



**User's Manual**

3304120

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## Table of Contents

<b>Chapter 1</b>	<b>General Description</b> .....	<b>1</b>
1.1	Major Features .....	2
1.2	Specifications .....	3
1.3	Board Dimensions.....	4
<b>Chapter 2</b>	<b>Unpacking</b> .....	<b>5</b>
2.1	Opening the Delivery Package.....	5
2.2	Inspection.....	5
<b>Chapter 3</b>	<b>Hardware Installation</b> .....	<b>7</b>
3.1	Before Installation .....	7
3.2	Board Layout .....	8
3.3	Jumper List .....	9
3.4	Connector List .....	9
3.5	Configuring the CPU .....	9
3.6	System Memory .....	10
3.7	CMOS Data Clear .....	10
3.8	Power and Fan Connectors.....	10
3.9	System Front Panel Connectors.....	11
	Connector J2 Orientation .....	12
3.10	VGA Controller .....	12
3.11	TV-Out Connector .....	14
3.12	Ethernet Connector .....	14
3.13	Audio Connectors .....	15
3.14	PCI E-IDE Drive Connector .....	16
3.15	Serial Port Connectors .....	17
3.16	USB Connector .....	18
3.17	Keyboard/Mouse Connectors .....	18
3.18	Watchdog Timer .....	19
3.19	GPIO Connector .....	20
3.20	Mini PCI Connector .....	20
3.21	CompactFlash™ Connector.....	22
3.22	PCMCIA Connector .....	23

<b>Chapter 4</b>	<b>AMI BIOS Setup</b>	<b>25</b>
4.1	Starting Setup	25
4.2	Using Setup	26
4.3	Main Menu	27
4.4	Standard CMOS Setup	28
4.5	Advanced CMOS Setup	29
4.6	Advanced Chipset Setup	30
4.7	Power Management Setup	31
4.8	PCI / Plug and Play Setup	32
4.9	Peripheral Setup	33
4.10	Auto-Detect Hard Disks	34
4.11	Change Supervisor/User Password	35
4.12	Auto Configuration with Optimal Settings	36
4.13	Auto Configuration with Fail Safe Settings	37
4.14	Save Settings and Exit	38
4.15	Exit Without Saving	39

## Safety Instructions

Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- ” Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- ” Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This helps to discharge any static electricity on your body.
- ” Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components. Fasten the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please wear and connect the strap before handle the 3304120 to ensure harmlessly discharge any static electricity through the strap.
- ” Please use an anti-static pad when putting down any components or parts or tools outside the computer. You may also use an anti-static bag instead of the pad. Please inquire from your local supplier for additional assistance in finding the necessary anti-static gadgets.

**NOTE:** *DO NOT TOUCH THE BOARD OR ANY OTHER SENSITIVE COMPONENTS WITHOUT ALL NECESSARY ANTI-STATIC PROTECTIONS.*

# Chapter 1

## General Description



The 3304120 is a 100MHz FSB VIA CLE266/VT8235 chipset-based board designed for ULV Intel® Celeron® processor 400/650MHz. These features combine and make the 3304120 an ideal all-in-one industrial single board computer. Additional features include an enhanced I/O with CompactFlash reader, PCMCIA, CRT/Panel, audio, LAN, TV-Out, 4 COM, and USB2.0 interfaces.

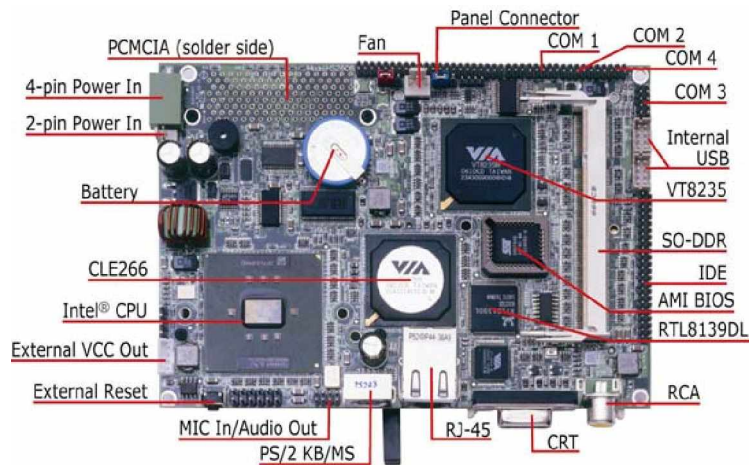
Its onboard ATA/33/66/100 to IDE drive interface architecture allows the 3304120 to support data transfers of 33, 66 or 100MB/sec. to one IDE drive connection. The VIA CLE266 integrated S3 3D supporting CRT/Panel displays up to 1600 x 1200 at 32-bit.

3304120 offers PCMCIA connector and CompactFlash reader in addition. +10~+30V wide range single DC power in can make 3304120 suitable for all kinds of environments even more.

System memory is also sufficient with the one 200-pin SO-DDR socket that can support up to 1GB.

Additional onboard connectors include four advanced USB2.0 port providing faster data transmission. And one external RJ-45 connector for 10/100 Based Ethernet use.

## 1.1 Major Features



The 3304120 comes with the following features:

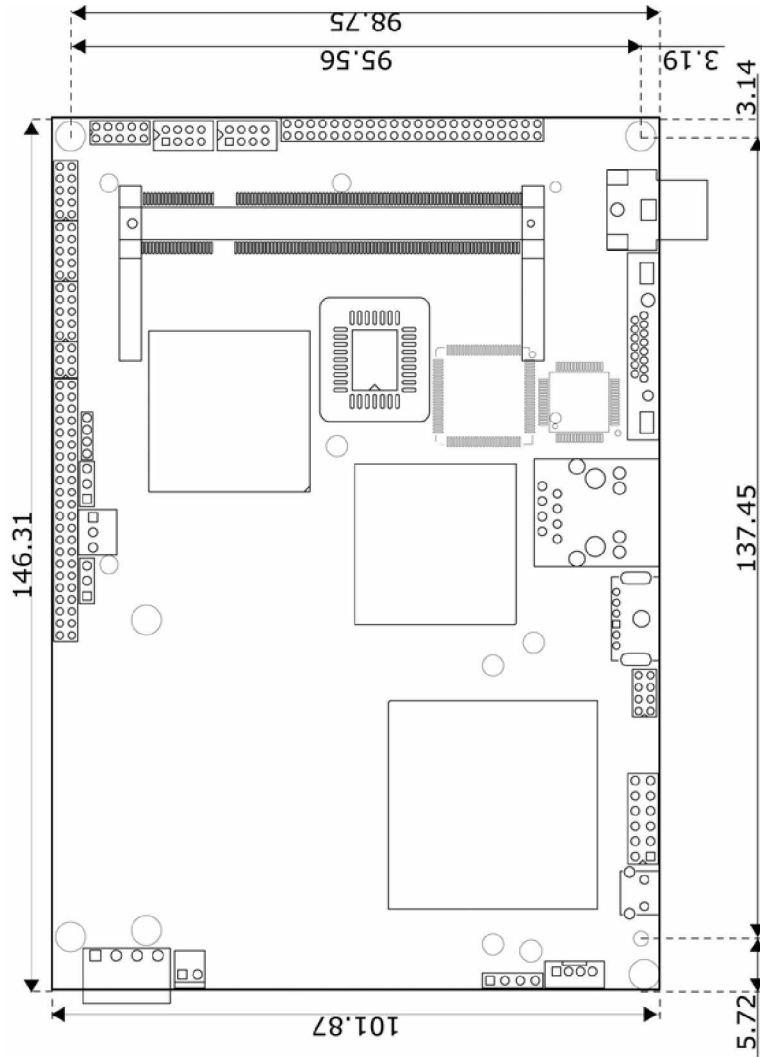
- ¼ ULV Intel® Celeron® processor 400/650MHz
- ¼ One SO-DDR socket with a max. capacity of 1GB
- ¼ VIA CLE266/VT8235 system chipset
- ¼ Winbond W83697UF super I/O chipset
- ¼ VIA CLE266 graphics controller
- ¼ Realtek RTL8139DL Ethernet controller
- ¼ AC97 3D audio controller
- ¼ Fast PCI ATA/33/66/100 IDE controller
- ¼ CompactFlash card adapter, PCMCIA, four COM, four USB2.0 ports
- ¼ TV-Out function
- ¼ +10~+30V wide range single DC power in

## 1.2 Specifications

- ” **CPU:** ULV Intel® Celeron® processor 400/650MHz
- ” **Memory:** One SO-DDR socket supporting up to 1GB
- ” **Chipset:** VIA CLE266/VT8235
- ” **I/O Chipset:** Winbond W83697UF
- ” **CompactFlash:** One, Type II IDE interface adapter
- ” **PCMCIA:** Two PC Card or CardBus slots
- ” **PCI Slot:** One, Type I mini PCI slot
- ” **VGA:** VIA CLE266 integrated S3 3D supporting AGP Bus and Hardware MPEG-2
- ” **TV-Out:** Supports PAL or NTSC TV systems
- ” **Ethernet:** RealTek RTL8139DL 10/100 Based LAN
- ” **Audio:** AC97 3D audio controller
- ” **IDE:** Two IDE disk drives supporting ATA/33/66/100 and with transfer rates of 33/66/100MB/sec.
- ” **Serial Port:** W83697UF UART-compatible RS-232 x 4 serial ports with 16-byte FIFO
- ” **USB:** Four internal USB2.0 ports
- ” **Keyboard/Mouse:** PS/2 6-pin Mini DIN
- ” **BIOS:** AMI PnP Flash BIOS
- ” **Watchdog Timer:** Software programmable time-out intervals from 1~256 sec.
- ” **CMOS:** Battery backup
- ” **Power In:** +10~+30V wide range single DC power in
- ” **Temperature:** 0~+60°C (operating)
- ” **Dimensions:** 14.5(L) x 10.2(W) cm



### 1.3 Board Dimensions



## Chapter 2

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### Unpacking

#### 2.1 Opening the Delivery Package

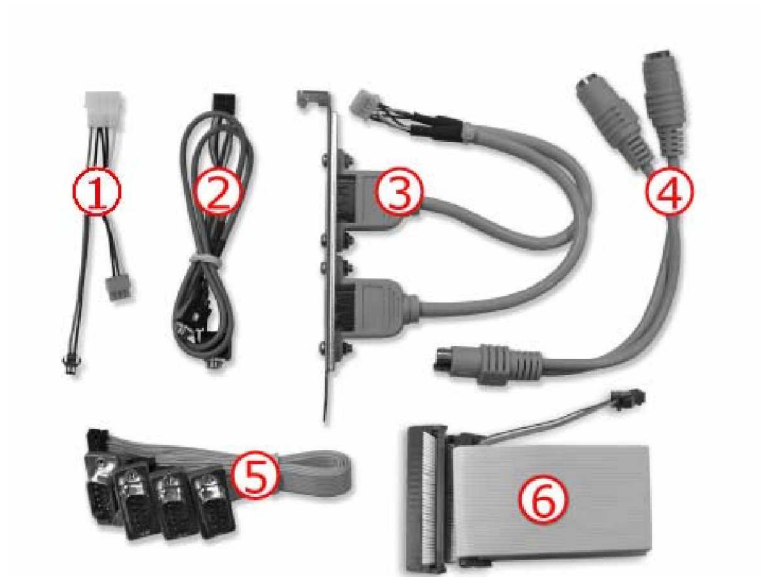
The 3304120 is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

#### 2.2 Inspection

After unpacking the board, place it on a raised surface and carefully inspect the board for any damage that might have occurred during shipment. Ground the board and exercise extreme care to prevent damage to the board from static electricity.

Integrated circuits will sometimes come out of their sockets during shipment. Examine all integrated circuits, particularly the BIOS, processor, memory modules, ROM-Disk, and keyboard controller chip to ensure that they are firmly seated. The 3304120 delivery package contains the following items:

- „ 3304120 Board x 1
- „ Utility CD Disk x 1
- „ Cables package x 1
- „ Jumper Bag x 1
- „ User's Manual



Cables Package	
NO.	Description
1	4-pin power cable x 1
2	MIC/Audio cable x 1
3	8-pin USB split type cable x 1
4	PS/2 KB/MS transfer cable x 1
5	RS-232 cable x 4
6	IDE flat cable x 1

It is recommended that you keep all the parts of the delivery package intact and store them in a safe/dry place for any unforeseen event requiring the return shipment of the product. In case you discover any missing and/or damaged items from the list of items, please contact your dealer immediately.

## **Chapter 3**

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### **Hardware Installation**

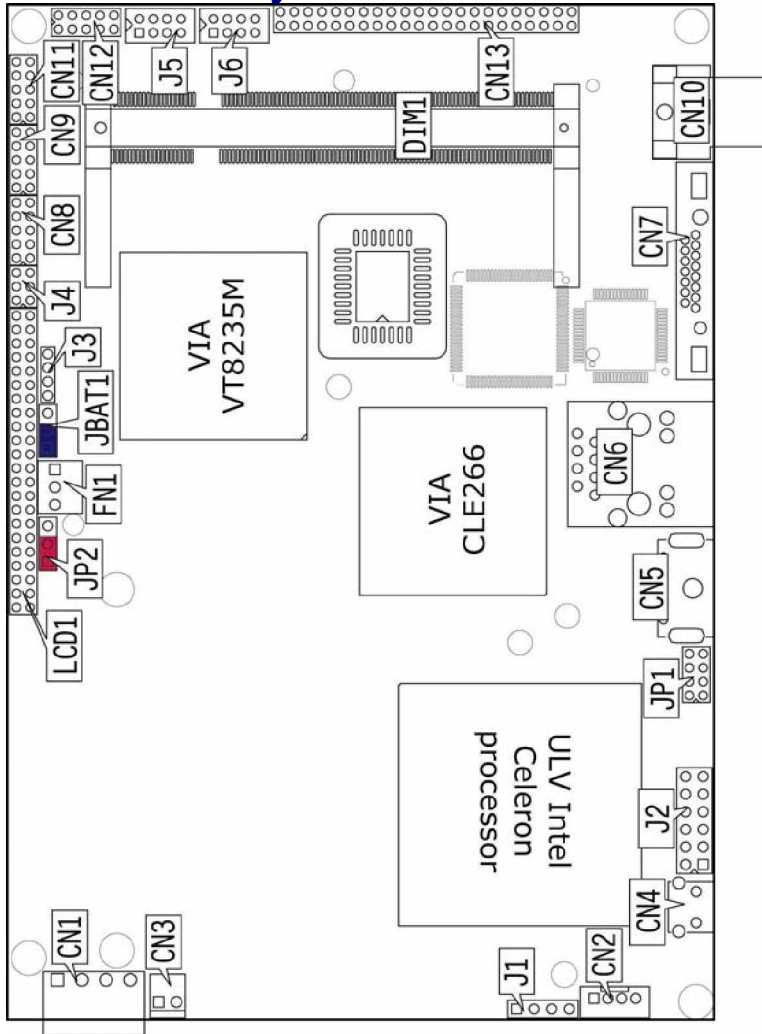
This chapter provides the information on how to install the hardware using the 3304120. This chapter also contains information related to jumper settings of switch, and the watchdog timer selection etc.

#### **3.1 Before Installation**

After confirming your package contents, you are now ready to install your hardware. The following are important reminders and steps to take before you begin with your installation process.

1. Make sure that all jumper settings match their default settings and CMOS setup correctly. Refer to the sections on this chapter for the default settings of each jumper.
2. Go through the connections of all external devices and make sure that they are installed properly and configured correctly within the CMOS setup. Refer to the sections on this chapter for the detailed information on the connectors.
3. Keep the manual and diskette in good condition for future reference and use.

### 3.2 Board Layout



### 3.3 Jumper List

Jumper	Default Setting	Setting	Page
<b>JBAT1</b>	Clear CMOS: <i>Normal Operation</i>	Short 1-2	10
<b>JP2</b>	Panel Voltage Select: +3.3V	Short 1-2	12

### 3.4 Connector List

Connector	Definition	Page
<b>CN1</b>	4-pin Power In Connector	10
<b>CN2</b>	External VCC Out Connector	10
<b>CN3</b>	2-pin ATX Power In Connector	10
<b>CN4</b>	External Reset Button	10
<b>CN5</b>	PS/2 6-pin Mini DIN KB/MS Connector	18
<b>CN6</b>	RJ-45 Connector	14
<b>CN7</b>	15-pin CRT Connector	12
<b>CN8/CN9/CN12/CN11</b>	COM 1~COM 4 Connector (5x2 header)	17
<b>CN10</b>	TV-Out Connector	14
<b>CN13</b>	IDE Connector	16
<b>CN14</b>	CompactFlash Connector	22
<b>DIM1</b>	SO-DDR Socket	10
<b>FN1</b>	Fan Connector	10
<b>J1</b>	Line In Connector	15
<b>J2</b>	System Front Panel Connector	11
<b>J3</b>	GPIO Connector	20
<b>J5</b>	USB Connector	18
<b>J6</b>	USB Connector	18
<b>JP1</b>	MIC In/Audio Out Connector	15
<b>LCD1</b>	44-pin Panel Connector	12
<b>U32</b>	PCMCIA Connector	23
<b>PC1</b>	Mini PCI Connector	20

### 3.5 Configuring the CPU

The 3304120 v2.0 embedded with a ULV Intel® Celeron® processor 400/650MHz. User don't need to adjust the frequently and check speed of Intel® processor.

### 3.6 System Memory


The 3304120 provides one 200-pin SO-DDR socket at locations *DIM1*. The maximum capacity of the onboard memory is 1GB.

### 3.7 CMOS Data Clear

The 3304120 has a Clear CMOS jumper on *JBAT1*.

#### z JBAT1: Clear CMOS

Options	Settings
Normal Operation (default)	Short 1-2
Clear CMOS	Short 2-3



**IMPORTANT:** Before you turn on the power of your system, please set *JBAT1* to Short 1-2 for normal operation.

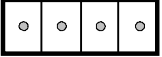
### 3.8 Power and Fan Connectors

3304120 provides one 4-pin power connectors at *CN1*. And one 2-pin ATX power in at *CN3*.

+10~+30V wide range single DC power in can make 3304120 suitable for all kinds of environments even more.


#### z CN1: 4-pin Power In Connector

PIN	Description
1	+10~+30V
2	GND
3	GND
4	+10~+30V



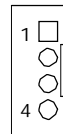
#### z CN3: 2-pin ATX Power In Connector

PIN	Description
1	PS_ON
2	5VSB



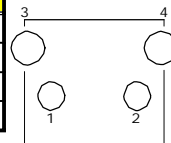
**z CN2: External VCC Out Connector**

PIN	Description
1	VCC
2	GND
3	GND
4	VCC



**z CN4: External Reset Button**

PIN	Description
1	RST_SW
2	GND
3	GND
4	GND



**z FN1: Fan Connector**

PIN	Description
1	GND
2	+5V
3	N/C



Connector *FN1* onboard 3304120 is a 3-pin fan power output connector. And 3304120 supports +5V Fan only.

### 3.9 System Front Panel Connectors

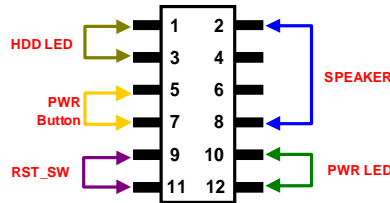
The 3304120 has one LED at location *J2* that indicates the power-on status. This visual feature of the IDE LED may also be connected to a HDD LED, power button, reset switch, speaker and power LED via connector *J2*(1-3), *J2*(5-7), *J2*(9-11), *J2*(2-4-6-8), and *J2*(10-12).

**z J2: System Front Panel Connector**

PIN	Description	PIN	Description
1	330Ω Pull +5V	2	Speaker
3	HDD LED	4	N/C
5	PW Button	6	GND
7	GND	8	330Ω Pull +5V
9	Reset Switch	10	330Ω Pull +5V
11	GND	12	PW_LED



### Connector J2 Orientation

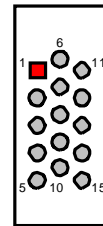


## 3.10 VGA Controller

The 3304120 provides two connection methods of a VGA device. *CN7* offers a single standard CRT connector while *LCD1* is the 44-pin panel connector. VIA CLE266 VGA chipset shared main memory 8/16/32MB, and provides high quality DVD video playback. 3304120 also provides Hardware MPEG-2.

### z CN7: 15-pin CRT Connector

PIN	Description	PIN	Description
1	Red	2	Green
3	Blue	4	N/C
5	GND	6	GND
7	GND	8	GND
9	N/C	10	GND
11	N/C	12	SDA
13	HSYNC	14	VSYNC
15	SCL		

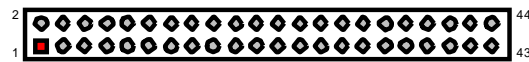


### z LCD1: 44-pin Panel Connector

PIN	Description	PIN	Description
1	VCC	2	VCC
3	GND	4	GND
5	V <sub>LCD</sub>	6	ENPVDD
7	ENPVEE	8	GND
9	GFPD0	10	GFPD1
11	GFPD2	12	GFPD3
13	GFPD4	14	GFPD5
15	GFPD6	16	GFPD7

...More On Next Page...

PIN	Description	PIN	Description
17	GFPD8	18	GFPD9
19	GFPD10	20	GFPD11
21	GFPD12	22	GFPD13
23	GFPD14	24	GFPD15
25	GFPD16	26	GFPD17
27	GFPD18	28	GFPD19
29	GFPD20	30	GFPD21
31	GFPD22	32	GFPD23
33	N/C	34	N/C
35	SHFCLK	36	GFPVS
37	GFPDEN	38	GFPHS
39	GND	40	FPBKLP
41	N/C	42	N/C
43	N/C	44	N/C



**NOTE:** Please set the proper voltage of your panel using JP3 before proceeding on installing it.

The 3304120 has an onboard jumper that selects the working voltage of the flat panel connected to the system. Jumper JP2 offers two voltage settings for the user.

**Z JP2: Panel Voltage Select**

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

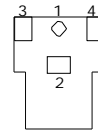


### 3.11 TV-Out Connector

3304120 can support TV-Out function which input could be up to 800 x 600 graphics resolutions. World Wide Video standards are supported including NTSC-M (North America, Taiwan), NTSC-J (Japan), PAL-B, D, G, H, I (Europe, Asia), PAL-M (Brazil), PAL-N (Uruguay, Paraguay) and PAL-NC (Argentina).

**z CN10: TV-Out Connector**

PIN	Description	PIN	Description
1	TVCVB	2	GND
3	GND	4	GND

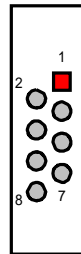


### 3.12 Ethernet Connector

The 3304120 provides one external RJ-45 interface connector. Please refer to the following for its pin information.

**z CN6: RJ-45 Connector**

PIN	Description
1	TX+
2	TX-
3	R/C GND
4	N/C
5	N/C
6	R/C GND
7	RX+
8	RX-

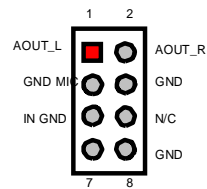


### 3.13 Audio Connectors

The 3304120 has an onboard AC97 3D audio interface. The following tables list the pin assignments of the MIC In/Audio Out and Line in connectors.

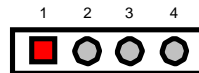
#### z JP1: MIC In/Audio Out Connector

PIN	Description	PIN	Description
1	AOUTL	2	AOUTR
3	GND	4	GND
5	MIC IN	6	N/C
7	GND	8	GND



#### z J1: Line In Connector

PIN	Description
1	Line In_R
2	GND
3	GND
4	Line In_L

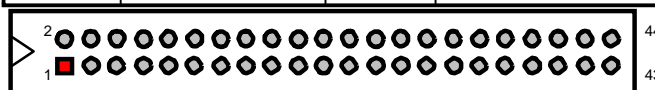


### 3.14 PCI E-IDE Drive Connector

CN13 is a standard 44-pin 2.0mm pitch connector daisy-chain driver connector serves the PCI E-IDE drive provisions onboard the 3304120. A maximum of two ATA/33/66/100 IDE drives can be connected to the 3304120 via CN13.

**z CN13: IDE Connector**

PIN	Description	PIN	Description
1	Reset	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	N/C
21	PDREQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	PIORDY	28	470Ω with GND
29	RPDACK-	30	GND
31	Interrupt	32	N/C
33	RPDA1-	34	PD33/66
35	RPDA0-	36	PDA2
37	RPCS1-	38	PDCS3#
39	HDD Active	40	GND
41	VCC	42	VCC
43	GND	44	N/C

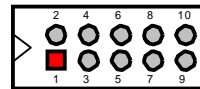


### 3.15 Serial Port Connectors

The 3304120 offers two W83697UF compatible UARTs with Read/Receive 16-byte FIFO serial ports and four internal 10-pin connectors.

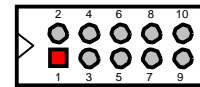
#### z CN8: COM1 Connector (5x2 Header)

PIN	Description	PIN	Description
1	DCD1	2	DSR1
3	RXD1	4	RTX1
5	TXD1	6	CTX1
7	DTR1	8	RI1
9	GND	10	N/C



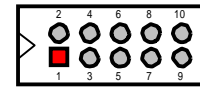
#### z CN9: COM2 Connector (5x2 Header)

PIN	Description	PIN	Description
1	DCD2	2	DSR2
3	RXD2	4	RTX2
5	TXD2	6	CTX2
7	DTR2	8	RI2
9	GND	10	N/C



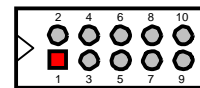
#### z CN12: COM3 Connector (5x2 Header)

PIN	Description	PIN	Description
1	DCD3	2	DSR3
3	RXD3	4	RTX3
5	TXD3	6	CTX3
7	DTR3	8	RI3
9	GND	10	N/C



#### z CN11: COM4 Connector (5x2 Header)

PIN	Description	PIN	Description
1	DCD4	2	DSR4
3	RXD4	4	RTX4
5	TXD4	6	CTX4
7	DTR4	8	RI4
9	GND	10	N/C

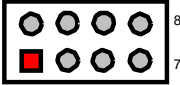


### 3.16 USB Connector

The 3304120 provides two 8-pin connectors, at location *J5* and *J6*, for four USB2.0 connections to the 3304120.

#### z J5/J6: USB Connector

PIN	Description	PIN	Description
1	+5VSUS	2	+5VSUS
3	BD2-/ BD1-	4	BD3-/ BD0-
5	BD2+/ BD1+	6	BD3+/ BD0+
7	GND	8	GND

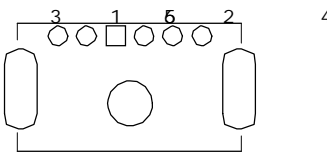


### 3.17 Keyboard/Mouse Connectors

The 3304120 offers *CN5* for an external PS/2 type keyboard and mouse.

#### z CN5: PS/2 6-pin Mini DIN Keyboard and Mouse Connector

PIN	Description
1	Keyboard Data
2	Mouse Data
3	GND
4	+5V
5	Keyboard Clock
6	Mouse Clock



### 3.18 Watchdog Timer

Once the Enable cycle is active, a Refresh cycle is requested before the time-out period. This restarts counting of the WDT period. When the time counting goes over the period preset of WDT, it will assume that the program operation is abnormal. A System Reset signal will re-start when such error happens.

The following sample programs show how to Enable, Disable and Refresh the Watchdog Timer:

```

;-----
; Enter the extended function mode, interruptible double-write
;-----
MOV DX, 4EH
MOV AL, 87H
OUT DX, AL
OUT DX, AL

;-----
; Configure logical device 8, configuration register CRF30
;-----
MOV DX, 4EH
MOV AL, 07H
OUT DX, AL ; point to Logical Device Number Reg.
MOV DX, 4FH
MOV AL, 08H
OUT DX, AL ; select logical device 8

MOV DX, 4EH
MOV AL, 30H
OUT DX, AL ; select CRF30
MOV DX, 4FH
MOV AL, 01H
OUT DX, AL ; update CRF30 with value 01H

MOV DX, 4EH
MOV AL, F3H
OUT DX, AL ; select CRF3 (select WDTO count mode)
MOV DX, 4FH
MOV AL, 00H
OUT DX, AL ; update CRF3 with value 00H (bit 2:0=second; 1=minute)

MOV DX, 4EH
MOV AL, F4H
OUT DX, AL ; select CRF4 (WDTO Time-out value)
MOV DX, 4FH
MOV AL, 05H
OUT DX, AL ; update CRF4 with value 05H
Bit[7:0] = 00 Time-out Disabled
01 Time-out occurs after 1 second/minute
02 Time-out occurs after 2 second/minute
.
.
ff Time-out occurs after 255 second/minute

```



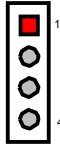
### 3.19 GPIO Connector

The 3304120 offers four general purpose I/O ports with the following capabilities:

- » I2C/SMB Support
- » Thermal Detect
- » Notebook Lid Open/Close Detect
- » Battery Low Detect

#### Z J3: General Purpose Input/Output

PIN	Description
1	GPIO8
2	GPIO9
3	GPIO10
4	GPIO11



### 3.20 Mini PCI Connector

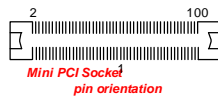
3304120 supports a Mini PCI connector. The peripheral component with standard Type1 Mini PCI can be used. For particular requirements, please refer to our website or contact us.

#### Z PC1: Mini PCI Connector

PIN	Description	PIN	Description
1	INTB#	2	5V
3	3.3V	4	INTA#
5	INTD#	6	INTC#
7	GND	8	N/C
9	CLK	10	RST#
11	GND	12	3.3V
13	REQ0#	14	GNT#
15	3.3V	16	GND
17	AD[31]	18	PME#
19	AD[29]	20	Reserved
21	GND	22	AD[30]
23	AD[27]	24	3.3V
25	AD[25]	26	AD[28]
27	REQ1#	28	AD[26]

. . . More on next page . . .

PIN	Description	PIN	Description
29	C/BE[3]#	30	AD[24]
31	AD[23]	32	IDSEL
33	GND	34	GND
35	AD[21]	36	AD[22]
37	AD[19]	38	AD[20]
39	GND	40	PAR
41	AD[17]	42	AD[18]
43	C/BE[2]#	44	AD[16]
45	IRDY#	46	GND
47	3.3V	48	FRAME#
49	N/C	50	TRDY#
51	SERR#	52	STOP#
53	GND	54	3.3V
55	PERR#	56	DEVSEL#
57	C/BE[1]#	58	GND
59	AD[14]	60	AD[15]
61	GND	62	AD[13]
63	AD[12]	64	AD[11]
65	AD[10]	66	GND
67	GND	68	AD[9]
69	AD[8]	70	C/BE[0]#
71	AD[7]	72	3.3V
73	3.3V	74	AD[6]
75	AD[5]	76	AD[4]
77	REQ2#	78	AD[2]
79	AD[3]	80	AD[0]
81	5V	82	GNT2#
83	AD[1]	84	GNT3#
85	GND	86	GND
87	N/C	88	N/C
89	N/C	90	N/C
91	N/C	92	N/C
93	N/C	94	N/C
95	N/C	96	REQ3#
97	N/C	98	GND
99	N/C	100	N/C



99

### 3.21 CompactFlash™ Connector

The 3304120 also offers an optional CompactFlash™ connector which is IDE interface located at the solder side of the board (beneath the SO-DIMM connector). The designated *CN14* connector, once soldered with an adapter, can hold CompactFlash™ cards of various sizes. Please turn off the power before inserting the CD card.

#### Z CN14: CompactFlash Connector

PIN	Description	PIN	Description
1	GND	26	N/C
2	SDD3	27	SDD11
3	SDD4	28	SDD12
4	SDD5	29	SDD13
5	SDD6	30	SDD14
6	SDD7	31	SDD15
7	-SDCS1	32	-SDCS3
8	GND	33	N/C
9	GND	34	-SDIOR
10	GND	35	-SDIOW
11	GND	36	4.7KΩ pull to VCC
12	GND	37	IRQ15
13	VCC	38	VCC
14	GND	39	N/C
15	GND	40	N/C
16	GND	41	10KΩ pull to VCC
17	GND	42	SHDRDY
18	SDA2	43	SDDACK
19	SDA1	44	SDDREQ
20	SDA0	45	HDD LED
21	SDD0	46	4.7KΩ pull to VCC
22	SDD1	47	SDD8
23	SDD2	48	SDD9
24	470Ω pull to GND	49	SDD10
25	N/C	50	GND

Inserting a CompactFlash™ card into the adapter is not a difficult task. The socket and card are both keyed and there is only one direction for the card to be completely inserted. Refer to the diagram on the following page for the traditional way of inserting the card.

## 3.22 PCMCIA Connector

3304120 built-in two CardBus/PCMCIA interface connectors.

### z U32: PCMCIA Connector

PIN	Description	PIN	Description
1	GND	2	CAD0
3	CAD1	4	CAD3
5	CAD5	6	CAD7
7	CCBE0	8	CAD9
9	CAD12	10	CAD12
11	CAD14	12	CCBE1
13	CPAR	14	CPERR
15	CGNT	16	IRQ*INT
17	VCC	18	VPP1
19	CCLK	20	CIRDY
21	CCBE2	22	CAD18
23	CAD20	24	CAD21
25	CAD22	26	CAD23
27	CAD24	28	CAD25
29	CAD26	30	CAD27
31	CAD29	32	RFU
33	CKRUN	34	GND
35	GND	36	CCD1
37	CAD2	38	CAD4
39	CAD6	40	RFU
41	CAD8	42	CAD10
43	CVS1	44	CAD13
45	CAD15	46	CAD16
47	RFU	48	CBLOCK
49	CSTOP	50	CDEVSEL
51	VCC	52	VPP2
53	CTDRY	54	CFRAME
55	CAD17	56	CAD19
57	CVS2	58	CRST
59	CSERR	60	CREQ
61	CCBE3	62	CAUDIO
63	STSCHG-C*	64	CAD28
65	CAD30	66	CAD31
67	CCD2	68	GND

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## Chapter 4

### AMI BIOS Setup

The 3304120 uses AMI BIOS for the system configuration. The AMI BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options that could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

#### 4.1 Starting Setup

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

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

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

**Press DEL to enter SETUP.**

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will be asked to...

**PRESS F1 TO CONTINUE, DEL TO ENTER SETUP**

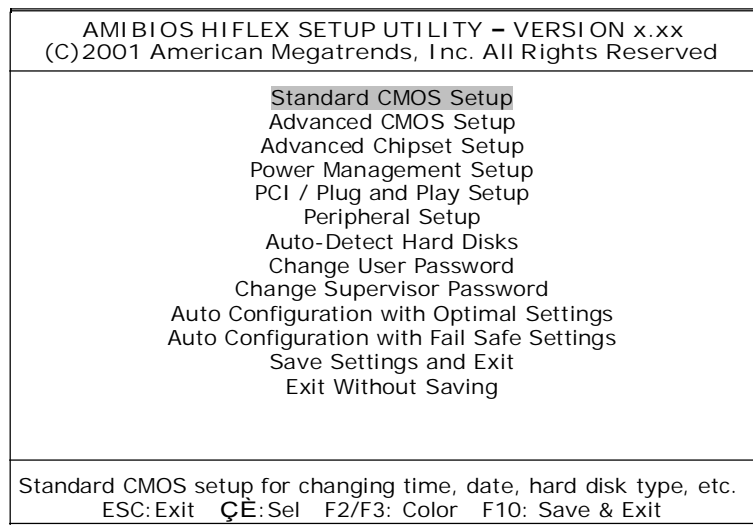
## 4.2 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the <PageUp> and <PageDown> keys to change entries, and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

↑	Move to previous item
↓	Move to next item
←	Move to previous item
→	Move to previous item
<b>Esc key</b>	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
<b>PgUp key</b>	Decrease the numeric value or make changes
<b>PgDn key</b>	Increase the numeric value or make changes
<b>+ key</b>	Increase the numeric value or make changes
<b>- key</b>	Decrease the numeric value or make changes
<b>F1 key</b>	Reserved
<b>F2 key</b>	Change color from total 8 colors. F2 to select color forward
<b>F3 key</b>	F2 to select color backward
<b>F4 key</b>	Reserved
<b>F5 key</b>	Reserved
<b>F6 key</b>	Reserved
<b>F7 key</b>	Reserved
<b>F8 key</b>	Reserved
<b>F9 key</b>	Reserved
<b>F10 key</b>	Save all the CMOS changes, only for Main Menu

### 4.3 Main Menu

Once you enter the AMI BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to enter the sub-menu.



**NOTE:** *A brief description of the highlighted choice appears at the bottom of the screen.*



## 4.4 Standard CMOS Setup

The Standard Setup is used for the basic hardware system configuration. The main function is for Data/Time and Floppy/Hard Disk Drive settings. Please refer to the following screen for the setup. When the capacity of the IDE hard disk drive is larger than 528MB, you must set the HDD mode to **LBA** mode. Please use the IDE Setup Utility in BIOS SETUP to install the HDD correctly.

AMIBIOS SETUP – STANDARD CMOS SETUP (C)2001 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yyyy)	: Sun Mar 01, 2099				Base Memory :	639KB				
Time (hh/mm/ss)	: 19:04:12				Extd Memory :	55MB				
e										
	Type	Size	CylIn	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode	32Bit Mode
Pri Master	: Auto									Off
Pri Slave	: Auto									Off
Sec Master	: Auto									Off
Sec Slave	: Auto									Off
Boot Sector Virus Protection			Disabled							
Month:	Jan - Dec				ESC: Exit	☉: Sel				
Day:	01 - 31				PgUp/PgDn: Modify					
Year:	1980 - 2099				F2/F3: Color					

## 4.5 Advanced CMOS Setup

This section allows you to configure your system for the basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

AMI BIOS SETUP – ADVANCED CMOS SETUP (C)2001 American Megatrends, Inc. All Rights Reserved			
Quick Boot	Enabled	S	Available Options: Disabled Enabled
1st Boot Device	Disabled		
2nd Boot Device	Disabled		
3rd Boot Device	Disabled		
Try Other Boot Devices	Yes		
S.M.A.R.T. for Hard Disks	Disabled		
BootUp Num-Lock	On		
PS/2 Mouse Support	Enabled		
Primary Display	VGA/EGA		
Password Check	Setup		
Ask HDD Password on Every Boot	Yes		
Boot To OS/2	No		
CPU MicroCode Updation	Enabled		
CPU Serial Number	Disabled		
L1 Cache	Enabled		
L2 Cache	Enabled		
System BIOS Cacheable	Enabled		
C000,32k Shadow	Cache		
C800,16k Shadow	Disabled		
CC00,16k Shadow	Disabled		
D000,16k Shadow	Disabled		
D400,16k Shadow	Disabled		
D800,16k Shadow	Disabled		
DC00,16k Shadow	Disabled	T	ESC: Exit    ÇÉ: Sel PgUp/PgDn: Modify F2/F3: Color

## 4.6 Advanced Chipset Setup

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and the access to the system memory resources, such as DRAM and the external cache. It also coordinates the communications between the conventional ISA and PCI buses. It must be stated that these items should never be altered. The default settings have been chosen because they provide the best operating conditions for your system. You might consider and make any changes only if you discover that the data has been lost while using your system.

AMIBIOS SETUP – ADVANCED CHIPSET SETUP (C)2001 American Megatrends, Inc. All Rights Reserved		
***** DRAM Timing *****		Available Options:
Configure SDRAM Timing by SPD	Enabled	Disabled
SDRAM Frequency	Auto	Enabled
SDRAM CAS# Latency	2.5	
SDRAM Bank Interleave	Disabled	
SDRAM Command Rate	2T	
Memory Hole	Disabled	
Auto Precharge for TLB/WB	Disabled	
Write Recovery time	2T	
AGP Mode	4x	
AGP Read Synchronization	Disabled	
AGP Fast Write	Disabled	
AGP Comp. Driving	Auto	
Manual AGP Comp. Driving	CB	
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	Enabled	
USB Controller	4 USB Ports	
USB Device Legacy Support	All Device	
V-Link Data 2X Support	Disabled	
		ESC: Exit    ÇÈ: Sel
		PgUp/PgDn: Modify
		F2/F3: Color

## 4.7 Power Management Setup

The Power Management Setup allows user to configure the system for saving energy in a most effective way while operating in a manner consistent with his own style of computer use.

AMIBIOS SETUP – POWER MANAGEMENT SETUP (C)2001 American Megatrends, Inc. All Rights Reserved			
ACPI Aware O/S	Yes	S	Available Options:
ACPI Standby State	S1/POS		No
USB Device Wakeup Function	Enabled		Yes
Re-Call VGA BIOS at S3 Resuming	Enabled		
Power Management / APM	Enabled		
Video Power Down Mode	Suspend		
Hard Disk Power Down Mode	Stand By		
Standby Time Out (Minute)	Disabled		
Suspend Time Out (Minute)	Disabled		
Throttle Slow Clock Ratio	50% - 56.25%		
Display Activity	Ignore		
IRQ3	Monitor		
IRQ4	Monitor		
IRQ5	Ignore		
IRQ7	Monitor		
IRQ9	Ignore		
IRQ10	Ignore		
IRQ11	Ignore		
IRQ13	Ignore		
IRQ14	Monitor		
IRQ15	Ignore		
Power Button Function	On / Off		
Restore on AC/Power Loss	Last State		
Wake-Up Key	Any Key		
Wake-Up Password	N/A		
Resume On PS/2 Mouse	Disabled		
Resume On RTC Alarm	Disabled		
RTC Alarm Date	15		
RTC Alarm Hour	12		ESC: Exit    ÇÈ: Sel
RTC Alarm Minute	30		PgUp/PgDn: Modify
RTC Alarm Second	30	T	F2/F3: Color

## 4.8 PCI / Plug and Play Setup

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system that allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP (C)2001 American Megatrends, Inc. All Rights Reserved		
Plug and Play Aware O/S	No	Available Options:
Clear NVRAM	No	No
OnChip VGA Frame Buffer Size	16MB	Yes
PCI Latency Timer (PCI Clocks)	32	
Primary Graphics Adapter	PCI	
Boot Device Select	CRT	
TV Type	NTSC	
TV Output Connector	Composite	
LCD Panel Type	00	
TV Layout	Default	
Dithering	Disabled	
PCI IDE BusMaster	Disabled	
OffBoard PCI IDE Card	Auto	
OffBoard PCI IDE Primary IRQ	Disabled	
OffBoard PCI IDE Secondary IRQ	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	PCI/PnP	
IRQ4	PCI/PnP	
IRQ5	PCI/PnP	
IRQ7	PCI/PnP	
IRQ9	PCI/PnP	
IRQ10	PCI/PnP	
IRQ11	PCI/PnP	ESC: Exit    ⌘: Sel
IRQ14	PCI/PnP	PgUp/PgDn: Modify
IRQ15	PCI/PnP	F2/F3: Color

## 4.9 Peripheral Setup

The IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship that is determined by the cabling configuration used to attach them to the controller. Your system supports two IDE controllers--a primary and a secondary--so you can install up to four separate hard disks.

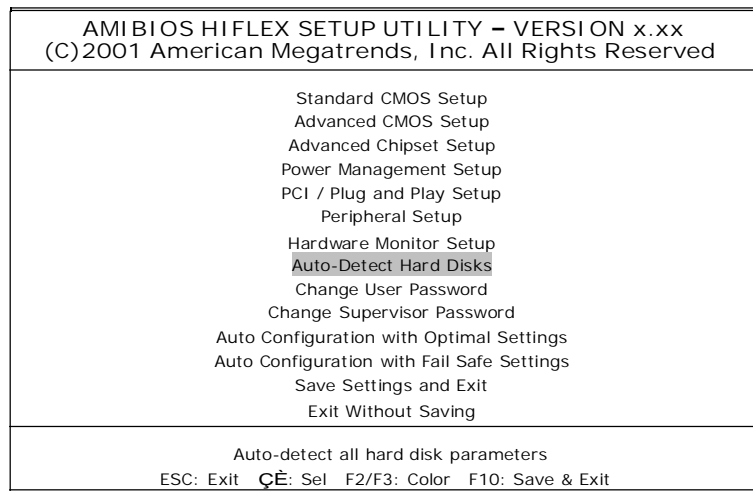
PIO means Programmed Input/Output. Rather than having the BIOS issue a series of commands to affect the transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by them. This is much simpler and more efficient (also faster).

AMIBIOS SETUP – PERIPHERAL SETUP (C)2001 American Megatrends, Inc. All Rights Reserved		
OnBoard Serial Port 1	3F8/COM1	Available Options: Auto Disabled Enabled  ESC: Exit    ⌂: Sel PgUp/PgDn: Modify F2/F3: Color
OnBoard Serial Port 2	2F8/COM2	
Serial Port2 Mode	Normal	
IR Pin Select	IRRX/IRTX	
OnBoard Serial Port3	3E8/COM3	
Serial Port3 IRQ	10	
OnBoard Serial Port4	2E8/COM4	
Serial Port4 IRQ	11	
OnBoard IDE	Both	
OnBoard AC'97 Audio	Enabled	

## 4.10 Auto-Detect Hard Disks

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

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.



## 4.11 Change Supervisor/User Password

<p>AMIBIOS HIFLEX SETUP UTILITY – VERSION x.xx (C)2001 American Megatrends, Inc. All Rights Reserved</p> <p>Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup</p> <p>Enter new supervisor password: _</p> <p>Change Supervisor Password Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving</p> <p>Change the Supervisor Password ESC: Exit   ÇÈ:Sel   F2/F3: Color   F10: Save &amp; Exit</p>
---

You can set either supervisor or user password, or both of them. The differences are:

- z supervisor password:** can enter and change the options of the setup menus.
- z user password:** just can only enter but do not have the right to change the options of the setup menus.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

### ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

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



**PASSWORD DISABLED.**

When a password has been enabled, 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 require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

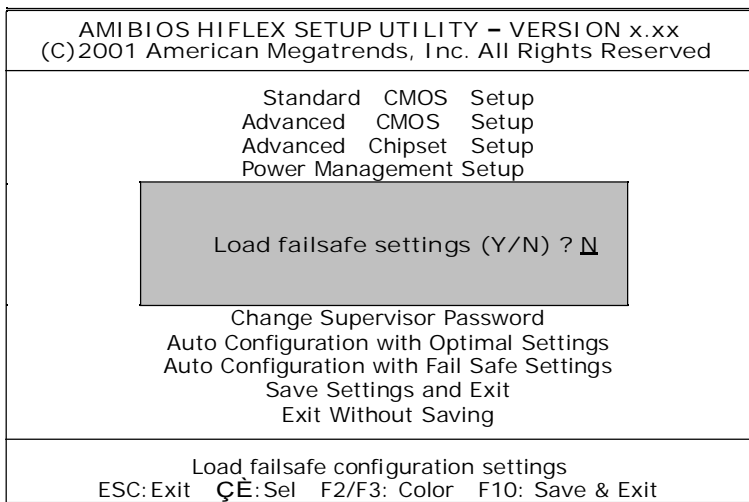
## 4.12 Auto Configuration with Optimal Settings

When you press <Enter> on this item you will get a confirmation dialog box with a message shown below. This option allows you to load/restore the BIOS default values permanently stored in the BIOS ROM. Pressing 'Y' loads the BIOS default values for the most stable.

<p>AMIBIOS HIFLEX SETUP UTILITY – VERSION x.xx (C)2001 American Megatrends, Inc. All Rights Reserved</p>
<p>Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup</p>
<p>Load high performance settings (Y/N) ? <u>N</u></p>
<p>Change Supervisor Password Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving</p>
<p>Load configuration settings giving highest performance ESC:Exit <u>C</u>E:Sel F2/F3: Color F10: Save &amp; Exit</p>

## 4.13 Auto Configuration with Fail Safe Settings

When you press <Enter> on this item you get a confirmation dialog box with a message similar to the figure below. This option allows you to load/restore the default values to your system configuration, optimizing and enabling all high performance features. Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.



## 4.14 Save Settings and Exit

Pressing <Enter> on this item asks for confirmation:

AMIBIOS HIFLEX SETUP UTILITY – VERSION x.xx (C)2001 American Megatrends, Inc. All Rights Reserved
Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup
Save current settings and exit (Y/N) ? <u>Y</u>
Change Supervisor Password Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving
Write the current setting to CMOS and exit ESC:Exit   C:Sel   F2/F3: Color   F10: Save & Exit

Pressing “Y” stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system will be restarted again.

## 4.15 Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

**Quit without saving (Y/N)?** N

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

AMIBIOS HIFLEX SETUP UTILITY – VERSION x.xx (C)2001 American Megatrends, Inc. All Rights Reserved
Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup
<b>Quit without saving (Y/N) ? <u>N</u></b>
Change Supervisor Password Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving
Exit without saving the current setting ESC:Exit <u>C</u> E:Sel F2/F3: Color F10: Save & Exit
Abandon all Data & Exit Setup

Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact with us. We will do our best to support you for your products, projects and business.

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