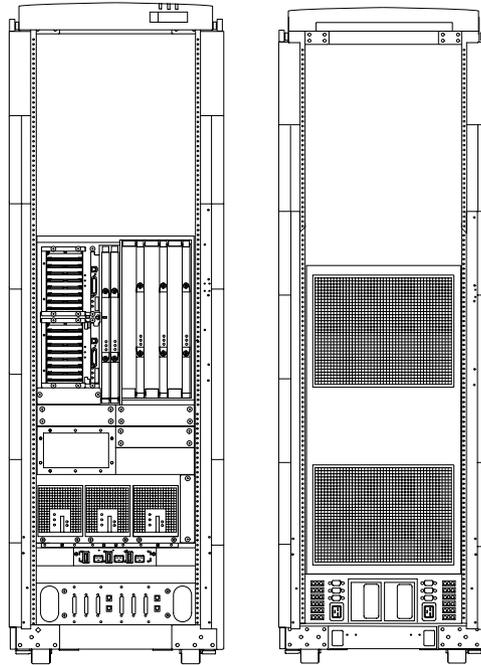
Front view   Rear view

- Environments with limited depth, which require 100% front accessibility, for example, telco providers, ISPs etc

- Military vehicles (trucks, ships, and so on)

The Sun Fire 4810 has the following features:

- Support for 2 to 12 UltraSPARC™-III/III Cu processors, mounted on three system boards.

- Up to 96 Gbytes of ECC memory.

- Sixteen PCI I/O slots mounted on two I/O boards, or eight hot-swappable cPCI slots mounted on two I/O boards or a combination of an eight-slot PCI and four-slot cPCI.

- Support for up to two domains in either one or two segments.

- N+1 DC power redundancy using three power supplies, N+1 cooling redundancy using three Fan Trays, N+1 AC redundancy in the rack. (See page 45)

Sun Fire 6800

The Sun Fire 6800 is a highly available, large-scale system.
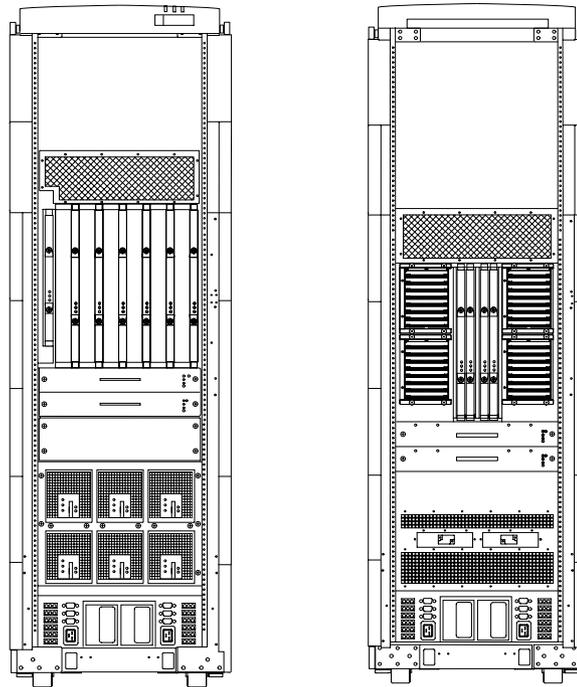
Front view   Rear view

The Sun Fire 6800 has the following features:

- Support for 2 to 24 UltraSPARC™-III/III Cu processors, mounted on six system boards.

- Up to 192 Gbytes of ECC memory.

- Thirty-two PCI I/O slots or 16 hot-swappable cPCI slots or combinations of PCI and cPCI, mounted on four I/O boards.

- Support for up to four domains. Three or four domains require two segments. One or two domains require one segment, although there are advantages with creating two domains in two segments.

- The Sun Fire 6800 has two Power Grids.

- Each Power Grid can have N+1 AC power redundancy, assuming the customer has two separate supplies into his facility. (See page 45)

- There is N+1 DC power redundancy in each Power Grid.

- Four Fan Trays providing N+1 cooling redundancy.

14   Sun Fire 3800 - 6800 Quick Reference Guide
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Conceptual Overview

The Sun Fire platforms are organized into multiple administrative/service layers.

Each layer provides a set of tools that allow you to configure, monitor, service, and administer various aspects of the platform.

Applications	Applications	Applications	Applications
Solaris Operating Environment	Solaris Operating Environment	Solaris Operating Environment	Solaris Operating Environment
OpenBoot PROM	OpenBoot PROM	OpenBoot PROM	OpenBoot PROM
Domain A shell	Domain B shell	Domain C shell	Domain D shell
Platform shell			
Platform hardware			

Refer to the *Sun Fire Systems Site Planning Guide*, part number 805-7365-xx:

- **Dimensions, clearance requirements & weight**

- **Power requirements**

- **BTUs/hr & cooling requirements**

- **Power factor**

- **Connector type**

System Board ASICs

The system board CPUs and memory are configured in pairs, (two pairs per system board maximum) interconnected with a dual cheetah data switch (DCDS). The DCDS provides a data path between the CPUs and the L1 Sun Fireplane switch.

The system board L1 (level 1) Sun Fireplane switching logic consists of an address repeater (AR) and 4 x data switch (DX) ASICs.

Each system board contains a system data controller (SDC). The SDC has two functions; it multiplexes the console bus connections to allow all system boards and Sun Fireplane switch boards to communicate to each of the system controllers.

It is also the brains of the operation behind the data crossbar. If a data packet is considered as a train, the DXs are like the tracks and the SDC is like the signal box; the SDC routes the data.
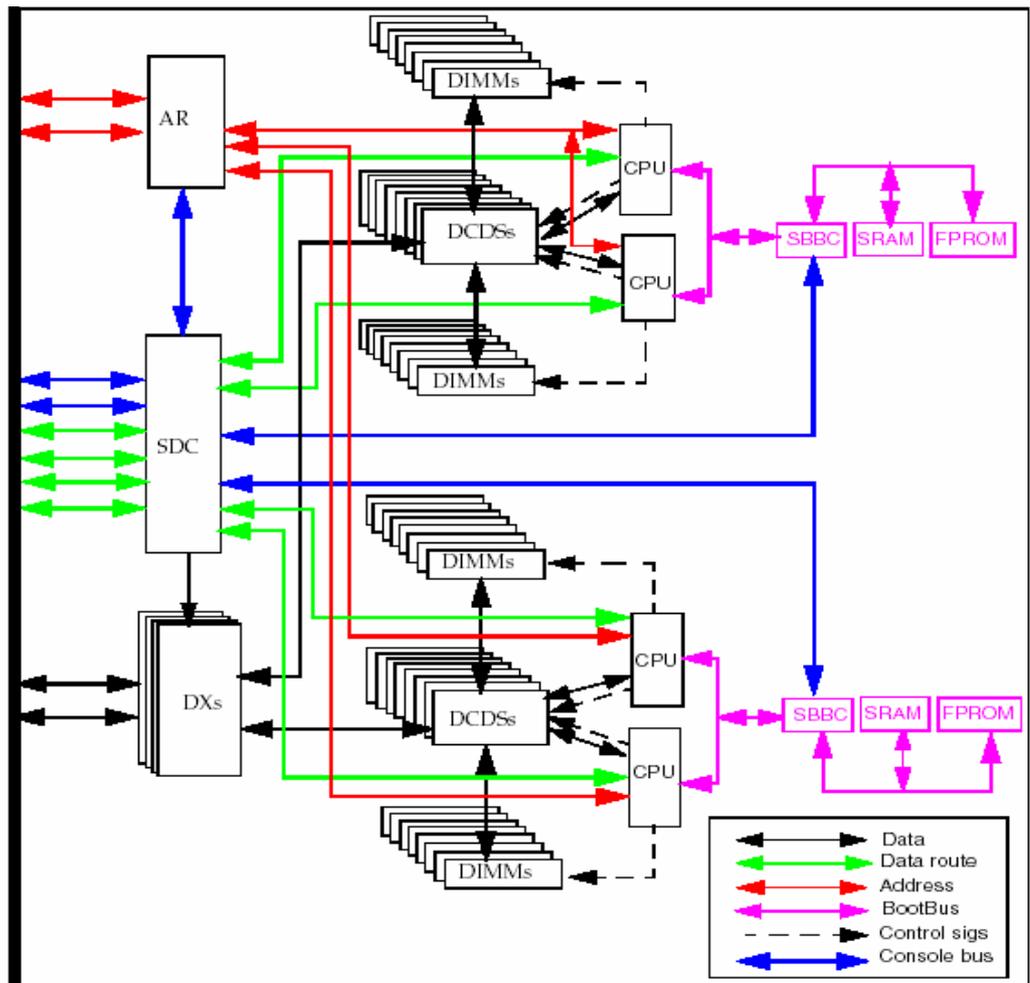
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System Boards, Physical

The Sun Fire system board houses either two or four UltraSPARC™-III Cu 900 MHz, 1050 MHz or 1200 MHz processors, or UltraSPARC™-III 750MHz processors.

Each processor supports two **physical** banks of memory.

Each memory bank consists of four dual inline memory modules (DIMMs) which gives, 8 x DIMMS per CPU (See page 18)

Memory capacity can also be mixed but not within the same bank.

The processor's L2-SRAM (also known as Ecache) consists of two cache modules mounted on their own pcb's, each module being 4MB in size, giving 8MB per CPU.

Neither the CPU modules or the L2-SRAMs are field replacable.

Mixing CPU speeds of 900MHz, 1050MHz and 1200MHz within a domain or platform is supported.

750MHz CPUs cannot be included in mixed-speed configurations.
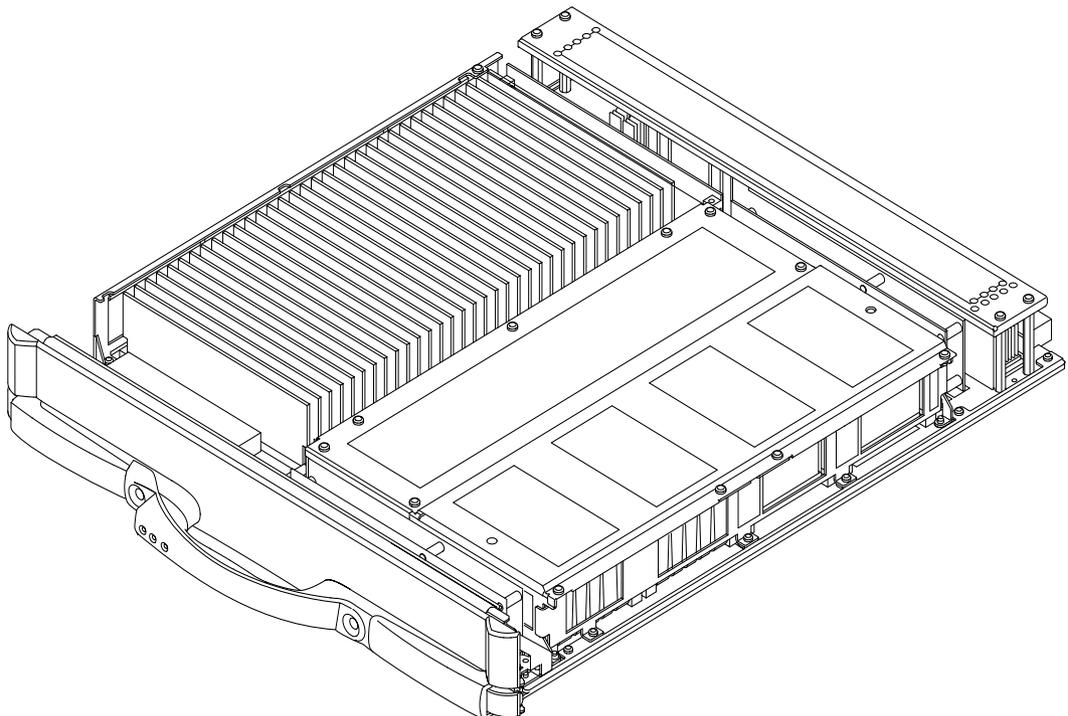
CPU & Memory Configuration

Each CPU processor has two corresponding **physical** DIMM banks.

Each physical bank is split into two **logical** banks

It is possible that a processor might not have any DIMMs installed in its corresponding DIMM bank, but a populated DIMM bank must have a corresponding CPU processor installed in order for that memory to be utilised.

The system board supports the following DIMM sizes:

● 256MB DIMM Part number 501-5401

● 512MB DIMM Part number 501-5030

● 1GB DIMMs, part numbers 501-6109 & 540-5086 are only supported on 900MHz and faster system boards.
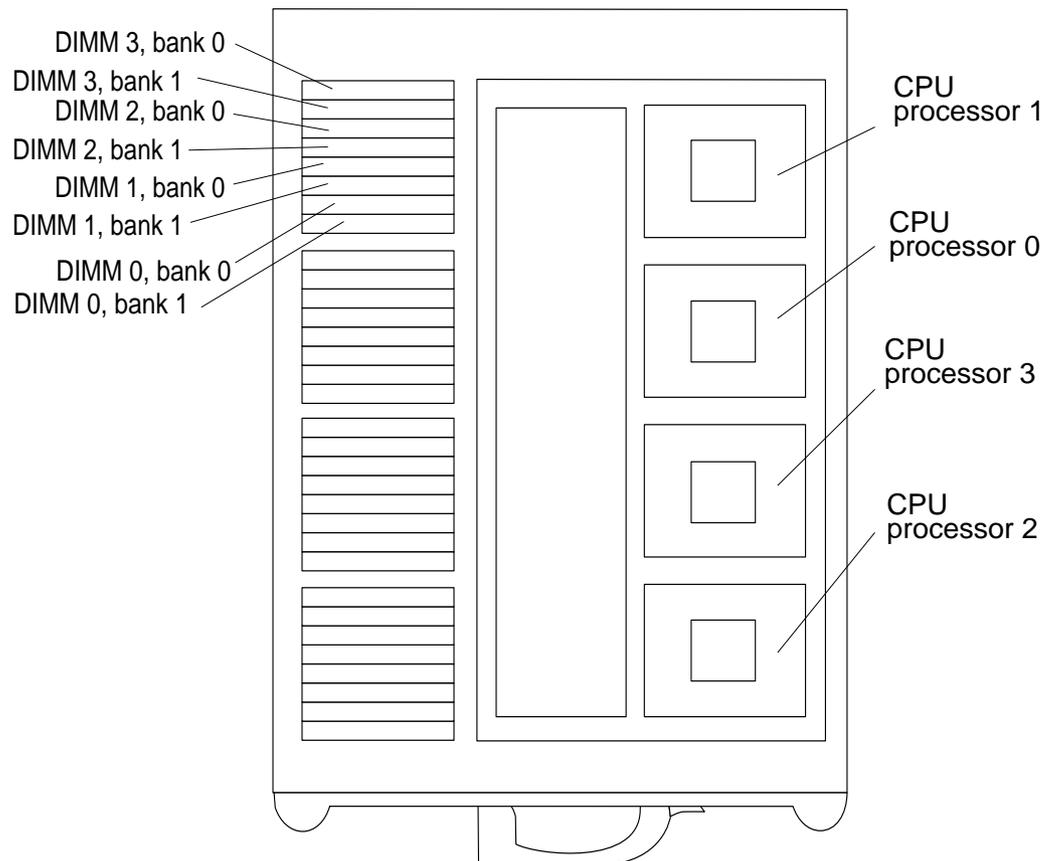
CPU and Memory Configuration (cont)

Below is a layout of a system board. Descriptions of physical and logical banks follow:

```
6800b-sc0:SC> showcomponent /N0/SB2

Component              Status   Pending   POST   Description
---------              ------   -------   ----   -----------
/N0/SB2/P0             enabled  -         pass   UltraSPARC-III+, 900MHz, 8M ECache
/N0/SB2/P1             enabled  -         pass   UltraSPARC-III+, 900MHz, 8M ECache
/N0/SB2/P2             enabled  -         pass   UltraSPARC-III+, 900MHz, 8M ECache
/N0/SB2/P3             enabled  -         pass   UltraSPARC-III+, 900MHz, 8M ECache
/N0/SB2/P0/B0/L0       enabled  -         pass   2048M DRAM
/N0/SB2/P0/B0/L2       enabled  -         pass   2048M DRAM
/N0/SB2/P0/B1/L1       enabled  -         pass   2048M DRAM
/N0/SB2/P0/B1/L3       enabled  -         pass   2048M DRAM
/N0/SB2/P1/B0/L0       enabled  -         pass   2048M DRAM
/N0/SB2/P1/B0/L2       enabled  -         pass   2048M DRAM
/N0/SB2/P1/B1/L1       enabled  -         pass   2048M DRAM
/N0/SB2/P1/B1/L3       enabled  -         pass   2048M DRAM
/N0/SB2/P2/B0/L0       enabled  -         pass   2048M DRAM
/N0/SB2/P2/B0/L2       enabled  -         pass   2048M DRAM
/N0/SB2/P2/B1/L1       enabled  -         pass   2048M DRAM
/N0/SB2/P2/B1/L3       enabled  -         pass   2048M DRAM
/N0/SB2/P3/B0/L0       enabled  -         pass   2048M DRAM
/N0/SB2/P3/B0/L2       enabled  -         pass   2048M DRAM
/N0/SB2/P3/B1/L1       enabled  -         pass   2048M DRAM
/N0/SB2/P3/B1/L3       enabled  -         pass   2048M DRAM

6800b-sc0:SC>
```

Each cpu has 2 physical banks (Even & Odd) with 4 DIMMS each

B0: Group 0 is the Even bank (Note the Even bank DIMMS end with a "0")
B1: Group 1 is the Odd bank   (Note the Odd bank DIMMS end with a "1")

Each physical bank has 2 logical banks

L0 is the front of all 4 DIMMS of the physical bank B0
L2 is the back of all 4 DIMMS of the physical bank B0

L1 is the front of all 4 DIMMS of the physical bank B1
L3 is the back of all 4 DIMMS of the physical bank B1

CPU and Memory Configuration (cont)

```
                              P B D (Proc, bank, dimm)

J14600                        1 0 3
J14601                        1 1 3
J14500                        1 0 2
J14501   ---> CPU B           1 1 2   ---> CPU P1
J14400                        1 0 1
J14401                        1 1 1
J14300                        1 0 0
J14301                        1 1 0


J13600                        0 0 3
J13601                        0 1 3
J13500                        0 0 2
J13501   ---> CPU A           0 1 2   ---> CPU P0
J13400                        0 0 1
J13401                        0 1 1
J13300                        0 0 0
J13301                        0 1 0


J16600                        3 0 3
J16601                        3 1 3
J16500                        3 0 2
J16501   ---> CPU D           3 1 2   ---> CPU P3
J16400                        3 0 1
J16401                        3 1 1
J16300                        3 0 0
J16301                        3 1 0


J15600                        2 0 3
J15601                        2 1 3
J15500                        2 0 2
J15501   ---> CPU C           2 1 2   ---> CPU P2
J15400                        2 0 1
J15401                        2 1 1
J15300                        2 0 0
J15301                        2 1 0
```

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System Boards summary

platform	Number of System Boards	Slot Number	Location
F6800	Six	SB0 through SB5	Front
F4810	Three	SB0, SB2, and SB4	Front
F4800	Three	SB0, SB2, and SB4	Rear
F3800	Two	SB0 and SB2	Front

System board layout is clearly marked on the cabinets.

However, remember that in the F6800, the System boards are numbered non-sequentially from left to right:

SB0 SB2 SB4 SB1 SB3 SB5

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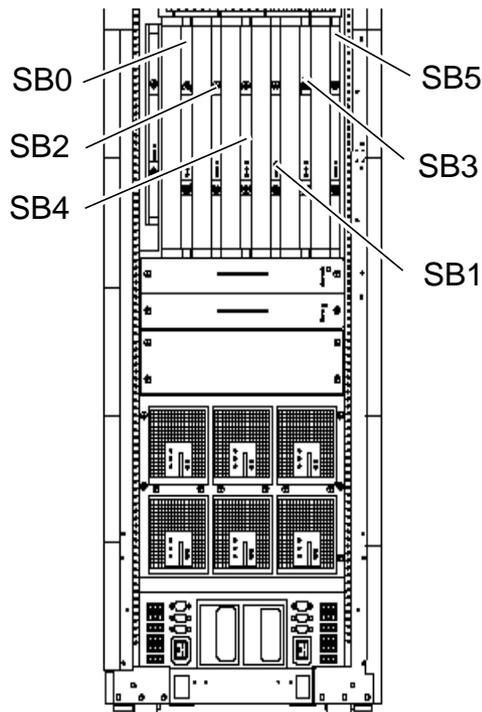
I/O Board ASICs

The PCI I/O board is powered by two Schizo I/O bridges. On the centreplane side, each Schizo interfaces to the Sun Fireplane interconnect. On the I/O side, each Schizo contains two PCI buses. The "A" bus has enhanced PCI (EPCI) logic supporting one 66-MHz, 64-bit, 3.3VDC card. The "B" bus has standard PCI logic supporting three 33-MHz, 64-bit, 5VDC cards.
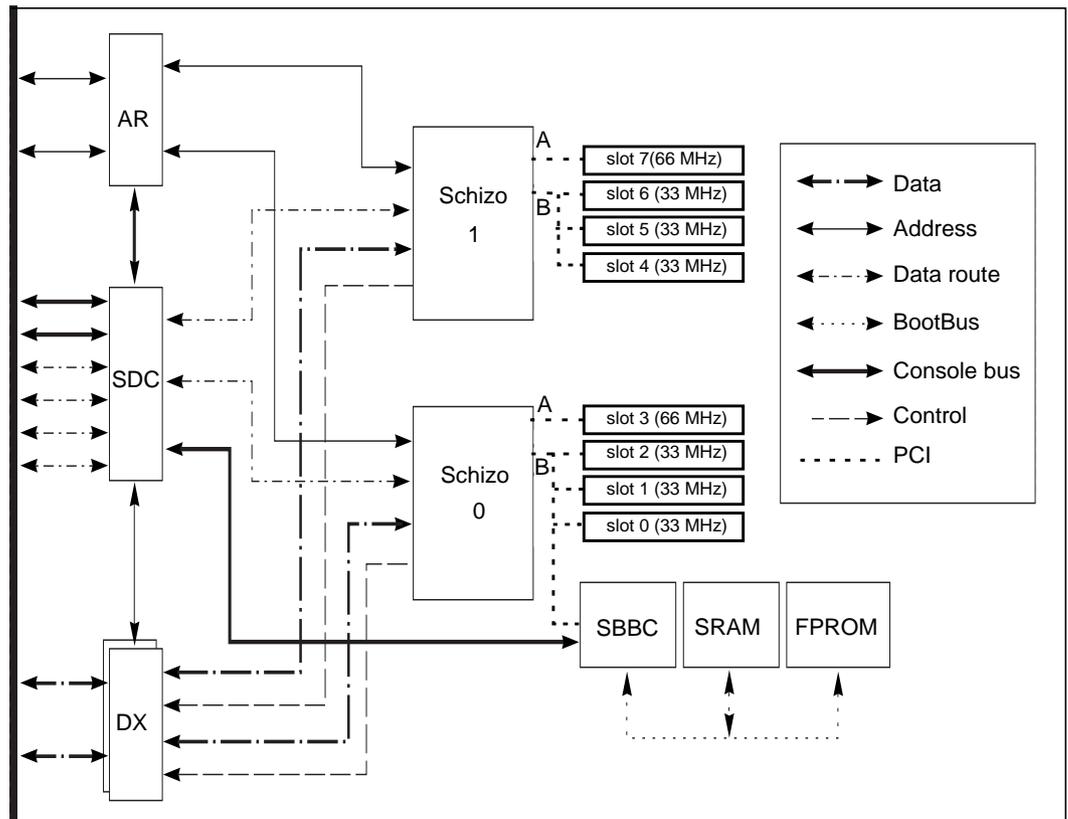
Each PCI I/O board contains a system data controller (SDC). Again, the SDC multiplexes the console bus connections and acts as the brains behind the movement of data packets across the Fireplane switch.

Just like the System board, the PCI I/O board also contains Sun Fireplane switching logic in the form of address repeater (AR) and data switch (DX) ASICs, which connects to the level 2 switches.

22   Sun Fire 3800 - 6800 Quick Reference Guide
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PCI I/O Physical

The Sun Fire platforms support PCI cards and compact PCI cards, mounted on I/O boards.

The F6800 & F4800/4810 platforms support an 8-slot PCI board (illustrated below), and a 4-slot cPCI I/O board.

Note – There are 6-slots which run at 33MHz and 2-slots which run at 33/66 MHz, balanced across two schizo ASICs.

Balance the PCI cards across schizo ASICs, and make sure you do not tie up a 33/66 MHz slot with a 33 MHz card unless absolutely necessary.

Note also that due to the power regulator on the I/O board, only short PCI cards can be fitted in slot 0 & 1.

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cPCI I/O Physical

Below is an illustration of the 6-slot cPCI board is used in the F3800.

The F3800 only supports a 6-slot cPCI board.

The 4-slot cPCI board is very similar to the layout below.

I/O Board Summary

platform	Number of I/O boards	Slot number	Location
F6800	Four	IB6 IB7 IB8 IB9	Rear
F4810	Two	IB6 IB8	Front
F4800	Two	IB6 IB8	Rear
F3800	Two	IB6 IB8	Front

Sun Fireplane Switch Boards

The Sun Fireplane switches are used for data and address transfers across boards.

They are alternatively known as level 2 (L2) switches and repeaters, although the preferred name is the Sun Fireplane switch.

In the F3800, the equivalent of two Sun Fireplane switch board is integrated into an active centerplane.
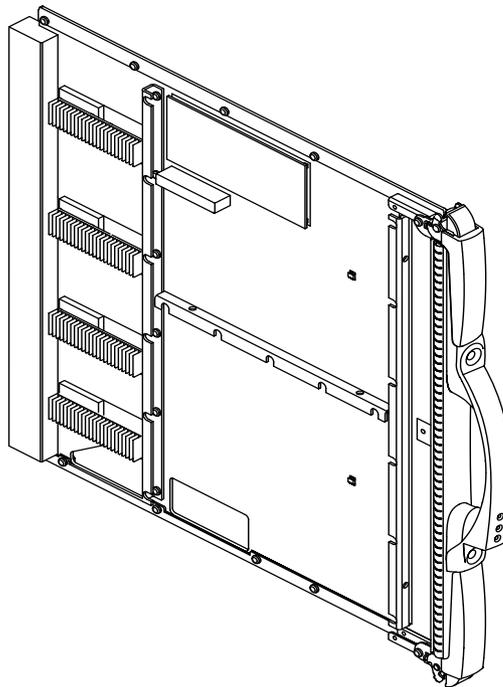
platform	Fireplane switch numbering	Location
F6800	RP2, RP3, RP0, RP1	Rear
F4810	RP0, RP2	Front
F4800	RP0, RP2	Rear
F3800	The equivalent of two Sun Fireplane switch boards are integrated into the active centerplane	Centerplane

How it all bolts together

The Sun Fire system architecture is designed with two levels of Sun Fireplane switches. One switch level is incorporated into the system boards and I/O boards. The second switch level is implemented as separate boards (In the F3800, the second level switches are incorporated in the centerplane).

Transactions originating from the first level switches (on the system and I/O boards) are sent to the second level switches. The second level switches direct the transactions to the correct board destination.
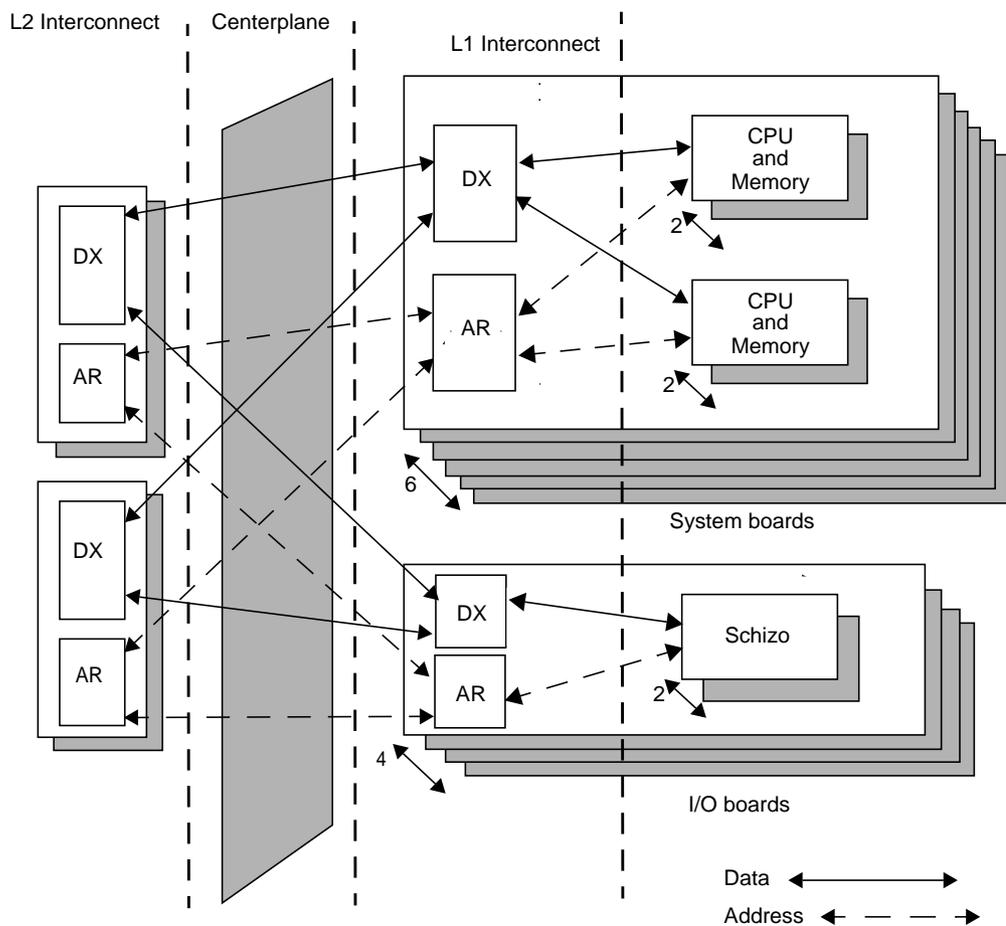
Note: The address "bus" is broadcast based, to ensure cache coherency. The data crossbar is packet-switched; the DX asics provide the connections and the SDC sets up the routing.

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System Controller Boards

There are three versions of the system controller:

F3800 System Controller 501-5563
F48x0 and F6800 System Controller 501-5407.
F4800 and F6800 System Controller V2 501-6631

They are all electrically identical except for minor changes to control the DC-DC converters and the F3800's system controller has a cooling fan. See page 34 for SC V2 details.

Each system controller contains a console bus hub (CBH) which connects the system controller to the console bus which, in turn, is connected to the system boards, I/O boards, and Sun Fireplane switch boards.

Each system board, I/O board, and Sun Fireplane switch board contains an SDC. The SDC multiplexes the two console bus connections to allow each system board to communicate with the currently active system controller.
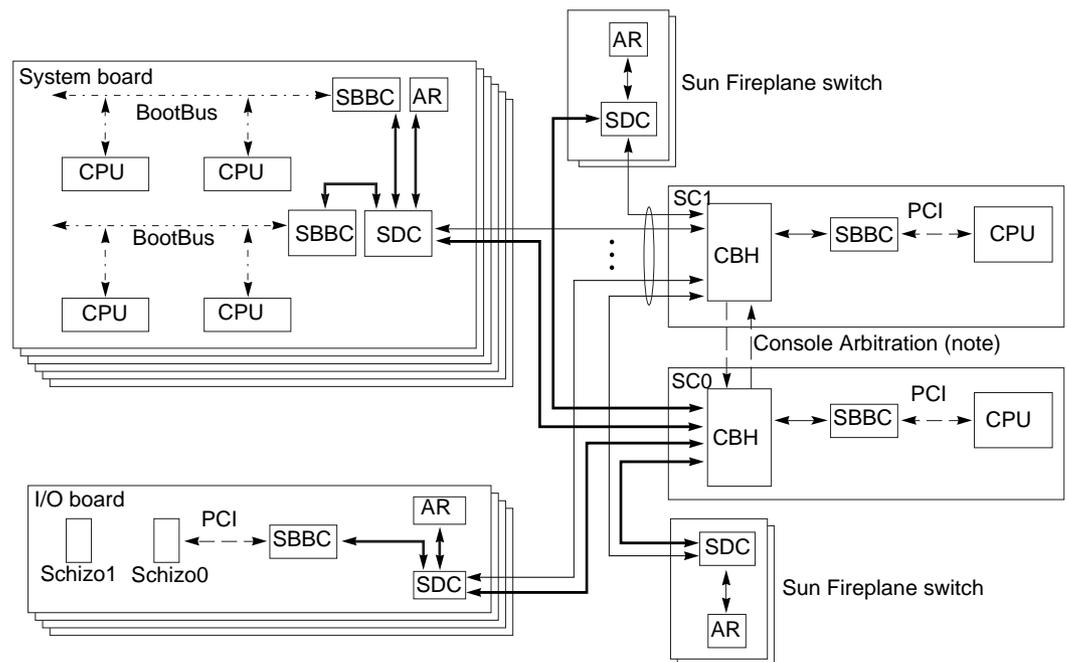
Note – With firmware 5.11.x and 5.12.x the console arbitration was limited; SSC0 was always the main and SSC1 was always the spare.

Starting with 5.13.x firmware, either SC can be the main

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Nvram, nvci & SC flashproms
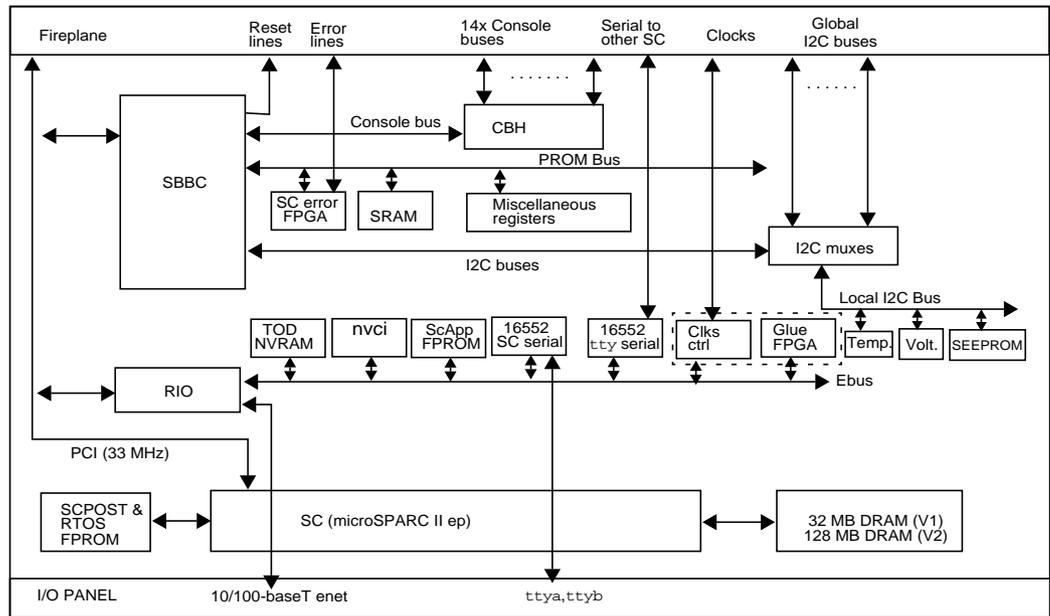
The system controller has a 100-MHz MicroSPARC IIep, 32 Mbytes of DRAM (128 MB on the SC V2), a serial interface and a 10/100Mbit ethernet interface.

The SC has its own power-on self test, called **SCPOST**, and its own operating system, the **RTOS** (sometimes referred to as vxworks), which is held in a 2 MB flashPROM on-board. (This is the **sgrtos.flash** file in the flashupdate patch).

The SC also has **SPOST** and its own application called the **ScApp** which is held in an 8 MB flashPROM on-board. (This is the **sgsgsc.flash** file in the flashupdate patch).

The SC maintains a centralized TOD, hostids and MAC addresses and its own host setups in an NVRAM chip.

It also maintains information for four domains in an NVCI chip

Use the dumpconfig command to save the contents as **<scname>.tod** and **<scname>.nvci**

System Controller Clock Circuit

The system controllers use a programmable clock. The clock generation circuitry manufactures a base clock of 75 MHz.

In normal operation, each system controller sends its clocks to the phase lock loop (PLL) circuitry in the clock control logic of the other system controller. The clock control logic arbitrarily selects one of the System controllers as the source of the active clocks for the platform.

```
SC0
  ┤|├      PLL
 75MHz
                        75MHz to
                        the platform
SC1
  ┤|├      PLL
 75MHz
```

Assuming you have both SCs present, during the boot sequence of the SSC, you will get a messages indicating that clock failover is enabled.

```
Jun 06 10:32:23 4800a-sc0 Platform.SC: Clock failover enabled.
```

If one of the system controller board clock circuits fails, you will see a message stating:

```
Jun 06 10:32:23 4800a-sc0 Platform.SC: Clock failover disabled.
```

The PLL circuitry in the other system controller will detect the failure and present its clocks to the platform. The platform will source the clocks from the remaining system controller without interruption to domain operation.

A platform only needs one system controller. The other is there to provide a redundant clock source to the platform, and to facilitate system controller failover.

5.13.x firmware features

5.13.x firmware has the following new features:

- **Full System Controller (SC) failover**

  The main SC is identified as **`<scname>:SC`**
  The spare SC is identified as **`<scname>:sc`**

- Improved diagnostics & recovery.

- Firmware compatibility

New Commands:

- **setfailover**

- **showfailover**

Modified Commands:

- password

- setupplatform

- setupdomain

- showboards

- showdomain

- showplatform

- showresetstate

Service mode:

- Password protected. To get a password, go to https://sfservicepass.sfbay/ where you will need to login with your employee ID and LDAP password.

Note – Refer to the *System Controller Command Reference Manual* and *Platform Administration Manual* shipped with firmware patch 112494-0x, in which the new and modified commands are documented.

5.14.x firmware features

5.14.x firmware has the following new feature:

- **Capacity on Demand 2.0**

  The COD 2.0 option provides the ability for Sun Fire system customers to configure "on demand" resources and pay for the resources only when they are needed. COD CPU/memory boards can be configured into Sun Fire servers at a lower up front cost and the remainder of the CPU/memory board cost is not paid until the resources are used by ordering COD right-to-use (RTU) licenses.

New Commands:

- **addcodlicense**
- **deletecodlicense**
- **showcodlicense**
- **showcodusage**
- **showerrorbuffer** - moved over from service mode

Modified Commands:

- setupplatform
- showplatform
- showboards
- showdomain
- showfailover -v

Note – Refer to the *System Controller Command Reference Manual* and *Platform Administration Manual* shipped with firmware patch 112883-0x, in which the new and modified commands are documented.

Further assistance on COD 2.0 can be obtained from the following URL:

http://sale-wts.uk/~brianja/cod.html

5.15.x firmware features

5.15.x firmware has the following new features:

- **Automatic Diagnosis Engine (ADE)**

  The ADE diagnoses internal ASIC errors, interconnect errors and data parity errors. It will not diagnose CBH errors. Refer to:

http://sunsolve.central/handbook_internal/Systems/common-docs/adr_serengeti/adr_serengeti.html

- **Automatic recovery of Hung Domains**

  If the parameter `hang-policy` is set to reset using the `setupdomain` command, the SC automatically initiates an XIR and re-boots the hung domain.

- **Dynamic Domain hostID/MAC Address assignment**

  Useful for running host-licensed software from one domain on another (for example, in the case of a L2 interconnect switch failure). Refer to the ADE case studies at the back of this guide.

New Commands:

- **setls**

  Use instead of enablecomponent & diasablecomponent

Modified Commands:

- setupplatform -p hostid
- showplatform -p hostid
- showcomponent
- setupdomain
- showdomain

Note – Refer to the *System Controller Command Reference Manual* and *Platform Administration Manual* shipped with firmware patch 112884-0x, in which the new and modified commands are documented.

5.16.x firmware features

5.16.x firmware has the following new feature:

- **Secure Shell (SSH) Protocol**

  The Secure Shell protocol is now available as an alternative to the Telnet protocol. SSH uses encryption to protect data between host and client, and also uses authentication mechanisms to identify hosts and clients.

  The SC supports five SSH connections along with the serial port connection.

New Commands:

- **setescape**
- **showescape**
- **ssh-keygen**
- **restartssh**
- **showfru**

Modified Commands:

- connections
- disconnect
- dumpconfig
- restoreconfig
- setdefaults
- showboards
- showplatform -p network

Note – Refer to the *System Controller Command Reference Manual* and *Platform Administration Manual* shipped with firmware patch 114523-0x, in which the new and modified commands are documented.

5.17.x firmware features

5.17.x firmware has the following new feature:

- **Persistent Logging**

  In midrange systems configured with SC V2s (enhanced-memory system controllers), system error messages and certain types of message logs are retained in persistent storage. You can determine if your system is configured with SC V2s by running showsc

```
v4u-6800a-sc0:SC> showsc

SC: SSC0
Main System Controller V2
SC Failover: disabled
Clock failover enabled.

SC date: Tue Aug 10 16:06:27 BST 2004
SC uptime: 6 days 7 hours 41 minutes 22 seconds

ScApp version: 5.17.1
RTOS version: 39

v4u-6800a-sc0:SC>
```

Modified Commands:

- setupplatform

- The persistent system error messages can be viewed by using the showerrorbuffer [-p [-n nnn]] command

- The persistent logs can be viewed by using the showlogs [-p [-f filter][-n nnn]] command

- showplatform -p network

Note – Refer to the *System Controller Command Reference Manual* and *Platform Administration Manual* shipped with firmware patch 114524-0x, in which the new and modified commands are documented.

5.18.x firmware features

5.18.x firmware has the following new feature:

- **VCMON integrated into 5.18.x firmware.**

  Prior to 5.18.x customers could install a cut-down version of the Continuous System Telemetry Harness, (CSTH-lite) on the admin workstation to monitor CPU core voltage (VCORE) drift on there Sun Fire Mid-range Servers.

  Starting with 5.18.x Voltage Core MONitoring (VCMON) has replaced CSTH-Lite, and is integrated into the ScApp. VCMON is designed to detect potential CPU core voltage (VCORE) drift conditions on system uniboards, which are indicative of potential processor attach issues.

  Another term you may see used is CVTM (Core Voltage Telemetry Monitor).

```
v4u-6800a-sc0:SC> showlogs

Jan 01 03:10:46 roc2s3 Domain-A.SC: [ID 575523 local0.warning] [VCM] Event:
      SF6800.VCMON.1.06.1664
      CSN: 151H262E DomainID: A ADInfo: 1.VCMON.18.0
      Time: Sat Jan 01 03:10:46 PST 2005
      FRU-List-Count: 1; FRU-PN: 5016178; FRU-SN: 010151; FRU-LOC: /N0/SB1/P1
      Recommended-Action: Service action required
.
.

v4u-6800a-sc0:SC>
```

In this example, SB1/P1 is exhibiting a VCORE drift, and should be replaced at the customers earliest convenience.

Note – Refer to InfoDoc 79833 *Understanding and Troubleshooting VCMON & CSTH-LITE errors* for more information.

You may also wish to refer to the *Predictive Fault Monitoring in Sun Fire Servers* blueprint, available at http://www.sun.com/blueprints/0405/819-2261.pdf

Service Mode

```
4800a-sc0:SC> service

The use of service commands can be destructive and destabilize the system
Use of service mode is authorized only by personnel trained in its use.

Enter Password:                    <-------- Hit return key
Invalid password.

HostID: 83041816
ScApp version: 5.13.0
RTOS version: 23

Enter Password:                    <-------- Go to https://sfservicepass.sfbay/
4800a-sc0:SC[service]>
```

> For details on the following commands, refer to the *Sun Fire 3800 - 6800 Troubleshooting Manual*, 805-7364-xx

```
clearerrorbuffer -- clear the contents of the error buffer
showerrorbuffer  -- show the contents of the error buffer
testinterconnect -- run interconnect test

4800a-sc0:SC[service]> testinterconnect

Skipping board /N0/SB2 : Powered off or active in a domain
Skipping board /N0/IB6 : Powered off or active in a domain
Testing with /N0/SB4 as master:
        RP test slaves: RP0 RP2         SB/IB test slaves: /N0/IB8
Testing with /N0/IB8 as master:
        RP test slaves: RP0 RP2         SB/IB test slaves: /N0/SB4

**** Interconnect testing complete. ****
```

> Do not leave service mode enabled, once you have run the tests and/or gathered the error information. Type service to exit.

```
4800a-sc0:SC[service]> service

4800a-sc0:SC>
```

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System Controller failover

With the advent of the 5.13.x firmware we have full SC failover.

Ensure that failover is enabled.

```
sc0-4800a:SC> showfailover

SC Failover: enabled and active.

sc1-4800a:sc> help setfailover

setfailover -- set automatic/manual SC failover

Usage: setfailover [-y|-n] off|on|force
       setfailover -h

    off - automatic failover disabled
    on - automatic failover enabled
    force - manual failover to the other SC
    -y -- do not prompt for confirmation
    -n -- do not execute command if confirmation is requested
    -h -- display this help message

sc1-4800a:sc> setfailover force

SC: SSC1
Spare System Controller
SC Failover: enabled and active.
Clock failover enabled.

This will abruptly interrupt operations on the other System Controller.
This System Controller will become the main System Controller.

Do you want to continue? [no] yes

Jun 10 14:18:49 sc1-4800a Platform.SC: SC Failover: becoming main SC ...
Jun 10 14:19:00 sc1-4800a Platform.SC: Chassis is in dual partition mode.
Jun 10 14:19:20 sc1-4800a Platform.SC: Main System Controller
Jun 10 14:19:20 sc1-4800a Platform.SC: SC Failover: disabled

sc1-4800a:SC>
```

Resetting the System Controller Board

If an System controller hangs, attempt to clear the problem by either rebooting the SC or doing a setfailover force if the platform has redundant SCs.

Pressing the reset button will interrupt any running operation on the SC. Starting with firmware 5.12, we poll the DX and DCDS ASICs for parity errors. This requires a JTAG scan, since these ASICs don't have console bus access.

If you press the reset button in the middle of a JTAG scan, you can corrupt the internal state of the chip which is being scanned. This can result in the chip asserting error pause, and therefore killing a running domain.
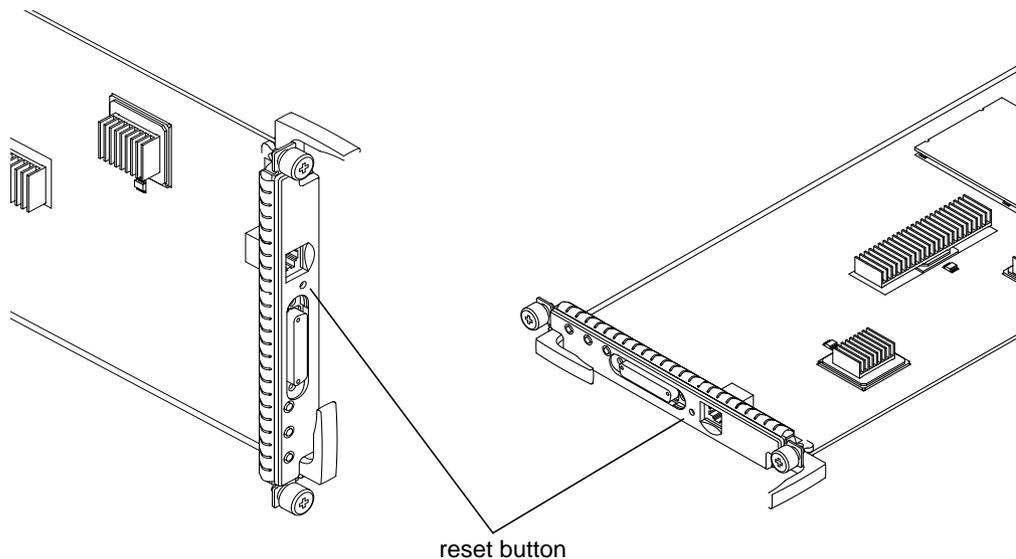
reset button

Caution – With firmware 5.12.x and above, pressing reset will crash any running domains.

Attempt a reboot or a setfailover force first.

If you must press the reset button, take down any active domains first.

Status LED definition is as per the System Boards.

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Maintenance Buses - I^{2}C & FRU-ID

Sun Fire platforms use a global maintenance bus structure to monitor the environmental integrity of the platform. This monitoring structure is under control of the system controller and uses a bus architecture called I^{2}C (I squared C).

The I^{2}C bus monitors the following:

- System voltages

- Temperature

- Fan speeds

FRU-ID/SEEPROM

The I^{2}C bus also functions as the read/write bus for FRU-ID.

The FRU-ID is 8 KBytes of serial electrically erasable programmable read-only memory (SEEPROM) installed into all FRUs.

This SEEPROM is split into two sections. One is read-only (static), and the other is read-write (dynamic).

- The static section of the SEEPROM contains the FRU's nomenclature, such as part number, serial number, and manufacturing date.

- The dynamic section of the SEEPROM is updated by the I^{2}C bus with power-on hours (POH), hot-plug information, plug locations, and the platform serial number.

  This section of the SEEPROM also contains failure information if the FRU had a hardware fault. This information is for operations use only (board repair centers).

  The only way to extract this information is by using specially designed utilities that are not available in the field.

ID Board

The Sun Fire ID board is a pre-programmed daughter board on the platform's centerplane, (The ID board used in the F3800 is incorporated into the centerplane and is not removable).

The ID board contains a SEEPROM with the following information:

- platform chassis ID, serial number & host ID.

- Incorporates six media access controller (MAC) addresses for the F6800, and four MAC addresses for F3800, F4800, and F4810.

- platform and component power-on hours
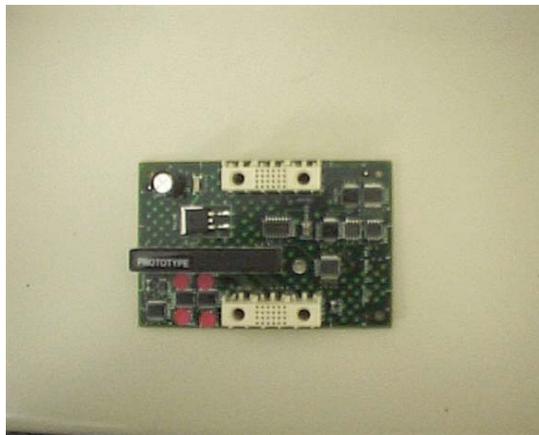
The ID board is considered a single FRU. If this FRU is replaced, we will ship a blank ID board that automatically updates itself with all the required information using the system controller's NVCI.

```
sc0-4800:SC> showp -p mac

            MAC Address            HostID
            -----------------      --------
Domain A    08:00:20:d8:86:23      80d88623
Domain B    08:00:20:d8:86:24      80d88624
Domain C    ff:ff:ff:ff:ff:ff      ffffffff
Domain D    ff:ff:ff:ff:ff:ff      ffffffff
SSC0        08:00:20:d8:86:25      80d88625
SSC1        08:00:20:d8:86:26      80d88626

System Serial Number: 105M2ED0

sc0-4800:SC>
```

Fan Trays and Blower Assemblies

All systems have fan trays or blower assemblies that provide for redundant cooling if one fan tray or blower assembly fails. The F6800 has four fan trays (two in front and two in the rear) that collectively cool the system, except for the power supplies. The F4810 and the F4800 have three fan trays that also collectively cool the platform, except for the power supplies.

The F3800 has four blower assemblies in the rear of the system that provide front-to-back cooling. Three of the four blower assemblies cool everything in the system except for the power supplies, which have their own fans. The fourth blower assembly is a redundant blower assemblies in case one of the blower assemblies is defective.

platform	Total Number of Fan Trays	Minimum Number of Fan Trays
F6800	Four fan trays (two in the front, FT1 and FT3, and in the rear, FT0 and FT2)	One fan tray (front, FT1) and two fan trays (rear, FT0 and FT2). You can remove the bottom (FT3) CPU fan tray. The platform cools with the remaining three fan trays.
F4810	Three fan trays, FT0, FT1, FT2 (front)	Two of the three fan trays must be installed to cool the platform. The third fan tray (lower CPU fan tray, FT1) is redundant. You can remove the bottom right fan tray on the CPU side of the platform, FT1. The platform cools with the remaining two fan trays, FT0 and FT2, one pushing and one pulling.
F4800	Three fan trays; FT1 (front), FT0 and FT2 (rear)	Two of the three fan trays must be installed to collectively cool the platform, FT1 and FT2. The third fan tray, FT0, is redundant.
F3800	Four fan trays FT0, FT1, FT2, and FT3 (rear)	Remove the upper left blower assemblies when viewing the system from the rear, FT1. The platform cools with the remaining three blower assemblies, FT0, FT2, and FT3.

DC Power Distribution

Sun Fire platform DC power is organized into power grids, each grid supporting specific system board slots.

F3800, F4800, and F4810 platforms support a single power grid: **grid 0**.

The F6800 platform supports two power grids: **grid 0 & grid 1**

platform	Power Grid	Slots
F3800	0	SB0, SB2, IB6, IB8, RP0, and RP2
F4800	0	SB0, SB2, SB4, IB6, IB8, RP0, and RP2
F4810	0	SB0, SB2, SB4, IB6, IB8, RP0, and RP2
F6800	0	SB0, SB2, SB4, IB6, IB8, RP0, and RP1
F6800	1	SB1, SB3, SB5, IB7, IB9, RP2, and RP3

Note – When creating domains on a Sun Fire 6800, do so within power grids if at all possible. This will give the best availability.

The Sun Fire platforms offer hot-swappable and redundant (N+1) power supplies. Power supplies are interchangeable among the F6800 and F4810 platforms. The F4800 platform has a different style of power supply. The SunFire 3800 platform has still another style of power supply.

platform	Slot Number	Main & Auxiliary Voltage Output	Part Number
F3800	PS0, PS1, PS2	56VDC	300-1441
F4800	PS0, PS1, PS2	56VDC	300-1460
F4810	PS0, PS1, PS2	56VDC	300-1459
F6800	PS0–PS5	56VDC	300-1459

DC Power Distribution, Sun Fire 6800

The F6800 platform has two DC power grids; Grid 0 and Grid 1. The DC power supply assignments are as follows:

- Power Grid 0 consists of power supplies PS0, PS1, and PS2.

- Power Grid 1 consists of power supplies PS3, PS4, and PS5.

You must have a minimum of two power supplies for each power grid.

Front View

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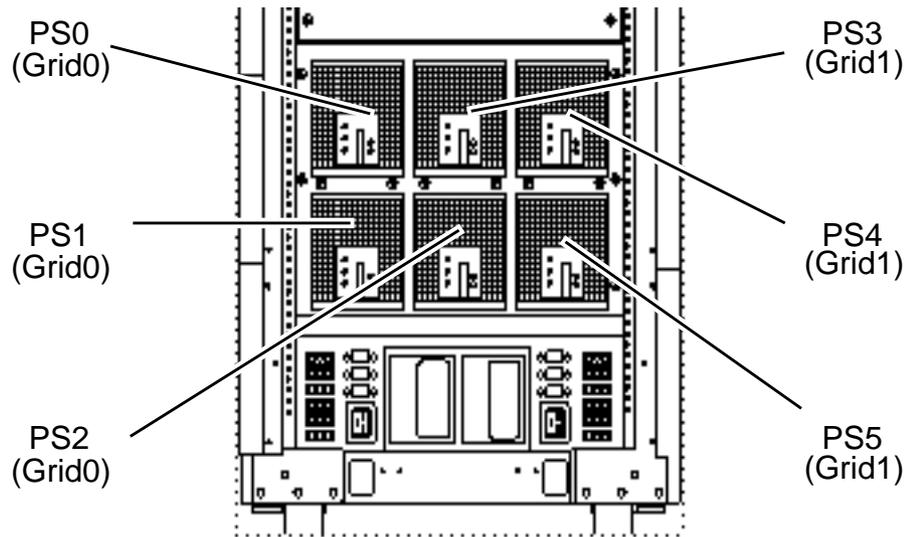
System LEDs

The meaning of the LEDs is the same for the following components:

- System Boards
- PCI I/O Boards
- cPCI I/O Boards
- Sun Fireplane switches (Repeater Boards)
- Fan Trays
- Power Supplies
- System controllers

There are three light emitting diodes (LEDs).

The three LEDs are color-coded green, amber, and amber. Each LED is described below.

Name, Color, and Symbol	On	Off
Activated (green)	The board is activated. You must not remove the board when this LED is on.	The board is not activated. You can remove the board when this LED is off.
Fault (amber)	An internal fault occurred.	No internal fault occurred.
Removal OK (amber)	You can safely remove the component under hot-pluggable conditions.	You must not remove the component under hot-pluggable conditions.

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AC Power Distribution

All Sun Fire platforms installed in a Sun Fire cabinet are equipped with a **redundant transfer unit (RTU)**, which supports two 220VAC receptacle modules called the **redundant transfer switch (RTS).**

Connect RTS2 (front) & RTS1 (rear) to one power source
Connect RTS3 (front) & RTS0 (rear) to the other power source

http://sunsolve.central/handbook_internal/Devices/AC_Power/ACPOWER_SunFire_Redund_Trans_Switch.html

Caution – Do not connect the two RTS's within an RTU to the same supply. This is less reliable than having one connection only. Use separate AC sources.

```
                              ┌──────────┐
                              │ Rack     │
                              │ fan      │
                              │ trays (2)│
                              └──────────┘
                                   ▲
                                   │ 220VAC
                                                ┌──────────────────────┐
Primary                        ┌─────┐          │ To an AC input box for │
200–240VAC ──►                 │ RTS │  220VAC   │ all platforms except the│
Secondary                      │ RTU │ ────────► │ Sun Fire 3800. Direct to│
200–240VAC ──►                 │ RTS │          │ the PSUs for the       │
                               └─────┘          │ Sun Fire 3800 platforms │
                                                │ only.                  │
                                                └──────────────────────┘
```
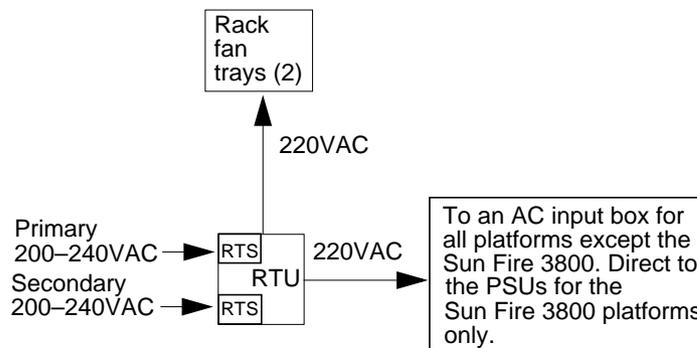
There is normally one redundant transfer unit in a Sun Fire cabinet containing F3800, F4800, and F4810 systems.

The F6800 system requires two redundant transfer units.

The F4800 platform in a desk-side configuration does not use a redundant transfer unit. The F4800 platform has three direct 200 to 240VAC inputs to the chassis.

Note – On the F6800 platform:

The front RTU powers grid0

The rear RTU powers grid1

RTU/RTS Connectors & indicators

Note: J11 is only active if RTS0 is connected
J12 is only active if RTS1 is connected
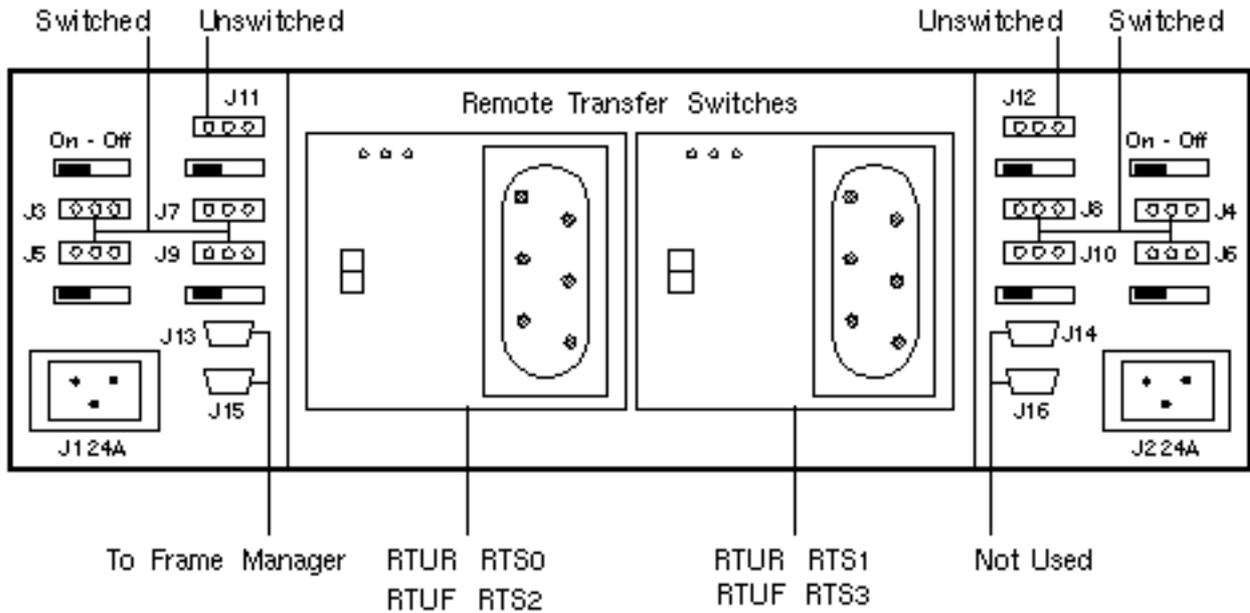
The LEDs have a different meaning on the RTS than on the rest of the FRUs as shown.

LED Position	LED Color	State	Meaning
Left	Green	On	The source is present and is OK.
		Off	The source is not present or is less than the specification.
		Flashing	The source is out of the specification.
Middle	Green	On	The relay is energized and connected to the outlets.
		Off	The relay is de-energized and docked.
		Flashing	The relay is de-energized and undocked.
Right	Amber	On	The module has a fault.
		Off	The module does not have a fault.

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Installing the Administration Console

All platform setup and configuration is done via the system controller.

There are two methods of connecting to a system controller:

● by a serial connection to port A (ASCII terminal, tip session from a workstation, or a Network terminal server (NTS)

● by a telnet session

The serial port settings for serial port A of the system controller board are set up automatically by default and are set to 9600 baud, eight data bits, no parity, and one stop bit. Cable layout is

```
2 --------------------- 3
3 --------------------- 2
7 --------------------- 7
```

System Controller Interconnect Panel

The F6800 has a panel that connects the system controller board to the network and the administration workstation serial port.

SC0 interconnect   SC1 interconnect
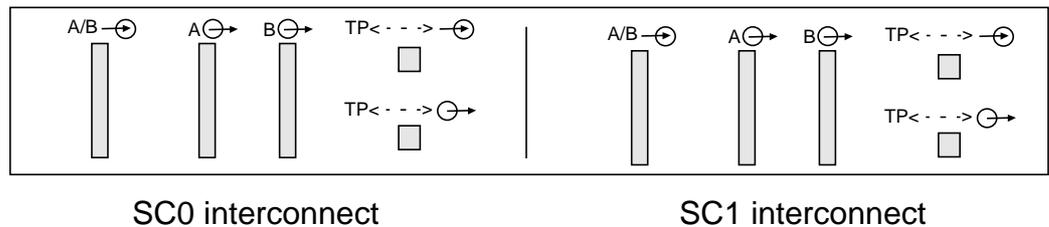
Connect to port A on the system controller by the connector marked A-> The ethernet cable goes into the connector marked TP->

Directly connect to the F3800 and F4800 system controllers by the splitter cable provided.

Serial port B is used by the framemanager.

Accessing the Platform Shell

Initially, access to the SC is through the serial port until such time as you can setup the SC network interface or until such time as the SC can come up on a network automatically via DHCP.

Using the Serial Port

To access the system controller from the serial port of a workstation:

 # tip hardwire

If you cannot use TTY Port B on the workstation's serial port, you must edit the /etc/remote file.

:dv=/dev/term/b:br#9600:el=^C^S^Q^U^D:ie=%$:oe=^D:

Change /dev/term/b to /dev/term/a:

 # tip -9600 /dev/term/a works just as well

Using the telnet Command

 # telnet <SC-hostname or IP address>

```
Type 0 for Platform Shell

Type 1 for domain A console
Type 2 for domain B console
Type 3 for domain C console
Type 4 for domain D console


Input: 0

SC-hostname:SC>
```

Using the ssh Command

Your admin workstation must be running Solaris 9 or above. Note that you can ssh in from a PC if it has a win32 SSH client installed.

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```
admin-ws% ssh 6800b-sc0

The authenticity of host '6800b-sc0' can't be established.
RSA key fingerprint in md5 is:
ae:95:57:98:76:22:6a:1f:23:77:2a:59:8f:2c:93:e8
Are you sure you want to continue connecting(yes/no)?yes
Warning: Permanently added '6800b-sc0,127.88.169.96' (RSA) to the list of
known hosts.


System Controller '6800b-sc0':

    Type  0  for Platform Shell

    Type  1  for domain A console
    Type  2  for domain B console
    Type  3  for domain C console
    Type  4  for domain D console

    Input: 0

Platform Shell

6800b-sc0:SC>
```

The above message is normal for the first time you ssh into an SC.

On the admin-ws, the file $HOME/.ssh/known_hosts is created with the following details..

```
admin-ws% cat known_hosts

6800b-sc0,127.88.169.96 ssh-rsa
AAAAB3NzaC1yc2EAAAABIwAAAIEAsSIjiMrELt2mk4EERNARdwPYlNA57fZ
3RGb4AOS7APwBvZLRHYS7E8Hud7li3PiTwhrxMFfKwneX+6tVN8JO8n5GiATobzDObkObdDzzk53p
MWy8zwMZQYXjwFLWnanAO7hMKPUcX6zopVxVUfmKRQ1ncz2rYIjNmgWV339dzwc=
```

RSA & DSA Authentication

Secure shell on Solaris 9 does not support authenticating via the DSA key. The SSH protocol requires that the client and server auto negotiate the host key algorithm. Our Solaris 9 client and server always send "ssh-rsa,ssh-dsa" which says that they prefer RSA over DSA. This is not configurable.

Future releases of Solaris will introduce HostKeyAlgorithms, which will allow access using the DSA Host key on the system controller.

Regenerating SSH host keys using `ssh-keygen`

It is good practice on a well managed platform to periodically update the SSH host keys.

```
6800b-sc0:SC> ssh-keygen -l

ae:95:57:98:76:22:6a:1f:23:77:2a:59:8f:2c:93:e8 (RSA host key)

6800b-sc0:SC> ssh-keygen -r

RSA host key generated.
Use 'restartssh' to restart the SSH server with the new host key.

6800b-sc0:SC> restartssh

Restarting SSH server will disconnect all active SSH sessions.
continue (yes/no) ? [no] yes
Connection to 6800b-sc0 closed by remote host.
Connection to 6800b-sc0 closed.
admin-ws%
```

You will now need to remove the line in $HOME/.ssh/known_hosts pertaining to the original RSA key. If you don't, you will see the following warning.

```
admin-ws% ssh 6800b-sc0

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@    WARNING: REMOTE HOST IDENTIFICATION HAS CHANGED!    @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

Someone could be eavesdropping on you right now(man-in-the-middle attack)
It is also possible that the RSA host key has been changed.
The fingerprint for the RSA key sent by the remote host is
md5 73:85:43:25:d9:60:8c:6b:5c:f8:18:68:9b:80:fe:ae.
Please contact your system administrator.
Add correct host key in /home/brianja/.ssh/known_hosts
Offending key is entry 1 in /home/brianja/.ssh/known_hosts
RSA host key for 6800b-sc0 has changed and you have requested strict
checking.
chronos%
```

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Introducing Platform Management

When the Sun Fire hardware has been properly configured, the next step is to setup platform configuration parameters.

The system controller software provides two types of shells with which to perform administrative and servicing tasks. These shells are called the **platform shell** and the **domain shell.**

Applications	applications	applications	applications
Solaris Operating Environment	Solaris Operating Environment	Solaris Operating Environment	Solaris Operating Environment
OpenBoot PROM	OpenBoot PROM	OpenBoot PROM	OpenBoot PROM
Domain shell A (SC)	Domain shell B (SC)	Domain shell C (SC)	Domain shell D (SC)
Platform shell (system controller)			
Platform hardware			
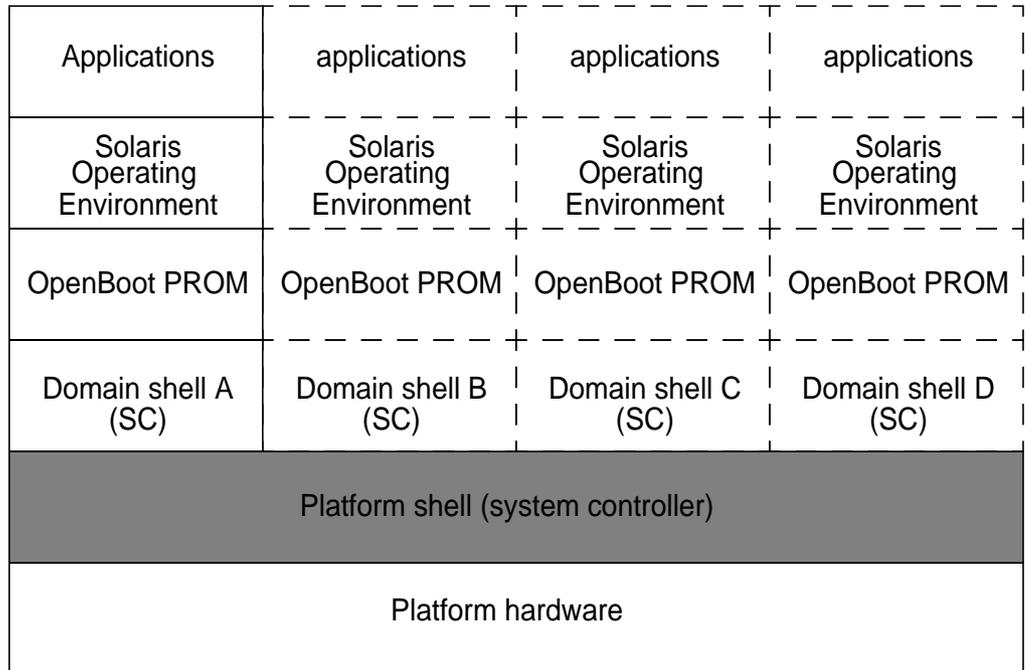
Before applying power to the platform, establish a serial connection. This way, you will capture all messages from the system controller.

```
# tip -9600 /dev/term/a
connected
```

Power on the platform and the SC should run its SCPOST, boot the RTOS and start the ScApp. If successful you will be in the platform shell.

```
Hardware Reset...

@(#) SYSTEM CONTROLLER(SC) POST 38 2003/11/18 21:21
PSR = 0x044010e5
PCR = 0x04004000

        Memory size = 32MB
```

```
Basic sanity checks done.
Skipping POST ...
ERI Device Present
Getting MAC address for SSC0
MAC address is 0:3:ba:7:37:7c
Hostname: 6800b-sc0
Address: 192.77.34.96
Netmask: 255.255.255.0
Attached TCP/IP interface to eri unit 0
Attaching interface lo0...done
Gateway: 192.77.34.220
interrupt: 100 Mbps half duplex link up


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Sun Fire System Firmware
RTOS version: 38
ScApp version: 5.16.0
SC POST diag level: off

The date is Monday, February 23, 2004, 2:37:07 PM GMT.

Feb 23 14:37:08 6800b-sc0 Platform.SC: Boot: ScApp 5.16.0, RTOS 38
Feb 23 14:37:14 6800b-sc0 Platform.SC: Clock Source: 75MHz
Feb 23 14:37:39 6800b-sc0 Platform.SC: Chassis is in dual partition mode.
Feb 23 14:40:36 6800b-sc0 Platform.SC: Main System Controller
Feb 23 14:40:44 6800b-sc0 Platform.SC: Starting telnet server ...
Feb 23 14:40:44 6800b-sc0 Platform.SC: SC Failover: disabled


System Controller '6800b-sc0':

    Type  0  for Platform Shell

    Type  1  for domain A console
    Type  2  for domain B console
    Type  3  for domain C console
    Type  4  for domain D console

    Input: 0


6800b-sc0:SC>
```

Configuring The Platform

All of the platform configuration information is stored on the system controller. This consists of two types information: parameters specific to the system controller and parameters specific to the platform.

System Controller Configuration

When initially configuring the Sun Fire platform, the system controller requires that network and SCPOST parameters be defined. All of the platform configuration information is stored on the system controller.

- Set the time-of-day clock

- Configuring network parameters for the system controller:

  The system controller has a RIO controller that houses a 10/100BASE Ethernet RIO interface (ERI) controller. This ERI controller can be hooked up into the network to manage the platform and domains. Like any Ethernet interface, the system controller requires that IP network parameters be defined.

- Configuring SCPOST parameters

  The system controller performs a diagnostic POST at startup time. You define the level (depth) of testing during the system controller setup.

Platform Configuration

After the SCPOST and network parameters have been configured, you must configure the platform-specific parameters. All of the platform configuration information is stored on the system controller. Some configuration changes you will make include:

- Identifying a system `loghost`

  The system controller does not have permanent storage. It stores errors, warnings, modifications, and other messages that are server-specific logging information in a circular queue. To enhance accountability, messages are sent to a log host.

You must connect the system controller to a network to take advantage of this feature. The loghost can be the Sun Management Center 3.0 system. Making the Sun Management Center 3.0 system the loghost simplifies the infrastructure and speeds up the log-scanning facility of the Sun Management Center 3.0 software.

There are two types of log files that you can capture: one type is for the platform and one type is for each configured domain.

- Configuring Simple Network Management Protocol (SNMP) parameters

  The system controller supports the SNMP protocol. By default, the SNMP agent is disabled. If you want the system controller to respond to the SNMP queries, you must enable the SNMP agent and configure SNMP specific parameters.

- Configuring the segment mode

  Sun Fire platforms support multiple segments (partitions). By default, the systems are placed in single segment mode. If you want the systems to be configured as multiple segments, you must enable dual segment mode.

- Defining the access control lists (ACLs)

- Add any Capacity on Demand 2.0 licenses

- Setting a platform shell password

  The platform shell provides password protection for platform-wide configuration variables.

Note – The Sun Fire shells provide help for running commands within the shell. The `help` command, without arguments, lists all available commands in the system controller.

When an argument is supplied, the `help` command displays basic usage of the command specified and a short description.

Many commands are accessible from both the platform shell and the domain shell. However, the scope of the command is different depending on whether you execute the command from a platform shell or domain shell.

54   Sun Fire 3800 - 6800 Quick Reference Guide
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Managing Platform time-of-day (TOD)

Displaying the date and Time

To view the date, use the `showdate` command; for example:

```
6800b-sc0:SC> showdate

Tue Aug 10 15:30:29 BST 2004

6800b-sc0:SC>
```

The system controller uses the `setdate` command to set both the platform and domain TOD. This command, when invoked from the platform shell, has no effect on the date and time in each domain shell.

The syntax of the `setdate` command is:

```
setdate [-v] [-t <time zone>] mmddHHMM[[cc]yy][.SS]
```

Setting the Date and Time for the Shell

You can set the TOD from the platform shell by using the `setdate` command followed by the desired date; for example:

```
6800b-sc0:SC> setdate -t Europe/London 081015302004.00

Tue Aug 10 15:30:00 BST 2004
```

If you have the wrong timezone, choose the correct one from the `showdate -v -t` output:

```
6800b-sc0:SC> setdate -t Pacific/Tongatapu

Wed Aug 11 03:38:12 TOT 2004
```

Setting the Date and Time From a Network Time-Server

You can set the system controller TOD using `rdate`. The host must be a valid system name, and the system must support `rdate` requests:

```
6800b-sc0:SC> setdate -r 172.16.40.5

Tue Aug 10 15:34:20 BST 2004

6800b-sc0:SC>
```

Configuring an sntp server for the System Controllers

The following is a very basic SNTP setup for an admin workstation.

For a thorough discussion and understanding of ntp, refer to the xntpd man page and the various blueprints and manuals on the subject.

```
admin-ws# cd /etc/inet
```

You will find two templates, `ntp.server` & `ntp.client`. Copy `ntp.server` to `ntp.conf` and edit accordingly...

```
admin-ws# cat ntp.conf

# /etc/inet/ntp.server
#
#An example file that could be copied over to /etc/inet/ntp.conf
#and edited; it provides a configuration template for a server
#that listens to an external hardware clock, synchronizes the
#local clock, and announces itself on the NTP multicast net.
#
# XType       Device     RefID       Description
# --------------------------------------------------------------
#  1          local      LCL         Undisciplined Local Clock
#  2          trak       GPS         TRAK 8820 GPS Receiver
#  3          pst        WWV         PSTI/Traconex WWV/WWVH Receiver
#
# Replace "XType" with a value from the table above.
# server 127.127.XType.0 prefer

server 127.127.1.0 prefer
broadcast 224.0.1.1 ttl 4
```

On the admin workstation, start the ntp daemon and snoop on port 123 to check the ntp server is talking to the system controllers.

```
admin-ws# /etc/init.d/xntpd start
admin-ws# snoop port 123

Using device /dev/eri (promiscuous mode)
sc1-4800a -> inst-ws      NTP  client (Thu Feb  7 06:28:16 2036)
  inst-ws -> sc1-4800a    NTP  server (Fri May 10 09:08:20 2002)
.
```

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setupplatform

```
noname.example.com:SC> setupplatform

Network Configuration
---------------------
Is the system controller on a network? [yes]:
Use DHCP or static network settings? [DHCP]: static
Hostname []: 6800b-sc0
IP Address []: 172.16.40.110
Net Mask []: 255.255.0.0
Gateway []: 172.16.40.5
DNS Domain []:
Primary DNS Server []:
Secondary DNS Server []:

To enable remote access to the system controller, select "ssh" or
"telnet."
If you want to use the Sun Explorer Data Collector, you must select "ssh"
or "telnet."
```

Note – Sun Explorer Data Collector version 4.2 does not support SSH connections. Customers who use Explorer 4.2 or lower must select 'telnet' as the remote connection type.

```
Connection type (ssh, telnet, none) [none]: telnet

Rebooting the SC is required for changes in the above network settings to
take effect.

Idle connection timeout (in minutes; 0 means no timeout) [0]:

Loghosts
--------
Loghost []: 172.16.40.5
Log Facility [local0]:

SNTP
----
SNTP server []: 172.16.40.5

SNMP
------------------------------------
Platform Description [Sun Fire 6800]:
```

```
Platform Contact []: admin
Platform Location []: Sale
SNMP Agent Enabled?  [no]: yes
Trap Hosts [192.168.10.100]:172.16.40.40
Public Community String [P-public]:
Private Community String [P-private]:


ACLs
----
ACL for domain A [ SB0 SB1 SB2 SB3 SB4 SB5 IB6 IB7 IB8 IB9 ]:
ACL for domain B [ SB0 SB1 SB2 SB3 SB4 SB5 IB6 IB7 IB8 IB9 ]:
ACL for domain C [ SB0 SB1 SB2 SB3 SB4 SB5 IB6 IB7 IB8 IB9 ]:
ACL for domain D [ SB0 SB1 SB2 SB3 SB4 SB5 IB6 IB7 IB8 IB9 ]:


COD
---
PROC RTUs installed: 0
PROC Headroom Quantity (0 to disable, 4 MAX) [0]:
PROC RTUs reserved for domain A (0 MAX) [0]:
PROC RTUs reserved for domain B (0 MAX) [0]:
PROC RTUs reserved for domain C (0 MAX) [0]:
PROC RTUs reserved for domain D (0 MAX) [0]:


SC
--
SC POST diag Level [min]:
Enable SC Failover? [yes]:
Logical Hostname or IP Address [ ]: 172.16.40.112


Partition Mode
--------------
Configure chassis for single or dual partition mode? [single]:


noname.example.com:SC>
```

> Refer to the *System Controller Command Reference manual*, *Platform Admin Manual* and Blueprints for descriptions and advice on settings.

Rebooting the system controller

```
noname.example.com:SC> reboot


Are you sure you want to reboot the system controller now? [no] yes


Software Reset
```

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Setting up the loghost

The System Controller provides the capability of sending platform and domain error messages to a syslog host. Since the system controller can only buffer 4k of error messages, it is **essential** that a loghost be setup to ensure that important messages are not lost.

You will be prompted for a loghost and facility level when you run setupplatform and setupdomain.

```
Loghosts
---------------------------------------
Loghost []: 172.16.40.40
Log Facility [local0]:
```

Edit `syslog.conf` on the admin workstation

Add the following to the `/etc/syslog.conf`, file making sure they correspond to the settings on the platform.

```
local0.notice    /var/log/messages.platform
local1.notice    /var/log/messages.domain-A
local2.notice    /var/log/messages.domain-B
local3.notice    /var/log/messages.domain-C
local4.notice    /var/log/messages.domain-D
```

The above entries must be separated by tabs, otherwise syslogd fails to work.

Make sure the above files exist (touch them first) then stop & start the syslogd using the `/etc/init.d/syslog` script

syslog Parsing Tools

One of the problems with SC logging, is managing multiple platforms. Solaris has 8 facility levels; an F6800 with 4 domains will use 5, leaving us the problem of where to put the logs from a second F6800, for example.

The solution is to use a syslog parsing tool. An example is sclogger. With sclogger, all the messages get mapped to a common facility, and sclogger splits the messages into appropriate files. Load the parsing tools from

http://pts-americas.west/esg/msg/techinfo/platform/sun_fire/tools/

59

Powering On and Powering Off System Components

The only power you have after either turning the cabinet keyswitch or turning on the mains to PS0-2 on the 4800, is auxiliary 48V which is supplied to the system controller.

Use the poweron and poweroff ScApp commands to manage power on the platform.

Platform	Hot pluggable units (HPUs)
F3800	SB0, SB2, IB6, IB8, RP0, RP2, PS0, PS1, PS2, FT0, FT1, FT2, FT3, grid0, all
F4800	SB0, SB2, SB4, IB6, IB8, RP0, RP2, PS0, PS1, PS2, FT0, FT1, FT2, grid0, all
F4810	SB0, SB2, SB4, IB6, IB8, RP0, RP2, PS0, PS1, PS2, FT0, FT1, FT2, grid0, all
F6800	SB0, SB1, SB2, SB3, SB4, SB5, IB6, IB7, IB8, IB9, RP0, RP1, RP2, RP3, PS0, PS1, PS2, PS3, PS4, PS5, FT0, FT1, FT2, FT3, grid0, grid1, all

The following example demonstrates how to power on and power off all devices within the platform, with the exception of the SCs, which always have power through the auxiliary 48V bus.

```
6800b-sc0:SC> poweron all
6800b-sc0:SC> poweroff all
```

For specific HPUs:

```
6800b-sc0:SC> poweroff FT0
6800b-sc0:SC> poweron ib7
```

Note – If all the components in the platform are in the power-off state, you must poweron the power supplies before applying power to the boards.

Powering on the power supplies automatically powers on the fan trays.

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Firmware Upgrades

It is **essential** that you read the Install.info and the release notes which come with the patch before attempting to upgrade the firmware.

Caution – There are issues you must be aware of before upgrading. For example, SSC1 must be upgraded first. Failure to do so may result in crashed domains.

Check out the issues with 5.13.x firmware and above at the URL lower down the page.

You do not have to have any domains defined to upgrade the firmware; indeed you do not need the Fireplane switches powered on. The path to the firmware is via the console bus and bootbus.

The following components have flash PROMs:

- System controller boards
- System boards
- I/O boards (cPCI and PCI)

Note – The master system controller board cannot update the firmware in a
redundant (slave) system controller board.

The Sun Fireplane switch boards do not have flash PROMs.

The `flashupdate` is available in the system controller platform shell only.

Do you need to flashupdate?

Firmware is available from sunsolve, in the form of a patch. Refer to

http://pts-americas.west/esg/msg/techinfo/platform/sun_fire/firmware-matrix/

for patch numbers and supported revisions

Use **showboards -p version** (or **showboards -p proms**) & **showsc** to show the revision of your firmware.

```
sc0-4800c:SC> showb -v -p version

Component      Segment Compatible In Date       Time  Build Version
---------      ------- ---------- -- ----       ----  ----- -------
SSC0/FP0       -       -          -  -          -     -     RTOS version: 41
SSC0/FP1       ScApp   Reference  12 09/20/2004 21:32 14.1  5.18.0
SSC0/FP1       Ver     -          -  09/20/2004 21:31 14.1  5.18.0 Build_14
IB6/FP0        iPOST   Yes        12 09/20/2004 21:24 14.1  5.18.0
IB6/FP0        Ver     -          -  09/20/2004 21:28 14.1  5.18.0 Build_14
/N0/SB0/FP0 POST       Yes        12 09/20/2004 21:22 14.1  5.18.0
/N0/SB0/FP0 OBP        Yes        12 09/20/2004 21:21 14.1  5.18.0
/N0/SB0/FP0 Ver        -          -  09/20/2004 21:26 14.1  5.18.0 Build_14
/N0/SB0/FP1 POST       Yes        12 09/20/2004 21:22 14.1  5.18.0
/N0/SB0/FP1 OBP        Yes        12 09/20/2004 21:21 14.1  5.18.0
/N0/SB0/FP1 Ver        -          -  09/20/2004 21:26 14.1  5.18.0 Build_14

sc0-4800c:SC>
```

SC1 will not have the `showboards` ScApp in a dual-SC configuration. To display the status of the system controller use the `showsc` command which shows system controller uptime, version, and configuration.

```
sc1-4800c:SC> showsc -v

SC: SSC1
Main System Controller
SC Failover: disabled
Clock failover enabled.

SC date: Thu Apr 07 10:53:09 BST 2005
        Europe/London                   GMT+00:00 Greenwich Mean Time
SC uptime: 16 days 15 hours 53 minutes 20 seconds

ScApp version: 5.18.0 Build_14
Version build: 14.1
Version String: 5.18.0
RTOS version: 41

SC POST diag level: off

Clock source is: 75MHz

sc1-4800c:SC>
```

Sun Fire 3800 - 6800 Quick Reference Guide

flashupdate

```
sc0-4800a:SC> help flashupdate

flashupdate -- update firmware

Usage: flashupdate [-y|-n] [-f] <URL> all
       flashupdate [-y|-n] [-f] <URL> systemboards|scapp|rtos|<board> ...
       flashupdate [-y|-n] -u
       flashupdate [-y|-n] -c <source board> <destination board> ...
       flashupdate -h

   -y -- do not prompt for confirmation
   -n -- do not execute command if confirmation is requested

   -f -- specify a URL as the source of the flash images
         (-f is optional, URL is required)
         <URL> -- the URL of the directory containing the flash images
                  supported protocols: FTP and HTTP
                      ftp://[<userid>:<password>@]<hostname>/<path>
                      http://[<userid>:<password>@]<hostname>/<path>
   -c -- specify a board as the source of the flash images
   -u -- upgrade boards to current firmware

   all          -- the SC and all the system boards

   scapp        -- the system controller
                   Updating ScApp requires the SC to be rebooted.
   rtos         -- the Real Time OS for the SC
                   Updating RTOS requires the SC to be rebooted.
   systemboards -- all the CPU and IO boards

   -h -- display this help message
```

- Systemboards values are:

  - System board sb0 to sb5

  - I/O assembly ib6 to ib9

  - <domain> is the letter A, B, C, or D

- flashupdate -u is not recommended.

ftp server setup

The customer may be happy to allow you to do a flashupdate or a showresetstate using user passwords. For example:

```
flashupdate -f ftp://root:root@172.16.40.5/11xxxx-01 all
showresetstate -v -f ftp://admin:holly@admin-ws.uk.sun.com//home/admin/reset_info
```

However, he may not. You may need to setup an ftp server. The procedure is wrapped up in the ftpd man page.

Edit /etc/passwd & /etc/shadow

To set up anonymous ftp, add the following entry to the /etc/passwd file. In this example, /export/ftp was chosen to be the anonymous ftp area, and the shell is the non-existent file /nosuchshell. This prevents users from logging in as the ftp user.

ftp:x:30000:30000:Anonymous FTP:/export/ftp/nosuchshell

Add the following entry to the   /etc/shadow file:

ftp:NP:6445::::::

Run the shell script from the ftpd man page

A way of doing this is as follows:

man ftpd > /var/tmp/ftp_script

Edit the file to extract the script. It starts in the usual manner...

```
#!/bin/sh
    # script to setup anonymous ftp area
    #
    # verify you are root
    /usr/bin/id | grep -w 'uid=0' >/dev/null 2>&1
.
and finishes...
.
#fi
#chown root ${ftphome}/pub
#chmod 1755 ${ftphome}/pub
```

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```
# cd /var/tmp
# chmod 777 ftp_script
# ./ftp_script

Setting up anonymous ftp area /export/ftp
cp: /usr/lib/security/sparcv9: is a directory


#
#
```

ftp server setup at Solaris 9

```
admin-ws# uname -a
SunOS esg-admin 5.9 Generic_112233-12 sun4u sparc SUNW,Ultra-5_10
admin-ws# ftpconfig /export/ftp
Creating user ftp

Creating directory /export/ftp
Updating directory /export/ftp

admin-ws#
```

mkdir /export/ftp/pub and copy the patch into it

```
# cd /export/ftp/pub
# unzip 114524-02.zip

Archive:  114524-02.zip
   creating: 114524-02/
  inflating: 114524-02/Sun_Fire_Entry Level_Midrange_Sys_Admin_Guide.pdf
  inflating: 114524-02/Sun_Fire_Entry-Level_Midrange_SC_Comm_Ref_Manual.pdf
.
.
  inflating: 114524-02/copyright
  inflating: 114524-02/lw8cpu.flash
  inflating: 114524-02/lw8pci.flash
  inflating: 114524-02/sgcpu.flash
  inflating: 114524-02/sgiowci.flash
  inflating: 114524-02/sgiowci_sp.flash
  inflating: 114524-02/sgpci.flash
  inflating: 114524-02/sgrtos.flash
  inflating: 114524-02/sgsc.flash
#
```

flashupdate - Command Examples

Lets assume that all the boards (SC0, SC1, sb's and ib's) need upgrading. The following is an example of a flashupdate from the ftp server previously described. I am assuming you have powered on the boards:

Since both SCs will reboot during this procedure, use a serial connection.

NOTE: Failure to upgrade SSC1 first may result in two spare SCs

```
6800b-sc1:SC> flashupdate -f ftp://v4m-5o.uk.sun.com/pub/114523-01 rtos scapp

As part of this update, the system controller will automatically reboot.
RTOS will be upgraded automatically during the next boot.
ScApp will be upgraded automatically during the next boot.
Do you want to continue? [no] yes
Feb 16 14:36:10 6800b-sc1 Platform.SC: Stopping all services on this SC

No boards can be updated.

Rebooting the SC to automatically complete the upgrade.
Rebooting. All telnet connections closed. Reestablish any needed connections.
Feb 16 14:36:10 6800b-sc1 Platform.SC: All services on this SC have been stopped.

Software Reset...

@(#) SYSTEM CONTROLLER(SC) POST 19 2001/08/08 14:42
PSR = 0x044010e5
PCR = 0x04004000

Basic sanity checks done.
Skipping POST ...
ERI Device Present
Getting MAC address for SSC1
MAC address is 0:3:ba:7:37:7d
Hostname: 6800b-sc1
Address: 192.77.43.115
Netmask: 255.255.255.0
Attached TCP/IP interface to eri unit 0
Attaching interface lo0...done
Gateway: 192.77.43.220
interrupt: 100 Mbps half duplex link up

Adding 2854 symbols for standalone.

Flashupdate
Connecting to v4m-5o.uk.sun.com...
Transferring sgrtos.flash via FTP : 688144
Comparing image and flash...
```

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```
Image and flash are different. Proceeding with update.
Erasing flashprom sectors at address 0x20000000: 11/11 = 100%
Programming: 11/11 = 100%


Connecting to v4m-5o.uk.sun.com...
Transferring sgsc.flash via FTP : 6799606
Comparing image and flash...
Image and flash are different. Proceeding with update.
Erasing flashprom sectors at address 0x36000000: 104/104 = 100%
Programming: 104/104 = 100%


Software Reset...

@(#) SYSTEM CONTROLLER(SC) POST 38 2003/11/18 21:21
PSR = 0x044010e5
PCR = 0x04004000


        Memory size = 32MB


Basic sanity checks done.
Skipping POST ...
ERI Device Present
Getting MAC address for SSC1
MAC address is 0:3:ba:7:37:7d
Hostname: 6800b-sc1
Address: 192.77.43.115
Netmask: 255.255.255.0
Attached TCP/IP interface to eri unit 0
Attaching interface lo0...done
Gateway: 192.77.43.220
interrupt: 100 Mbps half duplex link up



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Sun Fire System Firmware
RTOS version: 38
ScApp version: 5.16.0
SC POST diag level: off


The date is Monday, February 16, 2004, 2:39:35 PM GMT.


Feb 16 14:39:36 6800b-sc1 Platform.SC: Boot: ScApp 5.16.0, RTOS 38
Feb 16 14:39:38 6800b-sc1 Platform.SC: SBBC Reset Reason(s): Peer Reset
Feb 16 14:39:42 6800b-sc1 Platform.SC: Clock Source: 75MHz
Feb 16 14:40:14 6800b-sc1 Platform.SC: Spare System Controller
Feb 16 14:40:15 6800b-sc1 Platform.SC: Starting telnet server ...
Feb 16 14:40:15 6800b-sc1 Platform.SC: SC Failover: disabled
```

```
System Controller '6800b-sc1':

     Type  0  for Platform Shell

     Input:

6800b-sc0:SC> flashupdate -f ftp://v4m-5o.uk.sun.com/pub/114523-01 rtos all

As part of this update, the system controller will automatically reboot.
RTOS will be upgraded automatically during the next boot.
ScApp will be upgraded automatically during the next boot.

After this update you must reboot each active domain that was upgraded.
Do you want to continue? [no] yes

Retrieving: ftp://v4m-5o.uk.sun.com/pub/114523-01/sgcpu.flash
Validating  ............. Done

Current firmware version: 5.12.7
New firmware version: 5.16.0

Programming /N0/SB0 PROM 0
Erasing      ............. Done
Programming ............. Done
Verifying   ............. Done

Retrieving: ftp://v4m-5o.uk.sun.com/pub/114523-01/sgpci.flash
Validating  ..... Done

Current firmware version: 5.12.7
New firmware version: 5.16.0

Programming /N0/IB6 PROM 0
Erasing      ..... Done
Programming ..... Done
Verifying   ..... Done

Feb 16 14:50:41 6800b-sc0 Platform.SC: Stopping all services on this SC
Feb 16 14:50:41 6800b-sc0 Platform.SC: All services on this SC have been stopped.

Rebooting the SC to automatically complete the upgrade.
Rebooting. All telnet connections closed. Reestablish any needed connections.

Software Reset...
@(#) SYSTEM CONTROLLER(SC) POST 19 2001/08/08 14:42
PSR = 0x044010e5
PCR = 0x04004000

Basic sanity checks done.
```

```
Skipping POST ...
ERI Device Present
Getting MAC address for SSC0
MAC address is 0:3:ba:7:37:7c
Hostname: 6800b-sc0
Address: 192.77.43.96
Netmask: 255.255.255.0
Attached TCP/IP interface to eri unit 0
Attaching interface lo0...done
Gateway: 192.77.43.220
interrupt: 100 Mbps half duplex link up


Adding 2854 symbols for standalone.


Flashupdate
Connecting to v4m-5o.uk.sun.com...
Transferring sgrtos.flash via FTP : 688144
Comparing image and flash...
Image and flash are different. Proceeding with update.
Erasing flashprom sectors at address 0x20000000: 11/11 = 100%
Programming: 11/11 = 100%


Connecting to v4m-5o.uk.sun.com...
Transferring sgsc.flash via FTP : 6799606
Comparing image and flash...
Image and flash are different. Proceeding with update.
Erasing flashprom sectors at address 0x36000000: 104/104 = 100%
Programming: 104/104 = 100%


Software Reset...

(#) SYSTEM CONTROLLER(SC) POST 38 2003/11/18 21:21
PSR = 0x044010e5
PCR = 0x04004000


        Memory size = 32MB

Basic sanity checks done.
Skipping POST ...
ERI Device Present
Getting MAC address for SSC0
MAC address is 0:3:ba:7:37:7c
Hostname: 6800b-sc0
Address: 192.77.43.96
Netmask: 255.255.255.0
Attached TCP/IP interface to eri unit 0
Attaching interface lo0...done
Gateway: 192.77.43.220
interrupt: 100 Mbps half duplex link up
```

```
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Sun Fire System Firmware
RTOS version: 38
ScApp version: 5.16.0
SC POST diag level: off

The date is Monday, February 16, 2004, 2:54:06 PM GMT.

Feb 16 14:54:07 6800b-sc0 Platform.SC: Boot: ScApp 5.16.0, RTOS 38
Feb 16 14:54:09 6800b-sc0 Platform.SC: SBBC Reset Reason(s): Peer Reset
Feb 16 14:54:13 6800b-sc0 Platform.SC: Clock Source: 75MHz
Feb 16 14:54:41 6800b-sc0 Platform.SC: Chassis is in single partition mode.
Feb 16 14:57:46 6800b-sc0 Platform.SC: Main System Controller
Feb 16 14:57:54 6800b-sc0 Platform.SC: Starting telnet server ...
Feb 16 14:57:54 6800b-sc0 Platform.SC: SC Failover: disabled


System Controller '6800b-sc0':

    Type  0  for Platform Shell

    Type  1  for domain A console
    Type  2  for domain B console
    Type  3  for domain C console
    Type  4  for domain D console

    Input:

Feb 16 14:58:06 6800b-sc0 Platform.SC: Clock failover enabled.
```

Note – Run `setupplatform` to enter the sntp server name and add a logical hostname or IP address.

Make sure SC failover is enabled. Check with the `showfailover` command.

Replacing an SC in a single SC configuration

Firstly, have you really got an SC failure ? The system controller may be hung, or you may have a network problem.

Don't forget the obvious. Have you checked the cables, hub, terminal concentrator?

Always try to access the system controller from the serial and ethernet connection.

Assuming both methods of access fail.

Have you re-booted the system controller?

> **Caution –** Do not attempt to clear the SC problem by pressing the reset button. (See page 38)

A full platform shutdown is required to carry out this procedure.

> **Note –** Since the system controller has failed, there will be no access to the platform or domain shell. Telnet directly into the domain(s) and shut them down.

```
admin-ws# telnet F6800-doma
Trying 172.16.40.123...
Connected to 172.16.40.123.
Escape character is '^]'.


SunOS 5.8

login: admin
Password:
Last login: Mon Jun 18 08:42:25 from :0
Sun Microsystems Inc.   SunOS 5.8      Generic February 2000
# su -
Password:
#
# init 0
# connection closed
admin-ws#
```

There is no method of powering off any components, since there is no access to the platform shell. The only option is to turn off the keyswitch on the rack. Replace the system controller, using anti-static procedures at all times.

Power on the rack. Once the new SC has passed its SCPOST, enter the platform shell.

Remember, you will need to get a serial connection to the new SC to set its hostname and IP address. The rest of the settings will come from the backup.

Have the customer give you the URL for the configuration files generated by the dumpconfig command. See page 86 for further details on dumpconfig/restoreconfig.

```
6800b-sc0:SC> restoreconfig -f ftp://172.24.20.2/SunFire

This will restore all the platform and domain configurations and
passwords. The system controller will be rebooted when the restore in
complete. The date will need to be set in the platform and each
domain.

Do you want to restore the system controller configuration now? [no] y

Retrieving: ftp://172.24.20.2/SunFire/6800b-sc0.nvci
Retrieving: ftp://172.24.20.2/SunFire/6800b-sc0.tod
Verifying data.
NVCI has been restored.
TOD has been restored.
Enter new password:
Enter new password again:

Restore complete. The system controller is being rebooted.
The date will need to be set in the platform and each domain.

Rebooting.
All telnet connections closed. Reestablish any needed connections.
Software Reset...
.
.
.
System Controller'6800b-sc0':

    Type  0  for Platform Shell

    Type  1  for domain A console
    Type  2  for domain B console
    Type  3  for domain C console
    Type  4  for domain D console

    Input: 0

6800b-sc0:SC>
```

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Replacing an SC in a dual SC platform (5.13.x & above)

A fault on the main system controller usually triggers an automatic failover.

If the fault does not (For example an eri0 problem on the main SC) force a manual failover.

```
sc1-6800:sc> setfailover force
```

(See page 37)

```
sc1-6800:SC> poweroff SSC0
```

```
SSC0: powered off
```

```
sc1-6800:SC>
```

Replace the system controller, using anti-static procedures at all times

Once SSC0 is hot-plugged, it will power on automatically run through SCPOST, load RTOS and ScApp.

System controller failover is disabled by default after a failover has been triggered. Re-enable it using the setfailover on command.

```
sc1-6800:SC> setfailover on
```

```
Jun 10 15:10:22 sc1-6800 Platform.SC: SC Failover:enabled but not active.
Jun 10 15:10:26 sc1-6800 Platform.SC: SC Failover:enabled and active.
```

```
sc1-6800:SC> showfailover
```

```
SC Failover: enabled and active.
```

```
sc1-6800:SC>
```

> **Caution –** When replacing SSC0, you must replace it with an SC at firmware revision 5.13.x or above.
>
> Refer to FIN I0850-1

Managing Shell Passwords

The `password` command sets the password for the platform shell or the domain shell.

There should be separate passwords for each domain shell and for the platform shell.

If you are in the shell for a domain and add or change the password, the password you define applies only to that domain.

Before allowing the password to be changed, the current password must be authenticated. Changed passwords take effect immediately. The old password is no longer accepted.

You can remove the password by pressing Return at the `Enter new password` and `Enter new password again` prompts.

To set the password, you see the following display when you type the password command at either the platform shell or the domain shell.

`password` Examples

To set a password for domain, type the following:

```
sc0-4800a:A> password

Enter new password: xxyyzz
Enter new password again: xxyyzz
```

When the password is already set and the administrator needs to change the password, type the following:

```
sc0-4800a:A> password
Enter current password: xxyyzz
Enter new password: aabbcc
Enter new password again: aabbcc
```

To set a password for the platform, type the following:

```
sc0-4800a:SC> password

Enter new password: xxyyzz
Enter new password again: xxyyzz
```

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Overriding Shell Passwords

Resetting a platform password

If the platform administrator's password is lost, the procedure outlined in SRDB 26846 can be used to clear the password.

Follow the procedure to the letter, and do note that this is a major security risk to a customer.

Resetting a domain password

If the customer has forgotten his domain password, you can recover by doing a setdefaults at the platform shell. Note, that you will reset all the domain defaults, not just the password

```
sc0:SC> setdefaults

You are about to reset all configuration data to default values.
All domain configurations, ACLs, passwords, data buffers,
network settings, and SSH host keys will be lost.

The system controller will be REBOOTED after the defaults are set.
To reconfigure the SC for the network, you will need access to the serial port.

Do you want to restore the default values and reboot now? [no] yes

Setting default configuration.
Feb 23 14:49:29 sc0 Platform.SC: Setting default values for the platform.

Rebooting. All SSH or telnet connections closed. Reestablish any needed
connections.
Feb 23 14:49:31 sc0 Platform.SC: Stopping all services on this SC
Feb 23 14:49:31 sc0 Platform.SC: All services on this SC have been stopped.


Software Reset...


@(#) SYSTEM CONTROLLER(SC) POST 38 2003/11/18 21:21.
.
.
Platform Shell

noname.example.com:SC>
```

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Environmental and Platform Monitoring

You can use system controller commands to monitor the platform and domains. These commands include:

- `showboards`
- `showchs` <----- Accessible from service mode
- `showcodlicense`
- `showcodusage`
- `showcomponent`
- `showdate`
- `showdomain`
- `showescape`
- `showenvironment`
- `showerrorbuffer`
- `showfailover`
- `showfru`
- `showkeyswitch`
- `showlogs`
- `showplatform`
- `showresetstate` <---- Accessible from domain shell
- `showsc`
- `history`
- `connections`

Note – Learn how to use these commands, with any verbose options where applicable. They are the essential first step in troubleshooting a midframe server.

The explorer option "scextended" gathers much of this data. Run this on the loghost workstation.

```
/opt/SUNWexplo/bin/explorer -w default,scextended,fru
```

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Segments and Domains

The Sun Fire platforms can be split into multiple **segments** (commonly referred to as partitions) and **domains**.

Domains are a means of dividing a single physical system into multiple logically independent systems, each running its own Solaris Operating Environment.

The system controller provides a shell interface for each defined domain to perform administrative and servicing tasks.

This shell is called the **domain shell**.

Applications	applications	applications	applications
Solaris Operating Environment	Solaris Operating Environment	Solaris Operating Environment	Solaris Operating Environment
OpenBoot PROM	OpenBoot PROM	OpenBoot PROM	OpenBoot PROM
Domain shell A (SC)	Domain shell B (SC)	Domain shell C (SC)	Domain shell D (SC)
Platform shell (system controller)			
Platform hardware			

Definitions of Segments and Domains

Segments (also known as Partitions)

The term segment refers to all, or part, of the Sun Fireplane interconnect.

When a Sun Fire platform is split into two segments, the Sun Fireplane switch boards are divided between the two segments causing the platform to behave as if each segment were physically separate. Placing the platform in dual-partition (segment) mode results in splitting the Sun Fireplane interconnect in the following manner:

In the F6800 platform:
RP0/RP1 constitute segment 0, RP2/RP3 constitute segment 1

For the F3800, F4800, and F4810 platforms:
RP0 constitutes segment 0, RP2 constitutes segment 1

All connections between the Fireplane switch boards of one segment and of the other segment are disabled.

All Sun Fire platforms support one or two segments.

Domains

Four domains exist on each platform. You assign resources to that domain. There are only a certain number of configurations which are supported, as illustrated on the next page.

Each domain runs its own Solaris OS and handles its own workload.

Each domain must comprise at least one system board and one I/O board with enough physical resources to load the OS and to connect to the network.

When the domains are initialized, the system boards and I/O boards are connected to the Sun Fireplane Switch boards to establish a "snoopy" coherent system.

Domains share the Sun Fireplane switch boards in their segments.

78   Sun Fire 3800 - 6800 Quick Reference Guide
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Domain IDs

platform	Configuration	Domain IDs
F3800	One segment, one domain	A
	One segment, two domains	A, B
	Two segments, two domains	A, C
F4800	One segment, one domain	A
	One segment, two domains	A, B
	Two segments, two domains	A, C
F4810	One segment, one domain	A
	One segment, two domains	A, B
	Two segments, two domains	A, C
F6800	One segment, one domain	A
	One segment, two domains	A, B
	Two segments, two domains	A, C or A, D or B, C or B, D
	Two segments, three domains	A, B, C or A, B, D or A, C, D or B, C, D
	Two segments, four domains	A, B, C, D

Below is an example of an F6800 platform configured with four domains

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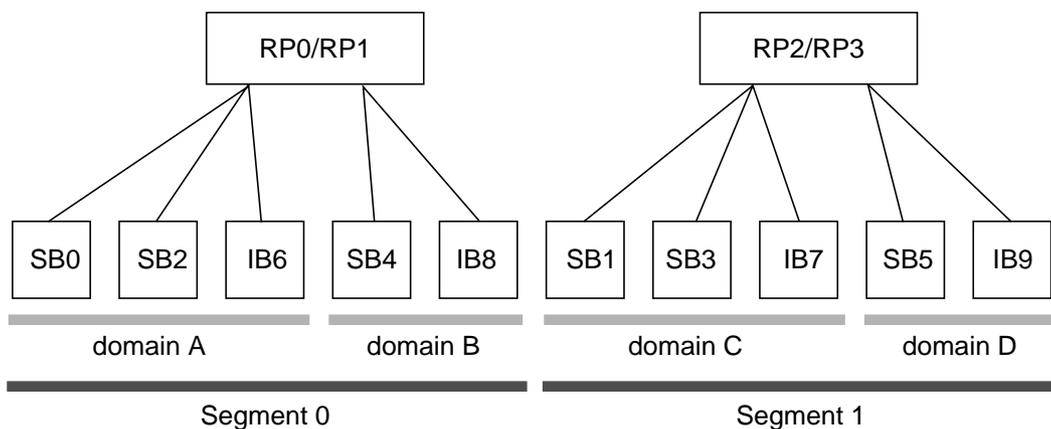
Segmenting the Platform

The total number of domains is dependent upon the platform model and number of segments. On the F6800 platform, each segment in a dual segment configuration, can be support two domains allowing for up to four domains per platform.

Sun Fire platforms come pre-configured from the factory in single segment with one domain.

Domains share the Sun Fireplane switch boards within a segment. However, domains are not dependent on each other and are isolated on the Sun Fireplane interconnect.

When two domains share a segment, they each get half the address bandwidth of a full system bus. When only one domain is in a segment, it uses the full address bandwidth.

Recommendation

One domain, one segment; two domains, two segments

The F6800 can have one to four domains, but you can only have two domains per segment, so you must segment for three or four domains.

On a F6800, segment within power grid boundaries.

Enabling Dual-Partition Mode

```
6800a-sc1:SC> setupplatform -p partition

Partition Mode
--------------
Configure chassis for single or dual partition mode? [single]: dual

Jun 10 15:30:09 6800a-sc1 Platform.SC: Moving RP2 to partition 1
Jun 10 15:30:09 6800a-sc1 Platform.SC: Moving RP3 to partition 1
Jun 10 15:30:09 6800a-sc1 Platform.SC: Chassis is in dual partition mode.

6800a-sc1:SC>
```

Assigning boards to Domains

Below is an example of the procedure to create two domains on a F6800:

```
6800b-sc0:SC> setupplatform -p partition

Partition Mode
--------------
Configure chassis for single or dual partition mode? [single]: dual
Apr 18 06:04:13 6800b-sc0 Platform.SC: Moving RP2 to partition 1
Apr 18 06:04:13 6800b-sc0 Platform.SC: Moving RP3 to partition 1
Apr 18 06:04:13 6800b-sc0 Platform.SC: Chassis mode is dual partition

6800b-sc0:SC> showboards

Slot       Pwr Component Type              State      Status     Domain
----       --  -------------              ----       -----      -----
/N0/SB0    On  CPU Board                  Assigned   Not tested A
/N0/SB1    On  CPU Board                  Assigned   Not tested A
/N0/SB2    On  CPU Board                  Assigned   Not tested A
/N0/SB3    On  CPU Board                  Assigned   Not tested A
/N0/IB6    On  PCI I/O Board              Assigned   Not tested A
/N0/IB7    On  PCI I/O Board              Assigned   Not tested A
/N0/IB8    On  PCI I/O Board              Assigned   Not tested A
/N0/IB9    On  PCI I/O Board              Assigned   Not tested A

6800b-sc0:SC>
6800b-sc0:SC> deleteboard sb1 sb3 ib7 ib9
6800b-sc0:SC> showboards

Slot       Pwr Component Type              State      Status     Domain
----       --  -------------              ----       -----      -----
/N0/SB0    On  CPU Board                  Assigned   Not tested A
SB1        On  CPU Board                  Available  Not tested Isolated
/N0/SB2    On  CPU Board                  Assigned   Not tested A
SB3        On  CPU Board                  Available  Not tested Isolated
/N0/IB6    On  PCI I/O Board              Assigned   Not tested A
IB7        On  PCI I/O Board              Available  Not tested Isolated
/N0/IB8    On  PCI I/O Board              Assigned   Not tested A
IB9        On  PCI I/O Board              Available  Not tested Isolated

6800b-sc0:SC> addboard -d C sb1 sb3 ib7 ib9
6800b-sc0:SC>
```

```
6800b-sc0:SC> showboards

Slot        Pwr Component Type                  State       Status      Domain
----        --  -------------                   ----        -----       -----
/N0/SB0     On  CPU Board                       Assigned    Not tested A
/N0/SB1     On  CPU Board                       Assigned    Not tested C
/N0/SB2     On  CPU Board                       Assigned    Not tested A
/N0/SB3     On  CPU Board                       Assigned    Not tested C
/N0/IB6     On  PCI I/O Board                   Assigned    Not tested A
/N0/IB7     On  PCI I/O Board                   Assigned    Not tested C
/N0/IB8     On  PCI I/O Board                   Assigned    Not tested A
/N0/IB9     On  PCI I/O Board                   Assigned    Not tested C

6800b-sc0:SC>
```

Caution – The systems ship from the factory with all boards assigned to domain A.

You can do some very screwy things with segments & domains.

We have seen dual segment 6800s with one domain, which means you are driving the domain from two repeaters not four.

We have seen domain A on a 6800 with odd numbered sb/ib's and domain C with even numbered sb/ib's.

Make sure you understand the issues when setting up segments & domains.

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Setupdomain

After the new domain has been created, you must configure the domain before you start it up.

```
sc0-4800a:SC> console c

Connected to Domain C

Domain Shell for Domain C

sc0-4800a:C> setupdomain

Domain Boot Parameters
----------------------
diag-level [default]:
verbosity-level [min]:
error-level [max]:
interleave-scope [within-board]:
interleave-mode [optimal]:
reboot-on-error [true]:
hang-policy [notify]: reset
OBP.use-nvramrc? [<OBP default>]: true
OBP.auto-boot? [<OBP default>]: true
OBP.error-reset-recovery [<OBP default>]: sync

Loghosts
--------
Loghost []: 172.20.40.5
Log Facility [local0]: local3

SNMP
----
Domain Description [ ]: domC
Domain Contact [ ]: admin
Trap Hosts [ ]: 172.20.40.5
Public Community String [C-public]:
Private Community String [C-private]:

sc0-4800a:C>
```

Additional resources – The following references provide additional details:

● *Platform Administration manual* and *System Controller Command Reference Manual*

Showdomain

```
sc0-4800a:C> showdomain -v

Domain     Solaris Nodename    Domain Status           Keyswitch
--------   ------------------  ----------------------  -----------
C          -                   Powered Off             off

Domain Boot Parameters
----------------------
diag-level = default
verbosity-level = min
error-level = max
interleave-scope = within-board
interleave-mode = optimal
reboot-on-error = true
hang-policy = reset
OBP.use-nvramrc? = true
OBP.auto-boot? = true
OBP.error-reset-recovery = sync


            MAC Address         HostID
            -----------------   --------
Domain C    08:00:20:d8:ab:62   80d8ab62

Loghosts
--------
Loghost for Domain C: 172.20.40.5
Log Facility for Domain C: local3

SNMP
----
SNMP Agent: enabled
Domain Description: domC
Domain Contact: admin
Trap Hosts: 172.20.40.5
Public Community String: C-public
Private Community String: C-private

SNMP packets received: 0
SNMP packets sent: 79
SNMP traps sent: 79

ACLs
----
ACL for Domain C: SB0 SB2 SB4 IB6 IB8

COD
---
PROC RTUs reserved for domain C: 0

sc0-4800a:C>
```

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Domain Access Control List (ACL)

Each domain has an associated ACL. The ACL is part of the security scheme and works with domain level passwords.

The ACL restricts addboard or deleteboard requests to specific components or, if desired, inhibits addboard or deleteboard requests for all platform components.

If you have access rights (password) to a specific domain, you can add or delete only the components identified in that domain's ACL. The default ACL for each domain contains all the platform slots (no restrictions).

The platform shell always has permission to add or delete boards.

Configuring ACLs

The ACLs for each domain can be set up using the setupplatform shell command. Prefixing a slot name with a -r removes the board from the list. Prefixing a slot name with a -a adds the board to the list. Typing a plus (+) reinstates the entire list. Typing a dash (-) clears the list.

For example:

```
6800b-sc0:SC> setupplatform -p acls


ACLs
----
ACL for domain A [ SB0 SB1 SB2 SB3 SB4 SB5 IB6 IB7 IB8 IB9 ]: -r sb1 sb3 sb5 ib7 ib9
ACL for domain B [ SB0 SB1 SB2 SB3 SB4 SB5 IB6 IB7 IB8 IB9 ]: -r sb1 sb3 sb5 ib7 ib9
ACL for domain C [ SB0 SB1 SB2 SB3 SB4 SB5 IB6 IB7 IB8 IB9 ]: -r sb0 sb2 sb4 ib6 ib8
ACL for domain D [ SB0 SB1 SB2 SB3 SB4 SB5 IB6 IB7 IB8 IB9 ]: -r sb0 sb2 sb4 ib6 ib8
```

Viewing ACLs

```
6800b-sc0:SC> showplatform -p acls


ACL for Domain A: SB0 SB2 SB4 IB6 IB8
ACL for Domain B: SB0 SB2 SB4 IB6 IB8
ACL for Domain C: SB1 SB3 SB5 IB7 IB9
ACL for Domain D: SB1 SB3 SB5 IB7 IB9
```

Backup and Restore a System Controller

Run the `dumpconfig` command after any configuration changes are made to the system controller with the following commands:

- `setupdomain`,`setupplatform`,`setdate`,`addboard`,`deleteboard`,`enablecomponent`,`disablecomponent` (or the newer `setls` command),`password`,`addcodlicense`,`deletecodlicense`

A good time to run `dumpconfig` on an installation is when the device aliases have been configured, and the NVRAM parameters set.

If you need to replace an SC, in a single SC platform, you will need this information.

There are three system controller commands used to administer the system controller's configuration data. They are:

- **dumpconfig, restoreconfig & setdefaults**

Note – It is NOT SUPPORTED to move the TOD & nvci chips from one system controller to put on another.

Use the `dumpconfig & restoreconfig` commands.

Updating SC MAC addresses

The master MAC addresses are kept on the ID board. If a new system controller is installed, the RTOS will recognize a mis-match and copy the master MACs from the ID Board to the new system controller.

`dumpconfig` command

The `dumpconfig` command saves the system controller configuration to a server. The data files are named:

- **schostname.nvci**

- **schostname.tod.**

It is important to invoke this command because if the system controller board fails and this command was not used to save the platform and domain configurations, you will need to manually reconfigure the platform and the domains.

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```
6800b-sc0:SC> help dumpconfig

dumpconfig -- save the system controller configuration to a server

Usage: dumpconfig [-t] -f <URL>
       dumpconfig -h

    Writes the system controller configuration to a server.
    Data files: <schostname>.nvci and <schostname>.tod

    By default, configuration data saved are to be password encrypted.
    User will be prompted to enter the password for encryption.
    The encrypted data are not recoverable without the same password
    given for decryption.

    -t -- dump data without encryption
    -f -- specify a URL to write the data
          <URL> -- the directory to store the data files
                   supported protocol: FTP
                        ftp://[<userid>:<password>@]<hostname>/<path>
    -h -- display this help message

6800b-sc0:SC>
```

restoreconfig Command

```
6800b-sc0:SC> help restoreconfig

Usage: restoreconfig [-y|-n] -f <URL>
       restoreconfig -h

    Restore the system controller state based on the two data files:
    <schostname>.nvci and <schostname>.tod at the specified URL.

    The process requires that all domains be off and the system controller
    will be rebooted when the configuration is restored.

    The date in the platform and each domain will need to be set after the
    configuration is restored.

    By default, the configuration data stored are encrypted. They are
    not recoverable without the same password as used for encryption.
    In case the data retrieved are encrypted, user will be prompted
    to enter the password for decryption.

    -f -- specify a URL to restore from
```

```
         <URL> -- the directory containing the data files
                  supported protocols: FTP and HTTP
                     ftp://[<userid>:<password>@]<hostname>/<path>
                    http://[<userid>:<password>@]<hostname>/<path>
   -y -- do not prompt for confirmation
   -n -- do not execute command if confirmation is requested
   -h -- display this help message

6800b-sc0:SC>
```

Example - relative & absolute pathnames

```
sc0-4800a:SC> dumpconfig -f ftp://root:root@172.16.40.5/SunFire/dumps

Created: ftp://root:root@172.16.40.5/SunFire/dumps/sc0-4800a.nvci
Created: ftp://root:root@172.16.40.5/SunFire/dumps/sc0-4800a.tod

sc0-4800a:SC> restoreconfig -f ftp://beej:abc123@172.16.40.5/SunFire/dumps

This will restore all the platform and domain configurations and passwords.
The system controller will be rebooted when the restore is complete.
The date will need to be set in the platform and each domain.

Do you want to restore the system controller configuration now? [no] yes

URL does not contain required file: sc0-4800a.nvci

sc0-4800a:SC>
```

> **Note –** The command above failed since it is using a relative pathname. The restoreconfig is looking for the files in /export/home/beej/SunFire/dumps. Use an absolute pathname as below.

```
sc0-4800a:SC> restoreconfig -f ftp://beej:abc123@172.16.40.5//SunFire/dumps
```

Refer to page 72 for an example of the restoreconfig command.

88   Sun Fire 3800 - 6800 Quick Reference Guide
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Starting and Stopping a Domain

To boot up a domain, start with the following command:

```
6800b-sc0:A> setkeyswitch on
```

Once a domain has been shutdown, issue the following command:

```
6800b-sc0:A> setkeyswitch off
```

Value	Description
off	Changes the board state of all the boards belonging to a domain to the `Assigned board` status, and places the boards in low-power mode, which allows you to remove the boards from the system. The domain is not initialized at system power up.
on	Powers on and initializes the domain. The system controller brings the domain into the OpenBoot PROM through POST. If the OpenBoot PROM has the `auto-boot?` parameter set to `true`, then the Solaris Operating Environment boots automatically.
standby	Changes the board state of all the boards belonging to a domain to the `Assigned board` status but does not put the boards in low-power mode. The domain is not initialized at system power up, but the boards that comprise the domain are powered up.
diag	Similar to the `setkeyswitch on` command except the POST verbose mode is set to on and the POST diagnostic level is set to maximum.
secure	Similar to the `setkeyswitch on` command except that the `break` and `reset` commands are ignored. System board and I/O board flash PROM updates are not allowed.

To display the virtual keyswitch state, use the `showkeyswitch` command.

```
6800b-sc0:SC> showkeyswitch

Domain A keyswitch is: on
Domain B keyswitch is: off
Domain C keyswitch is: standby
Domain D keyswitch is: off


6800b-sc0:SC>
```

Starting the domain - Example

```
sc0-4800a:B> setkeyswitch on
Powering boards on ...
Testing CPU Boards ...
Jan 29 10:13:25 6800b-sc0 Domain-B.POST: Agent {/N0/SB4/P2}  is disabled.
Jan 29 10:13:25 6800b-sc0 Domain-B.POST: Agent {/N0/SB4/P3}  is disabled.
{/N0/SB4/P2} Running CPU POR and Set Clocks
{/N0/SB4/P0} Running CPU POR and Set Clocks
{/N0/SB4/P3} Running CPU POR and Set Clocks
{/N0/SB4/P1} Running CPU POR and Set Clocks
{/N0/SB4/P2} @(#) lpost           5.16.0  2003/12/24 09:54
{/N0/SB4/P0} @(#) lpost           5.16.0  2003/12/24 09:54
{/N0/SB4/P3} @(#) lpost           5.16.0  2003/12/24 09:54
{/N0/SB4/P1} @(#) lpost           5.16.0  2003/12/24 09:54
{/N0/SB4/P2} Copyright 2001-2004 Sun Microsystems, Inc.  All rights reserved.
{/N0/SB4/P2} Use is subject to license terms.
{/N0/SB4/P2} Subtest: Setting Fireplane Config Registers for aid 0x12
{/N0/SB4/P2} Subtest: Display CPU Version, frequency
{/N0/SB4/P2} Version register = 003e0015.21000507
{/N0/SB4/P2} Ecache Control Register 00000000.07a34c00
{/N0/SB4/P2} Cpu/System ratio = 6, cpu actual frequency = 900
{/N0/SB4/P0} Copyright 2001-2004 Sun Microsystems, Inc.  All rights reserved.
{/N0/SB4/P0} Use is subject to license terms.
{/N0/SB4/P0} Subtest: Setting Fireplane Config Registers for aid 0x10
{/N0/SB4/P0} Subtest: Display CPU Version, frequency
{/N0/SB4/P0} Version register = 003e0015.21000507
{/N0/SB4/P0} Ecache Control Register 00000000.07a34c00
{/N0/SB4/P0} Cpu/System ratio = 6, cpu actual frequency = 900
{/N0/SB4/P3} Copyright 2001-2004 Sun Microsystems, Inc.  All rights reserved.
{/N0/SB4/P1} Copyright 2001-2004 Sun Microsystems, Inc.  All rights reserved.
{/N0/SB4/P3} Use is subject to license terms.
{/N0/SB4/P1} Use is subject to license terms.
{/N0/SB4/P3} Subtest: Setting Fireplane Config Registers for aid 0x13
{/N0/SB4/P1} Subtest: Setting Fireplane Config Registers for aid 0x11
{/N0/SB4/P3} Subtest: Display CPU Version, frequency
{/N0/SB4/P1} Subtest: Display CPU Version, frequency
{/N0/SB4/P3} Version register = 003e0015.21000507
{/N0/SB4/P1} Version register = 003e0015.21000507
{/N0/SB4/P3} Ecache Control Register 00000000.07a34c00
{/N0/SB4/P1} Ecache Control Register 00000000.07a34c00
{/N0/SB4/P3} Cpu/System ratio = 6, cpu actual frequency = 900
{/N0/SB4/P1} Cpu/System ratio = 6, cpu actual frequency = 900
{/N0/SB4/P0} Running Basic CPU
{/N0/SB4/P1} Running Basic CPU
{/N0/SB4/P2} @(#) lpost           5.16.0  2003/12/24 09:54
{/N0/SB4/P2} Copyright 2001-2004 Sun Microsystems, Inc.  All rights reserved.
```

Sun Fire 3800 - 6800 Quick Reference Guide

```
{/N0/SB4/P2} Use is subject to license terms.
{/N0/SB4/P0} @(#) lpost            5.16.0   2003/12/24 09:54
{/N0/SB4/P3} @(#) lpost            5.16.0   2003/12/24 09:54
{/N0/SB4/P3} Copyright 2001-2004 Sun Microsystems, Inc.  All rights reserved.
{/N0/SB4/P3} Use is subject to license terms.
{/N0/SB4/P1} @(#) lpost            5.16.0   2003/12/24 09:54
{/N0/SB4/P0} Copyright 2001-2004 Sun Microsystems, Inc.  All rights reserved.
{/N0/SB4/P0} Use is subject to license terms.
{/N0/SB4/P0} Subtest: I-Cache RAM Test
{/N0/SB4/P1} Copyright 2001-2004 Sun Microsystems, Inc.  All rights reserved.
{/N0/SB4/P1} Use is subject to license terms.
{/N0/SB4/P1} Subtest: I-Cache RAM Test
{/N0/SB4/P0} Subtest: I-Cache TAGS Test
{/N0/SB4/P1} Subtest: I-Cache TAGS Test
{/N0/SB4/P0} Subtest: I-Cache Valid/Predict TAGS Test
{/N0/SB4/P1} Subtest: I-Cache Valid/Predict TAGS Test
{/N0/SB4/P0} Subtest: I-Cache Snoop Tags Test
{/N0/SB4/P1} Subtest: I-Cache Snoop Tags Test
{/N0/SB4/P0} Subtest: I-Cache Branch Predict Array Test
{/N0/SB4/P1} Subtest: I-Cache Branch Predict Array Test
{/N0/SB4/P0} Subtest: I-Cache Initialization
{/N0/SB4/P1} Subtest: I-Cache Initialization
{/N0/SB4/P0} Subtest: D-Cache RAM Test
{/N0/SB4/P1} Subtest: D-Cache RAM Test
{/N0/SB4/P0} Subtest: D-Cache TAGS Test
{/N0/SB4/P1} Subtest: D-Cache TAGS Test
{/N0/SB4/P0} Subtest: D-Cache MicroTags Test
{/N0/SB4/P1} Subtest: D-Cache MicroTags Test
{/N0/SB4/P0} Subtest: D-Cache SnoopTags Test
{/N0/SB4/P1} Subtest: D-Cache SnoopTags Test
{/N0/SB4/P0} Subtest: D-Cache Initialization
{/N0/SB4/P1} Subtest: D-Cache Initialization
{/N0/SB4/P0} Subtest: W-Cache RAM Test
{/N0/SB4/P1} Subtest: W-Cache RAM Test
{/N0/SB4/P0} Subtest: W-Cache TAGS Test
{/N0/SB4/P1} Subtest: W-Cache TAGS Test
{/N0/SB4/P0} Subtest: W-Cache Valid bit Test
{/N0/SB4/P1} Subtest: W-Cache Valid bit Test
{/N0/SB4/P0} Subtest: W-Cache Bank valid bit Test
{/N0/SB4/P1} Subtest: W-Cache Bank valid bit Test
{/N0/SB4/P0} Subtest: W-Cache SnoopTAGS Test
{/N0/SB4/P0} Subtest: W-Cache Initialization
{/N0/SB4/P1} Subtest: W-Cache SnoopTAGS Test
{/N0/SB4/P0} Subtest: P-Cache RAM Test
{/N0/SB4/P1} Subtest: W-Cache Initialization
{/N0/SB4/P1} Subtest: P-Cache RAM Test
{/N0/SB4/P0} Subtest: P-Cache TAGS Test
```

```
{/N0/SB4/P1} Subtest: P-Cache TAGS Test
{/N0/SB4/P0} Subtest: P-Cache SnoopTags Test
{/N0/SB4/P1} Subtest: P-Cache SnoopTags Test
{/N0/SB4/P0} Subtest: P-Cache Status Data Test
{/N0/SB4/P1} Subtest: P-Cache Status Data Test
{/N0/SB4/P0} Subtest: P-Cache Initialization
{/N0/SB4/P0} Subtest: Branch Prediction Initialization
{/N0/SB4/P1} Subtest: P-Cache Initialization
{/N0/SB4/P1} Subtest: Branch Prediction Initialization
{/N0/SB4/P0} Subtest: IMMU Registers Access
{/N0/SB4/P1} Subtest: IMMU Registers Access
{/N0/SB4/P0} Subtest: DMMU Registers Access
{/N0/SB4/P1} Subtest: DMMU Registers Access
{/N0/SB4/P0} Subtest: 4M DTLB RAM Test
{/N0/SB4/P1} Subtest: 4M DTLB RAM Test
{/N0/SB4/P0} Subtest: 8K DTLB RAM Test
{/N0/SB4/P1} Subtest: 8K DTLB RAM Test
{/N0/SB4/P0} Subtest: 4M DTLB TAG Test
{/N0/SB4/P1} Subtest: 4M DTLB TAG Test
{/N0/SB4/P0} Subtest: 8K DTLB TAG Test
{/N0/SB4/P1} Subtest: 8K DTLB TAG Test
{/N0/SB4/P0} Subtest: 4M ITLB RAM Test
{/N0/SB4/P1} Subtest: 4M ITLB RAM Test
{/N0/SB4/P0} Subtest: 8K ITLB RAM Test
{/N0/SB4/P1} Subtest: 8K ITLB RAM Test
{/N0/SB4/P0} Subtest: 4M ITLB TAG Test
{/N0/SB4/P1} Subtest: 4M ITLB TAG Test
{/N0/SB4/P0} Subtest: 8K ITLB TAG Test
{/N0/SB4/P1} Subtest: 8K ITLB TAG Test
{/N0/SB4/P0} Subtest: E-Cache Global Variables Initialization
{/N0/SB4/P1} Subtest: E-Cache Global Variables Initialization
{/N0/SB4/P0} Subtest: E-Cache TAGS Test
{/N0/SB4/P1} Subtest: E-Cache TAGS Test
{/N0/SB4/P0} Subtest: Fast Init. Verification Test
{/N0/SB4/P1} Subtest: Fast Init. Verification Test
{/N0/SB4/P0} Subtest: E-Cache TAGS ECC Test
{/N0/SB4/P1} Subtest: E-Cache TAGS ECC Test
{/N0/SB4/P0} Running Enable MMU
{/N0/SB4/P1} Running Enable MMU
{/N0/SB4/P1} Subtest: IMMU Initialization
{/N0/SB4/P0} Subtest: IMMU Initialization
{/N0/SB4/P0} Subtest: DMMU Initialization
{/N0/SB4/P1} Subtest: DMMU Initialization
{/N0/SB4/P0} Subtest: Map LPOST to local space
{/N0/SB4/P1} Subtest: Map LPOST to local space
{/N0/SB4/P0} Running FPU Tests
{/N0/SB4/P1} Running FPU Tests
```

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```
{/N0/SB4/P0} Subtest: FPU Register Test
{/N0/SB4/P1} Subtest: FPU Register Test
{/N0/SB4/P0} Subtest: FSR Test
{/N0/SB4/P1} Subtest: FSR Test
{/N0/SB4/P0} Running Basic Ecache
{/N0/SB4/P1} Running Basic Ecache
{/N0/SB4/P0} Subtest: E-Cache Quick Verification Test
{/N0/SB4/P1} Subtest: E-Cache Quick Verification Test
{/N0/SB4/P0} Subtest: E-Cache RAM Test Part1
{/N0/SB4/P1} Subtest: E-Cache RAM Test Part1
{/N0/SB4/P0} Subtest: E-Cache RAM Test Part2
{/N0/SB4/P1} Subtest: E-Cache RAM Test Part2
{/N0/SB4/P0} Subtest: E-Cache Address Line Test
{/N0/SB4/P1} Subtest: E-Cache Address Line Test
{/N0/SB4/P0} Subtest: E-Cache Initialization of first 1K
{/N0/SB4/P1} Subtest: E-Cache Initialization of first 1K
{/N0/SB4/P0} Subtest: E-Cache Initialization
{/N0/SB4/P1} Subtest: E-Cache Initialization
{/N0/SB4/P0} Running Memory Registers Tests
{/N0/SB4/P1} Running Memory Registers Tests
{/N0/SB4/P0} Subtest: Disable Memory Controllers
{/N0/SB4/P1} Subtest: Disable Memory Controllers
{/N0/SB4/P0} Subtest: Mem Addr Control Reg Test
{/N0/SB4/P1} Subtest: Mem Addr Control Reg Test
{/N0/SB4/P0} Subtest: Mem Addr Decoding Reg Test
{/N0/SB4/P1} Subtest: Mem Addr Decoding Reg Test
{/N0/SB4/P0} Running Memory Configuration Tests
{/N0/SB4/P1} Running Memory Configuration Tests
{/N0/SB4/P0} Subtest: Memory Controller Configuration
{/N0/SB4/P1} Subtest: Memory Controller Configuration
{/N0/SB4/P0} Subtest: UP Memory Clear
{/N0/SB4/P1} Subtest: UP Memory Clear
{/N0/SB4/P0} Running Memory Tests
{/N0/SB4/P1} Running Memory Tests
{/N0/SB4/P0} Subtest: Memory Addressing
{/N0/SB4/P1} Subtest: Memory Addressing
{/N0/SB4/P0} Subtest: Memory DIMM Access
{/N0/SB4/P1} Subtest: Memory DIMM Access
{/N0/SB4/P0} Subtest: Memory MATS+
{/N0/SB4/P1} Subtest: Memory MATS+
{/N0/SB4/P0} Subtest: Memory MARCH C-
{/N0/SB4/P1} Subtest: Memory MARCH C-
{/N0/SB4/P0} Subtest: Memory Alternating Multiple Access Selection
{/N0/SB4/P1} Subtest: Memory Alternating Multiple Access Selection
{/N0/SB4/P0} Running Ecache Functional
{/N0/SB4/P1} Running Ecache Functional
{/N0/SB4/P0} Subtest: E-Cache Functional
```

```
{/N0/SB4/P1} Subtest: E-Cache Functional
{/N0/SB4/P0} Subtest: E-Cache Stress
{/N0/SB4/P1} Subtest: E-Cache Stress
{/N0/SB4/P0} Running CPU Functional
{/N0/SB4/P1} Running CPU Functional
{/N0/SB4/P1} Subtest: IMMU Functional
{/N0/SB4/P0} Subtest: IMMU Functional
{/N0/SB4/P0} Subtest: DMMU Functional
{/N0/SB4/P1} Subtest: DMMU Functional
{/N0/SB4/P0} Subtest: Dual AFSR/AFAR First Error Capture Test
{/N0/SB4/P1} Subtest: Dual AFSR/AFAR First Error Capture Test
{/N0/SB4/P0} Subtest: I-Cache Functional
{/N0/SB4/P1} Subtest: I-Cache Functional
{/N0/SB4/P0} Subtest: I-Cache Parity Functional
{/N0/SB4/P1} Subtest: I-Cache Parity Functional
{/N0/SB4/P0} Subtest: I-Cache Parity Tag
{/N0/SB4/P1} Subtest: I-Cache Parity Tag
{/N0/SB4/P0} Subtest: I-Cache Snoop Parity Tag
{/N0/SB4/P1} Subtest: I-Cache Snoop Parity Tag
{/N0/SB4/P0} Subtest: D-Cache Functional
{/N0/SB4/P1} Subtest: D-Cache Functional
{/N0/SB4/P0} Subtest: D-Cache Parity Functional
{/N0/SB4/P1} Subtest: D-Cache Parity Functional
{/N0/SB4/P0} Subtest: D-Cache Parity Tag Test
{/N0/SB4/P1} Subtest: D-Cache Parity Tag Test
{/N0/SB4/P0} Subtest: W-Cache Functional
{/N0/SB4/P1} Subtest: W-Cache Functional
{/N0/SB4/P0} Subtest: P-Cache Functional
{/N0/SB4/P1} Subtest: P-Cache Functional
{/N0/SB4/P0} Subtest: FPU Functional
{/N0/SB4/P1} Subtest: FPU Functional
{/N0/SB4/P0} Subtest: FPU Functional Stress
{/N0/SB4/P1} Subtest: FPU Functional Stress
{/N0/SB4/P0} Subtest: Graphics Functional
{/N0/SB4/P1} Subtest: Graphics Functional
{/N0/SB4/P0} Running Advanced CPU Tests
{/N0/SB4/P1} Running Advanced CPU Tests
{/N0/SB4/P0} Subtest: CPU Superscalar Dispatch
{/N0/SB4/P1} Subtest: CPU Superscalar Dispatch
{/N0/SB4/P0} Subtest: SPARC Atomic Instruction Test
{/N0/SB4/P1} Subtest: SPARC Atomic Instruction Test
{/N0/SB4/P0} Subtest: Non SPARC Atomic Instruction Test
{/N0/SB4/P1} Subtest: Non SPARC Atomic Instruction Test
{/N0/SB4/P0} Subtest: SOFTINT Register and Interrupt Test
{/N0/SB4/P1} Subtest: SOFTINT Register and Interrupt Test
{/N0/SB4/P0} Subtest: CPU Tick and Tick Compare Registers Test
{/N0/SB4/P1} Subtest: CPU Tick and Tick Compare Registers Test
```

```
{/N0/SB4/P0} Subtest: CPU Stick and Stick Compare Registers Test
{/N0/SB4/P1} Subtest: CPU Stick and Stick Compare Registers Test
{/N0/SB4/P0} Subtest: FPU Move to Registers Test
{/N0/SB4/P1} Subtest: FPU Move to Registers Test
{/N0/SB4/P0} Subtest: FPU Branch Test
{/N0/SB4/P1} Subtest: FPU Branch Test
{/N0/SB4/P0} Subtest: Branch Memory Test
{/N0/SB4/P1} Subtest: Branch Memory Test
{/N0/SB4/P0} Subtest: CPU Stress
{/N0/SB4/P1} Subtest: CPU Stress
{/N0/SB4/P0} Using PA range at 00000080.00000000
{/N0/SB4/P1} Using PA range at 00000084.02000000
{/N0/SB4/P0} Using PA range at 00000080.00000000
{/N0/SB4/P1} Using PA range at 00000084.02000000
{/N0/SB4/P0} Running CPU ECC Tests
{/N0/SB4/P1} Running CPU ECC Tests
{/N0/SB4/P0} Subtest: Fast ECC errors test
{/N0/SB4/P1} Subtest: Fast ECC errors test
{/N0/SB4/P0} Subtest: MTAG ECC errors test
{/N0/SB4/P1} Subtest: MTAG ECC errors test
{/N0/SB4/P0} Subtest: SYSTEM ECC errors test
{/N0/SB4/P1} Subtest: SYSTEM ECC errors test
{/N0/SB4/P0} Subtest: Ecache Tag ECC errors test
{/N0/SB4/P1} Subtest: Ecache Tag ECC errors test
{/N0/SB4/P0} Running System Level Tests
{/N0/SB4/P1} Running System Level Tests
{/N0/SB4/P0} Subtest: MP Memory Access Test
{/N0/SB4/P1} Subtest: MP Memory Access Test
{/N0/SB4/P0} Running Board Memory Interleave
{/N0/SB4/P1} Running Board Memory Interleave
{/N0/SB4/P0} Subtest: Board Memory Interleave Configuration
{/N0/SB4/P1} Subtest: Board Memory Interleave Configuration
{/N0/SB4/P0} Passed
{/N0/SB4/P1} Passed
{/N0/SB4/P2} Disabled
{/N0/SB4/P3} Disabled
Testing IO Boards ...
Copying IO prom to Cpu dram
....................................
{/N0/SB4/P0} Running PCI IO Controller Basic Tests
{/N0/SB4/P0} Jumping to memory 00000000.00000020 [00000010]
{/N0/SB4/P0} System PCI IO post code running from memory
{/N0/SB4/P0} @(#) lpost        5.16.0  2003/12/24 09:54
{/N0/SB4/P0} Copyright 2001-2004 Sun Microsystems, Inc.  All rights reserved.
{/N0/SB4/P0} Use is subject to license terms.
{/N0/SB4/P0} Subtest: PCI IO Controller Register Initialization for aid 0x1c
{/N0/SB4/P0} Running PCI IO Controller Functional Tests
```

```
{/N0/SB4/P0} Subtest: PCI IO Controller IOMMU  TLB Compare Tests for aid 0x1c
{/N0/SB4/P0} Subtest: PCI IO Controller IOMMU TLB Flush Tests for aid 0x1c
{/N0/SB4/P0} Subtest: PCI IO Controller DMA loopback Tests for aid 0x1c
{/N0/SB4/P0} Subtest: PCI IO Controller block DMA loopback Tests for aid 0x1c
{/N0/SB4/P0} Subtest: PCI IO Controller Interrupt Tests for aid 0x1c
{/N0/SB4/P0} Subtest: PCI IO Controller MergeBuffer Tests for aid 0x1c
{/N0/SB4/P0} Subtest: PCI IO Controller StreamCache Tests for aid 0x1c
{/N0/SB4/P0} Running PCI IO Controller Ecc Tests
{/N0/SB4/P0} Subtest: PCI IO Controller ECC Tests for aid 0x1c
{/N0/SB4/P0} Running SBBC Basic Tests
{/N0/SB4/P0} Subtest: SBBC PCI Reg Initialization for aid 0x1c
{/N0/SB4/P0} Running PCI IO Controller Basic Tests
{/N0/SB4/P0} Subtest: PCI IO Controller Register Initialization for aid 0x1d
{/N0/SB4/P0} Running PCI IO Controller Functional Tests
{/N0/SB4/P0} Subtest: PCI IO Controller IOMMU  TLB Compare Tests for aid 0x1d
{/N0/SB4/P0} Subtest: PCI IO Controller IOMMU TLB Flush Tests for aid 0x1d
{/N0/SB4/P0} Subtest: PCI IO Controller DMA loopback Tests for aid 0x1d
{/N0/SB4/P0} Subtest: PCI IO Controller block DMA loopback Tests for aid 0x1d
{/N0/SB4/P0} Subtest: PCI IO Controller Interrupt Tests for aid 0x1d
{/N0/SB4/P0} Subtest: PCI IO Controller MergeBuffer Tests for aid 0x1d
{/N0/SB4/P0} Subtest: PCI IO Controller StreamCache Tests for aid 0x1d
{/N0/SB4/P0} Running PCI IO Controller Ecc Tests
{/N0/SB4/P0} Subtest: PCI IO Controller ECC Tests for aid 0x1d
{/N0/SB4/P0} @(#) lpost          5.16.0  2003/12/24 09:54
{/N0/SB4/P0} Copyright 2001-2004 Sun Microsystems, Inc.  All rights reserved.
{/N0/SB4/P0} Use is subject to license terms.
{/N0/IB8/P0} Passed
{/N0/IB8/P1} Passed
Testing domain ...
{/N0/SB4/P1} Running Domain Level Tests
{/N0/SB4/P1} Subtest: Mapping IO SRAM
{/N0/SB4/P1} iobd 8 bdtype 1
{/N0/SB4/P1} Subtest: Memory interleaving config
{/N0/SB4/P1} Running Domain Basic Tests
{/N0/SB4/P1} Subtest: Cross Call Test
{/N0/SB4/P1} Running Domain Advanced Tests
{/N0/SB4/P1} Subtest: MP Memory Clear Test
{/N0/SB4/P0} iobd 8 bdtype 1
{/N0/SB4/P1}  CORE 16 clearing 00000000.00000000 to 00000002.00000000
{/N0/SB4/P1}  CORE 17 clearing 00000002.00000000 to 00000004.00000000
{/N0/SB4/P1} Subtest: DCache Snoop Tag Parity Test
{/N0/SB4/P1} Subtest: MP Cache Coherency Test
{/N0/SB4/P1} Subtest: Memory Controller Saturation Test
{/N0/SB4/P1}    All CPUs saturate /SB4/P1's memory controller
{/N0/SB4/P1}    All CPUs saturate /SB4/P0's memory controller
{/N0/SB4/P1}    All CPUs saturate /SB4/P1's memory controller
{/N0/SB4/P1}    All CPUs saturate /SB4/P0's memory controller
```

```
{/N0/SB4/P1} Subtest: Fireplane Bus Saturation Test
{/N0/SB4/P1} Subtest: MP Memory Clear Test
{/N0/SB4/P1}  CORE 16 clearing 00000000.00000000 to 00000002.00000000
{/N0/SB4/P1}  CORE 17 clearing 00000002.00000000 to 00000004.00000000
{/N0/SB4/P1} Running Domain Stick Sync Tests
{/N0/SB4/P1} Subtest: Sync. Stick Registers Test
{/N0/SB4/P1} Running Domain Verify Stick Sync Tests
{/N0/SB4/P1} Subtest: Verify Sync. Stick Registers Test
{/N0/SB4/P0} DCB_DECOMP_OBP command succeeded
{/N0/SB4/P0} iobd 8 bdtype 1
{/N0/SB4/P0} Decompress OBP done
{/N0/SB4/P0} DCB_ENTER_OBP command succeeded
{/N0/SB4/P1} DCB_ENTER_OBP command succeeded
Entering OBP ...


Sun Fire 6800
OpenFirmware version 5.16.0 (12/24/03 09:54)
Copyright 2001-2004 Sun Microsystems, Inc.  All rights reserved.
Use is subject to license terms.
SmartFirmware, Copyright (C) 1996-2001.  All rights reserved.
16384 MB memory installed, Serial #50804601.
Ethernet address 0:3:ba:7:37:79, Host ID: 83073779.

ERROR: Can't open boot-device
{10} ok
```

Note – Get into the habit of doing a `show-post-results` and a `probe-scsi-all`.

`printenv` and `devalias` will also help you troubleshoot the above error.

show-post-results & probe-scsi-all

```
{10} ok show-post-results

Board 4, Type: CPU/Memory

  port 16 - Status = Pass, Type: CPU/Memory
          E-cache: 8 MB R-freq: 900 MHz A-freq: 900 MHz
  port 17 - Status = Pass, Type: CPU/Memory
          E-cache: 8 MB R-freq: 900 MHz A-freq: 900 MHz
  port 18 - Status = On blacklist, Type: CPU/Memory
          agent status = On blacklist
          N0/SB4/P2/B0/L0        On blacklist
```

```
              N0/SB4/P2/B1/L1      On blacklist
              N0/SB4/P2/B0/L2      On blacklist
              N0/SB4/P2/B1/L3      On blacklist
   port 19 - Status = On blacklist, Type: CPU/Memory
              agent status = On blacklist
              N0/SB4/P3/B0/L0      On blacklist
              N0/SB4/P3/B1/L1      On blacklist
              N0/SB4/P3/B0/L2      On blacklist
              N0/SB4/P3/B1/L3      On blacklist
Board 8, Type: PCI IO

   port 28 - Status = Pass, Type: PCI IO
   port 29 - Status = Pass, Type: PCI IO


{10} ok probe-scsi-all


/ssm@0,0/pci@1d,700000/SUNW,qlc@3


/ssm@0,0/pci@1d,700000/scsi@2,1


/ssm@0,0/pci@1d,700000/scsi@2


/ssm@0,0/pci@1c,700000/pci@1/SUNW,isptwo@4

Target 0
  Unit 0   Disk      SEAGATE ST318404LSUN18G 4203
Target 2
  Unit 0   Processor     SUN      D240               2
Target 6
  Unit 0   Removable Tape     HP       C5683A            C005

{10} ok printenv boot-device

boot-device          disk                 (disk diskifp diskglm diskc net)

{10} ok devalias disk

disk               /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@0,0

{10} ok
```

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Resetting a hung domain

reset

A hung domain should automatically reset if **hang-policy=reset**.

If **error-reset-recovery=sync** a core file will be generated.

If hang-policy=notify, you will need to issue the reset command in the domain shell. Note, reset will not work if the keyswitch is in secure.

By default, reset uses an externally initiated reset (xir) to reset the processors in the domain.

showresetstate

If error-reset-recovery=none, you have an opportunity to gather reset states using the domain shell command showresetstate.Navigate from OBP to domain shell as illustrated on page 101.

```
6800b-sc0:A> reset

This will abruptly terminate Solaris in domain A.
Do you want to continue? [no] yes
NOTICE: XIR on CPU 6
debugger entered.

{6} ok

6800b-sc0:A> showresetstate -v -f ftp://v4m-5o.uk.sun.com/pub

Created: ftp://v4m-5o.uk.sun.com/pub/6800b-domA.resetstate.040129120648

6800b-sc0:A> resume

{6} ok sync

panic[cpu6]/thread=2a10000bd40: sync initiated
.
.
.
.
```

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Connection refused, console busy

You will see this error on occasion if someone else has tied up the console connection.

You can have a number of platform shells active but only one console connection. Before doing the following, make sure no one is using the console:

```
6800b-sc0:SC> console a

Connection refused, console busy
Connection closed.
6800b-sc0:SC> connections

ID  Hostname                      Idle Time Connected On   Connected To
--- ----------------------------- --------- -------------- --------------
  1 Localhost                     00:22     Jan 22 14:21   Platform
  3 Localhost                     00:22     Jan 23 15:17   Domain A
  4 chronos.UK.Sun.COM            -         Jan 23 15:32   Platform

6800b-sc0:SC> disconnect 3
6800b-sc0:SC> console a

Connected to Domain A

{4} ok
```

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Navigating Between Shells

This page contains procedures on how to navigate within the system controller.

Always telnet in if you can, navigation is much easier.

Diagram showing navigation between shells:

- **Solaris Operating Environment** — Type the esape sequence
- **OpenBoot PROM** — Type the escape sequence
- **Domain shell** — Type: `resume` / Type: `break` / Type: `disconnect`
- **Platform shell** — Type: `console <id>`
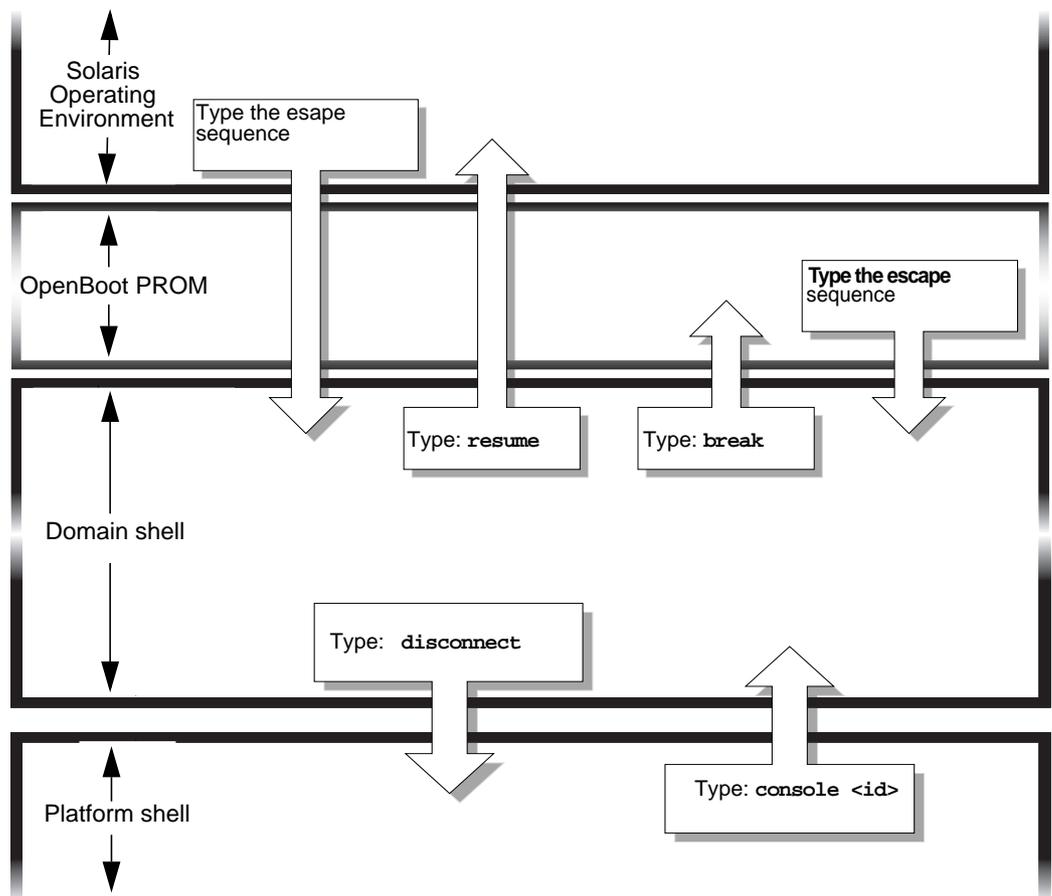
Note – If you are connected to the system controller using a `tip` session, use the `~#` command sequence to move from the Solaris Operating Environment (or OpenBoot PROM) to the system controller domain shell.

Refer to SRDB 45687 for assistance on break sequences.

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Escape sequence

The default escape sequence when moving from a domain console (either running Solaris or running OBP) is **#.**

For telnet connections, the standard escape sequence of CTRL] followed by `send break` is also supported

showescape

This is a platform shell command.

```
6800b-sc0:SC> showescape
?.
6800b-sc0:SC>
```

Change the escape sequence using the setescape command

setescape

```
6800b-sc0:SC> help setescape

setescape -- set system controller escape sequence (default "#.")

Usage: setescape "<escapechars_with_#>" | <escapechars_without_#>
       setescape -h

   escapechars:
       This escape sequence will be used to switch from the Solaris
       or OBP console to the domain shell. (default "#.").

       To set the escape character to a string including the pound
       character (#), enclose the string in double quotes.
       (for example, "#.")

   -h -- display this help message

6800b-sc0:SC> setescape "#."
6800b-sc0:SC> showescape
#.
6800b-sc0:SC>
```

Sun Fire 3800 - 6800 Quick Reference Guide

Sun Fire Device Tree

Many Sun Microsystems™ documents refer to the slots connected to the schizos as pci@1, pci@2, pci@3

This is misleading.

This will only be the case for certain cards (e.g. qfe, sunswift)

A PCI Single FC Host Adapter in slot 0, for example, will be qlc@1.

Refer to the next page...

```
                           ssm@0,0


     24  Memory-controller            24  SUNW,UltraSPARC-III


                         Schizo
                pci@18,600000    pci@18,700000

          8


          PCI slot                      PCI slots
           pci@1                          pci@1
                                    3

         I/O controller               I/O controller
           SUNW,xyz                     SUNW,xyz


            Device                        Device
```

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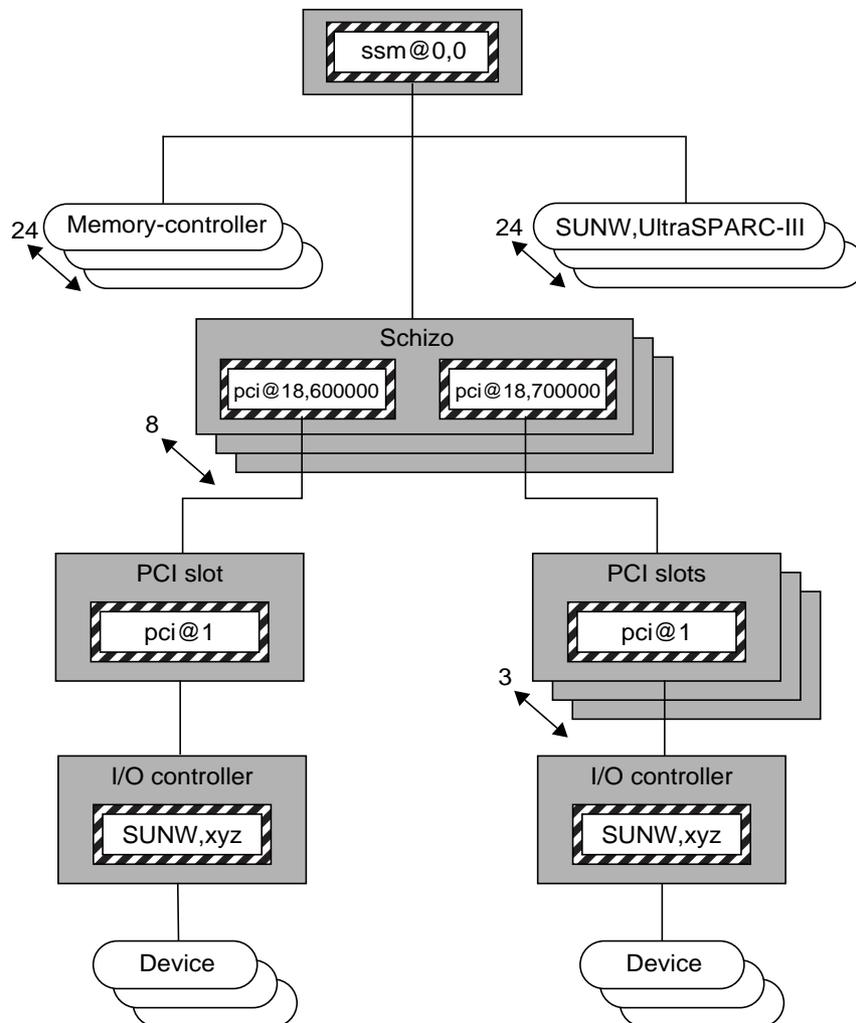
```
{2} ok show-devs

/ (gptwo)
/ssm@0,0 (gptwo)
/ssm@0,0/pci@19,600000 (pci)
/ssm@0,0/pci@19,700000 (pci)
/ssm@0,0/pci@18,600000 (pci)
/ssm@0,0/pci@18,600000/SUNW,qlc@1 (scsi-fcp)
/ssm@0,0/pci@18,600000/SUNW,qlc@1/fp@0,0 (fp)
/ssm@0,0/pci@18,600000/SUNW,qlc@1/fp@0,0/disk (block)
/ssm@0,0/pci@18,700000 (pci)
/ssm@0,0/pci@18,700000/scsi@3,1 (scsi-2)
/ssm@0,0/pci@18,700000/scsi@3,1/tape (byte)
/ssm@0,0/pci@18,700000/scsi@3,1/disk (block)
/ssm@0,0/pci@18,700000/scsi@3 (scsi-2)
/ssm@0,0/pci@18,700000/scsi@3/tape (byte)
/ssm@0,0/pci@18,700000/scsi@3/disk (block)
/ssm@0,0/pci@18,700000/SUNW,hme@2,1 (network)
/ssm@0,0/pci@18,700000/pci108e,1000@2
/ssm@0,0/pci@18,700000/pci@1 (pci)
/ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4 (scsi)
/ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/st (byte)
/ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd (block)
/ssm@0,0/pci@18,700000/pci@1/SUNW,hme@0,1 (network)
/ssm@0,0/pci@18,700000/pci@1/pci108e,1000@0
/ssm@0,0/pci@18,700000/bootbus-controller@4
/ssm@0,0/memory-controller@3,400000 (memory-controller)
/ssm@0,0/SUNW,UltraSPARC-III@3,0 (cpu)
/ssm@0,0/memory-controller@2,400000 (memory-controller)
/ssm@0,0/SUNW,UltraSPARC-III@2,0 (cpu)
/todsg (tod)
/sgcn (serial)
/failsafe (serial)
/virtual-memory (virtual-memory)
/memory@0,0 (memory)
/packages
/packages/SUNW,builtin-drivers
/packages/obp-tftp
/packages/terminal-emulator
/packages/disk-label
/packages/deblocker
/chosen
/options
/aliases
/openprom
/openprom/client-services
{2} ok
```

Sun Fire Physical Device Mapping

The physical address represents the physical characteristics unique to the device (such as the bus address or the slot number where the device is installed).

Each physical device is referenced by its **node identifier** and **Sun Fireplane agent identifier (AID)**

AIDs range from 0 to 31 (0 to 1f, hexadecimal).

There is a mixture of ways that the platform numbers agents. obp numbers in hex, POST numbers in decimal, solaris numbers processors in decimal, and device paths are in hex.

Refer to the tables on the next two pages for AIDs

Node Mapping

The node identifier for standalone Sun Fire domains is always 0. Node identifiers other than 0 will be used when wildcat comes online.

For example, the device tree entry is:

`/ssm@0,0`

Node ID 0

System Board Mapping

CPU and memory AIDs range from 0 to 23 (0 to 17, hexadecimal). Depending on the model, a Sun Fire domain can have up to six system boards. Each system board can have up to four processors.

There are up to eight banks of memory per system board, two per CPU. Each pair of banks is controlled by one memory management unit (MMU). The MMU is co-packaged with its respective processor. Thus, the AID for an MMU is the same as its processor AID but with a different offset. The offset is 0 for processors and 400000 for memory.

Device tree entries for a CPU and associated memory is:

`/ssm@0,0/SUNW,UltraSPARC-III@b,0`

CPU offset
CPU AID
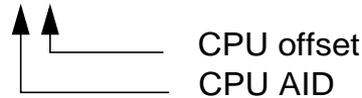
`/ssm@0,0/SUNW,memory-controller@b,400000`

Memory offset
Memory AID
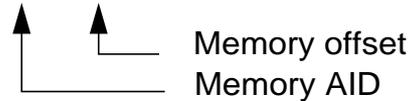
In the proceeding examples, the first device tree entry maps to Slot SB2, Processor Instance P3. The second entry maps to the memory management unit packaged with the processor shown in the first entry.

Processor/Memory Controller AIDs (hex in brackets)

Location	P3 AID	P2 AID	P1 AID	P0 AID
SB0	3	2	1	0
SB1	7	6	5	4
SB2	11 (b)	10 (a)	9	8
SB3	15 (f)	14 (e)	13 (d)	12 (c)
SB4	19 (13)	18 (12)	17 (11)	16 (10)
SB5	23 (17)	22 (16)	21 (15)	20 (14)

I/O Mapping

When mapping an I/O device tree entry to a physical component in the system, there are up to six nodes in the device tree that must be considered:

- Node ID – 0 for standalone Sun Fire domains.

- Schizo AID – Determines the I/O board and Schizo.

- Schizo PCI bus offset – Determines which PCI bus: A or B.

- Device number – Determines which slot in the I/O chassis.

- PCI controller – Determines which I/O device drive to use.

- Device instance – Specifies device referencing, which is used by the kernel.

For example:

/ssm@0,0/pci@19,700000/pci@3/SUNW,isptwo@4/sd@5,0

Node ID Schizo AID | Device # | PCI Controller |
Bus offset | Device instance
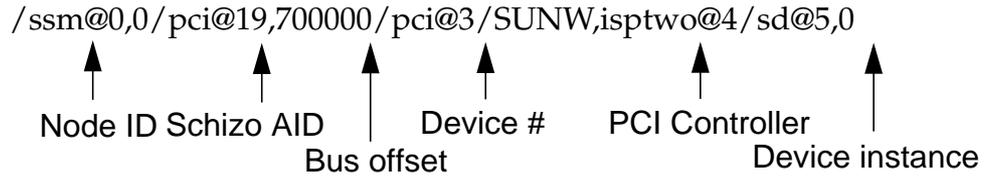
/ssm@0,0/pci@18,700000/pci@1/SUNW,hme@0,1

/ssm@0,0/pci@19,600000/pci@1/SUNW,qfe@2,1

/ssm@0,0/pci@18,600000/SUNW,qlc@1/fp@0,0

Schizo AIDs (hex in brackets)

Location	Even AID (Schizo 0)	Odd AID (Schizo 1)
IB6	24 (18)	25 (19)
IB7	26 (1a)	27 (1b)
IB8	28 (1c)	29 (1d)
IB9	30 (1e)	31 (1f)

Schizo PCI Bus Offset

Bus A - offset 600000 - Provides 66/33 MHz PCI bus
Bus B - offset 700000 - Provides 33 MHz PCI bus

Eight-Slot PCI I/O Assembly Slot Assignments
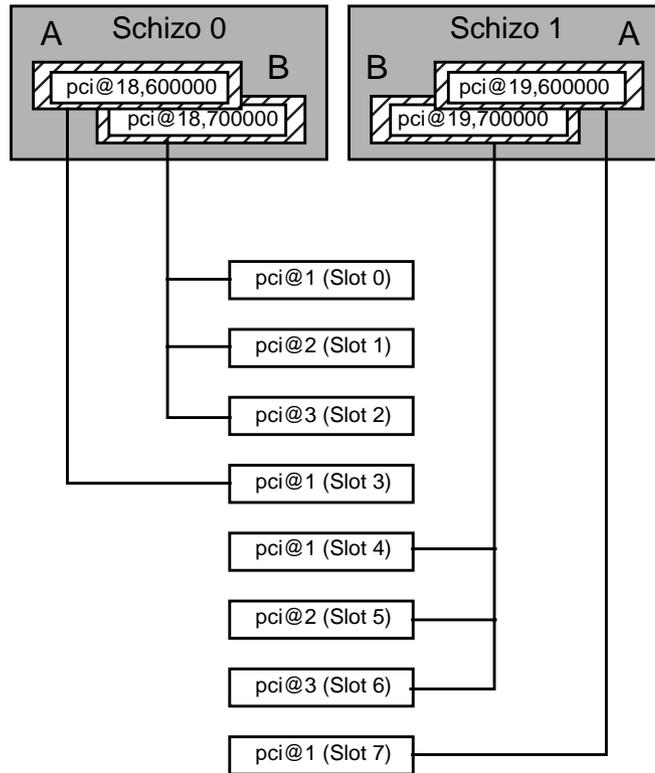
Logical layout as above, physical layout as below
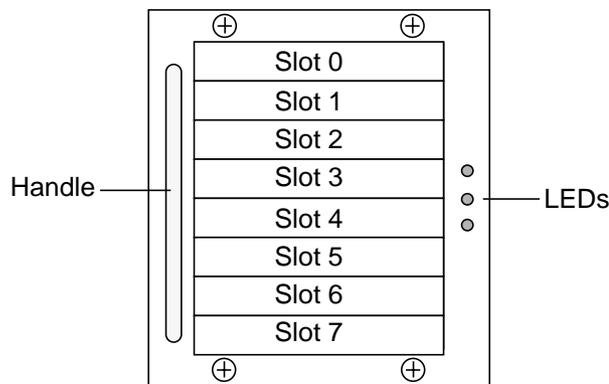
Six-Slot cPCI I/O Assembly Slot Assignments
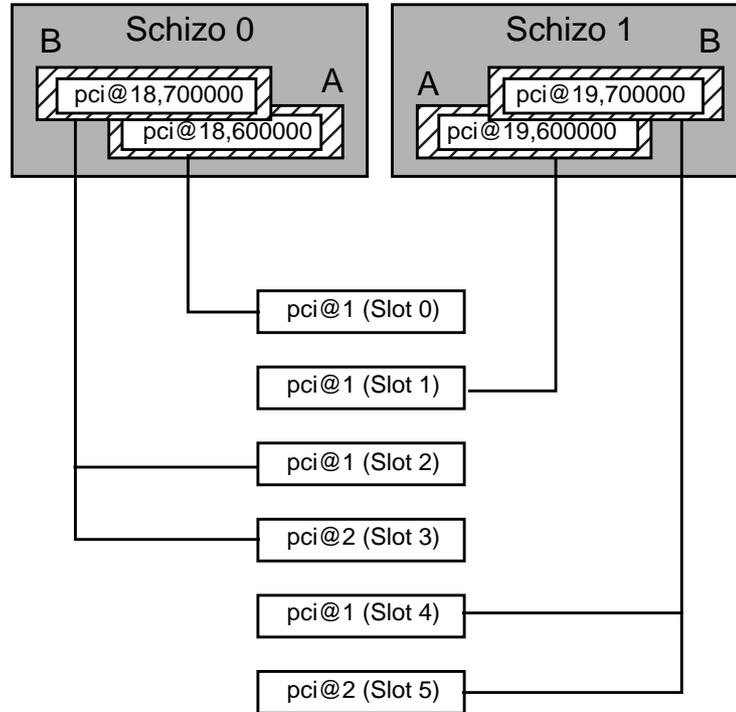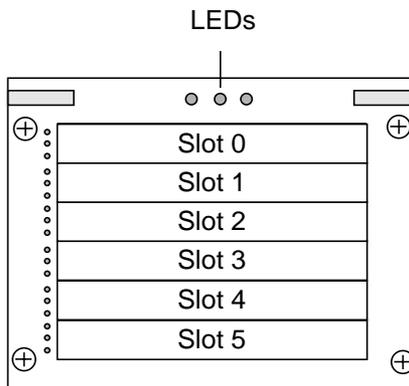
Logical layout as above, physical layout as below

Four-Slot cPCI I/O Assembly Slot Assignments

	Schizo 0			Schizo 1	
B					B
	pci@18,700000	A	A	pci@19,700000	
	pci@18,600000		pci@19,600000		

pci@1 (Slot 0)

pci@1 (Slot 1)

pci@1 (Slot 2)

pci@1 (Slot 3)

Logical layout as above, physical layout as below

Slot 3 Slot 2 Slot 1 Slot 0

LEDs

Sun Fire 3800 - 6800 Quick Reference Guide
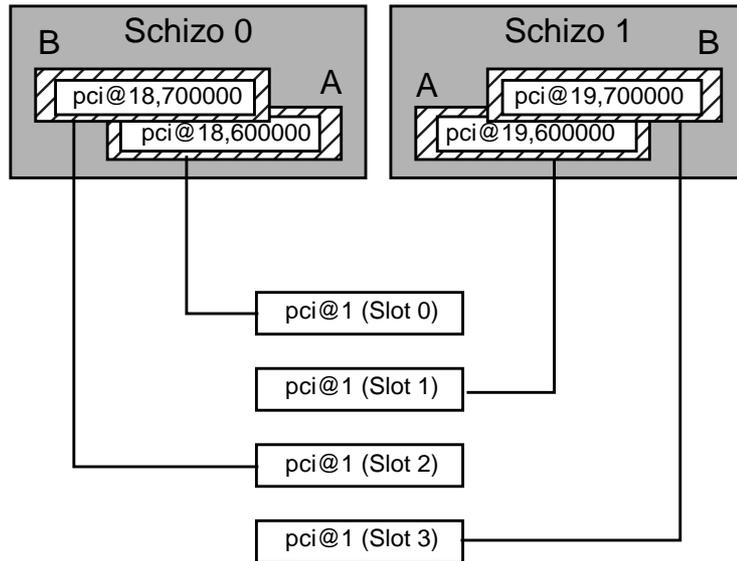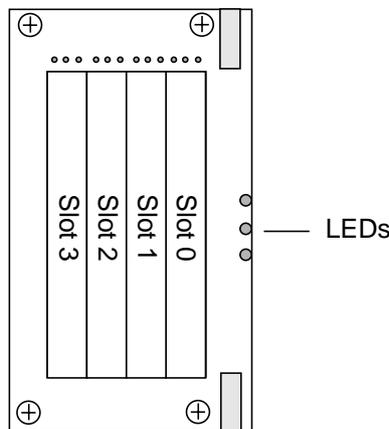
Setdefaults

The setdefaults command will set the default configuration values. This command does the following:

- This command sets the defaults for all domains and the platform when it is invoked from the platform shell, and sets the defaults for the domain only when invoked from that domains shell.

- Removes passwords on the domains

If you are installing the platform, set everything back to its defaults, and start afresh. setdefaults does not reset any OBP variables to their defaults. Set the obp variables back to their defaults at the domain ok prompt...

```
sc0-4800a:A> setdefaults
Do you want to restore the default values now? [no] yes
Feb 23 07:24:55 sc0-4800a Domain-A.SC: Setting defaults for domain A.
sc0-4800a:A>


6800b-sc0:A> setkeyswitch on
Powering boards on ...
Testing CPU Boards ...
{/N0/SB0/P2} Running CPU POR and Set Clocks
{/N0/SB0/P3} Running CPU POR and Set Clocks
{/N0/SB0/P2} @(#) lpost          5.16.0  2003/12/24 09:54
{/N0/SB0/P3} @(#) lpost          5.16.0  2003/12/24 09:54
.
.
{/N0/SB0/P2} DCB_ENTER_OBP command succeeded
{/N0/SB0/P3} DCB_ENTER_OBP command succeeded
Entering OBP ...

Sun Fire 4800

OpenFirmware version 5.16.0 (12/24/03 09:54)
Copyright 2001-2004 Sun Microsystems, Inc.  All rights reserved.
Use is subject to license terms.
SmartFirmware, Copyright (C) 1996-2001.  All rights reserved.
16384 MB memory installed, Serial #50804601.
Ethernet address 0:3:ba:7:37:79, Host ID: 83073779.


{2} ok set-defaults
{2} ok
```

NVRAM Domain Configuration Variables

Domain configuration variables are stored in the NVCI on the SC. These variables determine the startup machine configuration and related communication characteristics.

Displaying Domain Configuration Variables

```
{2} ok printenv
Variable                Value               (Default Value)
-------------------------------------------------------------------
nvramrc
secondary-diag?         false               (false)
auto-boot-timeout       512                 (512)
scsi-initiator-id       7                   (7)
powerfail-time          0                   (0)
fcode-debug?            true                (true)
output-device           /sgc                (/sgcn)
input-device            /sgc                (/sgcn)
load-base               0x4000              (0x4000)
boot-command            boot                (boot)
auto-boot?              true                (true)
error-reset-recovery    sync                (sync)
diag-file                                   ()
boot-file                                   ()
diag-device             disk                (disk diskifp diskglm diskc net)
boot-device             disk                (disk diskifp diskglm diskc net)
local-mac-address?      false               (false)
ansi-terminal?          true                (true)
screen-#columns         80                  (80)
screen-#rows            34                  (34)
silent-mode?            false               (false)
use-nvramrc?            false               (false)
oem-logo                                    ()
oem-logo?               false               (false)
oem-banner                                  ()
oem-banner?             false               (false)
security-mode           none                (none)
security-password
security-#badlogins                         ()
hardware-revision                           ()
last-hardware-update                        ()
#power-cycles                               ()
diag-switch?            true                (false)
{2} ok
```

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To show a specific parameter (for example the `auto-boot?` variable), type `printenv` and the variable name:

```
{2} ok printenv auto-boot?
auto-boot? = true
```

Changing System Configuration Variables

You can modify the values of the configuration variables, and any changes you make remain in effect even after a power cycle.

Caution – Adjust configuration variables with caution. These NVCI variables determine the startup routine of the system so their configuration, if incorrect, can cause the system to operate in an unexpected manner.

The `setenv` Command

To change a parameter, use the `setenv` command:

```
{2} ok setenv local-mac-address? true
```

The `devalias` Command

Check out the device aliases:

```
{2} ok devalias disk

disk                    /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@0,0

{2} ok devalias cdrom

cdrom                   /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@6,0:f

{2} ok devalias net

net                     /ssm@0,0/pci@18,700000/pci@1/SUNW,hme

{2} ok
```

Device Aliases

A device alias, is a shorthand representation of a device path.

```
{2} ok devalias
Alias                   Device Path
--------------------------------------------------
xdisk                   /ssm@0,0/pci@19,700000/SUNW,ifp@3/ssd@0,0
xnet                    /ssm@0,0/pci@19,700000/pci@1/SUNW,qfe@3,1
diskc                   /ssm@0,0/pci@1c,700000/pci@1/SUNW,isptwo@4/sd@0,0
netc                    /ssm@0,0/pci@1c,700000/pci@1/SUNW,hme
cdrom                   /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@6,0:f
disk                    /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@0,0
disk0                   /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@0,0
disk1                   /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@1,0
disk2                   /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@2,0
disk3                   /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@3,0
disk4                   /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@4,0
disk5                   /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@5,0
def-cn                  /sgcn
diskifp                 /ssm@0,0/pci@19,700000/SUNW,ifp@1/ssd@0,0
diskglm                 /ssm@0,0/pci@18,700000/scsi@2/disk@0,0
scsi                    /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo
net                     /ssm@0,0/pci@18,700000/pci@1/SUNW,hme
{2} ok
```

Change a Device Alias

You can change the device path for an existing alias, indeed you may need to do so. First, check out the disk path:

```
{2} ok show-disks

a) /ssm@0,0/pci@19,700000/SUNW,ifp@3/ssd
b) /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd
q) NO SELECTION

Enter Selection, q to quit: q

{2} ok
```

Sun Fire 3800 - 6800 Quick Reference Guide

The disk alias is okay. Now to check the net alias:

```
{2} ok show-nets

a) /ssm@0,0/pci@19,700000/pci@1/SUNW,qfe@3,1
b) /ssm@0,0/pci@19,700000/pci@1/SUNW,qfe@2,1
c) /ssm@0,0/pci@19,700000/pci@1/SUNW,qfe@1,1
d) /ssm@0,0/pci@19,700000/pci@1/SUNW,qfe@0,1
e) /ssm@0,0/pci@18,700000/pci@1/SUNW,hme@0,1
q) NO SELECTION

Enter Selection, q to quit: q

{2} ok
```

First select which one is the primary network, then set the alias using the **nvalias** command:

```
{2} ok nvalias net /ssm@0,0/pci@18,700000/pci@1/SUNW,hme@0,1

{2} ok devalias

Alias                    Device Path
--------------------------------------------------
xdisk                    /ssm@0,0/pci@1a,700000/pci@1/SUNW,isptwo@4/sd@0,0
xnet                     /ssm@0,0/pci@1a,700000/pci@1/SUNW,hme@0,1
diskc                    /ssm@0,0/pci@1c,700000/pci@1/SUNW,isptwo@4/sd@0,0
netc                     /ssm@0,0/pci@1c,700000/pci@1/SUNW,hme
cdrom                    /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@6,0:f
disk                     /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@0,0
disk0                    /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@0,0
disk1                    /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@1,0
disk2                    /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@2,0
disk3                    /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@3,0
disk4                    /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@4,0
disk5                    /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd@5,0
def-cn                   /sgcn
diskifp                  /ssm@0,0/pci@19,700000/SUNW,ifp@1/ssd@0,0
diskglm                  /ssm@0,0/pci@18,700000/scsi@2/disk@0,0
scsi                     /ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo
net                      /ssm@0,0/pci@18,700000/pci@1/SUNW,hme
{2} ok
```

Auto-diagnosis Engine (ADE) Case Study

This is an error which occurred on an F4800, domain A, which consists of SB0, SB2, SB4, IB6, IB8

Please refer to the following URL for complete details:

http://sunsolve.central/handbook_internal/Systems/common-docs/adr_serengeti/adr_serengeti.html

Note – I have set verbosity-level=off using the `setupdomain` command, which can be a useful troubleshooting tool.

```
sc0:A> setkeyswitch on
Powering boards on ...
Testing CPU Boards ...
Loading the test table from board SB0 PROM 0 ...
May 02 14:51:44 sc0 Domain-A.SC: /N0/SB0: marked as Failed! errorReg =0x0001
May 02 14:51:44 sc0 Domain-A.SC:
May 02 14:52:16 sc0 Domain-A.SC: [AD] Event: SF4800.ASIC.AR.ADR_PERR.10421009
     CSN: 105M2F39 DomainID: A ADInfo: 1.SCAPP.15.0
     Time: Fri May 02 14:51:44 GMT+01:00 2003
     FRU-List-Count: 2; FRU-PN: 5014953; FRU-SN: 001494; FRU-LOC: RP0
                       FRU-PN: 5014362; FRU-SN: 015432; FRU-LOC: /N0/SB0
     Recommended-Action: Service action required

May 02 14:52:16 sc0 Domain-A.SC: /N0/SB2: marked as Failed! errorReg = 0x0001
May 02 14:52:16 sc0 Domain-A.SC:
May 02 14:53:04 sc0 Domain-A.SC: [AD] Event: SF4800.ASIC.AR.ADR_PERR.10421009
     CSN: 105M2F39 DomainID: A ADInfo: 1.SCAPP.15.0
     Time: Fri May 02 14:52:16 GMT+01:00 2003
     FRU-List-Count: 2; FRU-PN: 5014953; FRU-SN: 001494; FRU-LOC: RP0
                       FRU-PN: 5014362; FRU-SN: 021508; FRU-LOC: /N0/SB2
     Recommended-Action: Service action required

May 02 14:53:04 sc0 Domain-A.SC: /N0/SB4: marked as Failed! errorReg = 0x0001
May 02 14:53:04 sc0 Domain-A.SC:
May 02 14:53:24 sc0 Domain-A.SC: [AD] Event: SF4800.ASIC.AR.ADR_PERR.10421008
     CSN: 105M2F39 DomainID: A ADInfo: 1.SCAPP.15.0
     Time: Fri May 02 14:53:04 GMT+01:00 2003
     FRU-List-Count: 2; FRU-PN: 5014953; FRU-SN: 001494; FRU-LOC: RP0
                       FRU-PN: 5014362; FRU-SN: 012675; FRU-LOC: /N0/SB4
     Recommended-Action: Service action required

{/N0/SB2/P0} Unpopulated
{/N0/SB2/P1} Unpopulated
```

```
{/N0/SB2/P2} Passed
{/N0/SB2/P3} Passed
{/N0/SB0/P0} Unpopulated
{/N0/SB0/P1} Unpopulated
{/N0/SB0/P2} Passed
{/N0/SB0/P3} Passed
{/N0/SB4/P0} Unpopulated
{/N0/SB4/P1} Unpopulated
{/N0/SB4/P2} Passed
{/N0/SB4/P3} Passed
May 02 14:54:54 sc0 Domain-A.SC: Excluded unusable, unlicensed, failed or
disabled board: /N0/SB0
May 02 14:54:54 sc0 Domain-A.SC: Excluded unusable, unlicensed, failed or
disabled board: /N0/SB2
May 02 14:54:54 sc0 Domain-A.SC: Excluded unusable, unlicensed, failed or
disabled board: /N0/SB4
May 02 14:54:54 sc0 Domain-A.SC: No usable Cpu board in domain.
setkeyswitch operation did not complete
keyswitch is: standby
```

Note – There is no manual intervention here. Auto restoration automatically powers off and powers on. Refer to the *Auto Diagnosis blueprint*

http://www.sun.com/blueprints/1002/817-0080-10.pdf

```
sc0:A> Powering boards off ...
Powering boards on ...
Testing CPU Boards ...
{/N0/SB0/P0} Unpopulated
{/N0/SB0/P1} Unpopulated
{/N0/SB0/P2} Passed
{/N0/SB0/P3} Passed
{/N0/SB2/P0} Unpopulated
{/N0/SB2/P1} Unpopulated
{/N0/SB2/P2} Passed
{/N0/SB2/P3} Passed
{/N0/SB4/P0} Unpopulated
{/N0/SB4/P1} Unpopulated
{/N0/SB4/P2} Passed
{/N0/SB4/P3} Passed
Testing IO Boards ...
Loading the test table from board IB6 PROM 0 ...
{/N0/IB6/P0} Passed
{/N0/IB6/P1} Passed
```

```
{/N0/IB8/P0} Passed
{/N0/IB8/P1} Passed
Testing domain ...

Entering OBP ...

Sun Fire 4800
OpenFirmware version 5.15.0 (04/14/03 16:54)
Copyright 2001-2003 Sun Microsystems, Inc.  All rights reserved.
Use is subject to license terms.

SmartFirmware, Copyright (C) 1996-2001.  All rights reserved.
6144 MB memory installed, Serial #14190259.
Ethernet address 8:0:20:d8:86:b3, Host ID: 80d886b3.

{2} ok show-post-results

Board 0, Type: CPU/Memory
  port  2 - Status = Pass, Type: CPU/Memory
            E-cache: 8 MB R-freq: 750 MHz A-freq: 750 MHz
  port  3 - Status = Pass, Type: CPU/Memory
            E-cache: 8 MB R-freq: 750 MHz A-freq: 750 MHz
Board 2, Type: CPU/Memory
  port 10 - Status = Pass, Type: CPU/Memory
            E-cache: 8 MB R-freq: 750 MHz A-freq: 750 MHz
  port 11 - Status = Pass, Type: CPU/Memory
            E-cache: 8 MB R-freq: 750 MHz A-freq: 750 MHz
Board 4, Type: CPU/Memory
  port 18 - Status = Pass, Type: CPU/Memory
            E-cache: 8 MB R-freq: 750 MHz A-freq: 750 MHz
  port 19 - Status = Pass, Type: CPU/Memory
            E-cache: 8 MB R-freq: 750 MHz A-freq: 750 MHz
Board 6, Type: PCI IO
  port 24 - Status = Pass, Type: PCI IO
  port 25 - Status = Pass, Type: PCI IO
Board 8, Type: PCI IO
  port 28 - Status = Pass, Type: PCI IO
  port 29 - Status = Pass, Type: PCI IO

{2} ok
```

Note – After Auto restoration, the domain has come up with no errors. I would be not, however, be happy to bring this domain into production without further analysis.

```
sc0:SC> service

The use of service commands can be destructive and destabilize the
system.
Use of service mode is authorized only by personnel trained in its use.

Enter Password:                  <-------- Hit return key
Invalid password.

HostID: 80d88dd7
ScApp version: 5.15.0
RTOS version: 29

Enter Password:                  <-------- As obtained from
```
https://sfservicepass.sfbay/

```
sc0:SC[service]> showchs -b

Component              Status
---------------        --------
RP0                    Suspect
/N0/SB0                Suspect
/N0/SB2                Suspect
/N0/SB4                Suspect

sc0:SC[service]> service
sc0:SC> showerrbuffer

ErrorData[0]
  Date: Fri May 02 14:51:44 GMT+01:00 2003
  Device: /partition0/domain0/SB0/ar0
  ErrorID: 0x10421008
  Register: SafariPortError8[0x280] : 0x00000001
                AdrPErr [00:00] : 0x1 Address parity error
ErrorData[1]
  Date: Fri May 02 14:51:44 GMT+01:00 2003
  Device: /partition0/domain0/SB0/ar0
  ErrorID: 0x10421108
  Register: SafariPortError8[0x280] : 0x00010000
              AccAdrPErr [16:16] : 0x1 accumulated address parity errors
ErrorData[2]
  Date: Fri May 02 14:51:44 GMT+01:00 2003
  Device: /partition0/domain0/SB0/ar0
  ErrorID: 0x10421009
  Register: SafariPortError9[0x290] : 0x00000001
                AdrPErr [00:00] : 0x1 Address parity error
ErrorData[3]
```

```
    Date: Fri May 02 14:51:44 GMT+01:00 2003
    Device: /partition0/domain0/SB0/ar0
    ErrorID: 0x10421109
    Register: SafariPortError9[0x290] : 0x00010000
              AccAdrPErr [16:16] : 0x1 accumulated address parity errors
ErrorData[4]
    Date: Fri May 02 14:52:16 GMT+01:00 2003
    Device: /partition0/domain0/SB2/ar0
    ErrorID: 0x10421008
    Register: SafariPortError8[0x280] : 0x00000001
                  AdrPErr [00:00] : 0x1 Address parity error
ErrorData[5]
    Date: Fri May 02 14:52:16 GMT+01:00 2003
    Device: /partition0/domain0/SB2/ar0
    ErrorID: 0x10421108
    Register: SafariPortError8[0x280] : 0x00010000
              AccAdrPErr [16:16] : 0x1 accumulated address parity errors
ErrorData[6]
    Date: Fri May 02 14:52:16 GMT+01:00 2003
    Device: /partition0/domain0/SB2/ar0
    ErrorID: 0x10421009
    Register: SafariPortError9[0x290] : 0x00000001
                  AdrPErr [00:00] : 0x1 Address parity error
ErrorData[7]
    Date: Fri May 02 14:52:16 GMT+01:00 2003
    Device: /partition0/domain0/SB2/ar0
    ErrorID: 0x10421109
    Register: SafariPortError9[0x290] : 0x00010000
              AccAdrPErr [16:16] : 0x1 accumulated address parity errors
ErrorData[8]
    Date: Fri May 02 14:53:04 GMT+01:00 2003
    Device: /partition0/domain0/SB4/ar0
    ErrorID: 0x10421008
    Register: SafariPortError8[0x280] : 0x00000001
                  AdrPErr [00:00] : 0x1 Address parity error
ErrorData[9]
    Date: Fri May 02 14:53:04 GMT+01:00 2003
    Device: /partition0/domain0/SB4/ar0
    ErrorID: 0x10421108
    Register: SafariPortError8[0x280] : 0x00010000
              AccAdrPErr [16:16] : 0x1 accumulated address parity errors
ErrorData[10]
    Date: Fri May 02 14:53:04 GMT+01:00 2003
    Device: /partition0/domain0/SB4/ar0
    ErrorID: 0x10421009
    Register: SafariPortError9[0x290] : 0x00000001
                  AdrPErr [00:00] : 0x1 Address parity error
```

Sun Fire 3800 - 6800 Quick Reference Guide

```
ErrorData[11]
  Date: Fri May 02 14:53:04 GMT+01:00 2003
  Device: /partition0/domain0/SB4/ar0
  ErrorID: 0x10421109
  Register: SafariPortError9[0x290] : 0x00010000
            AccAdrPErr [16:16] : 0x1 accumulated address parity errors


sc0:SC>
```

Note – From page D-30 of the *Sun Fire 3800-6800 Troubleshooting Manual*, 805-7364-16 we can see that AR ports 8/9 on each SB connect to RP0 in an F4800.

Since all three system boards are reporting address parity errors on their interconnect to RP0, this is my suspect FRU.

Re-assigning HostID/MAC Address

I want to bring up my domain, but I don't want to use RP0. I have software which is hostid-licensed. At 5.15.x and greater, I can do the following:

sc0:SC> **showplatform -p mac**

```
           MAC Address          HostID
           -----------------    --------
Domain A   08:00:20:d8:86:b3    80d886b3
Domain B   08:00:20:d8:86:b4    80d886b4
Domain C   ff:ff:ff:ff:ff:ff    ffffffff
Domain D   ff:ff:ff:ff:ff:ff    ffffffff
SSC0       08:00:20:d8:86:b7    80d886b7
SSC1       08:00:20:d8:86:b8    80d886b8
System Serial Number: 105M2F39
Chassis HostID: 80d886b3
```

sc0:SC> **showboards**

Slot	Pwr	Component Type	State	Status	Domain
SSC0	On	System Controller	Main	Passed	–
SSC1	On	System Controller	Spare	–	–
ID0	On	Sun Fire 4800 Centerplane	–	OK	–
PS0	On	A153 Power Supply	–	OK	–
PS1	On	A153 Power Supply	–	OK	–

```
PS2        On  A153 Power Supply             -         OK          -
FT0        On  Fan Tray                      Low Speed OK          -
FT1        On  Fan Tray                      Low Speed OK          -
FT2        On  Fan Tray                      Low Speed OK          -
RP0        Off Repeater Board                -         OK          -
RP2        Off Repeater Board                -         OK          -
/N0/SB0    Off CPU Board                     Assigned  Not tested A
/N0/SB2    Off CPU Board                     Assigned  Not tested A
/N0/SB4    Off CPU Board                     Assigned  Not tested A
/N0/IB6    Off PCI I/O Board                 Assigned  Not tested A
/N0/IB8    Off PCI I/O Board                 Assigned  Not tested A

sc0:SC> setupplatform -p part


Partition Mode
--------------
Configure chassis for single or dual partition mode? [single]: dual

sc0:SC> deleteboard sb0 sb2 sb4 ib6 ib8
sc0:SC> addboard -d c sb0 sb2 sb4 ib6 ib8
sc0:SC> showboard


Slot       Pwr Component Type               State     Status      Domain
----       --- --------------               -----     ------      ------
SSC0       On  System Controller            Main      Passed      -
SSC1       On  System Controller            Spare     -           -
ID0        On  Sun Fire 4800 Centerplane    -         OK          -
PS0        On  A153 Power Supply            -         OK          -
PS1        On  A153 Power Supply            -         OK          -
PS2        On  A153 Power Supply            -         OK          -
FT0        On  Fan Tray                     Low Speed OK          -
FT1        On  Fan Tray                     Low Speed OK          -
FT2        On  Fan Tray                     Low Speed OK          -
RP0        Off Repeater Board               -         OK          -
RP2        Off Repeater Board               -         OK          -
/N0/SB0    Off CPU Board                    Assigned  Not tested C
/N0/SB2    Off CPU Board                    Assigned  Not tested C
/N0/SB4    Off CPU Board                    Assigned  Not tested C
/N0/IB6    Off PCI I/O Board                Assigned  Not tested C
/N0/IB8    Off PCI I/O Board                Assigned  Not tested C

sc0:SC> setupplatform -p hostid


HostID/MAC Address Swap
-----------------------
```

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```
Domain to swap HostID/MAC address [A,B,C,D]: c
Domain to swap HostID/MAC address with [A,B,C,D]: a

Commit swap? [no]: yes

Swap HostIDs/MAC addresses of another pair of Domains? [no]:
sc0:SC> showplatform -p mac

            MAC Address         HostID
            -----------------   --------
Domain A    08:00:20:d8:86:b4   80d886b4
Domain B    ff:ff:ff:ff:ff:ff   ffffffff
Domain C    08:00:20:d8:86:b3   80d886b3
Domain D    ff:ff:ff:ff:ff:ff   ffffffff
SSC0        08:00:20:d8:86:b7   80d886b7
SSC1        08:00:20:d8:86:b8   80d886b8

System Serial Number: 105M2F39
Chassis HostID: 80d886b3

sc0:SC> console c

Connected to Domain C

Domain Shell for Domain C

sc0:C>
```

Note – Remember to do a `setupdomain`, particularly remembering to direct the loghost output to the admin-ws

```
sc0:C> setkeyswitch on
Powering boards on ...
.
```

Note – At a convenient time for the customer, take down domain C, replace RP0 and re-assign everything to domain A>

Make the platform single segment again, swap the MAC addresses back and bring up domain A.

```
sc0:SC> setupplatform -p hostid -m auto

HostID/MAC Address Swap
-----------------------

Restore automatic HostID/MAC address assignment? [no]: y

sc0:SC>


sc0:SC> showplatform -p mac

              MAC Address          HostID
              -----------------    --------
Domain A      08:00:20:d8:86:b3    80d886b3
Domain B      08:00:20:d8:86:b4    80d886b4
Domain C      ff:ff:ff:ff:ff:ff    ffffffff
Domain D      ff:ff:ff:ff:ff:ff    ffffffff
SSC0          08:00:20:d8:86:b7    80d886b7
SSC1          08:00:20:d8:86:b8    80d886b8

System Serial Number: 105M2F39

sc0:SC>
```

Re-setting component health status

We have all the system boards still marked as suspect. It's good policy to mark these FRUs as good (with a brief explanation as below) so as not to confuse our next fault analysis.

```
sc0:SC[service]> setchs -s ok -r "see case 3221876" -c sb0
sc0:SC[service]> setchs -s ok -r "see case 3221876" -c sb2
sc0:SC[service]> setchs -s ok -r "see case 3221876" -c sb4
sc0:SC[service]> showchs -b

Component          Status
---------------    --------

sc0:SC[service]> service
sc0:SC>
```

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