

## Installation of Intel® RAID with Red Hat\* Linux 8.0

The installation of Red Hat\* Linux version 8.0 on a system booting from a drive controlled by an Intel® RAID controller requires the use of a Red Hat Linux Patch version 'kernel-smp-2.4.18-18.8.0.i686.rpm'. The patch resolves an issue where a segmentation fault error may occur during one of the three following actions:

1. cat /proc/scsi/gdth/0
2. Running StorCon
3. Shutting down the system

The process described in this document specifies installation of the RAID controller on an Intel® server board, application of this process with non-Intel server boards may vary. It is assumed that the technician performing this update has a working knowledge of Linux, detailed Linux configuration steps will not be provided here. The technician individual should refer to the Linux documentation for more information.

### Obtaining the necessary files.

The following files will be needed to perform this operation:

- kernel-smp-2.4.18-18.8.0.i686.rpm (the patch file)
- kernel-2.4.18-18.8.0.src.rpm (source files that may be needed should you need to recompile a driver)

Please refer to Red Hat's download server to obtain the Linux kernel patch files or perform a search of the Internet to find them. Due to the dynamic nature of the Internet, download locations may change. At the time of the creation of this document Red Hat files are available at <https://rhn.redhat.com/errata/RHSA-2002-262.html> or can be searched for at <http://rpm.pbone.net/index.php3>.

Drivers for Intel server boards on board devices are available at:

<http://support.intel.com/support/motherboards/server>

The patch and source files will not fit on a floppy diskette; therefore it is necessary copy the files to the target server using one of the following options:

1. Download the files directly to the target server via an Internet connection.
2. Download the files to another computer connected to the internet and transfer the file to the target server via a network connection
3. Download the files to another computer, copy it to a CD, and then transfer it to the target server.

### Install Red Hat Linux version 8.0

Perform the Red Hat\* Linux 8.0 installation following the normal process per the Red Hat Installation Guide. The Red Hat Installation Guide is available at: <http://www.redhat.com/docs/manuals/linux/RHL-8.0-Manual/install-guide/>. Information on creating a RAID array is available in the Intel RAID Software Guide at <http://support.intel.com/support/motherboards/server>, for the RAID controller of choice.

This document is based on the following assumptions:

1. The Grub boot loader option was chosen, instructions in this document include information on configuring the Grub boot loader.
2. Source files are installed, the easiest way to accomplish this is to choose a custom install and select "everything" at the bottom of the list on the package selection screen.
3. The gdth SCSI driver integrated in this version of Linux will automatically detect the Intel RAID controller; it is assumed that this driver is being used to support the Intel RAID controller.

## Apply the Patch

The following basic steps outline the installation process:

1. Install the RAID controller in the system and update it to the latest firmware, which is available at <http://support.intel.com/support/motherboards/server>.
2. Install the hard drives to be used in the installation and configure a drive array using the StorCon utility ('CTRL+G' during post or boot to the CD that accompanies the RAID controller). Information on array configuration options is available on the CD that accompanied the RAID controller or on the Intel support website listed above.
3. Boot to the Red Hat 8.0 Installation CD and follow standard installation options, be sure to install the source files when choosing package options.
4. Use the Intel RAID controller driver packaged in Red Hat 8.0, the RAID controller will be automatically detected and the correct driver installed.
5. Following the operating system installation, install the patch file using the Red Hat Package Manager (RPM) utility. The patch file is available as an RPM file (Red Hat Package Manager) and is applied using the Red Hat Package Manager application. It is possible to apply the file directly from a CD or from a directory on the server to which the patch has been copied. To apply the patch, complete the following steps:
  - Change to the directory that contains the file.
  - Enter the following command "rpm -ivh kernel-smp-2.4.18-18.8.0.i686.rpm" and press enter.
  - The patch will expand and apply.

## Configure the Grub Loader to load the kernel patch as default

During the patch application, the Grub configuration file will automatically be updated; however, a simple manual change will be needed in the configuration file to make the patch the default kernel. Edit the grub.conf file which can be found at /boot/grub/grub.conf. Change the 'default=1' to 'default=0'. Your grub.conf file should now look like this:

```
# grub.conf generated by anaconda
#
# Note that you do not have to rerun grub after making changes to this file
# NOTICE: You have a /boot partition. This means that
#   all kernel and initrd paths are relative to /boot/, eg.
#   root (hd0,0)
#   kernel /vmlinuz-version ro root=/dev/sda5
#   initrd /initrd-version.img
#boot=/dev/sda
default=0
timeout=10
splashimage=(hd0,0)/grub/splash.xpm.gz
title Red Hat Linux (2.4.18-18.8.0smp)
    root (hd0,0)
    kernel /vmlinuz-2.4.18-18.8.0smp ro root=LABEL=/
    initrd /initrd-2.4.18-18.8.0smp.img
title Red Hat Linux (2.4.18-14smp)
    root (hd0,0)
    kernel /vmlinuz-2.4.18-14smp ro root=LABEL=/
    initrd /initrd-2.4.18-14smp.img
title Red Hat Linux-up (2.4.18-14)
    root (hd0,0)
```

\*Other names and brands may be claimed as the property of others.

```
kernel /vmlinuz-2.4.18-14 ro root=LABEL=  
initrd /initrd-2.4.18-14.img
```

## **Apply the Source Files**

This step is optional and only needed if you need to recompile a driver to work with the new kernel. Drivers applied automatically by the installation process are modular and usually do not need to be recompiled.

The source files are available as an RPM file (Red Hat\* Package Manager) and are applied using the Red Hat Package Manager application. It is possible to apply the files directly from a CD or from a directory on the server to which the patch has been copied. To apply the files, complete the following steps:

1. Change to the directory that contains the source RPM file.
2. Enter the following command “rpm -ivh kernel-2.4.18-18.8.0.src.rpm” and press enter.

The files will expand and apply.