GIGABYTE
TECHNOLOGY

Server Systems and Motherboards

Raid Configuration and

Driver installation guide

For LSI53C 1030 chip

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1. RAID Configuration

GIGABYTE server systems and motherboards that a RAID supports is comply with the following RAID solutions:

- ● Hardware RAID: Use dedicate hardware to control RAID array, and supposed to doing RAID 0, 1, 1+0, 5 configurations through software utility.
- ● Software RAID (Host RAID): Use BIOS setup and management utility complete RAID 0, 1, 1+0, Spare configurations and support Ultra 320 products.
- ● SATA RAID: Adaptec SATA RAID is embedded in the Intel south bridge chip, depending on the specific configure, it is support up to two SATA hard disk drives and RAID support 0, 1, JBOD configuration.

1.1 RAID Definition

RAID 1, Mirroring copy from one hard disk to second hard disk such both of them contains exactly the same data, in case of failure of one disk, the system will boot through the second disk and data is still available to use therefore.

RAID 1E striped mirroring data on an adjacent disk across more than three drives that the number of drives comprising can be even or odd. If one of drives fails, the RAID controller switches read and write requests to the remaining functional drives in the RAID 1E.

1.2 Installing hard disk drives

In general, we suggest using the same model and capacity disk drives to create RAID array.

1. Install the disk drives into the drive bays of the respective GIGABYTE server or motherboard.
2. Select cables suitable for your disk drives.
3. Connect power code to hard disk on each HDD.
4. Enable or Disable SCSI termination.

1.3 Setting the RAID in BIOS

Since onboard RAID controller is option, please enable onboard H/W SCSI capability of the BIOS utility before you creating drives RAID array.
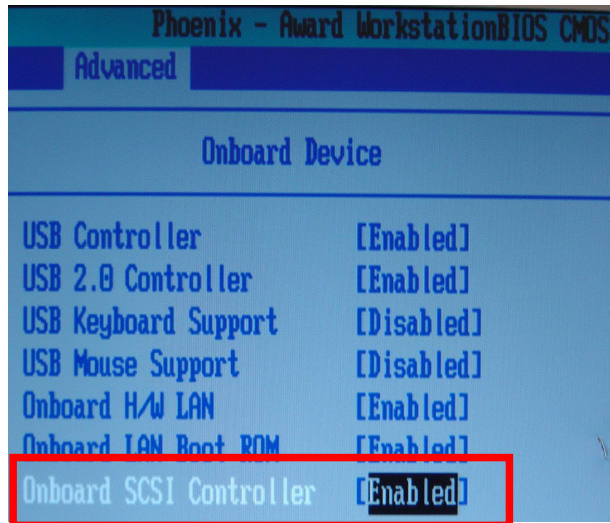
1) During the POST screen, please enter the BIOS setup utility.
2) Into **Advance Menu** > click **Integrated Peripherals** screen item.
3) Choose **Onboard Device** item > **Onboard H/W SCSI [Enable].**
4) Save your change and Exist BIOS setup.

1.4 LSI 1030 configuration utility

The LSI Logic provides the optimal performance and feature requires for Integrated Mirroring (IM) solution, which provides features of RAID 1 and RAID 1E. LSI RAID controller is built-in BIOS code, even you create host RAID after detected SCSI devices that you need to start LSI Logic configuration utility by pressing "**Carl+C**" during the controller BIOS startup.

The illustrator is LSI 1030 host RAID utility that displays two entries for dual channel that you can set SCSI capability on options window.

After into the **Host Adapter Properties** screen, click "**Device Properties**" check SCSI hard disk drives should be detected on your system, in general, a SCSI bus can support up to 15 devices and the controller connected to its 16-bit bus.

Return the **Host Adapter Properties**, choose "**RAID Properties**". The select RAID members screen allows you to set the RAID and hot spare, press <**+**> or <**—**> key into Create RAID menu.
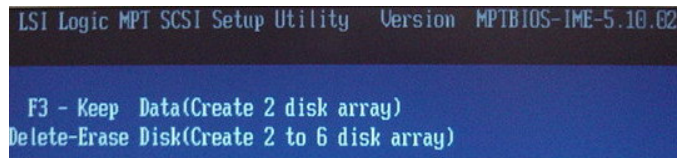

From the Create RAID Menu, choose one of the RAID capabilities for creating.
Press **F3** key: allow you configure the RAID 1 capability that disk drives set requires for the maximum of 2 drives.
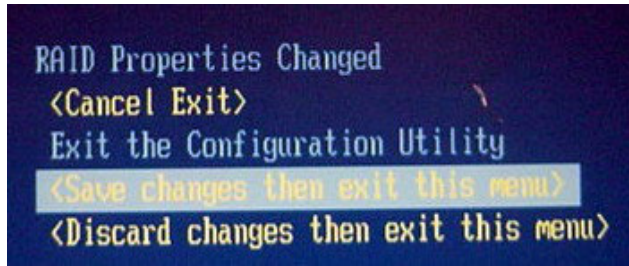Press **Delete** key: used to erase disk or erase previous option, offers RAID 1 and 1E capability that disk drives set requires for the maximum of 2 to 6 drives.

1.4.1 Create RAID-1 (Mirrored)

After press "**F3**" key from the create RAID menu, all required SCSI hard disk drives are appears in the **Select RAID members** screen and uses the allow keys to set 2 disk drives.

When you have finished select disk to the RAID-1, press <**ESC**> key > select "**Save changes then exit this menu**".

Return RAID Properties screen, you can select **Add** other disk drives for Spare or **Delete** Host spare if you would like to delete currently spare drives

> ※ **SPARE: Set a drive on stand by should prompt for replacement of the dead one if one of the hard disk drive failing.**

After configure successfully, please exit LSI SCSI RAID Utility window and restart system.
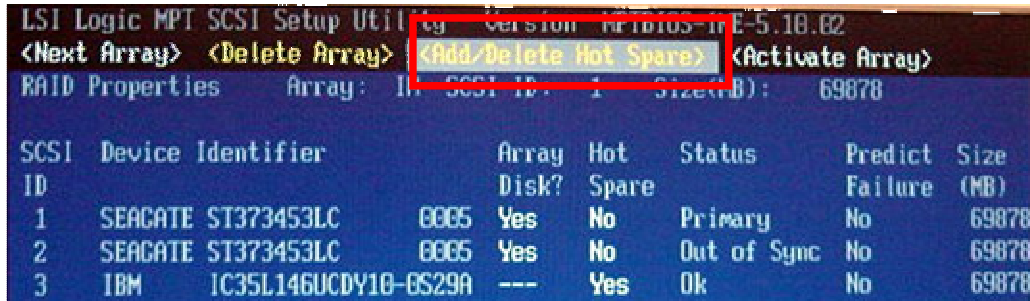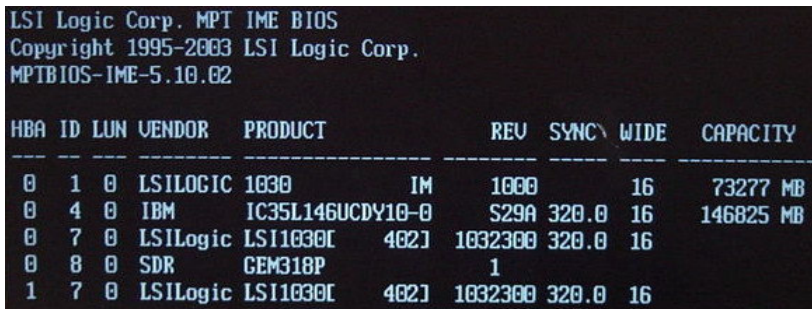

1.4.2 Create RAID-1E

After press "**Delete**" key from the create RAID menu, all required SCSI hard disk drives are appears in the select RAID members screen and uses the arrow key to set 3 to 6 drives. For example, we set 3 disk drives to configure RAID-1E.

```
LSI Logic MPT SCSI Setup Utility   Version  MPTBIOS-IME-5.10.02

RAID Properties      Array: 1E  SCSI ID:  1   Size(MB):  104817

SCSI  Device Identifier          Array  Hot    Status      Predict  Size
ID                               Disk?  Spare              Failure  (MB)
 0   -                           [No]   [---]  -----------  ---     -------
 1   SEAGATE ST373453LC    0005  [Yes]  [No]   -----------  ---     70007
 2   SEAGATE ST373453LC    0005  [Yes]  [No]   -----------  ---     70007
 3   IBM    IC35L146UCDY10-0S29A [Yes]  [No]   -----------  ---     140014
 4   IBM    IC35L146UCDY10-0S29A [No]   [No]   \----------  ---     140014
 5   -                           [No]   [---]  -----------  ---     -------
 6   -                           [No]   [---]  -----------  ---     -------
 7   LSI1030                     [No]   [---]  -----------  ---     -------
 8   SDR    CEM318P         1    [No]   [---]  -----------  ---     -------
```
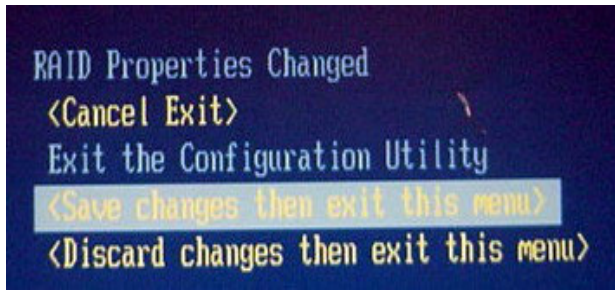

When you have finished select disk to the RAID-1E, press <**ESC**> key > choose "**Save changes then exit this menu**".

> ※ **If partitions are detected on this disk, a warning message will pop-up describe a data will be lost. Press any key to delete the volume.**

Return RAID Properties screen, you can select **Add** other disk drives for Spare or **Delete** Host spare if you would like to delete currently spare drives.


```
LSI Logic MPT SCSI Setup Utility   Version  MPTBIOS-IME-5.10.02
<Next Array>  <Delete Array>  <Add/Delete Hot Spare>  <Activate Array>
RAID Properties      Array:    SCSI ID:  1   Size(MB):  104817

SCSI  Device Identifier          Array  Hot    Status      Predict  Size
ID                               Disk?  Spare              Failure  (MB)
 1   SEAGATE ST373453LC    0005  Yes    No     Ok          No       34939
 2   SEAGATE ST373453LC    0005  Yes    No     Ok          No       34939
 3   IBM    IC35L146UCDY10-0S29A Yes    No     Ok          No       34939
 4   IBM    IC35L146UCDY10-0S29A ---    Yes    Ok          No       34939
```

> ※ **SPARE: Set a drive on stand by should prompt for replacement of the dead one if one of the hard disk drive failing.**

After configure RAID-1E successfully, please exit LSI SCSI RAID Utility window and restart system.

1.4.3 Deleting a RAID set

From the LSI SCSI RAID utility menu, go to the **RAID Properties** screen. Press <**Del**> key to display the Main Menu below. This is the fastest and easiest method to delete your first array.

1.4.4 Create a RAID to bootable set

If you would like to set this array on bootable, press <**F2**> key into motherboard BIOS utility > press<→> key go to **Boot** item selection > into "**Hard Disk Boot Priority**" **>** use <**+**> or <**−**> key allows hard disk boot device.

2. RAID driver installation

A system with LSI 1030 SCSI RAID driver installed needs have an appropriate driver for the RAID controller to operate properly.

If you would like add RAID driver to an existing system, the driver may be direct installed from the CD, whereas install the RAID driver in new system usually will require a driver disk, please extract RAID driver into floppy disk form CD or GIGABYTE web site.

2.1 Installing the LSI 1030 RAID controller
## 2.1.1 Winodws 2000/XP/2003
(Installing the driver in new system)

If you installing the driver in new system, please press <**F6>** during the message appears "**Press F6 if you need to install a third party SCSI or RAID driver...**".
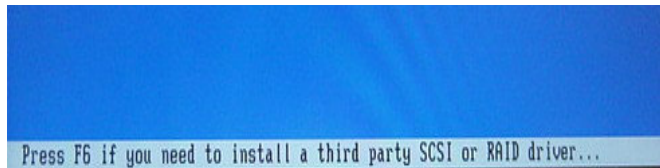

Note → You only have 5 seconds to press the F6 key during the installation startup. Press F6 for the new driver to be recognized; otherwise, you must restart the Windows 2000/XP installation process to complete this procedure correctly.

Press <**S**> to specify additional device when Windows prompted.
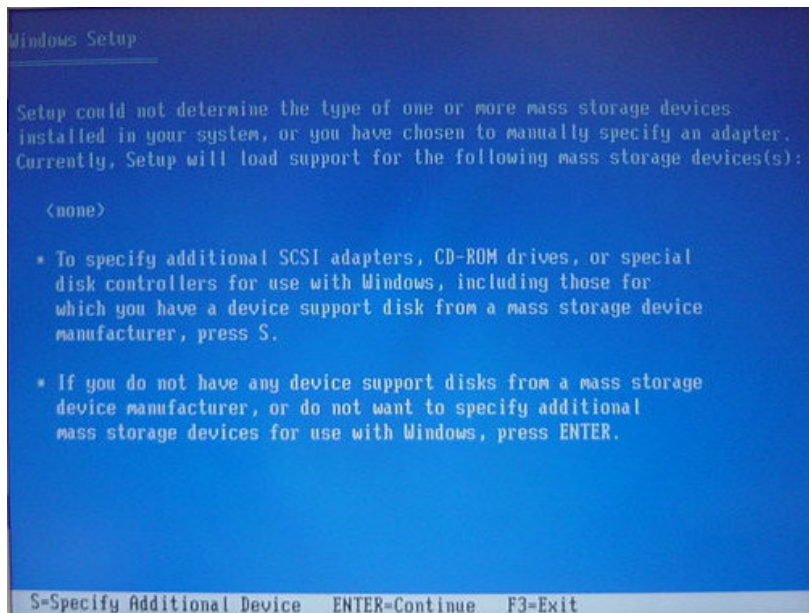
Insert LSI 1030 RAID driver disk that you earlier extract RAID driver into floppy disk, then press <**Enter**>
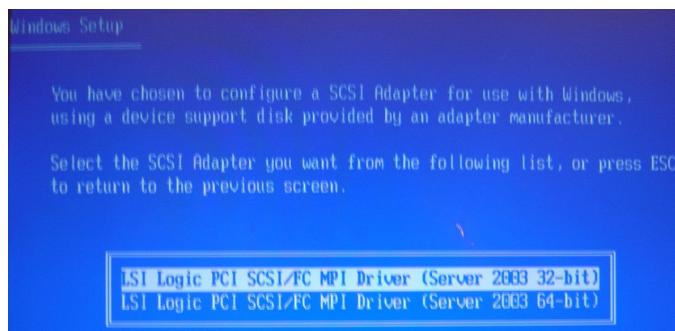
Select the **LSI Logic PCI SCSI/FC MPI Driver (Server XXXX)** depend on your type of operating system, then press <**Enter**> to proceed.

2.1.2 Windows 2000/XP/2003
(Adding the controller to an existing system)

If you would like add the RAID controller to an existing system, please restart system and into **Computer Management** window (**My Computer** click right button > choose **Manage**).
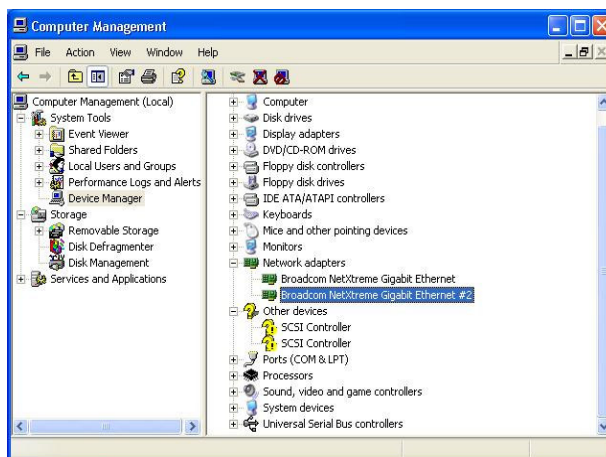
Note→ Windows will automatic detect the RAID controller and then pop-up "New Hardware Found" window, please click "Cancle" and install driver by manually.
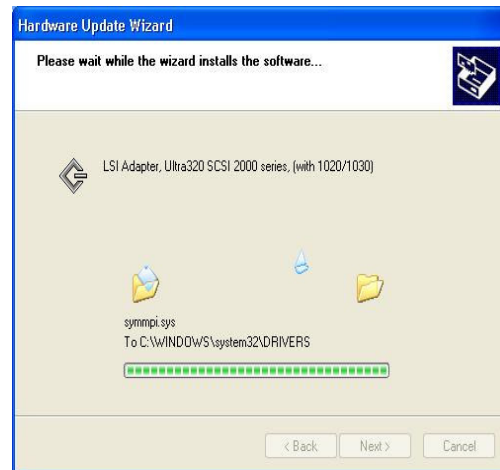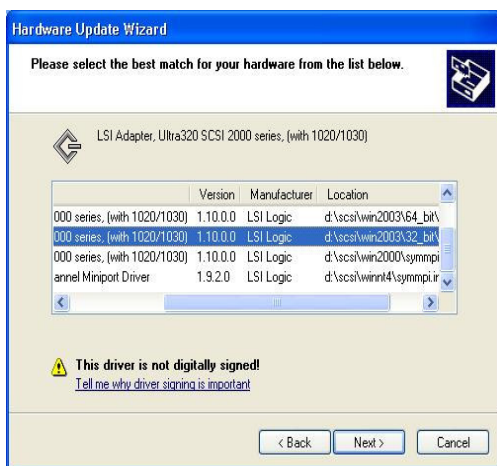
Double click **RAID Controller** item, **RAID Controller Properties** window is pop-up, then click "**Reinstall Driver**" button.

Insert original CD or floppy disk that you earlier extract RAID driver into floppy disk.

Click **Install the software automatically (Recommended)**, then press <**Next >**>.

Hardware Update Wizard window appears, system doing search a suitable driver automatically.

After the driver installation is done, click <**Finish**>**.**

The Host RAID SCSI Processor Device installed completely, please restart system, then initial partition.
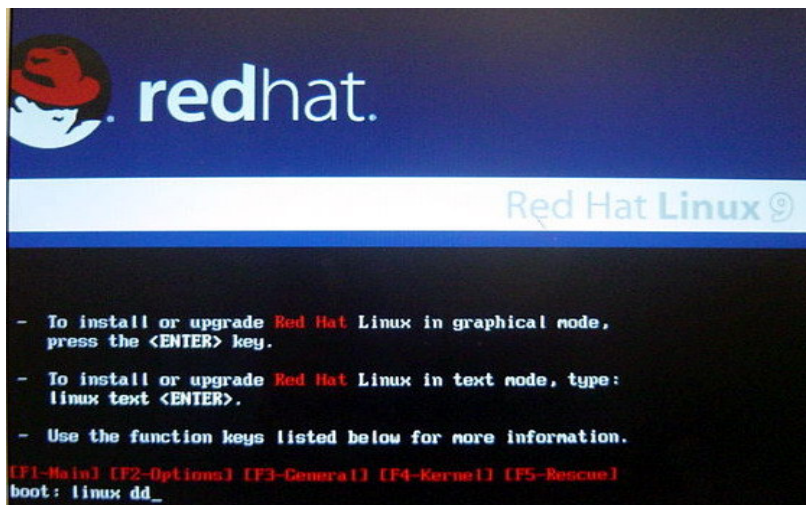

2.1.3 Red Hat 9.0

The LSI 1030 SCSI RAID controller in a Red Hat 9.0 Linux system does require SCSI RAID driver installation.
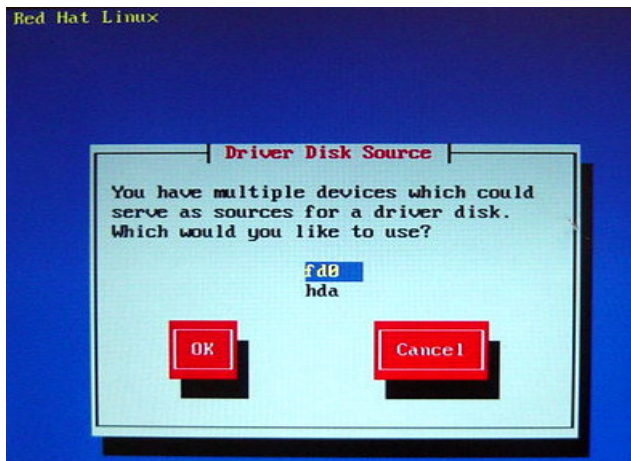
To install the host RAID controller:

1. Boot Red Hat 9 from the CD 1.
2. When the Red Hat Linux 9 screen appears, type "**linux dd**", then press enter.
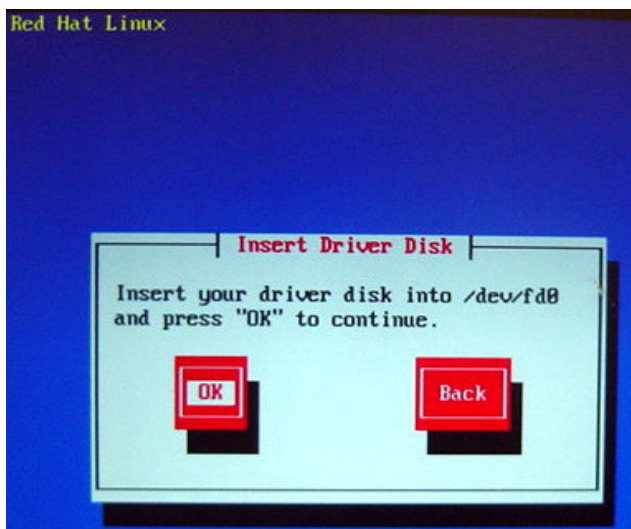
When dialogue window "**Do you have a drive disk?**" pop-up, please click "**Yes**" by pressing <**Tab**> key.

Please extract SCSI RAID driver for Red Hat 9.0 file to a floppy disk, insert this disk and click "**fd0**" item when the system asks which device you would like to use, then press <**Enter**>

A prompt message is pop-up after your floppy disk has already inserted. Choose <**YES**> button while the system has ready for loading this driver.

Please continue with the Linux install while the driver to installed the system.