

AR-B1661
Pentium III Grade
All-in-one CPU Card

Operation Manual

Edition: 1.12
Book Number: AR-B1661-05.0412

Table of Contents

0. PREFACE	2
0.1 COPYRIGHT NOTICE AND DISCLAIMER	2
0.2 WELCOME TO THE AR-B1661 CPU BOARD	2
0.3 BEFORE YOU USE THIS GUIDE	2
0.4 RETURNING YOUR BOARD FOR SERVICE	2
0.5 TECHNICAL SUPPORT AND USER COMMENTS	2
0.6 STATIC ELECTRICITY PRECAUTIONS	3
1. INTRODUCTION	4
1.1 PACKING LIST	4
1.2 SPECIFICATIONS	4
2. INSTALLATIONS	6
2.1 MEMORY INSTALLATION	6
2.2 JUMPERS ON THE AR-B1661	6
2.2.1 RS485 Terminator Select (J10)	7
2.2.2 COMC RS232/485 Select (JP7/JP9)	7
2.2.3 External Battery Connector Select (J11)	7
2.2.4 Support Riser Card (JP1)	7
2.2.5 Voltage Select	7
2.2.6 Enabled / Disabled LAN Function	8
2.3 CONNECTORS ON THE AR-B1661	9
2.3.1 Connector Locations on the AR-B1661	10
2.3.2 Serial Port A-C Connector (COM)	11
2.3.3 Parallel Port Connector (LPT)	11
2.3.4 Floppy Drive Connector (FDD)	12
2.3.5 USB Connector (USB)	12
2.3.6 CRT Connector (VGA)	12
2.3.7 Keyboard & Mouse Connector (KB)	13
2.3.8 Hard Disk (IDE) Connector (HDD)	13
2.3.9 Reset	13
2.3.10 Bidirectional I/O (GPIO)	14
2.3.11 TV Out (J1)	14
2.3.12 Extend LED Module/Power (J2)	14
2.3.13 Extend LED Module/HDD (J3)	15
2.3.14 ATX PWRTBN (J8)	15
2.3.15 ATX PWR Connector (PS)	15
2.3.16 Power Connector (PWR1)	15
2.3.17 Power Connector For PC104 Connector (J12, J13)	15
2.3.18 Touch Screen (T.S)	15
2.3.19 RS485 Signal (RS485)	16
2.3.20 Infrared Connector (IR)	16
2.3.21 EXT LAN1, LAN2 Active LED (J5)	16
2.3.22 Audio Connector (AUDIO1)	16
2.3.23 Ethernet RJ-45 Connector (LAN1, LAN2)	16
2.3.24 Flat Panel LCD Connector	16
2.3.25 X-Bus (PC-104)	18
2.3.26 PCI Slot (PCI)	19
2.3.27 Mini Connector (Mini-PCI)	19
2.3.28 SDRAM Socket 168 Pin (DIMM1)	19
3. WATCHDOG TIMER	20
3.1 WATCHDOG TIMER SETTING	20
3.2 WATCHDOG TIMER TRIGGER	20
4. BIOS CONFIGURATION	21
4.1 BIOS INTRODUCTION	21
4.2 BIOS SETUP	21
4.3 STANDARD CMOS FEATURES	22
4.4 ADVANCED BIOS FEATURES	24
4.5 ADVANCED CHIPSET FEATURES	26
4.6 INTEGRATED PERIPHERALS	28
4.7 POWER MANAGEMENT SETUP	29
4.8 PNP/PCI CONFIGURATION	31
4.9 LOAD FAIL-SAFE DEFAULTS	32
4.10 LOAD OPTIMIZED DEFAULTS	32
4.11 SUPERVISOR / USER PASSWORD	33
4.12 IDE HDD AUTO DETECTION	33
4.13 SAVE & EXIT SETUP	34
4.14 EXIT WITHOUT SAVING	34
SMI721 CHIP DRIVER INSTALL GUIDE	35
HOW TO SET DUALPANEL	36
APPENDIX A. ADDRESS MAPPING	37
IO ADDRESS MAP	37
APPENDIX B. INTERRUPT REQUEST (IRQ)	38

0. PREFACE

0.1 COPYRIGHT NOTICE AND DISCLAIMER

December 1998

This document is copyrighted, 1998, by Acrosser Technology Co., Ltd. All rights are reserved. No part of this manual may be reproduced, copied, transcribed, stored in a retrieval system, or translated into any language or computer language in any form or by any means, such as electronic, mechanical, magnetic, optical, chemical, manual or other means without the prior written permission of original manufacturer.

Acrosser Technology assumes no responsibility or warranty with respect to the contents in this manual and specifically disclaims any implied warranty of merchantability or fitness for any particular purpose. Furthermore, Acrosser Technology reserves the right to make improvements to the products described in this manual at any times without notice. Such revisions will be posted on the Internet (WWW.ACROSSER.COM) as soon as possible.

Possession, use, or copying of the software described in this publication is authorized only pursuant to a valid written license from Acrosser or an authorized sub licensor.

ACKNOWLEDGEMENTS

Acrosser, Aware, Cyber 9525, IBM PS/2, Intel and Pentium, Microsoft Windows, VIA, ...are registered trademarks.

All other trademarks and registered trademarks are the property of their respective holders.

This document was produced with Adobe Acrobat 3.01.

0.2 WELCOME TO THE AR-B1661 CPU BOARD

This guide introduces the Acrosser AR-B1661 CPU board.

The information provided in this manual describes this card's function and features. It also helps you start, set and operate your AR-B1661. General system information can also be found in this publication.

0.3 BEFORE YOU USE THIS GUIDE

Check the packing list before you install and make sure the accessories are completely included.

The AR-B1661 CD provides the newest information regarding the CPU card. **Please refer to the files of the enclosed utility CD.** It contains the modification, hardware & software information, and it has updated to product functions that may not be mentioned here.

0.4 RETURNING YOUR BOARD FOR SERVICE

If your board requires any service, contact the distributor or sales representative from whom you purchased the product for service information. If you need to ship your board to us for service, be sure it is packed in a protective carton. We recommend that you keep the original shipping container for this purpose.

You can help assure efficient servicing for your product by following these guidelines:

1. Include your name, address, daytime telephone, facsimile number and E-mail.
2. A description of the system configuration and/or software at the time is malfunction.
3. A brief description of problem occurred.

0.5 TECHNICAL SUPPORT AND USER COMMENTS

User's comments are always welcome as they assist us in improving the quality of our products and the readability of our publications. They create a very important part of input used for product enhancement and revision.

We may use and distribute any of the information you provide in any way appropriate without incurring any obligation. You may, of course, continue to use the information you provide.

If you have any suggestions for improving particular sections or if you find any errors, please send your comments to Acrosser Technology Co., Ltd. or your local sales representative and indicate the manual title and book number. Internet electronic mail to: webmaster@acrosser.com

0.6 STATIC ELECTRICITY PRECAUTIONS

Before removing the board from its anti-static bag, read this section about static electricity precautions.

Static electricity is a constant danger to computer systems. The charge that can build up in your body may be more than sufficient to damage integrated circuits on any PC board. It is, therefore, important to observe basic precautions whenever you use or handle computer components. Although areas with humid climates are much less prone to static build-up, it is always best to safeguard against accidents may result in expensive repairs. The following measures should generally be sufficient to protect your equipment from static discharge:

- Touch a grounded metal object to discharge the static electricity in your body (or ideally, wear a grounded wrist strap).
- When unpacking and handling the board or other system component, place all materials on an antic static surface.
- Be careful not to touch the components on the board.

1. INTRODUCTION

This chapter provides an overview of your system features and capabilities. The following topics are covered:

- Packing list
- Specifications
- Board Dimensions

1.1 PACKING LIST

The accessories are included with the system. Before you begin installing your AR-B1661 CPU board, take a moment to make sure that the following items have been included inside the AR-B1661 package.

- The AR-B1661 Industrial CPU Card
- 1 IDE 44pin pitch=2.0mm Ribbon Cable
- 1 Floppy 34pin pitch=2.54mm Ribbon Cable.
- 3 Serial Port 40pin pitch=2.54mm Ribbon Cable X 1
- 1 Parallel Port Attached to a Mounting Bracket
- PS/2 Keyboard & Mouse interface cable mounted on bracket
- 1 VGA Ribbon Cable with DB15 Attached to a Mounting Bracket.
- 1 Cable for TV-Out Function
- 1 Software utility CD

Please check that your package is complete and contains the items below. If you discover damaged or missing items, please contact your dealer.

1.2 SPECIFICATIONS

GENERAL:

CPU	On-board Ultra Low Power Celeron 400MHz Supports Lower Power Pentium III/Celeron series Processors
Chipset	Intel 440MX 100, FSB100MHz
BIOS	Phoenix-AwardBIOS
System Memory	One DIMM socket, supports 256MB SDRAM memory maximum
Serial Port	Three RS-232C COM ports COM A with 5V/12V selected by jumper setting COM B share with Touch Screen Touch Screen uses 2.0mm 3-pin JST connector COM C RS-485 with 5V/12V Selected by Jumper Setting IrDA
Parallel Port	One parallel port, supports SPP/EPP/ECP modes
Enhanced IDE	Supports one Enhanced 44-pin IDE port for 2.5" devices (Ultra DMA 33 mode), supports Compact Flash Interface for storage with AR-B9462 (Optional)
FDD interface	Supports one FDD port up to two FDDs
USB	Supports two USB connectors, USB 1.0 compliant
Keyboard and mouse	JST connector for PS/2 keyboard and PS/2 mouse
Expansion Bus	One 64-pin 8-bit PC/104 module connector One 32-bit PCI bus expansion slot, supports Riser and two PCI bus expansion slots Mini PCI interface
Watch Dog	Software programmable 1~63 seconds
RTC	Chipset included, supports ACPI function with 7 years data retention
GPIO	One TTL 4-bit IN/OUT port

VGA DISPLAY:

Chipset	SMI 721, on-chip VRAM 4MB Resolution up to 1280 x 1024 x 16M colors Supports Dual View Display for CRT/LCD and LCD1/LCD2
Interface	Supports CRT interface with 2.00mm 2x5-pin header Supports LCD1 – TTL interface with 2.00mm 2x22-pin header Supports LCD2 – LVDS interface with 2.00mm 2x13-pin header Supports TV-out interface with 2.00mm 2x4-pin header

LAN:

Chipset	On-board two Realtek RT8100B
Interface	Supports two LAN for 10/100Mbps Base-T with 180° RJ-45 connectors built-in LED

AUDIO:

Chipset	440MX 100 chipset included
Audio controller	On-board AD1881, AC97 full-duplex, integrated 3D audio effects
Interface	Use AR-B9425 Audio transfer board, supports MIC, Line-in, Line-out, Speaker-out, Midi-game port

MECHANICAL AND ENVIRONMENTAL:

Power requirements	+5V @ A and +12V @ A, supports PS/2 & ATX power and supports ATX power function
Dimensions	203mm x 146 mm (8" x 5.75")
PC Board	8 layers
Operating temperature	0~60
Storage Temperature	-20~80
Operating humidity	0% ~ 90% Relative humidity non-condensing

2. INSTALLATIONS

This chapter provides information on how to use the jumpers and connectors on the AR-B1661 in order to set up a workable system. The topics covered are:

- Memory Installation
- Jumpers on the AR-B1661
- Connectors on the AR-B1661
- Watchdog Timer Configuration

2.1 MEMORY INSTALLATION

The AR-B1661 Industrial CPU Card supports one 168-pin DIMM sockets for a maximum total memory of 256MB SDRAMs. The memory modules can come in sizes of 16MB, 32MB, 64MB, 128MB and 256MB (for buffer type) SDRAMs.

2.2 JUMPERS ON THE AR-B1661

The jumpers on the AR-B1661 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 AR-B1661 and their respective functions.

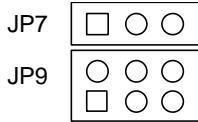
- J10: RS485 Terminator Select
- JP7, JP9: COMC RS232/485 Select
- J11: External Battery Connector Select
- JP1: Riser Card Support
- Voltage Select
 - JP2: LVDS Voltage Select
 - LCD1P, LCD2P: LCD1-18 Bit, LCD2-24 Bit Voltage Select
 - COMP1: COM1, Voltage Select
 - COMP2: COM3, Voltage Select
- Enabled / Disabled LAN Function
 - LAN1: LAN1P
 - LAN2: LAN2P

2.2.1 RS485 Terminator Select (J10)



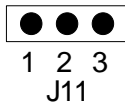
Pin	Function	NOTE
ON	RS485	
OFF	RS232	Factory

2.2.2 COMC RS232/485 Select (JP7/JP9)



Pin	Function
JP7	RS485
JP9	RS232 (Factory)

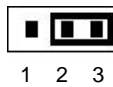
2.2.3 External Battery Connector Select (J11)



PIN	Function	NOTE
1-2	EXTERNAL BATTERY	
2-3	INTERNAL BATTERY	Factory

2.2.4 Support Riser Card (JP1)

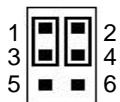
This 3-pins jumper will decide the BUS1 support a PCI CARD or a Riser Card (such AR-B1550).



Jumper	Function
1-2	For Riser Card
2-3	Factory Preset

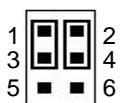
2.2.5 Voltage Select

LVDS Voltage Select (JP2)



Jumper	VOLTAGE
1-3	VCC
2-4	(Factory Preset)
3-5	VCC3
4-6	

(LCD1P) (LCD2P) Bit Voltage Select



Jumper	VOLTAGE
1-3	VCC 3
2-4	(Factory Preset)
3-5	VCC
4-6	

COM1、 Voltage Select (COMP1)

Jumper	VOLTAGE
1-2	+12V
3-4	VCC5 (Factory)
5-6	GND

COM3、 Voltage Select (COMP2)

Jumper	VOLTAGE
1-2	+12V
3-4	VCC5 (Factory)
5-6	GND

2.2.6 Enabled / Disabled LAN Function

■ LAN1 (LAN1P)



Jumper	FUNCTION
ON	ENABLED (Factory Preset)
OFF	DISABLED

■ LAN2 (LAN2P)



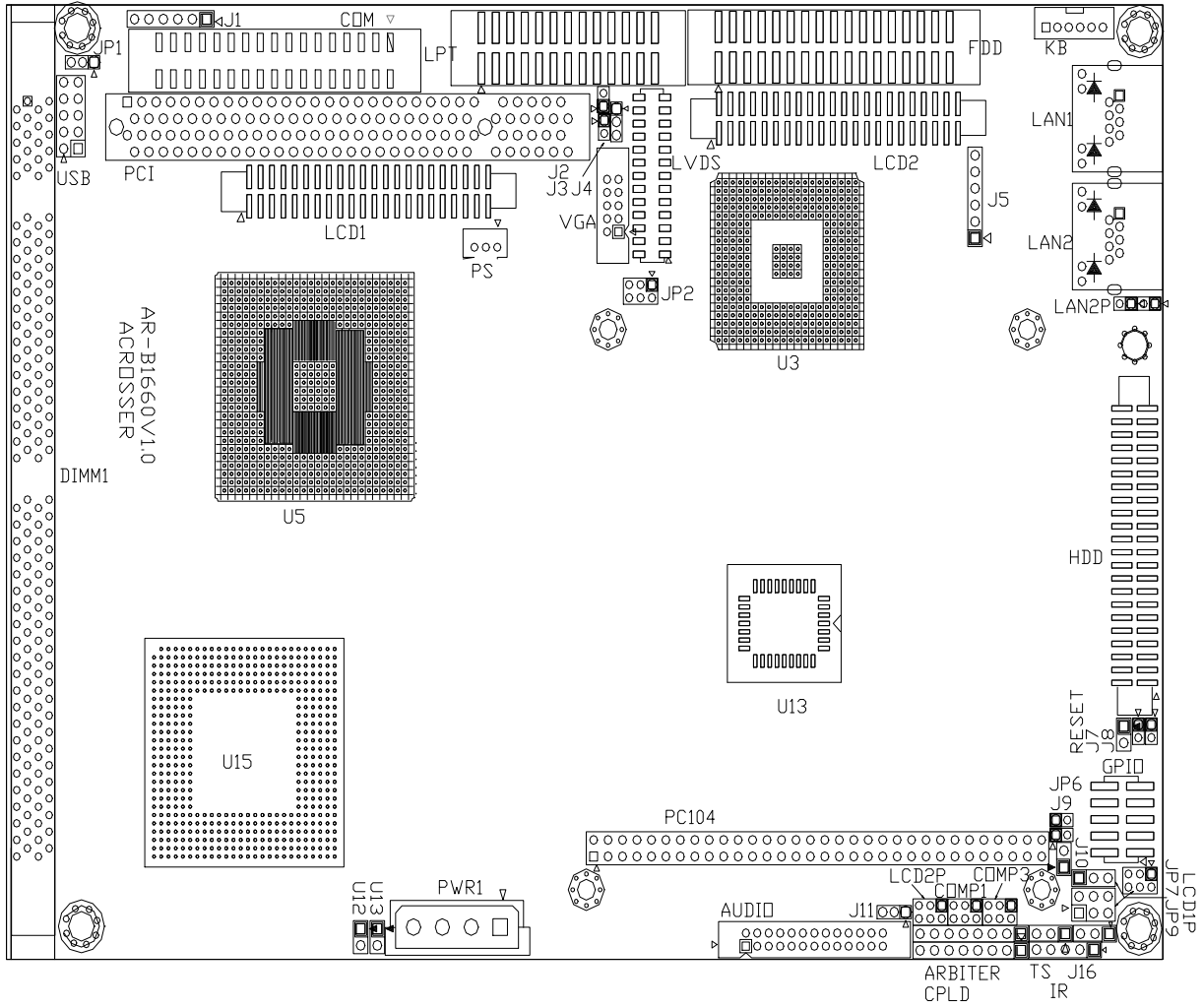
Jumper	FUNCTION
ON	ENABLED (Factory Preset)
OFF	DISABLED

2.3 CONNECTORS ON THE AR-B1661

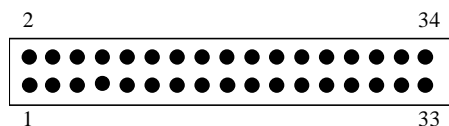
The connectors on the AR-B1661 allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on AR-B1661 and their respective functions.

- COM: Serial Port A-C Connector
- LPT: Parallel Port Connector
- FDD: Floppy Drive Connector
- USB: USB Connector
- VGA: CRT Connector
- KB: Keyboard & Mouse Connector
- HDD: Hard Disk (IDE) Connector
- Reset
- GPIO: Bidirectional I/O
- J1: TV-Out
- J2: Extend LED Module/Power
- J3: Extend LED Module/HDD
- J8: ATX PWRBTN
- PWR1: Power Connector
- J12, J13: Power Connector For PC104 Connector
- T.S: Touch Screen
- J16: RS485 Signal
- IR: Infrared Connector
- J5: EXT LAN1, LAN2 Active LED
- AUDIO1: Audio Connector
- LAN1, LAN2: Ethernet RJ-45 Connector
- Flat Panel LCD Connector
 - LCD1: 18-Bit LCD Connector
 - LCD2: 18-Bit LCD Connector
 - LVDS: LVDS LCD Connector
 - Application For Support Dual LCD Panel
- PC-104: X-Bus
- PCI: PCI Slot
- Mini-PCI: Mini Connector
- DIMM1: SDRAM Socket 168 Pin (DIMM1)

2.3.1 Connector Locations on the AR-B1661



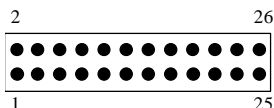
2.3.2 Serial Port A~C Connector (COM)



The SERIAL PORT A~C Connector assignments are as follows:

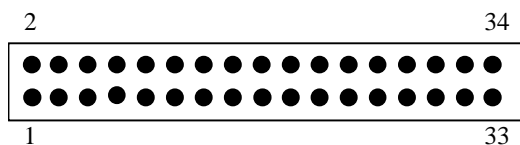
SERIAL PORT A~C CONNECTOR (COM)			
PIN	Signal	PIN	Signal
1	-DCD1F	2	-DSR1F
3	RXD1F	4	-RTS1F
5	TXD1F	6	-CTS1F
7	-DTR1F	8	-RI1F
9	VCOM1	10	GND
11	-DCD2F	12	-DSR2F
13	RXD2F	14	-RTS2F
15	TXD2F	16	-CTS2F
17	-DTR2F	18	-RI2F
19	VCOM2	20	GND
21	-DCD3F	22	-DSR3F
23	RXD3F	24	-RTS3F
25	TXD3F	26	-CTS3F
27	-DTR3F	28	-RI3F
29	VCOM3	30	GND
31	N.C	32	N.C
33	N.C	34	N.C

2.3.3 Parallel Port Connector (LPT)



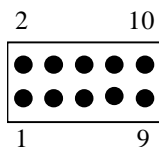
PIN	Signal	PIN	Signal
1	-Strobe	14	-Auto Form Feed
2	Data 0	15	-Error
3	Data 1	16	-Initialize
4	Data 2	17	-Printer Select In
5	Data 3	18	Ground
6	Data 4	19	Ground
7	Data 5	20	Ground
8	Data 6	21	Ground
9	Data 7	22	Ground
10	-Acknowledge	23	Ground
11	Busy	24	Ground
12	Paper	25	Ground
13	Printer Select	26	Not Used

2.3.4 Floppy Drive Connector (FDD)



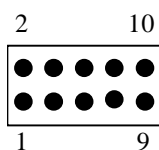
Pin	Signal	Pin	Signal
1-33(odd)	GROUND	18	DIRECTION
2	DRVEN 0	20	-STEP OUTPUT PULSE
4	NOT USED	22	-WRITE DATA
6	DRVEN 1	24	-WRITE GATE
8	-INDEX	26	-TRACK 0
10	-MOTOR ENABLE 0	28	-WRITE PROTECT
12	-DRIVE SELECT 1	30	-READ DATA
14	-DRIVE SELECT 0	32	-SIDE 1 SELECT
16	-MOTOR ENABLE 1	34	DISK CHANGE

2.3.5 USB Connector (USB)



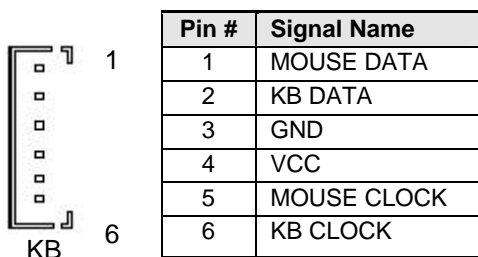
Pin #	Signal Name	Pin #	Signal Name
1	VCC0	6	DATA1+
2	VCC1	7	GND
3	DATA0	8	GND
4	DATA1	9	GND
5	DATA0	10	GND

2.3.6 CRT Connector (VGA)

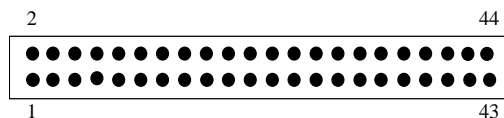


Pin #	Signal Name	Pin #	Signal Name
1	RED	6	AGND
2	AGND	7	V.S
3	GREEN	8	DDCD
4	GND	9	H.S
5	BLUE	10	DDCK

2.3.7 Keyboard & Mouse Connector (KB)



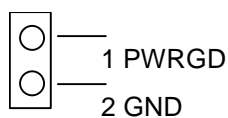
2.3.8 Hard Disk (IDE) Connector (HDD)



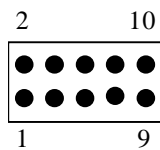
Pin	Signal	Pin	Signal
1	-RESET	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	NOT USED
21	IDEDREQ	22	GROUND
23	-IOW A	24	GROUND
25	-IOR A	26	GROUND
27	IDEIORDYA	28	GROUND
29	-DACKA	30	GROUND
31	AINTE	32	GROUND
33	SA 1	34	Not Used
35	SA 0	36	SA 2
37	CS 0	38	CS 1
39	HD LED A	40	GROUND
41	VCC	42	VCC
43	GROUND	44	Not Used

Hard Disk (IDE1) Connector

2.3.9 Reset



2.3.10 Bidirectional I/O (GPIO)

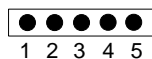


Pin #	Signal Name	Pin #	Signal Name
1	GPI0	2	GPO0
3	GPI1	4	GPO1
5	GPI2	6	GPO2
7	GPI3	8	GPO3
9	VCC (5V)	10	GND

- Users could test GPIO function under 'Debug' program as follow:

```
C:>debug
● O 221 01H
  Generally, the GPIO2 Pin2 will be High Level, others
  output pin are Low Level.
● I 221
FC
  Generally, suppose that GPIO1's Pin1 and Pin3 are High
  Level then will show "FC"
```

2.3.11 TV Out (J1)



Pin #	Signal Name	Pin #	Signal Name
1	LUMA	4	GND
2	CHROMA	5	GND
3	COMP	6	GND

2.3.12 Extend LED Module/Power (J2)



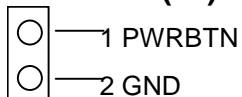
Pin	Signal
1	P/LED
2	+5V

2.3.13 Extend LED Module/HDD (J3)



Pin	Signal
1	HLEDP
2	+5V

2.3.14 ATX PWRTBN (J8)

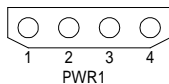


2.3.15 ATX PWR Connector (PS)



Pin	Signal
1	PWRON
2	+5V
3	VCC5VSB

2.3.16 Power Connector (PWR1)



PIN	VOLTAGE
1	+12V
2	GND
3	GND
4	+5V

2.3.17 Power Connector For PC104 Connector (J12, J13)



J12	
Pin	Voltage
1	-12V
2	GND



J13	
Pin	Voltage
1	-5V
2	GND

2.3.18 Touch Screen (T.S)



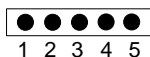
1. RXDF
2. TXDF
3. GND

2.3.19 RS485 Signal (RS485)



Pin	Signal
1	NET+
2	NET-
3	GND

2.3.20 Infrared Connector (IR)



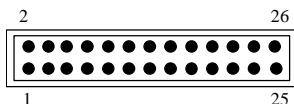
Pin	Signal
1	VCC5
2	NC
3	RX
4	GND
5	TX

2.3.21 EXT LAN1, LAN2 Active LED (J5)

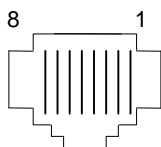


Pin	Signal
1	ACTLED_A
2	VCC3
3	SPDLED_A
4	ACTLED_B
5	VCC3
6	SPDLED_B

2.3.22 Audio Connector (AUDIO1)



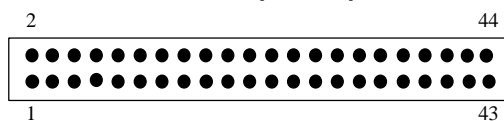
2.3.23 Ethernet RJ-45 Connector (LAN1, LAN2)



Pin #	Signal Name	Pin #	Signal Name
1	TX+	5	Not Used
2	TX-	6	RX-
3	RX+	7	Not Used
4	Not Used	8	Not Used

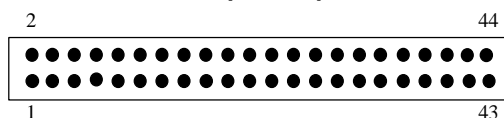
2.3.24 Flat Panel LCD Connector

■ 18-Bit LCD Connector (LCD1)



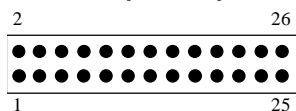
Pin #	Signal Name	Pin #	Signal Name
1	GND	23	G4
2	FPSCCLK	24	G5
3	GND	25	NC
4	HSYNC	26	NC
5	VSYNC	27	GND
6	GND	28	R0
7	NC	29	R1
8	NC	30	R2
9	B0	31	R3
10	B1	32	R4
11	B2	33	R5
12	B3	34	GND
13	GND	35	LCDVDD
14	B4	36	LCDVDD
15	B5	37	+12V
16	NC	38	+12V
17	NC	39	GND
18	G0	40	GND
19	G1	41	FPEN
20	GND	42	DE
21	G2	43	VBIASEN
22	G3	44	VDDEN

■ 18-Bit LCD Connector (LCD2)



Pin #	Signal Name	Pin #	Signal Name
1	GND	23	G6
2	FPSCCLK	24	G7
3	GND	25	R0
4	HSYNC	26	R1
5	VSYNC	27	GND
6	GND	28	R2
7	B0	29	R3
8	B1	30	R4
9	B2	31	R5
10	B3	32	R6
11	B4	33	R7
12	B5	34	GND
13	GND	35	LCDVDD
14	B6	36	LCDVDD
15	B7	37	+12V
16	G0	38	+12V
17	G1	39	GND
18	G2	40	GND
19	G3	41	FPEN
20	GND	42	DE
21	G4	43	VBIASEN
22	G5	44	VDDEN

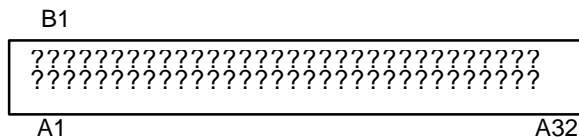
■ LVDS LCD Connector (LVDS)



Pin #	Signal Name	Pin #	Signal Name
1	TXOUT0-	14	GND
2	GND	15	TXCLK+
3	TXOUT0+	16	VTX12
4	GND	17	TXOUT3-
5	TXOUT1-	18	VTX12
6	VTX5	19	TXOUT3+
7	TXOUT1+	20	GND
8	VTX5	21	VTKBP
9	TXOUT2-	22	NC
10	NC	23	VTX5
11	TXOUT2+	24	NC
12	GND	25	VTX5
13	TXCLK-	26	NC

2.3.25 X-Bus (PC-104)

Support 8-Bit ISA Interface



Pin #	Signal Name	Pin #	Signal Name
A1	IOCHK#	B1	GND
A2	SD7	B2	RSTDRV
A3	SD6	B3	VCC
A4	SD5	B4	IRQ9
A5	SD4	B5	-5V
A6	SD3	B6	DREQ2
A7	SD2	B7	-12V
A8	SD1	B8	ZWS#
A9	SD0	B9	+12V
A10	IOCHRDY	B10	GND
A11	AEN	B11	SMEMW#
A12	SA19	B12	SMEMR#
A13	SA18	B13	IOW#
A14	SA17	B14	IOR#
A15	SA16	B15	DACK3#
A16	SA15	B16	DREQ3
A17	SA14	B17	DACK1#
A18	SA13	B18	DREQ1
A19	SA12	B19	REFRESH#
A20	SA11	B20	SYSCLK
A21	SA10	B21	IRQ7
A22	SA9	B22	IRQ6
A23	SA8	B23	IRQ5
A24	SA7	B24	IRQ4
A25	SA6	B25	IRQ3
A26	SA5	B26	DACK2#
A27	SA4	B27	TC
A28	SA3	B28	BALE
A29	SA2	B29	VCC
A30	SA1	B30	OSC
A31	SA0	B31	GND
A32	GND	B32	GND
C1~C20 & D1~D20 : NO SIGNAL			

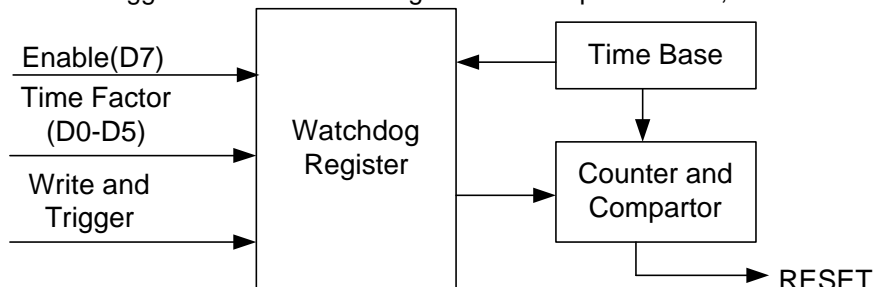
2.3.26 PCI Slot (PCI)

2.3.27 Mini Connector (Mini-PCI)

2.3.28 SDRAM Socket 168 Pin (DIMM1)

3. WATCHDOG TIMER

This section describes the use of Watchdog Timer, including disable, enable, and trigger. AR-B1661 is equipped with a programmable time-out period watchdog timer that occupies I/O port **443H**. Users can use simple program to enable the watchdog timer. Once you enable the watchdog timer, the program should trigger it every time before it times out. Watchdog Timer will generate a response (system or IRQ9) due to system fails to trigger or disable watchdog timer before preset timer, times out.



Watchdog Block Diagram

3.1 WATCHDOG TIMER SETTING

The watchdog timer is a circuit that maybe be used from your program software to detect crash or hang up.

The Watchdog timer is automatically disabled after reset. Once you enabled the watchdog timer, your program should trigger the watchdog timer every time before it times out. After you trigger the watchdog timer, the timer will be set to zero and start to count again. If your program fails to trigger the watchdog timer before times out, it will generate a reset pulse to reset the system or trigger the IRQ 9 signal in order to tell your system that the watchdog time is out.

Please refer to the following table in order to properly program Watchdog function

	D7	D6	D5 D4 D3 D2 D1 D0
1	Enable	Reset	Time period
0	Disable	IRQ 9	

Users could test watchdog function under ‘Debug’ program as follows:

```

C:>debug
● O 443 C8H
  Generally, watchdog function would reset system after 8 seconds
● O 443 0
  Disable watchdog function
    
```

```

C:>debug
● O 443 88H
  Generally, watchdog function would generate IRQ 9 after 8 seconds
● O 443 0H
  Disable watchdog function
    
```

3.2 WATCHDOG TIMER TRIGGER

After you enable the watchdog timer, your program must write the same factor as triggering to the watchdog timer at least once during every time-out period. You can change the time-out period by writing another timer factor to the watchdog register at any time, and you must trigger the watchdog during every new time-out period in next trigger.

4. BIOS CONFIGURATION

This chapter describes the different settings available in the Award BIOS that comes with the AR-B1661 CPU card. The topics covered in this chapter are as follows:

- BIOS Introduction
- BIOS Setup
- Standard CMOS Features
- Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PNP/PCI Configuration
- Load Fail-Safe Defaults
- Load Optimized Defaults
- Set Supervisor Password
- Set User Password
- Save & Exit Setup
- Exit Without Saving

4.1 BIOS INTRODUCTION

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Pentium II processors in a standard IBM-AT compatible I/O system. The BIOS provides critical low-level support for a standard device such as disk drives, serial ports 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.

4.2 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 key immediately allows you to enter the Setup utility. If you are a little bit late pressing the 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 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.

Phoenix-Award BIOS CMOS Setup Utility

STANDARD CMOS FEATURES	LOAD FAIL-SAFE DEFAULTS
ADVANCED BIOS FEATURES	LOAD OPTIMIZED DEFAULTS
ADVANCED CHIPSET FEATURES	SET SUPERVISOR PASSWORD
INTEGRATED PERIPHERALS	ISSET USER PASSWORD
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
PNP/PCI CONFIGURATIONS	EXIT WITHOUT SAVING
ESC : Quit F9 : Menu in Bios	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(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. At the bottom of the Main Menu just below the control keys section, there is another section, which displays information on the currently highlighted item in the list.

NOTE: If your computer cannot boot after making and saving system changes with Setup, the Award BIOS supports an override to the CMOS settings that resets your system to its default.

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.

4.3 STANDARD CMOS FEATURES

The "Standard CMOS Setup" choice 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.

```

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

```

Date (mm:dd:yy)	Feb 19 2003	Item Help
Time (hh:mm:ss)	10 : 42 : 54	Menu Level ▶
▶ IDE Primary Master		Change the day, month, year and century
▶ IDE Primary Slave		
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
LCD&CRT	[CRT]	
TV Mode	[Disabled]	
Halt On	[All , But Keyboard]	

```

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

```

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 describes each item of this menu.

Date

The date format is:

Day: Sun to Sat
Month: 1 to 12
Date: 1 to 31
Year: 2002 to 2102

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:** 00 to 23
Minute: 00 to 59
Second: 00 to 59

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

Primary HDDs

The onboard IDE connectors provide Primary 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. Type 1 to 45 is 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 related information has to be entered to the following items.

CYLINDER:	Number of cylinders
HEAD:	Number of read/write heads
PRECOMP:	Write precompensation
LANDING ZONE:	Landing zone
SECTOR:	Number of sectors
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:

360KB	1.2MB	720KB	1.44MB	2.88MB
5.25 in.	5.25 in.	3.5 in.	3.5 in.	3.5 in.

LCD & CRT

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

Both: LCD & CRT
LCD: LCD Only
CRT: CRT Only

Halt On

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

No errors	The system boot will not be halted for any error that may be detected. (Default)
All errors	Whenever the BIOS detect a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not be halted for a keyboard error; it will stop for all other errors
All, But Diskette	The system boot will not be halted for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not be halted for a key- board or disk error; it will stop for all others.


Flat Panel Resolution

140 × 480
800 × 600
1024 × 768

4.4 ADVANCED BIOS FEATURES

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

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

<pre> Virus Warning [Disabled] CPU Internal Cache [Enabled] CPU L2 Cache ECC Checking [Enabled] Processor Number Feature [Enabled] Quick Power On Self Test [Enabled] First Boot Device [Floppy] Second Boot Device [HDD-0] Third Boot Device [CDROM] Boot Other Device [Enabled] Swap Floppy Drive [Disabled] Boot Up Floppy Seek [Enabled] Boot Up NumLock Status [On] Gate A20 Option [Normal] Typematic Rate Setting [Disabled] Security Option [Setup] OS Select For DRAM > 64MB [Non-OS2] Report No FDD For WIN 95 [No] </pre>		<p style="text-align: center;">Item Help</p> <hr/> <p>Menu Level ▶</p> <p>Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area , BIOS will show a warning message on screen and alarm beep</p>
--	---	---

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

Virus Warning

This 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

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**.

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

The default value is **Floppy, HDD-0, CDROM**.

Swap Floppy Drive

This item allows you to determine whether or not to enable Swap Floppy Drive. 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**.

Boot Up System Speed

This has no function and selects the default system speed (**High**).

Gate A20 Option

This field allows 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.

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 with other peripherals IRQ6 that is assigned to a floppy disk drive if the drive does not exist. 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.

4.5 ADVANCED CHIPSET FEATURES

This Setup menu controls the configuration of the motherboard chipset.

Phoenix - AwardBIOS CMOS Setup Utility Advanced Chipset Features

SDRAM RAS-to-CAS Delay	[3]	Item Help
SDRAM RAS Precharge Time	[3]	Menu Level ▶
SDRAM CAS latency Time	[Non-ECC]	
SDRAM Precharge Control	[Disabled]	
System BIOS Cacheable	[Disabled]	
Video RAM Cacheable	[Disabled]	
8 Bit I/O Recovery Time	[3]	
16 Bit I/O Recovery Time	[2]	
Memory Hole At 15M-16M	[Disabled]	
Passive Release	[Enabled]	
Delayed Transaction	[Disabled]	
AGP Aperture Size (MB)	[64]	
Power-Supply Type	[AT]	

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

Auto Configuration

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

SDRAM RAS-to-CAS Delay

When DRAM is refreshed, 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 it takes for the RAS to accumulate its charge before DRAM refreshes. If insufficient time is allowed, 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**.

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 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 of 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 is 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)

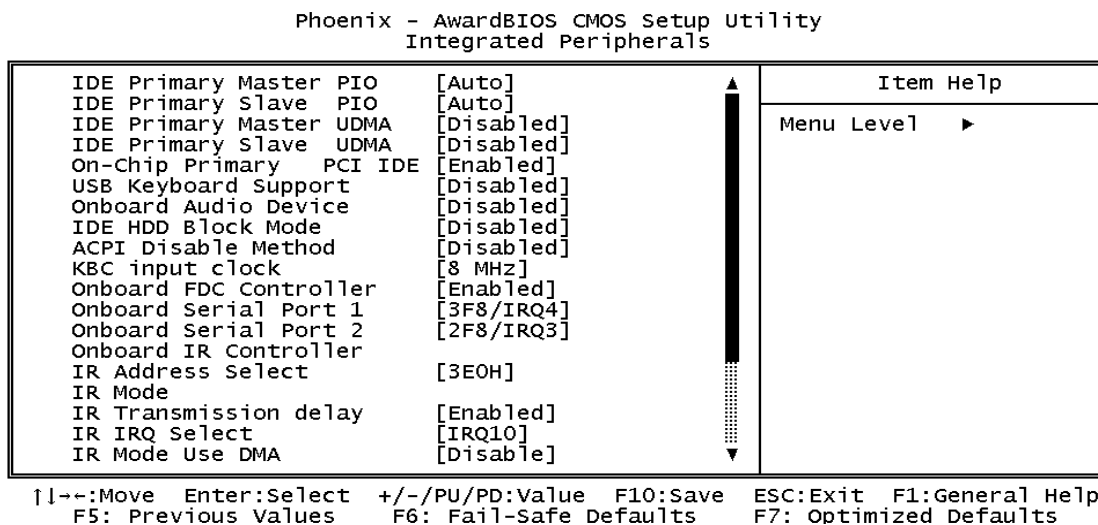
The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The options available are 4M, 8M, 16M, 32M, 64M, 128M and 256M.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

Power-Supply Type

To select your power supply Type AT/FFATX.

4.6 INTEGRATED PERIPHERALS

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



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.

Onboard Serial/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
Serial Port 3	3E8/IRQ5

UART Mode Select

This field determines the UART mode in your computer. The settings are *Normal*, *IrDA* and *ASKIR*. The default value is *Normal*.

Parallel Port Mode

This field allows you to determine parallel port mode function.

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

4.7 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.

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI function	[Disabled]	▲ ↑ ↓ ▼	Item Help
Power Management	[User Define]		
PM Control by APM	[Yes]		
Video Off Method	[V/H SYNC+Blank]		
Video Off After	[Standby]		
MODEM Use IRQ	[3]		
Doze Mode	[Disable]		
Standby Mode	[Disable]		
Suspend Mode	[Disable]		
HDD Power Down	[Disable]		
Throttle Duty Cycle	[62.5%]		
VGA Active Monitor	[Disabled]		
Soft-Off by PWR-BTTN	[Instant-Off]		
PowerOn by Ring	[Disabled]		
IRQ & Break Suspend	[Disabled]		
IRQ[3-7,9-15],NMI	[Disabled]		
Primary IDE 0	[Disabled]		
Primary IDE 1	[Disabled]		

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

ACPI

When using AT power, please select Disable.

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.
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 also 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.

VGA Active 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 system powers off when the power button is pressed for more than four seconds or places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity (see next field) when pressed for less than 4 seconds. The default value is **Instant-Off**.

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.

4.8 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.

Phoenix-Award BIOS CMOS Setup Utility PNP/PCI Configuration

PNP OS Installed	: No	Used MEM base addr	: N/A
Resources Controlled by	: Manual		
Reset Configuration Data	: Disabled		
IRQ-3 assigned to	: Legacy ISA		
IRQ-4 assigned to	: Legacy ISA		
IRQ-5 assigned to	: PCI/ISA PnP		
IRQ-7 assigned to	: Legacy ISA		
IRQ-9 assigned to	: PCI/ISA PnP		
IRQ-10 assigned to	: PCI/ISA PnP		
IRQ-11 assigned to	: PCI/ISA PnP		
IRQ-12 assigned to	: PCI/ISA PnP		
IRQ-14 assigned to	: PCI/ISA PnP		
IRQ-15 assigned to	: PCI/ISA PnP		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP		
DMA-3 assigned to	: PCI/ISA PnP		
DMA-5 assigned to	: PCI/ISA PnP		
DMA-6 assigned to	: PCI/ISA PnP		
DMA-7 assigned to	: PCI/ISA PnP		
		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

Reset Configuration Data

This field allows you to determine whether or not to reset the configuration data. The default value is **Disabled**.

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**.

IRQ3/4/5/7/9/10/11/12/14/15, DMA0/1/3/5/6/7 assigned to

These fields allow you to determine the IRQ/DMA assigned to the ISA bus and is not available to any PCI slot.

PCI /VGA Palette Snoop

4.9 LOAD FAIL-SAFE 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.

Phoenix-Award BIOS CMOS Setup Utility

STANDARD CMOS FEATURES ADVANCED BIOS FEATURES ADVANCED CHIPSET FEATURES INTEGRATED PERIPHERALS POWER MANAGE PNP/PCI CONFIG	LOAD FAIL-SAFE DEFAULTS LOAD OPTIMIZED DEFAULTS SET SUPERVISOR PASSWORD SET USER PASSWORD SETUP SAVING
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Load Fail-Safe Defaults (Y/N)? N </div>	
ESC : Quit F9 : Menu in BIOS F10 : Save & Exit Setup	↑ ↓ → ← : Select Item
Load Fail-Safe Defaults	

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

4.10 LOAD OPTIMIZED 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.

Phoenix-Award BIOS CMOS Setup Utility

STANDARD CMOS FEATURES ADVANCED BIOS FEATURES ADVANCED CHIPSET FEATURES INTEGRATED PERIPHERALS POWER MANAGE PNP/PCI CONFIG	LOAD FAIL-SAFE DEFAULTS LOAD OPTIMIZED DEFAULTS SET SUPERVISOR PASSWORD SET USER PASSWORD SETUP SAVING
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Load Optimized Defaults (Y/N)? N </div>	
ESC : Quit F9 : Menu in BIOS F10 : Save & Exit Setup	↑ ↓ → ← : Select Item
Load Optimized Defaults	

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

4.11 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.

Phoenix-Award BIOS CMOS Setup Utility

STANDARD CMOS FEATURES ADVANCED BIOS FEATURES ADVANCED CHIPSET FEATURES INTEGRATED PERIPHERALS POWER MANAGE PNP/PCI CONFIG	LOAD FAIL-SAFE DEFAULTS LOAD OPTIMIZED DEFAULTS SET SUPERVISOR PASSWORD SET USER PASSWORD SETUP SAVING
<div style="border: 1px solid black; display: inline-block; padding: 5px 20px;">Enter Password:</div>	
ESC : Quit	F9: Menu in BIOS
F10 : Save & Exit Setup	↑ ↓ → ← : Select Item
Change / Set / Disable Password	

4.12 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.

Phoenix - AwardBIOS CMOS Setup Utility
IDE Primary Master

IDE HDD Auto-Detection	[Press Enter]	Item Help
IDE Primary Master Access Mode	[Auto] [Auto]	Menu Level ▶▶ To auto-detect the HDD's size, head... on this channel

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

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.

4.13 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.

Phoenix-Award BIOS CMOS Setup Utility		
STANDARD CMOS FEATURES	LOAD FAIL-SAFE DEFAULTS	
ADVANCED BIOS FEATURES	LOAD OPTIMIZED DEFAULTS	
ADVANCED CHIPSET FEATURES	SET SUPERVISOR PASSWORD	
INTEGRATED PERIPHERALS	SET USER PASSWORD	
POWER MANAGEMENT SETUP		
PNP/PCI CONFIGURATION	SAVE & EXIT SAVING	
Save to CMOS and Exit (Y/N)? N		
ESC : Quit	F9: Menu in BIOS	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup		
Save Data to CMOS		

4.14 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.

Phoenix-Award BIOS CMOS Setup Utility		
STANDARD CMOS FEATURES	LOAD FAIL-SAFE DEFAULTS	
ADVANCED BIOS FEATURES	LOAD OPTIMIZED DEFAULTS	
ADVANCED CHIPSET FEATURES	SET SUPERVISOR PASSWORD	
INTEGRATED PERIPHERALS	SET USER PASSWORD	
POWER MANAGEMENT SETUP		
PNP/PCI CONFIGURATION	SAVE & EXIT SAVING	
Quit Without Saving (Y/N)? N		
ESC : Quit	F9: Menu in BIOS	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup		
Abandon all Data		

SMI721 CHIP DRIVER INSTALL GUIDE

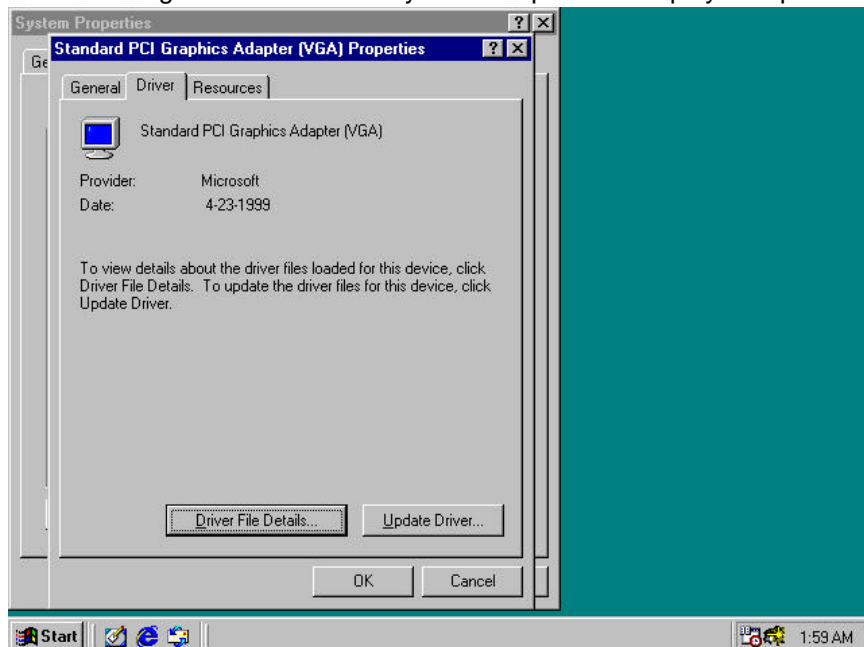
FOR WINDIOWS98 (ENGLISH)

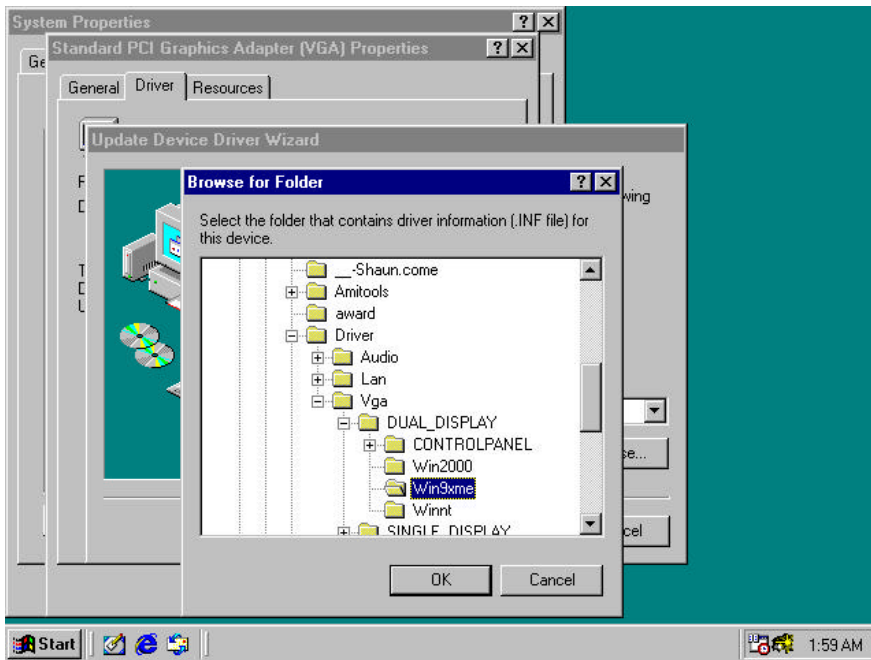
STEP1 : Double click to running SMI721 Control Panel Setup.
VGA / DUAL_DISPLAY / CONTROLPANEL / English / Disk1 / Setup.exe



STEP2 : Reinstall driver for Display Adapter.

Start Setting Control Panel System Properties Display Adapter Driver Update Driver WIN9XME





HOW TO SET DUALPANEL

Choose second display and click extend my Windows Desktop onto this monitor.



APPENDIX A. ADDRESS MAPPING

IO Address Map

I/O MAP	ASSIGNMENT
0x0000-0x0CF7	PCI bus
0x0000-0x0CF7	Direct memory access controller
0x0D00-0x3FFF	PCI bus.
0x4042-0x4FFF	PCI bus
0x5010-0xFFFF	PCI bus
0xD000-0xD0FF	Multimedia Audio Controller
0xD400-0xD43F	Multimedia Audio Controller
0x0A79-0x0A79	ISAPNP Read Data Port
0x0279-0x0279	ISAPNP Read Data Port
0x0274-0x0277	ISAPNP Read Data Port
0xF000-0xF00F	Intel(r) 82440MX Bus Master IDE Controller
0x01F0-0x01F7	Primary IDE Channel
0x03F6-0x03F6	Primary IDE Channel
0xE000-0xE01F	Intel (r) 82440MX USB Universal Host Controller
0xE400-0xE4FF	Realtek RTL8139(A) PCI Fast Ethernet Adapter
0xE800-0xE8FF	Realtek RTL8139(A) PCI Fast Ethernet Adapter #2
0x0010-0x001F	Motherboard resources
0x0022-0x003F	Motherboard resources
0x0044-0x005F	Motherboard resources
0x0062-0x0063	Motherboard resources
0x0065-0x006F	Motherboard resources
0x0074-0x007F	Motherboard resources
0x0091-0x0093	Motherboard resources
0x00A2-0x00BF	Motherboard resources
0x00E0-0x00EF	Motherboard resources
0x04D0-0x04D1	Motherboard resources
0x0020-0x0021	Programmable interrupt controller
0x00A0-0x00A1	Programmable interrupt controller
0x0080-0x0090	Direct memory access controller
0x0094-0x009F	Direct memory access controller
0x00C0-0x00DF	Direct memory access controller
0x0040-0x0043	System timer
0x0070-0x0073	System CMOS/real time clock
0x0061-0x0061	System speaker
0x00F0-0x00FF	Numeric data processor
0x03F2-0x03F5	Standard floppy disk controller
0x03F7-0x03F7	Standard floppy disk controller
0x03F8-0x03FF	Communications Port (COM1)
0x02F8-0x02FF	Communications Port (COM2)
0x0378-0x037F	Printer Port (LPT1)
0x0060-0x0060	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0x0064-0x0064	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0x03E8-0x03EF	Communications Port (COM3)
0x03B0-0x03BB	VgaSave
0x03C0-0x03DF	VgaSave
0x01CE-0x01CF	VgaSave
0x02E8-0x02EF	VgaSave

Memory Map:

MEMORY MAP	ASSIGNMENT
0xFFFF0000-0xFFFFFFFF	System board
0x0000-0x9FFFF	System board
0xFEE00000-0xFEE00FFF	System board.
0xE0000000-0xE3FFFFFF	Silicon Motion Lynx3DM
0xE4010000-0xE40100FF	Realtek RTL8139 Family PCI Fast Ethernet NIC #2
0xE4011000-0xE40110FF	Realtek RTL8139 Family PCI Fast Ethernet NIC
0xA0000-0xBFFFF	Silicon Motion Lynx3DM
0xCC000-0xEFFFF	PCI bus OK
0xF0000-0xF3FFF	System board
0xF4000-0xF7FFF	System board
0xF8000-0xFBFFF	System board
0xFC000-0xFFFFF	System board
0x100000-0xFFEFFFF	System board
0xFFF0000-0xFFFFFFFF	System board
0x10000000-0xFFFFFFFF	PCI bus

APPENDIX B. INTERRUPT REQUEST (IRQ)

SETTING	HARDWARE USING THE SETTING
01	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
03	Communications Port (COM2)
04	Communications Port (COM1)
05	Communications Port (COM3)
06	Standard floppy disk controller
08	System CMOS/real time clock
09	Microsoft ACPI-Compliant System
09	Multimedia Audio Controller
10	Video Controller (VGA Compatible)
11	Intel (r) 82440MX USB Universal Host Controller
11	Realtek RTL8139(A) PCI Fast Ethernet Adapter
11	Realtek RTL8139(A) PCI Fast Ethernet Adapter #2
12	PS/2 Compatible Mouse
13	Numeric data processor
14	Primary IDE Channel

Note: If the content in Setting is inconsistent with CD-ROM, please refer to the Setting as priority.