



integration with integrity

User's Manual

Single Board Computer 3307810

Version 1.1, August 2007

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# Manual Conventions

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## **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:

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## **WARNING:**

This is an example of a warning message. Failure to adhere to warning messages may result in permanent damage to the 3307810 or personal injury to the user. Please take warning messages seriously.

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## **CAUTION!**

Cautionary messages should also be heeded to help reduce the chance of losing data or damaging the 3307810. Cautions are easy to recognize. The word “caution” is written as “**CAUTION**,” both capitalized and bold and is followed. The italicized 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 3307810. Please take caution messages seriously.

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**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 3307810. Please take note messages seriously.

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# Packing List

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**NOTE:**

If any of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the GLOBAL AMERICAN INC. reseller or vendor you purchased the 3307810 from or contact a Global American sales representative directly. To contact a Global American sales representative, please send an email to [salesinfo@globalamericaninc.com](mailto:salesinfo@globalamericaninc.com).

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The items listed below should all be included in the 3307810 package.

- 1 x 3307810 single board computer
- 1 x IDE cable
- 1 KB/MS PS/2 Y-cable
- 1 x SATA power cable
- 2 x SATA cables
- 1 x Dual RS-232 cable
- 1 x Dual USB cable
- 1 x Mini jumper pack
- 1 x Utility CD
- 1 x QIG (quick installation guide)

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

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<b>Menu 23:Exit</b> .....	Error! Bookmark not defined.

# Glossary

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AC '97	Audio Codec 97	HDD	Hard Disk Drive
ACPI	Advanced Configuration and Power Interface	IDE	Integrated Data Electronics
APM	Advanced Power Management	I/O	Input/Output
ARMD	ATAPI Removable Media Device	ICH4	I/O Controller Hub 4
ASKIR	Shift Keyed Infrared	L1 Cache	Level 1 Cache
ATA	Advanced Technology Attachments	L2 Cache	Level 2 Cache
BIOS	Basic Input/Output System	LCD	Liquid Crystal Display
CFII	Compact Flash Type 2	LPT	Parallel Port Connector
CMOS	Complementary Metal Oxide Semiconductor	LVDS	Low Voltage Differential Signaling
CPU	Central Processing Unit	MAC	Media Access Controller
Codec	Compressor/Decompressor	OS	Operating System
COM	Serial Port	PCI	Peripheral Connect Interface
DAC	Digital to Analog Converter	PIO	Programmed Input Output
DDR	Double Data Rate	PnP	Plug and Play
DIMM	Dual Inline Memory Module	POST	Power On Self Test
DIO	Digital Input/Output	RAM	Random Access Memory
DMA	Direct Memory Access	SATA	Serial ATA
EIDE	Enhanced IDE	S.M.A.R.T	Self Monitoring Analysis and Reporting Technology
EIST	Enhanced Intel SpeedStep Technology	SPD	Serial Presence Detect
FDD	Floppy Disk Drive	S/PDI	Sony/Philips Digital Interface
FDC	Floppy Disk Connector	SDRAM	Synchronous Dynamic Random Access Memory
FFIO	Flexible File Input/Output	SIR	Serial Infrared
FIFO	First In/First Out	UART	Universal Asynchronous Receiver-transmitter
FSB	Front Side Bus	USB	Universal Serial Bus
IrDA	Infrared Data Association	VGA	Video Graphics Adapter



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**Chapter**

**1**

# **Introduction**

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## 1.1 Introduction

The half-size 3307810 CPU card is a Socket M Intel® Core™2 Duo, Intel® Core™ Duo, Intel® Core™ Solo or Intel® Celeron M (Yohan core) CPU platform. The 3307810 has a maximum front side bus (FSB) frequency of 667MHz and supports 667MHz 2GB dual channel memory modules. The 3307810 also comes with multiple display options, dual PCI Express (PCIe) Gigabit Ethernet (GbE) and has flexible storage options including support for two second-generation serial ATA (SATA) hard disk drives (HDD), two IDE HDD and a CompactFlash® Type II (CF Type II) disk.

### 1.1.1 3307810 Benefits

Some of the 3307810 benefits are listed below:

- Multiple display output options
- Storage flexibility with support for SATA drives, IDE drives and CompactFlash (CF) disks
- DDR2 support enables faster data transfers
- Multiple I/O interfaces provide connectivity to a broad range of external peripheral devices

### 1.1.2 3307810 Features

Some of the 3307810 features are listed below.

- Support for the following Socket M processors:
  - Intel® Core™2 Duo
  - Intel® Core™ Duo
  - Intel® Core™ Solo
  - Intel® Celeron® M
- Maximum FSB of 667MHz
- Maximum of 4GB of memory supported with two 240-pin dual channel 400MHz, 533MHz or 667MHz 2GB DDR2 DIMMs
- Two SATA drives with transfer rates of 1.5 Gbps supported
- Two Ultra ATA 100, Ultra ATA 66 or Ultra ATA 33 IDE HDDs supported
- Five USB 2.0 devices supported

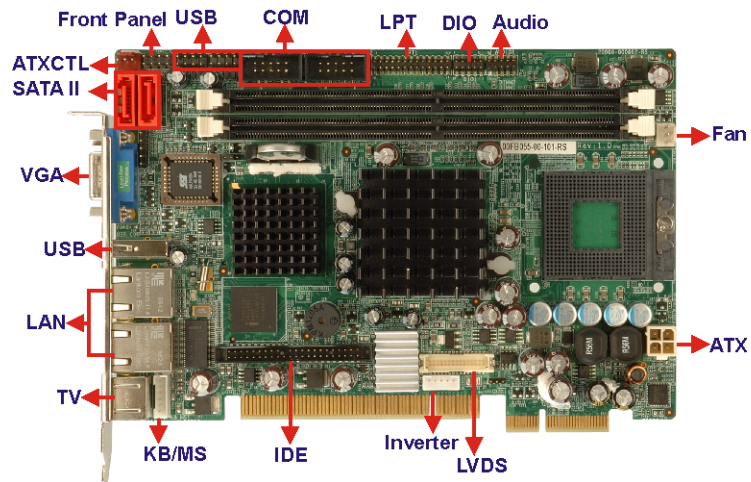
## 3307810

- Dual PCIe GbE Ethernet connectivity
- Multiple display options including CRT,HDTV and dual-channel LVDS
- Half-size form factor
- RoHS compliant
- Supports AT and ATX power supplies

## 1.2 3307810 Overview

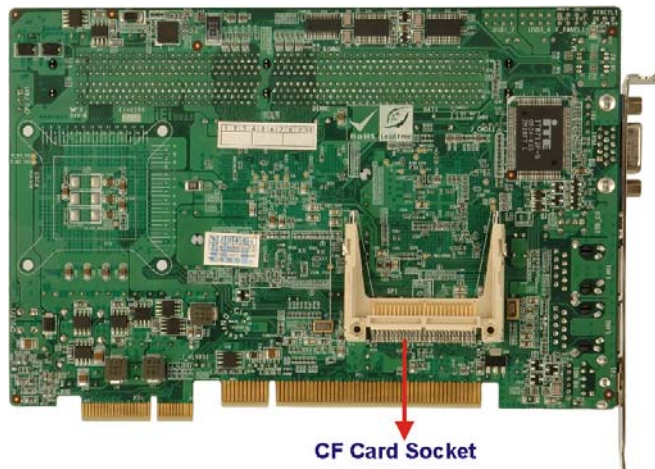
### 1.2.1 3307810 Overview Photo

The 3307810 has a wide variety of internal and external peripheral connectors. A labeled photo of the peripheral connectors on the front of the 3307810 is shown in **Figure 1-1**.



**Figure 1-1: 3307810 Overview [Front View]**

A labeled photo of the peripheral connectors on the back of the 3307810 is shown in **Figure 1-1**.



**Figure 1-2: 3307810 Overview [Rear View]**

## 1.2.2 3307810 Peripheral Connectors and Jumpers

The 3307810 has the following connectors on-board:

- 1 x Audio connector
- 1 x Backplane power connector
- 1 x Compact flash connector
- 1 x Digital input/output connector
- 1 x Fan connector
- 1 x Front panel connector
- 1 x IDE disk drive connector
- 1 x Infrared interface connector
- 1 x Inverter connector
- 1 x Keyboard and mouse connector
- 1 x LVDS connector
- 2 x Serial port connectors (internal COM 1 and COM 2 RS-232)
- 1 x Parallel port connector
- 2 x Serial ATA (SATA) drive connectors
- 2 x USB connectors

The 3307810 has the following external peripheral interface connectors on the board rear panel

## 3307810

- 2 x Ethernet connectors
- 1 x USB port connectors
- 1 x TV Out Mini DIN connector
- 1 x VGA connector

The 3307810 has the following on-board jumpers:

- Clear CMOS
- CF Card setup
- LVDS voltage selection
- PCIe interface setup

### 1.2.3 Technical Specifications

3307810 technical specifications are listed in **Table 1-1**. See **Chapter 2** for details.

Specification	3307810
Form Factor	Half-size
System CPU	Socket M Intel® Core™2 Duo Socket M Intel® Core™ Duo Socket M Intel® Core™ Solo Socket M Intel® Celeron M (Yonah core)
Front Side Bus	400MHz, 533Mhz, or 667MHz
System Chipset	<b>Northbridge:</b> Intel® 945GM <b>Southbridge:</b> Intel® ICH7-M
Memory	Two 240-pin DIMM sockets support two dual-channel 400MHz, 533MHz or 667MHz DDR2 DIMMs with a maximum capacity of 2GB each

<b>Display</b>	<b>CRT:</b> Integrated in the Intel® 945GM to support CRT <b>LVDS:</b> Dual channel 18-bit LVDS LCD panel <b>HDTV:</b> Supported by component interface
<b>BIOS</b>	AMI Flash BIOS
<b>Audio</b>	7.1 channel or 5.1 channel audio with an optional AC-KIT
<b>LAN</b>	Intel® 82573 PCIe GbE chipset Intel® 82562 Ethernet chipset
<b>COM</b>	Two RS-232 serial ports
<b>USB2.0</b>	Five USB 2.0 devices supported by two onboard USB 2.0 connectors and one external USB 2.0 port
<b>IDE</b>	One 44-pin IDE connects to two Ultra ATA33/66/100 devices
<b>SATA</b>	Two 1.5 Gbps SATA drives supported
<b>Keyboard/Mouse</b>	One 6-pin connector connects to a keyboard
<b>Super I/O</b>	ITE IT8712FHX
<b>Digital I/O</b>	One 8-bit digital I/O connector (4-bit input / 4-bit output)
<b>Infrared</b>	One Infrared connector
<b>SSD</b>	CF Type II
<b>Watchdog Timer</b>	Software programmable 1-255 sec. by super I/O
<b>Power Supply</b>	AT and ATX supported

**3307810**

<b>Temperature</b>	0°C – 60°C (32°F - 140°F)
<b>Humidity (operating)</b>	5%~95% non-condensing
<b>Dimensions (LxW)</b>	185mm x 122mm
<b>Weight (GW/NW)</b>	1000g/ 171g

**Table 1-1: Technical Specifications**

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Chapter

2

# Detailed Specifications

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## 2.1 Overview

This chapter describes the specifications and on-board features of the 3307810 in detail.

## 2.2 Dimensions

### 2.2.1 Board Dimensions

The dimensions of the board are listed below:

- **Length:** 185mm
- **Width:** 122mm

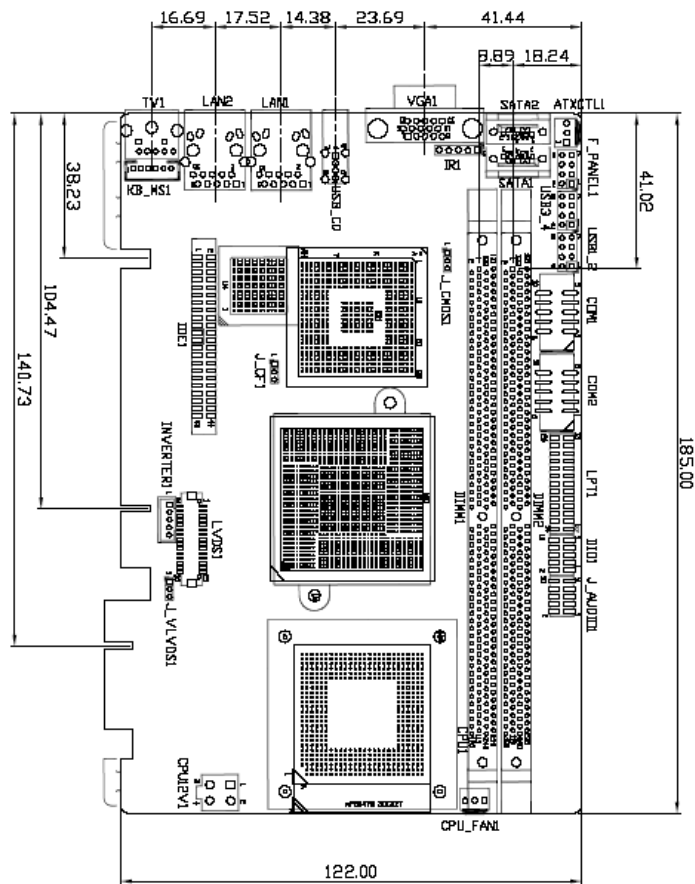
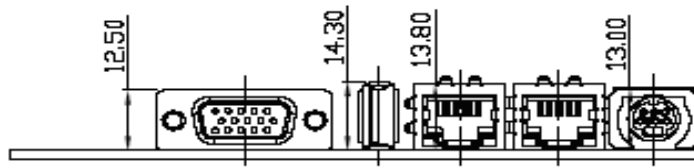


Figure 2-1: 3307810 Dimensions (mm)

### 2.2.2 External Interface Panel Dimensions

External peripheral interface connector panel dimensions are shown in **Figure 2-2**.



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

## 2.3 Data Flow

**Figure 2-3** shows the data flow between the two on-board chipsets and other components installed on the motherboard and described in the following sections of this chapter.

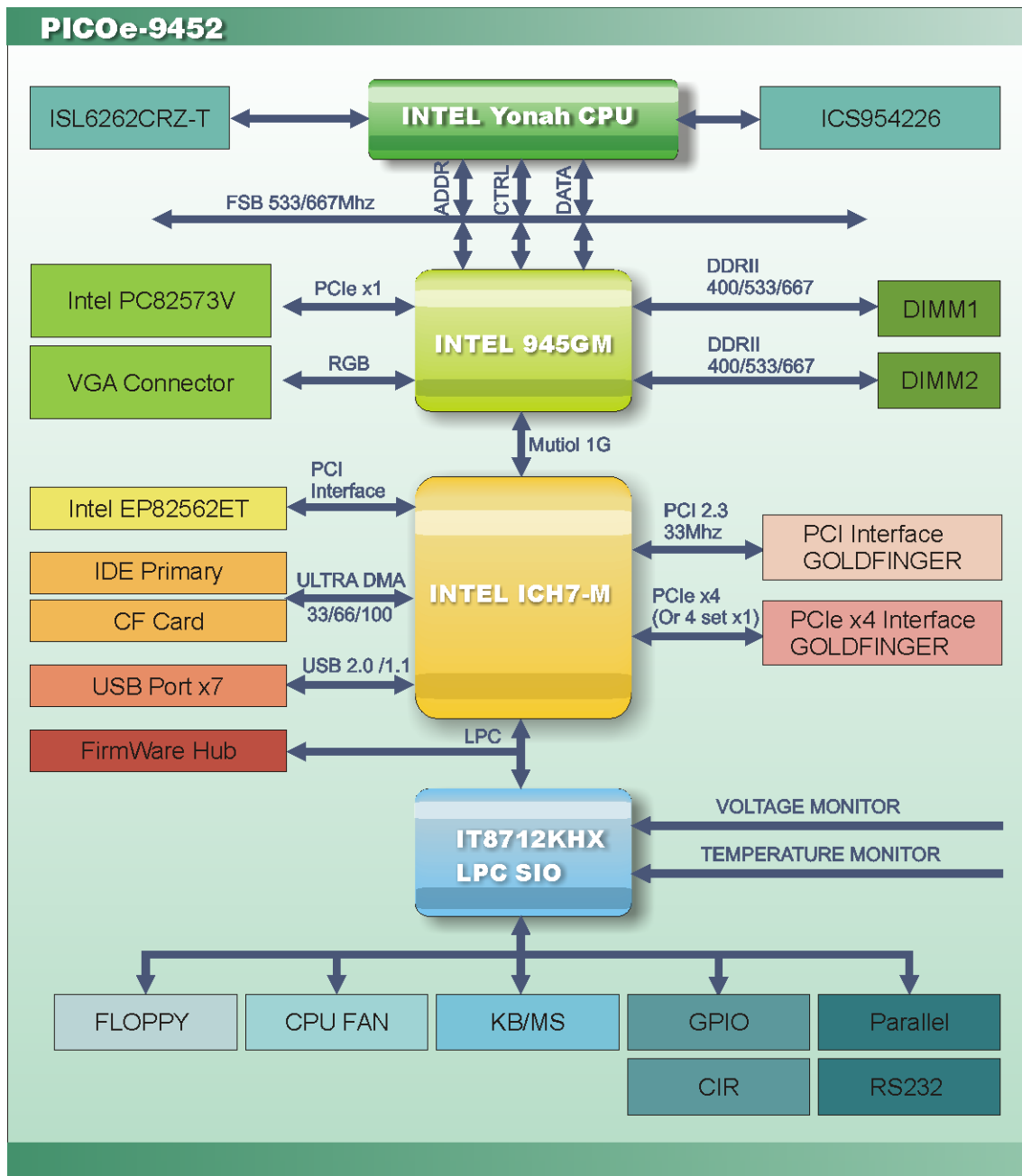


Figure 2-3: Data Flow Block Diagram

## 2.4 Compatible Processors

### 2.4.1 Compatible Processor Overview

The 3307810 supports the following Socket M processors:

- Intel® Core™2 Duo Mobile processors
- Intel® Core™ Duo processors
- Intel® Core™ Solo processors
- Intel® Celeron® M processors

All three of the above processors communicate with the Intel® 945GM northbridge chipset through a 667MHz front side bus (FSB). Features of the supported processors are listed in

**Table 2-1.**

CPU Features	Core™2 Duo Mobile	Core™ Duo	Core™ Solo	Celeron® M
Dual core	Yes	Yes	No	No
Enhanced Halt State (C1E)	No	Yes	No	No
Enhanced Intel® Speedstep® Technology	Yes	Yes	Yes	No
Execute Disable Bit	Yes	Yes	Yes	Yes
Intel® EM64T	Yes	No	No	No
Intel® Virtualization Technology	Yes	Yes	No	No

**Table 2-1: Processor Features**

### 2.4.2 Supported Processors

Specifications for the compatible processors are listed in **Table 2-2** below:

Family	CPU Speed	Processor #	Bus Speed	Mfg Tech	Stepping	Cache Size
Core™2 Duo Mobile	2.33 GHz	T7600	667 MHz	65 nm	B2	4 MB
	2.16 GHz	T7400	667 MHz	65 nm	B2	4 MB

Family	CPU Speed	Processor #	Bus Speed	Mfg Tech	Stepping	Cache Size
	2 GHz	T7200	667 MHz	65 nm	B2	4 MB
	1.83 GHz	T5600	667 MHz	65 nm	B2	2 MB
	1.66 GHz	T5500	667 MHz	65 nm	B2	2 MB
Core™ Duo	2 GHz	T2500	667 MHz	65 nm	C0	2 MB
	1.66 GHz	T2300E	667 MHz	65 nm	C0	2 MB
Core™ Solo	1.83 GHz	T1400	667 MHz	65 nm	C0	2 MB
Celeron® M	2 GHz	450	533 MHz	65 nm	D0	1 MB
	1.86 GHz	440	533 MHz	65 nm	D0	1 MB
	1.73 GHz	430	533 MHz	65 nm	C0	1 MB
	1.73 GHz	430	533 MHz	65 nm	D0	1 MB
	1.73GHz	530	533 MHz	65 nm	-	1 MB
	1.60 GHz	520	533 MHz	65 nm	B2	1 MB
	1.46 GHz	410	533 MHz	65 nm	C0	1 MB

Table 2-2: Supported Processors

## 2.5 Intel® 945GM Northbridge Chipset

### 2.5.1 Intel® 945GM Overview

The Intel® 945GM northbridge chipset has the Generation 3.1 Intel Integrated Graphics Engine and the Intel® Graphics Media Accelerator 950 (Intel® GMA 950). The integrated graphics and memory controller hub (GMCH) facilitates the flow of information primarily between the following four interfaces:

- Front Side Bus (FSB)
- System Memory Interface
- Graphics Interface
- Direct Media Interface (DMI)

## 2.5.2 Intel® 945GM Memory Support

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### **WARNING:**

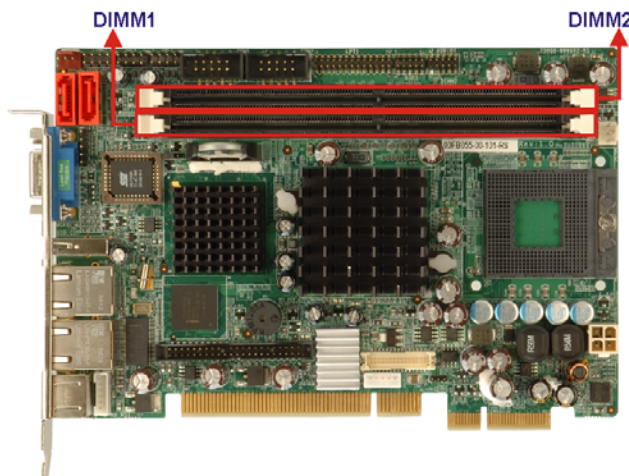
Only DDR2 memory module can be installed on the 3307810. Do not install DDR memory modules. If a DDR memory module is installed on the 3307810, the 3307810 may be irreparably damaged.

---

The Intel® 945GM northbridge chipset on the 3307810 supports two DDR2 240-pin DIMMs with the following features:

- Two 240-pin DIMMs
- DDR2 only (**DO NOT** install a DDR DIMM)
- Single-channel or dual-channel
- Capacities of 256MB, 512MB, 1GB or 2GB
- Transfer speeds of 400MHz, 533MHz or 667MHz
- 64-bit wide channel

The memory socket is shown in **Figure 2-4**.



**Figure 2-4: 240-pin DDR2 DIMM Sockets**

### 2.5.3 Intel® 945GM PCIe x1 Bus: PCIe GbE Ethernet Controller

One lane of the PCIe (PCIe x1) bus on the Intel® 945GM northbridge chipset is interfaced to an external RJ-45 LAN connector (LAN1) through an Intel® PC82573V PCIe GbE controller. The PCIe GbE controller and the LAN1 RJ-45 connector are shown in **Figure 2-5**. For more detailed information about the Intel® PC82573V PCIe GbE controller, please refer to Section below.

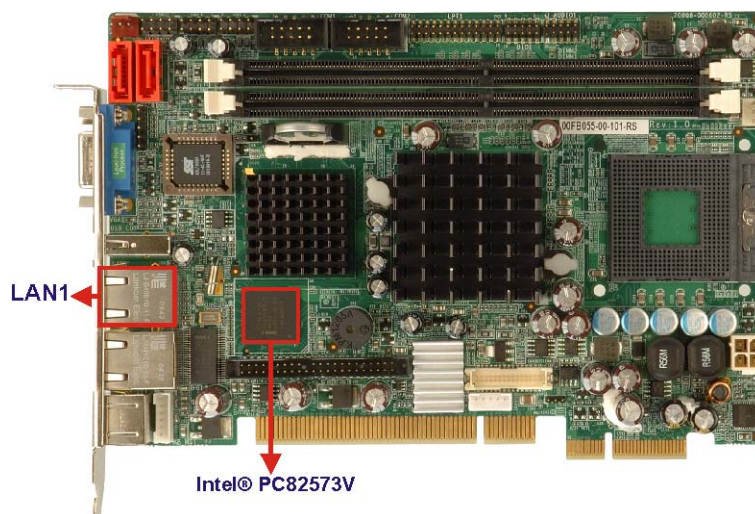


Figure 2-5: PCIe GbE LAN Chipset and Connector

### 2.5.4 Intel® 945GM Integrated Graphics

The Intel® 945GM northbridge chipset has an Intel® Gen. 3.5 integrated graphics engine that supports the following display devices:

- Analog CRT
- LVDS
- TV-Out

#### 2.5.4.1 Intel® 945GM Analog CRT Support

A DB-15 VGA connector on the external peripheral interface connector panel is interfaced to the Intel® 945GM graphics engine. The Intel® 945GM internal graphics engine, with an



integrated 400MHz RAMDAC and hot plug CRT support, supports analog CRT monitors up to QXGA.

#### **2.5.4.2 Intel® 945GM LVDS Support**

A 30-pin LVDS crimp connector is interfaced to the Intel® 945GM graphics engine. The Intel® 945GM internal graphics engine supports LVDS displays with the following features:

- Up to UXGA monitors with a maximum resolution of 1600 x 1200
- 18-bit 25MHz to 112MHz single-channel or dual-channel LVDS screens
- CPIS 1.5 compliant LVDS screens

#### **2.5.4.3 Intel® 945GM TV Out Support**

An external 7-pin DIN TV output connector is interfaced to the Intel® 945GM graphics engine. The Intel® 945GM internal graphics engine has the following TV output features:

- Three integrated 10-bit DACs
- Macrovision support
- Overscaling
- NTSC and PAL formats supported
- Supports RCA or S-VIDEO connectivity
- Supports HDTV with the following resolutions:
  - 480p
  - 720p
  - 1080i
  - 1080p

#### **2.5.5 Intel® 945GM Direct Media Interface (DMI)**

Intel® 945GM northbridge GMCH is connected to the Intel® ICH7-M Southbridge Chipset through the chip-to-chip Direct Media Interface (DMI). Features of the Intel® 945GM DMI are listed below:

- 2GB/s (1GB/s in each direction) bus speed
- 32-bit downstream address

## 2.6 Intel® ICH7-M Southbridge Chipset

### 2.6.1 Intel® ICH7-M Overview

The Intel® ICH7-M southbridge chipset is connected to the Intel® 945GM northbridge GMCH through the chip-to-chip Direct Media Interface (DMI). Some of the features of the Intel® ICH7-M are listed below.

- Complies with PCI Express Base Specification, Revision 1.0a
- Complies with PCI Local Bus Specification, Revision 2.3 and supports 33MHz PCI operations
- Supports ACPI Power Management Logic
- Contains:
  - Enhanced DMA controller
  - Interrupt controller
  - Timer functions
- Integrated SATA host controller with DMA operations interfaced to four SATA connectors on the 3307810
- Integrated IDE controller supports Ultra ATA 100/66/33
- Supports the four USB 2.0 devices on the 3307810 with four UHCI controllers and one EHCI controller
- Complies with System Management Bus (SMBus) Specification, Version 2.0
- Supports Audio Codec '97 (AC'97) Revision 2.3
- Supports Intel® High Definition Audio
- Contains Low Pin Count (LPC) interface
- Supports Firmware Hub (FWH) interface
- Serial peripheral interface support

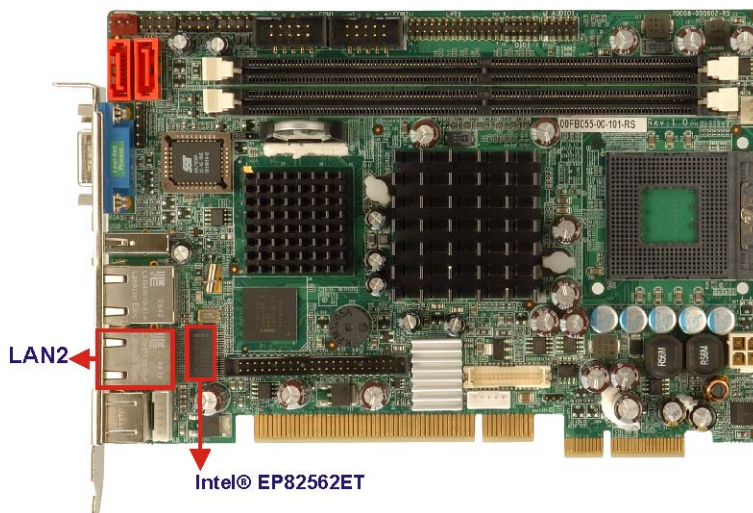
### 2.6.2 Intel® ICH7-M Audio Codec '97 Controller

The Audio Codec '97 (AC'97) controller integrated into the ICH7-M complies with AC'97 Component Specification, Version 2.3. The AC'97 controller is connected to the onboard audio connector. The audio connector is connected to an optional 5.1 channel or 7.1 channel audio kit with an embedded AC'97 audio codec. The AC'97 controller supports up to six PCM audio output channels. Complete surround sound requires six-channel audio consisting of:

- Front left
- Front right
- Back left
- Back right
- Center
- Subwoofer

### 2.6.3 Intel® ICH7-M Ethernet Connection

An integrated PHY on the Intel® ICH7-M southbridge is interfaced to an Intel® EP82562ET 10Mbps or 100Mbps Ethernet controller. The Intel® EP82562ET controller is then connected to the LAN2 RJ-45 connector. See **Figure 2-6** below. For more details on the Intel® EP82562ET controller, please see below.



**Figure 2-6: 10Mbps or 100Mbps LAN Controller Chipset and Connector**

### 2.6.4 Intel® ICH7-M IDE Interface

The integrated IDE interface on the ICH7-M southbridge supports two IDE hard disks and ATAPI devices. PIO IDE transfers up to 16MB/s and Ultra ATA transfers of 100MB/s. The integrated IDE interface 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
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 3 - 4	UDMA 3 – 4	UDMA 2
DMA/UDMA Max Transfer	100MB/s	66MB/s	33MB/s
Controller Interface	5V	5V	5V

**Table 2-3: Supported HDD Specifications**

### 2.6.5 Intel® ICH7-M Low Pin Count (LPC) Interface

The ICH7-M LPC interface complies with the LPC 1.1 specifications. The LPC bus from the ICH6 is connected to the following components:

- BIOS chipset
- Super I/O chipset

### 2.6.6 Intel® ICH7-M PCI Interface

The PCI interface on the ICH7-M is compliant with the PCI Revision 2.3 implementation. Some of the features of the PCI interface are listed below.

- PCI Revision 2.3 compliant
- 33MHz
- 5V tolerant PCI signals (except PME#)
- Integrated PCI arbiter supports up to seven PCI bus masters

The PCI bus is connected to an interface gold finger on the bottom of the CPU cards and supports four expansion PCI cards on the backplane.

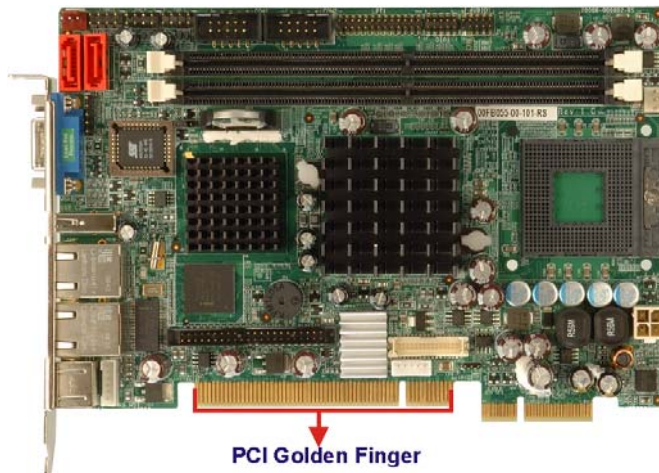


Figure 2-7: PCI Golden finger

### 2.6.7 Intel® ICH7-M PCIe x4 Bus

The Intel® ICH7-M southbridge chipset has four PCIe lanes. The four PCIe lanes are interfaced through a golden finger on the bottom of the CPU card through a compatible half-size backplane to either four PCIe x1 expansion cards or one PCIe x4 expansion card on. The PCIe x4 golden finger is shown in **Figure 2-8** below.

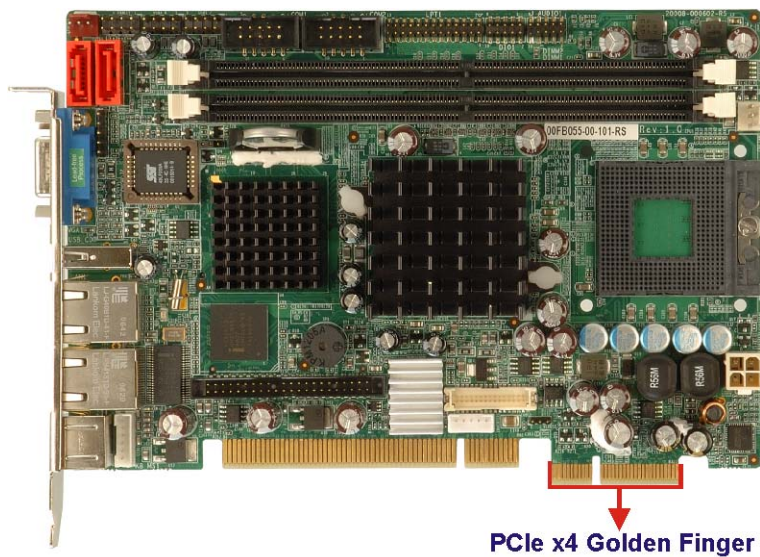


Figure 2-8: PCIe x4 Golden finger

### 2.6.8 Intel® ICH7-M Real Time Clock

256 bytes of battery backed RAM is provided by the Motorola MC146818A real time clock (RTC) integrated into the ICH6. The RTC operates on a 3V battery and 32.768KHz crystal. The RTC keeps track of the time and stores system data even when the system is turned off.

### 2.6.9 Intel® ICH7-M SATA Controller

The integrated SATA controller on the ICH7-M southbridge supports four SATA drives on the 3307810 with independent DMA operations. SATA controller specifications are listed below.

- Supports four SATA drives
- Supports 3Gb/s data transfer speeds
- Supports Serial ATA Specification, Revision 1.0a

### 2.6.10 Intel® ICH7-M USB Controller

Up to five high-speed, full-speed or low-speed USB devices are supported by the ICH7-M on the 3307810. High-speed USB 2.0, with data transfers of up to 480MB/s, is enabled with the ICH7-M integrated Enhanced Host Controller Interface (EHCI) compliant host controller. USB full-speed and low-speed signaling is supported by the ICH7-M integrated Universal Host Controller Interface (UHCI) controllers.

The five USB ports implemented on the 3307810 are connected to two internal connectors and one external connector. See **Figure 2-9**.

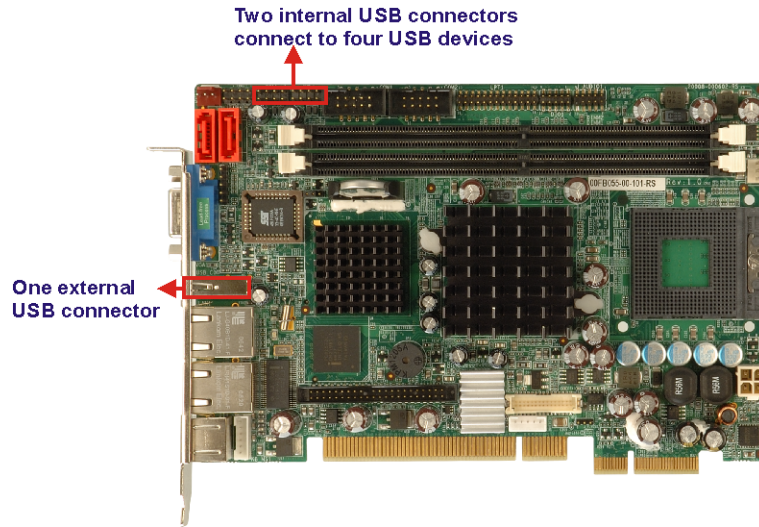


Figure 2-9: Onboard USB Implementation

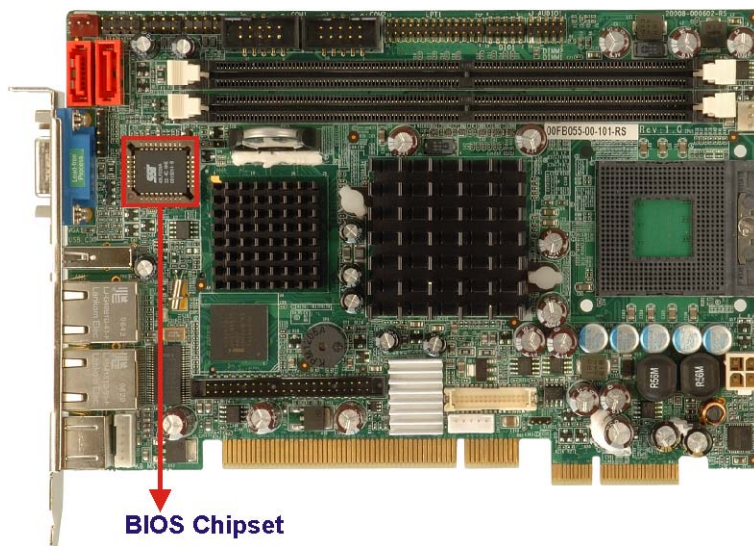
## 2.7 LPC Bus Components

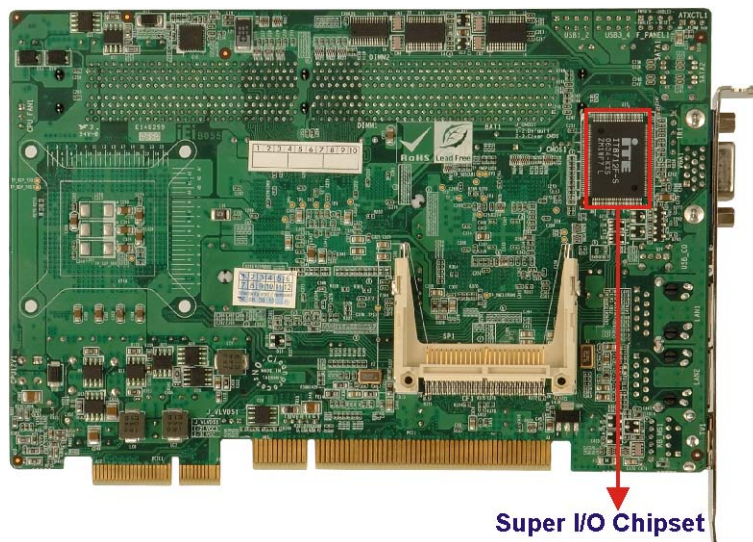
### 2.7.1 LPC Bus Overview

The LPC bus is connected to components listed below:

- BIOS chipset
- Super I/O chipset

The BIOS chipset and Super I/O chipset are shown in **Figure 2-10** below.





**Figure 2-10: LPC Bus Components**

## 2.7.2 BIOS Chipset

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

## 2.7.3 Super I/O chipset

The iTE IT8712F Super I/O chipset is connected to the Intel® ICH7-M southbridge through the LPC bus. The iTE IT8712F is an LPC interface-based Super I/O device that comes with Environment Controller integration. Some of the features of the iTE IT8712F chipset are listed below:

- LPC Interface
- PC98/99/2001, ACPI and LANdesk Compliant
- Enhanced Hardware Monitor



- Fan Speed Controller
- SmartGuardian Controller
- Single +5V Power Supply
- Two 16C550 UARTs for serial port control
- One IEEE 1284 Parallel Port
- Floppy Disk Controller
- Keyboard Controller
- Watchdog Timer
- Serial IRQ Support
- Vbat & Vcch Support
- Single +5V Power Supply

Some of the Super I/O features are described in more detail below:

### **2.7.3.1 Super I/O LPC Interface**

The LPC interface on the Super I/O complies with the Intel® Low Pin Count Specification Rev. 1.0. The LPC interface supports both LDRQ# and SERIRQ protocols as well as PCI PME# interfaces.

### **2.7.3.2 Super I/O 16C550 UARTs**

The onboard Super I/O has two integrated 16C550 UARTs that can support the following:

- Two standard serial ports (COM1 and COM2)
- IrDa 1.0 and ASKIR protocols

### **2.7.3.3 Super I/O Enhanced Hardware Monitor**

The Super I/O Enhanced Hardware Monitor monitors three thermal inputs, VBAT internally, and eight voltage monitor inputs. These hardware parameters are reported in the BIOS and can be read from the BIOS Hardware Health Configuration menu.

### 2.7.3.4 Super I/O Fan Speed Controller

The Super I/O fan speed controller enables the system to monitor the speed of the fan. One of the pins on the fan connector is reserved for fan speed detection and interfaced to the fan speed controller on the Super I/O. The fan speed is then reported in the BIOS.

### 2.7.3.5 Super I/O Parallel Port

The Super I/O parallel port (LPT) supports standard mode, enhanced mode and high-speed mode parallel port devices. The LPT is compliant with the following LPT modes.

- Standard mode
  - Bi-directional SPP compliant
- Enhanced mode
  - EPP v1.7 compliant
  - EPP v1.9 compliant
- High-speed mode
  - ECP, IEEE 1284 compliant

### 2.7.3.6 Super I/O Keyboard/Mouse Controller

The Super I/O 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
- Supports mouse double-click and/or mouse move power on events

## 2.8 Ethernet LAN Controllers

### 2.8.1 Ethernet LAN Controllers Overview

As described above (see **Section 0** and **Section 2.6.3**), the PICOe has two Ethernet controllers, the Intel® PC82573V and the Intel® EP82562ET. These two LAN controllers are described below.

## 2.8.2 Intel® PC82573V PCIe GbE Ethernet Controller

### 2.8.2.1 Intel® PC82573V Overview

The Intel® PC82573V is a PCIe GbE Ethernet controller that interfaces the Intel® 945GM northbridge chipset to the LAN1 RJ-45 connector. The Intel® 82573 Gigabit Ethernet Controller provides a standard IEEE 802.3 Ethernet interface for 100BASE-T, 100BASE-TX, and 10BASE-T applications (802.3, 802.3u, and 802.3ab, respectively).

- 2 Gbps peak bandwidth per direction
- PCI Express Rev 1.0a specification
- High bandwidth density per pin
- Wide, pipelined internal data path architecture
- Optimized transmit (Tx) and receive (Rx) queues
- 32 KB configurable Rx and Tx first-in/first-out (FIFO)
- IEEE 802.3x\*-compliant flow-control support with software controllable pause times and threshold values
- Programmable host memory Rx buffers (256 B-16 KB)
- Descriptor ring management hardware for Tx and Rx
- Mechanism for reducing interrupts from Tx/Rx operations
- Integrated PHY for 10/100/1000 Mbps (full- and half-duplex)
- IEEE 802.3ab\* auto-negotiation support
- IEEE 802.3ab PHY compliance and compatibility
- Tx/Rx IP, TCP, and UDP checksum offloading
- Tx TCP segmentation
- Advanced packet filtering
- Intel® SingleDriver™ technology
- Alerting Standards Format 2.0 (82573V only)
- Advanced Pass Through (82573V only)
- Boot ROM Preboot eXecution Environment (PXE) Flash interface support
- SDG 3.0, WfM 3.0 and PC2001 compliant
- Wake on LAN support

## 2.8.3 Intel® EP82562ET PCIe GbE Ethernet Controller

### 2.8.3.1 Intel® EP82562ET Overview

The Intel® 82562ET is an IEEE 10BASE-T and 100BASE-TX Ethernet controller that connects the Intel® ICH7-M southbridge chipset to the LAN2 RJ-45 connector. The Intel® 82562ET is designed for 10Mbps or 100Mbps Ethernet systems.

### 2.8.3.2 Intel® EP82562ET Ethernet Controller

Some features of the Intel® EP82562ET Ethernet controller are written below:

- IEEE 802.3 10BASE-T/100BASE-TX compliant physical layer interface
- IEEE 802.3u Auto-Negotiation support
- Digital Adaptive Equalization control
- Link status interrupt capability
- XOR Tree mode support for board testing
- 3-port LED support (speed, link and activity)
- 10BASE-T auto-polarity correction
- Diagnostic loopback mode
- 1:1 transmit transformer ratio support
- Low power (less than 300 mW in active transmit mode)
- Reduced power in “unplugged mode” (less than 50 mW)
- Automatic detection of “unplugged mode”
- 3.3 V device
- 48-pin Shrink Small Outline Package
- Platform LAN connect interface support

## 2.9 Environmental and Power Specifications

### 2.9.1 System Monitoring

Three thermal inputs on the 3307810 Super I/O Enhanced Hardware Monitor monitor the following temperatures:

- System temperature
- Power temperature

## 3307810

- CPU temperature

Eight voltage inputs on the 3307810 Super I/O Enhanced Hardware Monitor monitor the following voltages:

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

The 3307810 Super I/O Enhanced Hardware Monitor also monitors the following voltages internally:

- VBAT

The 3307810 Super I/O Enhanced Hardware Monitor 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.

## 2.9.2 Operating Temperature and Temperature Control

The maximum and minimum operating temperatures for the 3307810 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 CPU. Thermal paste must be smeared on the lower side of the heat sink before it is mounted on the CPU. Heat sinks are also mounted on the northbridge and southbridge chipsets to ensure the operating temperature of these chips remain low.

## 2.9.3 Power Consumption

**Table 2-4** shows the power consumption parameters for the 3307810 running with a 2.0GHz Intel® Core™2 Duo T2500 processor with a 667MHz FSB and 512MB of 667MHz DDR2 memory.

Voltage	Current
3.3V	0.77A
5.0V	3.0A
12.0V	0.17A

**Table 2-4: Power Consumption**

## 2.10 Expansion Options

### 2.10.1 Expansion Options Overview

A number of compatible Global American Inc.. PICOe backplanes and chassis can be used to develop and expanded system. These backplanes and chassis are listed below.

### 2.10.2 GLOBAL AMERICAN INC. Expansion PICOe Backplanes

The backplanes listed in **Table 2-5** are compatible with the 3307810 and can be used to develop highly integrated industrial applications. All of the backplanes listed below have

## 3307810

24-pin ATX connector and a 4-pin ATX connector. For more information about these backplanes please consult the GLOBAL AMERICAN INC. catalog or contact your vendor, reseller or the GLOBAL AMERICAN INC. sales team at [salesinfo@globalamericaninc.com](mailto:salesinfo@globalamericaninc.com).

Model	Total Slots	Expansion Slots		
		PCIe		PCI
		x4	x1	
1108010	4	-	-	3
1108020	4	1	-	2
1108040	6	1	-	4
HPE-6S2	6	-	2	3
1108000	7	-	2	4
1107980	7	-	2	4

**Table 2-5: Compatible GLOBAL AMERICAN INC. PICOe Backplanes**

### 2.10.3 GLOBAL AMERICAN INC. Chassis

GLOBAL AMERICAN INC. chassis available for 3307810 system development are listed in **Table 2-6**.

For more information about these chassis please consult the GLOBAL AMERICAN INC. catalog or contact your vendor, reseller or the GLOBAL AMERICAN INC. sales team at [salesinfo@globalamericaninc.com](mailto:salesinfo@globalamericaninc.com).

Model	Slot SBC	Mounting	Max Slots	Backplanes
1407462	Half-size	Wall	4	HPE-4S2
1401540	Half-size	Wall	7	HPE-7S1
1401860	Half-size (4U)	Rack	10	HPE-8S

**Table 2-6: Compatible GLOBAL AMERICAN INC. Chassis**

Chapter

3

# Unpacking

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## 3.1 Anti-static Precautions

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### WARNING:

Failure to take ESD precautions during the installation of the 3307810 may result in permanent damage to the 3307810 and severe injury to the user.

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Electrostatic discharge (ESD) can cause serious damage to electronic components, including the 3307810. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the 3307810, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- **Wear an anti-static wristband:** - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- **Self-grounding:**- Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- **Use an anti-static pad:** When configuring the 3307810, place it on an anti-static pad. This reduces the possibility of ESD damaging the 3307810.
- **Only handle the edges of the PCB:**- When handling the PCB, hold the PCB by the edges.

## 3.2 Unpacking

### 3.2.1 Unpacking Precautions

When the 3307810 is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 3.1**.
- Make sure the packing box is facing upwards so the 3307810 does not fall out of the box.
- Make sure all the components shown in **Section 3.3** are present.






## 3.3 Unpacking Checklist

**NOTE:**

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the GLOBAL AMERICAN INC. reseller or vendor you purchased the 3307810 from or contact a Global American sales representative directly. To contact a Global American sales representative, please send an email to [salesinfo@globalamericaninc.com](mailto:salesinfo@globalamericaninc.com).

### 3.3.1 Package Contents

The 3307810 is shipped with the following components:

Quantity	Item and Part Number	Image
1	3307810	
1	IDE-cable	
1	KB/MS PS/2 Y-cable	
2	SATA cables	
1	SATA power cable	

3307810






1	Dual RS-232 cable	
1	Dual USB cable (w bracket)	
1	Mini jumper pack	
1	Quick installation guide	
1	Utility CD	

Table 3-1: Package List Contents

### 3.3.2 Optional Items



#### NOTE:

The items listed in this section are optional items that must be ordered separately. Please contact your 3307810 vendor, distributor or reseller for more information or, contact Global American Inc. directly by sending an email to [salesinfo@globalamericaninc.com](mailto:salesinfo@globalamericaninc.com).

The following optional items are available for the 3307810.



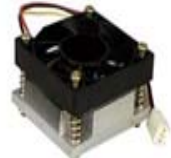


Quantity	Item and Part Number	Image
1	Audio kit_ 5.1 Channel (P/N: 1007750)	
1	Audio kit_ 7.1 Channel (P/N: 1007760)	
1	Cooling Kit (P/N: 2107703)	
1	LPT cable (w/o bracket) (P/N: 1208420)	
1	S-Video cable (P/N: 1208430)	

Table 3-2: Optional Items

3307810

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Chapter

4

# Connector Pinouts

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## 4.1 Peripheral Interface Connectors

Section 4.1.2 shows peripheral interface connector locations. Section 4.1.2 lists all the peripheral interface connectors seen in Section 4.1.2.

### 4.1.1 3307810 Layout

Figure 4-1 shows the on-board peripheral connectors, rear panel peripheral connectors and on-board jumpers.

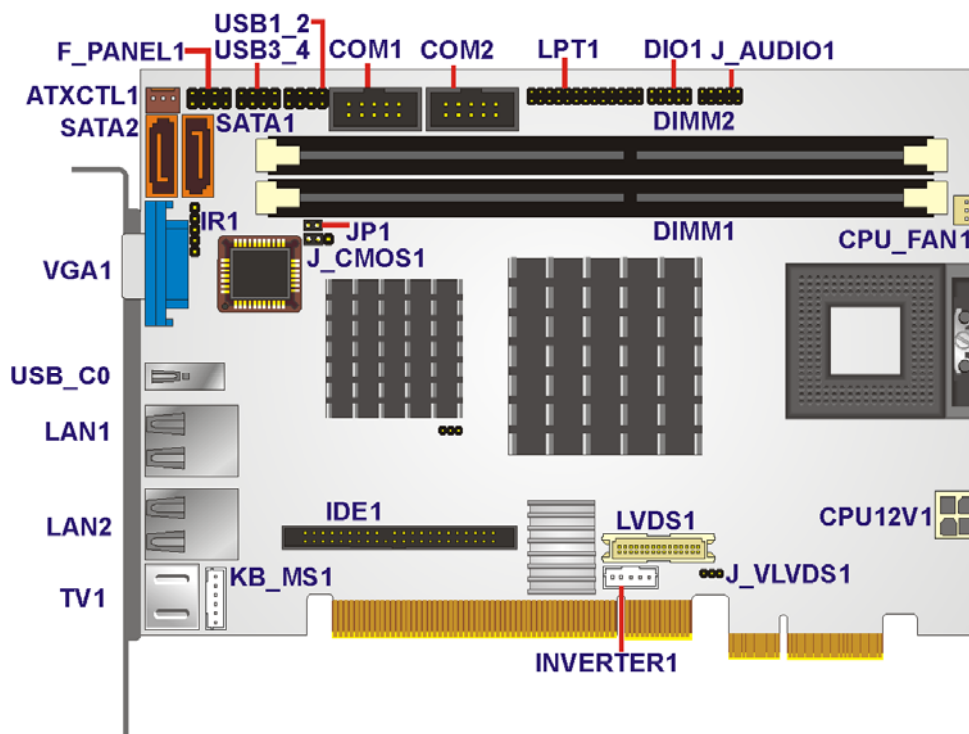
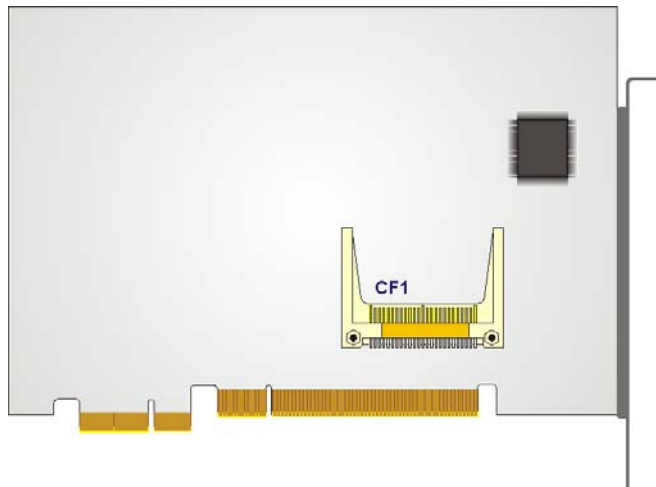


Figure 4-1: Connector and Jumper Locations



**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 3307810. Detailed descriptions of these connectors can be found below.

Connector	Type	Label
+12V ATX power supply connector	4-pin ATX connector	CPU12V1
Audio connector	9-pin header	J_AUDIO1
Backplane power connector	3-pin wafer	ATXCTL1
Compact Flash (CF) connector	50-pin header	CF1
Digital I/O connector	10-pin header	DIO1
Fan connector	3-pin wafer	CPU_FAN1
Front panel connector	8-pin header	F_PANEL1
IDE Interface connector	44-pin header	PIDE1
Infrared connector	5-pin header	IR1



Connector	Type	Label
Inverter power connector	5-pin header	INVERTER1
Keyboard and mouse connector	6-pin wafer	KB1
LVDS connector	30-pin crimp	LVDS1
Parallel port connector	26-pin header	LPT1
Serial ATA (SATA) connector	7-pin SATA connector	SATA1
Serial ATA (SATA) connector	7-pin SATA connector	SATA2
Serial port connector (COM 1)	10-pin header	COM1
Serial port connector (COM2)	10-pin header	COM2
USB connector	8-pin header	USB1_2
USB connector	8-pin header	USB3_4

**Table 4-1: Peripheral Interface Connectors**

#### 4.1.3 External Interface Panel Connectors

Table 4-2 lists the rear panel connectors on the 3307810. Detailed descriptions of these connectors can be found in **Section 0** on **page 83**

Connector	Type	Label
Ethernet connector	RJ-45	LAN1
Ethernet connector	RJ-45	LAN2
TV connector	Mini DIN	TV1
USB port	USB port	USB_C0
VGA port connector	Female DB-15	VGA1

**Table 4-2: Rear Panel Connectors**

## 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 3307810.

### 4.2.1 +12V ATX Power Supply Connector

<b>CN Label:</b>	CPU12V1
<b>CN Type:</b>	4-pin ATX power connector (1x4)
<b>CN Location:</b>	See Figure 4-3
<b>CN Pinouts:</b>	See Table 4-3

The 4-pin +12V ATX power supply connector is connected to a +12V ATX power supply.

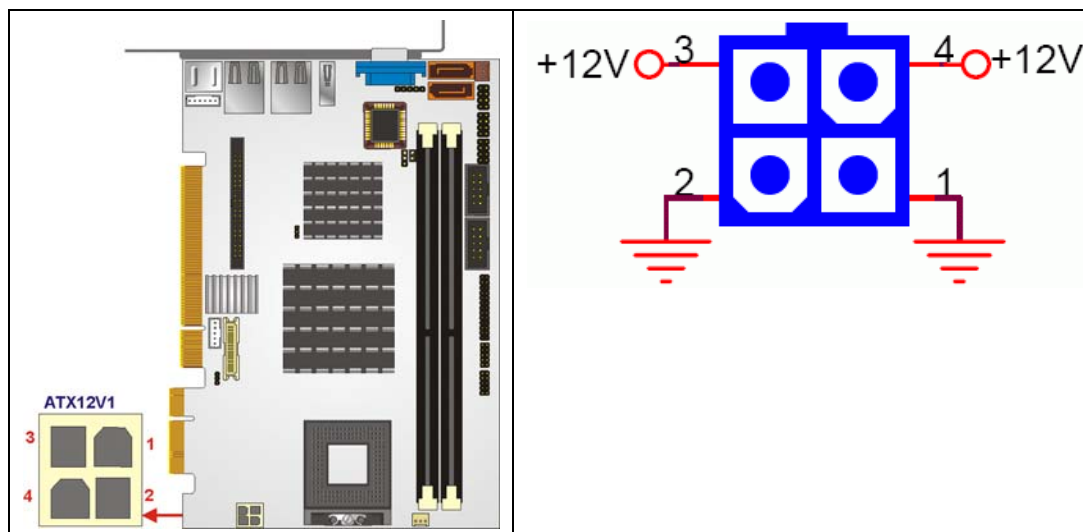


Figure 4-3: +12V ATX Power Connector Location

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

Table 4-3: +12V ATX Power Connector Pinouts

### 4.2.2 Audio Connector (9-pin)

- CN Label:** J\_AUDIO1
- CN Type:** 9-pin header
- CN Location:** See Figure 4-4
- CN Pinouts:** See Table 4-4

An optional module can be connected to the 10-pin audio connector to provide the system with a high quality AC'97 or Azalia compatible codec that provides a complete integrated audio solution.

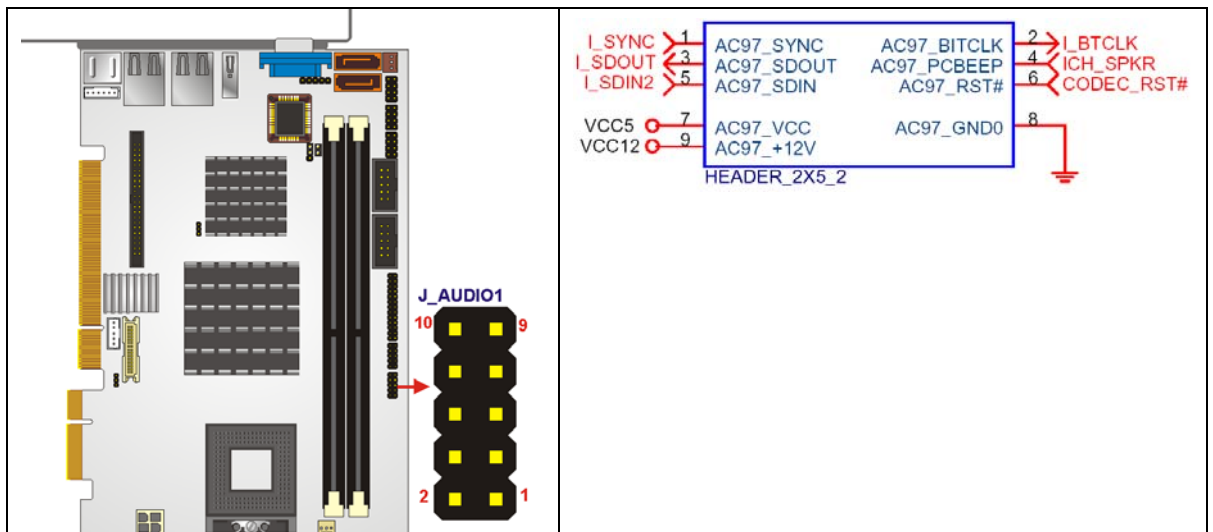


Figure 4-4: Audio Connector Pinouts (10-pin)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	AC97_SYNC	2	AC97_BITCLK
3	AC97_SDOUT	4	AC97_PCBEEP
5	AC97_SDIN	6	AC97_RST#
7	AC97_VCC	8	AC97_GND
9	AC97_12V		

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

### 4.2.3 Backlight Inverter Connector

<b>CN Label:</b>	Inverter1
<b>CN Type:</b>	5-pin wafer (1x5)
<b>CN Location:</b>	See Figure 4-5
<b>CN Pinouts:</b>	See Table 4-5

The backlight inverter connector provides the backlight on the LCD display connected to the 3307810 with +12V of power.

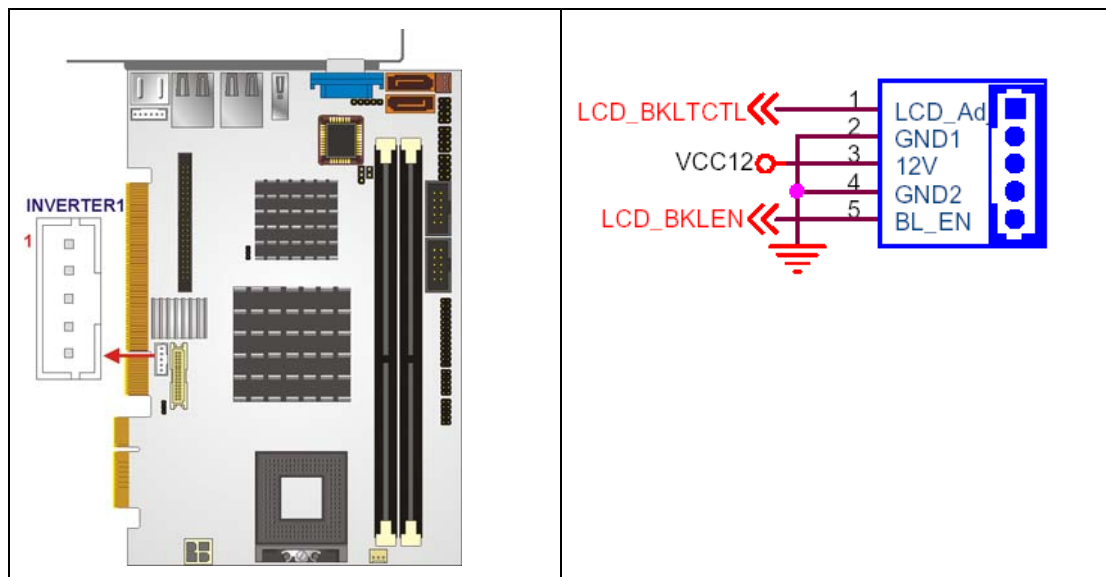


Figure 4-5: Panel Backlight Connector Pinout Locations

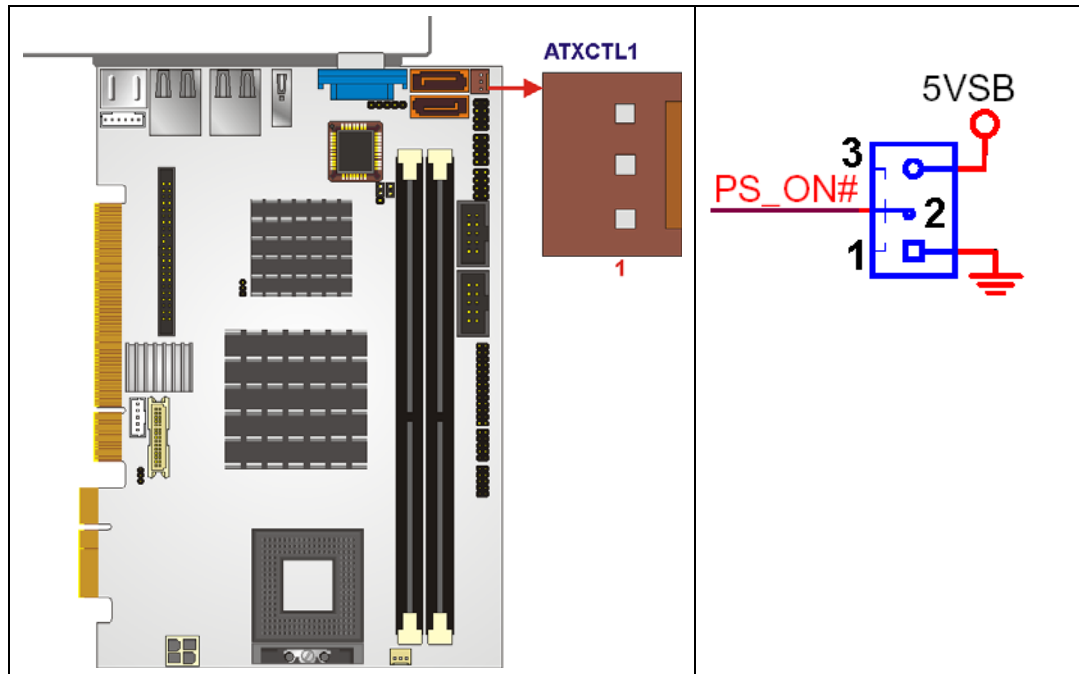
PIN NO.	DESCRIPTION
1	BRIGHTNESS
2	GROUND
3	+ 12V
4	GROUND
5	BACKLIGHT ENABLE

**Table 4-5: Panel Backlight Connector Pinouts**

#### **4.2.4 Backplane to Mainboard Connector**

- CN Label:** ATXCTL1
- CN Type:** 3-pin wafer (1x3)
- CN Location:** See **Figure 4-6**
- CN Pinouts:** See **Table 4-6**

The backplane to mainboard connector closes the circuit between the mainboard and the backplane in which it is installed. The backplane should have an ATX connector and be powered by an ATX power supply.



**Figure 4-6: Backplane to Mainboard Connector Location**

PIN NO.	DESCRIPTION
1	GND
2	PS_ON#
3	5VSB

**Table 4-6: Backplane to Mainboard Connector Pinouts**

#### 4.2.5 Compact Flash Socket

- CN Label:** CF1 (solder side)
- CN Type:** 50-pin header (2x25)
- CN Location:** See Figure 4-7
- CN Pinouts:** See Table 4-7

A CF Type I or Type II memory card is inserted to the CF socket on the solder side of the 3307810.

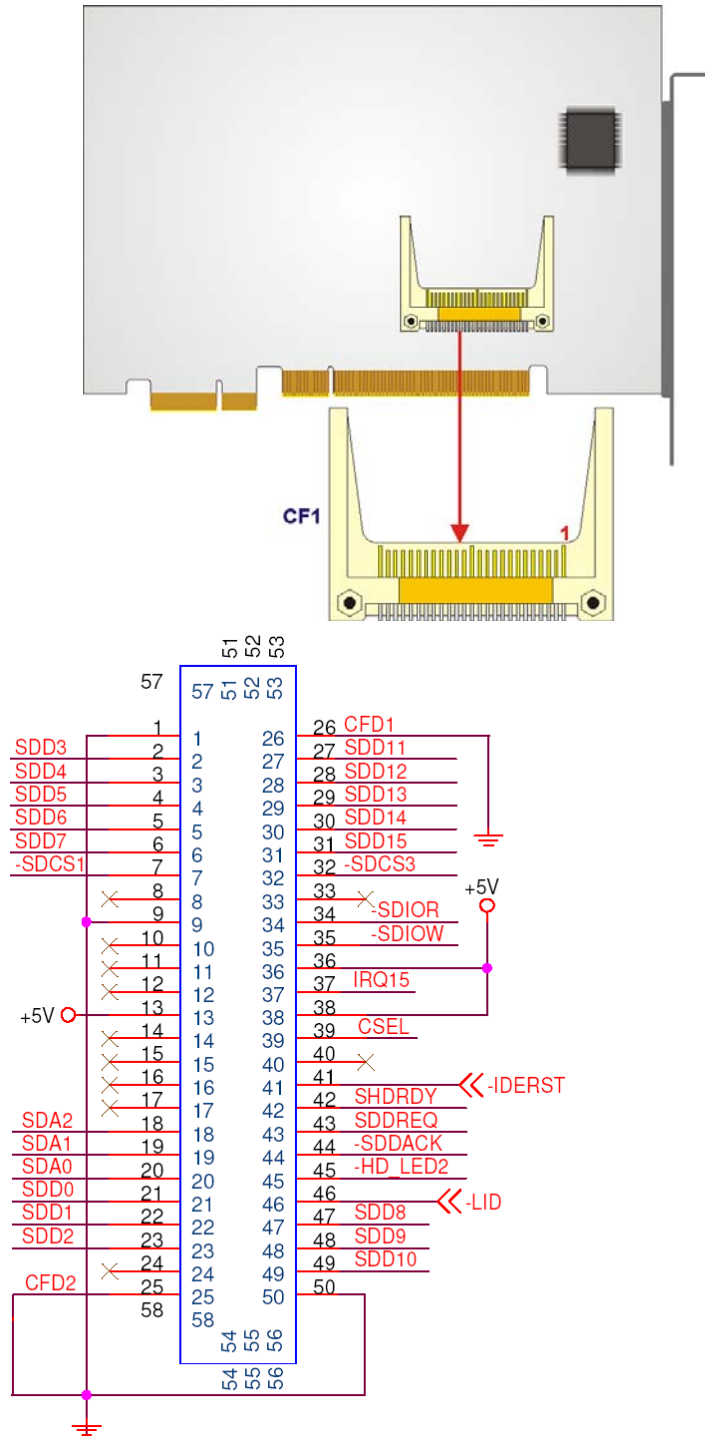


Figure 4-7: CF Card Socket Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	26	VCC-IN CHECK1
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	HDC_CS0#	32	HDC_CS1
8	N/C	33	N/C
9	GROUND	34	IOR#
10	N/C	35	IOW#
11	N/C	36	VCC_COM
12	N/C	37	IRQ15
13	VCC_COM	38	VCC_COM
14	N/C	39	CSEL
15	N/C	40	N/C
16	N/C	41	HDD_RESET
17	N/C	42	IORDY
18	SA2	43	SDREQ
19	SA1	44	SDACK#
20	SA0	45	HDD_ACTIVE#
21	DATA 0	46	66DET
22	DATA 1	47	DATA 8
23	DATA 2	48	DATA 9
24	N/C	49	DATA 10
25	VCC-IN CHECK2	50	GROUND

Table 4-7: CF Card Socket Pinouts



### 4.2.6 Digital Input/Output (DIO) Connector

- CN Label:** DIO1
- 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.

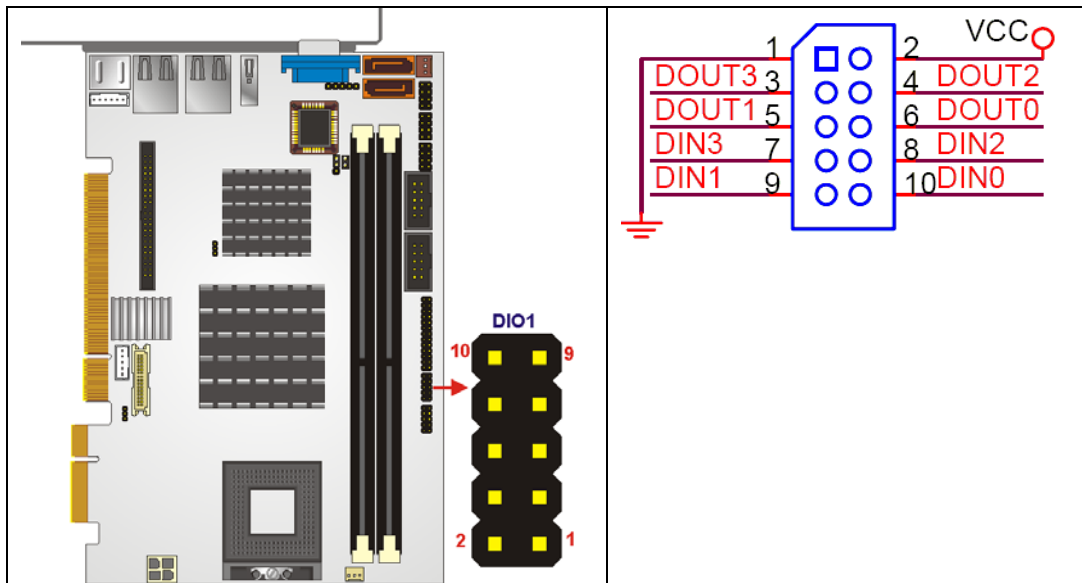


Figure 4-8: DIO Connector Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC
3	Output 3	4	Output 2
5	Output 1	6	Output 0
7	Input 3	8	Input 2
9	Input 1	10	Input 0

**Table 4-8: DIO Connector Connector Pinouts**

#### 4.2.7 Fan Connector (+12V)

**CN Label:** CPU\_FAN1

**CN Type:** 3-pin header

**CN Location:** See **Figure 4-9**

**CN Pinouts:** See **Table 4-9**

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.

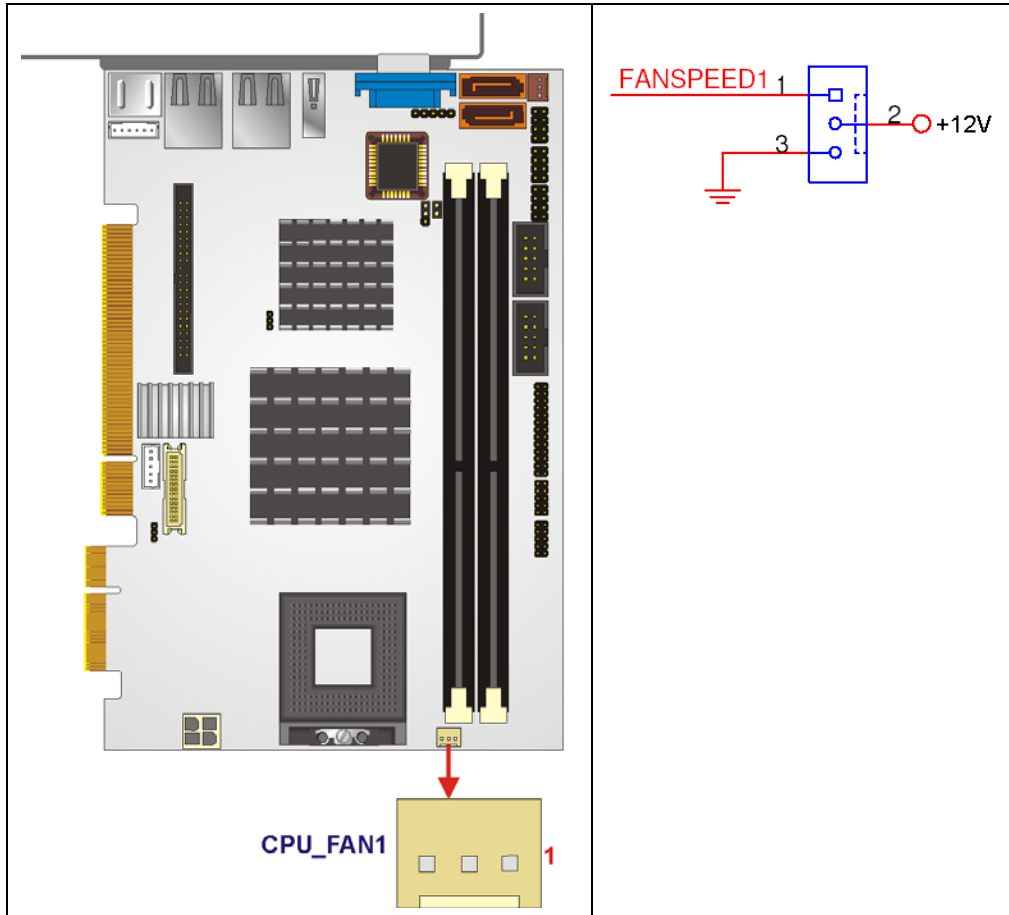


Figure 4-9: +12V Fan Connector Location

PIN NO.	DESCRIPTION
1	Fan Speed Detect
2	+12V
3	GND

Table 4-9: +12V Fan Connector Pinouts

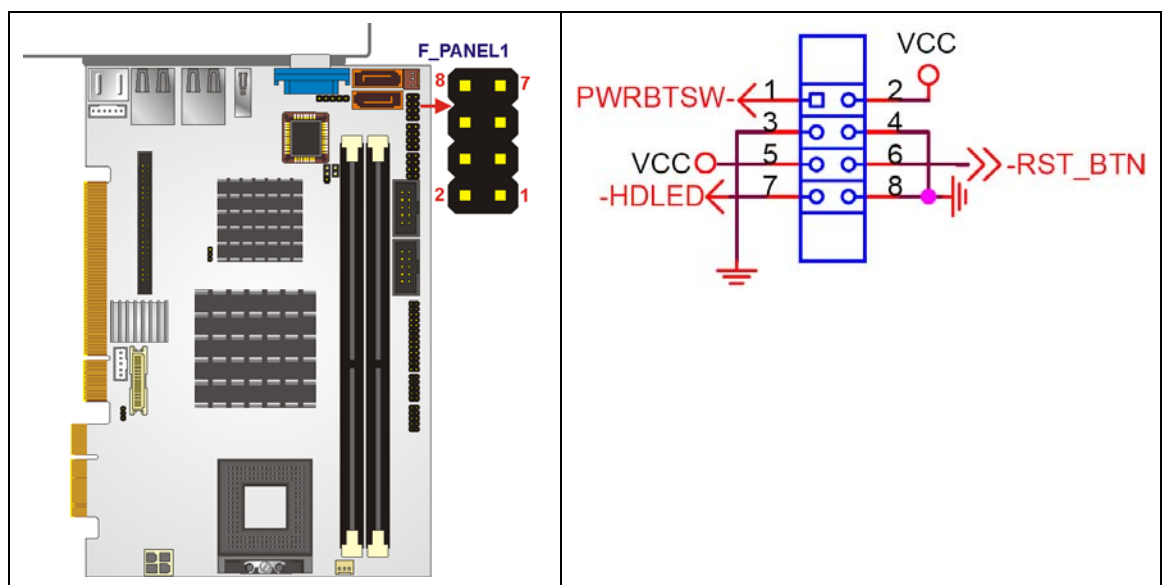
#### 4.2.8 Front Panel Connector (8-pin)

- CN Label:** F\_PANEL1
- CN Type:** 8-pin header (2x8)
- CN Location:** See Figure 4-10

**CN Pinouts:** See Table 4-10

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 4-10: Front Panel Connector Pinout Locations**

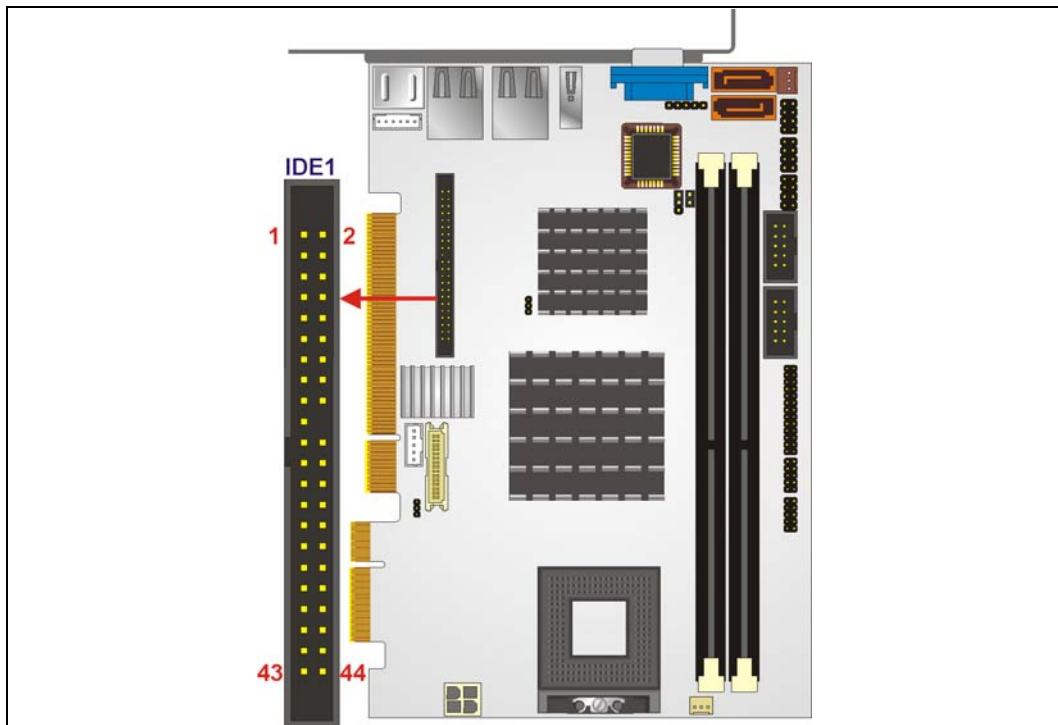
FUNCTION	PIN	DESCRIPTION	FUNCTION	PIN	DESCRIPTION
Power Button	1	PWRBTSW-	Power LED	2	VCC
	3	GND		4	Ground
HDD LED	5	VCC	Reset	6	SYSRST-
	7	HDD LED-		8	GND

**Table 4-10: Front Panel Connector Pinouts**

#### 4.2.9 IDE Connector (44-pin)

- CN Label:** IDE1
- CN Type:** 44-pin header (2x22)
- CN Location:** See Figure 4-11
- CN Pinouts:** See Table 4-11

One 44-pin IDE device connector on the 3307810 supports connectivity to two hard disk drives.



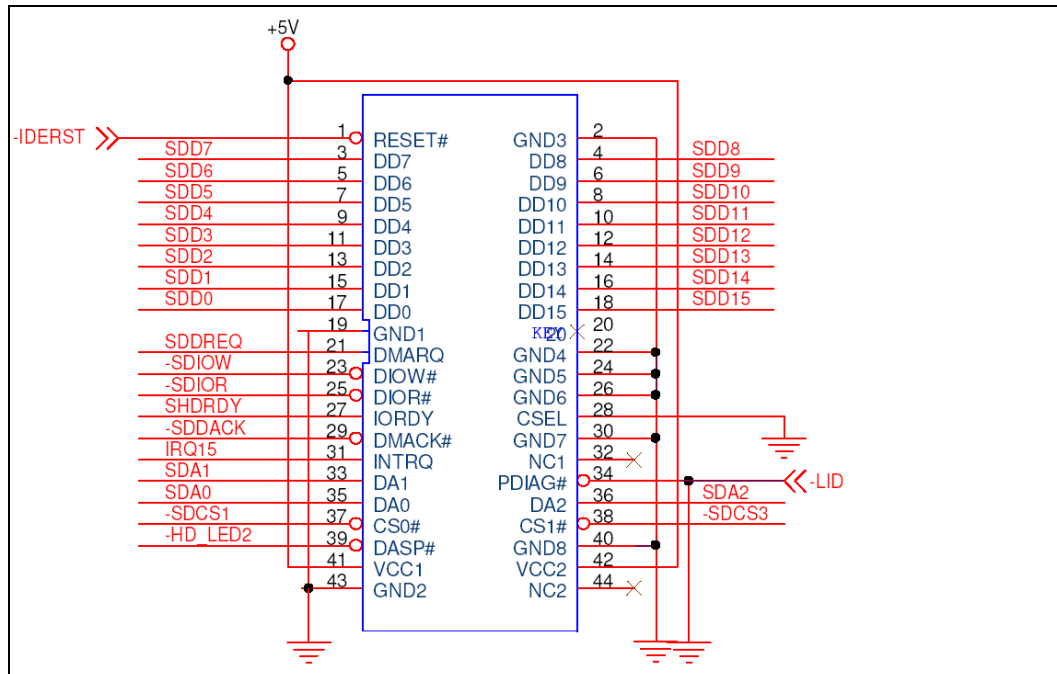


Figure 4-11: IDE Device Connector Locations

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
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 4-11: IDE Connector Pinouts

#### 4.2.10 Infrared Interface Connector (5-pin)

- CN Label:** IR1
- CN Type:** 5-pin header (1x5)
- CN Location:** See Figure 4-12
- CN Pinouts:** See Table 4-12

The infrared interface connector supports both Serial Infrared (SIR) and Amplitude Shift Key Infrared (ASKIR) interfaces.

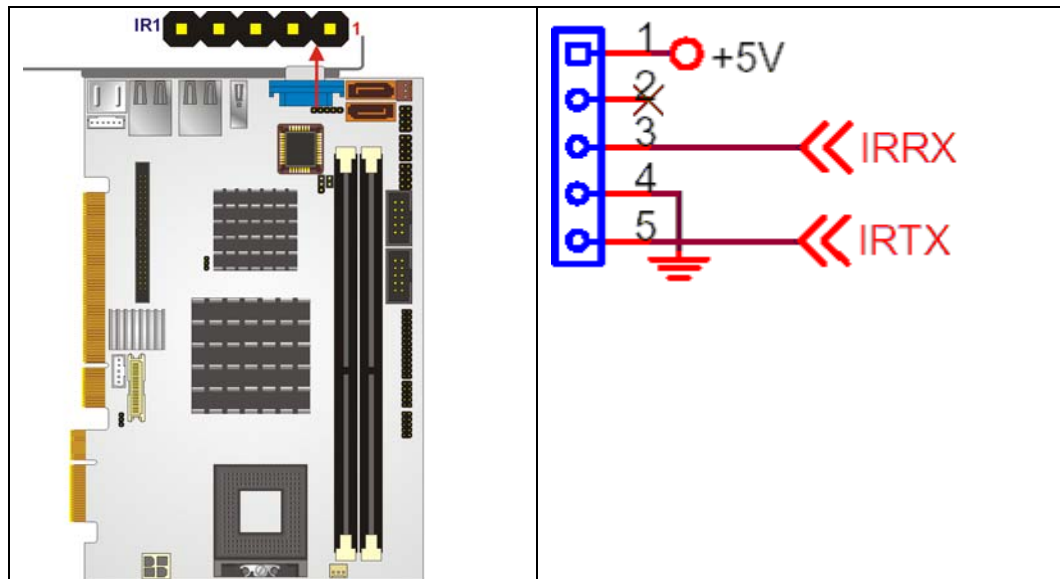


Figure 4-12: Infrared Connector Pinout Locations

PIN NO.	DESCRIPTION
1	VCC
2	NC
3	IR-RX
4	GND
5	IR-TX

Table 4-12: Infrared Connector Pinouts

#### 4.2.11 Keyboard/Mouse Connector

<b>CN Label:</b>	<b>KB_MS1</b>
<b>CN Type:</b>	6-pin header (1x6)
<b>CN Location:</b>	See <b>Figure 4-13</b>
<b>CN Pinouts:</b>	See <b>Table 4-13</b>

The keyboard and mouse connector can be connected to a standard PS/2 cable or PS/2 Y-cable to add keyboard and mouse functionality to the system.

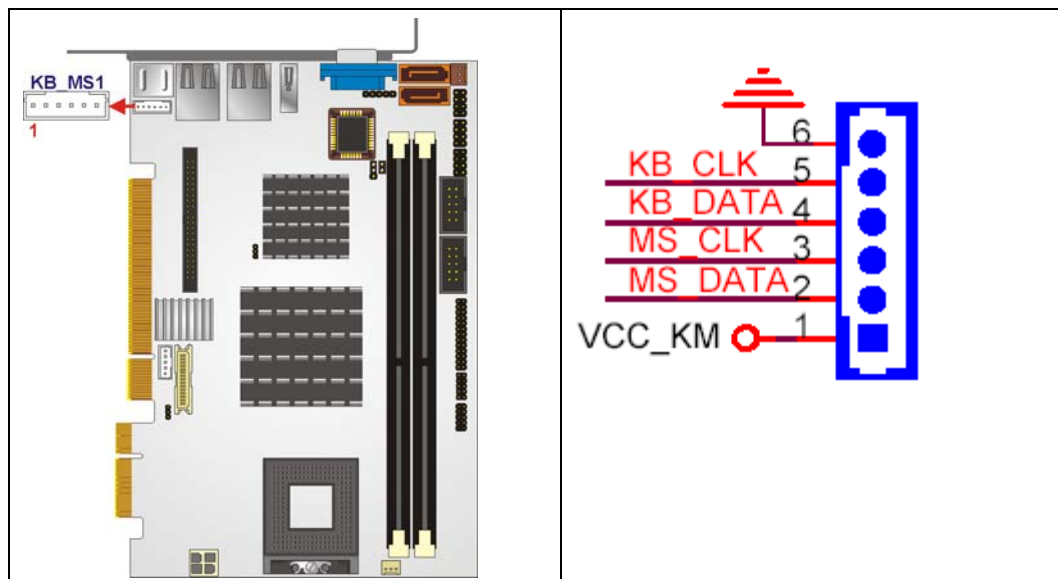


Figure 4-13: Keyboard/Mouse Connector Location



PIN NO.	DESCRIPTION
1	+5V KB DATA
2	MS DATA
3	MS CLK
4	KB DATA
5	KB CLK
6	GROUND

**Table 4-13: Keyboard/Mouse Connector Pinouts**

#### 4.2.12 LVDS LCD Connector

- CN Label:** LVDS1
- CN Type:** 30-pin crimp (2x10)
- CN Location:** See Figure 4-14
- CN Pinouts:** See Table 4-14

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

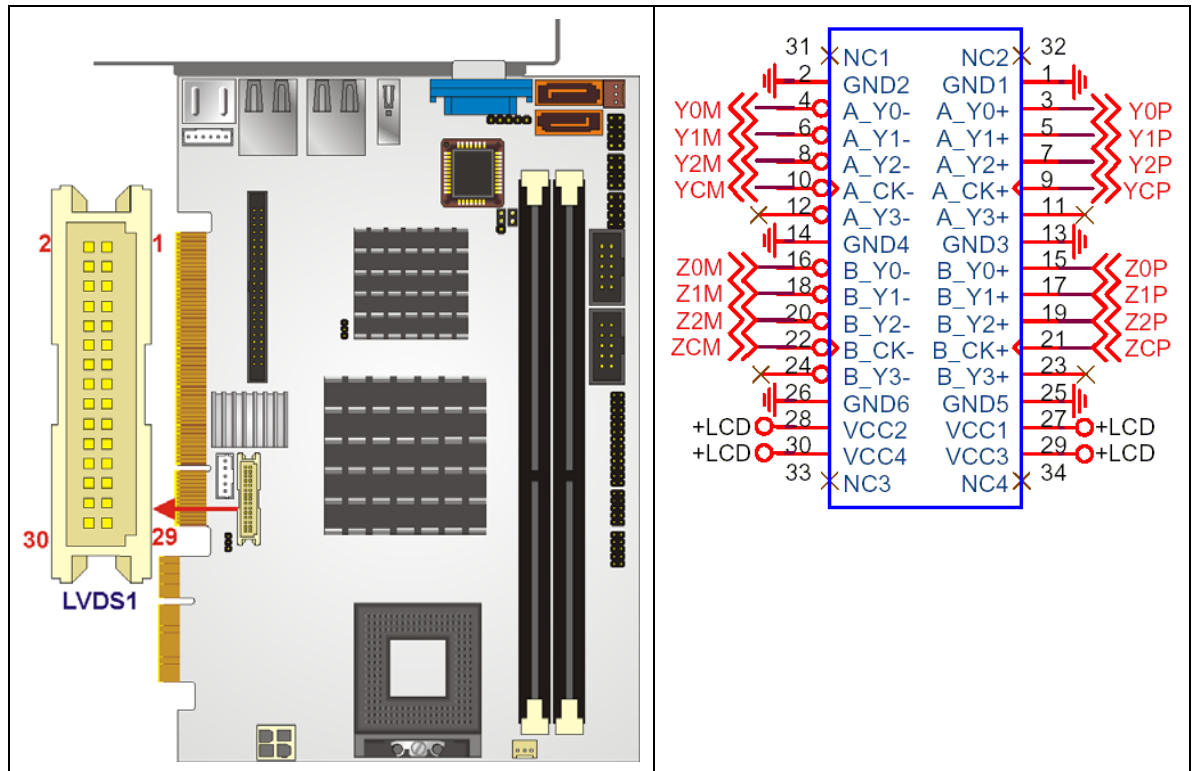


Figure 4-14: LVDS LCD Connector Pinout Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	2	GROUND
3	LVDSA_Y0+	4	LVDSA_Y0-
5	LVDSA_Y1+	6	LVDSA_Y1-
7	LVDSA_Y2+	8	LVDSA_Y2-
9	LVDSA_CLK+	10	LVDSA_CLK-
11	N/C	12	N/C
13	GROUND	14	GROUND
15	LVDSB_Y0+	16	LVDSB_Y0-
17	LVDSB_Y1+	18	LVDSB_Y1-
19	LVDSB_Y2+	20	LVDSB_Y2-
21	LVDSB_CLK+	22	LVDSB_CLK-
23	N/C	24	N/C
25	GROUND	26	GROUND
27	VCC_LVDS	28	VCC_LVDS

29	VCC_LVDS	30	VCC_LVDS
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Table 4-14: LVDS LCD Port Connector Pinouts

### 4.2.13 Parallel Port Connector

- CN Label:** LPT1
- CN Type:** 26-pin box header
- CN Location:** See Figure 4-15
- CN Pinouts:** See Table 4-15

The 26-pin parallel port connector connects to a parallel port connector interface or some other parallel port device such as a printer.

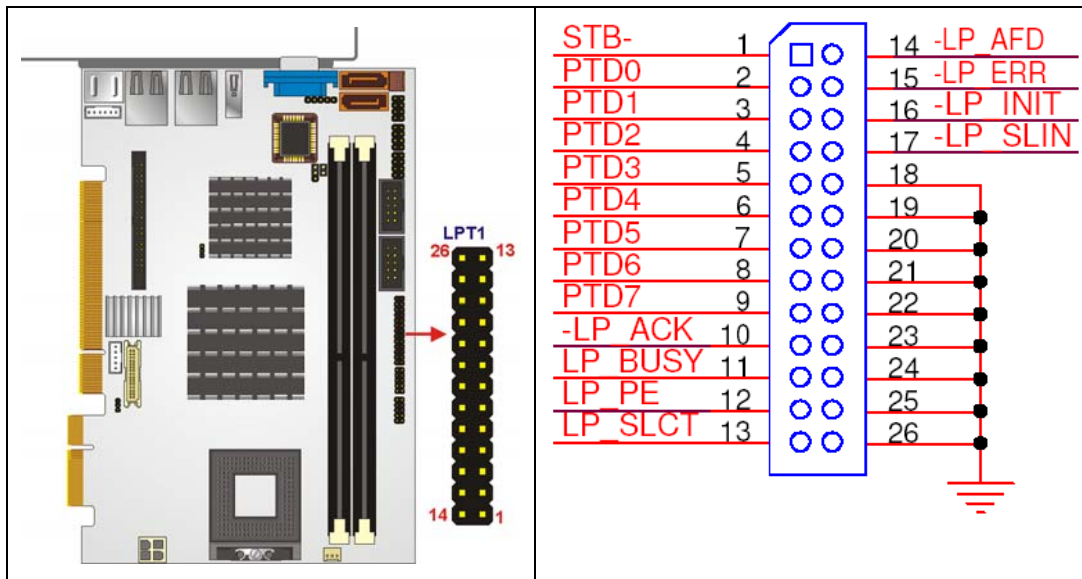


Figure 4-15: Parallel Port Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	STROBE#	2	DATA 0
3	DATA 1	4	DATA 2
5	DATA 3	6	DATA 4
7	DATA 5	8	DATA 6

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
9	DATA 7	10	ACKNOWLEDGE
11	BUSY	12	PAPER EMPTY
13	PRINTER SELECT	14	AUTO FORM FEED #
15	ERROR#	16	INITIALIZE
17	PRINTER SELECT LN#	18	GROUND
19	GROUND	20	GROUND
21	GROUND	22	GROUND
23	GROUND	24	GROUND
25	GROUND	26	NC

**Table 4-15: Parallel Port Connector Pinouts**

#### 4.2.14 SATA Drive Connectors

- CN Label:** SATA1 and SATA2
- CN Type:** 7-pin SATA drive connectors
- CN Location:** See Figure 4-16
- CN Pinouts:** See Table 4-16

The two SATA drive connectors are each connected to a first generation SATA drive. First generation SATA drives transfer data at speeds as high as 150Mb/s. The SATA drives can be configured in a RAID configuration.

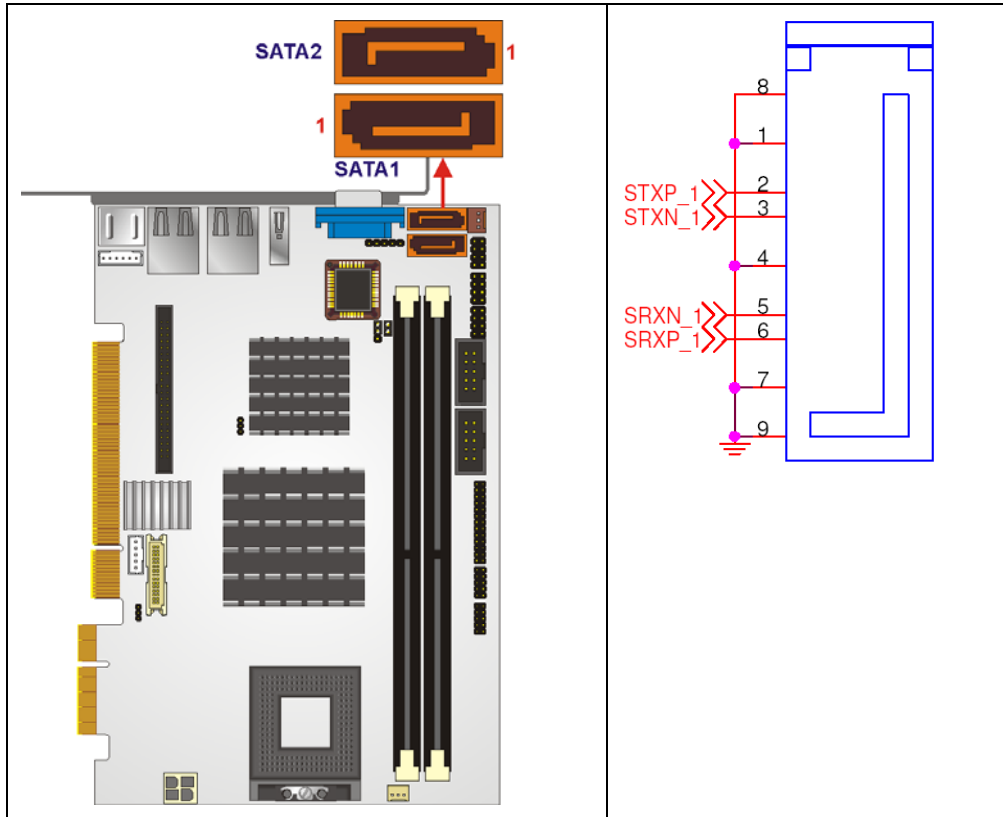


Figure 4-16: SATA Drive Connector Locations

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

Table 4-16: SATA Drive Connector Pinouts

#### 4.2.15 Serial Port Connector (COM1 and COM2)

<b>CN Label:</b>	COM1 and COM2
<b>CN Type:</b>	10-pin header (2x5)
<b>CN Location:</b>	See Figure 4-17
<b>CN Pinouts:</b>	See Table 4-17

The 10-pin serial port connector provides a second RS-232 serial communications channel. The COM 2 serial port connector can be connected to external RS-232 serial port devices.

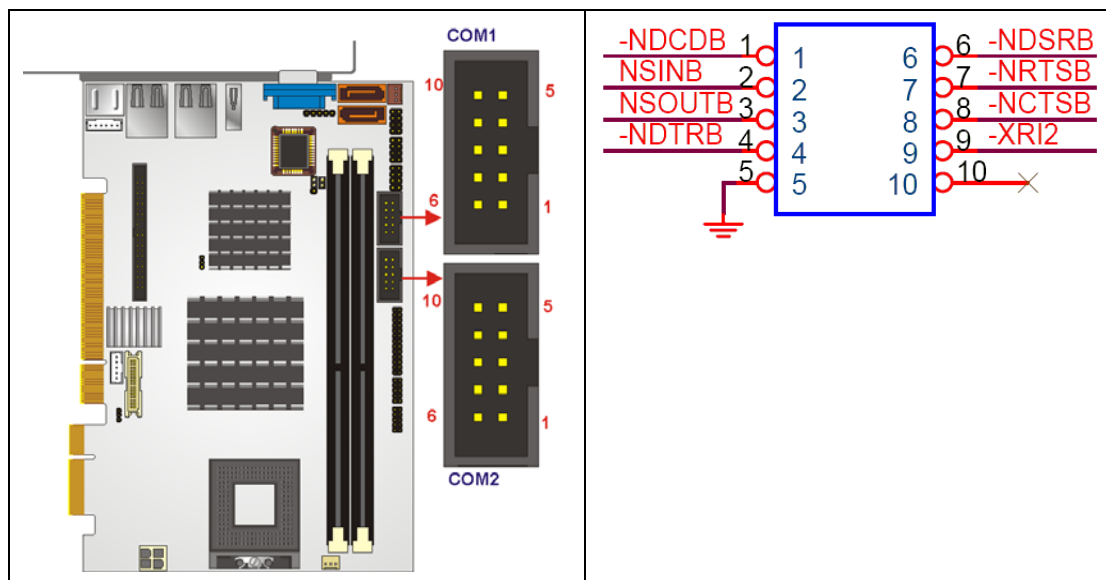


Figure 4-17: COM1 and COM2 Connector Pinout Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Data Carrier Detect (DCD)	6	Data Set to Ready (DSR)
2	Receive Data (RXD)	7	Request to Send (RTS)
3	Transmit Data (TXD)	8	Clear to Sent (CTS)
4	Data Terminal Ready (DTR)	9	Ring Indicator (RI)
5	Ground (GND)	10	N/C

Table 4-17: COM3 and COM4

#### 4.2.16 USB Connectors (Internal)

**CN Label:** USB1\_2 and USB3\_4

**CN Type:** 8-pin header (2x4)

**CN Location:** See Figure 4-18

**CN Pinouts:** See Table 4-18

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.

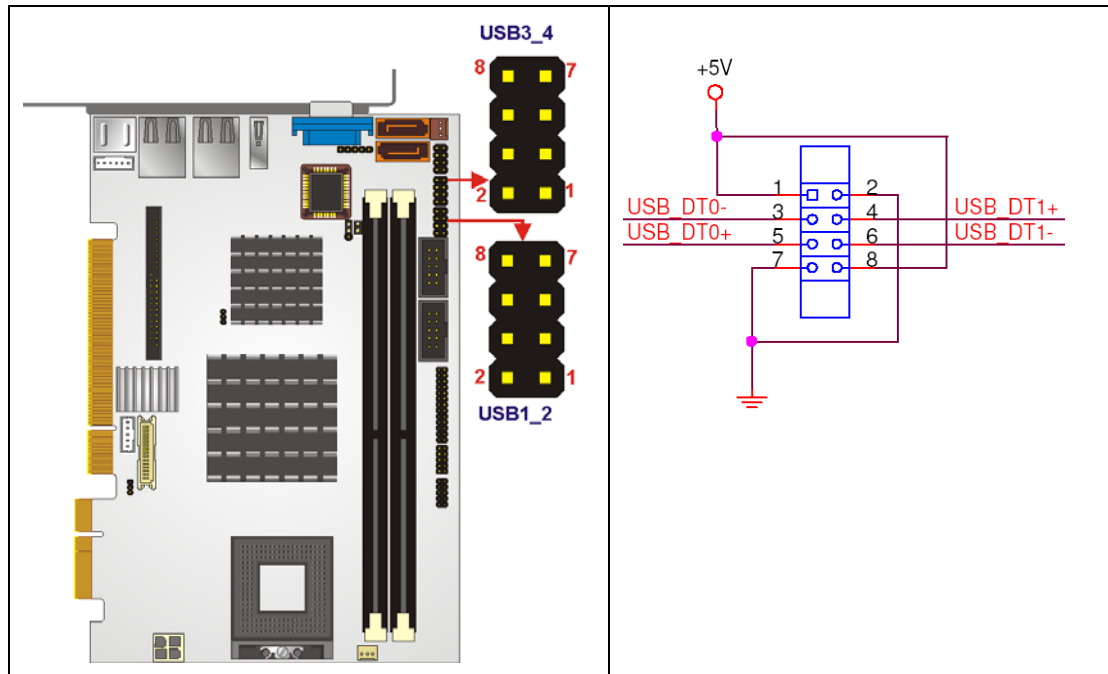


Figure 4-18: USB Connector Pinout Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	DATAN-	4	DATA1M+
5	DATAN+	6	DATAM-
7	GND	8	VCC

Table 4-18: USB Port Connector Pinouts



### 4.3 External Peripheral Interface Connector Panel

Figure 4-19 shows the 3307810 rear panel. The 3307810 rear panel consists of two RJ-45 Ethernet connectors, a PS/2 keyboard connector a USB port and a VGA connector. These connectors are accessible when the 3307810 is installed in a chassis.

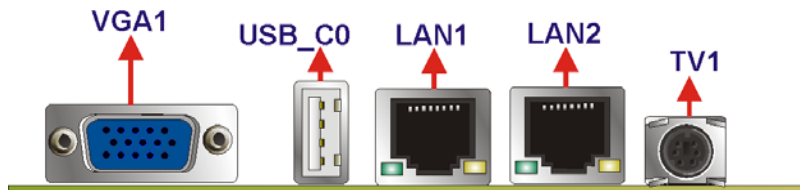


Figure 4-19: 3307810 External Peripheral Interface Connector

#### 4.3.1 LAN Connectors

**CN Label:** LAN1 and LAN2

**CN Type:** RJ-45

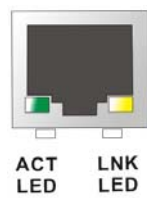
**CN Location:** See Figure 4-19

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

The 3307810 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 4-19: LAN Pinouts



**Figure 4-20: 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 4-20**.

STATUS	DESCRIPTION	STATUS	DESCRIPTION
GREEN	Activity	YELLOW	Linked

**Table 4-20: RJ-45 Ethernet Connector LEDs**

### 4.3.2 TV Connector

- CN Label:** TV1
- CN Type:** 7-pin Mini-DIN
- CN Location:** See Figure 4-19
- CN Pinouts:** See Table 4-21

A 7-pin mini DIN connector (TV1) is located on the mounting bracket for easy connection to a TV OUT cable.

PIN NO.	DESCRIPTION
1	GND
2	BLUE_CVBS
3	GND
4	GREEN_Y
5	NC
6	RED_C
7	GND

Table 4-21: TV1 Pinouts

### 4.3.3 USB Connector

**CN Label:** USB\_C0

**CN Type:** USB port

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

**CN Pinouts:** See Table 4-22

The 3307810 has a one external USB 2.0 port. The port connects to both USB 2.0 and USB 1.1 devices.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USBV3L 5V	2	GND
3	USBP4N	4	USBP5P
5	USBP4P	6	USBP5N
7	GND	8	USBV3L 5V

Table 4-22: USB Port Pinouts

### 4.3.4 VGA Connector

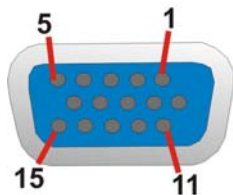
**CN Label:** VGA1

**CN Type:** 15-pin Female

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

**CN Pinouts:** See Figure 4-21 and Table 4-23

The 3307810 has a single 15-pin female connector for connectivity to standard display devices.



**Figure 4-21: 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 4-23: VGA Connector Pinouts**

3307810

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Chapter

5

# Installation

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## 5.1 Anti-static Precautions

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### **WARNING:**

Failure to take ESD precautions during the installation of the 3307810 may result in permanent damage to the 3307810 and severe injury to the user.

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Electrostatic discharge (ESD) can cause serious damage to electronic components, including the 3307810. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the 3307810, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband:*** - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding:***- Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad:*** When configuring the 3307810, place it on an anti-static pad. This reduces the possibility of ESD damaging the 3307810.
- ***Only handle the edges of the PCB:-*** When handling the PCB, hold the PCB by the edges.

## 5.2 Installation Considerations

---



### NOTE:

The following installation notices and installation considerations should be read and understood before the 3307810 is installed. All installation notices pertaining to the installation of the 3307810 should be strictly adhered to. Failing to adhere to these precautions may lead to severe damage of the 3307810 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 3307810, 3307810 components and 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 3307810 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 3307810 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 3307810 off:**



## 3307810

- When working with the 3307810, 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 3307810 **DO NOT:**

- Remove any of the stickers on the PCB board. These stickers are required for warranty validation.
- Use the product before verifying all the cables and power connectors are properly connected.
- 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 3307810 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 CF Type I or CF Type II card is properly installed into the CF socket
- The jumpers have been properly configured
- The 3307810 is inserted into a chassis with adequate ventilation
- The correct power supply is being used
- The following devices are properly connected
  - 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:
  - VGA screen

- Keyboard
- Mouse
- RS-232 serial communications device

## 5.3 CPU, CPU 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, 3307810 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 3307810. If one of these component is not installed the 3307810 cannot run.

### 5.3.1 Socket M CPU Installation

---



### **WARNING:**

CPUs are expensive and sensitive components. When installing the CPU please be careful not to damage it in anyway. Make sure the CPU is installed properly and ensure the correct cooling kit is properly installed.

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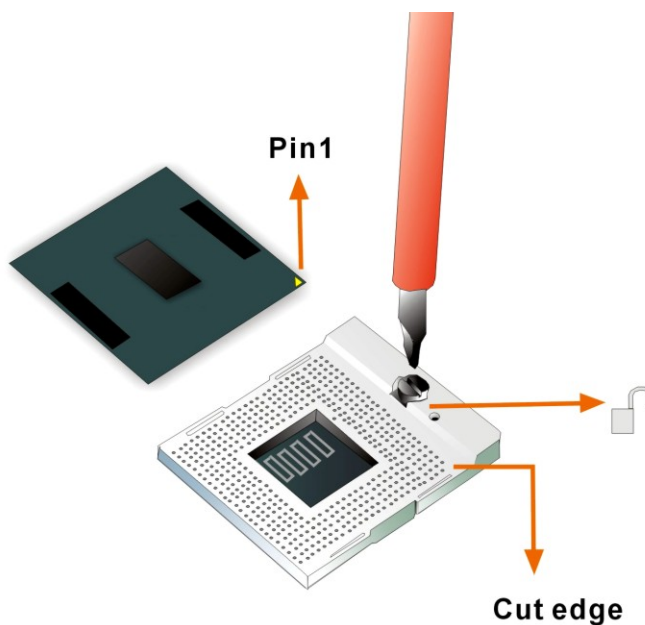
To install a Socket M CPU onto the 3307810, follow the steps below:

**WARNING:**

When handling the CPU, only hold it on the sides. DO NOT touch the pins at the bottom of the CPU.

---

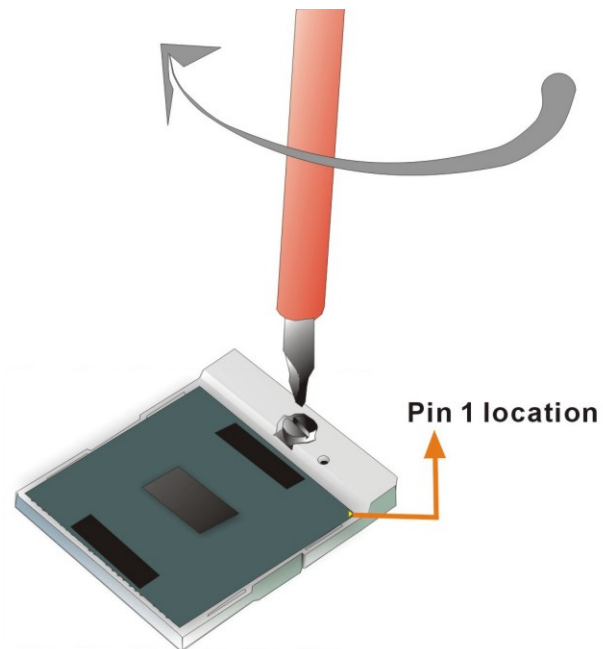
- Step 1: Unlock the CPU retention screw.** When shipped, the retention screw of the CPU socket should be in the unlocked position. If it is not in the unlocked position, use a screwdriver to unlock the screw. See **Figure 5-1**.



**Figure 5-1: Make sure the CPU socket retention screw is unlocked**

- Step 2: Inspect the CPU socket.** Make sure there are no bent pins and make sure the socket contacts are free of foreign material. If any debris is found, remove it with compressed air.
- Step 3: Correctly Orientate the CPU.** Make sure the IHS (integrated heat sink) side is facing upwards.
- Step 4: Correctly position the CPU.** Match the Pin 1 mark with the cut edge on the CPU socket. See **Figure 5-1**.

- Step 5:** **Align the CPU pins.** Carefully align the CPU pins with the holes in the CPU socket.
- Step 6:** **Insert the CPU.** Gently insert the CPU into the socket. If the CPU pins are properly aligned, the CPU should slide into the CPU socket smoothly.
- Step 7:** **Lock the retention screw.** Rotate the retention screw into the locked position.  
See **Figure 5-2.**



**Figure 5-2: Lock the CPU Socket Retention Screw**

### 5.3.2 Cooling Kit 2107703 Installation



**Figure 5-3: GLOBAL AMERICAN INC. 2107703 Cooling Kit**

An GLOBAL AMERICAN INC. Socket M CPU cooling kit can be purchased separately. The cooling kit comprises a CPU heat sink and a cooling fan.



**WARNING:**

Do not wipe off (accidentally or otherwise) the pre-sprayed layer of thermal paste on the bottom of the [Fan model#] heat sink. The thermal paste between the CPU and the heat sink is important for optimum heat dissipation.

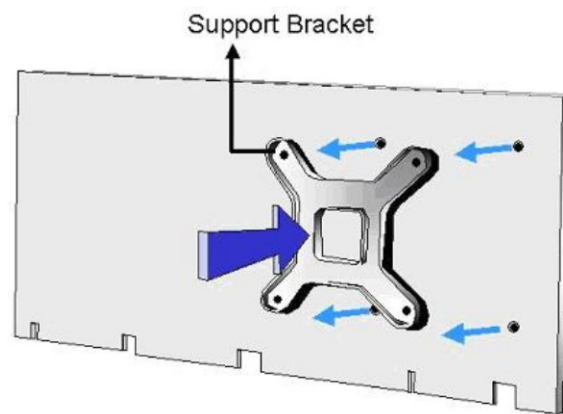
---

To install the 2107703 cooling kit, please follow the steps below.

**Step 1: Place the cooling kit onto the CPU.** Make sure the CPU cooling fan cable can be properly routed when the cooling kit is installed.

**Step 2: Properly align the cooling kit.** Make sure its four spring screw fasteners can pass through the pre-drilled holes on the PCB.

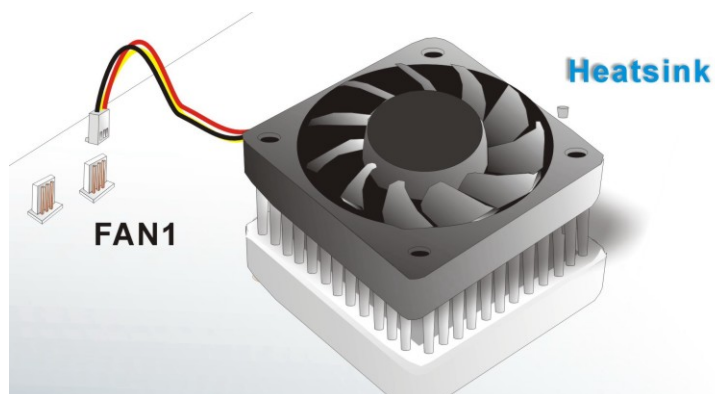
**Step 3: Secure the cooling kit.** From the solder side of the PCB, align the support bracket to the screw threads on heat sink that were inserted through the PCB holes. (See **Figure 5-4**)



**Figure 5-4: Cooling Kit Support Bracket**

**Step 4:** **Tighten the screws.** Use a screwdriver to tighten the four screws. Tighten each nut a few turns at a time and do not over-tighten the screws.

**Step 5:** **Connect the fan cable.** Connect the cooling kit fan cable to the fan connector on the motherboard. Carefully route the cable and avoid heat generating chips and fan blades. See **Figure 5-5**.



**Figure 5-5: Connect the cooling fan cable**

### 5.3.3 DIMM Installation

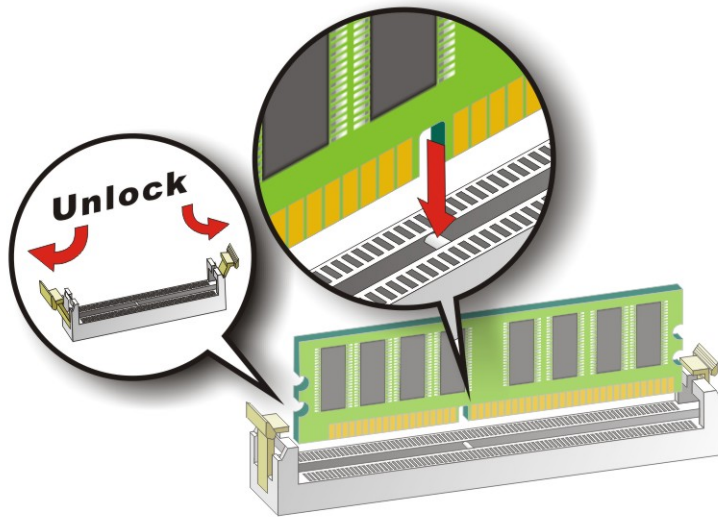
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**WARNING:**

Using incorrectly specified DIMM may cause permanently damage the 3307810. Please make sure the purchased DIMM complies with the memory specifications of the 3307810. DIMM specifications compliant with the 3307810 are listed in **Chapter 2**.

---

To install a DIMM into a DIMM socket, please follow the steps below and refer to **Figure 5-6**.



**Figure 5-6: Installing a DIMM**

- Step 1: Open the DIMM socket handles.** The DIMM socket has two handles that secure the DIMM into the socket. Before the DIMM can be inserted into the socket, the handles must be opened. See **Figure 5-6**.
- Step 2: Align the DIMM with the socket.** The DIMM must be oriented in such a way that the notch in the middle of the DIMM must be aligned with the plastic bridge in the

socket. See **Figure 5-6**.

**Step 3: Insert the DIMM.** Once properly aligned, the DIMM can be inserted into the socket. As the DIMM is inserted, the white handles on the side of the socket will close automatically and secure the DIMM to the socket. See **Figure 5-6**.

**Step 4: Removing a DIMM.** To remove a DIMM, push both handles outward. The memory module is ejected by a mechanism in the socket.

### 5.3.4 CF Card Installation



#### NOTE:

The 3307810 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 3307810, please follow the steps below:

**Step 1: Locate the CF card socket.** Place the 3307810 on an anti-static pad with the solder side facing up. Locate the CF card.

**Step 2: Align the CF card.** Make sure the CF card is properly aligned with the CF socket.

**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 5-7**.



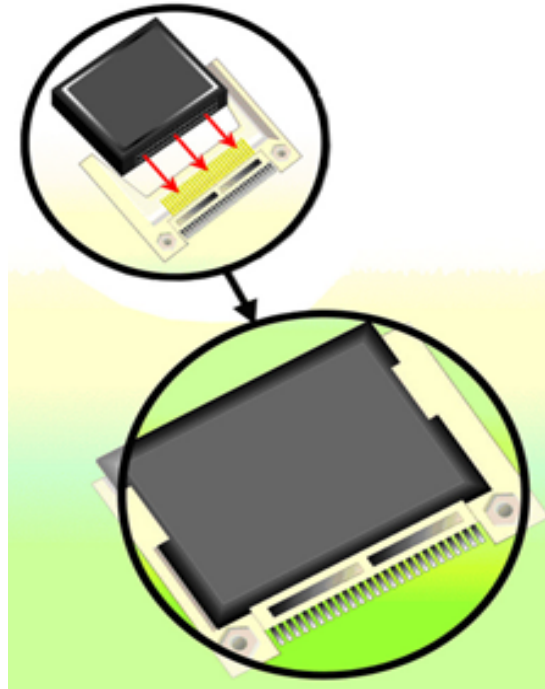


Figure 5-7: CF Card Installation

## 5.4 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.

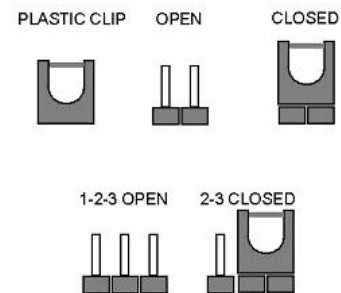


Figure 5-8: Jumper Locations

Before the 3307810 is installed in the system, the jumpers must be set in accordance with the desired configuration. The jumpers on the 3307810 are listed in **Table 5-1**.

Description	Label	Type
CF card setup	J_CF1	3-pin header
Clear CMOS	J_CMOS1	3-pin header
LVDS voltage selection	J_VLVDS1	3-pin header
PCIe interface setup	JP1	2-pin header

**Table 5-1: Jumpers**

### 5.4.1 CF Card Setup

<b>Jumper Label:</b>	J_CF1
<b>Jumper Type:</b>	3-pin header
<b>Jumper Settings:</b>	See Table 5-2
<b>Jumper Location:</b>	See Figure 5-9

The CF Card Setup jumper sets the CF Type I card or CF Type II cards as either the slave device or the master device. CF Card Setup jumper settings are shown in **Table 5-2**.

AT Power Select	Description	
Short 1-2	Slave	Default
Short 2-3	Master	

**Table 5-2: CF Card Setup Jumper Settings**

The CF Card Setup jumper location is shown in **Figure 5-9**.

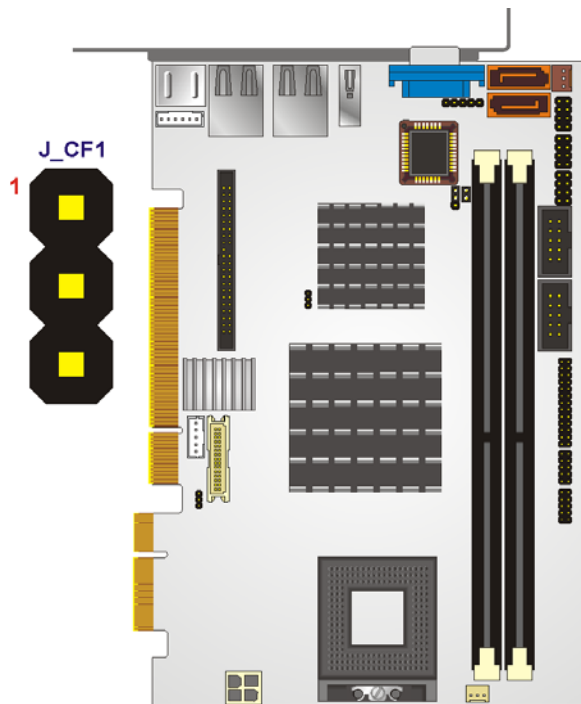


Figure 5-9: CF Card Setup Jumper Location

#### 5.4.2 Clear CMOS Jumper

<b>Jumper Label:</b>	J_CMOS1
<b>Jumper Type:</b>	3-pin header
<b>Jumper Settings:</b>	See Table 5-3
<b>Jumper Location:</b>	See Figure 5-10

If the 3307810 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.

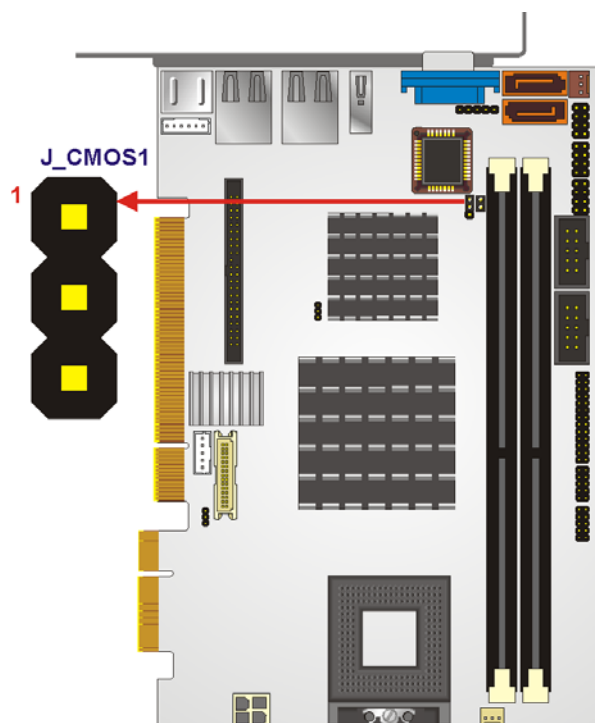
After having done one of the above, save the changes and exit the CMOS Setup menu.

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 5-10** below.



**Figure 5-10: Clear CMOS Jumper**

### 5.4.3 LVDS Voltage Selection

---



#### WARNING:

Permanent damage to the screen and 3307810 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.

---

<b>Jumper Label:</b>	J_LVDS1
<b>Jumper Type:</b>	3-pin header
<b>Jumper Settings:</b>	See Table 5-4
<b>Jumper Location:</b>	See Figure 5-11

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**.

AT Power Select	Description	
Short 1-2	+3V LVDS	Default
Short 2-3	+5V LVDS	

**Table 5-4: LVDS Voltage Selection Jumper Settings**

The LVDS Voltage Selection jumper location. is shown in **Figure 5-11**.

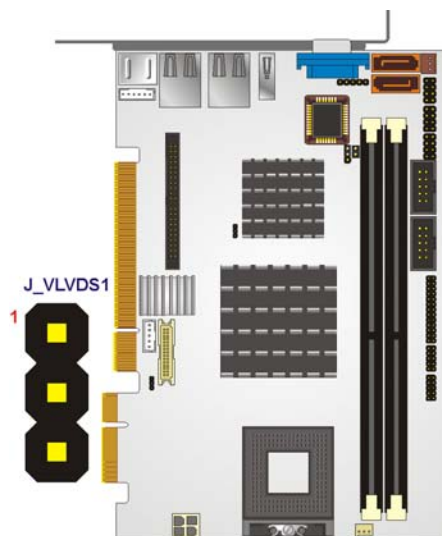


Figure 5-11: LVDS Voltage Selection Jumper Pinout Locations

#### 5.4.4 PCIe Interface Setup

<b>Jumper Label:</b>	JP1
<b>Jumper Type:</b>	3-pin header
<b>Jumper Settings:</b>	See Table 5-5
<b>Jumper Location:</b>	See Figure 5-12

The **PCIe Interface Select** jumper sets the PCIe bus as either PCIe x1 or PCIe x4. The **PCIe Interface Select** jumper settings are shown in Table 5-5.

AT Power Select	Description	
Short 1-2	PCIe x1	Default
Open 1-2	PCIe x4	

Table 5-5: PCIe Interface Select Jumper Settings

The **PCIe Interface Select** jumper location. is shown in Figure 5-12.

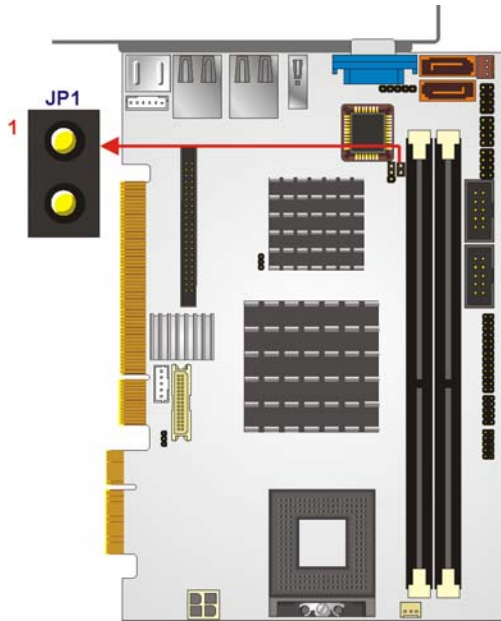


Figure 5-12: PCIe Interface Select Jumper Pinout Locations

## 5.5 Chassis Installation

### 5.5.1 Airflow



#### WARNING:

Airflow is critical to the cooling of the CPU and other onboard components. The chassis in which the 3307810 must have air vents to allow cool air to move into the system and hot air to move out.

---

The 3307810 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.

**NOTE:**

GLOBAL AMERICAN INC. has a wide range of chassis available. Please refer to **Chapter 2** in this manual or contact your 3307810 vendor, reseller or a Global American sales representative at [salesinfo@globalamericaninc.com](mailto:salesinfo@globalamericaninc.com) or visit the GLOBAL AMERICAN INC. website (<http://www.globalamericaninc.com>) to find out more about the available chassis.

## 5.6 Internal Peripheral Device Connections

### 5.6.1 Peripheral Device Cables

The cables listed in **Table 5-6** are shipped with the 3307810.

Quantity	Type
1	IDE Cable
1	KB/MS cable
1	Dual RS-232 cable
2	SATA drive cables
1	SATA drive power cable
1	Dual USB cable

**Table 5-6: GLOBAL AMERICAN INC. Provided Cables**

Optional cables are listed below:

- 7.1 channel audio kit
- 5.1 channel audio kit
- LPT cable
- S-video cable

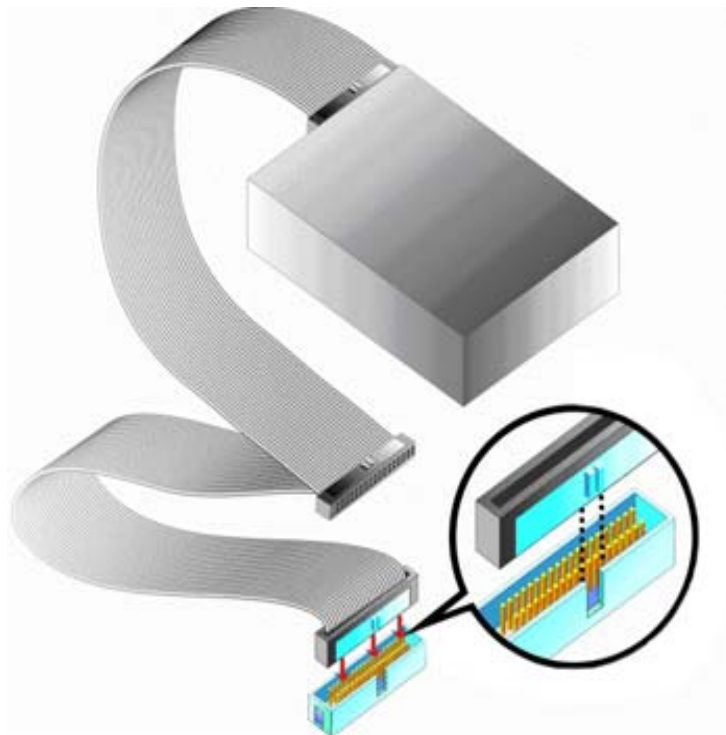


## 5.6.2 IDE Cable Connection

The IDE flat cable connects to the 3307810 to one or two IDE devices. To connect an IDE HDD to the 3307810 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 onboard connector. See **Figure 5-13**. A key on the front of the cable connector ensures it can only be inserted in one direction.



**Figure 5-13: 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 5.1 Channel Audio Kit Installation

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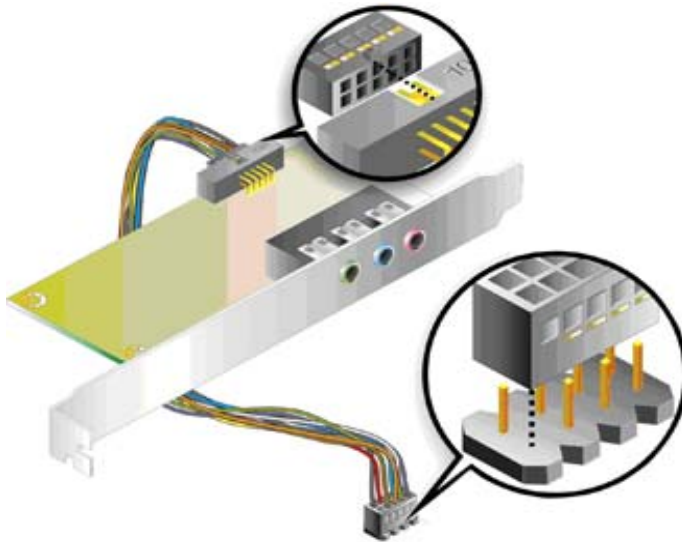
**NOTE:**

This is an optional item that must be ordered separately. For further information please contact the nearest 3307810 distributor, reseller or vendor or contact an Global American Inc. sales representative directly. Send any queries to [salesinfo@globalamericaninc.com](mailto:salesinfo@globalamericaninc.com).

---

The optional 5.1 channel audio kit connects to the 10-pin audio connector on the 3307810. 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: Connect the audio kit cable.** The audio kit is shipped with a cable that connects the audio kit to the 3307810. Connect the cable to the connector on the back of the audio kit. Make sure the pins are properly aligned (i.e. pin 1 connects to pin 1).
- Step 2: Locate the audio connector.** The location of the 10-pin audio connector is shown in **Chapter 3**.
- Step 3: Align pin 1.** Align pin 1 on the onboard connector with pin 1 on the audio kit cable connector. Pin 1 on the audio kit cable connector is indicated with a white dot. See **Figure 5-14**.



**Figure 5-14: 5.1 Channel Audio Kit**

**Step 4:** **Mount the audio kit onto the chassis.** Once the audio kit is connected to the 3307810, secure the audio kit bracket to the system chassis.

**Step 5:** **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.

**Step 6:** **Install the driver.** If the 5.1 channel audio kit is used, the ALC655 Realtek codec driver must be installed. Refer to **Chapter 7** for driver installation instructions.

### 5.6.4 7.1 Channel Audio Kit Installation



**NOTE:**

This is an optional item that must be ordered separately. For further information please contact the nearest 3307810 distributor, reseller or vendor or contact an Global American Inc. sales representative directly. Send any queries to [salesinfo@globalamericaninc.com](mailto:salesinfo@globalamericaninc.com).

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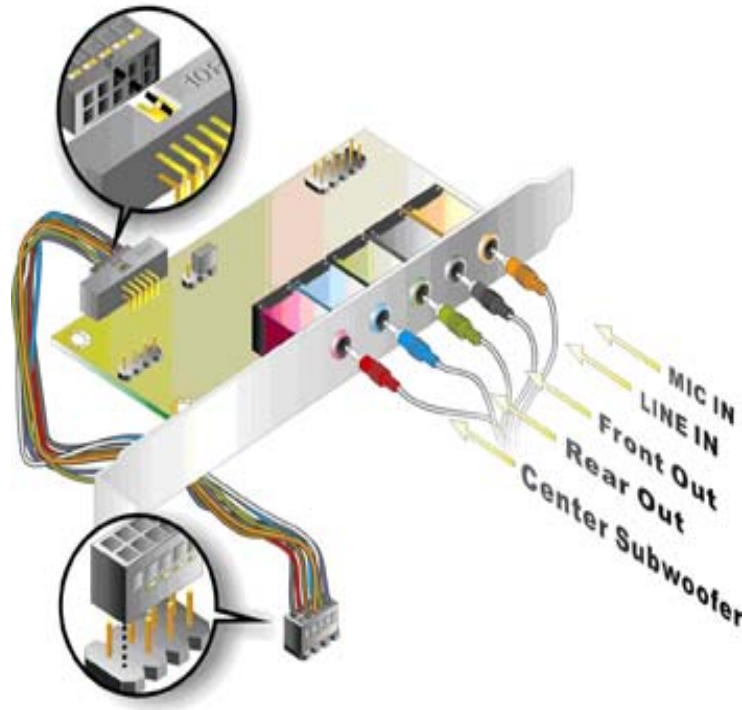
The optional 7.1 channel audio kit connects to the 10-pin audio connector on the 3307810. The audio kit consists of five audio jacks. One audio jack, Mic In, connects to a microphone. The remaining four audio jacks, Line-In, Front-Out, Rear-Out, and Center Subwoofer, connect to speakers. To install the audio kit, please refer to the steps below:

**Step 1: Connect the audio kit cable.** The audio kit is shipped with a cable that connects the audio kit to the 3307810. Connect the cable to the connector on the back of the audio kit. Make sure the pins are properly aligned (i.e. pin 1 connects to pin 1).

**Step 2: Locate the audio connector.** The location of the 10-pin audio connector is shown in **Chapter 3**.

**Step 3: Align pin 1.** Align pin 1 on the onboard connector with pin 1 on the audio kit cable connector. Pin 1 on the audio kit cable connector is indicated with a white dot.

See **Figure 5-14**.



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### Figure 5-15: 5.1 Channel Audio Kit

**Step 4: Mount the audio kit onto the chassis.** Once the audio kit is connected to the 3307810, secure the audio kit bracket to the system chassis.

**Step 5: 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.

**Step 6: Install the driver.** If the 5.1 channel audio kit is used, the ALC655 Realtek codec driver must be installed. Refer to **Chapter 7** for driver installation instructions.

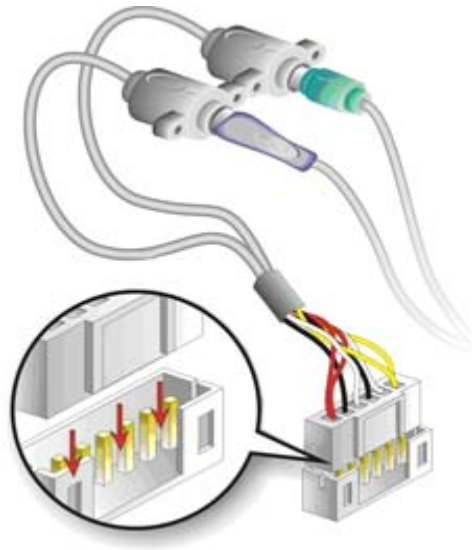
### 5.6.5 Keyboard/Mouse Y-cable Connector

The 3307810 is shipped with a keyboard/mouse Y-cable connector. The keyboard/mouse Y-cable connector connects to a keyboard/mouse connector on the 3307810 and branches into two cables that are each connected to a PS/2 connector, one for a mouse and one for a keyboard. To connect the keyboard/mouse Y-cable connector please follow the steps below.

**Step 1: Locate the connector.** The location of the keyboard/mouse Y-cable connector is shown in **Chapter 3**.

**Step 2: Align the connectors.** Correctly align pin 1 on the cable connector with pin 1 on the 3307810 keyboard/mouse connector. See **Figure 5-16**.

**Step 3: Insert the cable connectors** Once the cable connector is properly aligned with the keyboard/mouse connector on the 3307810, connect the cable connector to the onboard connectors. See **Figure 5-16**.



**Figure 5-16: Keyboard/mouse Y-cable Connection**

- Step 4: Attach PS/2 connectors to the chassis.** The keyboard/mouse Y-cable connector is connected to two PS/2 connectors. To secure the PS/2 connectors to the chassis please refer to the installation instructions that came with the chassis.
- Step 5: Connect the keyboard and mouse.** Once the PS/2 connectors are connected to the chassis, a keyboard and mouse can each be connected to one of the PS/2 connectors. The keyboard PS/2 connector and mouse PS/2 connector are both marked. Please make sure the keyboard and mouse are connected to the correct PS/2 connector.

### 5.6.6 Parallel Port Cable without Bracket

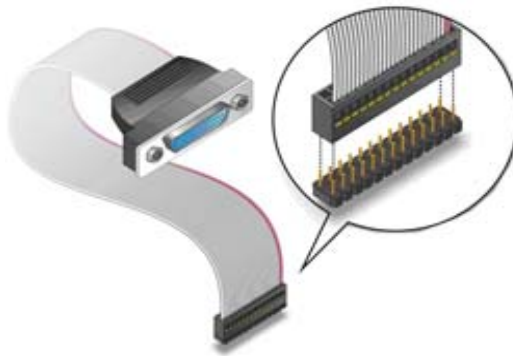
The optional parallel port (LPT) cable respectively connects the onboard LPT 26-pin box header to an external LPT device (like a printer). The cable comprises a 26-pin female header, to be connected to the onboard LPT box-header, on one side and on the other side a standard external LPT connector. To connect the LPT cable, please follow the steps below.

- Step 1: Locate the connector.** The LPT connector location is shown in **Chapter 4**.

## 3307810

**Step 2: Align the connectors.** Correctly align pin 1 on the cable connector with pin 1 on the 3307810 LPT box-header connector. See Error! Reference source not found..

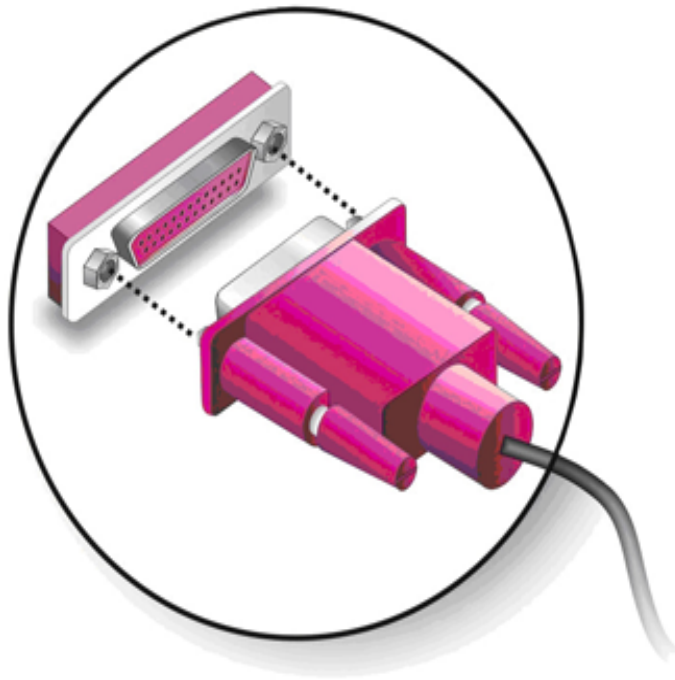
**Step 3: Insert the cable connectors** Once the cable connector is properly aligned with the 26-pin box-header connector on the 3307810, connect the cable connector to the onboard connector. See **Figure 5-17**.



**Figure 5-17: LPT Cable Connection**

**Step 4: Attach the LPT connector to the chassis.** To secure the LPT interface connector to the chassis please refer to the installation instructions that came with the chassis.

**Step 5: Connect LPT device.** Once the LPT interface connector is connected to the chassis, the LPT device can be connected to the LPT interface connector. See **Figure 5-18**



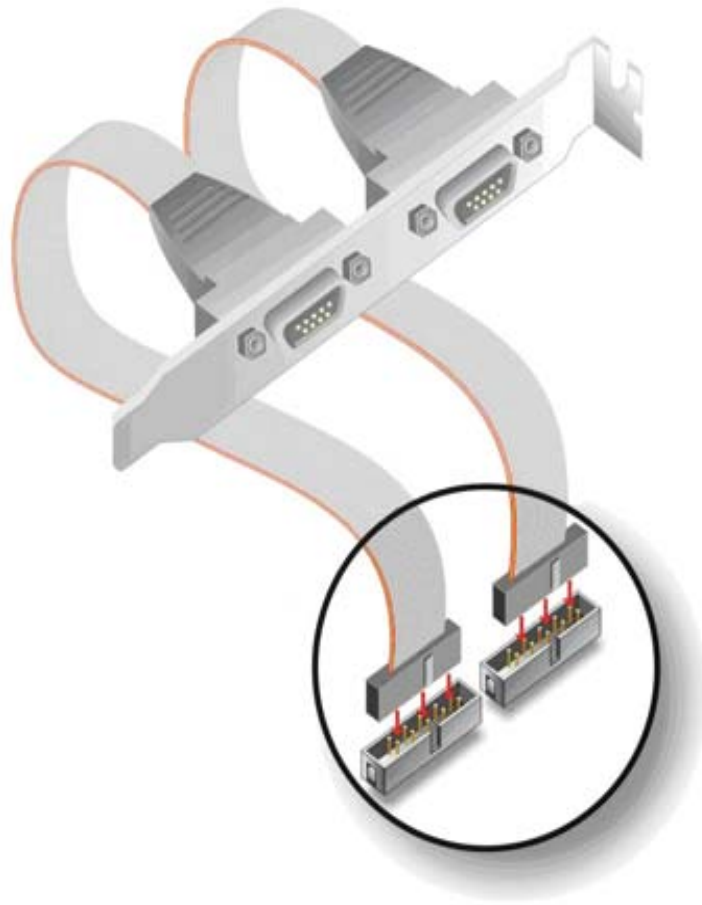
**Figure 5-18: Connect the LPT Device**

### 5.6.7 Dual RS-232 Cable with Slot Bracket

The dual RS-232 cable slot connector consists of two connectors attached to two independent cables. Each cable is then attached to a D-sub 9 male connector that is mounted onto a slot. To install the dual RS-232 cable, please follow the steps below.

- Step 1: Locate the connectors.** The locations of the RS-232 connectors are shown in **Chapter 3**.
- Step 2: Insert the cable connectors.** Insert one connector into each serial port box headers. See **Figure 5-19**. A key on the front of the cable connectors ensures the connector can only be installed in one direction.





**Figure 5-19: Dual RS-232 Cable Installation**

**Step 3:** **Secure the bracket.** The dual RS-232 connector has two D-sub 9 male connectors secured on a bracket. To secure the bracket to the chassis please refer to the reference material that came with the chassis

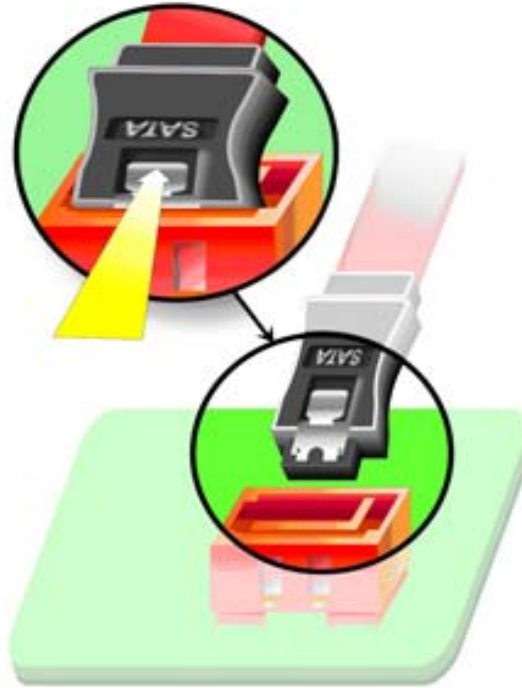
### **5.6.8 SATA Drive Connection**

The 3307810 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 5-20**.



**Figure 5-20: 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 5-21**.
- Step 4:** **Connect the SATA power cable.** Connect the SATA power connector to the back of the SATA drive. See **Figure 5-21**.

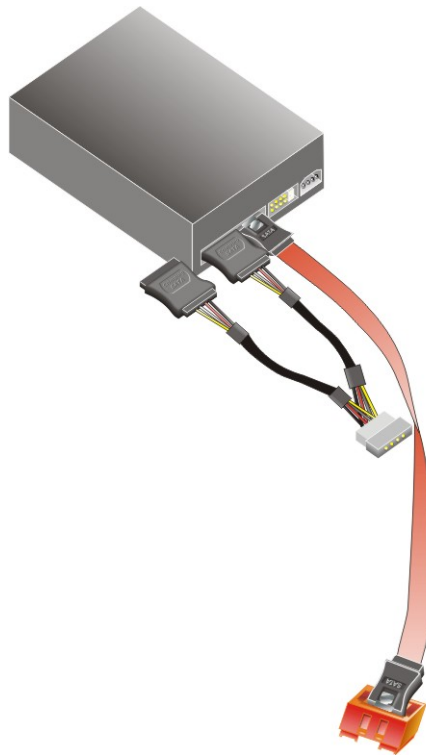


Figure 5-21: SATA Power Drive Connection

### 5.6.9 USB Cable (Dual Port) with Slot Bracket

The 3307810 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.



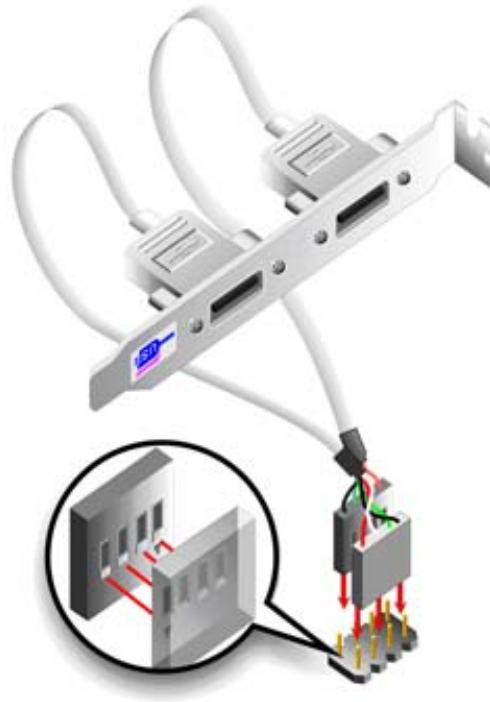
**WARNING:**

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 3307810 USB connector.

**Step 3: Insert the cable connectors** Once the cable connectors are properly aligned with the USB connectors on the 3307810, connect the cable connectors to the onboard connectors. See **Figure 5-22**.



**Figure 5-22: Dual USB Cable Connection**

**Step 4: Attach the bracket to the chassis.** The USB 2.0 connectors are attached to a bracket. To secure the bracket to the chassis please refer to the installation.

## 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
- S-video display device
- USB device
- VGA monitor

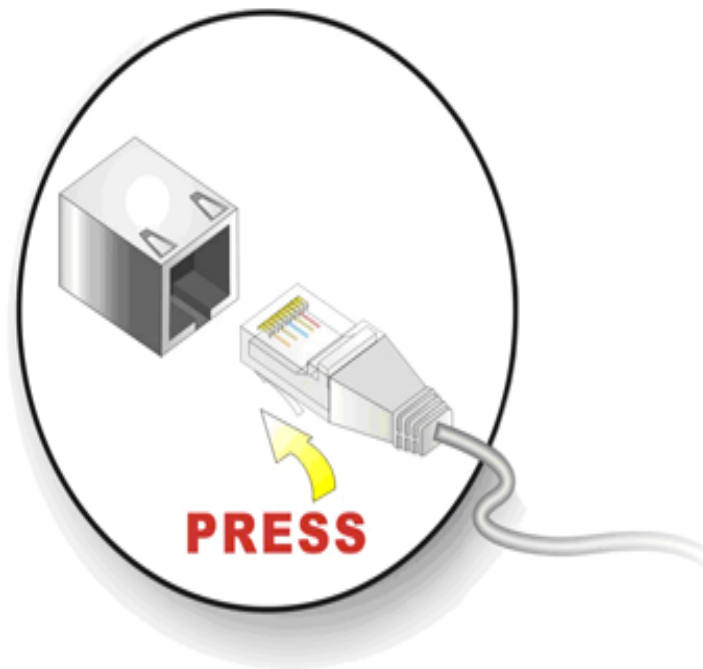
To install these devices, connect the corresponding cable connector from the actual device to the corresponding 3307810 external peripheral interface connector making sure the pins are properly aligned.

### 5.7.1 LAN Connection (Single Connector)

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 3307810. See **Figure 5-23**.



**Figure 5-23: LAN Connection**

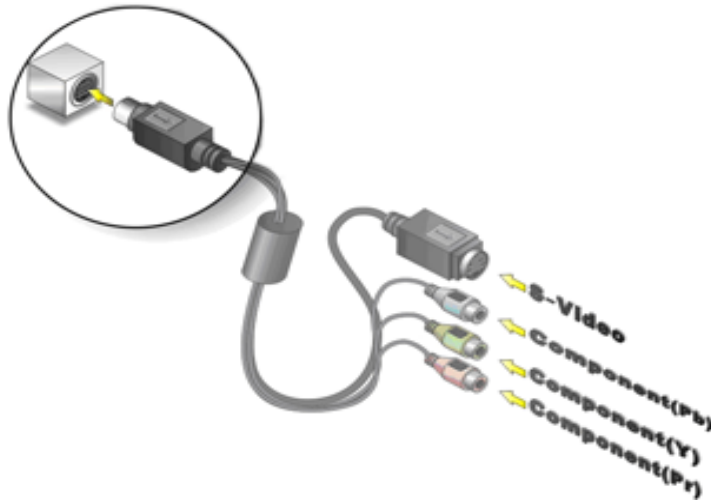
**Step 3:** Insert the LAN cable RJ-45 connector. Once aligned, gently insert the LAN cable RJ-45 connector into the onboard RJ-45 connector.

### 5.7.2 S-video Cable Connection

There is a single mini DIN TV out connector mounted on the CPU card as an external connector. The optional S-video cable is able to connect the mini DIN connector on the system with an external display device. To connect an external display device to the system through the mini DIN connector with the S-video cable, please follow the instruction below.

**Step 1:** Locate the TV-OUT DIN connector. The location of the TV-OUT DIN connector is shown in **Chapter 4**.

**Step 2:** Align the connectors. Align the connector on the end of the S-video cable with the mini DIN connector. See **Figure 5-24**.



**Figure 5-24: S-video Cable Connector**

**Step 3:** **Insert S-video cable connector.** Once aligned, gently insert the S-video cable connector into the onboard connector.

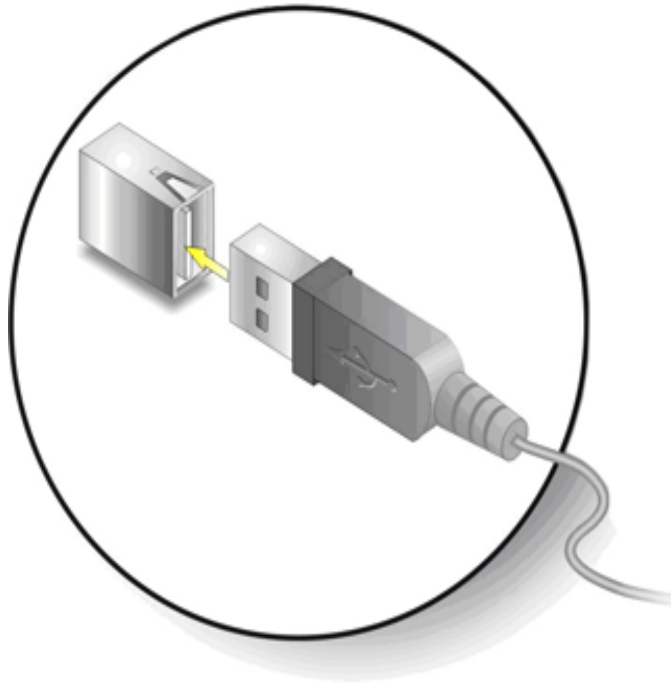
**Step 4:** **Connect the cables to the display device.** Connect the S-video connector and the Pb, Y and Pr component connectors on the other end of the S-video cables to the respective connectors on the display device.

### 5.7.3 USB Device Connection (Single Connector)

There are two external USB 2.0 connectors. Both connectors are perpendicular to the 3307810. To connect a USB 2.0 or USB 1.1 device, please follow the instructions below.

**Step 1:** **Located the USB connectors.** The locations of the USB connectors are shown in **Chapter 4**.

**Step 2:** **Align the connectors.** Align the USB device connector with one of the connectors on the 3307810. See Figure 5-25.



**Figure 5-25: USB Device Connection**

**Step 3:** **Insert the device connector.** Once aligned, gently insert the USB device connector into the onboard connector.

### 5.7.4 VGA Monitor Connection

The 3307810 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 3307810, 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**.

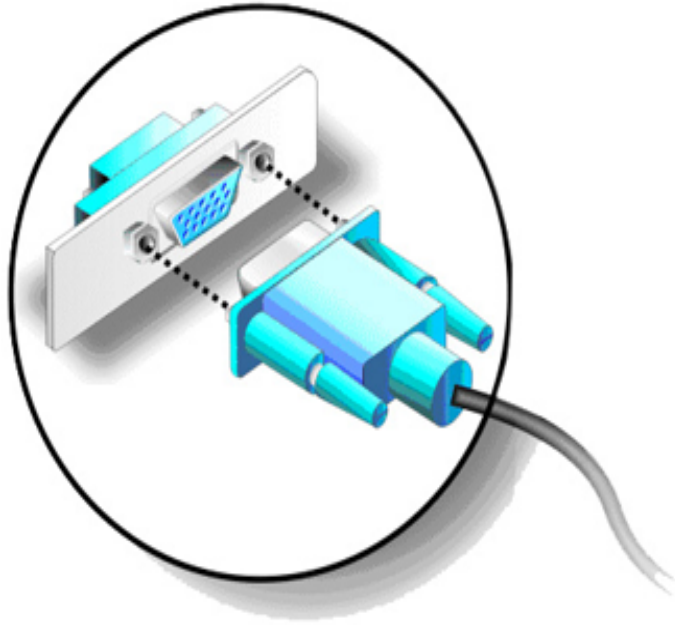
**Step 2:** **Align the VGA connector.** Align the male DB-15 connector on the VGA screen cable with the female DB-15 connector on the external peripheral interface.

**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



**3307810**

3307810. See **Figure 5-26**.



**Figure 5-26: 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.

Appendix

**B**

# DIO Interface

---

## A.1 DIO Interface Introduction

The DIO connector on the 3307810 is interfaced to GIO ports on the iTE 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 iTE Super I/O chipset.

---

## A.2 DIO Connector Pinouts

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

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC
3	Output 3	4	Output 2
5	Output 1	6	Output 0
7	Input 3	8	Input 2
9	Input 1	10	Input 0

## A.3 Assembly Language Samples

### A.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.

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

### A.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.

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

3307810

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Appendix

C

# Watchdog Timer

---

**NOTE:**

The following discussion applies to DOS environment. GLOBAL AMERICAN INC. support is contacted or the GLOBAL AMERICAN INC. 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 EMI 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:**

<b>AH – 6FH Sub-function:</b>	
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 B-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. While 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

D

# Address Mapping

---

## C.1 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	Intel Graphics Controller
3C0-3DF	Intel Graphics Controller
3F6-3F6	Primary IDE Channel
3F7-3F7	Standard floppy disk controller
3F8-3FF	Serial Port 1 (COM1)

Table C-1: IO Address Map

## C.2 1st MB Memory Address Map

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

Table C-2: 1<sup>st</sup> MB Memory Address Map

### C.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 C-3: IRQ Mapping Table

### C.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 C-4: IRQ Mapping Table

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Appendix

E

# Hazardous Materials Disclosure

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## **D.1 Hazardous Material 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.



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>						

RoHS RoHS

" " " " " "

	(Pb)	(Hg)	(Cd)	(CR(VI))	(PBB)	(PBDE)
	X	O	O	O	O	X
	X	O	O	O	O	X
	X	O	O	O	O	X
	X	O	O	O	O	O
	X	O	O	O	O	X
	X	O	O	O	O	X
	X	O	O	O	O	X
	O	O	O	O	O	O

O: SJ/T11363-2006

X: SJ/T11363-2006

Appendix

F

# Intel<sup>®</sup> Matrix Storage Manager

---

## E.1 Introduction

The Intel® ICH7-M chipset can provide data protection for serial ATA (SATA) disks via the Intel® Matrix Storage Manager using one of three fault-tolerant RAID levels: RAID 1, 5 or 10. When using two hard drives, matrix RAID allows RAID 0 and RAID 1 functions to be combined, where critical files can be stored on RAID 1, and RAID 0 can be used for non-critical items such as software. RAID 5 and RAID 0 can be combined to provide higher performance, capacity, and fault tolerance.



### **CAUTION!**

A configured RAID volume (which may consist of multiple hard drives) appears to an operating system as a contingent storage space. The operating system will not be able to distinguish the physical disk drives contained in a RAID configuration.

---

### E.1.1 Precautions

One key benefit a RAID configuration brings is that a single hard drive can fail within a RAID array without damaging data. With RAID1 array, a failed drive can be replaced and the RAID configuration restored.



### **WARNING!**

Irrecoverable data loss occurs if a working drive is removed when trying to remove a failed drive. It is strongly recommended to mark the physical connections of all SATA disk drives. Drive locations can be identified by attaching stickers to the drive bays. If a drive member of a RAID array should fail, the failed drive can then be correctly identified.

---



**CAUTION!**

Do not accidentally disconnect the SATA drive cables. Carefully route the cables within the chassis to avoid system down time.

---

## E.2 Features and Benefits

- Supports RAID levels 0, 1, 5 and 10
- Supports connectivity to two or more disk drives
- Supported Operating Systems include: Windows XP, Windows Server 2003 and Windows Vista

## E.3 Accessing the Intel<sup>®</sup> Matrix Storage Manager

To access the Intel<sup>®</sup> Matrix Storage Manager, please follow the steps below.

**Step 1: Connect SATA drives to the system.** Connect two or more SATA drives to the system. Make sure the drives have the same capacity, are the same type and have the same speed.

---



**NOTE:**

Make sure the SATA drives are EXACTLY the same when they are configured in a RAID configuration. If they are not the same size, disk drive capacity is sacrificed and overall performance affected.

---

**Step 2: Enable SATA drives in BIOS.** Start the computer and access the **BIOS** setup program. Enable **SATA** support for all IDE devices. Refer to the applicable BIOS configuration section in this user manual.

- Step 3: Save and Exit BIOS.** After the **SATA** support option is enabled, save and exit the BIOS.
- Step 4: Reboot the system.** Reboot the system after saving and exiting the BIOS.
- Step 5: Press Ctrl+I.** During the system boot process, press **Ctrl+I** when prompted to enter the RAID configuration software.
- Step 6: Configure the RAID settings.** Use the Intel® Matrix Storage Manager to configure the RAID array. Brief descriptions of configuration options are given below.
- Step 7: Install the OS.** After the RAID array has been configured, install the OS. To do this, please refer to the documentation that came with the OS.

## E.4 RAID Configuration

### E.4.1 Creating a RAID Volume



#### **WARNING!**

All data previously stored on the member drives of a RAID configuration are destroyed during the RAID initialization process. If “used” drives are used to create a RAID array, make sure the data has been moved or backed up before creating a RAID array out of the disk drives.

---

**Step 1:** Select “Create RAID Volume.” Use the arrow keys to highlight **Create RAID Volume** and press **ENTER**. See Figure E-1.

```

Intel(R) Matrix Storage Manager option ROM v5.0.0.1032 ICH7R wRAIDS
Copyright(C) 2003-05 Intel Corporation. All Rights Reserved.
-----[ MAIN MENU ]-----
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit

-----[ DISK/VOLUME INFORMATION ]-----
RAID Volumes:
None defined.

Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
2 Maxtor 6Y160M0 Y45TDYSE 152.7GB Non-RAID Disk
3 WDC WD1600JD-75H WD-WCAL92193433 149.0GB Non-RAID Disk

-----[ ]-Select [ESC]-Exit [ENTER]-Select Menu-----

```

**Figure E-1: Matrix Storage Manager Main Menu**

**Step 2:** **Name the RAID volume.** Enter a name for the RAID volume, or press **ENTER** to accept the default volume name. Upper and lower case alphabetic, numeric, space, and underscore characters are all applicable for naming an array. See Figure E-2.

```

Intel(R) Matrix Storage Manager option ROM v5.0.0.1032 ICH7R wRAIDS
Copyright(C) 2003-05 Intel Corporation. All Rights Reserved.
-----[ CREATE VOLUME MENU ]-----
Name: Volume0
RAID Level: RAID0(Stripe)
Disks: Select Disks
Strip Size: 128KB
Capacity: 298.0 GB

Create Volume

-----[ HELP ]-----

Enter a string between 1 and 16 characters in length that can be used
to uniquely identify the RAID volume. This name is case sensitive and
cannot contain special characters.

-----[ ]Change [Tab]-Next [ESC]-Previous Menu [ENTER]-Select-----

```

**Figure E-2: Create RAID Volume Name**

**Step 3:** Choose the RAID level. Select a RAID level from the list. RAID levels include RAID 0, 1, 5 and 10. See Figure E-3.

**NOTE:**

RAID 0 and RAID1 levels require a minimum of two hard drives.

RAID 10 level requires a minimum of four hard drives.

RAID5 level requires a minimum of three hard drives.

---

```
Intel(R) Matrix Storage Manager option ROM v5.0.0.1032 ICH7R wRAID5
Copyright(C) 2003-05 Intel Corporation. All Rights Reserved.
-----[ CREATE VOLUME MENU ]-----
      Name: Volume0
      RAID Level: RAID0(Stripe)
      Disks: Select Disks
      Strip Size: 128KB
      Capacity: 298.0 GB

      Create Volume

-----[ HELP ]-----
Choose the RAID level best suited to your usage model.

RAID0 - Data striped across multiple physical drives for performance.
RAID1 - Data mirrored across multiple physical drives for redundancy.
RAID10 - Striped volume whose segments are RAID 1 volumes. Requires
four hard drives. Functionally equivalent to RAID0+1.
RAID5 - Data and parity striped across three or more physical drives
for performance and redundancy.

[ ]Change [Tab]-Next [ESC]-Previous Menu [ENTER]-Select
```

**Figure E-3:** Choose the Raid Level



**Step 4:** Select the Stripe Size. Select a stripe size from the list. See Figure E-4.

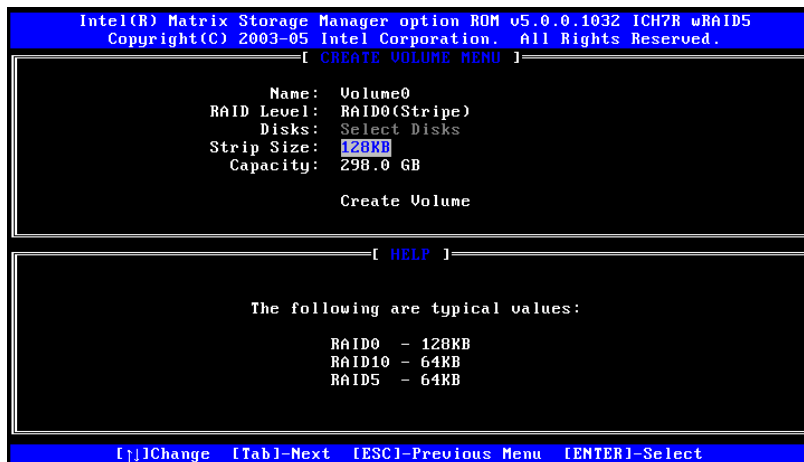


Figure E-4: Select the Stripe Size

**Step 5:** Enter the Volume Capacity. Enter the volume capacity, or press **ENTER** to accept the default capacity. See Figure E-5.

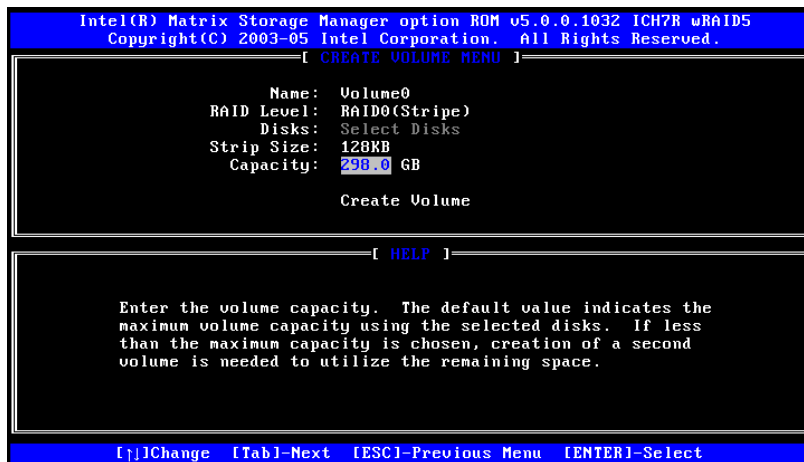


Figure E-5: Enter the Volume Capacity

**Step 6:** Create the RAID Volume. Press **ENTER** to create the RAID volume as specified.

See Figure E-6.

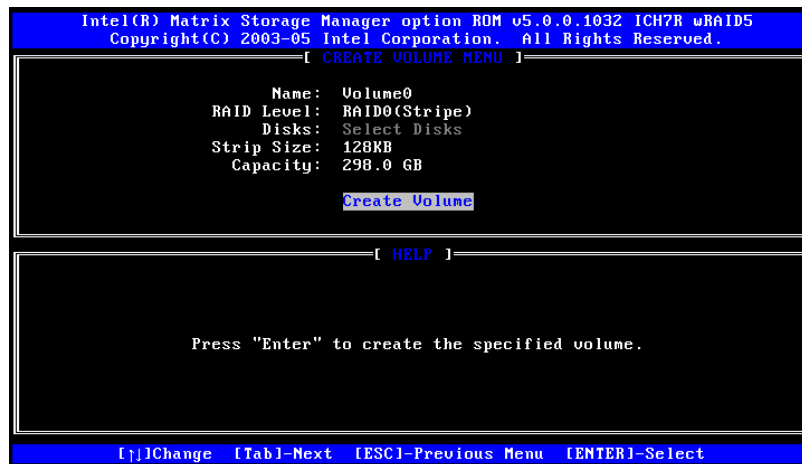


Figure E-6: Create the RAID Volume

**Step 7:** Create RAID Volume Verification. After reading the warning, press **Y** to create the RAID volume as specified, or **N** to return to the **Create RAID Volume** menu.

See Figure E-7.

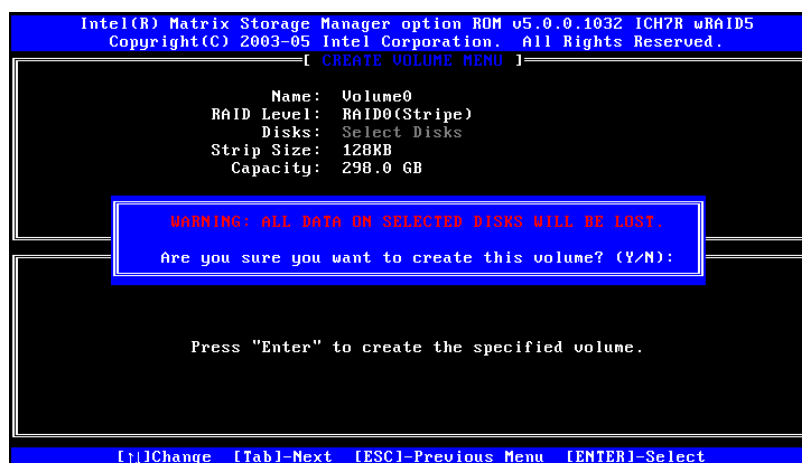


Figure E-7: Create RAID Volume Verification

## E.4.2 Deleting a RAID Volume



### WARNING!

All data stored on the member drives of a RAID volume are destroyed during the RAID deletion process. Make sure any data to be saved has been moved or backed up before deleting a RAID volume.

**Step 1:** Select “Delete RAID Volume.” Use the arrow keys to highlight **Delete RAID Volume** and press **ENTER**. See Figure E-8.

```

Intel(R) Matrix Storage Manager option ROM v5.0.0.1032 ICH7R wRAID5
Copyright(C) 2003-05 Intel Corporation. All Rights Reserved.

[ MAIN MENU ]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit

[ DISK/VOLUME INFORMATION ]

RAID Volumes:
ID Name Level Strip Size Status Bootable
0 Volume0 RAID0(Stripe) 128KB 298.0GB Normal Yes

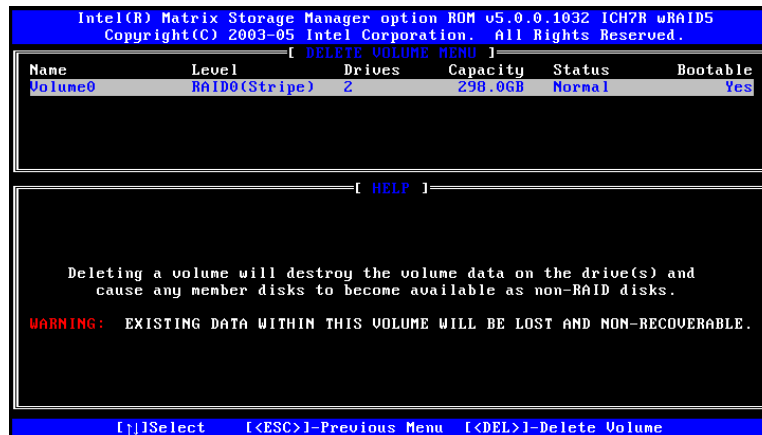
Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
2 Maxtor 6Y160M0 Y45TDYSE 152.7GB Member Disk(0)
3 WDC WD1600JD-75H WD-WCAL92193433 149.0GB Member Disk(0)

[↑]—Select [ESC]—Exit [ENTER]—Select Menu

```

Figure E-8: Delete RAID Volume Menu

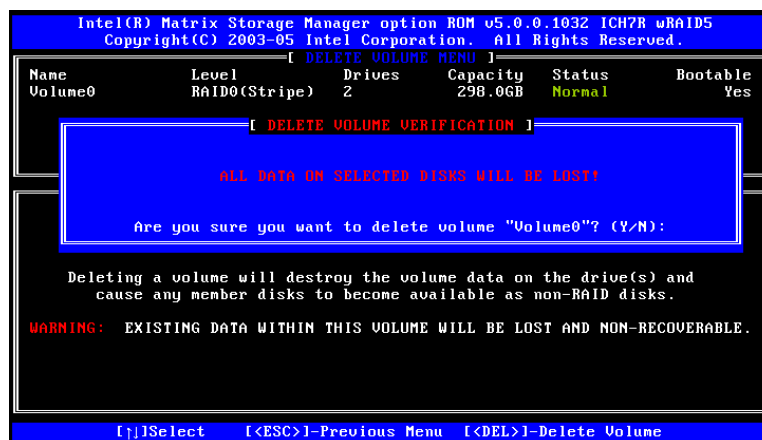
**Step 2: Select RAID Volume to be Deleted.** Use the arrow keys to highlight the RAID volume to be deleted and press **ENTER**. See Figure E-9.



**Figure E-9: Select RAID Volume to be Deleted**

**Step 3: Delete Volume Verification.** After reading the warning, press **Y** to delete the specified RAID volume, or **N** to return to the **Delete Volume** menu.

See Figure E-10.



**Figure E-10: Delete Volume Verification**

**Step 4: Non-RAID Disks.** After deleting the RAID volume, the disks belonging to the volume will be shown as non-RAID disks. See Figure E-11.

```

Intel(R) Matrix Storage Manager option ROM v5.0.0.1032 ICH7R wRAID5
Copyright(C) 2003-05 Intel Corporation. All Rights Reserved.

[ MAIN MENU ]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit

[ DISK/VOLUME INFORMATION ]

RAID Volumes:
None defined.

Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
2 Maxtor 6Y160M0 Y45TDYSE 152.7GB Non-RAID Disk
3 WDC WD1600JD-75H WD-WCAL92193433 149.0GB Non-RAID Disk

[↑] Select [ESC] Exit [ENTER] Select Menu

```

Figure E-11: Non-RAID Disks

### E.4.3 Resetting a Disk to Non-RAID



#### WARNING!

All data stored on the disk drive of a RAID volume is destroyed when resetting it to non-RAID. Make sure any data to be saved has been moved or backed up before resetting a disk to non-RAID.

**Step 1:** Select “Reset Disk to Non-RAID.” Use the arrow keys to highlight **Reset Disk to Non-RAID** and press **ENTER**. See Figure E-12.

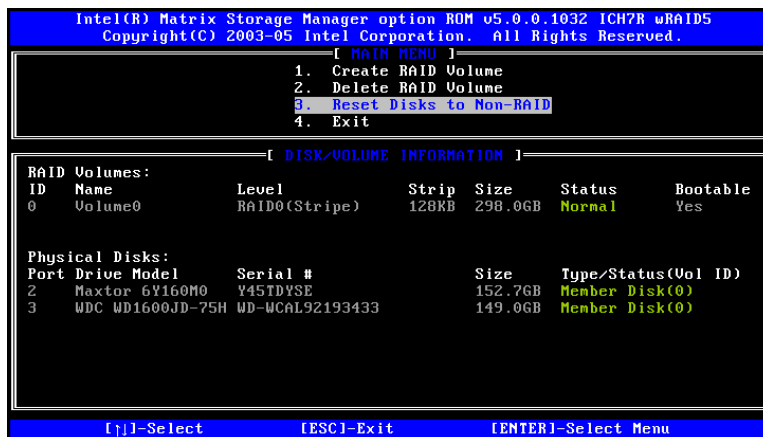


Figure E-12: Reset Disk to Non-RAID Menu

**Step 2:** Select Disks to Reset. Use the arrow keys to scroll through the disk drives and press **SPACE** to select which drives are to be reset as non-RAID. After all the disks to be reset have been chosen, press **ENTER**. See Figure E-13.

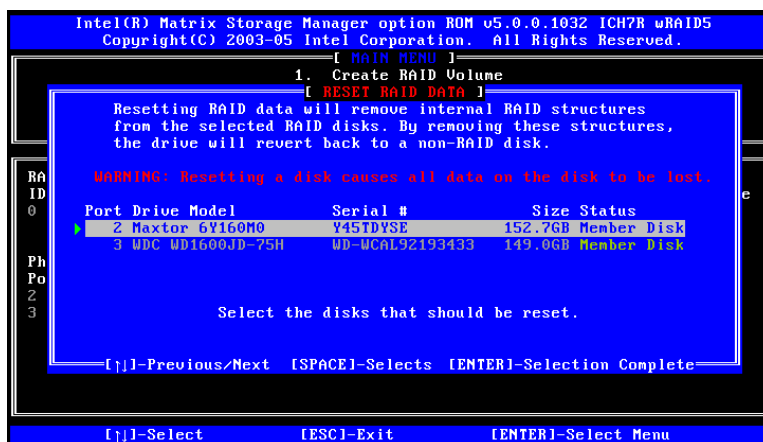


Figure E-13: Select Disk to Reset

**Step 3: Reset Disk Verification.** After reading the warning, press **Y** to reset the selected disks as non-RAID, or **N** to return to the **Reset RAID Data** menu.

See Figure E-14.

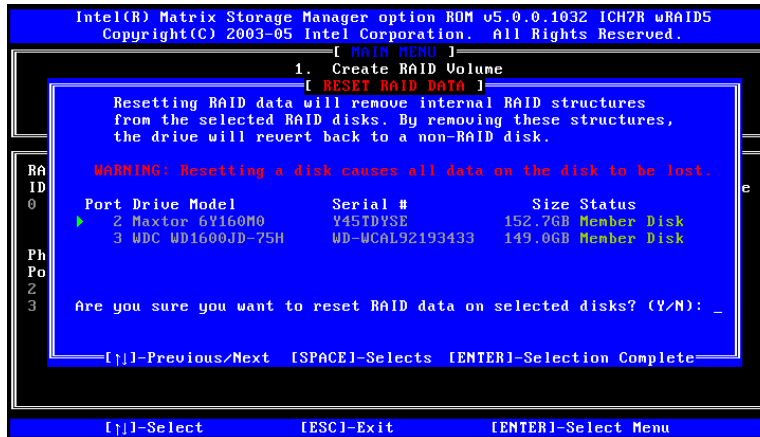


Figure E-14: Reset Disk Verification

**Step 4: Disk Drive and RAID Volume Status.** After the disk drives have been reset, the **Matrix Storage Manager Main** menu is shown indicating the status of the RAID volumes and disk drives. See Figure E-15.

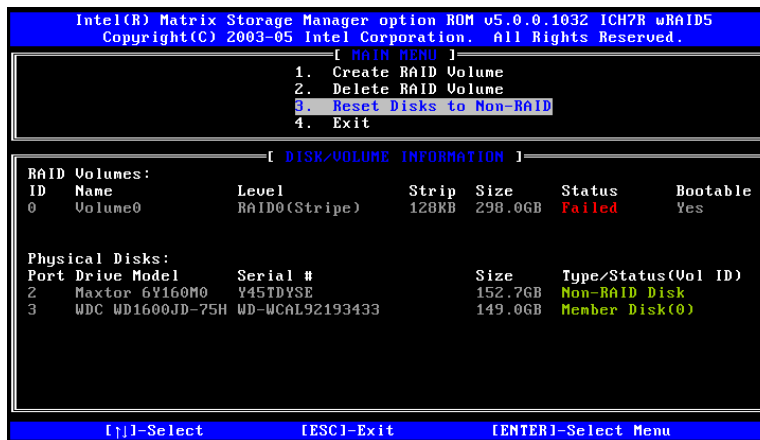


Figure E-15: Disk Drive and RAID Volume Status

## E.4.4 Exiting the Matrix Storage Manager

**Step 1:** Select “Exit.” Use the arrow keys to highlight **Exit** and press **ENTER**.

See Figure E-16.

```

Intel(R) Matrix Storage Manager option ROM v5.0.0.1032 ICH7R uRAID5
Copyright(C) 2003-05 Intel Corporation. All Rights Reserved.

[ MAIN MENU ]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit

[ DISK/VOLUME INFORMATION ]

RAID Volumes:
ID Name Level Strip Size Status Bootable
0 Volume0 RAID0(Stripe) 128KB 298.0GB Failed Yes

Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
2 Maxtor 6Y160M0 Y45TDYSE 152.7GB Non-RAID Disk
3 WDC WD1600JD-75H WD-WCAL92193433 149.0GB Member Disk(0)

[ ]-Select [ESC]-Exit [ENTER]-Select Menu

```

Figure E-16: Exit Menu

**Step 2:** Exit Verification. Press **Y** to exit the **Matrix Storage Manager**, or **N** to return to the **Main** menu. See Figure E-17.

```

Intel(R) Matrix Storage Manager option ROM v5.0.0.1032 ICH7R uRAID5
Copyright(C) 2003-05 Intel Corporation. All Rights Reserved.

[ MAIN MENU ]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit

[ DISK/VOLUME INFORMATION ]

RAID Volumes:
ID Name [ CONFIRM EXIT ] Bootable
0 Vol Yes

Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
2 Maxtor 6Y160M0 Y45TDYSE 152.7GB Non-RAID Disk
3 WDC WD1600JD-75H WD-WCAL92193433 149.0GB Member Disk(0)

[ ]-Select [ESC]-Exit [ENTER]-Select Menu

```

Figure E-17: Exit Verification



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



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