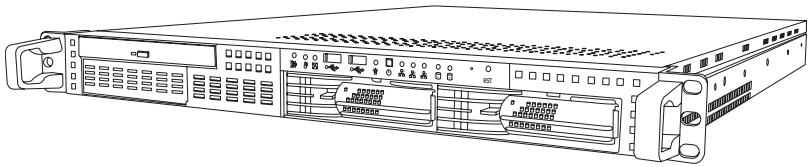
Transport GX21

B5102



User's Manual

Document Part Number: D1576-100

PREFACE

Copyright

Version 1.0

Disclaimer

Information contained in this document is furnished by TYAN Computer Corporation and has been reviewed for accuracy and reliability prior to printing. TYAN assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TYAN products including liability or warranties relating to fitness for a particular purpose or merchantability. TYAN retains the right to make changes to product descriptions and/or specifications at any time, without notice. In no event will TYAN be held liable for any direct or indirect, incidental or consequential damage, loss of use, loss of data or other malady resulting from errors or inaccuracies of information contained in this document.

Trademark Recognition

All registered and unregistered trademarks and company names contained in this manual are property of their respective owners including, but not limited to the following.

TYAN, TYAN Tomcat i875P S5102G3NR, and Transport GX21 are trademarks of TYAN Computer Corporation.

Intel, Pentium 4, and combinations thereof are trademarks of Intel Corporation.

Award, AwardBIOS, and combinations thereof are trademarks of Phoenix Technologies.

Microsoft Windows is a trademark of Microsoft Corporation.

IBM, PC, AT, PS/2 are trademarks of IBM Corporation.

Winbond is a trademark of Winbond Electronics Corporation.

Portable Document Format (PDF) is a trademark of Adobe Corporation.

Federal Communications Commission (FCC)

Notice for the USA Compliance Information Statement (Declaration of Conformity Procedure) DoC FCC Part 15: This device complies with part 15 of the FCC Rules

Operation is subject to the following 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. 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 one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Plug the equipment into an outlet on a circuit different from that of the receiver.

Consult the dealer on an experienced radio/television technician for help.

Notice for Canada

This apparatus complies with the Class B limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations. (Cet appareil est conforme aux norms de Classe B d'interference radio tel que specifie par le Ministere Canadien des Communications dans les reglements d'ineteference radio.)

Notice for Europe (CE Mark) This product is in conformity with the Council Directive 89/336/EEC, 92/31/EEC (EMC).

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.

About this Manual

This manual provides you with instructions on installing your Transport GX21, and consists of the following sections:

Chapter 1:	Provides an Introduction to the Transport GX21B5102 bare-bones, packing list, describes the external components, gives a table of key components, and provides block diagrams of the system.
Chapter 2:	Covers procedures on installing the CPU, memory modules, an optional PCI card, and hard drives.
Chapter 3:	Covers removal and replacement procedures for pre-installed components.
Appendix	Provides detailed specifications, and maintenance and troubleshooting procedures. An exploded diagram of the system is also provided.

Conventions

The following conventions are used in the manual:

Note: Calls attention to important information.

Warning: Provides information to prevent harm to user or damage to equipment.

SAFETY INFORMATION

Before installing and using the Transport GX21, take note of the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Do not block the slots and opening on the unit, which are provided for ventilation.
- Only use the power source indicated on the marking label. If you are not sure, contact the Power Company.
- The unit uses a three-wire ground cable, which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
- Do not place anything on the power cord. Place the power cord where it will not be in the way of foot traffic.
- Follow all warnings and cautions in this manual and on the unit case.
- Do not push objects in the ventilation slots as they may touch high voltage components and result in shock and damage to the components.
- When replacing parts, ensure that you use parts specified by the manufacturer.
- When service or repairs have been done, perform routine safety checks to verify that the system is operating correctly.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- Cover the unit when not in use.

Table of Contents

Chapter 1:Overview

Chapter 2:Setting Up

Chapter 3:Replacing Pre-Installed Components

Appendix

Chapter 1: Overview

1.1 About the Transport GX21 B5102

Congratulations on your purchase of the Transport GX21 B5102 rack mounted, barebone system for Intel® Pentium® 4 processor. The Transport GX21 B5102 uses an advanced Intel chipset for optimum performance and reliability. Integrated storage contoller and Gigabit Ethernet ports combine to provide powerful computing capacity and optimal I/O bandwidth for the most demanding enterprises.

The rugged, industry standard 19-inch, rack mountable design contains 2 HDD bays, 1 slim CD-ROM bay and 1 3.5-inch FDD or additional HDD bay making it both flexible and practical.

1.2 System Requirements

There are 2 different SKUs of Transport GX21 .

Model	HDD Tray Type	Hot-swap Support	HDD Backplane
B5102G21S2 (OEM Only)	Internal (fixed)	No	No
B5102G21S2H (Standard)	Removable	Yes	2-port S-ATA

A choice of S-ATA and IDE HDD is possible with the B5102G21S2 and the modular design makes installation of new HDDs simple. S-ATA is a new HDD standard that uses serial data transfer methods, unlike the traditional IDE devices which rely on parallel data transfer.

1.3 Features

Enclosure
- 1U, industry standard, 19-inch rack-mountable chassis
- (2) HDD bays
- (1) slim CD-ROM bay
- (1) 3.5-inch bay for FDD or additional HDD bay
- Dimension: D 21.5 x W 19 x H 1.7 inch (547x432x43mm)

Processors
- Single ZIF PGA478 socket
- Supports one Intel® Pentium® 4 Northwood and Prescott processor, up to 3.2GHz
- Support 800/533/400MHz FSB

Chipset
- Intel 875P (Canterwood) MCH
- Intel 82801EB (ICH5) South Bridge
- Winbond W83627HF Super I/O chip

Memory
- 128-bit dual channel memory bus
- (4) DDR DIMM sockets
- Supports up to 4GB unbuffered PC3200/2700/2100 DDR SDRAM
- Supports ECC/non-ECC type memory modules
- Registered memory, not supported

Expansion Slots

(1) 32-bit/33MHz PCI slot

Back I/O Ports
- Stacked PS/2 mouse/keyboard ports
- (2) USB 2.0 ports
- (1) 9-pin UART Serial port
- (3) RJ-45 LAN ports
- (1) VGA port

Front Panel Features
- I/O
  - (2) USB 2.0 ports
- LED indicators
  - (1) IDE channel status LED
  - (1) Power LED
  - (1) FAN Fail LED
  - (2) HDD activity LED
- Switch
  - Power switch
  - Reset switch
  - Mute switch

Integrated Storage Controller
- Dual channel IDE
- Promise PDC20378 RAID Accelerator, supports 2- port S-ATA & 1 Ultra ATA-133 channel with RAID 0, 1, 0+1

Storage
- B5102G21S2H: 2 x external access drive bays
- B5102G21S2: 2 x internal drive bays
- (1) slim type 24x CD-ROM drive
- (1)x Optional 3.5" FDD

Networking
- (2) Gigabit Ethernet ports (Intel 82547EI GbE and 82541EI GbE LAN controller)
- (1) 10/100 Mbps LAN port (Intel 82562EM controller)

Video
- ATI® Rage™ XL PCI graphics controller
- 8 MB Frame Buffer of video memory

BIOS
- Award® BIOS 8.0 on 4 Mbit LPC Flash ROM
- Supports APM 1.2 & ACPI 1.0

Motherboard
- TYAN Tomcat i875P S5102G3NR motherboard
- ATX footprint (9.6 x 12-inch)

Power Supply

ATX12V, 1U, 300W with PFC

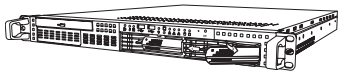
Cooling
- (5) 40x40x28mm, 11000rpm
- Power supply fan
- CPU heatsink

Regulatory
- FCC Class B (Declaration of Conformity)
- CE (Declaration of Conformity)

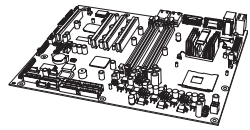
1.4 Unpacking

1.4.1 Box Contents (B5102G21S2H and B5102G21S2)

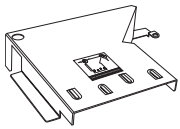
The following illustration displays all the components that come with your Transport GX21 B5102 barebone system. Ensue all items are present before begining installation



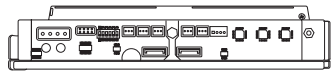
1U chassis. (2 external drive bays for B5102G21S2H; 2 internal drive bays for B5102G21S2) P/N 342730800001



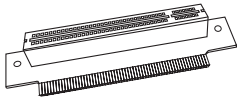
1 x Tomcat I875P-P4 S5012G3NR motherboard (pre installed). P/N 541172670026



1 x Air duct (pre installed) P/N 412223700108

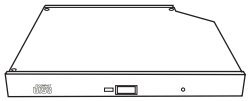


1 x S-ATA backplane with 2 HDD trays pre installed. (Not included with B5102G21S2) P/N 412223700099

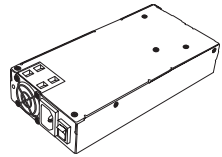


1 x 32 bit, 5V PCI riser card (pre installed). P/N 412223700100

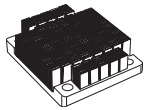
1 x sliding rail package with two sliding rails, plus mounting screws and bracket. P/N 341730200001



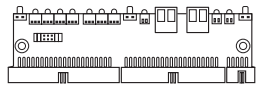
Slim CD-ROM Drive (pre installed). P/N 52340061006



1 x ATX, 12V 300W 1U power supply, (pre installed). P/N 471172400035



1 x CPU Heatsink. P/N 342730200001



1x LED control board (pre installed). P/N 412223700102

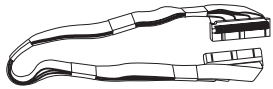
1.4 Unpacking

1.4.2 Accessories

If any items are missing or appear damaged, contact your retailer or browse to TYAN's Web site for service: http://www.tyan.com.

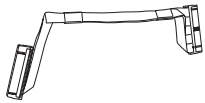
The Web site also provides information on other TYAN products, plus FAQs, compatibility lists, BIOS settings, and more.

1 x Tyan driver CD
P/N 565172760103

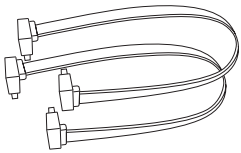


1 x 40 pin ATA33 IDE cable for CD-ROM (pre installed).
P/N 422730200009

1 x front panel cable (pre installed).
P/N 422730200002 (B5102G21S2H)
P/N 422730200001 (B5102G21S2)

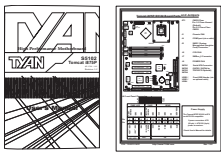


1 x 34 pin FDD cable.
P/N 422730200005

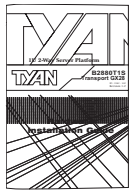


2 x S-ATA cables, motherboard to S-ATA board (pre installed).
P/N 422730200007

1 x spare screw pack.



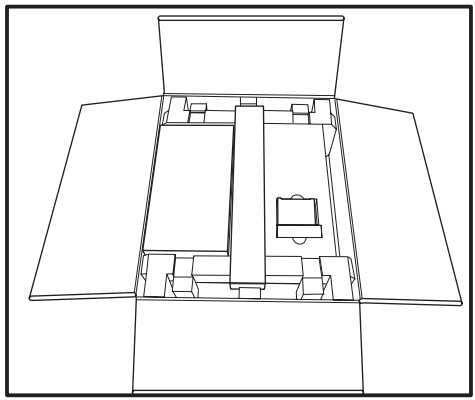
Tomcat i875P S5102 motherboard quick reference guide and user manual.
P/N 561572670002



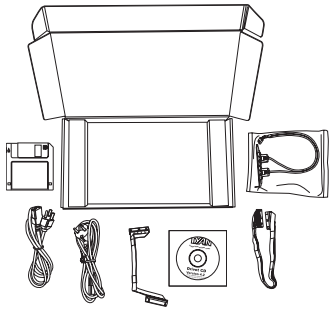
1 x Transport GX21 hardware Installation guide.
P/N 561872670002

1.4.3 Opening the box

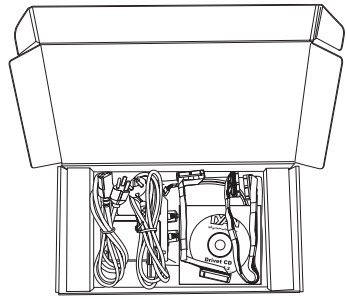
Carefully open the box and ensure that all components are present and undamaged. This product should arrive packaged as illustrated below.



Box contents as packaged (with heatsink)



Accessory Pack (unpacked)



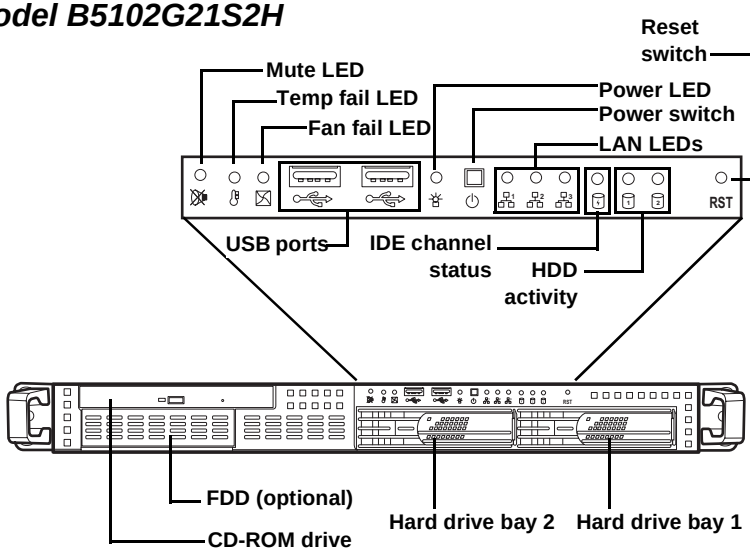
Accessory pack (as packaged)

1.5 About the Product

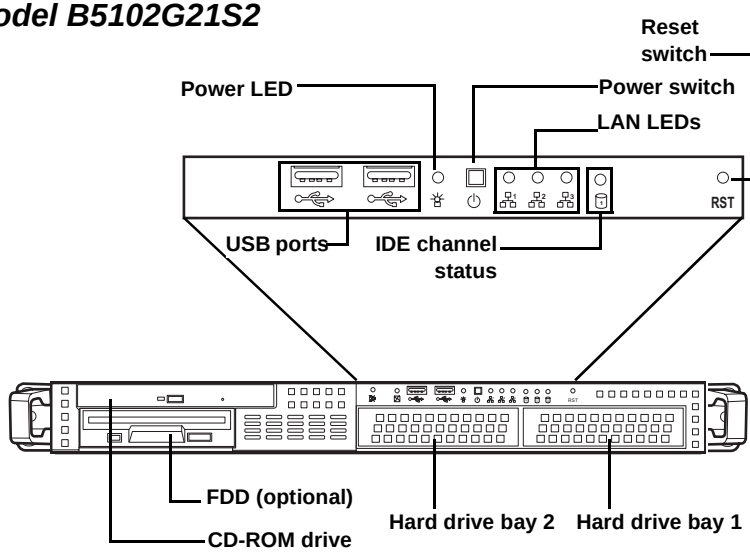
The following views show you the product.

1.5.1 Front View

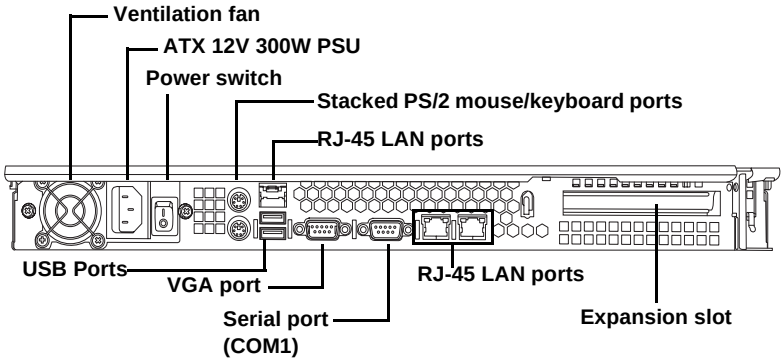
Model B5102G21S2H



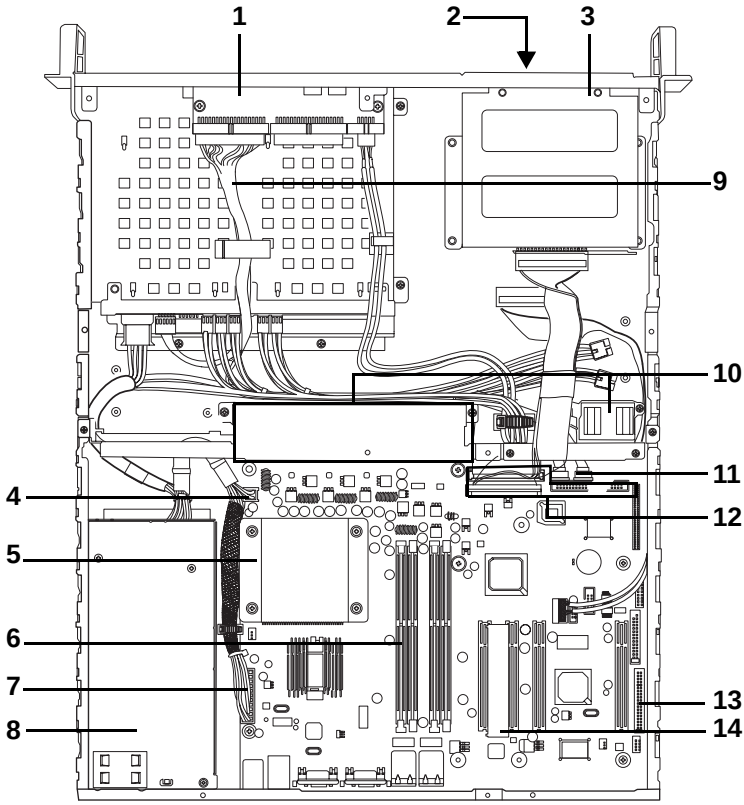
Model B5102G21S2



1.5.2 Rear View

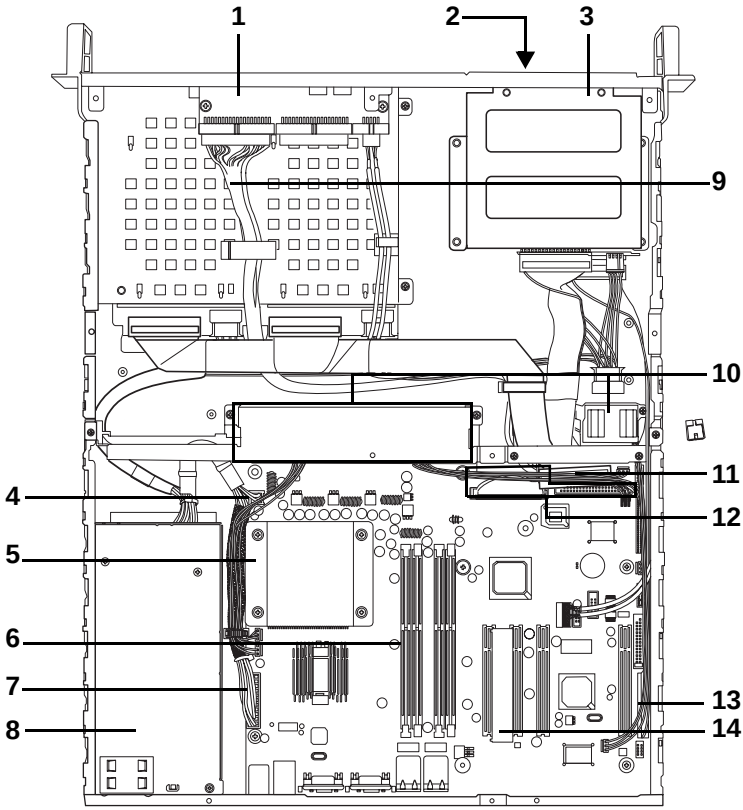


1.5.3 Internal View (B5102G21S2H)



1. LED control board
2. FDD (optional)
3. CD-ROM
4. ATX 12V power connector (4 pin)
5. CPU/heatsink assembly
6. Memory slots x 4
7. Power connector
8. ATX 12V 300W power supply (20 pin)
9. Front panel cable
10. 40x40x28 mm fans x 5
11. S-ATA hard drive connectors x 2
12. IDE connectors x 3
13. FDD connector
14. 32-bit 5V riser card

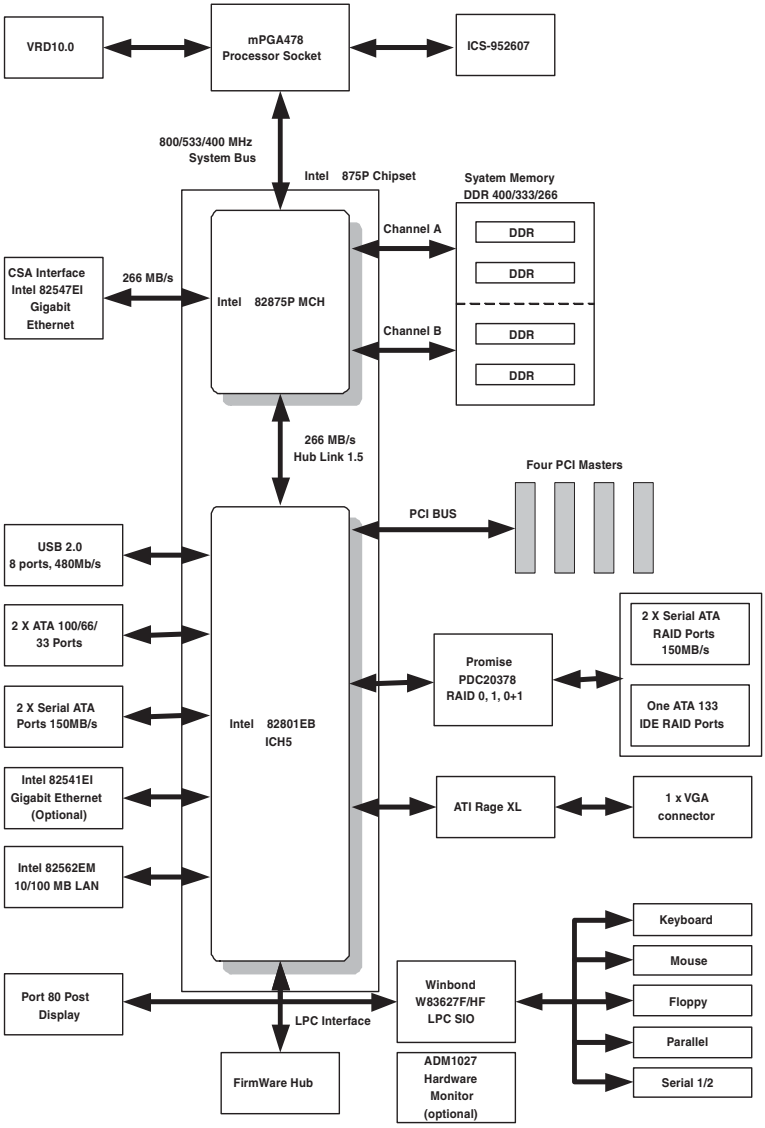
1.5.4 Internal View (B5102G21S2)



1. LED control board
2. FDD (optional)
3. CD-ROM
4. ATX 12V power connector (4 pin)
5. CPU/heatsink assembly
6. Memory slots x 4
7. Power connector
8. ATX 12V 300W power supply (20 pin)
9. Front panel cable
10. 40x40x28 mm fans x 5
11. S-ATA hard drive connectors x 2
12. IDE connectors x 3
13. FDD connector
14. 32-bit 5V riser card

1.5 About the Product

1.5.5 Motherboard Block Diagram



Chapter 2: Setting Up

2.1 Before You Begin

This chapter explains how to install the CPU, CPU heatsink, memory modules, and hard drives. Instructions on inserting a PCI card are also given.

Take note of the precautions mentioned in this section when installing your system.

2.1.1 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

2.1.2 Tools

The following procedures require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

2.1.3 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Transport GX21 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.
- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.
- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:

- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

2.2 Rack Mounting

The Transport GX21can be mounted in a rack using the supplied rack mounting kit.

Rack mounting kit

Sliding Rails x 2:

Standard Mounting Brackets x 4

Mounting Ears x 2

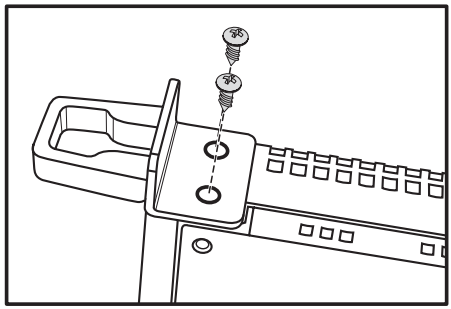
Nuts, Screws and Washers Kit x 1

2.2.1 Installing the Server in a Rack

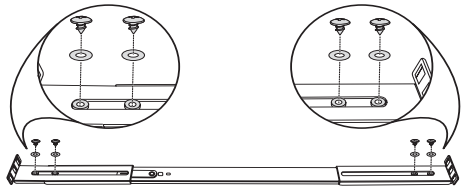
Follow these instructions to mount the Transport GX21 B5102 into an industry standard 19" rack

Before mounting the Transport GX21 in a rack, ensure that all internal components have been installed and that the unit has been fully tested. Maintenance can be performed on the unit while in a rack but it is preferable to install the device in a fully operational condition.

1. Screw the mounting ears to the Transport GX21 as shown using 4 screws from the supplied nuts, screws and washers kit.

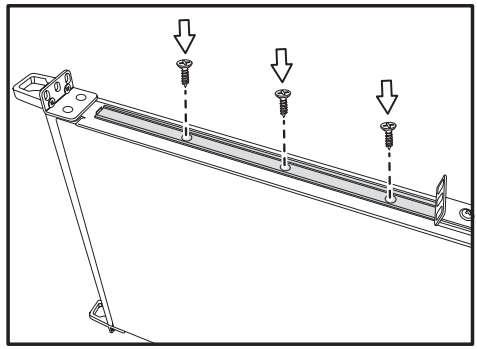


2. Screw the sliding rail mounting brackets to the sliding rails as shown, using the short black screws from the supplied nuts, screws and washers kit. Ensure that the brackets with the cut away section (to accommodate the handles on the front of the unit) are fixed to the front end of the rail.



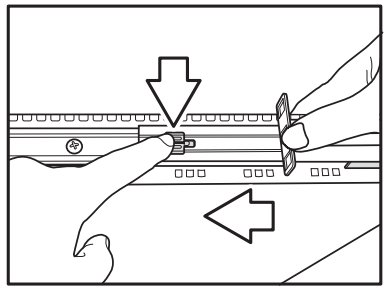
Note: Do not tighten the brackets to the rails as you will need to adjust their position later.

3. Fully extend the sliding rails until they lock.
4. Screw each sliding rail to the side of the Transport GX21 as shown. You will need 3 short, silver colored screws from the supplied nuts, screws and washers kit, for each rail.

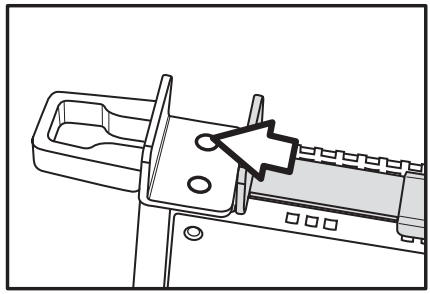


5. Return the sliding rails to their shortest position.

Note: When fully extended, the sliding rails will lock. The release mechanism is located on the sliding rail as shown. Press the release mechanism while pushing the sliding rails to shorten them.

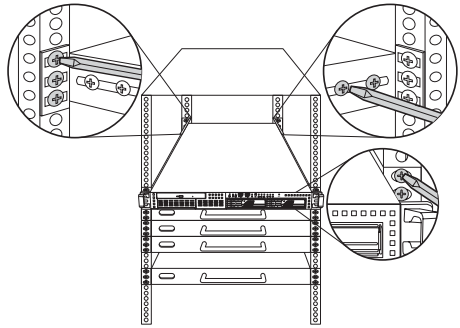


6. With the rails in their shortest condition, adjust both front mounting brackets so that they are flush with the front of the unit.



7. Accurately measure the depth of your rack and adjust the rear brackets accordingly.
8. When all brackets are positioned correctly, tighten them.

9. Lift the unit into place in the rack and screw it into place as shown.



Note: To avoid injury, it is strongly recommended that two people lift the Transport GX21into place while a third person screw it to the rack.

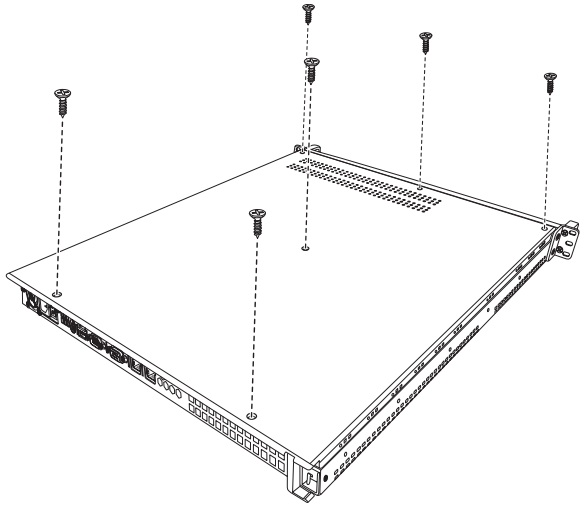
2.3 Installing Motherboard Components

This section describes how to install components on to the motherboard, including CPU, memory modules and PCI card.

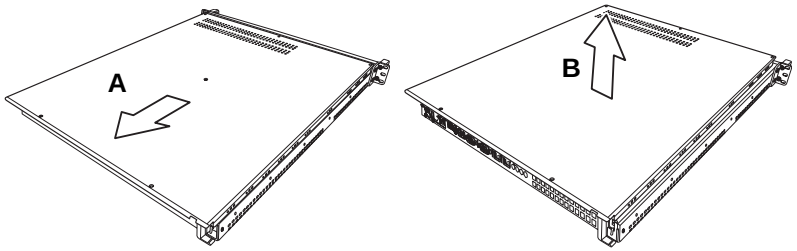
2.3.1 Removing the Chassis Cover

Follow these instructions to remove the Transport GX21 chassis cover.

1. Remove the six screws securing the chassis cover.



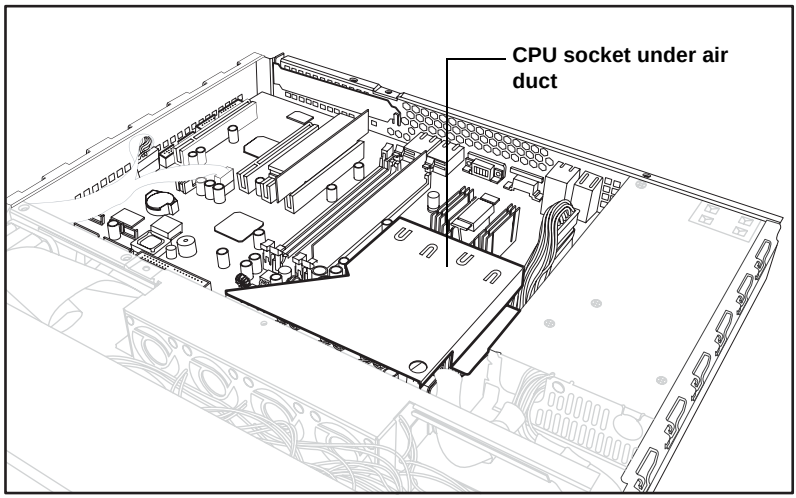
2. Slide the cover in the direction of the arrow (**A**) and then lift the cover off (**B**).



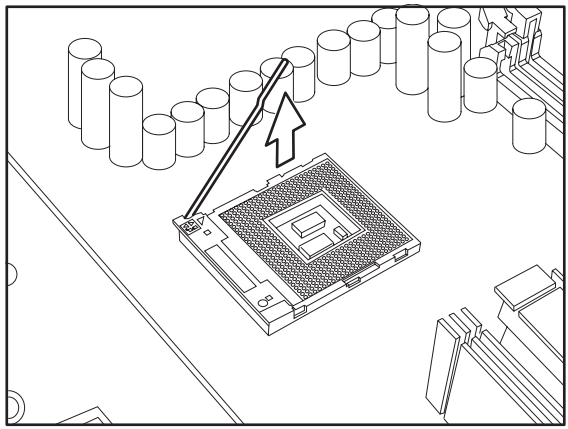
2.3.2 Installing a CPU, Heatsink and Air Duct

Follow these instructions to install a CPU, CPU heatsink and air duct.

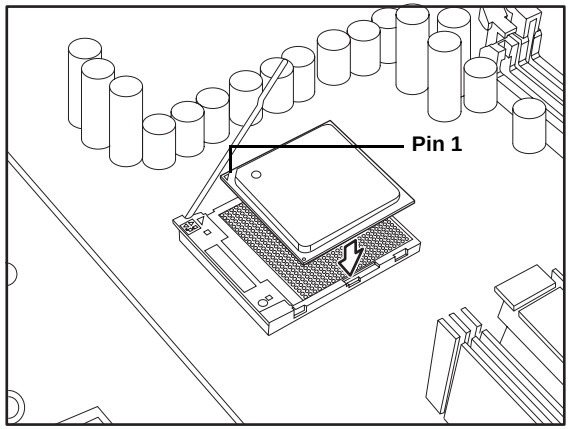
1. Remove the pre-installed air duct. Refer to the illustration on top of the air duct to locate the 2 screws.



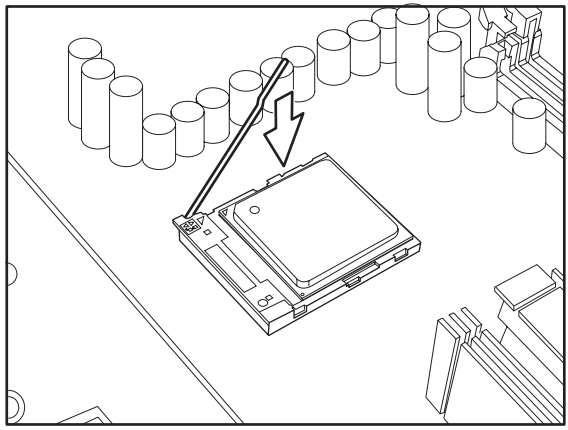
2. Pull the CPU lever up to unlock the CPU socket.



3. Place the CPU in the CPU socket, ensuring that pin 1 is located as shown in the following illustration.

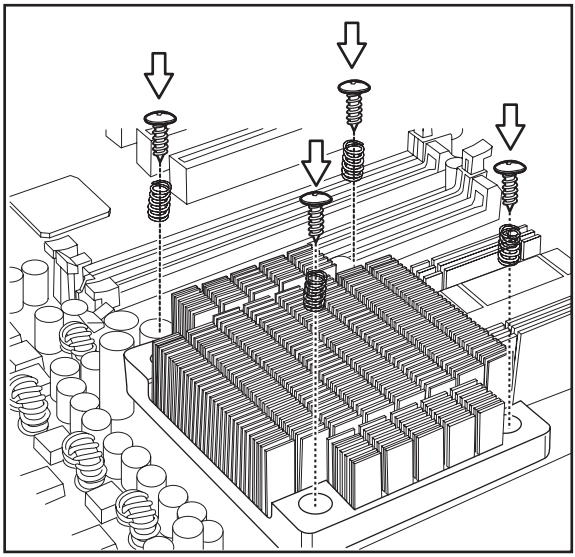


4. Press the CPU socket lever down in the direction shown to secure the CPU.

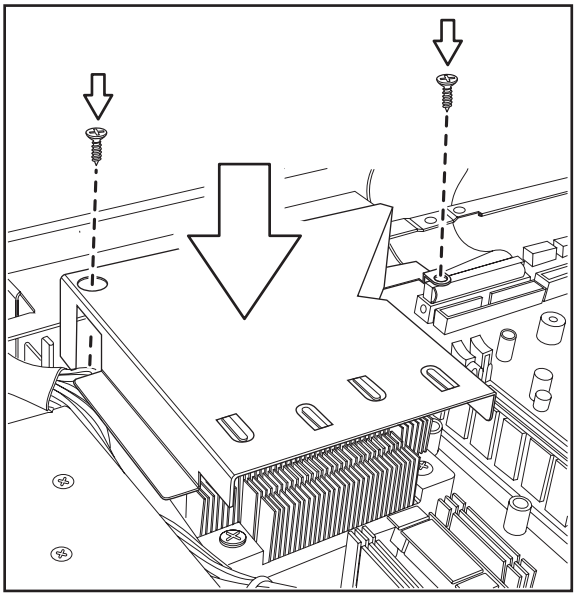


5. Apply thermal grease to the top of the CPU and place the CPU heatsink on the CPU.

6. Align the heatsink screw holes with the holes on the motherboard and insert the four heatsink screws as shown.



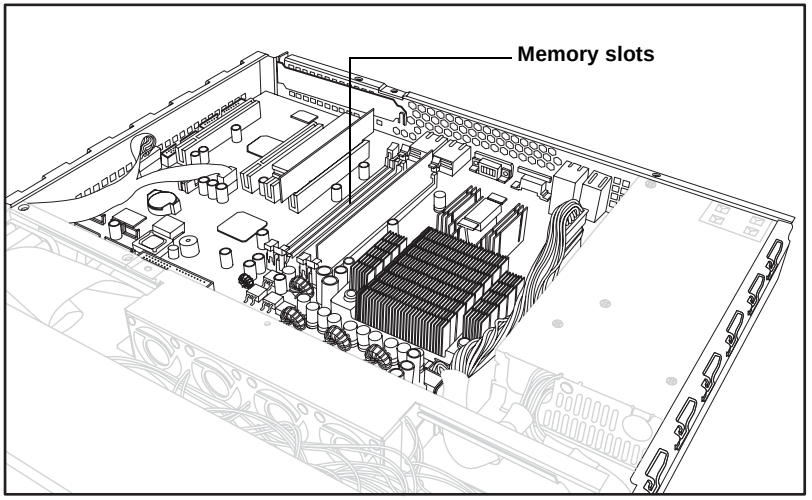
7. Place the air duct over the heatsink and replace the heat shield screws to secure it to the motherboard.



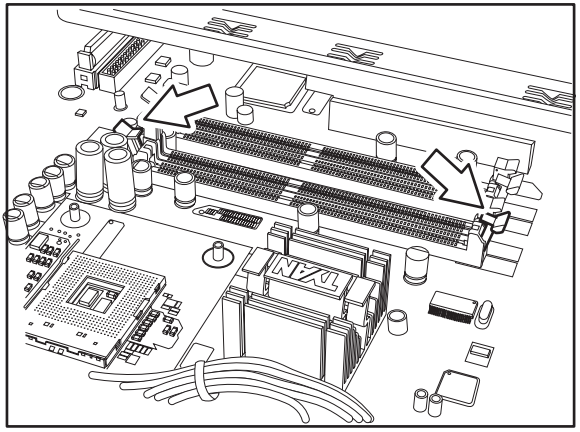
2.3.3 Installing Memory

Follow these instructions to install memory modules on the motherboard.

1. Locate the memory slots on the motherboard.

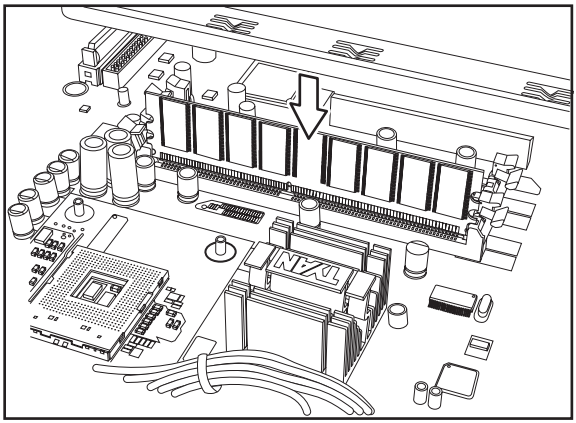


2. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.



3. Align the memory module with the slot; the module has indentations that align with notches in the slots.

4. Insert the memory module into the slot as shown.

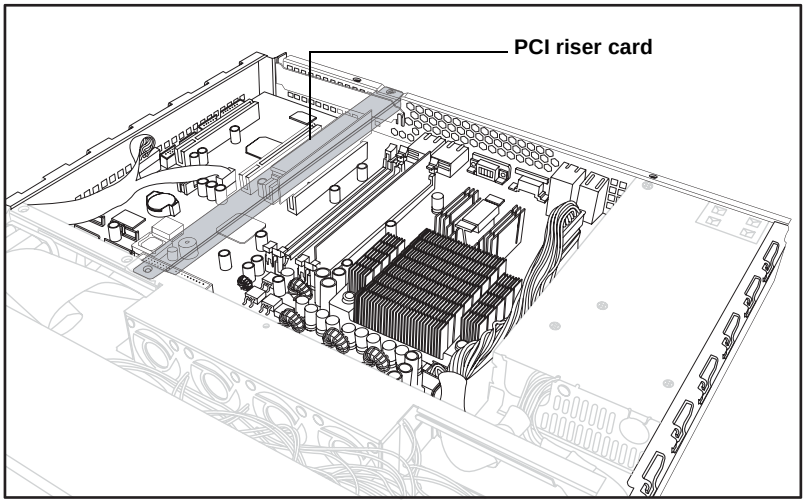


When inserted properly, the memory slot locking levers lock onto the indentations at the ends of the module.

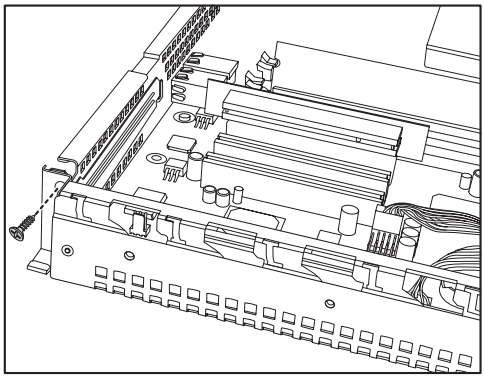
2.3.4 Installing a PCI Card

Follow these instructions to install a PCI card.

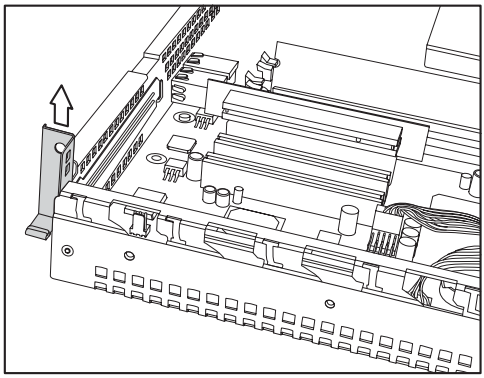
1. Remove the pre-installed PCI retention bar



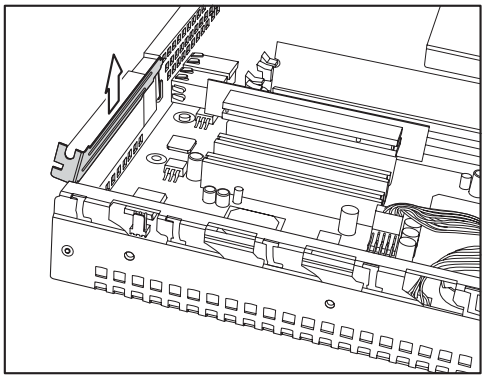
2. Remove the screw securing the PCI faceplate to the chassis.



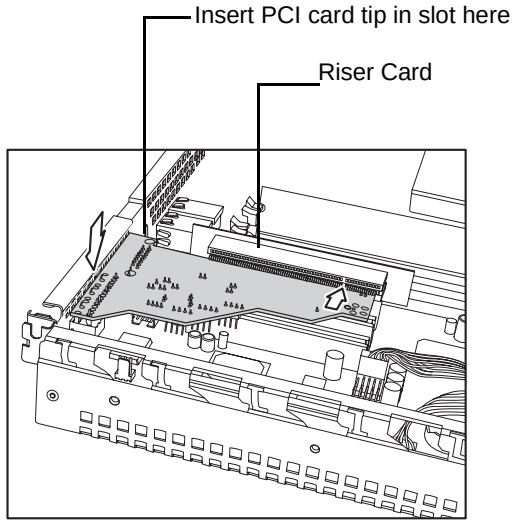
3. Slide the PCI card clamp out as shown.



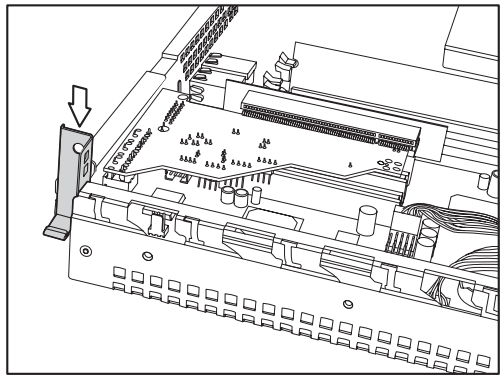
4. Slide the dust cover out.



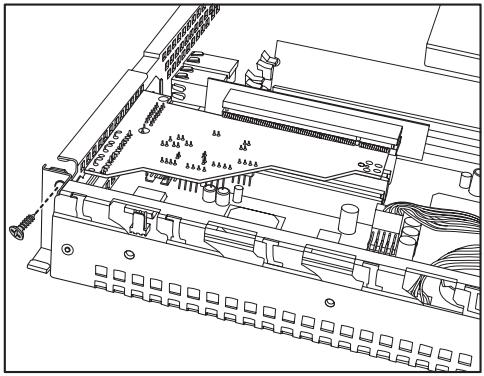
5. Slide the PCI card into place and then insert it into the PCI slot on the riser card. Ensure that it is inserted correctly.



6. Reinsert the PCI card clamp.



7. Insert the screw to secure the PCI card to the chassis.



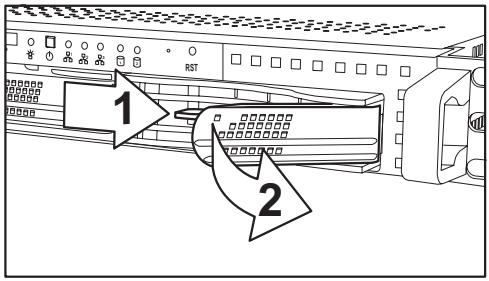
2.4 Installing a Hard Drive

The Trasport GX21 barebone system supports both Serial ATA and IDE hard drives. However, if you have purchased the B5102G21S2H model with pre-installed S-ATA backplane, only S-ATA hard drives can be used.

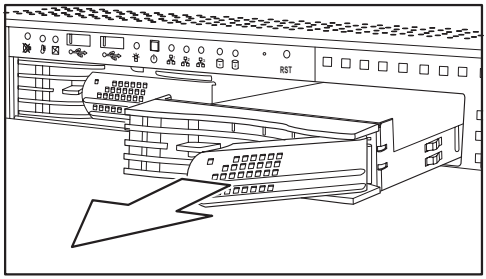
2.4.1 Installing an External Access S-ATA Hard Disk Drive

Follow these instructions to install a S-ATA hard drive.

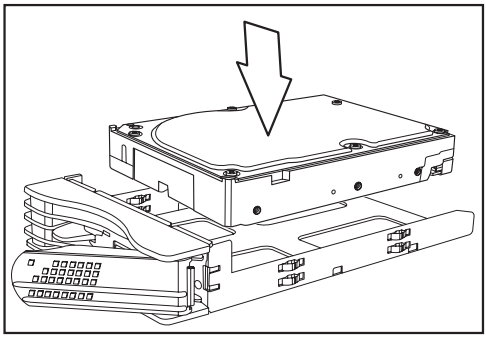
1. Press the drive bay locking lever latch in the direction of the arrow (**1**) and pull the locking lever open (**2**).



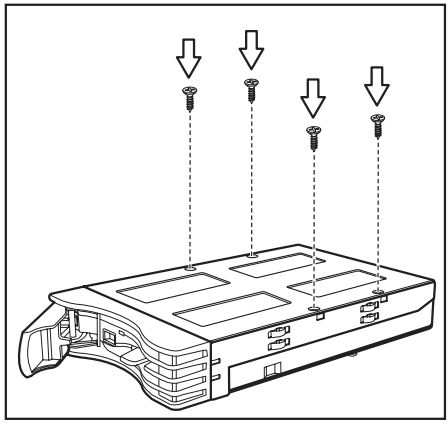
2. Slide the drive bay out.



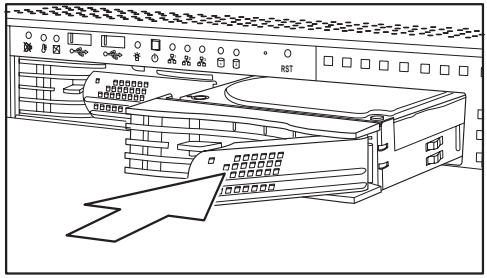
3. Place an S-ATA hard drive into the drive bay.



4. Insert hard drive screws to secure the hard drive to the drive bay.



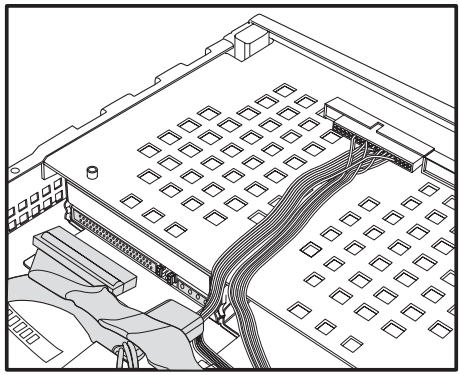
5. Reinsert the drive bay into the chassis, ensuring that the HDD rear connector is securely connected to the back-plane connector.



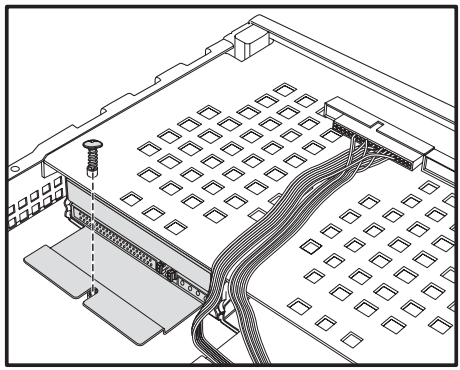
2.4.2 Installing an Internal IDE or S-ATA Hard Disk Drive

Follow these instructions to install an IDE or S-ATA hard drive.

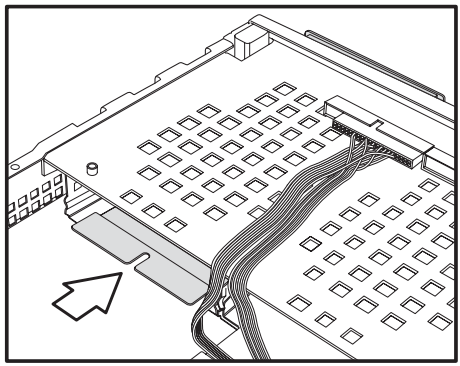
1. Remove the IDE or S-ATA data cable and power connector from the HDD.



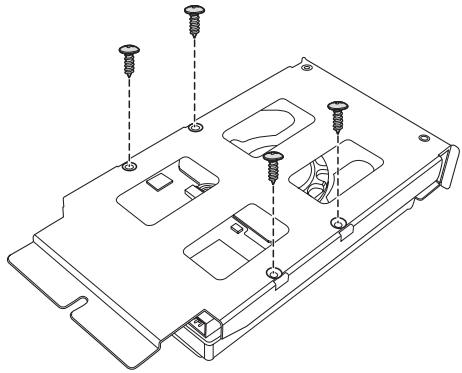
2. Remove the screw securing the HDD tray to the chassis.



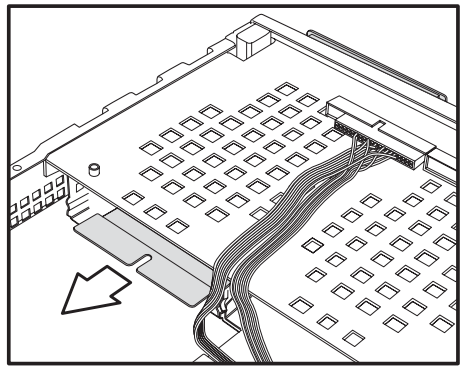
3. Slide the HDD tray out.



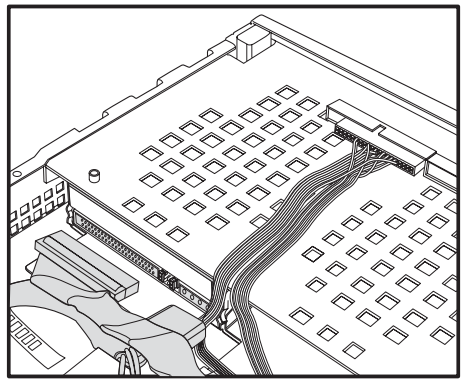
4. Place an IDE or S-ATA HDD into the tray, and secure with 4 screws.



5. Reinsert the HDD tray and secure with a screw.



6. Connect the IDE or S-ATA data cable and power cable connector to the HDD.



2.4 Installing a Hard Drive

Chapter 3: Replacing Pre-Installed Components

3.1 Introduction

This chapter explains how to replace pre installed components including the motherboard, LED control board, FDD and CD-ROM drive. There is also a section showing how to replace a FFD with a HDD.

Take note of the precautions in this section when installing your system.

3.1.1 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers keeps them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

3.1.2 Tools

The procedures that follow require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

3.1.3 Precautions

Components and electronic circuit boards can be damaged by static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Transport GX21 or injury to yourself.

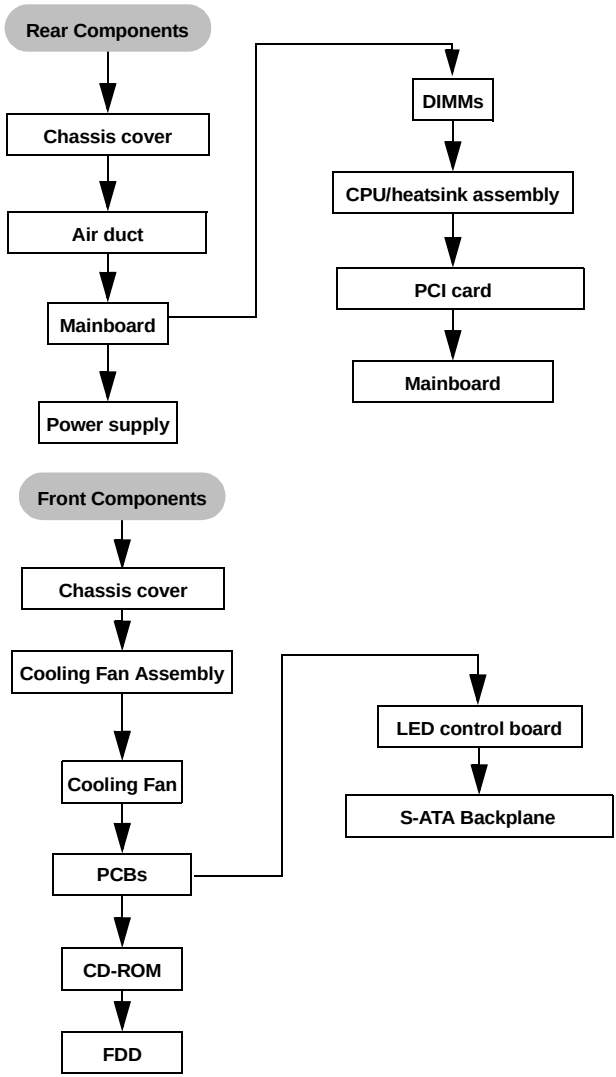
- Ground yourself properly before removing the top cover of the system. Unplug the power from your computer power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.
- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.
- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:

- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

3.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedure.

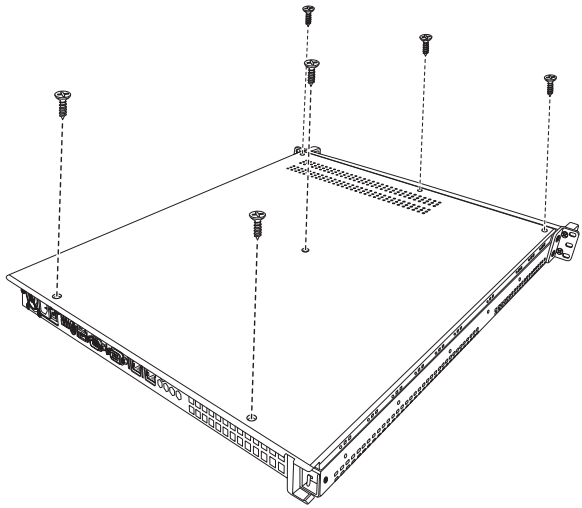


3.3 Removing the Cover

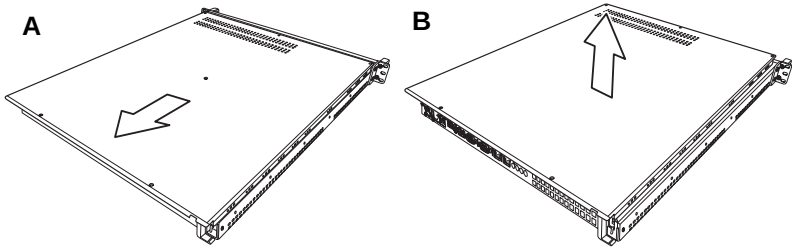
Before replacing any parts you must remove the chassis cover.

Follow these instructions to remove the cover of the Transport GX21 chassis cover.

1. Remove the six screws securing the chassis cover.



2. Slide the cover in the direction of the arrow (**A**) and then lift the cover off (**B**).



3.4 Replacing Motherboard Components

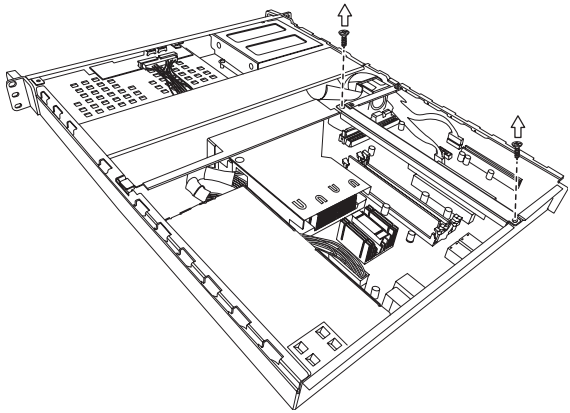
Follow these instructions to replace motherboard components, including the motherboard.

3.4.1 Removing Add-On Components from the Motherboard

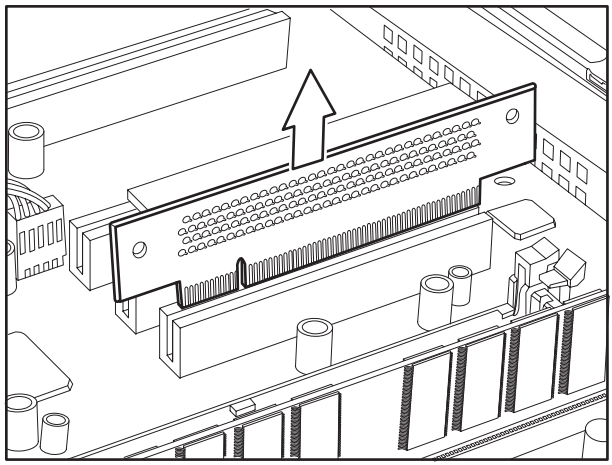
Before removing the motherboard, remove the CPU, memory modules, disconnect all cables and remove the PCI card if you have one installed.

Follow these instructions to remove the mainboard.

1. Remove the riser card retention bar as shown below.



2. Remove the PCI riser card.

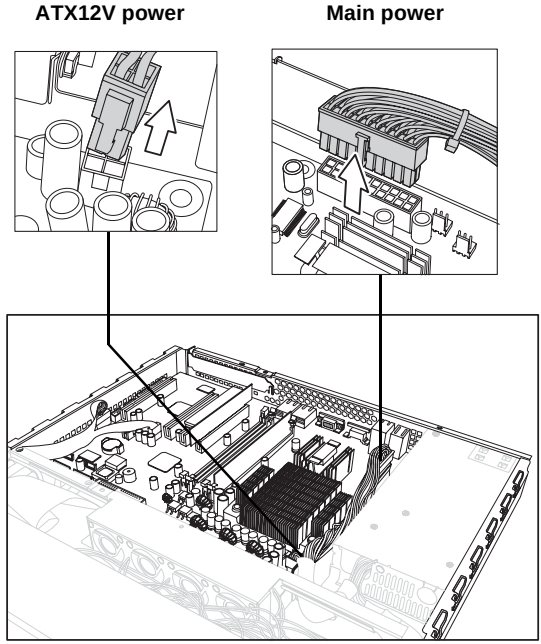


3.4 Replacing Motherboard Components

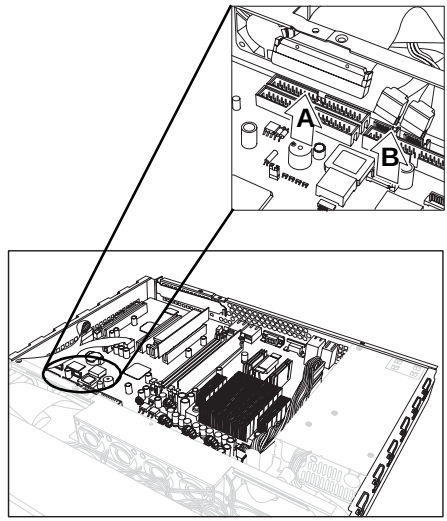
3.4.2 Disconnecting Cables

Disconnect all the cables on the board

1. Disconnect the main and ATX power cables.

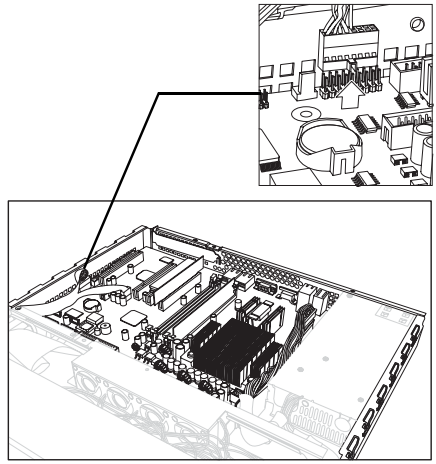


2. Disconnect the CD-ROM (**A**) and S-ATA hard drive (**B**) cables.

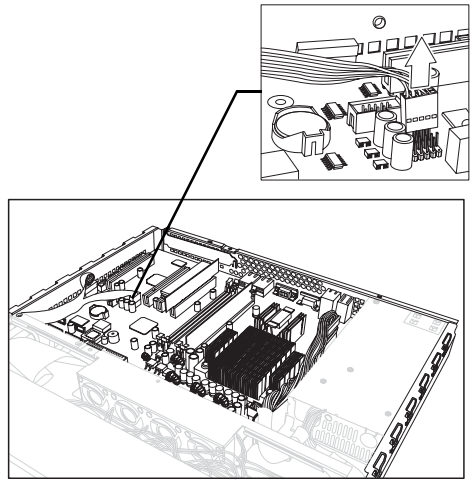


Note: If an FDD or IDE HDD is installed, you must disconnect these cables too.

3. Disconnect the front panel switch/LED connector.



4. Disconnect the front panel USB connector.

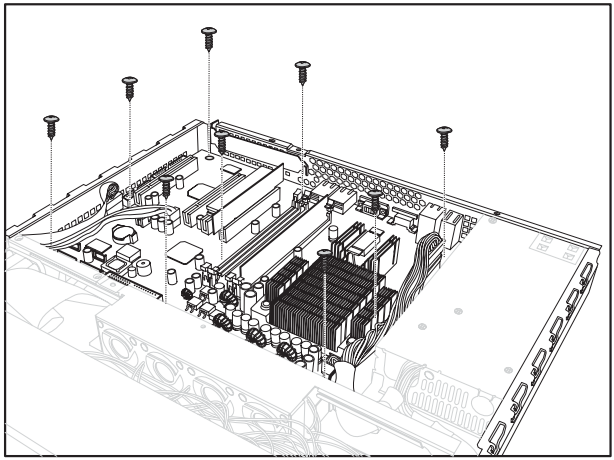


3.4 Replacing Motherboard Components

3.4.3 Removing the Motherboard

Follow these instructions to remove the motherboard from the chassis when all add-on components have been removed.

1. Remove the 8 screws securing the motherboard to the chassis.

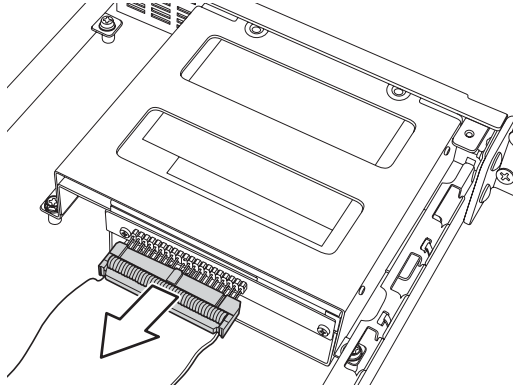


2. Remove the motherboard.

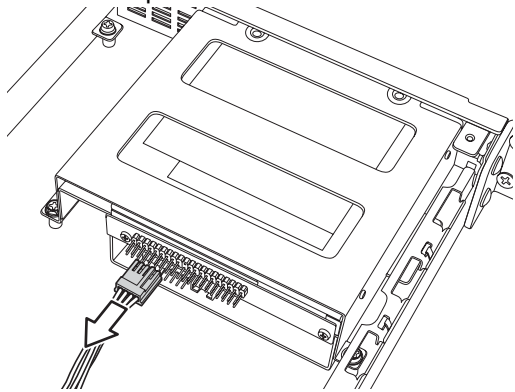
3.5 Replacing the CD-ROM/FDD

Follow these instructions to replace the CD-ROM or FDD.

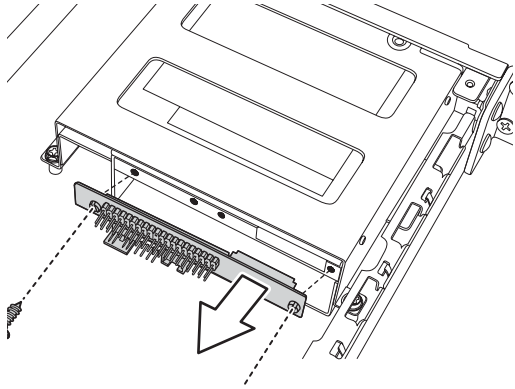
1. Remove the data cable from the slim CD-ROM adapter.



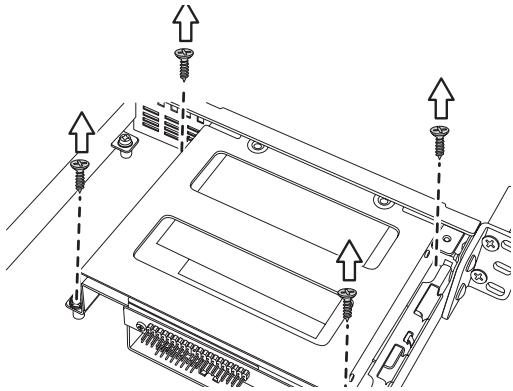
2. Remove the power cable from the slim CD-ROM adapter.



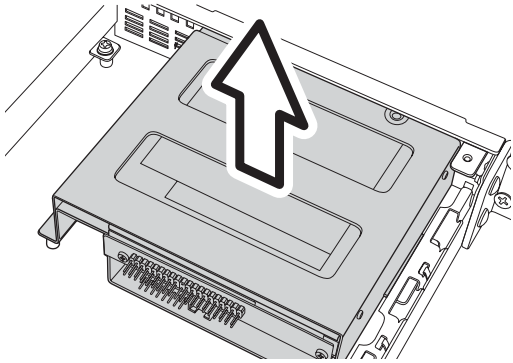
3. Remove the 2 screws that secure the adapter board to the slim CD-ROM and lift it free from the chassis.



4. Remove the 4 screws securing the drive bay to the chassis.



5. Lift the drive bay free from the chassis.

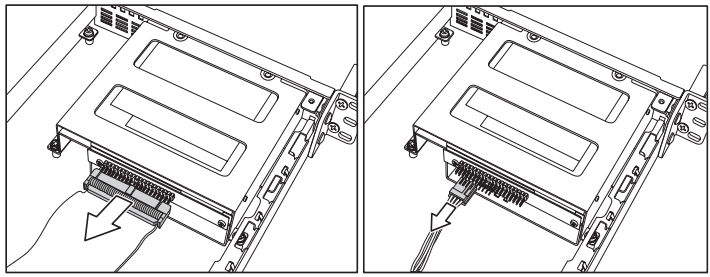


6. Remove the 4 small screws securing the CD-ROM or FDD in the drive bay.
7. Slide the CD-ROM or FDD from the drive bay.

3.6 Replacing the FDD with a HDD

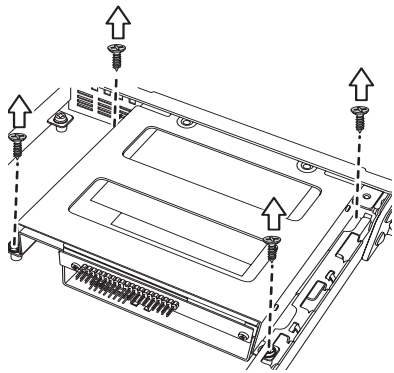
Follow these instructions to replace the FDD with a HDD

1. Remove the power and data cables from the back of the CD-ROM drive and FDD.

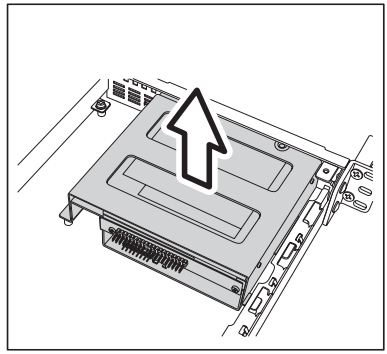


Note: Unless you are intending to replace the CD-ROM drive, there is no need to remove the CD-ROM backplane.

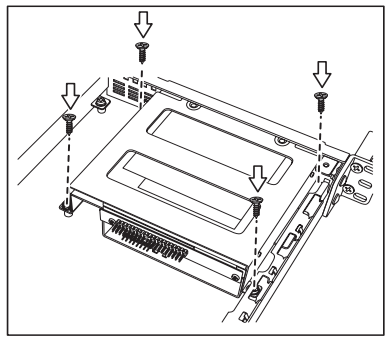
2. Remove the 4 screws that secure the drive bay housing to the chassis.



3. Slide the drive bay housing backwards and lift it clear of the chassis.



4. Remove the 4 screws that secure the FDD in the drive bay and lift it free of the drive bay housing.
5. Place a HDD in the drive bay housing and secure with 4 screws. Refer to section 2.4.2 *Installing an Internal IDE or S-ATA Hard Disk Drive* for details on installing a hard disk.
6. Replace the drive bay housing in the chassis and secure with 4 screws.

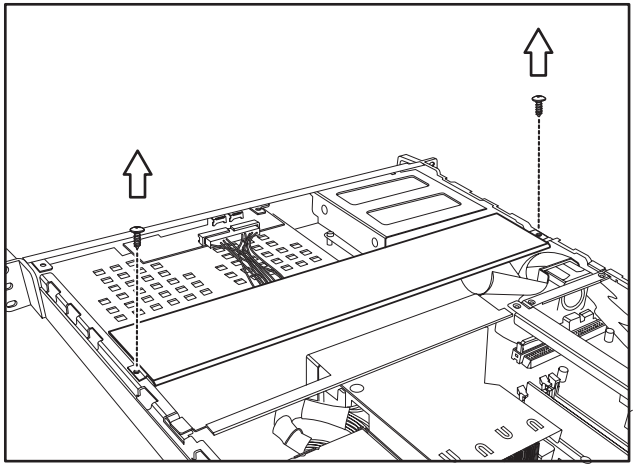


7. Replace the power and data cables for the CD-ROM drive and the new HDD unit.

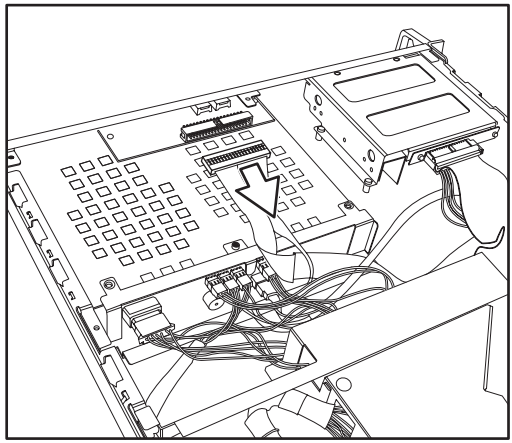
3.7 Replacing the LED Control Board

Follow these instructions to remove the LED control board.

1. Remove the 2 screws securing the metal retaining plate to the chassis.
2. Lift the retaining plate free of the chassis, as shown below.

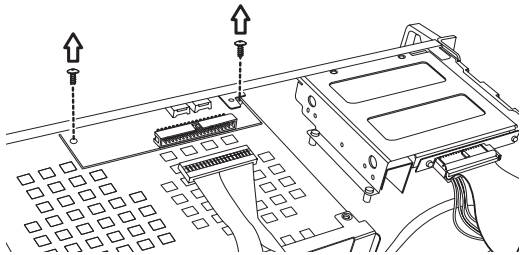


3. Unplug the front panel ribbon cable connector from the rear of the LED control panel.
4. Unplug the other end of the ribbon cable from the back-plane of the HDD as shown...



5. Lift the ribbon cable free from the chassis.

6. Remove the 2 screws securing the LED control board to the chassis.

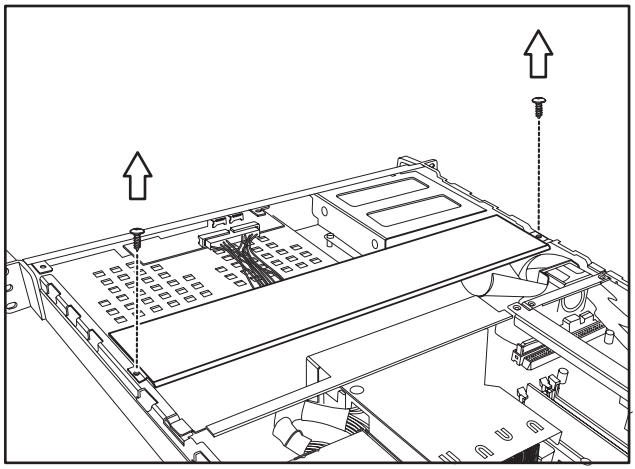


7. Lift the LED control board free from the chassis.

3.8 Replacing the S-ATA Backplane

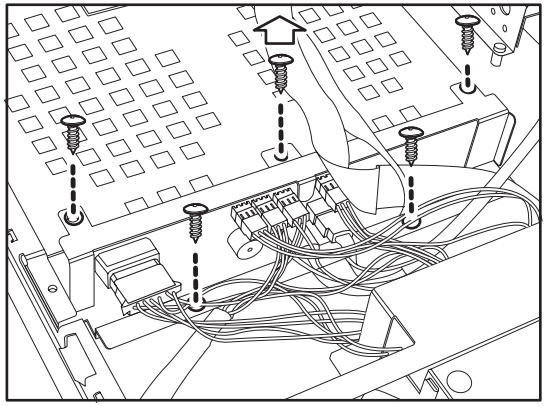
Note: This section appllies to B5102G21S2H model only.

1. Remove the 2 screws securing the metal retaining plate to the chassis and lift the retaining plate free.

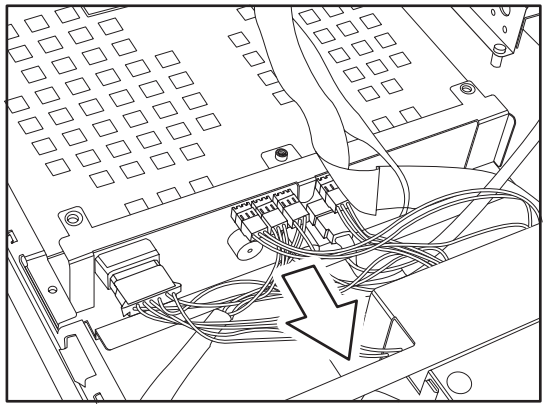


2. Remove the cables from the rear of the S-ATA back plane.

3. Remove the 5 screws that secure the backplane bracket to the chassis.

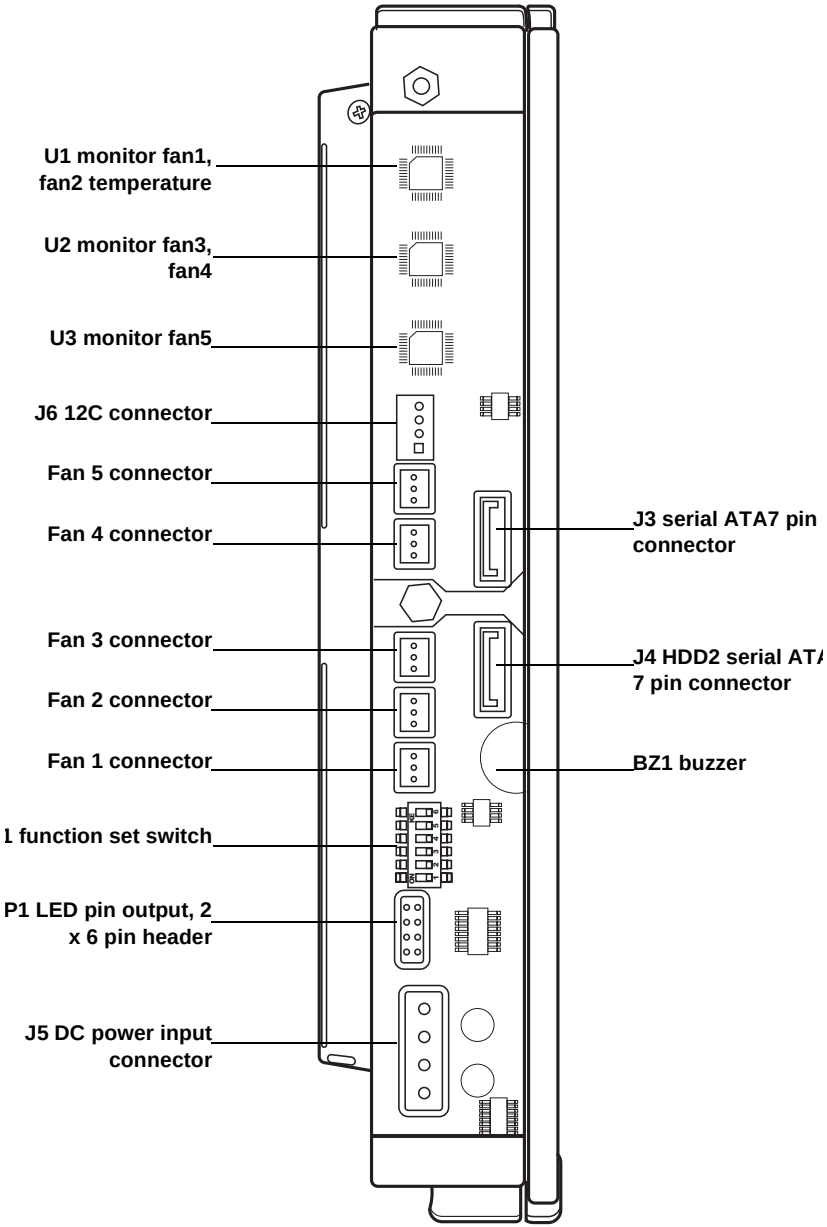


4. Lift the backplane bracket free from the chassis as shown



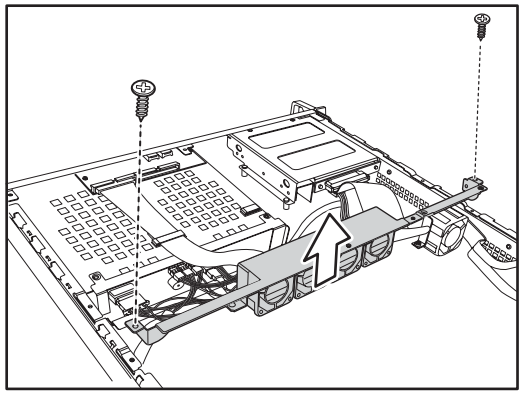
3.8 Replacing the S-ATA Backplane

3.8.1 2 Port S-ATA Backplane Features

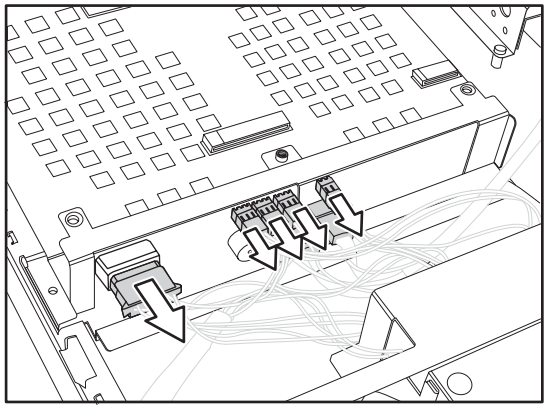


3.9 Replacing the Power Supply

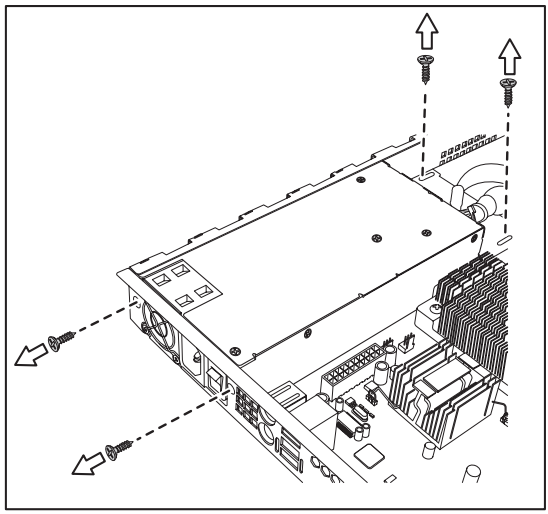
1. Remove the 4 screws that secure the fan assembly to the chassis.



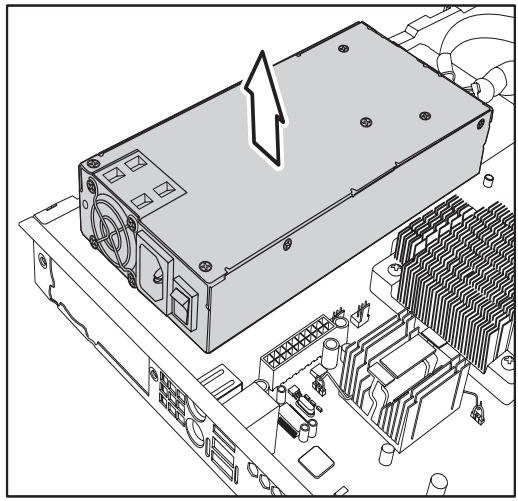
2. Lift the fan assembly clear to give access to the power supply cables.
3. Remove power cables from the motherboard, HDDs and FDD if installed.



4. Remove the 2 screws from the mounting bracket that secure the power supply to the chassis.



5. Remove the 2 screws from the power supply rear bracket that secure it to the chassis.
6. Lift the power supply clear of the chassis.



7. Remove the 2 screws that secure the power supply bracket to the power supply and remove the bracket.

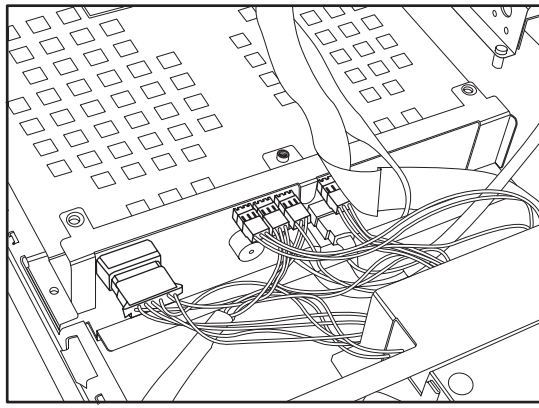
3.10 Replacing the Cooling Fans

Follow these instructions to replace the cooling fans.

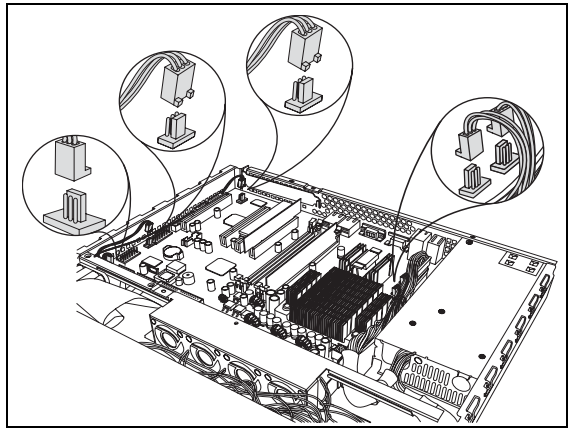
1. Remove all the cooling fan power supply cables.

Note: Cooling fan power supply cables are connected to the motherboard in the B5102G21S2 model, and to the S-ATA back-plane in the B5102G21S2H model. Refer to the following diagrams for details.

B5102G21S2H cooling fan power supply connections:



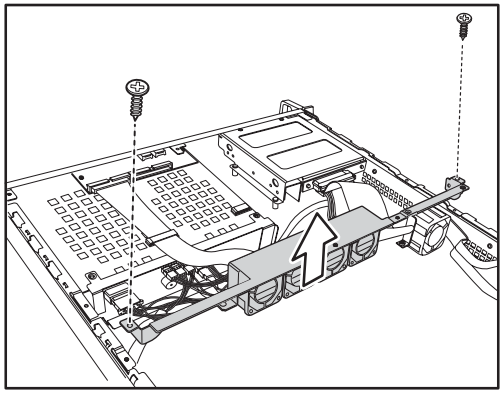
B5102G21S2 cooling fan power supply connections:



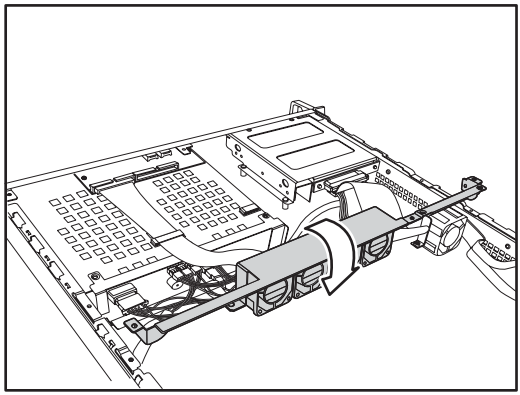
3.10 Replacing the Cooling Fans

Note: To lift the fan assembly clear of the chassis, you may find it necessary to remove the plastic cable ties which secure the fan cables.

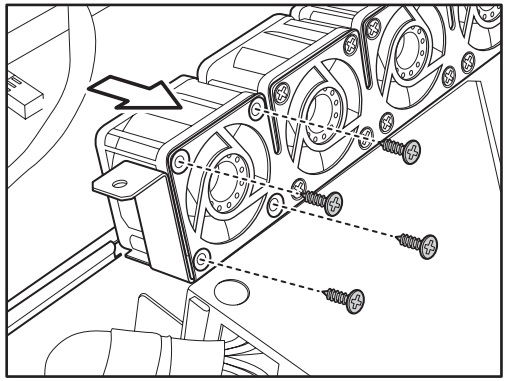
2. Remove the 2 screws which secure the cooling fan bracket to the chassis.



3. Lift the cooling fan assembly from the chassis.



4. Remove the 4 screws that secure each cooling fan to the cooling fan bracket.



5. Lift the cooling fan clear of the bracket.
6. Repeat step 5 until all the necessary cooling fans have been removed from the cooling fan bracket.

3.10 Replacing the Cooling Fans

Appendix

BIOS Setup

Installation

The BIOS is the basic input/output system, the firmware on the motherboard that enables your hardware to interface with your software. The BIOS determines what a computer can do without accessing programs from a disk. The BIOS contains all the code required to control the keyboard, display screen, disk drives, serial communications, and a number of miscellaneous functions. This chapter describes the various BIOS settings that can be used to configure your system.

The BIOS section of this manual is subject to change without notice and is provided for reference purposes only. The settings and configurations of the BIOS are current at the time of print and are subject to change, and therefore may not match exactly what is displayed on screen.

This section describes the BIOS setup program. The setup program lets you modify basic configuration settings. The settings are then stored in a dedicated, battery-backed memory (called NVRAM) that retains the information even when the power is turned off.

This motherboard's BIOS is a customized version of the industry-standard BIOS for IBM PC AT-compatible personal computers. The BIOS provides critical, low-level support for the system's central processing unit (CPU), memory, and I/O subsystems.

This BIOS has been customized by adding important features such as virus and password protection, power management, and chipset "tuning" features that control the system. This section will guide you through the process of configuring the BIOS for your system setup.

Starting Setup

The BIOS is immediately activated when you turn on the computer. The BIOS reads system configuration in CMOS RAM and begins the process of checking the system and configuring it through the Power-On-Self-Test (POST).

When the preliminary tests are complete, the BIOS searches for an operating system on one of the system's data storage devices (hard drive, CD-ROM, etc). If an operating system is found, the BIOS will launch that operating system and hand over control to it. You can enter the BIOS setup by pressing the [**Delete**] key when the machine boots up and begins to show the memory count.

Setup Basics

The table below shows how to navigate the setup program using the keyboard.

Table 1: Navigation Keys

Key	Function
Tab	Moves from one selection to the next
Left/Right Arrow Keys	Change from one menu to the next
Up/Down Arrow Keys	Move between selections
Enter	Opens highlighted section
PgUp/PgDn Keys	Change settings.

Getting Help

Pressing [**F1**] will display a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press [**ESC**] or the [**F1**] key again.

In Case of Problems

If you have trouble booting your computer after making and saving the changes with the BIOS setup program, you can restart the computer by holding the power button down until the computer shuts off (usually within 4 seconds); resetting by pressing CTRL-ALT-DEL; or clearing the CMOS.

The best advice is to only alter settings that you thoroughly understand. In particular, do not change settings in the Chipset section unless you are absolutely sure of what you are doing. The Chipset defaults have been carefully chosen either by TYAN or your system manufacturer for best performance and reliability. Even a seemingly small change to the Chipset setup options may cause the system to become unstable or unusable.

Differences in Setup

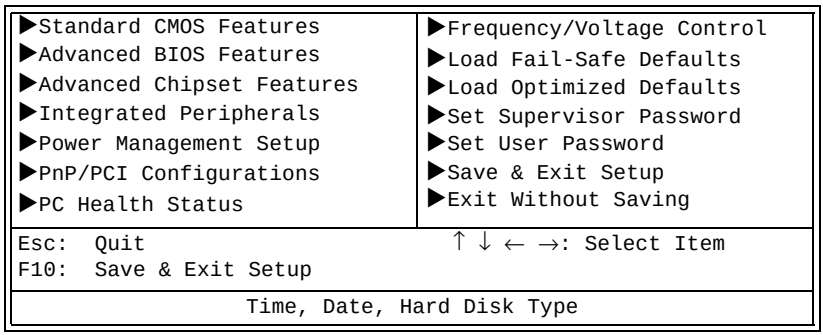
Not all systems will have the same BIOS setup layout or options. While the basic look and function of the BIOS setup remains more or less the same for most systems, the appearance of your Setup screen may differ from the charts shown in this document. Each system design and chipset combination requires a custom configuration. In addition, the final appearance of the Setup program depends on the system designer. Your system designer may decide that certain items should not be available for user configuration, and may remove them from the BIOS setup program.

Note: On the following pages, options written in bold type represent the BIOS Setup default.

BIOS Setup - Main Screen

The Phoenix - AwardBIOS CMOS Setup Utility main screen is displayed as follows:

Phoenix – AwardBIOS CMOS Setup Utility



Standard CMOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP / PCI Configuration

Use this menu to view and set PCI and PnP options.

PC Health Status

Use this menu to show your system temperature, speed and voltage status.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance settings for your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance of system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Supervisor / User Password

Use this menu to set User and Supervisor Passwords.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

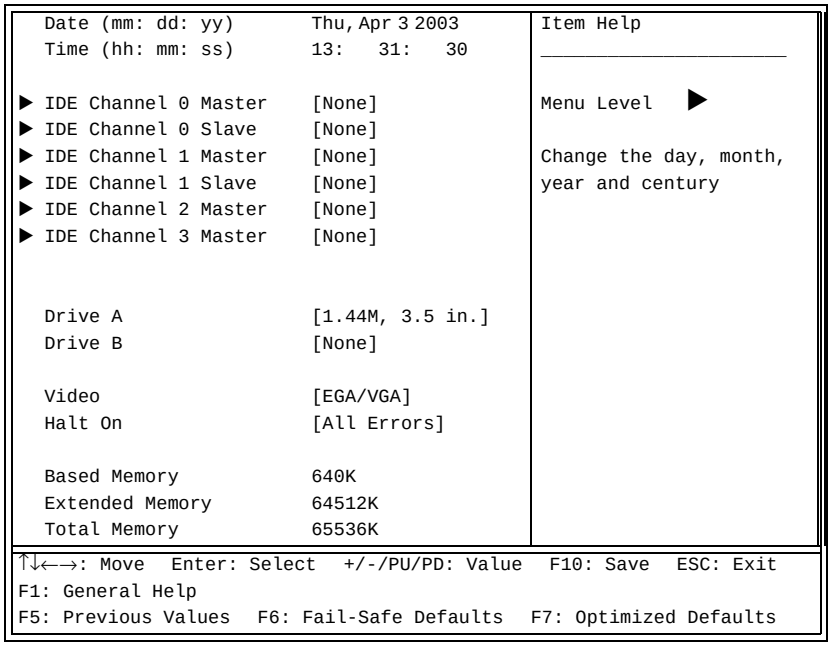
Exit Without Save

Abandon all CMOS value changes and exit setup.

Standard CMOS Features

In this section, you can alter general features such as the date and time, as well as access to the IDE configuration options. Note that the options listed below are for settings that can be directly changed within the Main Setup screen. You can use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Phoenix – AwardBIOS CMOS Setup Utility
Standard CMOS Features



Date / Time Setup

System Date: Adjusts the system date.

MMMonths

DDDays

YYYYYears

System Time: Adjusts the system clock.

HHHours (24hr. format)

MMMinutes

SSSeconds

IDE Master / Slave Setup

With this option the computer detects IDE drive types from drive C to drive F. The choices are:

*None / **Auto** / Manual*

Drive A / B:

This option defines the floppy drive type. The choices are:

*None / 360K, 5.25in / 1.2M, 5.25in / 720K, 3.5in / **1.44M, 3.5in** / 2.88M, 3.5in*

Video:

This option defines the video display mode. The choices are:

***EGA/VGA** / CGA 40 / CGA 80 / MONO*

Halt On:

This option determines whether the computer should stop booting when an error is detected during power up. The choices are:

*No Errors / **All Errors** / All, But Keyboard / All, But Diskette / All, But Disk/Key*

Advanced BIOS Features

In this section, you can fine tune features that affect system speed and boot-up options.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced BIOS Features

Virus Warning	[Disabled]	
CPU L1 & L2 Cache	[Enabled]	Item Help
Hyper-Threading Technology	[Enabled]	
Quick Power On Self Test	[Enabled]	Menu Level ▶
▶Boot Sequence	[Press Enter]	
Boot Up NumLock Status	[On]	Allow you to choose
Gate A20 Option	[Fast]	the VIRUS warning
Typematic Rate Setting	[Disabled]	feature for IDE Hard
X Typematic Rate (Chars/Sec)	6	Disk boot sector
X Typematic Delay (Msec)	250	protection. If this
Security Option	[Setup]	function is enabled
APIC Mode	[Enabled]	and someone attempt
MPS Version Control For OS	[1.4]	to write data into
OS Select For DRAM > 64MB	[Non-OS2]	this area, BIOS will
HDD S.M.A.R.T Capability	[Disabled]	show a warning
Report No FDD For WIN 95	[No]	message on screen
Small Logo (EPA) Show	[Disabled]	and alarm beep

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Virus Warning

This option toggles virus protection on or off for boot sector writes. If this function is enabled, the BIOS will display a warning message on screen and then beep an alarm, if there is an attempt to write data to the boot sector of the IDE hard drive. The choices are:

Disabled */ Auto*

CPU L1 & L2 Cache

This option toggles the use of CPU L1 and L2 cache. The L1 cache is also called the primary cache or internal cache and is built into the processor. The L2 cache also called as the external cache, is placed between the CPU and the DRAM (dynamic RAM). A memory cache, sometimes called a cache store or RAM cache, is a portion of memory made of high-speed static RAM (SRAM) instead of the slower and cheaper dynamic RAM (DRAM) used for main memory. These caches

store frequently accessed instructions and data. Memory caching is effective because most programs access the same data or instructions over and over. By keeping as much of this information as possible in SRAM, the computer avoids accessing the slower DRAM. The choices are:

Enabled */ Disabled*

Hyper-Threading Technology

This option allows you to enable or disable Hyper-Threading Technology. Hyper-Threading Technology is a form of simultaneous multi-threading technology (SMT) where multiple threads of software applications can be run simultaneously on one processor. This is achieved by duplicating the architectural state on each processor, while sharing one set of processor execution resources. Hyper-Threading Technology also delivers faster response times for multi-tasking workload environments. By allowing the processor to use on-die resources that would otherwise have been idle, Hyper-Threading Technology provides a performance boost on multi-threading and multi-tasking operations. The choices are:

Enabled */ Disabled*

Note: Hyper-Threading Technology is applicable only for Intel processors. It does not apply to any other processor including AMD.

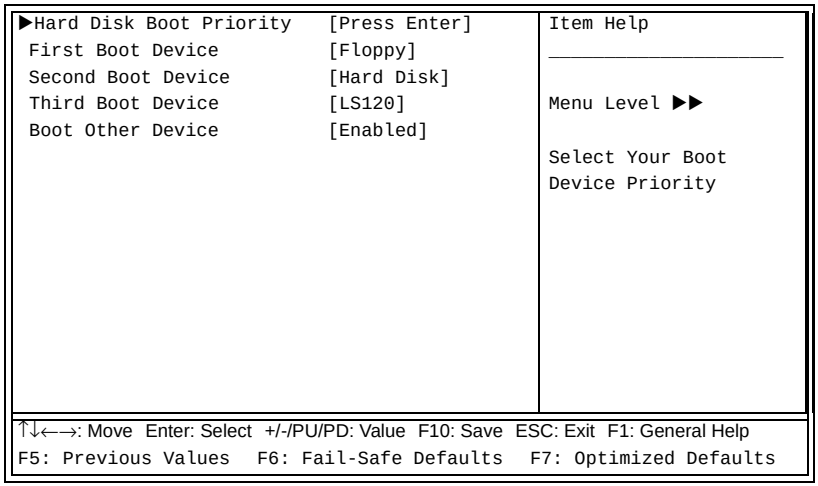
Quick Power On Self Test

This option allows the system to skip self tests (POST) for faster startup. The choices are:

Enabled */ Disabled*

Boot Sequence

This setting controls the order that the BIOS uses to look for a boot device from which to load the operating system during the boot process. The boot sequence options are shown below:



Set the boot priority of the system. For example in the figure shown above, the First Boot Device is set to Floppy, the Second Boot Device to Hard Disk and the third Boot Device to LS120 drive.

The BIOS searches the Floppy Drive, Hard Disk and the LS120 drive in that order, looking for an Operating System to load.

Bootup NumLock Status

This option, when enabled, automatically turns on your NumLock key when the system is booted. This is a matter of personal taste.The choices are:

On*/Off*

Gate A20 Option

This feature determines how Gate A20 is used to address memory above 1MB. When this option is set to Fast, the motherboard chipset controls the operation of Gate A20. But when set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves memory access speed and thus, overall system speed, especially with OS/2 and Windows.

This is because OS/2 and Windows enter and leave protected mode via the BIOS, so Gate A20 needs to switch often from enabled to disabled and back again. Setting this feature to Fast improves memory access performance above 1MB because the chipset is much faster at switching Gate A20 than the keyboard controller. It is recommended that you set it to Fast for faster memory accesses. The choices are:

*Normal / **Fast***

Typematic Rate Setting

This feature enables you to control the keystroke repeat rate when you depress a key continuously. When enabled, you can manually adjust the settings using the two typematic controls (Typematic Rate and Typematic Delay). If disabled, the BIOS will use the default setting. The choices are:

*Enabled/**Disable***

Typematic Rate (Chars/Sec)

This setting defines the number of characters repeated per second when holding down a key on the keyboard. The possible values are:

***6** / 8 / 10 / 12 / 15 / 20 / 24 / 30*

Typematic Delay (Msec)

This setting defines the delay (in milli-seconds) that occurs at keystroke before the key will start to repeat. The possible values are:

***250** / 500 / 750/ 1000*

Security Option

Setting this option to System will set the BIOS to ask for the password each time the system boots up.

If you choose Setup, then the password is only required for access into the BIOS setup menus. The choices are:

***Setup** / System*

APIC Mode

This option allows you to enable or disable Advanced Programmable Interrupt Controller (APIC) Mode. APIC mode provides multi-processor interrupt management and incorporates both static and dynamic symmetric interrupt distribution across all processors. In systems with multiple I/O subsystems, each subsystem can have its own set of interrupts. Each interrupt pin is individually programmable as either edge or level triggered. The interrupt vector and interrupt steering information can be specified per interrupt. An indirect register accessing scheme optimizes the memory space needed to access the I/O APIC's internal registers. To increase system flexibility when assigning memory space usage, the I/O APIC's two-register memory space is re-locatable. The choices are:

Enabled */ Disabled*

Note: Once the operating system is installed, such as Windows XP, this setting cannot be changed without reinstalling the operating system, regardless of whether the initial setting is Disabled or Enabled.

MPS Version Control For OS

This feature is only applicable to multiprocessor motherboards as it specifies the version of the Multi-Processor Specification (MPS) that the motherboard will use. The MPS is a specification by which PC manufacturers design and build Intel architecture systems with two or more processors.

MPS 1.1 was the original specification. MPS version 1.4 adds extended configuration tables for improved support of multiple PCI bus configurations and greater expandability in the future. In addition, MPS 1.4 introduces support for a secondary PCI bus without requiring a PCI bridge.

Select the APIC mode depending on the operating system installed: select 1.1 for Win NT 3.52, and 1.4 for Win NT4.0, Win2000 and WinXP etc. The choices are:

1.4 */ 1.1*

Note: This option cannot be changed if the APIC Mode is set to Disabled.

OS Select For DRAM > 64MB

This BIOS feature determines how systems with more than 64MB of memory are managed. A wrong setting can cause problems like erroneous memory detection.

If you are using an older version of the IBM OS/2 operating system, you should select OS/2.

If you are using the IBM OS/2 Warp v3.0 or higher operating system, you should select Non-OS/2.

If you are using an older version of the IBM OS/2 operating system but have already installed all the relevant IBM Fix-Paks, you should select Non-OS/2.

Users of non-OS/2 operating systems (like Microsoft Windows XP) should select the Non-OS2 option. The choices are:

Non-OS2 */ OS2*

HDD S.M.A.R.T. Capability

This BIOS feature controls support for the hard disk's S.M.A.R.T. (Self Monitoring Analysis and Reporting Technology) capability.

S.M.A.R.T. is supported by all current hard disks and it allows the early prediction and warning of impending hard disk disasters. You should enable it if you want to use S.M.A.R.T.-aware utilities to monitor the hard disk's condition. Enabling it also allows the monitoring of the hard disk's condition over a network.

While S.M.A.R.T. looks like a really great safety feature, it isn't really that useful or even necessary for most users. For S.M.A.R.T. to work, it is not just a matter of enabling it in the BIOS. You must also keep a S.M.A.R.T.-aware hardware monitoring utility running in the background all the time.

This is okay if the hard disk you are using has a spotty reputation and you need advanced warning of any impending failure. However, hard disks these days are mostly reliable enough to make S.M.A.R.T. redundant. Unless you are running mission-critical applications, it is very unlikely that S.M.A.R.T. will be of any use at all.

S.M.A.R.T. is still useful in providing some protection against data loss by continuously monitoring hard disks for signs of

impending failure. If you have critical or irreplaceable data, you should enable this BIOS feature and use S.M.A.R.T.-aware hardware monitoring software. Even with S.M.A.R.T. enabled, we recommend that regular backups are made. For best performance, set this option to Disabled. The choices are:

Enabled */ Disabled*

Report No FDD For WIN 95

Set this option to Yes if you are using Windows 95/98 without a floppy to release IRQ6 (this is required to pass Windows 95/98's SCT test and get the logo). The choices are:

No */ Yes*

Small Logo (EPA) Show

This option toggles the display of the EPA Energy Star logo at POST. The choices are:

Enabled / ***Disabled***

Advanced Chipsets Features

This section describes advanced chipset features.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Timing Selectable	[By SPD]	Item Help
CAS Latency Time	[2]	
Active to Precharge Delay	[8]	Menu Level ▶
DRAM RAS# to CAS# Delay	[4]	
DRAM RAS# Precharge	[4]	
System BIOS Cacheable	[Enabled]	
Video BIOS Cacheable	[Disabled]	
Delay Prior to Thermal	[16 Min]	
DRAM Data Integrity Mode	[ECC]	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

DRAM Timing Selectable

This option permits you to either manually select memory timings, or allow the SPD (Serial Presence Detect) to determine the said timings automatically. The choices are:

*Manual / **By SPD***

Note: On all memory timing settings, a lower number is more aggressive.

CAS Latency Time

This setting controls the time delay (in clock cycles - CLKs) that passes before the DRAM starts to carry out a read command after receiving it. This also determines the number of CLKs for the completion of the first part of a burst transfer. In other words, the lower the latency, the faster the transaction. The possible values are:

***2** / 2.5 / 3*

Active to Precharge Delay

This setting is the number of clock cycles needed after a bank active command before a precharge can occur. The possible values are:

8 */ 7 / 6 / 5*

DRAM RAS# to CAS# Delay

This setting is the number of cycles from when a bank activate command is issued until a read or write command is accepted, that is, before the CAS becomes active. The possible values are:

4 */ 3 / 2*

DRAM RAS# Precharge

This setting is the number of cycles needed to return data to its original location to close the bank or number of cycles to page memory before the next bank activate command can be issued. The possible values are:

4 */ 3 / 2*

System BIOS Cacheable

Enabling this option will cause the BIOS code from ROM to be copied on to the much faster RAM at location F0000h-FFFFFh, thus increasing system performance. However, if any program writes to this memory area, a system error may result. The choices are:

Disabled */ Enabled*

VIDEO BIOS Cacheable

Enabling this option will cause the VIDEO BIOS code from the video adapter's ROM to be copied on to the much faster RAM, thus increasing system performance. However, if any program writes to this memory area, a system error may result. The choices are:

Disabled */ Enabled*

Delay Prior to Thermal

This BIOS feature is only valid for systems that are powered by 0.13µ Intel Pentium 4 processors with 512KB L2 cache. These processors come with a Thermal Monitor which consists of an on-die thermal sensor and a Thermal Control Circuit (TCC).

When the Thermal Monitor is in automatic mode and the thermal sensor detects that the processor has reached its maximum safe operating temperature, it will activate the TCC. The TCC will then modulate the clock cycles by inserting null cycles, typically at a rate of 50-70% of the total number of clock cycles. This results in the processor "resting" for 50-70% of the time.

As the die temperature drops, the TCC will gradually reduce the number of null cycles until no more is required to keep the die temperature below the safe point. Then the thermal sensor turns the TCC off. This mechanism allows the processor to dynamically adjust its duty cycles to ensure its die temperature remains within safe limits.

The Delay Prior To Thermal BIOS feature controls the activation of the Thermal Monitor's automatic mode. It allows you to determine when the Pentium 4's Thermal Monitor should be activated in automatic mode after the system boots. For example, with the default value of 16 Minutes, the BIOS activates the Thermal Monitor in automatic mode 16 minutes after the system starts booting up.

Generally, the Thermal Monitor should not be activated immediately on booting as the processor will be under a heavy load during the booting process. This causes a sharp rise in die temperature from its cold state. Because it takes time for the thermal output to radiate from the die to the heat sink, the thermal sensor will register the sudden spike in die temperature and prematurely activate the TCC. This unnecessarily reduces the processor's performance during the booting up process.

Therefore, to ensure optimal booting performance, the activation of the Thermal Monitor must be delayed for a set period of time.

It is recommended that you set this BIOS feature to the lowest value (in minutes) that exceeds the time it takes to fully

boot up your computer. For example, if it takes 5 minutes to fully boot up your system, you should select 8 Minutes.

You should not select a delay value that is unnecessarily long. Without the Thermal Monitor, your processor may heat up to a critical temperature (approximately 135°C), at which point the thermal sensor shuts down your processor by removing the core voltage within 0.5 seconds. The possible values are:

***4 min**/ 8 min / 16 min / 32 min*

DRAM Data Integrity Mode

This BIOS feature controls the ECC feature of the memory controller.

ECC, which stands for Error Checking and Correction, enables the memory controller to detect and correct single-bit soft memory errors. The memory controller will also be able to detect double-bit errors although it will not be able to correct them. This provides increased data integrity and system stability. However, this feature can only be enabled if you are using special ECC memory modules.

Because present day processors use 64-bit wide data paths, 72-bit (64-bit data + 8-bit ECC) ECC memory modules are required to implement ECC. Please note that the maximum data transfer rate of the 72-bit ECC memory module is the same as the 64-bit memory module. The extra 8-bits are only for the ECC code and do not carry any data. So, using 72-bit memory modules will not give you any boost in performance.

In fact, because the memory controller has to calculate the ECC code for every data word that is read or written, there will be some performance degradation, roughly in the region of 3-5%.

If you are using standard 64-bit memory modules, you must select the Non-ECC option.

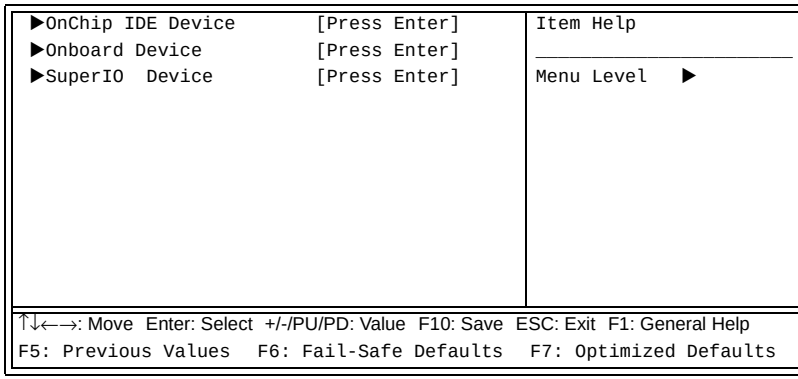
But if you have the 72-bit ECC memory modules, you should enable the ECC feature for greater stability and data integrity. The choices are:

***ECC** / Non-ECC*

Integrated Peripherals

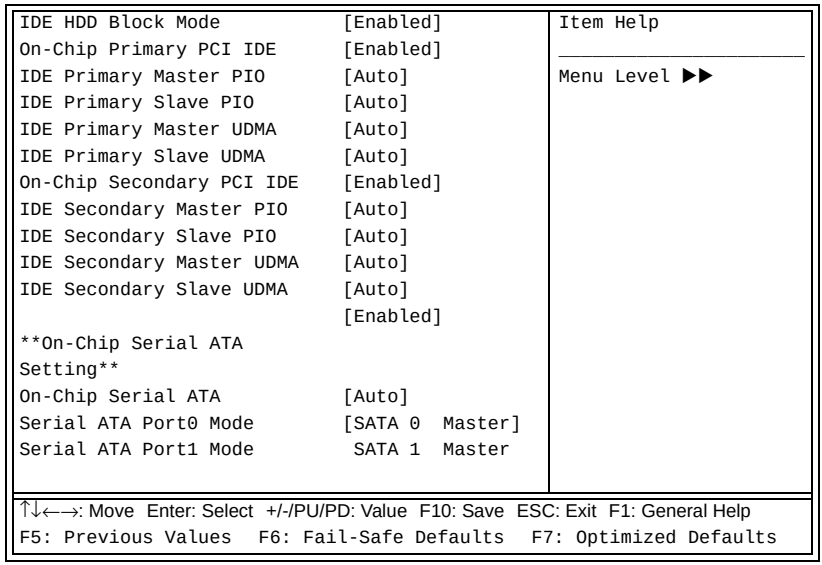
This section describes how to fine tune onboard peripheral features.

Phoenix – AwardBIOS CMOS Setup Utility
Integrated Peripherals



OnChip IDE Device

Phoenix – AwardBIOS CMOS Setup Utility
OnChip IDE Device



IDE HDD Block Mode

The IDE HDD Block Mode feature speeds up hard disk access by transferring data from multiple sectors at once instead of using the old single sector transfer mode. When you enable it, the BIOS will automatically detect if your hard disk supports block transfers and configure the proper block transfer settings for it. Up to 64KB of data can be transferred per interrupt with IDE HDD Block Mode enabled.

If you disable IDE HDD Block Mode, only 512 bytes of data can transferred per interrupt. This degrades performance quite a bit. For optimal performance, enable this option. The choices are:

Enabled */ Disabled*

Note: Microsoft recommends that WinNT 4.0 users without Service Pack 2 disable IDE HDD Block Mode as it causes data corruption.

On-Chip Primary PCI IDE

IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship which is determined by the cabling configuration used to attach them to the controller. Your system supports two IDE controllers-- a primary and a secondary-- so, up to four separate hard disks can be installed.

PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. This is simpler and more efficient (and faster).

Your system includes two built-in IDE controllers, both of which operate on the PCI bus. This setup item allows you either to enable or disable the primary controller. You might choose to disable the controller if you were to add a higher performance or specialized controller. The choices are:

Enabled */ Disabled*

Primary / Secondary Master/ Slave PIO

The four IDE PIO (Programmed Input / Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The choices are:

Auto */ Mode 0 / Mode 1 / Mode 2 / Mode 3 / Mode 4*

Primary / Secondary Master/ Slave UDMA

This option allows you to select the mode of operation for the Ultra DMA/33 implementation. This is possible only if your IDE hard drive supports UDMA and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). UDMA (Ultra DMA) is advanced technology that provides for even faster throughput, up to 33.3 MB/s in UDMA mode 2 and 66.7 MB/s in UDMA mode 4, twice to four times that of EIDE, for much lower prices than SCSI. Many new computers come with large UDMA drives and UDMA interfaces, and it's possible to add a UDMA interface card (such as the Promise Ultra33 or Ultra66) to an existing system to boost speed, even on older non-UDMA drives. If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support. The choices are:

Auto */ Disabled*

On-Chip Serial ATA

The integrated peripheral controller contains a S-ATA interface with support for two S-ATA channels. Serial ATA is a point-to-point connection and allows multiple ports to be aggregated to a single controller typically located either on the motherboard or an add-in RAID card. Through backplanes and external enclosures, Serial ATA can be deployed in high-capacity server and networked-storage environments. Serial ATA technology can deliver 1.5 Gbps (150 MB/sec) to each drive within a disk drive array. Select “Enabled” to activate each channel separately. The choices are:

Enhanced Mode */ S-ATA Only*

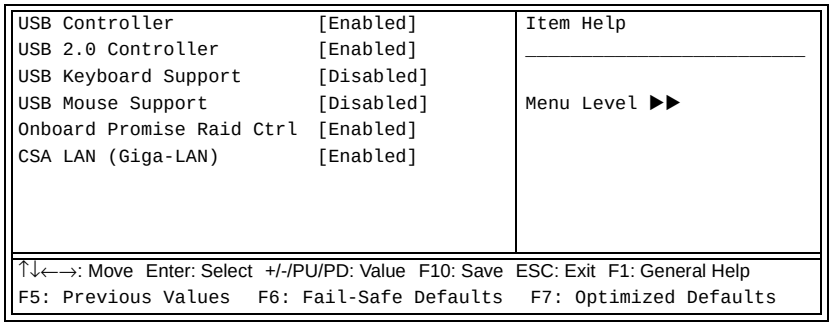
Serial ATA Port 0/1 Mode:

This item allows you to set S-ATA mode.

Primary Master */ Primary Slave / Secondary Master / Secondary Slave*

Onboard Device

Phoenix – AwardBIOS CMOS Setup Utility
Onboard Device



USB Controller

This option enables or disables IRQ allocation for the USB (Universal Serial Bus) controller. Enable this if you are using a USB device. If you disable this while using a USB device, you may have problems running that device. However, if you don't use any USB devices, set the option to Disabled. It will free up an IRQ for other devices to use. The choices are:

Enabled */ Disabled / 1&2 USB Port / 2&3 USB Port / 1&3 USB Port / 1 Port / 2 Port / 3 Port*

Note: This option is for the older USB 1.1 specification

USB 2.0 Controller

This option enables or disables IRQ allocation for the USB 2 (Universal Serial Bus - Specification 2.0) controller. Enable this if you are using a USB 2 device. If you disable this while using a USB 2 device, you may have problems running that device. However, if you don't use any USB 2 devices, set the

option to Disabled. It will free up an IRQ for other devices to use. The choices are:

Enabled */ Disabled*

Note: USB 2.0 has a throughput of 480 Mbps (40 times faster than USB 1.1) and is fully backward compatible with USB 1.1

USB Keyboard Support

Set this option to enabled if your system has a USB controller (including USB 2.0) and a USB keyboard. The choices are:

Enabled / ***Disabled***

USB Mouse Support

Set this option to enabled if your system has a USB controller (including USB 2.0) and a USB mouse. The choices are:

Enabled / ***Disabled***

Onboard Promise RAID Ctrl

This option allows you to enable or disable the onboard Promise Raid Controller function. RAID - Redundant Array of Independent (or Inexpensive) Disks is a category of disk drives that employ two or more drives in combination for fault tolerance and performance. RAID disk drives are used frequently on servers. The choices are:

Enabled */ Disabled*

CSA LAN (GbE LAN)

This option allows you to enable or disable CSA LAN GbE-LAN function. Communication Streaming Architecture (CSA) reduces PCI bottlenecks and increases throughput by off-loading network traffic from the PCI bus. With CSA-based motherboards, network data can be transferred at a very high rate with lower latency. CSA has also twice the bandwidth (2Gbps) of a PCI32 bus (1Gbps).This new interface performs networking tasks more efficiently, achieves bi-directional gigabit speeds and eliminates network traffic through the PCI bus. The choices are:

Enabled */ Disabled*

Super IO Controller

Phoenix – AwardBIOS CMOS Setup Utility
Super IO Device

Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8 / IRQ4]	_____
Onboard Serial Port 2	[2F8 / IRQ3]	
UART Mode Select	[Normal]	Menu Level ▶▶
RxD, TxD Active	[Hi, Lo]	
IR Transmission Delay	[Enabled]	
UR2 Duplex Mode	[Half]	
Onboard Parallel Port	[378 / IRQ7]	
Parallel Port Mode	[SPP]	
EPP Mode Select	[EPP1.7]	
ECP Mode Use DMA	[3]	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Onboard FDC Controller

Set this option to enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install an add-in FDC or if the system has no floppy drive, set this option to disabled. The choices are:

Enabled */ Disabled*

Onboard Serial Port 1 / 2

To use the first and second serial ports on the system, select an address and corresponding interrupt for the first and second serial ports. The possible values are:

3F8/IRQ4 */ 2E8/IRQ3 / 3E8/IRQ4 / 2F8/IRQ3 / Disabled / Auto*

UART Mode Select

This option allows the second serial port to be used either as a normal serial port or as an infrared port. Select Normal for a normal serial port. The choices are:

Normal */ IrDA and ASKIR*

The available modes are as follows:

- **ASKIR** - The ASKIR setting allows infrared serial communication at a maximum baud rate of 56K baud.
- **HPSIR** - The HPSIR setting allows infrared serial communication at a maximum baud rate of 115K baud.
- **FIR** - The FIR (Fast IR) setting allows infrared serial communication at a maximum baud rate of 4M baud.
- **Normal** - Sets serial port 2 to operate in normal mode. This is the default setting.

RxD, TxD Active

This BIOS feature allows you to set the infra-red reception (RxD) and transmission (TxD) polarity and is linked to the second serial port. If you disable the second serial port, this feature will not be available.

There are four options available, based on combinations of Hi and Lo. You will need to consult your IR peripheral's documentation to determine the correct polarity. Choosing the wrong polarity will prevent a proper IR connection from being established with the IR peripheral. The choices are:

*Hi, Hi / **Hi, Lo** / Lo, Hi / Lo, Lo*

IR Transmission Delay

Enabling this option introduces a 4 character delay when SIR is changed from TX mode to RX mode. The choices are:

***Enabled** / Disabled*

UR2 Duplex Mode

This setting defines whether the IR port should operate in full duplex or half duplex mode. In full duplex mode, the IR port can receive and transmit at the same time. In half duplex mode, the IR port can either receive or transmit but cannot do both at the same time. Full duplex allows for better and faster communication. The choices are:

***Half** / Full*

Onboard Parallel Port

To use the parallel port on the system, select an address and corresponding interrupt for the parallel port. The possible values are:

378/IRQ7 */ 278/IRQ5 / 3BC/IRQ7 / Disabled*

Parallel Port Mode

This option allows the user to select the parallel port mode. This is linked to the parallel port so if you disable the parallel port, this feature will not appear or will appear greyed out.

There are four options. The default value is Normal (SPP) which will work with all parallel port devices. However, it is the slowest transfer mode and should only be used when faster transfer modes cannot be used.

There are two faster bidirectional modes available - the ECP (Extended Capabilities Port) and EPP (Enhanced Parallel Port) modes. ECP uses the DMA protocol to achieve data transfer rates of up to 2.5Mbits/s and provides symmetric bidirectional communication. On the other hand, EPP uses existing parallel port signals to provide asymmetric bidirectional communication.

Generally, because of its FIFOs and the DMA channel it uses, ECP is good for large data transfers (useful for scanners and printers). On the other hand, EPP is better with links that switch directions frequently (like parallel port drives).

However, the manufacturer of your parallel port peripheral may have designated a preferred parallel port mode for the device in question. In that case, it's best to follow their recommendation.

For those who don't know what mode to select but at least know that their parallel port device supports bidirectional transfers, the BIOS offers the ECP+EPP mode. If you select this mode, then the parallel port device will be able to use either one of those modes. However, this should be considered as a last resort as you may be needlessly tying up an IRQ for nothing if your device does not use ECP at all. Or, the BIOS may not select the best parallel port mode for the device. If possible, set the parallel port to the transfer mode that best suits your parallel port device. The choices are:

SPP */ EPP / ECP / ECP+EPP*

EPP Mode Select

There are two versions of the EPP transfer protocol - EPP 1.7 and EPP 1.9. This BIOS feature allows you to select the version of EPP that the parallel port should use.

Generally, EPP 1.9 is the preferred setting because it supports the newer EPP 1.9 devices and most EPP 1.7 devices; and offers advantages like support for longer cables. However, because certain EPP 1.7 devices cannot work properly with an EPP 1.9 port, this BIOS feature was implemented to allow you to set the EPP mode to EPP 1.7 when such an issue ocurrs.

Therefore, it is recommended that you set this BIOS feature to EPP 1.9. But if you have trouble connecting to your parallel port device, switch to EPP 1.7. The choices are:

*EPP1.9 / **EPP1.7***

ECP Mode Use DMA

This BIOS feature determines which DMA channel the parallel port should use when it is in ECP mode.

The ECP mode uses the DMA protocol to achieve data transfer rates of up to 2.5 Mbits/s and provides symmetric bidirectional communications. For all this, it requires the use of a DMA channel.

By default, the parallel port uses DMA Channel 3 when it is in ECP mode. This works fine in most situations.

This feature is provided just in case one of your add-on cards requires the use of DMA Channel 3. In such a case, you can use this BIOS feature to force the parallel port to use the alternate DMA Channel 1.

Please note that there is no performance advantage in choosing DMA Channel 3 over DMA Channel 1 or vice versa. As long as either Channel 3 or Channel 1 is available for your parallel port to use, the parallel port will be able to function properly in ECP mode. The choices are:

*DMA1 / **DMA3***

Power Management Setup

This section describes power management setup options.

Phoenix – AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	[Enabled]	Item Help
Power Management	[User Define]	_____
Video Off Method	[DPMS]	
Video Off In Suspend	[Yes]	Menu Level ▶
Suspend Type	[Stop Grant]	
MODEN Use IRQ	[3]	
Suspend Mode	[Disabled]	
HDD Power Down	[Disabled]	
CPU THRM-Throttling	[50.0%]	
▶Power On Setup	[Press Enter]	
▶Reload Global Timer Events	[Press Enter]	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

ACPI Function

If your system supports ACPI, then enable this ACPI function. ACPI (Advanced Configuration and Power Interface) establishes industry-standard interfaces for OS-directed configuration and power management on laptops, desktops, and servers.

ACPI allows the Operating System (instead of the BIOS) to control Power Management (OSPM). The ACPI Standard defines hardware registers (which are implemented in chipset silicon), BIOS interfaces, which include configuration tables, control methods, and motherboard device enumeration and configuration; system and device power states, and the APCI thermal model.

All devices in the system can communicate with each other about resource use. The operating system has the most knowledge on a running system's state, and so is in the best position to perform power management. The choices are:

Enabled */ Disabled*

Power Management Option

This function allows you to set the default parameters of power-saving modes. Set this to User Define to choose your own parameters.The following table shows the parameters for Maximum Saving and Minimum Saving options for the various modes:

Table 2: Power Management Modes

Mode	Doze	Standby	Suspend	HDD Power Down
Min Saving	1 hour	1 hour	1 hour	15 min
Max Saving	1 min	1 min	1 min	1 min

The various choices are:

***User Define** / Maximum Saving / Minimum Saving*

Video Off Method

This option defines the method used to power off video. The various methods are:

- **Blank Screen:** The system BIOS will only send a blank screen when disabling video.
- **V/H SYNC + Blank:** In addition to Blank screen, the BIOS will also turn off the V-SYNC & H-SYNC signals from VGA cards to monitor.
- **DPMS:** Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association (VESA). Use the software supplied for your video subsystem to select video power management values.

The choices are:

***V/H SYNC+Blank** / Blank / DPMS*

Note: Green monitors detect the V/H SYNC signals to turn off their electron guns. It is important to realize that the CRT consumes the most power (several hundred watts) of any system. To really save energy, you must shut it down when not in use. Green monitors (also known as Energy Star monitors) reduce power usage by 90% without actually turing off the CRT. To make a green monitor function properly you MUST use Video Off Method = V/H Sync, because this tells the Green Monitor to shut down. If you incorrectly use the "Blank Screen" setting then you will just get a blank screen which still consumes 100% power. If you have a screensaver running, then you will not have CPU inactivity, and the standard BIOS options will not shut the CRT down ever. So, turn OFF your screensaver in the WINDOWS control panel, not in the BIOS.

Video Off In Suspend

This option defines the time frame in which the video will be disabled under current power management settings. The settings are:

- **Always On**: System BIOS will never turn off the screen.
- **Suspend => Off:** System BIOS turns of the screen when system is in SUSPEND mode.

The choices are:

*Always On / **Suspend** -> **Off***

Suspend Type

This option defines the system suspend type. The two suspend types are:

- **Power on Suspend:** If this is selected, the CPU will enter into Doze mode.
- **Stop Grant:** If this is selected, the CPU clock will enter into Sleep mode.

In both of these modes, the system activities are detected by monitoring the IRQ signals or I/O. The choices are:

Stop Grant*/ Power On Suspend*

MODEM Use IRQ

This setting allows you to select the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system. The possible values are:

*N/A / **3** / 4 / 5 / 7 / 9 / 10 / 11*

Suspend Mode

This option defines the method used to power off the system. The two methods are:

- **Standby Mode:** This mode is an intermediate level of system inactivity shutdown. In this mode, the processor slows down to an even lower activity level than doze mode, and the video and hard disk drives are powered down.
- **Sleep Mode:** This mode is the deepest level of system inactivity shutdown. In this mode all system devices are shutdown (except for any that the BIOS is specifically told to keep running) and the processor is shut down to a trickle mode.

The choices are:

Disabled */ Standby / Sleep*

HDD Power Down

Also known as Hard Disk Timeout or IDE Standby Power Down Mode, this setting allows automatic power down of IDE drives after a specified period of inactivity 10 minutes is a suggested minimum, to avoid undue wear and tear on the drive. The choices are:

***Disabled** / 1 minutes / 5 minutes / 10 minutes / 30 minutes / 45 minutes / 60 minutes*

CPU THRM-Throttling

This BIOS feature determines the clock speed of the processor when it is in the Suspend To RAM (STR) power saving mode. It has no effect when the processor is in normal active mode.

Available options for this BIOS feature are preset values of the processor's power consumption. They range from 12.5% to 87.5%. Please note that these options reflect the desired power consumption of the processor, not its clock speed. The clock speed of the processor will be determined based on the option chosen.

The default setting is usually 62.5%. This means the processor will be running at a clock speed that allows it to use 37.5% less power.

The choice of what you should set the processor to run at is really up to you. The lower the value, the more power you will save when the processor is in Suspend To RAM mode. Generally, it would be nice to minimize power consumption while in Suspend To RAM mode. The only potential drawback might be a slightly longer time required to bring the processor back to speed.

It is common for this BIOS feature to be mistaken as a BIOS control for the Pentium 4's Thermal Monitor feature. However, the clock throttling provided by this BIOS feature is completely different from the Pentium 4's Thermal Monitor feature. The possible values are:

*87.5% / 75.0% / **62.5%**/ 50.0%/ 25.3%/ 12.5%*

Power On Setup

Phoenix – AwardBIOS CMOS Setup Utility
Power On Setup

PWRON After PWR-Fail	[off]	Item Help
Soft-off by PWR-BTTN	[Instant-off]	_____
Wake-Up by PCI card	[Disabled]	
Power On by Ring	[Disabled]	Menu Level ▶▶
Power On by Giga Lan	[Disabled]	
Resume by Alarm	[Disabled]	
X Date (of Month) Alarm	0	
X Resume Time (hh: mm: ss)	0: 0: 0	
Power ON Function	[BUTTON ONLY]	
KB Power ON Password	[Enter]	
Hot key Power ON	[Ctrl-F1]	

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

PWRON After PWR-Fail

This option defines the state of the system when power fails and returns again. If On is selected, the system automatically switches on when power is resumed. If Former-Sts is selected, the system automatically switches on and restores itself to the state it was last in when power failed. The choices are:

On */ Off / Former- Sts (Former Status)*

Soft-off by PWR-BTTN

This option defines the time before the system powers off when you press the Power Button. The two choices are:

Instant off */ Delay 4 sec.*

Wake Up by PCI Card

If enabled, this option awakens the system from a soft off state with an input signal from PME on the PCI card. The choices are:

Enabled / ***Disabled***

Power on by Ring

If enabled, this option turns on the system when the modem is dialed into. The choices are:

*Enabled / **Disabled***

Power on by Giga Lan

If enabled, this option turns on the system by means of the on board Gigabit Lan function.

The choices are:

*Enabled / **Disabled***

Resume by Alarm

This option allows your system to turn on at a pre-selected time. The choices are:

*Enabled / **Disabled***

POWER ON Function

This BIOS feature allows you to select the method to turn on your computer.

By default, this feature is set to Button Only. This allows your computer to be started up only through the use of the power button or switch. Other available options are:

- A Keyboard 98-compatible keyboard (which may come with a wake-up button)
- A keyboard hot key (for non-Keyboard 98 keyboards)
- A mouse button (either the right or left button)
- By entering a power on password

If you select the Mouse Left option, the left button of the mouse will be used to start up the system. The Mouse Right option selects the right mouse button as the power on button instead.

Note: Please note that only PS/2 mice support the Mouse Left or Mouse Right options. Mice using serial or USB connections do not support this power on function.

The Keyboard 98 option will only work if you are using Windows 98 or better and have the appropriate keyboard. Then you can use the keyboard's wake-up or power-on button to start up the computer.

Older keyboards that do not conform to the Keyboard 98 standard and therefore do not have the special wake-up button can use the Hot Key option instead. There are twelve hot keys available: Ctrl-F1 to Ctrl-F12. Select the hot key you want and you will be able to start up the computer using that hot key.

There is no performance advantage in choosing any one of the options above. So, choose the option that you are most comfortable with. The possible values are:

*Password / Hot Key / Mouse left / Mouse Right / Any Key / **Button only**/ Keyboard 98*

KB Power ON Password

This option is enabled only when Password is used as a selection in the previous option. Use this item to install a power on password. The default Password is blank (Just press the Enter Key).

Hot Key Power ON

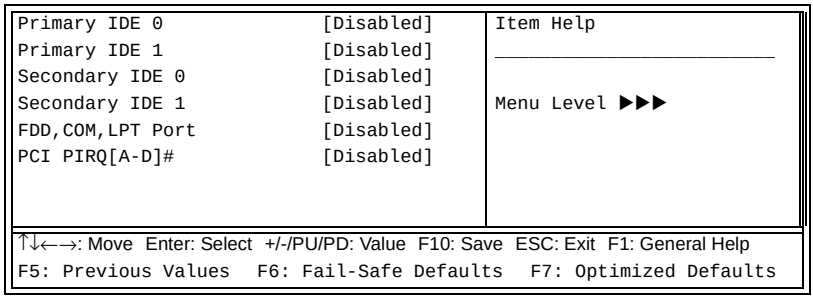
This option is enabled only when Hot Key is used as a selection in the previous option. Use this item to select a Power ON Hot Key. The choices are:

Ctrl – F1 / Ctrl-F2…..F12

Reload Global Timer Events

These options allows you to specify the events that will activate the power management timer.

Phoenix – AwardBIOS CMOS Setup Utility
Reload Global Timer Events



Reload Global Timer Events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as Enabled, even when the system is in a power down mode. The devices to which this option is applicable are:

- Primary IDE 0
- Primary IDE 1
- Secondary IDE 0
- Secondary IDE 1
- FDD, COM, LPT Port
- PCI PIPQ[A-D]

Note: Default: All disabled

PnP/PCI Configurations

This section allows configuring PnP/PCI resources.

Phoenix – AwardBIOS CMOS Setup Utility
PnP / PCI Configurations

Reset Configuration Data	[Disabled]	Item Help
Resources Controlled By	[Auto (ESCD)]	
X IRQ Resources	Press Enter	Menu Level ▶
PCI / VGA Palette Snoop	[Disabled]	Default is Disabled. Select Enabled to Reset Extended System Configuration Data ESCD> when you exit Setup if you have Installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
PCI Device list	[Enabled]	
PCI1 INT Assignment	[Auto]	
PCI2 INT Assignment	[Auto]	
PCI3 INT Assignment	[Auto]	
PCI4 INT Assignment	[Auto]	
CNR LAN INT	[Auto]	
Promise S-ATA INT	[Auto]	
Assignment	[Auto]	
Intel i541 INT Assignment		

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Reset Configuration Data

If you install a new piece of hardware or modify your computer's hardware configuration, the BIOS will automatically detect the changes and reconfigure the ESCD (Extended System Configuration Data). Therefore, there is usually no need to manually force the BIOS to reconfigure the ESCD.

However, the occasion may arise where the BIOS may not be able to detect the hardware changes. A serious resource conflict may occur and the operating system may not even boot as a result. This is where the Reset Configuration Data BIOS feature comes in.

This BIOS feature allows you to manually force the BIOS to clear the previously saved ESCD data and reconfigure the settings. All you need to do is enable this BIOS feature and then reboot your computer. The new ESCD should resolve the conflict and allow the operating system to load normally.

Please note that the BIOS will automatically reset it to the default setting of Disabled after reconfiguring the new ESCD. So, there is no need for you to manually disable this feature after rebooting. The choices are:

*Enabled / **Disabled***

Resources Controlled By

When this option is set to AUTO, the BIOS by using ESCD, controls the IRQ and DMA assignments of all of the boot and PNP devices in the system. If you set this option to Manual, you will be able to manually assign all IRQ and DMA information.The choices are:

*Manual / **Auto (ESCD)***

PCI / VGA Palette Snoop

This option is only useful if you use an MPEG card or an add-on card that makes use of the graphics card's Feature Connector. When enabled, it corrects incorrect color reproduction by "snooping" into the graphics card's framebuffer memory and modifying (synchronizing) the information delivered from the graphics card's Feature Connector to the MPEG or add-on card. It will also solve the problem of display inversion to a black screen after using the MPEG card. The choices are:

*Enabled / **Disabled***

PCI 1 INT Assignment

This setting defines the IRQ for the 1st PCI device. The possible values are:

***Auto** / 3 / 4 / 5 / 7 / 8 /11 / 12 /14 /15*

CNR LAN INT Assignment

This setting defines the IRQ for the CNR LAN device. The possible values are:

***Auto** / 3 / 4 / 5 / 7 / 8 /11 / 12 /14 /15*

Promise S-ATA INT Assignment:

This setting defines the IRQ for the Promise S-ATA device. The possible values are:

Auto */ 3 / 4 / 5 / 7 / 8 /11 / 12 /14 /15*

Intel i541 INT Assignment:

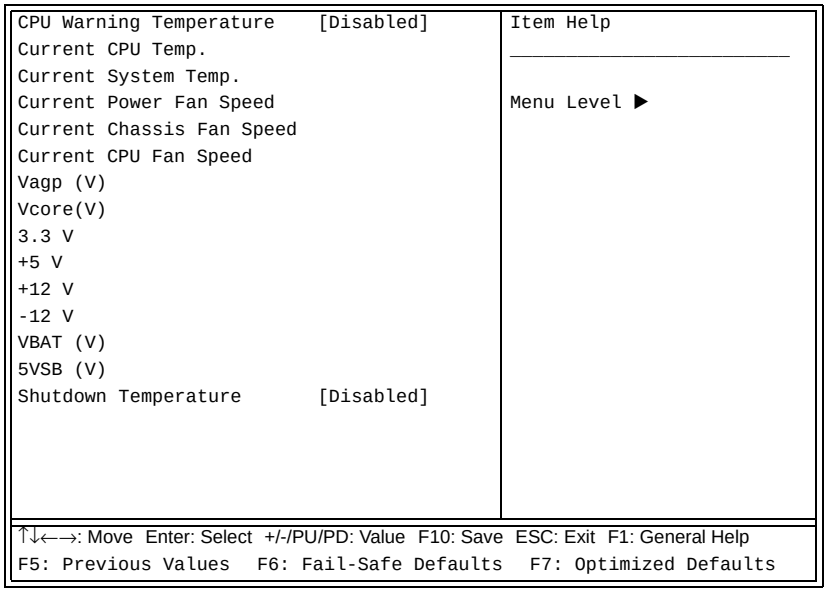
This setting defines the IRQ for the Intel i541 device. The possible values are:

Auto */ 3 / 4 / 5 / 7 / 8 /11 / 12 /14 /15*

PC Health Status

This section monitors critical parameters of your PC and can automatically shutdown the PC if the temperature of the processor exceeds the specified threshold value. This is only available if there is a Hardware Monitor onboard.

Phoenix – AwardBIOS CMOS Setup Utility
PC Health Status



CPU Warning Temperature

The CPU Warning Temperature setting allows for a threshold temperature to be set for safe CPU operation. If the temperature threshold is passed by the CPU, a warning alert sounds through the system speaker. The possible values are:

50°C, 122°F / … / 70°C, 158°F / ***Disabled*** *(Step by 3°C).*

Shutdown Temperature

The CPU Shutdown Temperature option allows for a user defined system shutdown temperature. If the CPU temperature exceeds the predefined shutdown threshold, the BIOS forces a system shutdown. The possible values are:

60°C, 140°F / 65°C, 149°F / 70°C, 158°F / 75°C, 167°F / ***Disabled***

Note: The onboard Winbond® 83627HF hardware monitoring ASIC automatically detects the system, motherboard and CPU temperature. It detects the CPU and chassis fan speeds in RPM. The hardware monitor ASIC also detects the voltage output through the voltage regulators.

Frequency/Voltage Control

This section facilitates controlling the CPU clock and frequency ratio.

Phoenix – AwardBIOS CMOS Setup Utility
Frequency / Voltage Control

CPU Clock Ratio	[12 X]	Item Help
Auto Detect PCI Clk	[Enabled]	_____
Spread Spectrum	[Disabled]	
		Menu Level ▶
CPU Clock	[133MHz]	
Memory Frequency for	[Auto]	
DDR Frequency at Next Boot		

↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

CPU Clock Ratio

The CPU clock ratio setting defines how fast the CPU clock runs relative to the bus speed. TYAN **does not recommend** changing this setting from the default setting. The possible values are:

*16X…22X / Auto / **Default***

Auto Detect DIMM / PCI Clk

This BIOS feature determines whether the BIOS should actively reduce EMI (Electromagnetic Interference) and reduce power consumption by turning off unoccupied or inactive expansion slots.

When enabled, the BIOS will monitor AGP, PCI and memory slots and turn off clock signals to all unoccupied and inactive slots.

When disabled, the BIOS will not monitor AGP, PCI and memory slots. All clock signals will remain active even to unoccupied or inactive slots.

It is recommended that you enable this feature to save power and reduce EMI.

The choices are:

*Enabled / **Disabled***

Spread Spectrum

This BIOS feature allows you to reduce the EMI of your motherboard by modulating the signals it generates so that the spikes are reduced to flatter curves. It achieves this by varying the frequency slightly so that the signal does not use any particular frequency for more than a moment.

In most conditions, frequency modulation via this feature should not cause any problems. However, system stability may be slightly compromised in certain situations. For example, this BIOS feature may cause improper functioning of timing-critical devices like clock-sensitive SCSI devices.

Spread Spectrum can also cause problems with overclocked systems, especially those that have been taken to extremes. Even a slight modulation of frequency may cause the processor or any other overclocked components of the system to fail, leading to very predictable consequences.

Therefore, it is recommended that you disable this feature if you are overclocking your system. The risk of crashing your system is not worth the reduction in EMI. Of course, if EMI reduction is important to you, enable this feature by all means

The choices are:

*Enabled / **Disabled***

CPU Clock

This setting determines the CPU clock speed. TYAN recommends that you keep this at it default value to maintain stability. The possible values are:

*100MHz,133MHz or **166MHz** by CPU setting.*

Note: The processor speed is calculated as CPU Clock Speed * CPU Clock Ratio.

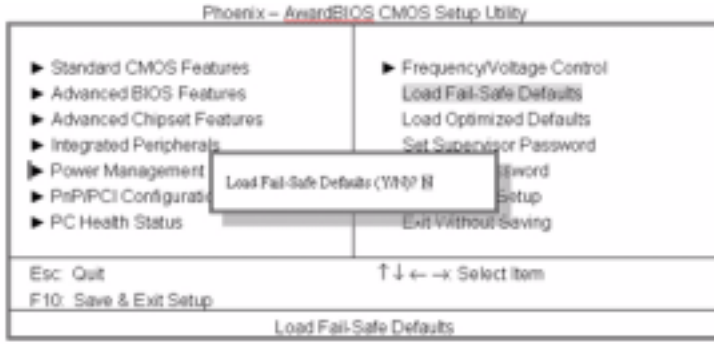
Memory Frequency for DDR Frequency at Next Boot

This option allows you to select DRAM Speed. The possible values are:

Auto by SPD / DDR333 / DDR400 / Auto

Load Fail-Safe Defaults

This option loads stable fail safe defaults for all BIOS options.



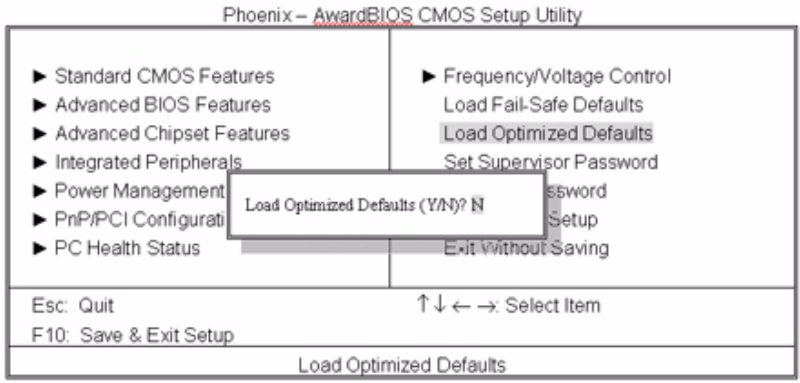
When you press <Enter> on this option, you get a confirmation dialog box with a message that reads:

Load Fail-Safe Defaults (Y/N)? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults

This option loads stable optimized defaults for all BIOS options.



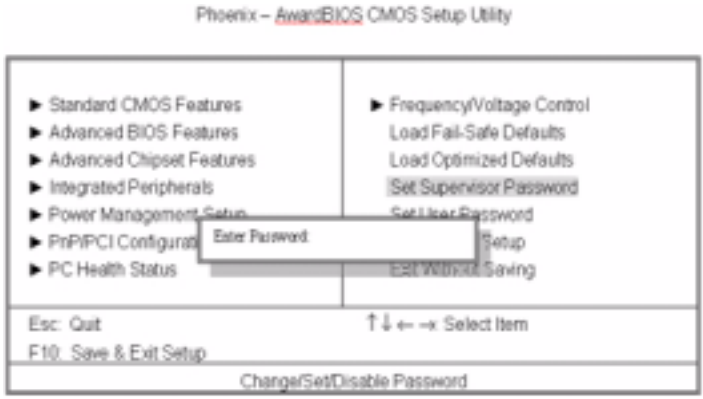
When you press <Enter> on this option, you get a confirmation dialog box with a message that reads:

Load Optimized Defaults (Y/N)? N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

Supervisor/User Password Setting

This option sets the supervisor and user password for the system.



You can set either a supervisor or a user password, or both of them. The differences are:

Set Supervisor Password: You can enter and change the options in the BIOS setup menus.

Set User Password: You can enter and view the options in the BIOS setup menus but cannot change them.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will be displayed confirming that the password is disabled. Once the password is disabled, the system will boot and you can enter setup freely.

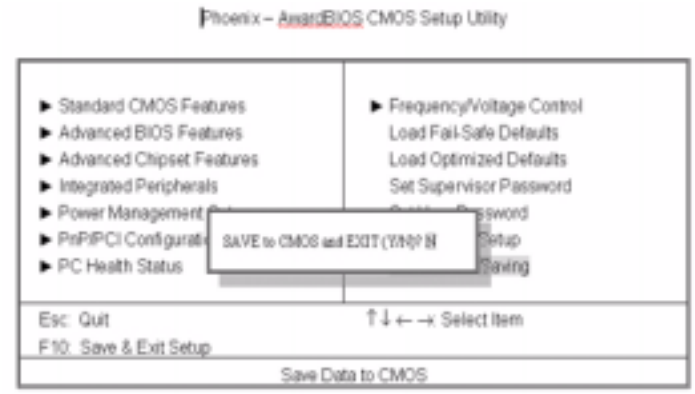
When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

Save & Exit Setup

The option saves all BIOS settings to CMOS and exits BIOS setup.



Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing “Y” stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

This option exits BIOS setup without saving any changes.

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing any changes in CMOS. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Specification

Chassis

1U, 19 inch rack mounted chassis

2 x HDD bay

1 x 3.5 inch FDD (or extra, internal HDD) bay

1 x slim CD-ROM drive bay

Motherboard

TYAN Tomcat i875 S5102G3NR ATX motherboard

AWARD BIOS 8.0 on 4 Mbit LPC Flash ROM

Intel Pentium 4 “Northwood” processor up to 3.2 GHz

Single ZIF PGA478 socket

Support for 800/533/400 MHz Front Side Bus (FSB)

Intel 875P Canterwood MCH

Intel 82801EB (ICH5) Southbridge

Winbond W83627HF Super I/O chip

128-bit dual channel memory bus

4 x DDR DIMM sockets

Support for up to 4GB of unbuffered PC3200, 2700, 2100 DDR SDRAM

Expansion

1 x 32-bit/33MHz PCI-X slot on riser card

I/O

Stacked PS/2 mouse and keyboard ports

4 x USB 2.0 ports

1 x 9 pin UART serial port

2 x Gigabit Ethernet ports (Intel 82547EI AND 82541EI Gigabit Ethernet LAN controller)

1 x 10/100 Ethernet LAN port (Intel 82562EM Ethernet LAN controller)

Video

ATI Rage XL PCI graphics controller

8 MB frame buffer video memory

Power Supply

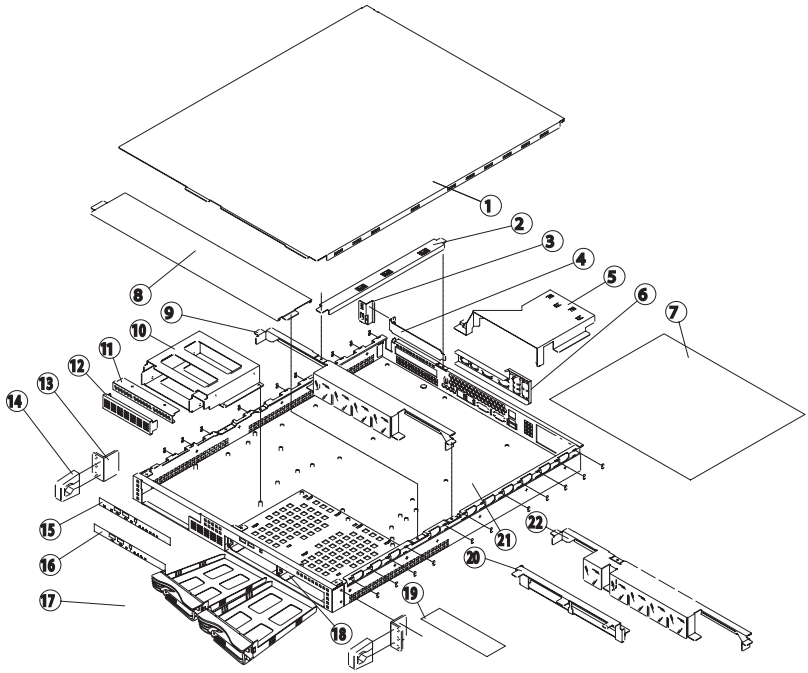
ATX 12V 300W power supply with PFC

Storage Controller

Integrated dual channel IDE from Southbridge, ICH5

Integrated Promise RAID accelerator, supporting 2 S-ATA ports + 1 ultra ATA-133 channel with RAID 0, 1, 0+1

Hardware Diagram



1	Top cover	13	Mount bracket x 2
2	Retention bar	14	Handle x 2
3	Card holder	15	Mylar (front panel)
4	PCI faceplate	16	Mylar (front panel)
5	Air duct	17	1” HDD x 2
6	I/O shield	18	Tray housing x 2
7	Mylar (under motherboard)	19	Mylar (under LED control board)
8	Cable cover	20	Backplane
9	Cross bar and fan bracket	21	Chassis
10	Drive cage assembly	22	Cross bar and fan bracket
11	Slim CD-ROM bay window		
12	FDD bay window		

Technical Support

If a problem arises with this system, you should consult your dealer first for help. The system is likely to have been configured by your dealer, making him the most appropriate choice when seeking technical advice. Your dealer may also be close enough to visit with the hardware for servicing or testing.

Help Resources:

1. See the beep codes section in the motherboard manual
2. See the TYAN website for FAQs, bulletins, driver updates and other information: http://www.tyan.com
3. Only contact TYAN after first speaking with your dealer
4. Check the TYAN user group: alt.comp.periphs.mainboard.TYAN

Returning Merchandise for Service

If any problems occur during the product's warranty period, consult your system vendor or distributor before contacting TYAN. The warranty covers normal customer use of the product. The warranty does not cover damages sustained during shipping or failure due to alteration, misuse, abuse, or improper maintenance of the unit.

Note: A receipt or copy of your invoice, marked with the date of purchase is required before any warranty service can be provided. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be displayed prominently on the outside of the shipping carton, and the package should be mailed prepaid. TYAN will pay to have the product shipped back to you.

Transport GX21, B5102 User's Manual.

Document part No. D1576-100