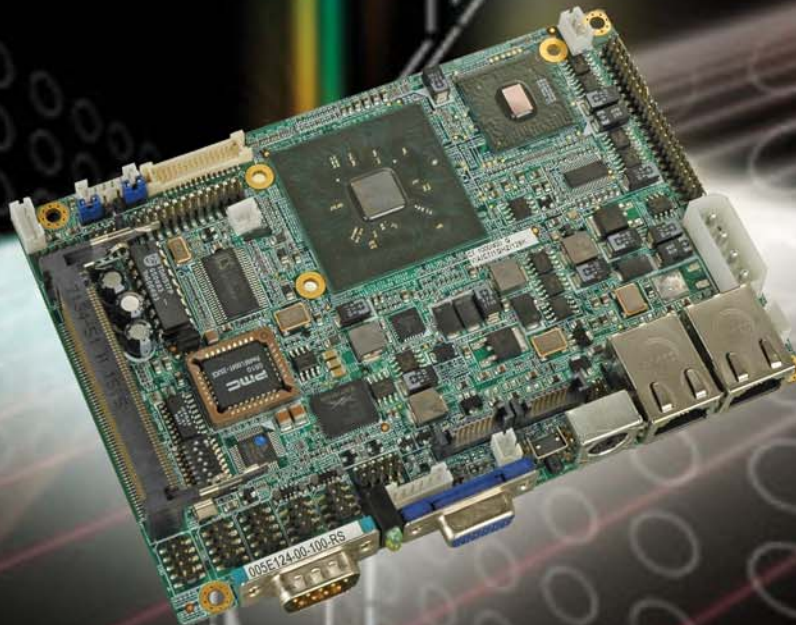




IEI Technology Corp .



**MODEL:
WAfer-CX700M**

**3.5" SBC with VIA® C7 or VIA® Eden Embedded CPU,
VGA, DVI, LVDS, SATA, Audio, Dual Gigabit Ethernet,
Mini PCI Expansion Slot and CompactFlash® Slot**

User Manual

Rev. 1.00 FEBRUARY 2008



Revision

Date	Version	Changes
February, 2008	1.00	Initial release

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Manual Conventions

 **WARNING!**

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously. Warnings are easy to recognize. The word “warning” is written as “**WARNING**,” both capitalized and bold and is followed by text. The text is the warning message. A warning message is shown below:

 **WARNING:**

This is an example of a warning message. Failure to adhere to warning messages may result in permanent damage to the WAFER-CX700M or personal injury to the user. Please take warning messages seriously.

 **CAUTION!**

Cautionary messages should also be heeded to help reduce the chance of losing data or damaging the WAFER-CX700M. Cautions are easy to recognize. The word “caution” is written as “**CAUTION**,” both capitalized and bold and is followed. The text is the cautionary message. A caution message is shown below:

 **CAUTION:**

This is an example of a caution message. Failure to adhere to cautions messages may result in permanent damage to the WAFER-CX700M. Please take caution messages seriously.

**NOTE:**

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes. Notes are easy to recognize. The word “note” is written as “**NOTE**,” both capitalized and bold and is followed by text. The text is the cautionary message. A note message is shown below:

**NOTE:**

This is an example of a note message. Notes should always be read. Notes contain critical information about the WAFER-CX700M. Please take note messages seriously.

Packing List



NOTE:

If any of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the WAFER-CX700M from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The items listed below should all be included in the WAFER-CX700M package.

- 1 x WAFER-CX700M single board computer
- 1 x Mini jumper pack
- 1 x IDE flat cable 44-pin
- 2 x SATA cables
- 1 x SATA power cable
- 3 x RS-232 cable
- 1 x Keyboard/Mouse cable
- 2 x USB cable
- 1 x Audio cable
- 1 x Utility CD
- 1 x QIG (quick installation guide)

Images of the above items are shown in **Chapter 3**.

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Chapter

1

Introduction

1.1 Introduction



Figure 1-1: WAFER-CX700M

The WAFER-CX700M 3.5" motherboard is a VIA® Eden or VIA® C7 processor platform. The WAFER-CX700M features a VIA® CX700M system chipset, which combines both Southbridge and Northbridge into a single package fitting the size of a standard Northbridge. Support for VGA, LVDS and DVI displays provides diversified display functionalities. Two Realtek RTL8110SC Gigabit Ethernet controllers ensure secure network connectivity. Storage capabilities are provided by two SATA ports, an IDE port and a CompactFlash® slot. A Mini PCI expansion card is easily connected to the system through a Mini PCI expansion slot. Four USB 2.0 connectors, four serial ports provides additional expansion options to the system ensuring a variety of USB 2.0 devices can be connected to the WAFER-CX700M.

1.2 Benefits

Some of the benefits of the WAFER-CX700M include:

- Ultra-low power consumption
- High data throughput and high-speed DDR2
- Network connectivity
- Video outputs suitable for different applications

WAFER-CX700M 3.5" SBC

1.3 Features

Some of the features of the WAFER-CX700M are listed below.

- 3.5" form factor
- VIA® Eden or VIA® C7 CPU
- VIA® CX700M system chipset
- Multiple display options including
 - VGA
 - DVI
 - 24-bit dual-channel LVDS
- Multiple serial port connectors including:
 - Three RS-232
 - One RS-232/422/485
- Multiple storage options including:
 - IDE hard drive slot
 - CompactFlash® type I/II slot
 - Two SATA II ports

1.4 Overview

The WAFER-CX700M has a wide variety of peripheral interface connectors. Below is a labeled photo of the peripheral interface connectors on the front side of the WAFER-CX700M.

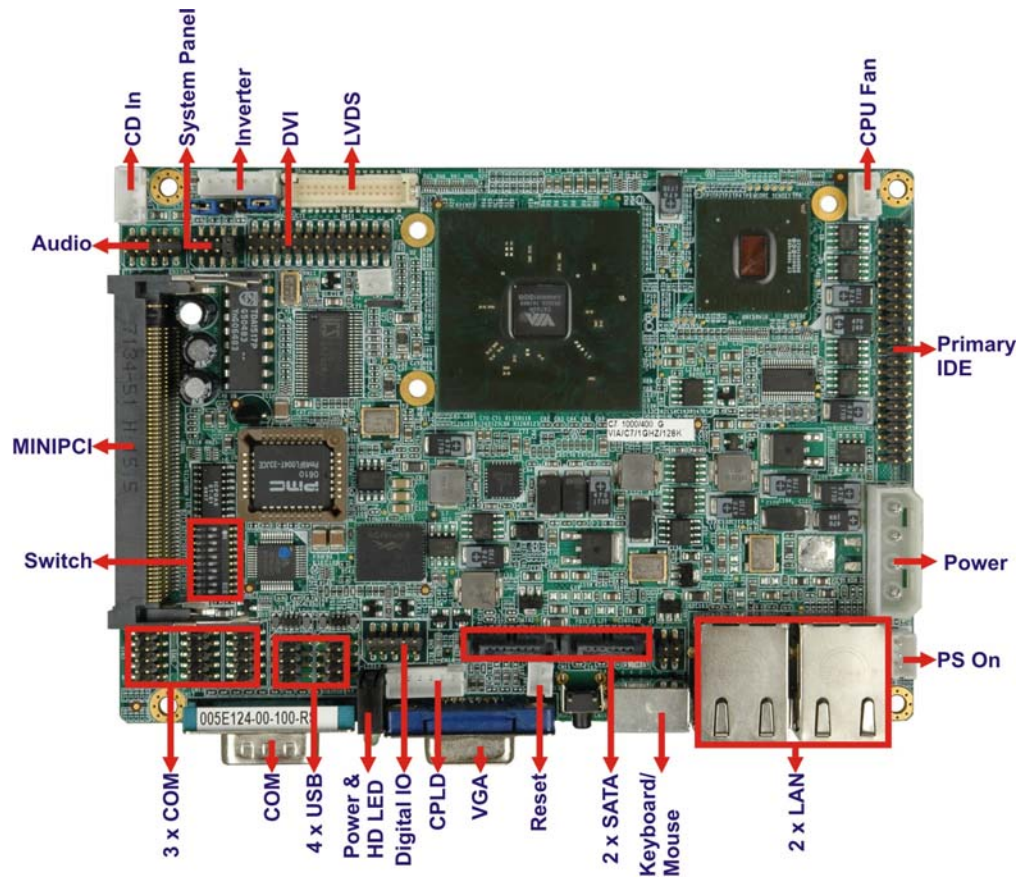


Figure 1-2: WAFER-CX700M Overview (Front)

Below is a photo of the peripheral interface connectors on the solder side of the WAFER-CX700M.

WAFER-CX700M 3.5" SBC

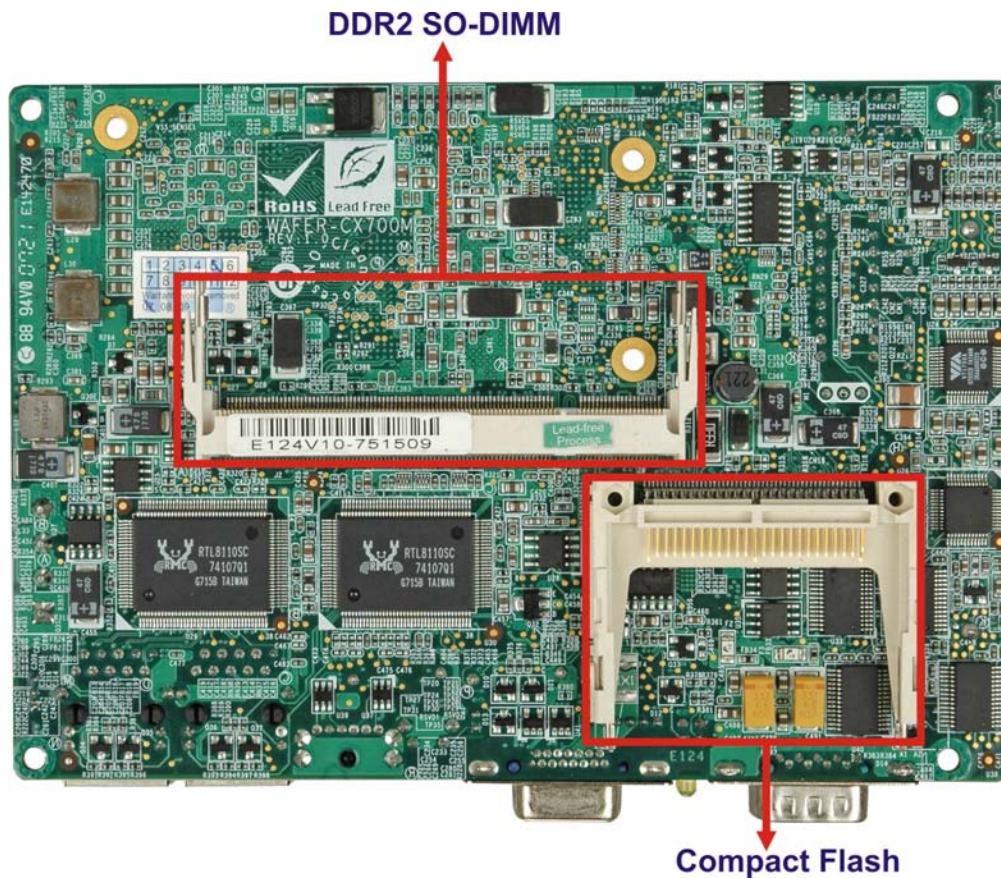


Figure 1-3: WAFER-CX700M Overview (Solder Side)

1.5 Peripheral Connectors and Jumpers

The WAFER-CX700M has the following connectors on-board:

- 1 x Audio connector
- 1 x Backlight inverter connector
- 1 x Battery connector
- 1 x CD audio input connector
- 1 x CompactFlash® Card socket (solder side)
- 1 x DDR2 SO-DIMM socket (solder side)
- 1 x Digital I/O connector
- 1 x DVI connector
- 1 x Fan connector
- 1 x Front panel connector

- 1 x IDE connector
- 1 x LVDS LCD connector
- 1 x Mini PCI
- 1 x Power connector
- 1 x PS_ON connector
- 1 x Reset button connector
- 2 x RS-232 serial port connector
- 1 x RS-232/422/485 serial port connector
- 2 x SATA connector
- 2 x USB 2.0 connector

The WAFER-CX700M has the following external peripheral interface connectors on the board rear panel.

- 2 x RJ-45 Ethernet connectors
- 1 x RS-232 serial port connector
- 1 x PS-2 connector
- 1 x VGA connector

The WAFER-CX700M has the following on-board jumpers:

- AT/ATX power mode select jumper
- COM2 RS-232/422/485 selection jumper
- Clear CMOS jumper
- LCD panel voltage selection jumper

1.6 Technical Specifications

WAFER-CX700M technical specifications are listed below. See **Chapter 2** for details.

Specification	WAFER-CX700M
Form Factor	3.5"
System CPU	1.5 GHz VIA® C7 CPU (with cooling fan) 1.0 GHz VIA® Eden ULV CPU (fanless)
System Chipset	VIA® CX700M

WAFER-CX700M 3.5" SBC

Specification	WAFER-CX700M
Memory	One 200-pin 1.0 GB (max.) 400/533 MHz DDR2 SO-DIMM
Display	VGA through DB-15 connector DVI through pin-header 24-bit dual-channel LVDS through 20-pin crimp connector
BIOS	AMI BIOS
Audio	VIA® VT1708A
LAN	Dual Realtek RTL8110SC Gigabit Ethernet controllers
COM	Three RS-232 serial ports One RS-232 or RS-422/485 serial port
USB2.0	Four USB ports via pin header
Hard Disk Drives	One 44-pin IDE connector Two SATA II connectors
Digital I/O	One 8-bit digital I/O, 4-bit input/4-bit output
Expansion	Mini PCI expansion slot
Super I/O	Winbond W83627EHG
SSD	CompactFlash® Type I/II slot
Watchdog Timer	Software programmable supports 1 sec. ~ 255 sec. system reset.
Power Supply	AT and ATX support
Power Consumption	5 V @ 4.1 A, 12 V @ 0.55 A, 5VSB @ 0.07 A (VIA® C7 1.5 GHz, 1.0 GB 533 MHz DDR2, 3DMARK2001)
Ambient Temperature	0 °C ~ +60 °C
Humidity	5% ~ 95% non-condensing
Dimensions (W x L)	146 mm x 102 mm

Specification	WAFER-CX700M
Weight (GW/NW)	600 g / 160 g

Table 1-1: Technical Specifications

Chapter

2

Detailed Specifications

2.1 Dimensions

2.1.1 Board Dimensions

The dimensions of the WAFER-CX700M are listed below.

- Length: 102 mm
- Width: 146 mm

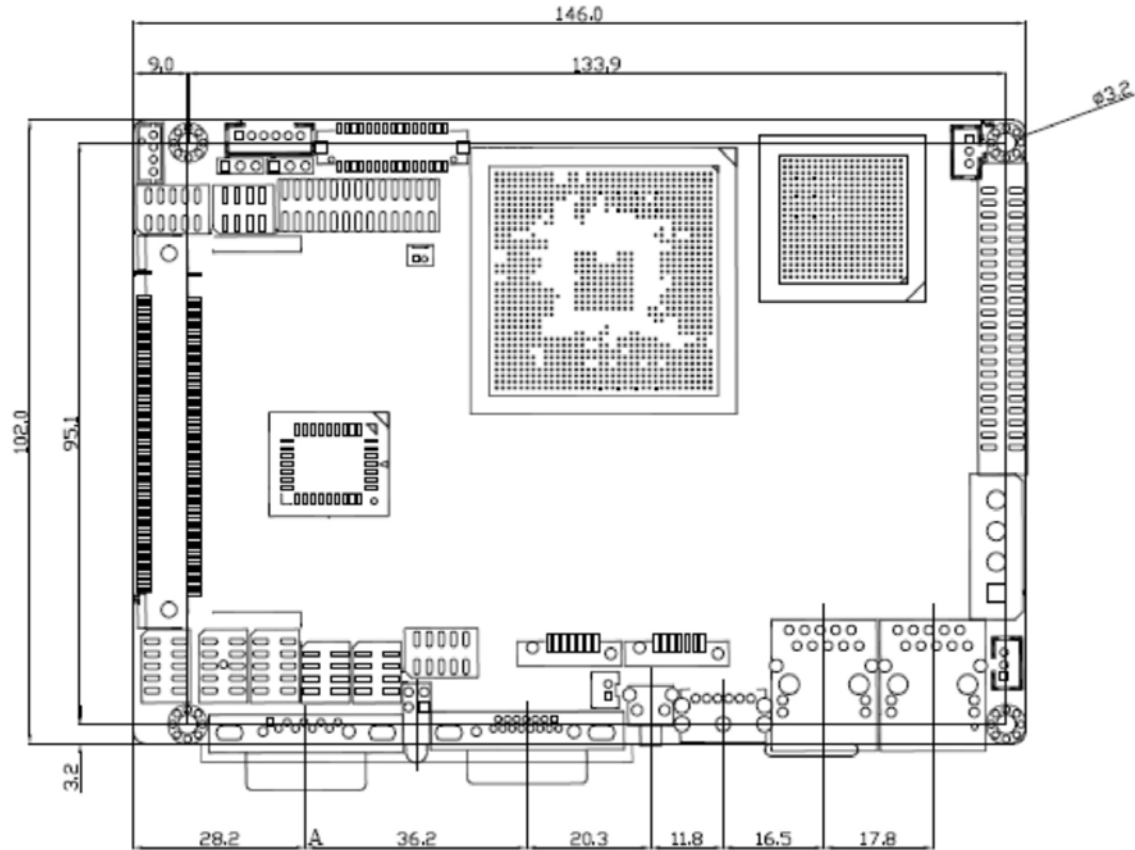


Figure 2-1: WAFER-CX700M Dimensions (mm)

WAFER-CX700M 3.5" SBC

2.1.2 External Interface Panel Dimensions

External interface panel connector dimensions are show below.

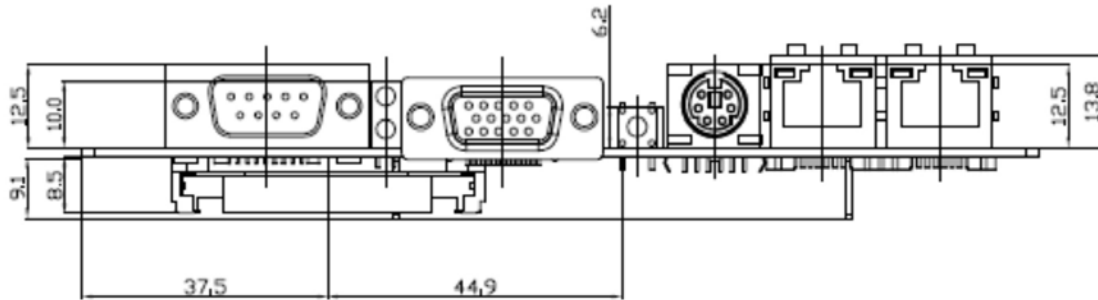


Figure 2-2: External Interface Panel Dimensions (mm)

2.2 Data Flow

The diagram below shows the data flow between the onboard CPU, system chipset and other components installed on the motherboard and described in the following sections of this chapter.

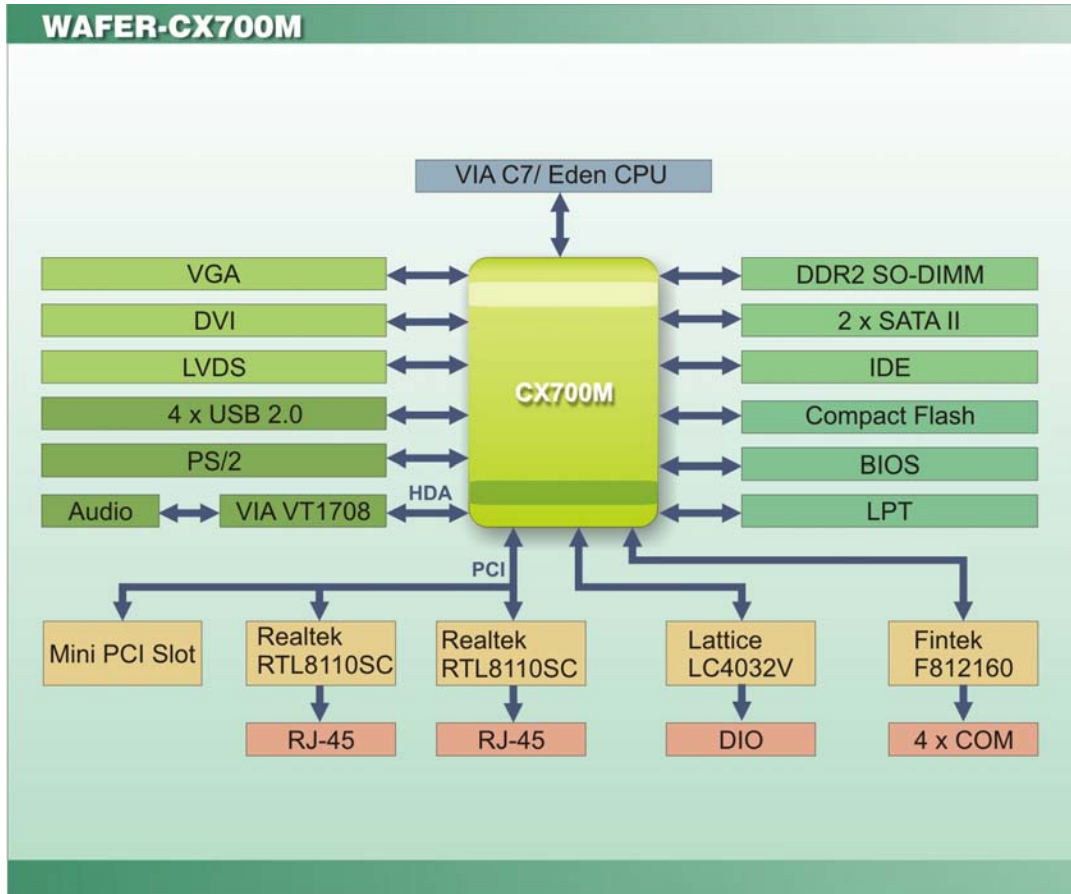


Figure 2-3: Data Flow Block Diagram

WAFER-CX700M 3.5" SBC

2.3 VIA® C7 CPU

The WAFER-CX700M has a VIA® C7 processor preinstalled.



Figure 2-4: VIA® C7 Processor

Some of the main specifications of the VIA® C7 CPU are listed below.

- Full x86/x87 operating system and software application compatibility
- Processor frequencies up to 2.0 GHz
- VIA® V4 bus up to 800 MHz FSB
- 128 KB L2 cache
- Sophisticated branch prediction mechanism
- MMX, SSE, SSE2 and SSE3 instruction sets
- NX execute protection
- Two quantum-based random number generators

2.4 VIA® CX700M System Chipset

The VIA® CX700M combines a feature rich Southbridge and Northbridge into a single package the same size as a typical Northbridge. The VIA® CX700M offers a full multimedia experience with three different choices of graphical output including VGA, DVI and LVDS, audio output and dedicated decoding of MPEG-2/4 and WMV9.

2.4.1 Graphics

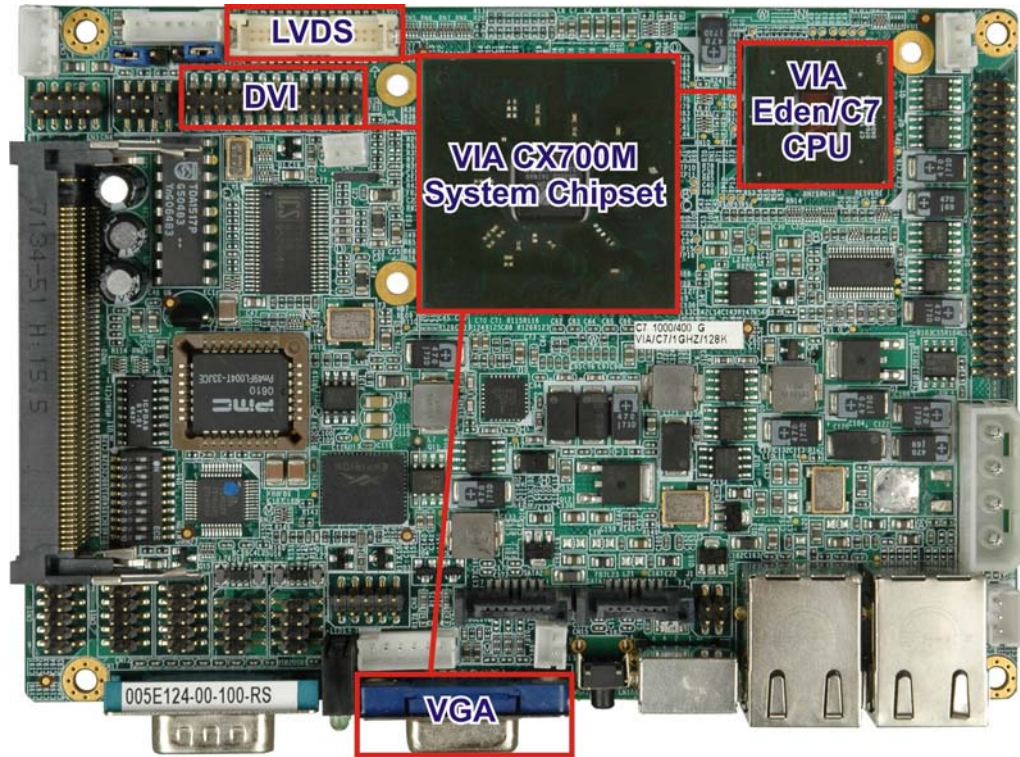


Figure 2-5: Graphics

The following video outputs are implemented on the WAFER-CX700M.

■ VGA.....	14
■ DVI	15
■ LVDS	15

2.4.1.1 VGA

The VIA® CX700M chipset supports RGB video output through a DB-15 connector on the external peripheral connector interface. The VGA port supports RGB output and HDTV output.

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2.4.1.2 DVI

The VIA® CX700M chipset supports DVI video output via pin header on the WAFER-CX700M. The DVI and LVDS video outputs share a video channel so only one can be used at a time.

2.4.1.3 LVDS

The VIA® CX700M chipset supports LVDS video output via a 15-pin crimp header on the WAFER-CX700M. The LVDS and DVI video outputs share a video channel so only one can be used at a time.

2.4.2 Memory

The VIA® CX700M system chipset on the WAFER-CX700M supports one 200-pin DDR2 SO-DIMM with the following features:

- One 200-pin SO-DIMM
- DDR2 only (**DO NOT** install a DDR DIMM)
- Capacities of 256MB, 512MB or 1GB
- Transfer speeds of 400MHz or 533MHz
- 64-bit wide channel

The memory socket is shown below.

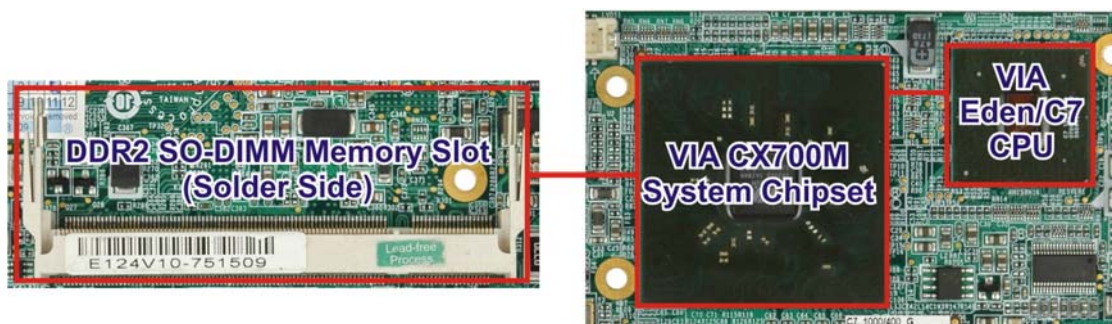


Figure 2-6: 200-pin DDR2 SO-DIMM Sockets

2.4.3 SATA

The SATA controller supports two full duplex 3.0 Gbps dual channel SATA drives. The two SATA drive connectors are shown below.

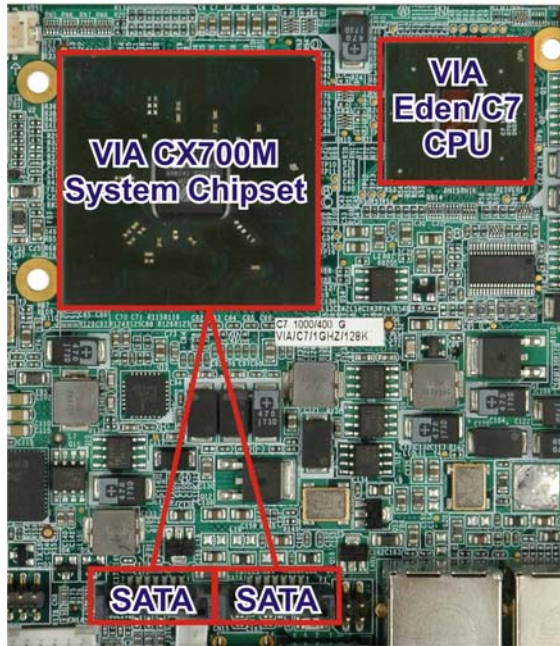


Figure 2-7: 1.5Gbps SATA Drive Connectors

2.4.4 IDE Controller

Up to two IDE devices are supported on the IDE bus. A single IDE hard drive and CompactFlash® card can be installed on the system.

2.4.4.1 CompactFlash® Slot

The CompactFlash® socket supports standard CF Type I and CF Type II cards. The chipset flash interface is multiplexed with an IDE interface and can be connected to an array of industry standard NAND Flash or NOR Flash devices. The CompactFlash® card is connected to the IDE bus.

WAFER-CX700M 3.5" SBC

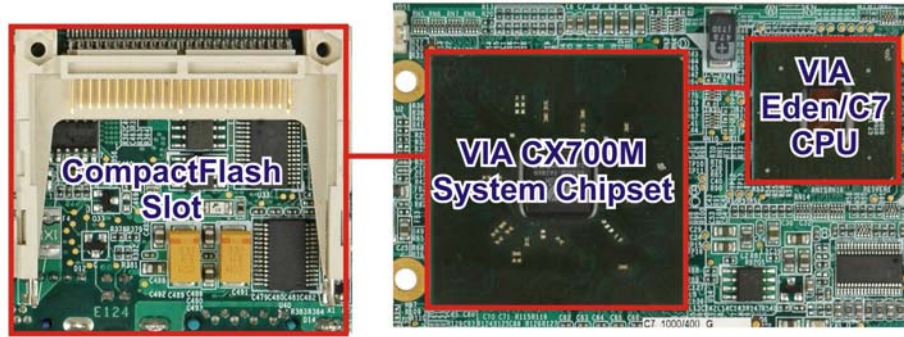


Figure 2-8: CompactFlash® Slot

2.4.4.2 IDE Slot

The single IDE connector supports two ATA-6 HDDs. An ATA-6 (Ultra ATA/100) compliant IDE controller has a maximum transfer rate of 100MB/s. ATA-6 includes advancements in error checking and ATA-6 drives are compatible with future interface additions.

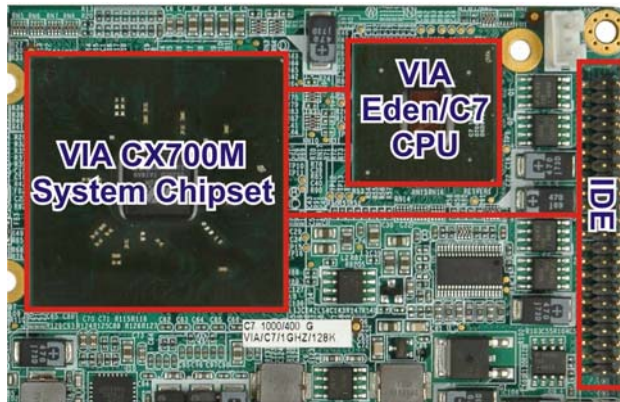


Figure 2-9: IDE Slot

The onboard ATA-6 controller is able to support the following IDE HDDs:

- Ultra ATA/100, with data transfer rates up to 100MB/s
- Ultra ATA/66, with data transfer rates up to 66MB/s
- Ultra ATA/33, with data transfer rates up to 33MB/s

Specification	Ultra ATA/100	Ultra ATA/66	Ultra ATA/33
IDE devices	2	2	2

Specification	Ultra ATA/100	Ultra ATA/66	Ultra ATA/33
PIO Mode	0 – 4	0 – 4	0 – 4
PIO Max Transfer Rate	16.6 MB/s	16.6 MB/s	16.6 MB/s
DMA/UDMA designation	UDMA 5	UDMA 4	UDMA 2
DMA/UDMA Max Transfer	100MB/s	66MB/s	33MB/s
Controller Interface	5V	5V	5V

Table 2-1: Supported HDD Specifications

2.4.5 USB

Four USB pin headers on the WAFER-CX700M board are interfaced to the system chipset USB controller. Four USB 1.1 or USB 2.0 devices can be connected simultaneously to the WAFER-CX700M.

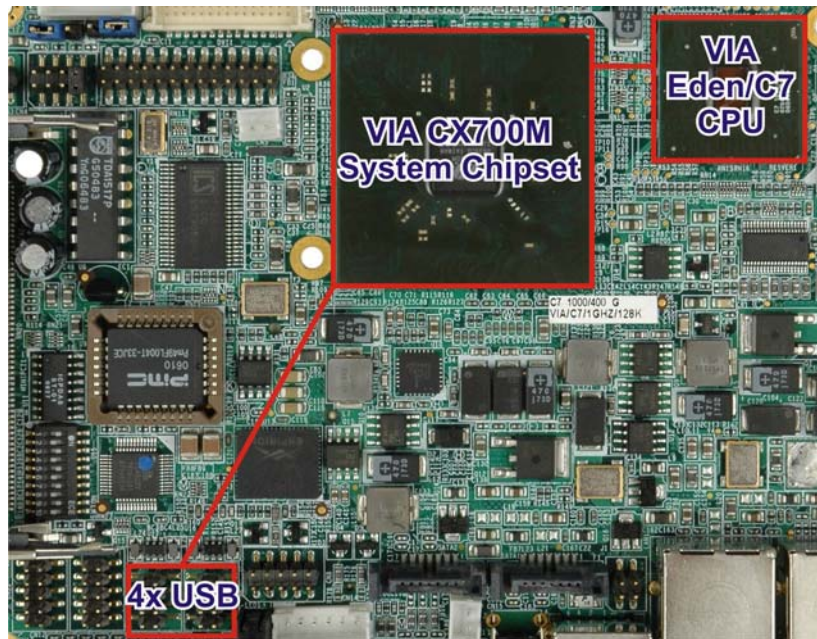


Figure 2-10: USB Ports

The chipset USB controller has the following specifications:

- 4 USB ports

WAFER-CX700M 3.5" SBC

- USB 1.1 and USB 2.0 compliant
- 3 host ports
- 1 host/device

2.4.6 PCI Bus

The PCI bus is connected to the components listed below:

- Realtek RTL8110SC GbE Controller19

The PCI bus complies with PCI Local Bus Specification, Revision 2.2 and supports 33MHz PCI operations.

2.4.6.1 Realtek RTL8110SC GbE Controller

Two PCI lanes are connected to two Realtek RTL8110SC GbE controllers shown below.

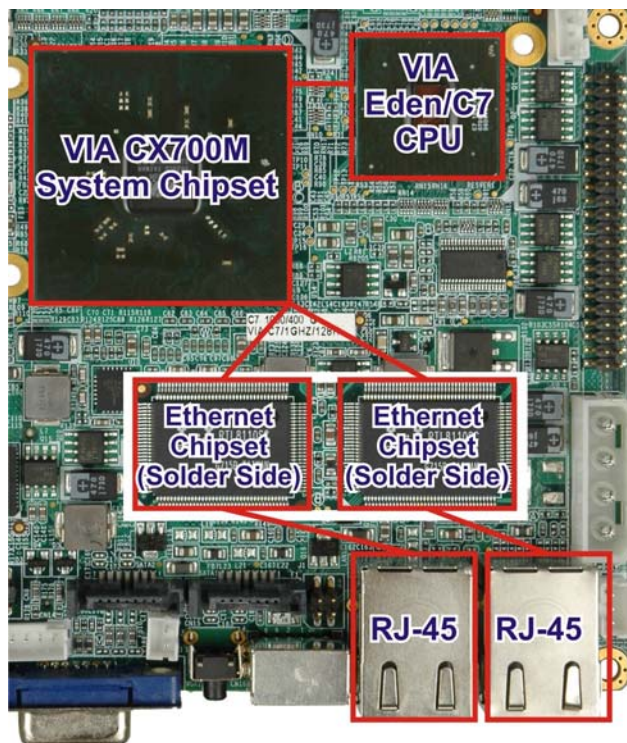


Figure 2-11: Realtek PCI GbE Controllers

The Realtek RTL8110SC PCI GbE controllers combine a triple-speed IEEE 802.3 compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver, 32-bit

PCI bus controller, and embedded memory. With state-of-the-art DSP technology and mixed-mode signal technology, they offer high-speed transmission over CAT 5 UTP cable or CAT 3 UTP (10Mbps only) cable. Functions such as Crossover Detection & Auto-Correction, polarity correction, adaptive equalization, cross-talk cancellation, echo cancellation, timing recovery, and error correction are implemented to provide robust transmission and reception capability at high speeds.

Some of the features of the Realtek RTL8110SC PCI GbE controllers are listed below.

- Integrated 10/100/1000 transceiver
- Auto-Negotiation with Next Page capability
- Supports PCI rev.2.3, 32-bit, 33/66MHz
- Supports pair swap/polarity/skew correction
- Crossover Detection & Auto-Correction
- Wake-on-LAN and remote wake-up support
- Microsoft® NDIS5 Checksum Offload (IP, TCP, UDP) and largesend offload support
- Supports Full Duplex flow control (IEEE 802.3x)
- Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab
- Supports IEEE 802.1P Layer 2 Priority Encoding
- Supports IEEE 802.1Q VLAN tagging
- Serial EEPROM
- 3.3/1.8/1.5 V signaling, 5 V PCI I/O tolerant
- 0.15µm CMOS process
- Transmit/Receive FIFO (8K/64K) support
- Supports power down/link down power saving
- Supports PCI Message Signaled Interrupt (MSI)

2.4.7 Keyboard/Mouse

The keyboard/mouse controller can execute the 8042 instruction set. Some of the keyboard controller features are listed below:

- The 8042 instruction is compatible with a PS/2 keyboard and PS/2 mouse
- Gate A20 and Keyboard reset output
- Supports multiple keyboard power on events

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- Supports mouse double-click and/or mouse move power on events

2.4.8 LPC Bus

The LPC bus is connected to components listed below:

- BIOS Chipset21
- Lattice Semiconductor LC4032V Digital I/O Chipset22
- Fintek F81216DG Serial Port Chipset.....22

2.4.8.1 BIOS Chipset

The BIOS chipset has a licensed copy of AMI BIOS installed on the chipset.



Figure 2-12: BIOS Chipset

Some of the BIOS features are listed below:

- AMI Flash BIOS
- SMIBIOS (DMI) compliant
- Console redirection function support
- PXE (Pre-boot Execution Environment) support
- USB booting support

2.4.8.2 Lattice Semiconductor LC4032V Digital I/O Chipset

The Lattice Semiconductor digital I/O chipset enables a 24-bit Digital I/O. The LC4032V chipset consists of multiple 36-input, 16 macrocell Generic Logic Blocks interconnected by a Global Routing Pool. Output Routing Pools (ORPs) connect the GLBs to the I/O Blocks that contain multiple I/O cells.

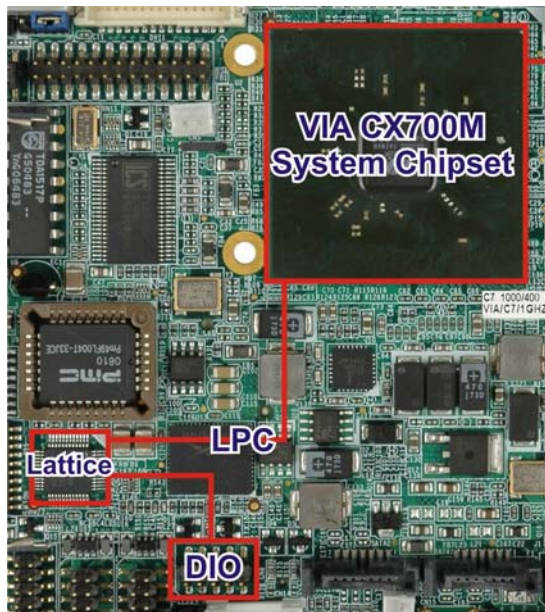


Figure 2-13: Lattice Semiconductor LC4064V Digital I/O Chipset

Some of the features of the Lattice Semiconductor LC4032V chipset are listed below:

- Up to four global clock pins with programmable clock polarity control
- 400MHz maximum operating frequency
- Operates with 3.3 V, 2.5 V or 1.8 V power

2.4.8.3 Fintek F81216DG LPC Serial Port Chipset

The Fintek F81216DG chipset enables the addition of four additional UART serial ports (COM1, COM2, COM3 and COM4). UART includes 16-byte send/receive FIFO. The Fintek serial port chipset is interfaced to the system chipset through the LPC bus.

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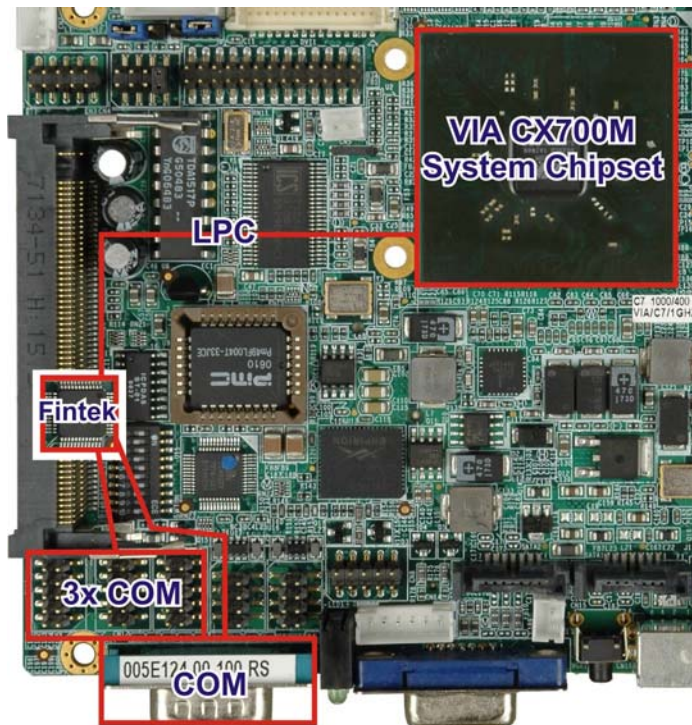


Figure 2-14: Fintek F81216DG LPC Serial Port Chipset

Some of the features of the Fintek chipset are listed below:

- Supports LPC interface
- Totally provides 4 UART (16550 asynchronous) ports
 - 3 x Pure UART
 - 1 x UART+IR
- One Watch dog timer with WDTOUT# signal
- One Frequency input 24/48 MHz
- Powered by 3 Vcc

2.4.9 Audio

The High Definition Audio is interfaced to the onboard audio connector through the VIA® VT1708A audio chipset.

2.4.9.1 VIA® VT1708A Audio Chipset

The VIA® VT1708A High Definition Audio chipset supports 8-channel, 24-bit, 192 KHz audio content. The audio chipset features a 100dB S/N ratio and complies with the Intel® High Definition Audio Rev. 1.0 specification. VIA® HD Audio codecs include a high quality headphone amplifier, enhanced recording support, and advanced power management features, ideal for mobile devices.

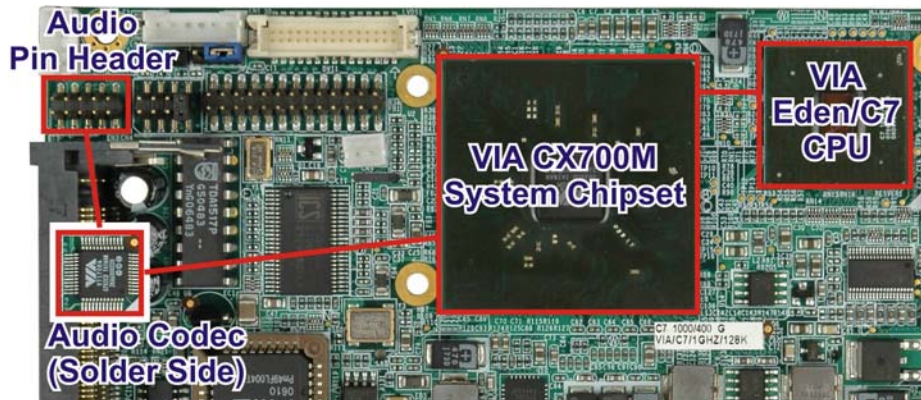


Figure 2-15: VIA® VT1708A High Definition Audio Chipset

Some of the features of the audio chipset are listed below:

- Supports 44.1 KHz, 48 KHz, 96 KHz and 192 KHz DAC independent sample rates
- Built-in headphone amplifier
- 4 stereo DACs support 24-bit, 192 KHz samples
- DAC with 100dB S/N ratio
- 2 stereo ADCs support 24-bit, 192KHz samples
- ADC with 95dB S/N Ratio
- High quality differential CD input
- HPF in ADC path for DC removal
- Analog CD input path for compatibility
- Supports EAPD (External Amplifier Power Down)
- Power management and enhanced power saving features
- Digital: 3.3 V; Analog: 3.3 V / 5.0 V

2.5 Environmental and Power Specifications

2.5.1 System Monitoring

The thermal inputs on the WAFER-CX700M monitor the following temperatures:

- System temperature
- Power temperature
- CPU temperature

The voltage inputs on the WAFER-CX700M monitor the following voltages:

- Vcore
- +2.5V
- +3.3V
- +5.0V
- +12.0V
- DDR Vtt
- +1.5V
- 5VSB

The following voltages are also monitored:

- VBAT

The WAFER-CX700M also monitors the following fan speeds:

- CPU Fan speed

The values for the above environmental parameters are all recorded in the BIOS Hardware Health Configuration menu.

2.5.2 Operating Temperature and Temperature Control

The maximum and minimum operating temperatures for the WAFER-CX700M are listed below.

- Minimum Operating Temperature: 0°C (32°F)
- Maximum Operating Temperature: 60°C (140°F)

A cooling fan and heat sink must be installed on the system. Thermal paste must be smeared on the lower side of the heat sink before it is mounted. The stock heat sink and fan cover both the system chipset and CPU.

2.5.3 Power Consumption

The table below shows the power consumption parameters for the WAFER-CX700M running with a 1.5 GHz VIA® C7 and 1.0 GB of 533 MHz DDR2 memory.

Voltage	Current
+5V	4.1 A
+12V	0.55 A
5 VSB	0.07 A

Table 2-2: Power Consumption

Chapter

3

Unpacking

3.1 Anti-static Precautions

**WARNING:**

Failure to take ESD precautions during the installation of the WAFER-CX700M may result in permanent damage to the WAFER-CX700M and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the WAFER-CX700M. Dry climates are particularly susceptible to ESD. It is therefore critical that whenever the WAFER-CX700M or any other electronic component is handled, the following anti-static precautions are strictly adhered to:

- **Wear and anti-static wristband:** - Wearing a simple anti-static wristband can help to prevent ESD from damaging the WAFER-CX700M.
- **Self-grounding:** - Before handling the WAFER-CX700M touch any grounded conducting material. During the time of handling, frequently touch any conducting materials that are connected to the ground.
- **Use an anti-static pad:** - When configuring the WAFER-CX700M, place it on an anti-static pad. This reduces the possibility of ESD damaging the WAFER-CX700M.
- **Only handle the PCB by the edges:** - When handling the PCB, hold the PCB by it's edges.

3.2 Unpacking Precautions

When the WAFER-CX700M is unpacked, please do the following:

- Follow the anti-static precautions outline in **Section 3.1**.
- Make sure the packing box is facing upwards so the WAFER-CX700M does not fall out of the box.
- Make sure all of the components shown in the next section are present.

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3.3 Package Contents



NOTE:

If any of the components listed in the checklist below are missing, do not proceed with the installation. Contact the IEI reseller or vendor that the WAFER-CX700M was purchased from, or contact an IEI sales representative directly by sending an email to sales@iei.com.tw.

The WAFER-CX700M is shipped with the following components.

Quantity	Item and Part Number	Image
1	WAFER-CX700M	
1	Audio cable (P/N: 32000-072100-RS)	
2	SATA cable (P/N: 32000-062800-RS)	
1	SATA power cable (P/N: 32100-088600-RS)	
2	Dual USB cable (wo bracket) (P/N: 32000-070300-RS)	
1	HDD cable (44-pin) (P/N: 32200-000009-RS)	
3	Single COM port (w/o bracket) (P/N: 32200-000049-RS)	
1	KB/MS PS/2 Y-cable (P/N: 32000-000138-RS)	




Quantity	Item and Part Number	Image
1	Utility CD	
1	Quick Installation Guide	
1	Mini jumper pack (2.0mm) (P/N: 33100-000033-RS)	

Table 3-1: Packing List Items

Chapter

4

Connector Pinouts

4.1 Peripheral Interface Connectors

Section 4.1.1 shows peripheral interface connector locations. Section 0 lists all the peripheral interface connectors seen in Section 4.1.1.

4.1.1 Layout

The figures below show the on-board peripheral connectors, rear panel peripheral connectors and on-board jumpers.

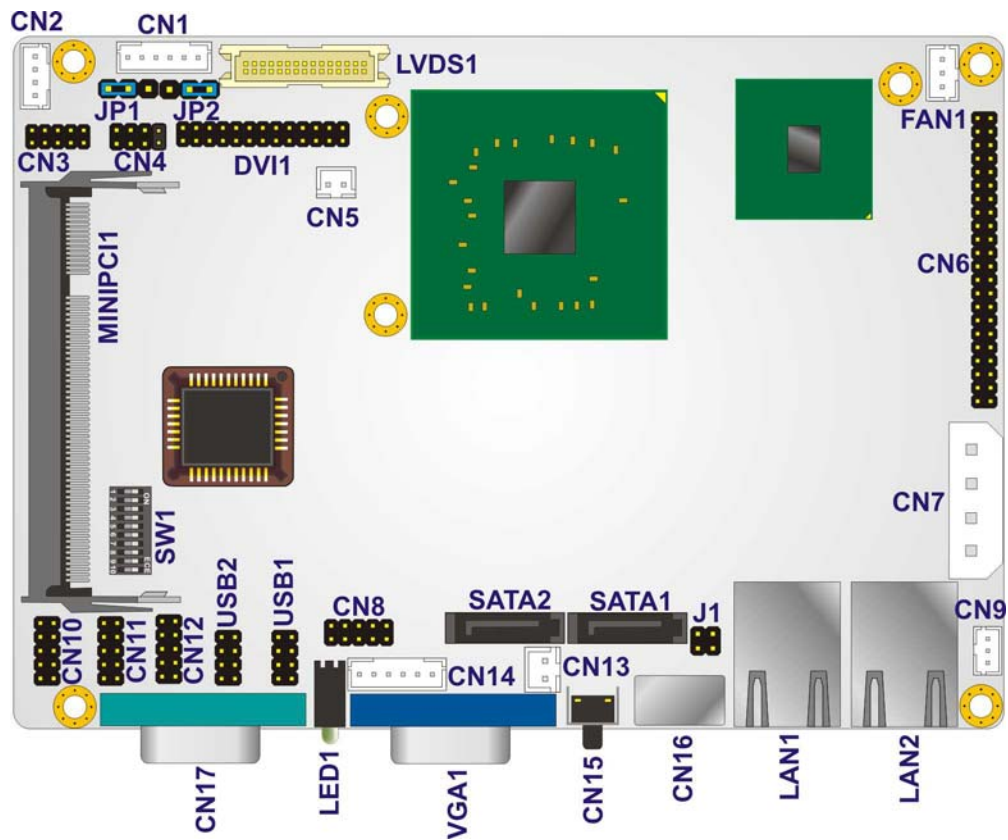


Figure 4-1: Connector and Jumper Locations

WAFER-CX700M 3.5" SBC

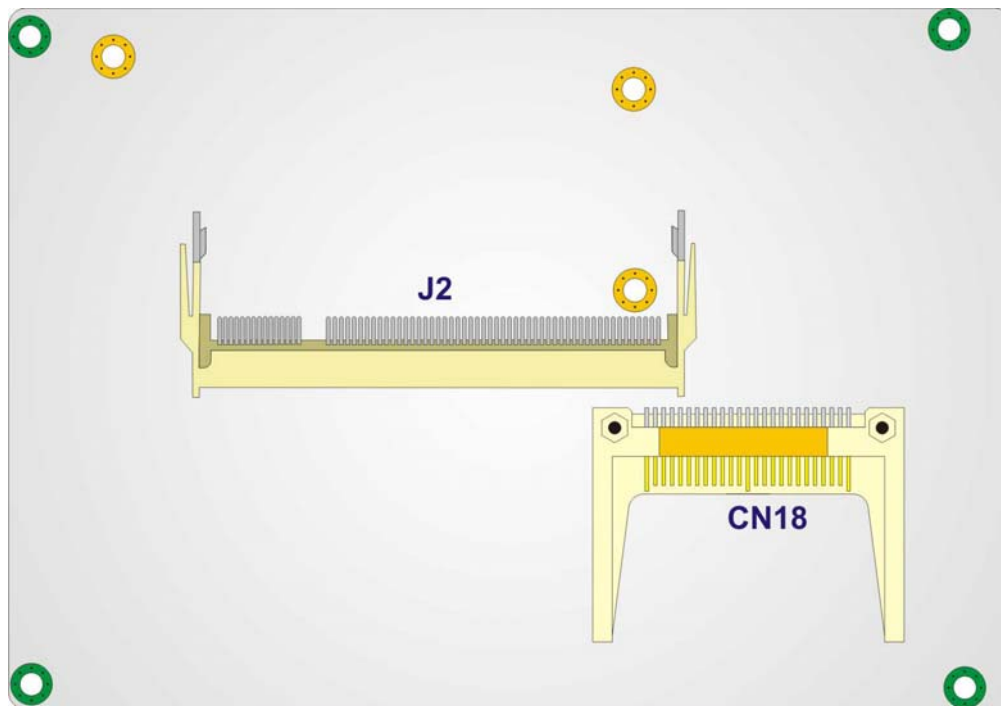


Figure 4-2: Connector and Jumper Locations (Solder Side)

4.1.2 Peripheral Interface Connectors

Table 4-1 shows a list of the peripheral interface connectors on the WAFER-CX700M.

Connector	Type	Label
Audio connector	10-pin header	CN3
Backlight inverter connector	6-pin wafer	CN1
Battery connector	2-pin wafer	CN5
CompactFlash® slot (solder side)	CF card slot	CN18
CD audio connector	4-pin wafer	CN2
DDR2 SO-DIMM socket (solder side)	200-pin SO-DIMM slot	J1
Digital I/O connector	10-pin header	CN8
DVI connector	26-pin header	DVI1
Fan connector	3-pin wafer	FAN1
Front panel connector	8-pin header	CN4

Connector	Type	Label
IDE Interface connector	40-pin header	CN6
LVDS connector	30-pin crimp header	LVDS1
Mini PCI connector	Mini PCI connector	MINIPCI1
Power connector	4-pin Molex connector	CN7
PS_ON connector	3-pin wafer	CN9
Reset button connector	2-pin wafer	CN13
Serial ATA drive connector	7-pin SATA	SATA1
Serial ATA drive connector	7-pin SATA	SATA2
Serial port connector	10-pin header	CN10
Serial port connector	10-pin header	CN11
Serial port connector	10-pin header	CN12
USB connectors	8-pin header	USB1
USB connectors	8-pin header	USB2

Table 4-1: Peripheral Interface Connectors

4.1.3 External Interface Panel Connectors

Table 4-2 lists the rear panel connectors on the WAFER-CX700M.

Connector	Type	Label
Ethernet connector	RJ-45	LAN1
Ethernet connector	RJ-45	LAN2
Keyboard/Mouse connector	PS/2	CN16
Serial port connector	DB-9	CN17
VGA connector	15-pin female	VGA1

Table 4-2: Rear Panel Connectors

WAFER-CX700M 3.5" SBC

4.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the motherboard and are only accessible when the motherboard is outside of the chassis. This section has complete descriptions of all the internal peripheral connectors on the WAFER-CX700M.

4.2.1 Audio Connector

- CN Label:** CN3
- CN Type:** 10-pin header (2 x 5)
- CN Location:** See **Figure 4-3**
- CN Pinouts:** See **Table 4-3**

The 10-pin audio header is connected to external audio devices. The audio pin header provides a connection for microphone input, line level stereo input and amplified stereo output.

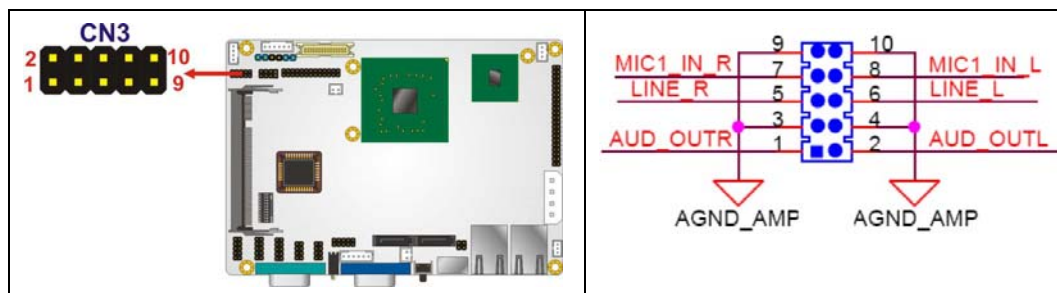


Figure 4-3: Audio Connector Location (10-pin)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	AUDIO OUT RIGHT	2	AUDIO OUT LEFT
3	GROUND	4	GROUND
5	LINE IN RIGHT	6	LINE IN LEFT
7	MIC IN RIGHT	8	MIC IN LEFT
9	GROUND	10	GROUND

Table 4-3: Audio Connector Pinouts (10-pin)

4.2.2 Backlight Inverter Connector

- CN Label:** CN1
- CN Type:** 6-pin header (1 x 6)
- CN Location:** See **Figure 4-4**
- CN Pinouts:** See **Table 4-4**

The backlight inverter connector provides the backlight on the LCD display connected to the WAFER-CX700M with +12V of power.

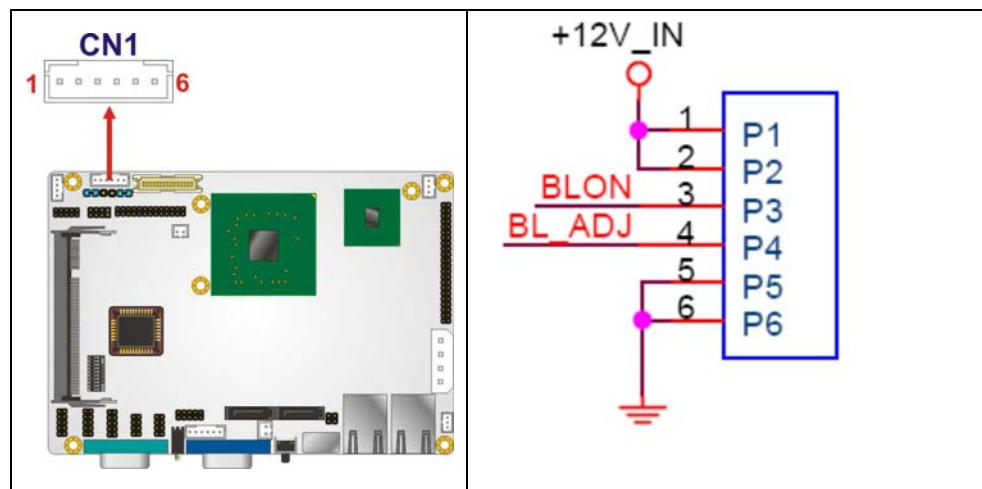


Figure 4-4: Panel Backlight Connector Pinout Locations

PIN NO.	DESCRIPTION
1	12 V
2	12 V
3	BACKLIGHT ON
4	BACKLIGHT ADJUST
5	GROUND
6	GROUND

Table 4-4: Panel Backlight Connector Pinouts

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4.2.3 Battery Connector

- CN Label:** CN5
- CN Type:** 2-pin box header (1x2)
- CN Location:** See **Figure 4-5**
- CN Pinouts:** See **Table 4-5**

The battery connector is connected to a backup battery. The battery connector is also used to reset the CMOS memory if the incorrect BIOS settings have been made and the system cannot boot up.

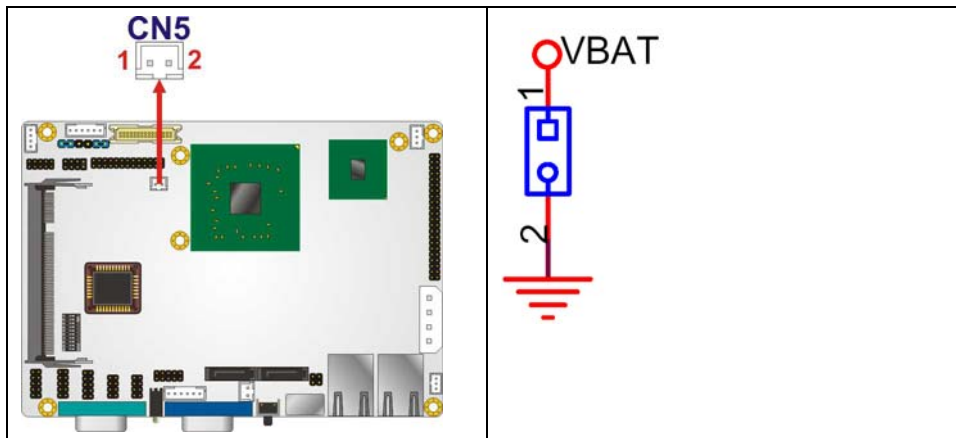


Figure 4-5: Battery Connector Location

PIN NO.	DESCRIPTION
1	Battery+
2	Ground

Table 4-5: Battery Connector Pinouts

4.2.4 CompactFlash® Slot

- CN Label:** CN18
- CN Type:** 50-pin header (2x25)
- CN Location:** See **Figure 4-6**
- CN Pinouts:** See **Table 4-6**

A CF Type I or Type II memory card is inserted to the CF socket on the solder side of the WAFER-CX700M.

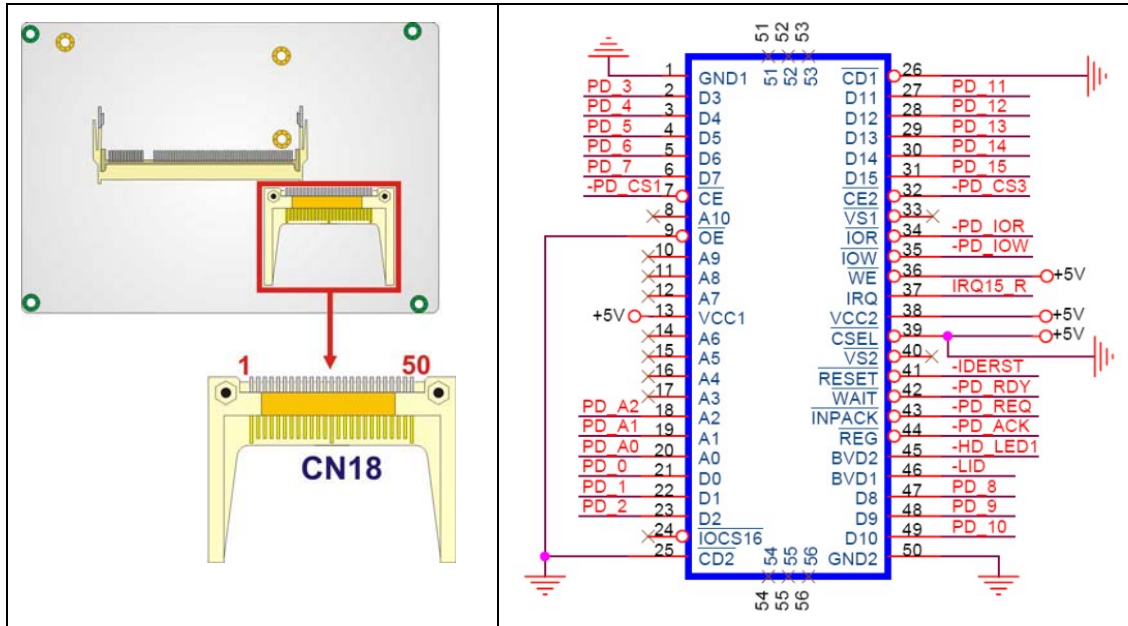


Figure 4-6: CF Card Socket Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	26	CD1#
2	DATA 3	27	DATA 11
3	DATA 4	28	DATA 12
4	DATA 5	29	DATA 13
5	DATA 6	30	DATA 14
6	DATA 7	31	DATA 15
7	CE#	32	CE2#
8	N/C	33	VS1#
9	OE#	34	IOR#
10	A9	35	IOW#
11	A8	36	WE#
12	A7	37	IRQ
13	VCC1	38	VCC2
14	A6	39	CSEL#

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
15	A5	40	VS2#
16	A4	41	RESET#
17	A3	42	WAIT#
18	A2	43	INPACK#
19	A1	44	REG#
20	A0	45	BVD2
21	DATA 0	46	BVD1
22	DATA 1	47	DATA 8
23	DATA 2	48	DATA 9
24	IOCS16#	49	DATA 10
25	CD2#	50	GROUND

Table 4-6: CF Card Socket Pinouts

4.2.5 CD Audio Connector

- CN Label:** CN2
- CN Type:** 4-pin header (1 x 4)
- CN Location:** See Figure 4-7
- CN Pinouts:** See Table 4-7

The 4-pin audio CD in connector is connected to an external audio CD device for the input and output of audio signals from a CD player to the system.

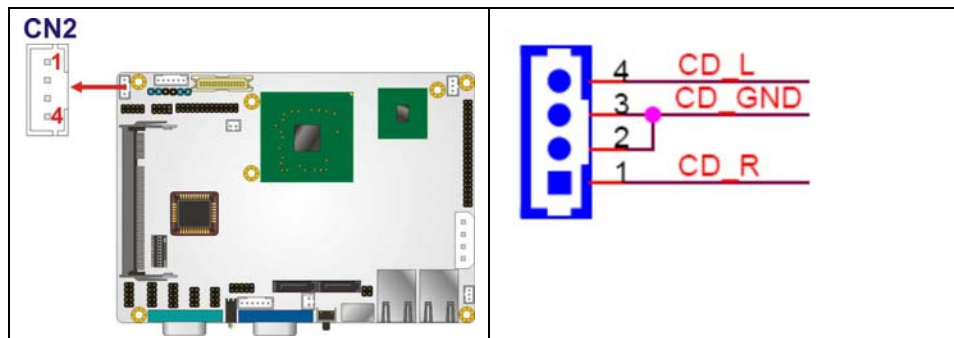


Figure 4-7: Audio CD In Connector Pinouts (4-pin)

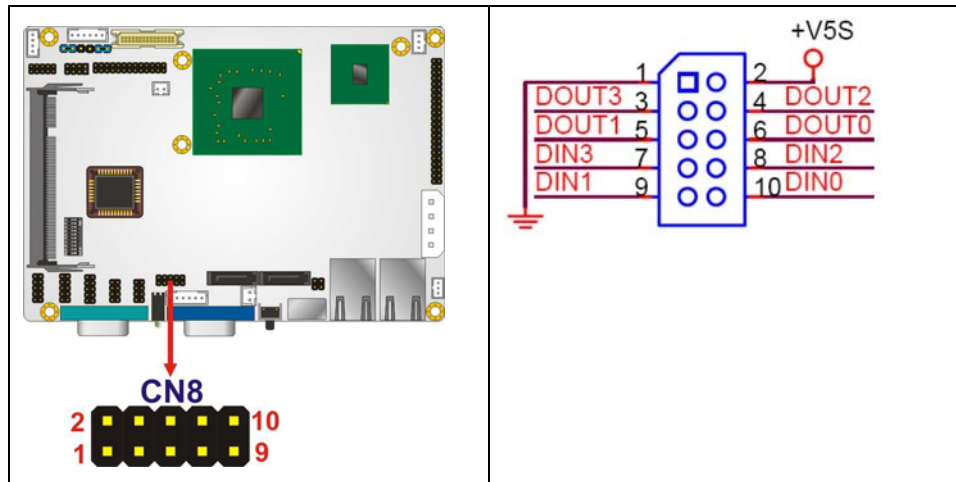
PIN NO.	DESCRIPTION
1	CD Signal (Right)
2	Ground
3	Ground
4	CD Signal (Left)

Table 4-7: Audio CD In Connector Pinouts

4.2.6 Digital Input/Output Connector

- CN Label:** CN8
- CN Type:** 10-pin header (2x5)
- CN Location:** See **Figure 4-8**
- CN Pinouts:** See **Table 4-8**

The digital input/output connector is managed through a Super I/O chip. The DIO connector pins are user programmable.


Figure 4-8: DIO Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC
3	Output 3	4	Output 2
5	Output 1	6	Output 0

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PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
7	Input 3	8	Input 2
9	Input 1	10	Input 0

Table 4-8: DIO Connector Pinouts

4.2.7 DVI Connector

- CN Label:** DV11
- CN Type:** 26-pin header (2 x 13)
- CN Location:** See Figure 4-9
- CN Pinouts:** See Table 4-9

The DVI connects to a monitor that is accepts DVI input signals.

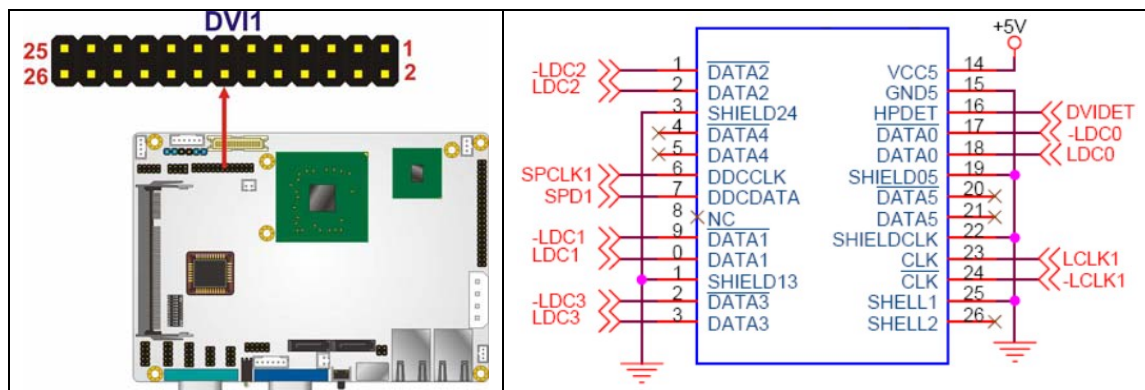


Figure 4-9: DVI Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-DATA2	14	5 V
2	DATA2	15	GND
3	GND	16	DVI DETECT
4	N/C	17	-DATA0
5	N/C	18	DATA0
6	DDCCLK	19	GND
7	DDCDATA	20	N/C
8	N/C	21	N/C

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
9	-DATA1	22	GND
10	DATA1	23	CLOCK
11	GND	24	-CLOCK
12	-DATA3	25	GND
13	DATA3	26	N/C

Table 4-9: DVI Connector Pinouts

4.2.8 Fan Connector

- CN Label:** FAN1
- CN Type:** 3-pin wafer (1 x 3)
- CN Location:** See **Figure 4-10**
- CN Pinouts:** See **Table 4-10**

The cooling fan connector provides a 12V, 500mA current to a system cooling fan. The connector has a "rotation" pin to get rotation signals from fans and notify the system so the system BIOS can recognize the fan speed. Please note that only specified fans can issue the rotation signals.

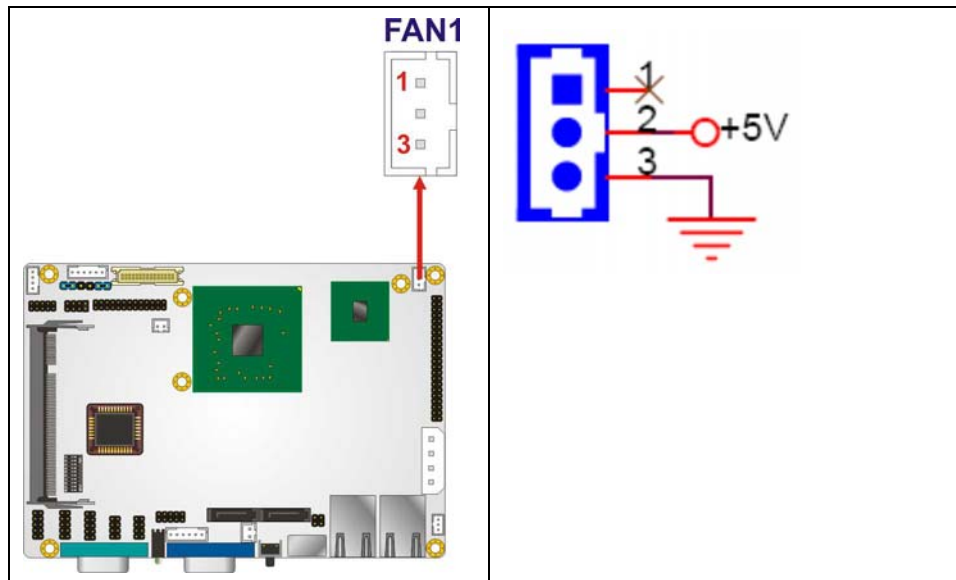


Figure 4-10: Fan Connector Location

PIN NO.	DESCRIPTION
1	Rotation Signal
2	+12V
3	GND

Table 4-10: +12V Fan Connector Pinouts

4.2.9 Front Panel Connector

- CN Label:** CN4
- CN Type:** 8-pin header (2 x 4)
- CN Location:** See Figure 4-11
- CN Pinouts:** See Table 4-11

The front panel connector connects to external switches and indicators to monitor and controls the motherboard. These indicators and switches include:

- Power button
- Reset button
- Power LED
- HDD LED

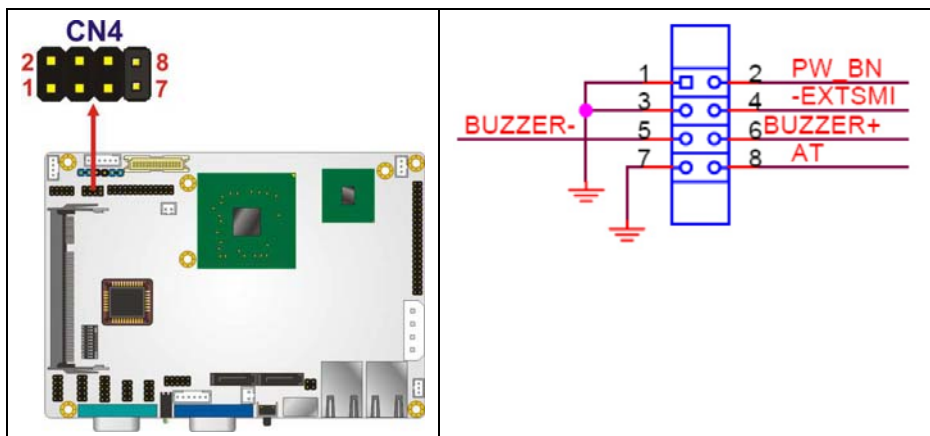


Figure 4-11: Front Panel Connector Location

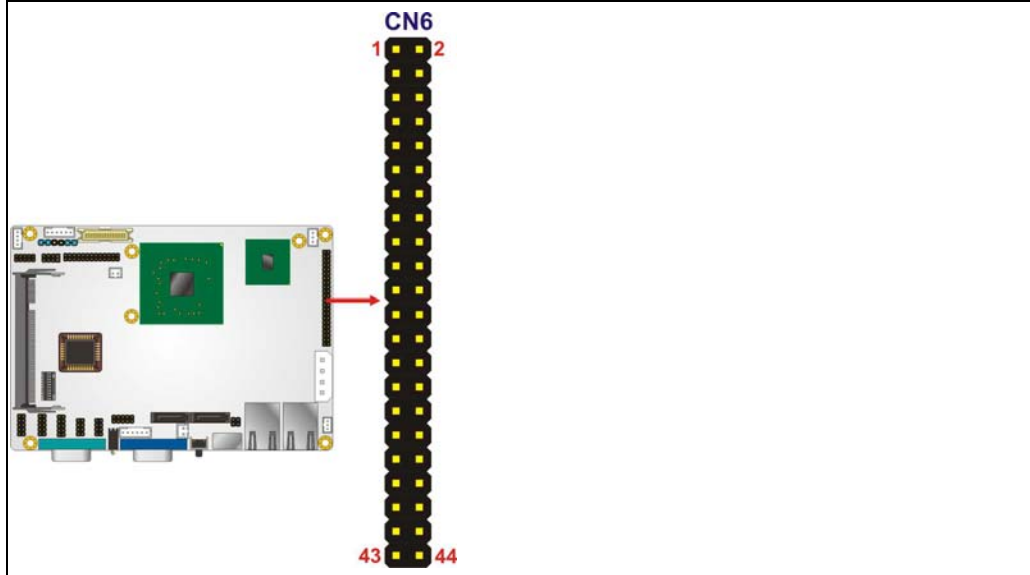
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	PW_BN
3	GND	4	-EXTSMI
5	BUZZER-	6	BUZZER+
7	GND	8	AT_FUNCTION

Table 4-11: Front Panel Connector Pinouts

4.2.10 IDE Connector

- CN Label:** CN6
- CN Type:** 44-pin header (2 x 22)
- CN Location:** See **Figure 4-12**
- CN Pinouts:** See **Table 4-12**

One 40-pin IDE device connector on the WAFER-CX700M supports connectivity to two hard disk drives.



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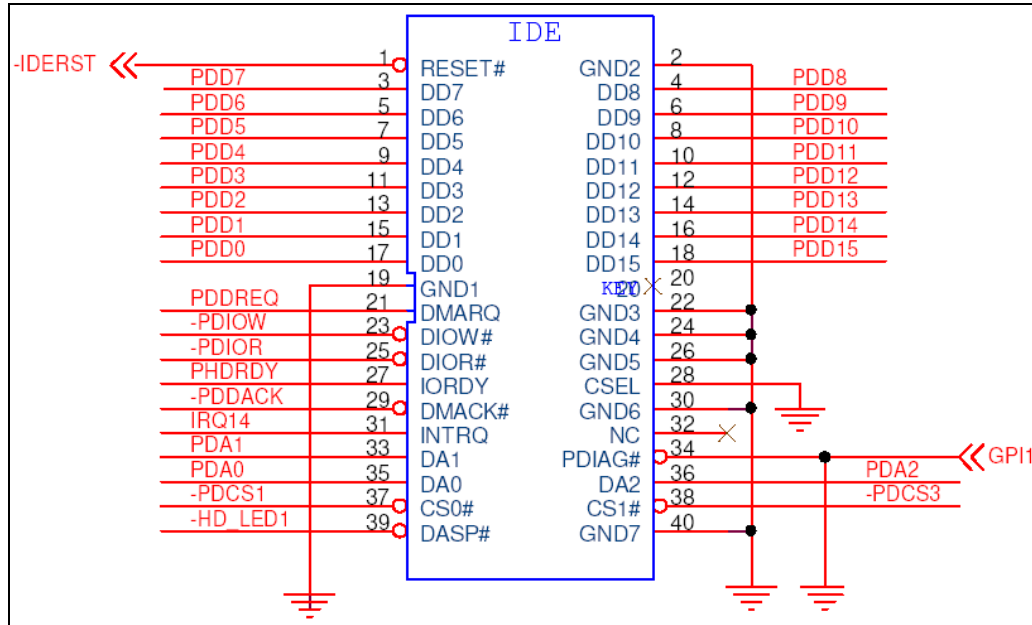


Figure 4-12: IDE Device Connector Locations

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	N/C
21	IDE DRQ	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	IDE CHRDY	28	GROUND
29	IDE DACK	30	GROUND-DEFAULT
31	INTERRUPT	32	N/C
33	SA1	34	N/C

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GROUND
41	VCC	42	VCC
43	GROUND	44	N/C

Table 4-12: IDE Connector Pinouts

4.2.11 LVDS Connector

- CN Label:** LVDS1
- CN Type:** 30-pin crimp (2 x 15)
- CN Location:** See **Figure 4-13**
- CN Pinouts:** See **Table 4-13**

The 30-pin LVDS LCD connector can be connected to single channel or dual channel, 18-bit or 36-bit LVDS panel.

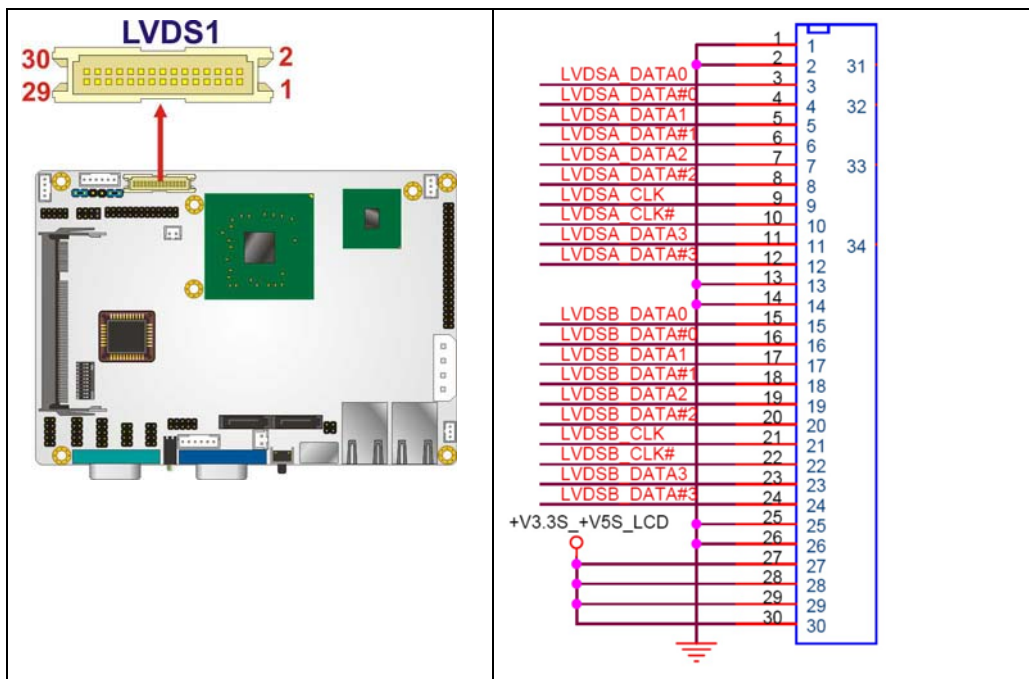


Figure 4-13: LVDS LCD Connector Pinout Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	2	GROUND
3	LVDSA_DATA0	4	LVDSA_DATA#0
5	LVDSA_DATA1	6	LVDSA_DATA#1
7	LVDSA_DATA2	8	LVDSA_DATA#2
9	LVDSA_CLK	10	LVDSA_CLK#
11	LVDSA_DATA3	12	LVDSA_DATA#3
13	GROUND	14	GROUND
15	LVDSB_DATA0	16	LVDSB_DATA0#
17	LVDSB_DATA1	18	LVDSB_DATA1#
19	LVDSB_DATA2	20	LVDSB_DATA2#
21	LVDSB_CLK	22	LVDSB_CLK#
23	LVDSB_DATA3	24	LVDSB_DATA3#
25	GROUND	26	GROUND
27	VCC/VCC3	28	VCC/VCC3
29	VCC/VCC3	30	VCC/VCC3

Table 4-13: LVDS LCD Port Connector Pinouts

4.2.12 Mini PCI Slot

- CN Label:** MINIPCI1
- CN Type:** 124-pin Mini PCI Slot
- CN Location:** See **Figure 4-14**
- CN Pinouts:** See **Table 4-14: Mini PCI Slot Pinouts**

The Mini PCI slot enables a Mini PCI expansion module to be connected to the board.

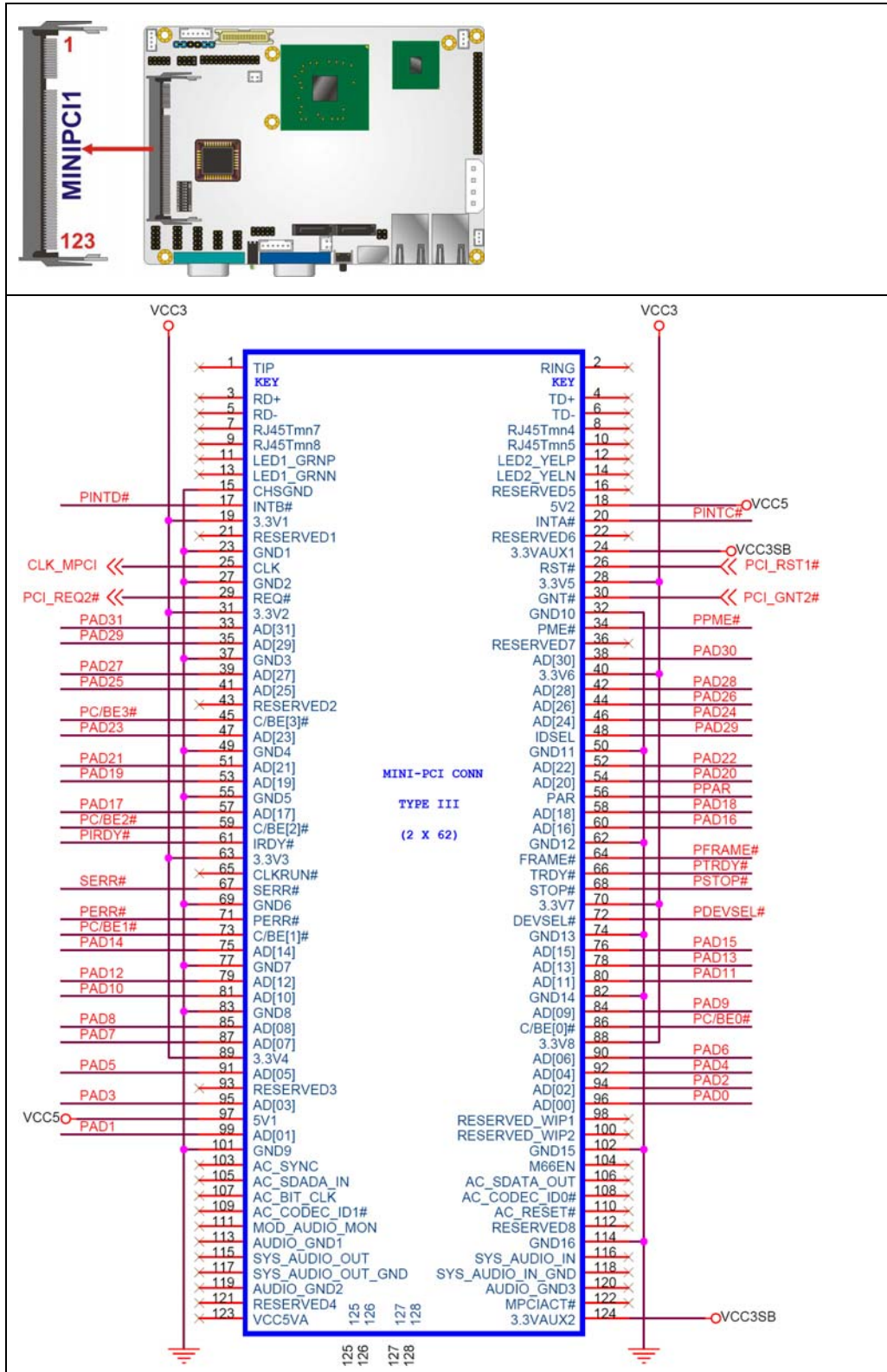


Figure 4-14: Mini PCI Slot Location

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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
11	NC	12	NC
13	NC	14	NC
15	GND	16	NC
17	PINTD#	18	VCC5
19	VCC3	20	PINTC#
21	NC	22	NC
23	GND	24	VCC3SB
25	CLK_MPCI	26	PCI_RST1#
27	GND	28	VCC3
29	PCI_REQ2#	30	PCI_GNT2#
31	VCC3	32	GND
33	PAD31	34	PPME#
35	PAD29	36	NC
37	GND	38	PAD30
39	PAD27	40	VCC3
41	PAD25	42	PAD28
43	NC	44	PAD26
45	PC/BE3#	46	PAD24
47	PAD23	48	PAD29
49	GND	50	GND
51	PAD21	52	PAD22
53	PAD19	54	PAD20
55	GND	56	PPAR
57	PAD17	58	PAD18
59	PC/BE2#	60	PAD16

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
61	PIRDY#	62	GND
63	VCC3	64	PFRAME#
65	NC	66	PTRDY#
67	SERR#	68	PSTOP#
69	GND	70	VCC3
71	PERR#	72	PDEVSEL#
73	PC/BE1#	74	GND
75	PAD14	76	PAD15
77	GND	78	PAD13
79	PAD12	80	PAD11
81	PAD10	82	GND
83	GND	84	PAD9
85	PAD8	86	PC/BE0#
87	PAD7	88	VCC3
89	VCC3	90	PAD6
91	PAD5	92	PAD4
93	NC	94	PAD2
95	PAD3	96	PAD0
97	VCC5	98	NC
99	PAD1	100	NC
101	GND	102	GND
103	NC	104	NC
105	NC	106	NC
107	NC	108	NC
109	NC	110	NC
111	NC	112	NC
113	NC	114	GND
115	NC	116	NC
117	NC	118	NC
119	NC	120	NC
121	NC	122	NC

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PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
123	NC	124	VCC3SB

Table 4-14: Mini PCI Slot Pinouts

4.2.13 Power Connector

- CN Label:** CN7
- CN Type:** 4-pin AT power connector (1x4)
- CN Location:** See **Figure 4-15**
- CN Pinouts:** See **Table 4-15**

The 4-pin AT power connector is connected to an AT power supply.

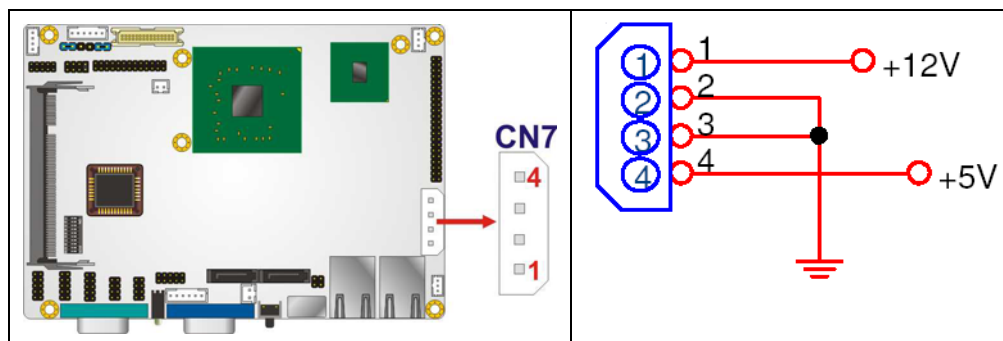


Figure 4-15: AT Power Connector Location

PIN NO.	DESCRIPTION
1	+12 V
2	GND
3	GND
4	+5 V

Table 4-15: Power Connector Pinouts

4.2.14 PS_ON Connector

- CN Label:** CN9

CN Type: 3-pin wafer (1x3)

CN Location: See **Figure 4-16**

CN Pinouts: See **Table 4-16**

The ATX power supply enable connector enables the WAFER-CX700M to be connected to an ATX power supply. In default mode, the WAFER-CX700M can only use an AT power supply. To enable an ATX power supply the AT Power Select jumper must also be configured. Please refer to Chapter 3 for more details.

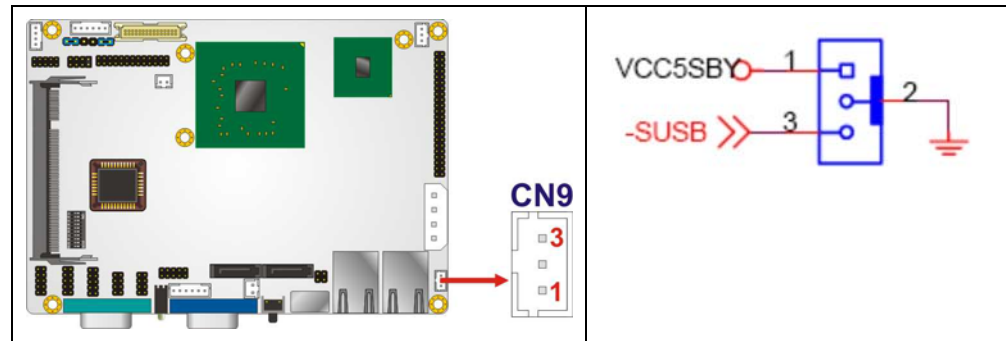


Figure 4-16: ATX Power Supply Enable Connector Location

PIN NO.	DESCRIPTION
1	+5V Standby
2	GND
3	PS-ON

Table 4-16: ATX Power Supply Enable Connector Pinouts

4.2.15 Reset Button Connector

CN Label: CN13

CN Type: 2-pin wafer (1x2)

CN Location: See **Figure 4-17**

CN Pinouts: See **Table 4-17**

The reset button connector is connected to a reset switch on the system chassis to enable users to reboot the system when the system is turned on.

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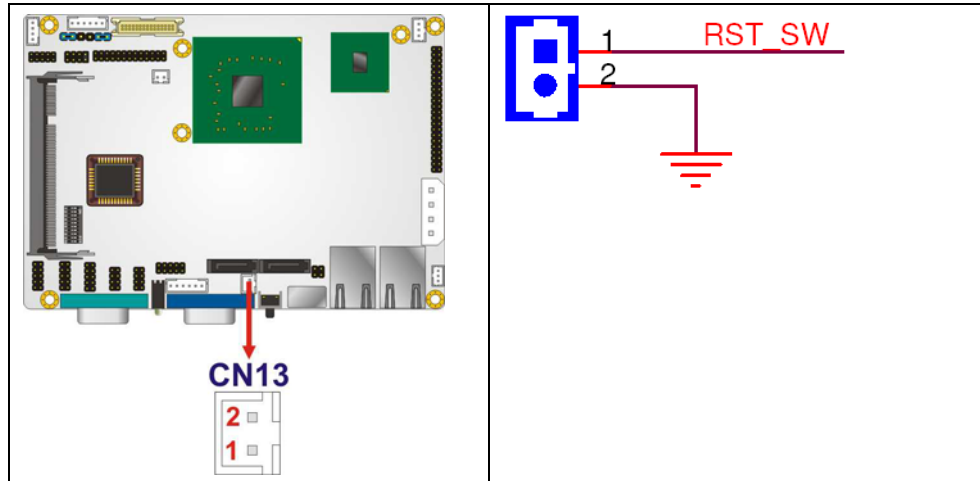


Figure 4-17: Reset Button Connector Locations

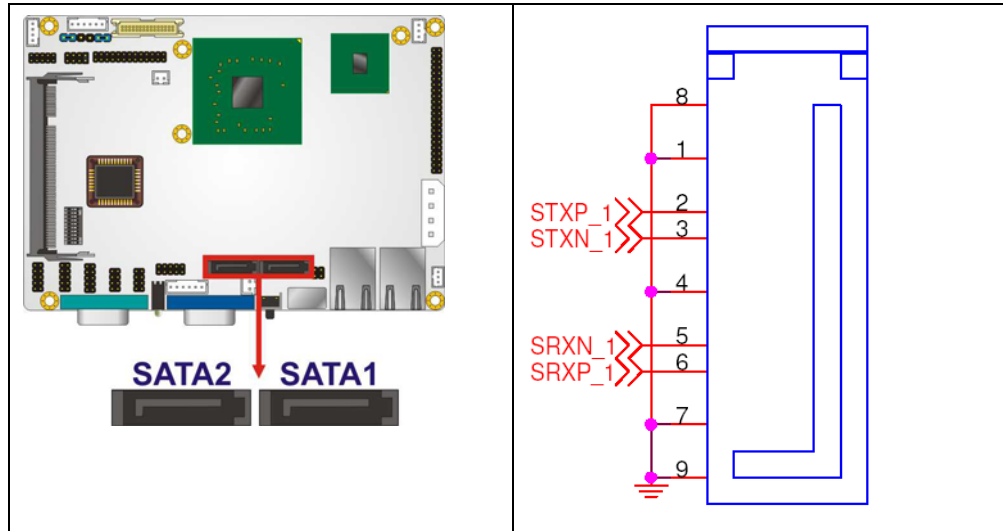
PIN NO.	DESCRIPTION
1	Reset Switch
2	GND

Table 4-17: Reset Button Connector Pinouts

4.2.16 SATA Drive Connectors

- CN Label:** SATA1 and SATA2
- CN Type:** 7-pin SATA drive connectors
- CN Location:** See Figure 4-18
- CN Pinouts:** See Table 4-18

The SATA drive connectors are each connected to second generation SATA drives. Second generation SATA drives transfer data at speeds as high as 3.0 Gb/s. The SATA drives can be configured in a RAID configuration.


Figure 4-18: SATA Drive Connector Locations

PIN NO.	DESCRIPTION
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

Table 4-18: SATA Drive Connector Pinouts

4.2.17 Serial Port Connectors

CN Label: CN10, CN11 and CN12

CN Type: 10-pin header (2x5)

CN Location: See **Figure 4-19**

CN Pinouts: See **Table 4-19**

The 10-pin serial port connectors provide RS-232 serial communications channels. The serial port connector can be connected to external RS-232 serial port devices.

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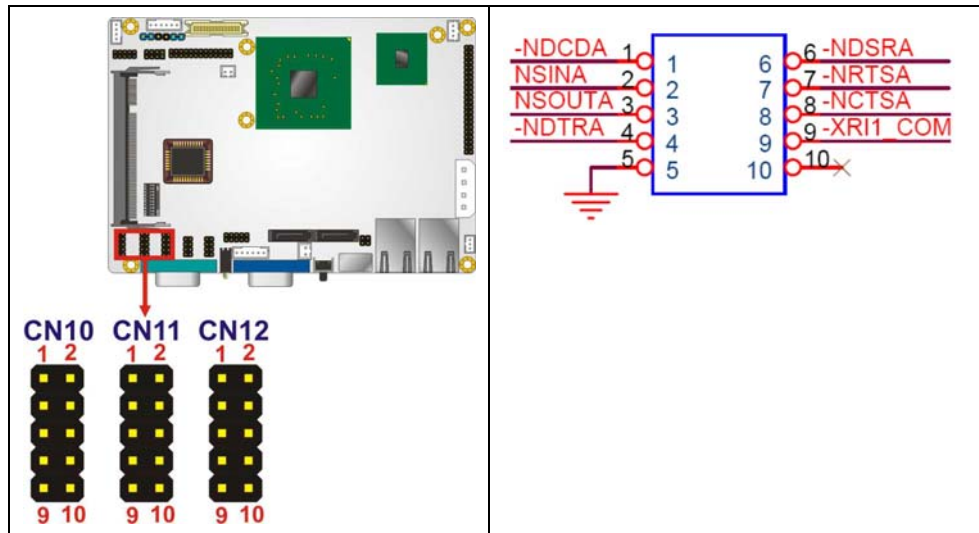


Figure 4-19: COM Connector Pinout Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Data Carrier Direct (DCD)	2	Data Set Ready (DSR)
3	Receive Data (RXD)	4	Request To Send (RTS)
5	Transmit Data (TXD)	6	Clear To Send (CTS)
7	Data Terminal Ready (DTR)	8	Ring Indicator (RI)
9	Ground (GND)		

Table 4-19: COM Connector Pinouts

4.2.18 USB Connectors

- CN Label:** USB1 and USB2
- CN Type:** 8-pin header (2x4)
- CN Location:** See Figure 4-20
- CN Pinouts:** See Table 4-20

The 2x4 USB pin connectors each provide connectivity to two USB 1.1 or two USB 2.0 ports. Each USB connector can support two USB devices. Additional external USB ports are found on the rear panel. The USB ports are used for I/O bus expansion.

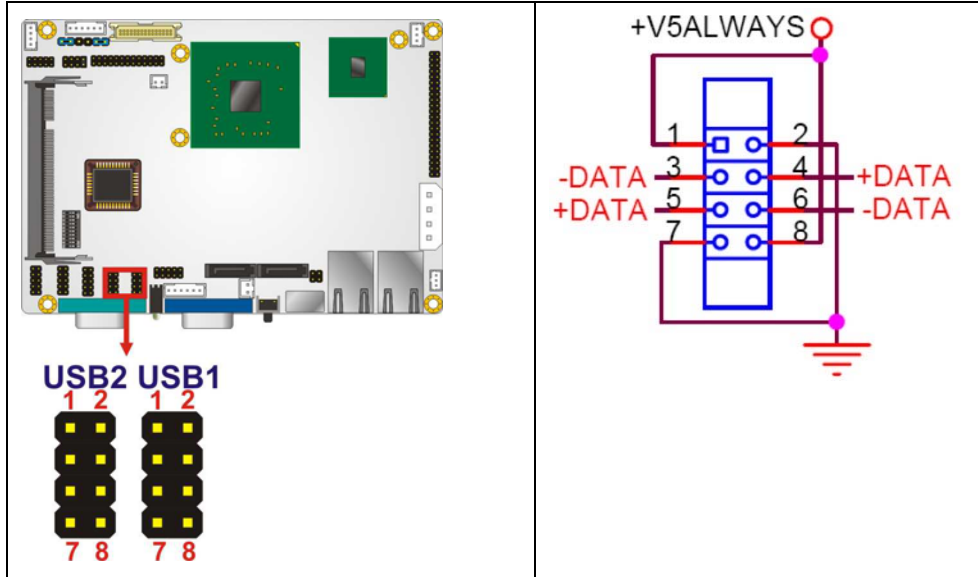


Figure 4-20: USB Connector Pinout Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	VCC

Table 4-20: USB Port Connector Pinouts

4.3 External Peripheral Interface Connector Panel

Figure 4-21 shows the WAFER-CX700M external peripheral interface connector (EPIC) panel. The WAFER-CX700M EPIC panel consists of the following:

- 2 x RJ-45 LAN connectors
- 1 x PS/2 connector
- 1 x Serial port connector
- 1 x VGA connector

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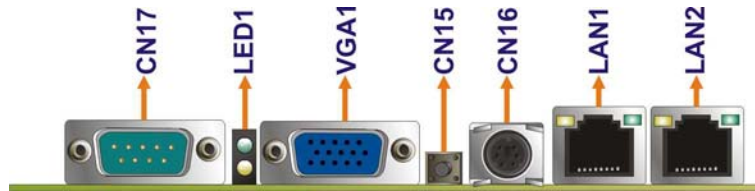


Figure 4-21: WAFER-CX700M External Peripheral Interface Connector

4.3.1 LAN Connectors

- CN Label:** LAN1 and LAN2
- CN Type:** RJ-45
- CN Location:** See Figure 4-21
- CN Pinouts:** See Table 4-21

The WAFER-CX700M is equipped with two built-in RJ-45 Ethernet controllers. The controllers can connect to the LAN through two RJ-45 LAN connectors. There are two LEDs on the connector indicating the status of LAN. The pin assignments are listed in the following table:

PIN	DESCRIPTION	PIN	DESCRIPTION
1	TXA+	5	TXC-
2	TXA-	6	TXB-
3	TXB+	7	TXD+
4	TXC+	8	TXD-

Table 4-21: LAN Pinouts

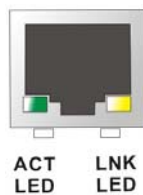


Figure 4-22: RJ-45 Ethernet Connector

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked. See **Table 4-22**.

STATUS	DESCRIPTION	STATUS	DESCRIPTION
GREEN	Activity	YELLOW	Linked

Table 4-22: RJ-45 Ethernet Connector LEDs

4.3.2 Keyboard/Mouse Connector

- CN Label:** CN16
- CN Type:** PS/2
- CN Location:** See **Figure 4-21**
- CN Pinouts:** See **Table 4-23**

The keyboard and mouse connector is a standard PS/2 connector.

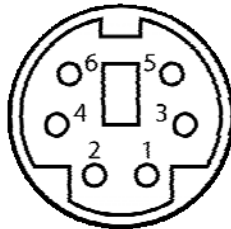


Figure 4-23: PS/2 Pinout and Configuration

PIN	DESCRIPTION
1	KB DATA
2	MS DATA
3	GND
4	VCC
5	KB CLOCK
6	MS CLOCK

Table 4-23: Keyboard Connector Pinouts

4.3.3 Serial Port Connectors

- CN Label:** CN16
- CN Type:** DB-9 connectors
- CN Location:** See **Figure 4-21**
- CN Pinouts:** See **Table 4-24** and **Figure 4-24**

The 9-pin DB-9 CN16 serial port connector is connected to RS-232 serial communications devices.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	6	DSR
2	RX	7	RTS
3	TX	8	CTS
4	DTR	9	RI
5	GND		

Table 4-24: RS-232 Serial Port (COM 1) Pinouts

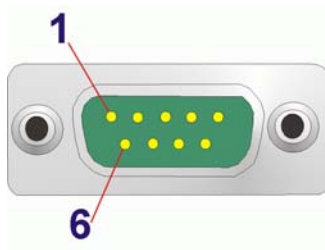


Figure 4-24: COM1 Pinout Locations

4.3.4 VGA Connector

- CN Label:** VGA1
- CN Type:** 15-pin Female
- CN Location:** See **Figure 4-21**
- CN Pinouts:** See **Figure 4-25** and **Table 4-25**

The WAFER-CX700M has a single 15-pin female connector for connectivity to standard display devices.

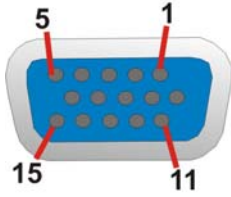


Figure 4-25: VGA Connector

PIN	DESCRIPTION	PIN	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	VCC / NC	10	GND
11	NC	12	DDC DAT
13	HSYNC	14	VSYNC
15	DDCCLK		

Table 4-25: VGA Connector Pinouts

Chapter

5

Installation

5.1 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the installation of the WAFER-CX700M may result in permanent damage to the WAFER-CX700M and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the WAFER-CX700M. Dry climates are particularly susceptible to ESD. It is therefore critical that whenever the WAFER-CX700M or any other electronic component is handled, the following anti-static precautions are strictly adhered to:

- **Wear and anti-static wristband:** - Wearing a simple anti-static wristband can help to prevent ESD from damaging the WAFER-CX700M.
- **Self-grounding:** - Before handling the WAFER-CX700M touch any grounded conducting material. During the time of handling, frequently touch any conducting materials that are connected to the ground.
- **Use an anti-static pad:** - When configuring the WAFER-CX700M, place it on an anti-static pad. This reduces the possibility of ESD damaging the WAFER-CX700M.
- **Only handle the PCB by the edges:** - When handling the PCB, hold the PCB by it's edges.

5.2 Installation Considerations



NOTE:

The following installation notices and installation considerations should be read and understood before the WAFER-CX700M is installed. All installation notices pertaining to the installation of the WAFER-CX700M should be strictly adhered to. Failing to adhere to these precautions may lead to severe damage of the WAFER-CX700M and injury to the person installing the motherboard.

5.2.1 Installation Notices



WARNING:

The installation instructions described in this manual should be carefully followed in order to prevent damage to the WAFER-CX700M and its accessories, and prevent injury to the user.

Before and during the installation please **DO** the following:

- Read the user manual:
 - The user manual provides a complete description of the WAFER-CX700M installation instructions and configuration options.
- Wear an electrostatic discharge cuff (ESD):
 - Electronic components are easily damaged by ESD. Wearing an ESD cuff removes ESD from the body and helps prevent ESD damage.
- Place the WAFER-CX700M on an antistatic pad:
 - When installing or configuring the motherboard, place it on an antistatic pad. This helps to prevent potential ESD damage.
- Turn all power to the WAFER-CX700M off:

- When working with the WAFER-CX700M, make sure that it is disconnected from all power supplies and that no electricity is being fed into the system.

Before and during the installation of the WAFER-CX700M **DO NOT** do the following:

- **DO NOT** remove any of the stickers on the PCB board. These stickers are required for warranty validation.
- **DO NOT** use the product before verifying all the cables and power connectors are properly connected.
- **DO NOT** allow screws to come in contact with the PCB circuit, connector pins, or its components.

5.2.2 Installation Checklist

The following checklist is provided to ensure the WAFER-CX700M is properly installed.

- All the items in the packing list are present
- The CPU is installed
- The CPU cooling kit is properly installed
- A compatible memory module is properly inserted into the slot
- The jumpers have been properly configured
- The WAFER-CX700M is inserted into a chassis with adequate ventilation
- The correct power supply is being used
- The following devices are properly connected
 - Primary and secondary IDE device
 - SATA drives
 - Keyboard and mouse cable
 - Audio kit
 - Power supply
 - USB cable
 - Serial port cable
 - Parallel port cable
- The following external peripheral devices are properly connected to the chassis:
 - DVI screen

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- Keyboard
- Mouse
- LAN

5.2.3 Airflow



WARNING:

Airflow is critical to the cooling of the CPU and other onboard components. The chassis in which the WAFER-CX700M is installed must have air vents to allow cool air into the system and hot air to move out.

The WAFER-CX700M must be installed in a chassis with ventilation holes on the sides allowing airflow to travel through the heat sink surface. In a system with an individual power supply unit, the cooling fan of a power supply can also help generate airflow through the board surface.

5.3 Unpacking Precautions

When the WAFER-CX700M is unpacked, please do the following:

- Follow the anti-static precautions outlined above.
- Make sure the packing box is facing upwards so the WAFER-CX700M does not fall out of the box.
- Make sure all the components in the checklist shown in **Chapter 3** are present.

**NOTE:**

If some of the components listed in the checklist in **Chapter 3** are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the WAFER-CX700M from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

5.4 Cooling Kit and DIMM Installation

**WARNING:**

A CPU should never be turned on without the specified cooling kit being installed. If the cooling kit (heat sink and fan) is not properly installed and the system turned on, permanent damage to the CPU, WAFER-CX700M and other electronic components attached to the system may be incurred. Running a CPU without a cooling kit may also result in injury to the user.

The CPU, CPU cooling kit and DIMM are the most critical components of the WAFER-CX700M. If one of these component is not installed the WAFER-CX700M cannot run.

5.4.1 Cooling Kit Installation

The WAFER-CX700M comes with a cooling kit preinstalled. The cooling kit is attached to the WAFER-CX700M with three screws. The cooling fan is attached to the heatsink with two metal clips. Three wires attach the cooling fan to the cooling fan power connector on the board. The cooling kit is custom designed for the WAFER-CX700M and should not be replaced with an alternate cooling kit.

5.4.2 SO-DIMM Installation



WARNING:

Using incorrectly specified SO-DIMM may cause permanent damage to the WAFER-CX700M. Please make sure the purchased SO-DIMM complies with the memory specifications of the WAFER-CX700M. SO-DIMM specifications compliant with the WAFER-CX700M are listed in **Chapter 2**.

To install a SO-DIMM into a SO-DIMM socket, please follow the steps below and refer to **Figure 5-1**.

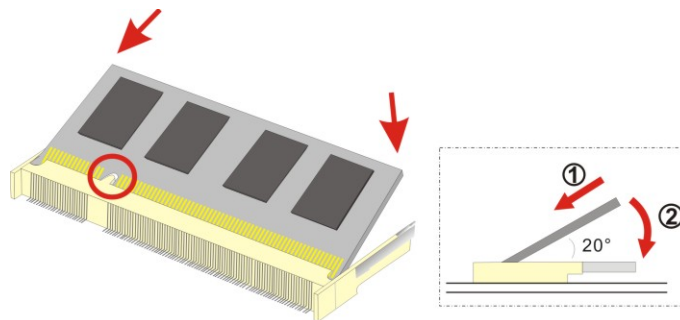


Figure 5-1: SO-DIMM Installation

- Step 1:** **Locate the SO-DIMM socket.** Place the WAFER-CX700M on an anti-static pad with the solder side facing up.
- Step 2:** **Align the SO-DIMM with the socket.** The SO-DIMM must be oriented in such a way that the notch in the middle of the SO-DIMM must be aligned with the plastic bridge in the socket.
- Step 3:** **Insert the SO-DIMM.** Push the SO-DIMM chip into the socket at an angle. (See **Figure 5-1**)
- Step 4:** **Open the SO-DIMM socket arms.** Gently pull the arms of the SO-DIMM socket out and push the rear of the SO-DIMM down. (See **Figure 5-1**)

Step 5: Secure the SO-DIMM. Release the arms on the SO-DIMM socket. They clip into place and secure the SO-DIMM in the socket.

5.4.3 CF Card Installation



NOTE:

The WAFER-CX700M can support both CF Type I cards and CF Type II cards. For the complete specifications of the supported CF cards please refer to **Chapter 2**.

To install the a CF card (Type 1 or Type 2) onto the WAFER-CX700M, please follow the steps below:

- Step 1: Locate the CF card socket.** Place the WAFER-CX700M on an anti-static pad with the solder side facing up. Locate the CF card slot.
- Step 2: Align the CF card.** Make sure the CF card is properly aligned with the CF cards slot.
- Step 3: Insert the CF card.** Gently insert the CF card into the socket making sure the socket pins are properly inserted into the socket. See **Figure 5-2**.

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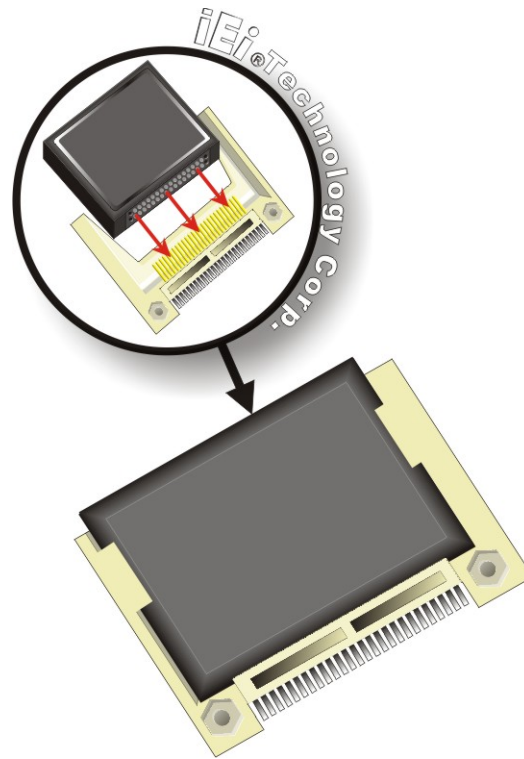


Figure 5-2: CF Card Installation

5.5 Jumper Settings



NOTE:

A jumper is a metal bridge used to close an electrical circuit. It consists of two or three metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.

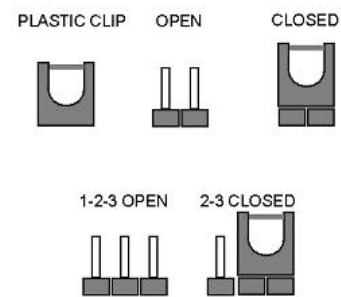


Figure 5-3: Jumper Locations

Before the WAFER-CX700M is installed in the system, the jumpers must be set in accordance with the desired configuration. The jumpers on the WAFER-CX700M are listed below.

Description	Label	Type
AT/ATX power selection	CN4 (pins 7 & 8)	2-pin header
Clear CMOS	JP1	2-pin header
LVDS voltage selection	JP2	3-pin header
RS-232/422/485 selector switch	SW1	10 switch selector

Table 5-1: Jumpers

5.5.1 AT/ATX Power Supply Selector

- Jumper Label:** CN4 (pins 7 & 8)
- Jumper Type:** 2-pin header
- Jumper Settings:** See Table 5-2
- Jumper Location:** See Figure 5-4

The AT/ATX Power Supply Selector switch chooses whether an AT or ATX power supply is used. ATX power supplies allow the motherboard to turn the computer off and offer power management features. AT power supplies are turned off directly at the power source **Table 5-2**.

AT/ATX Power Selector	Description	
Open	ATX power supply	
Short 7 – 8	AT power supply	Default

Table 5-2: AT/ATX Power Supply Selector Settings

The AT/ATX Power Supply Selector jumper location is shown in **Figure 5-4** below.

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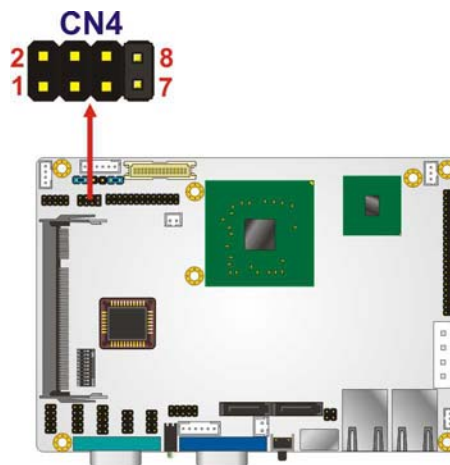


Figure 5-4: AT/ATX Power Supply Selector Location

5.5.2 Clear CMOS Jumper

Jumper Label:	JP1
Jumper Type:	3-pin header
Jumper Settings:	See Table 5-3
Jumper Location:	See Figure 5-5

If the WAFER-CX700M fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. To do this, use the jumper cap to close pins 2 and 3 for a few seconds then reinstall the jumper clip back to pins 1 and 2.

If the “CMOS Settings Wrong” message is displayed during the boot up process, the fault may be corrected by pressing the F1 to enter the CMOS Setup menu. Do one of the following:

- Enter the correct CMOS setting
- Load Optimal Defaults
- Load Failsafe Defaults.

After having done one of the above, save the changes and exit the CMOS Setup menu.

The clear CMOS jumper settings are shown in **Table 5-3**.

AT Power Select	Description	
Short 1 - 2	Keep CMOS Setup	Default
Short 2 - 3	Clear CMOS Setup	

Table 5-3: Clear CMOS Jumper Settings

The location of the clear CMOS jumper is shown in **Figure 5-5** below.

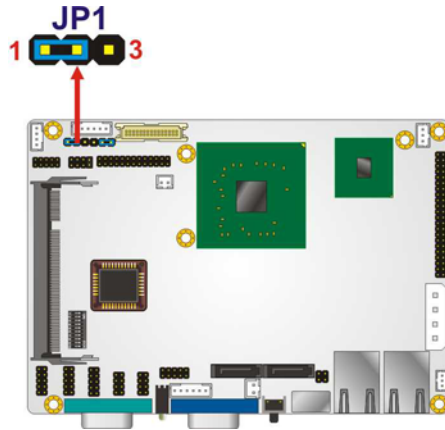


Figure 5-5: Clear CMOS Jumper

5.5.3 LVDS Voltage Selection



WARNING:

Permanent damage to the screen and WAFER-CX700M may occur if the wrong voltage is selected with this jumper. Please refer to the user guide that came with the monitor to select the correct voltage.

- Jumper Label:** JP2
- Jumper Type:** 3-pin header
- Jumper Settings:** See **Table 5-4**
- Jumper Location:** See **Figure 5-6**

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The **LVDS Voltage Selection** jumper allows the LVDS screen voltage to be set. The **LVDS Voltage Selection** jumper settings are shown in **Table 5-4**.

LVDS Voltage Select	Description	
Short 1-2	+3.3V LVDS	
Short 2-3	+5V LVDS	Default

Table 5-4: LVDS Voltage Selection Jumper Settings

The LVDS Voltage Selection jumper location is shown in **Figure 5-6**.

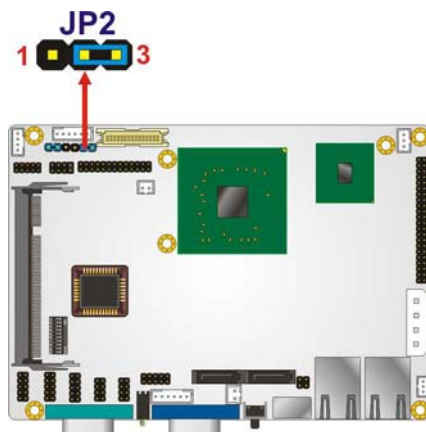


Figure 5-6: LVDS Voltage Selection Jumper Pinout Locations

5.5.4 RS-232/422/485 Selection Switch

Jumper Label:	SW1
Jumper Type:	10-switch selector
Jumper Settings:	See Table 5-4
Jumper Location:	See Figure 5-6

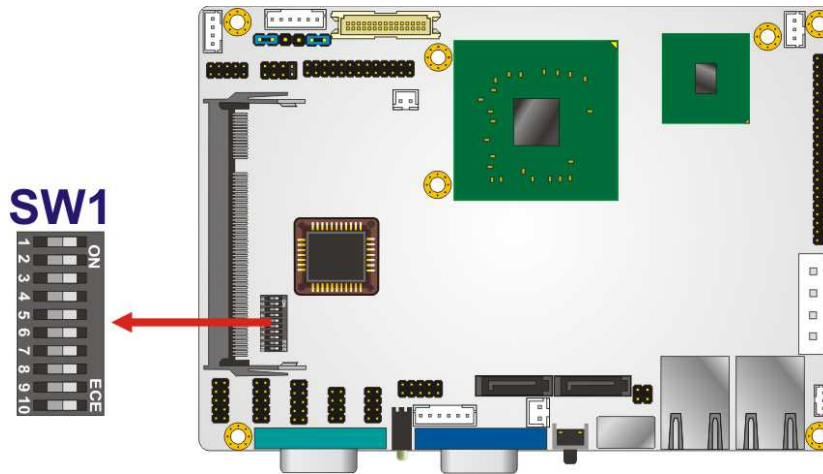
The RS-232/422/485 Selection Switch allows the function of COM2 to be set. The RS-232/422/485 Selection Jumper settings are shown in **Table 5-4**.

SW1	1	2	3	4	5	6	7	8	9	10
RS-232	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
RS-422	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON

SW1	1	2	3	4	5	6	7	8	9	10
RS-485	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON

Table 5-5: RS-232/422/485 Selection Jumper Settings

The RS-232/422/485 Selection Jumper location is shown in **Figure 5-6**.


Figure 5-7: RS-232/422/485 Selection Jumper

5.6 Internal Peripheral Device Connections

The cables listed in **Table 5-6** are shipped with the WAFER-CX700M.

Quantity	Type
1	Audio cable
1	IDE cable (44-pin)
1	Keyboard/Mouse Y-cable
3	RS-232 cable
2	SATA drive cable
1	SATA drive power cable
2	USB cable

Table 5-6: IEI Provided Cables

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5.6.1 Audio Cable Installation

The Audio Kit that came with the WAFER-CX700M connects to the 10-pin audio connector on the WAFER-CX700M. The audio kit consists of three audio jacks. One audio jack, Mic In, connects to a microphone. The remaining two audio jacks, Line-In and Line-Out, connect to two speakers. To install the audio kit, please refer to the steps below:

Step 1: **Locate the audio connector.** The location of the 10-pin audio connector is shown in Chapter 3.

Step 2: **Align pin 1.** Align pin 1 on the on-board connector with pin 1 on the audio kit connector. Pin 1 on the audio kit connector is indicated with a white dot. See **Figure 5-8.**

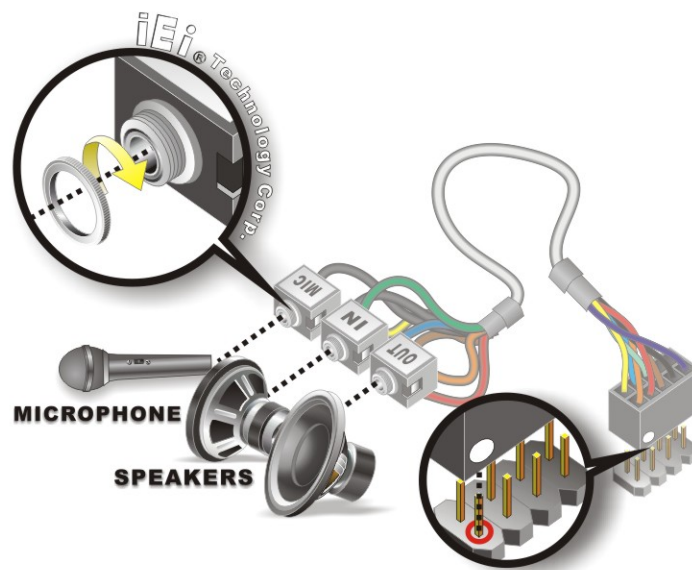


Figure 5-8: Audio Cable Connection

Step 3: **Connect the audio devices.** Connect one speaker to the line-in audio jack, one speaker to the line-out audio jack and a microphone to the mic-in audio jack.

5.6.2 HDD Cable Connection

The 44-pin flat IDE cable connects the WAFER-CX700M to an IDE device. To connect an IDE HDD to the WAFER-CX700M please follow the instructions below.

Step 1: **Locate the IDE connector.** The location/s of the IDE device connector/s is/are shown in **Chapter 3**.

Step 2: **Insert the connector.** Connect the IDE cable connector to the on-board connector. See Figure 5-9. A key on the front of the cable connector ensures it can only be inserted in one direction.

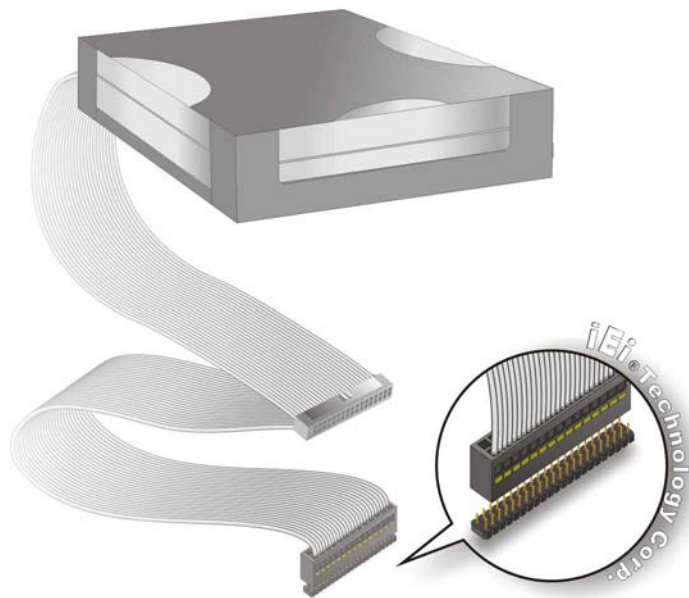


Figure 5-9: IDE Cable Connection

Step 3: **Connect the cable to an IDE device.** Connect the two connectors on the other side of the cable to one or two IDE devices. Make sure that pin 1 on the cable corresponds to pin 1 on the connector.

5.6.3 Serial Port Cable Connection

The RS-232/422/485 cable consists of a D-sub 9-pin male connector attached to a single board connector. To install the RS-232/422/485 cable, please follow the steps below.

Step 1: **Locate the connectors.** The locations of the RS-232 connectors are shown in **Chapter 3**.

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Step 2: Insert the cable connectors. Insert one connector into each serial port box headers. A key on the front of the cable connectors ensures the connector can only be installed in one direction.

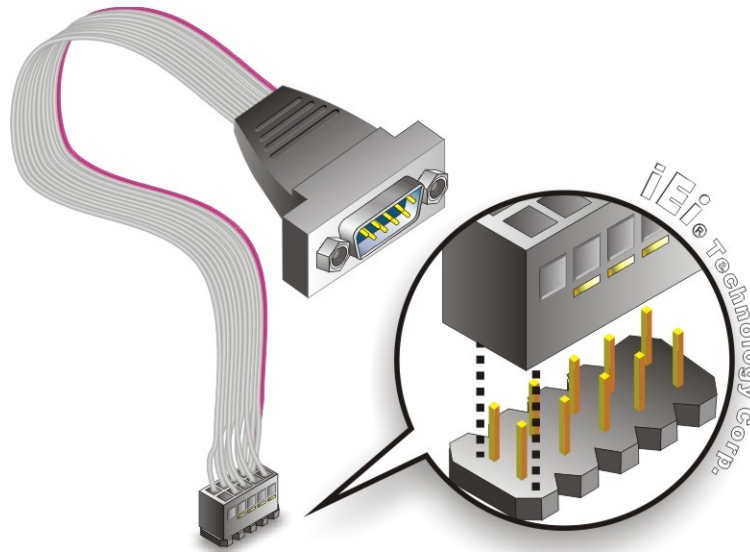


Figure 5-10: Single RS-232 Cable Installation

Step 3: Secure the connectors. Both single RS-232 connectors have two retention screws that must be secured to a chassis or bracket.

Step 4: Connect the serial device. Once the single RS-232 connectors are connected to a chassis or bracket, a serial communications device can be connected to the system.

5.6.4 SATA Drive Connection

The WAFER-CX700M is shipped with two SATA drive cables and one SATA drive power cable. To connect the SATA drives to the connectors, please follow the steps below.

Step 1: Locate the connectors. The locations of the SATA drive connectors are shown in **Chapter 3**.

Step 2: Insert the cable connector. Press the clip on the connector at the end of the SATA cable and insert the cable connector into the onboard SATA drive connector. See **Figure 5-11**.

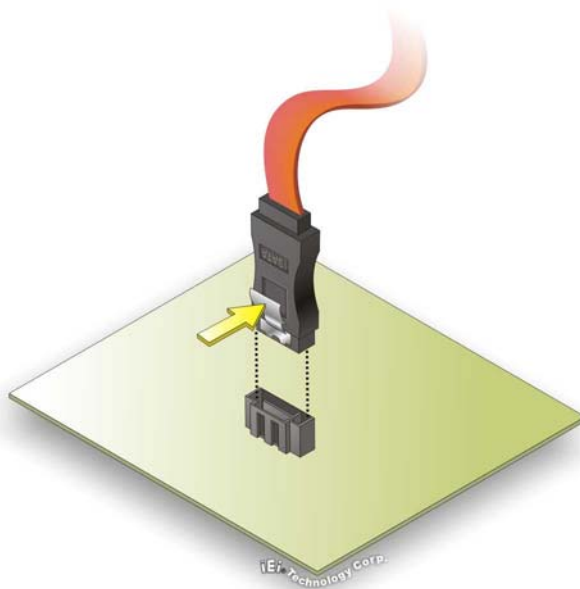


Figure 5-11: SATA Drive Cable Connection

Step 3: Connect the cable to the SATA disk. Connect the connector on the other end of the cable to the connector at the back of the SATA drive. See **Figure 5-12**.

Step 4: Connect the SATA power cable. Connect the SATA power connector to the back of the SATA drive.

WAFER-CX700M 3.5" SBC

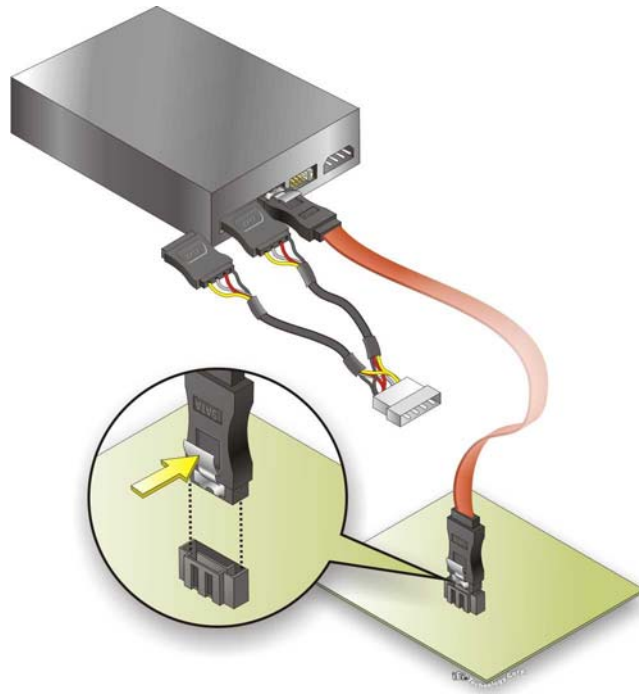


Figure 5-12: SATA Power Drive Connection

5.6.5 USB Cable (Dual Port without Bracket)

The WAFER-CX700M is shipped with a dual port USB 2.0 cable. To connect the USB cable connector, please follow the steps below.

Step 1: **Locate the connectors.** The locations of the USB connectors are shown in Chapter 3.



WARNING:

If the USB pins are not properly aligned, the USB device can burn out.

Step 2: **Align the connectors.** The cable has two connectors. Correctly align pin 1 on each cable connector with pin 1 on the WAFER-CX700M USB connector.

Step 3: Insert the cable connectors. Once the cable connectors are properly aligned with the USB connectors on the WAFER-CX700M, connect the cable connectors to the on-board connectors. See **Figure 5-13**.

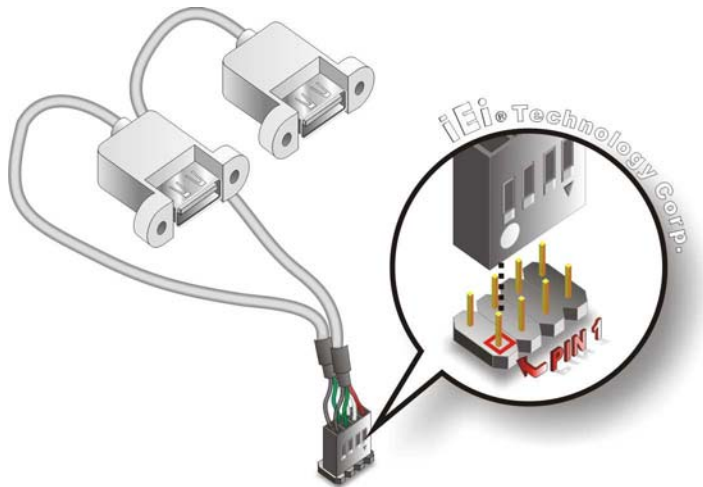


Figure 5-13: Dual USB Cable Connection

Step 4: Attach the USB connectors to the chassis. The USB 2.0 connectors each of two retention screw holes. To secure the connectors to the chassis please refer to the installation instructions that came with the chassis.

5.7 External Peripheral Interface Connection

The following external peripheral devices can be connected to the external peripheral interface connectors.

- RJ-45 Ethernet cable connectors
- USB devices
- VGA monitors

To install these devices, connect the corresponding cable connector from the actual device to the corresponding WAFER-CX700M external peripheral interface connector making sure the pins are properly aligned.

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5.7.1 Keyboard/Mouse Y-Cable Connection

The WAFER-CX700M has a PS/2 connector on the external peripheral interface panel. The dual PS/2 connector is connected to the PS/2 Y-cable that came with the WAFER-CX700M. One of the PS/2 cables is connected to a keyboard and the other to a mouse to the system. Follow the steps below to connect a keyboard and mouse to the WAFER-CX700M.

Step 1: **Locate the dual PS/2 connector.** The location of the PS/2 connector is shown in **Chapter 3**.

Step 2: **Insert the keyboard/mouse connector.** Insert the PS/2 connector on the end of the PS/2 y-cable into the external PS/2 connector. See **Figure 5-14**.

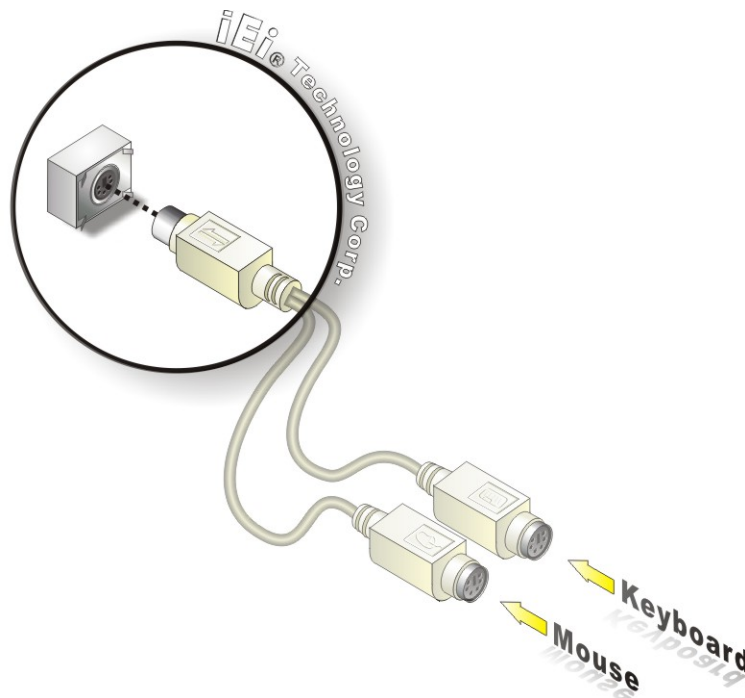


Figure 5-14: PS/2 Keyboard/Mouse Connector

Step 3: **Connect the keyboard and mouse.** Connect the keyboard and mouse to the appropriate connector. The keyboard and mouse connectors can be distinguished from each other by looking at the small graphic at the top of the connector.

5.7.2 LAN Connection

There are two external RJ-45 LAN connectors. The RJ-45 connectors enable connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

Step 1: **Locate the RJ-45 connectors.** The locations of the USB connectors are shown in **Chapter 4**.

Step 2: **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the WAFER-CX700M. See **Figure 5-15**.

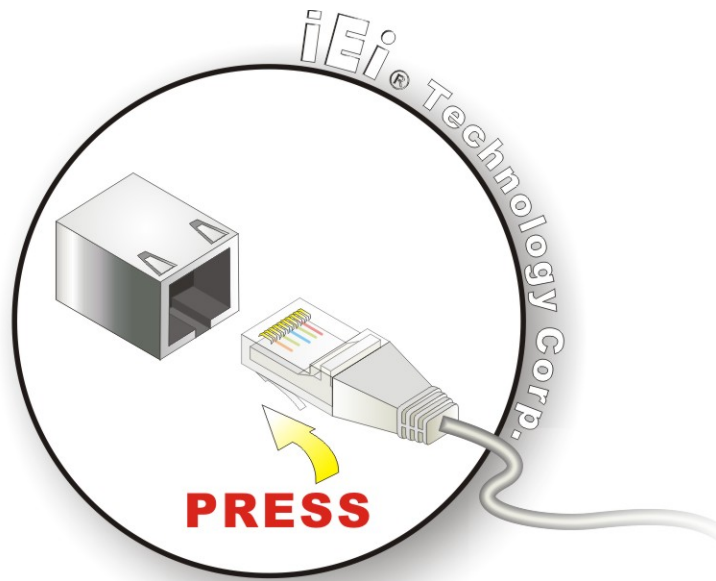


Figure 5-15: LAN Connection

Step 3: **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the onboard RJ-45 connector.

5.7.3 Serial Device Connection

The WAFER-CX700M has a single female DB-9 connector on the external peripheral interface panel for a serial device. Follow the steps below to connect a serial device to the WAFER-CX700M.

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Step 1: Locate the DB-9 connector. The location of the DB-9 connector is shown in Chapter 3.

Step 2: Insert the serial connector. Insert the DB-9 connector of a serial device into the DB-9 connector on the external peripheral interface. See Figure 5-16.

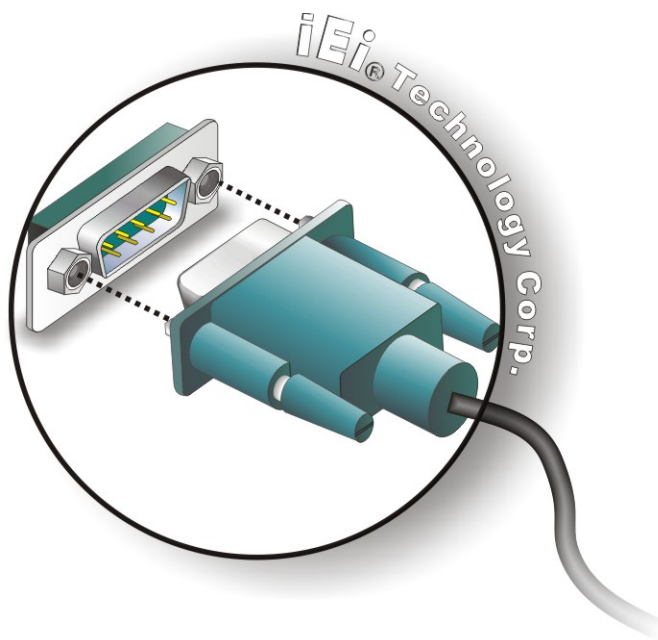


Figure 5-16: Serial Device Connector

Step 3: Secure the connector. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

5.7.4 VGA Monitor Connection

The WAFER-CX700M has a single female DB-15 connector on the external peripheral interface panel. The DB-15 connector is connected to a CRT or VGA monitor. To connect a monitor to the WAFER-CX700M, please follow the instructions below.

Step 1: Locate the female DB-15 connector. The location of the female DB-15 connector is shown in Chapter 3.

Step 2: Align the VGA connector. Align the male DB-15 connector on the VGA screen cable with the female DB-15 connector on the external peripheral interface.

Step 3: Insert the VGA connector Once the connectors are properly aligned with the insert the male connector from the VGA screen into the female connector on the WAFER-CX700M. See **Figure 5-17**.

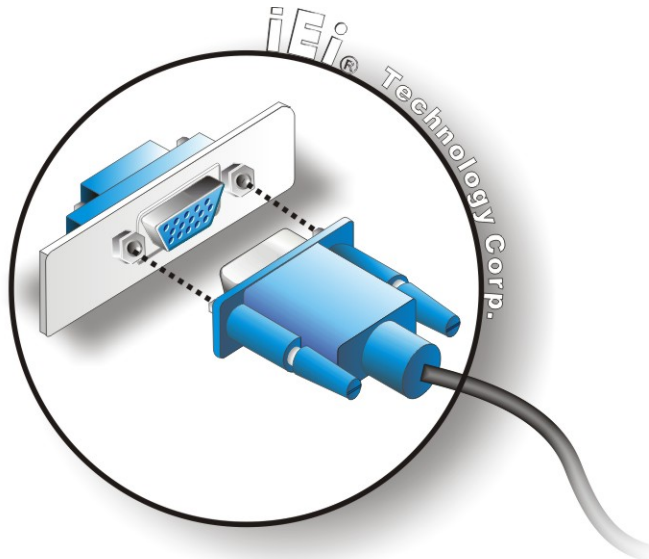


Figure 5-17: VGA Connector

Step 4: Secure the connector. Secure the DB-15 VGA connector from the VGA monitor to the external interface by tightening the two retention screws on either side of the connector.

Chapter

6

BIOS Setup

6.1 Introduction

A licensed copy of AMI BIOS is preprogrammed into the ROM BIOS. The BIOS setup program allows users to modify the basic system configuration. This chapter describes how to access the BIOS setup program and the configuration options that may be changed.

6.1.1 Starting Setup

The AMI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DELETE** key as soon as the system is turned on or
2. Press the **DELETE** key when the “**Press Del to enter SETUP**” message appears on the screen.

If the message disappears before the **DELETE** key is pressed, restart the computer and try again.

6.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **ESC** to quit. Navigation keys are shown in.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
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
Page Up key	Increase the numeric value or make changes
Page Dn key	Decrease the numeric value or make changes

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Key	Function
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 /F3 key	Change color from total 16 colors. F2 to select color forward.
F10 key	Save all the CMOS changes, only for Main Menu

Table 6-1: BIOS Navigation Keys

6.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

6.1.4 Unable to Reboot After Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in Chapter 5.

6.1.5 BIOS Menu Bar

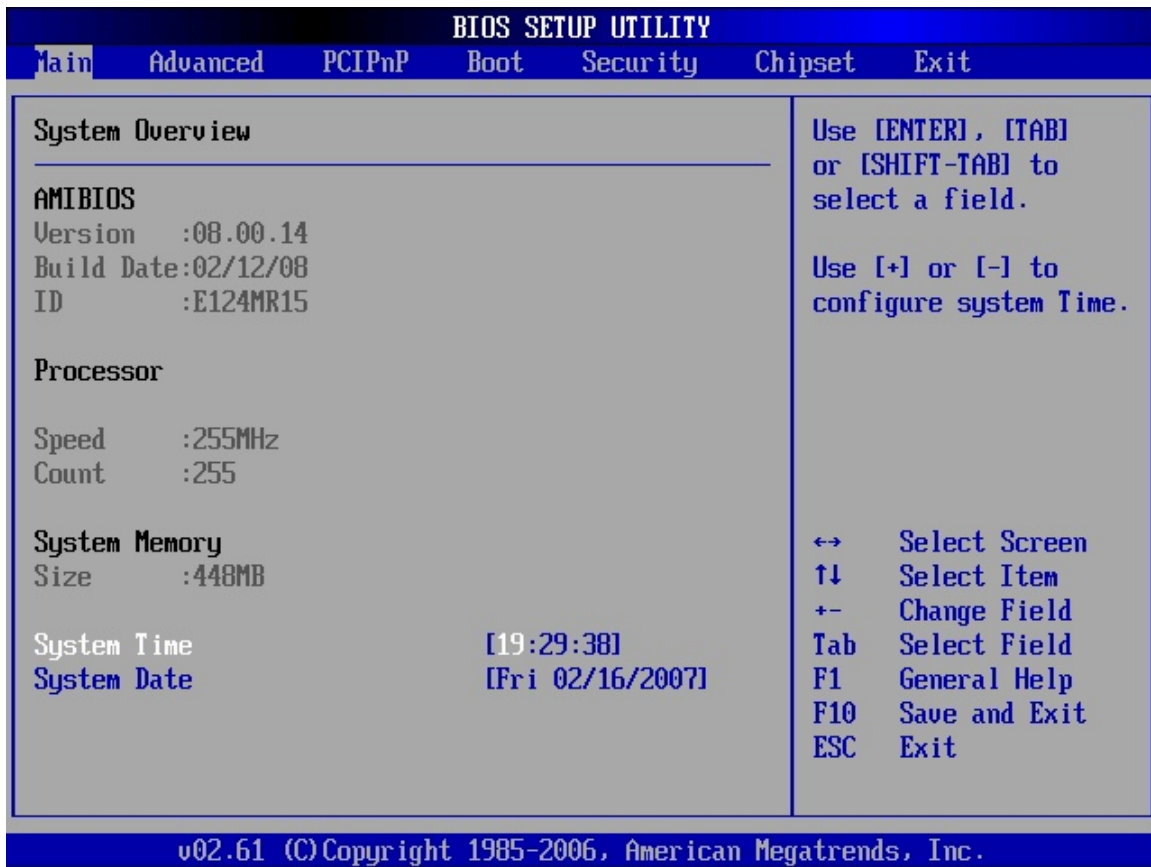
The **menu bar** on top of the BIOS screen has the following main items:

- **Main** Changes the basic system configuration.
- **Advanced** Changes the advanced system settings.
- **PCIPnP** Changes the advanced PCI/PnP Settings
- **Boot** Changes the system boot configuration.
- **Security** Sets User and Supervisor Passwords.
- **Chipset** Changes the chipset settings.
- **Exit** Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

6.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered. The **Main** menu gives an overview of the basic system information.



BIOS Menu 1: Main

→ System Overview

The **System Overview** lists a brief summary of different system components. The fields in **System Overview** cannot be changed. The items shown in the system overview include:

- **AMI BIOS:** Displays auto-detected BIOS information
 - **Version:** Current BIOS version
 - **Build Date:** Date the current BIOS version was made
 - **ID:** Installed BIOS ID
- **Processor:** Displays auto-detected CPU specifications

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- **Type:** Names the currently installed processor
- **Speed:** Lists the processor speed
- **Count:** The number of CPUs on the motherboard
- **System Memory:** Displays the auto-detected system memory.
 - **Size:** Lists memory size

The **System Overview** field also has two user configurable fields:

→ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

→ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

6.3 Advanced

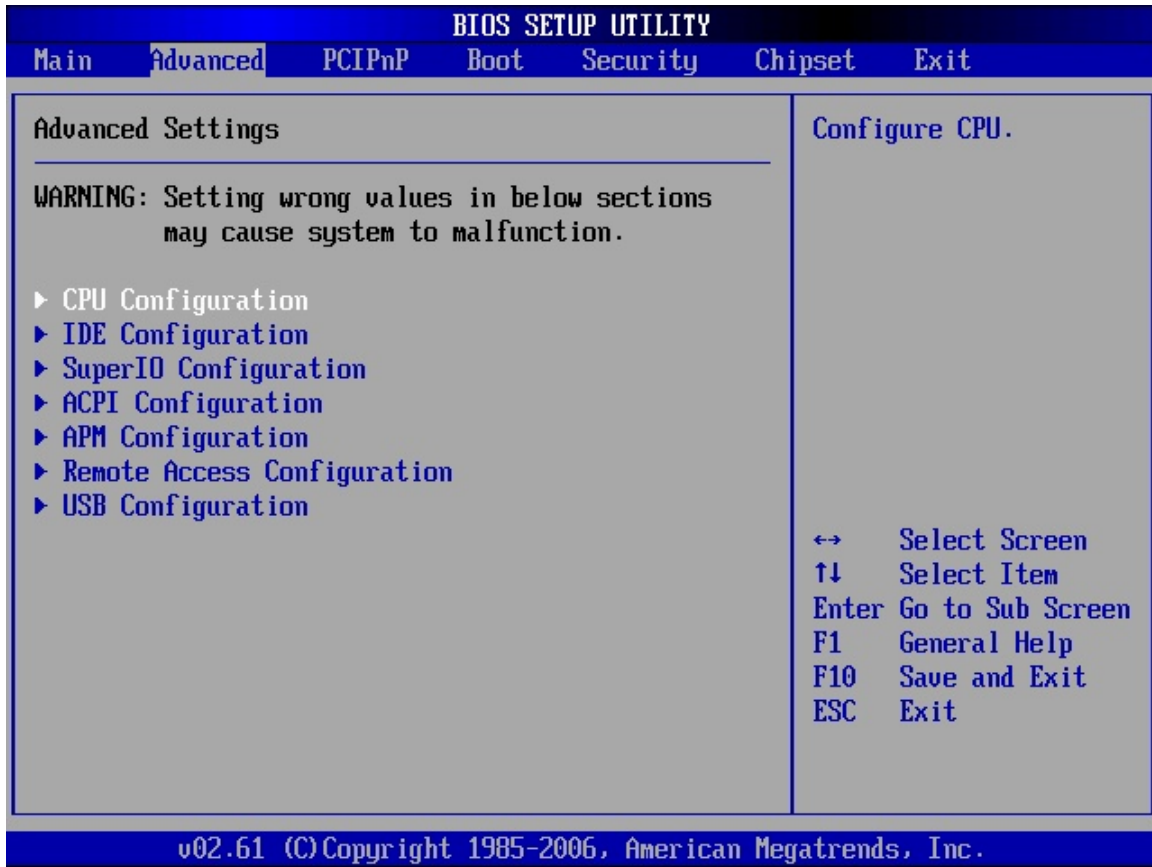
Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:



WARNING:

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

■ CPU Configuration	90
■ IDE Configuration	92
■ Super IO Configuration	98
■ ACPI Configuration	101
■ APM Configuration	102
■ Remote Access Configuration	104
■ USB Configuration	107

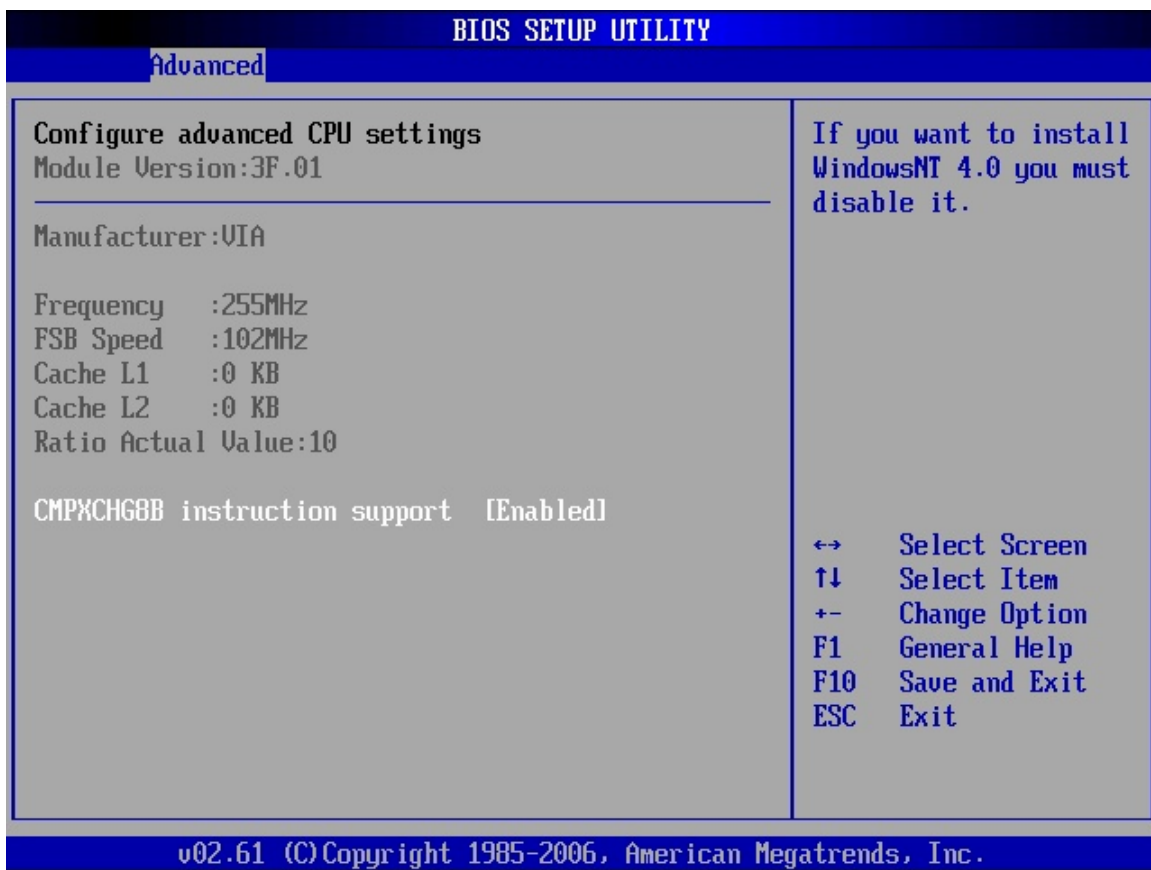


BIOS Menu 2: Advanced

6.3.1 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 3**) to view detailed CPU specifications and configure the CPU.

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BIOS Menu 3: CPU Configuration

The CPU Configuration menu (**BIOS Menu 3**) lists the following CPU details:

- **Manufacturer:** Lists the name of the CPU manufacturer
- **Frequency:** Lists the CPU processing speed
- **FSB Speed:** Lists the FSB speed
- **Cache L1:** Lists the CPU L1 cache size
- **Cache L2:** Lists the CPU L2 cache size

→ **CMPXCHG8B Instruction Support [Enabled]**

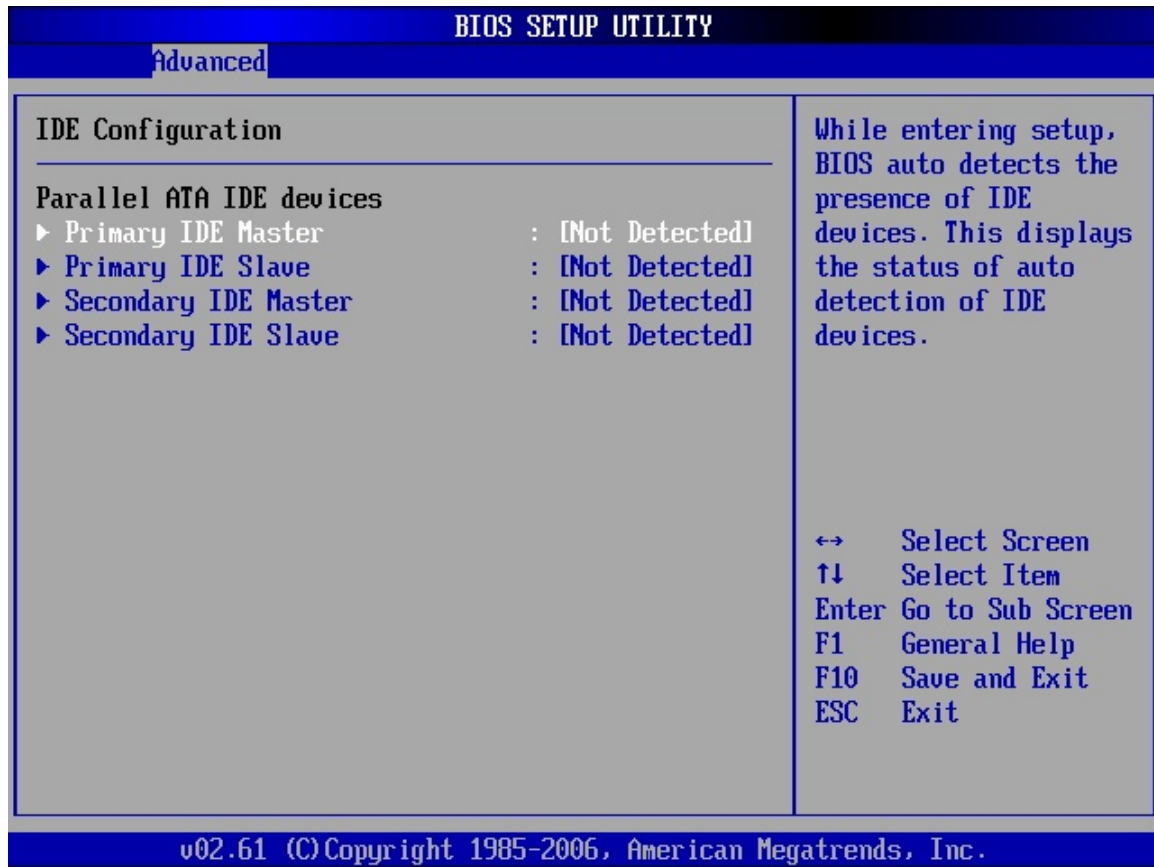
Use the **CMPXCHG8B Instruction Support** option to enable or disable this instruction. Intel® processors prior to the Pentium® Pro were vulnerable to a bug with this instruction. The instruction compares the value of registers *edx* and *adx* with an 8-bit value in memory. If a register smaller than 8-bit is used for the destination operand then the

instruction results in an exception. When used in combination with the lock instruction (used in multi-processor systems) the exception handler is never called, the processor stops servicing interrupts, and the system has to be rebooted to recover. Processors since the Pentium® Pro have not been effected by this bug.

- **Enabled** **DEFAULT** The CMPXCHG8B instruction can be performed
- **Disabled** The CMPXCHG8B instruction cannot be performed

6.3.2 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 4**) to change and/or set the configuration of the IDE devices installed in the system.



BIOS Menu 4: IDE Configuration

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→ ATA/IDE Configurations [Compatible]

Use the **ATA/IDE Configurations** option to configure the ATA/IDE controller.

- **Disabled** Disables the on-board ATA/IDE controller.
- **Compatible** **DEFAULT** Configures the on-board ATA/IDE controller to be in compatible mode. In this mode, a SATA channel will replace one of the IDE channels. This mode supports up to 4 storage devices.
- **Enhanced** Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA channels are separated. This mode supports up to 6 storage devices. Some legacy OS do not support this mode.

→ Legacy IDE Channels [SATA Pri, PATA Sec]

- **SATA Only**
- **SATA Pri., PATA Sec** **DEFAULT**
- **PATA Only**

→ IDE Master and IDE Slave

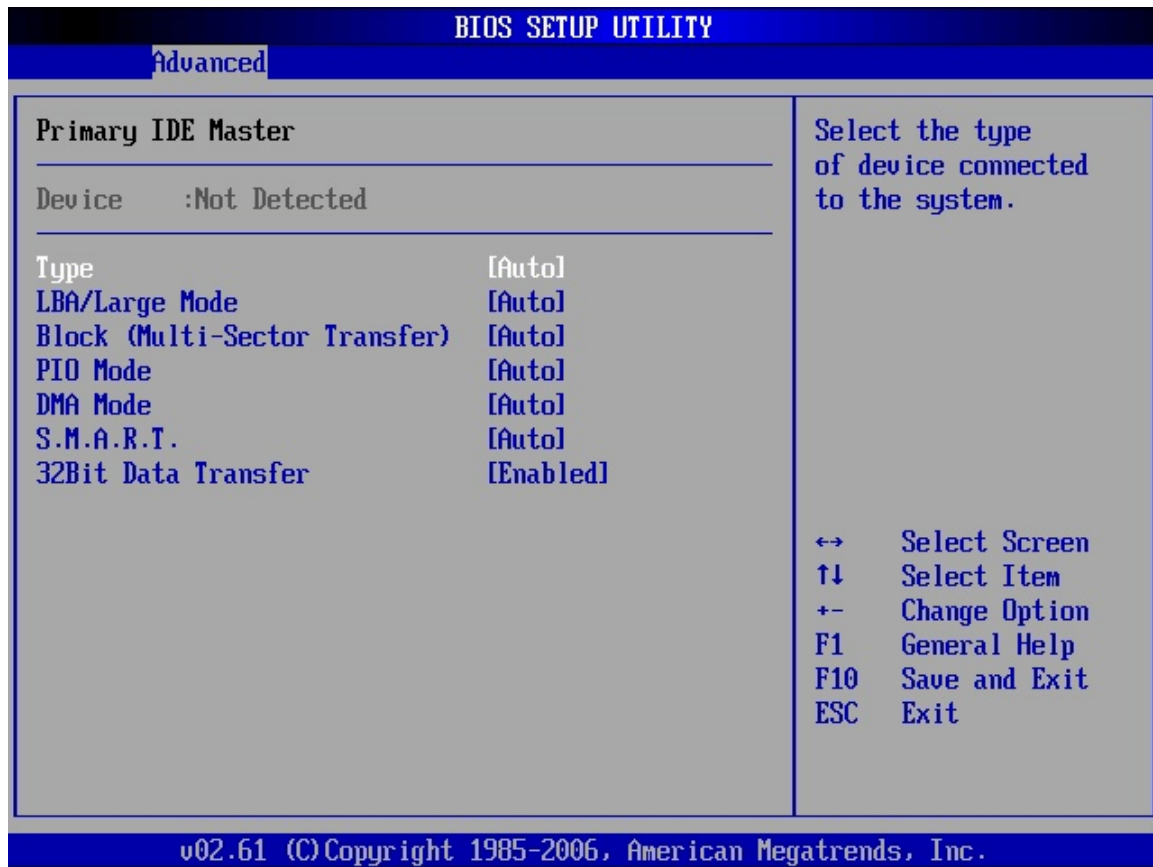
When entering setup, BIOS auto detects the presence of IDE devices. BIOS displays the status of the auto detected IDE devices. The following IDE devices are detected and are shown in the **IDE Configuration** menu:

- Primary IDE Master
- Primary IDE Slave
- Secondary IDE Master
- Secondary IDE Slave

The **IDE Configuration** menu (**BIOS Menu 4**) allows changes to the configurations for the IDE devices installed in the system. If an IDE device is detected, and one of the above listed four BIOS configuration options are selected, the IDE configuration options shown in **Section 6.3.2.1** appear.

6.3.2.1 IDE Master, IDE Slave

Use the **IDE Master** and **IDE Slave** configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system.



BIOS Menu 5: IDE Master and IDE Slave Configuration

→ Type [Auto]

Use the **Type** BIOS option select the type of device the AMIBIOS attempts to boot from after the Power-On Self-Test (POST) is complete.

→ Not Installed

BIOS is prevented from searching for an IDE disk drive on the specified channel.

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→ **Auto** **DEFAULT** The BIOS auto detects the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.

→ **CD/DVD** The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of IDE disk drives on the specified channel.

→ **ARMD** This option specifies an ATAPI Removable Media Device. These include, but are not limited to:

→ **ZIP**

→ **LS-120**

→ **LBA/Large Mode [Auto]**

Use the **LBA/Large Mode** option to disable or enable BIOS to auto detects LBA (Logical Block Addressing). LBA is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.

→ **Disabled** BIOS is prevented from using the LBA mode control on the specified channel.

→ **Auto** **DEFAULT** BIOS auto detects the LBA mode control on the specified channel.

→ **Block (Multi Sector Transfer) [Auto]**

Use the **Block (Multi Sector Transfer)** to disable or enable BIOS to auto detect if the device supports multi-sector transfers.

→ **Disabled** BIOS is prevented from using Multi-Sector Transfer on the specified channel. The data to and from the device occurs one sector at a time.

→ **Auto** **DEFAULT** BIOS auto detects Multi-Sector Transfer support on the

drive on the specified channel. If supported the data transfer to and from the device occurs multiple sectors at a time.

→ PIO Mode [Auto]

Use the **PIO Mode** option to select the IDE PIO (Programmable I/O) mode program timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

- **Auto** **DEFAULT** BIOS auto detects the PIO mode. Use this value if the IDE disk drive support cannot be determined.
- **0** PIO mode 0 selected with a maximum transfer rate of 3.3MBps
- **1** PIO mode 1 selected with a maximum transfer rate of 5.2MBps
- **2** PIO mode 2 selected with a maximum transfer rate of 8.3MBps
- **3** PIO mode 3 selected with a maximum transfer rate of 11.1MBps
- **4** PIO mode 4 selected with a maximum transfer rate of 16.6MBps
(This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.)

→ DMA Mode [Auto]

Use the **DMA Mode** BIOS selection to adjust the DMA mode options.

- **Auto** **DEFAULT** BIOS auto detects the DMA mode. Use this value if the IDE disk drive support cannot be determined.
- **SWDMA0** Single Word DMA mode 0 selected with a maximum data transfer rate of 2.1MBps
- **SWDMA1** Single Word DMA mode 1 selected with a maximum data transfer rate of 4.2MBps
- **SWDMA2** Single Word DMA mode 2 selected with a maximum data transfer rate of 8.3MBps

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- ➔ **MWDMA0** Multi Word DMA mode 0 selected with a maximum data transfer rate of 4.2MBps
- ➔ **MWDMA1** Multi Word DMA mode 1 selected with a maximum data transfer rate of 13.3MBps
- ➔ **MWDMA2** Multi Word DMA mode 2 selected with a maximum data transfer rate of 16.6MBps
- ➔ **UDMA1** Ultra DMA mode 0 selected with a maximum data transfer rate of 16.6MBps
- ➔ **UDMA1** Ultra DMA mode 1 selected with a maximum data transfer rate of 25MBps
- ➔ **UDMA2** Ultra DMA mode 2 selected with a maximum data transfer rate of 33.3MBps
- ➔ **UDMA3** Ultra DMA mode 3 selected with a maximum data transfer rate of 44MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- ➔ **UDMA4** Ultra DMA mode 4 selected with a maximum data transfer rate of 66.6MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- ➔ **UDMA5** Ultra DMA mode 5 selected with a maximum data transfer rate of 99.9MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)

➔ **S.M.A.R.T [Auto]**

Use the **S.M.A.R.T** option to auto-detect, disable or enable Self-Monitoring Analysis and Reporting Technology (SMART) on the drive on the specified channel. **S.M.A.R.T** predicts impending drive failures. The **S.M.A.R.T** BIOS option enables or disables this function.

- ➔ **Auto** **DEFAULT** BIOS auto detects HDD SMART support.
- ➔ **Disabled** Prevents BIOS from using the HDD SMART feature.
- ➔ **Enabled** Allows BIOS to use the HDD SMART feature

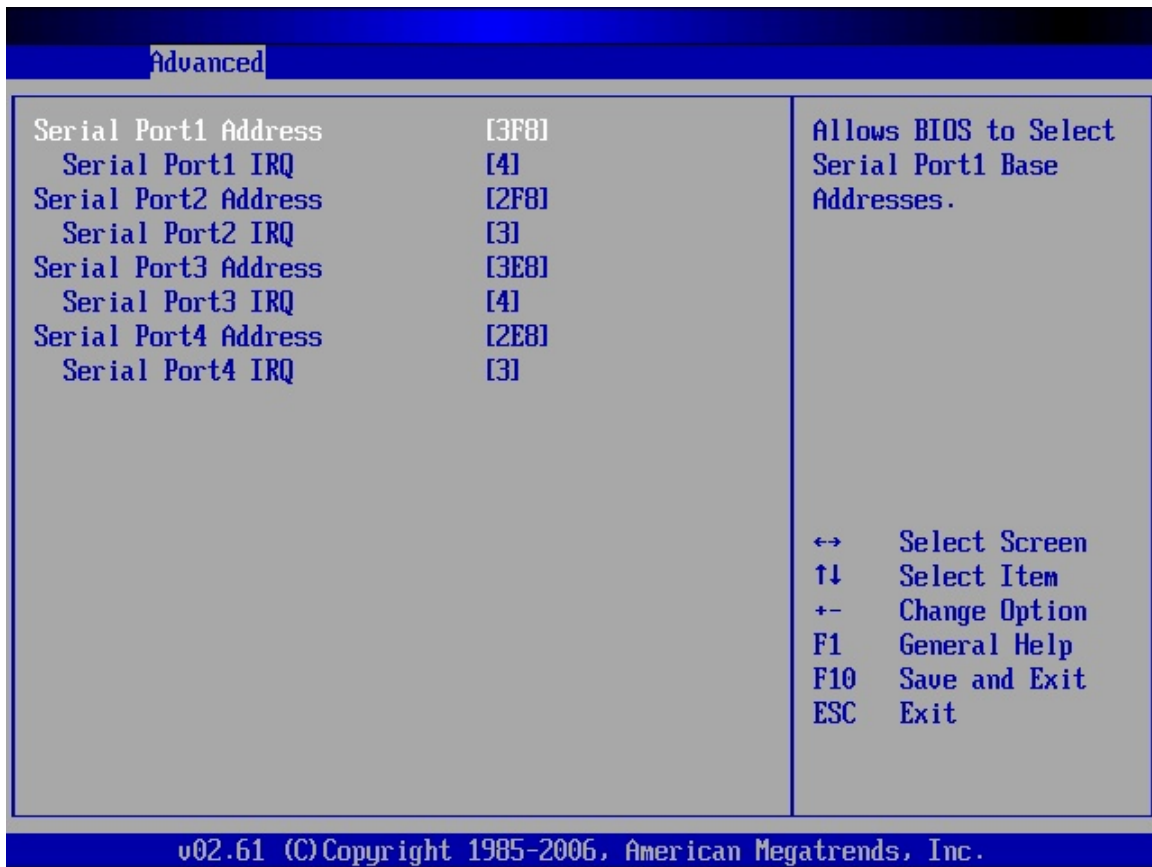
➔ **32Bit Data Transfer [Enabled]**

Use the **32Bit Data Transfer** BIOS option to enables or disable 32-bit data transfers.

- ➔ **Disabled** Prevents the BIOS from using 32-bit data transfers.
- ➔ **Enabled** **DEFAULT** Allows BIOS to use 32-bit data transfers on supported hard disk drives.

6.3.3 Super IO Configuration

Use the **Super IO Configuration** menu (**BIOS Menu 6**) to set or change the configurations for the parallel ports and serial ports.



BIOS Menu 6: Super IO Configuration

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→ Serial Port1 Address [3F8]

Use the **Serial Port1 Address** option to select the Serial Port 1 base address.

- **Disabled** No base address is assigned to Serial Port 1
- **3F8** **DEFAULT** Serial Port 1 I/O port address is 3F8
- **3E8** Serial Port 1 I/O port address is 3E8
- **2E8** Serial Port 1 I/O port address is 2E8

→ Serial Port1 IRQ [4]

Use the **Serial Port1 IRQ** option to select the Serial Port 1 IRQ.

- **Disabled** No IRQ is assigned to Serial Port 1
- **3** Serial Port 1 interrupt address is IRQ4
- **4** **DEFAULT** Serial Port 1 interrupt address is IRQ3

→ Serial Port2 Address [2F8]

Use the **Serial Port2 Address** option to select the Serial Port 2 base address.

- **Disabled** No base address is assigned to Serial Port 2
- **2F8** **DEFAULT** Serial Port 2 I/O port address is 3F8
- **3E8** Serial Port 2 I/O port address is 3E8
- **2E8** Serial Port 2 I/O port address is 2E8

→ Serial Port2 IRQ [3]

Use the **Serial Port2 IRQ** option to select the Serial Port 2 IRQ.

- **Disabled** No IRQ is assigned to Serial Port 2
- **3** **DEFAULT** Serial Port 2 interrupt address is IRQ3
- **4** Serial Port 2 interrupt address is IRQ4

→ Serial Port3 Address [3E8]

Use the **Serial Port3 Address** option to select the base addresses for serial port 3

- Disabled** No base address is assigned to serial port 3
- 3F8** Serial port 3 I/O port address is 3F8
- 2F8** Serial port 3 I/O port address is 2F8
- 3E8** **DEFAULT** Serial port 3 I/O port address is 3E8
- 2E8** Serial port 3 I/O port address is 2E8

→ Serial Port3 IRQ [4]

Use the **Serial Port3 IRQ** option to select the interrupt address for serial port 3.

- 3** Serial port 3 IRQ address is 3
- 4** **DEFAULT** Serial port 3 IRQ address is 4

→ Serial Port4 Address [2E8]

Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

- Disabled** No base address is assigned to serial port 3
- 3F8** Serial port 4 I/O port address is 3F8
- 2F8** Serial port 4 I/O port address is 2F8
- 3E8** Serial port 4 I/O port address is 3E8
- 2E8** **DEFAULT** Serial port 4 I/O port address is 2E8

→ Serial Port4 IRQ [3]

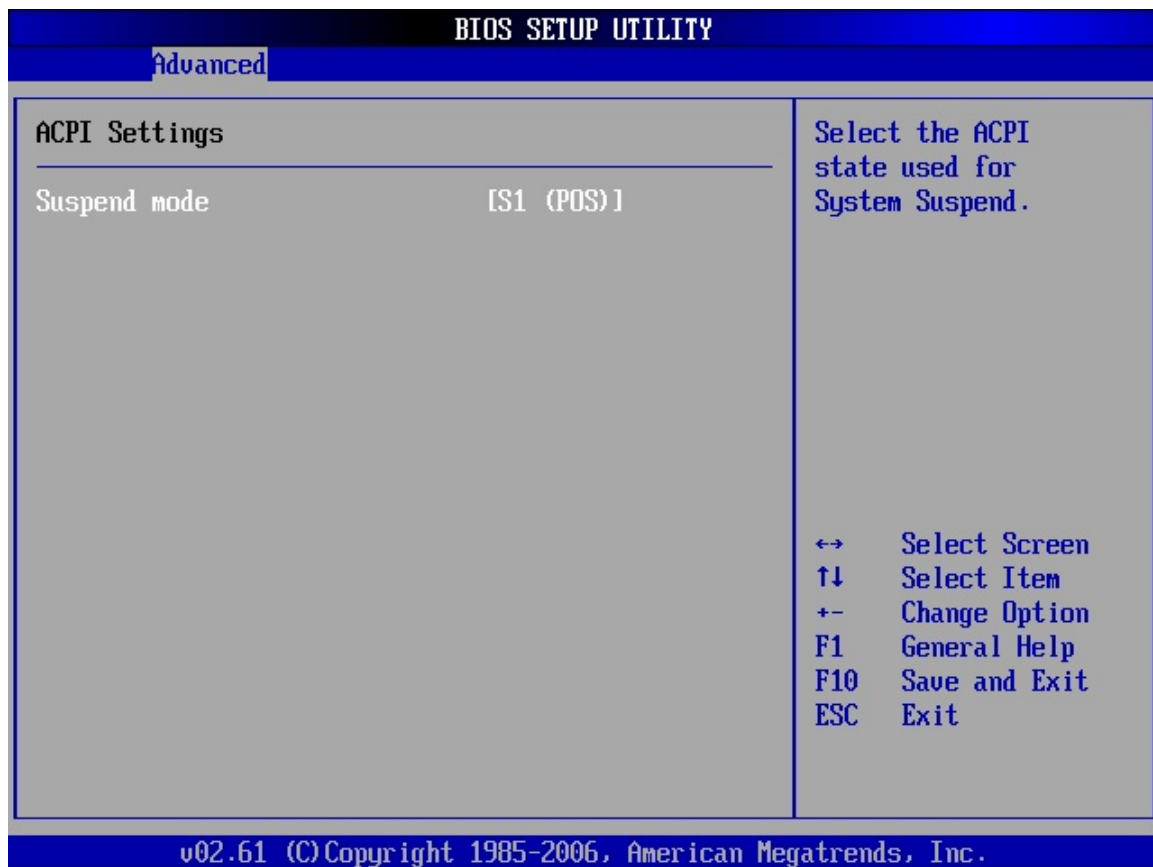
Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

- 3** **DEFAULT** Serial port 4 IRQ address is 3
- 4** Serial port 4 IRQ address is 4

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6.3.4 ACPI Configuration

The **ACPI Configuration** menu (**BIOS Menu 7**) configures the Advanced Configuration and Power Interface (ACPI) option.



BIOS Menu 7: ACPI Configuration [Advanced Power Configuration]

→ Suspend Mode [S1(POS)]

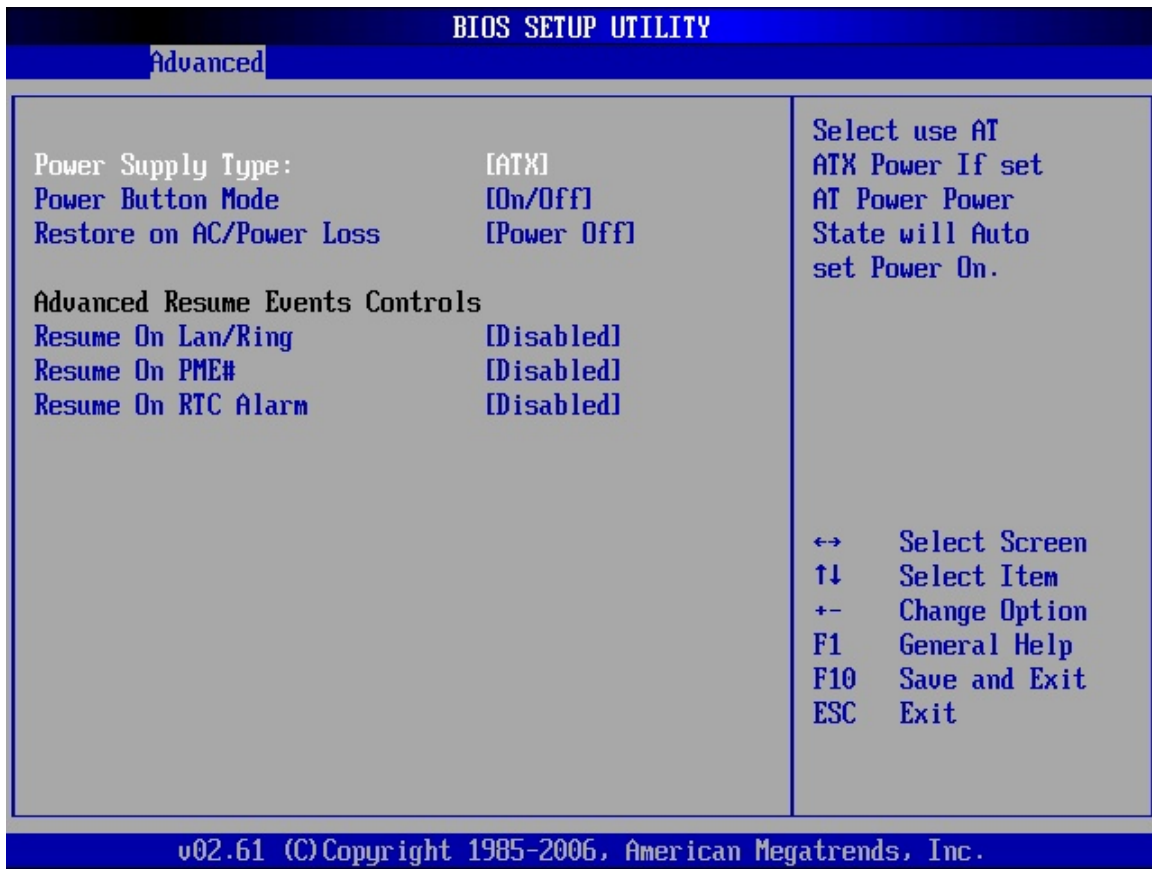
Use the **Suspend Mode** option to specify the sleep state the system enters when it is not being used.

- **S1 (POS) DEFAULT** The system enters S1(POS) sleep state. The system appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power mode.
- **S3 (STR)** System appears off. The CPU has no power; RAM is in

slow refresh; the power supply is in a reduced power mode.

6.3.5 APM Configuration

The **APM Configuration** menu (**BIOS Menu 8**) allows the advanced power management options to be configured.



BIOS Menu 8: Advanced Power Management Configuration

→ Power Supply Type [ATX]

Use the **Power Supply Type** BIOS to specify the kind of power supply used for the system.

- **ATX** **DEFAULT** An ATX power supply allows the system to be powered up or shut down using the power button connectors on

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the motherboard. Other advanced power features are also enabled.

→ **AT** Power is turned on/off directly by the power supply only.

→ **Power Button Mode [On/Off]**

Use the **Power Button Mode** BIOS to specify how the power button functions.

→ **On/Off** **DEFAULT** When the power button is pressed the system is either turned on or off

→ **Suspend** When the power button is pressed the system goes into suspend mode

→ **Restore on AC Power Loss [Last State]**

Use the **Restore on AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system.

→ **Power Off** The system remains turned off

→ **Power On** The system turns on

→ **Last State** **DEFAULT** The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

→ **Resume on LAN/Ring [Disabled]**

Use the **Resume on LAN/Ring** BIOS option to enable activity on the RI (ring in) modem line or on the network to rouse the system from a suspend or standby state. That is, the system will be roused by an incoming call on a modem or a special signal over the network.

→ **Disabled** **DEFAULT** Wake event not generated by an incoming call, or special network signal.

→ **Enabled** Wake event generated by an incoming call or network signal.

→ **Resume on PME# [Disabled]**

Use the **Resume on PME#** BIOS option to enable activity on the PCI PME (power management event) controller to rouse the system from a suspend or standby state.

→ **Disabled** **DEFAULT** Wake event not generated by PCI PME controller activity

→ **Enabled** Wake event generated by PCI PME controller activity

→ **Resume On RTC Alarm [Disabled]**

Use the **Resume On RTC Alarm** option to specify the time the system should be roused from a suspended state.

→ **Disabled** **DEFAULT** The real time clock (RTC) cannot generate a wake event

→ **Enabled** If selected, the following appears with values that can be selected:

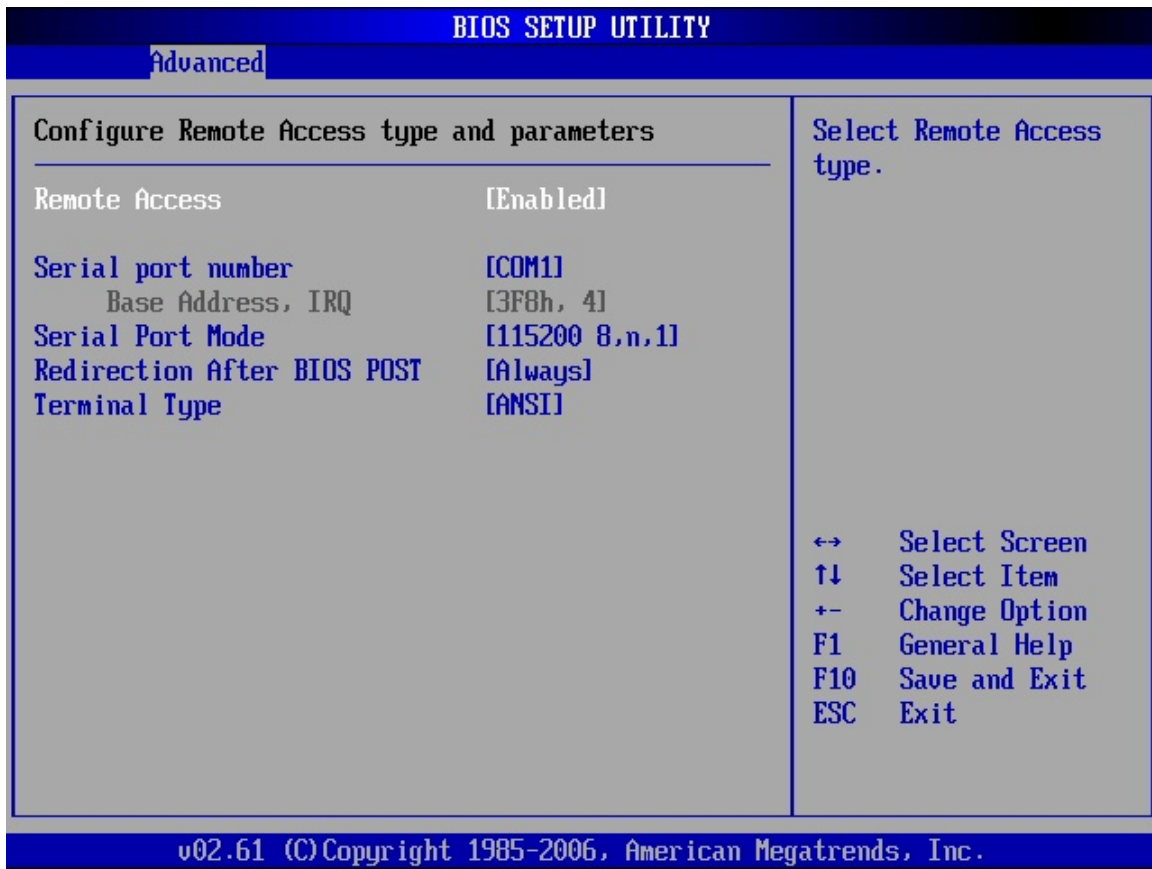
→ **RTC Alarm Date (Days)**

→ **RTC Alarm Time**

After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

6.3.6 Remote Access Configuration

Use the **Remote Access Configuration** menu (**BIOS Menu 9**) to configure remote access parameters. The **Remote Access Configuration** is an AMIBIOS feature and allows a remote host running a terminal program to display and configure the BIOS settings.



BIOS Menu 9: Remote Access Configuration [Advanced]

➔ **Remote Access [Disabled]**

Use the **Remote Access** option to enable or disable access to the remote functionalities of the system.

- ➔ **Disabled** **DEFAULT** Remote access is disabled.
- ➔ **Enabled** Remote access configuration options shown below appear:
 - ➔ **Serial Port Number**
 - ➔ **Serial Port Mode**
 - ➔ **Redirection after BIOS POST**

→ Terminal Type

These configuration options are discussed below.

→ Serial Port Number [COM1]

Use the **Serial Port Number** option allows users to select the serial port used for remote access.

- COM1** **DEFAULT** System is remotely accessed through COM1
- COM2** System is remotely accessed through COM2
- COM3** System is remotely accessed through COM3
- COM4** System is remotely accessed through COM4
- COM5** System is remotely accessed through COM5

NOTE: Make sure the selected COM port is enabled through the Super I/O configuration menu.

→ Base Address, IRQ [3F8h,4]

The **Base Address, IRQ** option cannot be configured and only shows the interrupt address of the serial port listed above.

→ Serial Port Mode [115200 8,n,1]

Use the **Serial Port Mode** option to select baud rate through which the console redirection is made. The following configuration options are available

- 115200 8,n,1 **DEFAULT**
- 57600 8,n,1
- 38400 8,n,1
- 19200 8,n,1
- 09600 8,n,1

**NOTE:**

Identical baud rate setting must be set on the host (a management computer running a terminal software) and the slave

→ Redirection After BIOS POST [Always]

Use the **Redirection After BIOS POST** option to specify when console redirection should occur.

- | | | | |
|---|--------------------|----------------|--|
| → | Disabled | | The console is not redirected after POST |
| → | Boot Loader | | Redirection is active during POST and during Boot Loader |
| → | Always | DEFAULT | Redirection is always active (Some OSes may not work if set to Always) |

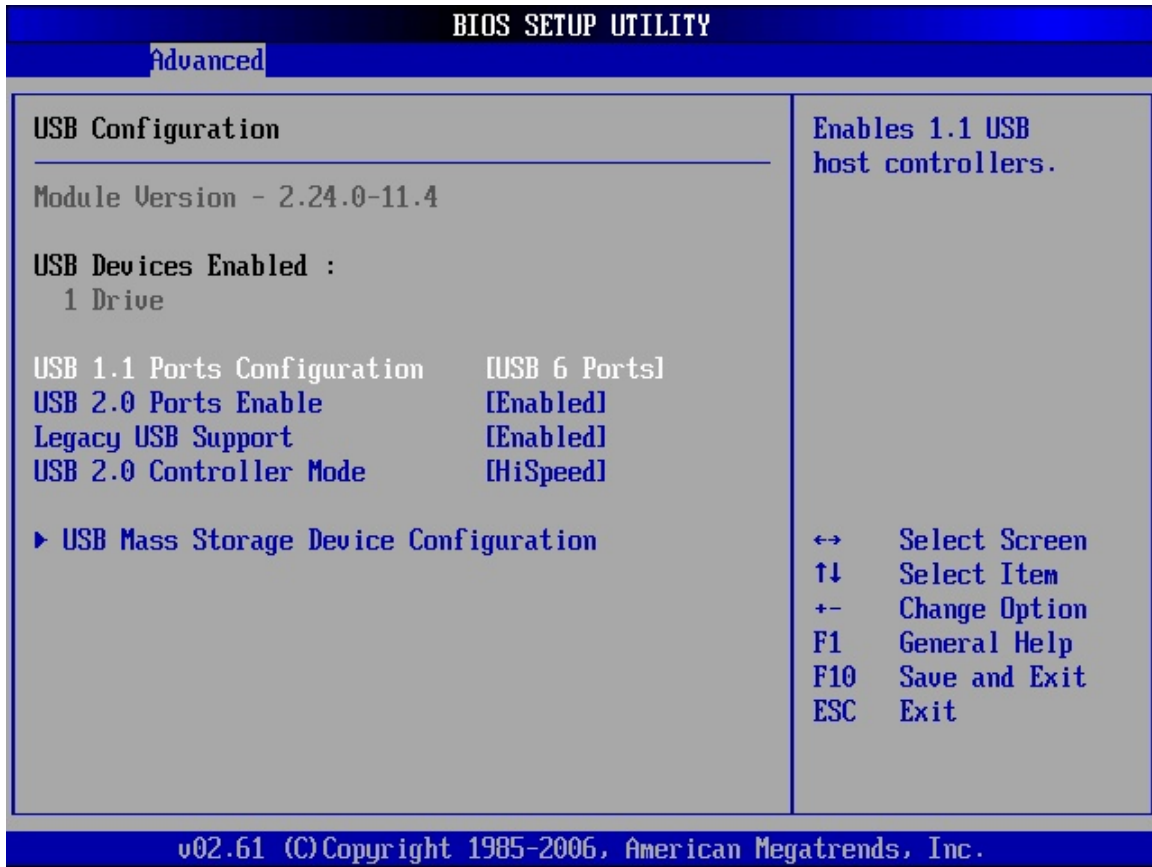
→ Terminal Type [ANSI]

Use the **Terminal Type** BIOS option to specify the remote terminal type.

- | | | | |
|---|----------------|----------------|-------------------------------------|
| → | ANSI | DEFAULT | The target terminal type is ANSI |
| → | VT100 | | The target terminal type is VT100 |
| → | VT-UTF8 | | The target terminal type is VT-UTF8 |

6.3.7 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 10**) to read USB configuration information and configure the USB settings.



BIOS Menu 10: USB Configuration

➔ USB Configuration

The **USB Configuration** field shows the system USB configuration. The items listed are:

- Module Version: x.xxxxx.xxxxx

➔ USB Devices Enabled

The **USB Devices Enabled** field lists the USB devices that are enabled on the system

➔ USB Function [Enabled]

Use the **USB Function** BIOS option to enable or disable the USB function.

- ➔ **Disabled** USB function support disabled

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- ➔ **2 USB Ports** 2 USB ports are enabled
- ➔ **4 USB Ports** 4 USB ports are enabled
- ➔ **6 USB Ports** **DEFAULT** 6 USB ports are enabled

➔ **USB2.0 Ports Enable [Enabled]**

Use the **USB2.0 Ports Enable** option to enable and disable USB 2.0.

- ➔ **Enabled** **DEFAULT** USB 2.0 is enabled
- ➔ **Disabled** USB 2.0 is disabled

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support.

Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

- ➔ **Disabled** Legacy USB support disabled
- ➔ **Enabled** **DEFAULT** Legacy USB support enabled
- ➔ **Auto** Legacy USB support disabled if no USB devices are connected

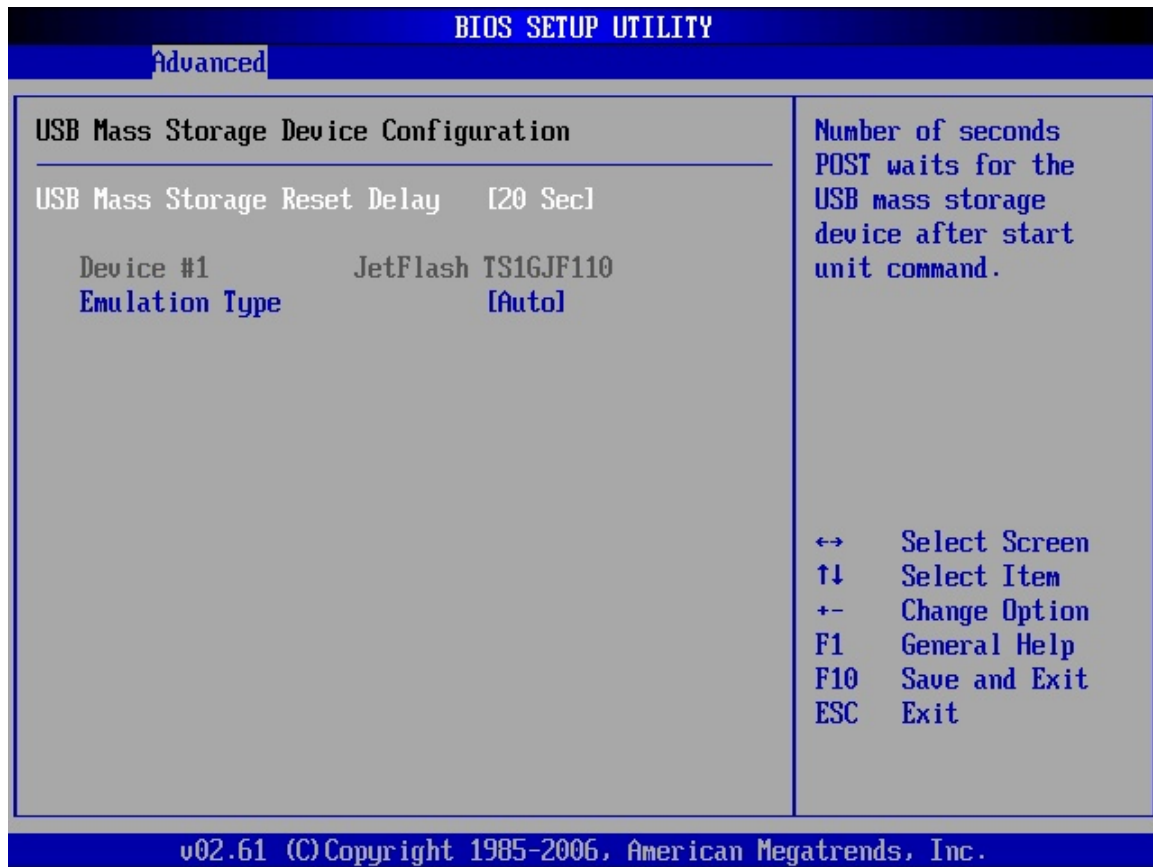
➔ **USB2.0 Controller Mode [HiSpeed]**

Use the **USB2.0 Controller Mode** option to set the speed of the USB2.0 controller.

- ➔ **FullSpeed** The controller is capable of operating at 12Mb/s
- ➔ **HiSpeed** **DEFAULT** The controller is capable of operating at 480Mb/s

6.3.7.1 USB Mass Storage Device Configuration

Use the **USB Mass Storage Device Configuration** menu (**BIOS Menu 11**) to configure USB mass storage class devices.



BIOS Menu 11: USB Mass Storage Device Configuration

➔ USB Mass Storage Reset Delay [20 Sec]

Use the **USB Mass Storage Reset Delay** option to set the number of seconds POST waits for the USB mass storage device after the start unit command.

- ➔ **10 Sec** POST waits 10 seconds for the USB mass storage device after the start unit command.
- ➔ **20 Sec** **DEFAULT** POST waits 20 seconds for the USB mass storage device after the start unit command.

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→ **30 Sec** POST waits 30 seconds for the USB mass storage device after the start unit command.

→ **40 Sec** POST waits 40 seconds for the USB mass storage device after the start unit command.

→ **Device ##**

The **Device##** field lists the USB devices that are connected to the system.

→ **Emulation Type [Auto]**

Use the **Emulation Type** BIOS option to specify the type of emulation BIOS has to provide for the USB device.



NOTE:

Please note that the device's formatted type and the emulation type provided by the BIOS must match for a device to boot properly. If both types do not match then device's behavior is undefined. To make sure both types match, format the device using BIOS INT13h calls after selecting the proper emulation option in BIOS setup. The FORMAT utility provided by Microsoft® MS-DOS®, Microsoft® Windows® 95, and Microsoft® Windows® 98 can be used for this purpose.

→ **Auto** **DEFAULT** BIOS auto-detects the current USB.

→ **Floppy** The USB device will be emulated as a floppy drive. The device can be either A: or B: responding to INT13h calls that return DL = 0 or DL = 1 respectively.

→ **Forced FDD** Allows a hard disk image to be connected as a floppy image. This option works only for drives formatted with FAT12, FAT16 or FAT32.

→ **Hard Disk** Allows the USB device to be emulated as hard disk

responding to INT13h calls that return DL values of 80h or above.

→ **CDROM**

Assumes the CD-ROM is formatted as bootable media. All the devices that support block sizes greater than 512 bytes can only be booted using this option.

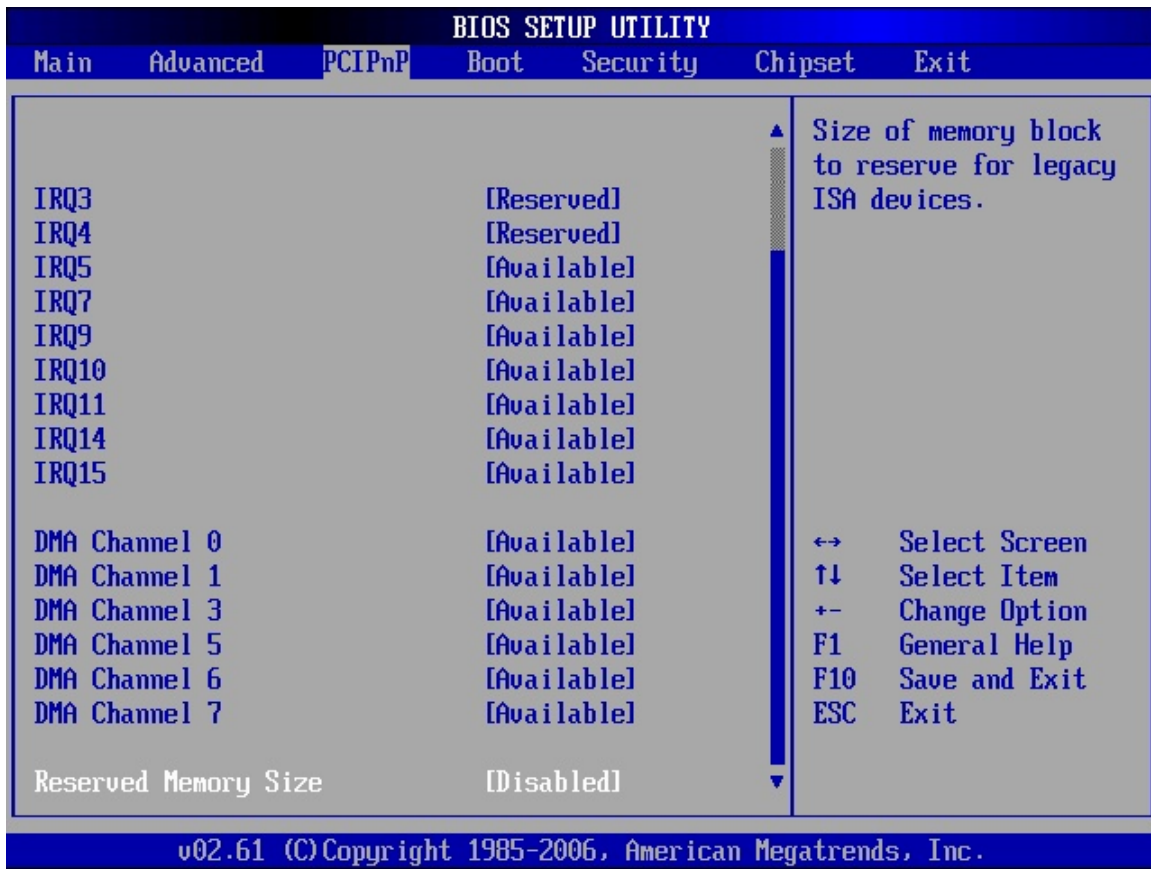
6.4 PCI/PnP

Use the **PCI/PnP** menu (**BIOS Menu 12**) to configure advanced PCI and PnP settings.



WARNING!

Setting wrong values for the BIOS selections in the PCIPnP BIOS menu may cause the system to malfunction.



BIOS Menu 12: PCI/PnP Configuration

→ IRQ#

Use the **IRQ#** address to specify what IRQs can be assigned to a particular peripheral device.

- **Available** The specified IRQ is available to be used by PCI/PnP devices
- **Reserved** The specified IRQ is reserved for use by Legacy ISA devices

Available IRQ addresses options are:

- IRQ3
- IRQ4

- IRQ5
- IRQ7
- IRQ9
- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

→ **DMA Channel# [Available]**

Use the **DMA Channel#** option to assign a specific DMA channel to a particular PCI/PnP device.

- **Available** **DEFAULT** The specified DMA is available to be used by PCI/PnP devices
- **Reserved** The specified DMA is reserved for use by Legacy ISA devices

Available DMA Channels are:

- DM Channel 0
- DM Channel 1
- DM Channel 3
- DM Channel 5
- DM Channel 6
- DM Channel 7

→ **Reserved Memory Size [Disabled]**

Use the **Reserved Memory Size** BIOS option to specify the amount of memory that should be reserved for legacy ISA devices.

- **Disabled** **DEFAULT** No memory block reserved for legacy ISA devices
- **16K** 16KB reserved for legacy ISA devices
- **32K** 32KB reserved for legacy ISA devices

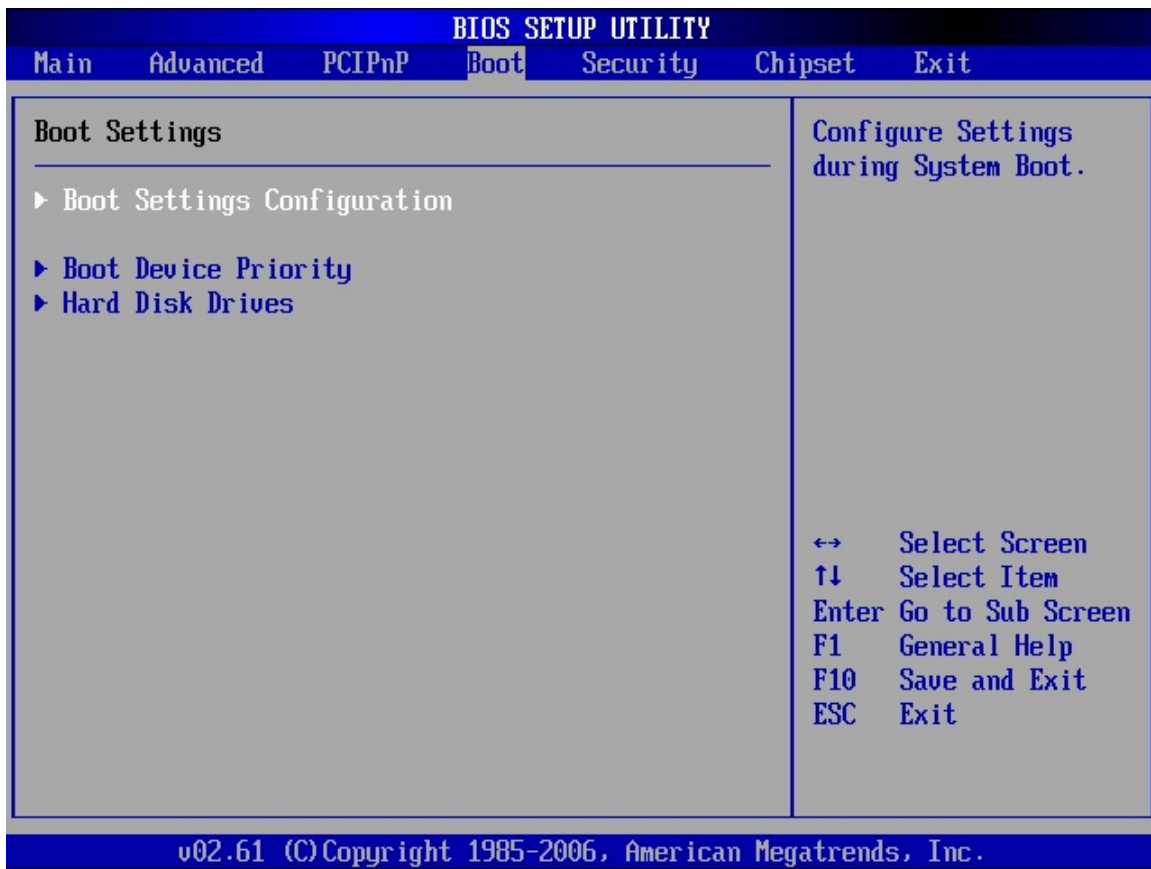
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→ 64K

54KB reserved for legacy ISA devices

6.5 Boot

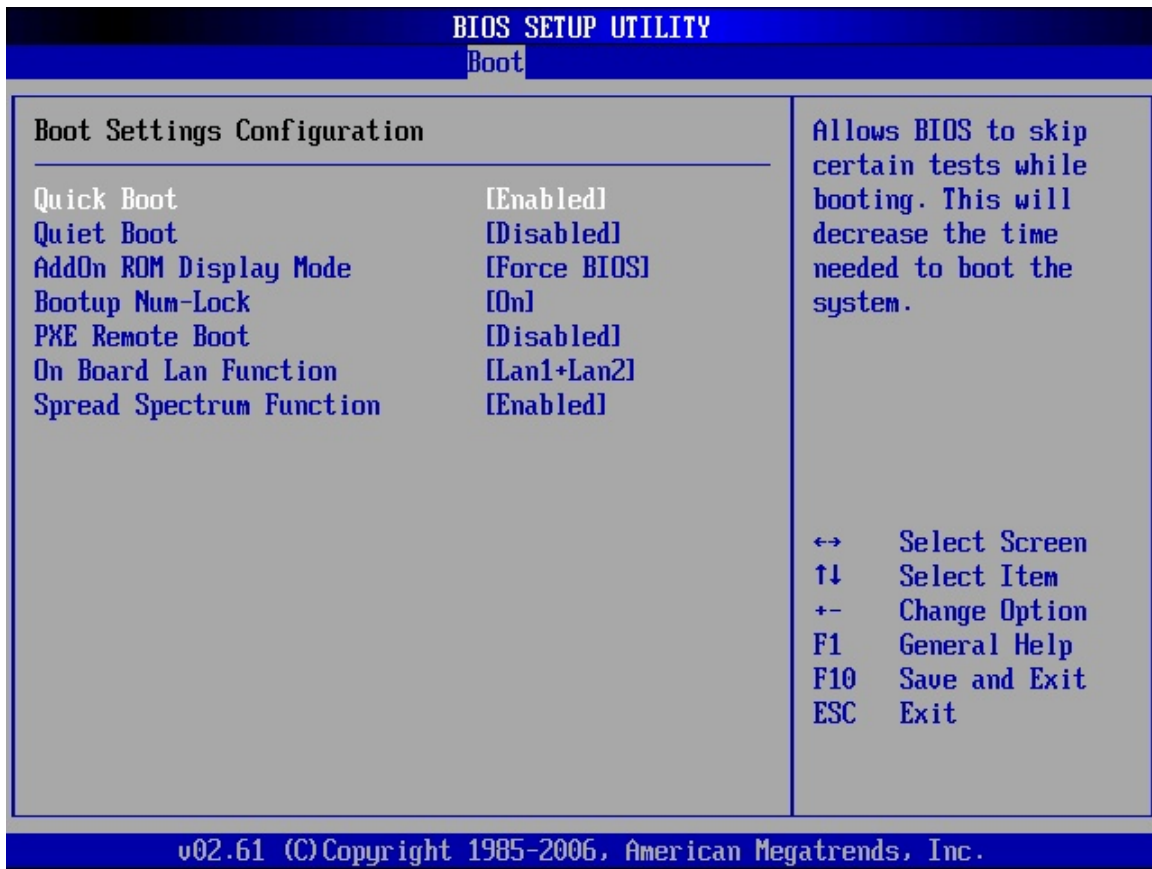
Use the **Boot** menu (**BIOS Menu 13**) to configure system boot options.



BIOS Menu 13: Boot

6.5.1 Boot Settings Configuration

Use the **Boot Settings Configuration** menu (**BIOS Menu 14**) to configure advanced system boot options.



BIOS Menu 14: Boot Settings Configuration

→ Quick Boot [Enabled]

Use the **Quick Boot** BIOS option to make the computer speed up the boot process.

- **Disabled** No POST procedures are skipped
- **Enabled** **DEFAULT** Some POST procedures are skipped to decrease the system boot time

→ Quiet Boot [Disabled]

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

- **Disabled** **DEFAULT** Normal POST messages displayed
- **Enabled** OEM Logo displayed instead of POST messages

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→ AddOn ROM Display Mode [Force BIOS]

Use the **AddOn ROM Display Mode** option to allow add-on ROM (read-only memory) messages to be displayed.

- **Force BIOS** **DEFAULT** The system forces third party BIOS to display during system boot.
- **Keep Current** The system displays normal information during system boot.

→ Bootup Num-Lock [On]

Use the **Bootup Num-Lock** BIOS option to specify if the number lock setting must be modified during boot up.

- **Off** Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.
- **On** **DEFAULT** Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

→ PXE Remote Boot [Disabled]

Use the **PXE Remote Boot** option to enable the system to be rebooted and restarted over the network.

- **Disabled** **DEFAULT** The system cannot be booted over the network
- **Enabled** The system can be rebooted and started over the network

→ LAN Function [LAN1+LAN2]

The **LAN Function** option allows the LAN ports on the board to be disabled or enabled.

- **Lan1+Lan2** **DEFAULT** Both LAN ports are enabled
- **Disabled** Both LAN ports are disabled

→ Spread Spectrum Function [Disabled]

The **Spread Spectrum Mode** option can help to improve CPU EMI issues.

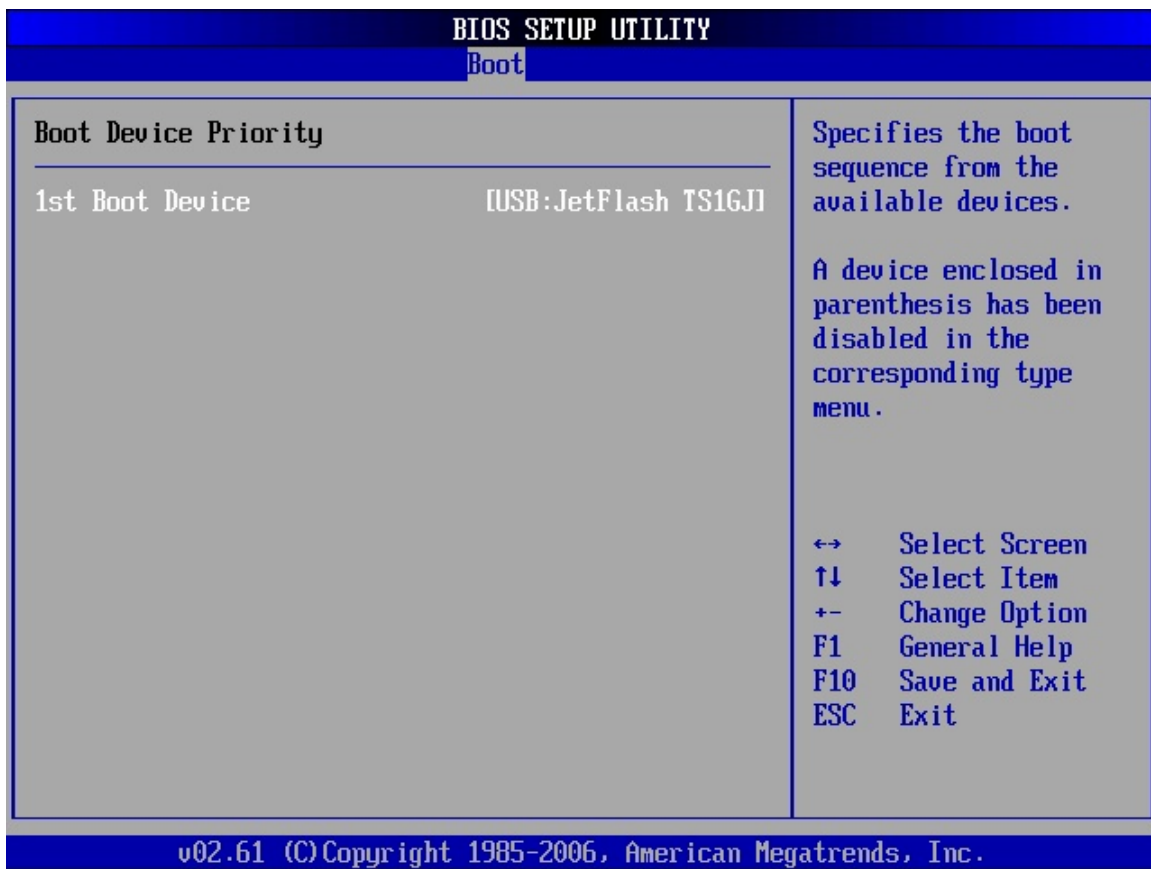
- **Disabled** The spread spectrum mode is disabled
- **Enabled** **DEFAULT** The spread spectrum mode is enabled

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6.5.2 Boot Device Priority

Use the **Boot Device Priority** menu (**BIOS Menu 15**) to specify the boot sequence from the available devices. Possible boot devices may include:

- USB
- HDD
- CD/DVD



BIOS Menu 15: Boot Device Priority Settings

6.5.3 Removable Drives

Use the **Removable Drives** menu (**BIOS Menu 16**) to specify the boot sequence of the available USB devices. When the menu is opened, the USB devices connected to the system are listed as shown below:

- 1st Drive [1st USB]

- 2nd Drive [2nd USB]


NOTE:

Only the drives connected to the system are shown. For example, if only one USB device is connected only “**1st Drive**” is listed.

The boot sequence from the available devices is selected. If the “**1st Drive**” option is selected a list of available USB devices is shown. Select the first USB device the system boots from. If the “**1st Drive**” is not used for booting this option may be disabled.

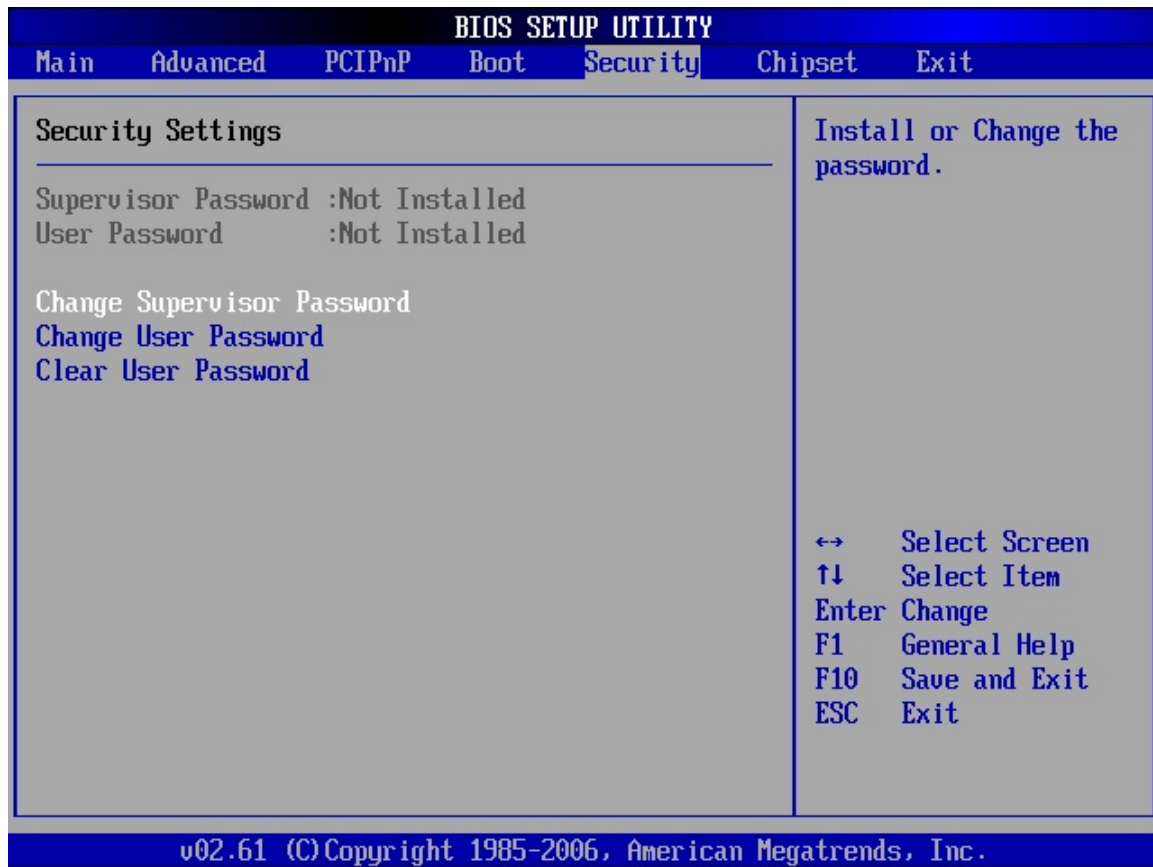
BIOS SETUP UTILITY	
Boot	
Hard Disk Drives	Specifies the boot sequence from the available devices.
1st Drive [USB:JetFlash TS1GJ]	
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
v02.61 (C) Copyright 1985-2006, American Megatrends, Inc.	

BIOS Menu 16: Removable Drives

6.6 Security

Use the **Security** menu (**BIOS Menu 17**) to set system and user passwords.

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BIOS Menu 17: Security

→ Change Supervisor Password

Use the **Change Supervisor Password** to set or change a supervisor password. The default for this option is **Not Installed**. If a supervisor password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change Supervisor Password**.

→ Change User Password

Use the **Change User Password** to set or change a user password. The default for this option is **Not Installed**. If a user password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change User Password**.

→ **Clear User Password**

Use the **Clear User Password** to clear a user's password. The default for this option is **Not Installed**. If a user password must be cleared, use this option.

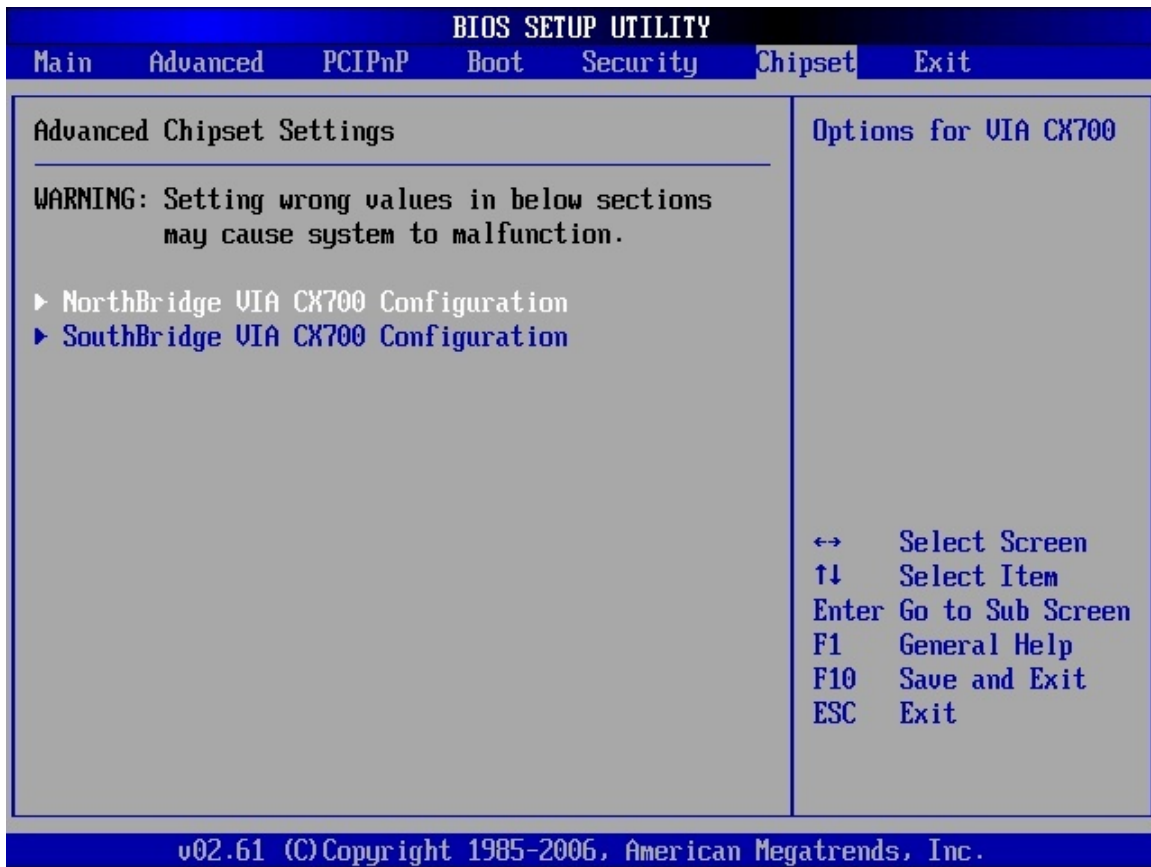
6.7 Chipset

Use the **Chipset** menu to access the Northbridge and Southbridge submenus.



WARNING!

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.

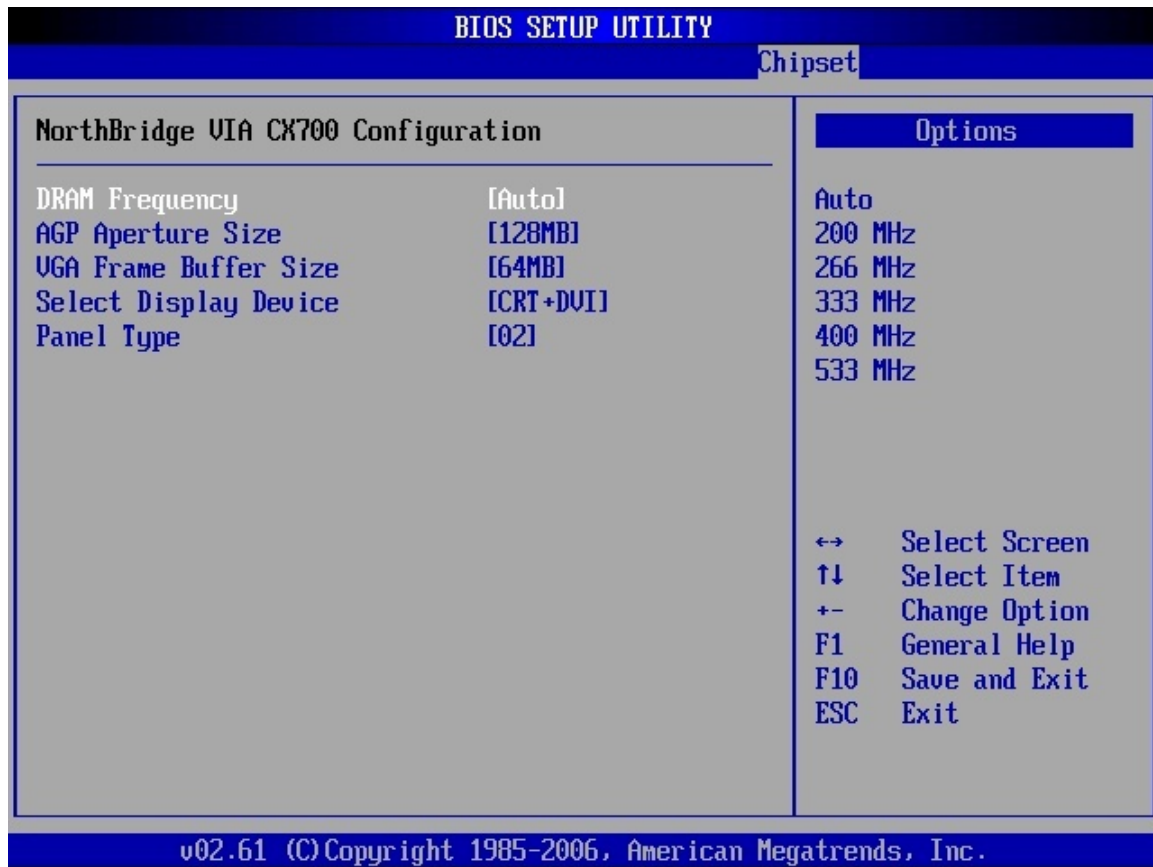


BIOS Menu 18: Chipset

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6.7.1 Northbridge Configuration

Use the **Northbridge Chipset Configuration** menu (**BIOS Menu 19**) to configure the Northbridge chipset.



BIOS Menu 19:Northbridge Chipset Configuration

→ DRAM Frequency [Auto]

Use the **DRAM Frequency** option to specify the DRAM frequency or allow the system to automatically detect the DRAM frequency.

- **Auto** **DEFAULT** Automatically selects the DRAM frequency
- **200MHz** Sets the DRAM frequency to 200MHz
- **266MHz** Sets the DRAM frequency to 266MHz

- **333MHz** Sets the DRAM frequency to 333MHz
- **400MHz** Sets the DRAM frequency to 400MHz
- **533MHz** Sets the DRAM frequency to 533MHz

→ **AGP Aperture Size [128MB]**

Use the **AGP Aperture Size** option to select the size of the AGP aperture. The aperture is a portion on the PCI memory address range dedicated for use as AGP memory address. The following options are available.

- 32 MB
- 64 MB
- 128 MB Default
- 256 MB
- 512 MB
- 1.0 GB

→ **VGA Frame Buffer [64MB]**

Use the **VGA Frame Buffer** option to specify the amount of system memory that can be used by the Internal graphics device.

- 8 MB
- 16 MB
- 32 MB
- 64 MB Default
- 128 MB

→ **Select Display Device [CRT+DVI]**

Use the **Select Display Device** BIOS feature to determine what displays are used. Dual display functionality is enabled here. Dual display configuration options are listed below:

- CRT
- LCD
- DVI
- CRT + LCD

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- CRT + DVI DEFAULT
- LCD + DVI

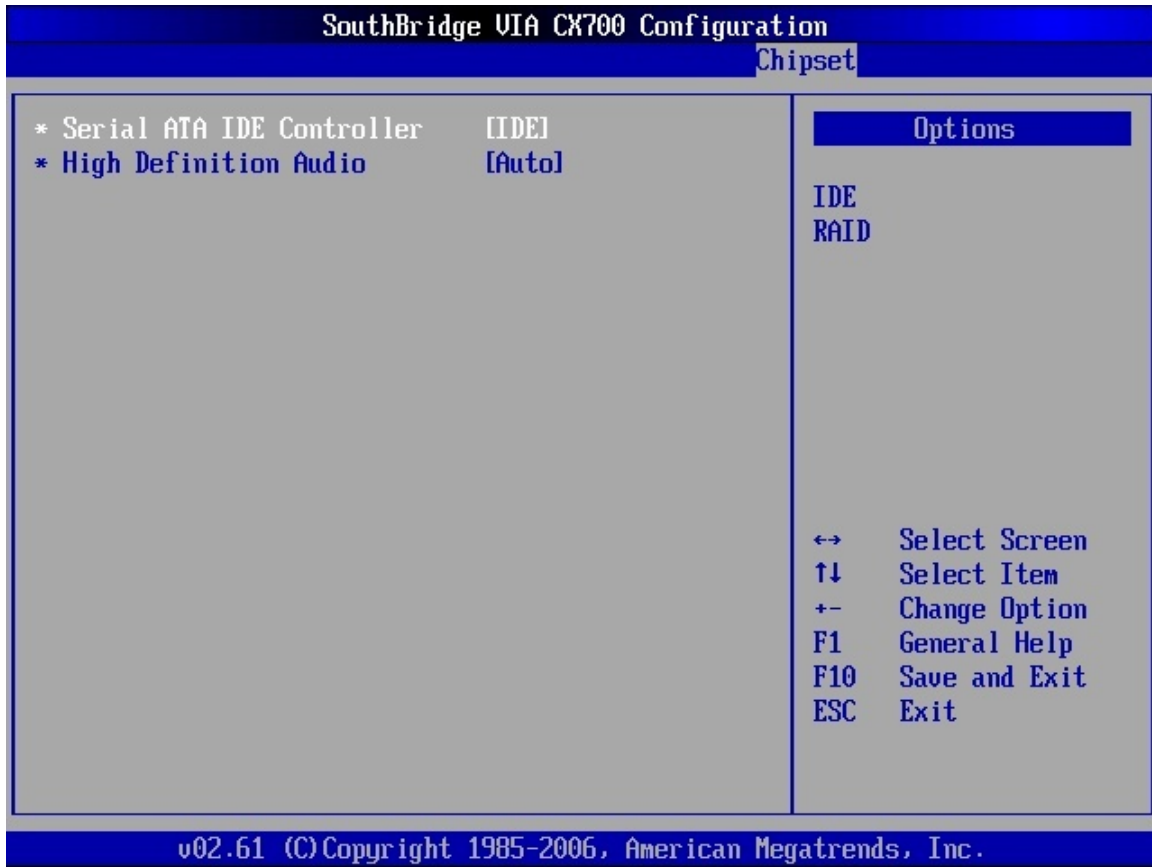
→ Flat Panel Type [1024x768 18b]

Use the **Flat Panel Type** option to select the type of flat panel connected to the system. Configuration options are listed below.

→	00		640 x 480, 18-bit
→	01		800 x 600, 18-bit
→	02	DEFAULT	1024 x 768, 18-bit
→	04		1280 x 1024, 36-bit
→	08		800 x 480, 18-bit
→	10		1024 x 768, 24-bit
→	13		1280 x 1024, 48-bit

6.7.2 Southbridge Configuration

The **Southbridge Configuration** menu (**BIOS Menu 20**) allows the Southbridge chipset to be configured.



BIOS Menu 20:Southbridge Chipset Configuration

→ Serial ATA IDE Controller [IDE]

Use the **Serial ATA IDE Controller** BIOS option to set the mode for the SATA ports.

→ **IDE** **DEFAULT** Drives connected to the SATA ports are treated like IDE drives, no RAID arrays can be created

→ **RAID** A RAID array can be created using two hard drives connected to the SATA ports

→ High Definition Audio [Auto]

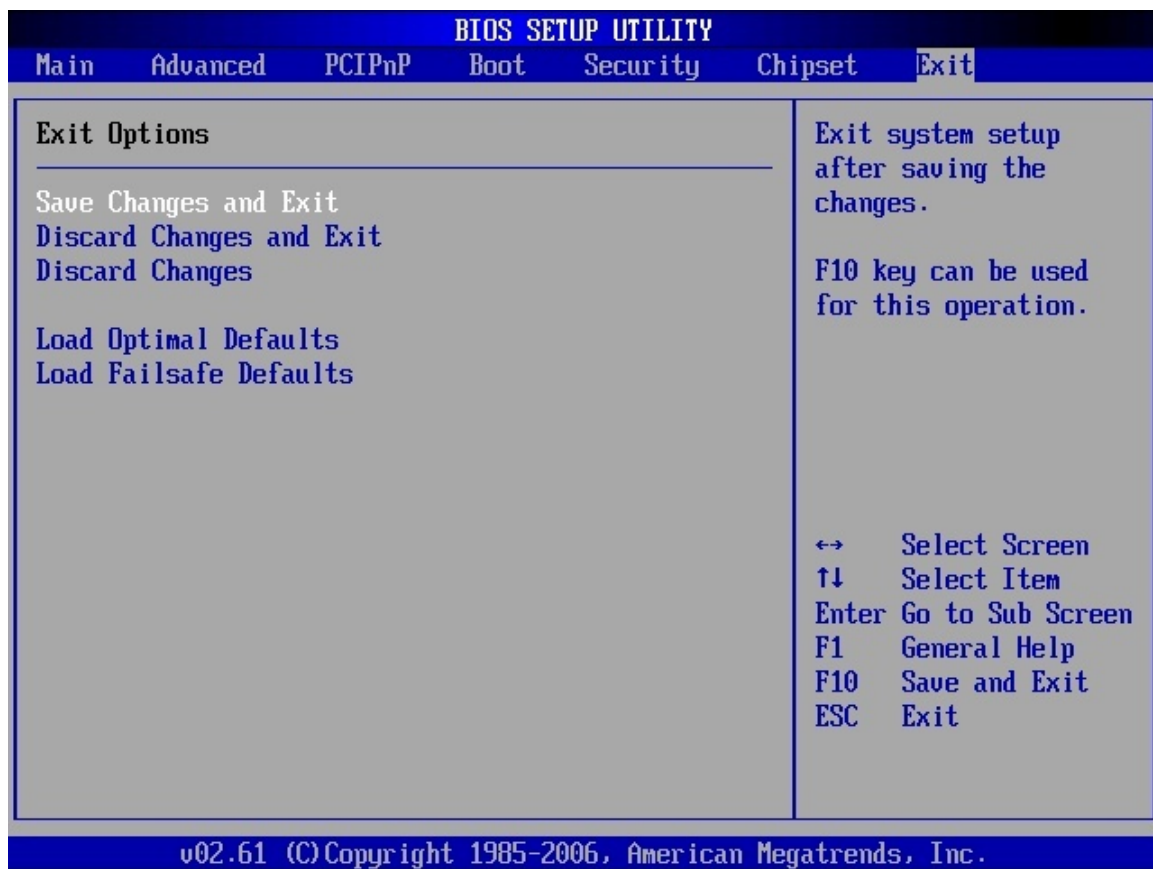
Use the **High Definition Audio** option to enable the high definition audio controller. If the HDA device has been connected to the system, this option should be enabled.

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- **Auto** **DEFAULT** The High Definition Audio is enabled automatically
- **Disabled** The High Definition Audio is disabled

6.8 Exit

Use the **Exit** menu (**BIOS Menu 21**) to load default BIOS values, optimal failsafe values and to save configuration changes.



BIOS Menu 21: Exit

- **Save Changes and Exit**

Use the **Save Changes and Exit** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

→ **Discard Changes and Exit**

Use the **Discard Changes and Exit** option to exit the BIOS configuration setup program without saving the changes made to the system.

→ **Discard Changes**

Use the **Discard Changes** option to discard the changes and remain in the BIOS configuration setup program.

→ **Load Optimal Defaults**

Use the **Load Optimal Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

→ **Load Failsafe Defaults**

Use the **Load Failsafe Defaults** option to load failsafe default values for each of the parameters on the Setup menus. **F8 key can be used for this operation.**

Chapter

7

Software Drivers

**NOTE:**

The content of the CD may vary throughout the life cycle of the product and is subject to change without prior notice. Visit the IEI website or contact technical support for the latest updates.

The following drivers can be installed on the system:

- Intel® chipset driver
- VGA driver
- LAN drivers
- Audio driver
- SATA driver
- Intel® Active Management Technology (AMT) driver

Installation instructions are given below.

7.1 Driver CD Auto-run

All the drivers for the WAFER-CX700M are on the CD that came with the system. To install the drivers, please follow the steps below.

Step 1: Insert the CD into a CD drive connected to the system.

**NOTE:**

If the system does not initiate the "autorun" program when the CD is inserted, click the **Start** button, select **Run**, then type **X:\autorun.exe** (where **X:** is the system CD drive) to access the IEI Driver CD main menu.

Step 2: The driver main menu appears (**Figure 7-1**).

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Figure 7-1: Introduction Screen

Step 3: Click WAFER-CX700M.

Step 4: A new screen with a list of available drivers appears (Figure 7-2).



Figure 7-2: Available Drivers

Step 5: Select the driver to install from the list in **Figure 7-2**. Detailed driver installation instructions follow below.

7.2 Chipset Driver Installation

The chipset driver installs drivers needed by the system chipset. To install the system chipset drivers, follow the instructions below.

Step 1: Select "1-Chipset & Graphic" in Figure 7-1.

Step 2: Double-click the directory of your operating system (in this case **Windows**).

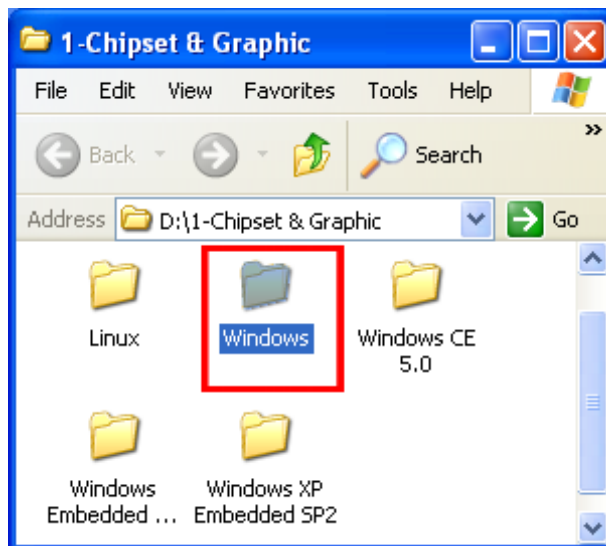


Figure 7-3: Chipset and Graphics

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Step 3: Double-click “Chipset or Platform driver Drivers”.

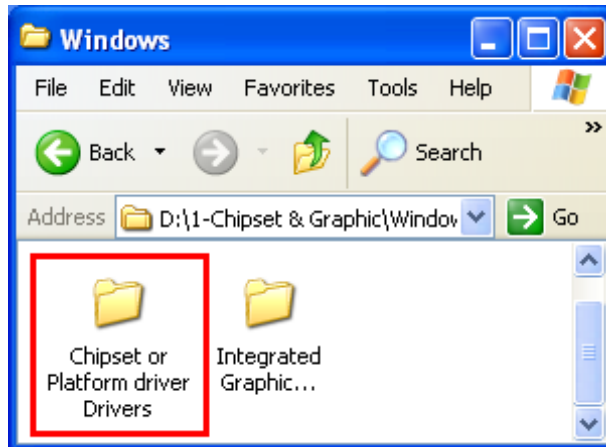


Figure 7-4: Chipset or Platform Drivers

Step 4: Double-click “VIA_Hyperion Pro_v515A”.

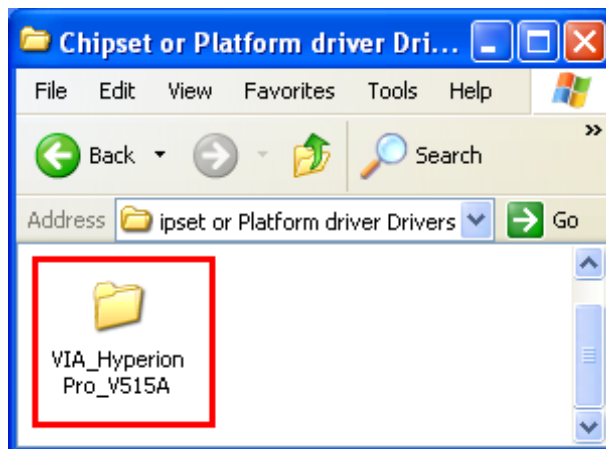


Figure 7-5: VIA Hyperion

Step 5: Double-click "SETUP.EXE".

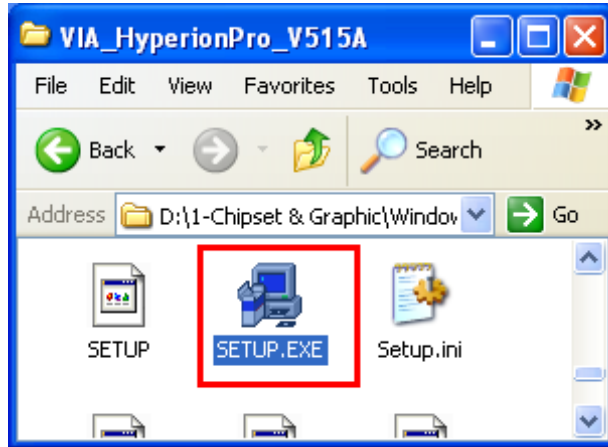


Figure 7-6: Setup File

Step 6: Click **NEXT** in the Welcome screen to continue the installation.

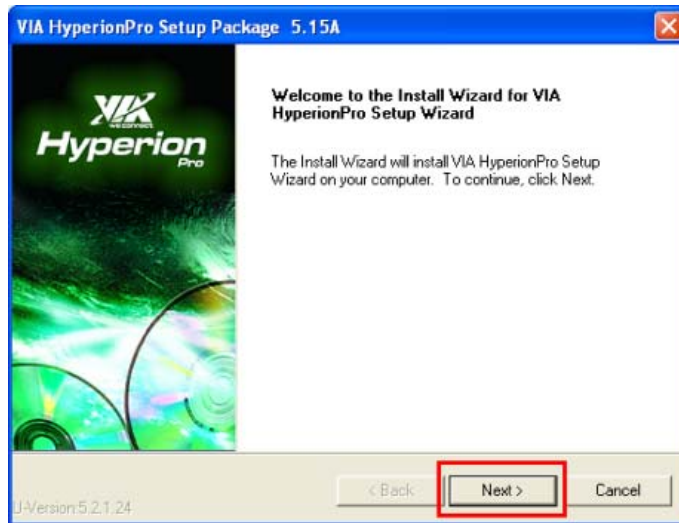


Figure 7-7: VIA Hyperion Welcome Screen

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Step 7: Select “I Agree” then **NEXT** to continue installation.

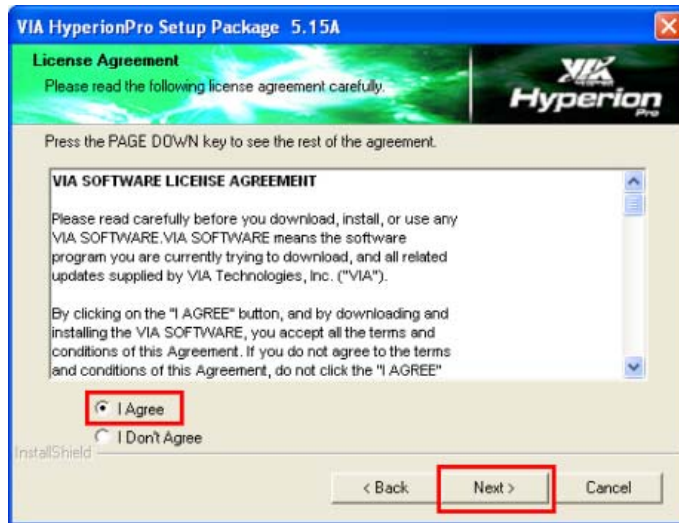


Figure 7-8: License Agreement

Step 8: Make sure all the drivers are selected and click **NEXT** to continue.

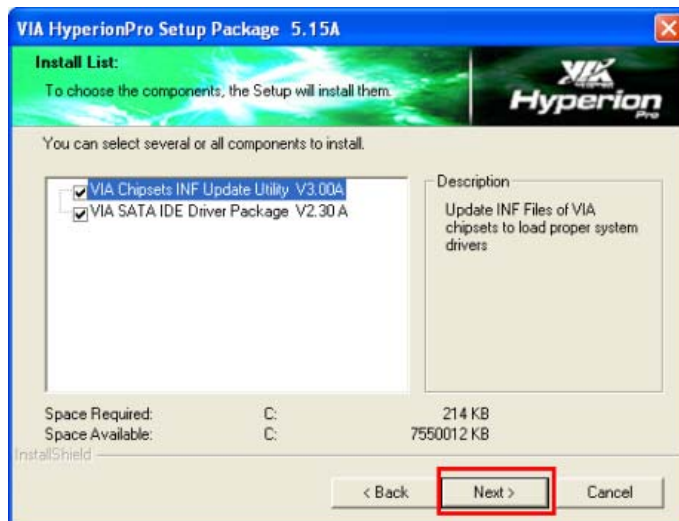


Figure 7-9: Select Drivers

Step 9: Click **NEXT** to start the driver installation. The installation will take a few moments.

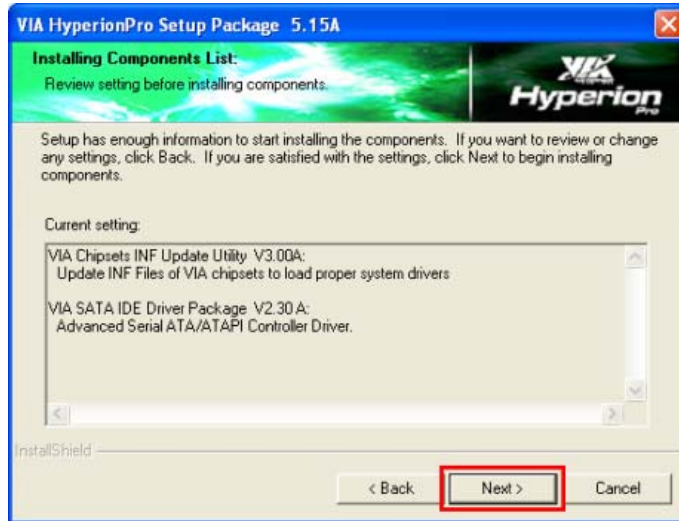


Figure 7-10: Start Driver Installation

Step 10: The driver installation report screen appears. This screen gives information on whether or not the drivers were installed correctly. Click **NEXT** to continue.

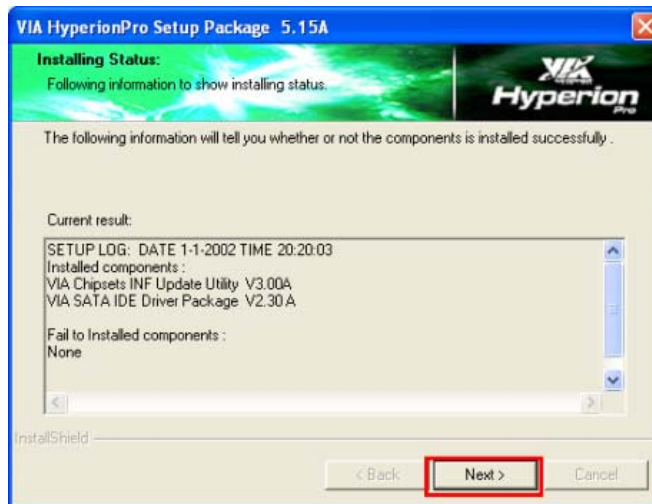


Figure 7-11: Installation Complete

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Step 11: Click **FINISH** to complete the installation.

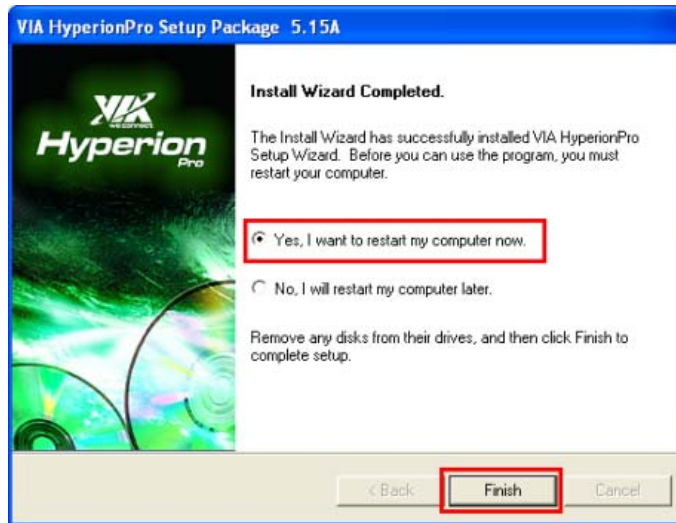


Figure 7-12: Finish Installation

7.3 Graphics Driver Installation

The graphics drivers are used by the system chipset for display functions. To install the graphics drivers, follow the instructions below.

Step 1: Select “1-Chipset & Graphic” in Figure 7-1.

Step 2: Double-click the directory of your operating system (in this case **Windows**).

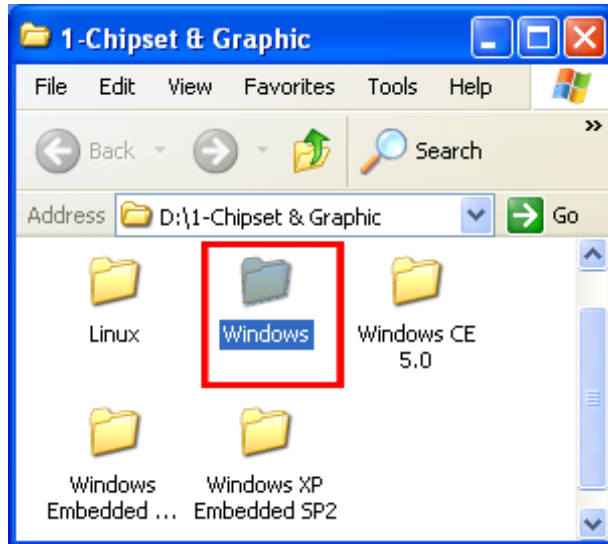


Figure 7-13: Chipset and Graphics

Step 3: Double-click "Integrated Graphics Drivers".

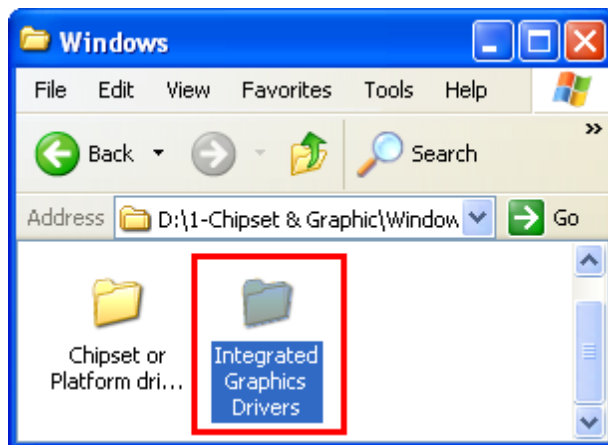


Figure 7-14: Integrated Graphics Drivers

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Step 4: Double-click "22.00.02a".

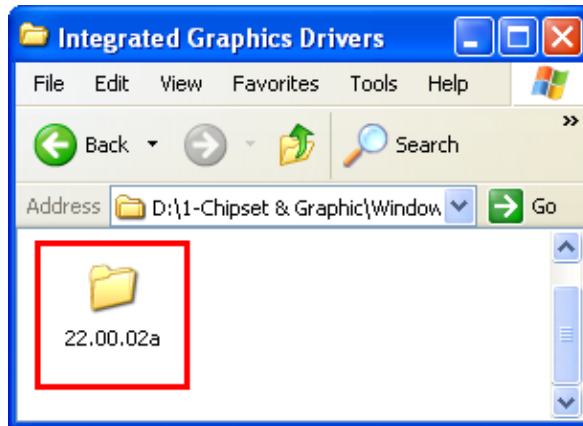


Figure 7-15: 22.00.02a Folder

Step 5: There are four options for installation. Below are the options for each installation.

- | | | |
|---|---------------------|---|
| 1 | Capture | Supports SAMM, TV Large Font. No rotation function. |
| 2 | NoSAMM | Supports TV Large Font. No SAMM and no rotation function. |
| 3 | nTVLargeFont | Normal TV Font. No SAMM and no rotation function. |
| 4 | rotation | Supports TV Large Font, SAMM and rotation. |

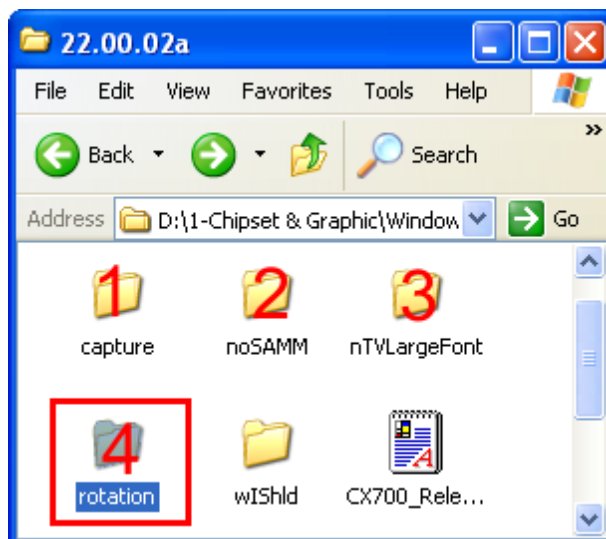


Figure 7-16: Installation Type Selection

Step 6: Double-click "SETUP.EXE".

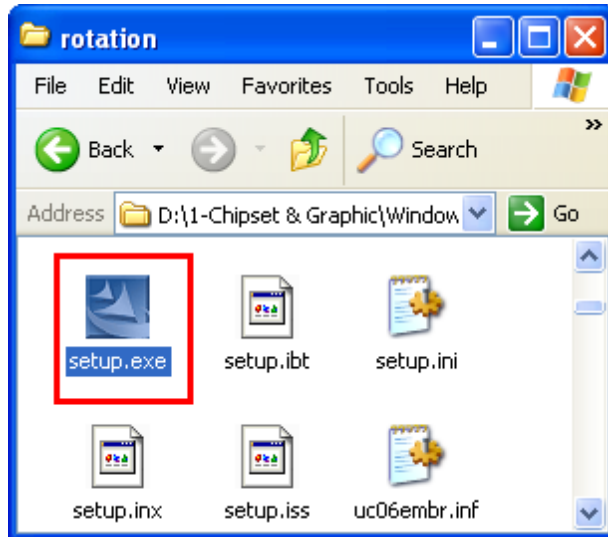


Figure 7-17: Setup File

Step 7: The installation progresses automatically and the **Installation Wizard Complete** windows appears when done. Click **FINISH** to finish the installation.

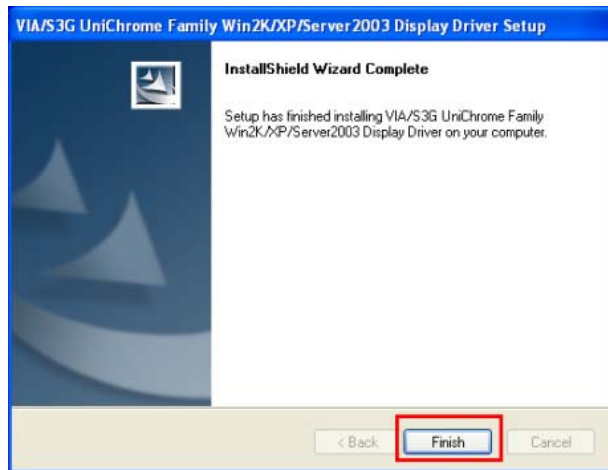


Figure 7-18: VIA Hyperion Welcome Screen

Step 8: After installation a small **S3** icon will appear in the Windows taskbar at the bottom right of the screen.



Figure 7-19: S3 Taskbar Icon

7.4 Network Adapter Driver Installation

There is no automatic installation for the network adapter drivers. To install the network adapter drivers, please follow the steps for manual driver installation below.

Step 1: Select **START>>CONTROL PANEL**.



Figure 7-20: Start Menu

Step 2: Double-click the **System** icon in the Control Panel window.

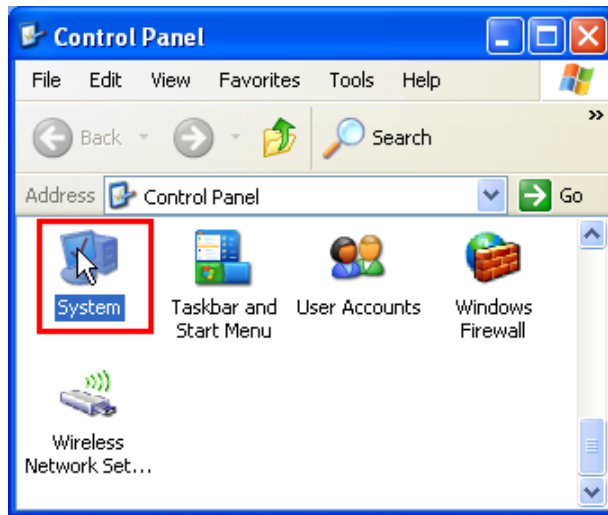


Figure 7-21: Control Panel

Step 3: Select the **Hardware** tab. Click on **DEVICE MANAGER**.

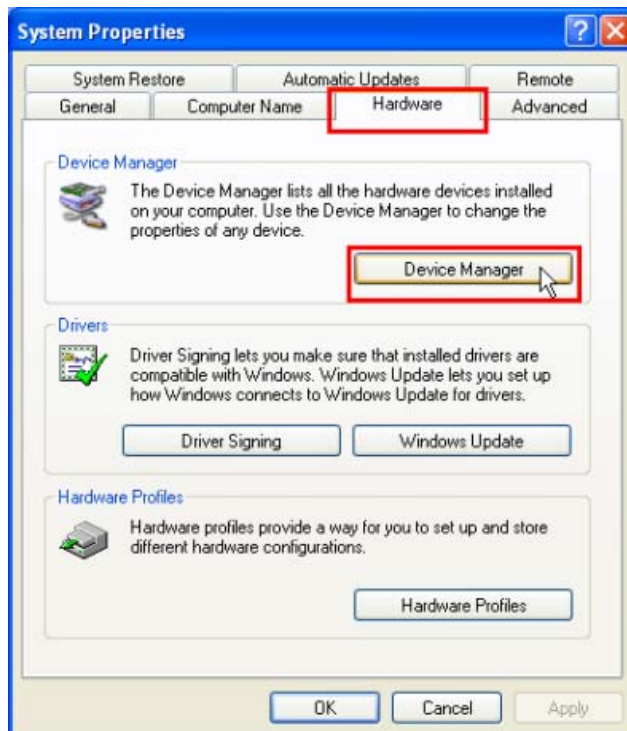


Figure 7-22: System Properties

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Step 4: Under “**Other Devices**” devices without drivers are listed. Select the “**Ethernet Controller**” then click the “**Properties**” icon to change the driver’s properties.

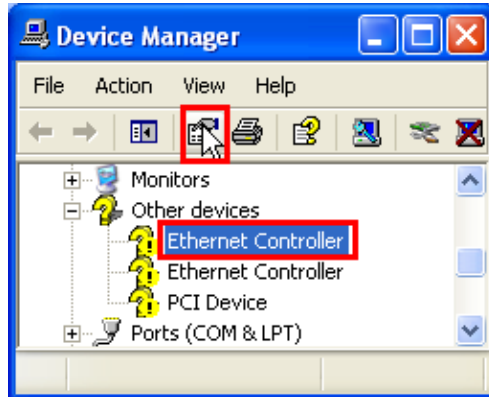


Figure 7-23: Device Manager

Step 5: In the “**Ethernet Controller Properties**” window, select the “**General**” tab the click on **REINSTALL DRIVER...**

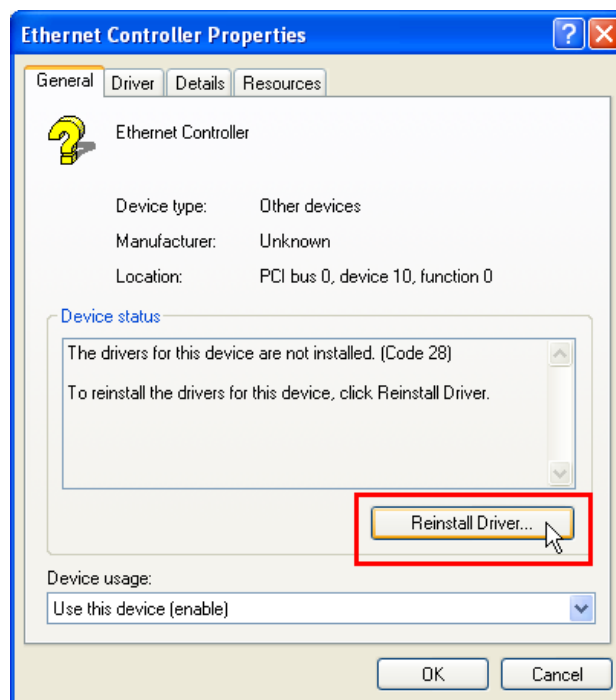


Figure 7-24: Ethernet Controller Properties Window

Step 6: The “Hardware Update Wizard” appears. Select “No, not this time.” Click on NEXT to continue the driver update process.

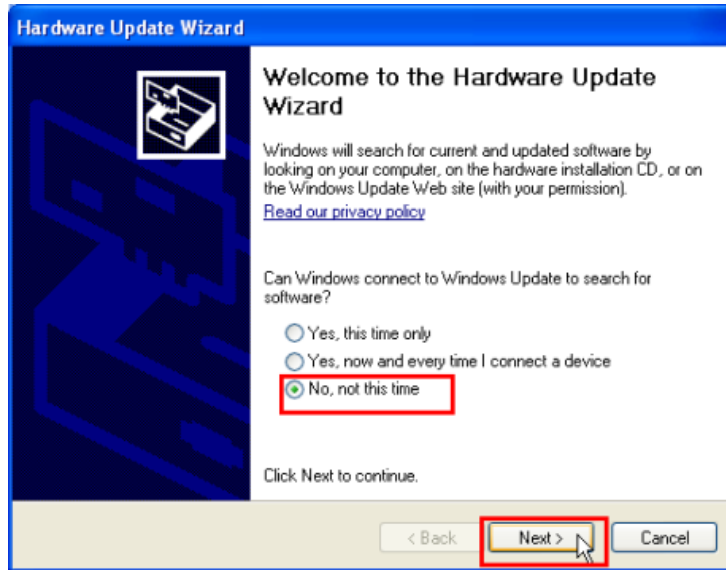


Figure 7-25: Hardware Update Wizard

Step 7: Select “Install from a list or specific location (Advanced)” Click NEXT to continue.

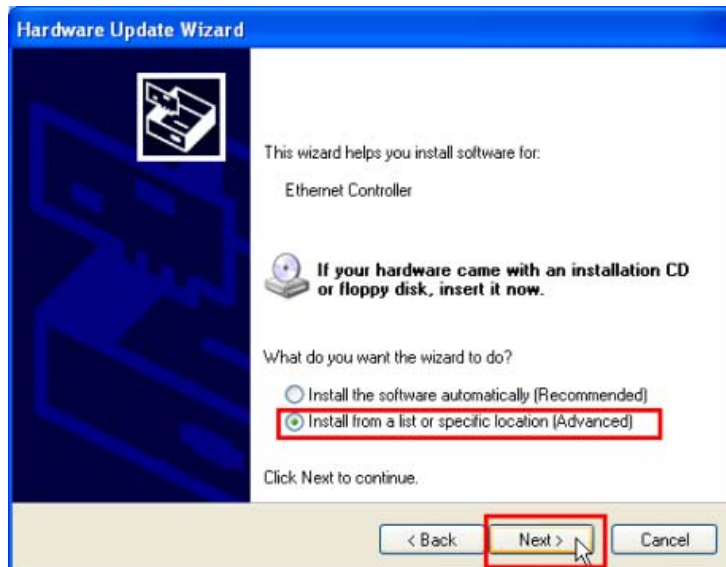


Figure 7-26: Driver Location

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Step 8: Select “Don’t search. I will choose the driver to install.” Click **NEXT** to continue.

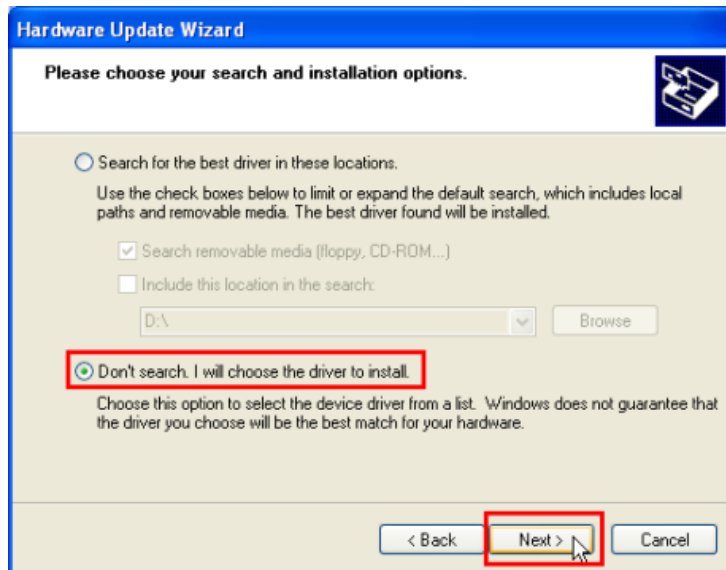


Figure 7-27: Choose Audio Driver

Step 9: Select “Network Adapters” from the list. Click **NEXT** to continue.

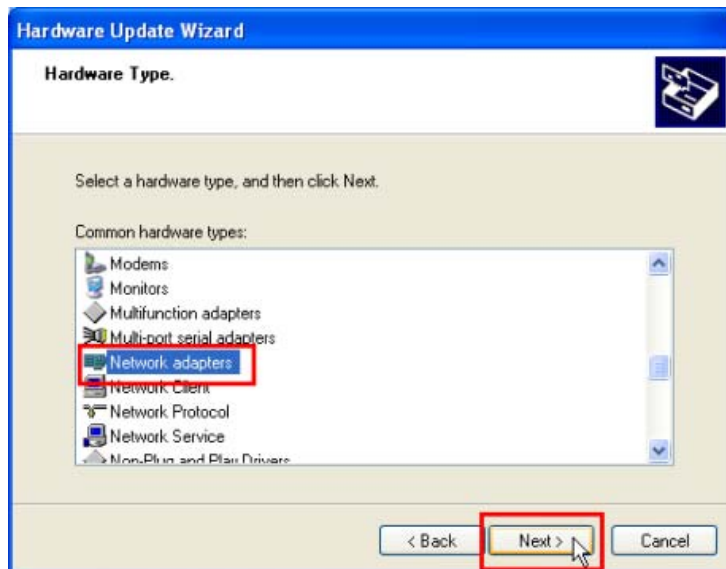


Figure 7-28: Driver Selection

Step 10: A list of available drivers appears. Don't select any of these drivers. Click "Have Disk" to select the correct driver file.

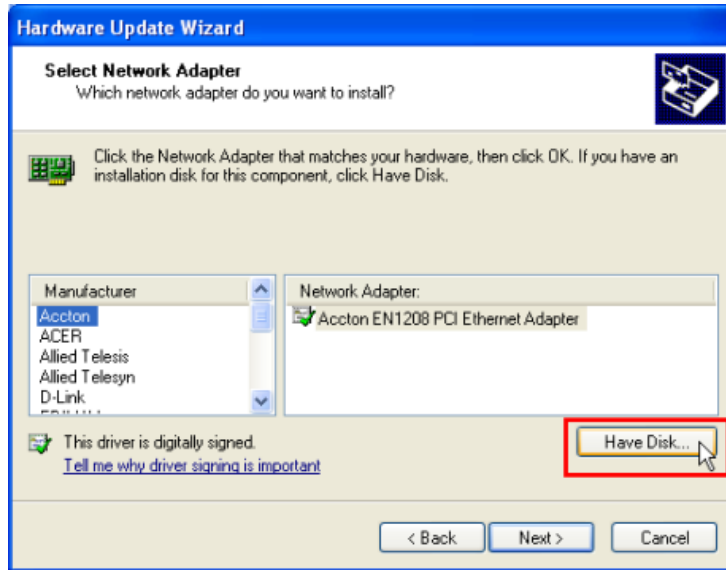


Figure 7-29: Default Network Drivers.

Step 11: Click the BROWSE button to select the correct driver from the installation CD.

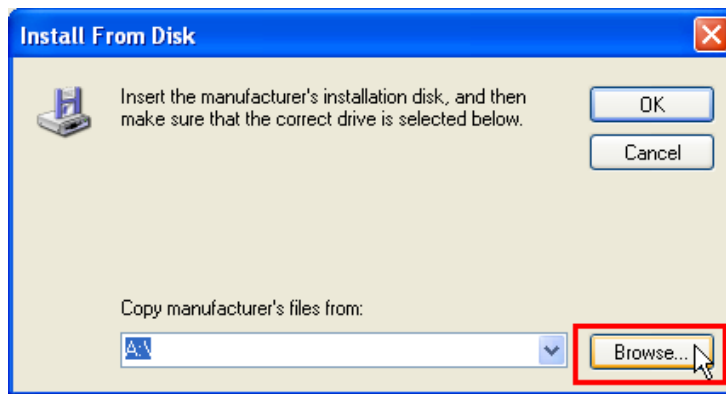


Figure 7-30: Install From Disk

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Step 12: Select “D:\2-LAN\Realtek\RTL8110SC” where D: is the CD drive’s letter.

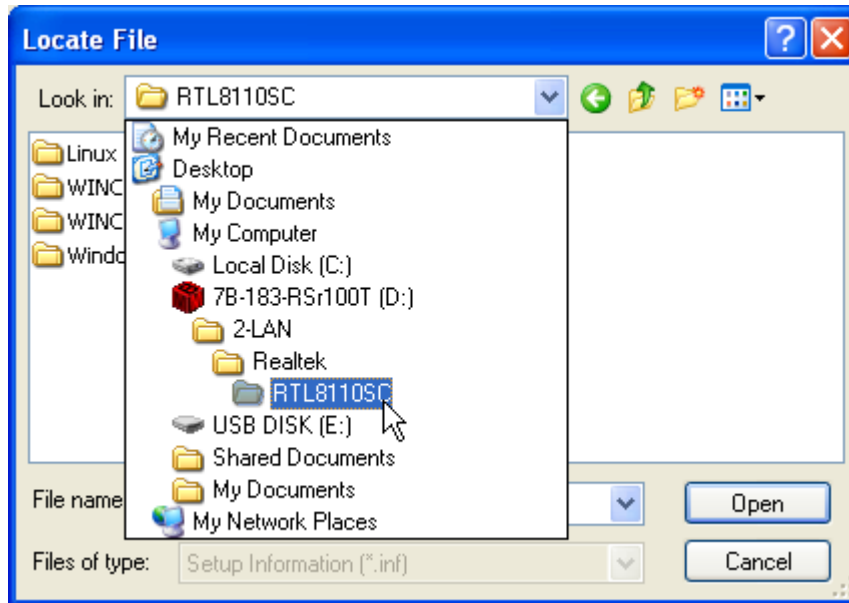


Figure 7-31: Driver File Directory

Step 13: Double-click the directory for your operating system (in this case **Windows**).

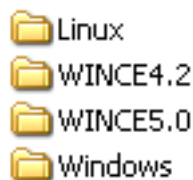


Figure 7-32: Select Operating System

Step 14: Double-click the **WIN98_ME_2K_XP_XP64** folder.

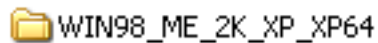


Figure 7-33: Windows Folder

Step 15: Double-click the **PCI_InstallShield_5649_060919** folder.



Figure 7-34: InstallShield Folder

Step 16: Double-click the folder corresponding to your system's operating system.

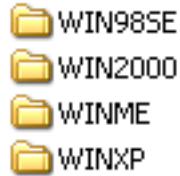


Figure 7-35: Operating System Folder

Step 17: Select the driver file and click **OPEN** to continue.

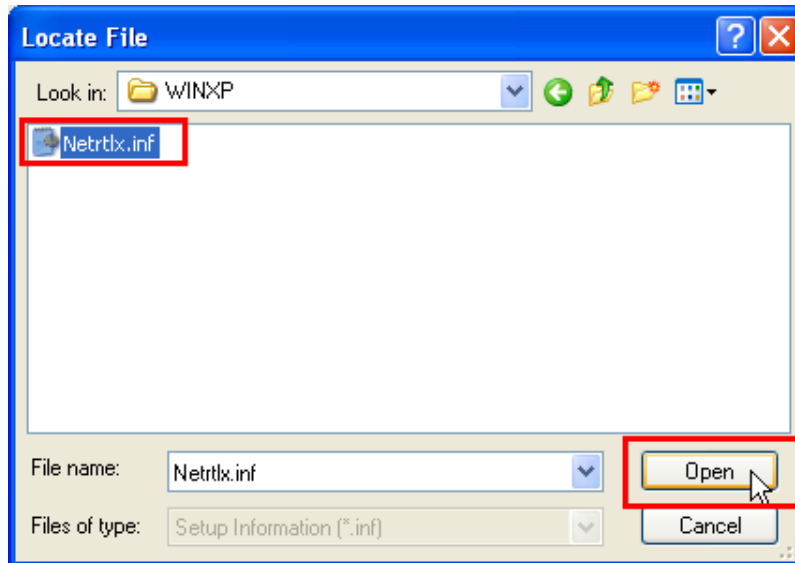


Figure 7-36: Driver File

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Step 18: Click **OK**.

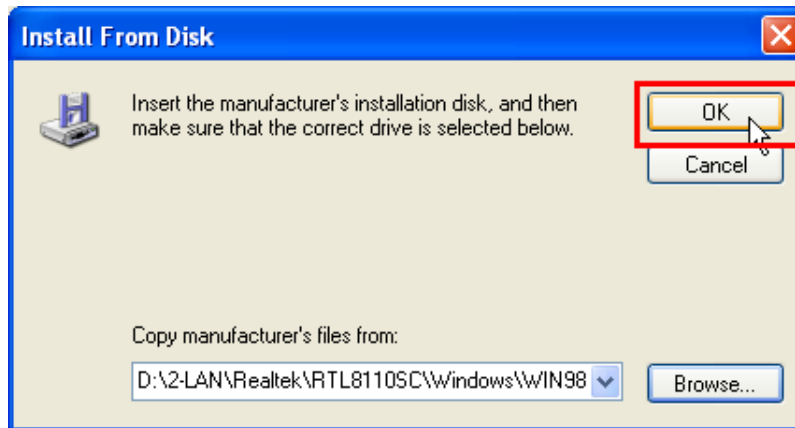


Figure 7-37: Install From Disk

Step 19: Select the "Realtek RTL8169/8110 Family Gigabit Ethernet NIC" driver. Click **NEXT** to continue.

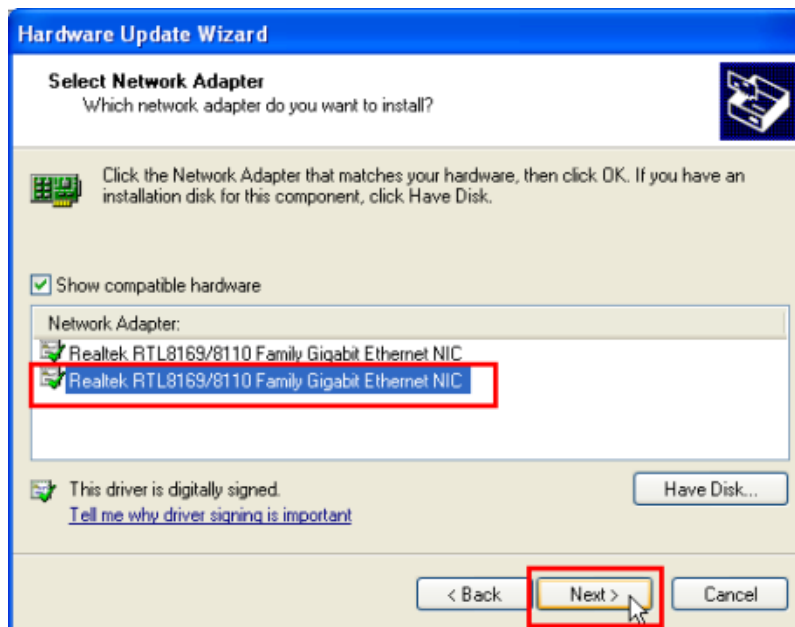


Figure 7-38: New Driver Found

Step 20: Click **FINISH** to complete the Installation of the network adapter driver. Repeat the same steps to install the drivers for the second network adapter.

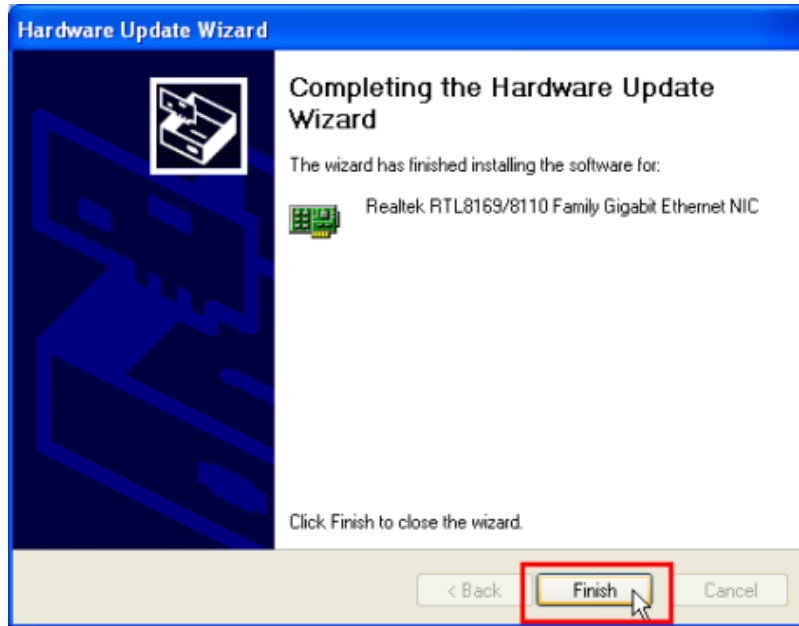


Figure 7-39: Network Adapter Driver Installation Complete

7.5 Audio Driver Installation

To install the audio drivers, please follow the instructions below.

Step 1: Select “**3-Audio**” from the menu in Figure 7-1.

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Step 2: Double-click the **VT1708A** folder.

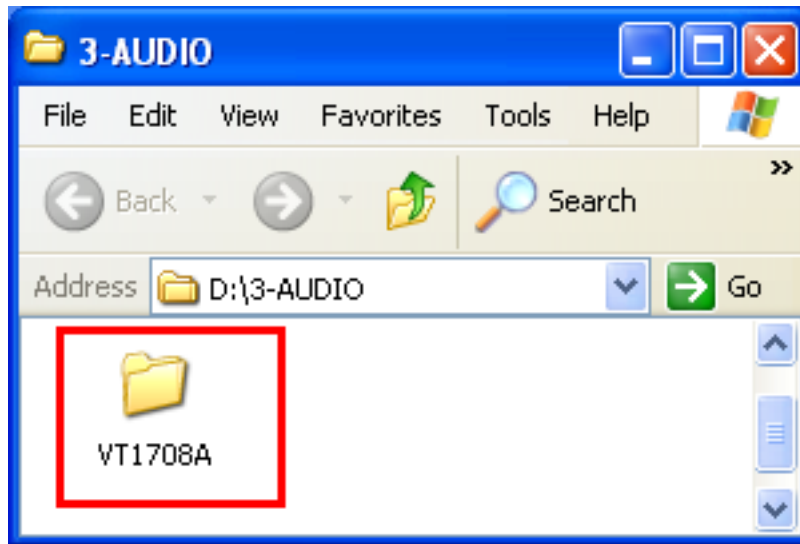


Figure 7-40: Audio Driver Folder

Step 3: Double-click the folder for your operating system (in this case, **Windows**).

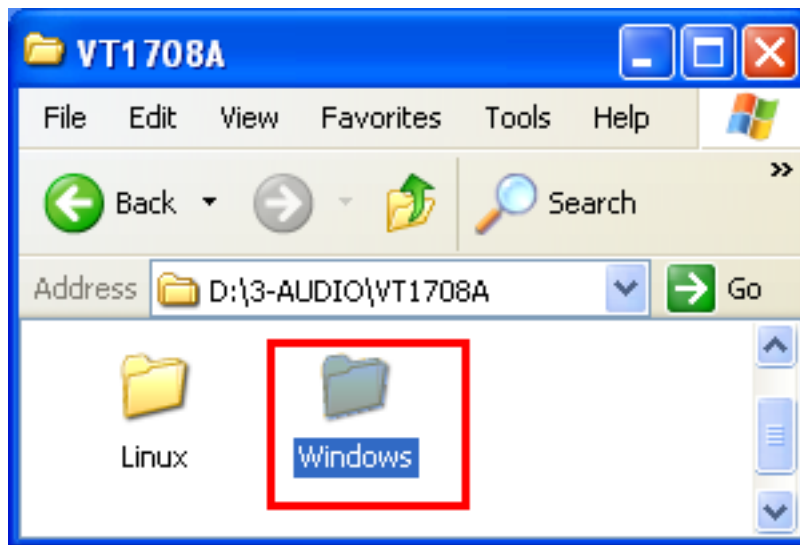


Figure 7-41: Operating System Folder

Step 4: Double-click the folder that corresponds to the specific version of your operating system (in the figure, **Windows XP**).

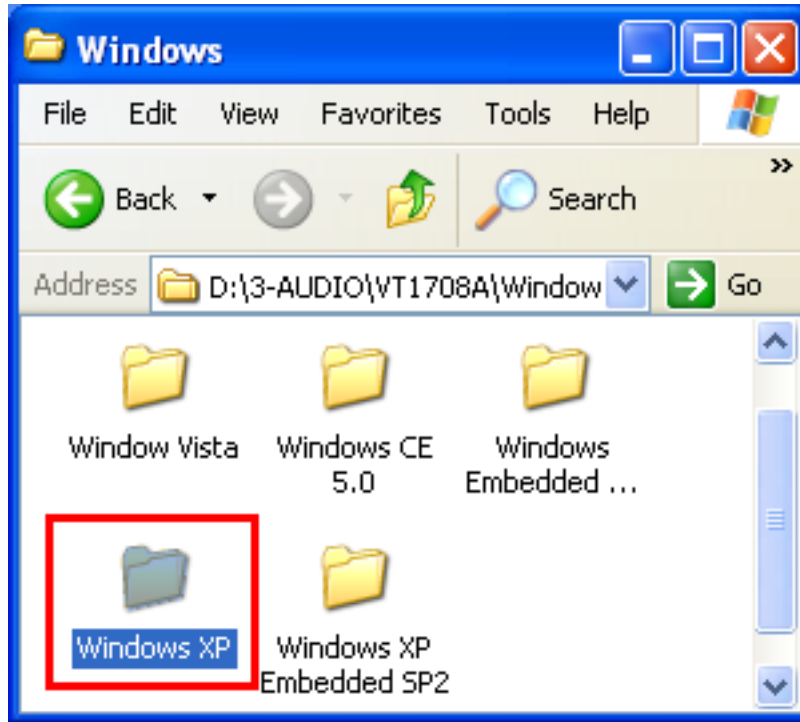


Figure 7-42: Operating System Version

Step 5: Double-click **32-bit** for a standard Windows XP install.

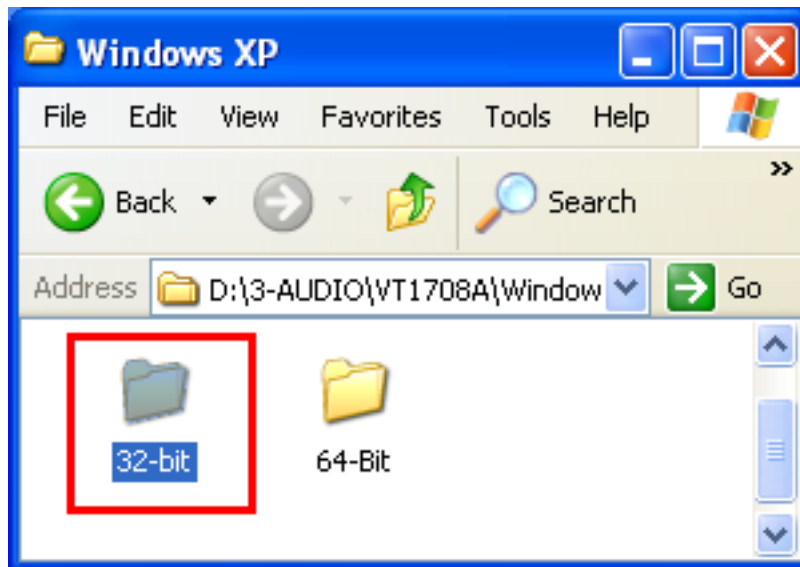


Figure 7-43: Select 32-bit or 64-bit

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Step 6: Double-click the **HDA_V500b** folder.

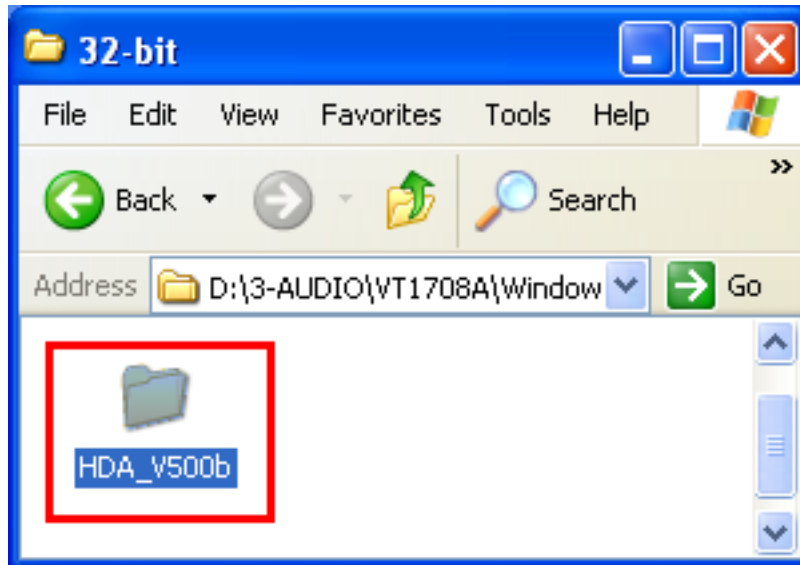


Figure 7-44: Audio Driver Folder

Step 7: Double-click **SETUP.EXE** to start to the InstallShield audio driver installation.

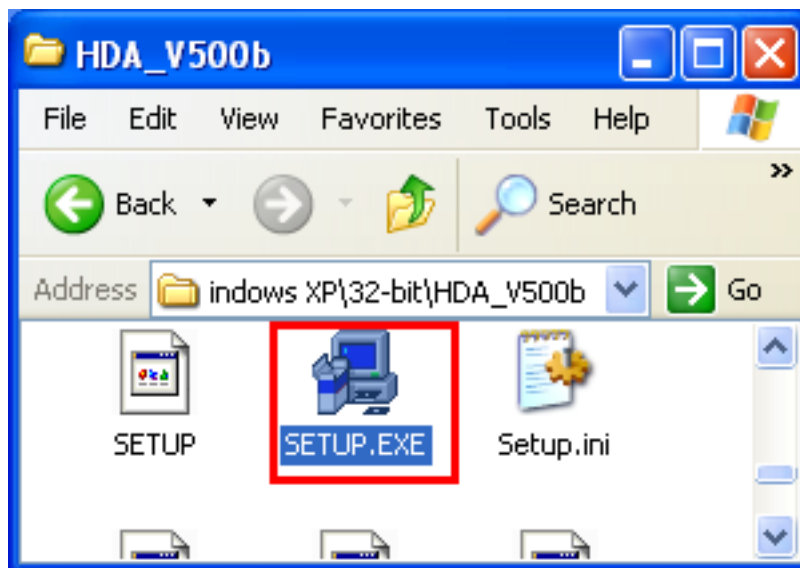


Figure 7-45: Audio Driver Setup File

Step 8: The Audio Driver Setup Welcome screen appears. Select **Install/Update** then click **NEXT** to proceed with the installation.



Figure 7-46: Audio Driver Setup Welcome Screen

Step 9: Click **NEXT** to install the standard set of drivers.

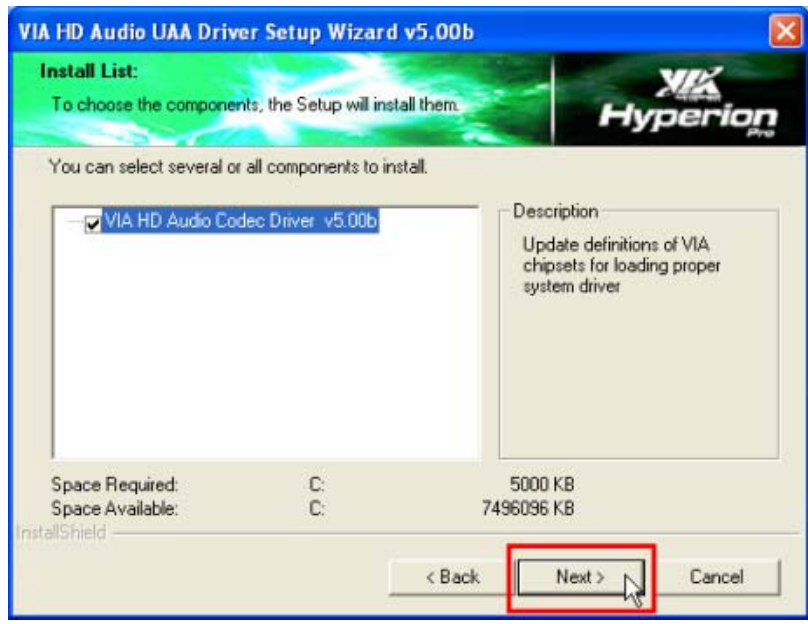


Figure 7-47: Audio Driver Selection

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Step 10: Review the installation settings and click **NEXT** to continue.



Figure 7-48:

Step 11: The drivers are now installed. The drivers only take effect after the compute ris restarted. Select the “**Yes, I want to restart my computer now**” option then click **FINISH** to complete the installation.

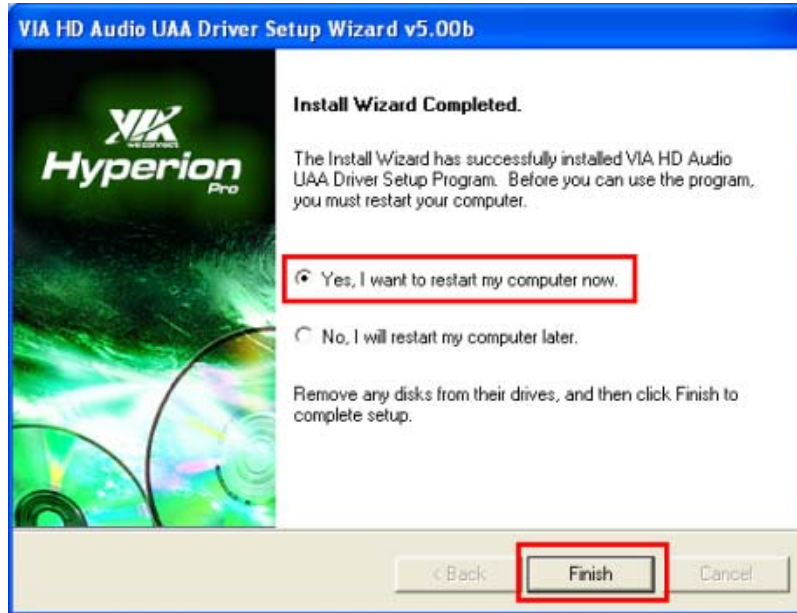


Figure 7-49: Audio Driver Installation Complete

Appendix

A

BIOS Options

Below is a list of BIOS configuration options in the BIOS chapter.

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➔ Legacy IDE Channels [SATA Pri, PATA Sec]	93
➔ IDE Master and IDE Slave	93
➔ Type [Auto]	94
➔ ZIP	95
➔ LS-120	95
➔ LBA/Large Mode [Auto]	95
➔ Block (Multi Sector Transfer) [Auto]	95
➔ PIO Mode [Auto]	96
➔ DMA Mode [Auto]	96
➔ S.M.A.R.T [Auto]	97
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➔ Serial Port1 IRQ [4]	99
➔ Serial Port2 Address [2F8]	99
➔ Serial Port2 IRQ [3]	99
➔ Serial Port3 Address [3E8]	100
➔ Serial Port3 IRQ [4]	100
➔ Serial Port4 Address [2E8]	100
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➔ Resume on PME# [Disabled]	104
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➔ RTC Alarm Time	104

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➔ USB Function [Enabled].....	108
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➔ USB Mass Storage Reset Delay [20 Sec]	110
➔ Device ##.....	111
➔ Emulation Type [Auto].....	111
➔ IRQ#.....	113
➔ DMA Channel# [Available]	114
➔ Reserved Memory Size [Disabled]	114
➔ Quick Boot [Enabled]	116
➔ Quiet Boot [Disabled]	116
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➔ Bootup Num-Lock [On]	117
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➔ LAN Function [LAN1+LAN2]	118
➔ Spread Spectrum Function [Disabled]	118
➔ Change Supervisor Password.....	121
➔ Change User Password.....	121
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→ Select Display Device [CRT+DVI].....	124
→ Flat Panel Type [1024x768 18b].....	125
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→ Save Changes and Exit	127
→ Discard Changes and Exit.....	128
→ Discard Changes.....	128
→ Load Optimal Defaults.....	128
→ Load Failsafe Defaults.....	128

Appendix

B

Terminology

AC '97	Audio Codec 97 (AC'97) refers to a codec standard developed by Intel® in 1997.
ACPI	Advanced Configuration and Power Interface (ACPI) is an OS-directed configuration, power management, and thermal management interface.
AHCI	Advanced Host Controller Interface (AHCI) is a SATA Host controller register-level interface.
ATA	The Advanced Technology Attachment (ATA) interface connects storage devices including hard disks and CD-ROM drives to a computer.
ARMD	An ATAPI Removable Media Device (ARMD) is any ATAPI device that supports removable media, besides CD and DVD drives.
ASKIR	Amplitude Shift Keyed Infrared (ASKIR) is a form of modulation that represents a digital signal by varying the amplitude ("volume") of the signal. A low amplitude signal represents a binary 0, while a high amplitude signal represents a binary 1.
BIOS	The Basic Input/Output System (BIOS) is firmware that is first run when the computer is turned on and can be configured by the end user
CODEC	The Compressor-Decompressor (CODEC) encodes and decodes digital audio data on the system.
CompactFlash®	CompactFlash® is a solid-state storage device. CompactFlash® devices use flash memory in a standard size enclosure. Type II is thicker than Type I, but a Type II slot can support both types.
CMOS	Complimentary metal-oxide-conductor is an integrated circuit used in chips like static RAM and microprocessors.
COM	COM refers to serial ports. Serial ports offer serial communication to expansion devices. The serial port on a personal computer is usually a male DB-9 connector.
DAC	The Digital-to-Analog Converter (DAC) converts digital signals to analog signals.
DDR	Double Data Rate refers to a data bus transferring data on both the rising and falling edges of the clock signal.

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DMA	Direct Memory Access (DMA) enables some peripheral devices to bypass the system processor and communicate directly with the system memory.
DIMM	Dual Inline Memory Modules are a type of RAM that offer a 64-bit data bus and have separate electrical contacts on each side of the module.
DIO	The digital inputs and digital outputs are general control signals that control the on/off circuit of external devices or TTL devices. Data can be read or written to the selected address to enable the DIO functions.
EHCI	The Enhanced Host Controller Interface (EHCI) specification is a register-level interface description for USB 2.0 Host Controllers.
EIDE	Enhanced IDE (EIDE) is a newer IDE interface standard that has data transfer rates between 4.0 MBps and 16.6 MBps.
EIST	Enhanced Intel® SpeedStep Technology (EIST) allows users to modify the power consumption levels and processor performance through application software. The application software changes the bus-to-core frequency ratio and the processor core voltage.
FSB	The Front Side Bus (FSB) is the bi-directional communication channel between the processor and the Northbridge chipset.
GbE	Gigabit Ethernet (GbE) is an Ethernet version that transfers data at 1.0 Gbps and complies with the IEEE 802.3-2005 standard.
GPIO	General purpose input
HDD	Hard disk drive (HDD) is a type of magnetic, non-volatile computer storage device that stores digitally encoded data.
ICH	The Input/Output Control Hub (ICH) is an Intel® Southbridge chipset.
IrDA	Infrared Data Association (IrDA) specify infrared data transmission protocols used to enable electronic devices to wirelessly communicate with each other.
L1 Cache	The Level 1 Cache (L1 Cache) is a small memory cache built into the system processor.
L2 Cache	The Level 2 Cache (L2 Cache) is an external processor memory cache.

LCD	Liquid crystal display (LCD) is a flat, low-power display device that consists of two polarizing plates with a liquid crystal panel in between.
LVDS	Low-voltage differential signaling (LVDS) is a dual-wire, high-speed differential electrical signaling system commonly used to connect LCD displays to a computer.
POST	The Power-on Self Test (POST) is the pre-boot actions the system performs when the system is turned-on.
RAM	Random Access Memory (RAM) is volatile memory that loses data when power is lost. RAM has very fast data transfer rates compared to other storage like hard drives.
SATA	Serial ATA (SATA) is a serial communications bus designed for data transfers between storage devices and the computer chipsets. The SATA bus has transfer speeds up to 1.5 Gbps and the SATA II bus has data transfer speeds of up to 3.0 Gbps.
S.M.A.R.T	Self Monitoring Analysis and Reporting Technology (S.M.A.R.T) refers to automatic status checking technology implemented on hard disk drives.
UART	Universal Asynchronous Receiver-transmitter (UART) is responsible for asynchronous communications on the system and manages the system's serial communication (COM) ports.
UHCI	The Universal Host Controller Interface (UHCI) specification is a register-level interface description for USB 1.1 Host Controllers.
USB	The Universal Serial Bus (USB) is an external bus standard for interfacing devices. USB 1.1 supports 12Mbps data transfer rates and USB 2.0 supports 480Mbps data transfer rates.
VGA	The Video Graphics Array (VGA) is a graphics display system developed by IBM.

Appendix

C

Digital I/O Interface

C.1 Introduction

The DIO connector on the [MODEL NAME] is interfaced to GPIO ports on the IT8712F Super I/O chipset. The DIO has both 4-bit digital inputs and 4-bit digital outputs. The digital inputs and digital outputs are generally control signals that control the on/off circuit of external devices or TTL devices. Data can be read or written to the selected address to enable the DIO functions.



NOTE:

For further information, please refer to the datasheet for the IT8712F Super I/O chipset.

C.2 DIO Connector Pinouts

The following table describes how the DIO connector pins are connected to the Super I/O GPIO port 1.

Pin	Description	Super I/O Pin	Super I/O Pin Description
1	Ground	N/A	N/A
2	VCC	N/A	N/A
3	Output 3	GP27	General purpose I/O port 2 bit 7.
4	Output 2	GP26	General purpose I/O port 2 bit 6.
5	Output 1	GP25	General purpose I/O port 2 bit 5.
6	Output 0	GP24	General purpose I/O port 2 bit 4.
7	Input 3	GP23	General purpose I/O port 2 bit 3.
8	Input 2	GP22	General purpose I/O port 2 bit 2.
9	Input 1	GP21	General purpose I/O port 2 bit 1.
10	Input 0	GP20	General purpose I/O port 2 bit 0.

C.3 Assembly Language Samples

C.3.1 Enable the DIO Input Function

The BIOS interrupt call INT 15H controls the digital I/O. An assembly program to enable digital I/O input functions is listed below.

MOV	AX, 6F08H	Sets the digital port as input
INT	15H	Initiates the INT 15H BIOS call

C.3.2 Enable the DIO Output Function

The BIOS interrupt call INT 15H controls the digital I/O. An assembly program to enable digital I/O output functions is listed below.

MOV	AX, 6F09H	Sets the digital port as output
MOV	BL, 09H	
INT	15H	Initiates the INT 15H BIOS call

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Appendix

D

Watchdog Timer


NOTE:

The following discussion applies to DOS environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMIs or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer.

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table D-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. When the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.



NOTE:

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

Example program:

; INITIAL TIMER PERIOD COUNTER

;

W_LOOP:

```

MOV    AX, 6F02H    ;setting the time-out value
MOV    BL, 30       ;time-out value is 48 seconds
INT    15H

```

;

; ADD THE APPLICATION PROGRAM HERE

;

```

CMP    EXIT_AP, 1   ;is the application over?
JNE    W_LOOP       ;No, restart the application

```

```

MOV    AX, 6F02H    ;disable Watchdog Timer
MOV    BL, 0        ;
INT    15H

```

;

; EXIT ;



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Appendix

E

Address Mapping

E.1 IO Address Map

I/O address Range	Description
000-01F	DMA Controller
020-021	Interrupt Controller
040-043	System time
060-06F	Keyboard Controller
070-07F	System CMOS/Real time Clock
080-09F	DMA Controller
0A0-0A1	Interrupt Controller
0C0-0DF	DMA Controller
0F0-0FF	Numeric data processor
1F0-1F7	Primary IDE Channel
2F8-2FF	Serial Port 2 (COM2)
378-37F	Parallel Printer Port 1 (LPT1)
3B0-3BB	SiS661CX Graphics Controller
3C0-3DF	SiS661CX Graphics Controller
3F6-3F6	Primary IDE Channel
3F7-3F7	Standard floppy disk controller
3F8-3FF	Serial Port 1 (COM1)

Table E-1: IO Address Map

E.2 1st MB Memory Address Map

Memory address	Description
00000-9FFFF	System memory
A0000-BFFFF	VGA buffer
F0000-FFFFFF	System BIOS
1000000-	Extend BIOS

Table E-2: 1st MB Memory Address Map

E.3 IRQ Mapping Table

IRQ0	System Timer	IRQ8	RTC clock
IRQ1	Keyboard	IRQ9	ACPI
IRQ2	Available	IRQ10	LAN
IRQ3	COM2	IRQ11	LAN/USB2.0/SATA
IRQ4	COM1	IRQ12	PS/2 mouse
IRQ5	SMBus Controller	IRQ13	FPU
IRQ6	FDC	IRQ14	Primary IDE
IRQ7	Available	IRQ15	Secondary IDE

Table E-3: IRQ Mapping Table

E.4 DMA Channel Assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

Table E-4: IRQ Mapping Table

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Appendix

F

Hazardous Materials Disclosure

F.1 Hazardous Materials Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

WAFER-CX700M 3.5" SBC

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	X	O	O	O	O	X
Display	X	O	O	O	O	X
Printed Circuit Board	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Power Supply Assemblies	X	O	O	O	O	X
Battery	O	O	O	O	O	O
<p>O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006</p> <p>X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006</p>						

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有“环境友好使用期限”的标签，此期限是估算这些物质“不会有泄漏或突变”的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	X	O	O	O	O	X
显示	X	O	O	O	O	X
印刷电路板	X	O	O	O	O	X
金属螺帽	X	O	O	O	O	O
电缆组装	X	O	O	O	O	X
风扇组装	X	O	O	O	O	X
电力供应组装	X	O	O	O	O	X
电池	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

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