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English

1. Feature Introduction

1-1. U8598 Features (for V3.0)

CPU

- Provides Socket-478.
- Supports the Intel Pentium 4 processor up to 3.06GHz.
- Running at 400/533MHz Front Side Bus.

Chipset

- North Bridge: VIA VT 8754(P4X400).
- South Bridge: VT8235.

Main Memory

- Supports up to 3 Double-Sided DDR devices.
- Supports 200/266/333MHz DDR devices.
- The largest memory capacity is 12GB.

Slots

- Five 32-bit PCI bus master slots.
- One CNR slot.
- One AGP slot.

On Board IDE

- Supports four IDE disk drives.
- Supports PIO Mode 4, Master Mode and Ultra DMA 33/66/100/133 Bus Master Mode.

1394 Chip (Optional)

- Support 3 ports (via external bracket) with transfer rate up to 400 Mbps.

Serial ATA (Optional)

- Built in 2 channels SATA PHY, which satisfy SATA 1.0 specification and can transfer data with 1.5GHz speed.
- Additional one parallel ATA interface which satisfy ATA 133 specification.

Auto Negotiation

- Dual Speed: 10/100Mbps.
- Full/Half Duplex.

On Board AC'97 Sound Codec

- Compliant with AC'97 specification.
- Support 6-CH speaker mode.

On Board Peripherals

- Supports 360K, 720K, 1.2MB, 1.44MB and 2.88MB floppy disk drivers.
- Supports 2 serial ports.
- Supports 1 multi-mode parallel port. (SPP/EPP/ECP mode)
- Supports PS/2 mouse and PS/2 keyboard.
- Supports 2 back USB2.0 ports and 4 front USB2.0 ports.

BIOS

- AWARD legal Bios.
- Supports APM1.2.
- Supports ACPI.
- Supports USB Function.

Operating System

- Offers the highest performance for MS-DOS, Windows 2000, Windows Me, Windows XP, SCO UNIX etc.

Dimensions

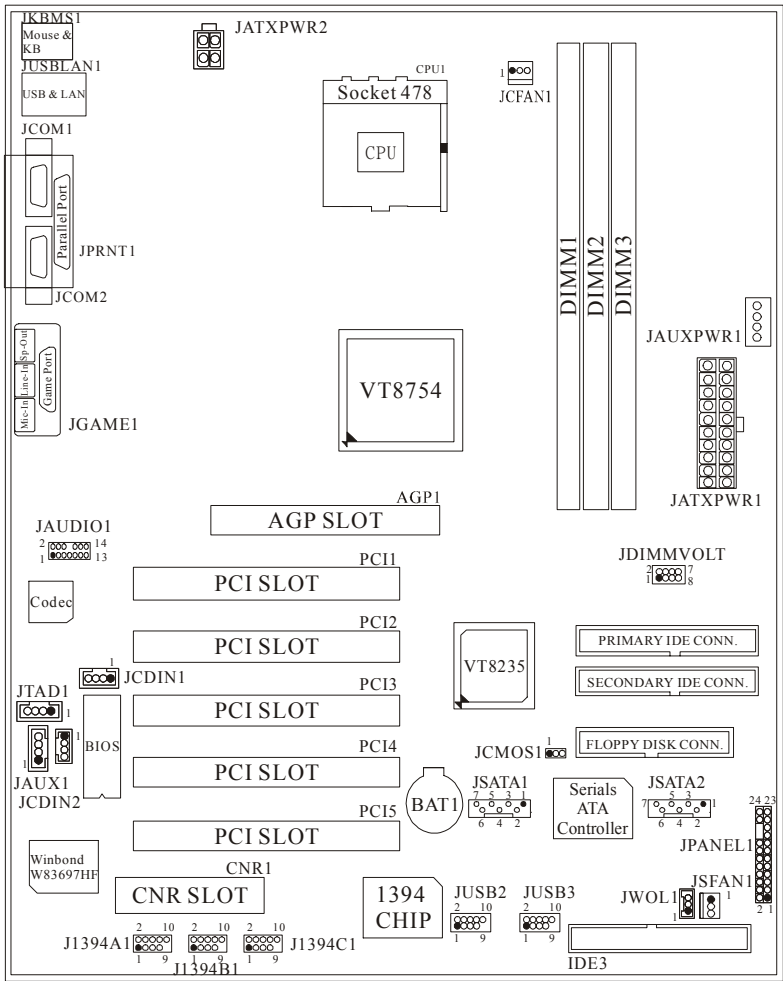
- Micro ATX Form Factor: 24.5cm X 30.5cm (W X L)

1-2. Package Contents

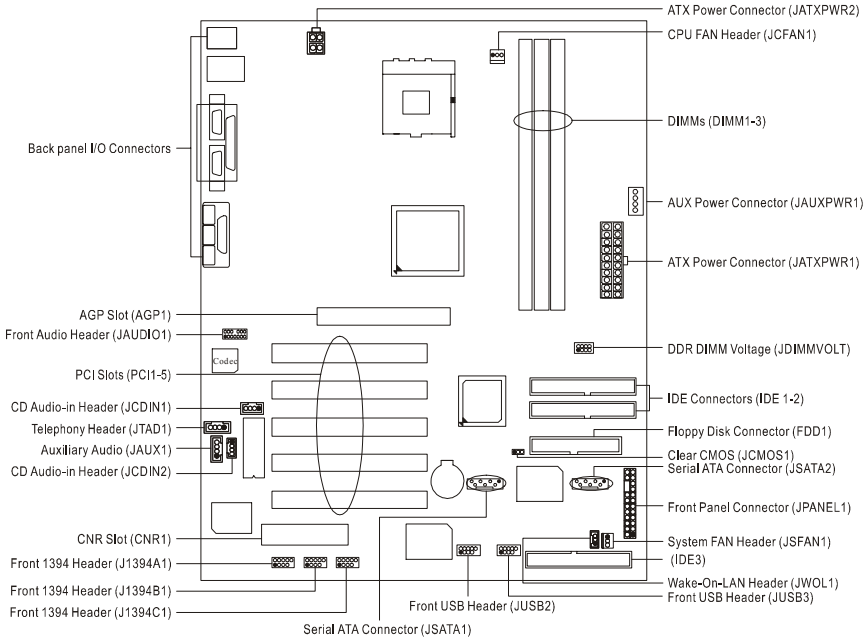
- 1.HDD Cable.
- 2.FDD Cable.
- 3.Flash Memory Writer for BIOS Update.
- 4.USB Cable (Optional).
- 5.Rear I/O Panel for ATX Case (Optional).
- 6.Fully Setup Driver CD.
- 7.IEEE1394 Cable (Optional).
- 8.Serial ATA Cable (Optional).

2. Mainboard Configuration

2-1. Layout of U8598

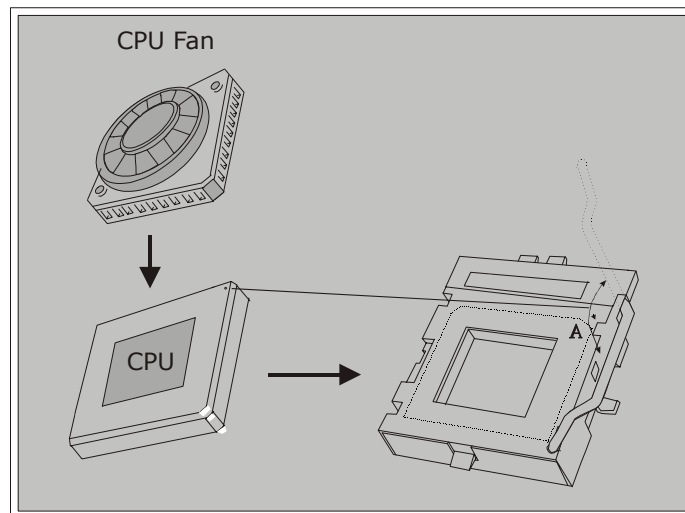


2-2. Component Index



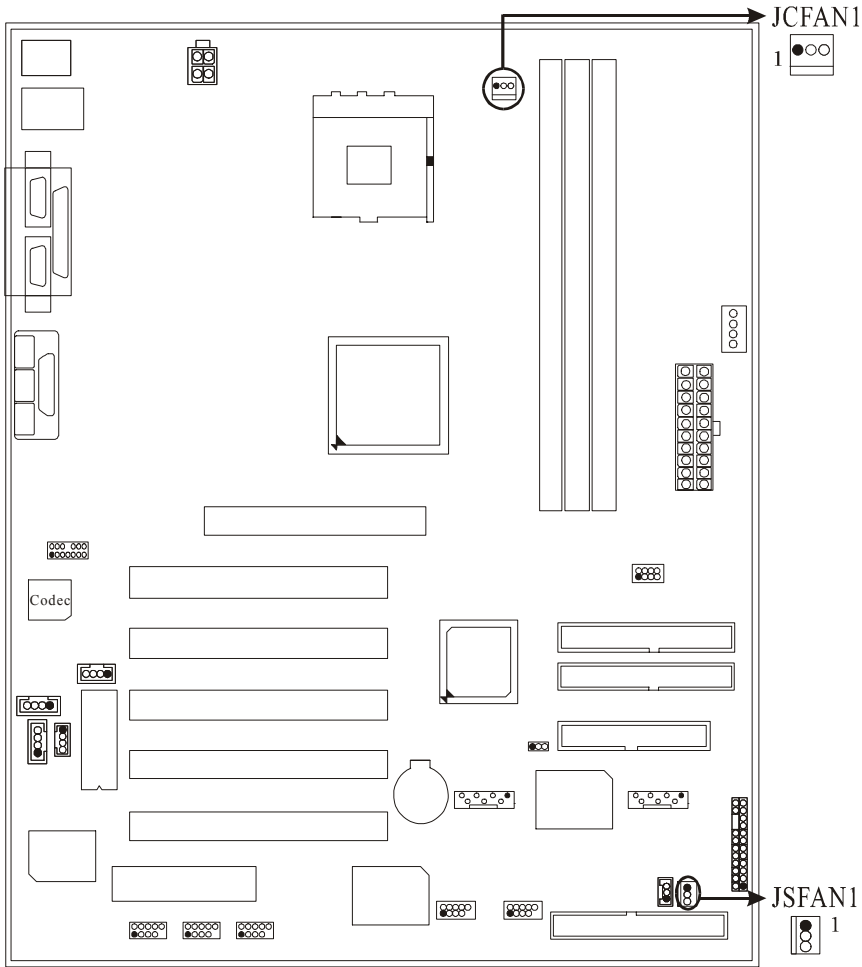
3. CPU Configuration

3-1. CPU Socket 478 Configuration Steps:



1. Pull the lever sideways away from the socket then raise the lever up to a 90-degree angle.
2. Locate Pin A in the socket and look for the white dot or cut edge in the CPU. Match Pin A with the white dot/cut edge then insert the CPU.
3. Press the lever down. Then Put the fan on the CPU and buckle it and put the fan's power port into the JCFAN1, then to complete the installation.

CPU Configuration Layout



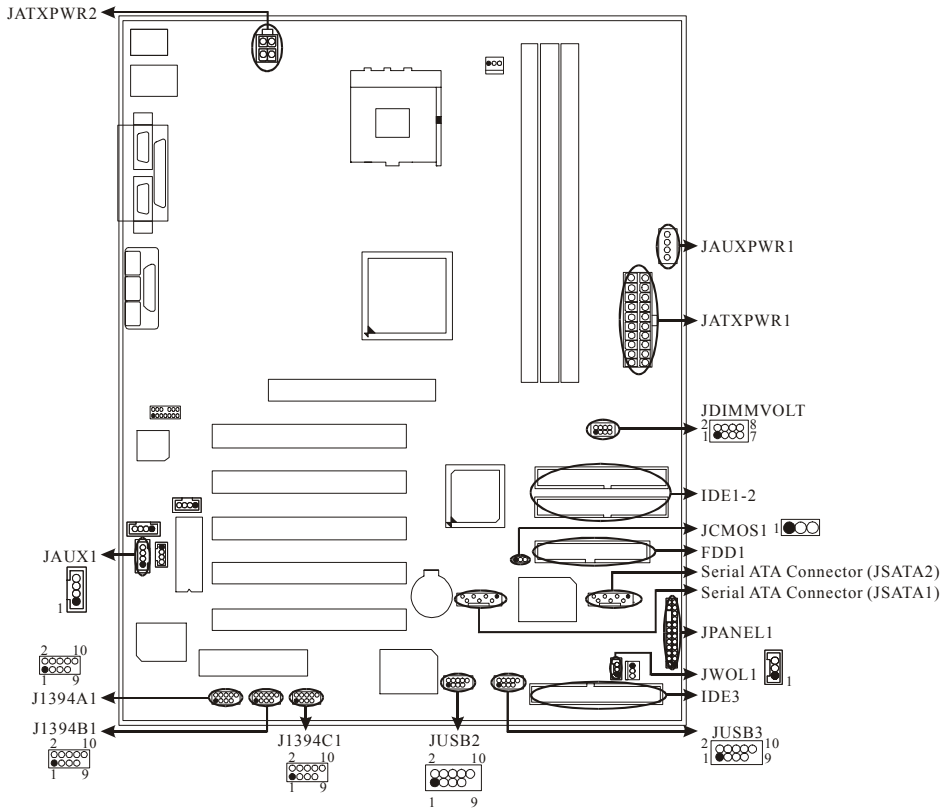
3-2. CPU Fan Header: JCFAN1

Pin No.	Assignment
1	Ground
2	+12V
3	Sense

3-3. System Fan Header: JSFAN1

Pin No.	Assignment
1	Ground
2	+12V
3	Sense

4. Jumpers, Headers & Connectors



4-1. Front Panel Connector: JPANEL1

Pin No.	Assignment	Function	Pin No.	Assignment	Function
1	+5V	Speaker Connector	2	Sleep Control	Sleep Button
3	NA		4	Ground	
5	NA		6	NA	NA
7	Speaker		8	Power LED (+)	POWER LED
9	HDD LED (+)	10	Power LED (+)		
11	HDD LED (-)	12	Power LED (-)		
13	Ground	Reset Button	14	Power Button	Power-on Button
15	Reset Control		16	Ground	
17	NA		18	KEY	
19	NA	IrDA Connector	20	KEY	IrDA Connector
21	+5V		22	Ground	
23	IRTX		24	IRRX	

SPK (Speaker Connector)

An offboard speaker can be installed on the motherboard as a manufacturing option. An offboard speaker can be connected to the motherboard at the front panel connector. The speaker (onboard or offboard) provides error beep code information during the Power On Self-Test when the computer cannot use the video interface. The speaker is not connected to the audio subsystem and does not receive output from the audio subsystem.

RST (Reset Button)

This connector can be attached to a momentary SPST switch. This switch is usually open and when closed will cause the motherboard to reset and run the POST (Power On Self Test).

POW-LED (Power LED Connector)

This connector can be attached to an LED on the front panel of a computer case. The LED will illuminate while the computer is powered on.

HLED (Hard Drive LED Connector)

This connector can be attached to an LED on the front panel of a computer case. The LED will flicker during disk activity. This disk activity only applies to those IDE drives directly attached to the system board.

IR (Infrared Connector)

This connector is used to attach to an infrared sensing device. After the IrDA interface is configured, connectionless data transfer to and from portable devices such as laptops, PDAs is possible.

SLP (Sleep/Green Button)

This connector is used to conserve energy by powering down the monitor and the hard disk when not in use. To configure this option, you need to connect a button from the front panel to this connector. Depressing the button will power down the monitor and hard drives until the system is invoked by any keyboard activity, mouse activity, modem activity or when the sleep button is depressed again. APM (Advanced Power Management) must be enabled in the system BIOS and the APM driver must be loaded.

ON/OFF (Power Button)

This connector can be attached to a front panel power switch. The switch must pull the Power Button pin to ground for at least 50 ms to signal the power supply to switch on or off. (The time required is due to internal debounce circuitry on the system board). At least two seconds must pass before the power supply will recognize another on/off signal.

4-2. ATX 20-pin Power Connector: JATXPWR1

PIN	Assignment	PIN	Assignment
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PS_ON
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	PW_OK	18	-5V
9	+5V_SB	19	+5V
10	+12V	20	+5V

4-3. ATX 12V Power Connector: JATXPWR2

PIN	Assignment	PIN	Assignment
1	+12V	3	Ground
2	+12V	4	Ground

4-4. Hard Disk Connectors: IDE1/IDE2/IDE3

This mainboard has a 32-bit Enhanced PCI IDE Controller that provides PIO Mode 0~4, Bus Master, and Ultra DMA 33, Ultra DMA 66, Ultra DMA 100, Ultra DMA 133 (only for IDE1 and IDE2) functionality. It has two HDD connectors IDE1 (primary) and IDE2 (secondary).

- **IDE1 (Primary IDE Connector)**

The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure the second hard drive on IDE1 to Slave mode by setting the jumper accordingly.

- **IDE2 (Secondary IDE Connector)**

The IDE2 controller can also support a Master and a Slave drive. The configuration is similar to IDE1. The second drive on this controller must be set to slave mode.

- **IDE3 (Optional)**

This connector supports IDE3 configuration through the onboard Serial ATA controller chip. You can use the IDE feature to set up a disk array configuration and to support additional IDE devices. You can install a hard disk (only in master mode) with this connector.



4-5. Floppy Disk Connector: FDD1

The motherboard provides a standard floppy disk connector (FDC) that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.

4-6. Wake On LAN Header: JWOL1

Pin No.	Assignment
1	+5V_SB
2	Ground
3	Wake up

4-7. Clear CMOS Jumper: JCMOS1

JCMOS1	Assignment
 1-2 Closed	Normal Operation (default)
 2-3 Closed	Clear CMOS Data



The following procedures are for resetting the BIOS password. It is important to follow these instructions closely.

※ Clear CMOS Procedures:

1. Remove AC power line.
2. Make JCMOS1 (2-3) closed.
3. Wait for five seconds.
4. Make JCMOS1 (1-2) closed.
5. Let AC power on.
6. Reset your desired password or clear the CMOS data.

4-8. Front USB Header: JUSB3

(JUSB3)

Pin	Assignment	Pin	Assignment
1	+5V(fused)	2	+5V(fused)
3	USBP2-	4	USBP3-
5	USBP2+	6	USBP3+
7	Ground	8	Ground
9	KEY	10	NC

4-9. Front USB Header: JUSB2

(JUSB2)

Pin	Assignment	Pin	Assignment
1	+5V(fused)	2	+5V(fused)
3	USBP2-	4	USBP3-
5	USBP2+	6	USBP3+
7	Ground	8	Ground
9	KEY	10	NC

4-10. DDR DIMM Voltage: JDIMMVOLT**(Optional)**

Pin	DDR DIMM Voltage
1-2	2.5V
3-4	2.6V
5-6	2.7V
7-8	2.8V

If you meet the DDR DIMM compatible program, try to adjust the DDR Voltage to fix the compatible program.

4-11. AUX Power Connector: JAUXPWR1

PIN	Assignment	PIN	Assignment
1	+12V	3	Ground
2	Ground	4	+5V

4-12. Front 1394 Header: J1394A1(Optional)

Pin	Assignment	Pin	Assignment
1	A+	2	A-
3	Ground	4	Ground
5	B+	6	B-
7	+12V	8	+12V
9	KEY	10	NA

4-13. Front 1394 Header: J1394B1(Optional)

Pin	Assignment	Pin	Assignment
1	A+	2	A-
3	Ground	4	Ground
5	B+	6	B-
7	+12V	8	+12V
9	KEY	10	NA

4-14. Front 1394 Header: J1394C1(Optional)

Pin	Assignment	Pin	Assignment
1	A+	2	A-
3	Ground	4	Ground
5	B+	6	B-
7	+12V	8	+12V
9	KEY	10	NA

4-15. Aux Audio in Connector: JAUX1 (Optional)

Pin	Assignment
1	Right channel AUX-in
2	Ground
3	Ground
4	Left channel AUX-in

4-16. Serial ATA Connector: JSATA1/ JSATA2 (Optional)

The motherboard has a PCI to SATA Controller with 2 channels SATA interface, it satisfies the SATA 1.0 spec and can transfer data with 1.5GHz speed. For more details, please refer to page 35 (FastTrak 376).

Pin	Assignment	Pin	Assignment
1	Ground	2	TXP+
3	TXN+	4	Ground
5	RXN-	6	RXP+
7	Ground		

5. RAM Module Configuration

5-1. DDR SDRAM

DRAM Access Time: 2.5V Unbuffered DDR SDRAM (without ECC)
PC1600/ PC2100/ PC2700 Type required.

DRAM Type: 128MB/256MB/512MB/1GB DIMM Module (184pin)

Total Memory Size with unbuffer DIMMs

(Only for reference)

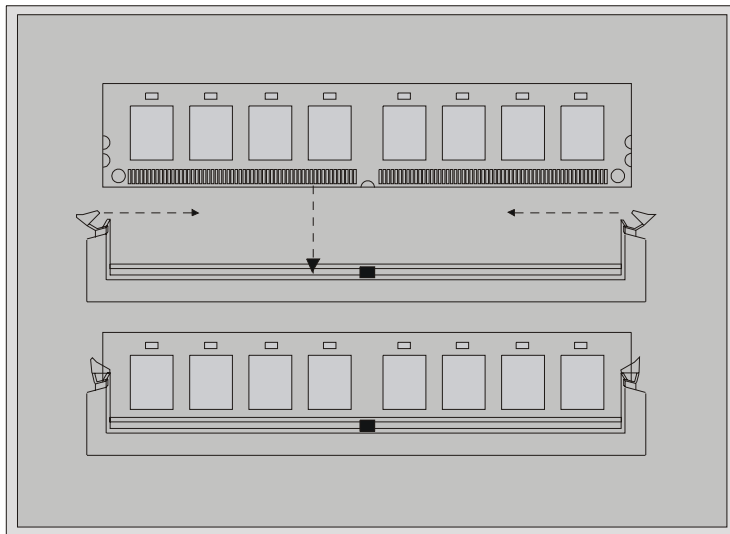
DIMM Socket Location	DDR Module	Total Memory Size (MB)
DIMM 1	64MB/128MB/256MB/512MB/1GB *1	Max is 3GB
DIMM 2	64MB/128MB/256MB/512MB/1GB *1	
DIMM 3	64MB/128MB/256MB/512MB/1GB *1	

List of the status of DDR 400 already passed

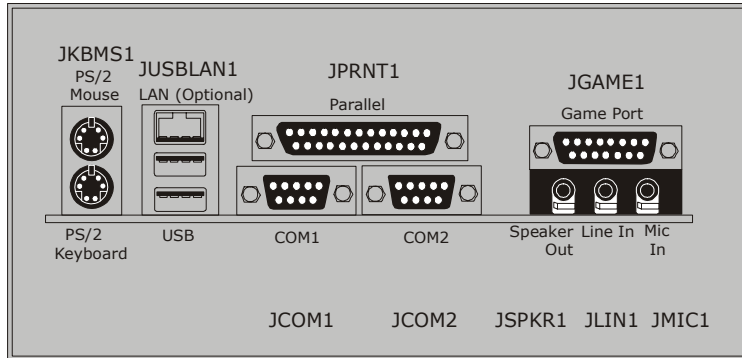
	Clock	Vender	Serial No. (Chip)	Module Size	MEMTEST
1	DDR400	KINGMAX	KDL684T4AA-50	Double Size 256M x2	Pass
2	DDR400	SAMSUNG	K4H560838D-TCC4	Single Size 256M x3	Pass
3	DDR400	TwinMOS	TMD7608F8E50B	Single Size 256M x3	Pass
4	DDR400	Winbond	W942508BH-5	Single Size 256M x3	Pass
5	DDR400	Winbond	W942508BH-5	Double Size 512M x3	Pass

5-2. DIMM Module Configuration

1. The DIMM socket has a “Plastic Safety Tab” and the DIMM memory module has an asymmetrical notch”, so the DIMM memory module can only fit into the slot in one direction.
2. Push the tabs out. Insert the DIMM memory modules into the socket at a 90-degree angle then push down vertically so that it will fit into place.
3. The Mounting Holes and plastic tabs should fit over the edge and hold the DIMM memory modules in place.



6. Peripheral Port Features



6-1. PS/2 Mouse / Keyboard Connector: JKBMS1

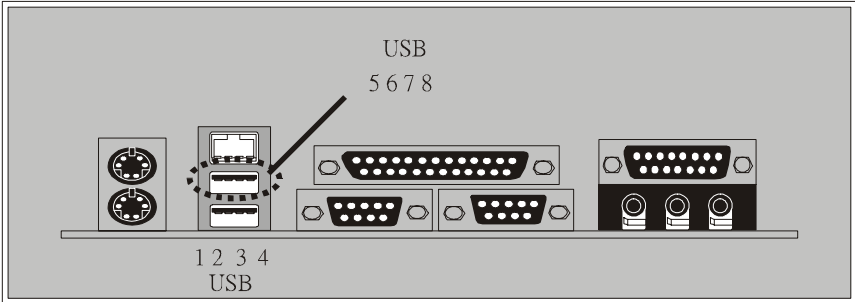
The motherboard provides a standard PS/2 mouse / Keyboard mini DIN connector for attaching a PS/2 mouse. You can plug a PS/2 mouse / Keyboard directly into this connector. The connector location and pin definition are shown below:

PS/2 Mouse / Keyboard Connectors

Pin	Assignment
1	Data
2	No connect
3	Ground
4	+5 V (fused)
5	Clock
6	No connect

6-2. USB & LAN Port Connectors: JUSBLAN1

6-2-1. USB Connectors:



USB Connector (the below one)

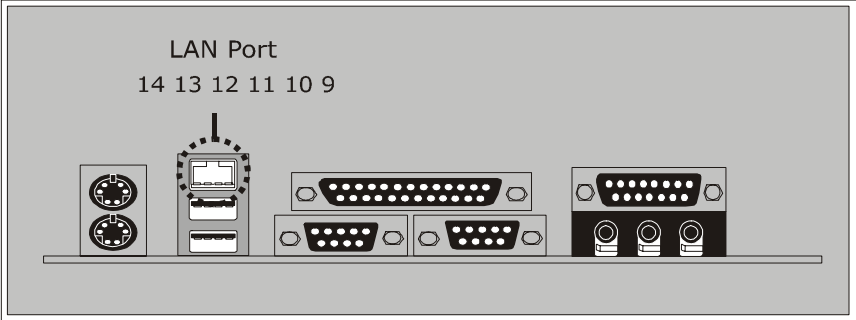
Pin	Assignment
1	+5 V (fused)
2	USBP1-
3	USBP1+
4	Ground

USB Connector (the above one)

Pin	Assignment
5	+5 V (fused)
6	USBP2-
7	USBP2+
8	Ground

6-2-2. LAN Port Connector: (Optional)

This connector allows you to connect to the Internet through a Local Area Network (LAN). You can set up the connection by entering account information provided by your ISP.



LAN Port Connector

Pin	Assignment
9	VCC3
10	TD+
11	TD-
12	RD+
13	RD-
14	NC

6-3. Serial and Parallel Interface Ports

This system comes equipped with two serial ports and one parallel port. Both types of interface ports will be explained in this chapter.

6-3-1. The Serial Interface: JCOM1/ JCOM2

The serial interface port is sometimes referred to as an RS-232 port or an asynchronous communication port. Mice, printers, modems and other peripheral devices can be connected to a serial port. The serial port can also be used to connect your computer with another computer system.

Connectivity

The serial ports can be used in many ways, and it may be necessary to become familiar with the pinout diagram. The following chart gives you the function of each pin on the 9-pin connector and some of the 25-pin connector. This information can be used when configuring certain software programs to work with the serial ports.

Signal	Name	DB9 PIN	DB25 PIN
DCD	Data Carrier Detect	1	8
RX	Receive Data	2	3
TX	Transmit Data	3	2
DTR	Data Terminal Ready	4	20
GND	Signal Ground	5	7
DSR	Data Set Ready	6	6
RTS	Request to Send	7	4
CTS	Clear to Send	8	5
RI	Ring Indicator	9	22

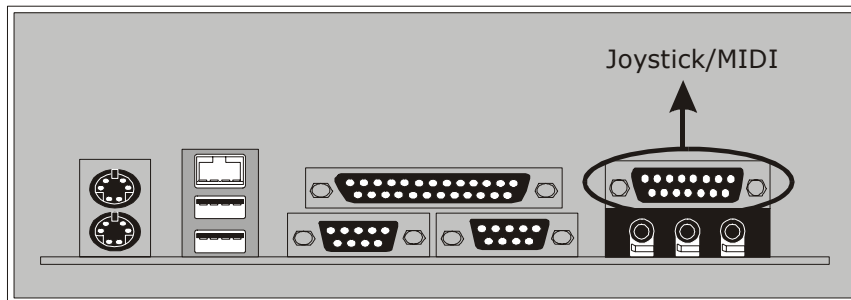
6-3-2. Parallel Interface Port: JPRNT1

Unlike the serial ports, parallel interface port has been standardized and should not present any difficulty interfacing peripherals to your system. Sometimes called centronics port, the parallel port is almost exclusively used with printers. The parallel port on your system has a 25-pin, DB25 connector. The pinout for the parallel port are shown in the table below.

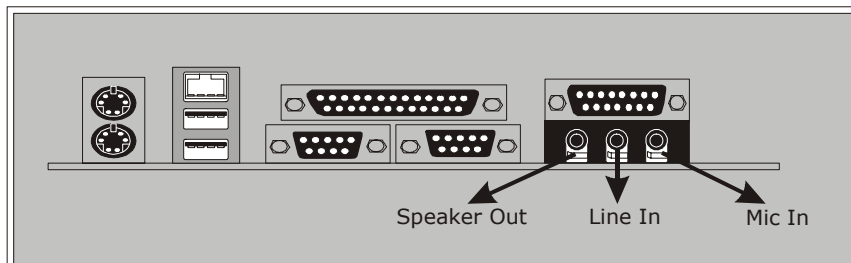
Pin	Signal
1	-Strobe
2	Data 0
3	Data 1
4	Data 2
5	Data 3
6	Data 4
7	Data 5
8	Data 6
9	Data 7
10	-Ack
11	Busy
12	Paper Empty
13	+Select
14	-Auto FDXT
15	-Error
16	-Init
17	-SLCTN
18	Ground
19	Ground
20	Ground
21	Ground
22	Ground
23	Ground
24	Ground
25	Ground

6-4. Game (Joystick/MIDI) Port Connector: JGAME1

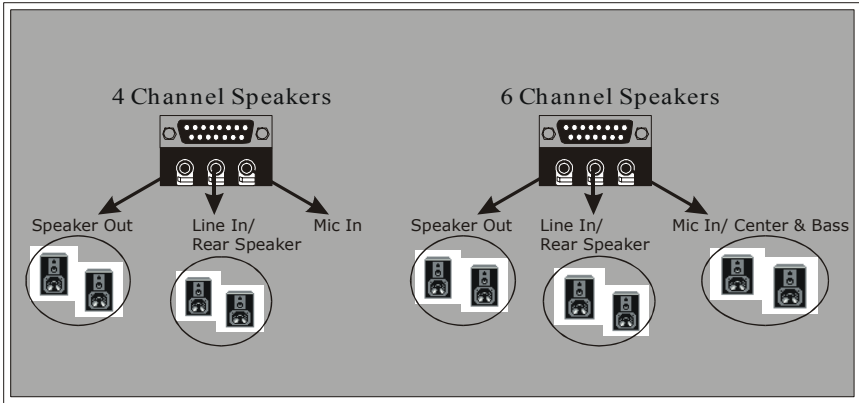
This connector allows you to connect a joystick or game pad for playing computer games. Also, you may play or edit professional music by connecting MIDI devices.



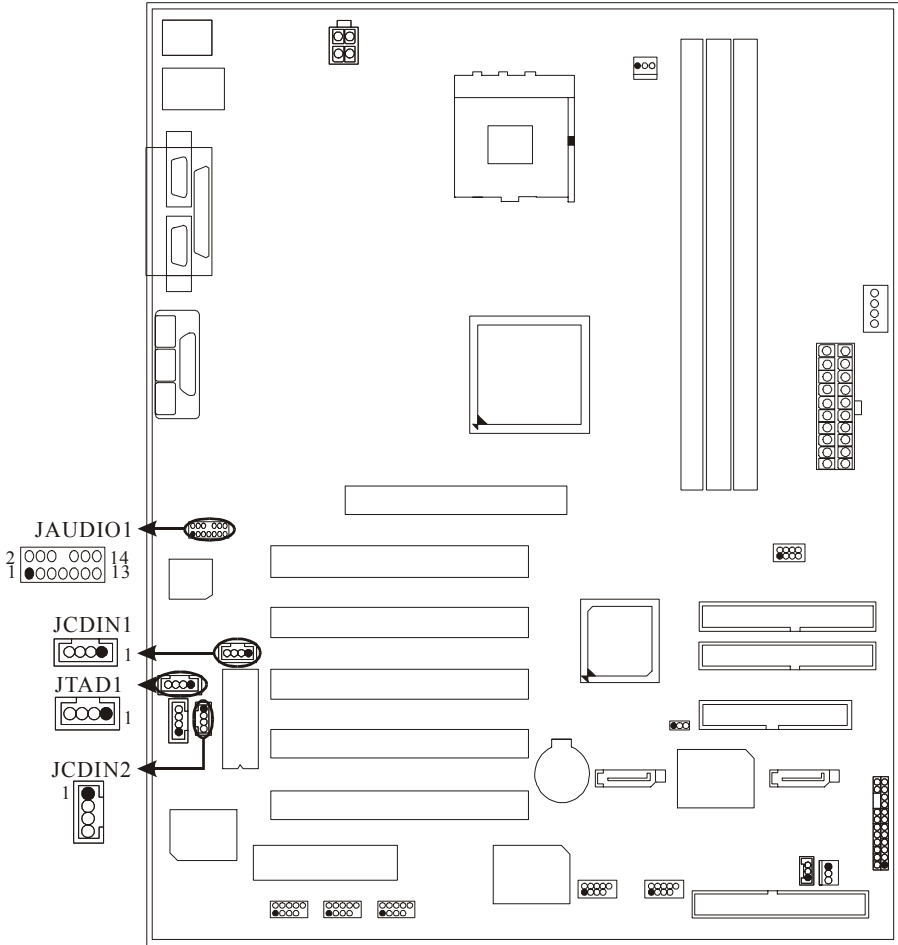
6-5. Audio Port Connectors: JSPKR1/JLIN1/JMIC1



1. **Speaker Out** is used to connect speakers or headphones for audio output.
2. **Line In** can be connected to the external CD player, Tape player or other audio devices for audio input.
3. **Rear Speaker** can be connected to the rear speakers while four/six channel speakers mode is enabled.
4. **Mic In** is used to connect a microphone, which allows you to input sounds and voices.
5. **Center and Bass** can be connected to center speaker and bass while six channel speakers mode is enabled.



6-6. Audio Subsystem



6-6-1. CD-ROM Audio-In Header: JCDIN1

Pin No.	Assignment
1	Left Channel Input
2	Ground
3	Ground
4	Right Channel Input

6-6-2. CD-ROM Audio-In Header: JCDIN2 (Optional)

Pin No.	Assignment
1	Left Channel Input
2	Ground
3	Right Channel Input
4	Ground

6-6-3. Front Panel Audio Header: JAUDIO1 (Optional)

Pin No.	Assignment	Pin No.	Assignment
1	Mic In	2	Ground
3	Mic Power	4	Audio Power
5	RT Line Out	6	RT Line Out
7	Reserved	8	
9	LFT Line Out	10	LFT Line Out
11	RT Line In	12	RT Line In
13	LFT Line In	14	LFT Line In

6-6-4. Telephony Audio Header: JTAD1 (Optional)

Pin No.	Assignment
1	PHONE
2	Ground
3	Ground
4	MONO_OUT

Français

1. U8598 Particularités (pour V3.0) :

CPU :

- Fournit la Douille 478.
- Soutient Intel le Pentium 4 processeur jusqu'à 3.06GHz.
- Dirigeant à Autobus de Côté de Devant.

Chipset :

- Pont du Nord : VIA VT 8754 (P4X400).
- Pont du Sud : VT8235.

Mémoire Principale :

- Soutient dispositifs jusqu'à 3 DDR de côtés Doubles.
- Soutient dispositifs de DDR 200/266/333MHz.
- La plus grande capacité de mémoire(souvenir) est 12GB.

Fentes :

- Cinq fentes de maître d'autobus PCI 32 bits.
- Une fente CNR.
- Une fente AGP.

À bord IDE :

- Soutient quatre lecteurs de disques d'IDE.
- Soutient PIO Mode 4, le Mode de Maître et DMA Ultra 33/66/100/133 le Mode de Maître d'Autobus.

1394 Chip (Facultatif) :

- Soutient 3 ports (via la parenthèse externe) avec le taux de transfert jusqu'à 400 Mbps.

Périodique ATA (Facultatif) :

- Construit dans 2 canaux SATA PHY, qui satisfait SATA 1.0 spécification et peut transférer des données avec 1.5GHz la vitesse.
- Complémentaire l'interface ATA parallèle qui satisfait ATA 133 spécification.

Négociation Automatique :

- Vitesse Duelle : 10/100Mbps.
- Plein/De moitié Duplex.

À bord AC ' 97 Codec du Son :

- Docile avec AC ' 97 spécification.
- Soutiennent l'orateur(speaker) 6-CH le mode.

À bord Périphériques :

- Soutient 360Ko, 720Ko, 1.2MB, 1.44MB et 2.88MB des conducteurs de disquette.
- Soutient 2 ports périodiques.
- Soutient 1 multi-mode le port parallèle. (SPP/EPP/ECP mode)
- Soutient le souris PS/2 et le clavier PS/2.
- Soutient 2 en arrière USB2.0 des ports et 4 front USB2.0 des ports.

BIOS :

- ACCORDENT le BIOS légal.
- Soutient APM1.2.
- Soutient ACPI.
- Soutient la Fonction d'USB.

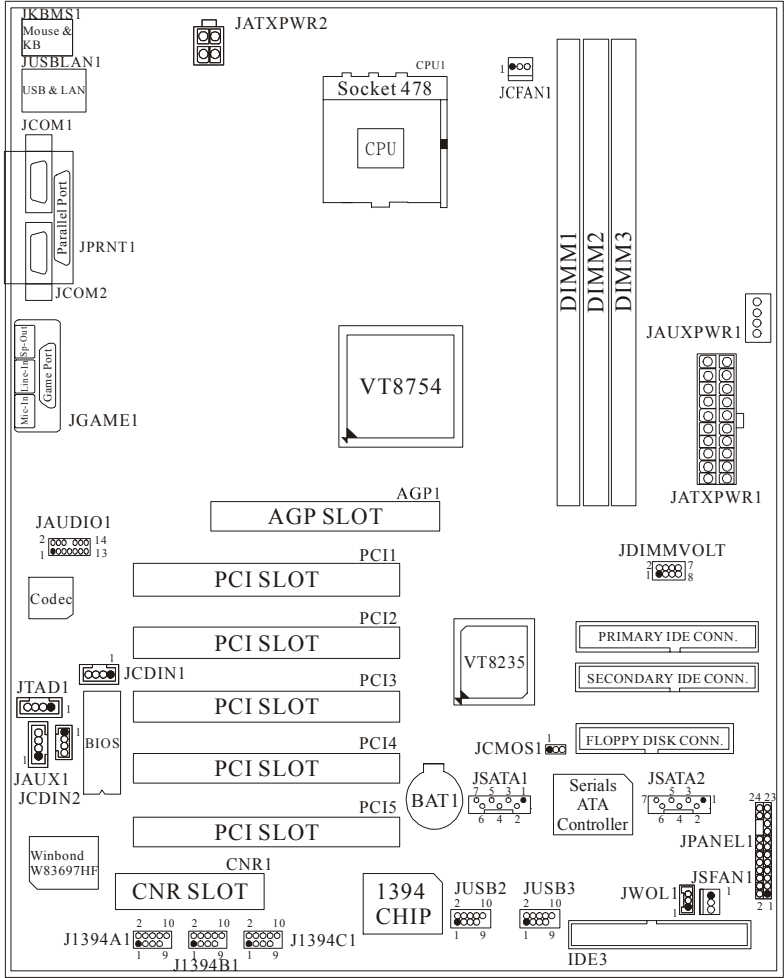
Système de Fonctionnement :

- Offre l'exécution(performance) la plus haute pour MS-DOS, Windows 2000, des Fenêtres Moi, des Fenêtres XP, SCO UNIX etc.

Dimensions :

- Micro Forme d'ATX Facteur: 24.5cm X 30.5cm (W X L)

2. Dessin d'U8598



Serial ATA Chip - FastTrak 376

Step 1: Installing the Hard Drives



Important

If you wish to include your current bootable Serial or Parallel ATA drive using the Windows NT 4.x, Windows 2000, or Windows XP operating system on your FastTrak 376 Controller.

You MUST install the Windows NT4, 2000, or XP driver software first onto this drive while it is still attached to your existing hard drive controller.

1. Configure the jumpers of the *Parallel* ATA hard drive you're preparing to connect to the FastTrak 376 controller using the proper Master, Slave, or Cable-Select settings. For more information, refer to the manual that came with your hard drive.
2. Install all of the hard drives into the hard drive bays of your system, including their power cables.
3. Attach the *Parallel* ATA cable to the hard drive(s) and to the Parallel ATA Port connector on the FastTrak 376 controller. The colored edge of the cable indicates pin 1. The blue cable connector attaches to the FastTrak 376.
4. Attach *Serial* ATA data cable to each hard drive. Then attach the other ends of the cables to one of the Serial ATA ports on the FastTrak 376 controller. All of the connectors are keyed so they will only attach one way.



Note

FastTrak 376 is a PCI Plug-n-Play (PnP) device. No changes are necessary in the Motherboard CMOS Setup for resources or drive types in most applications.

Step 2: Auto Setup FastBuild™ Configuration Utility



WARNING: Before installing the driver into an existing system, backup any necessary data. Failure to follow this accepted PC practice could result in data loss.

Creating Your Disk Array

You will now use the FastBuild™ Configuration utility to create your array using the attached drives. There are three different scenarios in creating this array. You can create an array for performance, you can create a Security array using new hard drives (recommended), or you can create a Security array using an existing hard drive and a new hard drive.



WARNING: If creating a Security array using an existing hard drive, backup any necessary data. Failure to follow this accepted PC practice could result in data loss.

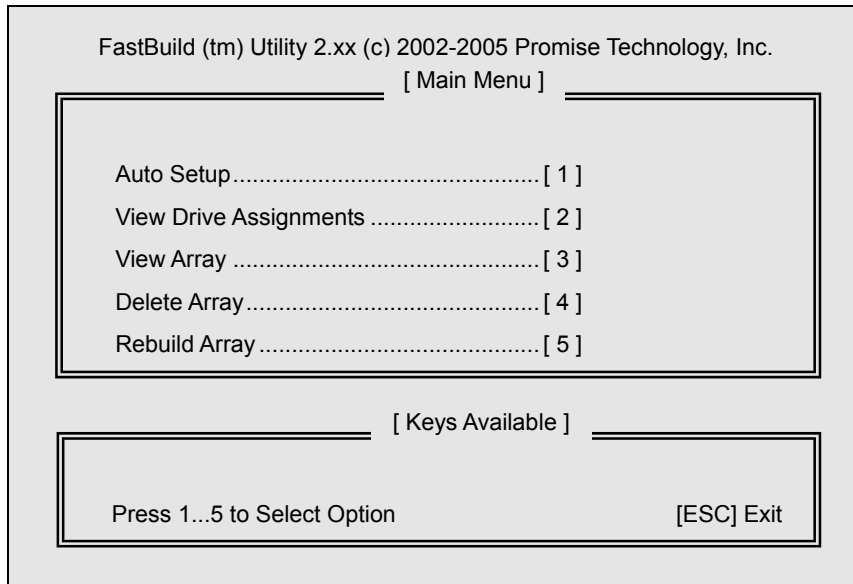
1. Boot your system. If this is the first time you have booted with the FastTrak 376 and drives installed, the Promise onboard BIOS will display the following screen.

```
FastTrak 376 (tm) BIOS Version 1.00.0.XX
(c) 2002-2005 Promise Technology, Inc. All Rights Reserved.

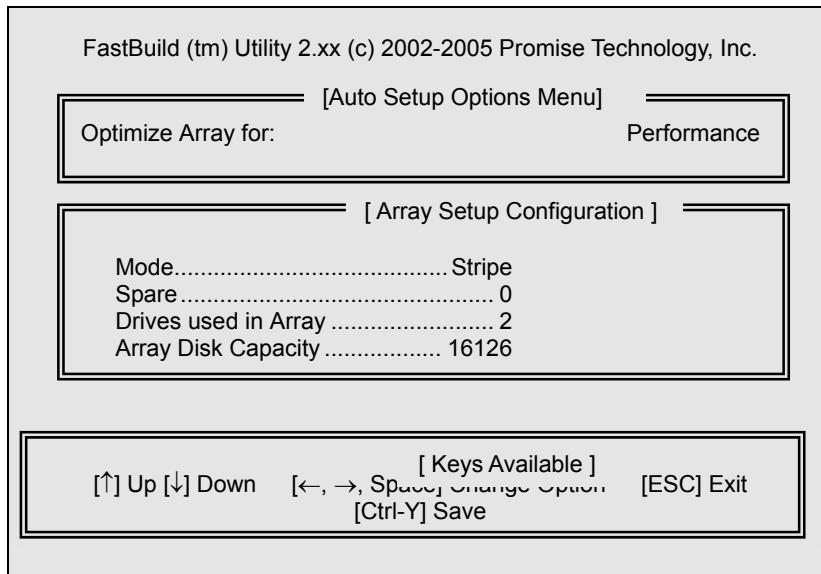
No array defined . . .

Press <Ctrl-F> to enter FastBuild (tm) Utility
Or press <ESC> key to continue booting the system.
```

2. Press <Ctrl-F> keys to display the FastBuild™ Utility Main Menu.



3. Press "1" to display the Auto Setup Menu below. This is the fastest and easiest method to creating your first array.



Creating an Array for Performance

NOTE: *FastTrak 376 allows users to create striped arrays with 1, 2 drives.*

To create an array for best performance, follow these steps:

Using the Spacebar, choose "Performance" under the **Optimize Array for** section.

Press <Ctrl-Y> keys to Save and create the array.

Reboot your system.

Once the array has been created, you will need to FDISK and format the array as if it were a new single hard drive.

Proceed to Installing Drivers section of the manual (see page 28).

Creating a Security Array With New Drives

NOTE: *FastTrak 376 permit only two drives to be used for a single Mirrored array in Auto Setup.*

To create an array for data protection using new hard drives, follow these steps:

1. Using the Spacebar, choose "Security" under the **Optimize Array for** section.
2. Press <Ctrl-Y> keys to Save your selection.
3. The window below will appear.

Do you want the disk image to be duplicated to another? (Yes/No) Y - Create and Duplicate N - Create Only

4. Press "N" for the Create Only option.
5. A window will appear almost immediately confirming that your Security array has been created. Press any key to reboot the system

Array has been created. <Press Any Key to Reboot>
--

6. Proceed with normal FDISK and format procedures as if you had just installed a new hard drive.
7. Once the arrayed drives have been formatted, proceed to the **Installing Driver** chapter on page 28 to install your operating system and/or FastTrak 376 driver.

Creating a Security Array With An Existing Data Drive

NOTE: *FastTrak 376 permits only two drives to be used for a single Mirrored array in Auto Setup.*

You would use this method if you wish to use a drive that already contains data and/or is the bootable system drive in your system. You will need another drive of identical or

larger storage capacity.



WARNING: Backup any necessary data before proceeding. Failure to follow this accepted PC practice could result in data loss.



WARNING: If you wish to include your current bootable drive using the Windows NT 4.x or Windows 2000 operating system as part of a bootable Mirrored (RAID 1) array on your FastTrak 376, do NOT connect the hard drive to the FastTrak 376 controller yet. You MUST install the Windows NT4 or 2000 driver software first (see page28) to this drive while it is still attached to your existing hard drive controller. For all other Operating Systems, proceed here.

Follow these steps:

1. Using the Spacebar, choose "Security" under the **Optimize Array for** section.
2. Press <Ctrl-Y> keys to Save your selection. The window below will appear.

Do you want the disk image to be duplicated to another? (Yes/No)
 Y - Create and Duplicate
 N - Create Only

3. Press "Y" for the Create and Duplicate option. The window below will appear asking you to select the Source drive to use. FastBuild will copy all data from the Source drive to the Target drive.

[Source Disk]		
Channel:ID	Drive Model	Capacity (MB)
[Target Disk]		
Channel:ID	Drive Model	Capacity (MB)
[Please Select A Source Disk]		
Channel:ID	Drive Model	Capacity (MB)
1 :Master	QUANTUMCR8.4A	8063
2 :Master	QUANTUMCR8.4A	8063
[Keys Available]		
[↑] Up [↓] [ESC] Exit [Enter] Select		

4. Use the arrow keys to choose which drive contains the existing data to be copied.
5. Press Enter key to Save selection and start duplication. The following progress

screen will appear.

Start to duplicate the image . . .
Do you want to continue? (Yes/No)
Y – Continue N – Abort

6. Select “Y” to continue. If you choose “N”, you will be returned to step 1.
7. Once complete, the following screen will appear confirming that your Security array has been created. Press any key to reboot the system.

Array has been created.
<Press Any Key to Reboot>

8. Proceed to the **Installing Driver** chapter on page 28 to install the FastTrak 376 driver and/or operating system.

Step 3: Installing Software Drivers

This section details the FastTrak 376 driver installation when used with various operating systems. The software includes the driver necessary to identify FastTrak 376 to the operating system.

- For Windows 2000/XP, see below.
- For Windows 98/Me, see page 30.
- For Windows NT 4.x, see page 32

NOTE: 1. The device driver is included in the Driver CD with the directory root of X:\Driver\SerATA (X is your CD-ROM).
2. To create a “FastTrak 376 driver diskette”, please copy the controller driver files from the driver CD that comes with the motherboard. The path is “X:\Driver\SerATA”.

Windows 2000/XP

Installing Driver During New Windows 2000 Installation

- 1a. Floppy Install: Boot the computer with the Windows 2000 installation diskettes.
- 1b. Floppyless Install: Boot from floppy and type “WINNT”. After files have been copied, the system will reboot. On the reboot, press <F6> after the message “Setup is inspecting your computer’s hardware configuration...” appears.
- 1c. CD-ROM Install: Boot from the CD-ROM. Press <F6> after the message “Press F6 if you need to install third party SCSI or RAID driver” appears.

2. When the "Windows 2000 Setup" window is generated, press "S" to Specify an Additional Device(s)
3. Press "O" to select "Other" and press the "Enter" key.
4. Insert the Promise Technology® driver diskette into drive A: and press "Enter" key.
5. Choose "Win2000 Promise FastTrak 376 (tm) Controller" from the list that appears on screen, then press the "Enter" key.
6. The Windows 2000 Setup screen will appear again saying "Setup will load support for the following mass storage devices:" The list will include "Win2000 Promise FastTrak 376 (tm) controller".

NOTE: *If you need to specify any additional devices to be installed, do so at this time. Once all devices are specified, continue to step 7.*

7. From the Windows 2000 Setup screen, press the Enter key. Setup will now load all device files and then continue the Windows 2000 installation.

Installing Driver in Existing Windows 2000 System



WARNING: *If you will be moving the boot drive containing the existing Windows 2000 operating system to a mirrored RAID 1 array on the FastTrak 376 , the FastTrak 376 driver MUST be loaded to the hard drive while it is still attached to your existing hard drive controller. Do not attach this drive or any other hard drive to the FastTrak 376 controller before completing this step.*

After installing the FastTrak 376 and rebooting your system, Windows 2000 setup will show a "New Hardware Found" dialog box. Under Windows 2000, the "PCI RAID Controller" will be displayed.

1. In the dialog box, choose "Driver from disk provided by hardware manufacturer" button.
2. In the A: drive, insert the FastTrak 376 driver diskette.
3. Type "A:\WIN2000" in the text box. Press "Enter".
4. Choose "Win2000 Promise FastTrak 376 (tm) Controller" from the list that appears on screen, then press the "Enter" key.
5. The Windows 2000 Setup screen will appear again saying "Setup will load support for the following mass storage devices – Win2000 Promise FastTrak 376 (tm) controller". The FastTrak 376 driver will now be copied on to the system and entered into the Windows 2000 driver database.
6. When the "System Settings Change" dialog box appears, remove the floppy diskette and click on "Yes" to restart the system. Windows 2000 will then restart for the driver installation to take effect.
7. Power off your system, then attach your hard drives to the FastTrak 376 controller.

Confirming Windows 2000 Installation

1. From Windows 2000, open the Control Panel from “My Computer” followed by the System icon.
2. Choose the “Hardware” tab, then click the “Device Manager” tab.
3. Click the “+” in front of “SCSI & RAID Controllers hardware type.” The driver “Win2000 Promise FastTrak 376 (tm) Controller” should appear.

Windows 98/Me

Installing Drivers During Windows 98/Me Installation

The following three sections detail the installation of the FastTrak 376 drivers while installing Windows 98/Me (with the FastTrak 376 controller already in place). If you're installing the FastTrak 376 drivers on a system with Windows 98/Me already installed, see “Installing Drivers with Existing Windows 98/Me” on page 31.

Windows 98/Me

1. After installing the FastTrak 376 controller and configuring the hard drive(s), partition and format your hard drive(s), if necessary.
2. Install Windows 98/Me normally.
3. After installation, go the “Start” menu and choose “Settings.”
4. From the “Settings” menu, choose “Control Panel.”
5. In the “Control Panel” window, double-click on the “System” icon.
6. In the “System” window, choose the “Device Manager” tab.
7. In the hierarchical display under “Other Devices” is a listing for “PCI RAID Controller.” Choose it and then press the “Properties” button.
8. Choose the “Driver” tab in the “Properties” window, choose “Update Driver,” and then press “Next.”
9. Choose “Search for a better driver than the one your device is using now (recommended),” then press “Next.”
10. Choose “Specify Location,” and then type “A:\WIN98” in the text box.
11. Insert the FastTrak 376 Driver diskette into the A: drive.
12. Press the “Next” button. A message informing you that Windows 98 has found “Win98-ME Promise FastTrak 376 (tm) Controller” should appear.
13. Press “Next,” then “Finish,” then “Yes” when asked if you want to restart your computer. Be sure to remove the diskette from drive A:.

Installing Drivers with Existing Windows 98/Me

The following three sections detail the installation of FastTrak 376 drivers on a system that has Windows 98/Me already installed. If you're installing the FastTrak 376 drivers on a system during a Windows 98/Me installation, see "Installing Drivers During Windows 98/Me Installation" on page 30.

Windows 98/Me

1. After installing the FastTrak 376 controller and configuring the hard drives, power up the system and boot Windows.
2. The "Add New Hardware Wizard" will appear, informing you that it has found a "PCI RAID Controller."
3. Check the "Search for the best driver for your device" box and click the Next button.
4. Check the "Specify a Location" box and click Next button.
5. Type "A:\WIN98" in the text box that appears.
6. Insert the FastTrak 376 Driver diskette in drive A:.
7. Click on "Next." The Add New Hardware wizard will say it has found "Win98-ME Promise FastTrak 376 (tm) controller".
8. Click on "Next," and then on "Finish."
9. Choose "Yes" when asked if you want to restart your computer. Be sure to eject the diskette from drive A:.

Confirming Driver Installation in Windows 98/Me

To confirm that the driver has been properly loaded in Win 98/Me, perform the following steps:

1. Choose "Settings" from the "Start" menu.
2. Choose "Control Panel," and then double-click on the "System" icon.
3. Choose the "Device Manager" tab, and then click the "+" in front of "SCSI & RAID controllers." "Win98-ME Promise FastTrak 376 (tm) controller" should appear.

Windows NT4

Installing Drivers During Windows NT 4.0 Installation

1. Start the system installation by booting from the Windows NT disk:
 - a) Floppy install: boot the system with the FastTrak 376 driver diskette.
 - b) Floppyless install: boot from floppy and type "WINNT /B". After files have been copied, the system will reboot. On the reboot, press the "F6" key when the

- message "Setup is inspecting your computer's hardware configuration..." appears.
- c) CD-ROM disk install: boot from the CD-ROM disk and press the "F6" key when the message "Setup is inspecting your computer's hardware configuration..." appears.
2. When the "Windows NT Setup" window is generated, press "S" to Specify an Additional Device(s).
 3. Press "O" to select "Other" and press the "Enter" key.
 4. Insert the FastTrak 376 driver diskette into drive A: and press the "Enter" key.
 5. Choose "Win NT Promise FastTrak 376 (tm) Controller" from the list that appears on screen, then press the "Enter" key.
 6. The Windows NT Setup screen will appear again saying "Setup will load support for the following mass storage devices:" The list will include "Win NT Promise FastTrak 376 (tm) controller".
NOTE: *If you need to specify any additional devices to be installed, do so at this time. Once all devices are specified, continue to step 7.*
 7. From the Windows NT Setup screen, press the Enter key. Setup will now load all device files and then continue the Windows NT installation.
 8. After a successful installation, the "SCSI Adapter Setup" box will show that the "Win NT Promise FastTrak 376 (tm) Controller" driver has been installed.

Installing Driver with Existing Windows NT 4.0



WARNING: *If you plan to move your boot drive to a mirrored RAID 1 FastTrak array, hard drives should NOT be connected to the FastTrak 376 controller before performing the following procedure. The FastTrak 376 drivers must be loaded on the system hard drive (running under the existing hard drive controller) before any hard drives are connected to the FastTrak 376 controller.*

1. Choose "Settings" from the "Start" menu.
2. Choose "Control Panel" from the "Settings" menu.
3. Double-click on the "SCSI Adapters" icon, which generates the "SCSI Adapters" dialog box.
4. Choose "Drivers," and then press "Add."
5. In the "Install Drivers" dialog box, press "Have Disk..."
6. When the "Install From Disk" appears, insert the "FastTrak 376 Driver" diskette in drive A:.

7. Type "A:\NT4" in the text box window, then choose "OK."
8. When the "Install Driver" dialog box appears, select "Win NT Promise FastTrak 376 (tm) Controller" and then press "OK."
9. When the "Select SCSI Adapter Option" dialog box appears, press "Install."
10. After a successful installation, the "SCSI Adapter Setup" box will show that the "Win NT Promise FastTrak 376 (tm) Controller" has been installed.
11. Power off your system.
12. If moving the boot drive to the FastTrak 376, now attach the hard drives otherwise reboot.

Removing the Driver from Windows NT 4.x

1. In "Start" Button choose "Control Panel" in "Setup" group.
2. In "Control Panel," select "SCSI Adapter," next choose "Drivers" label
3. Choose "Remove" button.
4. After successful removing, the "SCSI Adapter Setup" box will show that "Win NT FastTrak 376 RAID Controller" has been removed.

Step 4: Install PAM Utility PAM (Promise Array Management™) Installation

This section outlines the installation procedure for a component of the PAM software package.

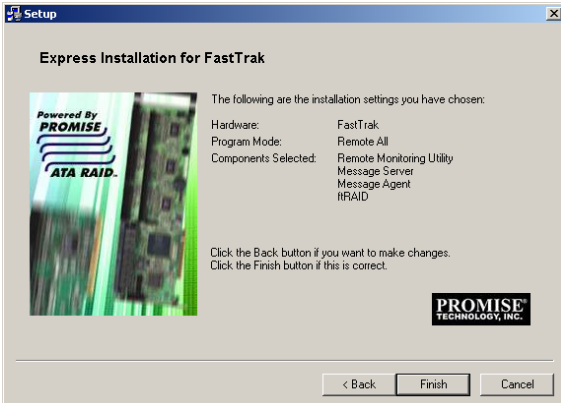
NOTE: If you are re-installing PAM, you must first stop the services for the Message Server and Message Agent for installation to work.

- 1) The main PAM component installation menu will come up as seen below.

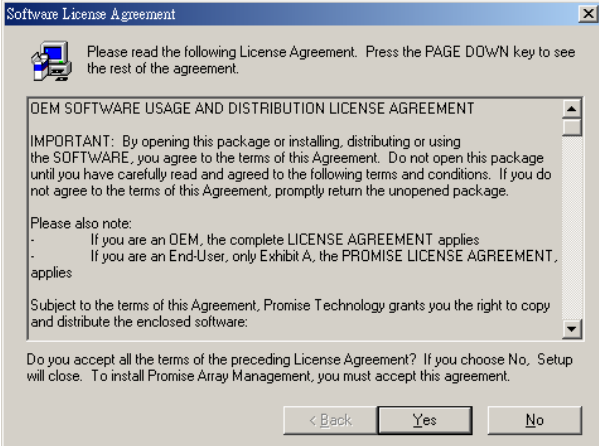


PAM Component Installation Menu

- 2) Select SuperTrak, FastTrak... or Custom installation by clicking it. Then click the "Next" button to display the installation you have chosen.
- 3) Review the installation settings. If the settings are correct, click "Finish" and proceed to the license agreement window; otherwise click "Back" and return to Step 2.

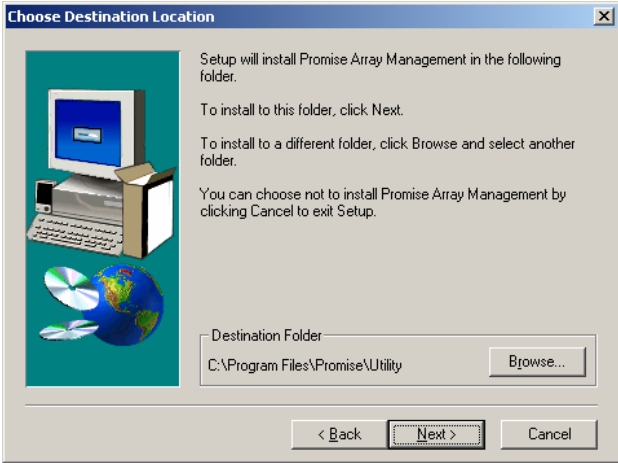


- 4) You must click "Yes" and agree to the licensing terms to use the PAM utility. Clicking "No" will exit the PAM setup.



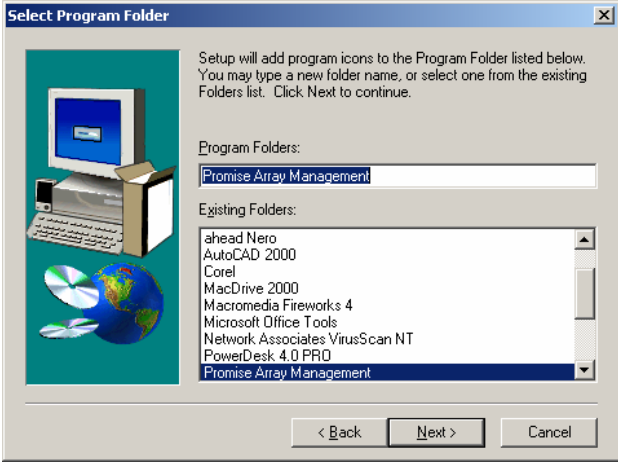
- 5) When the "Choose Destination Location" window comes up, choose a directory to install this component.
- 6) Click "Browse" to select a Destination folder other than the folder suggested by

default. Click the "Next" button to accept the location selected.



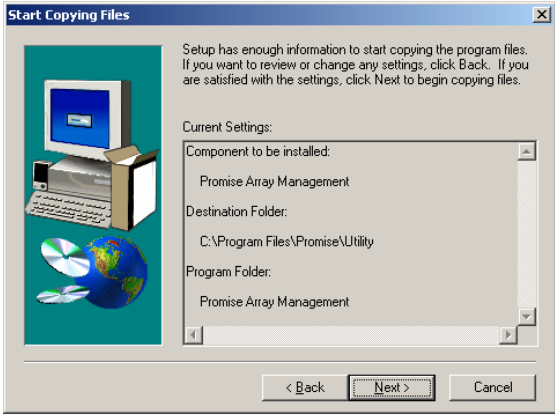
Choose Destination Location Window

- 7) The "Select Program Folder" window comes up next. Choose a Start menu folder to list this item under by entering a folder name, and selecting a parent folder from the list under which this new folder's contents will reside. Click the "Next" button to proceed.



Select Program Folder Window

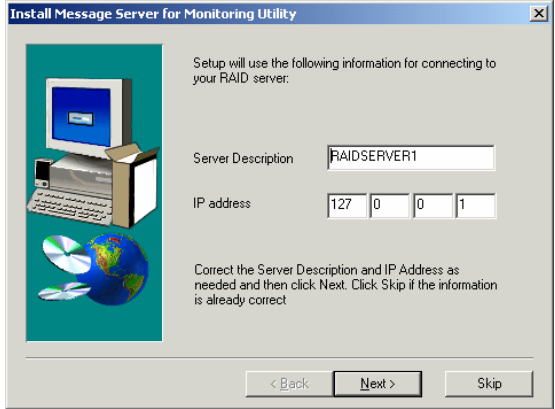
- 8) The "Start Copying Files" window will then be displayed. Verify that the proper component(s), destination folder, and program folder you selected for installation are correct, then click on the "Next" button to proceed, otherwise, click the "Back" button to go back and make changes.



Start Copying Files Window

- 9) At the “Install Message for Monitoring Utility,” shown in 0, enter an appropriate name for the “Server Description” and complete the “IP address” information and then click “Next”. Click “Next” if the information is already correct. Contact your system administrator if you do not know the IP address.

Note: When asked for an IP address during the installation or log process, always use the IP address for the system that contains the remote PAM compatible array that you wish to monitor. If you are installing PAM on the same workstation that contains a PAM compatible array then use the default IP address (127.0.0.1).



Install Message Server for Monitoring Utility Window

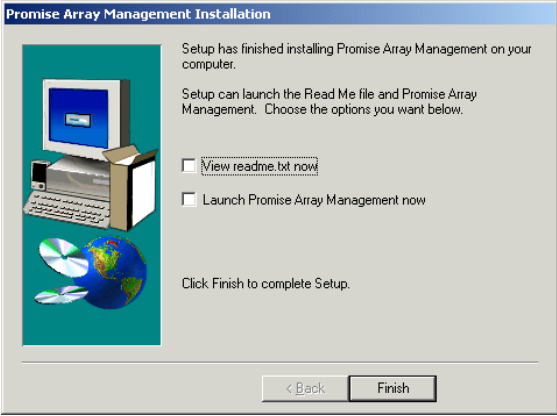
- 10) Complete the “Add User Account for Administration” information, see 0. You may accept the default name or you may enter a new name in the “Name” field. Enter a

password in the "Password" field and enter the same password in the "Confirm Password" field. Click "Next" after you have completed all of the fields.



Add User Account for Administration

- 11) Select "View readme.txt now" to read the latest product release information and select "launch Promise Array Management now" if you wish to run utility directly from setup. Click on the "Finish" button to complete the install process.



Setup Finished

Using FastBuild™ Configuration Utility

The FastBuild™ Configuration Utility offers several menu choices to create and manage the drive array on the Promise FastTrak 376. For purposes of this manual, it is assumed you have already created an array in the previous chapter and now wish to make a change to the array or view other options.

Navigating the FastBuild™ Setup Menu Viewing FastTrak 376 BIOS Screen

When you boot your system with the FastTrak 376 and drives installed, the Promise onboard BIOS will detect the drives attached and show the following screen.

```
FastTrak 376 (tm) BIOS Version 2.00.0.XX
(c) 2002-2005 Promise Technology, Inc. All Rights Reserved.

Scanning IDE drives . . . . .
```

If an array exists already, the BIOS will display the following screen showing the BIOS version and status of the array.

```
FastTrak 376 (tm) BIOS Version 2.00.0.xx
(c) 2002-2005 Promise Technology, Inc. All Rights Reserved.

ID          MODE    SIZE    TRACK-MAPPING    STATUS
1 *        2+0 Stripe 16126M    611/128/32        Functional

Press <Ctrl-F> to enter FastBuild (tm) Utility...
```

The array status consists of three possible conditions: Functional, Critical, Offline.

Functional - The array is operational.

Critical - A mirrored array contains a drive that has failed or disconnected. The remaining drive member in the array is functional. However, the array has temporarily lost its ability to provide fault tolerance. The user should identify the failed drive through the FastBuild™ Setup utility, and then replace the problem drive.

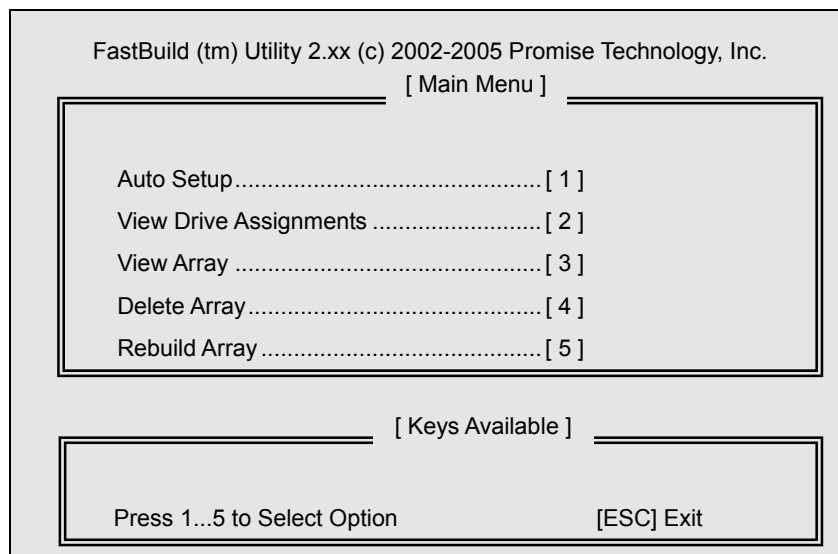
Offline - A striped array has 1 drive that has failed or been disconnected. When the array condition is "offline," the user must replace the failed drive(s), then restore data from a backup source.

Navigating the FastBuild™ Setup Menu

When using the menus, these are some of the basic navigation tips: Arrow keys highlights through choices; [Space] bar key allows to cycle through options; [Enter] key selects an option; [ESC] key is used to abort or exit the current menu.

Using the Main Menu

This is the first option screen when entering the FastBuild™ Setup.



To create a new array automatically, follow the steps under “Creating Arrays Automatically” on page 22. Promise recommends this option for most users.

To view drives assigned to arrays, see “Viewing Drive Assignments” on page 44.

To delete an array (but not delete the data contained on the array), select “Deleting An Array” on page 45.

To rebuild a mirrored array, see “Rebuilding an Array” on page 47.



NOTE: After configuring an array using FastBuild™, you should FDISK and format the arrayed drive(s) if you are using new, blank drives. Depending on the type of array you are using.

Creating Arrays Automatically

The Auto Setup <1> selection from the Main Menu can intuitively help create your disk array. It will assign all available drives appropriate for the disk array you are creating. After making all selections, use Ctrl-Y to Save selections. FastBuild™ will automatically build the array.

FastBuild (tm) Utility 1.xx (c) 1995-2000 Promise Technology, Inc.

[Auto Setup Options Menu]

Optimize Array for: Performance

[Array Setup Options Menu]

Mode..... Stripe
Spare Drive..... 1
Drives used in Array 2
Array Disk Capacity 16126

[Keys Available]

[↑] Up [↓] Down [←, →, Space] Change Option [ESC] Exit [Ctrl-Y] Save

Optimize Array For

Select whether you want Performance (RAID 0), Security (RAID 1) under the “Optimize Array for” setting.

Performance (RAID 0 Striping)

Supports the maximum performance. The storage capacity equals the number of drives times the capacity of the smallest drive in the disk array.

NOTE: *FastTrak 376 permits striped arrays using 1, 2 drive attached in Auto Setup mode.*

Security (RAID 1 Mirroring)

Creates a mirrored (or fault tolerant) array for data security.

NOTE: *Under the Security setting, FastTrak 376 permits two drives to be used for a single Mirrored array only.*

NOTE: *If you wish to customize the settings of individual disk arrays (such as block*

size), you must manually create disk arrays with the Define Array <3> option from the Main Menu.

Viewing Drive Assignments

The View Drive Assignments <2> option in the Main Menu displays whether drives are assigned to a disk arrays or are unassigned.

The menu also displays the data transfer mode that relates to speed used by each drive (U6 refers to 133MB/sec transfers, U5 refers to 100MB/sec transfers, U4 refers to 66MB/sec transfers, etc...)

FastBuild (tm) Utility 1.xx (c) 1995-2000 Promise Technology, Inc.				
[View Drive Assignments]				
Channel:ID	Drive Model	Capacity(MB)	Assignment	Mode
1 : Master	QUANTUMCR8.4A	8063	Array 1	U5
2 : Master	QUANTUMCR8.4A	8063	Array 1	U5

[Keys Available]				
[↑] Up	[↓] Down	[ESC] Exit	Mode (D=DMA, U=UDMA)	

How FastTrak 376 Orders Arrays

During startup, the disk arrays on the FastTrak 376 are recognized in this order: 1) The array set to bootable in the FastBuild™ Setup, and 2) the Array number (i.e. Array 0, Array 1...). This would be involved in determining which drive letters will be assigned to each disk array.

How FastTrak 376 Saves Array Information

All disk array data is saved into the reserved sector on each array member. Promise suggests that users record their disk array information for future reference.

Another feature of the FastTrak 376 disk array system is to recognize drive members even if drives are moved between different FastTrak 376 controller connectors. Since each drive's array data identifies itself to the array, it is possible to move or swap drives without modifying the array setup. This is valuable when adding drives, or during a rebuild.

Deleting An Array

The Delete Array <4> Menu option allows for deletion of disk array assignments. This is not the same as deleting data from the drives themselves. If you delete an array by

accident (and before it has been used again), the array can normally be recovered by defining the array identically as the deleted array.



WARNING: Deleting an existing disk array could result in its data loss. Make sure to record all array information including the array type, the disk members, and stripe block size in case you wish to undo a deletion.

FastBuild (tm) Utility 2.xx (c) 2002-2005 Promise Technology, Inc.

[Delete Array Menu]

Array No	RAID Mode	Total Drv	Capacity(MB)	Status
Array 1	Stripe	2	16126	Functional
Array 2	---	---	---	---
Array 3	---	---	---	---
Array 4	---	---	---	---

[Keys Available]

[↑] Up [↓] Down [ESC] Exit [Del] Delete

1. To delete an array, highlight the Array you wish to delete and press the [Del] key.
2. The View Array Definition menu will appear (see below) showing which drives are assigned to this array.

FastBuild (tm) Utility 2.xx (c) 2002-2005 Promise Technology, Inc.

[Define Array Menu]

Array No	RAID Mode	Total Drv	Capacity(MB)	Status
Array 1	---	---	---	---

Stripe Block: 64 KB

[Drive Assignments]

Channel:ID	Drive Model	Capacity (MB)	Assignment
1 : Master	QUANTUMCR8.4A	8063	Y
2 : Master	QUANTUMCR8.4A	8063	Y

3. Confirm yes to the following warning message with the <Ctrl-Y> key to continue array deletion:

Are you sure you want to delete this array?
Press Ctrl-Y to Delete, others to Abort

- After deleting the array, you should create a new array using Auto Setup or the Define Array menu from the FastBuild Main Menu.

Rebuilding A Mirrored Array

The Rebuild Array <5> Menu option is necessary to recover from an error in a mirrored disk array. You will receive an error message when booting your system from the FastTrak BIOS.

NOTE: Drives *MUST* be replaced if they contain any physical errors.

Follow these steps BEFORE using the Rebuild Array menu option:

- On bootup, the FastTrak 376 Startup BIOS will display an error message identifying which drive has failed.
- Press <Ctrl-F> keys to enter FastBuild Main Menu.
- Select submenu Define Array <3>.
- Select the failed array and identify the Channel and ID of the failed drive.
- Power off and physically remove the failed drive.
- Replace the drive with an identical model.
- Reboot the system and enter the FastBuild Main Menu.
- Select the <5> Rebuild Array option. The following screen will appear.

FastBuild (tm) Utility 2.xx (c) 2002-2005 Promise Technology, Inc.				
[Rebuild Array Menu]				
Array No	RAID Mode	Total Drv	Capacity(MB)	Status
Array 1	Mirror	2	16126	Critical
Array 2	---	---	---	---
Array 3	---	---	---	---
Array 4	---	---	---	---

[Keys Available]		
[↑] Up [↓] Down	[ESC] Exit	[Enter] Select

- Highlight the array whose Status is "Critical".
- Press [Enter]. The following screen will then appear (see below).

FastBuild (tm) Utility 2.xx (c) 2002-2005 Promise Technology, Inc.

[Rebuild Array Menu]

Array No	RAID Mode	Total Drv	Status
Array 2	Mirror	2	Critical

Stripe Block: Not Available

[Select Drive for Rebuild]


Channel:ID	Drive Model	Capacity (MB)
1 : Slave	QUANTUMCR8.4A	8063

[Keys Available]

[↑] Up [↓] Down [ESC] Exit [Enter] Select

- 11. Under [Select Drive for Rebuild], highlight the replacement drive.
- 12. Press [Enter] and confirm that the data will be copied on to the selected drive. All data on the replacement drive will be written over with mirrored information from the array drive. A progress bar will appear as below.

Please Wait While Duplicating The Image



10% Complete

- 13. Once the rebuild process is complete, the user will be asked to reboot the system.

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