



BCT-5041

PICMG v1.3 Single Board Computer

User Guide

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Regulatory Statements

CE

This product meets the essential protection requirements of the European EMC Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC), and is eligible to bear the CE mark.

Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC

NOTE:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING:

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Safety Warning for North America

If the power lead (cord) is not supplied with the computer, select a power lead according to your local electrical regulations. In the USA use a 'UL listed' lead. In Canada use a CSA approved or 'cUL listed' lead.

Si le cordon secteur n'est pas livré avec l'ordinateur, utiliser un cordon secteur en accord avec votre code électrique nationale. En l'Etat Unis utiliser un cordon secteur 'UL listed'. En Canada utiliser un cordon secteur certifié CSA, ou 'cUL listed'.

Manual Organisation

This manual describes in detail the BCT-5041 Industrial SBC.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of the product.

The manual is sectioned as follows:

Introduction;

Overview, listing the unit's features and specification;

Installation, including what software to install

Layout, showing where the various connectors are located, and their pin-out details;

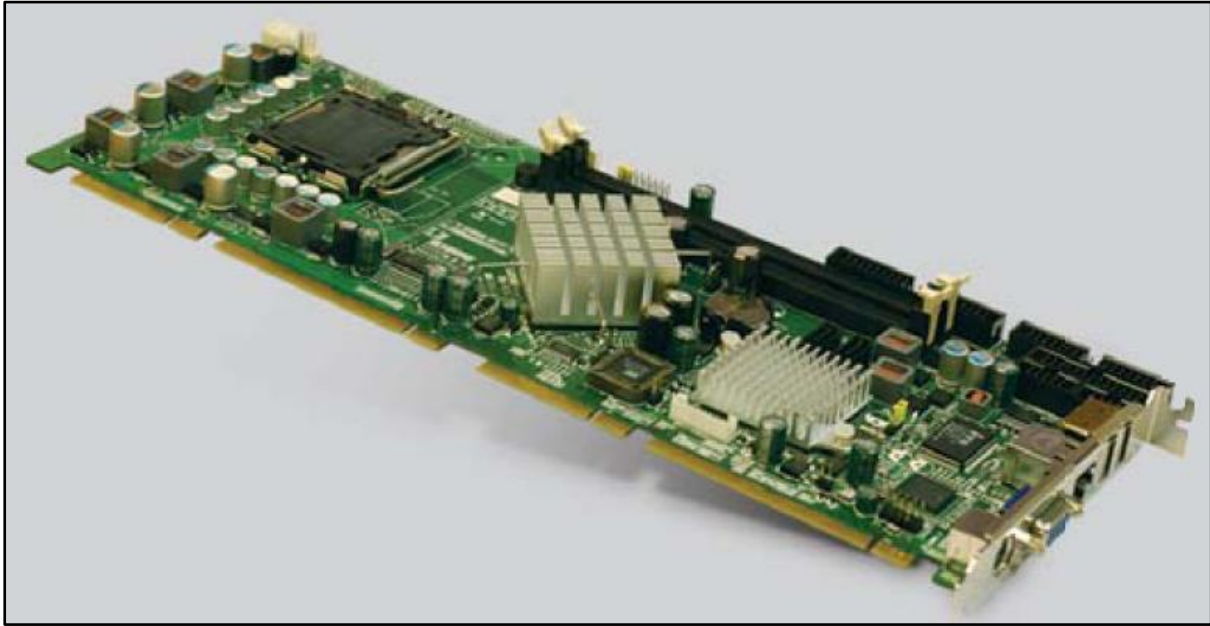
How to upgrade the system;

Bios Setup

Maintenance details.

We strongly recommend that you study this manual carefully before attempting to interface with the BCT-BCT-5041 SBC or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance. ***IT IS PARTICULARLY IMPORTANT THAT YOU READ THE SECTION 'PRECAUTIONS' BEFORE HANDLING ANY COMPONENTS INSIDE THE UNIT.***

If you have any suggestions or find any errors concerning this manual and want to inform us of these, please contact our Technical Services department with the relevant details.



Introduction

The Blue Chip Technology PICMG BCT-5041 Single Board PC enhances the product range with the latest advances in processor, graphics, memory, and I/O technologies. The PICMG BCT-5041 complies with the PICMG form factor providing PCI and PCI-Express bus interfaces on a single plug-in card. The PICMG single board PC is an ideal platform for the increasing requirements of today and tomorrow's embedded applications.

This Full-length PICMG design is optimized for LGA775 Intel® Core™ 2 Duo Desktop/Pentium® D/ Pentium® 4 / Celeron® D processors supporting 533/800/1066 MHz Front Side Bus. The memory sub-system is designed to support up to 2Gb dual channel DDR2 533/667 SDRAM memory.

The PICMG BCT-5041 single board PC uses the Intel® 945G +ICH7R chipset with integrated GMA 950 graphics to provide outstanding graphics performance and increased integration over previous single board PC designs.

The PICMG BCT-5041 uses the ITE IT8712F I/O Controller Hub along with the ICH7R to make a direct connection from the graphics and memory to the integrated Ethernet controller, one IDE controller, two S-ATA controllers, and 4 USB ports

Networking capability is provided by the Intel® 82573 device, which supports 10/100/1000 Mbps Base-TX Ethernet. This device can auto-negotiate network speeds and comes complete with drivers for most network environments

4 USB ports provide easy IO expansion to USB Specification Rev 1.1/2.0 compliant devices.

The Other I/O Function include: floppy interface, two serial ports, parallel port, keyboard and mouse (PS/2) controller.

Specification

CPU:	LGA775 Intel® Core™ 2 Duo Desktop/Pentium® D/ Pentium® 4 / Celeron® D processor Supports 533/800/1066 FSB
Chipsets:	Intel® 945G + ICH7R ITE IT8712F I/O controller
Graphics Controller:	Integrated GMA 950 Maximum Resolution 2048 x 1536 @75Hz
BIOS:	Award Plug and Play BIOS
Memory:	Dual Channel Memory Architecture 2 x 240-pin DIMM sockets supporting up to 2Gb Of unbuffered non-ECC 533/667 Mhz DDR2 memory Modules
LAN:	Intel 82573L PCI Express Gigabit Ethernet controller IEEE 802.3 10BASE-T/100BASE-TX/1000BASE-T
System Management:	CPU and System temperature Monitoring CPU and System Voltage detection CPU and secondary fan speed detection
SATA Storage	Four S-ATA ports Supports data transfer rates up to 300MB/s
IDE Interface:	Single Port supporting up to 2 devices
External I/O Interface:	PS/2 Keyboard/Mouse connector Standard VGA connector Two USB 2.0 Connectors RJ-45 10/100/1Gb Base-T Ethernet LAN connector Two 9-way Serial connectors (RS232) via cable 25-way Parallel port connector (SPP,EPP and ECP) via cable Two USB 2.0 connectors via cable
Watchdog:	Reset: 1 sec-255min. with 1 sec or 1min. step
Environmental Conditions:	Operating temperature range 0°C to +60°C Storage Temperature range -20°C to +80°C Relative Humidity 10-90% non-condensing
Dimensions	338.6mm x 126.4mm

General Precautions

Your Single Board Computer is susceptible to damage by electrostatic discharges. In order to avoid damage, you should work at an anti-static bench and observe normal anti-static precautions. Wear an anti-static wrist strap connected to an earth point *before* opening any packaging.

Where a wrist strap is not available, discharge any static charge you may have built-up by touching an earth point. Avoid any further movement that could build up another static charge. Touch an earth point from time to time to avoid further build-up, and remove the items from their anti-static bags only when required

PS/2 Devices

It is important that PS/2 devices (mouse and keyboard) are not connected or disconnected with the unit powered on. Damage or data corruption may occur if this precaution is not observed.

Electro-Static Discharges

If you are going to open up the unit, it is important to realise that the devices on the cards within this unit can be damaged by static electricity. Bear in mind that the damage caused by static electricity may vary from total destruction to partial damage, which may not be immediately obvious. This could have an effect on the product's reliability and warranty. Before opening the chassis, ensure that you take necessary static precautions. Ideally you should work at an anti-static bench and wear an approved wrist strap or if that is not possible, touch a suitable ground to discharge any static build up before touching the electronics. This should be repeated if the handling continues for any length of time.

If it is necessary to remove a board or electronic assembly, place it into an anti-static bag. This will prevent any static electricity build up damaging the board. Metallised bags are preferred. Do not use black anti-static bags for any item containing a battery because these tend to be conductive and will discharge the battery.

On-Board Battery

The processor board is fitted with a Lithium battery. Great care should be taken with this type of battery. If the battery is mistreated in any way there is a very real possibility of fire, explosion, and personal harm. Under NO circumstances should it be short-circuited, exposed to temperatures in excess of 100 °C or burnt, immersed in water, recharged or disassembled.

Expired batteries remain hazardous and must be disposed of in a safe manner, according to local regulations.

Le panneau de processeur est équipé d'une batterie de lithium. Le grand soin devrait être pris avec ce type de batterie. Si la batterie est mistreated il y a de dans de toute façon un possibility très vrai du feu, d'explosion et de mal personnel. Dans au cunes circonstances il est sous peu circuité, exposé aux températures au dessus de 100 degrés de centigrade ou brûlé, immergé dans l'eau, rechargée ou dissassembled.

Les batteries expirées restent dazaedous et doivent être reejetées d'une façon sûre, selon des règlements locaux.

BIOS & CMOS Memory

Please be aware that with personal computer products, it is possible to create configurations within the CMOS memory that make booting impossible. If this should happen, clear the CMOS settings; (see the description of the Jumper Settings for details).

Electromagnetic Compatibility

This product has been assessed operating in representative, standard configurations. As with any PC product, however, final installation & configuration can vary significantly, and so the following guidelines are offered to help ensure that compatibility is maintained.

- All components added to a system should either carry appropriate equivalent levels of compliance, or be tested for compliance as part of the final system, and should be installed in accordance with supplier recommendations.
- The external enclosure should be securely fastened (with standard lids and covers in place) to ensure good metal-to-metal contact around the internal electronics
- Any metal back plate must be securely screwed to the chassis of the computer to ensure good metal-to-metal (i.e. earth) contact.
- Metal, screened, connector bodies should be securely connected to the enclosure.
- The external cabling to boards causes most EMC problems. It is recommended that any external cabling to the board be totally screened, and that the screen of the cable connects to the metal end bracket of the board or the enclosure and hence to earth. Round, screened cables with a braided wire screen are used in preference to those with a foil screen and drain wire. Wherever possible, use metal connector shells that connect around the full circumference of the cable screen: they are far superior to those that earth the screen by a simple “pig-tail”.
- The keyboard and mouse will play an important part in the compatibility of the processor card since they are ports into the board. Similarly, they will affect the compatibility of the complete system. Fully compatible peripherals must be used otherwise the complete system could be degraded. They may radiate or behave as if keys/buttons are pressed when subject to interference. Under these circumstances it may be beneficial to add a ferrite clamp on the leads as close as possible to the connector. A suitable type is the Chomerics type H8FE-1004-AS.
- USB cables should be high quality screened types.
- Ensure that the screens of any external cables are bonded to a good RF earth at the remote end of the cable.

Failure to observe these recommendations may invalidate the EMC compliance.

Quick Start

The following sections explain how to install the BCT-5041 Single Board Computer in your System Unit.

First ensure that you are familiar with the contents of the section "Precautions". It contains important information to avoid damage to the board.

Next, read the appropriate documentation from your System Unit supplier on how to install or upgrade a processor board into the intended system unit.

If choosing your own cooling solution for the CPU, check the application notes for the particular CPU from the Intel website to ensure that your solution is capable of cooling the processor throughout the desired operating temperature range. Note that the upper operating limit of 60°C is for the boards operation in free air, which would equate to the air temperature inside the System Unit with the lid closed. It is important to ensure that the operating temper inside the system unit in the vicinity of the processor board does not exceed the 60°C limit.

If a PC/2 mouse and keyboard are to be removed for normal operation, shut down the computer and switch off the power before removing them.

Installation

Connector Locations

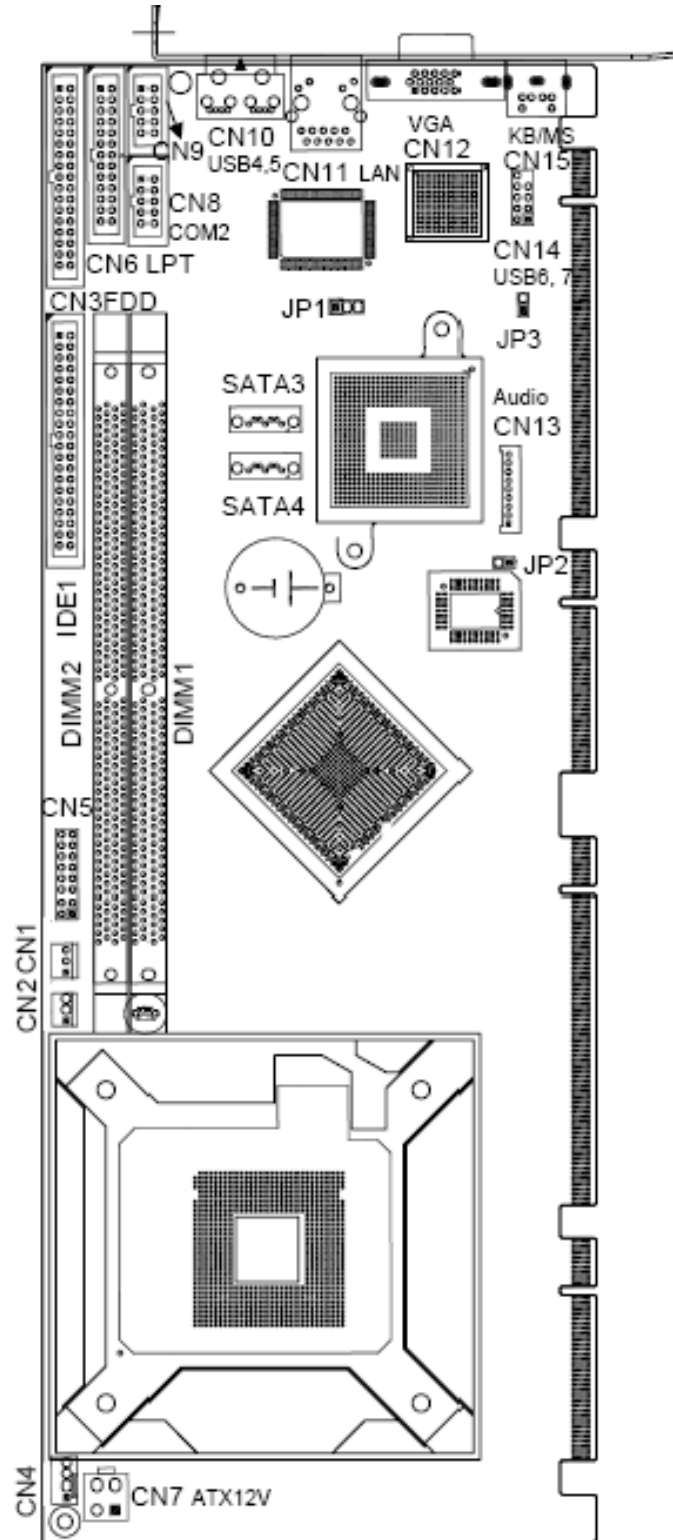


Figure 1: Connector Locations

Connector	Description	Connector	Description
CN1	Chassis Fan Connector	CN11	LAN RJ-45
CN2	Power Fan Connector	CN12	VGA
CN3	FDD Connector	CN13	Audio
CN4	CPU Fan Connector	CN14	USB 6,7
CN5	System Utility Header	CN15	PS/2 keyboard/mouse
CN6	Parallel Port	SATA3,4	Serial ATA
CN7	ATX 12V	IDE1	Primary IDE
CN8	COM2 RS-232	DIMM1,2	240-pin DDR2 DIMM socket
CN9	COM1 RS-232		
CN10	USB 4,5		

Jumper	Description	Jumper	Description
JP1	Clear CMOS setting select	JP2	BIOS Write Protect select
JP3	Auto Power On Setting Select		

CPU Installation

The PICMG BCT-5041 board supports a single Intel® Core™ 2 Duo Desktop/Pentium® D/ Pentium® 4 / Celeron® D processor.

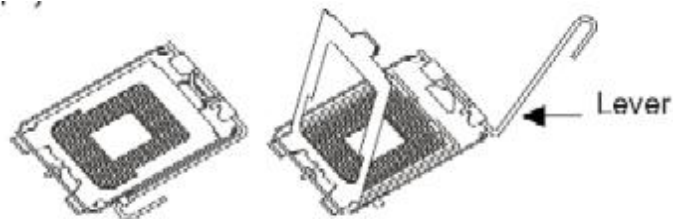


Figure A1: CPU LGA 775 Socket

Before installing the processor, raise the lever on the side of socket 775, perpendicular to the board, and flip up the cover. Place the CPU onto the socket in the correct orientation. **AVOID TOUCHING BOTH THE UNDERSIDE OF THE CPU AND THE PINS ON THE CONNECTOR AS THIS MAY CAUSE DAMAGE.** Lower the cover over the CPU, and lower the lever to lock the cover in place. Apply heatsink Thermal compound to the top of the CPU ensuring an even distribution.

The PICMG BCT-5041 is usually supplied without any CPU cooling method. This allows the user to select the appropriate cooling method for their particular application.

Caution: Insufficient contact, incorrect types of Fans, heatsink or Thermal Compound used, or improper amounts of Thermal compound applied, can cause the processor to overheat and may result in the System crashing.

Memory Installation

The PICMG BCT-5041 board supports two 240 pin DDR2 memory Modules. Figure A2 shows a DDR2 module and how the notch on the module aligns with the notch on the Socket. If the notches do not align, then **DO NOT FORCE** the module into the socket as this will cause damage.

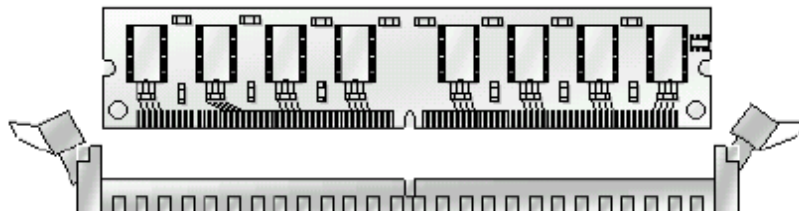


Figure A2: DIMM Socket and notches

When fitting more than one DDR2 module, ensure that both modules are of identical capacity and manufacture. Failure to do so may result in poor performance and data corruption.

CPU Heatsink

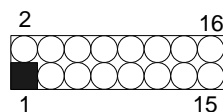
When Selecting a suitable CPU heatsink, you must take into account the both the anticipated operating environment as well as any height restrictions that may apply.

When attaching your heatsink, follow the recommended guidelines from the heatsink manufacturer to ensure correct attachment.

CAUTION

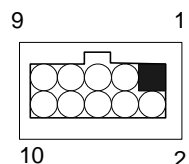
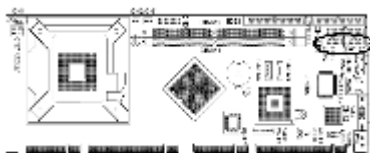
If the heatsink is incorrectly attached, this may result in the CPU overheating and eventual failure

System Front Panel Utility Connector



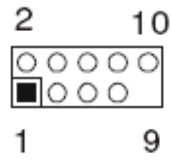
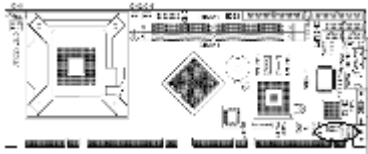
Pin #	Assignment	Pin #	Assignment
System Power On LED		External Speaker	
1	N/C	2	Speaker
3	+5V	4	On-board buzzer (2-4)
5	N/C	6	N/C
7	PWLED (ground)	8	+5V
Keyboard Lock		System Reset	
9	KBLOCK	10	Reset
11	Ground	12	Ground
HDLED		System power On Switch	
13	+5V (Pull-up for HDD LED)	14	Power Button control Signal
15	HDDLED-	16	Ground

COM Ports



Pin #	Assignment	Pin #	Assignment
1	Data Carrier Detect (DCD)	2	Data Set Ready (DSR)
3	Receive Data (RXD)	4	Request To Send (RTS)
5	Transmit Data (TXD)	6	Clear To Send (CTS)
7	Data Terminal Ready (DTR)	8	Ring Indicator (RI)
9	Ground	10	Ground

USB Header



Pin #	Assignment	Pin #	Assignment
1	VCC	2	VCC
3	USB2- / USB4-	4	USB3- / USB5-
5	USB2+ / USB4+	6	USB3+ / USB5+
7	Ground	8	Ground
9	----	10	N/C

Software Configuration

Installing Operating Systems

The necessary operating system drivers can be found on the Blue Chip Support CD which should have been supplied with your PICMG BCT-5041 Single Board Computer. The necessary files can also be downloaded from the Blue Chip Technology website at www.bluechiptechnology.co.uk

The manner in which any drivers are loaded will vary depending upon the actual operating system used. Details follow for Microsoft XP.

Microsoft XP

Install the drivers for Windows XP from the Support CD/DVD supplied with board in the order as follows

The drivers can be found in the \SBPC\DISKS\BCTPICMG13\ directory on the CD

- Chip set INF driver v7.2.1.1003 or later
 - run infirst_autol.exe
- VGA driver v14.16.0.4384 or later
 - run win2k_xp1420.exe
- Intel Pro100 Lan driver v10.2 or later
 - from the Device Manager page, select update driver and point search filed to the relevant directory

Watchdog Timer Programming

The Watchdog Timer (WDT) is a special hardware device that monitors the computer system during normal operation. The WDT has a clock circuit that counts down from a set number to zero. If a monitored item occurs before that timer reaches zero, the WDT resets and counts down again. If for some reason the monitored item doesn't occur before the timer reaches zero, the WDT performs an action, such as a diagnostic operation (rebooting the computer) or generate an NMI.

Watchdog Configuration		
Address Port: 2Eh	Data Port: 2Fh	Description
87h		Enter Key
01h		Enter Key
55h		Enter Key
55h		Enter Key
07h	07h	Setup Watch Dog Function
71h	F0h	Setup Watch Dog Function
72h	C0h	C0h: select second mode, 40h: select minute mode
73h	00h	Time out occurs after 0-255 second/minute, 00h: Time out disable

Example (C):

The following example, sets up the watchdog time to 5 mins.

1. `outportb(0x2e,0x87);`
2. `outportb(0x2e,0x01);`
3. `outportb(0x2e,0x55);`
4. `outportb(0x2e,0x55);`
5. `outportb(0x2e,0x07);`
6. `outportb(0x2f,0x07);`
7. `outportb(0x2e,0x71);`
8. `outportb(0x2f,0xF0);`
9. `outportb(0x2e,0x72);`
10. `outportb(0x2f,0x40);`
11. `outportb(0x2e,0x73);`
12. `outportb(0x2f,0x05);`

BIOS SETUP

The PICMG BCT-5041 Single Board Computer uses the AwardBIOS™ from Phoenix Technologies®. The AwardBIOS™ provides a built-in Setup program which allows the user to modify the basic system configuration and hardware parameters. The modified data is stored in a battery-backed CMOS, so that data is retained even when the power is turned off.

It is possible for the CMOS battery to fail, and in such an instance the BIOS settings will revert to default and the user will require to reset them once the CMOS battery has been replaced.

The Phoenix Technologies AwardBIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn over control to the operating system.

While the BIOS is in control the Setup program can be activated in one of two ways:

1. By pressing immediately after switching on, or
2. by pressing the key when the following message appears briefly at the bottom of the screen during POST (Power On Self Test)

Press DEL to enter SETUP, ALT+F2 to enter AWDFLASH

If the message disappears before you respond, then you will have to restart the system again by either turning the power OFF and then ON again, pressing the “RESET” button on the system case if there is one, or by simultaneously pressing the <Ctrl>, <Alt> and keys

Main Menu

When you enter the PHOENIX-AWARD™ CMOS Setup Utility, the **Main** will appear on the screen. The Main allows you to select several configuration options. Use the left/right arrow keys to highlight a particular configuration screen from the top menu bar or use the down arrow key to access and configure the information below.

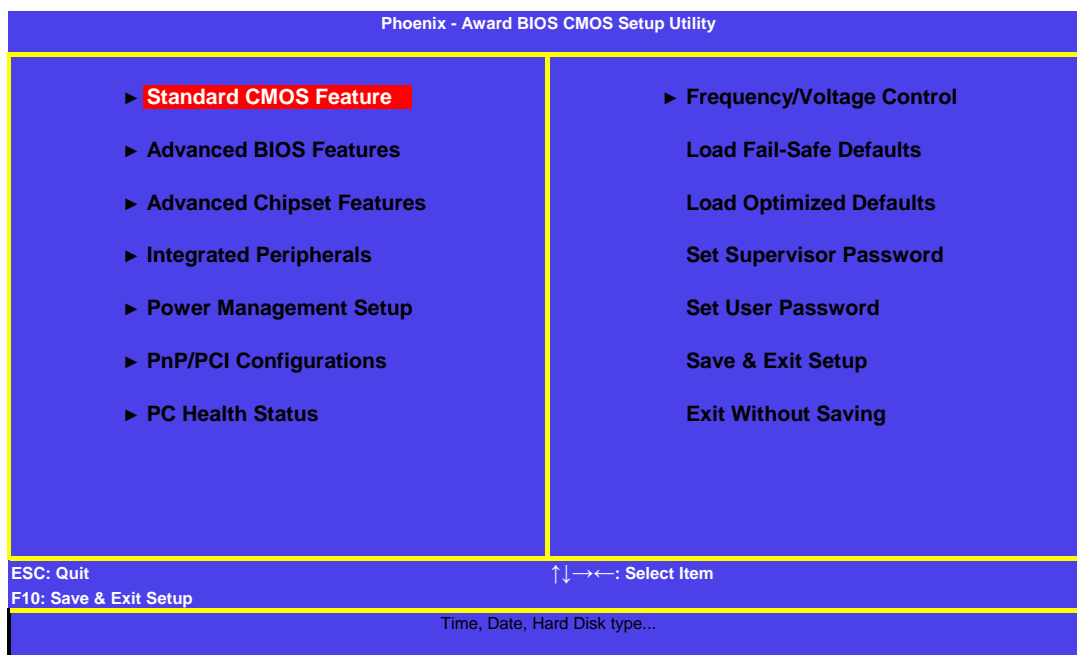


Figure B1

Once you enter the Setup program, the main Menu appears as shown in Figure B1 above. The menu allows you to select different Setup functions and has two exit options. Navigation through the menu's is by the arrow keys and by using the <enter> key to select the appropriate sub-menu.

Standard CMOS Features

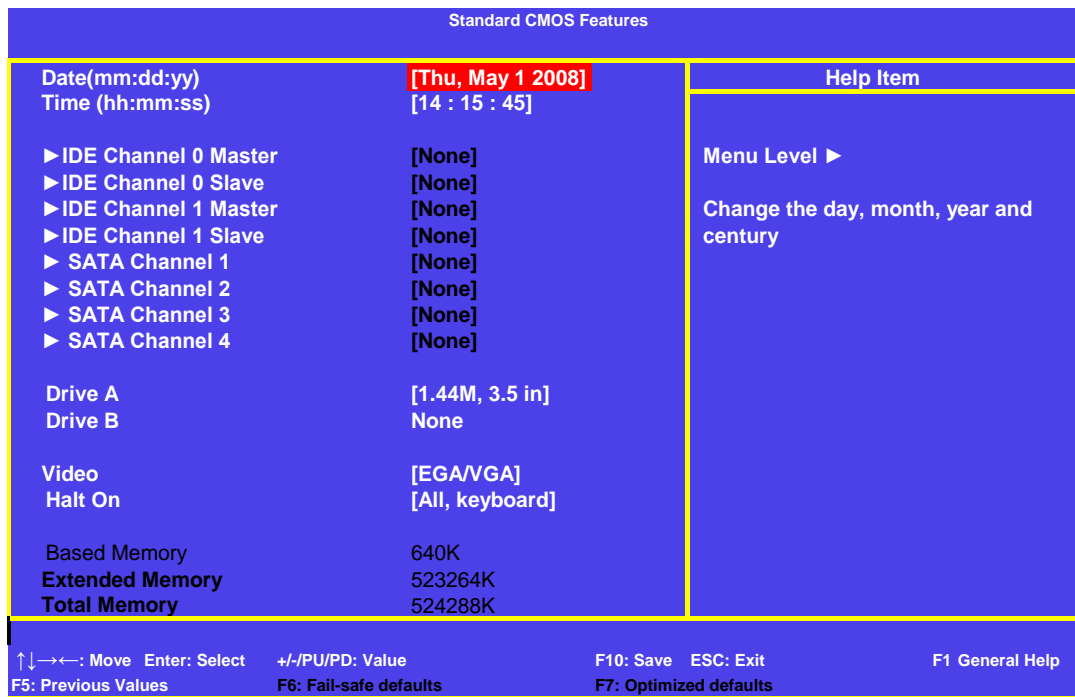


Figure B2

There are 14 categories within this section, and each category having no, one, or more than one setup item. Use the arrow keys to highlight the item and then the <PgUp> or <PgDn> keys to select the value you want.

Date: options are Month/DD/YYYY

Time: options are HH:MM:SS

Drive A / Drive B: Options are None, 360K, 5.25 in/1.2M, 5.25 in/720K, 3.5 in/1.44M, 3.5 in/2.88M

Video: options are EGA/VGA/CGA, 40/CGA, 80/MONO

Halt On: options are “All Errors” “No Errors” “All, But Keyboard” “All, But Diskette” “All, but Disk”

this selects the situation in which you want the BIOS to stop during POST

Base Memory: displays the amount of conventional memory detected during POST

Extended Memory: displays the amount of extended memory detected

Total Memory: Displays the total memory available in the system

IDE Channel 0/1 Master /Slave: Press enter to see the sub-menus

SATA Channel 1/2/3/4: Press Enter to see sub-menu

Advanced BIOS Feature

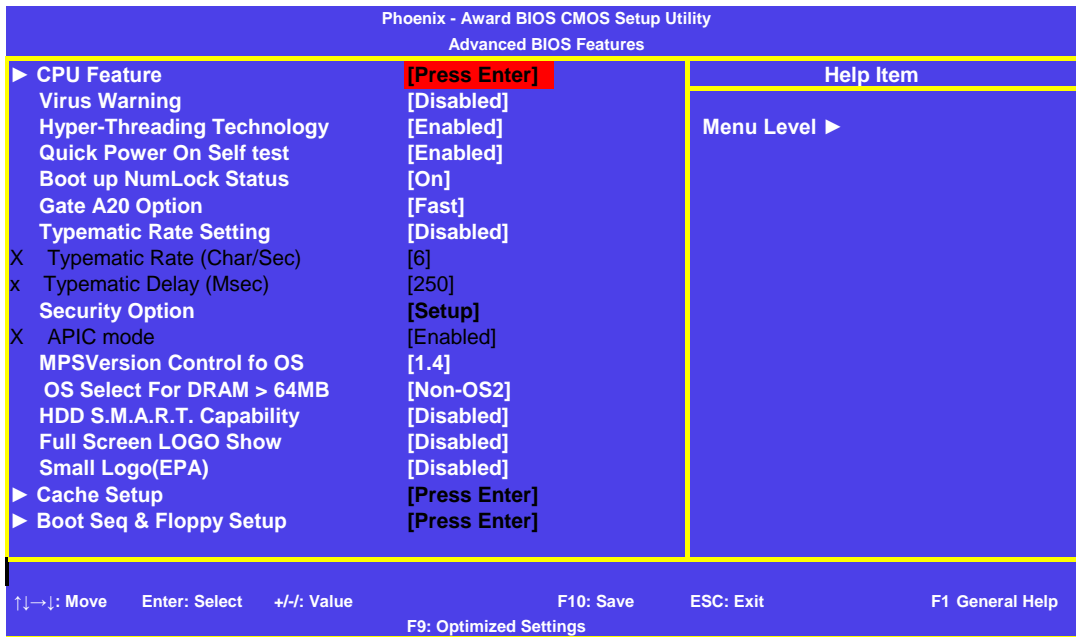


Figure B3

There are 14 categories within this section, and each category having no, one, or more than one setup item. Use the arrow keys to highlight the item and then the <PgUp> or <PgDn> keys to select the value you want.

CPU Feature: Press enter for sub menu

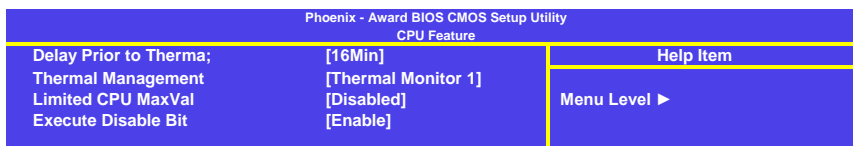


Fig B4

This allows changes to be made to some of the CPU settings. It is recommended that these settings are left at their default values

Virus Warning: Options are Enabled or Disabled. If Enabled and someone attempts to write to the IDE Hard Disk Boot sector, then BIOS will show a warning message on screen.

Hyper-Threading Technology: Options are Enabled or Disabled. Allows the user to disable Hyper-threading if supported on the CPU

Quick Power On Self Test: Options are Enabled or Disabled. Allows certain tests during POST to be skipped

Boot Up Numlock Status: Options are On or Off. When On, the number keys will be active

Gate A20 Option: Options are Normal or Fast: Selects if chipset (Fast) or keyboard controller (normal) control GATEA20

Typematic Rate Setting: Options are Disabled or Enabled. When disabled, the keyboard controller determines keystroke characteristics

Security Option: Options are System or Setup: selects whether the password is required every time the system boots or only when you enter BIOS Setup

APIC Mode: Options are Enabled or Disabled: When enabled, the MPS version control for OS can be configured. Version 1.4 for Windows 2000 or XP, and version 1.1 for older OS's

OS Select for DRAM > 64Mb: Options are OS/2 or Non-OS/2. Select non-OS/2 as OS/2 is not supported

HDD S.M.A.R.T. Capability: Options are Enabled or Disabled. Enables or disables the HDD self monitoring, analysis and reporting technology system

Full Screen LOGO show: Options are Enable or Disable. Determines whether the logo is displayed during POST

Small Logo <EPA> Show: Options are Enable or disable. Determines whether the small EPA logo is shown during POST

Cache Setup: Press Enter for Sub menu. Allows the L1 and L2 cache to be enabled or disabled

Boot Seq & Floppy Setup: Press Enter for Sub Menu

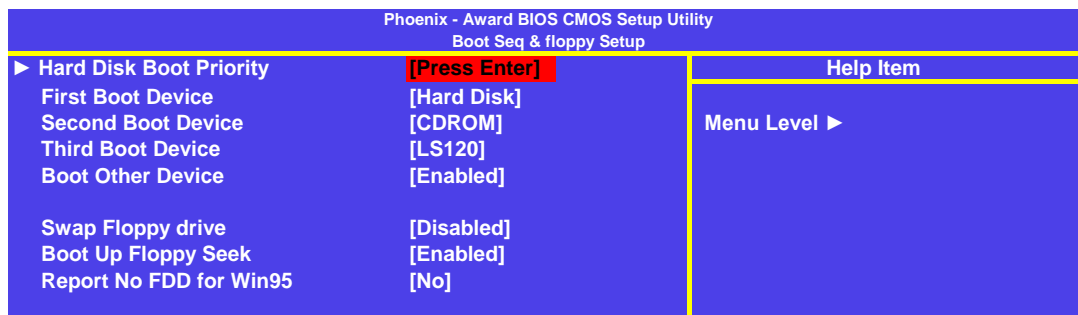


Fig B5

This sub-menu allows the user to set the boot order

Advanced Chipset Features

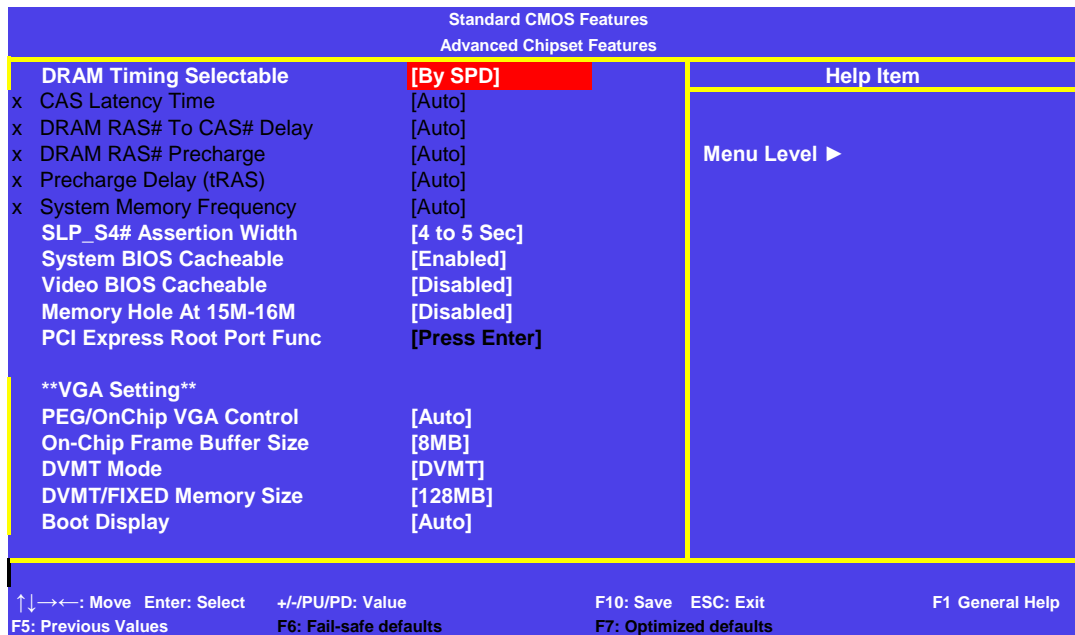


Fig B6

DRAM Timing Selectable: Options are Manual or By SPD. When set to manual, allows DRAM settings to be changed

SLP_S4# Assertion Width: This options allows selection of the assertion width of SLP_S4#

System BIOS Cacheable: Options are Enabled or Disabled. If enabled, allows system BIOS ROM to be cached at F0000h-FFFFFh

Video BIOS Cacheable: Options are Enabled or Disabled. If enabled caches the Video BIOS

Memory Hole At 15M-16M: Options are Enabled or Disabled. When Enabled, this area can be reserved for ISA Adapter ROM

PCI Express Root Port Func: Press Enter for Sub menu

PEG/Onchip VGA Controller: Options are

On-chip Frame Buffer Size: Options are 1M to 8M. Sets the VGA memory

DVMT Mode: Options are Fixed, DVMT, Both. Determines whether Video memory is allocated dynamically

DVMT/Fixed Memory Size: Specifies the maximum memory to be allocated

Boot Display: This allows the selection of the boot display device

Integrated Peripherals

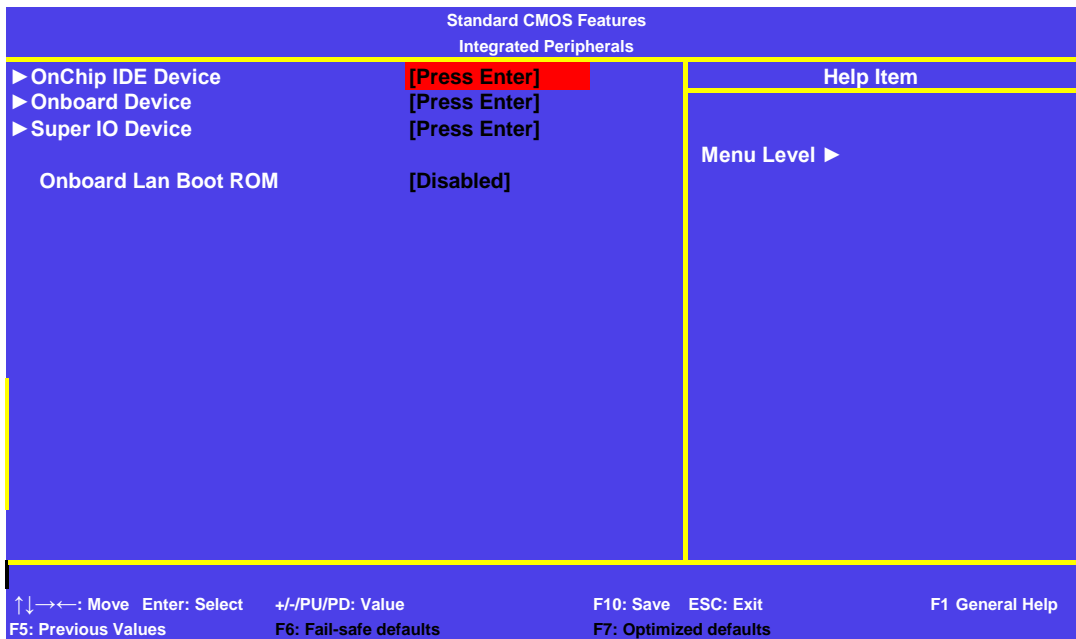


Fig B7

This page and sub menus allow the user to turn off integrated peripherals such as USB, Serial ports and FDD in order to free up resources for other use

Onboard Lan Boot ROM: Options are Enabled or Disabled. Enable this if you wish to use PCE boot to boot via the Ethernet port to a suitable server

Onchip IDE Device: Press Enter for sub menu

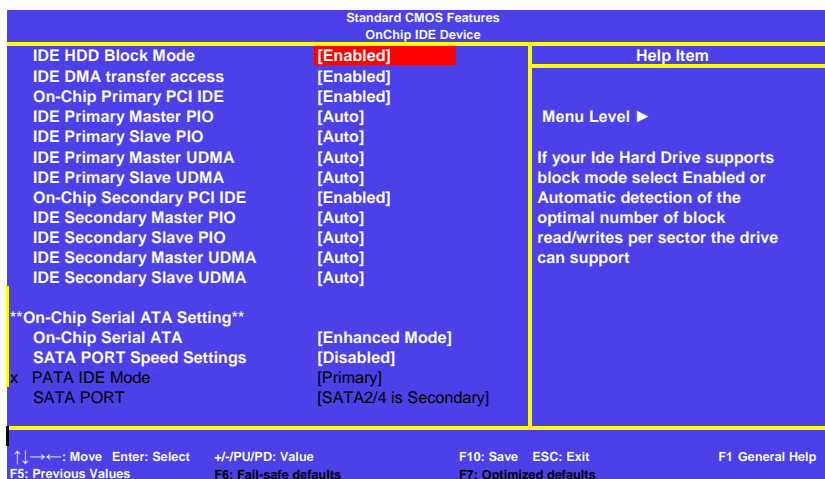


Fig B8

This sub-menu allows the tailoring of the IDE and SATA channels

Onboard Devices: Pres Enter for sub menu

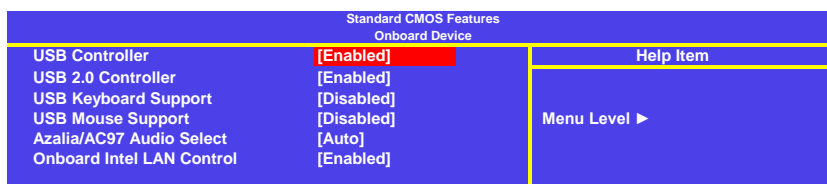


Fig B9

This sub-menu allows the user to enable or disable USB ports, Audio and LAN functions

SuperIO Device Setup: Press Enter for sub menu

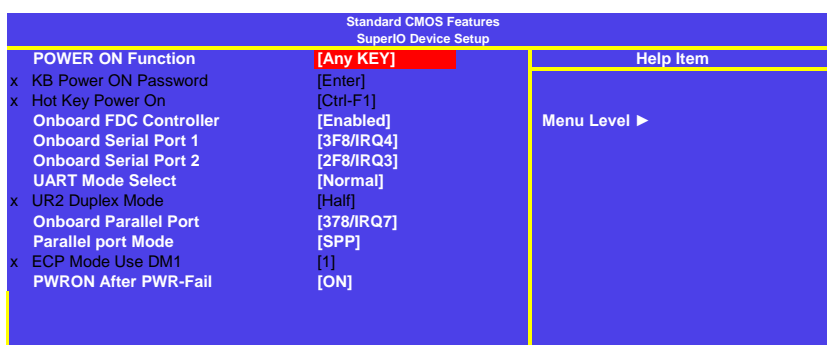


Fig B10

This sub menu allows the user select serial and parallel port IRQ's and addresses, as well what action to take when power resumes after a sudden loss of power

Power Management Setup

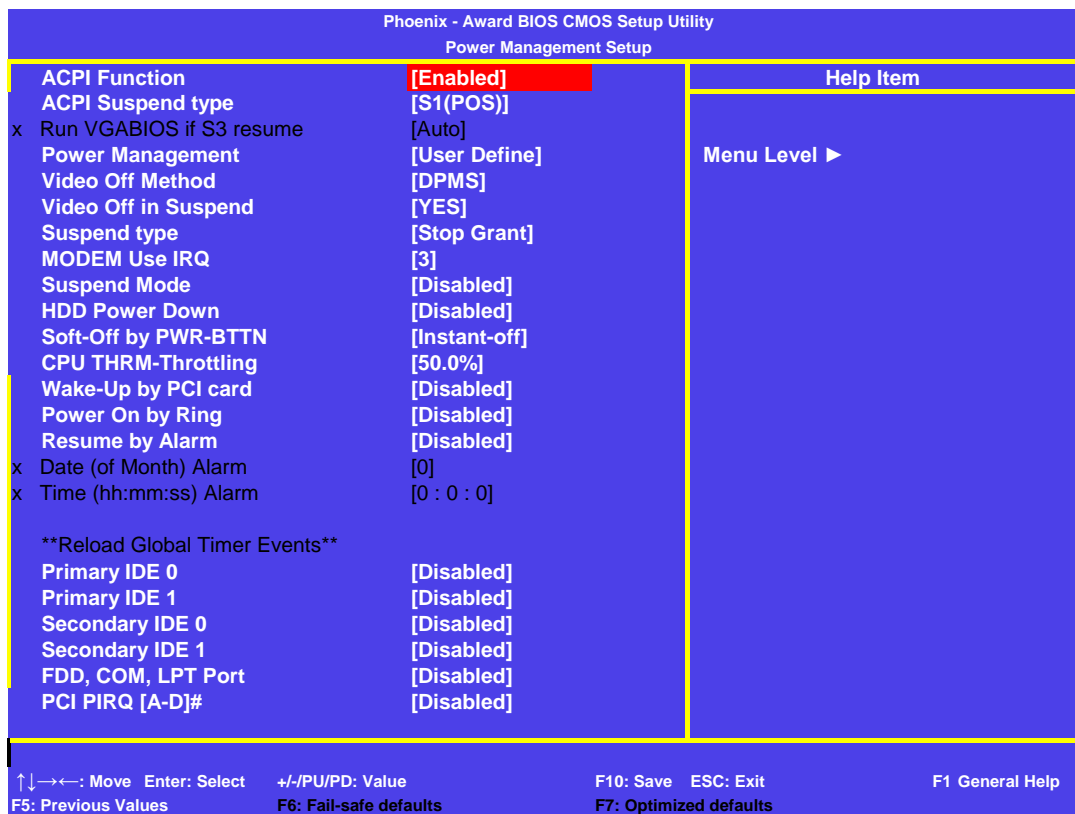


Fig B11

This Menu allows the user to set the various Power Management options which are available

PnP/PCI Configurations

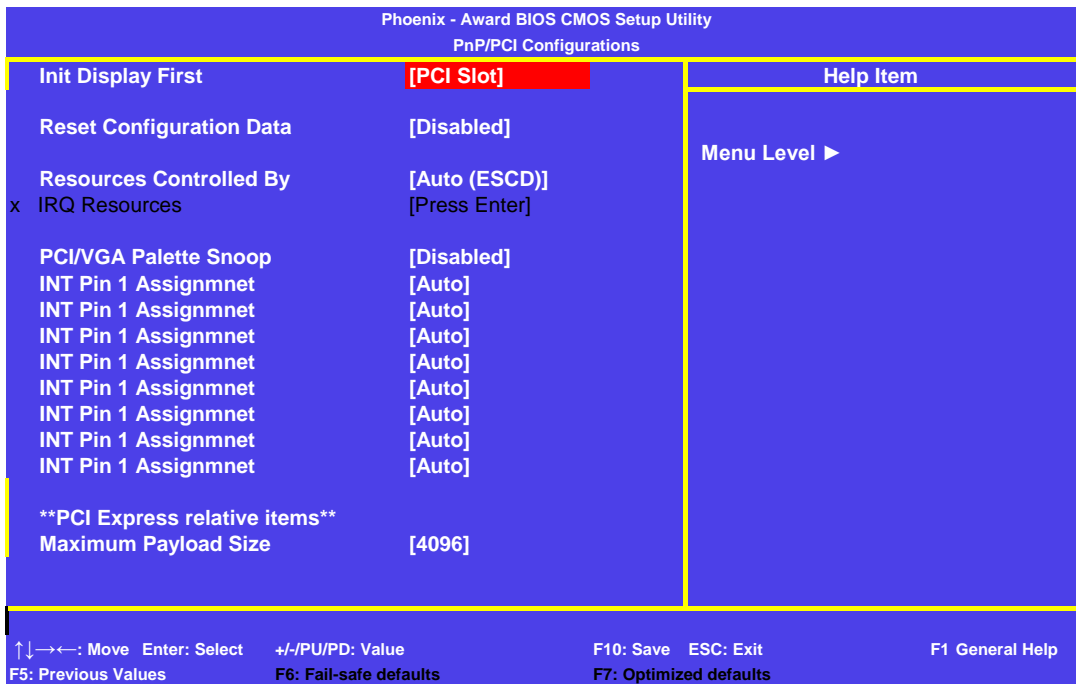


Fig B12

This menu allows the user to

Init Display First: if a PCI graphics card is being used, then this settings will determine whether the BIOS is output via the PCU card or the on-board

Reset Configuration Data: Set this to enabled whenever hardware changes have been made to the system

Resources Controlled by: This allows resources to be set automatically. For ISA devices, set to manually and set to RESERVE, any resource required for the ISA device,

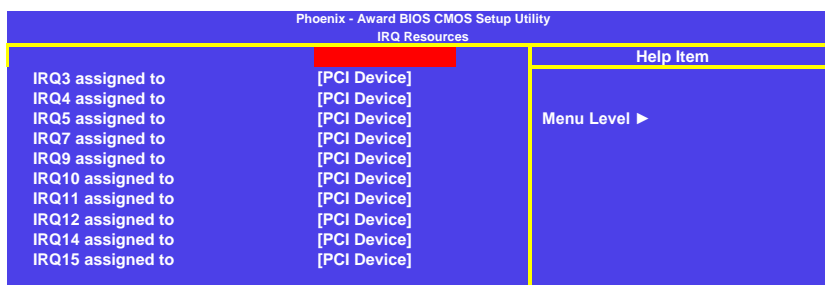


Fig B13

PC Health Status



Fig B14

This menu allows the user to see the system voltages and temperatures, as well as fan speeds. The user can also set a temperature at which the system will automatically shutdown to prevent damage

Frequency/Voltage Control



Fig B15

This menu allows the user to turn on or off automatic frequency detection

Fail Safe Defaults

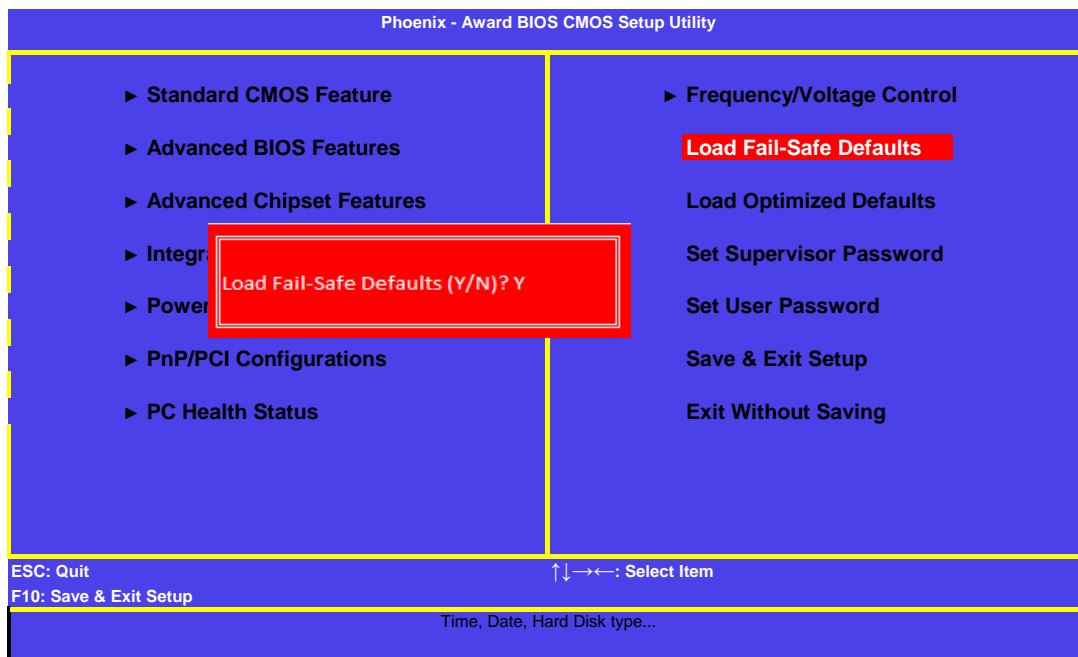


Fig B16

This setting will restore the original BIOS settings.

The BCT-5041 Single Board Computer should not require any regular maintenance. After a period of several years, it may be necessary to replace the battery on the processor board, if it cannot maintain the CMOS memory whilst the AC power is disconnected.

On a regular basis the inside of the System Unit which houses the BCT-5041 Single Board Computer should be cleaned out to prevent dust build up which could eventually clog the fans and prevent efficient operation.

For general maintenance of the System unit, follow the recommended maintenance schedule set out by the manufacturer of the System Unit.

Replacing the Processor Battery

The processor board includes a small 3V lithium battery (type CR-2032) to retain the BIOS settings in the CMOS memory. Before attempting to replace the battery, please read the precautions detailed in the introductory section. Remember that even discharged batteries can present a real personnel hazard if mistreated.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's instruction.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur.

Mettre au rebut les batteries usagées conformément aus instructions du fabricant.

Do NOT under any circumstances try to remove the battery with metallic tools (pliers, tweezers etc.). They will short out the battery with possible disastrous results.

Replace the battery by one of the same type, ensuring that it is fitted with the positive terminal facing the CPU, and that the clip is fully engaged. When the battery has been replaced, the BIOS settings will revert to their default settings. Reset them as necessary to suit your application.

Fuses

There are no user-serviceable or replaceable fuses on the Computer Board.

Amendment History

Issue Level	Issue Date	Author	Amendment Details
1.0	6-6-08	T Mck	First Release

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