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User's Manual

5 1/4" Embedded Controller 3302120

Version 1.0, March 2007

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Safety Instructions

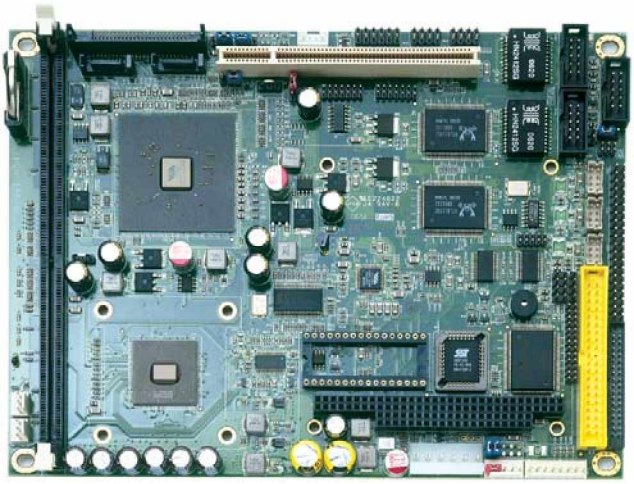
Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- 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 3302120 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 3302120 is a VIA CX700 chipset-based board designed. The 3302120 is an ideal all-in-one embedded engine board. Additional features include an enhanced I/O with CF, CRT/LVDS, TV-Out, dual GB LAN, audio, SATA, 4 COM, USB2.0, and PC/104 interfaces.

Its onboard ATA/33/66/100 to IDE drive interface architecture allows the 3302120 to support data transfers of 33 or 66MB/sec. to one IDE drive connection. Designed with the VIA CX700, the board supports VIA C7 or ULV VIA V4 Eden 600MHz~2.0GHz CPU.

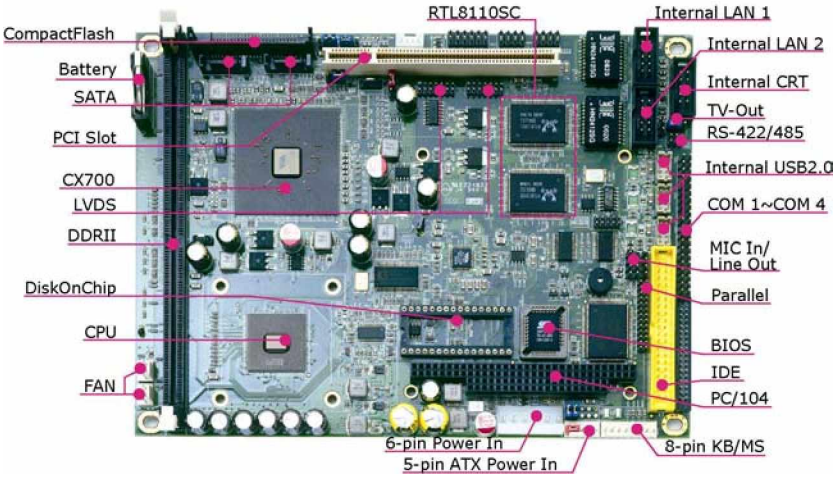
The VIA CX700 with 32/64/128MB shared main memory supporting CRT/Panel displays up to 2048 x 1536. It also supports 24-bit single channel/48-bit dual channel LVDS interface supporting up to 1600 x 1200.

System memory is also sufficient with the one DDRII socket that can support up to 1G.

Additional onboard connectors include an advanced USB2.0 port providing faster data transmission. And two internal 10-pin connectors for 10/100/1000 Based Ethernet uses.

To ensure the reliability in an unmanned or standalone system, the watchdog timer (WDT) onboard 3302120 is designed with software that does not need the arithmetical functions of a real-time clock chip. If any program causes unexpected halts to the system, the onboard WDT will automatically reset the CPU or generate an interrupt to resolve such condition.

1.1 Major Features



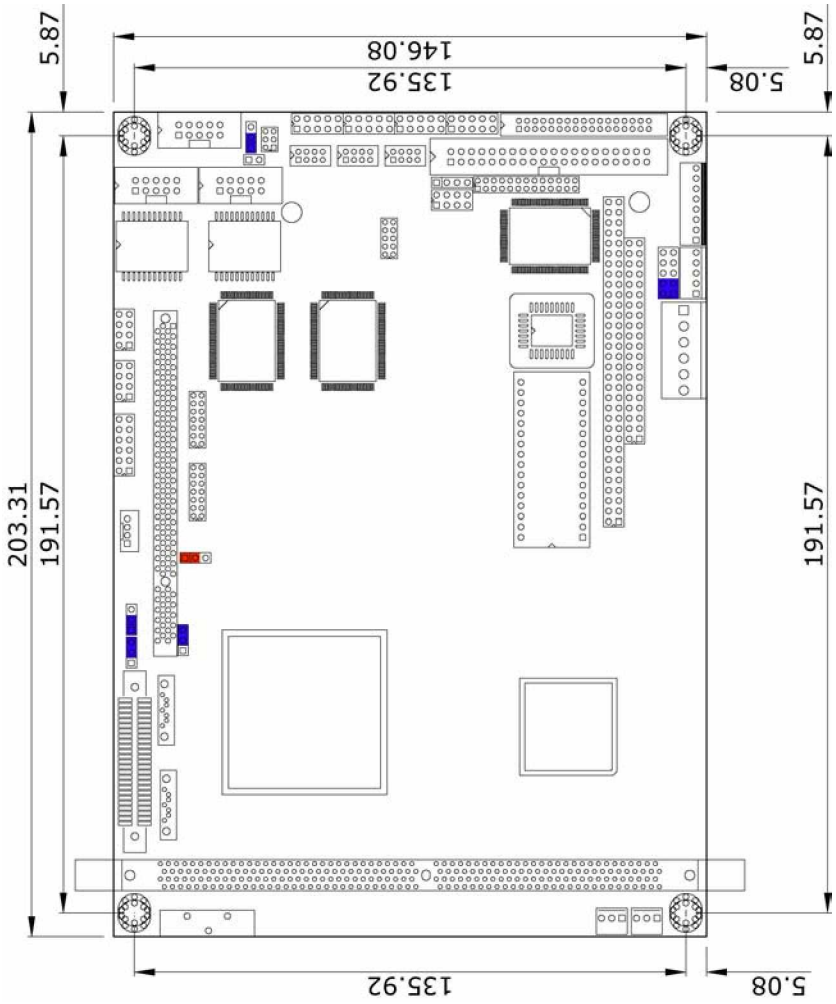
The 3302120 comes with the following features:

- VIA C7 or ULV VIA V4 Eden processor 600MHz~2.0GHz
- One DDRII socket with a max. capacity of 1GB
- VIA CX700 system chipset
- Winbond W83697UF super I/O chipset
- VIA CX700 graphics controller
- 24-bit/48-bit LVDS Panel display interface
- Dual RealTek RTL8110SC Gigabit Ethernet controller
- VIA VT1708A HD audio controller
- VIA CX700 Serial ATA controller
- Fast PCI ATA/33/66/100 IDE controller
- CF card adapter, 4 COM, 6 USB2.0, PC/104
- DOC socket supporting memory sizes of up to 288MB
- TV-Out function
- Hardware Monitor function

1.2 Specifications

- **CPU:** ULV VIA V4 Eden 600MHz/800MHz/1.0GHz processor or VIA C7 1.0/1.5/2.0GHz processor
- **Front Side Bus:** Supports 400MHz FSB
- **Memory:** One DDRII socket supporting up to 1GB
- **Chipset:** VIA CX700
- **I/O Chipset:** Winbond W83697UF
- **CompactFlash:** One, Type I/II IDE interface adapter
- **PCI Slot:** One standard PCI slot
- **8-bit I/O:** 8-bit input/output (parallel port)
- **VGA:** VIA CX700 with 32/64/128MB shared main memory supporting CRT/Panel displays up to 2048 x 1536
- **LVDS Panel:** Supports 24-bit single channel/48-bit dual channel LVDS interface up to 1600 x 1200
- **TV-Out:** Supports PAL or NTSC TV systems
- **Ethernet:** Dual RealTek RTL8110SC 10/100/1000 Based LAN
- **Audio:** VIA VT1708A HD audio controller
- **Serial ATA:** VIA CX700 controller and with two ports supporting a transfer rate up to 150MB/sec.
- **IDE:** One 2.54-pitch 40-pin IDE connector
- **Parallel:** One enhanced bi-directional parallel port supporting SPP/ECP/EPP (for PCB v0.3 or above)
- **Serial Port:** 16C550 UART-compatible RS-232/422/485 x 1 and RS-232 x 3 serial ports with 16-byte FIFO
- **PC/104:** PC/104 Bus connector for 16-bit ISA Bus
- **USB:** 6 internal USB2.0 ports
- **Keyboard/Mouse:** 8-pin connector
- **DiskOnChip:** DiskOnChip socket supporting memory sizes of up to 288MB
- **BIOS:** AMI PnP Flash BIOS
- **Watchdog Timer:** Software programmable time-out intervals from 1~256 sec.
- **CMOS:** Battery backup
- **Hardware Monitor:** Winbond W83L784 (only for PCB v0.3 or above)
- **Board Size:** 20.3(L) x 14.6(W) cm

1.3 Board Dimensions



Chapter 2

Unpacking

2.1 Opening the Delivery Package

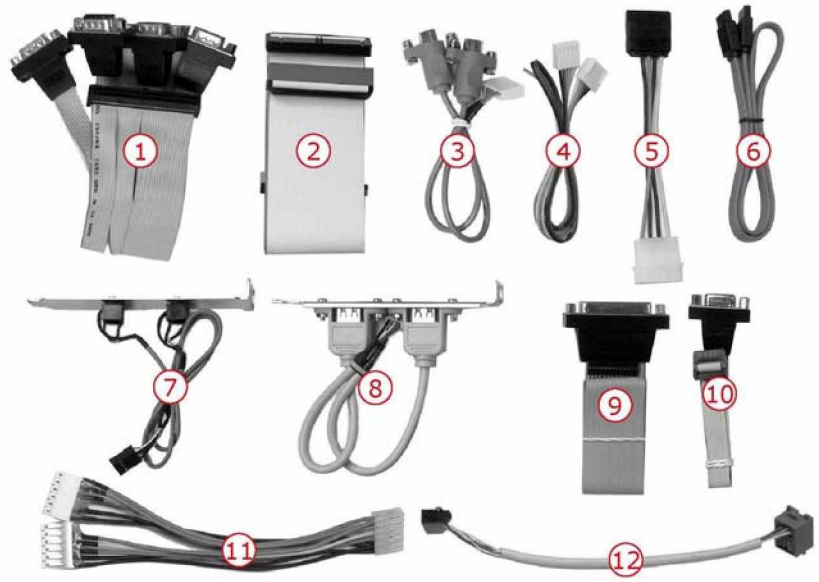
The 3302120 is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

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 3302120 delivery package contains the following items:

- 3302120 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 COM flat cable x 1
2	IDE flat cable x 1
3	Keyboard/Mouse transfer cable x 1
4	5-pin power cable x 1
5	SATA power cable x 1
6	SATA cable x 1
7	Audio cable x 1
8	2 USB cable with bracket x 1
9	Parallel flat cable x 1
10	10-pin to 15-pin CRT cable x 1
11	6-pin to P8&P9 power cable x 1
12	10-pin to RJ-45 cable x 2

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

Hardware Installation

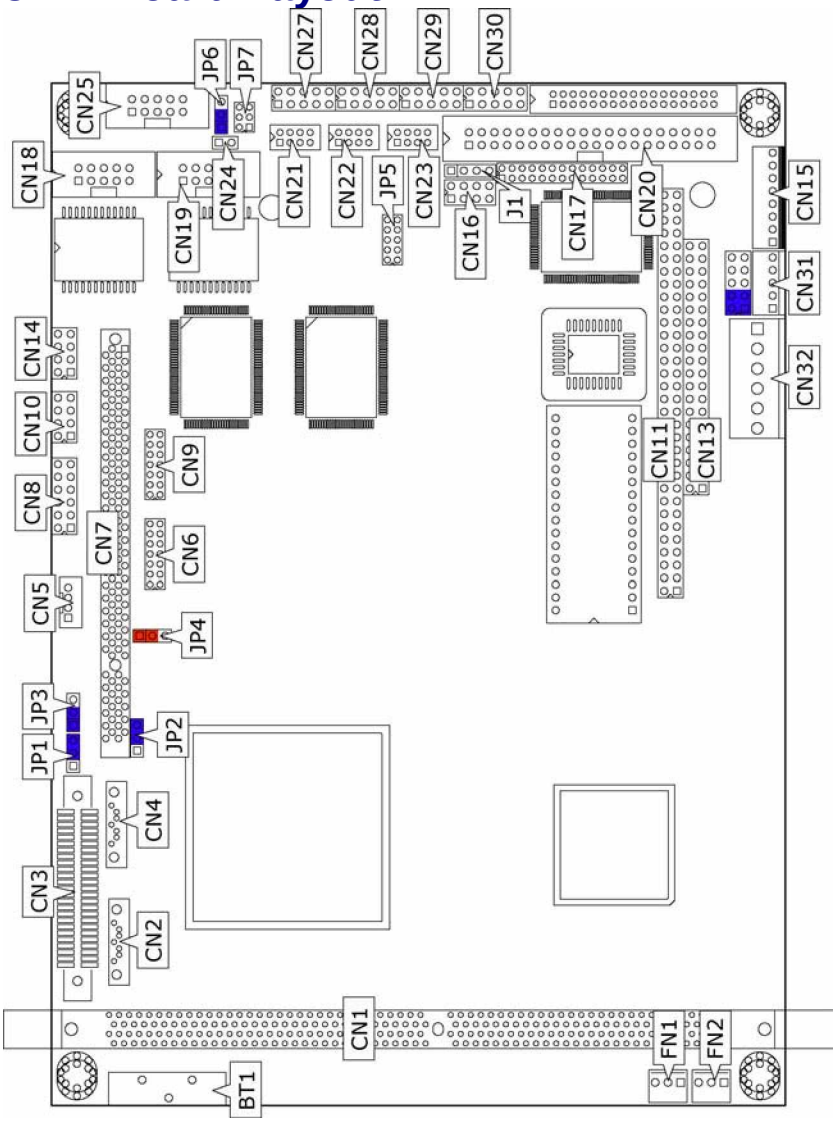
This chapter provides the information on how to install the hardware using the 3302120. This chapter also contains information related to jumper settings of switch, and watchdog timer selection etc.

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. (JP3 short 1-2)
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
JP1	Display Out Function Select: *CRT*	Short 2-3	19
JP6		Short 1-2	19
JP2	CF Use Master/Slave Select: *Slave*	Short 2-3	22
JP3	Clear CMOS: *Normal Operation*	Short 1-2	16
JP4	Panel Voltage Select: *+3.3V*	Short 1-2	10
JP5	COM4 Use RS-232 or RS-422/485 Select: *RS-232*	Open	13
JP9	DOC Address Select: *D000*	Short 1-2	24

3.4 Connector List

Connector	Definition	Page
CN1	DDRII Socket	10
CN2/CN4	Serial ATA Connector	12
CN3	CompactFlash Connector	22
CN5	Inverter Power In Connector	10
CN6/CN9	LVDS Panel Connector	10
CN7	Standard PCI Slot	---
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CN15	8-pin KB/MS Connector	17
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CN18/CN19	Internal LAN Connector (5x2 header)	15
CN20	IDE Connector	11
CN21/CN22/CN23	Internal USB2.0 Port	15
CN24	TV-Out Connector	19
CN25	Internal CRT Connector (5x2 header)	10
CN27~CN30	COM 1~COM 4 Connector (5x2 header)	13
CN31	5-pin ATX Power In Connector	16
CN32	6-pin Power In Connector	16
FN1~FN2	Fan Power In Connector	16
J1	4-pin Line In Connector	22
JP7	RS-422/485 Connector	13

3.5 Configuring the CPU

The 3302120 embedded with ULV VIA V4 Eden 600MHz/800MHz/ 1GHz or VIA C7 1.0/1.5/2.0GHz CPU. User don't need to adjust the frequently and check speed of CPU.

3.6 System Memory

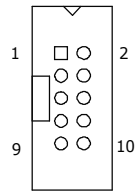
The 3302120 provides one DDRII socket at locations *CN1*. The maximum capacity of the onboard memory is 1GB.

3.7 VGA Controller

The 3302120 provides two connection methods of a VGA device. *CN25* offers an internal 10-pin CRT connector and *CN6/CN9* are the LVDS interface connectors onboard reserved for flat panel installation.

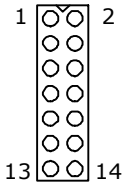
z CN25: Internal CRT Connector (5x2 header)

PIN	Description	PIN	Description
1	RED	2	GND
3	GREEN	4	GND
5	BLUE	6	GND
7	HSYNC	8	SDA
9	VSYNC	10	SDC



z CN6/CN9: LVDS Interface Connector

PIN	Description	PIN	Description
1	V_{LCD}	2	V_{LCD}
3	GND	4	GND
5	A0-/B0-	6	A0+/B0+
7	A1-/B1-	8	A1+/B1+
9	A2-/B2-	10	A2+/B2+
11	CLK1-/CLK2-	12	CLK1+/CLK2+
13	A3-/B3-	14	A3+/B3+



NOTE: *LVDS cable should be produced very carefully. A0- & A0+ have to be fabricated in twister pair (A1- & A1+, A2- & A2+ and so on) otherwise the signal won't be stable. Please set the proper voltage of your panel using JP4 before proceeding on installing it.*

z CN5: Inverter Power In Connector

PIN	Description
1	+12V
2	+12V
3	BK_EN
4	GND

NOTE: *If use CN6 only, it just supports 24-bit single channel LVDS panel; If you want to use 48-bit dual channel LVDS panel, please use CN6 and CN9 combined.*

The 3302120 has an onboard jumper that selects the working voltage of the flat panel connected to the system. Jumper *JP4* offers two voltage settings for the user.

z JP4: Panel Voltage Select

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

3.8 PCI E-IDE Drive Connector

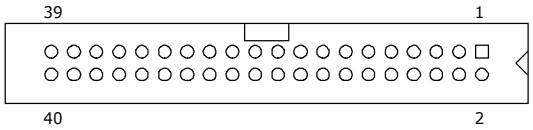
CN20 is a standard 2.54-pitch 40-pin connector daisy-chain driver connector serves the PCI E-IDE drive provisions onboard the 3302120. A maximum of two ATA/33/66 IDE drives can be connected to the 3302120 via *CN20*.

z CN20: 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

...MORE ON NEXT PAGE...

PIN	Description	PIN	Description
25	IOR#	26	GND
27	PIORDY	28	PR1PD1-
29	RPDACK-	30	GND
31	Interrupt	32	N/C
33	RPDA1-	34	PATA66
35	RPDA0-	36	RPDA2-
37	RPCS1-	38	RPCS3-
39	HDD Active	40	GND

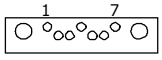


3.9 Serial ATA Connector

You can connect the Serial ATA device that provides you high speeds transfer rates (150MB/sec.). If you wish to use RAID function, please note that these two serial ATA connectors just support RAID0 and only compatible with WIN XP.

z CN2/CN4: Serial ATA Connector

PIN	Description
1	GND
2	SATATXP
3	SATATXN
4	GND
5	SATARXN
6	SATARXP
7	GND

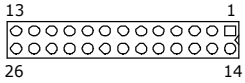


3.10 Parallel Connector

CN17 is a standard 26-pin flat cable connector designed to accommodate onboard parallel port connection.

z CN17: Parallel Connector

PIN	Description	PIN	Description
1	Strobe	14	Auto From Feed
2	DATA0	15	ERROR#
3	DATA1	16	Initialize
4	DATA2	17	Printer Select LN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	Acknowledge	23	GND
11	Busy	24	GND
12	Paper Empty	25	GND
13	Printer Select	26	GND



3.11 Serial Port Connectors

The 3302120 offers NS16C550 compatible UARTs with Read/ Receive 16-byte FIFO serial ports and four internal 10-pin headers and one RS-422/485 connector.

z CN27~CN30: COM 1~COM 4 Connector (5x2 Header)

PIN	Description	PIN	Description
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	N/C

z JP7: RS-422/485 Connector (3x2 Header, COM4)

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

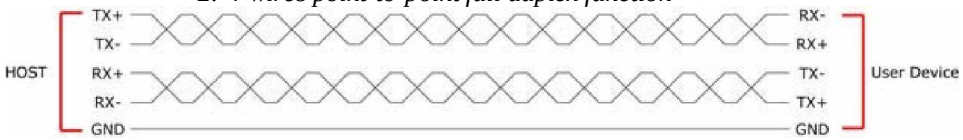
NOTE: *The terminal resistance of RX & TX is set at 180Ω.*

z JP5: COM 2 use RS-232 or RS-422/485 Select

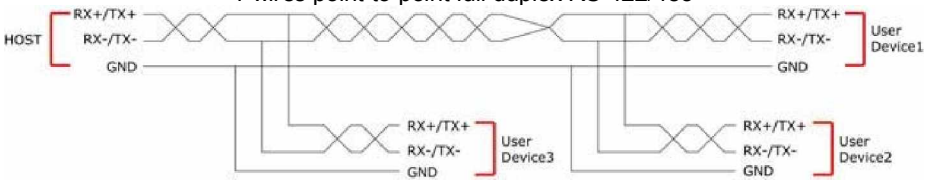
Options	Settings
RS-232 (default)	Open
RS-485 by Auto (*1)	Short 1-2, 3-4, 5-7, 8-10
RS-485 by –RTS (*-1)	Short 1-2, 3-4, 7-9, 8-10
RS-422/485 Full Duplex (*2)	Short 1-2, 3-4, 6-8

NOTE: **1: 2-wires RS-485 function*

**2: 4-wires point-to-point full duplex function*



4-wires point-to-point full duplex RS-422/485



Typical RS-485 2-wires Mutildrop Network

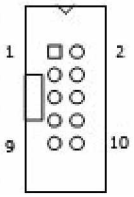
3.12 Ethernet Connector

The 3302120 provides two 5x2 connectors for 10/100/1000 Based LAN. Please refer to the following for its pin information.

When installs OS, this driver namely can automatically install. User does not need to renewal.

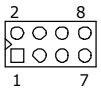
z CN18/CN19: Internal LAN Connector

PIN	Description	PIN	Description
1	N/C	2	N/C
3	TMDI0_1+/TMDI0_2+	4	TMDI0_1-/TMDI0_2-
5	TMDI1_1+/TMDI1_2+	5	TMDI1_1-/TMDI1_2-
7	TMDI2_1+/TMDI2_2+	8	TMDI2_1-/TMDI2_2-
9	TMDI3_1+/TMDI3_2+	10	TMDI3_1-/TMDI3_2-



z CN10/CN14: External LAN LED Connector

PIN	Description	PIN	Description
1	LED0_1A/LED0_2A	2	+3.3V
3	LED1_1A/LED1_2A	4	+3.3V
5	LED2_1A/LED2_2A	5	+3.3V
7	LED3_1A/LED3_2A	8	+3.3V

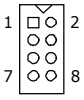


3.13 USB Connector

The 3302120 provides three 8-pin connectors, at location *CN21~CN23*, for six USB2.0 ports.

z CN21/CN22/CN23: Internal USB2.0 Connector

PIN	Description	PIN	Description
1	VCC	2	VCC
3	USBD0- USBD2- USBD4-	4	USBD1- USBD3- USBD5-
5	USBD0+ USBD2+ USBD4+	6	USBD1+ USBD3+ USBD5+
7	GND	8	GND



3.14 CMOS Data Clear

The 3302120 has a Clear CMOS jumper on *JP3.*

z JP3: Clear CMOS

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

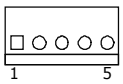
IMPORTANT: *Before you turn on the power of your system, please set JP3 to Short 1-2 for normal operation.*

3.15 Power and Fan Connectors

3302120 provides one 5-pin ATX power in at *CN31*, one 6-pin power in at *CN32*. Connector *FN1~FN2* onboard 3302120 is a 3-pin fan power output connector. And 3302120 supports +12V Fan only.

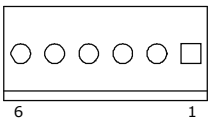
z CN31: 5-pin ATX Power In Connector

PIN	Description
1	VCC
2	5VSB
3	+12V
4	PS_ON
5	GND



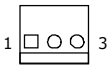
z CN32: 6-pin Power In Connector

PIN	Description
1	GND
2	GND
3	-12V
4	+12V
5	VCC
6	VCC



z FN1/FN2: Fan Power In Connector

PIN	Description
1	GND
2	+12V
3	N/C

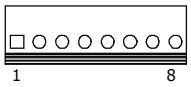


3.16 Keyboard/Mouse Connectors

The *CN15* is a 8-pin KB/MS connector for 3302120.

z CN15: 8-pin Keyboard/Mouse Connector

PIN	Description
1	GND
2	VCC
3	MS Data
4	MS CLK
5	GND
6	VCC
7	KB Data
8	KB CLK



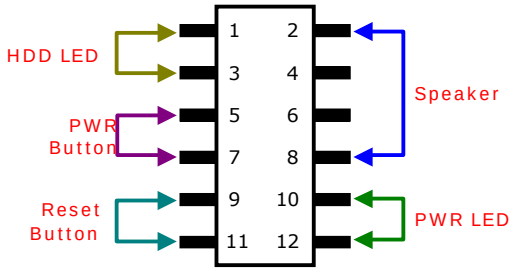
3.17 System Front Panel Control

The 3302120 has front panel control at location *CN8* that indicates the power-on status.

z CN8: System Front Panel Control

PIN	Description	PIN	Description
1	330Ω pull VCC	2	Speaker
3	HDD LED	4	N/C
5	PWR Button	6	GND
7	GND	8	330Ω pull VCC
9	Reset Switch	10	330Ω pull VCC
11	GND	12	GND

Connector CN8 Orientation



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 reset system signal will restart when such error happens.

3.19 TV-Out Function

The 3302120 can support TV-out function whose 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 CN24: TV-Out Connector

PIN	Description
1	CVBS
2	GND

z JP1/JP6: Display Out Function Select

Options	Settings	
	JP1	JP6
TV-Out	Short 1-2	Short 2-3
CRT (default)	Short 2-3	Short 1-2

3.20 PC/104 Connectors

The PC/104 expansion bus offers provisions to connect all types of PC/104 modules. With the PC/104 bus being known as the new generation of industrial embedded 16-bit PC standard bus, thousands of PC/104 modules from multiple venders can be easily installed onboard. The detailed pin assignment of the PC/104 expansion bus connectors *CN11* and *CN13* are listed on the following tables:

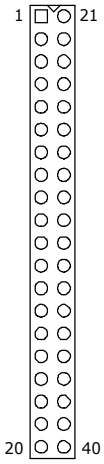
NOTE1: *The PC/104 connector allows direct plugging or stack-through piling of PC/104 modules without requiring the PC/104 mounting kit.*

NOTE2: *PC/104 Bus connector only for 16-bit ISA Bus, DO NOT support DMA mode.*

z CN13: PC/104 40-pin Connector

PIN	Description	PIN	Description
1	GND	21	GND
2	MEMCS16#	22	SBHE#
3	IOSC16#	23	LA23
4	IRQ10	24	LA22
5	IRQ11	25	LA21
6	IRQ12	26	LA20
7	IRQ15	27	LA19
8	IRQ14	28	LA18
9	DACK0#	29	LA17
10	DRQ0#	30	MEMR#
11	DACK5#	31	MEMW#
12	DRQ5#	32	SD8
13	DACK6#	33	SD9
14	DRQ6#	34	SD10
15	DACK7#	35	SD11
16	DRQ7#	36	SD12
17	+5V	37	SD13
18	MASTER#	38	SD14
19	GND	39	SD15
20	GND	40	N/C

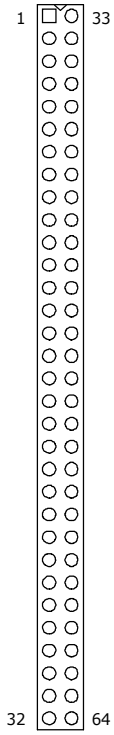
Connector diagram rotated 90 degrees clockwise from original position



z CN11: PC/104 64-pin Connector

PIN	Description	PIN	Description
1	IOCHECK#	33	GND
2	SD7	34	RESETDRV
3	SD6	35	+5V
4	SD5	36	IRQ9
5	SD4	37	N/C
6	SD3	38	DRQ2
7	SD2	39	-12V
8	SD1	40	0WS#
9	SD0	41	+12V
10	IOCHRDY	42	GND
11	AEN	43	SMEMW#
12	SA19	44	SMEMR#
13	SA18	45	IOW#
14	SA17	46	IOR#
15	SA16	47	DACK3#
16	SA15	48	DRQ3#
17	SA14	49	DACK1#
18	SA13	50	DRQ1#
19	SA12	51	REFRESH#
20	SA11	52	SYSCLK
21	SA10	53	IRQ7
22	SA9	54	SLPBTN
23	SA8	55	IRQ5
24	SA7	56	IRQ4
25	SA6	57	IRQ3
26	SA5	58	DACK2#
27	SA4	59	TC
28	SA3	60	BALE
29	SA2	61	+5V
30	SA1	62	OSC
31	SA0	63	GND
32	GND	64	GND

Connector diagram rotated 90 degrees clockwise from original position



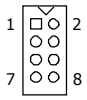
3.21 Audio Connectors

The 3302120 has an onboard VIA VT1708A High Definition Audio CODEC. The following tables list the pin assignments of the Line In/Audio Out connector.

- 4 stereo DACs support 24-bit, 192KHz samples
- DAC with 100dB S/N Ratio
- 2 stereo ADCs support 24-bit, 192KHz samples
- ADC with 95dB S/N ratio
- 8-channels of DAC support 16/20/24-bit PCM format for 7.1 audio solution

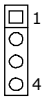
CN16: MIC In/Line Out Connector

PIN	Description	PIN	Description
1	AOUTL	2	AOUTR
3	GND	4	GND
5	MIC IN L	6	MIC IN R
7	GND	8	GND



J1: 4-pin Line In Connector

PIN	Description
1	LINE_R
2	GND
3	GND
4	LINE_L



3.22 CompactFlash Connector

The 3302120 also offers a Type I/II CompactFlash connector is IDE interface located at the solder side of the board (beneath the SO-DIMM connector). The designated *CN3* connector, once soldered with an adapter, can hold CompactFlash cards of various sizes. Please turn off the power before inserting the CF card.

z CN3: CompactFlash Connector

PIN	Description	PIN	Description
1	GND	2	DATA3
3	DATA4	4	DATA5
5	DATA6	6	DATA7
7	SDCS1#	8	GND
9	GND	10	GND
11	GND	12	GND
13	VCC	14	GND
15	GND	16	GND
17	GND	18	SDA2
19	SDA1	20	SDA0
21	DATA0	22	DATA1
23	DATA2	24	470Ω pull GND
25	N/C	26	N/C
27	DATA11	28	DATA12
29	DATA13	30	DATA14
31	DATA15	32	SDCS3#
33	N/C	34	UOR
35	IOW	36	EWE0
37	IRQ	38	VCC
39	CS	40	N/C
41	RESET	42	IORDY
43	DACK	44	REQ
45	IDE LED	46	PDIAG
47	DATA8	48	DATA9
49	DATA10	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.

z JP2: CF Use Master/Slave Select

Options	Setting
Master	Short 1-2
Slave (default)	Short 2-3

NOTE: *When use CF card, IDE device function will be disabled.*

3.23 DiskOnChip™ Address Setting

The DOC function allows the system to boot or operate without a FDD or a HDD. DOC modules may be formatted as drive C or A. With DOC, user may also execute DOS commands such as FORMAT, SYS, COPY, XCOPY, DISCOPY and DISKCOMP etc.

The U11 location onboard the 3302120 is the DOC module socket. Jumper *JP9* assigns the address setting of the installed module. Setting the 4-pins of *JP9* allows you to select the starting memory devices in the system, please set both at different memory address mapping to avoid the mapping area conflicts.

z JP9(1-4): DOC Address Select

Options	Settings
D000 (default)	Short 1-2
D800	Short 3-4

Chapter 4

AMI BIOS Setup

The 3302120 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

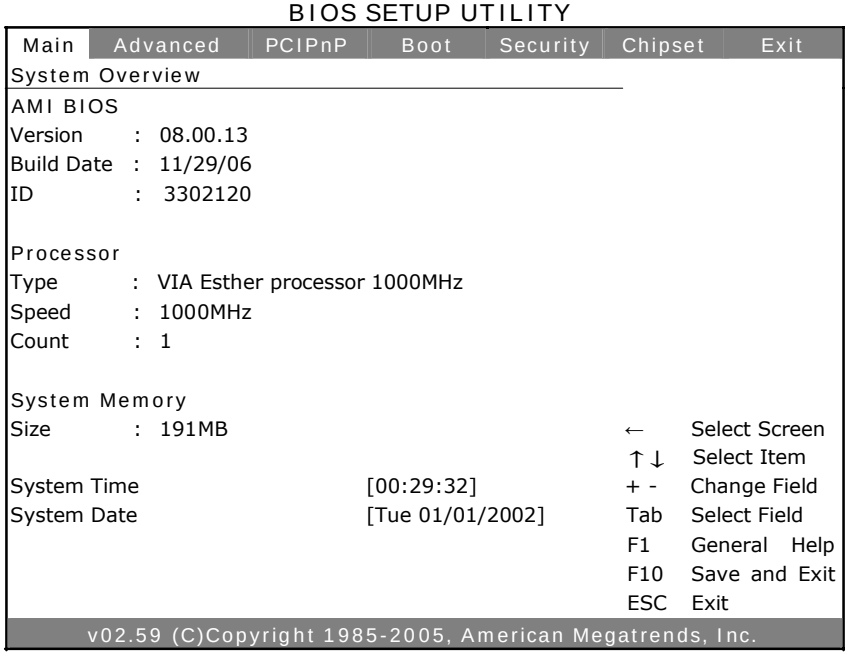
4.2 Using Setup

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
Esc key	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
PgUp key	Decrease the numeric value or make changes
PgDn key	Increase the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	Reserved
F2 key	Change color from total 8 colors. F2 to select color forward
F3 key	F2 to select color backward
F4 key	Reserved
F5 key	Reserved
F6 key	Reserved
F7 key	Reserved
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

4.3 Main Menu

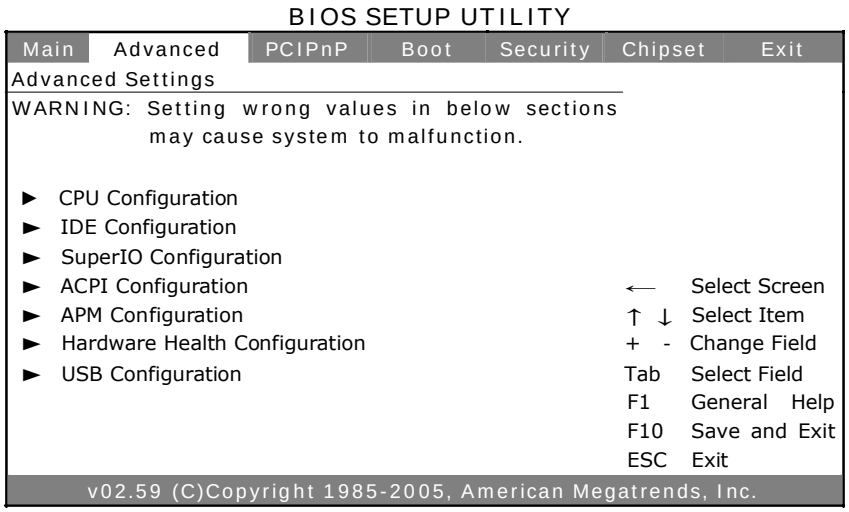
Once you enter the AMI BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to enter the sub-menu.

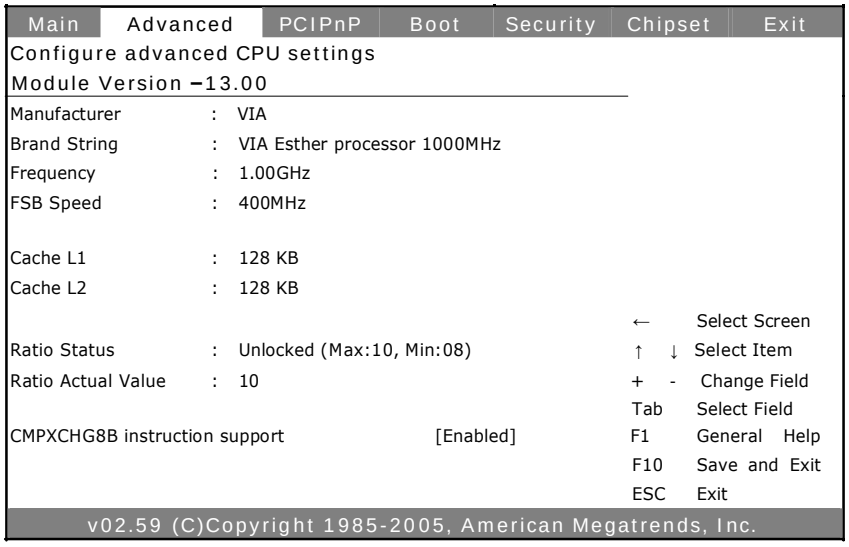


NOTE: *A brief description of the highlighted choice appears at the bottom of the screen.*

4.4 Advanced Settings

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.





BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

IDE Configuration

Parallel ATA IDE device

► Primary IDE Master	:	[Not Detected]
► Primary IDE Slave	:	[Not Detected]
► Secondary IDE Master	:	[Not Detected]
► Secondary IDE Slave	:	[Not Detected]

Parallel ATA IDE Controller	[Both]	
Hard Disk Write Protect	[Disabled]	← Select Screen
IDE Detect Time Out (Sec)	[35]	↑ ↓ Select Item
ATA(PI) 80Pin Cable Detection	[Host]	+ - Change Field
		Tab Select Field F1
		General Help
		F10 Save and Exit
		ESC Exit

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BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Configure WIN697UF Super IO Chipset

Serial Port1 Address	[3F8/IRQ4]	
Serial Port2 Address	[2F8/IRQ3]	
Serial Port3 Address	[3E8]	
Serial Port3 IRQ Select	[IRQ11]	
Serial Port4 Address	[2E8]	
Serial Port4 IRQ Select	[IRQ10]	← Select Screen
Parallel Port Address	[378]	↑ ↓ Select Item
Parallel Port Mode	[Normal]	+ - Change Field
Parallel Port IRQ	[IRQ7]	Tab Select Field
		F1 General Help
		F10 Save and Exit
		ESC Exit

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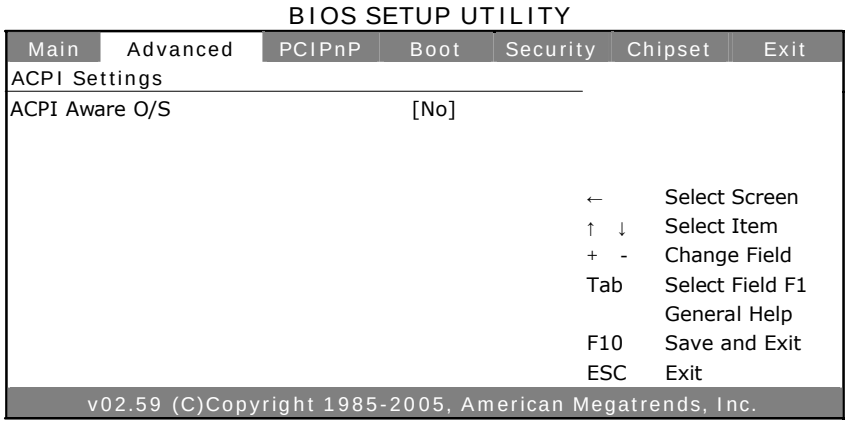
BIOS SETUP UTILITY
Main
Advanced
PCIPnP
Boot
Security
Chipset
Exit
ACPI Settings
ACPI Aware O/S
[No]
← Select Screen
↑ ↓ Select Item
+ - Change Field
Tab Select Field F1
General Help
F10 Save and Exit
ESC Exit
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BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Power Management/APM	[Enabled]		
Power Button Mode	[On/Off]		
Suspend Power Saving Type	[C3]		
Restore on AC/Power Loss	[Last State]		
Manual Throttle Ratio	[50%-56.25%]		
System Thermal	[Disabled]		
Thermal Active Temperature	[65°C/149°F]		
THRM throttle Ratio	[50%-56.25%]		
Standby Time Out	[Disabled]		
Suspend Time Out	[Disabled]		
Hard Disk Time Out (Minute)	[Disabled]		
Green PC Monitor Power State	[Suspend]		
Video Power Down Mode	[Suspend]		
Hard Disk Power Down Mode	[Suspend]		
Advanced Monitor Events Controls			
Display Activity	[Ignore]		
Monitor IRQ3	[Monitor]		
Monitor IRQ4	[Ignore]		
Monitor IRQ5	[Ignore]		
Monitor IRQ7	[Ignore]		
Monitor IRQ9	[Ignore]		
Monitor IRQ10	[Ignore]		
Monitor IRQ11	[Ignore]		
Monitor IRQ13	[Ignore]		
Monitor IRQ14	[Monitor]		
Monitor IRQ15	[Ignore]		
Advanced Resume Events Controls		←	Select Screen
Resume On Ring	[Disabled]	↑ ↓	Select Item
Resume On PME#	[Disabled]	+ -	Change Field
Resume On KBC	[Disabled]	Tab	Select Field
Wake-Up Key	[Any Key]	F1	General Help
Resume On PS/2 Mouse	[Disabled]	F10	Save and Exit
Resume On RTC Alarm	[Disabled]	ESC	Exit

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BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

USB Configuration

Module Version – 2.24.0-11.4

USB Devices Enabled:
None

USB 1.1 Ports Configuration	[USB 6 Ports]		
USB 2.0 Ports Enable	[Enabled]		
Legacy USB Support	[Enabled]	←	Select Screen
USB 2.0 Controller Mode	[FullSpeed]	↑ ↓	Select Item
		+ -	Change Field
		Tab	Select Field F1
			General Help
		F10	Save and Exit
		ESC	Exit

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BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

H/W Health Function	[Enabled]		
CPU Temperature	:		
System Temperature	:		
Fan 1 Reading	:		
Fan 2 Reading	:		
Vcore(VIN1)	:		
+3.3V(VIN2)	:	←	Select Screen
VBAT(VIN3)	:	↑ ↓	Select Item
VCC	:	+ -	Change Field
		Tab	Select Field F1
			General Help
		F10	Save and Exit
		ESC	Exit

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4.5 Advanced PCI/PnP Settings

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.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Advanced PCI/PnP Settings

WARNING: Setting wrong values in below sections may cause system to malfunction.			
Clean NVRAM	[No]		
Plug & Play O/S	[No]		
PCI Latency Timer	[64]		
Allocate IRQ to PCI VGA	[Yes]		
Palette Snooping	[Disabled]		
PCI IDE BusMaster	[Disabled]		
Offboard PCI/ISA IDE Card	[Auto]		
IRQ3	[Available]		
IRQ4	[Available]		
IRQ5	[Available]		
IRQ7	[Available]		
IRQ9	[Available]		
IRQ10	[Available]		
IRQ11	[Available]		
IRQ14	[Available]		
IRQ15	[Available]		
DMA Channel 0	[Available]		
DMA Channel 1	[Available]	←	Select Screen
DMA Channel 3	[Available]	↑ ↓	Select Item
DMA Channel 5	[Available]	+ -	Change Field
DMA Channel 6	[Available]	Tab	Select Field
DMA Channel 7	[Available]	F1	General Help
		F10	Save and Exit
Reserved Memory Size	[Disabled]	ESC	Exit

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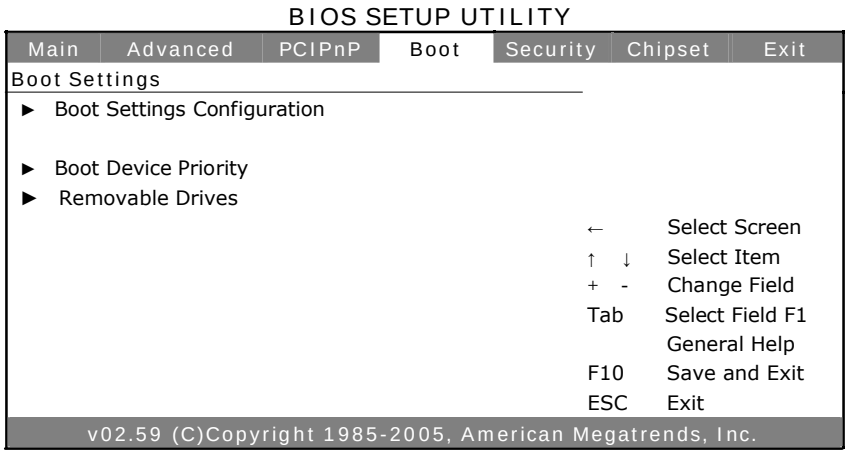
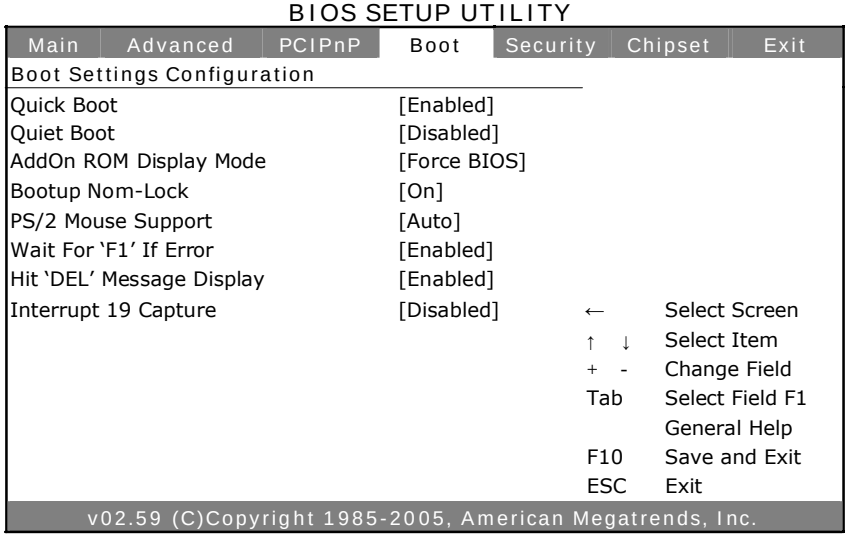
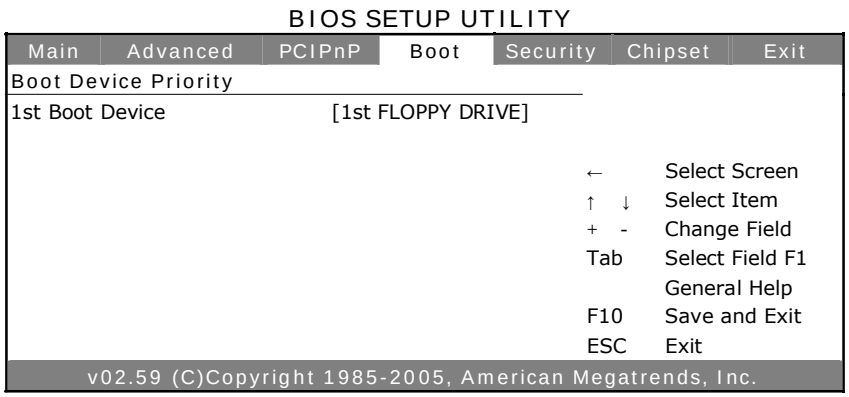
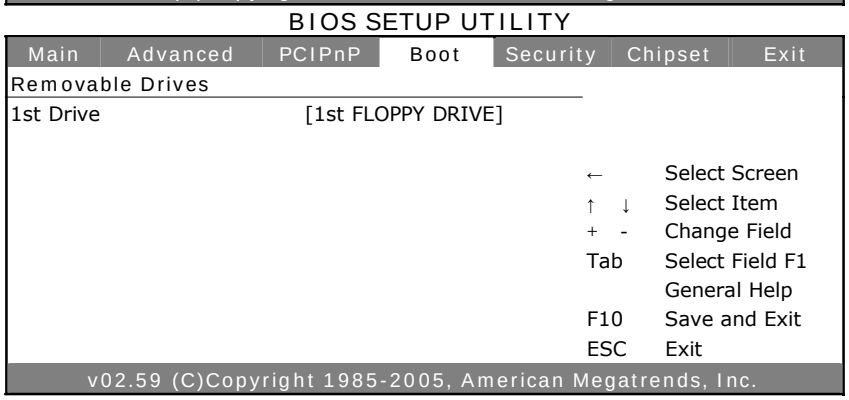
4.6 Boot Settings

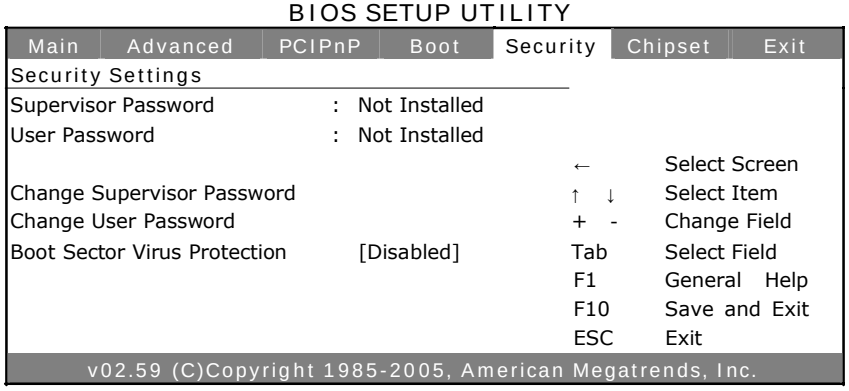




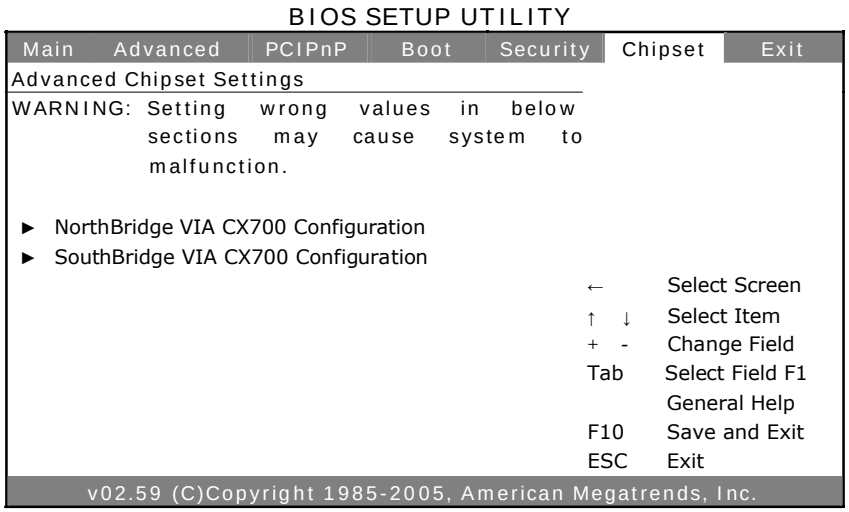


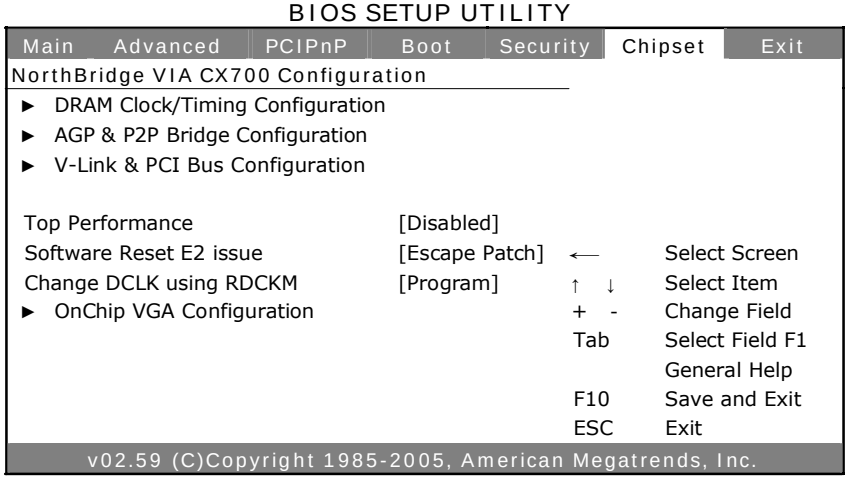


4.7 Security Settings



4.8 Advanced Chipset Settings





BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

DRAM Frequency/Timing Configuration

DRAM Frequency	[400MHz]
DRAM Timing	[Auto]
DRAM Command Rate	[2T Command]
RDSAIT/RDSBIT mode	[Auto]
Memory Chip Driving	[Normal]
DDR2 Memory Chip ODT	[Auto]
DDR DQSBAR	[Disabled]
BA0 SEL	[A13]
BA1 SEL	[A14]
BA2 SEL	[A15]
BA Scramble	[Disabled]
DQSO scanning mode	[Disabled]

←	Select Screen
↑ ↓	Select Item
+ -	Change Field
Tab	Select Field F1
	General Help
F10	Save and Exit
ESC	Exit

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BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

AGP & P2P Bridge Configuration

Primary Graphics Adapter	[PCI]
AGP Aperture Size	[128MB]
AGP 3.0 Mode	[8X]
AGP Driving Control	[Auto]
AGP Fast Write	[Enabled]
AGP Master 1 WS Read	[Disabled]
AGP Master 1 WS Write	[Disabled]
AGP 3.0 Calibration cycle	[Disabled]

←	Select Screen
↑ ↓	Select Item
+ -	Change Field
Tab	Select Field F1
	General Help
F10	Save and Exit
ESC	Exit

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BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

V-Link & PCI Bus Configuration

PCI Master 0 WS Write	[Enabled]	
V-Link mode selection	[Auto]	
V-Link 8X Supported	[Enabled]	
V-Link Data 2X Support	[Disabled]	
DRDY Timing	[Default]	
RCONV	[Enabled]	← Select Screen
Dynamic CKE select	[Auto]	↑ ↓ Select Item
Dynamic Clock Stop Control	[00]	+ - Change Field
PCI Read Caching Select	[EE]	Tab Select Field
		F1 General Help
		F10 Save and Exit
		ESC Exit

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OnChip VGA Configuration

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

VGA Frame Buffer Size	[64MB]	
CPU Direct Access Frame Buffer	[Enabled]	
Select Display Device	[CRT]	
Panel Type	[02:1024X768]	← Select Screen
TV H/W Layout	[Default]	↑ ↓ Select Item
TV Type	[NTSC]	+ - Change Field
TV Output Connector	[CVBS (Composite)]	Tab Select Field
		F1 General Help
		F10 Save and Exit
		ESC Exit

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SouthBridge VIA CX700 Configuration

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

* High Definition Audio	[Auto]	
PCI Delay Transaction	[Disabled]	← Select Screen
		↑ ↓ Select Item
		+ - Change Field
		Tab Select Field F1
		General Help
		F10 Save and Exit
		ESC Exit

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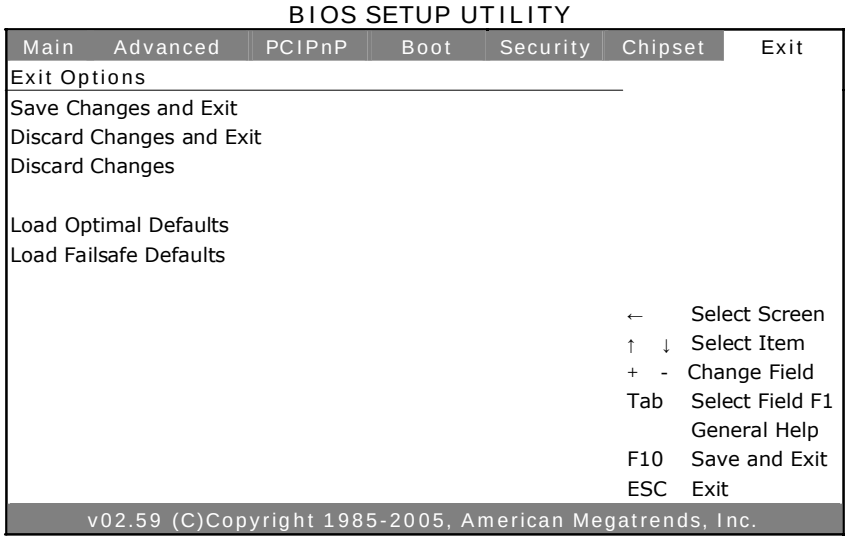
4.9 Exit Options



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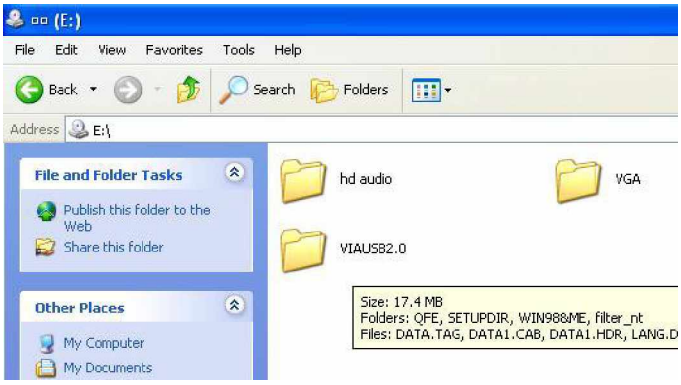
Chapter 5

Software Utilities

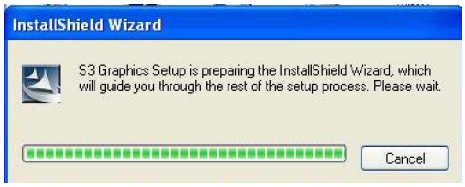
This chapter contains the detailed information of VGA, LAN, audio and USB2.0 driver installation procedures. The utility disk that comes with the delivery package contains an auto-run program that invokes the installation programs for the VGA, LAN and Audio drivers. The following sections describe the installation procedures of each driver based on Win 95/98, Win 2000/XP operating systems. It is recommended that you install the drivers matching the sections listed in this chapter.

5.1 VGA Driver Installation

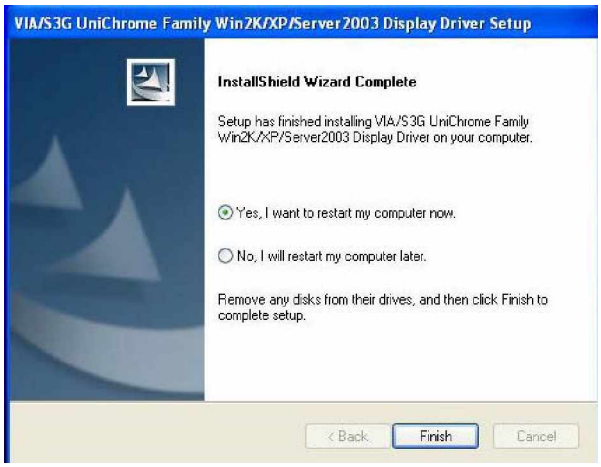
1. With the Utility CD Disk in your CD-ROM drive, open the File Manager and then select the CD-ROM drive. Open the VGA folder and click Setup.exe to start proceed.



2. When the display below appears on your screen, setup is ready to install and copy the related files onto your hard drive.

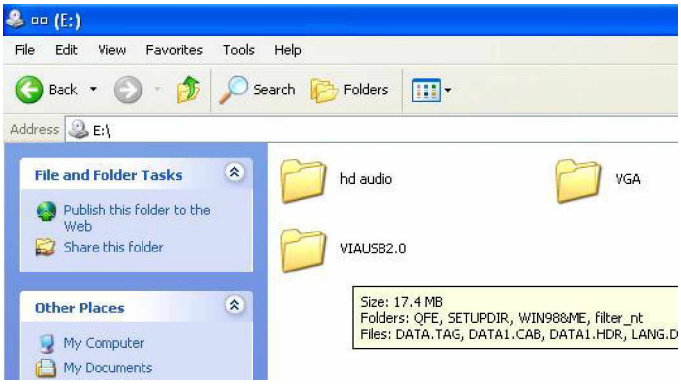


3. After the installation finishes, you will be prompted to restart your system. We recommend you to reboot your computer to allow the new settings to take effect. Click on the Finish button to reboot.



5.2 Audio Driver Installation

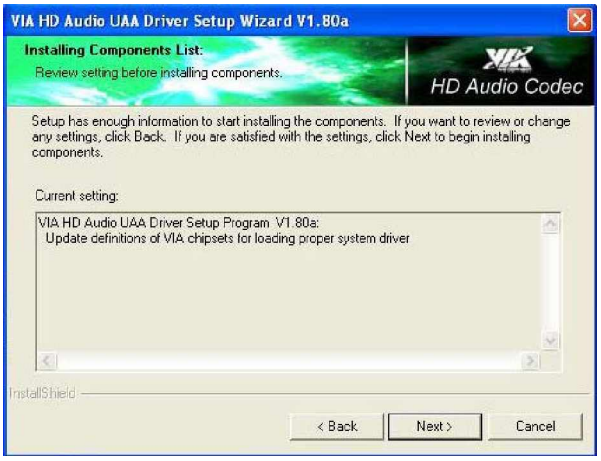
1. With the Utility CD Disk in you CD-ROM drive, open the File Manager and then select the CD-ROM drive. Open the HD Audio folder and click Setup.exe to start proceed.



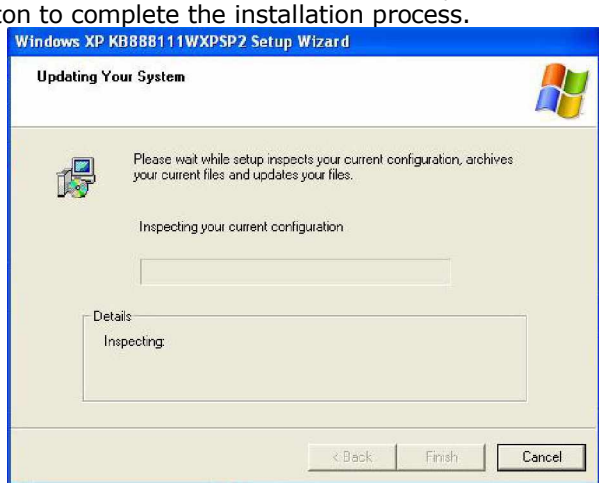
2. Once the Setup Wizard appears on the screen, make sure to close applications that are running, and then tick Install/Update, and click on the Next> button.

3. Setup Wizard will display the install list. Select on VIA HD..... V1.80a, and then click on Next> to continue.

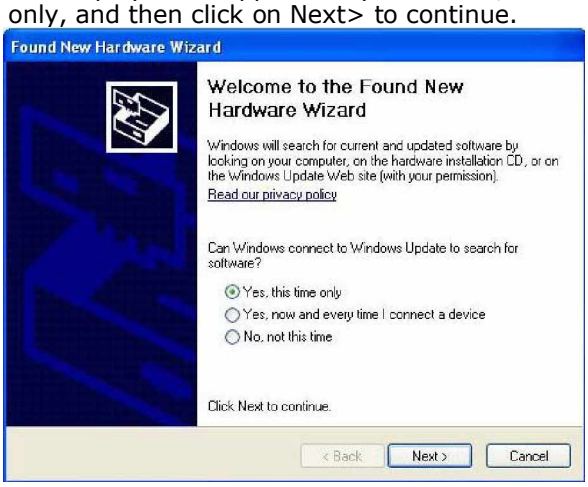
4. Make sure the Current Setting is ok, and then click on Next> button.



5. After the audio driver installation finishes, select the Finish button to complete the installation process.



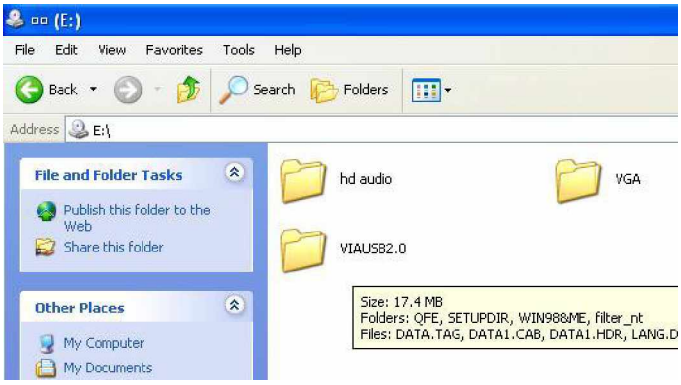
6. When the display below appears on your screen, tick on Yes, this time only, and then click on Next> to continue.



7. After all installation finish, you will be prompted to start your system, click on the Finish button to reboot.

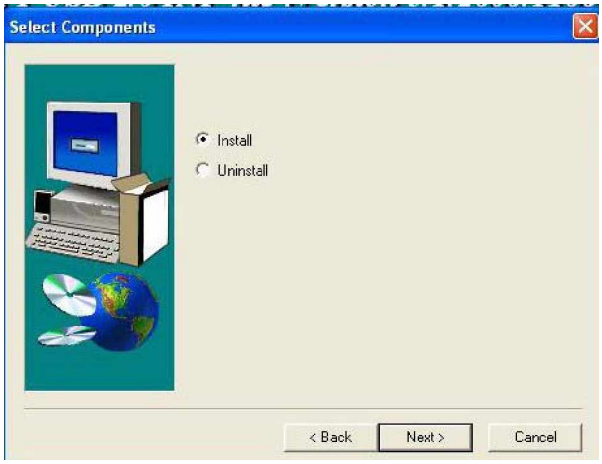
5.3 USB2.0 Driver Installation

1. With the Utility CD Disk in you CD-ROM drive, open the File Manager and then select the CD-ROM drive. Open the VIAUSB2.0 folder and click Setup.exe to start proceed.

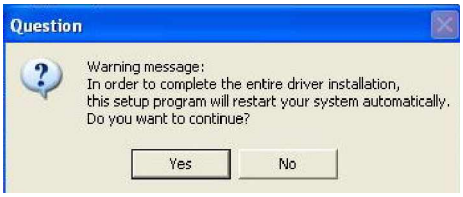


2. Once the Welcome screen appears on the screen, make sure to close applications that are running and then click on Next> button.

3. The Select Components dialog box is now displayed. Select on Install and then click on Next>.



4. After all installation finish, you will be prompted to start your system, click on the Yes button to reboot.



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 your products, projects and business.

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