



## **Release Notes for Topspin Linux Host Drivers Release 3.2.0 10-00046-10-A0**

**September 30, 2006**

Current Release: Version 3.2.0 Update 3 (build 110)

These release notes describe the features and known issues for the Topspin Linux Host Drivers Release 3.2.0 Update 3 (build 110). These release notes apply to all InfiniBand-attached hosts running Topspin Linux Host Drivers Release Version 3.2.0.

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These release notes describe the following topics:

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- Open Issues

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## Obtaining Technical Support

For additional support, you must first register your product at <http://www.cisco.com>. After registering, you may contact your supplier for support, or Cisco directly at:

Telephone, Technical Support	1-800-499-1473 or (Toll call/international) 1-408-526-4000
Support Web Site	<a href="http://www.cisco.com">http://www.cisco.com</a>

Be prepared to provide the following information to support personnel.

### General Information

Technical Support registration number, if applicable

Error messages received

Detailed description of the problem and specific questions

Description of any troubleshooting steps already performed and results

### Server configuration

Type of server, chip set, CPU, amount of RAM, # of nodes

Attached storage devices (output from `cat /proc/scsi/scsi`)

InfiniBand configuration (output from

`/usr/local/topspin/sbin/hca_self_test`)

### Topspin Chassis configuration

Chassis model

Output from the **show running-status all** command

### Topspin Chassis Serial Number

The chassis serial number and corresponding bar code are provided on the serial number label, as shown below:



This can be found on the bottom of the chassis or the outside of the Topspin chassis box packaging. It can also be found in the output of the **show backplane** command.

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## Determining the Software Version

If InfiniBand drivers are already installed on the host, to determine the version of the Topspin Linux host drivers you are running, enter the following command at the prompt.

```
$ rpm -qa | grep topspin
topspin-ib-mod-rhel3-2.4.21-32.ELsmp-3.2.0-110
topspin-ib-mpi-rhel3-3.2.0-110
topspin-ib-rhel3-3.2.0-110
```

## Downloading the Latest Software Release

To verify that you are running the latest available release, compare your version against the latest version on the Cisco support website at <http://www.cisco.com/cgi-bin/tablebuild.pl/sfs-linux>. After registering your product, you should have received a username and password to give you access to this site.

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## Upgrading From 3.1.0 to 3.2.0

Note that switch firmware, Linux host drivers, and Windows host drivers are being released and packaged separately.

The TopspinOS 2.1.0 (or higher) switch release supports 1.1.3 (or higher) Linux host drivers. The 3.2.0 Linux host drivers require all chassis to first be upgraded to TopspinOS 2.0.0 or higher.

Topspin chassis should be upgraded before the IB hosts.

To upgrade your IB hosts, use the host driver CD **tsinstall** command, which will upgrade your HCA firmware as well. If you use the `rpm` command instead of `tsinstall`, you will need to run `tvflash` to upgrade your HCA firmware. Note that you must reboot the host after upgrading the host drivers or HCA firmware.

For general information about upgrading to a new software release, see the *Installing Host-Side Drivers* chapter in the Host-Side Driver User Guide.

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## Release 3.2.0 Documentation Set

The following list describes the documentation available with Topspin Linux Host Drivers Release 3.2.0, which is available in electronic form and printed form upon request.

Note: Documentation is included on the Topspin Linux Host Drivers 3.2.0 CD-ROM. You may download the latest documentation updates on the Cisco support site at

[http://www.cisco.com/en/US/partner/products/ps6418/tsd\\_products\\_support\\_category\\_home.html](http://www.cisco.com/en/US/partner/products/ps6418/tsd_products_support_category_home.html).

### Books:

Host-Side Driver User Guide for Linux Release 3.2.0  
Host Channel Adapter Hardware Guide Release 3.2.0

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## Supported Kernels

The Topspin Linux host drivers are supported on the following kernels:

- \* Red Hat Enterprise Linux 2.1 (IA32/EM64T 32-bit)
  - \* 2.4.9-e.34 SMP
  - \* 2.4.9-e.34 Enterprise
  - \* 2.4.9-e.37 SMP
  - \* 2.4.9-e.37 Enterprise
- \* Red Hat Enterprise Linux 2.1 (Athlon/Opteron 32-bit)
  - \* 2.4.9-e.34 SMP
- \* Red Hat Enterprise Linux 3 (IA32/EM64T 32-bit)
  - \* 2.4.21-15.EL SMP (Update 2)
  - \* 2.4.21-27.EL SMP (Update 4)
  - \* 2.4.21-27.EL hugemem (Update 4)
  - \* 2.4.21-32.EL SMP (Update 5)
  - \* 2.4.21-32.EL hugemem (Update 5)
  - \* 2.4.21-37.EL SMP (Update 6)
  - \* 2.4.21-37.EL hugemem (Update 6)
  - \* 2.4.21-40.EL SMP (Update 7)
  - \* 2.4.21-40.EL hugemem (Update 7)
  - \* 2.4.21-47.EL SMP (Update 8)
  - \* 2.4.21-47.EL hugemem (Update 8)
- \* Red Hat Enterprise Linux 3 (Athlon/Opteron 32-bit)
  - \* 2.4.21-27.EL SMP (Update 4)
  - \* 2.4.21-32.EL SMP (Update 5)
  - \* 2.4.21-37.EL SMP (Update 6)

- \* 2.4.21-40.EL SMP (Update 7)
- \* 2.4.21-47.EL SMP (Update 8)
  
- \* Red Hat Enterprise Linux 4 (IA32/Athlon/Opteron/EM64T 32-bit)
  - \* 2.6.9-11.EL SMP (Update 1)
  - \* 2.6.9-11.EL hugemem (Update 1)
  - \* 2.6.9-22.EL SMP (Update 2)
  - \* 2.6.9-22.EL hugemem (Update 2)
  - \* 2.6.9-34.EL SMP (Update 3)
  - \* 2.6.9-34.EL hugemem (Update 3)
  
- \* SUSE Linux Enterprise Server 9 (IA32/Athlon/Opteron/EM64T 32-bit)
  - \* 2.6.5-7.191 SMP (Service Pack 2)
  - \* 2.6.5-7.191 BIGSMP (Service Pack 2)
  - \* 2.6.5-7.244 SMP (Service Pack 3)
  - \* 2.6.5-7.244 BIGSMP (Service Pack 3)
  
- \* Asianux 1.0
  - \* 2.4.21-9.30AX SMP
  
- \* Red Hat Enterprise Linux 3 (Opteron 64-bit)
  - \* 2.4.21-27.EL SMP (Update 4)
  - \* 2.4.21-32.EL SMP (Update 5)
  - \* 2.4.21-37.EL SMP (Update 6)
  - \* 2.4.21-40.EL SMP (Update 7)
  - \* 2.4.21-47.EL SMP (Update 8)
  
- \* Red Hat Enterprise Linux 3 (EM64T 64-bit)
  - \* 2.4.21-27.EL SMP (Update 4)
  - \* 2.4.21-32.EL SMP (Update 5)
  - \* 2.4.21-37.EL SMP (Update 6)
  - \* 2.4.21-40.EL SMP (Update 7)
  - \* 2.4.21-47.EL SMP (Update 8)
  
- \* Red Hat Enterprise Linux 4 (Opteron/EM64T 64-bit)
  - \* 2.6.9-11.EL SMP (Update 1)
  - \* 2.6.9-22.EL SMP (Update 2)
  - \* 2.6.9-34.EL SMP (Update 3)
  - \* 2.6.9-34.EL largesmp (Update 3)
  
- \* SUSE Linux Enterprise Server 9 (Opteron/EM64T 64-bit)
  - \* 2.6.5-7.191 SMP (Service Pack 2)
  - \* 2.6.5-7.244 SMP (Service Pack 3)
  
- \* Red Hat Enterprise Linux 2.1 (Itanium)
  - \* 2.4.18-e.43 SMP
  
- \* Red Hat Enterprise Linux 3 (Itanium)
  - \* 2.4.21-27.EL SMP (Update 4)
  - \* 2.4.21-32.EL SMP (Update 5)
  - \* 2.4.21-37.EL SMP (Update 6)

- \* 2.4.21-40.EL SMP (Update 7)
- \* 2.4.21-47.EL SMP (Update 8)
- \* Red Hat Enterprise Linux 4 (Itanium)
  - \* 2.6.9-11.EL SMP (Update 1)
  - \* 2.6.9-22.EL SMP (Update 2)
  - \* 2.6.9-34.EL SMP (Update 3)
  - \* 2.6.9-34.EL largesmp (Update 3)
- \* SUSE Linux Enterprise Server 9 (Itanium)
  - \* 2.6.5-7.191 SMP (Service Pack 2)
  - \* 2.6.5-7.244 SMP (Service Pack 3)
- \* Red Hat Enterprise Linux 4 (PowerPC 64-bit)
  - \* 2.6.9-11.EL SMP (Update 1)
  - \* 2.6.9-22.EL SMP (Update 2)
  - \* 2.6.9-34.EL SMP (Update 3)
  - \* 2.6.9-34.EL largesmp (Update 3)
- \* SUSE Linux Enterprise Server 9 (PowerPC 64-bit)
  - \* 2.6.5-7.191 SMP (Service Pack 2)
  - \* 2.6.5-7.244 SMP (Service Pack 3)

## Supported Compilers for MPI

The Topspin Linux host drivers are supported on the following C, C++, and Fortran (Fortran 77 and Fortran 90) compilers:

- \* GNU C/C++
- \* Intel C/C++ 9.0 and 9.1
  - \* Red Hat Enterprise Linux 3 (IA32/Athlon/Opteron/EM64T 32-bit)
  - \* Red Hat Enterprise Linux 3 (Opteron/EM64T 64-bit)
  - \* Red Hat Enterprise Linux 3 (Itanium)
  - \* Red Hat Enterprise Linux 4 (IA32/Athlon/Opteron/EM64T 32-bit)
  - \* Red Hat Enterprise Linux 4 (Opteron/EM64T 64-bit)
  - \* Red Hat Enterprise Linux 4 (Itanium)
  - \* SUSE Linux Enterprise Server 9 (IA32/Athlon/Opteron/EM64T 32-bit)
  - \* SUSE Linux Enterprise Server 9 (Opteron/EM64T 64-bit)
  - \* SUSE Linux Enterprise Server 9 (Itanium)
- \* GNU Fortran
  - \* Intel Fortran 8.1
    - \* Red Hat Enterprise Linux 2.1 (IA32/Athlon/Opteron/EM64T 32-bit)
    - \* Red Hat Enterprise Linux 2.1 (Itanium)
    - \* Red Hat Enterprise Linux 3 (IA32/Athlon/Opteron/EM64T 32-bit)
    - \* Red Hat Enterprise Linux 3 (Opteron/EM64T 64-bit)
    - \* Red Hat Enterprise Linux 3 (Itanium)
    - \* Red Hat Enterprise Linux 4 (IA32/Athlon/Opteron/EM64T 32-bit)
    - \* Red Hat Enterprise Linux 4 (Opteron/EM64T 64-bit)

- \* Red Hat Enterprise Linux 4 (Itanium)
- \* SUSE Linux Enterprise Server 9 (IA32/Athlon/Opteron/EM64T 32-bit)
- \* SUSE Linux Enterprise Server 9 (Opteron/EM64T 64-bit)
- \* SUSE Linux Enterprise Server 9 (Itanium)
  
- \* Intel Fortran 9.0 and 9.1
- \* Red Hat Enterprise Linux 3 (IA32/Athlon/Opteron/EM64T 32-bit)
- \* Red Hat Enterprise Linux 3 (Opteron/EM64T 64-bit)
- \* Red Hat Enterprise Linux 3 (Itanium)
- \* Red Hat Enterprise Linux 4 (IA32/Athlon/Opteron/EM64T 32-bit)
- \* Red Hat Enterprise Linux 4 (Opteron/EM64T 64-bit)
- \* Red Hat Enterprise Linux 4 (Itanium)
- \* SUSE Linux Enterprise Server 9 (IA32/Athlon/Opteron/EM64T 32-bit)
- \* SUSE Linux Enterprise Server 9 (Opteron/EM64T 64-bit)
- \* SUSE Linux Enterprise Server 9 (Itanium)
  
- \* Portland Group Fortran 5.2
- \* Red Hat Enterprise Linux 3 (IA32/Athlon/Opteron/EM64T 32-bit)
- \* Red Hat Enterprise Linux 3 (Opteron/EM64T 64-bit)
- \* Red Hat Enterprise Linux 4 (IA32/Athlon/Opteron/EM64T 32-bit)
- \* Red Hat Enterprise Linux 4 (Opteron/EM64T 64-bit)
- \* SUSE Linux Enterprise Server 9 (IA32/Athlon/Opteron/EM64T 32-bit)
- \* SUSE Linux Enterprise Server 9 (Opteron/EM64T 64-bit)
  
- \* Portland Group Fortran 6.1
- \* Red Hat Enterprise Linux 3 (IA32/Athlon/Opteron/EM64T 32-bit)
- \* Red Hat Enterprise Linux 3 (Opteron/EM64T 64-bit)
- \* Red Hat Enterprise Linux 4 (IA32/Athlon/Opteron/EM64T 32-bit)
- \* Red Hat Enterprise Linux 4 (Opteron/EM64T 64-bit)
- \* SUSE Linux Enterprise Server 9 (IA32/Athlon/Opteron/EM64T 32-bit)
- \* SUSE Linux Enterprise Server 9 (Opteron/EM64T 64-bit)

## Supported HCA Firmware

The Topspin Linux Host Drivers include the following InfiniBand HCA firmware, which is based on the Mellanox firmware from

[http://www.mellanox.com/support/firmware\\_table.php](http://www.mellanox.com/support/firmware_table.php).

HCA Type	Description	Firmware Version
Cougar	2 port PCI-X (not low-profile)	3.4.000
Cougar Cub	2 port PCI-X	3.4.000
Lion Cub	2 port PCI-E	4.7.600
Lion Mini	2 port PCI-E memfree	5.1.400
Cheetah	1 port PCI-E memfree	1.0.800
IBM BladeCenter PCI-X	uses Cougar firmware	see Cougar
IBM BladeCenter PCI-E	based on Lion Cub	4.7.600
Dell PowerEdge 1X55	based on Lion Cub	4.7.600

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## Changes Since Software Release 3.2.0 Update 2 (build 106)

This section describes the new features and bug fixes of this release.

The ID number from the Cisco Defect Tracking System, if applicable, is included in parentheses. (ex: PR CSCxyyyyy) Current status of all issues is available online at [http://www.cisco.com/cgi-bin/Support/Bugtool/launch\\_bugtool.pl](http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl).

### Supported Kernels

The Topspin Linux host drivers are supported on the following additional kernels:

- \* Red Hat Enterprise Linux 3 (IA32/EM64T 32-bit)
  - \* 2.4.21-47.EL SMP (Update 8)
  - \* 2.4.21-47.EL hugemem (Update 8)
- \* Red Hat Enterprise Linux 3 (Athlon/Opteron 32-bit)
  - \* 2.4.21-47.EL SMP (Update 8)
- \* Red Hat Enterprise Linux 3 (Opteron 64-bit)
  - \* 2.4.21-47.EL SMP (Update 8)
- \* Red Hat Enterprise Linux 3 (EM64T 64-bit)
  - \* 2.4.21-47.EL SMP (Update 8)
- \* Red Hat Enterprise Linux 3 (Itanium)
  - \* 2.4.21-47.EL SMP (Update 8)

### General

Fixed a problem that would cause IB link to become unresponsive on newer multicore processors when the CPU load was very high. (PR CSCsf17075)

### uDAPL

Fixed uDAPL startup scalability problem when using Intel MPI. (PR CSCse88951)

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## Changes Since Software Release 3.2.0 Update 1 (build 82)

This section describes the new features and bug fixes of this release.



The ID number from the Cisco Defect Tracking System, if applicable, is included in parentheses. (ex: PR CSCxyyyyy) Current status of all issues is available online at [http://www.cisco.com/cgi-bin/Support/Bugtool/launch\\_bugtool.pl](http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl).

## **General**

Stability of the low-level InfiniBand driver is improved under heavy load. (PR CSCsd29197)

Several problems were fixed in the HCA diagnostic utilities. (PR CSCsd92468).

Support for Red Hat Enterprise Linux 2.1 (Itanium) will be removed in the next update.

## **MPI**

Intel C/C++/Fortran 9.1 compilers are now supported with MPI.

Several bug fixes and features from MVAPICH 0.9.7 were added. (PR CSCsd98619)

The memory conservation mode is now functional again. (PR CSCse14310)

Fixed several scalability problems with MPI on PowerPC. (PR CSCsd29197, CSCse41470)

The TotalView debugger is now supported with MPI. (PR CSCse86679)

Log messages are now more informative when MPI fails due to an HCA error. (PR CSCsd98603)

mpirun -machinefile parameter now works when used with pathnames longer than 100 characters. (PR CSCse19898)

## **SDP**

SDP throughput is no longer erratic on Itanium. (PR CSCtp04820)

Using MSG\_WAITALL with SDP now works on Itanium. (PR CSCtp03882)

SDP no longer causes "kernel unaligned access" kernel messages on Itanium. (PR CSCtp05664)

## SRP

SRP now has improved scalability on larger InfiniBand fabrics. (PR CSCse09344)

Several problems with EMC PowerPath have been resolved. (PR CSCse90412, CSCse35959)

SRP is now interoperable with the Engenio MPP driver. (PR SCse09348)

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## Changes Since Software Release 3.2.0 FCS (build 67)

This section describes the new features and bug fixes of this release.

The ID number from the Cisco Defect Tracking System, if applicable, is included in parentheses. (ex: PR CSCxyyyyy) Current status of all issues is available online at [http://www.cisco.com/pcgi-bin/Support/Bugtool/launch\\_bugtool.pl](http://www.cisco.com/pcgi-bin/Support/Bugtool/launch_bugtool.pl).

## Supported Kernels

The Topspin Linux host drivers are supported on the following additional kernels:

- \* Red Hat Enterprise Linux 3 (IA32/EM64T 32-bit)
  - \* 2.4.21-40.EL SMP (Update 7)
  - \* 2.4.21-40.EL hugemem (Update 7)
- \* Red Hat Enterprise Linux 3 (Athlon/Opteron 32-bit)
  - \* 2.4.21-40.EL SMP (Update 7)
- \* Red Hat Enterprise Linux 3 (Opteron 64-bit)
  - \* 2.4.21-40.EL SMP (Update 7)
- \* Red Hat Enterprise Linux 3 (EM64T 64-bit)
  - \* 2.4.21-40.EL SMP (Update 7)
- \* Red Hat Enterprise Linux 3 (Itanium)
  - \* 2.4.21-40.EL SMP (Update 7)
- \* Red Hat Enterprise Linux 4 (IA32/Athlon/Opteron/EM64T 32-bit)
  - \* 2.6.9-34.EL SMP (Update 3)
  - \* 2.6.9-34.EL hugemem (Update 3)
- \* Red Hat Enterprise Linux 4 (Opteron/EM64T 64-bit)
  - \* 2.6.9-34.EL SMP (Update 3)
  - \* 2.6.9-34.EL largesmp (Update 3)

- \* Red Hat Enterprise Linux 4 (Itanium)
  - \* 2.6.9-34.EL SMP (Update 3)
  - \* 2.6.9-34.EL largesmp (Update 3)
- \* Red Hat Enterprise Linux 4 (PowerPC 64-bit)
  - \* 2.6.9-34.EL SMP (Update 3)
  - \* 2.6.9-34.EL largesmp (Update 3)

The Topspin Linux host drivers are no longer supported on the following kernels:

- \* Red Hat Enterprise Linux 3 (IA32/EM64T 32-bit)
  - \* 2.4.21-20.EL SMP (Update 3)
  - \* 2.4.21-20.EL hugemem (Update 3)
- \* Red Hat Enterprise Linux 3 (Opteron 64-bit)
  - \* 2.4.21-20.EL SMP (Update 3)
- \* Red Hat Enterprise Linux 3 (EM64T 64-bit)
  - \* 2.4.21-20.EL SMP (Update 3)
- \* Red Hat Enterprise Linux 3 (Itanium)
  - \* 2.4.21-20.EL SMP (Update 3)

## General

Red Hat Enterprise Linux 4 Update 3 includes a technology preview of the OpenIB InfiniBand stack. The tsinstall utility will automatically uninstall this stack. This stack must be uninstalled before the Topspin Linux Host Drivers can be used. (PR CSCsd64341)

New HCA firmware is included for all HCA types. The tsinstall utility will automatically correctly upgrade existing HCAs to the new firmware. (PR CSCtp06883)

A new revision of the PCI Express (PCI-E) low-profile, two-port HCA (identified as LionCub Rev C by tvflash) is supported. Note that this HCA uses different firmware from the previous HCAs. (PR CSCsd09240)

Several bugs were fixed in the HCA diagnostic utilities for loopback, memory, and stress testing.

Fixed a problem that prevented ppc64 platforms from using newer PCI-X HCA firmware. (PR CSCsd12365)

## MPI

Intel C and C++ are now supported for compiling MPI programs, using the mpicc.i and mpiCC.i compile programs. (PR CSCtp05644)

Fixed a problem where C++ programs could not be compiled. (PR CSCsd82565)

HP MPI 2.2 (<http://www.hp.com/go/mpi>) has been tested with this release. (PR CSCsd09247)

Intel MPI 2.0 (<http://www.intel.com/cd/software/products/asmo-na/eng/cluster/mpi/index.htm>) has been tested with this release. (PR CSCsd08772)

Fixed a problem where MPD job startup failed when using more than 512 processes. (PR CSCsd41965)

Fixed a problem where RDMA memory registration would fail for read-only memory. (PR CSCsd41975)

## SDP

Fixed a problem where SDP could fail with a stack overflow message under heavy system load. (PR CSCtp04826)

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## Changes Since Software Release 3.1.0 Update 1 (build 130)

This section describes the new features and bug fixes of this release.

The ID number from the Cisco Defect Tracking System, if applicable, is included in parentheses. (ex: PR CSCxxyyyy) Current status of all issues is available online at [http://www.cisco.com/pcgi-bin/Support/Bugtool/launch\\_bugtool.pl](http://www.cisco.com/pcgi-bin/Support/Bugtool/launch_bugtool.pl).

### Supported Kernels

The Topspin Linux host drivers are supported on the following additional kernels:

- \* Red Hat Enterprise Linux 3 (IA32/EM64T 32-bit)
  - \* 2.4.21-37.EL SMP (Update 6)
  - \* 2.4.21-37.EL hugemem (Update 6)
- \* Red Hat Enterprise Linux 3 (Athlon/Opteron 32-bit)
  - \* 2.4.21-37.EL SMP (Update 6)
- \* Red Hat Enterprise Linux 3 (Opteron 64-bit)
  - \* 2.4.21-37.EL SMP (Update 6)

- \* Red Hat Enterprise Linux 3 (EM64T 64-bit)
  - \* 2.4.21-37.EL SMP (Update 6)
- \* Red Hat Enterprise Linux 3 (Itanium)
  - \* 2.4.21-37.EL SMP (Update 6)
- \* Red Hat Enterprise Linux 4 (IA32/Athlon/Opteron/EM64T 32-bit)
  - \* 2.6.9-22.EL SMP (Update 2)
  - \* 2.6.9-22.EL hugemem (Update 2)
- \* Red Hat Enterprise Linux 4 (Opteron/EM64T 64-bit)
  - \* 2.6.9-22.EL SMP (Update 2)
- \* Red Hat Enterprise Linux 4 (Itanium)
  - \* 2.6.9-22.EL SMP (Update 2)
- \* Red Hat Enterprise Linux 4 (PowerPC 64-bit)
  - \* 2.6.9-22.EL SMP (Update 2)
- \* SUSE Linux Enterprise Server 9 (IA32/Athlon/Opteron/EM64T 32-bit)
  - \* 2.6.5-7.244 SMP (Service Pack 3)
  - \* 2.6.5-7.244 BIGSMP (Service Pack 3)
- \* SUSE Linux Enterprise Server 9 (Opteron/EM64T 64-bit)
  - \* 2.6.5-7.244 SMP (Service Pack 3)
- \* SUSE Linux Enterprise Server 9 (Itanium)
  - \* 2.6.5-7.244 SMP (Service Pack 3)
- \* SUSE Linux Enterprise Server 9 (PowerPC 64-bit)
  - \* 2.6.5-7.244 SMP (Service Pack 3)

The Topspin Linux host drivers are no longer supported on the following kernels:

- \* Red Hat Enterprise Linux 2.1 (IA32/EM64T 32-bit)
  - \* 2.4.9-e.34 UP
  - \* 2.4.9-e.34 Summit
  - \* 2.4.9-e.37 Summit
- \* Red Hat Enterprise Linux 3 (IA32/EM64T 32-bit)
  - \* 2.4.21-4.EL SMP (FCS)
  - \* 2.4.21-15.EL hugemem (Update 2)
- \* Red Hat Enterprise Linux 3 (Opteron 64-bit)
  - \* 2.4.21-15.EL SMP (Update 2)
- \* Red Hat Enterprise Linux 3 (EM64T 64-bit)
  - \* 2.4.21-15.EL SMP (Update 2)

- \* Red Hat Enterprise Linux 3 (Itanium)
  - \* 2.4.21-15.EL SMP (Update 2)
- \* SUSE Linux Enterprise Server 8 (IA32/EM64T 32-bit)
  - \* 2.4.21-138 SMP (Service Pack 3)
- \* SUSE Linux Enterprise Server 8 (Opteron 64-bit)
  - \* 2.4.21-143 SMP (Service Pack 3)
  - \* 2.4.21-143 NUMA (Service Pack 3)
- \* Red Hat Enterprise Linux 4 (IA32/Athlon/Opteron/EM64T 32-bit)
  - \* 2.6.9-5.EL SMP (FCS)
  - \* 2.6.9-5.EL hugemem (FCS)
- \* Red Hat Enterprise Linux 4 (Opteron/EM64T 64-bit)
  - \* 2.6.9-5.EL SMP (FCS)
- \* Red Hat Enterprise Linux 4 (Itanium)
  - \* 2.6.9-5.EL SMP (FCS)
- \* Red Hat Enterprise Linux 4 (PowerPC 64-bit)
  - \* 2.6.9-5.EL SMP (FCS)
- \* SUSE Linux Enterprise Server 9 (IA32/Athlon/Opteron/EM64T 32-bit)
  - \* 2.6.5-7.139 SMP (Service Pack 1)
  - \* 2.6.5-7.139 BIGSMP (Service Pack 1)
- \* SUSE Linux Enterprise Server 9 (Opteron/EM64T 64-bit)
  - \* 2.6.5-7.139 SMP (Service Pack 1)
- \* SUSE Linux Enterprise Server 9 (Itanium)
  - \* 2.6.5-7.139 SMP (Service Pack 1)
- \* SUSE Linux Enterprise Server 9 (PowerPC 64-bit)
  - \* 2.6.5-7.139 SMP (Service Pack 1)

## General

New HCA firmware is included for all HCA types. The tsinstall utility will automatically correctly upgrade existing HCAs to the new firmware. (PR CSCtp06883)

A new PCI Express (PCI-E) low-profile, one-port, memory-free HCA (identified as Cheetah by tvflash) is supported. Note that this HCA uses different firmware from the previous HCAs. Cheetah is not yet supported with Boot-Over-InfiniBand or Windows host drivers. (PR CSCtp06674)

Additional HCA diagnostic utilities for loopback, memory, and stress testing have been added. Documentation for the diagnostics is in `docs/HCA_Diagnostics.pdf` on the CD image. (PR CSCtp04871)

Starting with Red Hat Enterprise Linux 4 Update 2, the host drivers are supported on Red Hat Enterprise Linux 4 Opteron systems with more than 2 GB RAM. The workaround for previous Red Hat Enterprise Linux 4 releases is to boot with `mem=2G` to limit visible physical memory to 2 GB. (PR CSCtp06862)

## **IPoIB**

IPoIB High Availability (HA) now supports multiple HCAs and more than two ports at a time. (PR CSCtp07059)

Fixed a problem where heavy IPoIB load could cause IPoIB to fail. (PR CSCtp07107)

## **MPI**

MPI has been upgraded and is now based on OSU MVAPICH 0.9.5 plus fixes from 0.9.6.

There are many tunable parameters in MPI that can be used to maximize performance for a specific configuration. Please consult the file `mvapich.tuning_guide` for more details. (PR CSCsd13633)

MPI is now scalable to 4500+ nodes and 9000+ processes. Note that proper planning and tuning is required for this level of scalability. (PR CSCtp06464)

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## **Changes Since Software Release 3.1.0 FCS (build 113)**

This section describes the new features and bug fixes of this release.

The ID number from the Cisco Defect Tracking System, if applicable, is included in parentheses. (ex: PR CSCxxyyyy) Current status of all issues is available online at [http://www.cisco.com/cgi-bin/Support/Bugtool/launch\\_bugtool.pl](http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl).

### **Supported Kernels**

The Topspin Linux host drivers are supported on the following additional kernels:

- \* SUSE Linux Enterprise Server 9 (IA32/Athlon/Opteron/EM64T 32-bit)
- \* 2.6.5-7.191 SMP (Service Pack 2)
- \* 2.6.5-7.191 BIGSMP (Service Pack 2)

- \* SUSE Linux Enterprise Server 9 (Opteron/EM64T 64-bit)
  - \* 2.6.5-7.191 SMP (Service Pack 2)
- \* SUSE Linux Enterprise Server 9 (Itanium)
  - \* 2.6.5-7.191 SMP (Service Pack 2)
- \* SUSE Linux Enterprise Server 9 (PowerPC 64-bit)
  - \* 2.6.5-7.191 SMP (Service Pack 2)

The Topspin Linux host drivers are no longer supported on the following kernels:

- \* SUSE Linux Enterprise Server 9 (IA32/Athlon/Opteron/EM64T 32-bit)
  - \* 2.6.5-7.97 SMP (FCS)
  - \* 2.6.5-7.97 BIGSMP (FCS)
- \* SUSE Linux Professional 9.0 (Opteron 64-bit)
  - \* 2.4.21-243 SMP
- \* SUSE Linux Enterprise Server 9 (Opteron/EM64T 64-bit)
  - \* 2.6.5-7.97 SMP (FCS)
- \* SUSE Linux Enterprise Server 9 (Itanium)
  - \* 2.6.5-7.97 SMP (FCS)
- \* SUSE Linux Enterprise Server 9 (PowerPC 64-bit)
  - \* 2.6.5-7.97 SMP (FCS)

## General

A new PCI Express (PCI-E) low-profile, two-port, memory-free HCA (identified as LionMini by tvflash) is supported. Note that this HCA uses different firmware from the previous HCAs. LionMini is not yet supported with Boot-Over-InfiniBand or Windows host drivers. (PR CSCtp06381)

Starting with Red Hat Enterprise Linux 4 Update 1, Red Hat Enterprise Linux 4 IA32 32-bit is supported on BladeCenter HS20 8843. Previous Red Hat updates may not work. (PR CSCtp06259)

Drivers now load and unload cleanly on Red Hat Enterprise Linux 4 when there is no HCA in the system. (PR CSCtp06905, CSCtp06906)

Running the Linux command `depmod` no longer produces benign error messages about unresolved symbols. (PR CSCtp06886)



## IPoIB

Fixed a problem where heavy IPoIB load could cause the `ts_ib_mad` kernel thread to use 100% of CPU due to a race condition. (PR CSCtp07046)

## MPI

A new `ts_mpi` boot script has been added to load MPI drivers without IPoIB, SDP, and uDAPL. This feature can be enabled and disabled with `chkconfig`, just like `ts_srp`. (PR CSCtp06887)

## SRP

SRP now supports Red Hat Enterprise Linux 4 32-bit (IA32 and Opteron). (PR CSCtp06778)

SRP now supports a host performing I/O operations on more than 64 LUNs simultaneously. (PR CSCtp06830, CSCtp06985)

Several problems were fixed in SRP error handling and recovery. (PR CSCtp06847, CSCtp06848, CSCtp07089, CSCtp07106, CSCsc39678)

Fixed a problem where heavy SRP load could cause SRP to fail on Opteron systems. (PR CSCtp07015)

Fixed a problem where SRP could not access the 27<sup>th</sup> or higher LUN until one of the first 26 LUNs was accessed. (PR CSCtp03847)

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## Changes Since Software Release 3.0.0 Update 3 (build 187)

This section describes the new features and bug fixes of this release.

The ID number from the Cisco Defect Tracking System, if applicable, is included in parentheses. (ex: PR CSCxyyyyyy) Current status of all issues is available online at [http://www.cisco.com/pcgi-bin/Support/Bugtool/launch\\_bugtool.pl](http://www.cisco.com/pcgi-bin/Support/Bugtool/launch_bugtool.pl).

### Supported Kernels

The Topspin Linux host drivers are supported on the following additional 14 kernels:

- \* Red Hat Enterprise Linux 3
- \* 2.4.21-32.EL SMP
- \* 2.4.21-32.EL hugemem

- \* Red Hat Enterprise Linux 3 (Athlon/Opteron 32-bit)
  - \* 2.4.21-32.EL SMP
- \* Red Hat Enterprise Linux 3 (Opteron 64-bit)
  - \* 2.4.21-32.EL SMP
- \* Red Hat Enterprise Linux 3 (EM64T 64-bit)
  - \* 2.4.21-32.EL SMP
- \* Red Hat Enterprise Linux 3 (Itanium)
  - \* 2.4.21-32.EL SMP
- \* Red Hat Enterprise Linux 4 (IA32/Athlon/Opteron/EM64T 32-bit)
  - \* 2.6.9-11.EL SMP
  - \* 2.6.9-11.EL hugemem
- \* Red Hat Enterprise Linux 4 (Opteron/EM64T 64-bit)
  - \* 2.6.9-11.EL SMP
- \* Red Hat Enterprise Linux 4 (Itanium)
  - \* 2.6.9-11.EL SMP
- \* Red Hat Enterprise Linux 4 (PowerPC 64-bit)
  - \* 2.6.9-5.EL SMP
  - \* 2.6.9-11.EL SMP
- \* SUSE Linux Enterprise Server 9 (PowerPC 64-bit)
  - \* 2.6.5-7.97 SMP
  - \* 2.6.5-7.139 SMP

## General

Mellanox VAPI header files and libraries have been upgraded from THCA 3.2 to 4.0. Customer-compiled IB programs, such as third-party MPI applications, should be recompiled with the new header files and relinked with the new libraries. (PR CSCtp05652)

If `tsinstall` fails, it now prints what failed and exits with a non-zero exit code. (PR CSCtp06356, CSCtp06495)

The `tvflash` utility progress indicator has been changed to print the type of operation it is doing instead of 0-100% progress:

- E = Erase
- I = Writing Invariant (not failsafe, rare)
- F = Writing Failsafe
- P = Writing PPS
- W = Writing Firmware
- V = Verify Firmware

## **MPI**

MPI is based on OSU MVAPICH 0.9.2.

Intranode MPI no longer hangs on ppc64. (PR CSCtp06229)

Intel Fortran 7 is no longer supported. (PR CSCtp06623)

## **SRP**

Several problems with EMC PowerPath have been resolved. (PR CSCtp06614)

Fixed a problem with SRP failing if there was an HA failover in the IB fabric. (PR CSCtp05792)

SRP no longer fails if IB subnet manager is stopped, then IB hosts are rebooted, and then IB subnet manager is restarted. (PR CSCtp02939)

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## **Open Issues in Software Release 3.2.0**

This section describes temporary limitations of this release. These restrictions will be resolved in a future release of this product.

The ID number from the Cisco Defect Tracking System, if applicable, is included in parentheses. (ex: PR CSCxyyyyy) Current status of all issues is available online at [http://www.cisco.com/pcgi-bin/Support/Bugtool/launch\\_bugtool.pl](http://www.cisco.com/pcgi-bin/Support/Bugtool/launch_bugtool.pl).

Please contact Cisco Technical Support for more information.

## **General**

Mixing PCI-X and PCI-E HCAs in the same system is not supported. (PR CSCtp05125)

The host drivers may not load on any SUSE Linux (including SUSE Linux Enterprise Server) unless the Linux kernel is booted with `acpi=off` on its command line. (PR CSCtp01926)

Using `tsinstall` with `--prefix` to upgrade host drivers does not work on SUSE Linux Enterprise Server 9 Opteron/EM64T FCS, but does work with SP1. The workaround for FCS is to upgrade to the SP1 rpm command. (PR CSCtp06842)

InfiniBand performance is suboptimal on the IBM xSeries 440 and 445, especially when the HCA is installed in a PCI-X slot. A partial workaround is to install the HCA in a 64-bit PCI slot. (PR CSCtp02045)

## **IPoIB**

IPoIB performance is very low on Red Hat Enterprise Linux 4 with latest Intel and AMD processors. Please contact Cisco Technical Support for information on a workaround. (PR CSCse41783)

IPoIB performance is low on Red Hat Enterprise Linux 4 32-bit (IA32 and Opteron). The workaround is to use 64-bit instead of 32-bit. (PR CSCtp06261)

IPoIB cannot be configured to start at boot time on SUSE Linux Enterprise Server 9 using documented SUSE procedures. The workaround is to manually modprobe ts\_ipoib from a boot script such as /etc/init.d/boot.local. (PR CSCtp04444)

IPoIB HA is not supported on split IB fabrics. (PR CSCtp05945)

## **MPI**

MPI does not work between dissimilar host types (for example, between IA32 and AMD64). (PR CSCtp05191)

MPI requires libg2c.so to be installed. On Red Hat systems, this is in the lib2fc Red Hat package, and on SUSE Linux Enterprise Server 9 it is in the gcc-g77 SUSE package. (PR CSCtp06217)

mpirun\_ssh may fail if using SSH with password authentication or the destination host is not in the known\_hosts file. (PR CSCtp03837)

## **SDP**

AIO SDP is only available on Red Hat Enterprise Linux 3. (PR CSCtp03722)

AIO SDP may fail when using the AIO API in certain cases. (PR CSCtp02257, CSCtp02177, CSCtp02316)

SDP sockets do not implement the same semantics in certain cases as TCP sockets. (PR CSCtp02034, CSCtp01411, CSCtp01540, CSCtp01347, CSCtp02226, 2247, CSCtp0584)

AIO SDP does not work with I/O sizes larger than 128KB. (PR CSCtp01265)

libsdp\_sys.so is not supported on Itanium and Opteron hosts. The workaround is to use libsdp.so instead. Because libsdp.so's functionality is a superset of libsdp\_sys.o's, libsdp\_sys.o may be removed in a future release on all platforms. (PR CSCtp02597)

## SRP

SRP hosts fail to connect to non-zero LUNs unless LUN remapping is used or the SRP driver is loaded with `fake_lun0=1`. (PR CSCtp03002, CSCtp04544)

During SCSI error handling, SRP may incorrectly cause EMC PowerPath to mark a path as dead. (PR CSCsc41405)

On Red Hat Enterprise Linux 4 IA32 32-bit FCS and Update 1, heavy SRP or other SCSI load can trigger the out-of-memory process killer. This is a Red Hat issue (see [https://bugzilla.redhat.com/bugzilla/show\\_bug.cgi?id=164370](https://bugzilla.redhat.com/bugzilla/show_bug.cgi?id=164370) for details). (PR CSCtp07008)

The second HCA in a host doesn't connect to storage when SRP policies are restricted. (PR CSCtp02717)

SRP may not be configured at boot time to work with Red Hat Enterprise Linux 3 LVM. (PR CSCtp03665)

I/O to tape succeeds but generates an I/O error at the end of the operation. (PR CSCtp02137)

SRP will fail if the IB subnet manager is restarted with a different subnet prefix. (PR CSCtp02054)

## uDAPL

uDAPL only works on the first HCA. (PR CSCtp00828)

uDAPL is not supported on SUSE Linux Enterprise Server 9. (PR CSCtp05470)

uDAPL will fail if the IB subnet manager is restarted with a different subnet prefix. (PR CSCtp03654)