SBC8179

Dual Socket370
Pentium® III All-in-One
CPU Card Series

User's Manual

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Chapter 1
Introduction

1.1 General Description

The **SBC8179** is a Dual Socket370 Pentium® III industrial CPU card based on Intel's 440BX chipset and is fully designed for harsh industrial environment. It features two Socket370 processor sockets that are compatible with Pentium® III processors. This card accommodates up to 512MB of unbuffered SDRAMs or 1GB of buffer SDRAM configurations.

The **SBC8179** comes with Winbond's W83781D hardware monitoring device that monitors system/CPU temperatures, system voltages, and CPU/chassis fan speeds, preventing system crashes by warning the user of adverse conditions. The power management feature provides power savings by slowing down the CPU clock, turning OFF the monitor screen and stopping the HDD spindle motor.

1.2 Specifications

- **Bus Archtecture:** PICMG (ISA/PCI)
- **CPU Sockets:** Dual Socket370
- **CPU Front Size Bus Clock:** 100 MHz for Pentium® III
- **Chipset:** Intel 440BX AGPset with PCI EIDE
- **BIOS:** Award BIOS 2MB PnP BIOS
- **Secondary Cache:** CPU integrated
- **Memory Sockets:** Four 168-pin DIMM sockets, up to 1GB in SDRAM with ECC supported

NOTE: *Only SDRAM modules that support SPD (Serial Presence Detect) should be used. Use PC100 modules when running 100MHz CPU bus speed and use PC66/PC100 modules when running 66MHz CPU bus speed.*

- **IDE Interface:** two bus mastering ATA-33 EIDE channels, up to 4 devices
- **FDD Interface:** supports up to two floppy disk drives
- **Serial Port:** one RS-232 and one RS-232/422/485
- **Parallel Port:** One high-speed parallel port, ECP/EPP/SPP mode
- **DiskOnChip®:** M-Systems DiskOnChip® flask disk support from 2MB to 144MB.
- **Keyboard and Mouse Connectors:**
  - one PS/2 6-pin mini-DIN connector for keyboard and mouse
  - internal 5-pin box-header connector for keyboard
  - internal 5-pin box-header connector for mouse
- **Watchdog Timer:**
  - Generates System Reset or Non-Maskable Interrupt (NMI) via jumper selection
  - 64 programmable time interval levels of from 0.5~8 / 5~80 / 50~800 / 100~1600 seconds
- **USB Interface:** two USB box-header connectors, compliant with USB Specification Rev. 1.0

- **IrDA Interface:** one box-header connector for the optional IrDA external connector
- **VGA Display:**
  - C&T 69000 VGA controller
  - 2MB of display memory built in the chipset
  - Supports CRT/LCD
- **Ethernet:**
  - Intel 82559 mini-BGA chipset
  - RJ-45 connector onboard
  - Wake On LAN supported
- **Hardware Monitoring:**
  - Winbond W83781D IC chipset
  - Monitoring for CPU temperature, system temperature, voltage, CPU and chassis fan speeds
- **Other Features:**
  - 6-pin 5VSB ATX power connector
  - keyboard/mouse wake up/modem ring-on (via ATX power supply)
  - ISA high drive supported
- **Power Management:** ACPI
- **Power Supply Voltage:** +5V, +/-12V
- **Operating Temperature:** 0°C to 60°C (32oF to 140oF)
- **StorageTemperature:** -20°C to 85°C (-4oF to 185oF)
- **Operating Humidity:** 5% to 95%, non-condensing
- **Storage Humidity:** 5% to 75%
- **MTBF:** 50,000 hours
- **EMI:** FCC Class A and CE approved

1.3 Board Dimensions

Chapter 2
Installation

This chapter provides information on how to configure the jumpers and connectors on the **SBC8179** in order to set up a workable system.

2.1 CPU Installation

The **SBC8179** Industrial CPU card supports Dual Socket370 connector/processor sockets for Pentium® III processors. This connector secures the installation of the Pentium® III processor, ensuring the proper installation of the CPU.

Before installing the Pentium® III processor into the Socket370 connector, ensure that the CPU fan is securely installed. After doing so, insert the processor into the Socket370 connector. Locking mechanism on both sides of the Socket370 connector will 'click' and secure the Pentium® III processor.

To uninstall the Pentium® III processor, simply push the locking mechanism on both sides simultaneously and remove the Pentium® III processor. No tools are needed.

CAUTION: *When installing two Pentium® III processors onboard the SBC8179, make sure that both processors have identical clock speeds. Mixed combinations are not allowed.*

WARNING: *SBC8179 supports installation of a single or dual Pentium® III processor. When using only a single Pentium® III processor, install only on CPUI Socket connector. Do not attempt to mount the Pentium® III processor into the CPUII Socket connector!*

2.1.1 Single Processor Installation

When configuring the **SBC8179** for **single processor** setting, *install the processor into CPUI socket*. Refer to the illustration on Section 3.2 for the actual location of CPUI socket.

2.1.2 Dual Processor Installation

When configuring the **SBC8179** for **dual processor** setting, *install the processors into CPUI and CPUII sockets*. *Make sure that both processors* ***have identical frequency speed****.*

2.2 Memory Installation

The **SBC8179** Industrial CPU Card supports four 168-pin DIMM (Dual In-line Memory Module) sockets for a maximum total memory of 512MB unbuffered SDRAMs or 1GB buffer SDRAMs. The memory modules can come in sizes of 16MB, 32MB, 64MB, 128MB and 256MB (for buffer type) SDRAMs.

When populating the DIMM sockets, DIMM1,2,3 or DIMM4 bank can be populated first. Refer to the following table on how to configure the memory.

NOTE: *Use SDRAM modules with PC100 specification when running 100MHz CPU bus speed. With 66MHz CPU bus speed, SDRAM modules with PC66 or PC100 specification can be used. You have to install the Pentium® III processor before installing the memory modules.*

Chapter 3
Jumpers and Connectors

3.1 Board Layout and Fixing Holes

3.2 Jumper Settings

The jumpers on the **SBC8179** allow you to configure your CPU card according to the needs of your applications. If you have doubts about the best jumper configuration for your needs, contact your dealer or sales representative. The following table lists the connectors on **SBC8179** and their respective functions.

Jumper	Description	Default Setting
J1	Reserved	Open
J2	RS232/422/485 Selection: RS-232	Short 3-5, 4-6
J3	RS232/422/485 Selection: RS-232	Short 3-5, 4-6
J4	RS232/422/485 Selection: RS-232	Short 1-2
J5	Reserved	Short 3-5, 4-6
J6	Flat Panel Power Selection (V_{DDM} of CN2 and CN6): 5V	Short 1-2
J7	Keyboard Wakeup Function Setting: Disabled	Short 1-2
J8	DiskOnChip Memory Segment Setting: D0000-D3FFF	Short 1-2
J9	Reserved	Open
J10	CMOS Clear Jumper: Normal	Open
J11	SMI Selection: CPU SMI comes from PIIX4	Short 2-3
J12	Watchdog Function Setting: Disable	Open
J13	Reserved	Open
J14	Reserved	Open
J15	AT/ATX Power Supply Selection: AT	Short 2-3
J16	AT/ATX Power Supply Selection: AT	Short 2-3

3.2.1 RS232/422/485 (COM2) Selection: J2, J3, J4

COM1 is fixed for RS-232 use only.
COM2 is selectable for RS232, RS-422 and RS-485.
The following table describes the jumper settings for this connector.

Options	Settings		
	J2	J3	J4
RS-232 (default)	Short 3-5, 4-6	Short 3-5, 4-6	Short 1-2
RS-422	Short 1-3, 2-4	Short 1-3, 2-4	Short 3-4
RS-485	Short 1-3, 2-4	Short 1-3, 2-4	Short 5-6, 7-8

J2 / J3

J4

3.2.2 Flat Panel Power Selection (V_{DDM} of CN2 and CN6): J6

Options	Settings
5V (default)	Short 1-2
3.3V	Short 2-3

J6

3.2.3 Keyboard Wakeup Function Setting: J7

Options	Settings
Enable	Short 2-3
Disable (default)	Short 1-2

J7

3.2.4 DiskOnChip® Memory Segment Setting: J8

Options	Settings
D0000-D3FFF (default)	Short 1-2
D4000-D7FFF	Short 3-4
D8000-DBFFF	Short 5-6
DC000-DFFFF	Short 7-8

J8

3.2.5 CMOS Clear Jumper: J10

To clear CMOS short jumper J10 while system power is turned on, then restart the computer system.

Options	Settings
Clear CMOS	Short
Normal (default)	Open

3.2.6 SMI Selector: J11

Options	Settings
CPU SMI comes from IOAPIC	Short 1-2
CPU SMI comes from PIIX4 (default)	Short 2-3

3.2.7 Watchdog Trigger Mode Setting: J12

Options	Settings
NMI	Short 1-2
H/W Reset	Short 2-3
Disable (default)	Open

3.2.8 AT/ATX Power Supply Selection: J15 & J16

Options	Settings	
	J15	J16
AT (default)	Short 2-3	Short 2-3
ATX	Short 1-2	Short 1-2

3.3 Connectors

The connectors on the **SBC8179** allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on **SBC8179** and their respective functions.

Connectors	Label
Front Panel Bezel Connector	CN1
36-bit LCD Connector	CN2
EIDE Connectors	CN3, CN7
Floppy Drive Connector	CN4
24-bit LCD Connector	CN6
Parallel Port Connector	CN8
USB Connector	CN9
ACPI Connector	CN10
IrDA Connector	CN11
COM1 Serial Port Connector	CN12
COM2 Serial Port Connector	CN13
COM1 9-pin Connector	CN15
Ethernet RJ-45 Connector	CN16
VGA Connector	CN17
PS/2 Mouse Connector	CN18
PS/2 Keyboard Connector	CN19
Keyboard & Mouse Connector	CN20

3.3.1 Front Panel Bezel Connector: CN1

The front bezel of the case has a control panel that provides light indication of the computer activities and switches to change the computer status. **CN1** is a 20-pin header that provides interfaces for the following functions.

Speaker: Pins 2, 4, 6, 8

This connector provides an interface to a speaker for audio tone generation. An 8-ohm speaker is recommended.

Pin #	Signal Name
2	Speaker out
4	Short 4-6 for Internal Buzzer
6	
8	+5V

Power LED and Keylock: Pins 1, 3, 5, 7, 9

The power LED indicates the status of the main power switch. The keylock switch, when closed, will disable the keyboard function.

Pin #	Signal Name
1	Power LED (+)
3	No connector
5	Ground
7	Keylock
9	Ground

SMI/Hardware Switch: Pins 11 and 12

This connector supports the "Green Switch" from the control panel, which, when pressed, will force the system into the power-saving mode immediately.

Pin #	Signal Name
11	Ground
12	Sleep

Reset Switch: Pins 17 and 18

The reset switch allows the user to reset the system without turning the main power switch OFF and then ON. Orientation is not required when making a connection to this header.

Hard Disk Drive LED Connector: Pins 19 and 20

This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.

Pin #	Signal Name
19	LED(-)
20	LED(+)

3.3.2 EIDE Connectors: CN3, CN7

CN3: Primary IDE Connector

CN3

Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Key
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground
IRQ14	31	32	No connector
Address 1	33	34	No connector
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

CN7: Secondary IDE Connector

CN7

Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Key
DRQ1	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK1	29	30	Ground
IRQ15	31	32	No connector
Address 1	33	34	No connector
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

3.3.3 Floppy Drive Connector: CN4

CN4 is a 34-pin header and supports disk drives of up to 2.88MB.

CN4

Signal Name	Pin #	Pin #	Signal Name
Ground	1	2	RM/LC
Ground	3	4	No connector
Ground	5	6	No connector
Ground	7	8	Index
Ground	9	10	Motor enable 0
Ground	11	12	Drive select 1
Ground	13	14	Drive select 0
Ground	15	16	Motor enable 1
Ground	17	18	Direction
Ground	19	20	Step
Ground	21	22	Write data
Ground	23	24	Write gate
Ground	25	26	Track 00
Ground	27	28	Write protect
Ground	29	30	Read data
Ground	31	32	Side 1 select
Ground	33	34	Diskette change

3.3.4 Parallel Port Connector: CN8

The following table describes the pin out assignments of **CN8**.

CN8

Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	2	AutoFeed
PD0, parallel data 0	3	4	Error
PD1, parallel data 1	5	6	Initialize
PD2, parallel data 2	7	8	Select
PD3, parallel data 3	9	10	Ground
PD4, parallel data 4	11	12	Ground
PD5, parallel data 5	13	14	Ground
PD6, parallel data 6	15	16	Ground
PD7, parallel data 7	17	18	Ground
ACK, acknowledge	19	20	Ground
Busy	21	22	Ground
Paper empty	23	24	Ground
Select	25	26	Ground

3.3.5 COM1 Serial Port: CN15

SBC8179 uses, a DB-9 connector (**CN15**) and a 10-pin connector (**CN12**) as onboard serial ports. The following table shows the pin assignments of this connector.

CN15

Pin #	Signal Name
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator

RS-232 pin assignments for COM1: CN12

Pin	Description	Pin	Description
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 (GND)	10	No connector

CN12

3.3.6 COM2 Serial Port: CN13

CN13, a 10-pin connector, is the onboard COM2 serial port of the **SBC8179**. The RS-232/422/485 pin assignments for **CN13** (COM2) are listed on the following table.

Pin #	Signal Name		
	RS-232	R2-422	RS-485
1	Data Carrier Detect (DCD)	TX-	DATA-
2	Data Set Ready (DSR)	No connector	No connector
3	Receive Data (RXD)	TX+	DATA+
4	Request to Send (RTS)	No connector	No connector
5	Transmit Data (TXD)	RX+	No connector
6	Clear to Send (CTS)	No connector	No connector
7	Data Terminal Ready (DTR)	RX	No connector
8	Ring Indicator (RI)	No connector	No connector
9	Ground (GND)	GND	GND
10	No connector	No connector	No connector

CN13

3.3.7 Internal Keyboard Connector: CN19
Internal Mouse Connector: CN18

CN19

Pin #	Signal Name
1	Keyboard clock
2	Keyboard data
3	No connector
4	Keyboard GND
5	Keyboard Vcc

CN18

Pin #	Signal Name
1	Mouse clock
2	Mouse data
3	No connector
4	Keyboard GND
5	Keyboard Vcc

3.3.8 ACPI Connector: CN10

CN10

Pin #	Signal Name
1	SMI
2	GND
3	Keyboard GND
4	Keyboard VCC
5	PS-ON (soft ON/OFF); to ATX power supply
6	5V SB (standby +5V); from ATX power supply

3.3.9 External PS/2 Keyboard/Mouse Connector: CN20

CN20

Pin #	Signal Name
1	Keyboard data
2	Mouse data
3	Keyboard GND
4	Keyboard VCC
5	Keyboard clock
6	Mouse clock

3.3.10 USB Connector: CN9

The following table shows the pin outs of the USB connector.

CN9

CN9 Pin #	Signal Name
1, 2	USB Vcc
3	USB0-
4	USB1-
5	USB0+
6	USB1-
7, 8	USBGND
9, 10	Reserved

3.3.11 IrDA Connector: CN11

This connector is used for an IrDA connection for wireless communication.

CN11

Pin #	Signal Name
1	5VSB
2	No connector
3	BIRXH
4	BCIRX
5	BIRRX
6	5VSB
7	GND
8	No connector
9	BIRTX
10	No connector

3.3.12 VGA Interface Connector

Flat Panel/CRT Interface Controller

The built-in C&T 69000 is a high-performance flat panel/super VGA display controller with onboard 2M bytes VGA RAM. It is capable of driving a wide array of flat panel and CRT displays. It can also support CRT at a maximum resolution of up to 1280x1024 with 256 colors, 640x480 with 16M colors, and panel resolutions of 1024x768, and 1280x1024. The C&T 69000 also supports monochrome panels up to 64 gray scales. It displays up to 226,981 different colors on passive STN flat panels and up to 16M colors on 24-bit active matrix flat panels.

Features

- Fully compatible with IBM™ VGA
- Flat panel and CRT monitor can be displayed simultaneously
- Onboard 2M bytes VGA RAM
- Supports panel resolution up to 1280x1024
- Supports non-interlaced CRT monitors with resolutions up to 1280x1024 256 colors
- Direct interface to Color and Monochrome Dual Drive and Single Drive panels

- SMARTMAP™ intelligent color to gray scale conversion enhances text legibility
- Integrated programmable linear address feature accelerates GUI performance
- Hardware Windows acceleration
- Built-in 44 pins general purpose connector for flat panel display, and an extended 20-pin for 36 bit XVGA flat panel

VGA/Flat Panel Connector: CN2, CN6, CN17

The **SBC179** has three connectors that support CRT VGA and flat panel displays, individually or simultaneously. **CN17** is a standard 15-pin pin header connector commonly used for the CRT VGA display, and **CN2** (44-pin) **CN6** (20-pin) are dual-in-line headers for flat panel connection. Configuration of the VGA interface is done via the software utility and no jumper setting is required.

The following two tables are the pin assignments for the CRT/VGA connector and the flat panel connector.

CN17: CRT/VGA Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	Red	2	Green	3	Blue
4	N/A	5	GND	6	AGND
7	AGND	8	AGND	9	N/A
10	GND	11	N/A	12	DDC DAT
13	Horizontal Sync	14	Vertical Sync	15	DDC CLK

Standard 15-pin pin header connector for CRT VGA display

CN2: Flat Panel Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	-12V	2	+12VM	3	GND
4	GND	5	VDDM	6	VDDM
7	ENAVEE	8	GND	9	P0
10	P1	11	P2	12	P3
13	P4	14	P5	15	P6
16	P7	17	P8	18	P9
19	P10	20	P11	21	P12
22	P13	23	P14	24	P15
25	P16	26	P17	27	P18
28	P19	29	P20	30	P21
31	P22	32	P23	33	GND
34	GND	35	SHFCLK	36	FLM
37	M	38	LP	39	GND
40	ENABKL	41	GND	42	-SHFCLK
43	VDDM	44	VDDM		

CN6: Flat Panel Connector for XVGA

Pin	Description	Pin	Description	Pin	Description
1	GND	2	GND	3	P24
4	P25	5	P26	6	P27
7	P28	8	P29	9	GND
10	GND	11	P30	12	P31
13	P32	14	P33	15	P34
16	P35	17	VDDM	18	VDDM
19	+12VM	20	+12VM		

Flat Panel Connector Pin Description

Name	Description
P0~P35	Flat panel data output
ENABKL	Activity Indicator and Enable Backlight outputs
SHFCLK	Shift clock. Pixel clock for flat panel data
M	M signal for panel AC drive control
LP	Latch pulse. Flat panel equivalent of HSYNC
FLM	First line marker. Flat panel equivalent of VSYNC
+12VM	+12V power controlled by chipset
ENAVEE / ENAVDD	Power sequencing controls for panel LCD bias volt
VDDM	3.3V or 5V selected by J6

3.3.13 Ethernet Connector: CN16

The RJ-45 connector is used for Ethernet. To connect the **SBC8179** to 10Base-T or 100Base-TX hub, just plug one end of the cable into the **CN16** and connect the other end of the cable to a 10Base-T/100Base-TX hub.

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Chapter 4
Display Introduction

4.1 Introduction

The LCD/VGA chipset used on the **SBC8179** that can drive a wide range of monochrome and color flat panels including Single-Drive (SS) and Dual-Panel, Dual Drive (DD) passive STN and active matrix TFT / MIM LCD, EL, and Plasma panels. The 69000 supports an additional 256Kx16 DRAM providing a 32-bit video memory bus. The 69000 accelerator can support up to 64 gray scales on monochrome panels, up to 226, 981 colors on passive STN LCDs, and up to 16M colors on 24-bit active matrix LCDs. It also offers a variety of programmable features to optimize display quality, including tall font stretching, fast vertical centering and programmable vertical stretching in graphics for handling modes with less than 480 lines.

4.2 Features

- AGP interface controller with integrated 2MB SDRAM
- VGA chipset C&T 69000 AGP 1x supporting CRT/LCD displays
- Display memory supports up to 1280x1024 256-color resolution on non-interlaced CRT monitors, and 1024x768 16 bit-color on LCD panel monitors

4.3 Drivers Supported

The 69000 is fully compatible with the VGA graphics standard at the register, gate, and BIOS levels. The manufacturer supplies fully VGA-compatible BIOS, end-user utilities and drivers for common application programs (e.g., Microsoft Windows™). CHIPS' drivers for Windows include a Big Cursor setting and fast panning / scrolling capabilities.

Make sure you know the version of the application for which you are installing drivers. Your *Display Driver Diskettes* contain drivers for several versions of certain applications. For your driver to operate properly, you must install the driver for your version of the application program.

NOTE: *Before you begin the driver software installation, please see the detail of installation procedure from the driver utility in CD-ROM and be sure to make backup copies of the Display Driver Diskettes.*

Chapter 5
Ethernet

5.1 Introduction

The **SBC8179** is equipped with a high performance Plug and Play Ethernet interface that consists of a RJ-45 connector (**CN16**).

5.2 Features

- **10MB/s and 100MB/s operations**
- **Supports 10MB/s and 100MB/s N-Way auto negotiation**
- **Supports Wake On LAN**
- **Full duplex capability**
- **Full compliance with PCI Revision 2.1**
- **PCI Bus Master data transfers**

5.3 Drivers Supported

Bundled with popular software drivers, the **SBC8179** Ethernet interface allows great flexibility to work with all major networking operating systems including Novell NetWare x3.x/v4.x, Microsoft LAN Manager, Windows 3.1/95/98/NT3.51/NT4.0, IBM LAN Server, or other ODI and NDIS driver

NOTE: *Before you begin the driver software installation, please see the detail of installation procedure from the driver utility in CD-ROM and be sure to make backup copies of the Display Driver Diskettes.*

5.4 Other Information

Please refer to the Ethernet Disk's Info dirctory for more information.

This page does not contain any information.

Chapter 6
Award BIOS Utility

Chapter 6 describes the different settings available in the Award BIOS that comes with the **SBC8179** CPU card. Also contained here are instructions on how to set up the BIOS configuration.

6.1 BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Pentium® III processors in a standard IBM-AT compatible I/O system. The BIOS provides critical low-level support for standard devices such as disk drives, serial and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

6.2 BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn ON the computer, the Award BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system OFF and back ON again. The following message will appear on the screen:

Press <DEL> to Enter Setup

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

ROM PCI/ISA BIOS (2A69KA5F)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGEMENT SETUP PNP/PCI CONFIGURATION LOAD BIOS DEFAULTS LOAD SETUP DEFAULTS	INTEGRATED PERIPHERALS SUPERVISOR PASSWORD USER PASSWORD IDE HDD AUTO DETECTION SAVE & EXIT SETUP EXIT WITHOUT SAVING
ESC : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item (Shift) F2 : Change Color
Time, Date, Hard Disk Type	

The section below the setup items of the Main Menu displays the control keys for this menu. Another section located at the bottom of the Main Menu, just below the control keys section, displays information on the currently highlighted item in the list.

NOTE: *If you find that your computer cannot boot after making and saving system changes with Setup, the Award BIOS, via its built-in override feature, resets your system to the CMOS default settings.*

We strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability.

6.3 Standard CMOS Setup

"Standard CMOS Setup" allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the motherboard is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

ROM PCI/ISA BIOS (2A69KA5F)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Fri, Oct 20 1998
Time (hh:mm:ss) : 19 : 66 : 29

HARD DISKS		TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	:	0	0	0	0	0	0	0	Auto
Primary Slave	:	0	0	0	0	0	0	0	Auto
Secondary Master	:	0	0	0	0	0	0	0	Auto
Secondary Slave	:	0	0	0	0	0	0	0	Auto

Drive A : 1.44M, 3.5in
Drive B : None

Video : EGA / VGA
Halt On : All Errors

Base Memory	:	640K
Extended Memory	:	15360K
Other Memory	:	384K
Total Memory	:	16384K

ESC : Quit
F1 : Help

↑ ↓ → ← : Select Item
(Shift) F2 : Change Color

PU / PD / + / - : Modify

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following pages describe each item of this menu.

- **Date**

  The date format is:

Day	The day of week, from Sun to Sat, determined by the BIOS, is read only
Month	The month, Jan (1) through Dec (12)
Date	The date, from 1 to 31 (or the maximum allowed in the month), can key in the numerical / function key
Year	The year, from 1994 to 2079

  To set the date, highlight the "Date" field and use the PageUp/ PageDown or +/- keys to set the current time.

- **Time**

  The time format is:

Hour	From 00 to 23
Minute	From 00 to 59
Second	From 00 to 59

  To set the time, highlight the "Time" field and use the <PgUp>/ <PgDn> or +/- keys to set the current time.

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

  The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the "Master" and the second is the "Slave".

  To enter the specifications for a hard disk drive, you must select first a "Type". There are 45 predefined types and 4 user definable types are for Enhanced IDE BIOS. Types 1 to 45 are predefined. Type "User" is user-definable. For the Primary Master/Slave as well as Secondary Master/Slave, you can select "Auto" under the TYPE and MODE fields. This will enable auto detection of your IDE drives and CD-ROM drive during POST.

  Press <PgUp>/<PgDn> to select a numbered hard disk type or type the number and press the <Enter> key. The hard disk will not work properly if you enter incorrect information for this field. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually. If you select Type User, the utility will ask you to enter the following information:

CYLS	number of cylinders
HEAD	number of read/write heads
PRECOMP	write precompensation
LANDZ	landing zone
SECTOR	number of sectors
SIZE	Automatically adjust according to the configuration
MODE (for IDE HDD only):	Auto Normal (HD < 528MB) Large (for MS-DOS only) LBA (HD > 528MB and supports Logical Block Addressing)

NOTE: *The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter incorrect information in these fields. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.*

- **Drive A / Drive B**

  These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

360K, 5.25 in	5.25 inch PC-type standard drive; 360Kb capacity
1.2M, 5.25 in	5.25 inch AT-type high-density drive; 1.2MB capacity
720K, 3.5 in	3.5 inch double-sided drive; 720Kb capacity
1.44M, 3.5 in	3.5 inch double-sided drive; 1.44MB capacity
2.88M, 3.5 in	3.5 inch double-sided drive; 2.88MB capacity

- **Video**

  This field selects the type of video display card installed in your system. You can choose the following video display cards:

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters. (default)
CGA 40	Color Graphics Adapter, power up in 40 column mode
CGA 80	Color Graphics Adapter, power up in 80 column mode
MONO	For Hercules or MDS adapters, includes high resolution monochrome adapters

- **Halt On**

  This field determines whether the system will halt if an error is detected during power up.

No errors	The system boot will halt on any error detected. (default)
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

6.4 BIOS Features Setup

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

ROM / PCI ISA BIOS (2A69KA5F)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	**: Disabled**	Report No FDD For WIN 95	: Yes
CPU Internal Cache	: Enabled	Video BIOS Shadow	: Enabled
External Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
CPU L2 Cache ECC Checking	: Enabled	CC000-CFFFF Shadow	: Disabled
Processor Number Feature	: Enabled	D0000-D3FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D4000-D7FFF Shadow	: Disabled
Boot Sequence	: C, A, SCSI	D8000-DBFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	DC000-DFFF Shadow	: Disabled
Boot Up Floppy Seek	: Disabled		
Boot Up NumLock Status	: On		
Gate A20 Option	: Fast	LCD Type : (Type 6) 640x480 24 TFT	
Typematic Rate Setting	: Disabled	VGA Expansion(Full Screen)	: Disable
Typematic Rate (chars/Sec)	: 6	Display Type During POST	: CRT Only
Typematic Delay (Msec)	: 250	Display Type After POST	: CRT Only
Security Option	: Setup		
PS/2 mouse function control	: Enabled	ESC : Quit	↑ ↓ → ← : Select Item
PCI /VGA Palette Snoop	: Disabled	F1 : Help	PU/PD/+/- : Modify
Assign IRQ For VGA	: Enabled	F5 : Old Values	(Shift) F2 : Color
MPS Vesion Control For OS	: 1.1	F6 : Load BIOS Defaults	
OS Select For DRAM>64MB	: Non-OS2	F7 : Load Setup Defaults	

- **Virus Warning**

  This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

NOTE: *Many disk diagnostic programs, which attempt to access the boot sector table, can cause the virus warning. If you will run such a program, disable the Virus Warning feature.*

- **CPU Internal Cache / External Cache**

  Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. These items allow you to enable (speed up memory access) or disable the cache function. By default, these items are ***Enabled***.

- **CPU L2 Cache ECC Checking**

  When enabled, this allows ECC checking of the CPU's L2 cache. By default, this field is ***Enabled***.

- **Processor Number Feature**

  When a Pentium® III CPU is installed, the system automatically detects it and displays this item.

- **Quick Power On Self Test**

  When enabled, this field speeds up the Power On Self Test (POST) after the system is turned ON. If it is set to *Enabled*, BIOS will skip some items.

- **Boot Sequence**

  This field determines the drive that the system searches first for an operating system. The options are:A, C, SCSI

  - C, A, SCSI
  - C, CDROM, A
  - CDROM, C, A
  - D, A, SCSI
  - SCSI, C, A
  - E, A, SCSI
  - C only
  - F, A, SCSI
  - LS/ZIP, C
  - SCSI, A, C

  The default value is A, C, SCSI.

- **Swap Floppy Drive**

  This allows you to determine whether to enable Swap Floppy Drive or not. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to ***Disabled.***

- **Boot Up Floppy Seek**
  When enabled, the BIOS will seek whether or not the floppy drive installed has 40 or 80 tracks. 360K type has 40 tracks while 760K, 1.2M and 1.44M all have 80 tracks. By default, this field is set to ***Enabled.***
- **Boot Up NumLock Status**
  This allows you to activate the NumLock function after you power up the system. By default, the system boots up with NumLock ON.
- **Gate A20 Option**
  This you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB. The default setting is Fast.
- **Typematic Rate Setting**
  When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to Disabled.
- **Typematic Rate (Chars/Sec)**
  When the typematic rate is enabled, the system registers repeated keystrokes speeds. You can select speed range from 6 to 30 characters per second. By default, this item is set to 6.
- **Typematic Delay (Msec)**
  When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to ***250msec****.*
- **Security Option**
  This field allows you to limit access to the System and Setup. The default value is ***Setup***. When you select *System,* the system prompts for the User Password every time you boot up. When you select *Setup,* the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.
- **PS/2 mouse function control**
  This item allows you to determine to enable the hardware PS/2 mouse function or not. The available choices are *Enabled* and *Disabled*.
- **PCI/VGA Palette Snoop**
  Some non-standard VGA display cards may not show colors properly. This field allows you to set whether MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. When this field is enabled, a PCI/VGA can work with a MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with a MPEG ISA/VESA Card.

- **Assign IRQ For VGA**
  Enable/Disable to assign IRQ for VGA. The options available are Enabled, Disabled
- **MPS Version Control For OS**
  This item allows you to select the version of Intel multiprocessor specification supported by operating system the computer. The available options are 1.1 and 14.
- **OS Select for DRAM > 64MB**
  This option allows the system to access greater than 64MB of DRAM memory when used with OS/2 that depends on certain BIOS calls to access memory. The default setting is ***Non-OS/2***.
- **Report No FDD For WIN 95**
  This option allows Windows 95 to share IRQ6 (assigned to a floppy disk drive) with other peripherals in case the drive is not existing. The default setting is ***No***.
- **Video BIOS Shadow**
  This item allows you to change the Video BIOS location from ROM to RAM. Video Shadow will increase the video speed.
- **C8000 - CBFFF Shadow / DC000 - DFFFF Shadow**
  Shadowing a ROM reduces the memory available between 640KB to 1024KB. These fields determine whether optional ROM will be copied to RAM or not.

6.4.1 Onboard VGA Functions

The following options allow the overriding of the VGA BIOS settings integrated in the core chipset of **SBC8179**. Take note that the settings on the following will not take effect when a VGA peripheral card is connected to the system.

- **LCD Type**

  Although the system chipset already supports VGA and LCD alike, BIOS Features Setup still expands this feature further with the option to set any of the 15 LCD types. The available options are:

  - Type 1/13 1024 x 768 DSTN
  - Type 2 1280 x 1024 TFT
  - Type 3 640 x 480 DSTN
  - Type 4 800 x 600 DSTN
  - Type 5 640 x 480 (16bit) TFT
  - Type 6 640 x 480 (24bit) TFT
  - Type 7 1024 x 768 TFT
  - Type 8/9/10 800 x 600 TFT
  - Type 11/12 800 x 600 DSTN
  - Type 14 1280 x 1024 DSTN
  - Type 15 1024 x 600 DSTN

- **VGA Expansion (Full Screen)**

  This option allows you to enlarge application screens to full screen scale onto your display. However this option is not inversely compatible, rendering no change when applications screens have resolutions larger than the display resolution. The available options are Enabled and Disabled.

- **Display Type During/After POST**

  This item configures the viewing area for the POST sequence. When configured to the *incorrect display setting* or *Both*, it blankets the POST sequence from being viewed. If you select *Default*, this option is useless and follows the VGA BIOS settings. The available options are CRT Only, LCD Only, Both, and Default.

6.5 Chipset Features Setup

This Setup menu controls the configuration of the motherboard chipset.

ROM PCI/ISA BIOS (2A69KA5F)
CHIPSET FEATURES SETUP
AWARD SOFTWARE INC.

SDRAM RAS-to-CAS Delay	: 3	Auto Detect DIMM Clk	: Enabled
SDRAM RAS Precharge Time	: 3	CPU Warning Temperature	: 66°C/151°F
SDRAM CAS latency Time	: Auto	Current System Temp.	: 34°C/ 93°F
SDRAM Precharge Control	: Disbabled	Current CPU1 Temperature	: 27°C/ 80°F
DRAM Data Integrity Mode	: Non-ECC	Current CPU2 Temperature	:
System BIOS Cacheable	: Disabled	Current CPU Fan1 Speed	: 2789 RPM
Video BIOS Cacheable	: Disabled	Current CPU Fan2 Speed	: 2045 RPM
Video RAM Cacheable	: Disabled	VCORE :	VTT
8 Bit I/O Recovery Time	: 1	VCC3 :	+ 5 V
16 Bit I/O Recovery Time	: 1	+12 V :	-12 V
Memory Hole At 15M-16M	: Disabled	- 5 V :	
Passive Release	: Enabled		
Delayed Transaction	: Disabled		
AGP Aperture Size (MB)	: 64		
		ESC : Quit	↑ ↓ → ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

- **Auto Configuration**

  This predefines values for DRAM, cache timing according to CPU type and system clock. When enabled, the predefined items will become read-only.

- **SDRAM RAS-to-CAS Delay**

  During DRAM refresh, both rows and columns are addressed separately. This field allows you to determine the timing of transition from Row Address Strobe (RAS) to Column Address Strobe (CAS). The default setting is ***3***.

- **SDRAM RAS Precharge Time**

  The precharge time is the number of cycles for the RAS to accumulate its charge before DRAM refreshes. If time is insufficient, refresh may be incomplete and the DRAM may fail to retain data. The default setting is ***3***.

- **SDRAM CAS Latency Time**
  When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer. The default setting is ***3***.
- **DRAM Data Integrity Mode**
  This option sets the data integrity mode of the DRAM installed in the system. The default setting is ***Non-ECC***.
- **System BIOS Cacheable**
  When enabled, access to the system BIOS ROM addressed at F0000H-FFFFFH is cached, provided that the cache controller is disabled.
- **Video BIOS Cacheable**
  When enabled, access to video BIOS addressed at C0000H to C7FFFH is cached, provided that the cache controller is disabled.
- **Video RAM Cacheable**
  Selecting *Enabled* allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a memory access error may result.
- **8 Bit I/O Recovery Time**
  This option specifies the length of the delay (in sysclks) inserted between consecutive 8-bit I/O operations. The settings are 1, 2, 3, 4, 5, 6, 7, or 8. The default setting is ***3***.
- **16 Bit I/O Recovery Time**
  This option specifies the length of the delay (in sysclks) inserted between consecutive 16-bit I/O operations. The settings are 1, 2, 3, 4, 5, 6, 7, or 8. The default setting is ***2***.
- **Memory Hole at 15MB - 16MB**
  In order to improve performance, certain space in memory can be reserved for ISA cards. This field allows you to reserve 15MB to 16MB memory address space to ISA expansion cards. This makes memory from 15MB and up unavailable to the system. Expansion cards can only access memory up to 16MB. By default, this field is set to ***Disabled***.
- **Passive Release**
  When enabled, CPU to PCI bus accesses are allowed during passive release. Otherwise, the arbiter only accepts another PCI master access to local DRAM.

- **Delayed Transaction**

  The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1. The default setting is ***Disabled***.

- **AGP Aperture Size (MB)**

  The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The options available are 4M, 8M, 16M, 32M, 64M, 128M and 256M. The default setting is ***64M***.

- **Auto Detect DIMM Clk**

  To reduce the occurrence of electromagnetic intrference (EMI), this item allows user to disable/enable the BIOS feature that detects the presence/absence of components in DIMM, and turns off system clock generator pulses to empty slots. The available options are Enabled and Disabled.

- **CPU Warning Temperature**

  This field sets the threshold temperature at which an alert is sounded through the system's speaker. An onboard thermal sensor monitors the CPU temperature to prevent CPU overheating.

- **Current System/CPU1/CPU2 Temp.**

  These read-only fields reflect the functions of the hardware thermal sensor that monitors the chip blocks and system temperatures to ensure the system is stable.

- **Current CPU Fan1/CPU Fan2 Speed**

  These optional and read-only fields show the current speeds in RPM (revolution per minute) for the CPU fan and chassis fan as monitored by the hardware monitoring IC.

- **VCORE / VCC3 / VTT**

  These optional and read-only fields show the current voltages in the voltage regulators and power supply as monitored by the hardware monitoring IC.

6.6 Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn OFF video display after a period of inactivity.

ROM PCI/ISA BIOS (2A69KA5F)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

ACPI function	: Disabled	** Reload Global Timer Events **	
Power Management	: User Define	IRQ3 (3-7, 9-15), NMI	: Disabled
PM Control by APM	: Yes	Primary IDE 0	: Disabled
Video Off Method	: V/H SYNC+Blank	Primary IDE 1	: Disabled
Video Off After	: Standby	Secondary IDE 0	: Disabled
MODEM Use IRQ	: 3	Secondary IDE 1	: Disabled
Doze Mode	: Disabled	Floppy Disk	: Disabled
Standby Mode	: Disabled	Serial Port	: Enabled
Suspend Mode	: Disabled	Parallel Port	: Disabled
HDD Power Down	: Disabled	Wake Up On LAN	: Enabled
Throttle Duty Cycle	: 62.5%		
PCI/VGA Act-Monitor	: Disabled		
Soft-Off by PWR-BTTN	: Instant-Off		
PowerOn by Ring	: Enabled		
Wake Up On PCI Card	: Enabled		
IRQ 8 Break Suspend	: Disabled		
		ESC : Quit	↑ ↓ → ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

- **ACPI function**

  This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). The options available are Enabled, Disabled.

- **Power Management**

  This field allows you to select the type of power saving management modes. There are four selections for Power Management.

Min. Power Saving	Minimum power management
Max. Power Saving	Maximum power management. Only available for SL CPU
User Define	Each of the ranges is from 1 min. to 1hr. Except for HDD Power Down which ranges from 1 min. to 15 min. (Default)

NOTE: *In order to enable the CPU overheat protection feature, the Power Management field should not be set to Disabled.*

- **PM Control by APM**

  This field allows you to use the Advanced Power Management device to enhance the Max. Power Saving mode and stop the CPU's internal clock. If the Max. Power Saving is not enabled, this will be preset to NO.

- **Video Off Method**

  This field defines the Video Off features. There are three options.

V/H SYNC + Blank	Default setting, blank the screen and turn OFF vertical and horizontal scanning
DPMS	Allows the BIOS to control the video display card if it supports the DPMS feature
Blank Screen	This option only writes blanks to the video buffer

- **Video Off After**

  As the system moves from lesser to greater power-saving modes, select the mode in which you want the monitor to blank.

- **Modem Use IRQ**

  This field names the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system. By default, the IRQ is set to ***3***.

- **Doze Mode**

  When enabled, and after the set time of system inactivity, the CPU clock will run at a slower speed while all other devices still operate at full speed.

- **Standby Mode**

  After the selected period of system inactivity, the fixed disk drive and the video shut OFF while all other devices still operate at full speed.

- **Suspend Mode**

  When enabled, and after the set time of system inactivity, all devices except the CPU will be shut OFF.

- **HDD Power Down**

  When enabled, and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

- **Throttle Duty Cycle**

  When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

- **PCI / VGA Act-Monitor**
  When enabled, any video activity restarts the global timer for Standby mode. The default setting is ***Enabled***.
- **Soft-Off by PWR-BTTN**
  This field defines the power-OFF mode when using an ATX power supply. The Instant-Off mode allows powering OFF immediately upon pressing the power button. In the Delay 4 Sec mode, the following happen:
  - The system powers OFF when the power button is pressed for more than four seconds, setting the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity
  - Resume by Ring activity (see next field) when pressed for less than 4 seconds.

  The default value is ***Instant-Off***.
- **PowerOn by Ring**
  An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft OFF state.
- **Resume by Alarm**
  This allows a computer to be turned ON automatically through the timer set in the BIOS to make the system more schedule-configured. By default, this field is set to ***Disabled***.
- **IRQ 8 Break Suspend**
  You can enable or disable the monitoring of IRQ 8 (Real Time Clock) so it does not awaken the system from Suspend mode.
- **Reload Global Timer Events**
  This section determines the reloading of the 'timers' after entering the Full On. You can enable or disable the monitoring of IRQ 8 (Real Time Clock) so it does not awaken the system from Suspend mode.
- **Wake On LAN**
  An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) or Network awakens the system from a soft off state.

6.7 PNP/PCI Configuration

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

ROM PCI/ISA BIOS (2A69KA5F)
PNP/PCI CONFIGURATION
AWARD SOFTWARE INC.

PNP OS Installed	: No		
Resources Controlled By	: Manual		
Reset Configuration Data	: Disabled	Assign IRQ For USB	: Enabled
		ESC : Quit	↑ ↓ ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

- **PNP OS Installed**

  This field allows you to specify if the operating system installed in your system is plug and play aware.

  NOTE: *Operating systems such as DOS, OS/2, and Windows 3.x do not use PnP*

- **Resources Controlled by**

  This PnP BIOS can configure all of the boot and compatible devices automatically. However, this capability needs you to use a PnP operating system such as Windows 95. The default value is ***Manual***.

- **Reset Configuration Data**

  This field allows you to determine whether to reset the configuration data

- **Assign IRQ For USB**
  Enable/Disable to assign IRQ for USB. The options available are Enabled, Disabled

6.8 Load BIOS Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

ROM PCI/ISA BIOS (2A69KA5F)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEM	ETECTION
PNP/PCI CONFIGU	TUP
LOAD BIOS DEFAU	AVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load BIOS Defaults except Standard CMOS Setup	

Load BIOS Defaults (Y/N)? N

To load BIOS defaults value to CMOS SRAM, enter "Y". If not, enter "N".

6.9 Load Setup Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

ROM PCI/ISA BIOS (2A69KA5F)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGE	DETECTION
PNP/PCI CONFIGU	TUP
LOAD BIOS DEFA	SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load BIOS Defaults except Standard CMOS Setup	

Load Setup Defaults (Y/N)? N

To load SETUP defaults value to CMOS SRAM, enter "Y". If not, enter "N".

6.10 Integrated Peripherals

This option sets your hard disk configuration, mode and port.

ROM PCI/ISA BIOS (2A69KA5F)
INTEGRATED PERIPHERALSP
AWARD SOFTWARE INC.

IDE HDD Block Mode	: Enabled	RXD, TXD Active	: Hi,Lo
IDE Primary Master PIO	: Auto	IR Transmission delay	: Enabled
IDE Primary Slave PIO	: Auto	Onboard Parallel Port	: 378/IRQ7
IDE Secondary Master PIO	: Auto	Parallel Port Mode	: SPP
IDE Secondary Slave PIO	: Auto	ECP Mode Use DMA	: 3
IDE Primary Master UDMA	: Auto	EPP Mode Select	: EPP1.7
IDE Primary Slave UDMA	: Auto		
IDE Secondary Master UDMA	: Auto		
IDE Secondary Slave UDMA	: Auto		
On-Chip Primary PCI IDE	: Enabled		
On-Chip Secondary PCI IDE	: Enabled		
USB Keyboard Support	: Disabled		
Init Display First	: PCI Slot		
KBC input clock	: 8 MHz		
Onboard FDC Controller	: Enabled	ESC : Quit	↑ ↓ ← : Select Item
Onboard Serial Port 1	: 3F8/IRQ4	F1 : Help	PU/PD/+/- : Modify
Onboard Serial Port 2	: 2F8/IRQ3	F5 : Old Values	(Shift) F2 : Color
UART Mode Select	: Normal	F6 : Load BIOS Defaults	
UART2 Duplex Mode	: Half	F7 : Load Setup Defaults	

- **IDE HDD Block Mode**

  This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

- **IDE Primary / Secondary Master / Slave PIO**

  These fields allow your system hard disk controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the disk drive, PIO (Programmed Input/Output) allows the BIOS to communicate with the controller and CPU directly.

  The system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

- **IDE Primary / Secondary Master / Slave UDMA**

  These fields allow your system to improve disk I/O throughput to 33Mb/sec with the Ultra DMA/33 feature. The options are *Auto* and *Disabled*.

- **On-Chip Primary/Secondary PCI IDE**
  The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.
- **USB Keyboard Support**
  Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.
- **Init AGP Display First**
  This field allows the system to initialize first the VGA card in the AGP slot on the motherboard when system is turned ON.
- **KBC input clock**
  This item sets the input clock for the keyboard controller. The default value is *"8 MHz"*.
- **Onboard FDC Controller**
  Select *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 the system has no floppy drive, select Disabled in this field. This option allows you to select the onboard FDD port.
- **Onboard Serial Port 1/2, Parallel Port**
  These fields allow you to select the onboard serial and parallel ports and their addresses. The default values for these ports are:

Serial Port 1	3F8/IRQ4
Serial Port 2	2F8/IRQ3
Parallel Port	378H/IRQ7

- **UART Mode Select**
  This field determines the UART mode in your computer. The settings are *Normal, IrDA and ASKIR*. The default value is ***Normal***.
- **RxD, TxD Active**
  Consult your IR peripheral documentation to select the correct setting of the TxD and RxD signals. The default value is *"Hi,Lo"*.
- **IR Transmission delay**
  Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time. If no infrared port is present in the system, select Disabled. The default value is *"Enabled"*.

- **Parallel Port Mode**
  This field allows you to determine parallel port mode function.

SPP	Normal Parallel Port
EPP	Enhanced Capabilities Port
ECP	Extended Capabilities Port

- **ECP Mode Use DMA**
  Select a DMA channel for the parallel port for use during ECP mode. The available choices are *3* and *1*.
- **EPP Mode Select**
  Select EPP port type 1.7 or 1.9.

6.11 Supervisor / User Password

These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

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

ROM PCI/ISA BIOS (2A69KA5F)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	**SUPERVISOR PASSWORD**
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGE[redacted]	[redacted]DETECTION
PNP/PCI CONFIGU[redacted]	[redacted]L FORMAT
LOAD BIOS DEFA[redacted]	[redacted]TUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Change / Set / Disable Password	

Enter Password:

6.12 IDE HDD Auto Detection

This option detects the parameters of an IDE hard disk drive, and automatically enters them into the Standard CMOS Setup screen.

ROM PCI/ISA BIOS (2A69KA5F)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master:								

Select Primary Master Option (N=SKIP) : N

OPTIONS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
1 (Y)	0	0	0	0	0	0	0	NORMAL

NOTE: Some OSes (like SCO-UNIX) must use "NORMAL" for installation

ESC: SKIP

Up to four IDE drives can be detected, with parameters for each appearing in sequence inside a box. To accept the displayed entries, press the "Y" key; to skip to the next drive, press the "N" key. If you accept the values, the parameters will appear listed beside the drive letter on the screen.

6.13 Save & Exit Setup

This option allows you to determine whether to accept the modifications or not. If you type "Y", you will quit the setup utility and save all changes into the CMOS memory. If you type "N", you will return to Setup utility.

ROM PCI/ISA BIOS (2A69KA5F)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGE	DETECTION
PNP/PCI CONFIGU	**TUP**
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Save Data to CMOS & Exit Setup	

Save to CMOS and Exit(y/N)? N

6.14 Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing "Y" will quit the Setup utility without saving the modifications. Typing "N" will return you to Setup utility.

ROM PCI/ISA BIOS (2A69KA5F)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEM	ETECTION
PNP/PCI CONFIGU	TUP
LOAD BIOS DEFAU	AVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Abandon all Data & Exit Setup	

Quit Without Saving (Y/N)? N

Appendix A
Watchdog Timer

Using the Watchdog Function

The **SBC8179** CPU card uses version 2.0 of the watchdog timer. This onboard WDT generates either a system reset or non-maskable interrupt (NMI), depending on the settings made on jumper **J12** of **SBC8179**. Follow the steps below to enable and program the watchdog function of **SBC8179**.

Start

↓

Un-Lock WDT	:	**OUT 120H 0AH ; enter WDT function** **OUT 120H 0BH ; enable WDT function**

↓

Set multiple (1~4)	:	**OUT 120 0NH ; N=1,2,3 or 4**

↓

Set base timer (0~F)	:	**OUT 121 0MH ; M=0,1,2,…F**

↓

WDT counting

↓

re-set timer	:	**OUT 121 0MH ; M=0,1,2,…F**

↓

IF No re-set timer	:	**WDT time-out, generate RESET or NMI**

↓

IF to disable WDT	:	**OUT 120 00H ; Can be disable at any time**

M	N			
	1	2	3	4
0	0.5 sec.	5 secs.	50 secs.	100 secs.
1	1 sec.	10 secs.	100 secs.	200 secs.
2	1.5 secs.	15 secs.	150 secs.	300 secs.
3	2 secs.	20 secs.	200 secs.	400 secs.
4	2.5 secs.	25 secs.	250 secs.	500 secs.
5	3 secs.	30 secs.	300 secs.	600 secs.
6	3.5 secs.	35 secs.	350 secs.	700 secs.
7	4 secs.	40 secs.	400 secs.	800 secs.
8	4.5 secs.	45 secs.	450 secs.	900 secs.
9	5 secs.	50 secs.	500 secs.	1000 secs.
A	5.5 secs.	55 secs.	550 secs.	1100 secs.
B	6 secs.	60 secs.	600 secs.	1200 secs.
C	6.5 secs.	65 secs.	650 secs.	1300 secs.
D	7 secs.	70 secs.	700 secs.	1400 secs.
E	7.5 secs.	75 secs.	750 secs.	1500 secs.
F	8 secs.	80 secs.	800 secs.	1600 secs.

Appendix B
I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses which also becomes the identity of the device. There are a total of 1K port address spaces available. The following table lists the I/O port addresses used on the Industrial CPU Card.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
120	Disable Watchdog Timer Operation (read)
121	Enable Watchdog Timer Operation (read)
122	Watchdog Function
1F0h - 1F7h	IDE Interface
278 - 27F	Reserved
2F8h - 2FFh	Serial Port #2(COM2)
2B0 - 2DF	Graphics Adapter Controller
378h - 3FFh	Parallel Port #1(LPT1)
360 - 36F	Network Ports
3B0 - 3BF	Monochrome & Printer adapter
3C0 - 3CF	EGA adapter
3D0 - 3DF	CGA adapter
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)
3F0	Winbond I/O

This page does not contain any information.

Appendix C

Interrupt Request Lines (IRQ)

There are a total of 15 IRQ lines available on the Industrial CPU Card. Peripheral devices use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on the Industrial CPU Card.

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2
IRQ4	Serial Port #1
IRQ5	Reserved
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1
IRQ8	Real Time Clock
IRQ9	Software Redirected to Int 0Ah
IRQ10	Reserved
IRQ11	Reserved
IRQ12	Reserved
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE

This page does not contain any information.