

ROCKY – P258BX (Ver. 5.x)

600MHz Pentium® II / III

Single Board Computer

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1

Introduction

Welcome to the ROCKY-P258BX Pentium® II / III Single Board Computer. The ROCKY-P258BX is a PICMG bus form factor board. It is equipped with high performance Pentium® II / III Processor and advanced high performance multi-mode I/O, designed for the system manufacturers, integrators, or VARs that want to provide all the performance, reliability, and quality at a reasonable price.

This board has a built-in DiskOnChip™(DOC) Flash Disk socket for embedded application. The DOC Flash Disk is software compatible to hard disk. User can use any DOS command without any extra software utility. The DOC currently is available from 2MB to 72MB.

An advanced high performance super AT I/O chip – Winbond W83977TF is used in the ROCKY-P258BX board. The on-chip UARTs are compatible with the NS16C550. The parallel port and IDE interface are compatible with IBM PC/AT architecture.

ROCKY-P258BX uses the advanced INTEL AGPset 82443BX Host Bridge Chipset, which is 100% ISA/PCI compatible chipset with PCI 2.1 standard.

More detail specifications of ROCKY-P258BX are listed on the next page.

1.1 Specifications :

- **Processor:** Single Slot 1 socket supports Intel Pentium® II/III up to 600Mhz Processor
- **System Memory :** four 168-pin DIMM sockets, support up to 1GB SDRAM
- **Chipset: Intel AGPset 82443BX Host Bridge,** provides a Host-to-PCI bridge, optimized DRAM controller & data path and an Accelerated Graphic Port (AGP) interface.
- **Bus Interface:** ISA bus and PCI 32-bit local bus, PCI 2.1 standard
- **DMA channels :** 7
- **Interrupt levels :** 15
- **Real Time Clock and battery backup :** ST M4T28 Time Keeper (Lithium Battery) for data retention up to ten years.
- **Ultra DMA/33 IDE Interface :** up to four PCI Enhance IDE hard drives. The Ultra DMA/33 IDE can handle data transfer up to 33MB/s. The best of all is that this new technology is compatible with existing ATA-2 IDE specifications. So, there is no need to do any change for customer's current accessory.
- **Multi I/O Chip:** W83977, all I/O setup by BIOS
- **On Board I/O:**
 - 1 Floppy Port (up to 2.88MB, 3 mode)
 - 2 Serial Ports (2F8, 3F8)
 - 1 Parallel Port (ECP, EPP port)
 - FIR TX/RX Header (3E8)
- **USB port:** one USB port on iron plate.
- **Built-in LM78 Hardware Monitoring System** to monitor power supply voltage and CPU Fan rpm status.
- **Watch-dog timer :** can be set by 1, 2, 10, 20, 110 or 220 seconds period. Reset or NMI is generated when CPU does not periodically trigger the timer. Your program uses hex 043 and 443 to control the watch-dog and generate a system reset.

- **ISA PLUS™**: designed to enhance the ISA bus drive capability
- **E²Key™** (optional): A special designed 1-Kbit EEPROM provided to accept read/write data by customer's program. Because of its nonvolatile characteristic, It is very useful to store system ID, Password, Critical Data, etc.
- **Flash Disk - DiskOnChip™** The built-in True FFS Transparent Flash Block Management and Space Reclamation will let customer to use the Flash Disk with DOS command, no need any extra software utility.
- **PS2 Mouse / Keyboard** Port on-board.
- **Power Consumption** : +5V@6.8A +12V@120mA , -12V@50mA
(PII 450MHz CPU and 512MB DRAM)
- **Operating Temperature** : 0° ~ 55° C (CPU needs Cooler)

1.2 What You Have

In addition to this *User's Manual*, the ROCKY-P258BX package includes the following items:

- ROCKY-P258BX (Ver. 5.x) Single Board Computer
- Parallel Ribbon Cable and Port Bracket
- FDD/HDD Cable Sets
- 6-pin Mini-Din to one 5-pin Mini-Din for Keyboard and one 6-pin Mini-Din for PS/2 Mouse Adapter Cable.
- one support disk contains of the needed driver

If any of these items is missing or damaged, contact the dealer from whom you purchased the product. Save the shipping materials and carton in case you want to ship or store the product in the future.

2

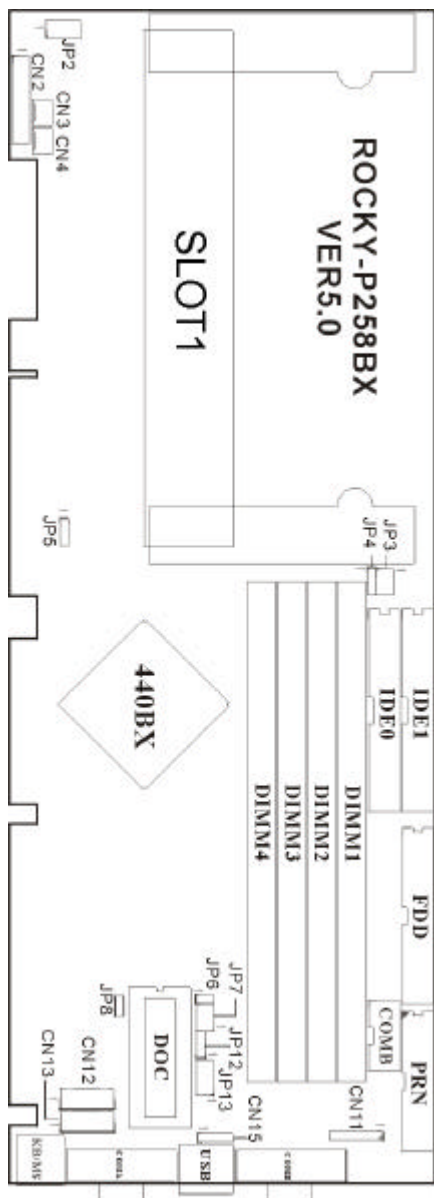
Installation

This chapter describes how to install the ROCKY-P258BX. The layout of ROCKY-P258BX is shown on the next page and the Unpacking Precautions that you should be careful with are described on the following page. Also included is the jumpers and switches setting for this board's configuration, such as: CPU type selection, system clock setting and Watchdog timer.

2.1 ROCKY-P258BX's Layout

< please, refer to the next page >

2.1 ROCKY-P258BX's Layout



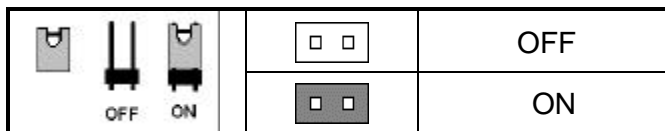
2.2 Unpacking Precautions

Some components on ROCKY-P258BX SBC are very sensitive to static electric charges and can be damaged by a sudden rush of power. To protect it from unintended damage, be sure to follow these precautions:

- ✓ Ground yourself to remove any static charge before touching your ROCKY-P258BX SBC. You can do it by using a grounded wrist strap at all times or by frequently touching any conducting materials that is connected to the ground.
- ✓ Handle your ROCKY-P258BX SBC by its edges. Dont touch IC chips, leads or circuitry if not necessary.
- ✓ Do not plug any connector or jumper while the power is on.
- ✓ Do not put your ROCKY-P258BX SBC unprotected on a flat surface because it has components on both sides.



2.3 Setting the CPU of ROCKY-P258BX

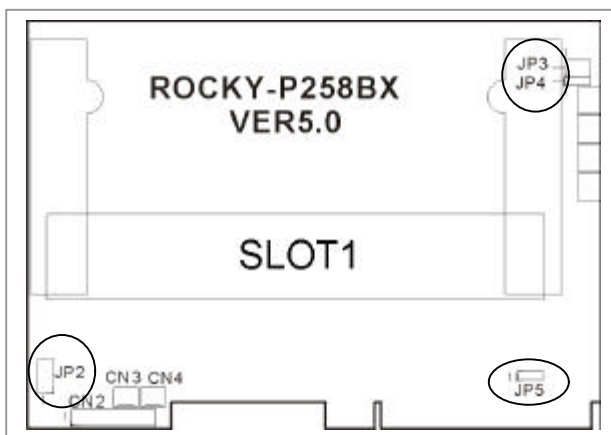


• JP4, JP3 : CPU FREQUENCY SELECT

BUS FREQUENCY	JP4	JP3	
	FS2	FS1	FS0
66MHz	2-3	1-3	2-4
100MHz	1-2	1-3	2-4

• JP2 : CPU Multiplier Setting :

Ratio	1-2	3-4	5-6	7-8
3.0 x	ON	OFF	ON	ON
3.5 x	ON	OFF	OFF	ON
4.0 x	OFF	ON	ON	ON
4.5 x	OFF	ON	OFF	ON
5.0 x	OFF	OFF	ON	ON
5.5 x	OFF	OFF	OFF	ON
6.0 x	ON	ON	ON	OFF
6.5 x	ON	ON	OFF	OFF



2.4 Voltage Setting for PCI Reset

- **JP5 : PCI Reset Voltage** (This is factory setting jumper)

PIN NO.	DESCRIPTION
1-2	5V
2-3	3.3 V

2.5 Watch-Dog Timer

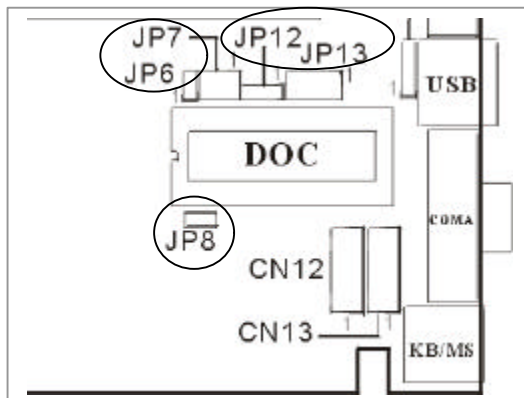
The Watch-Dog Timer is enabled by reading port 443H. It should be triggered before the time-out period ends, otherwise it will assume the program operation is abnormal and will issue a reset signal to reboot or activate NMI to CPU. The Watch-Dog Timer is disable by reading port 043H.

- **JP12 : Watch-Dog Timer Type Setting**

PIN NO.	DESCRIPTION
1-2	NMI
2-3	RESET

- **JP13 : WDT Time-out Period**

PERIOD	1-2	3-4	5-6	7-8
1 sec.	OFF	OFF	ON	OFF
2 sec.	OFF	OFF	ON	ON
10 sec.	OFF	ON	OFF	OFF
20 sec.	OFF	ON	OFF	ON
110 sec.	ON	OFF	OFF	OFF
220 sec.	ON	OFF	OFF	ON



2.6 DiskOnChip™Flash Disk

The DOC is software compatible to hard disk and DOS. Customer doesn't need any extra software utility. The DOC occupies 8KB of memory address. It is just "plug and play", easy and reliable. Right now, the DOC is available from 2MB to 72MB.

• JP7 : DiskOnChip™Memory Address Setting

PIN NO.	ADDRESS
1-2	CE000 – CFFFF
3-4	D6000 – D7FFF
5-6	DE000 – DFFFF

2.7 Clear CMOS Setup

If you forget the CMOS password, you can clear or reset it by closing the **JP8** for about 3 seconds then open again. Now, the password has been cleared from your CMOS. Set it back to normal operation mode by opening it.

• JP8 : Clear CMOS Setup

JP8	DESCRIPTION
ON	CLEAR CMOS
OFF	NORMAL OPERATION

2.8 PS/2 Mouse

• JP6 : PS/2 Mouse Setting

The PS/2 mouse uses IRQ12 while in operation.

JP6	DESCRIPTION
ON	Enable the PS/2 Mouse, IRQ12
OFF	Disable the PS/2 Mouse

3

Connection

This chapter describes how to connect peripherals, switches and indicators to the ROCKY- P258BX board.

3.1 Floppy Disk Drive Connector

ROCKY-P258BX board is equipped with a 34-pin daisy-chain driver connector cable.

• CN8 : FDC CONNECTOR

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	2	REDUCE WRITE
3	GROUND	4	N/C
5	GROUND	6	N/C
7	GROUND	8	INDEX#
9	GROUND	10	MOTOR ENABLE A#
11	GROUND	12	DRIVE SELECT B#
13	GROUND	14	DRIVE SELECT A#
15	GROUND	16	MOTOR ENABLE B#
17	GROUND	18	DIRECTION#
19	GROUND	20	STEP#
21	GROUND	22	WRITE DATA#
23	GROUND	24	WRITE GATE#
25	GROUND	26	TRACK 0#
27	GROUND	28	WRITE PROTECT#
29	GROUND	30	READ DATA#
31	GROUND	32	SIDE 1 SELECT#
33	GROUND	34	DISK CHANGE#

3.2 PCI E-IDE Disk Drive Connector

You can attach four IDE (Integrated Device Electronics) hard disk drives to the ROCKY-P258BX IDE controller.

• **CN7/CN6 : Primary/Secondary IDE Interface Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GND	20	N/C
21	IDE DRQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	IDE CHRDY	28	GND
29	IDE DACK	30	GND
31	INTERRUPT	32	N/C
33	SA 1	34	N/C
35	SA 0	36	SA 2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GND

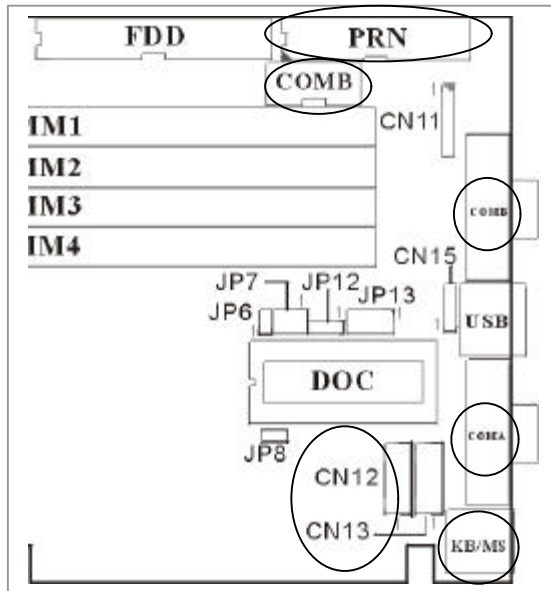


3.3 Parallel Port

This port is usually connected to a printer. ROCKY-P258BX includes an on-board parallel port, accessed through a 26-pin flat-cable connector CN10.

• **CN10 : Parallel Port Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	STROBE#	2	DATA 0
3	DATA 1	4	DATA 2
5	DATA 3	6	DATA 4
7	DATA 5	8	DATA 6
9	DATA 7	10	ACKNOWLEDGE
11	BUSY	12	PAPER EMPTY
13	PRINTER SELECT	14	AUTO FORM FEED #
15	ERROR#	16	INITIALIZE
17	PRINTER SELECT LN#	18	GND
19	GND	20	GND
21	GND	22	GND
23	GND	24	GND
25	GND	26	N/C

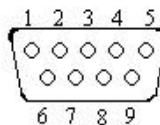


3.4 Serial Ports

The ROCKY-P258BX offers two high speed NS16C550 compatible UARTs with Read/Receive 16 byte FIFO serial ports (COMA/COMB) and one additional 10-pin Header (COMB)

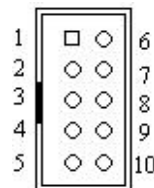
• **CN17/CN14 : Serial Port DB-9 Connector (COMA/COMB)**

PIN NO.	DESCRIPTION
1	DATA CARRIER DETECT (DCD)
2	RECEIVE DATA (RXD)
3	TRANSMIT DATA (TXD)
4	DATA TERMINAL READY (DTR)
5	GROUND (GND)
6	DATA SET READY (DSR)
7	REQUEST TO SEND (RTS)
8	CLEAR TO SEND (CTS)
9	RING INDICATOR (RI)



• **CN9 : Serial Port 10-pin Header (COMB)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	6.	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	N/C

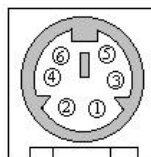


3.5 Keyboard / Mouse Connector

ROCKY-P258BX provides one PS/2 Keyboard/Mouse connector.

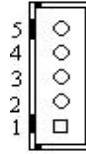
• **CN18 : 6-pin Mini-DIN PS2 Keyboard/Mouse Connector**

PIN NO.	DESCRIPTION
1	KEYBOARD DATA
2	MS DATA
3	GND
4	+5V
5	KB CLOCK
6	MS CLOCK



• **CN13 : 5-pin Header External Keyboard Connector**

PIN NO.	DESCRIPTION
1	KB CLOCK
2	KB DATA
3	N/C
4	GND
5	+5V



• **CN12 : 5-pin Header External Mouse Connector**

PIN NO.	DESCRIPTION
1	MS CLOCK
2	MS DATA
3	N/C
4	GND
5	+5V

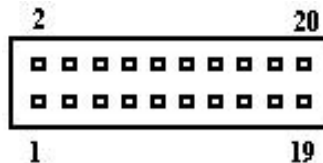


3.6 External Switches and Indicators

There are several external switches and indicators for monitoring and controlling your CPU board. All the functions are in the CN2 connector.

• **CN2 : Multi Panel**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	SPEAKER
3	N/C	4.	N/C
5	GND	6.	N/C
7	KEYLOCK	8.	+5V
9	GND	10.	RESET SW
11	GND	12,	GND
13	N/C	14.	IDE LED
15	ATX POWER CONTROL	16.	+5V
17	ATX 5VSB	18.	ATX POWER BUTTON
19	ATX 5VSB	20.	ATX 5VSB



3.7 USB Port Connector

The ROCKY- P258BX has one built-in USB port and one connector for the future new I/O bus expansion.

- **CN15: USB Connector**
- **CN16: USB Port**

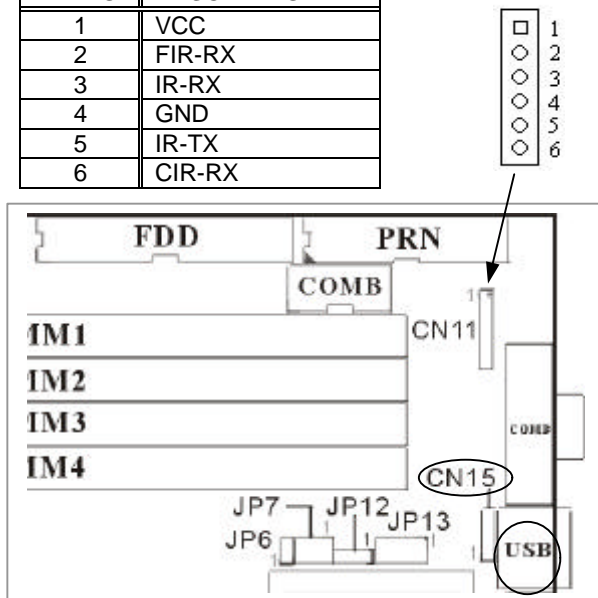
CN15	Description	CN16	Description
1	VCC	1	VCC
2	SBD1-	2	SBD0-
3	SBD1+	3	SBD0+
4	GND	4	GND

3.8 IrDA Infrared Interface Port

ROCKY-P258BX built-in IrDA port supports Serial Infrared (SIR) or Amplitude Shift Keyed IR (ASKIR) interface. If you want to use the IrDA port, you have to configure the SIR or ASKIR model in the BIOS's Peripheral Setup's COM2. Then the normal RS-232 COM2 will be disabled.

- **CN11 : IrDA Connector**

PIN NO.	DESCRIPTION
1	VCC
2	FIR-RX
3	IR-RX
4	GND
5	IR-TX
6	CIR-RX

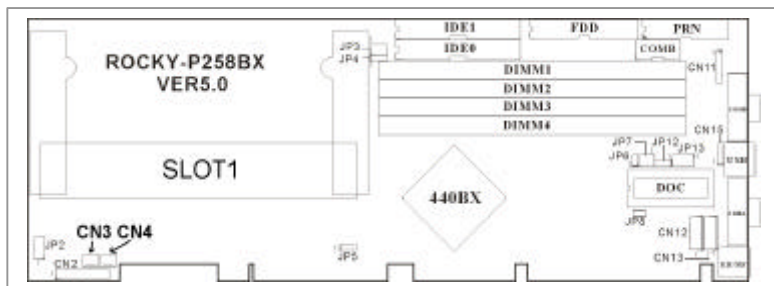


3.9 Fan Connector

The ROCKY-P258BX provides one CPU cooling fan connector and one system fan connector. These connectors can supply 12V/500mA to the cooling fan. The connector has a “rotation” pin which supplies the fan’s rotation signal to the system, so the system BIOS knows the fan speed. Please note that only specified fan offers the rotation signal .

- CN3 : CPU Fan Connector
- CN4 : System Fan Connector

PIN NO.	DESCRIPTION
1	Fan Sensor
2	+12V
3	GND



4

AMI BIOS Setup

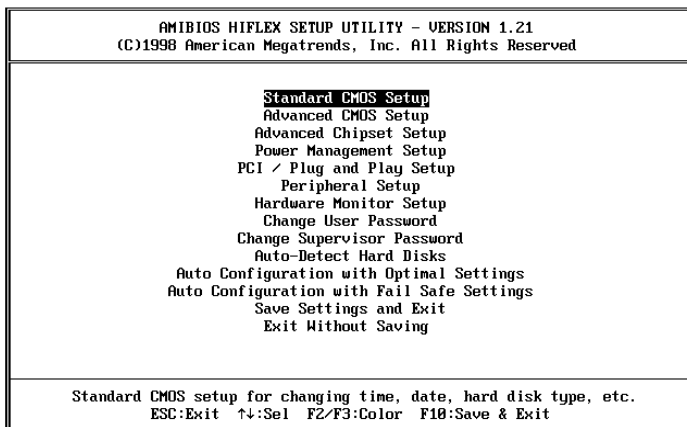
The ROCKY-P258BX uses the AMI PCI/ISA BIOS for system configuration. The AMI BIOS setup program is designed to provide maximum flexibility in configuring the system by offering various options which may be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

4.1 Getting Start

When you turn on the power button, the BIOS will enter the Power-On-Self-Test routines. These routines will be executed for system test and initialization and system configuration verification.

" Hit DEL if you want to run SETUP"

To access AMI PCI/ISA BIOS Setup program, press key. The following screen will be displayed at this time.



4.2 Standard CMOS Setup

The standard CMOS Setup is used for basic hardware system configuration. The main function is for Date/Time setting and Floppy/Hard Disk setting. Please refer to the following screen for this setup

AMIBIOS SETUP - STANDARD CMOS SETUP										
(C)1998 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yyyy):	Thu	Apr	01, 1999	Base Memory: 0 KB			Ext'd Memory: 0 MB			
Time (hh/mm/ss) :	09:09:49									
Floppy Drive A:	1.44 MB 3½									
Floppy Drive B:	Not Installed									
	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PID Mode	32Bit Mode
Pri Master :	Auto									0n
Pri Slave :	Auto									0n
Sec Master :	Auto									0n
Sec Slave :	Auto									0n
Boot Sector Virus Protection				Disabled						
Month:	Jan - Dec					ESC:Exit ↑↓:Sel				
Day:	01 - 31					PgUp/PgDn:Modify				
Year:	1901 - 9999					F1:Help F2/F3:Color				

To set the Date, for example, press either the arrow or <Enter> button on your keyboard to select one of the fields (Months, Date or Year) then press either <PgUp> or <PgDn> to set it to the current Months, Date and Year. Do the same steps for Time setting.

For IDE hard disk drive setup, please check the following possible setup procedure:

1. Use the Auto setting for detection during boot-up.
2. Use the Auto-Detect Hard Disk option in the main menu; the computer will automatically detect the HDD specifications.
3. Manually enter the specifications by yourself from the "User" option.

4.3 Advanced CMOS Setup

This Advanced CMOS Setup is designed for tuning the best performance of the ROCKY-P258BX board. As for normal operation customers don't have to change any default setting. The default setting is pre-set for most reliable operation.

The following screen will be displayed if you select Advanced CMOS Setup:

AMIBIOS SETUP - ADVANCED CMOS SETUP (C)1998 American Megatrends, Inc. All Rights Reserved		
Quick Boot	Enabled	Available Options:
1st Boot Device	Floppy	Disabled
2nd Boot Device	IDE-0	▶ Enabled
3rd Boot Device	CDROM	
Try Other Boot Devices	Yes	
Floppy Access Control	Read-Write	
Hard Disk Access Control	Read-Write	
S.M.A.R.T. for Hard Disks	Disabled	
BootUp Num-Lock	On	
Floppy Drive Swap	Disabled	
Floppy Drive Seek	Disabled	
PS/2 Mouse Support	Enabled	
System Keyboard	Absent	
Primary Display	Absent	
Password Check	Setup	
Boot To OS/2 > 64MB	No	
CPU Serial Number	Disabled	
Cache Bus ECC	Enabled	ESC:Exit ↑:Sel
System BIOS Cacheable	Enabled	PgUp/PgDn:Modify
C000,16k Shadow	Cached	F1:Help F2/F3:Color

You can change the value of each options by using <PgUp> and <PgDn> key. The available values are shown on the right screen. **Quick Boot > Enabled:** this will enable the BIOS to boot quickly when you turn on your computer. The BIOS will only check the first 1MB of the system memory.

Quick Boot > Disabled: the BIOS will test all system memory when it boots up. It will spend about 40 seconds until it receives a Ready signal from the HDD. It will also wait for you to press the key or not.

1st, 2nd, 3rd Boot Device > to define the sequence of boot drives after the routines check up completes. If the 1st Boot Device fails, the BIOS will attempt to boot from the 2nd or the 3rd device. The Optimal and Fail-Safe default settings are C:,A:,CDROM.

Try Other Boot Devices > the BIOS will try to boot from any other available device in the system if the 1st, 2nd and 3rd device fails to boot.

Floppy Access Control > to define the read/write access which is set when booting from a floppy drive.

Hard Disk Access Control > to define the read/write access which is set when booting from a HDD.

S.M.A.R.T. for Hard Disks > to allow BIOS to use the **S**ystem **M**anagement and **R**eporting **T**echnologies protocol for reporting server system information on a network

BootUp Num-Lock > to turn on/off the Num-Lock option on a enhanced keyboard when you boot. If you turn it off, the arrow keys on the numeric keypad can be used just as the other set of arrow keys on the keyboard and vice versa.

Floppy Drive Swap > this function enables you to swap the floppy disk drives via software or without moving the hardware.

Floppy Drive Seek > when this option is turned Enabled, BIOS will perform a Seek command on floppy drive A: before boot-up.

PS/2 Mouse Support > to testify whether or not a PS/2 mouse is supported.

System Keyboard > to configure the keyboard. If you set it Absent, BIOS will not report keyboard errors.

Primary Display > to define the type of display monitor of the system. The Absent option is for network file servers.

Password Check > to define if a password is necessary or not for access to the BIOS setup.

Boot to OS/2 > if you run the OS/2 operating system, this option must be set to yes. It means you permit BIOS to run properly if OS/2 or any other OS that does not support Plug and Play is found in your computer.

CPU Serial Number > this option is available only if you use Pentium[®] III processor.

Cache Bus ECC > this option is available only if you use Pentium[®] III processor.

System BIOS Cacheable > to define whether or not the memory segment F000H can be read from or written to cache memory. Setting it Enabled will give faster execution in your system.

XXXX, 16k Shadow > ROM Shadow is a technique in which BIOS code is copied from slower ROM to faster RAM. If you

enable it then the BIOS will be executed from the RAM. Each option allows 16KB segment to be shadowed to the RAM.

4.4 Advanced Chipset Setup

This setup functions are working mostly for Chipset (Intel 440BX). These options are used to change the Chipset's registers. Please carefully change any default setting ,otherwise the system will run unstably.

AMIBIOS SETUP - ADVANCED CHIPSET SETUP (C)1998 American Megatrends, Inc. All Rights Reserved	
***** SDRAM Timing *****	
Configure SDRAM Timing by SPD	Disabled
SDRAM RAS# to CAS# delay	3 SCLks
SDRAM RAS# Precharge	3 SCLks
SDRAM CAS# Latency	3 SCLks
SDRAM Leadoff Cmd Timing	Auto
DRAM Integrity Mode	Non-ECC
DRAM Refresh Rate	15.6 us
Memory Hole	Disabled
UGA Frame Buffer USMC	Disabled
PCI Frame Buffer USMC	Disabled
USMC Write Post	Enabled
Graphics Aperture Size	64MB
Search for MDA Resources	Yes
8bit I/O Recovery Time	1 Sysclk
16bit I/O Recovery Time	1 Sysclk
USB Passive Release	Enabled
PIIX4 Passive Release	Enabled
PIIX4 Delayed Transaction	Disabled
USB Function	Disabled
Available Options: ▶ Disabled Enabled	
ESC:Exit ↑:Sel PgUp/PgDn:Modify F1:Help F2/F3:Color	

Configure SDRAM Timing by SPD > The **Serial Presence Detect** is a 2048bits EEPROM which contains of the data of the chip module, capacity, timing, voltage, etc. The system will configure the SDRAM timing according to the data in the SPD when it is set enabled.

SDRAM RAS# to CAS delay > to specify the relative delay between row and column address strobe form SDRAM.

SDRAM RAS# Precharge > this option specifies the length of time for Row Address Strobe form SDRAM to precharge.

SDRAM CAS# Latency > to specify the CAS latency timing form SDRAM DRAM.

DRAM Integrity Mode > to choose DRAM Integrity Mode; **ECC/EC** will enable the **Error Checking and Correction** DRAM integrity mode.

DRAM Refresh Rate > to specify the timing for DRAM Refresh

Memory Hole : to specify the location of a memory hole in the CMOS RAM. This setting reserves 15MB to 16MB memory address space for ISA expansion cards that specifically require this setting. Memory from 15MB and up will be unavailable to the system because expansion cards can only access memory up to 16MB.

VGA Frame Buffer USWC > to specify whether or not a caching of the video A000-BFFF RAM is allowed. *Enabled* will give you better system performance.

PCI Frame Buffer USWC > to specify whether or not a caching of the PCI VGA frame buffer is allowed.

USWC Write Post > to Enable or Disable the use of Uncacheable, Speculatable, Write-Combined memory.

Graphics Aperture Size > to define the size of Graphics Aperture.

Search for MDA Resources > to allow the BIOS to search for MDA resources or not.

8bit I/O Recovery Time > to define the length of time for 8 bit I/O recovery.

16bit I/O Recovery Time > to define the length of time for 16 bit I/O recovery.

USB Passive Release > to specify whether or not PIIX4 is allowed to use Passive Release while transferring control data for USB transactions.

PIIX4 Passive Release > *Enabled* will let the Passive Release mechanism encoded when CPU to PCI bus accesses.

PIIX4 Delayed Transaction > to enable or disable the embedded 32-bit posted write buffer which supports delay transaction.

USB Function > to enable or disable the USB (Universal Serial Bus) functions.

4.5 Power Management Setup

AMIBIOS SETUP - POWER MANAGEMENT SETUP (C)1998 American Megatrends, Inc. All Rights Reserved		
Power Management/APM	Disabled	Available Options: ▶ Disabled Enabled
Green PC Monitor Power State	Off	
Video Power Down Mode	Disabled	
Hard Disk Power Down Mode	Disabled	
Standby Time Out (Minute)	Disabled	
Suspend Time Out (Minute)	Disabled	
Throttle Slow Clock Ratio	58-62.5%	
Modem Use IO Port	N/A	
Modem Use IRQ	N/A	
Display Activity	Ignore	
Device 6 (Serial port 1)	Monitor	
Device 7 (Serial port 2)	Monitor	
Device 8 (Parallel port)	Ignore	
Device 5 (Floppy disk)	Monitor	
Device 8 (Primary master IDE)	Monitor	
Device 1 (Primary slave IDE)	Ignore	
Device 2 (Secondary master IDE)	Monitor	
Device 3 (Secondary slave IDE)	Ignore	
Power Button Function	Suspend	ESC:Exit F4:Sel
Ring Resume From Soft Off	Disabled	FgUp/FgDn:Modify F1:Help F2/F3:Color

Power Management/APM > to enable or disable the Advanced Power Management feature.

Green PC Monitor Power State > to specify the power state of the monitor after the specified period of display-idle has ended.

Video Power Down Mode > to specify the power state of the VESA VGA video subsystem after the specified period of display-idle has ended.

Hard Disk Power Down Mode > to specify the power state of the hard disk after the specified period of hard drive-idle has ended.

Standby Time Out (Minute) > to specify the length of the system-idle period while the system is in full power on state. After this period of time has ended, the system will go into Standby state.

Suspend Time Out (Minute) > to specify the length of the system-idle period while the system is in Standby state. After this period of time has ended, the system will go into Suspend state.

Throttle Slow Clock Ratio > to specify the speed of system clock under power saving state. The figure is a ratio between power conserving and normal state CPU clock.

Modem Use IO Port > to assign a port for modem.

Modem Use IRQ > to assign an IRQ for modem

Display Activity > to specify if BIOS has to monitor display activity or not.

Device X > to monitor specified device IRQ or Ignore.

4.6 PCI / PLUG AND PLAY Setup

The setup help user handles the ROCKY-P258BX board's PCI function. All PCI bus slots on the system use INTA#, thus all installed PCI slots must be set.

AMIBIOS SETUP - PCI / PLUG AND PLAY SETUP (C)1998 American Megatrends, Inc. All Rights Reserved		
Plug and Play Aware O/S	No	Available Options: ▶ No Yes
Clear NVRAM	No	
PCI Latency Timer (PCI Clocks)	64	
PCI VGA Palette Snoop	Disabled	
Allocate IRQ to PCI VGA	Yes	
PCI IDE BusMaster	Disabled	
OffBoard PCI IDE Card	Auto	
OffBoard PCI IDE Primary IRQ	Disabled	
OffBoard PCI IDE Secondary IRQ	Disabled	
PCI Slot1 IRQ Priority	Auto	
PCI Slot2 IRQ Priority	Auto	
PCI Slot3 IRQ Priority	Auto	
PCI Slot4 IRQ Priority	Auto	
DMA Channel 0	PnP	
DMA Channel 1	PnP	
DMA Channel 3	PnP	
DMA Channel 5	PnP	
DMA Channel 6	PnP	
DMA Channel 7	PnP	
IRQ3	PCI/PnP	
		ESC:Exit ↑:Sel PgUp/PgDn:Modify F1:Help F2/F3:Color

Plug and Play Aware O/S > Yes or No

When PNP OS is installed, interrupts will be reassigned by the OS when the setting is Yes. When a non-PNP OS is installed or to prevent reassigning of interrupt settings, select setting to No.

Clear NVRAM > to specify whether BIOS has to clear NVRAM on every boot or not.

PCI Latency Timer (PCI Clocks) > to define the latency timing (PCI clock) for all PCI devices on the PCI bus.

PCI VGA Palette Snoop > this option is useful only for system with more than one VGA devices connected to it through different bus (one PCI and one ISA). To enable those various VGA devices to handle signal from the CPU on each set of palette registers of every video devices, it must be set *Enabled*.

Allocate IRQ to PCI VGA > to allocate IRQ to PCI VGA, answer Yes and vice versa.

PCI IDE BusMaster > to include the BusMastering capability into the IDE Controller on the PCI.

Offboard PCI IDE Card > to specify if an offboard PCI IDE card is installed in your computer or not. You must specify the slot number on the board which will be used for the card.

Offboard PCI IDE Primary (/Secondary) IRQ > to specify the PCI interrupt that is assigned to the Primary (/Secondary) IDE channel on the offboard PCI IDE controller.

PCI Slot (1,2,3,4) IRQ Priority > to specify the IRQ priority to be used by the PCI devices on slot 1 to 4.

DMA Channel (0,1,3,5,6,7) > to indicate whether or not the DMA channel is assigned for a PnP or ISA card.

IRQ (3,4,5,7,9,10,11,14,15) > to assign the displayed IRQ to be used by a legacy ISA adapter card. The settings are ISA/EISA or PCI/PnP. If it is set to ISA/EISA, the BIOS will not assign any IRQ to PCI devices.

4.7 Peripheral Setup

This setup is working mostly on Multi-I/O Chip (W83977F). The options are used to change the Chipset's registers. Please carefully change any default setting to meet your application need perfectly. The only special concern is Onboard Serial Port 2. If you want to use the IrDA port, you have to configure the SIR or ASKIR model in the BIOS's Peripheral Setup's COM2; the RS-232 COM2 will be disabled.

AMIBIOS SETUP - PERIPHERAL SETUP			
(C)1998 American Megatrends, Inc. All Rights Reserved			
OnBoard FDC	Auto	Available Options: ▶ Auto Disabled Enabled	
OnBoard Serial PortA	3F8h/COM1		
OnBoard Serial PortB	2F8h/COM2		
Serial PortB Mode	Normal		
IR Duplex Mode	N/A		
IrDA Protocol	N/A		
OnBoard Parallel Port	378h		
Parallel Port Mode	Normal		
EPP Version	N/A		
Parallel Port IRQ	7		
Parallel Port DMA Channel	N/A		
OnBoard IDE	Both		
			ESC:Exit ↑↓:Sel PgUp/PgDn:Modify F1:Help F2/F3:Color

Onboard FDC > to enable the FDC on your board. If you set it Auto, the BIOS will decide if the FDC should be enabled, automatically).

Onboard Serial Port A (/B) > to specify the I/O port address of the serial port 1(/2). If you set it Auto, the BIOS will decide the correct I/O port address, automatically.

Serial Port B Mode > to specify the mode of serial port 2.

IR Duplex Mode > to specify the mode of IR device that is connected to the IR port.

IrDA Protocol > to specify the function mode if an IrDA mode is selected.

Onboard Parallel Port > to specify the I/O port address of the parallel port.

Parallel Port Mode > to specify the mode of parallel port. The options are:

Normal (normal parallel port mode),

Bi-Dir (supports bidirectional transfer),

EPP (supports devices that comply with the Enhanced Parallel Port specification),

ECP (supports devices that comply with the Extended Capabilities Port).

Parallel Port IRQ > to assign certain IRQ to the parallel port. The optimal and fail-safe settings are 7.

Parallel Port DMA Channel > available only if the parallel port mode is ECP. The optimal and fail-safe settings are 3.

Onboard IDE > to define which on-board IDE controller channel(s) to be used. Available options are: Primary, Secondary, Both and Disabled.

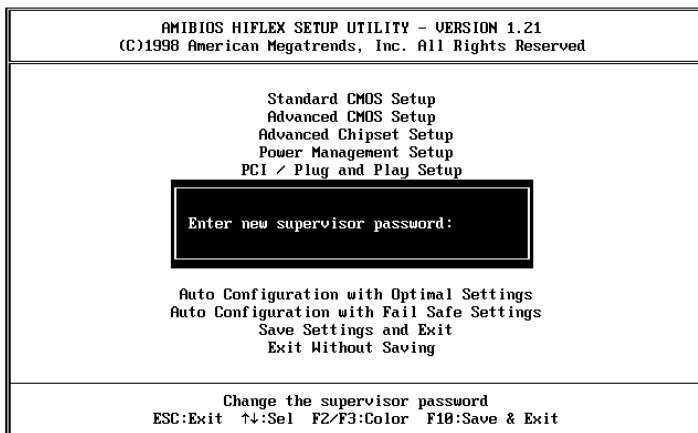
4.8 Hardware Monitor Setup

There is a LM78 chip on your board which can monitor on board system voltage and fan speed. The voltage monitoring will cover Vtt, Vcore, Vio, +5V,+12V,-12V,and -5V.

AMIBIOS SETUP - HARDWARE MONITOR SETUP		
(C)1998 American Megatrends, Inc. All Rights Reserved		
CPU Plug & Play	Auto	Available Options: Manual ▶ Auto
CPU Frequency Selection	100 Mhz	
-≡ System Hardware Monitor ≡-		
Current System Temperature	48°C/118°F	
CPU1 Fan Speed	5443 RPM	
CPU2 Fan Speed	0 RPM	
Vtt	1.520 V	
Vcore	1.984 V	
Vio	3.392 V	
+ 5.000V	5.113 V	
+12.000V	12.728 V	
-12.000V	-12.209 V	
- 5.000V	-5.124 V	
ESC:Exit ↑↓:Sel PgUp/PgDn:Modify F1:Help F2/F3:Color		

Note: normal CPU Fan RPM is over than 5000 RPM. If your CPU Fan RPM is less than that figure, something is wrong and the CPU will be in overheat condition. Make sure that the connection at CN3/CN4 is correct. Anyway, the above RPM figure is for reference only. Different brand may give different figure.

4.9 Change Supervisor / User Password



This option sets a password that is used to protect your system and Setup Utility. Supervisor Password has higher priority than User Password. Once you setup the password, the system will always ask you to key-in password every time you enter the BIOS SETUP. If you enter the BIOS SETUP with Supervisor Password, you can access every setup option on the main menu but with User Password you can only choose three setup options (USER PASSWORD, SAVE SETTING AND EXIT and EXIT WITHOUT SAVING). To disable these passwords, enter the BIOS SETUP menu with Supervisor Password and then just press the <Enter> key instead of entering a new password when the 'Enter Password' prompt pop-up.

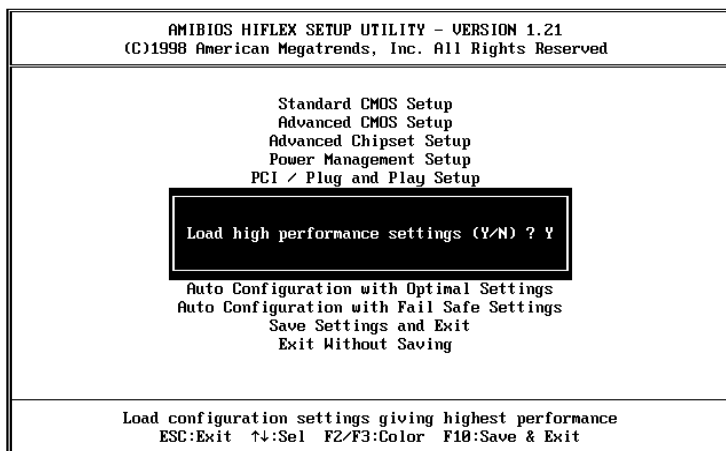
4.10 Auto-Detect Hard Disk

This option detects the parameters of an IDE hard disk drive (HDD sector, cylinder, head, etc) automatically and will put the parameters into the Standard CMOS Setup screen. Up to 4 IDE drives can be detected and the parameters will be listed in the box. Press <Y> if you accept these parameters. Press <N> to skip the next IDE drives.

Note: If your IDE HDD was formatted in previous older system, incorrect parameters may be detected. In this case, you need to enter the correct parameters manually or low-level format the disk.

4.11 Auto Configuration with Optimal Settings

This option lets you load the *Optimal* default settings. These settings are *best-case values* which will provide the best performance. Whenever your CMOS RAM is damaged, this Optimal settings will be loaded automatically.



4.12 Auto Configuration with Fail Save Settings

This option lets you load the *Fail Safe* default settings when something happens to your computer and causes it cannot boot normally. These settings are not the most optimal settings but are the most stable settings.



4.13 Save Settings and Exit

Select this option when you finish setting all the parameters and want to save them into the CMOS. Just simply press <Enter> key and all the configuration changes will be saved.

4.14 Exit Without Saving

Select this option if you want to exit the Setup without saving the changes that you made. Just simply press <Enter> key and you will exit the BIOS SETUP without saving the changes.

5

E² Key™ Function (optional)

The ROCKY-P258BX provides an optional outstanding E²KEY™ function for system integrator. Based on the E²KEY™, you can free to store the ID Code, Password or Critical Data in the 1Kbit EEPROM. Because the EEPROM is nonvolatile memory, you don't have to worry for losing very important data.

Basically the E²KEY™ is based on a 1Kbit EEPROM which is configured to 64 words(from 0 to 63). You could access (read or write) each word at any time.

When you start to use the E²KEY™ you should have the utility in the package. The software utility will include four files as follows,

README.DOC
E2KEY.OBJ
EKEYDEMO.C
EKEYDEMO.EXE.

The E2KEY.OBJ provides two library functions for user to integrate their application with E²KEY™ function. These library (**read_e2key** and **write_e2key**) are written and compiled in C language. Please check the following statement, then you will know how to implement it easily.

unsigned int read_e2key(unsigned int address)

/* This function will return the E²KEY™'s data at address. The address range is from 0 to 63. Return data is one word,16 bits

***/void write_e2key(unsigned int address,unsigned data)**

/* This function will write the given data to E²KEY™ at certain address. The address range is from 0 to 63. The data value is from 0 to 0xffff. */

To easily start to use the function, please refer to the included EKEYDEMO.C code at first.

Please note that the E²KEY™ function is based on the working of parallel port. So you should enable the ROCKY-P258BXs parallel port, otherwise it will not work.

Appendix A. Watch-Dog Timer

The WatchDog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, hardware on the board will either perform a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

Two I/O ports control the WatchDog Timer .:

443 (hex)	Read	Enable to refresh the WatchDog Timer.
043 (hex)	Read	Disable the WatchDog Timer.

To enable the WatchDog Timer, a read from I/O port 443H must be performed. This will enable and activate the countdown timer which will eventually time-out and either reset the CPU or cause a NMI, depending on the setting of JP12. To ensure that this reset condition does not occur, the WatchDog Timer must be periodically refreshed by reading the same I/O port 443H. This must be done within the time-out period that is selected by jumper group JP13.

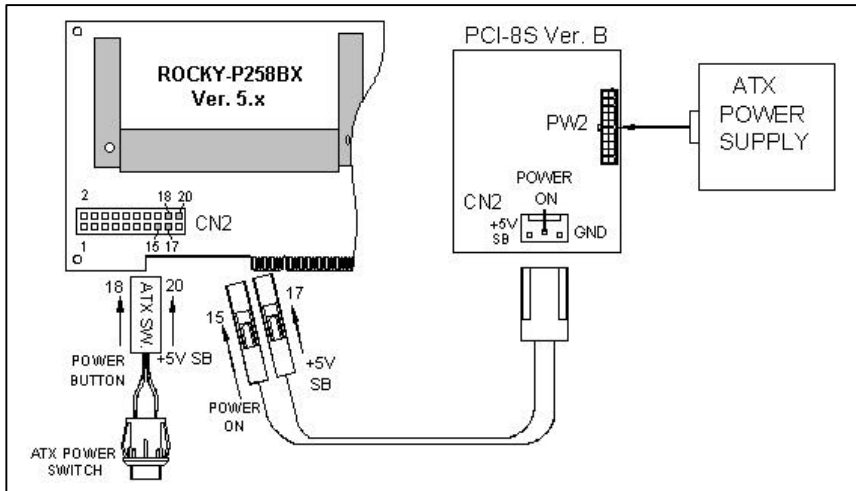
A tolerance of at least 30% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming. Therefore, if the time out period has been set to 10 seconds, the I/O port 443H must be read within 7 seconds.

Note: when exiting a program, it is necessary to disable the WatchDog Timer, otherwise the system will reset.

Appendix B. ATX Power Supply

The following notes show how to connect ATX Power Supply to the backplanes and the ROCKY-P258BX.

Please, disconnect the AC cord of the Power Supply from the AC source when you plug-in DC connector to prevent sudden electric surge to the board.



Connect the ATX power supply switch to the pin 18 (power button) and pin 20 (+5VSB) of CN2 (multi panel) on the board.

If you wish to turn off the power supply, please push the ATX power switch button for about 4 sec. And to turn ON the system, simply push the button once.

Appendix C. I/O Information

IO Address Map

I/O address Range	Description
000-01F	DMA Controller #1
020-021	Interrupt Controller #1, Master
040-05F	8254 timer
060-06F	8042 (Keyboard Controller)
070-07F	Real time Clock, NMI (non-maskable interrupt) Mask
080-09F	DMA Page Register
0A0-0BF	Interrupt Controller #2
0C0-0DF	DMA Controller #2
0F0	Clear Math Coprocessor Busy
0F1	Reset Math Coprocessor
0F8-0FF	Math Coprocessor
1F0-1F8	Fixed Disk
200-207	Game I/O
278-27F	Parallel Printer Port 2 (LPT3)
2E8-2EF	Serial Port 4
2F8-2FF	Serial Port 2
300-31F	Prototype Card
360-36F	Reserved
378-37F	Parallel Printer Port 1 (LPT2)
380-38F	SDLC, bisynchronous 2
3A0-3AF	Bisynchronous 1
3B0-3BF	Monochrome Display and Printer Adapter (LPT1)
3C0-3CF	Reserved
3D0-3DF	Color/Graphics Monitor Adapter
3E8-3EF	Serial Port 3
3F0-3F7	Diskette Controller
3F8-3FF	Serial Port 1
443	Watch dog timer enable
043	Watch dog timer disable

1st MB Memory Address Map

Memory address	Description
00000-9FFFF	System memory
A0000-BFFFF	VGA buffer
C0000-CBFFF	VGA BIOS
* D6000-D7FFF	DOC 2000
E0000-FFFFFF	System BIOS
1000000-	Extend BIOS

*Default Setting

IRQ Mapping Chart

IRQ0	System Timer	IRQ8	RTC Clock
IRQ1	Keyboard	IRQ9	Unused
IRQ2	Cascade to IRQ Controller	IRQ10	Unused
IRQ3	COM2/COM4	IRQ11	Unused
IRQ4	COM1/COM3	IRQ12	PS/2 mouse
IRQ5	Unused	IRQ13	FPU
IRQ6	FDC	IRQ14	Primary IDE
IRQ7	Printer	IRQ15	Secondary IDE

DMA Channel Assignments

DMA Channel	Function
0	Available
1	Available
2	Floppy Disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available