



Sun™ Blade G2 RAID 0/1 Expansion Module Installation Guide

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Installing the Sun™ Blade G2 RAID 0/1 Expansion Module

This document describes how to install a Sun Blade G2 RAID 0/1 Expansion Module in a Sun server module. It also describes how to configure the Sun Blade G2 RAID 0/1 Expansion Module for RAID 0 or RAID1 operation after you have installed it in the server module.

Installing the Module

- ◆ **Remove the Sun Blade G2 RAID 0/1 Expansion Module from its packaging, and install it in the server module as shown in [FIGURE 1](#).**

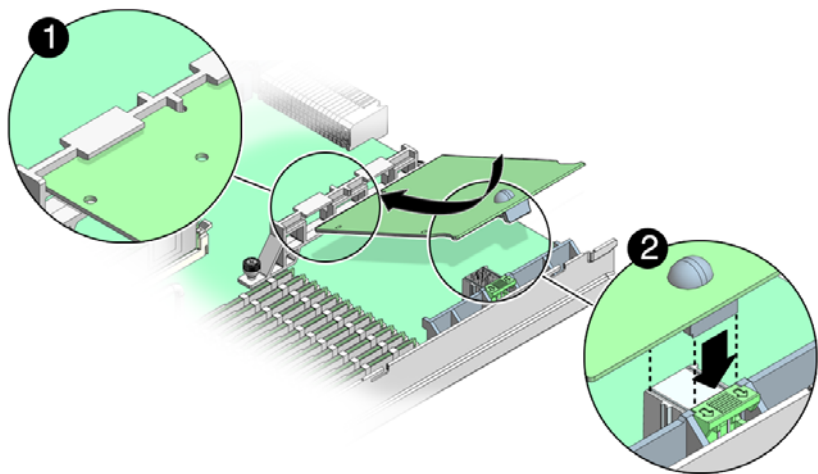


FIGURE 1 Installing the Sun Blade G2 RAID 0/1 Expansion Module

Configuring the Sun Blade G2 RAID 0/1 Expansion Module

The Sun Blade G2 RAID 0/1 Expansion Module supports RAID 0 and RAID 1 operation.

`raidctl` is a Solaris command that can be used to set up hardware RAID volumes on the Sun Blade G2 RAID 0/1 Expansion Module.

Note – Since `raidctl` is a Solaris command, it can be used with *any* server module running the Solaris OS, no matter whether it has a SPARC, AMD, or Intel processor. The behavior of `raidctl` is not dependent on which server is running the Solaris OS.

When to Use `raidctl`

Hardware RAID can be set up with `raidctl` before or after the server's OS is installed. However, if you want to mirror your boot disk, the RAID mirror must be set up *before* OS installation. To do this:

1. **Boot your new server using a remote Solaris OS.**
2. **Use `raidctl` to create your RAID mirror.**
3. **Reboot and install the OS on the mirror.**

Using `raidctl` to Create RAID Volumes

Use the `-c` or `-C` option to create a RAID volume. The `-c` option can only create RAID 0, 1, and 1E volumes. The `-C` option is more general.

Disk Names

Connectors to different SCSI buses are called channels. In Solaris device file convention, they are represented by the letter `c`, or controller number.

SCSI disks are addressed by target number and logical unit numbers. There could be multiple logical unit numbers up to a maximum of 8 under each target number.

`raidctl` uses two slightly different formats for naming disks:

1. The Solaris canonical format, $c?t?d?$, where c is the controller number, t is the target number, and d is the logical unit number. For example, three disks connected to controller number 2 could be $c2t0d0$, $c2t1d0$, and $c2t2d0$.
2. The $C.ID.L$ format, where C is the channel number (not the same as the controller number) and ID and L are once again the target ID and logical unit number.

Obtaining Disk Names in Canonical Format

You can run the `format` command at the CLI without any parameters to get the names of the available disks in the canonical format. For example,

```
# format
Searching for disks...done
c2t3d0: configured with capacity of 136.71GB
AVAILABLE DISK SELECTIONS:
0. c2t0d0 .....
1. c2t1d0 .....
2. c2t2d0 .....
3. c2t3d0 .....
#
```

Obtaining Disk Names in C.ID.L Format

You can run the `raidctl -l` command with the `-l` option to obtain the names of the available disks in C.ID.L format. For example,

```
# raidctl -l
Controller: 2
Disk: 0.0.0
Disk: 0.1.0
Disk: 0.2.0
Disk: 0.3.0
#
```

Note – Running the `raidctl -l` command also provides the number of the controller, which is 2. This means that the names of these disks in canonical form would be `c2t0d0`, `c2t1d0`, `c2t2d0`, and `c2t3d0` (as was found above by running the `format` command).

The `raidctl -c` Command

```
raidctl -c [-f] [-r raid_level] disk1 disk2 [disk3...].
```

Parameter	Description
<code>-f</code>	When present, this parameter suppresses warning prompts, such as “Do you really want to...”
<code>-r</code> <code>raid_level</code>	<code>raid_level</code> can be 0, 1, or 1E. For <code>raid_level = 0</code> , there must be two or more disks listed. For <code>raid_level = 1</code> , there must be two and only two disks listed. If there are more than two disks listed, <code>raid_level</code> must be 0 or 1E. If the <code>-r</code> parameter is omitted, <code>raidctl</code> will create a RAID 1 volume if there are two disks listed and will fail otherwise. Note - The Sun Blade G2 RAID 0/1 Expansion Module supports RAID levels 0 and 1.
<code>disk1, disk2, ...</code>	Disk names in Solaris canonical format, <code>c?t?d?</code> .

Note – If you run the `raidctl -c` command without the `[-r raid_level]` option, you can only list two disks and you will get a RAID 1 volume. To create a RAID 1E volume, you must list more than two disks *and* you must use the `-r` option.

Here is what happens if you list three disks and do not specify the `raid_level` option:

```
# raidctl -c c2t1d0 c2t2d0 c2t3d0
Creating RAID volume will destroy all data on spare
space of member disks, proceed (yes/no)? yes
Illegal array layout.
#
```

Here is what happens when you do not specify the `raid_level` option, but only list two disks:

```
# raidctl -c c2t1d0 c2t2d0
Creating RAID volume will destroy all data on spare
space of member disks, proceed (yes/no)? y
Volume c2t1d0 is created successfully!
#
```

Although the output did not say so, `c2t1d0` is a RAID 1 volume.

The `raidctl -C` Command

This command is more general than `raidctl -c` and uses a different format for naming disks (C.ID.L)

```
raidctl -C "disks" [-r raid_level] [-z capacity]
[-s stripe_size] [-f] controller
```

Parameter	Description
"disks"	A list of disks in C.ID.L format. The list can include disks and sub-volumes, separated by spaces. Sub-volumes are groups of disks separated by spaces but enclosed by parenthesis—for example, (0.0.0 0.1.0).
-r raid_level	raid_level can be 0, 1, 1E, 5, 10, or 50. See the man page for descriptions of the disks combinations that can be used. If this parameter is omitted, raidctl will create a RAID 1 volume if two disks are listed and will fail otherwise. Note - The Sun Blade G2 RAID 0/1 Expansion Module supports RAID levels 0 and 1.
-z capacity	The capacity of the volume that will be created. Can be terabytes, gigabytes, megabytes, etc., entered as 2t, 24g, 256m and so forth. If this parameter is omitted, raidctl calculates the maximum volume that can be created from the disks listed.

Parameter	Description
-s stripe_size	Stripe size of the volume that will be created. See the man page for the possible values. If this parameter is omitted, <code>raidctl</code> chooses an appropriate value, often 64k.
-f	When present, this parameter suppresses warning prompts, such as “Do you really want to...”
controller	Specifies to which HBA (RAID controller) the disks belong. <code>raidctl -l</code> will return the controller’s ID.

Note – As with `raidctl -c`, you must use the `[-r raid_level]` option unless you are forming a RAID 1 volume with just two disks.

For more information about administering RAID volumes, refer to the documentation at <http://docs.sun.com/app/docs/prod/blade.raidhba.exp#hic/>

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