Jet-Speed™

User manual

For windows and Linux users

(주)태진인포텍
Internet & Networks Solution
TAEJIN Research Institute

FCC NOTE

:This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES.
OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:
(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED,
INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION
THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

Thank you for purchasing Jet-Speed™ product.

We will put all our efforts to applying latest technology to improve functionalities of our products and minimize any inconvenience for users.

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- This manual may include different contents or can be modified as improvement or upgrade product released or as new operating systems are supported.
- Images used in the "Driver installation and user environment configuration" chapter of this manual were prepared based on Window 2000 operating system
- This manual provides step by step system setup and software installation. Please read carefully before installation
- Taejin Infotech is not legally responsible for any mishap and loss of data. It is strongly recommended that you backup important data prior to installation or not to be loss of data.
- For improvement and upgrade of Jet-Speed™, contents of this manual or contents of CD may change without prior notification or agreement
- Upgraded contents or latest drivers can be downloaded from home page of Tajin InfoTech.
- Provided values of parameters used in this manual are measured by research center of Tajin InfoTech however values were measured based on publicly well known documents.

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Cautions before install Jet-Speed™

Symbol

Please read note item carefully since it provides important information, recommendation and suggestion.

Caution item indicates element that might affect your system. Please be cautious about caution all times

Warning item emphasizes element that might damage your system when warning is not observed

Cautions during installation and operation

- Turn off power prior to performing installation process. .

  Any task performed while power is turned on may cause damages to product

- Make sure that there is no static electricity on your body. Static electricity is one of critical cause of damage to memory

- Use anti static electricity pack provided while maintaining the product all times .

  Product is exposed to static electricity while not operated.

- Perform installation task on safe flat ground surface. Be cautious that any shock from external environment may cause damages to products

- Do not touch bottom side of Jet-Speed™ board. This may cause damage to board.

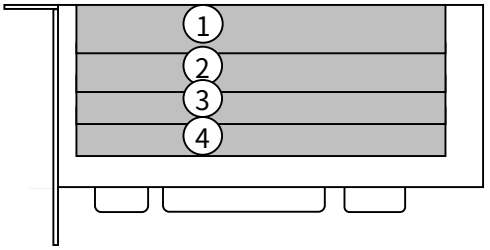
- Be cautious to keep loading order of Jet-Speed™ memory. Please refer to loading order of memory provided below

- Load even number of memory for standard and Pro products. Load more than 2 even numbers of memory on both sides for correct operation .

Caution when loading memory

- Jet-Speed™ board is optimized for RAM of DDR SDRAM PC2700
- Follow order provided below when less than 4 memory chips are loaded for Lite product.

Loading order of memory for Jet-Speed™ Lite

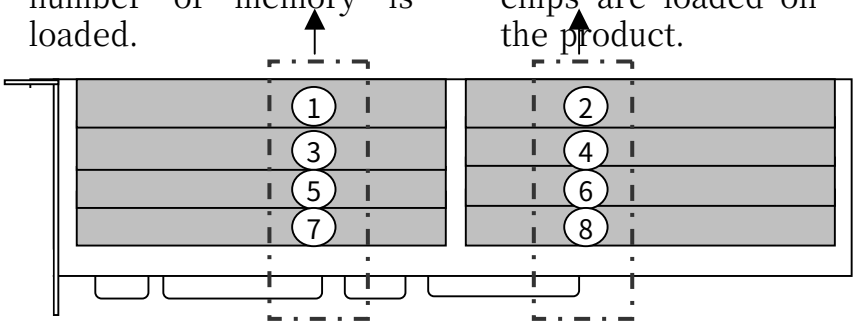


- Follow order provided below when less than 8 memory chips are loaded for Standard and Pro products.

Loading order of memory for Jet-Speed™ Standard and Pro

Product may not operate correctly when odd number of memory is loaded.

Make sure that even numbers of memory chips are loaded on the product.



Handling cautions of battery

- Please read carefully descriptions provided in battery pack about handling caution of battery

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Jet-Speed™

Jet-Speed™ components

- Jet-Speed™ PCI board (Lite, Standard or Pro depending on the model)
- User manual
- Installation CD
- Battery pack (Optional)

Jet-Speed™ install CD components

- Install driver (Windows 2000, Windows XP, Windows 2003, Windows servers, Linux (kernel 2.4x), Unix (Planned to be released))
- User manual (User's Guide)
- Backup software

Jet-Speed™ component category

Figure 1. Jet-Speed™ PCI board (Images can be different to real product depending on the model types)

Figure 2. Battery (Purchase separately or included in the product package)

Figure 3. Battery connection cable (Purchase separately or included in the product package)

Figure 4. Adapter (Purchase separately or included in the product package)

Figure 5. Memory

Chapter 1 Introduction of Jet-Speed™

What is Jet-Speed™ ?

Jet-Speed™ is a storage device using solid state semiconductor. Unlike to the traditional hard disk drive (Hereinafter, referred as HDD) Jet-Speed™ improved performance and speed of system dramatically by using DDR-SDRAM and regarded as next generation storage device.

Benefits of Jet-Speed

- Transfer rate per second has improved dramatically compared to traditional HDD device. (Lite, Standard: 132MB, Pro: 528MB). Also, gigabyte transfer speed can be achieved when disks are configured with RAID capability. Average access time is few milliseconds which is much faster than traditional HDD device.
- Jet-Speed™ showed 100 times faster performance in disk transaction handlings based on IOPS comparison used to measure transaction speed of traditional HDD environment.
- Traditional HDD is constructed with flatter disk format which is last for 3~5 years. However, Jet-Speed is built with semi-conductor and can be used semi-permanently in a normal operating environment.
- Jet-Speed™ has no noise which occurred in traditional HDD since it is built with semi-conductor.
- Jet-Speed™ does not have any physical devices thus it has stronger durability against humidity and temperature compared to traditional HDD.

Outfit Comparison

HDD has I/O transactions depending on mechanical device. In contrast, Jet Speed adapts PCI interface using RAM as a storage with tremendous high speed.

Figure 1. Jet-Speed™

Figure 2. Internal structure of HDD Drive

Jet-Speed product Lines

Jet-Speed™ Lite

Jet-Speed™ Standard

Jet-Speed™ Pro

Product specification

■ Jet-Speed™ Board

Product	Jet-Speed™ Lite	Jet-Speed™ Standard	Jet-Speed™ Pro
Interface	32bit/33MHz	32bit/33MHz	64bit/66MHz
Capacity	1GB - 4GB	2GB - 8GB	2GB - 8GB
Max Transfer Rate	132MB/sec	132MB/sec	528MB/sec
Sustained Transfer Rate	100MB/sec	100MB/sec	400MB/sec
OS Support	Windows/ Linux/ Unix(soon)	Windows/ Linux/ Unix(soon)	Windows/ Linux/ Unix(soon)
RAM	DDR SDRAM PC 2700	DDR SDRAM PC 2700 ECC	DDR SDRAM PC 2700 ECC
temperature	0~60 ℃		
humidity	0~90%RH		
Power	<25 Watts	<25 Watts	<25 Watts
Battery Pack	Input	120/240V AC, 50/60 Hz	
	Output	5V DC, 4A	

Product is not supported for Windows 98 and Windows ME operating system.
Battery pack and backup software are optional choices.
Jet-Speed™ board is optimized for PC2700..

Chapter 2 Hardware installation

Connect Jet-Speed™ to system

1 Installation method may change depending on the type of computer and internal structure. Computer can be damaged with electrical shock thus it is strongly recommended that you unplug power cable prior to installation of hardware. If you have modem connected with computer, please unplug the modem line as well. Otherwise, there is a possibility of an electric shock. Also, be cautious that even weak static electricity generated by people may also damage parts of the product and sharp pointing structure of internal parts of computer.

2 Turn off system power. If you have to move computer for installation, unplug power, keyboard and mouse cables.

3 In order to load board, move computer to safe place and choose appropriate methods. Remove system case. Please refer to user manual to remove case of system safely.

4 Remove protective panel covered over the PCI slots.

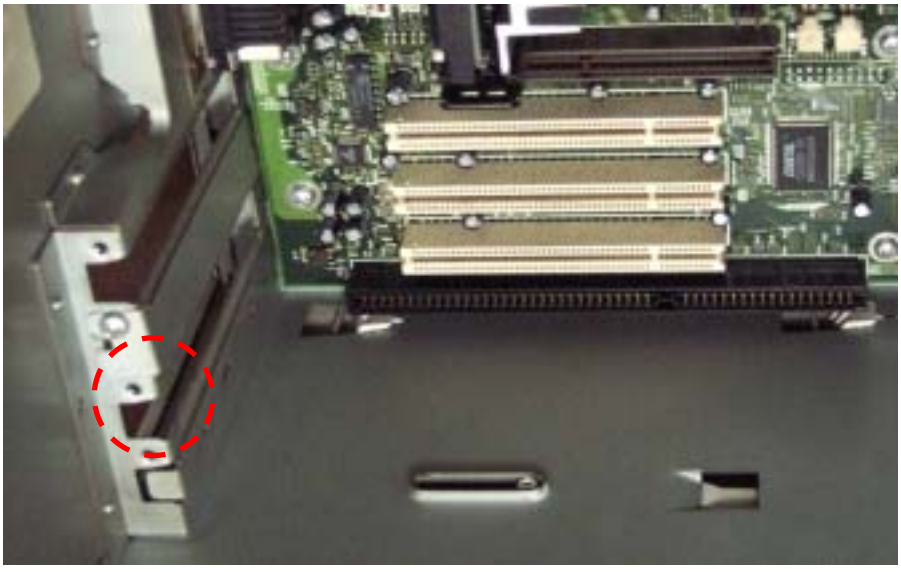


Figure-3 Remove protective panel of PCI slot

Installation can be performed without turning off power if the computer supports hot-swap capability for PCI slot. Please read user manual of your computer .

Install it to appropriate main board slot after confirming which product of Jet-Speed™ you have purchased (For Lite and standard model, install it to PCI-32bit/33MHz slot and for Pro model, install it to PCI-64bit/66MHz slot)

After you loaded board to slot, be careful whether it is loaded correctly to avoid damages of your system or board. Methods of removing or loading slot can be differed by products. Please read descriptions of main board for safe install operation

Jet Speed card can be damaged if you repetitively insert or remove the card.

Figure4. PCI-32Bit/33MHz slot (For Lite and standard model)

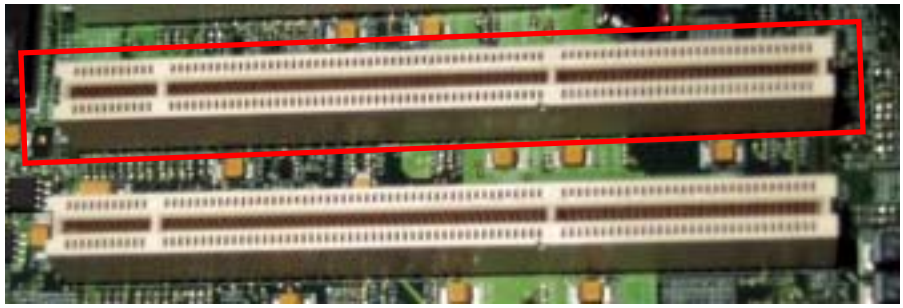


Figure5. PCI-64Bit/66MHz slot (For Pro model)

5 Load Jet-Speed™ board after you remove protective panel of PCI slot

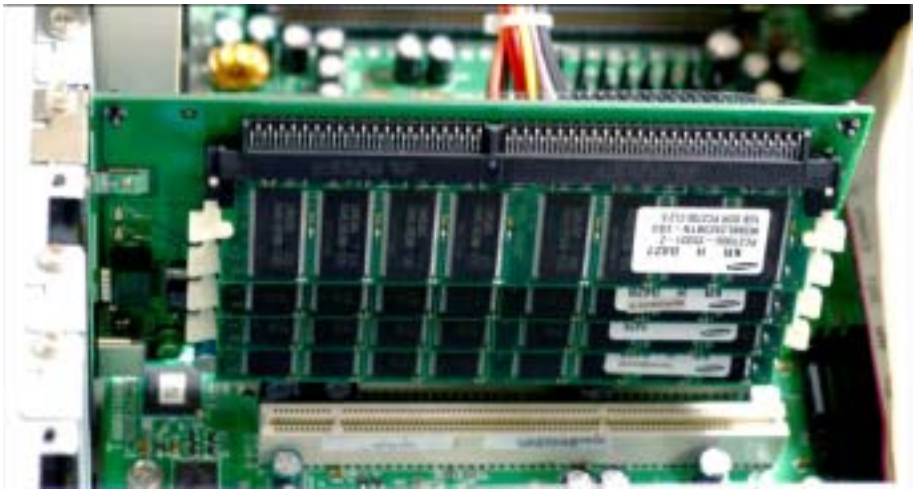


Figure 6. Loading Jet-Speed™ Lite

Figure 7. Loading Jet-Speed™ Pro

In order to operate 64bit/66MHz mode, you should load Jet-Speed™ Pro(64bit/66MHz) product into main board slot of PCI-64bit/66MHz. If you load it to PCI-32bit/33MHz main board slot, only 32Bit/33MHz transmission rate will be generated

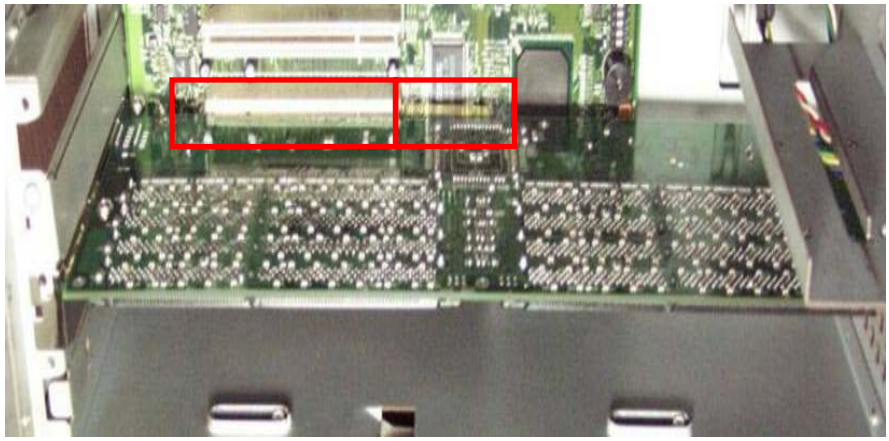


Figure 8. Picture of Jet-Speed™ Pro loaded into PCI-32Bit/33MHz (32 bit slot is loaded on left hand side instead of 64 bit slot on right hand side)

If Jet-Speed™ Pro(64bit/66MHz) is loaded into PCI-X 64bit/100MHz or 64bit/133MHz PCI slots, 64bit/66MHz transmission rate will be generated however if either Standard or Lite(32bit/33MHz) is loaded, only 32bit/33MHz transmission rate will be generated

Currently, PCI-Express is not supported.

Please be cautious that if you load Jet-Speed™ Lite or Standard operating on PCI-32bit/33MHz products into PCI-64bit/66MHz slot, it will cause performance degradation of PCI-64bit/66MHz board or Jet-Speed™ Pro on same channel to PCI-32bit/33MHz speed

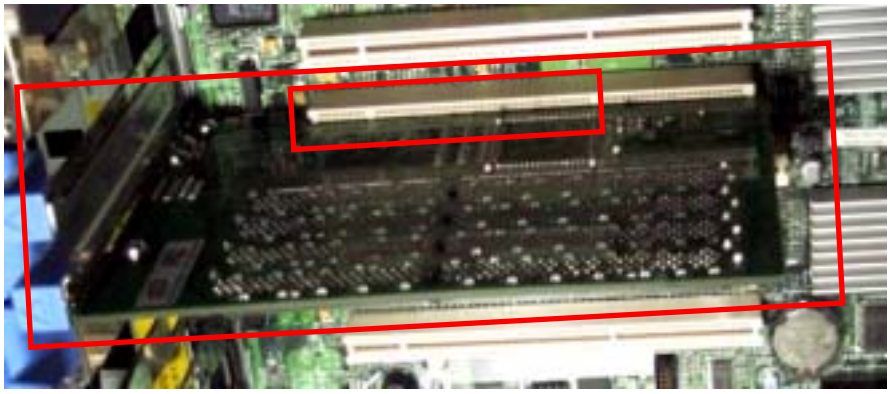


Figure 9. Picture of Jet-Speed™ Lite loaded into PCI-64bit/66MHz slot. (Only internal quadrangle part is loaded)

6 If you have multiple Jet-Speed™ boards, please repeat steps from 4 through 5 .

7 Close system case and move system to original position and connect cables you previously unplugged in the step 1.

8 If you purchased battery pack, connect battery to Jet-Speed™ (Please refer to page 17)

Connect battery to Jet-Speed™

1. Connect PCI board and battery by using provided battery pack

2. Connect battery and AC adapter and connect power cable to power plug .

Figure 11. Connecting battery pack to Jet-Speed™

3. Turn system power on. (ON)

Battery is expendable part. Therefore, it is recommended to replace in 6 months.

Chapter 3 Install WINDOWS driver and environment configuration

Install Jet-Speed™ driver

Jet-Speed™ support various Microsoft operating system from Windows 2000 through Windows 2003 servers. This manual has prepared on Windows 2000 operating system. Description used in this manual may differ depending on your operating system

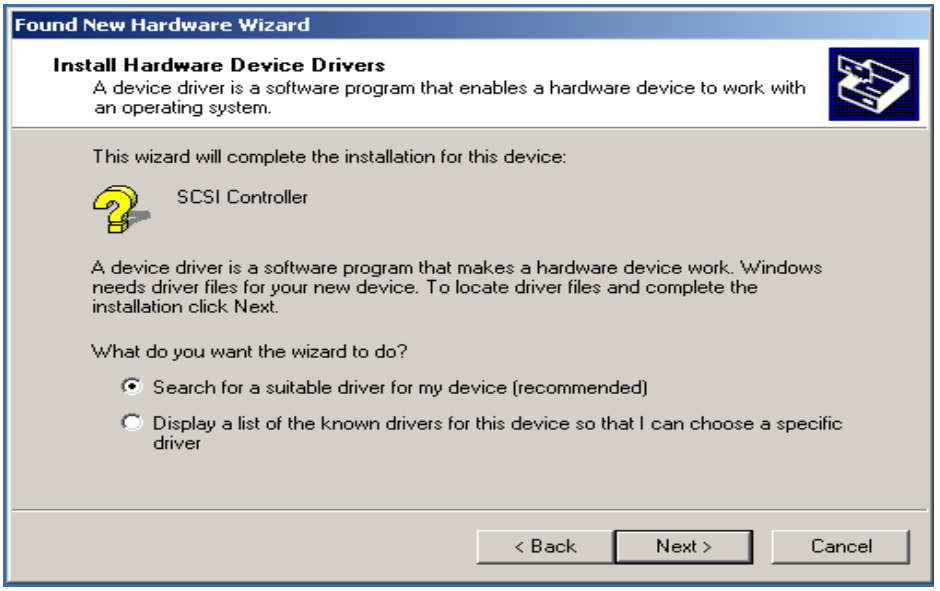
Step 1 Install driver

1 When Windows starts, "New hardware found" message will be prompted

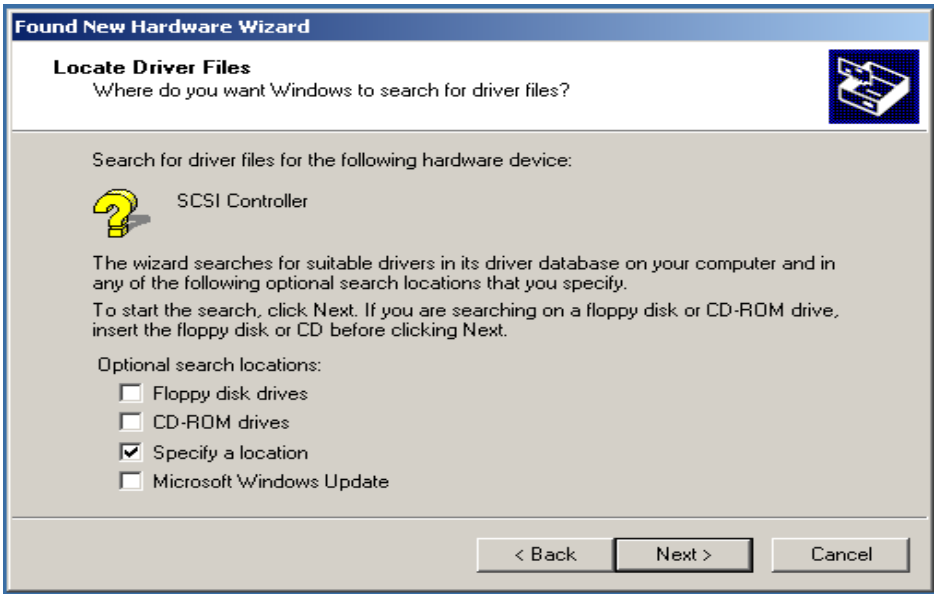
If you reinstalling Jet-Speed™, this dialog message will not be displayed

2 In short time, “Install hardware device and driver” window will be displayed.

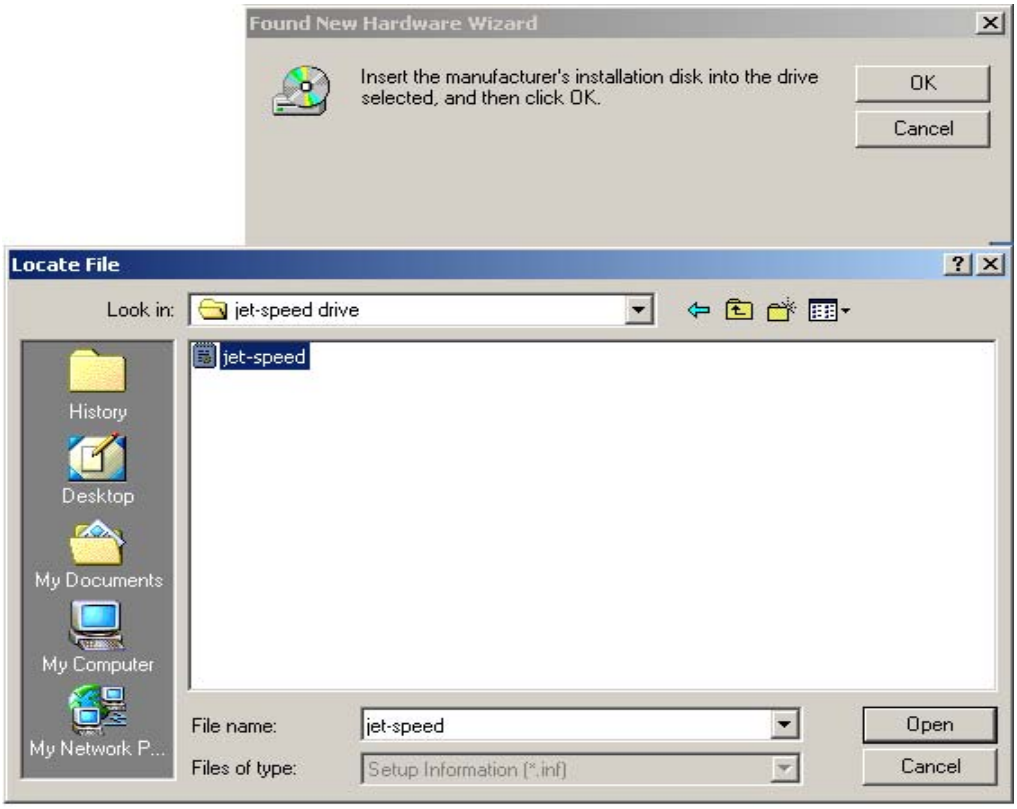
3 Select “Search for the new driver (Recommended)” and click next button.



4 When “Find driver file” dialog box displays, insert CD into CD-ROM driver and select “file location” then click next button.



5 Define location of driver by using " Find " button of " New hardware wizard " menu then click " next " button

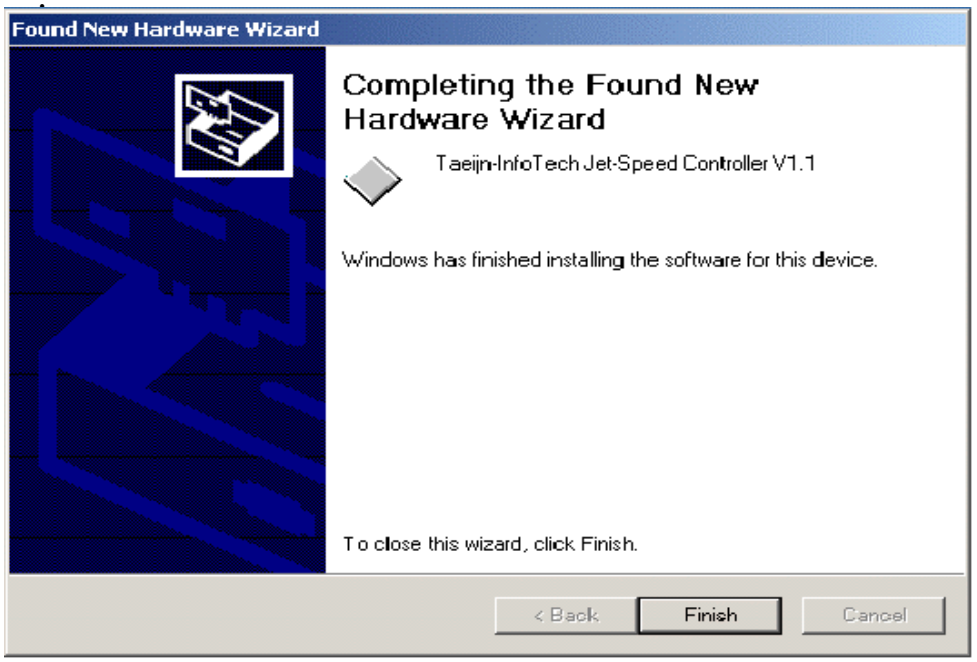


6 Windows will search for Jet-Speed™ driver to install in the system.

7 "Result of driver search window" will appear, click next button to proceed.

8 In short time, Windows will copy driver files into system folder.

9 When the end of “New hardware search wizard” window appears, confirm that “Taejin-infoTech Jet-Speed Controller V1.1” is installed correctly. If accurate information is not found as described, please install driver again. Click “Finish” button to complete driver installation.



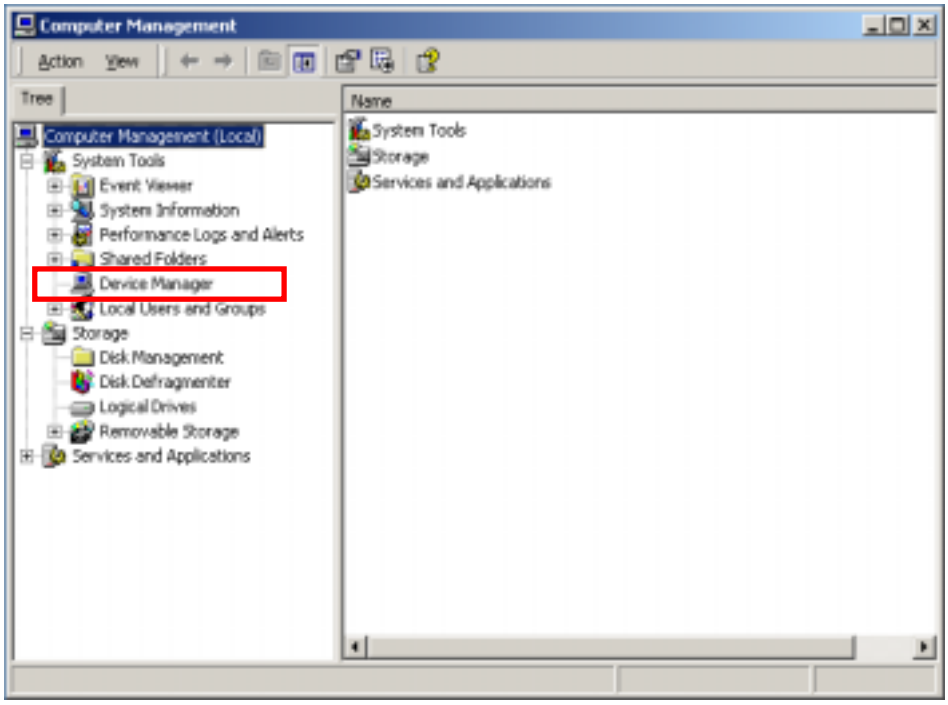
Restart windows message dialog box may appear depending on your operating system

Check installation status of Jet-Speed™

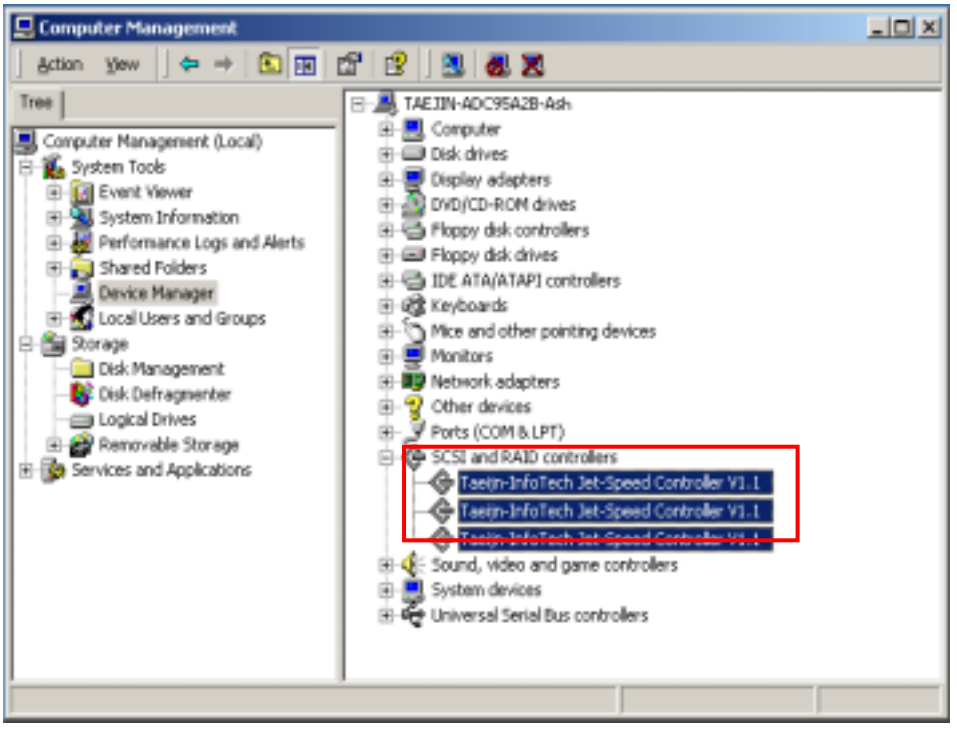
Installation of Jet-Speed™ board and driver are not complete preparation procedure. Similar to other disk driver (HDD), driver initialization and other tasks are required.

Step 2. Confirm correctness of installation

1. Double click on button from "Start" -> "Control panel" -> "Performance and maintenance" -> "Management tool" -> "Computer management", or use right mouse button and click on manage from my computer icon. .
2. Execute "System tool" -> "Device manager" menu



3 Double click on " SCSI and RAID controller " from right hand side of device manager and check whether "Taejin - InfoTech Jet-Speed Controller V1.1" is displayed
Same number of installed Jet-Speed™ entries will be displayed from device category.(Picture shows that 3 drivers have installed)



4 If "Taejin-InfoTech Jet-Speed Controller V1.1" is not displayed from the list, it indicates that Jet-Speed™ is not installed correctly. For this case, please check installation step from load "Jet-Speed™ part".

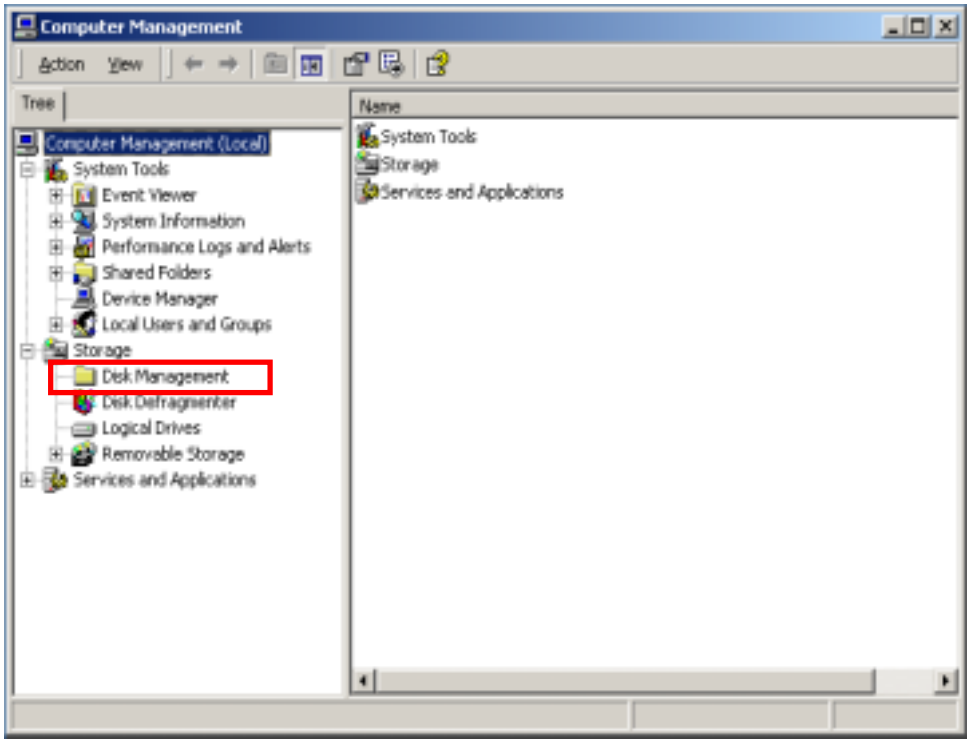
Initialization of Jet-Speed™

Including HDD driver, all drive should go through initialize, partition and format processes. During these processes, initialization step can be omitted.

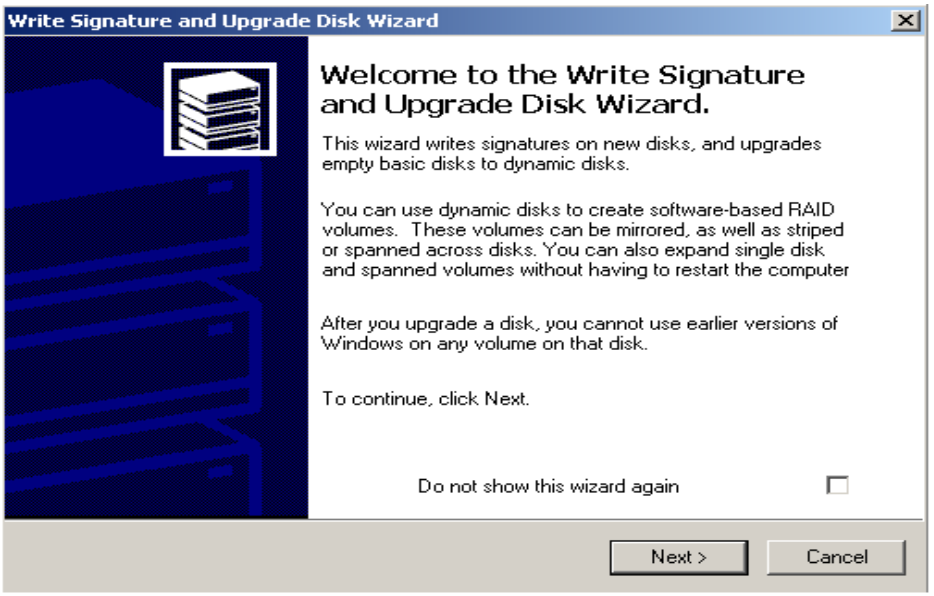
If you format current used Jet Speed drive, stored data can be deleted. Please make sure that you backup important data prior to format process.

Step 3 Disk initialization

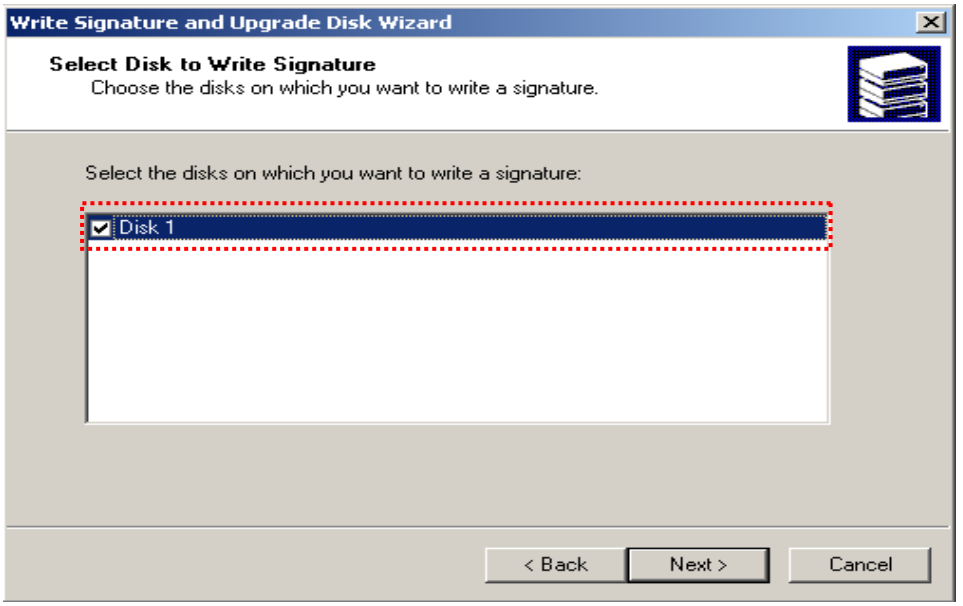
1 Click on "Disk Management" from sub menu of "Storage" of computer management(local).



2 "Write signature and upgrade disk wizard" window will be displayed. Click "next" button to proceed.



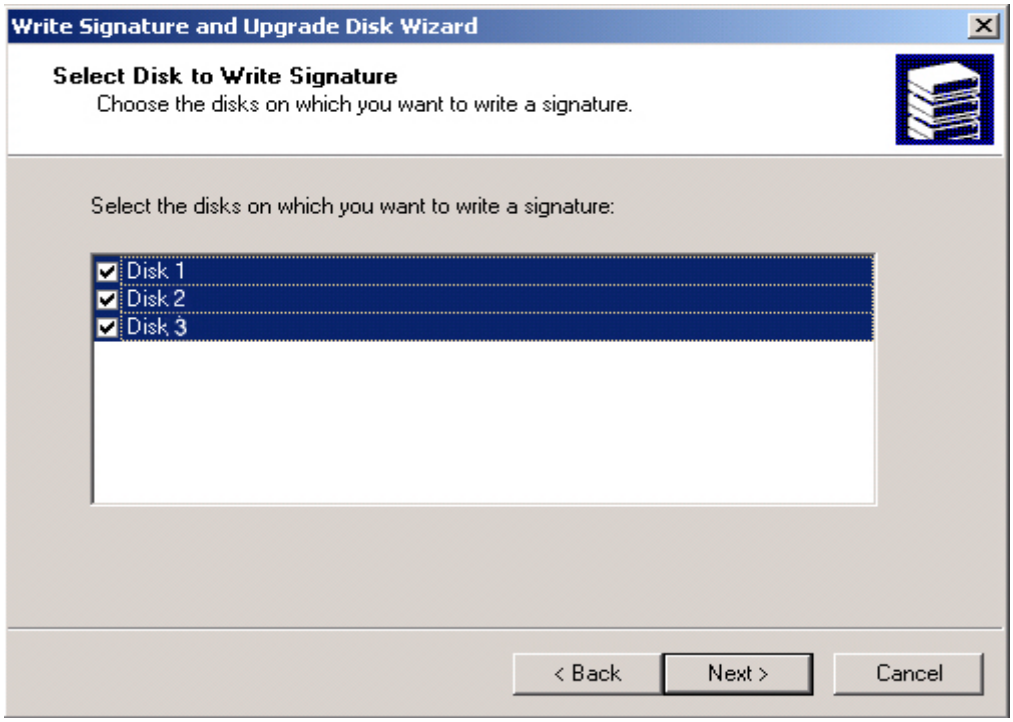
3 When "Write signature and upgrade disk wizard" window is displayed, disk category that has not initialized will be displayed. Select "Disk 1" then click "Next" to proceed.



Described "disk 1" in previous paragraph can be different depending on the disk drives that you have on your system. .

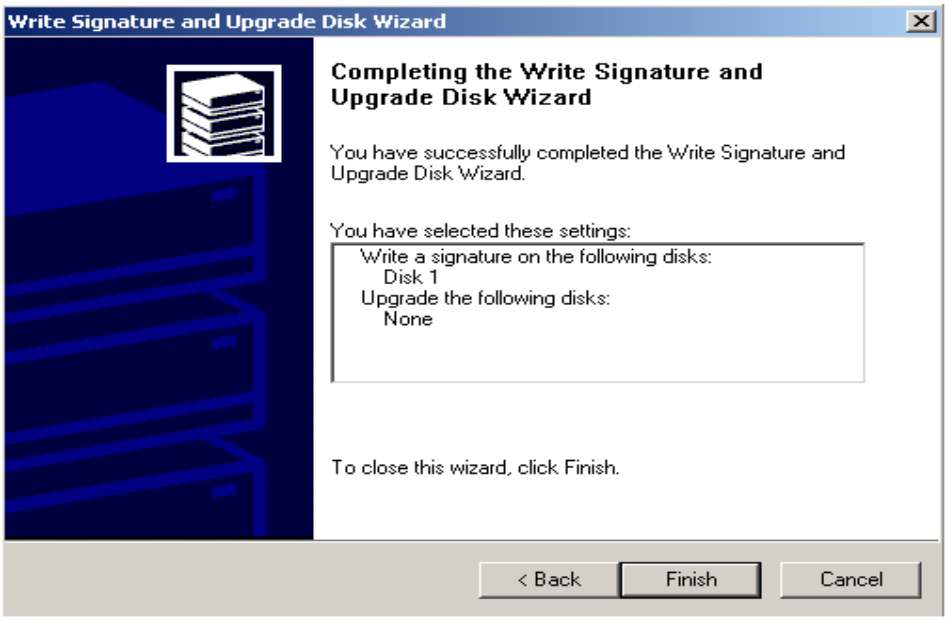
If you have installed more than 2 or more Jet-Speed™ boards, number of installed drivers will be displayed from the category.

4 When initialization selection completes, "Select disk to write signature" dialog box will be displayed. This selection is required for Jet-Speed™ RAID(Redundant Arrays of inexpensive Disk) configuration. If you installed only one Jet-Speed™, please remove check mark. If you installed multiple Jet-Speed™ boards, please select check mark in the option box.



If you wish to configure RAID with Jet-Speed™ product, please download installation manual from our home page.

5 When initialization task completes, initialization wizard will notify the completion of the task. Click on “Finish” button to end the process.

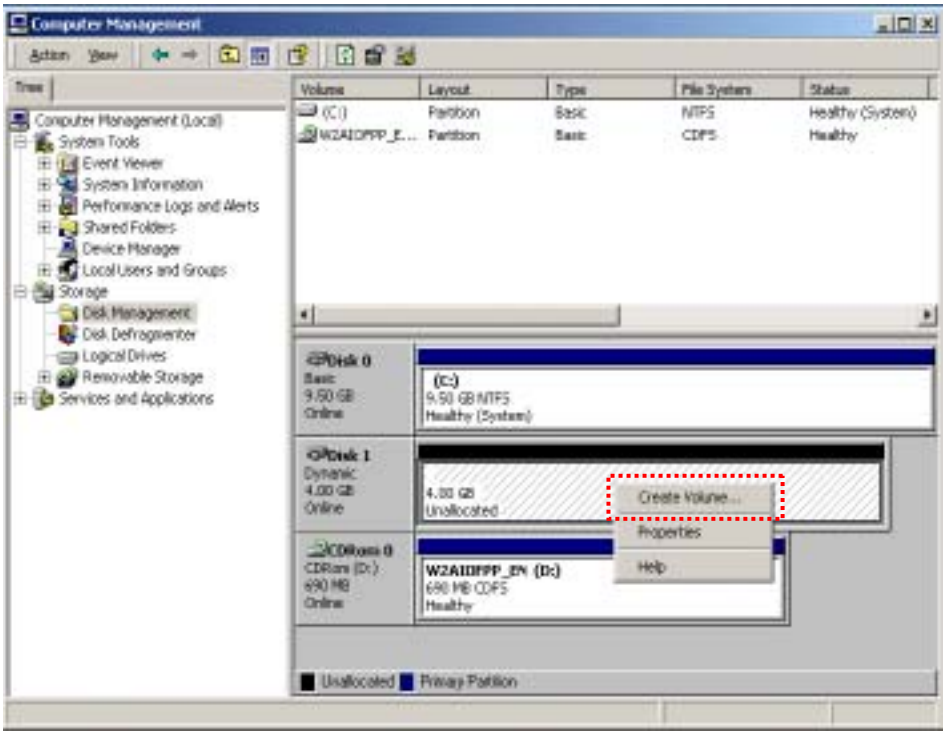


Single format configuration of Jet-Speed™

Step 4 Single configure single partition and format

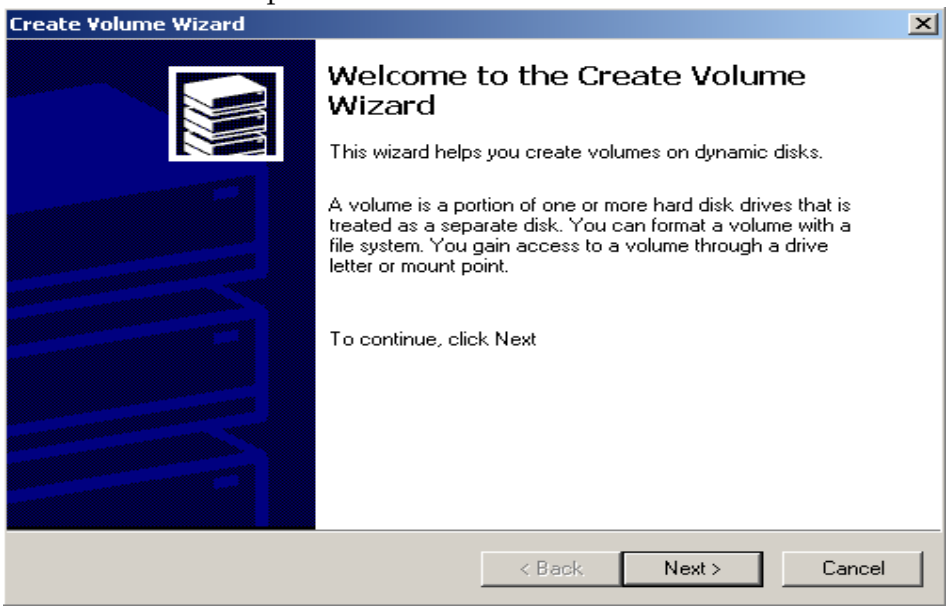
1 When disk initialization completes, completed initialization or converted disk will be displayed from right bottom side of computer management menu. If the status of default or dynamic is shown from disk 2, it indicates that the initialization has completed successfully. .

2 From "unallocated" menu, use right mouse button to select "Create volume" menu.

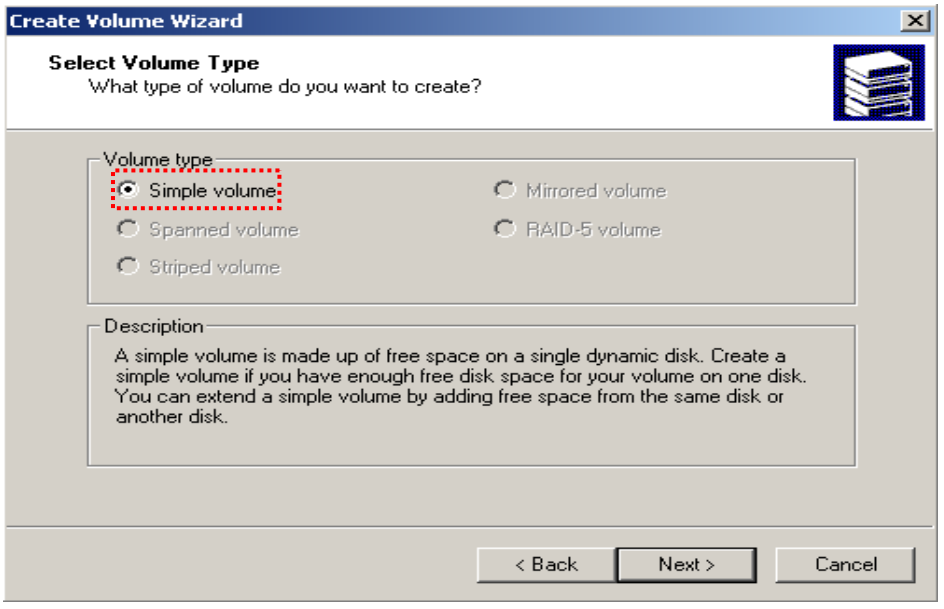


When you change partition, data stored in the disk will be removed. Please make sure that you have selected Jet-Speed™ drive before proceed. If you have not selected "Jet-Speed™", you will not be able to proceed to next step from popup menu.

3 When “Create Volume wizard” window is displayed, click “Next” button to proceed.

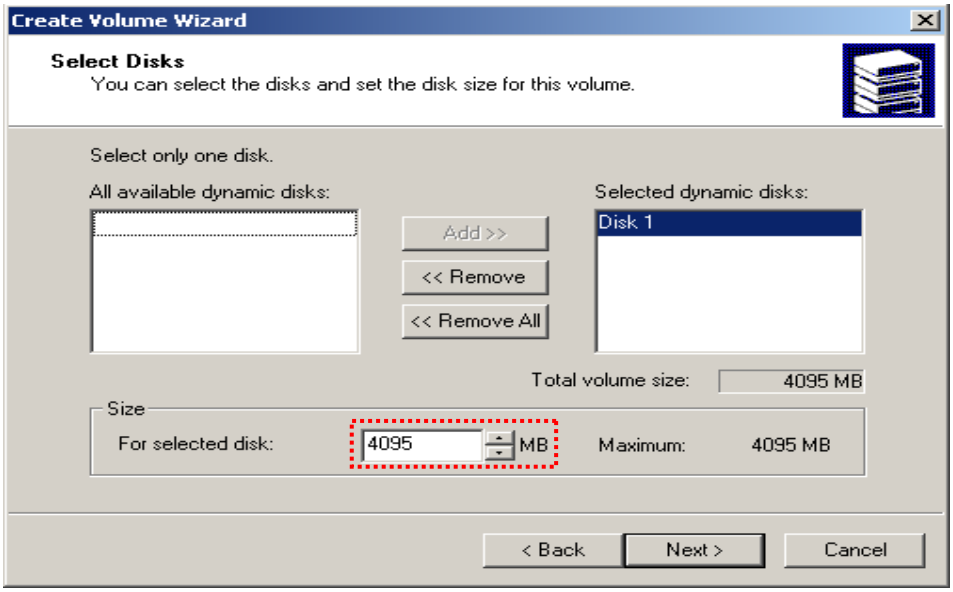


4 Select “Simple volume” then click “Next” button.

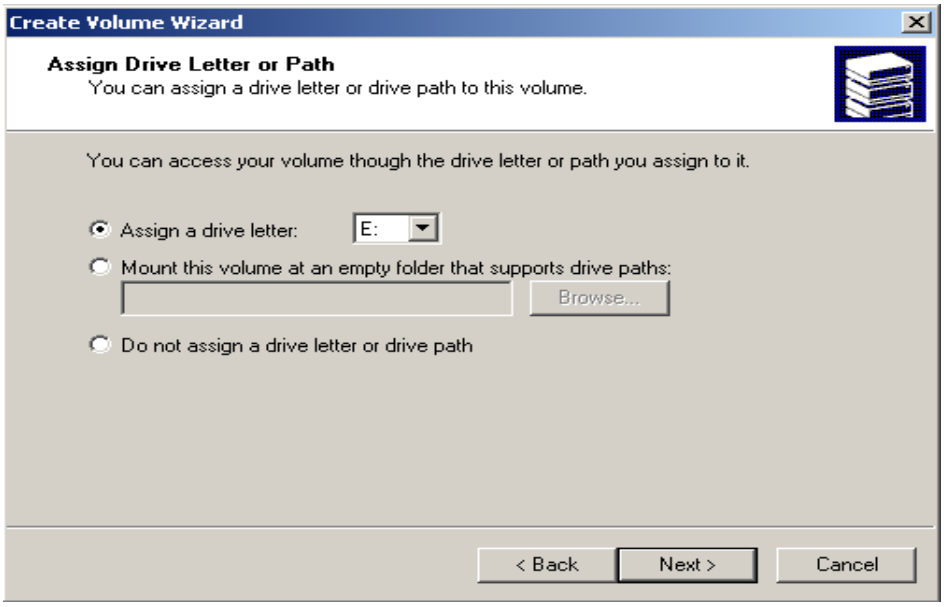


If you wish to select other volume type, please refer to system manual provided with Windows operating system. In this manual, we have selected simple volume configuration..

5 Select size of partition then select "Next" button. You may select same size of partition displayed "Maximum" field at the bottom of the window

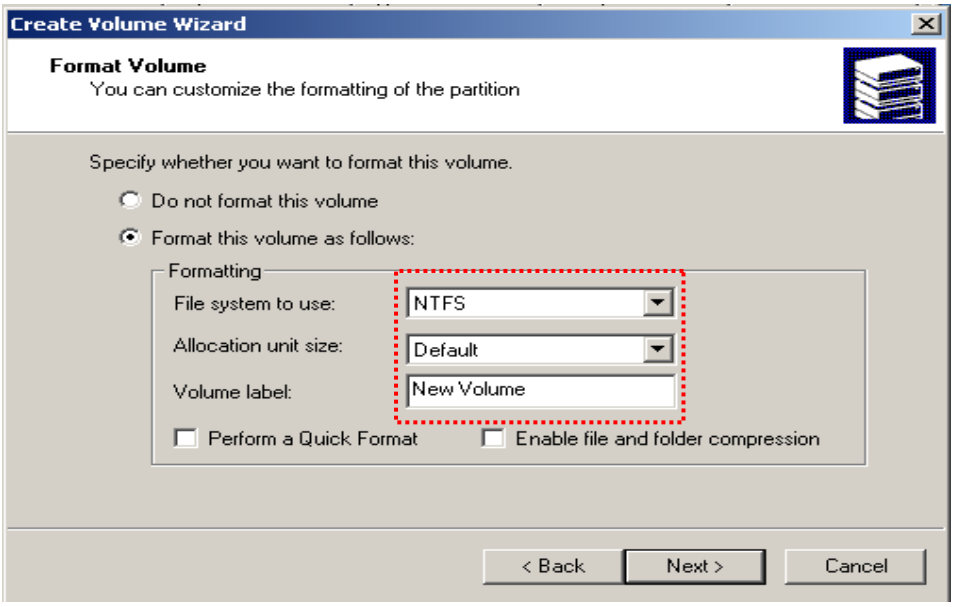


6 Select "assign a drive letter" to assign to drive then click "Next" button to proceed .



At this stage, "letter that has not assigned to drive" will be displayed. Letter used for drive can be differed by number of disk on your systems and numbers of partitions.

7 Select “Format this volume as follow” then configure “File system to use” and “Volume label” then click “Next” button to proceed.



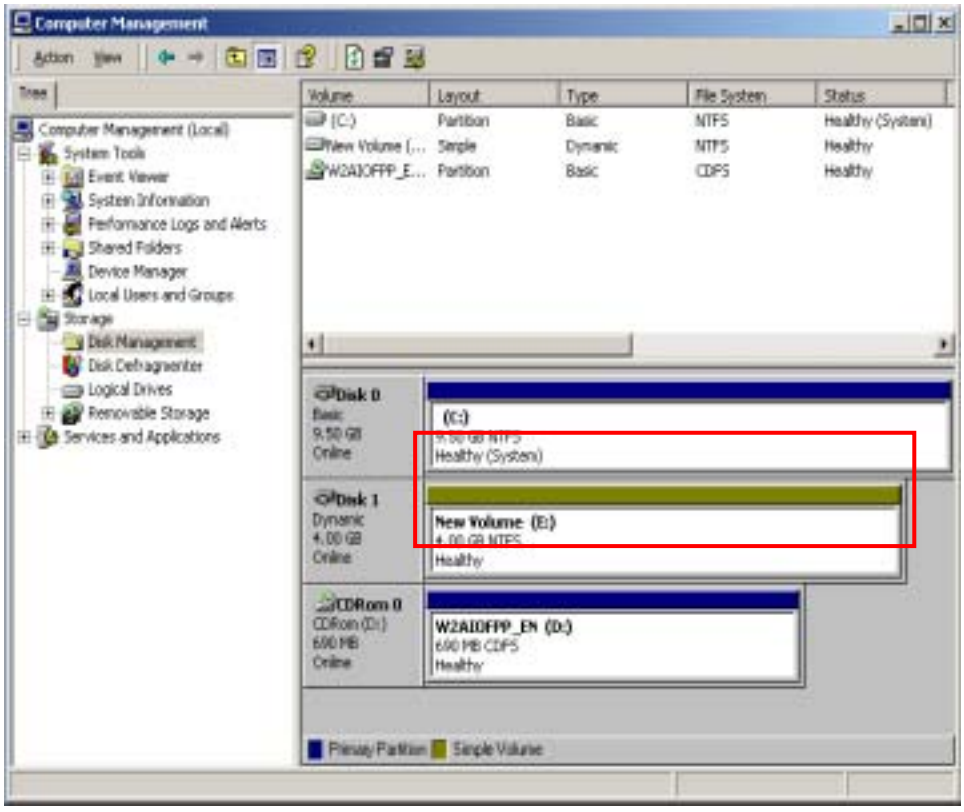
Windows 2000 and Windows XP support FAT32 and NTFS file systems. “Allocation unit size” will be populated with default size. If you wish to change this value, please refer to your Windows system manual.

If you don’t want to format drive immediately, you may perform format process later on. However, you will not be able to use Jet-Speed™ until you format the drive.

Format process will remove all data from your disk. Therefore, when you want to proceed with format process, please make sure that you have selected Jet-Speed™ drive before you proceed.

8 When "Formatting" message is displayed, Jet-Speed™ is currently in the progress of formatting. Time consumed for format process can by varied depending on the system specification.

9 When format process completes, volume label and drive character are configured as follow and "healthy" status will be displayed.



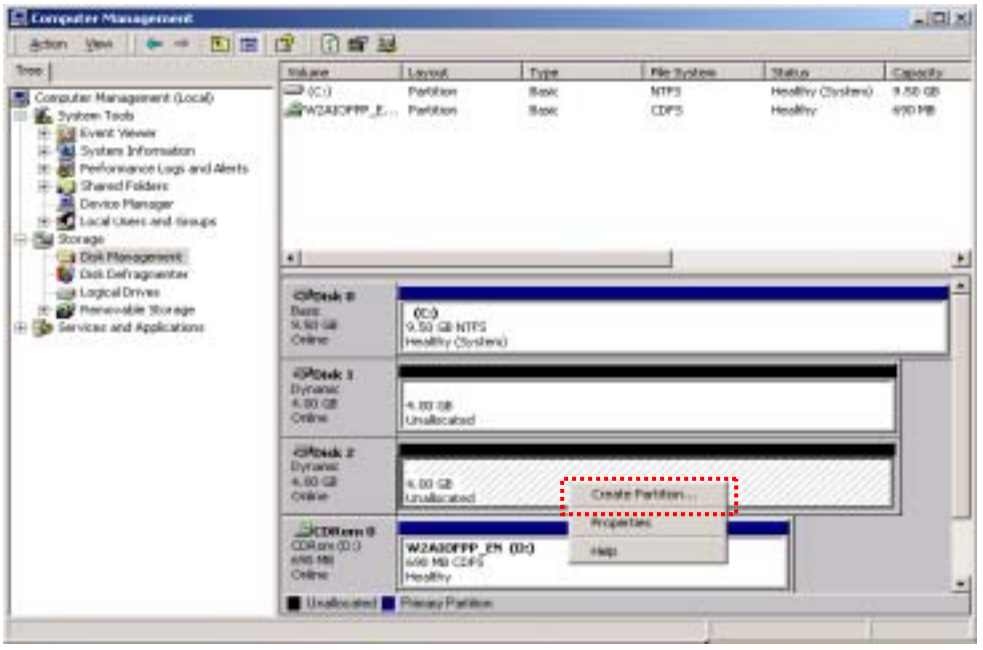
Assigned character for drive and volume label will be applied as configured previously. If time consumed for formatting drive is too long or unable to completes, please check each step from step 3.

Jet-Speed™ RAID configuration format

Step 5 RAID configuration and format

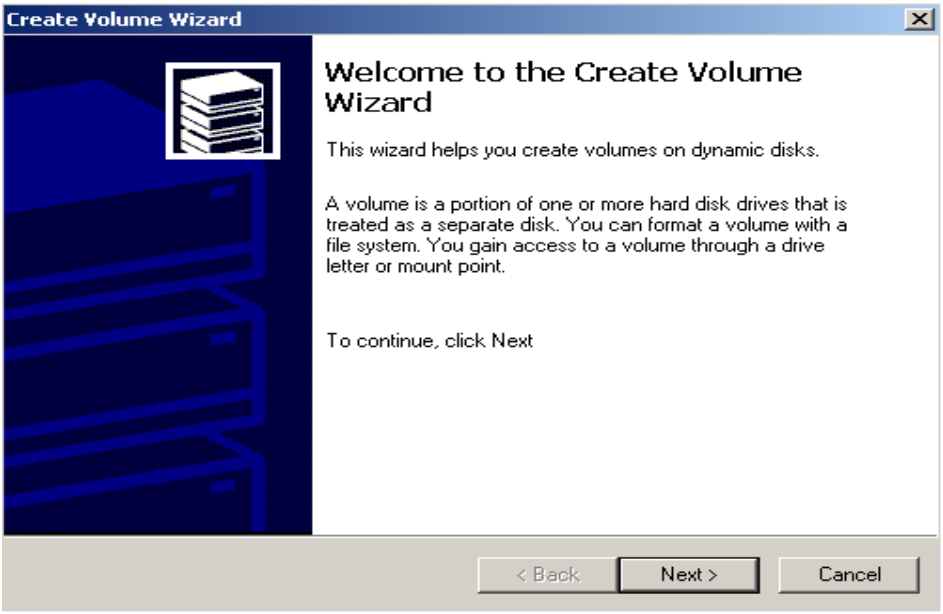
1 Change to My computer manage menu to configure RAID disk structure. This process will upgrade Jet-Speed™ disk to dynamic disks.

2 Use right mouse button from “unallocated” menu then click on “Create volume” menu

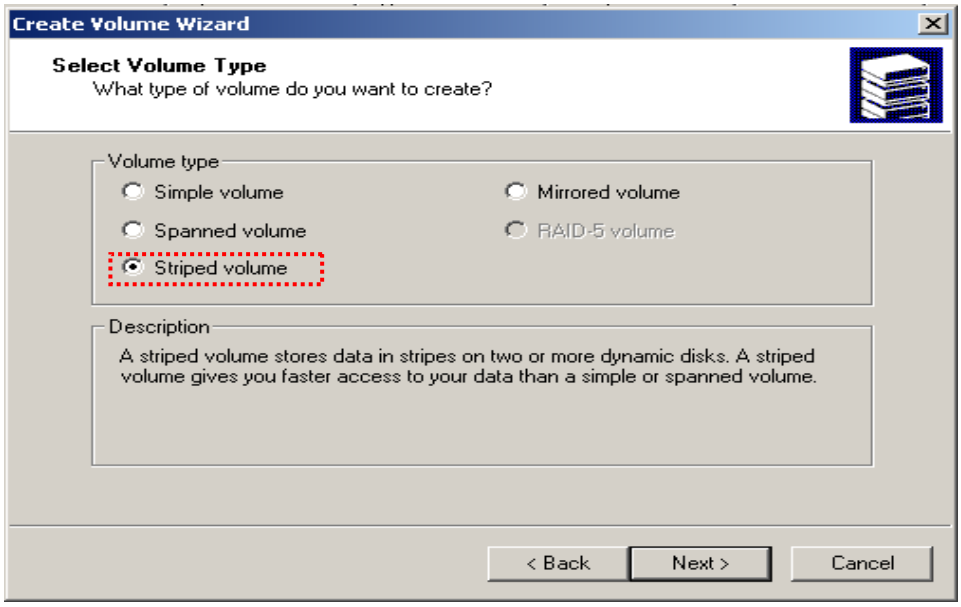


RAID format configuration is only allowed when more 2 Jet-Speed™ are installed. Please check number of installed Jet-Speed™ drives on PC prior to RAID format function. RAID format can be used regardless of Jet-Speed™ types (Lite, Standard or Pro). However, format speed of both Lite and Pro Jet-Speed™ will maintain 32bit/33MHz.

3 When "Create Volume wizard" is displayed, click "Next" button to proceed.

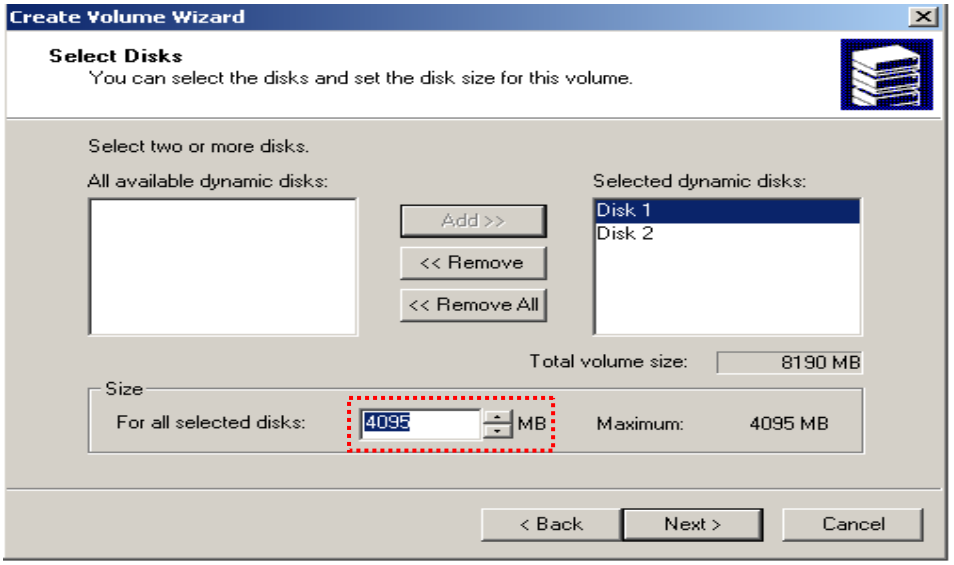


4 Select appropriate RAID type for your system. Select "striped volume" type

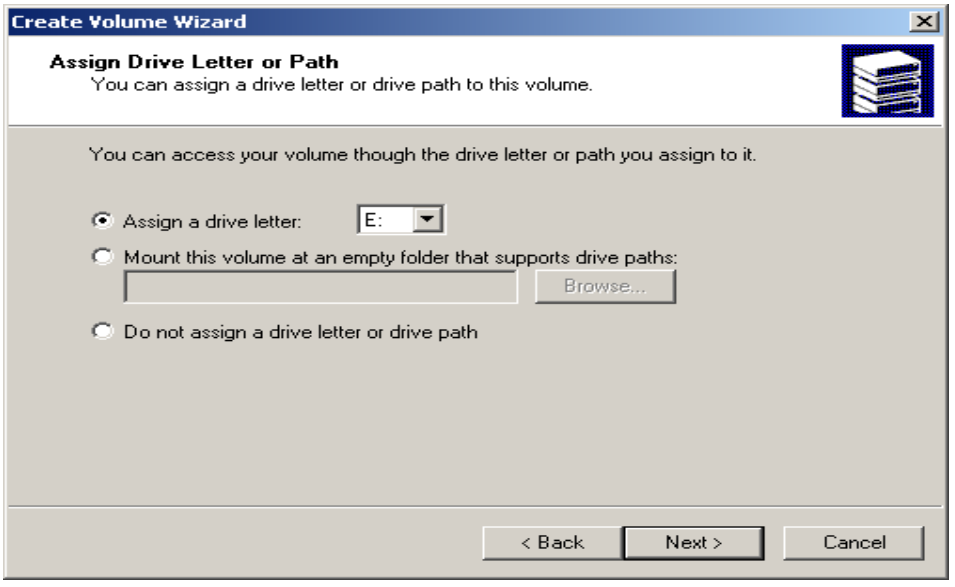


Please refer to home page of Tajin InfoTech for details of RAID type for each system and related documents.

5 Select size of partition then select “Next” button. You may select same size of partition displayed “Maximum” field at the bottom of the window.

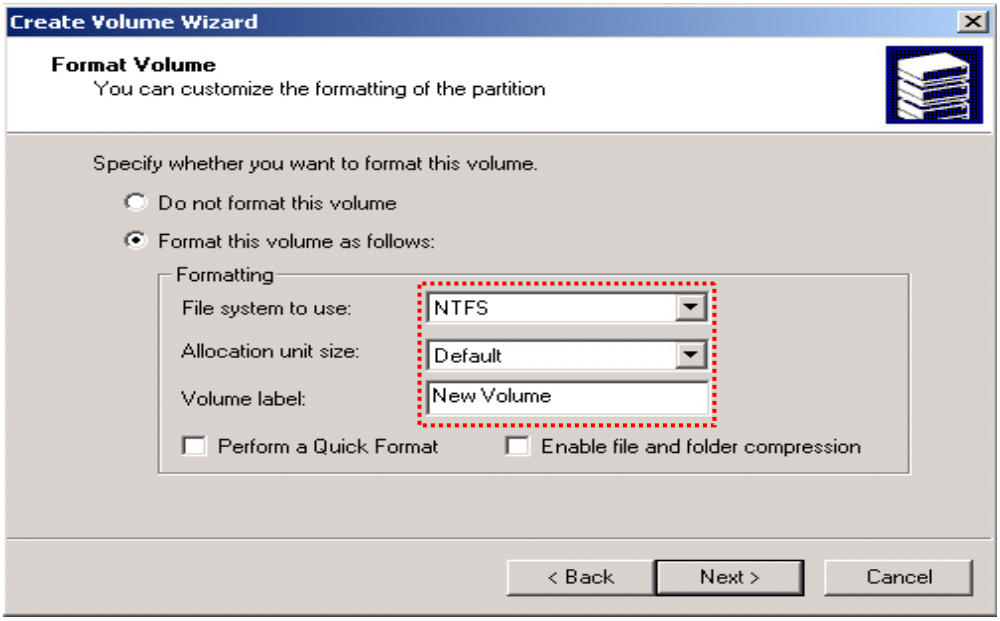


6 Select character to assign to drive then click “Next” button to proceed



At this stage, “Letter that has not assigned to drive” will be displayed. Letter used for drive can be differed by number of disk on your systems and numbers of partitions

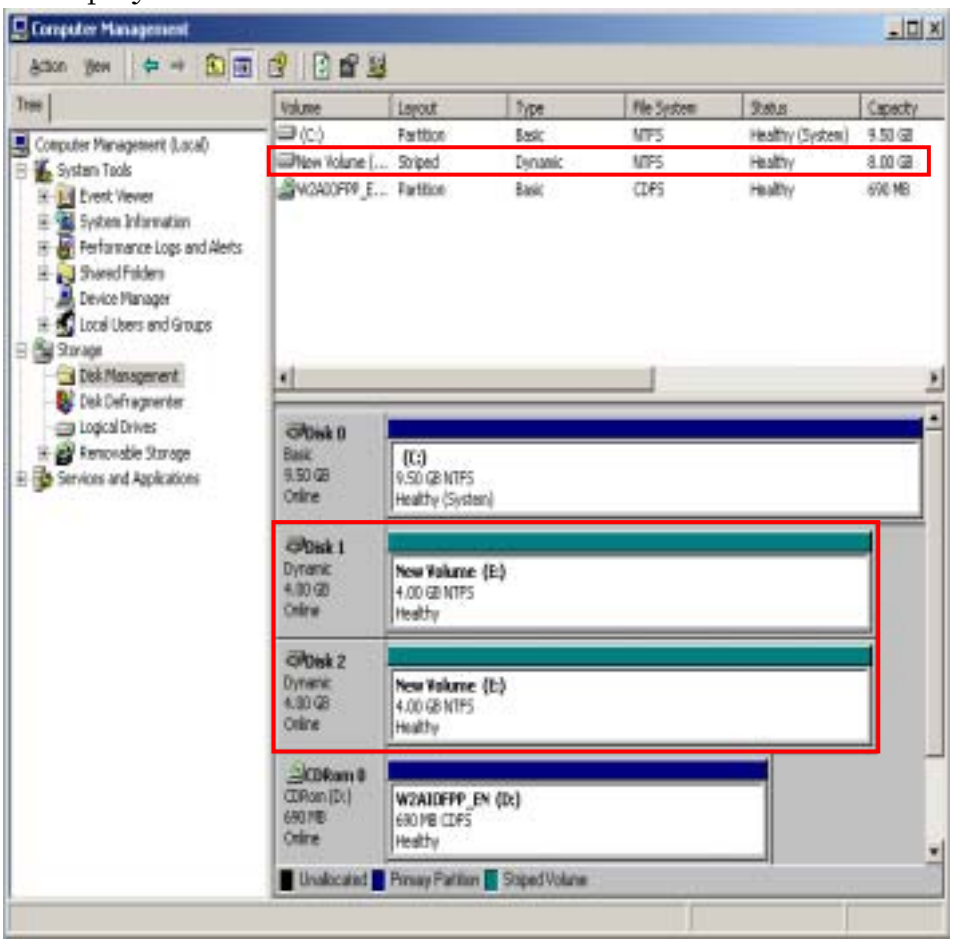
7 Select “Format this volume as follow” then configure “File system to use” and “Volume label” then click “Next” button to proceed



Windows 2000 and Windows XP support FAT32 and NTFS file systems. “Allocation unit size” will be populated with default size. If you wish to change this value, please refer to your Windows system manual.

8 When “Formatting” is displayed, Jet-Speed™ is currently in the progress of formatting. Time consumed for format process can by varied depending on the system specification.

9 When format process completes, volume label and drive character are configured as follow and “Healthy” status will be displayed .



Now, all requirements have completed. Please enjoy new world of Jet-Speed™ and experience the differences.

Chapter 4 Install Linux driver and environment configuration

Install Jet-Speed™ driver

1 This manual assumes that linux-v2.4 kernel is set to /usr/src/linux or /usr/src/linux-2.4 and root access right is permitted. If kernel source is not installed in the system, please install kernel-source-xxx.rpm from the Linux CD.

2 Uncompress source codes of device drivers into working directory

```
% tar -xvfz Jet-Speed-v1.0c.tgz
```

```
Jet-Speed-v1.0c/
Jet-Speed-v1.0c/Makefile
Jet-Speed-v1.0c/jetspeed.h
Jet-Speed-v1.0c/jetspeed.c
```

3 Boot system with compiled kernel from step 1 and perform following steps for each platform .

(1) For uni-processor platform

```
% make up
```

```
gcc -c -D__KERNEL__ -DMODULE -Wall -Wno-sign-compare -
fno-strict-aliasing -Wstrict-prototypes -O2 -fomit-frame-
pointer -I. -I/usr/src/linux-2.4/drivers/scsi -
I/usr/src/linux-2.4/include -include /usr/src/linux-
2.4/include/linux/modversions.h -o jetspeed.o jetspeed.c
```

(2) For multi-processor platform

```
% make smp
```

```
gcc -c -D__KERNEL__ -DMODULE -Wall -Wno-sign-compare -
fno-strict-aliasing -Wstrict-prototypes -O2 -fomit-frame-
pointer -DCONFIG_SMP -I. -I/usr/src/linux-
2.4/drivers/scsi -I/usr/src/linux-2.4/include -include
/usr/src/linux-2.4/include/linux/modversions.h -o
jetspeed-smp.o jetspeed.c
```

As results of tasks performed, each module file is created either jetspeed.o or jetspeed-smp.o types.

4 Install created driver by performing following command from directory where jetspeed-smp(or jetspeed.o) is located.

```
% make install
```

5 In order to load installed driver, use modprobe command to recognize Jet-Speed™ disk. .

(1) For uni-processor

```
% modprobe jetspeed
% modprobe sd_mod
```

(2) For multi-processor

```
% modprobe jetspeed-smp
% modprobe sd_mod
```

6 When command below is executed, information of Jet-Speed™ recognized by system will be provided .

```
% cat /proc/scsi/scsi
```

```
scsiAttached devices:
Host: scsi0 Channel: 00 Id: 00 Lun: 00
Vendor: Taejin   Model: Jet-Speed   Rev: 0001
Type:   Direct-Access              ANSI SCSI   revision: 03
```

7 When command below is executed, path information of Jet-Speed™ recognized by system will be provided .

% dmesg | grep scsi

```
scsi0 : Jet-Speed 8192MB
Attached scsi disk sda at scsi0, channel 0, id 0, lun 0
```

8 In order to separate partition, execute command below.

% fdisk /dev/sdx ※ x = option (Option can be selected)

```
예) % fdisk /dev/sda
```

9 Use below command to execute format process.

% mkfs –t ext3 /dev/sdx ※ x = option

```
예) % mkfs –t ext3 /dev/sda1
```

10 Create directory to mount Jet-Speed™ drive. .

% mkdir /mnt/jetspeed Set directory name temporarily

```
예) % mkdir /mnt/jetspeed_pro
    % mkdir /mnt/jetspeed_lite
```

11 Create directory to mount by using command below

% mount –t ext3 /dev/sdx /dir

※ x = option

※ dir = directory name to configure

```
예) % mount –t ext3 /dev/sda1 /mnt/jetspeed
```

12 Add following entry to vi /etc/rc.local and set driver automatically.

% vi /etc/rc.local

```
/sbin/modprobe jetspeed-smp(jetspeed)
/sbin/modprobe sd_mod
/sbin/mkfs –t ext3 /dev/sdx ※ x = option
mount –t ext3 /dev/sdx /dir ※ dir = directory name to config
```

```
예) % vi /etc/rc.local
    /sbin/modprobe jetspeed-smp(jetspeed)
    /sbin/modprobe sd_mod
    /sbin/mkfs –t ext3 /dev/sda
    mount –t ext3 /dev/sda /dir
```

13 Perform command below and check status of installation.

% df -k

```
% df –k

Filesystem           1K-blocks      Used Available Use% Mounted on
/dev/hda3            114239496   7163204 101273216   7% /
/dev/hda1               101089      9322      86548  10% /boot
none                    127088         0    127088   0% /dev/shm
/dev/sda1              8256936     32828   7804680   1% /mnt/jetspeed
```

Step 2 RAID configuration

In this context, RAID indicates Linux software RAID capability and only describes RAID-0(Stripe) method

1 Assume that driver is already installed, perform modprobe command to load installed driver to recognize Jet-Speed™ disk.

(1) For uni-processor

```
% modprobe jetspeed
% modprobe sd_mod
```

(2) For multi-processor

```
% modprobe jetspeed-smp
% modprobe sd_mod
```

2 When command below is executed, information of Jet-Speed™ recognized by system will be provided.

```
% cat /proc/scsi/scsi
```

```
Attached devices:
Host: scsi0 Channel: 00 Id: 00 Lun: 00  Vendor: Taejin
Model: Jet-Speed        Rev: 0001  Type:   Direct-Access
ANSI SCSI revision: 03
Host: scsi1 Channel: 00 Id: 00 Lun: 00  Vendor: Taejin
Model: Jet-Speed        Rev: 0001  Type:   Direct-Access
ANSI SCSI revision: 03
```

3 When command below is executed, path information of Jet-Speed™ recognized by system will be provided.

```
% dmesg | grep scsi
```

```
scsi0 : Jet-Speed 8192MB
scsi1 : Jet-Speed 8192MB
Attached scsi disk sda at scsi0, channel 0, id 0, lun 0
Attached scsi disk sdb at scsi1, channel 0, id 0, lun 0
```

4 In order to perform RAID configuration, create /etc/raidtab file then configure as below:.

% vi /etc/raidtab

```
raiddev /dev/md0
        raid-level      0                       ※ RAID type
        nr-raid-disks   2                       ※ No of disk
        persistent-superblock 1
        chunk-size      4
        device          /dev/sdx                ※ x = option
        raid-disk       0                       ※ disk order
        device          /dev/sdx                ※ x = option
        raid-disk       1                       ※ disk order
```

```
예) % vi /etc/raidtab
    raiddev /dev/md0
            raid-level      0
            nr-raid-disks   2
            persistent-superblock 1
            chunk-size      4
            device          /dev/sda
            raid-disk       0
            device          /dev/sdb
            raid-disk       1
```

5 Perform command below to initialize RAID and to update information

% mkraid /dev/mdx ※ x = option

```
예) % mkraid /dev/md0
```

6 Perform command below to initiate RAID device.

% raidstart /dev/mdx ※ x = option

```
예) % raidstart /dev/md0
```

7 Perform command below to format drive.

% mkfs -t ext3 /dev/mdx ※ x = option

```
ex) % mkfs -t ext3 /dev/md0
```

8 Perform command below to create directory to mount

% mount -t ext3 /dev/mdx /dir

※ x = option
※ dir = directory name to mount

```
ex) % mount -t ext3 /dev/md0 /mnt/raid_jetspeed
```

9 Add following entry to vi /etc/rc.local and set driver automatically

% vi /etc/rc.local

```
/sbin/modprobe jetspeed-smp(jetspeed)
/sbin/modprobe sd_mod

/sbin/mkraid /dev/mdx            ※ x = option
/sbin/raidstart /dev/mdx         ※ x = option

/sbin/mkfs -t ext3 /dev/mdx      ※ x = option
mount -t ext3 /dev/mdx /dir      ※ dir = dir name to mount
```

```
예) % vi /etc/rc.local
    /sbin/modprobe jetspeed-smp(jetspeed)
    /sbin/modprobe sd_mod

    /sbin/mkraid /dev/md0
    /sbin/raidstart /dev/md0

    /sbin/mkfs -t ext3 /dev/md0
    mount -t ext3 /dev/md0 /mnt/raid_jetspeed
```

13 Perform command below and check status of installation.

% df -k

```
# df -k
Filesystem           1K-blocks      Used Available Use% Mounted on
/dev/hda3            114239496   7162272 101274148   7% /
/dev/hda1               101089      9322     86548  10% /boot
none                    127088         0    127088   0% /dev/shm
/dev/md0              16513832     32828  15642152   1% /mnt/raid_jetspeed
```

Chapter 5 User manual or Battery Pack

Components

Figure 1. Cable to connect battery: 1 EA

Figure 2. Adapter: 1 SET

Figure 3. Battery: 1 EA

Installation

1. Connect connecting part of Jet-Speed™ battery and adapter with cable.
2. Plug power cable after you connect battery and adapter
3. Check LED light lamp of battery. (It will be turned on after few seconds)

Caution

1. If you use battery for first time or battery that has not been used for long time, recharge battery with 12V adapter prior to use
2. When recharge process starts, battery display light will be turned on and turned off when recharge process completes
3. When battery display light is blink, it indicates holding status of recharging due to increase of battery temperature. Recharging will be initiated again once temperature decreases.
4. Jet-Speed™ is storage using DDR SDRAM. It needs electricity to maintain data on Jet-Speed™ Disk. Please make sure not to turn off the battery.
5. **Product guarantee period**: 6 month after purchase.

제품보증기간
구입일로부터 6개월

Chapter 6 Q & A

Q **After first installation, new hardware device searching is not performed correctly**

A After you install Jet-Speed™ driver, if you have not prompted for detection of new hardware device, it indicates incorrect installation of hardware. Please turn off power immediately and check "Load main part of **Jet-Speed™**" section.

Q **I have attached 3 Gigabytes of memory to Jet-Speed™ board, but system recognize as 4 gigabytes .**

A Please download latest Jet-Speed™ driver and reinstall again. Latest driver will always provided from shopping mall home page.

Q **I have finished disk initialization process. But, driver is displayed as "Dynamic" instead of "Default" and also it has red X mark on it.**

A This problem occurs because configuration is set to dynamic instead of default during initialization step. Please restart initialization step and select check mark on " Select disk to initialize " and do not select any option during " Select disk to convert " process .

Q **Are Windows 98 and Windows ME are not supported?**

A Currently Jet-Speed™ is not supported on Windows 98 and Windows ME operating systems

Q What is the maximum capacity?

A Jet-Speed™ does not have limitation in memory capacity. Currently, lite supports 512MB and 1GB module, Pro and standard support 512MB,1GB,2GB and 4GB DDR SDRAM. So the maximum capacity of Lite is 4 GB and Pro is 32GB.

When you configure several Jet-Speed™ BOARDS, the capacity is enlarged to the ration of the number of Jet speed disks installed

Q What is memory types available?

A Basically Jet-Speed™ is configured to over DDR-SDRAM PC-2700.If you want to install the RAM as a below PC 2700, It is also possible but we strongly recommend to use over PC-2700 to store data safely.

Non Buffered/Non ECC DDR-SDRAM PC-2700 memory is configured for Lite and Buffered/ECC DDR-SDRAM PC-2700 is configure for Pro and Standard

Q How long dose battery supply electric power?

A To store and maintain data safely, Battery consists of recharge battery/battery used in mobile phone and adapter. This is for unexpected interruption of electric power. Battery can flow electric power 4 hours for Lite and 6 hours for Pro/Standard without power supply. It can be changed depend on battery quality. When you get a notice of interruption of electric power, Please make sure to backup data using Back up software packed together.

Q What kinds of verifications do you have?

A We passed the test MIC(Korea), FCC(USA),EC(Europe) and VCCI(Japan)

Chapter 7 Technical supports

Please upgrade to latest install driver for better performance from the home page.

Please contact home page or information provided below when you experience any problem or inconvenience

Warranty of product: 1 year from the date of purchase (Battery: 6 month)
Phone number: 82-(2) 851-2662
Fax number: 82-(2) 851-2655
Home page: http://jet-speed.taejin.co.kr

메 모

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