IAC-H671 Series

**Half-size SBC
with VGA/LAN/CompactFlash
& VIA Eden 400/533/677/700 CPU
& VIA C3 EBGA 800/1G CPU**

User's Manual

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TABLE OF CONTENTS

Chapter 1 . Introduction

1.1 Introduction

The IAC-H671 Series is the ultimate cost-effective solution for limited-space applications. It offers all the functions of an AT-compatible industrial computer on a single board. The IAC-H671 comes with an embedded low power, high-performance VIA Eden 533/ C3 800 processor. For maximum performance, the IAC-H671 supports one SDRAM DIMM socket that can accept up to 1GB memory.

Other on-board features include VGA/LCD controller, one Realtek 8100 Ethernet interface, one CompactFlash™ socket supports ATA mode Type-I/II, Enhanced IDE interface, two serial ports (RS-232 and RS-232/422/485) with DB-9 connector as COM1, and a mini-DIN PS/2 keyboard/mouse interface. The board is also built-in PC/104 connector for future upgrades, one multi-mode parallel port, and one IrDA header.

1.2 Features

- On-board Low power Eden 533(fanless)/C3 800 MHz processor.
- On-board Realtek 8100 support 10/100M BASE-TX Ethernet.
- One CompactFlash socket, support ATA mode Type-I/II
- Built-in Sound function
- Two 16550 compatible FIFO RS-232 serial ports, one RS-232 and one RS-232/422/485
- PC/104 connector supports face-up installation.
- One 13×2 Box header parallel port, one IrDA header.
- 16-level watchdog Timer.

1.3 Specification

IAC-H671 Series

Processor	Low Power VIA Eden 533 MHz processor, C3 800MHz EBGA up to 800MHz and above
Chipset	VIA ProSavage PN133T(Twister-T) VT82C686B
System Memory / RAM	One 168-pin DIMM socket up to 1GB for High-speed PC133 SDRAM
BIOS	AMI® licensed BIOS (2M bit Flash ROM)
VGA Controller	Int. ProSavage 8 GFX, DB15 Connector
Ethernet Controller	Realtek RTL8100B chip, support 10/100M Base-TX Ethernet, RJ-45 connector
IDE Drive Interface	One 20x2 Box header, support up to two devices and Ultra ATA/100/66/33
Floppy Drive Interface	One 17×2 Box header, support up to two devices
Serial Port	One DB9(COM1: RS-232/ 422/ 485) and one 5x2 Box header(COM2: RS-232)
Audio/ Sound	AC 97 2.0; Reserved pin header for SML3 module
Parallel Port	One 13x2 Box header (SPP/ EPP/ ECP)
RTC	Internal RTC with Li battery
Keyboard/ Mouse Connector	One 6 pin mini-DIN PS2 keyboard/mouse connector and one 5-pin keyboard header
IR Interface	One 5x1 Pin header
Bus Interface	ISA & PC-104 connector
External Power Connector	4P power connector, Single power +5V only
Watchdog Timer	16-level time-out intervals for software
Operating Temperature	0 °C~60 °C
Storage Temperature	-20 °C~70 °C
Humidity	5 %~95% RH, noncondensing
Dimensions	185 x 122 (7.3" x 4.8")
Net weight	IAC-H671A: 290g (0.64 pounds) IAC-H671B: 280g (0.62 pounds)

1.4 Unpack your IAC-H671 and Accessory

Before you begin to install your card, please make sure that you received the following materials as listed below:

- IAC-H671 Series SBC x 1 pc   Single Board Computer
- Keyboard and Mouse Cable x 1 pc   28AWG UL 2464 14CM
- LPT/COM cable x 1 pc   26-pin to 25-pin with 10-pin to 9-pin D-Sub Cable
- ATX Feature Cable x 1 pc   4-pin 40cm cable
- IDE Cable x 1 pc   40pin IDE Cable
- FDC Cable x 1 pc   34 to 34-pin Standard Header Flat Ribbon Cable
- Keyboard Extension Cable x 1 pc   Cable for Keyboard extension
- Driver Utility CD-ROM x 1 pc   Drivers & Utilities
- User's Manual x 1 pc   This is User's Manual

1.5 Board Layout

IAC-H671
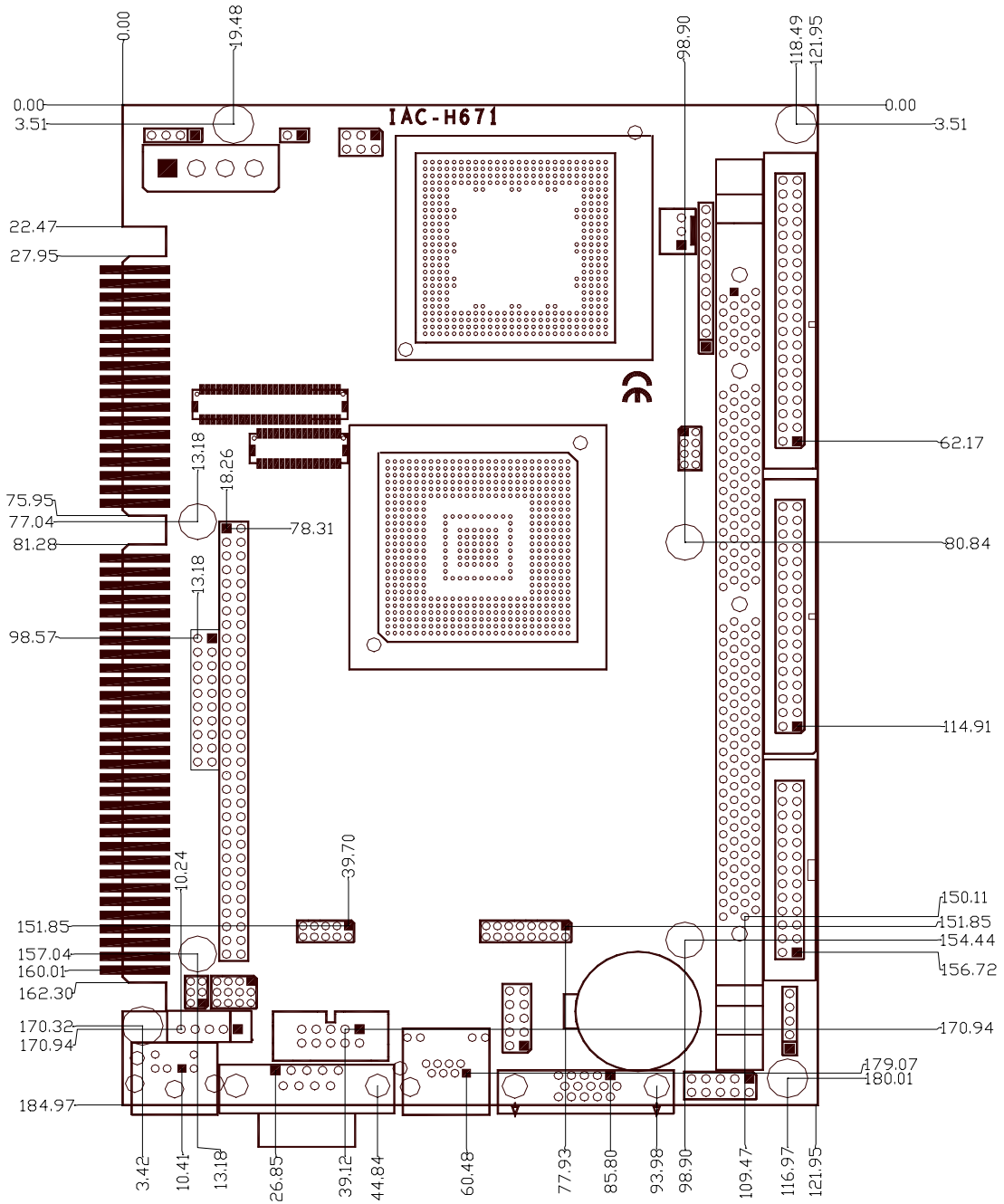
Chapter 2 . Installation

2.1 Hardware Setup and Installation

2.1.1 System Memory Installation

Step 1   Open latches of DIMM socket.
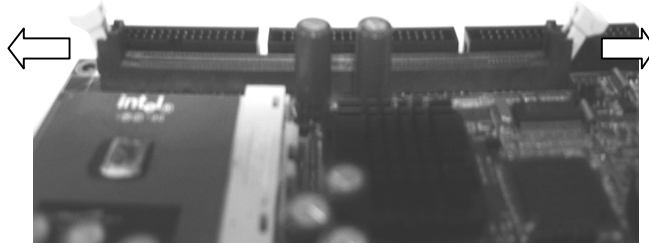
Step 2   Insert the RAM module into the DIMM socket.
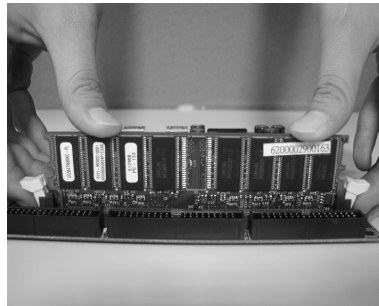
Step 3   Press the latches into the notches of the RAM module.
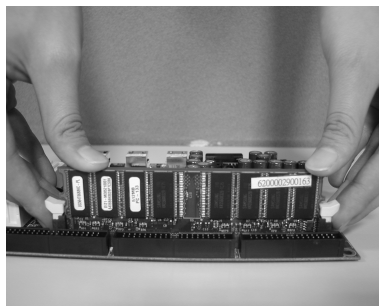
2.2 Jumper Settings and I/O Connectors
2.2.1 Board Outline of IAC-H671
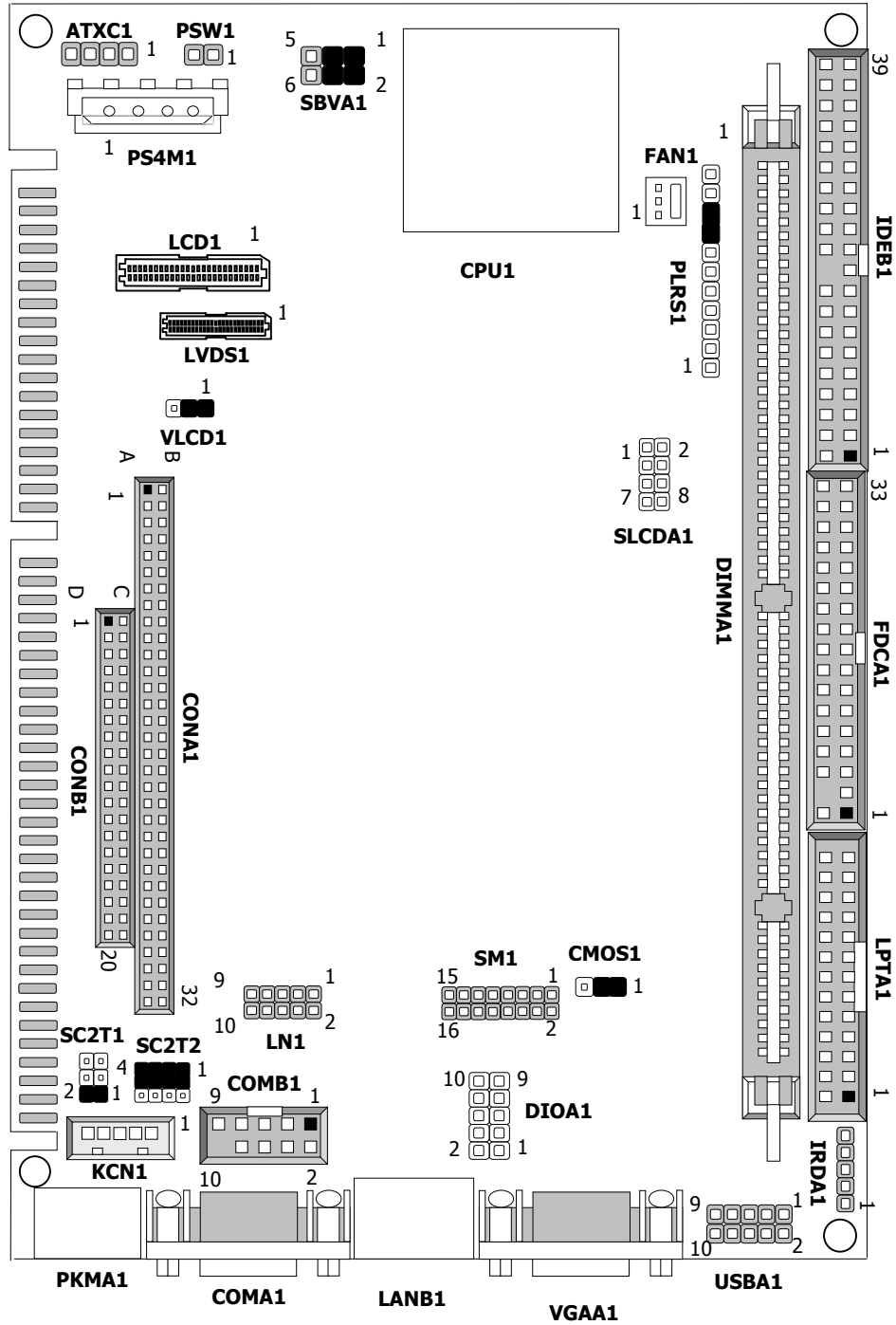
2.2.2 Jumper Settings Summary

Location	Function
CMOS1	Clear CMOS Data
SC2T1/SC2T2	Select COM1 Type
VLCD1	Select Panel Voltage
SBVA1	Select AT/ATX power 2×3 Pin 2.54mm
SLCDA1	Select Panel Type

● **CMOS1 : Clear CMOS Data**

Description	CMOS1
Normal (Default)	1-2
Clear CMOS	2-3

CMOS1
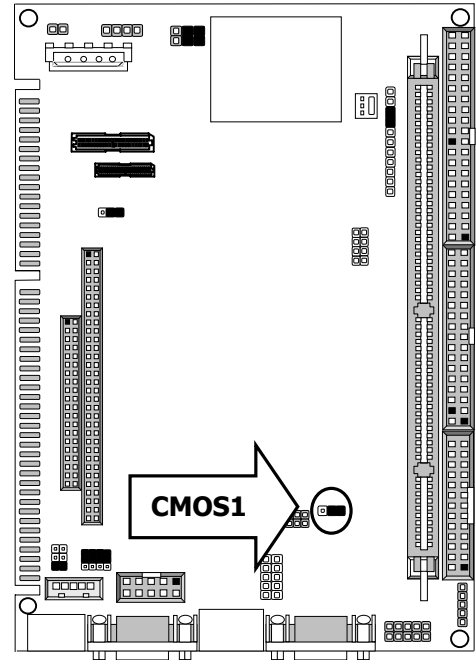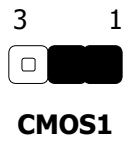
● **SC2T1/SC2T2: Select COM1 Type**

COM1 TYPE	SC2T2	SC2T1
RS-232 (Default)	1-5,2-6,3-7,4-8	1-2
RS-422	5-9,6-10,7-11,8-12	3-4
RS-485	5-9,6-10,7-11,8-12	5-6
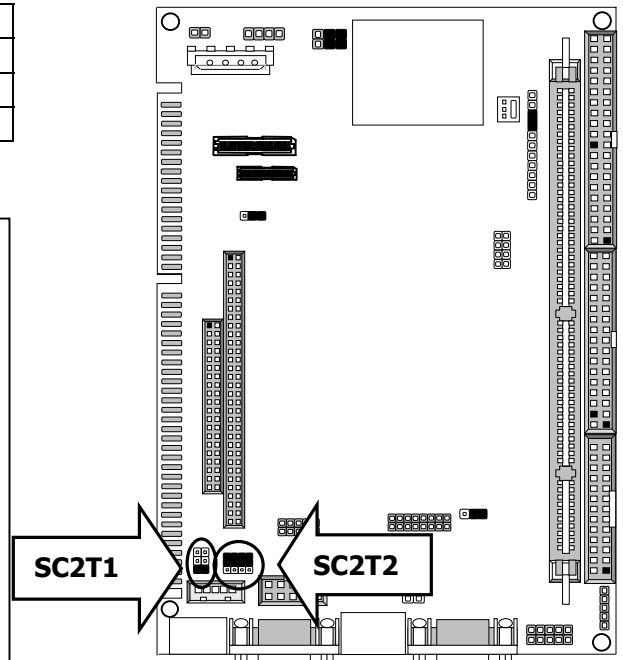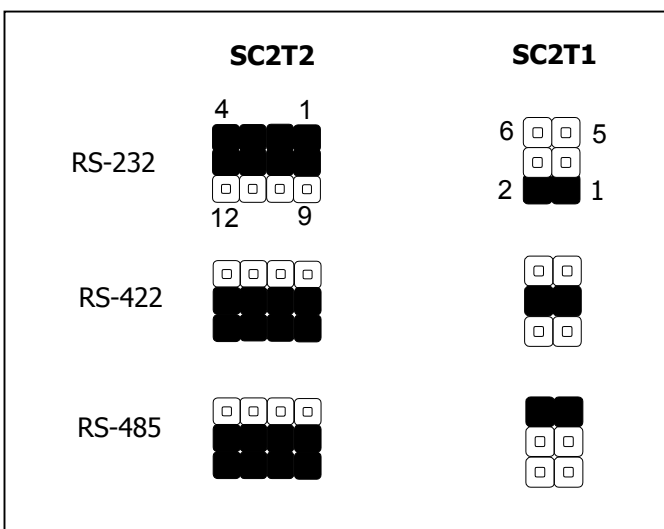
● **VLCD1: Select Panel Voltage**

Panel Voltage	VLCD1
+3.3V (Default)	1-2
+5V	2-3

Default :
VLCD1

1 2 3

3.3V
(Default)

VLCD1

1 2 3

VLCD1

1 2 3

5V

1 2 3
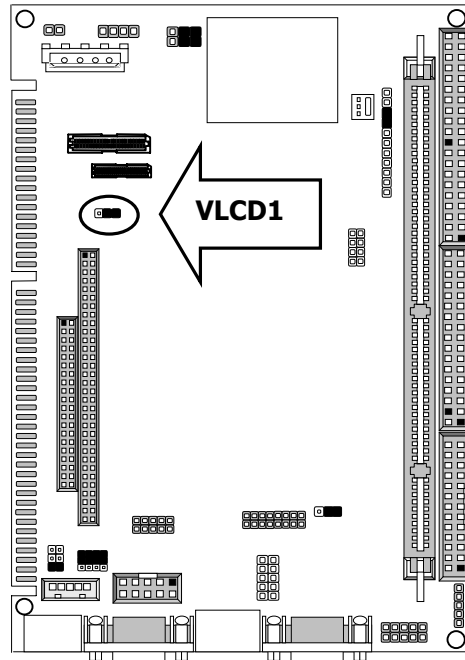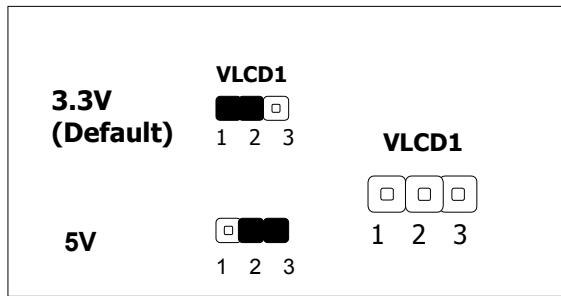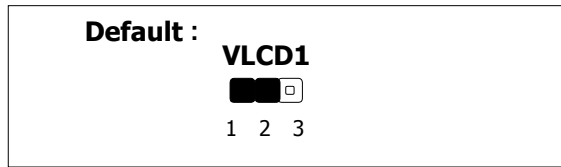
● **SBVA1**：**Select AT/ATX power 2x3 Pin 2.54mm**

Pin	SBVA1
AT	1-3, 2-4 (Default)
ATX	STB5V

5   1

6   2
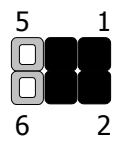
SBVA1
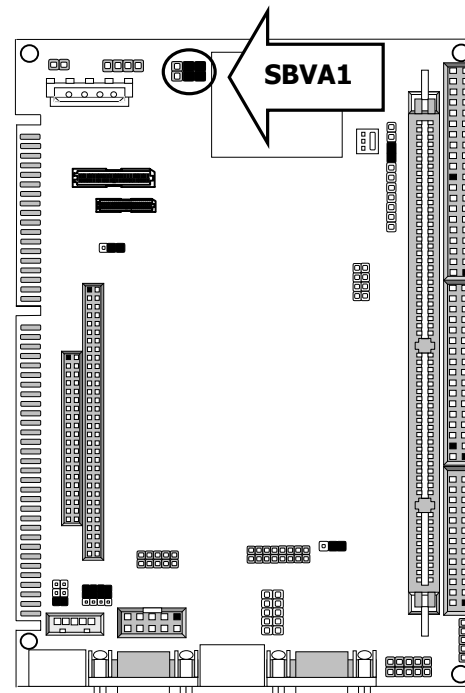
● **SLCDA1: Select Panel Type (2x4 Pin,VGA Chip:69K serious)**

Note: Different type of LCD panel with the same resolution will have different jumper setting for selection.

Panel Type	SLCD1
640×480 TFT	1-2,3-4,5-6,7-8
800×600 TFT	3-4,5-6,7-8
1024×768 TFT 2pixel/Clk at 32MHZ	1-2,5-6,7-8
1280×1024 TFT	5-6,7-8
640×480 DSTN	1-2,3-4,7-8
800x600 DSTN	3-4,7-8
1024×768 DSTN	1-2,7-8
1024x768 TFT 1pixel/Clk at 65MHZ	7-8
640×480 TFT	1-2,3-4,5-6
800×600 TFT	3-4,5-6
1024x768 TFT	1-2,5-6
1280x1024 TFT	5-6
1400×1050 TFT 2pixel/Clk at 54MHZ	1-2,3-4
800×600 DSTN	3-4
1024×768 DSTN	1-2
1280×1024 DSTN	OFF

SLCD1A1

7 □ 8

1 □ 2

800 x 600 TFT   640X480 TFT

1280 x 1024 TFT   1024 x 768 TFT 2pixel/Clk at 32MHZ

800 x 600 DSTN   640 x 480 DSTN

1024x768 TFT/ pixel/Clk at 65MHZ   1024 x 768 DSTN

800 x 600 TFT   640 x 480 TFT

1280 x 1024 TFT   1024 x 768 TFT

800 x 600 DSTN   1400 x 1050 TFT 2pixel/Clk at 54MHZ

1280x1024 DSTN   1024x1024 DSTN

Default : **SLCDA1**

All off

1 □ 2

7 □ 8

SLCDA1
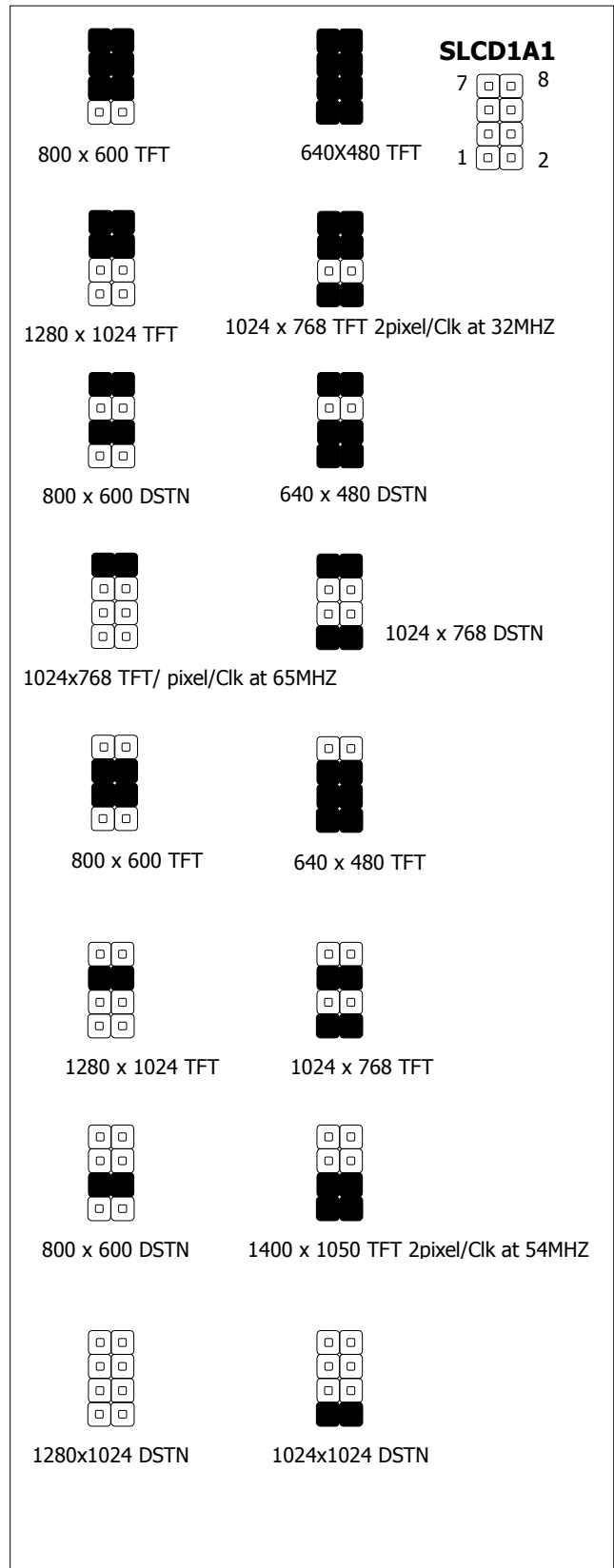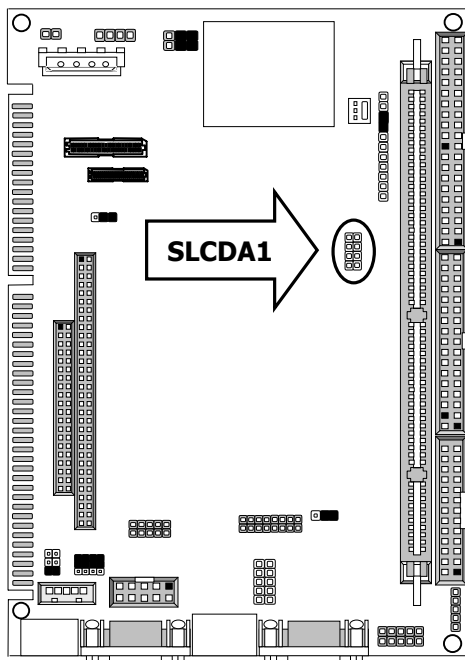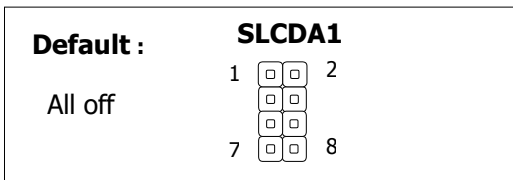
2.2.3 I/O Connector Summary

Connector	Function
PLRS1	Power LED, HD, LED, Reset, Speaker Connecter (11 Pin 2.54mm)
IRDA1	Alternate IRDA
USBA1	USB Port #1&#2 Connector 2×5 Pin 2.54mm
LPTA1	Parallel Connector (26 Pin 2.54mm Pitch Header)
FDCA1	Floppy Interface Connector (34 Pin Header)
LVDSC1	TYPE3 LVDS Panel Connector 2×15P 1.0mm SMT
LCD1	Panel LCD Connector (50 Pin 1.0mm JST Header)
IDEB1	IDE Interface Connector (40 Pin 2.54mm Pitch Header)
DIOA1	Digital Input/ Digital Output Ports (2×5 Pin 2.54mm Header)
ATXC1	For ATX Function
PSW1	For ATX Power Button
CONA1/CONB1	PC/104 Connector
FAN1	3 Pin FAN Connector
LANB1	Type 2 (RJ-45 with LED)
CF1	Compact Flash Connector
PS4M1	4 Pin Power Connector (Big-4P Male)
SM1	Sound/Mouse 2×8 Pin 2.0mm(Female)
LN1	LAN 2×5 Pin 2.0mm Female
COMA1	Serial Port#1 Connector(D-SUB)
COMB1	Serial Port #2 Connector (Header)
KCN1	5 Pin Keyboard Cable Connector
VGAA1	VGA Connector (15 Pin D-SUB)

● **PLRS1: Power LED,HD LED,Reset,Speaker Connector(11 Pin 2.54mm)**

Pin No.	Description
1	Power LED +
2	Power LED +
3	GND
4	HDD LED +
5	HDD LED -
6	RESET SW +
7	RESET SW – (GND)
8	External Speaker -
9	Internal Buzzer -
10	NC
11	External Speaker +

Default :

8-9　(ON)

Internal Buzzer

PLRS1
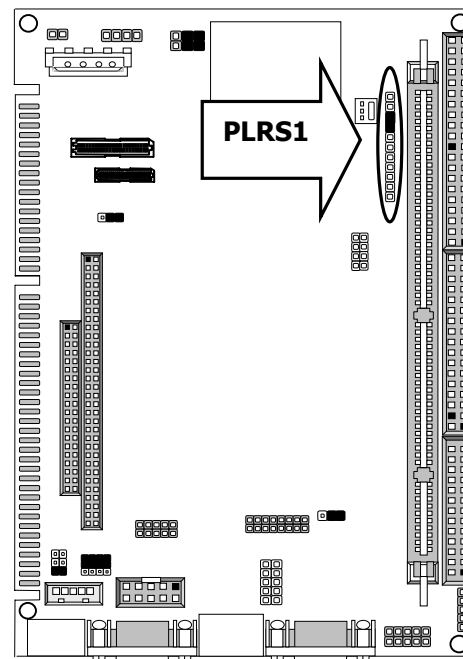
● **IRDA1: Alternate IRDA**

Pin No.	Description
1	+3.3V
2	NC
3	IRRX
4	GND
5	IRTX

IRDA1
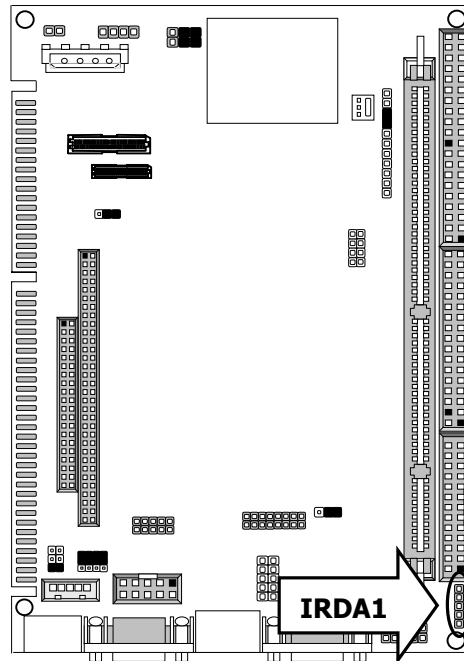
● **USBA1: USB Port #1 & #2 Connector 2x5 Pin 2.54mm**

Pin No.	Description	Pin No.	Description
1	USB_VCC	2	USB_VCC
3	USBD0-	4	USBD1-
5	USBD0+	6	USBD1+
7	Ground	8	Ground
9	USB Port#1Ground	10	USB Port#2 Ground
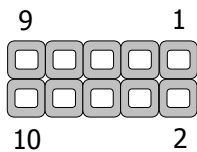
USBA1
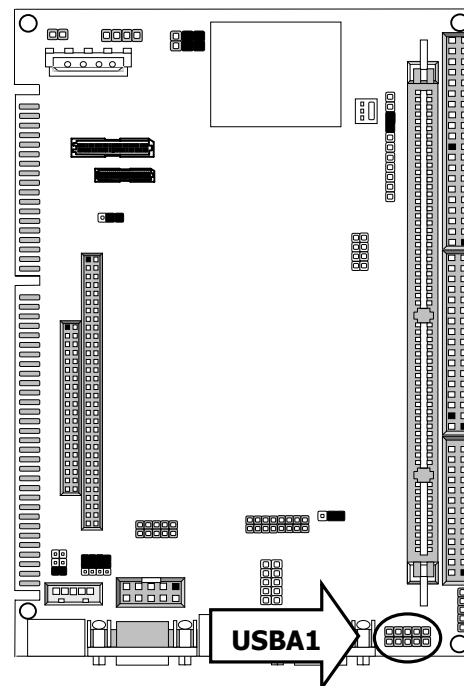
● **LPTA1：Parallel Connector (26 Pin 2.54mm Pitch Header)**

Pin No.	Description	Pin No.	Description
1	Strobe #	2	Auto Form Feed
3	Data0	4	Error #
5	Data1	6	Initialize #
7	Data2	8	Printer Select IN #
9	Data3	10	Ground
11	Data4	12	Ground
13	Data5	14	Ground
15	Data6	16	Ground
17	Data7	18	Ground
19	Acknowledge #	20	Ground
21	Busy	22	Ground
23	Paper Empty	24	Ground
25	Printer Select	26	KEY

26 25

LPTA1

2 1

LPTA1
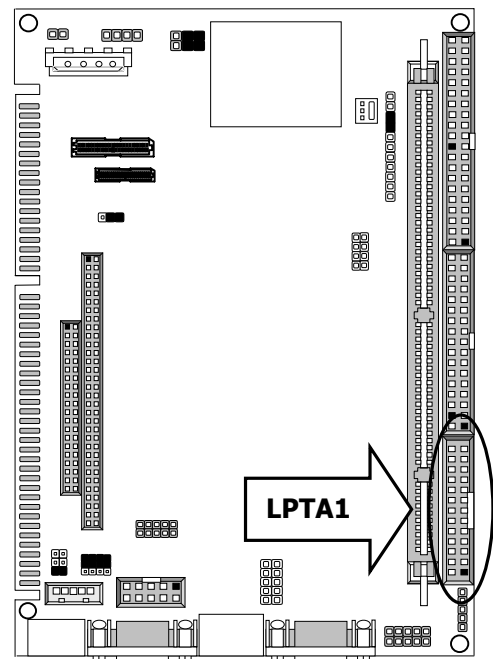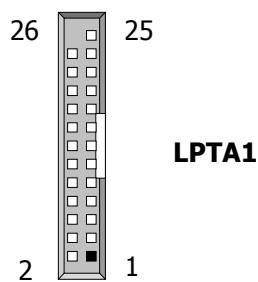
● **FDCA1: Floppy Interface Connector (34 Pin Header)**

Pin No.	Description	Pin No.	Description
1	Ground	2	Density Select
3	Ground	4	KEY
5	Ground	6	DS1
7	Ground	8	Index #
9	Ground	10	Motor Enable A #
11	Ground	12	Drive Select B #
13	Ground	14	Drive Select A #
15	Ground	16	Motor Enable B #
17	Ground	18	Direction #
19	Ground	20	Step #
21	Ground	22	Write Data #
23	Ground	24	Write Gate #
25	Ground	26	Track 0 #
27	Ground	28	Write Protect #
29	NC	30	Read Data #
31	Ground	32	Head Side Select #
33	NC	34	Disk Change #

34 33

FDCA1

2 1

FDCA1
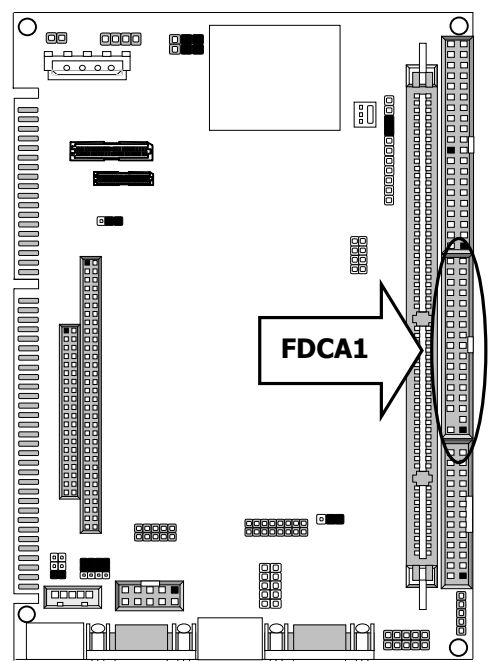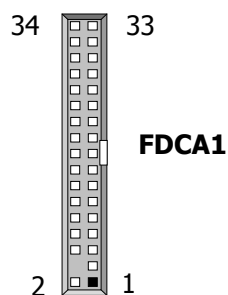
● **LVDSC1：TYPE3 LVDS Panel Connector 2x15P 1.0mm SMT**

Pin No.	Description	Pin No.	Description
1	FVCC	2	FVCC
3	GND	4	GND
5	NC	6	+12V
7	Y0M	8	Z0M
9	Y0P	10	Z0P
11	GND	12	GND
13	Y1M	14	Z1M
15	Y1P	16	Z1P
17	GND	18	GND
19	Y2M	20	Z2M
21	Y2P	22	Z2P
23	GND	24	GND
25	YCM	26	ZCM
27	YCP	28	ZCP
29	GND	30	GND
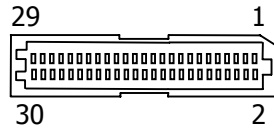
LVDSC1
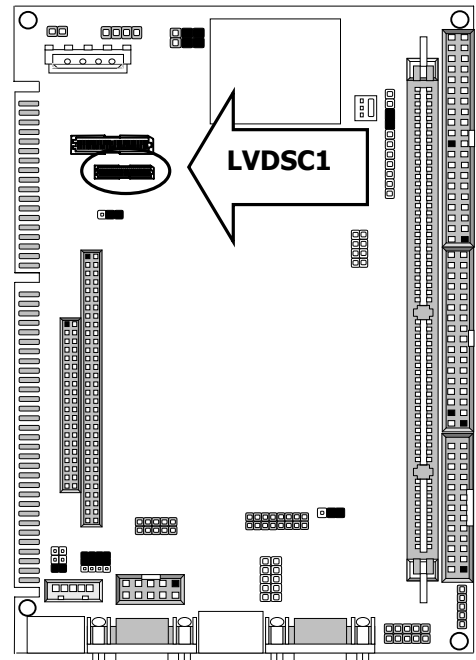
● **LCD1: Panel LCD Connector (50Pin 1.0mm JST Header)**

LCD1

Pin No.	Signal	Pin No.	Signal
1	FVCC	2	FVCC
3	LP	4	FLM
5	M/DE	6	NC
7	ENAVEE	8	ENAVDD
9	SHFCLK	10	+12V
11	GND	12	GND
13	P0	14	P1
15	P2	16	P3
17	P4	18	P5
19	P6	20	P7
21	P8	22	P9
23	P10	24	P11
25	P12	26	P13
27	P14	28	P15
29	GND	30	P16
31	P17	32	P18
33	P19	34	P20
35	P21	36	P22
37	P23	38	GND
39	P24	40	P25
41	P26	42	P27
43	P28	44	P29
45	P30	46	P31
47	P32	48	P33
49	P34	50	P35
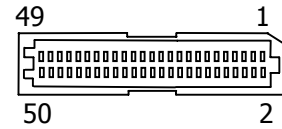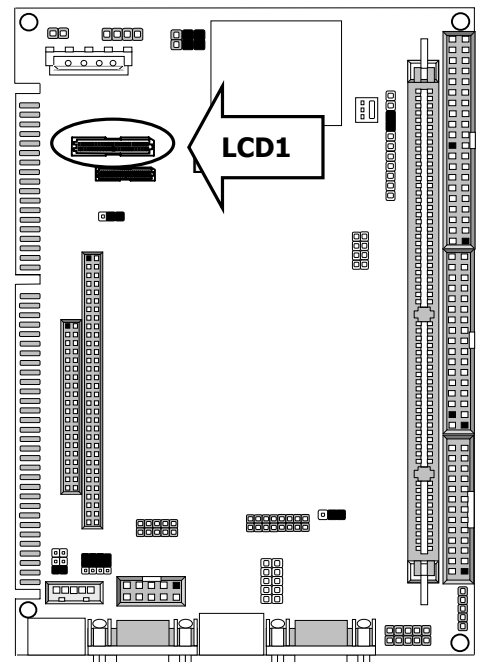
- **Flat Panel Interface Pins listing for DSTN and color TFT LCD**

SR7D[3]	0	0	0	0	0	0
SR70[0]	1	1	1	0	0	0
SR79[1-0]	10	10	10	10	10	10
SR7D[2-0]	001	000	010	010	000	010
Pin Name	**STN8**	**STN16**	**ATN24**	**DSTN8**	**DSTN16**	**DSTN24**
FPD0	R0	R0	R0	LR0	LR0	LR0
FPD1	G0	G0	G0			LR3
FPD2	B0	B0	B0	LG0	LG0	LG0
FPD3	R1	R1	R1			
FPD4	G1	G1	G1	LB0	LB0	LB0
FPD5	B1	B1	B1			
FPD6	R2	R2	R2	LR1	LR1	LR1
FPD7	G2	G2	G2			LG3
FPD8		B2	B2		LG1	LG1
FPD9		R3	R3			
FPD10		G3	G3		LB1	LB1
FPD11		B3	B3			
FPD12		R4	R4		LR2	LR2
FPD13		G4	G4			LB3
FPD14		B4	B4		LG2	LG2
FPD15		R5	R5			
FPD16			G5			LB2
FPD17			B5			
FPD18			R6	UR0	UR0	UR0
FPD19			G6			UR3
FPD20			B6	UG0	UG0	UG0
FPD21			R7			
FPD22			G7	UB0	UB0	UB0
FPD23			B7			
FPD24				UR1	UR1	UR1
FPD25						UG3
FPD26					UG1	UG1
FPD27						
FPD28					UB1	UB1
FPD29						UB3
FPD30					UR2	UR2
FPD31						UB3
FPD32					UG2	UG2
FPD33						
FPD34						UB2
FPD35						

- **Flat Panel Interface Pins listing for DSTN and color TFT LCD**

Pin Name	TFT9	TFT2×9	TFT12	TFT2×12	TFT15	TFT2×15	TFT18	TFT2×18	TFT24
SR7D[3]	0	0	0	0	0	0	0	0	0
SR70[0]	1	1	1	1	1	1	1	1	1
SR79[1-0]	00	00	00	00	00	00	00	00	00
SR7D[2-0]	000	010	000	010	000	010	000	010	001
FPD0							R0	R00	R2
FPD1								R10	R0
FPD2					R0	R00	R1	R01	R3
FPD3						R10		R11	
FPD4			R0	R00	R1	R01	R2	R02	R4
FPD5				R10		R11		R12	
FPD6	R0	R00	R1	R01	R2	R02	R3	R03	R5
FPD7		R10		R11		R12		R13	R1
FPD8	R1	R01	R2	R02	R3	R03	R4	R04	R6
FPD9		R11		R12		R13		R14	
FPD10	R2	R02	R3	R03	R4	R04	R5	R05	R7
FPD11		R12		R13		R14		R15	
FPD12							G0	G00	G2
FPD13								G10	G0
FPD14					G0	G00	G1	G01	G3
FPD15						G10		G11	
FPD16			G0	G00	G1	G01	G2	G02	G4
FPD17				G10		G11		G12	
FPD18	G0	G00	G1	G01	G2	G02	G3	G03	G5
FPD19		G10		G11		G12		G13	G1
FPD20	G1	G01	G2	G02	G3	G03	G4	G04	G6
FPD21		G11		G12		G13		G14	
FPD22	G2	G02	G3	G03	G4	G04	G5	G05	G7
FPD23		G12		G13		G14		G15	
FPD24							B0	B00	B2
FPD25								B10	B0
FPD26					B0	B00	B1	B01	B3
FPD27						B10		B11	
FPD28			B0	B00	B1	B01	B2	B02	B4
FPD29				B10		B11		B12	
FPD30	B0	B00	B1	B01	B2	B02	B3	B03	B5
FPD31		B10		B11		B12		B13	B1
FPD32	B1	B01	B2	B02	B3	B03	B4	B04	B6
FPD33		B11		B12		B13		B14	
FPD34	B2	B02	B3	B03	B4	B04	B5	B05	B7
FPD35		B12		B13		B14		B15	

● **IDEB1 : IDE Interface Connector (40Pin 2.54mm Pitch Header)**

Pin No.	Description	Pin No.	Description
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	KEY
21	DMA REQ#	22	Ground
23	IOW #	24	Ground
25	IOR #	26	Ground
27	IOCHRDY	28	Ground
29	DMA ACK #	30	Ground
31	Interrupt	32	NC
33	SA1	34	PD80P / SD80P
35	SA0	36	SA2
37	HDC CS0 #	38	HDC CS1 #
39	HDD Active LED #	40	Ground

IDEB1
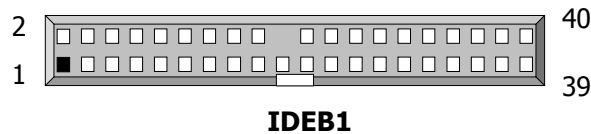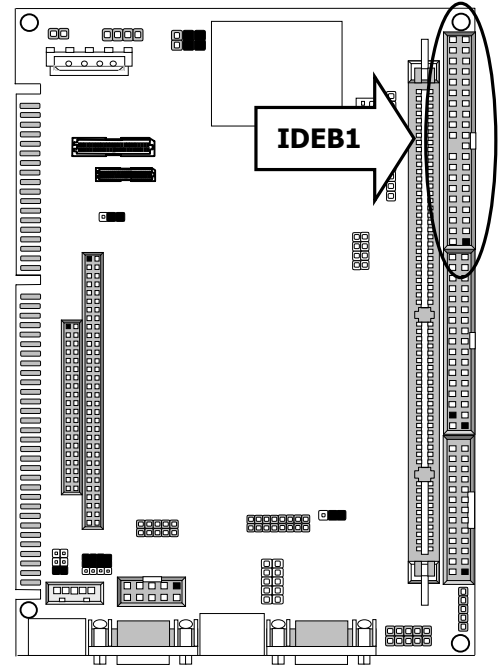
● **DIOA1: Digital Input/ Digital Output Ports(2x5 Pin 2.54mm Header)**

Pin No.	Description	Pin No.	Description
1	IN0	2	OUT0
3	IN1	4	OUT1
5	IN2	6	OUT2
7	IN3	8	OUT3
9	Ground	10	Ground

DIOA1
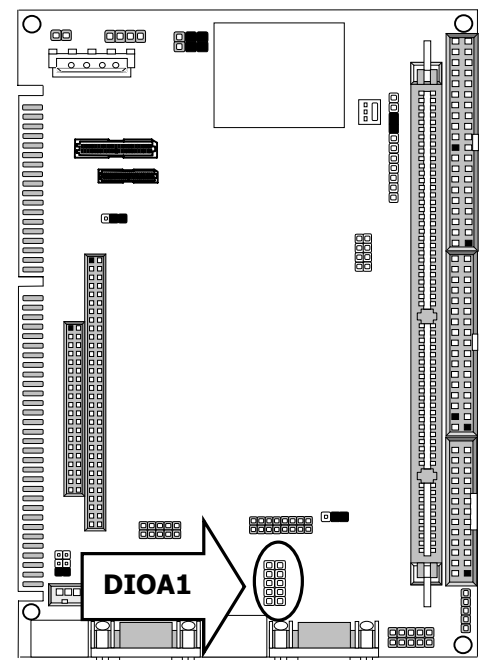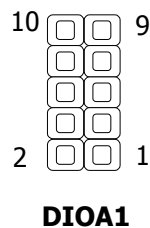
● **ATXC1: For ATX Function**

Pin No.	Description
1	GND
2	+5V STANDBY
3	GND
4	PSON

4   1

ATXC1
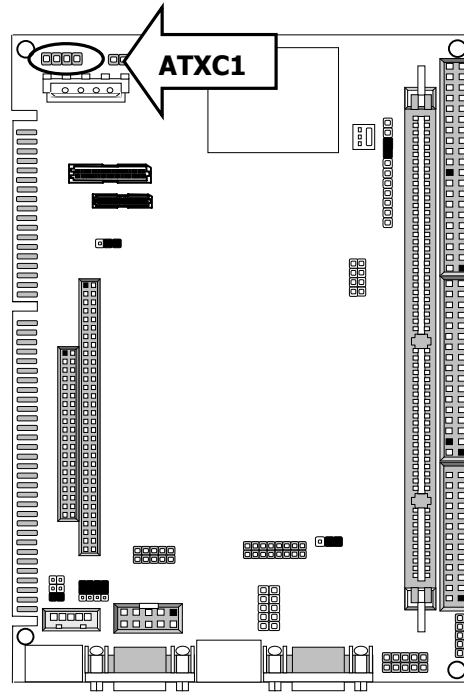
● **PSW1: For ATX Power Button**

Pin No.	Description
1	PANSW
2	GND

2 1

PSW1
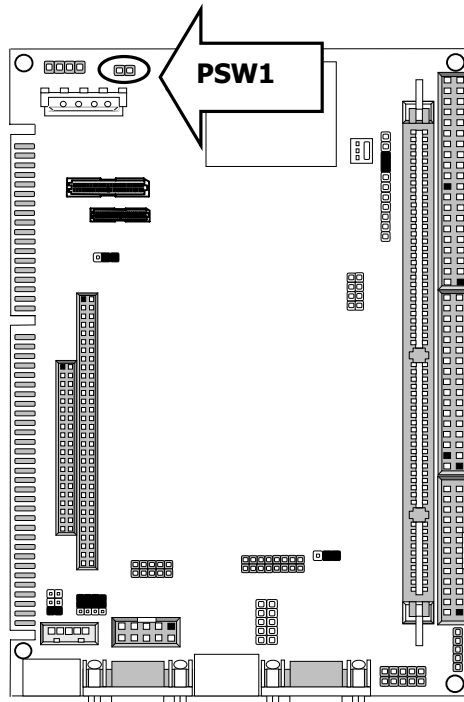
- **CONA1:PC/104 Connector（8 bit）**
- **CONB1:PC/104 Connector（16 bit）**

A1 B1

D1 C1

CONB2   CONA1

20 20

32 32

Pin No.	Description			
	CONA1		CONB2	
	Row A	Row B	Row C	Row D
1	IOCHCK#	Ground	Ground	Ground
2	SD7	RSTDRV	SBHE#	MEMCS16#
3	SD6	+5V	LA23	IOCS16#
4	SD5	IRQ9	LA22	IRQ10
5	SD4	-5V	LA21	IRQ11
6	SD3	DRQ2	LA20	IRQ12
7	SD2	-12V	LA19	IRQ15
8	SD1	0 WS#	LA18	IRQ14
9	SD0	+12V	LA17	DACK0#
10	IOCHRDY	NC	MEMR#	DRQ0
11	AEN	SMEMW#	MEMW#	DACK5#
12	SA19	SMEMR#	SD8	DRQ5
13	SA18	IOW#	SD9	DACK6#
14	SA17	IOR#	SD10	DRQ6
15	SA16	DACK3#	SD11	DACK7#
16	SA15	DRQ3	SD12	DRQ7
17	SA14	DACK1#	SD13	+5V
18	SA13	DRQ1	SD14	MASTER#
19	SA12	REFRESH#	SD15	Ground
20	SA11	SYSCLK	NC	Ground
21	SA10	IRQ7	---	---
22	SA9	IRQ6	---	---
23	SA8	IRQ5	---	---
24	SA7	IRQ4	---	---
25	SA6	IRQ3	---	---
26	SA5	DACK2#	---	---
27	SA4	TC	---	---
28	SA3	BALE	---	---
29	SA2	+5V	---	---
30	SA1	OSC	---	---
31	SA0	Ground	---	---
32	Ground	Ground	---	---

CONB2   CONA1
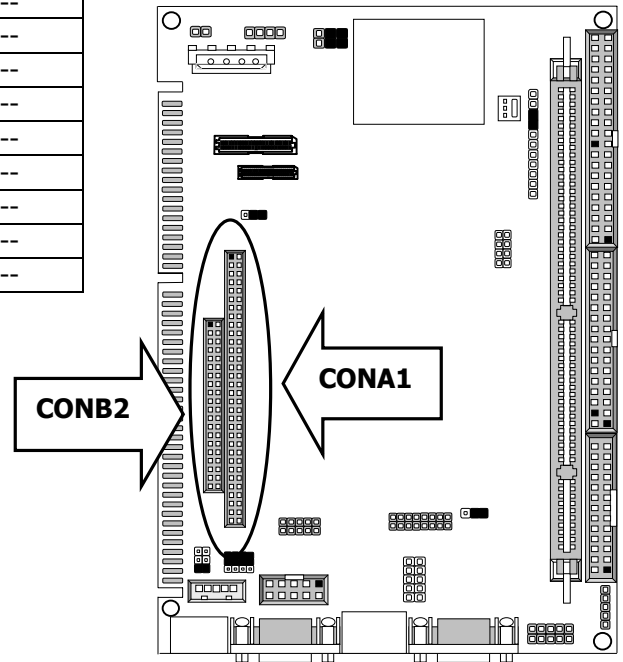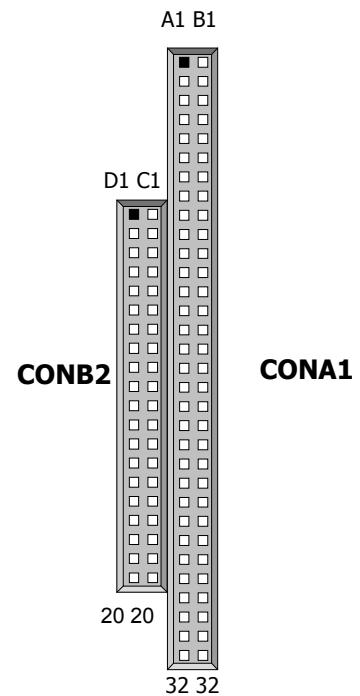
● **FAN1: 3 Pin FAN Connector**

Pin No.	Description
1	Ground
2	+5V
3	FAN Status

3
2
1

FAN1
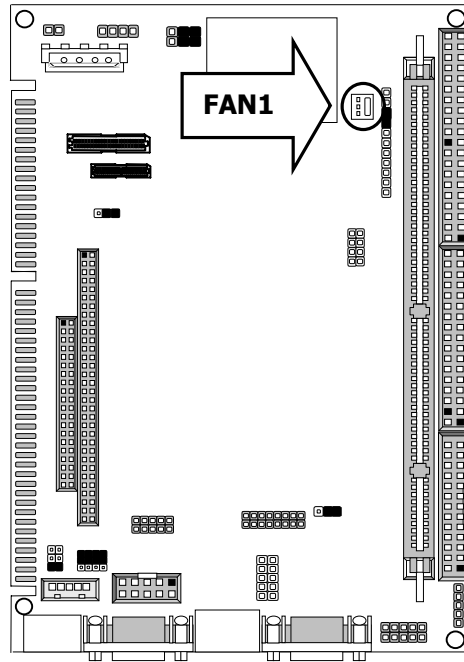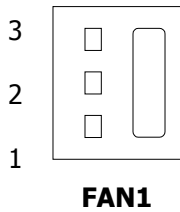
● **LANB1: Type 2(RJ-45 with LED)**

Pin No.	Description
1	TX+
2	TX-
3	RX+
4	T45
5	T45
6	RX-
7	T78
8	T78
9	Link-
10	Link+
11	ACT-
12	ACT+

LANB1

8   1
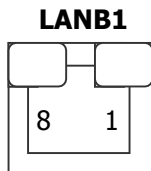
✶ Pin9 to pin12 are on the solder side.
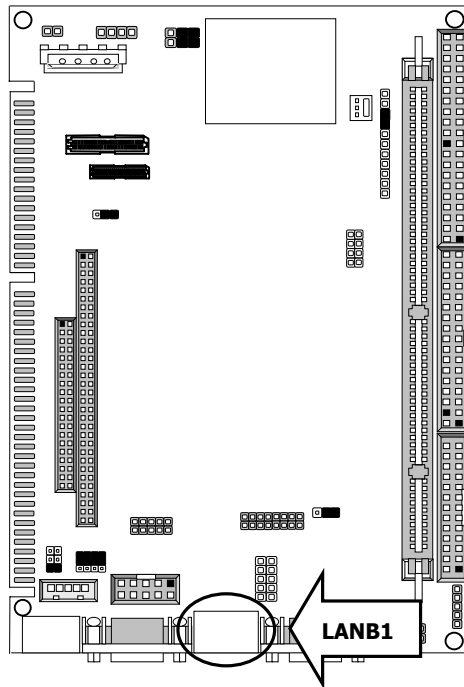
● **CF1:CF Connector**

Pin	Description	Pin	Description
1	GND	26	CD1-
2	DATA3	27	DATA11
3	DATA4	28	DATA12
4	DATA5	29	DATA13
5	DATA6	30	DATA14
6	DATA7	31	DATA15
7	CE1#	32	CE2#
8	A10	33	VS1#
9	OE#	34	IOR#
10	A9	35	IOW#
11	A8	36	WE#
12	A7	37	READY#
13	CFVCC3	38	CFVCC3
14	A6	39	CSEL
15	A5	40	VS2#
16	A4	41	RESET
17	A3	42	WAIT#
18	A2	43	INPACK#
19	A1	44	REG#
20	A0	45	DASP#
21	DATA0	46	DIAG#
22	DATA1	47	DATA8
23	DATA2	48	DATA9
24	WP	49	DATA10
25	CD2-	50	GND

26   1

above

50   25

CF1
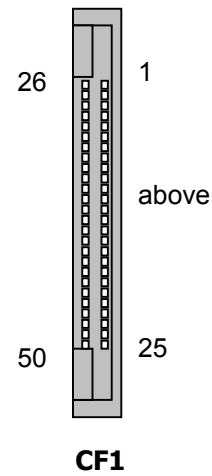
● **PS4M1: 4 Pin Power Connector   (Big-4P Male)**

Pin No.	Description
1	+12V
2	Ground
3	Ground
4	+5V

PS4M1

PS4M1

1   2   3   4
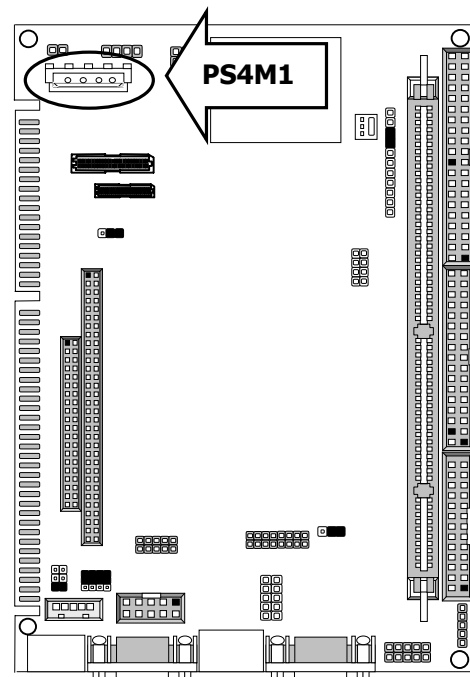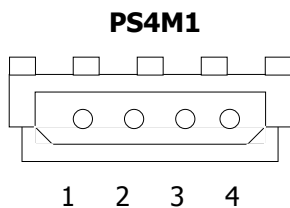
- **SM1: Sound/Mouse 2x8 Pin 2.0mm(Female)**

Pin No.	Description	Pin No.	Description
1	AC97	2	ICH_SPKR
3	VCC	4	AC_RST-
5	GND	6	SYNC
7	+3.3V	8	SDINO
9	GND	10	NC
11	+5V STANDBY	12	BITCLK
13	NC	14	SDOUT
15	MSCLK	16	MSDAT
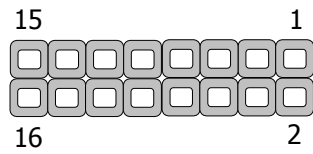
SM1
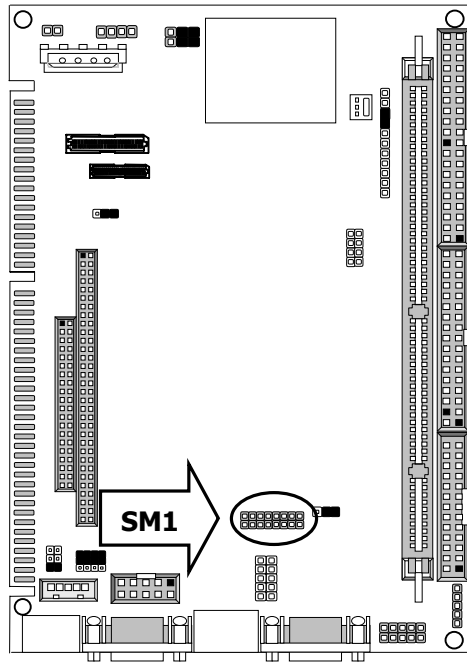
- **LN1: LAN 2x5 Pin 2.0mm Female**

Pin No.	Description	Pin No.	Description
1	NC	2	NC
3	NC	4	NC
5	NC	6	NC
7	NC	8	NC
9	NC	10	NC
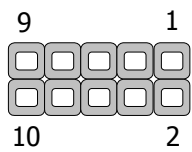
LN1
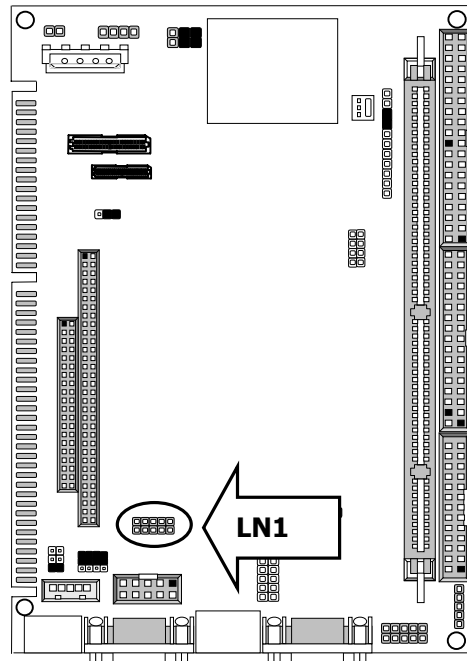
● **COMA1: RS-232 Serial Port #1 Connector (D-Sub)**

Pin No.	Description		
	RS-232	**RS-422**	**RS-485**
1	Data Garrier Detect (DCD1)	Transmit Data- (TXD-)	Data+
2	Receive Data (RXD1)	Transmit Data+ (TXD+)	Data-
3	Transmit Data (TXD1)	Receive Data+(RXD+)	NC
4	Data Terminal Ready (DTR1#)	Receive Data-(RXD-)	NC
5	Ground	NC	NC
6	Data set Ready (DTR1#)	NC	NC
7	Request To Send (RTS1#)	NC	NC
8	Clear To Send (CTS1#)	NC	NC
9	Ring Indicator (RI1#)	NC	NC

COMA1
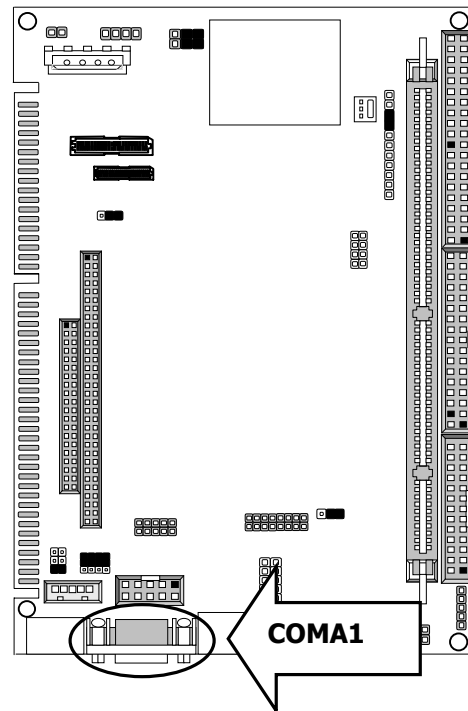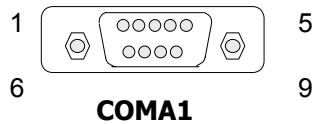
● **COMB1: RS-232 Serial Port#2 Connector (Header)**

Pin No.	Description
	RS-232
1	Data Carrier Detect (DCDB #)
2	Data Set Ready (DSRB #)
3	Receive Data (RXDB)
4	Request To Send (RTSB #)
5	Transmit Data (TXDB)
6	Clear To Send (CTSB #)
7	Data Terminal Ready (DTRB #)
8	Ring Indicator (RIB #)
9	Ground
10	KEY

COMB1
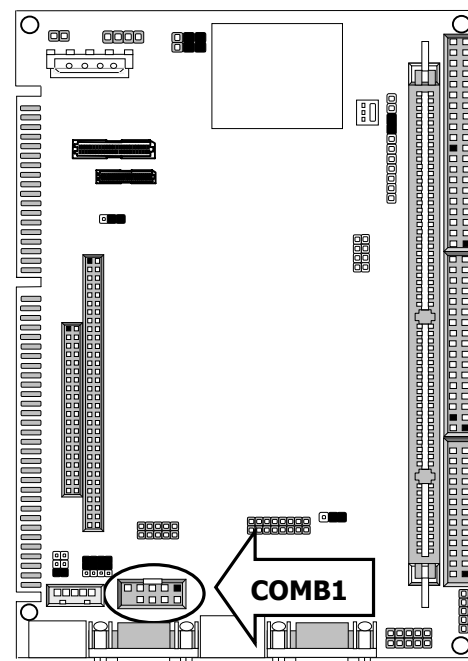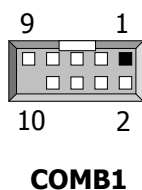
● **KCN1: 5 Pin Keyboard Cable Connector**

Pin No.	Description
1	Keyboard Clock
2	Keyboard Data
3	NC
4	Ground
5	+5V

5   1

KCN1

KCN1
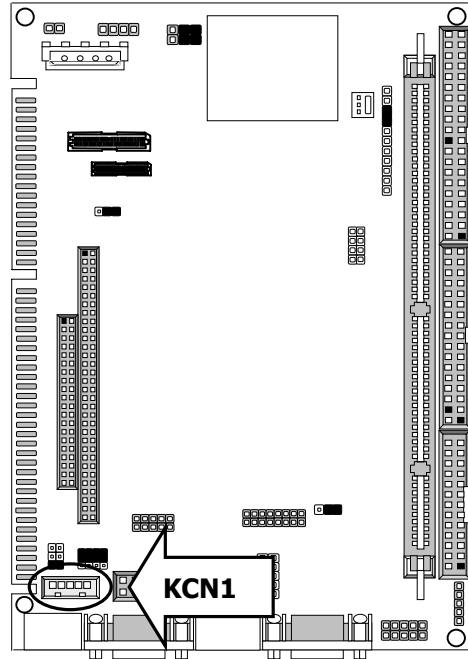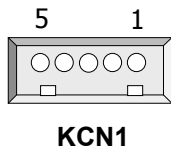
● **VGAA1 : External VGA Connector (15 Pin D-Sub)**

Pin No.	Description
1	Red Color Signal
2	Green Color Signal
3	Blue Color Signal
4	NC
5	Ground
6	Ground
7	Ground
8	Ground
9	NC
10	Ground
11	NC
12	DDC-DATA
13	H-Sync.
14	V-Sync.
15	DDC-CLK

VGAA1

5   1
10   6
15   11

VGAA1
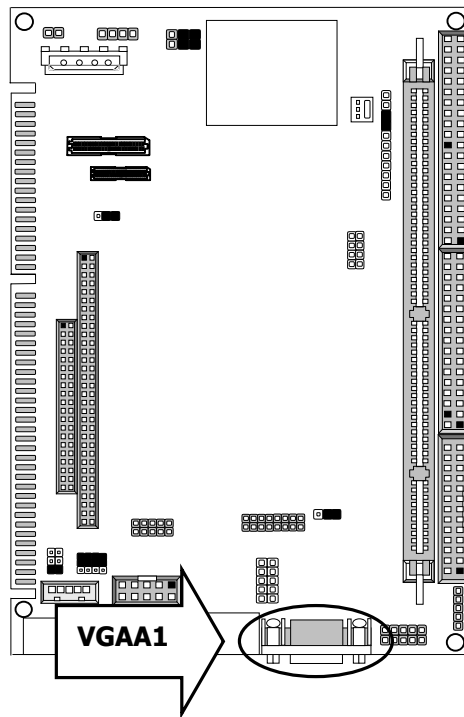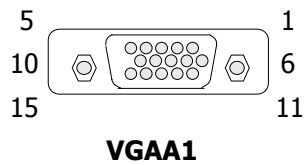
Chapter 3 . BIOS Setup

The AMI's ROM BIOS provides a built-in Setup program that allows user to modify the basic system configuration and settings. The modified data will be stored in a battery-backed CMOS RAM so that these data will be retained even when the power is turned off.   In general, the information saved in the CMOS RAM stay unchanged unless there is configuration change in the system, such as hard drive replacement or new equipment is installed.   AMI is a registered trademark of the American Megatrends, Inc.

3.1 Running AMI BIOS

The Setup Utility is stored in the BIOS ROM.   When the power of the computer system is turned on, a screen message appears to give you an opportunity to call up the Setup Utility; while the BIOS will enter the Power On Self Test (POST) routines.   The POST routines perform various diagnostic checks while initializing the board hardware.   If the routines encounter an error during the tests, the error will be reported in either of the two different ways – (1) hear a series of short beeps, or (2) see an error message on the screen display.   There are two kinds of error: fatal or non-fatal.   The system can usually continue to boot up sequence with the non-fatal errors.   Non-fatal error messages usually appear on the screen along with the following instructions:

" Press <F1> to RESUME "

Write down the message and press the F1 key to continue the boot up sequence.   After the POST routines are completed, the following message appears:

" Press DEL to enter SETUP "

Entering Setup
Turn on the power of the computer system and press <Del> immediately.   If you don't have the chance to respond, reset the system by simultaneously typing the <Ctrl>, <Alt> and <Delete> keys, or by pushing the ' Reset ' button on the system cabinet.   You can also restart by turning the system OFF then ON.

Note: BIOS versions are regularly updated form time to time without notices. Therefore, the options available in your setup screen may differ from the options shown in this manual.

3.2 AMI BIOS HIFLEX Setup Utility

To access the AMI BIOS HIFLEX SETUP UTILITY program, press the <DEL> key.   The screen display will appears as:

Main Program Screen

AMIBIOS HIFLEX SETUP UTILITY – VERSION 1.54
© 2001 American Megatrends, Inc.   All Rights Reserved
Standard CMOS Setup
Advanced CMOS Setup
Advanced Chipset Setup
Power Management Setup
PCI / Plug and Play Setup
Peripheral Setup
Hardware Monitor Setup
Auto-Detect Hard Disks
Change User Password
Change Supervisor Password
Auto Configuration with Optimal Settings
Save Settings and Exit
Exit Without Saving
Standard CMOS setup for changing time, date, hard disk type, etc.
ESC : Exit   ↑↓ : Sel   F2/F3 : Color   F10 : Save & Exit

This screen provides access to the utility's various functions.

Listed below are the explanations of the keys displayed at the bottom of the screen:

<ESC>   **:** Exit the utility.

↑ ↓   **:** Use arrow keys ↑ ↓ to move cursor to your desired selection.

<F2> / <F3>   **:** Changes background and foreground colors.

<F10>   **:** Saves all changes made to Setup and exits program.

Standard CMOS Setup: Use this menu for basic system configurations, such as time, date etc.

Advanced CMOS Setup: Use this menu to specify your settings for Advance CMOS.

Advanced Chipset Setup: Use this menu to change the values in the chipset registers and optimizes your system's performance.

Power Management Setup: Use this menu to specify your settings for power management.

PCI / Plug and Play Setup: Use this menu to specify your settings for PCI/Plug and Play.

Peripheral Setup: Use this menu to specify your settings for integrated peripherals.

Hardware Monitor Setup: This entry shows your PC's current status, and allows you to adjust CPU clock, core voltage, etc.

Auto-Detect Hard Disks: Use this menu to automatically detect the characteristics of most hard drives.

Change User Password: Use this menu to set User Password.

Change Supervisor Password: Use this menu to set Supervisor Password.
Auto Configuration with Optimal Settings: This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

Save Settings and Exit: Save changes to CMOS and exit setup.

Exit Without Saving: Abandon all changes and exit setup.

3.3 Standard CMOS Setup

When you select the "STANDARD CMOS SETUP" on the main program, the screen display will appears as:

Standard CMOS Setup Screen

AMIBIOS SETUP – STANDARD CMOS SETUP										
© 2001 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yyyy) : Mon Jan 06, 2003							Base Memory		: 639KB	
Time (hh/mm/ss) : 17:14:11							Extd Memory		: 119MB	
Floppy Drive A : 1.44 MB $3^1/_2$										
Floppy Drive B : Not Installed										
							LBA	Blk	PIO	32 Bit
	Type	Size	Cyln	Head	WPcom	Sec	Mode	Mode	Mode	Mode
Pri Master : Auto										On
Pri Slave : Not Installed										
Sec Master : Auto										
Sec Slave : Not Installed										
Boot Sector Virus Protection Disabled										
Month : Jan-Dec							ESC:Exit ↑↓ : Sel			
Day : 01-31							PgUp/PgDn: Modify			
Year : 1980-2099							F1: Help F2/F3:Color			

Standard CMOS Setup options are displayed by choosing the Standard field from the AMIBIOS HIFLEX SETUP menu.   All Standard Setup options are described below.

Date: This allows you to set the system to the date that you want (usually the current date). The format is <week><month><date><year>.

Week	Day of the week, from Sun to Sat, determined by BIOS. Real-only.
Month	The month from Jan. through Dec.
Date	Numeric function keys can key the date from 1 to 31.
Year	Users can adjust the year.

Time: This allows you to set the system time that you want (usually the current time). The time format is <hour><minute><second>.

Pri Master/ Pri Slave: Press PgUp/<+> or PgDn/<-> to select the hard disk drive type. The specification of hard disk drive will show up on the right hand according to your selection.

Type	Type of the device.
Size	Capacity of the device.
Cyln	Number of cylinders.
Head	Number of heads.
Wpcom	Write precompensation cylinder.
Sec	Number of sectors.
Mode	Access mode.

Floppy Drive A, B: Choose the Floppy Drive A or B field to specify the floppy drive type.   The settings are 360 KB $5^1/_4$″, 1.2 MB $5^1/_4$″, 720 KB $3^1/_2$″, 1.44 MB $3^1/_2$″, or 2.88 MB $3^1/_2$″.

Boot Sector Virus Protection: The item is to set the Virus Warning feature for IDE Hard Disk boot sector protection. When *Enabled*, BIOS will issue a virus-warning message and beep if a write to the boot sector or the partition table of the HDD is attempted. Setting options: *Disabled* and *Enabled*.
Note: This feature only protects the boot sector, not the whole hard disk.

3.4 Advanced CMOS Setup

When you select the "ADVANCED CMOS SETUP" on the main program, the screen display will appears as:

Advanced CMOS Setup Screen

```
                    AMIBIOS SETUP – ADVANCED CMOS SETUP
                 ©2001 American Megatrends, Inc.   All Rights Reserved
Quick Boot                      Enabled          Available Options:
1st   Boot Device               Floppy             Disabled
2nd   Boot Device               IDE-0            ▶ Enabled
3rd   Boot Device               CD/DVD
Try Other Boot Devices          Yes
Initial Display Mode            BIOS
Display Mode at Add-On ROM Init Force BIOS
Floppy Access Control           Read-Write
Hard Disk Access Control        Read-Write
S.M.A.R.T. for Hard Disks       Enabled
BootUp Num-Lock                 On
PS / 2 Mouse Support            Enabled
System Keyboard                 Present
Password Check                  Setup
Wait For 'F1' If Error          Enabled
Hit 'DEL' Message Display       Enabled
System BIOS Cacheable           Enabled
C000, 32K Shadow                Cached
C800, 16K Shadow                Cached
CC00, 16K Shadow                Cached
D000, 16K Shadow                Disabled
D400, 16K Shadow                Disabled       ESC : Exit         ↑↓ : Sel
D800, 16K Shadow                Disabled       PgUp/PgDn :     Modify
DC00, 16K Shadow                Disabled       F1: Help   F2/F3: Color
```

Note   : The above page of the Advanced CMOS Setup only shows part of the related options. To proceed to the next options, please move your cursor downwards.

Advanced Setup options are displayed by choosing the Advanced icon from the AMI BIOS Setup main menu. All Advanced Setup options are described in this section.

Quick Boot: Setting the item to Enabled allows the system to boot within 5 seconds by skipping some check items. Settings: Enabled and Disabled.

1st/2nd/3rd Boot Device: The items allow you to set the sequence of boot devices where AMIBIOS attempts to load the operation system. Possible settings are:

IDE-0	The system will boot from the first HDD.
IDE-1	The system will boot from the second HDD.
IDE-2	The system will boot from the third HDD.
IDE-3	The system will boot from the fourth HDD.
Floppy	The system will boot from floppy drive.
ARMD-FDD	The system will boot from any ARMD device, such as LS-120 or ZIP drive, those functions as a floppy drive.
ARMD-HDD	The system will boot from ARMD device, such as MO or ZIP drive, those functions as hard disk drive.
CDROM	The system will boot from the CD-ROM.
SCSI	The system will boot from the SCSI.
NETWORK	The system will boot from the Network drive.
BBS-0	The system will boot from the first BBS (BIOS Boot Specification) compliant device.
BBS-1	The system will boot from the second BBS (BIOS Boot Specification) compliant device.
BBS-2	The system will boot from the third BBS (BIOS Boot Specification) compliant device.
BBS-3	The system will boot from the fourth BBS (BIOS Boot Specification) compliant device.
Disabled	Disable this sequence.

Note: Available settings for "1st/2nd/3rd Boot Device " vary depending on the bootable devices you have installed. For example, if you did not install a floppy drive, the setting" Floppy" does not show up.

Try Other Boot Devices: Setting the option to yes allow the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd Boot Device.

Initial Display Mode: The standard messages will not appear on the system monitor and the system will boot to the operating system immediately. Only BIOS error messages will appear.

Display Mode at Add-On ROM Init: The standard messages will not appear on the system monitor and the system will boot to the operating system immediately. Only BIOS error messages will appear.

Floppy Access Control: This option specifies the read/write access that is set when booting from a floppy drive.

Hard Disk Access Control: This option specifies the read/write access that is set when booting from a hard disk drive.

S.M.A.R.T. for Hard Disks: This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data to a safe place before the hard disk becomes offline. Settings: Enabled and Disabled.

BootUp Num-Lock: Set this option to *Off* to turn the Num Lock key off when the computer is booted so you can use the arrow keys on both the numeric keypad and the keyboard. The settings are *On* or *Off*. The default setting is *On*.

PS/2 Mouse Support: When this option is set *Enabled*, AMIBIOS supports a PS/2 type mouse. The settings are *Enabled* or *Disabled*. The default setting is *Enabled*. System Boot Up Sequence.

System Keyboard: This option permits you to configure system with no keyboards. It specifies if error messages are displayed if a keyboard is not attached.

Password Check: This option enables password checking every time the computer is powered on or every time AMI BIOS Setup is executed.   If *Always* is chosen, a user password prompt appears every time the computer is turned on.   If *Setup* is chosen, the password prompt appears if AMI BIOS is executed.   The Optimal and Power-On defaults are *Setup*.

Wait For 'F1' If Error: AMIBIOS POST runs system diagnostic tests that can generate a message followed by:
Press <F1> to continue
Enabled → AMIBIOS waits for the end user to press <F1> before continuing.
Disabled → AMIBIOS continues the boot process without waiting for <F1> to be pressed.

Hit 'DEL' Message Display: Hit <DEL> if you want to run Setup from appearing when the system boots.

System BIOS Cacheable: When this option is set to Enabled, the contents of the F0000h system memory segment can be read from or written to L2 secondary cache memory. The contents of the F0000h memory segment are always copied from the BIOS ROM to system RAM for faster execution.

C000, 16K Cached
C800, 16K Cached
CC00, 16K Disabled
D000, 16K Disabled
D400, 16K Disabled
D800, 16K Disabled
DC00, 16K Disabled

These options control the location of the contents of the 16KB of ROM beginning at the specified memory location. If no adaptor ROM is using the named ROM area, this area is made available to the local bus. The settings are:

Setting	Description
Enable	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adaptor ROM will be using the named ROM area. Also, the contents of the RAM area can be read from and written to cache memory.
Disabled	The video ROM is not copied to RAM. The contents of the video ROM cannot be read from or written to cache memory.

In the AMIBIOS for the Intel Triton chipset, the E000h page is used as ROM during POST, but shadowing is disabled and the ROM CS# signal is disabled to make the E000h page available on the local bus.

3.5 Advanced Chipset Setup

When you select the "ADVANCED CHIPSET SETUP" on the main program, the screen display will appears as:

Advanced Chipset Setup Screen

AMIBIOS SETUP – ADVANCED CHIPSET SETUP	
© 2001 American Megatrends, Inc. All Rights Reserved	
******** DRAM Timing ********	Available Options:
Configure SDRAM Timing by SPD Enabled	Disable
SDRAM CAS# Latency 3	▶ Enable
DRAM Bank Interleave Enabled	
Memory Hole Disabled	
AGP Mode 4x	
AGP Fast Write Enable	
AGP Aperture Size 64MB	
AGP Master 1 W / S Write Disabled	
AGP Master 1 W / S Read Disabled	
Search for MDA Resources Yes	
PCI Delay Transaction Disabled	
ISA Bus Clock PCICLK / 4	
USB Controller Disabled	
USB Device Legacy Support Disabled	
Port 64/60 Emulation Disabled	ESC : Exit ↑↓ : Sel
OnChip VGA Frame Buffer Size 8MB	PgUp/PgDn : Modify
LCD Resolution 1024×768 TFT 65Mhz	F1:Help F2/F3 : Color

In the 'Advanced Chipset Setup' page, all options are predefined by the system board designer. Any attempt to change the parameter of the fields is not recommended.

Configure SDRAM Timing by SPD: This option provides DIMM plug-and-play support by Serial Presence Detect (SPD) mechanism via the System Management Bus (SMBus) interface. You can disable this option to manage the following SDRAM timing options by yourself. In addition, SDRAM operating timings may follow serial presence from EEPROM content by setting this option to "Enabled", and all of SDRAM timing options will be not available and hidden.

DRAM Bank Interleave: This feature enables you to set the interleave mode of the SDRAM interface. Interleaving allows banks of SDRAM to alternate their refresh and access cycles. One bank will undergo its refresh cycle while another is being accessed. This improves performance of the SDRAM by masking the refresh time of each bank.

Memory Hole: This option allows the end user to specify the location of a memory hole for memory space requirement from ISA-bus cards.

AGP Mode: The main different between AGP 1X, 2X, and 4X is the VGA operating voltage. AGP 4X is using 1.5V and AGP2X/1X are using 3.3V. Of course, the transfer rate of AGP 4X is faster than AGP 2X/1X

AGP Fast Write: Allows data to be sent directly from the core logic (i.e. chipset) to the AGP master (graphics chip) instead of keeping a copy in system memory and making the AGP master fetch it. Enabled is best for performance, and probably only works with 4x cards anyway.

AGP Aperture Size: This option specifies the amount of system memory that can be used by the Accelerated Graphics Port (AGP).

AGP Master 1 W / S Write: Implements a single delay when writing from the AGP Bus. Normally, two wait states are used, allowing for greater stability.

AGP Master 1 W / S Read: Implements a single delay when reading from the AGP Bus. Normally, two wait states are used, allowing for greater stability.

PCI Delay Transaction: Choose the "Enabled" option to obtain higher PCI bus performance for slower ISA bus application.

ISA Bus Clock: Allows you to set the speed of the ISA bus in fractions of the PCI bus speed

USB Controller: This option will enable on-chip USB controller to support USB (Universal Serial Bus) peripheral devices if user chooses the "Enabled" setting.

USB Device Legacy Support: This field support Universal Serial Bus (USB) devices. If detected, USB controller legacy mode will be enabled. If not detected, USB controller legacy mode will be disabled.

Port 64/60 Emulation: Setting this option to allow a USB Keyboard to act like a legally keyboard.

OnChip VGA Frame Buffer Size: This option help you to use a VGA frame buffer and 16 Mb of RAM at the same time; the system will allow access to the graphics card through a hole in its own memory map; in other words, accesses made to addresses within this hole will be directed to the ISA bus instead of main memory.

LCD Panel Type: This option specifies the resolution and the type of LCD panel.

3.6 Power Management Setup

The "Power Management Setup" controls the CPU card's "Green" features. When you select the "POWER MANAGEMENT SETUP" on the main program, the screen display will appears as:

Power Management Setup Screen

```
                   AMIBIOS SETUP – POWER MANAGEMENT SETUP
                  © 2001 American Megatrends, Inc.   All Rights Reserved
 Power Management /APM              Enabled          Available Options:
 Video Power Down Mode             Suspend             Disabled
 Hard Disk Power Down Mode         Disabled          ▶Enabled
 Suspend Time Out (Minute)         Disabled
 Keyboard & PS/2 Mouse             Monitor
 FDC/LPT/COM Ports                 Monitor
  ***********Power On Event***********
 Power On by Ring/ Lan             Disabled
 Power On by RTC Alarm             Disabled
 RTC Alarm Date                    15
 RTC Alarm Hour                    12
 RTC Alarm Minute                  30
 RTC Alarm Second                  30

                                                     ESC : Exit        ↑↓ : Sel
                                                     PgUp/PgDn :    Modify
                                                     F1:Help         F2/F3 : Color
```

Power Management Setup options are displayed by choosing the Power Management field from the AMI BIOS Setup main menu.   All Power Management Setup options are described in this section.

Power Management /APM: Setting to Enabled will activate the Advanced Power Management (APM) feature to enhance power saving modes. Settings: Enabled and Disabled.

Video Power Down Mode: This option specifies the power conserving state that the VESA VGA video subsystem enters after the specifies period of display inactivity has expired.

Hard Disk Power Down Mode: This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired. The settings are Standby, Suspend, Doze, or Disable.

Suspend Time Out (Minute): This option specifies the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state.

Keyboard & PS/2 Mouse: Enable event monitoring on the specified hardware interrupt request line. If the computer is in a power saving state, AMIBIOS watches for activity on the specified IRQ line. The computer enters the Full On state if any activity occurs. AMIBIOS reloads the Standby and Suspend timeout timers if activity occurs on the specified IRQ line.

FDC/LPT/COM Ports: Enable event monitoring on the specified hardware interrupt request line. If the computer is in a power saving state, AMIBIOS watches for activity on the specified IRQ line. The computer enters the Full On state if any activity occurs. AMIBIOS reloads the Standby and Suspend timeout timers if activity occurs on the specified IRQ line.

Power On by Ring/ Lan: This option let you enable or disable the function to wake up the system by Modem Ring-in and LAN device.

Power On by RTC Alarm: This option let you enable or disable the function to wake up the system by RTC Alarm.

RTC Alarm Date/ Hour/ Minute/ Second: This option specifies the time of RTC Alarm.

3.7 PCI Plug and Play Setup

Both the ISA and PCI buses on the CPU card use system IRQs & DMAs.   You must set up the IRQ and DMA assignments correctly through the PCI / Plug and Play Setup utility; otherwise the SBC will not work properly.
When you select the "PCI / PLUG AND PLAY SETUP" on the main program, the screen display will appears as:

PCI / Plug and Play Setup Screen

AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP		
© 2001 American Megatrends, Inc. All Rights Reserved		
Plug and Play Aware O/S	No	Available Options:
Reset Configuration Data	No	▶No
PCI Latency Timer (PCI Clocks)	32	Yes
Primary Graphics Adapter	Add-On Card	
PCI VGA Palette Snoop	Disabled	
DMA Channel 0	PnP	
DMA Channel 1	PnP	
DMA Channel 3	PnP	
DMA Channel 5	PnP	
DMA Channel 6	PnP	
DMA Channel 7	PnP	
IRQ3	ISA / EISA	
IRQ4	ISA / EISA	
IRQ5	PCI / PnP	
IRQ7	ISA / EISA	
IRQ9	PCI / PnP	
IRQ10	PCI / PnP	
IRQ11	PCI / PnP	
IRQ14	PCI / PnP	
IRQ15	PCI / PnP	
Reserved Memory Size	Disabled	ESC : Exit ↑↓ : Sel
Reserved Memory Address	C8000	PgUp/PgDn : Modify
		F1: Help F2/F3 : Color

PCI/PnP Setup options are displayed by choosing the PCI/PnP Setup icon from the AMI BIOS Setup main menu. All PCI/PnP Setup options are described in this section.

Plug and Play Aware O/S: Set this option to " Yes" if the operation system installed in the computer is Plug and Play-aware. BIOS only detects and enables PnP ISA adapter cards that are required for system boot. The Windows 95 operating system detects and enables all other PnP-aware adapter cards. Windows 95 is PnP-aware. Set this option to " No" if the operating system (such as DOS, OS/2, Windows 3.x) does not use PnP.

Reset Configuration Data: This option allows the BIOS to reset the Configuration Data in the BIOS. The default setting is No.

Option	Description
No	This setting preserves the PnP data. It does not force the PnP data to be cleared on boot. This is the default setting.
Yes	This option allows the PnP data to be rebuilt by the BIOS at every boot.

PCI Latency Timer (PCI Clocks): This option is used to control PCI latency timer period (follow PCI clocks). Based on PCI specification 2.1 or later and PCI bus frequency in system, user can select different timer to meet their PCI bus environment.

Primary Graphics Adapter: The primary graphics adapter (i.e., the one that boots first) in a multi-display configuration.

PCI VGA Palette Snoop: Disabled → Data read and written by the CPU is only directed to the PCI VGA device's palette registers. Enabled → Data read and written by the CPU is directed to the both the PCI VGA device's palette registers and the ISA VGA device palette registers, permitting the palette registers of both devices to be identical.

DMA Channel 0/1/3/5/6/7: These items specify the bus that the system DMA (Direct Memory Access) channel is used. The settings determine if AMIBIOS should remove a DMA from the available DMAs passed to devices that are configurable by the system BIOS. The available DMA pool is determined by reading the ESCD NVRAM. If more DMAs must be removed from the pool, the end user can reserve the DMA by assigning an ISA/EISA setting to it.

IRQ3/4/5/7/9/10/11/14/15: These items specify the bus where the specified IRQ line is used. The settings determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the IRQ pool, the end user can use these settings to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configures by AMIBIOS. All IRQs used by onboard I/O are configured as PCI/PnP. If all IRQs are set to ISA/EISA, and IRQ14/15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices. Settings: ISA/EISA and PCI/PnP.

Reserved Memory Size: This option specifies the size of the memory area reserved for legacy ISA adapter cards. The settings are Disabled, 16K,32, or 64K. The default settings is Disabled.

Reserved Memory Address: This option specifies the beginning address (in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards.
This option does not appear if the Reserved Memory Size option is set to Disabled.
The settings are C0000,C4000,C8000,CC000,D0000,D4000,D8000,or DC000.

3.8 Peripheral Setup

When you select the "PERIPHERAL SETUP" on the main program, the screen display will appears as:

Peripheral Setup Screen

```
               AMIBIOS SETUP – PERIPHERAL SETUP
          © 2001 American Megatrends, Inc.   All Rights Reserved
 OnBoard FDC                       Auto           Available Options:
 OnBoard Serial Port 1             3F8/COM1          Auto
 OnBoard Serial Port 2             2F8/COM2          Disabled
  Serial Port 2 Mode               Normal          ▶Enabled
   Duplex Mode                     N/A
 OnBoard Parallel Port             378
   Parallel Port Mode              Normal
   EPP Version                     N/A
    Parallel Port DMA Channel      N/A
   Parallel Port IRQ               7
 OnBoard IDE                       Both
 OnBoard AC'97 Audio               Enabled

 OnBoard Legacy Audio              Enabled        ESC : Exit        ↑↓ : Sel
   Sound Blaster                   Disabled       PgUp/PgDn :       Modify
                                                  F1:Help           F2/F3 : Color
```

Peripheral Setup options are displayed by choosing the Peripheral Setup icon from the AMI BIOS Setup main menu. All Peripheral Setup options are described in this section.

Onboard FDC: This option enables the floppy drive controller on the motherboard. The settings are Enabled, Disabled, or Auto. The Optimal default setting is Enabled.

Onboard Serial Port 1: This option enables serial port 1 on the motherboard and specifies the base I/O port address for serial port 1. The settings are Auto, Disable, 3F8/COM1, 2F8/COM2, 3E8/COM3, or 2E8/COM4. The optimal default setting is 3F8/COM1.

Onboard Serial Port 2: This option enables serial port 2 on the motherboard and specifies the base I/O port address for serial port 2.   The settings are Auto, Disable, 3F8/COM1, 2F8/COM2, 3E8/ COM3, or 2E8/ COM4. The optimal default setting is 2F8/COM2.

Serial Port 2 Mode: This item sets the operation mode for Serial Port 2. Settings: Normal, IrDA and ASKIR.

Duplex Mode: This option specifies the infrared transmission method. This option only appears if the Onboard Serial Port2 option is not set to Auto or Disabled. The settings are Full Duplex or Half Duplex.

Onboard Parallel Port: This option enables the parallel port on the motherboard and specifies the parallel port base I/O port address. The settings are 378h, 278h, 3BC, Auto or Disabled.   The Optimal default setting is 378.

Parallel Port Mode : This option specifies the parallel port mode. ECP and EPP are both bi-directional data transfer schemes that adhere to the IEEE P1284 specifications.   The default setting is *Normal*.   The other settings are:

Setting	Description
Normal	Normal The normal parallel port mode is used. This is the default setting.
Bi-Dir	Bi-Dir Use this setting to support bi-directional transfers on the parallel port.
EPP	The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bi-directional data transfer driven by the host device.
ECP	The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to Achieve transfer rates of approximately 2.5 Mbs. ECP provides symmetric Bi-directional communications.
EPP+ECP	It allows normal speed operation in a two-way mode.

EPP Version: This option specifies the Enhanced Parallel Port specification version number that is used in the system. This option only appears if the Parallel Port Mode option is set to EPP.
The settings are 1.7 or 1.9. There are no Optimal and Fail-Safe default settings because the default setting for the Parallel Port Mode option is not EPP.

Parallel Port DMA Channel: This option is only available if the setting for the Parallel Port Mode option is ECP. This option sets the DMA channel used by the parallel port. The settings are (DMA Channel0, 1, or 3. The Optimal and Fail-Safe default settings are not provided.

Parallel Port IRQ: This option specifies the IRQ used by the parallel port. The settings are Auto, (IRQ) 5, or (IRQ) 7. The Optimal and Fail-Safe default settings are Auto.

Onboard IDE: This option specifies the IDE channel used by the onboard IDE controller. The settings are Disabled, Primary, or Secondary. The Optimal and Fail-Safe default settings are Disabled.

OnBoard AC'97 Audio: This option let you enable or disable the onboard AC'97 Audio function.

Onboard Legacy Audio: This option let you enable or disable the onboard Legacy Audio function.

Sound Blaster: This option let you enable or disable the onboard Sound Blaster function.

3.9 Hardware Monitor Setup

When you select the "Hardware Monitor Setup" on the main program, the screen display will appears as:

Hardware Monitor Setup Screen

```
                  AMIBIOS SETUP – HARDWARE MONITOR SETUP
                 © 2001 American Megatrends, Inc.   All Rights Reserved
─══System Hardware Monitor══─
CPU Temperature                      40℃/104℉
System Temperature                   41℃/105℉
CPU Fan Speed                        0 RPM
  Vcore                              1.234V
+2.500V                              2.520V
+3.300V                              3.332V
+5.000V                              4.971V

                                              ESC : Exit         ↑↓ : Sel
                                              PgUp/PgDn :        Modify
                                              F1:Help            F2/F3 : Color
```

CPU Temperature, System Temperature, CPU Fan Speed, Vcore, +2.500V, +3.300V, +5.000V:
These items display the current status of all monitored hardware devices/components such as system voltages, temperatures and fan speeds.

3.10 Auto-Defect Hard Disks

Standard CMOS Setup Screen

```
                     AMIBIOS SETUP – STANDARD CMOS SETUP
                 © 2001 American Megatrends, Inc.   All Rights Reserved
Date (mm/dd/yyyy)    : Mon Mar 03, 2003          Base Memory      : 639KB
Time (hh/mm/ss)      : 00:30:41                  Extd Memory      : 119MB

Floppy Drive A :     1.44 MB   3¹/₂
Floppy Drive B :     Not Installed
                                                 LBA    Blk    PIO    32 Bit
            Type        Size    Cyln  Head  WPcom  Sec  Mode   Mode   Mode   Mode
Pri Master  : User      20525Mb 39770 16    0      63   On     On     4      On
Pri Slave   : CD-ROM                                                  4      On
Pri Master  : Not Installed
Pri Slave   : Not Installed
Boot Sector Virus Protection        Disabled
Month    :   Jan    - Dec                        ESC:Exit    ↑↓ : Sel
  Day    :   01     - 31                          PgUp/PgDn: Modify
  Year   : 1980     - 2099                        F1: Help   F2/F3:Color
```

Primary Master/ Primary Slave/ Secondary Master/ Secondary Slave: Hard Disk Drive Setting.

Cyin: This field configures the number of cylinders. Refer to the drive documentation to determine the correct value. To make changes to this field, set the Type field to [User Type HDD] and the Translation Method field to [Manual].

Head: This field configures the number of read/write heads. Refer to the drive documentation to determine the correct value. To make changes to this field, set the Type field to [User Type HDD] and the Translation Method field to [Manual].

WPcom: Write Precompensation Cylinder. Older hard drives have the same number of sectors per track at the innermost tracks as at the outermost tracks. This means that the data density at the innermost tracks is higher and thus the bits are lying closer together. Starting with this Cyl# until the end of Cyl#s the writing starts earlier on the disk. In modern Hard Devices such as SCSI this entry is useless. For IDE hard drives it is not necessary to enter a WP cylinder. The IDE HDD will ignore it for it has its own parameters inboard.

Sec: This field configures the number of sectors per track. Refer to the drive documentation to determine the correct value. To make changes to this field, set the Type field to [User Type HDD] and the Translation Method field to [Manual].

LBA: Select the hard disk drive type in this field. When Logical Block Addressing (LBA) is enabled, the 28-bit addressing of the hard drive is used without regard for cylinders, heads, or sectors. Note that LBA Mode is necessary for drives with more than 504MB storage capacity.

Blk: This option allows you to enable or disable the Block Mode that is a performance enhancement that allows the grouping of multiple read or write commands over the IDE/ATA interface. The settings are Enable or Disable.

PIO: This option lets you set a PIO (Programmed Input/Output) mode for the IDE device. Modes 0 through 4 provide successive increase in performance.

32 Bit Mode: This field allows you to on or off the HDD 32bit mode.

3.11 Change User/ Supervisor Password

When you select this function, a message as below will appear on the screen:

AMIBIOS HIFLEX SETUP UTILITY - VERSION 1.54
© 2001 American Megatrends, Inc.   All Rights Reserved
Standard CMOS Setup
Advanced CMOS Setup
Advanced Chipset Setup
Power Management Setup
PCI / Plug and Play Setup
Enter new user password:
Save Settings and Exit
Exit Without Saving
Change the user password
ESC : Exit   ↑↓ : Sel   F2/F3 : Color   F10 : Save & Exit

AMIBIOS HIFLEX SETUP UTILITY – VERSION 1.54
© 2001 American Megatrends, Inc.   All Rights Reserved
Standard CMOS Setup
Advanced CMOS Setup
Advanced Chipset Setup
Power Management Setup
PCI / Plug and Play Setup
Enter new supervisor password:
Save Settings and Exit
Exit Without Saving
Change the supervisor password
ESC : Exit   ↑↓ : Sel   F2/F3 : Color   F10 : Save & Exit

Type the password, up to six characters in length, and press<Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password and press<Enter>. You may also press<Esc> to abort the selection and not enter a password.

To clear a set password, just press<Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

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

Additionally, when a password is enabled, you can also have AMIBIOS to request a password each time the system is booted. This would prevent unauthorized use of your computer. The setting to determine when the password prompt is required is the PASSWORD CHECK option of the ADVANCED BIOS FEATURES menu. If the PASSWORD CHECK option is set to Always, the password is required both at boot and at entry to Setup. If set to Setup, password prompt only occurs when you try to enter Setup.

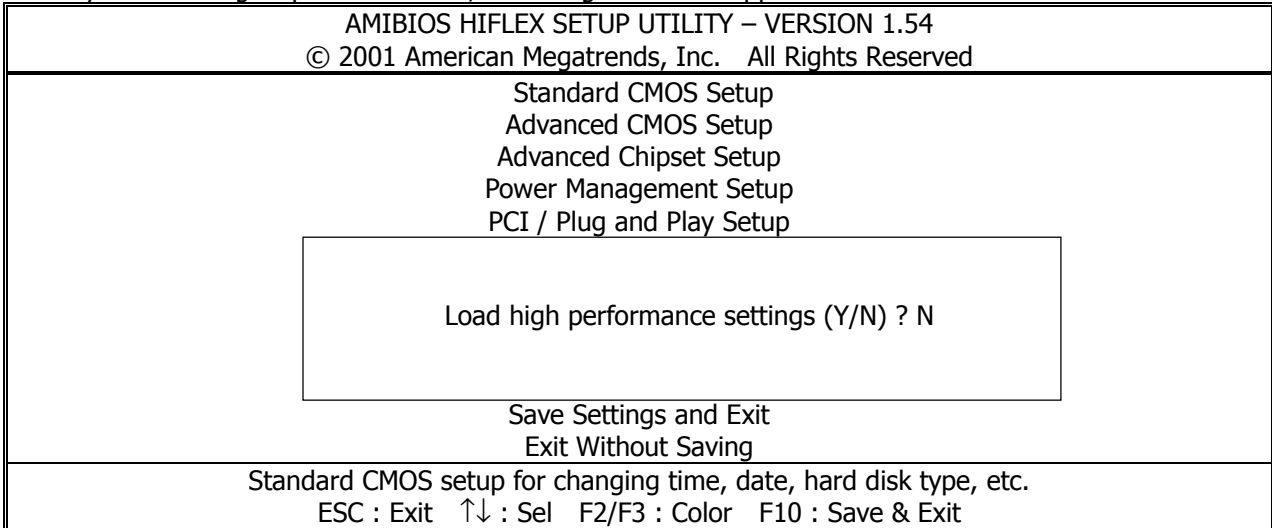Note: About Supervisor Password & User Password
  Supervisor Password : Can enter and change the settings of the setup menu.
  User Password   : Can only enter but do not have the right to change the settings of the setup menu.

3.12 Auto Configuration with Optimal Settings

The options on the main menu allow users to restore all of the BIOS settings to optimal defaults. The Optimal Defaults are the default values set by the manufacturer.
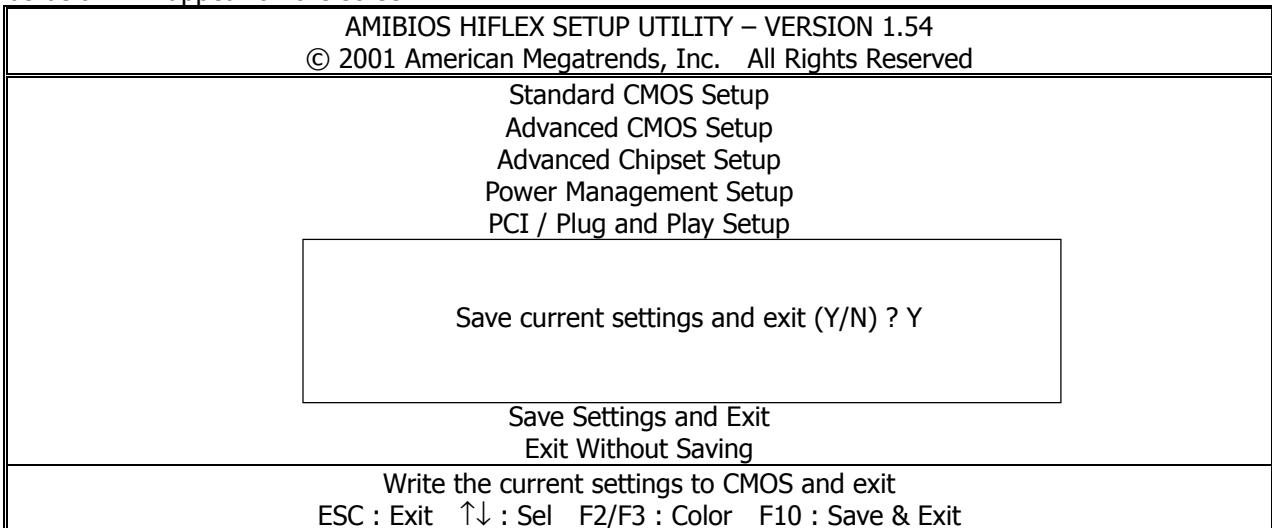
When you select High Optimal Defaults, a message as below appears:

AMIBIOS HIFLEX SETUP UTILITY – VERSION 1.54
© 2001 American Megatrends, Inc.   All Rights Reserved
Standard CMOS Setup
Advanced CMOS Setup
Advanced Chipset Setup
Power Management Setup
PCI / Plug and Play Setup
Load high performance settings (Y/N) ? N
Save Settings and Exit
Exit Without Saving
Standard CMOS setup for changing time, date, hard disk type, etc.
ESC : Exit   ↑↓ : Sel   F2/F3 : Color   F10 : Save & Exit

Pressing "Y" loads the defaults BIOS values.

3.13 Save & Exit Setup

When you want to quit the Setup menu, you can select this option to save the changes and quit. A message as below will appear on the screen.

AMIBIOS HIFLEX SETUP UTILITY – VERSION 1.54
© 2001 American Megatrends, Inc.   All Rights Reserved
Standard CMOS Setup
Advanced CMOS Setup
Advanced Chipset Setup
Power Management Setup
PCI / Plug and Play Setup
Save current settings and exit (Y/N) ? Y
Save Settings and Exit
Exit Without Saving
Write the current settings to CMOS and exit
ESC : Exit   ↑↓ : Sel   F2/F3 : Color   F10 : Save & Exit

Typing Y will allow you to quit the Setup Utility and save the user's settings to RTC CMOS.
Typing N will return to Setup Utility.

3.14 Exit Without Saving

When you want to quit the Setup menu, you can select this option to abandon the changes. A message as below will appear on the screen.

AMIBIOS HIFLEX SETUP UTILITY – VERSION 1.54
© 2001 American Megatrends, Inc.   All Rights Reserved
Standard CMOS Setup
Advanced CMOS Setup
Advanced Chipset Setup
Power Management Setup
PCI / Plug and Play Setup
Quit without saving (Y/N) ? N
Save Settings and Exit
Exit Without Saving
Exit without saving the current settings
ESC : Exit   ↑↓ : Sel   F2/F3 : Color   F10 : Save & Exit

Typing Y will allow you to quit the Setup Utility without saving any changes to RTC CMOS.
Typing N will return to the Setup Utility.

Chapter 4 . Drivers Support

4.1 Use Your Driver CD-ROM

This chapter provides information on how to install the drivers in generally and related directory that come with the CD-ROM in the package. Please follow the instructions set forth on the screen carefully.

1. Find the directory for your O/S accordingly.
2. Always read the README.TXT. before installation.
3. Run the *.EXE., and follow the installation prompt step by step.

4.2 File Directory
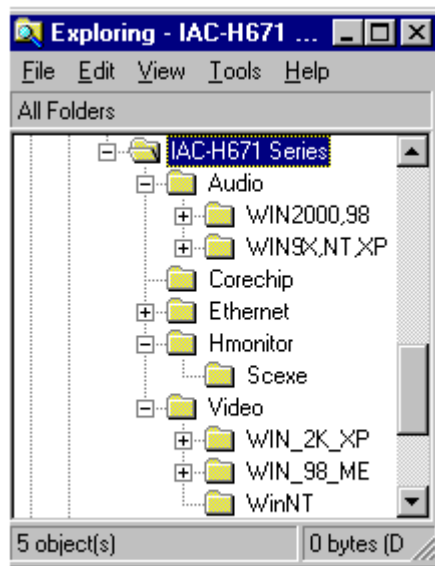
APPENDIXA. Watch-Dog Timer

You can enable the watch-dog when your application software monitors an unexpected or not respond, then the timer generates a reset to reboot your system. During the period of enable to reset, you could still cancel reset by disabling the watch-dog. Decide the way you want to set the period for reset by selecting hardware or software watch-dog (if both of them are available). Software setting period, normally setting watch-dog timer period to 16 levels.

Software watch-dog using example
EX.1: For DOS

Enable	**Disable**
C:\DOS> DEBUG	**C:\DOS>DEBUG**
-o443 D	-**o441 F**

EX.2: For assemble Language

Enable :	**Disable :**
MOV DX, 443H	**MOV DX, 441H**
MOV AL, 0FH	**MOV AL, 0FH**
OUT DX, AL	**OUT DX, AL**

Note: **"F" is the period of software watch-dog timer (normally "F" indicated 0 sec.). 0 to 9 and A to F are used for represent different period. Normally, the step is 2 sec. That means "E" is 2, "D" is 4, "2" is 26, "1" is 28 and "0" is 30 seconds.**

Terms and Conditions

Warranty Policy

1. All products are warranted against defects in materials and workmanship for a period of two years from the date of purchase by the customer.

2. The buyer will bear the return freight charges for goods that are returned for repair within the warranty period whereas manufacturer will bear the return to user freight charges after repair.

3. The buyer will pay for repair (for the replaced materials plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.

4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service ", RMA goods will be returned at the customer expense.

5. The following conditions are excluded from this warranty :

   A.   Improper or inadequate maintenance by the customer.

   B.   Unauthorized modification or misuse.

   C.   Operation outside of the environmental specifications for the product.

RMA Service

1. **Request a RMA#:**

   Complete and fax to Supplier the "RMA Request Form" to obtain a RMA number.

2. **Shipping:**

   A.   The customer is requested to fill up the problem code as listed. If none of the code is selected, please write the symptom description on the remark.

   B.   Ship the defective units with freight prepaid.

   C.   Mark the RMA # clearly on the box.

   D.   Shipping damage as a result of inadequate packing is the customer's responsibility.

   E.   Use the original packing materials whenever possible.

3. **All RMA# are valid for 30 days only:**

When RMA goods are received after valid RMA# period, the goods will be rejected.

When requesting RMA service, please fill out this **"RMA Service Request Form"**.
Without this form your RMA will be REJECTED!!!

RMA No:	Reasons to Return: ☐ Repair(Please include failure details) ☐ Testing Purpose

Company:	Contact Person:
Phone No.	Purchased Date:
Fax No.:	Applied Date:

Return Shipping Address: _____

Shipping by: ☐Air Freight   ☐Sea   ☐Express:_____   ☐Others:_____

Item	Model Name	Serial Number	Configuration

Item	Problem Code	Failure Status

*Problem Code:

01:D.O.A.	07: BIOS Problem	13: SCSI	19: DIO
02: Second Time R.M.A.	08: Keyboard Controller Fail	14: LPT Port	20: Buzzer
03: CMOS Data Lost	09: Cache RMA Problem	15: PS2	21: Shut Down
04: FDC Fail	10: Memory Socket Bad	16: LAN	22: Panel Fail
05: HDC Fail	11: Hang Up Software	17: COM Port	23: CRT Fail
06: Bad Slot	12: Out Look Damage	18: Watchdog Timer	24: Others (Pls specify)

Request Party   ***Confirmed By Supplier***

_____   _____
Authorized Signatures / Date   **Authorized Signatures / Date**