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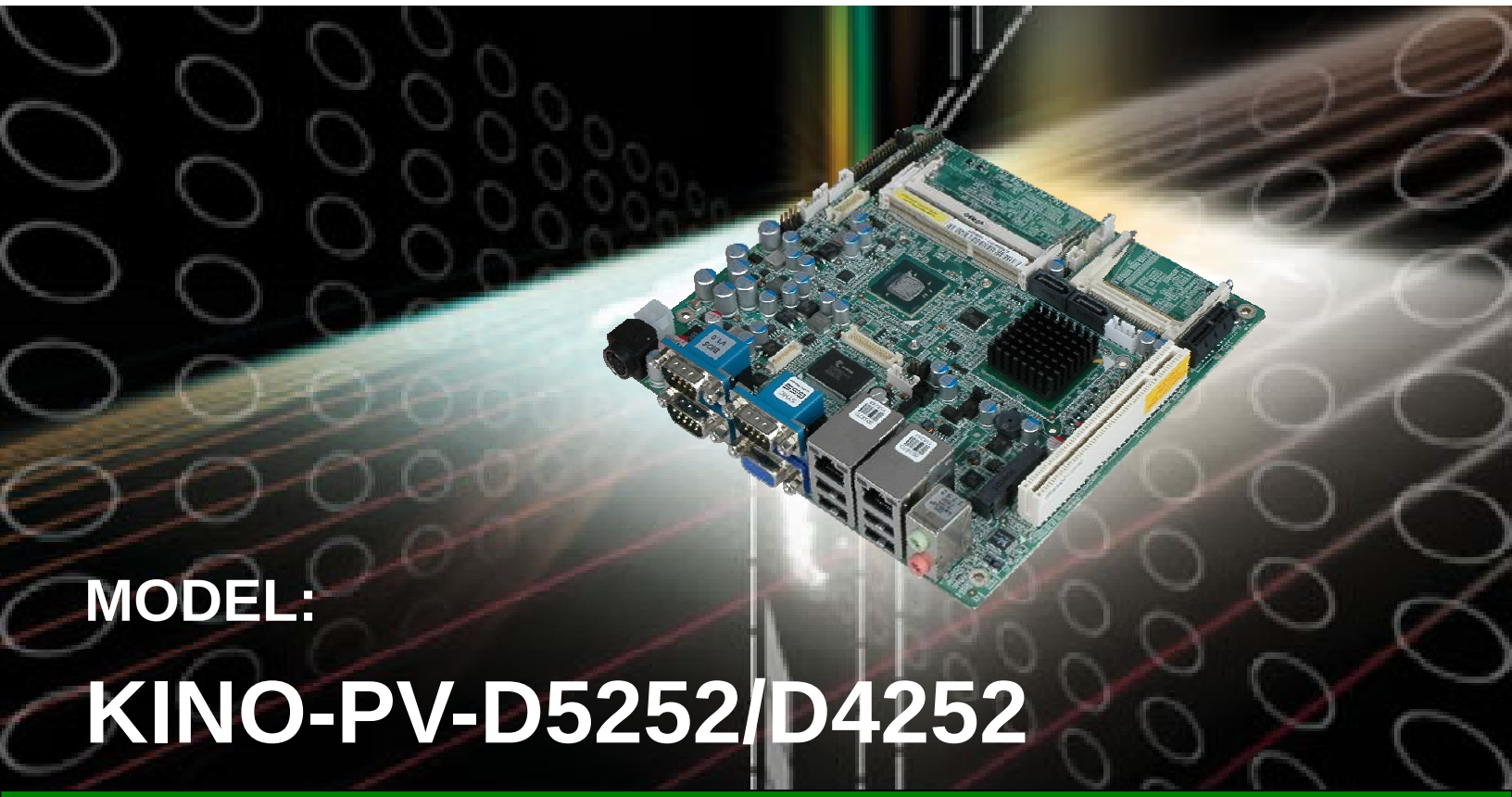
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IEI Integration Corp.



MODEL:

# KINO-PV-D5252/D4252

## Mini ITX SBC with Intel® Atom™ Processor D425/D525, DDR3

## VGA, Dual LVDS, Dual GbE LAN, USB 2.0, SATA 3Gb/s, RoHS

# User Manual

**Rev. 1.11 – November 6, 2015**

RoHS Lead Free

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# Revision

| Date | Version | Changes |
|---|---|---|
| November 6, 2015 | 1.11 | Changed J2 to JP4 |
| May 29, 2015 | 1.10 | Updated for R11 version |
| January 17, 2012 | 1.02 | Minor update to Figure 1.4 Data flow Block Diagram<br>Minor update to Figure 3-1: Connector and Jumper Locations<br>Updated Table D-1 Digital I/O Connector Pinouts |
| June 17, 2011 | 1.01 | Added KEY1 connector. Minor update to J_VLVDS1 and J_VLVDS2 jumper settings. |
| March 24, 2011 | 1.00 | Initial release |



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# Manual Conventions



**WARNING**

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously.



**CAUTION**

Cautionary messages should be heeded to help reduce the chance of losing data or damaging the product.



**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.



**HOT SURFACE**

This symbol indicates a hot surface that should not be touched without taking care.



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Chapter

1

# Introduction



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## 1.1 Introduction

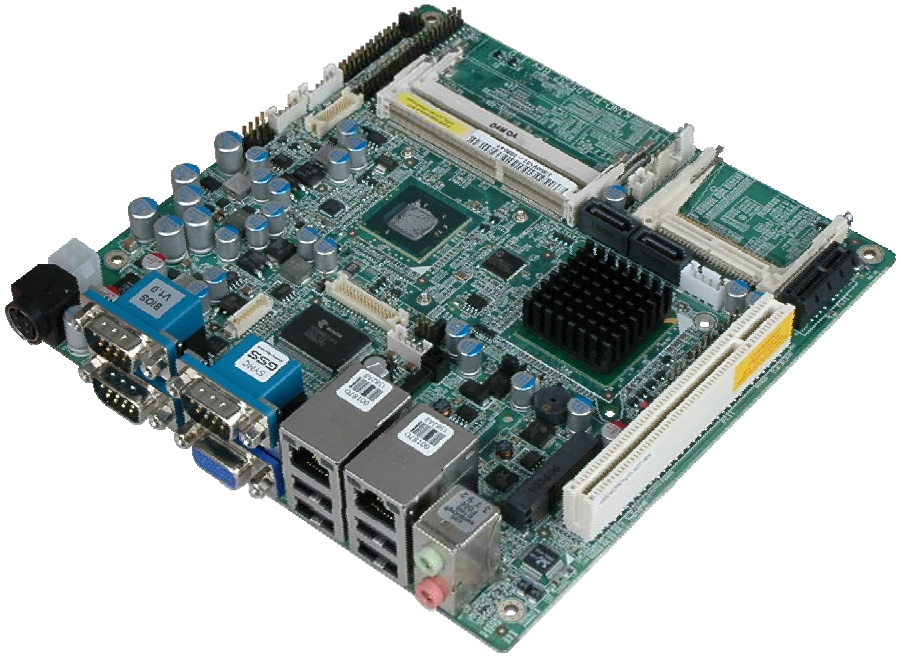


**Figure 1-1: KINO-PV-D5252/D4252**

The KINO-PV-D5252/D4252 Mini ITX motherboard is an Intel® Atom™ processor D525 or D425 platform. Up to two 4.0 GB 800 MHz DDR3 SDRAM SO-DIMMs are supported by the KINO-PV-D5252/D4252.

The integrated Intel® ICH8M Chipset supports two GbE LAN ports through two Realtek RTL8111E Ethernet controllers (with ASF 2.0 support on LAN1). The KINO-PV-D5252/D4252 also supports two SATA 3Gb/s drives and provides 5 V SATA power.

The KINO-PV-D5252/D4252 supports an integrated GMA 3150 graphics card with a graphic core speed of 400MHz. Eight USB 2.0 channels, one PCI slot, one PCIe Mini socket, one CompactFlash® connector and one PCIe x1 slot provide flexible expansion options. High Definition Audio (HDA) support ensures HDA devices can be easily implemented on the KINO-PV-D5252/D4252. Serial device connectivity is provided by three external RS-232 ports, two internal RS-232 ports and one internal RS-232/422/485 connector.



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## 1.2 Connectors

The connectors on the KINO-PV-D5252/D4252 are shown in the figure below.

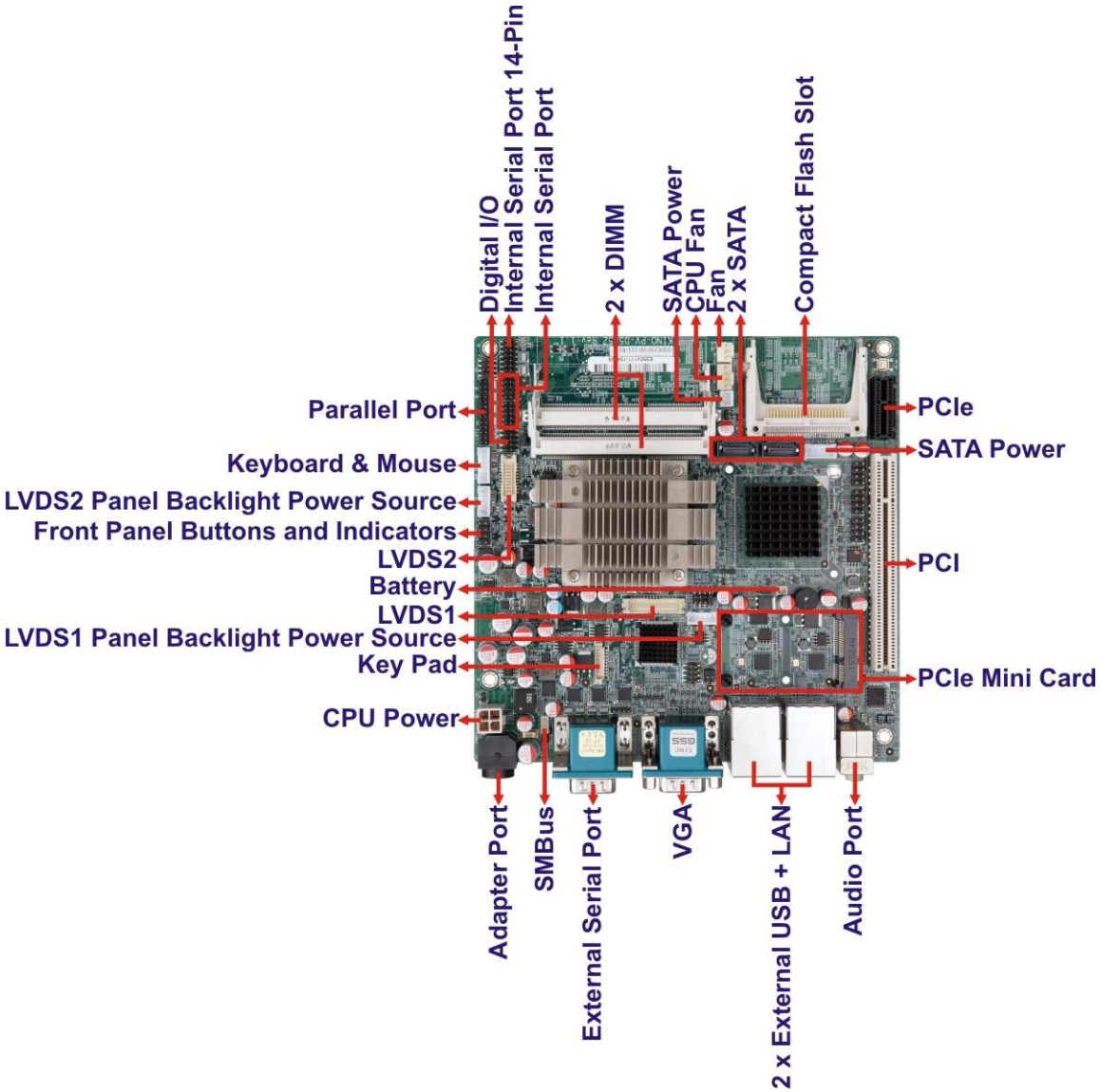



**Figure 1-2: Connectors**



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## 1.3 Dimensions

The dimensions of the board are listed below:

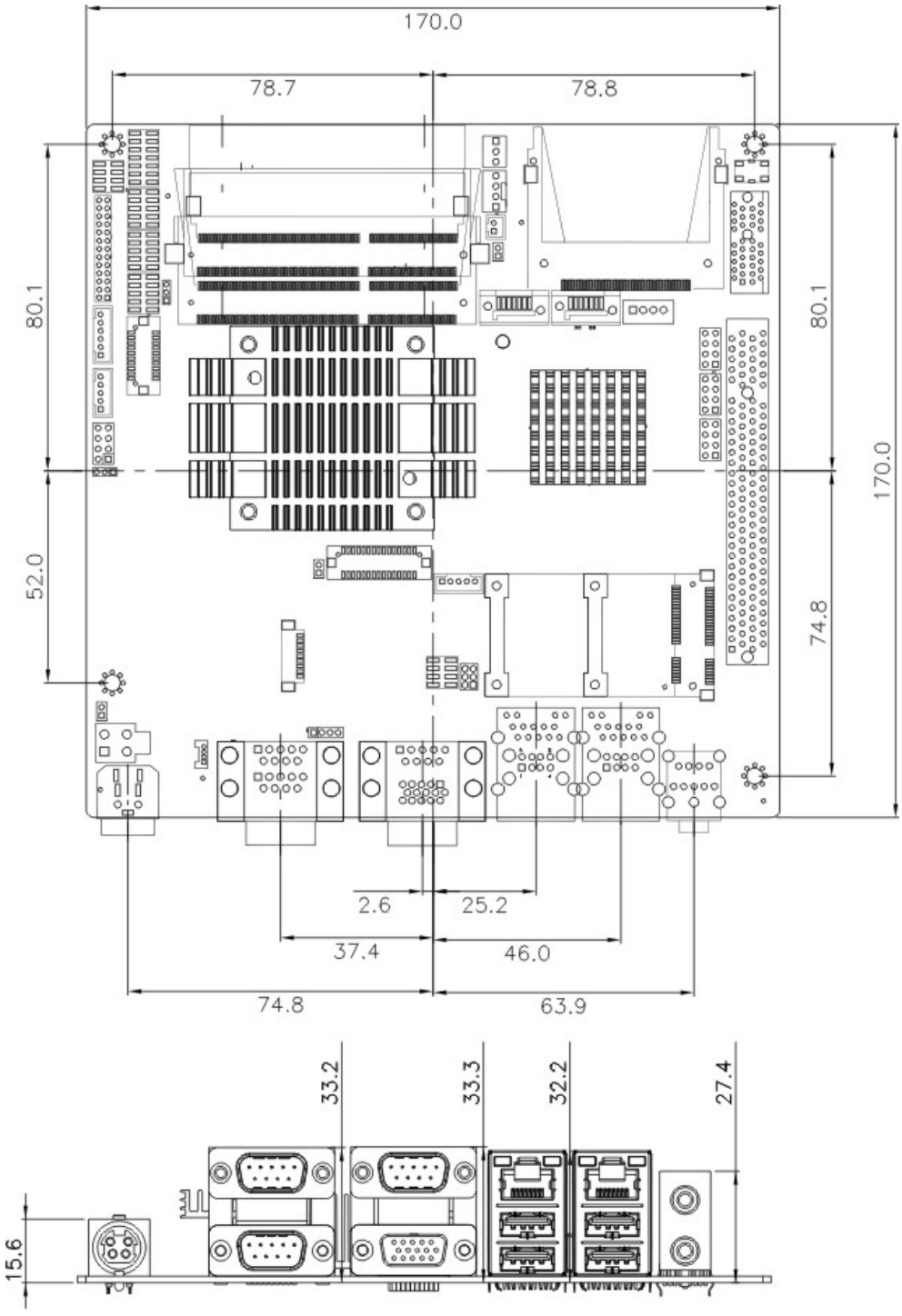



**Figure 1-3: KINO-PV-D5252/D4252 Dimensions (mm)**



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## 1.4 Data Flow

**Figure 1-4** 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.

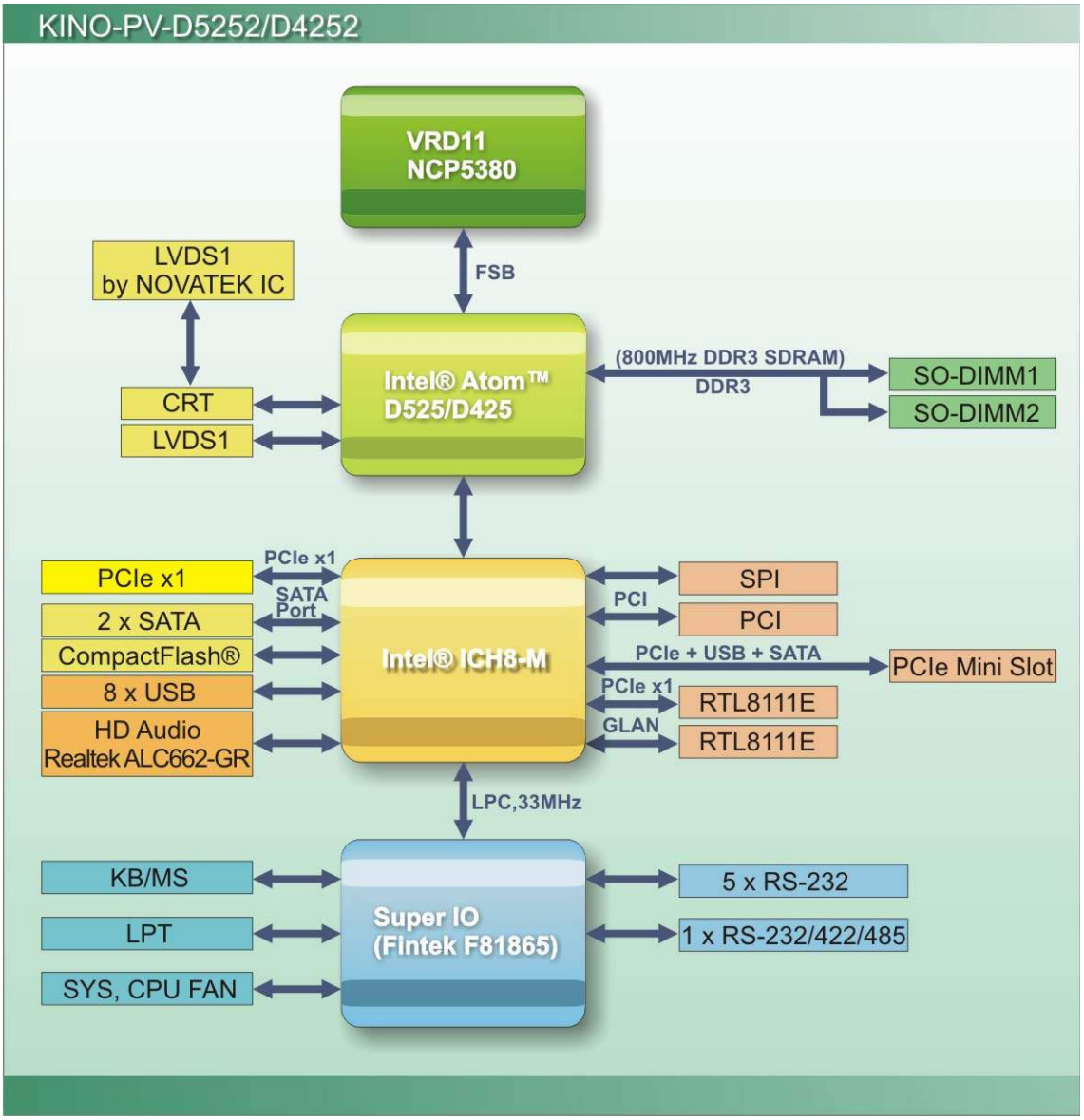



**Figure 1-4: Data Flow Block Diagram**



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## 1.5 Technical Specifications

KINO-PV-D5252/D4252 technical specifications are listed in table below.

| Specification | KINO-PV-D5252/D4252 |
|---|---|
| **Form Factor** | Mini ITX |
| **CPU Options** | Intel® Atom™ processor D525, 1.8 GHz/1MB L2 cache<br>Intel® Atom™ processor D425, 1.8 GHz/512KB L2 cache |
| **Express Chipset** | Intel® ICH8M |
| **Graphics Engine** | GMA 3150 |
| **Memory** | Two 204-pin SO-DIMM sockets support 800 MHz 4.0 GB (max.) DDR3 SDRAM SO-DIMM |
| **Audio** | Realtek ALC662-GR HD audio codec |
| **LAN** | Two Realtek RTL8111E PCIe GbE controllers with ASF 2.0 support on LAN1 |
| **Super I/O** | Fintek F81865 |
| **Digital I/O** | 8-bit digital I/O |
| **BIOS** | UEFI BIOS label |
| **SMBus** | One 4-pin wafer connector |
| **Watchdog Timer** | Software programmable supports 1~255 sec. system reset |
| **Expansion** | |
| **PCIe** | One PCIe Mini slot (PCIe + USB + SATA signal)<br>One PCIe x1 slot |
| **PCI** | One PCI slot |
| **I/O Interface Connectors** | |
| **Display Ports** | Analog CRT, resolution support up to 2048x1536<br>CRT hot plug supported<br>18-bit single-channel LVDS, resolution support up to WXGA 1366x768 or XGA 1024x768<br>24-bit dual-channel LVDS by Novatek NT68660BUFG, resolution support up to 1920x1080 |



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| Specification | KINO-PV-D5252/D4252 |
|---|---|
| **Ethernet** | Two RJ-45 GbE ports by Realtek RTL8111E with ASF 2.0 support on LAN1 |
| **Serial Ports** | Three RS-232 via Rear I/O<br>Two RS-232 via four 10-pin headers<br>One RS-232/422/485 via 14–pin header |
| **USB 2.0/1.1 Ports** | Four external USB ports<br>Four internal USB ports via 8-pin headers |
| **Parallel Ports** | One LPT connector via 26-pin header |
| **TPM** | INFINEON SLB9635TT1.2 (Optional) |
| **Storage** | |
| **Serial ATA** | Two SATA 3.0 Gb/s connectors<br>One 5 V SATA power connector<br>One 5 V/12 V SATA power connector |
| **Environmental and Power Specifications** | |
| **Power Supply** | 12 V only<br>ATX and AT power supported |
| **Power Connector** | One external DIN 4-pin DC jack<br>One internal 4-pin power connector |
| **Power Consumption** | 12 V @ 1.95A (Intel® Atom™ D525 1.8GHz with DDR3 1GB*2) |
| **Operating Temperature** | -20°C ~ 60°C with free air, -20°C ~ 70°C with force air for D525 processor<br>-20°C ~ 65°C with free air, -20°C ~ 70°C with force air for D425 processor |
| **Humidity** | 5% ~ 95% (non-condensing) |
| **Physical Specifications** | |
| **Dimensions** | 170 mm x 170 mm |
| **Weight GW/NW** | 800 g / 340 g |

**Table 1-1: Technical Specifications**



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Chapter

2

# Unpacking



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## 2.1 Anti-static Precautions



**WARNING!**

Static electricity can destroy certain electronics. Make sure to follow the ESD precautions to prevent damage to the product, and injury to the user.

Make sure to adhere to the following guidelines:

- ***Wear an anti-static wristband***: Wearing an anti-static wristband can prevent electrostatic discharge.
- ***Self-grounding***: Touch a grounded conductor every few minutes to discharge any excess static buildup.
- ***Use an anti-static pad***: When configuring any circuit board, place it on an anti-static mat.
- ***Only handle the edges of the PCB***: Don't touch the surface of the motherboard. Hold the motherboard by the edges when handling.

## 2.2 Unpacking Precautions

When the KINO-PV-D5252/D4252 is unpacked, please do the following:

- Follow the anti-static guidelines above.
- Make sure the packing box is facing upwards when opening.
- Make sure all the packing list items are present.



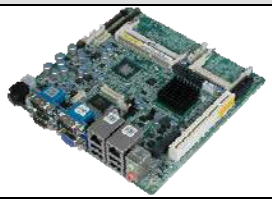
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## 2.3 Packing List

**NOTE:**

If any of the components listed in the checklist below are missing, do not proceed with the installation. Contact the IEI reseller or vendor the KINO-PV-D5252/D4252 was purchased from or contact an IEI sales representative directly by sending an email to sales@ieiworld.com.

The KINO-PV-D5252/D4252 is shipped with the following components:

| Quantity | Item and Part Number | Image |
|---|---|---|
| 1 | KINO-PV-D5252-L2-R11/KINO-PV-D4252-R11 single board computer |  |
| 1 | SATA and 5 V power cable (**P/N:** 32801-000100-300-RS) |  |
| 1 | RS-232 cable with bracket (**P/N**: 19800-000300-100-RS) |  |
| 1 | I/O shielding (**P/N**: 45014-0024C0-01-RS) |  |
| 1 | Mini jumper pack (2.0mm) (**P/N**: 33100-000033-RS) |  |
| 1 | Utility CD |  |
| 1 | One Key Recovery CD |  |



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| | | |
|---|---|---|
| 1 | Quick Installation Guide |  |

### 2.3.1 Optional Items

The following are optional components which may be separately purchased:

| Item and Part Number | Image |
|---|---|
| LPT cable<br>(**P/N**: 32200-015100-RS) |  |
| KB/MS PS/2 Y-cable<br>(**P/N**: 32000-0023800-RS) |  |
| 4-pin (2x2) to 4-pin (1x4) DC power cable with terminal block<br>(**P/N**: 32100-192900-RS) |  |
| Dual RS-232/422/485 cable with bracket<br>(**P/N**: 19800-004300-100-RS) |  |
| Dual-port USB cable with bracket<br>(**P/N**: 19800-003100-300-RS) |  |
| CPU fan<br>(**P/N**: 19FFD124010HB2A7-000001-RS) |  |
| Heat sink (30 mm higher)<br>(**P/N**: 34000-000510-RS) |  |
| PCIe x1 riser card<br>(**P/N**: PCIER-K101L-R10) |  |



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Chapter

3

# Connectors



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## 3.1 Peripheral Interface Connectors

This chapter details all the jumpers and connectors.

### 3.1.1 KINO-PV-D5252/D4252 Layout

The figures below show all the connectors and jumpers.

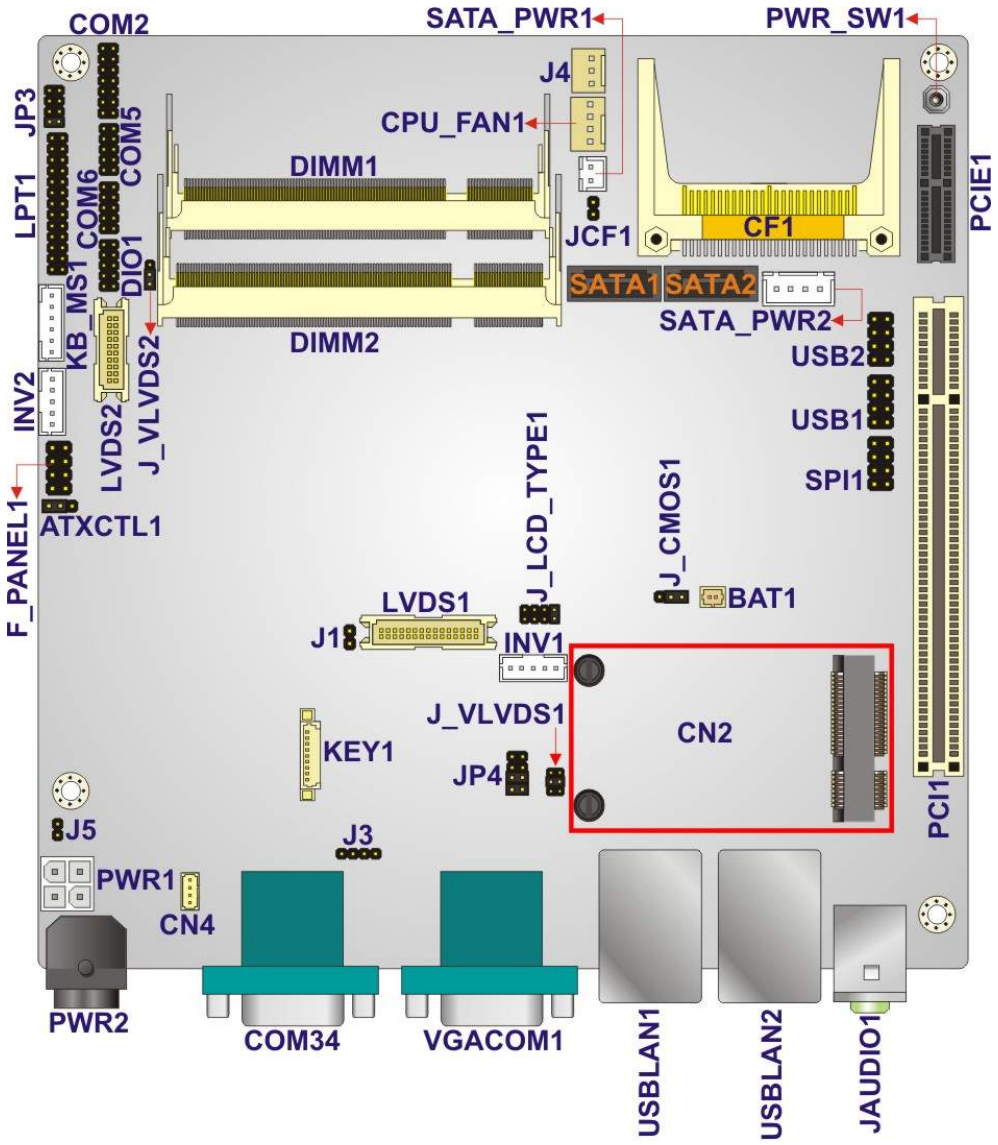



**Figure 3-1: Connector and Jumper Locations**



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### 3.1.2 Peripheral Interface Connectors

The table below lists all the connectors on the board.

| Connector | Type | Label |
|---|---|---|
| 12 V Power connector | 4-pin connector | PWR2 |
| Battery connector | 2-pin wafer | BAT1 |
| CompactFlash® slot | 50-pin header | CF1 |
| Digital I/O connector | 10-pin header | DIO1 |
| Fan connector (CPU) | 4-pin wafer | CPU_FAN1 |
| Fan connector | 3-pin header | J4 |
| Flash SPI ROM | 8-pin header | SPI1 |
| Front panel connector | 8-pin header | F_PANEL1 |
| Keyboard and mouse connector | 6-pin wafer | KB_MS1 |
| Keypad connector | 9-pin wafer | KEY1 |
| LVDS1 connector | 30-pin crimp | LVDS1 |
| LVDS1 Backlight Inverter connector | 5-pin wafer | INV1 |
| LVDS2 connector | 20-pin crimp | LVDS2 |
| LVDS2 Backlight Inverter connector | 5-pin wafer | INV2 |
| Parallel port connector | 26-pin header | LPT1 |
| PCIe Mini card slot | PCIe Mini card slot | CN2 |
| Serial ATA (SATA) drive connector | 7-pin SATA | SATA1, SATA2 |
| SATA power connector | 2-pin wafer, 4-pin wafer | SATA_PWR1, SATA_PWR2 |
| Serial port connector (RS-232) | 10-pin header | COM5, COM6 |
| Serial port connector (RS-232) | 14-pin header | COM2 |
| SMBus connector | 4-pin wafer | CN4 |
| USB connector | 8-pin header | USB1, USB2 |

**Table 3-1: Peripheral Interface Connectors**



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### 3.1.3 External Interface Panel Connectors

The table below lists the connectors on the external I/O panel.

| Connector | Type | Label |
|---|---|---|
| Audio connector | Line-out, Mic | JAUDIO1 |
| Ethernet and USB connector | RJ-45 | USBLAN1, USBLAN2 |
| Power connector | 5-pin connector | PWR1 |
| Serial port connector | 9-pin male | COM1, COM3, COM4 |
| VGA port connector | 15-pin connector | VGACOM1 |

**Table 3-2: Rear Panel Connectors**

## 3.2 Internal Peripheral Connectors

The section describes all of the connectors on the KINO-PV-D5252/D4252.

### 3.2.1 12V Power Connector

**CN Label:** **PWR2**

**CN Type:** 4-pin Molex power connector (1x4), p=4.2mm

**CN Location:** See Figure 3-2

**CN Pinouts:** See Table 3-3

The connector supports the 12V power supply.



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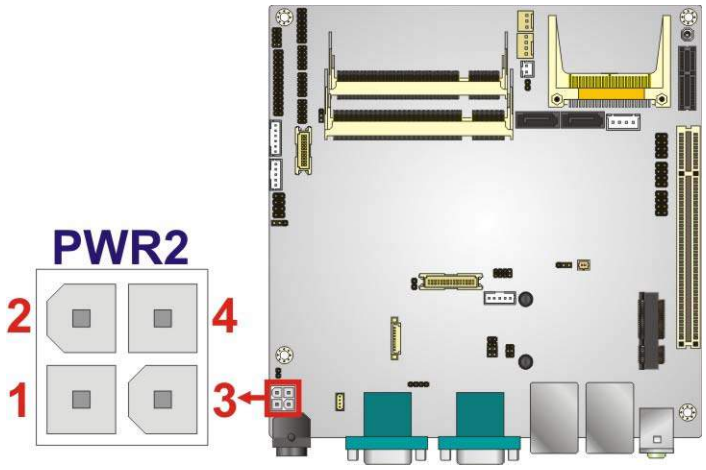



**Figure 3-2: 12 V Power Connector Location**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | GND | 2 | GND |
| 3 | +12V | 4 | +12V |

**Table 3-3: 12 V Power Connector Pinouts**

### 3.2.2 Battery Connector

**CAUTION:**

Risk of explosion if battery is replaced by an incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

**CN Label:** **BAT1**

**CN Type:** 2-pin wafer, p=1.25mm

**CN Location:** See **Figure 3-3**

**CN Pinouts:** See **Table 3-4**

This is connected to the system battery. The battery provides power to the system clock to retain the time when power is turned off.



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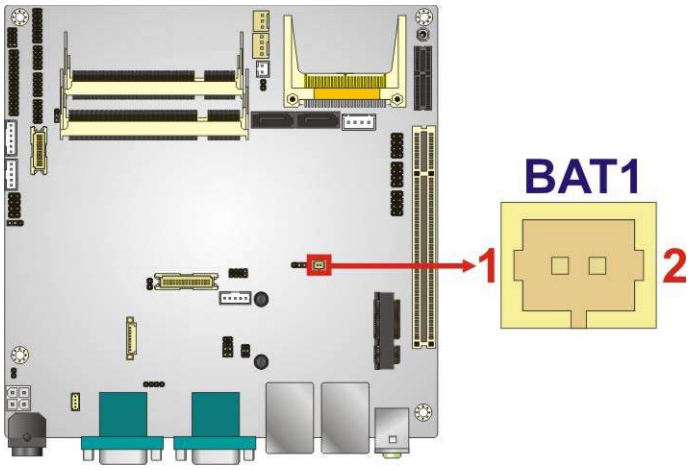



**Figure 3-3: Battery Connector Location**

| Pin | Description |
|---|---|
| 1 | VCC_BAT |
| 3 | GND |

**Table 3-4: Battery Connector Pinouts**

### 3.2.3 CompactFlash® Slot

**CN Label:** **CF1**

**CN Type:** CompactFlash® card slot

**CN Location:** See **Figure 3-4**

**CN Pinouts:** See **Table 3-5**

A CompactFlash® Type I/II card can be used in this slot.



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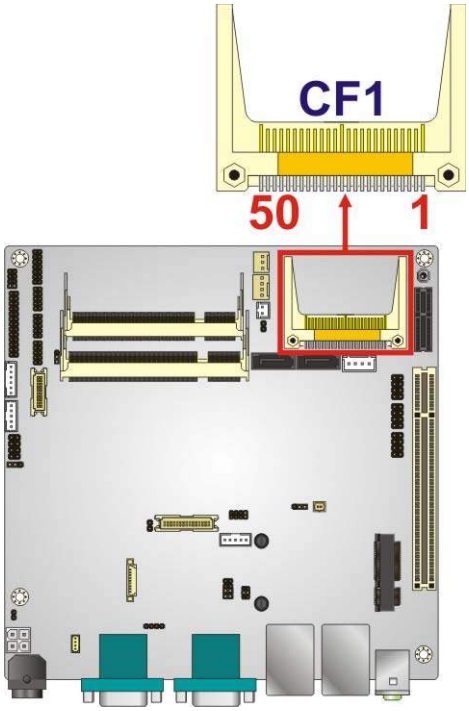



**Figure 3-4: CompactFlash® Slot Location**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | GND | 26 | CD1# |
| 2 | D3 | 27 | D11 |
| 3 | D4 | 28 | D12 |
| 4 | D5 | 29 | D13 |
| 5 | D6 | 30 | D14 |
| 6 | D7 | 31 | D15 |
| 7 | CE# | 32 | CE2# |
| 8 | A10 | 33 | VS1# |
| 9 | OE# | 34 | IOR# |
| 10 | A9 | 35 | IOW# |
| 11 | A8 | 36 | WE# |
| 12 | A7 | 37 | IRQ |
| 13 | VCC | 38 | VCC |
| 14 | A6 | 39 | CSEL# |
| 15 | A5 | 40 | VS2# |
| 16 | A4 | 41 | RESET# |



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| Pin | Description | Pin | Description |
|---|---|---|---|
| 17 | A3 | 42 | WAIT# |
| 18 | A2 | 43 | INPACK# |
| 19 | A1 | 44 | REG# |
| 20 | A0 | 45 | BVD2 |
| 21 | D0 | 46 | BVD1 |
| 22 | D1 | 47 | D8 |
| 23 | D2 | 48 | D9 |
| 24 | IOCS16# | 49 | D10 |
| 25 | CD2# | 50 | GND2 |

**Table 3-5: CompactFlash® Slot Pinouts**

### 3.2.4 Digital I/O Connector

**CN Label:** **DIO1**

**CN Type:** 10-pin header, p=2 mm

**CN Location:** See **Figure 3-5**

**CN Pinouts:** See **Table 3-6**

The digital I/O connector provides programmable input and output for external devices. The digital I/O provides 4-bit output and 4-bit input.

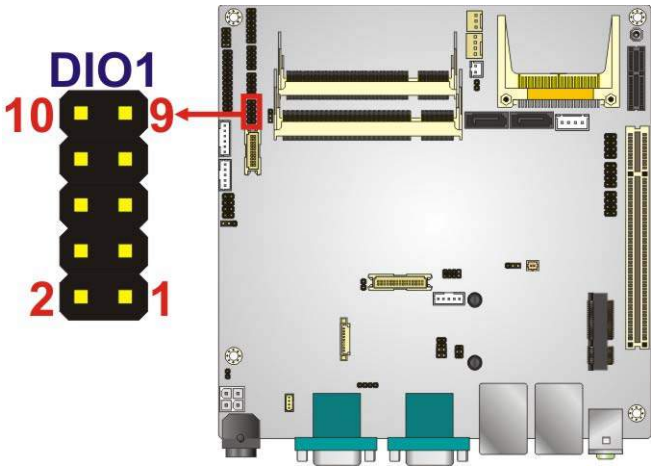



**Figure 3-5: Digital I/O Connector Locations**



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| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | Ground | 2 | VCC5 |
| 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 3-6: Digital I/O Connector Pinouts**

### 3.2.5 Fan Connector (CPU)

**CN Label:** **CPU_FAN1**

**CN Type:** 4-pin wafer, p=2.54 mm

**CN Location:** See **Figure 3-6**

**CN Pinouts:** See **Table 3-7**

The fan connector attaches to a CPU cooling fan.

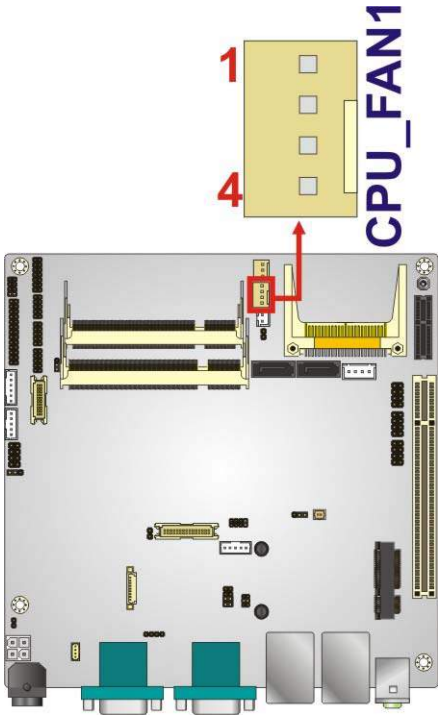



**Figure 3-6: CPU Fan Connector Location**



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| Pin | Description |
|---|---|
| 1 | GND |
| 2 | VCC12 |
| 3 | FANIN1 |
| 4 | FANOUT1 |

**Table 3-7: CPU Fan Connector Pinouts**

### 3.2.6 Fan Connector

**CN Label:** **J4**

**CN Type:** 3-pin header, p=2.54 mm

**CN Location:** See **Figure 3-7**

**CN Pinouts:** See **Table 3-8**

The fan connector attaches to a cooling fan.

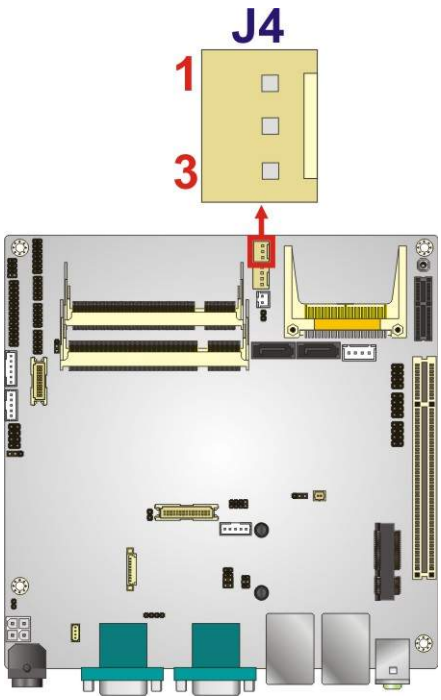



**Figure 3-7: Fan Connector Location**

| Pin | Description |
|---|---|
| 1 | FANIO1 |



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| Pin | Description |
|---|---|
| 2 | +12V (PWM) |
| 3 | GND |

**Table 3-8: Fan Connector Pinouts**

### 3.2.7 Flash SPI ROM

**CN Label:** **SPI1**

**CN Type:** 8-pin header, p=2.54 mm

**CN Location:** See **Figure 3-8**

**CN Pinouts:** See **Table 3-9**

The connector provides a Flash SPI BIOS update.

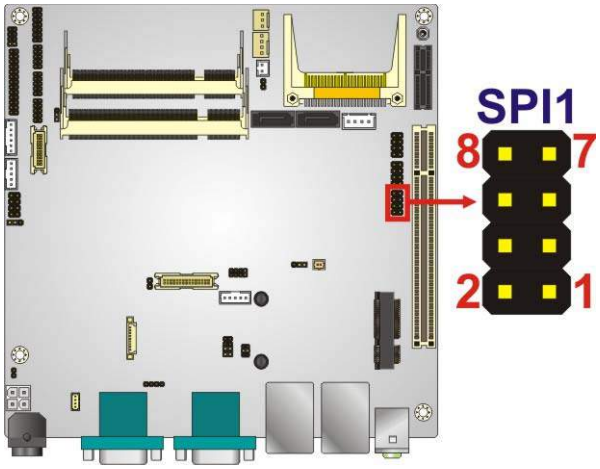



**Figure 3-8: Flash SPI ROM Connector Location**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | SPI_VCC | 2 | GND |
| 3 | SPI_CS | 4 | SPI_CLK |
| 5 | SPI_SO | 6 | SPI_SI |
| 7 | NC | 8 | NC |

**Table 3-9: SPI Flash Connector Pinouts**



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### 3.2.8 Front Panel Connector

| | |
|---|---|
| **CN Label:** | **F_PANEL1** |
| **CN Type:** | 8-pin header, p=2.54 mm |
| **CN Location:** | See Figure 3-9 |
| **CN Pinouts:** | See Table 3-10 |

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

- Power button
- Reset
- Power LED
- HDD LED

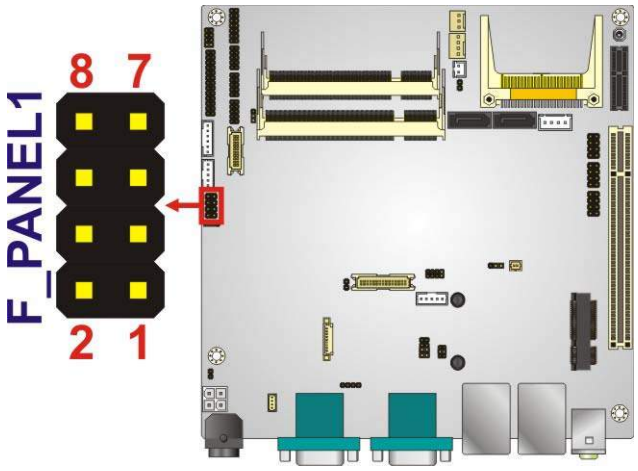



**Figure 3-9: Front Panel Connector Location**

| FUNCTION | PIN | DESCRIPTION | FUNCTION | PIN | DESCRIPTION |
|---|---|---|---|---|---|
| Power Button | 1 | PWRBTSW- | Power LED | 2 | PWR_LED+ |
| | 3 | GND | | 4 | GND |
| HDD LED | 5 | VCC | Reset | 6 | PM_RESET |
| | 7 | -HDLED | | 8 | GND |

**Table 3-10: Front Panel Connector Pinouts**



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### 3.2.9 Keyboard/Mouse Connector

**CN Label:** **KB_MS1**

**CN Type:** 6-pin wafer, p=2 mm

**CN Location:** See **Figure 3-10**

**CN Pinouts:** See **Table 3-11**

The keyboard/mouse connector connects to a PS/2 Y-cable that can be connected to a PS/2 keyboard and mouse.

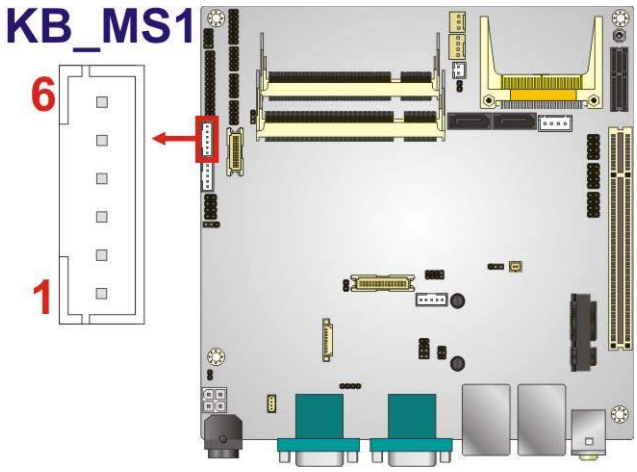



**Figure 3-10: Keyboard/Mouse Connector Location**

| Pin | Description |
|---|---|
| 1 | VCC |
| 2 | Mouse Data |
| 3 | Mouse Clock |
| 4 | Keyboard Data |
| 5 | Keyboard Clock |
| 6 | GND |

**Table 3-11: Keyboard/Mouse Connector Pinouts**

### 3.2.10 Keypad Connector

**CN Label:** **KEY1**

**CN Type:** 9-pin header, p=1.25 mm



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**CN Location:** See **Figure 3-11**

**CN Pinouts:** See **Table 3-12**

The keypad connector can be used to install a numeric keypad.

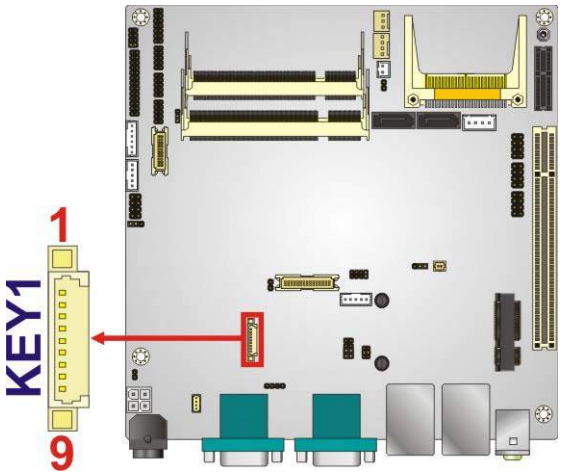



**Figure 3-11: Keypad Connector Location**

| Pin | Description |
|---|---|
| 1 | Red LED |
| 2 | NC |
| 3 | Green LED |
| 4 | Menu/Enter |
| 5 | Up |
| 6 | Down |
| 7 | Auto/Exit |
| 8 | Power |
| 9 | Ground |

**Table 3-12: Keypad Connector Pinouts**

### 3.2.11 LVDS1 Connector (For Intel® Atom™ processor D525 dual LVDS only)

**CN Label:** **LVDS1**

**CN Type:** 30-pin crimp, p=1.25 mm



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**CN Location:** See **Figure 3-12**

**CN Pinouts:** See **Table 3-13**

The LVDS connector is for an LCD panel connected to the board.

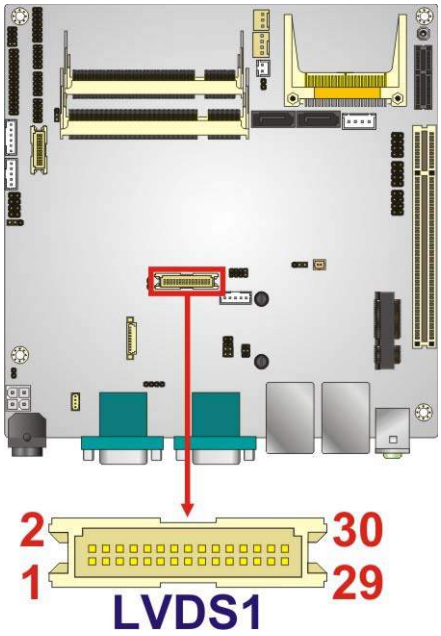



**Figure 3-12: LVDS1 Connector Location**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | GND | 2 | GND |
| 3 | LVDS_A_TX0-P | 4 | LVDS_A _TX0-N |
| 5 | LVDS_A_TX1-P | 6 | LVDS_A _TX1-N |
| 7 | LVDS_A_TX2-P | 8 | LVDS_A _TX2-N |
| 9 | LVDS_A_TXCLK-P | 10 | LVDS_A _TXCLK-N |
| 11 | LVDS_A_TX3-P | 12 | LVDS_A _TX3-N |
| 13 | GND | 14 | GND |
| 15 | LVDS_B _TX0-P | 16 | LVDS_B _TX0-N |
| 17 | LVDS_B _TX1-P | 18 | LVDS_B _TX1-N |
| 19 | LVDS_B _TX2-P | 20 | LVDS_B _TX2-N |
| 21 | LVDS_B _TXCLK-P | 22 | LVDS_B _TXCLK-N |
| 23 | LVDS_B _TX3-P | 24 | LVDS_B _TX3-N |
| 25 | GND | 26 | GND |



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| Pin | Description | Pin | Description |
|---|---|---|---|
| 27 | +LCD Vcc | 28 | +LCD Vcc |
| 29 | +LCD Vcc | 30 | +LCD Vcc |

**Table 3-13: LVDS1 Connector Pinouts**

### 3.2.12 LVDS1 Backlight Inverter Connector

**CN Label:** **INV1**

**CN Type:** 5-pin wafer, p=2 mm

**CN Location:** See **Figure 3-13**

**CN Pinouts:** See **Table 3-14**

The backlight inverter connector provides power to an LCD panel.

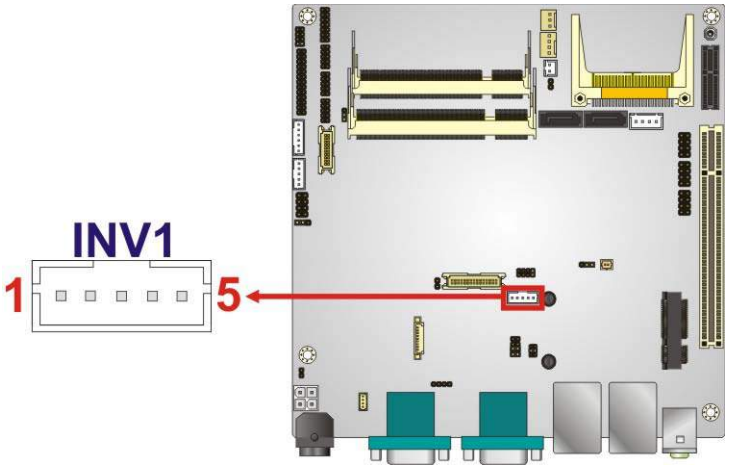



**Figure 3-13: LVDS1 Backlight Inverter Connector Location**

| Pin | Description |
|---|---|
| 1 | LCD_BKLTCTL |
| 2 | GROUND |
| 3 | +12V |
| 4 | GROUND |
| 5 | BACKLIGHT ENABLE |

**Table 3-14: LVDS1 Backlight Inverter Connector Pinouts**



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### 3.2.13 LVDS2 Connector

| | |
|---|---|
| **CN Label:** | **LVDS2** |
| **CN Type:** | 20-pin crimp, p=1.25 mm |
| **CN Location:** | See **Figure 3-12** |
| **CN Pinouts:** | See **Table 3-13** |

The LVDS connector is for an LCD panel connected to the board.

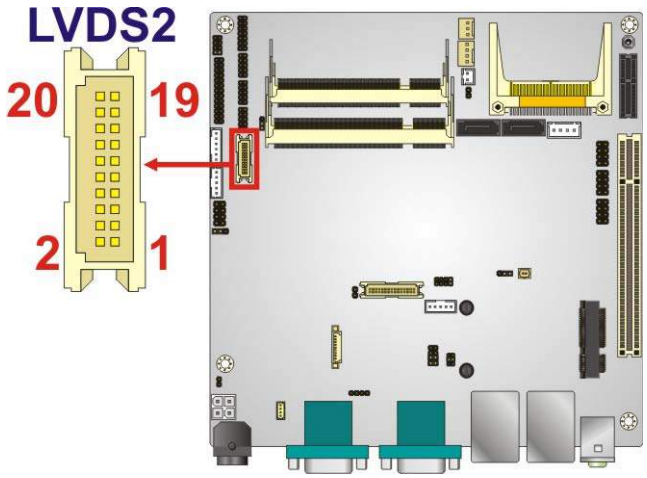



**Figure 3-14: LVDS2 Connector Location**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | GND1 | 2 | GND2 |
| 3 | A_Y0 | 4 | A_Y0# |
| 5 | A_Y1 | 6 | A_Y1# |
| 7 | A_Y2 | 8 | A_Y2# |
| 9 | A_CK | 10 | A_CK# |
| 11 | NC | 12 | NC |
| 13 | GND3 | 14 | GND4 |
| 15 | NC | 16 | NC |
| 17 | VCC_LCD | 18 | VCC_LCD |
| 19 | VCC_LCD | 20 | VCC_LCD |

**Table 3-15: LVDS2 Connector Pinouts**



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### 3.2.14 LVDS2 Backlight Inverter Connector

**CN Label:** **INV2**

**CN Type:** 5-pin wafer, p=2 mm

**CN Location:** See **Figure 3-13**

**CN Pinouts:** See **Table 3-14**

The backlight inverter connector provides power to an LCD panel.

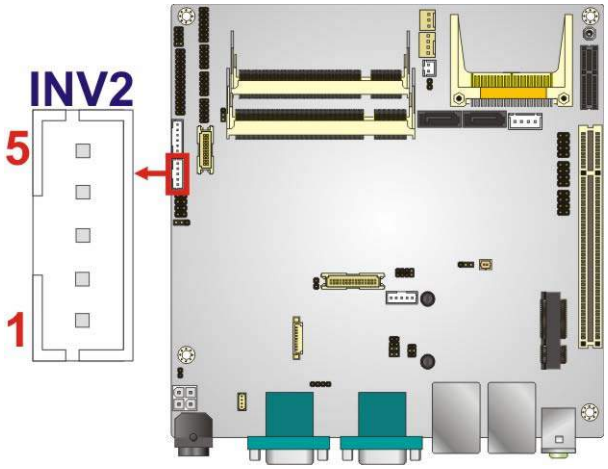



**Figure 3-15: LVDS2 Backlight Inverter Connector Location**

| Pin | Description |
|---|---|
| 1 | LCD_BKLTCTL |
| 2 | GROUND |
| 3 | +12V |
| 4 | GROUND |
| 5 | BACKLIGHT ENABLE |

**Table 3-16: LVDS2 Backlight Inverter Connector Pinouts**

### 3.2.15 Parallel Port Connector

**CN Label:** **LPT1**

**CN Type:** 26-pin box header, p=2.54 mm

**CN Location:** See **Figure 3-16**



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**CN Pinouts:** See **Table 3-17**

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

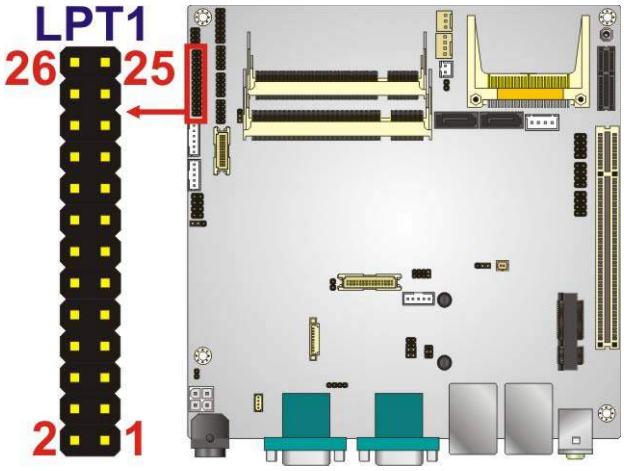



**Figure 3-16: Parallel Port Connector Location**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | STROBE# | 2 | AUTO FORM FEED # |
| 3 | DATA0 | 4 | ERROR# |
| 5 | DATA1 | 6 | INITIALIZE# |
| 7 | DATA2 | 8 | PRINTER SELECT LN# |
| 9 | DATA3 | 10 | GND |
| 11 | DATA4 | 12 | GND |
| 13 | DATA5 | 14 | GND |
| 15 | DATA6 | 16 | GND |
| 17 | DATA7 | 18 | GND |
| 19 | ACKNOWLEDGE# | 20 | GND |
| 21 | BUSY | 22 | GND |
| 23 | PAPER EMPTY | 24 | GND |
| 25 | PRINTER SELECT | 26 | NC |

**Table 3-17: Parallel Port Connector Pinouts**



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### 3.2.16 PCIe Mini Card Slot

**CN Label:** **CN2**

**CN Type:** PCIe Mini card slot

**CN Location:** See **Figure 3-17**

**CN Pinouts:** See **Table 3-18**

The PCIe Mini card slot is for installing PCIe Mini expansion cards.

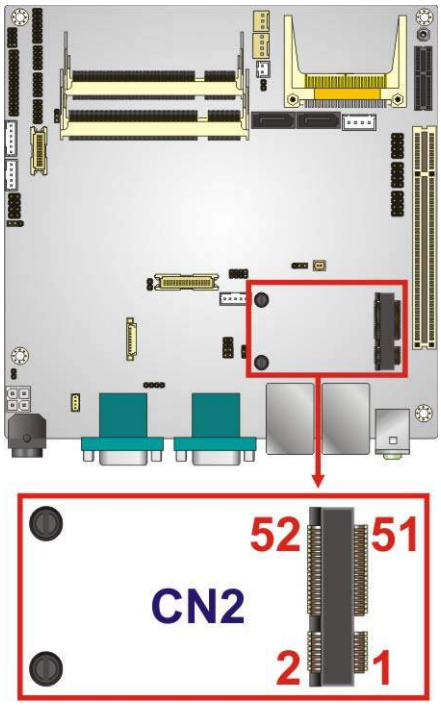



**Figure 3-17: PCIe Mini Card Slot Location**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | PCIE_WAKE# | 2 | VCC3 |
| 3 | N/C | 4 | GND |
| 5 | N/C | 6 | 1.5 V |
| 7 | CLKREQ# | 8 | LFRAME# |
| 9 | GND | 10 | LAD3 |
| 11 | CLK- | 12 | LAD2 |
| 13 | CLK+ | 14 | LAD1 |
| 15 | GND | 16 | LAD0 |



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| Pin | Description | Pin | Description |
|---|---|---|---|
| 17 | PCIRST# | 18 | GND |
| 19 | LPC | 20 | VCC3 |
| 21 | GND | 22 | PCIRST# |
| 23 | PERN2 | 24 | 3VDual |
| 25 | PERP2 | 26 | GND |
| 27 | GND | 28 | 1.5 V |
| 29 | GND | 30 | SMBCLK |
| 31 | PETN2 | 32 | SMBDATA |
| 33 | PETP2 | 34 | GND |
| 35 | GND | 36 | USBD- |
| 37 | GND | 38 | USBD+ |
| 39 | SATARXP | 40 | GND |
| 41 | SATARXN | 42 | N/C |
| 43 | N/C | 44 | RF_LINK# |
| 45 | SATATXN | 46 | BLUELED# |
| 47 | SATATXP | 48 | 1.5 V |
| 49 | GND | 50 | GND |
| 51 | N/C | 52 | VCC3 |

**Table 3-18: PCIe Mini Card Slot Pinouts**

### 3.2.17 SATA Drive Connectors

**CN Label:** **SATA1, SATA2**

**CN Type:** 7-pin SATA drive connectors

**CN Location:** See Figure 3-18

**CN Pinouts:** See Table 3-19

The two SATA 3Gb/s drive connectors are each connected to a SATA 3Gb/s drive. The SATA 3Gb/s drives transfer data at speeds as high as 3.0 Gb/s.



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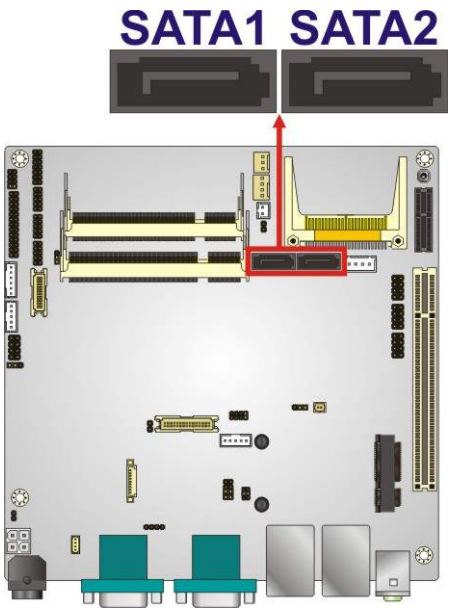



**Figure 3-18: SATA Drive Connector Locations**

| Pin | Description |
|---|---|
| 1 | GND |
| 2 | TX+ |
| 3 | TX- |
| 4 | GND |
| 5 | RX- |
| 6 | RX+ |
| 7 | GND |

**Table 3-19: SATA Drive Connector Pinouts**

### 3.2.18 SATA Power Connectors

**CN Label:** **SATA_PWR1**

**CN Type:** 2-pin wafer, p=2.54 mm

**CN Location:** See Figure 3-19

**CN Pinouts:** See Table 3-20

The SATA Power Connector provides power output to the SATA connectors.



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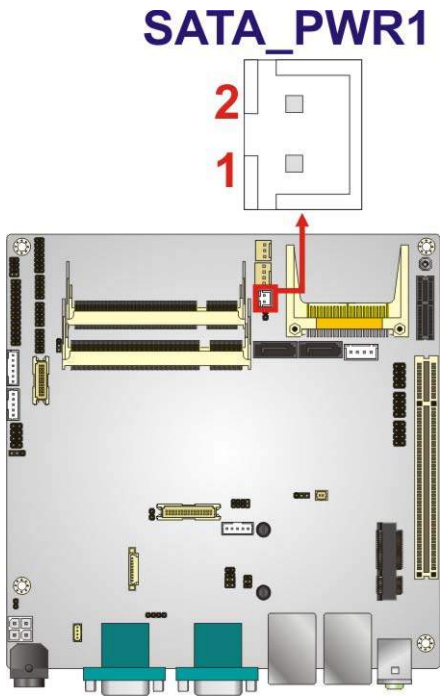



**Figure 3-19: SATA Power Connector Locations**

| Pin | Description |
|---|---|
| 1 | +5V |
| 2 | GND |

**Table 3-20: SATA Power Connector Pinouts**

**CN Label:** **SATA_PWR2**

**CN Type:** 4-pin wafer, p=2.5 mm

**CN Location:** See **Figure 3-20**

**CN Pinouts:** See **Table 3-21**

The SATA Power Connector provides power output to the SATA connectors.



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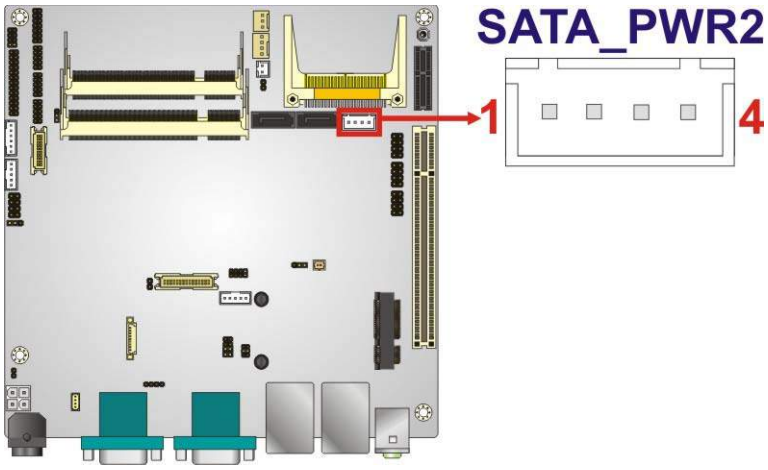



**Figure 3-20: SATA Power Connector Locations**

| Pin | Description |
|---|---|
| 1 | 12V |
| 2 | GND |
| 3 | GND |
| 4 | 5V |

**Table 3-21: SATA Power Connector Pinouts**

### 3.2.19 Serial Port Connectors (RS-232)

**CN Label:** **COM5, COM6**

**CN Type:** 10-pin header, p=2 mm

**CN Location:** See Figure 3-21

**CN Pinouts:** See Table 3-22

This connector provides RS-232 communications.



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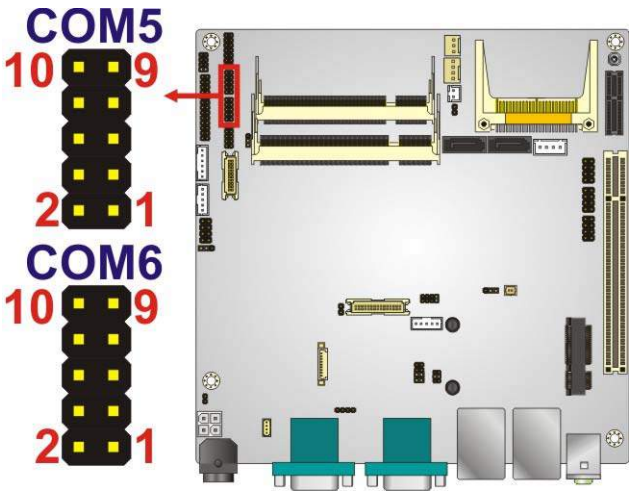



**Figure 3-21: Serial Port (COM5 and COM6) Connector Pinout Locations**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | Data Carrier Direct (DCD) | 2 | Data Set Ready (DSR) |
| 3 | Receive Data (RXD) | 4 | Request To Send (RTS) |
| 5 | Transmit Data (TXD) | 6 | Clear To Send (CTS) |
| 7 | Data Terminal Ready (DTR) | 8 | Ring Indicator (RI) |
| 9 | Ground (GND) | 10 | Ground (GND) |

**Table 3-22: Serial Port Connector Pinouts**

## 3.2.20 Serial Port Connector (RS-232)

**CN Label:** **COM2**

**CN Type:** 14-pin header, p=2 mm

**CN Location:** See **Figure 3-22**

**CN Pinouts:** See **Table 3-23**

Used for RS-232/422/485 communications.



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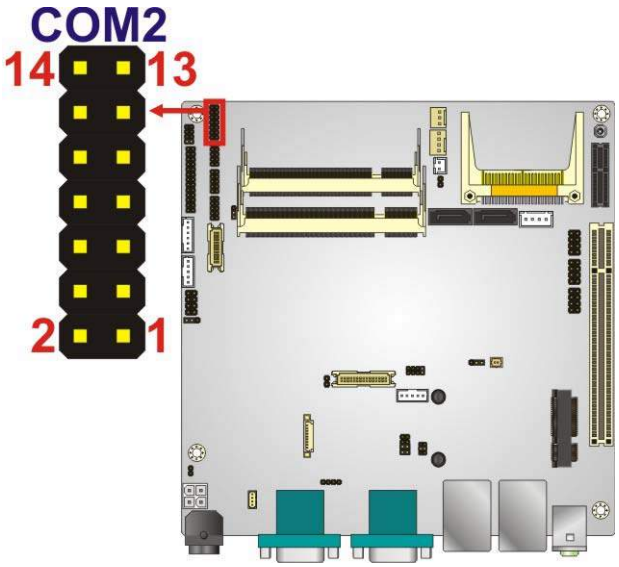



**Figure 3-22: Serial Port (COM2) Connector Location**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | DCD | 2 | DSR |
| 3 | RXD | 4 | RTS |
| 5 | TXD | 6 | CTS |
| 7 | DTR | 8 | RI |
| 9 | GND | 10 | N/C |
| 11 | TXD485+ | 12 | TXD485# |
| 13 | RXD485+ | 14 | RXD485# |

**Table 3-23: Serial Port (COM2) Connector Pinouts**

### 3.2.21 SMBus Connector

**CN Label:** **CN4**

**CN Type:** 4-pin wafer, p=1.25 mm

**CN Location:** See **Figure 3-23**

**CN Pinouts:** See **Table 3-24**

The SMBus Connector provides a connection to a SMBus (System Management Bus) device.



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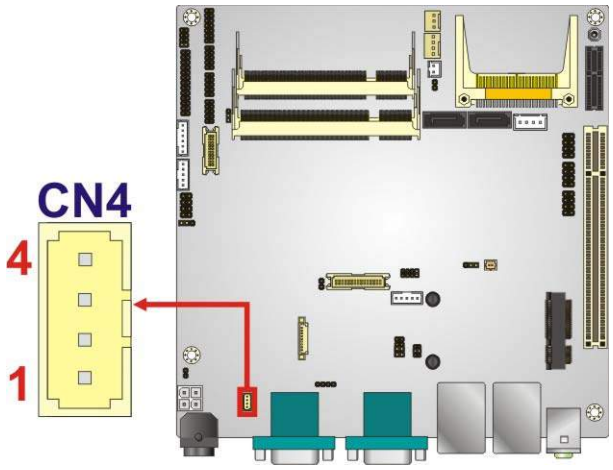



**Figure 3-23: SMBus Connector Locations**

| Pin | Description |
|---|---|
| 1 | Ground |
| 2 | SMB_DATA |
| 3 | SMB_CLK |
| 4 | +5V |

**Table 3-24: SMBus Connector Pinouts**

## 3.2.22 USB Connectors

**CN Label:** **USB1, USB2**

**CN Type:** 8-pin header, p=2.54 mm

**CN Location:** See **Figure 3-24**

**CN Pinouts:** See **Table 3-25**

The USB connectors connect to USB devices. Each pin header provides two USB ports.



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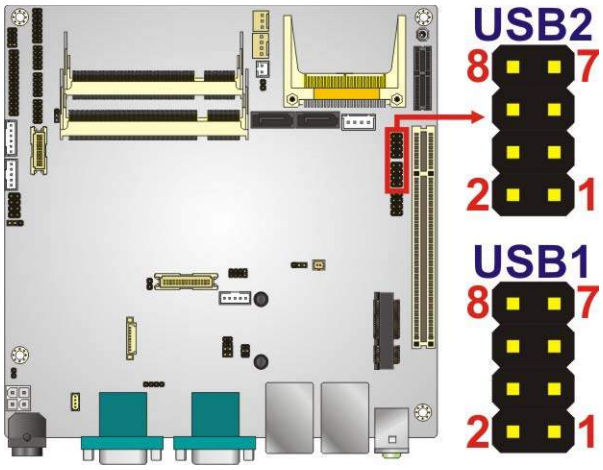



**Figure 3-24: USB Connector Pinout Locations**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | VCC | 2 | GND |
| 3 | DATA- | 4 | DATA+ |
| 5 | DATA+ | 6 | DATA- |
| 7 | GND | 8 | VCC |

**Table 3-25: USB Port Connector Pinouts**

## 3.3 External Peripheral Interface Connector Panel

**Figure 3-25** shows the KINO-PV-D5252/D4252 external peripheral interface connector (EPIC) panel. The KINO-PV-D5252/D4252 EPIC panel consists of the following:

- 4 x USB connectors
- 2 x Ethernet connector
- 1 x Line-out
- 1x Microphone
- 1 x VGA
- 3 x Serial port (RS-232)
- 1 x 12 V DC input



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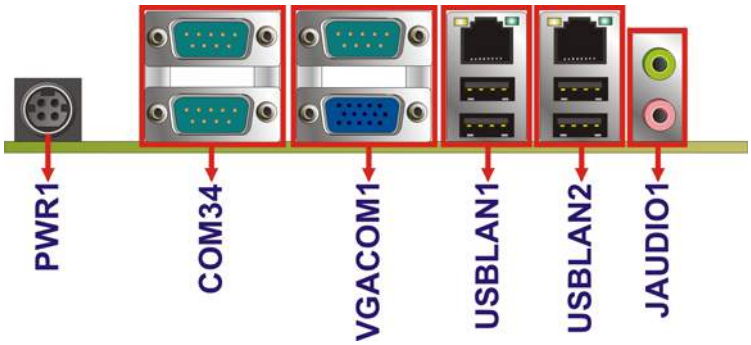



**Figure 3-25: KINO-PV-D5252/D4252 External Peripheral Interface Connector**

### 3.3.1 Audio Connector

| | |
|---|---|
| **CN Label:** | **JAUDIO1** |
| **CN Type:** | Line-out, Mic |
| **CN Location:** | See **Figure 3-25** |

The audio jacks connect to external audio devices.

- **Line-out port (Lime):** Connects to a headphone or a speaker. With multi-channel configurations, this port can also connect to front speakers.
- **Microphone (Pink):** Connects a microphone.




**Figure 3-26: Audio Connector**

### 3.3.2 Ethernet and USB Connector

| | |
|---|---|
| **CN Label:** | **USBLAN1, USBLAN2** |
| **CN Type:** | RJ-45 port, USB port |
| **CN Location:** | See **Figure 3-25** |
| **CN Pinouts:** | See **Table 3-26**, **Table 3-28** |



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The KINO-PV-D5252/D4252 is equipped with two built-in RJ-45 Ethernet controllers. The controllers can connect to the LAN through the RJ-45 LAN connectors.

| Pin | Description | Pin | Description |
|---|---|---|---|
| P1 | 3.3V supply | P2 | LAN signal differential pair (0+) |
| P3 | LAN signal differential pair (0-) | P4 | LAN signal differential pair (1+) |
| P5 | LAN signal differential pair (1-) | P6 | LAN signal differential pair (2+) |
| P7 | LAN signal differential pair (2-) | P8 | LAN signal differential pair (3+) |
| P9 | LAN signal differential pair (3-) | P10 | GND |
| P11 | Right LED signal(-) | P12 | Right LED signal(+) |
| P13 | Left LED signal(-) | P14 | Left LED signal(+) |
| 9 | Chassis GND | 10 | Chassis GND |
| 11 | Chassis GND | 12 | Chassis GND |
| 13 | Chassis GND | 14 | Chassis GND |
| 15 | Chassis GND | 16 | Chassis GND |

**Table 3-26: LAN Pinouts**

The RJ-45 Ethernet connectors have two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the speed. See **Table 3-27**.

| Speed LED | | Activity/Link LED | |
|---|---|---|---|
| **STATUS** | **DESCRIPTION** | **STATUS** | **DESCRIPTION** |
| Off | 10 Mbps connection | Off | No link |
| Green | 100 Mbps connection | Yellow | Linked |
| Orange | Gbps connection | Blinking | TX/RX activity 1 |

**Table 3-27: RJ-45 Ethernet Connector LEDs**




**Figure 3-27: RJ-45 Ethernet Connector**

The USB connector can be connected to a USB device.



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| Pin | Description |
|---|---|
| 1 | VCC |
| 2 | DATA0- |
| 3 | DATA0+ |
| 4 | GND |
| 5 | VCC |
| 6 | DATA1- |
| 7 | DATA1+ |
| 8 | GND |

**Table 3-28: USB Pinouts**

### 3.3.3 Power Connector

**CN Label:** **PWR1**

**CN Type:** 5-pin connector

**CN Location:** See **Figure 3-25**

**CN Pinouts:** See **Table 3-29**

The connector supports the 12V power adapter.

| Pin | Description |
|---|---|
| 1 | 12V |
| 2 | GND |
| 3 | 12V |
| 4 | GND |
| 5 | GND |

**Table 3-29: Power Connector Pinouts**

### 3.3.4 Serial Port Connector

**CN Label:** **COM1, COM3, COM4**

**CN Type:** 9-pin male

**CN Location:** **Figure 3-25**

**CN Pinouts:** See **Table 3-30**



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The serial port connects to a RS-232 serial communications device.

| Pin | Description |
|---|---|
| 1 | DATA CARRIER DETECT (DCD) |
| 2 | DATA SET READY (DSR) |
| 3 | RECEIVE DATA (RXD) |
| 4 | REQUEST TO SEND (RTS) |
| 5 | TRANSMIT DATA (TXD) |
| 6 | CLEAR TO SEND (CTS) |
| 7 | DATA TERMINAL READY (DTR) |
| 8 | RING INDICATOR (RI) |
| 9 | GND (GND) |
| 10 | N/C |

**Table 3-30: Serial Port Pinouts**

### 3.3.5 VGA Port Connector

**CN Label:** **VGACOM1**

**CN Type:** 15-pin Female VGA connector

**CN Location:** See **Figure 3-25**

**CN Pinouts:** See **Table 3-31**

The VGA port connects to a monitor that accepts a standard VGA input.

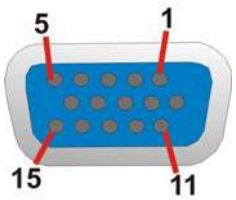



**Figure 3-28: VGA Connector**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | RED | 2 | GREEN |
| 3 | BLUE | 4 | NC |
| 5 | GND | 6 | GND |



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| Pin | Description | Pin | Description |
|---|---|---|---|
| 7 | GND | 8 | GND |
| 9 | CRT_VCC | 10 | Display_GND |
| 11 | NC | 12 | DDCDAT |
| 13 | HSYNC | 14 | VSYNC |
| 15 | DDCCLK | | |

**Table 3-31: VGA Connector Pinouts**



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Chapter

4

# Installation



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## 4.1 Anti-static Precautions



**WARNING:**

Failure to take ESD precautions during the installation of the KINO-PV-D5252/D4252 may result in permanent damage to the KINO-PV-D5252/D4252 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the KINO-PV-D5252/D4252. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the KINO-PV-D5252/D4252 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 KINO-PV-D5252/D4252, place it on an anti-static pad. This reduces the possibility of ESD damaging the KINO-PV-D5252/D4252.
- ***Only handle the edges of the PCB***: When handling the PCB, hold the PCB by the edges.



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## 4.2 Installation Considerations



**NOTE:**

The following installation notices and installation considerations should be read and understood before the KINO-PV-D5252/D4252 is installed. All installation notices pertaining to the installation of the KINO-PV-D5252/D4252 should be strictly adhered to. Failing to adhere to these precautions may lead to severe damage of the KINO-PV-D5252/D4252 and injury to the person installing the motherboard.

### 4.2.1 Installation Notices



**WARNING:**

The installation instructions described in this manual should be carefully followed in order to prevent damage to the KINO-PV-D5252/D4252, KINO-PV-D5252/D4252 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 KINO-PV-D5252/D4252 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 KINO-PV-D5252/D4252 on an anti-static pad:
  - When installing or configuring the motherboard, place it on an anti-static pad. This helps to prevent potential ESD damage.



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- Turn all power to the KINO-PV-D5252/D4252 off:
  - When working with the KINO-PV-D5252/D4252, 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 KINO-PV-D5252/D4252 **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.

## 4.3 Unpacking

When the KINO-PV-D5252/D4252 is unpacked, please check all the unpacking list items listed in Chapter 3 are indeed present. If any of the unpacking list items are not available please contact the KINO-PV-D5252/D4252 vendor reseller/vendor where the KINO-PV-D5252/D4252 was purchased or contact an IEI sales representative.

## 4.4 SO-DIMM Installation

SO-DIMM is a critical component of the KINO-PV-D5252/D4252. If it is not installed the KINO-PV-D5252/D4252 cannot run.



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### 4.4.1 SO-DIMM Installation

To install a SO-DIMM, please follow the steps below and refer to **Figure 4-1**.

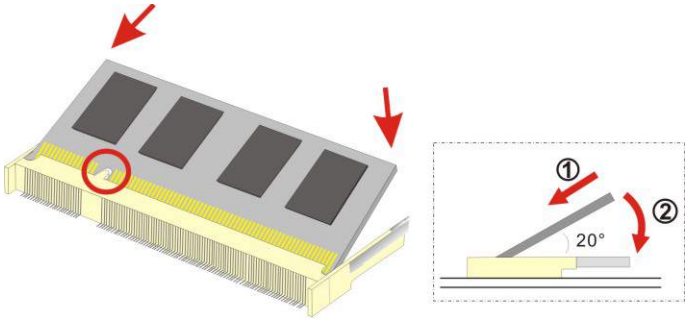



**Figure 4-1: SO-DIMM Installation**

**Step 1:** **Locate the SO-DIMM socket on the board** (See the figure below). Place the board on an anti-static mat.

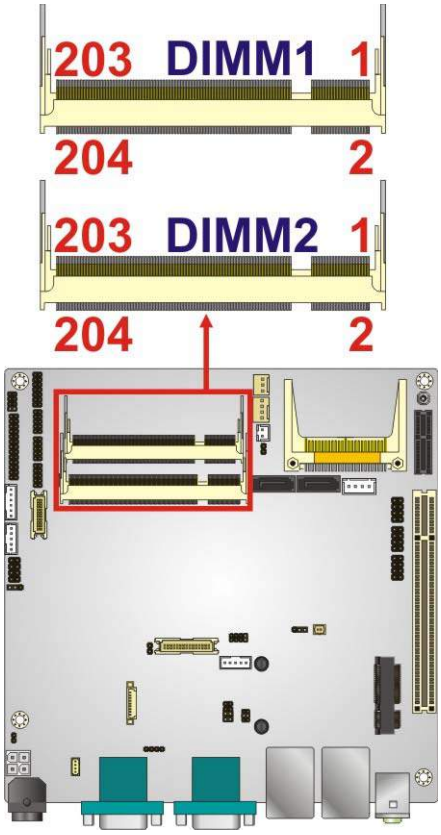



**Figure 4-2: SO-DIMM Connector Location**



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**Step 2:** **Align the SO-DIMM with the socket**. Align the notch on the memory with the notch on the memory socket.

**Step 3:** **Insert the SO-DIMM**. Push the memory in at a 20º angle. (See **Figure 4-1**)

**Step 4:** **Seat the SO-DIMM**. Gently push downwards and the arms clip into place. (See **Figure 4-1**)

## 4.5 CompactFlash® Installation



**NOTE:**

Both CompactFlash® Type I and Type II cards are supported.

To install the CompactFlash® card, please follow the steps below.

**Step 1:** **Locate the CF card socket**. Locate the CompactFlash® slot.

**Step 2:** **Align the CF card**. Align the CompactFlash® card. The label side should be facing away from the board. The grooves on the CompactFlash® slot ensure that the card cannot be inserted the wrong way.

**Step 3:** **Insert the CF card**. Push until the CompactFlash® card is firmly seated in the slot. See Figure 4-3.



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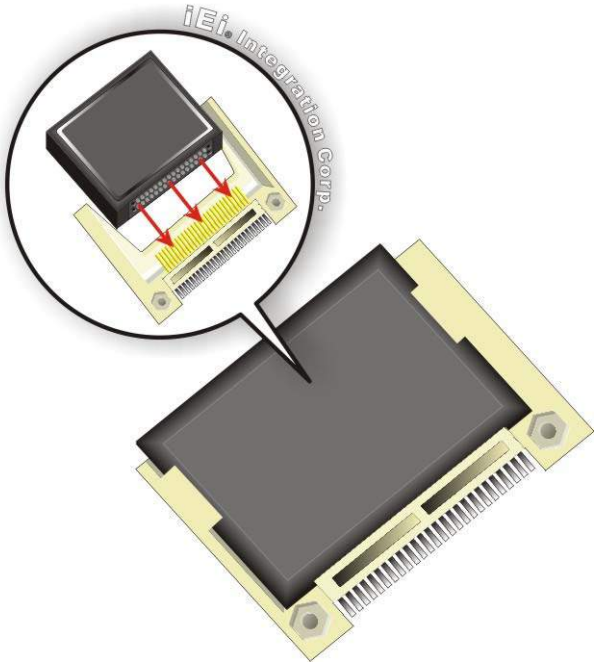
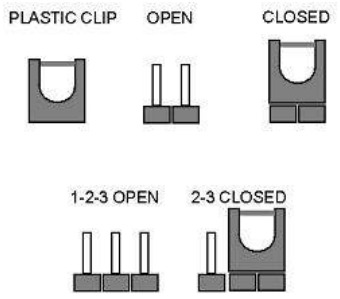


**Figure 4-3: CompactFlash® Card Installation**

## 4.6 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.




Before the KINO-PV-D5252/D4252 is installed in the system, the jumpers must be set in accordance with the desired configuration. The jumpers on the KINO-PV-D5252/D4252 are listed in **Table 4-1**.



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| Description | Type | Label |
|---|---|---|
| AT/ATX Power setting | 3-pin wafer | ATXCTL1 |
| Clear CMOS | 3-pin header | J_CMOS1 |
| CompactFlash® setting | 2-pin header | JCF1 |
| LVDS1 Panel Resolution Select setting | 8-pin header | JP4 |
| LVDS2 Panel Resolution Select setting | 6-pin header | J_LCD_TYPE1 |
| LVDS1 Voltage Select setting | 6-pin header | J_VLVDS1 |
| LVDS2 Voltage Select setting | 2-pin header | J_VLVDS2 |
| Serial port setting | 8-pin header | JP3 |

**Table 4-1: Jumpers**

### 4.6.1 AT/ATX Power Select Jumper Settings

**Jumper Label:** **ATXCTL1**

**Jumper Type:** 3-pin header, p=2 mm

**Jumper Settings:** See **Table 4-2**

**Jumper Location:** See **Figure 4-4**

The AT/ATX Power Select jumper specifies the systems power mode as AT or ATX. AT/ATX Power Select jumper settings are shown in **Table 4-2**.

| AT Power Select | Description | |
|---|---|---|
| **Short 1 - 2** | Use ATX power | |
| **Short 2 – 3** | Use AT power | Default |

**Table 4-2: AT/ATX Power Select Jumper Settings**

The location of the AT/ATX Power Select jumper is shown in **Figure 4-4** below.



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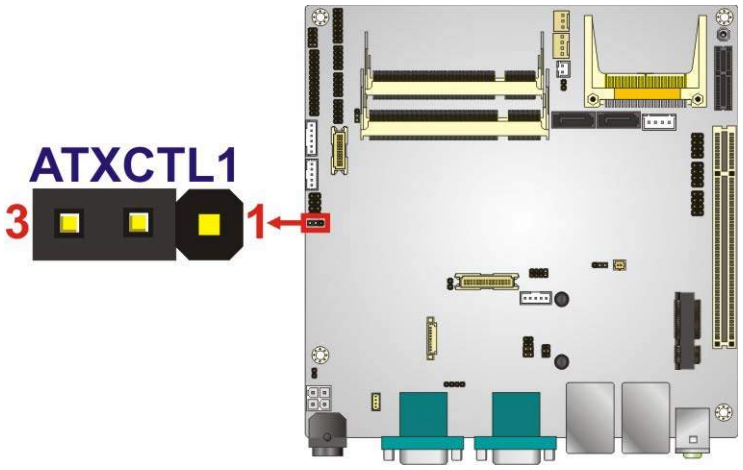



**Figure 4-4: AT/ATX Power Select Jumper Location**

### 4.6.2 Clear CMOS Jumper

| | |
|---|---|
| **Jumper Label:** | **J_CMOS1** |
| **Jumper Type:** | 3-pin header, p=2 mm |
| **Jumper Settings:** | See **Table 4-3** |
| **Jumper Location:** | See **Figure 4-5** |

If the KINO-PV-D5252/D4252 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 4-3**.



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| Clear CMOS | Description | |
|---|---|---|
| **Short 1 - 2** | Keep CMOS Setup | Default |
| **Short 2 - 3** | Clear CMOS Setup | |

**Table 4-3: Clear CMOS Jumper Settings**

The location of the clear CMOS jumper is shown in **Figure 4-5** below.

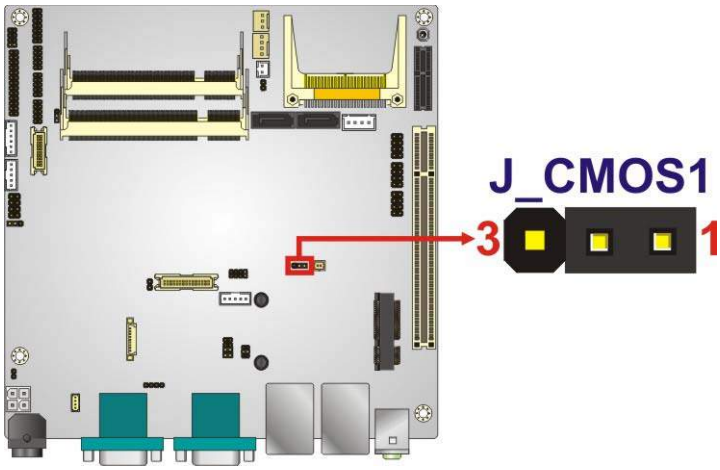



**Figure 4-5: Clear CMOS Jumper**

### 4.6.3 CompactFlash® Card Setup Jumper

**Jumper Label:** **JCF1**

**Jumper Type:** 2-pin header, p=2 mm

**Jumper Settings:** See **Table 4-4**

**Jumper Location:** See **Figure 4-6**

The CompactFlash® slot is connected through an IDE connection. This jumper sets the CompactFlash® card as the master or slave IDE device.

| Setting | Description |
|---|---|
| Open | Slave |
| Closed | Master |

**Table 4-4: CompactFlash® Setup Jumper Settings**



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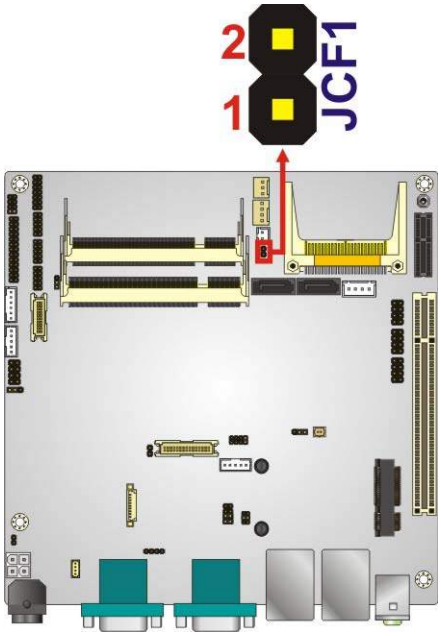



**Figure 4-6: CompactFlash® Setup Jumper Location**

### 4.6.4 LVDS1 Panel Resolution Type Select Jumper (For Intel® Atom™ processor D525 dual LVDS only)

| | |
|---|---|
| **Jumper Label:** | **JP4** |
| **Jumper Type:** | 8-pin header, p=2 mm |
| **Jumper Settings:** | See **Table 4-6** |
| **Jumper Location:** | See **Figure 4-8** |

The LVDS1 Panel Resolution jumper configures the resolution of the LVDS output. The LVDS1 Panel Resolution jumper settings are shown below.

| Setting | Description |
|---|---|
| Open | 1024 x 768 (24-bit) |
| Short 1-2 | 800 x 600 (18-bit) |
| Short 3-4 | 1024 x 768 (18-bit) |
| Short 1-2 and 3-4 (Default) | 1280 x 1024 (24-bit) |
| Short 5-6 | 1366 x 768 (24-bit) |
| Short 1-2 and 5-6 | 1920 x 1080 (24-bit) |



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| Setting | Description |
|---|---|
| Short 7-8 | Brightness inverse |

**Table 4-5: LVDS1 Panel Resolution Jumper Settings**

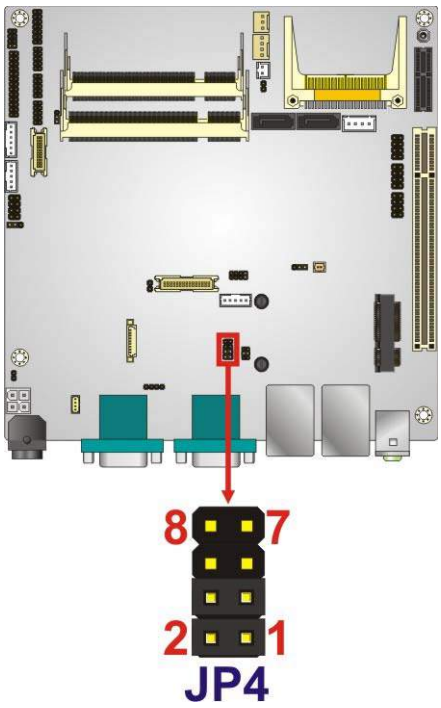



**Figure 4-7: LVDS1 Panel Resolution Jumper Location**

### 4.6.5 LVDS2 Panel Resolution Select Jumper

**Jumper Label:** **J_LCD_TYPE1**

**Jumper Type:** 6-pin header, p=2 mm

**Jumper Settings:** See **Table 4-6**

**Jumper Location:** See **Figure 4-8**

The LVDS2 Panel Resolution jumper configures the resolution of the LVDS output. The LVDS2 Panel Resolution jumper settings are shown below.

| Setting | Description |
|---|---|
| Open | 640 x 480 (18 bit) |
| Short 1-2 | 800 x 400 (18 bit) |
| Short 3-4 (Default) | 800 x 600 (18 bit) |



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| Setting | Description |
|---|---|
| Short 1-2 and 3-4 | 1024 x 768 (18 bit) |
| Short 5-6 | 1280 x 1024 (18 bit) |
| Short 1-2 and 5-6 | 1366 x 768 (18 bit) |
| Short 3-4 and 5-6 | 1280 x 800 (18 bit) |
| Short 1-2, 3-4 and 5-6 | 1280 x 600 (18 bit) |

**Table 4-6: LVDS2 Panel Resolution Jumper Settings**

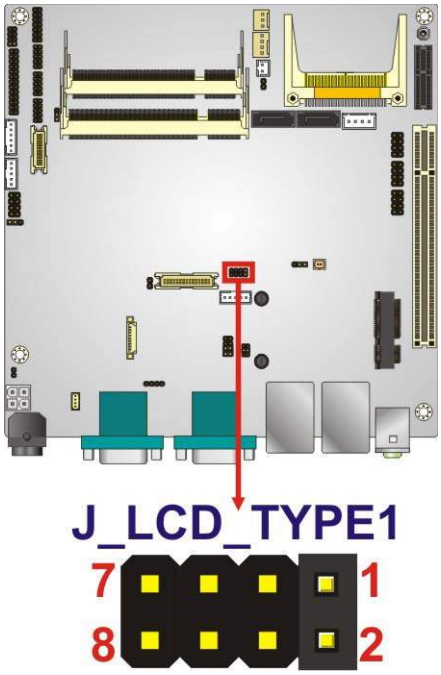



**Figure 4-8: LVDS2 Panel Resolution Jumper Location**

### 4.6.6 LVDS1 Voltage Select setting

**Jumper Label:** **J_VLVDS1**

**Jumper Type:** 6-pin header, p=2 mm

**Jumper Settings:** See **Table 4-8**

**Jumper Location:** See **Figure 4-10**

The voltage selection jumper sets the voltage of the power supplied to the LCD panel.

| Setting | Description |
|---|---|
| Short 1-2 | 12 V |



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| Setting | Description |
|---|---|
| Short 3-4 | 5 V (Default) |
| Short 5-6 | 3.3 V |

**Table 4-7: LVDS1 Voltage Select Jumper Settings**

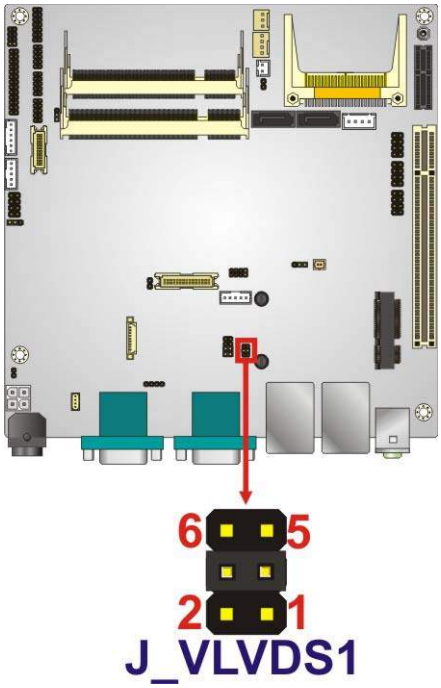



**Figure 4-9: LVDS1 Voltage Select Jumper Location**

### 4.6.7 LVDS2 Voltage Select setting

**Jumper Label:** **J_VLVDS2**

**Jumper Type:** 2-pin header, p=2 mm

**Jumper Settings:** See **Table 4-8**

**Jumper Location:** See **Figure 4-10**

The voltage selection jumper sets the voltage of the power supplied to the LCD panel.

| Setting | Description |
|---|---|
| Short 1-2 | 3.3 V (Default) |
| Short 2-3 | 5 V |

**Table 4-8: LVDS2 Voltage Select Jumper Settings**



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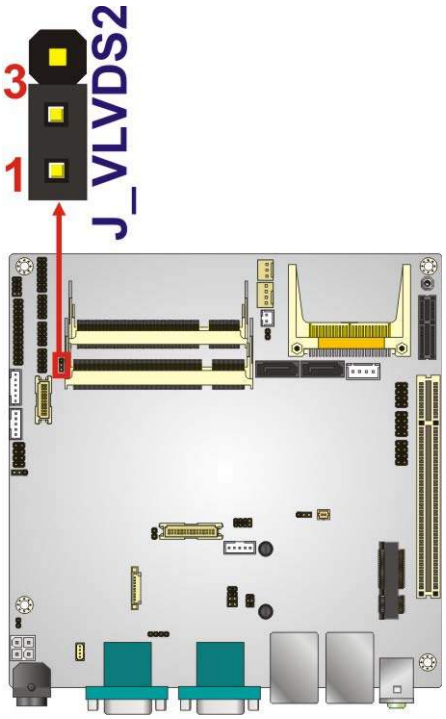



**Figure 4-10: LVDS2 Voltage Select Jumper Location**

### 4.6.8 Serial Port Setting Jumper

| | |
|---|---|
| **Jumper Label:** | **JP3** |
| **Jumper Type:** | 8-pin header, p=2 mm |
| **Jumper Settings:** | See **Table 4-9** |
| **Jumper Location:** | See **Figure 4-11** |

Used for RS-232/422/485 communications.

| Pin | Description |
|---|---|
| Short 1-2 | RS-232 (Default) |
| Short 3-4 | RS-422 |
| Short 5-6 | RS-485 |
| Short 7-8 | RS-485 use RTS Control |

**Table 4-9: Serial Port Jumper Settings**



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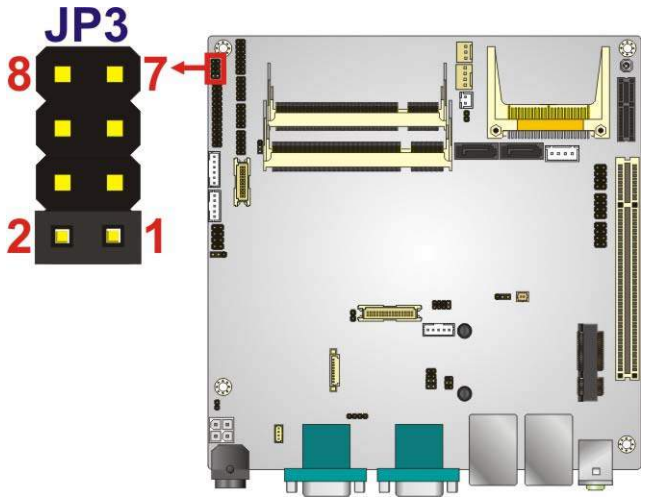



**Figure 4-11: Serial Port Jumper Locations**

## 4.7 Chassis Installation

### 4.7.1 Airflow

**WARNING:**

Airflow is critical to the cooling of the CPU and other onboard components. The chassis in which the KINO-PV-D5252/D4252 must have air vents to allow cool air to move into the system and hot air to move out.

The KINO-PV-D5252/D4252 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.

### 4.7.2 Motherboard Installation

To install the KINO-PV-D5252/D4252 motherboard into the chassis please refer to the reference material that came with the chassis.



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## 4.8 Internal Peripheral Device Connections

This section outlines the installation of peripheral devices to the onboard connectors

### 4.8.1 AT/ATX Power Connection

Follow the instructions below to connect the KINO-PV-D5252/D4252 to an AT or ATX power supply.

**WARNING:**

Disconnect the power supply power cord from its AC power source to prevent a sudden power surge to the KINO-PV-D5252/D4252.

**Step 1:** **Locate the power cable**. The power cable is shown in the packing list in **Chapter 3**.

**Step 2:** **Connect the Power Cable to the Motherboard**. Connect the 4-pin (2x2) Molex type power cable connector to the AT/ATX power connector on the motherboard. See Figure 4-12.

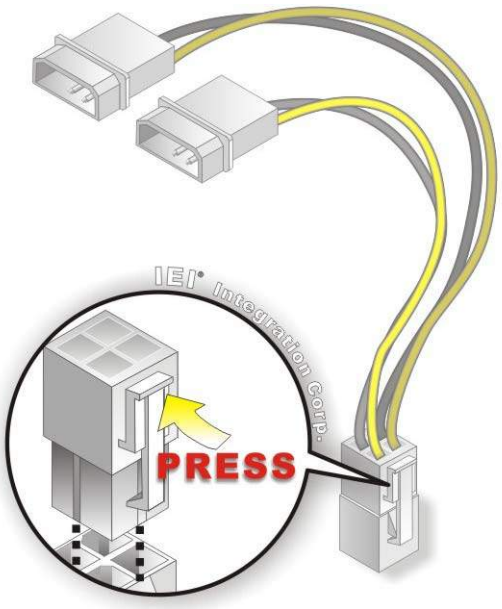



**Figure 4-12: Power Cable to Motherboard Connection**



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**Step 3:** **Connect Power Cable to Power Supply**. Connect one of the 4-pin (1x4) Molex type power cable connectors to an AT/ATX power supply. See Figure 4-13.

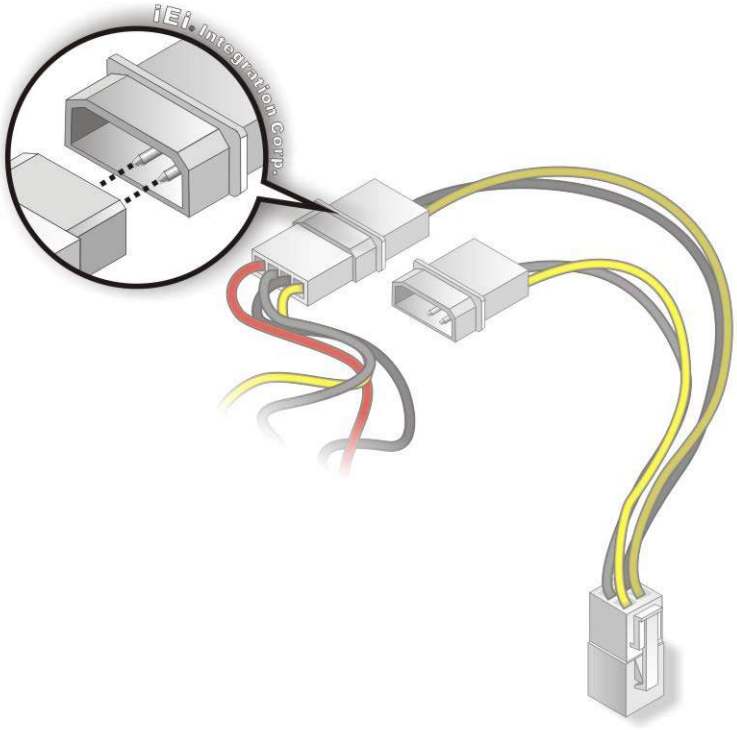


**Figure 4-13: Connect Power Cable to Power Supply**

### 4.8.2 Single RS-232 Cable with Slot Bracket

The single RS-232 cable consists of one serial port connectors attached to a serial communications cable that is then attached to a D-sub 9 male connector that is mounted onto a bracket. To install the single RS-232 cable, please follow the steps below.

**Step 1:** **Locate the connector**. The location of the RS-232 connector is shown in **Chapter 3**.

**Step 2:** **Insert the cable connector**. Insert the connector into the serial port box header. See Figure 4-14. A key on the front of the cable connectors ensures the connector can only be installed in one direction.



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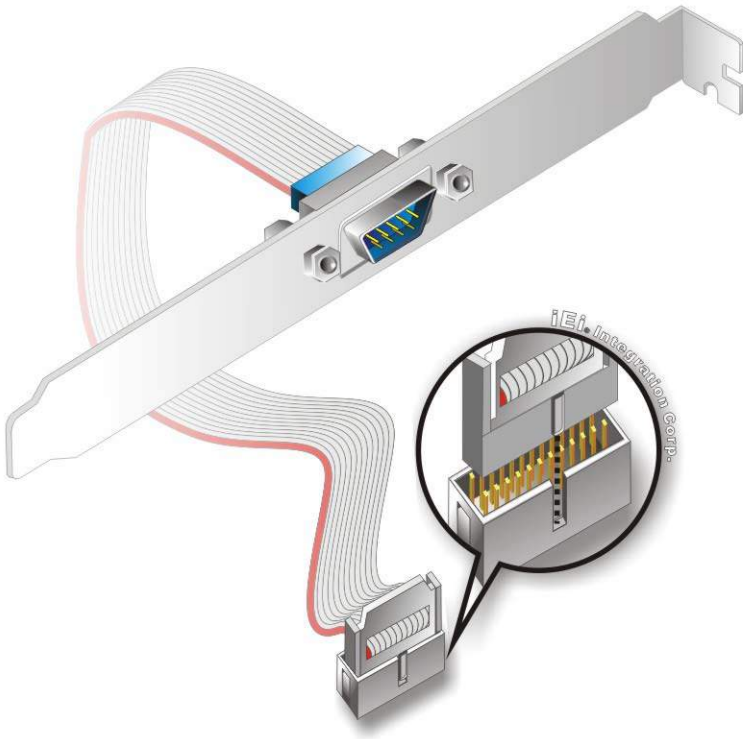


**Figure 4-14: Single RS-232 Cable Installation**

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

## 4.9 Software Installation

All the drivers for the KINO-PV-D5252/D4252 are on the CD that came with the system. To install the drivers, please follow the steps below.

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

**NOTE:**

If the installation program doesn't start automatically:
Click "Start->My Computer->CD Drive->autorun.exe"

**Step 2:** The driver main menu appears (**Figure 4-15**).



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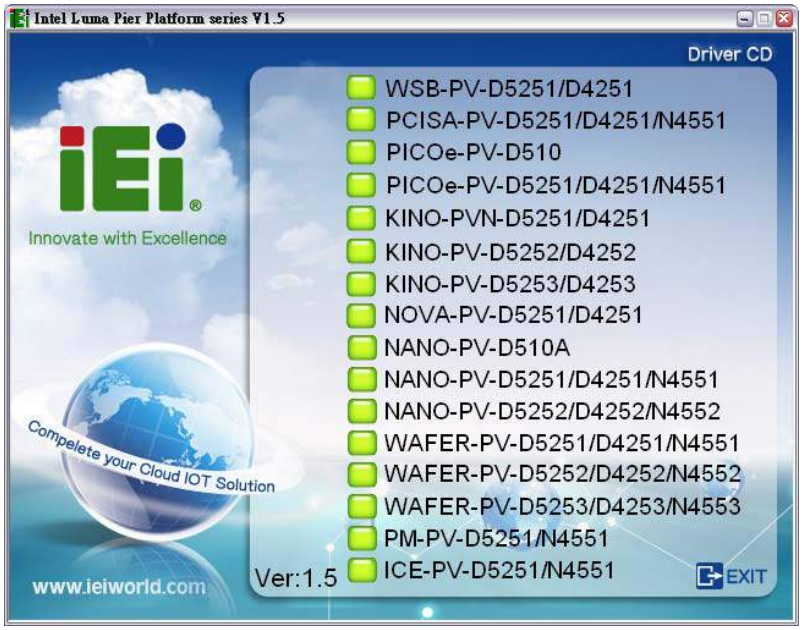



**Figure 4-15: Introduction Screen**

**Step 3:** Click **KINO-PV-D5252/D4252**.

**Step 4:** A new screen with a list of available drivers appears (**Figure 4-16**).

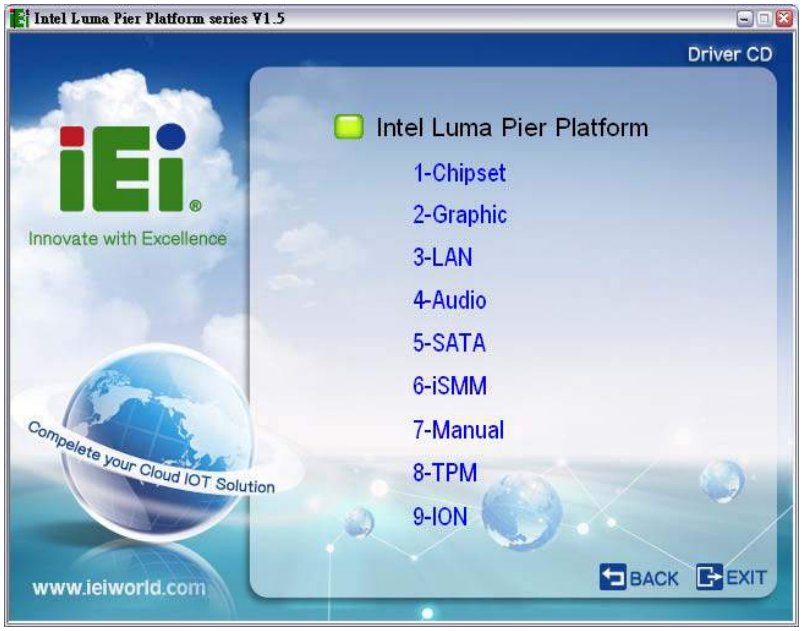



**Figure 4-16: Available Drivers**

**Step 5:** Install all of the necessary drivers in this menu.



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Chapter

5

# BIOS Screens



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## 5.1 Introduction

The BIOS is programmed onto the BIOS chip. The BIOS setup program allows changes to certain system settings. This chapter outlines the options that can be changed.

**NOTE:**

Some of the BIOS options may vary throughout the life cycle of the product and are subject to change without prior notice.

### 5.1.1 Starting Setup

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

1. Press the **F2** key as soon as the system is turned on or
2. Press the **F2** key when the "**Press F2 to enter SETUP**" message appears on the screen.

If the message disappears before the **F2** key is pressed, restart the computer and try again.

### 5.1.2 Using Setup

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

| Key | Function |
|---|---|
| Up arrow | Move to the item above |
| Down arrow | Move to item below |
| Left arrow | Move to the item on the left hand side |
| Right arrow | Move to the item on the right hand side |
| + | Increase the numeric value or make changes |
| - | Decrease the numeric value or make changes |



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| Key | Function |
|---|---|
| Page up | Move to the next page |
| Page down | Move to the previous page |
| Esc | Main Menu – Quit and do not save changes into CMOS<br>Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu |
| F1 | General help, only for Status Page Setup Menu and Option Page Setup Menu |
| F9 | Load optimized defaults |
| F10 | Save changes and Exit BIOS |

**Table 5-1: BIOS Navigation Keys**

### 5.1.3 Getting Help

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

### 5.1.4 Unable to Reboot After Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in Chapter **4**.

### 5.1.5 BIOS Menu Bar

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

- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings.
- Chipset – Changes the chipset settings.
- Boot – Changes the system boot configuration.
- Security – Sets User and Supervisor Passwords.
- Save & Exit – Selects exit options and loads default settings

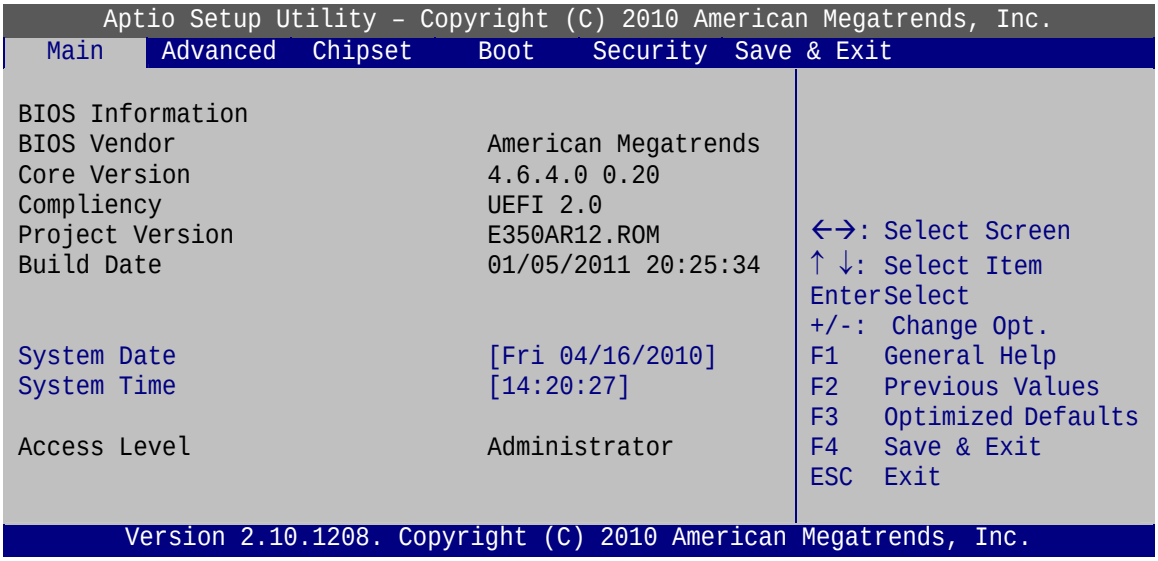
The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.



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## 5.2 Main

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




**BIOS Menu 1: Main**

### ➔ BIOS Information

The **BIOS Information** lists a brief summary of the BIOS. The fields in **BIOS Information** cannot be changed. The items shown in the system overview include:

- **BIOS Vendor:** Installed BIOS vendor
- **Core Version:** Current BIOS version
- **Project Version:** The board version
- **Build Date and Time:** Date the current BIOS version was made

The System Overview field also has two user configurable fields:

### ➔ System Date [xx/xx/xx]

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



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➔ **System Time [xx:xx:xx]**

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

## 5.3 Advanced

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



**WARNING!**

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

```
      Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
  Main   Advanced  Chipset    Boot    Security  Save & Exit

> ACPI Settings
> Trusted Computing
> CPU Configuration
> IDE Configuration
> USB Configuration                    ←→: Select Screen
> Super IO Configuration               ↑ ↓: Select Item
> H/M Monitor                          Enter Select
> Secondary Super IO Configuration     +/-:  Change Opt.
> Serial Port Console Redirection      F1    General Help
                                       F2    Previous Values
                                       F3    Optimized Defaults
                                       F4    Save & Exit
                                       ESC   Exit

       Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

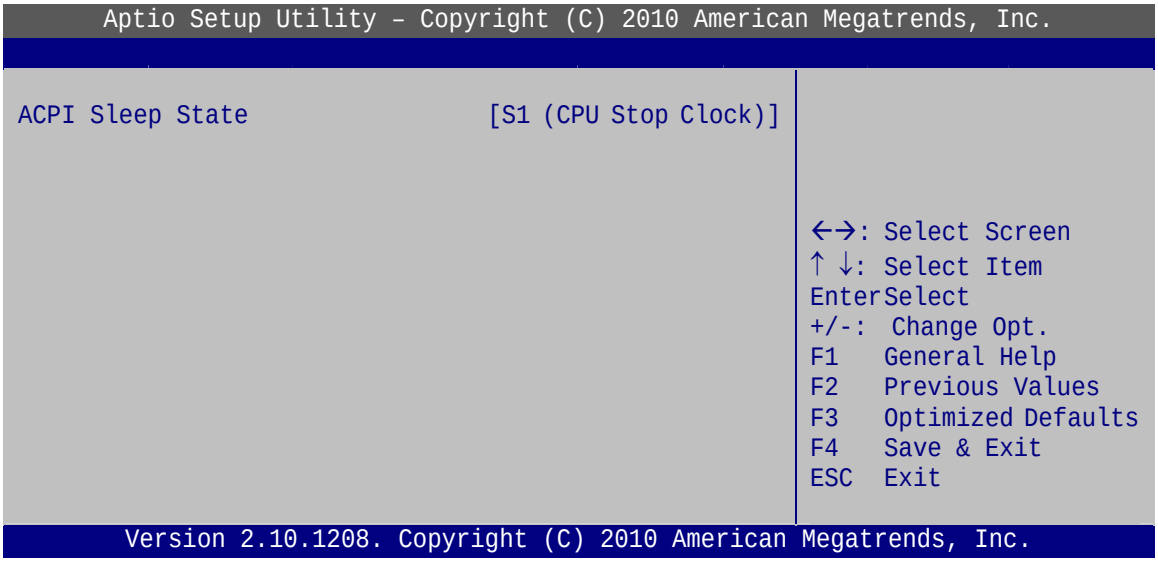
**BIOS Menu 2: Advanced**



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### 5.3.1 ACPI Settings

The **ACPI Settings** menu (**BIOS Menu 3**) configures the Advanced Configuration and Power Interface (ACPI) options.




**BIOS Menu 3: ACPI Settings**

➔ **ACPI Sleep State [S1 (CPU Stop Clock)]**

Use the **ACPI Sleep State** option to specify the sleep state the system enters when it is not being used.

➔ **S1 (CPU Stop Clock)** **DEFAULT** The system enters S1(POS) sleep state. The system appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power mode.

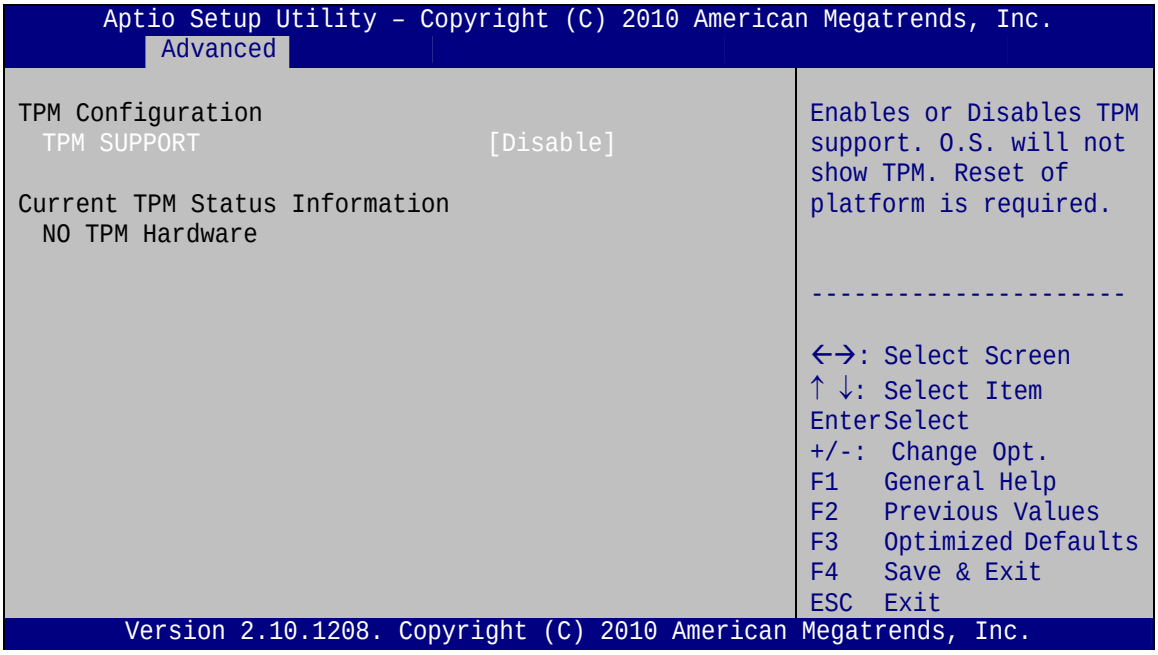
➔ **S3 (Suspend to RAM)** The caches are flushed and the CPU is powered off. Power to the RAM is maintained. The computer returns slower to a working state, but more power is saved.



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### 5.3.2 Trusted Computing

Use the **Trusted Computing** menu (**BIOS Menu 4**) to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).




**BIOS Menu 4: TPM Configuration**

➔ **TPM Support [Disable]**

Use the **TPM Support** option to configure support for the TPM.

➔ **Disable** **DEFAULT** TPM support is disabled.

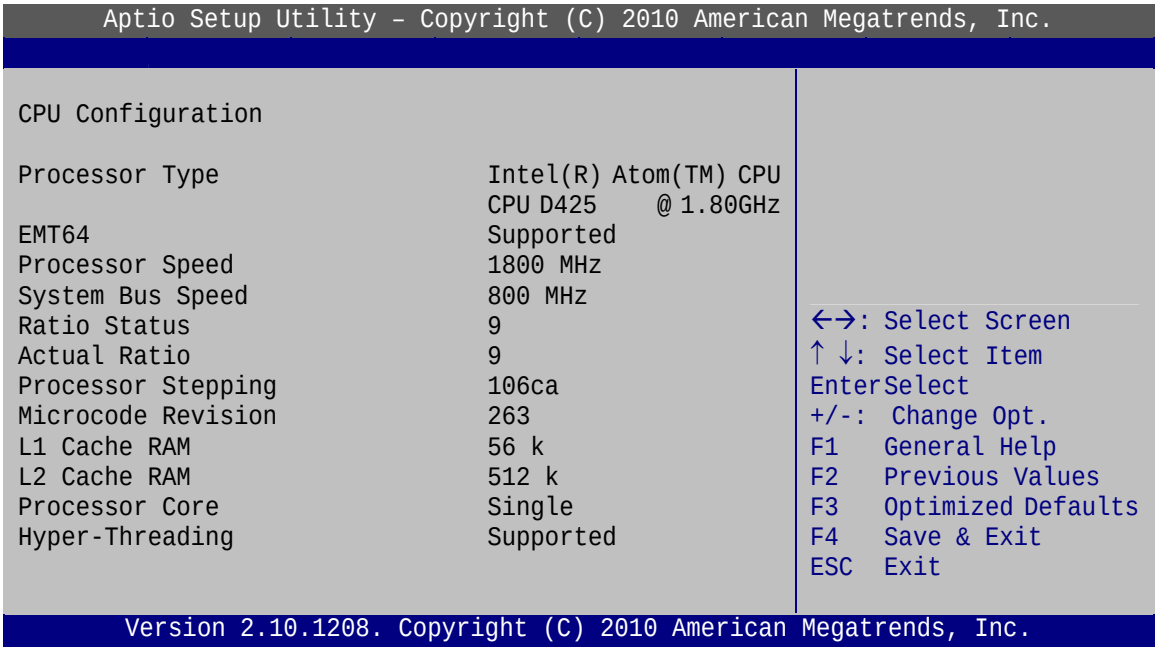
➔ **Enable** TPM support is enabled.



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### 5.3.3 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 5**) to view detailed CPU specifications and configure the CPU.




**BIOS Menu 5: CPU Configuration**

The CPU Configuration menu (**BIOS Menu 5**) lists the following CPU details:

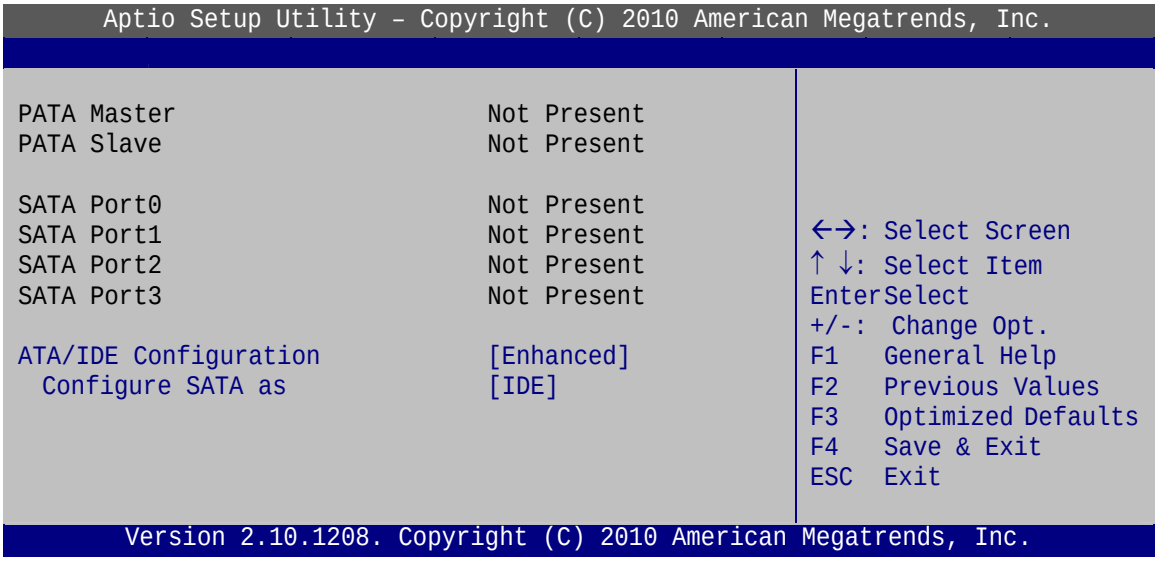
- Processor Type: Lists the brand name of the CPU being used
- EMT64: Indicates if EM64T is supported by the CPU.
- Processor Speed: Lists the CPU processing speed
- System Bus: Lists the system bus
- Ratio Status: List the maximum FSB divisor
- Actual Ratio: Lists current FSB divisor
- Processor Stepping: Lists the CPU processing stepping
- Microcode Revision: Lists the microcode revision
- L1 Cache RAM: Lists the CPU L1 cache size
- L2 Cache RAM: Lists the CPU L2 cache size
- Processor Core: Lists the number of the processor core
- Hyper-Threading: Indicates if Intel Hyper-Threading Technology is supported by the CPU.



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### 5.3.4 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 6**) to change and/or set the configuration of the ATA/IDE devices installed in the system.




**BIOS Menu 6: IDE Configuration**

➔ **ATA/IDE Configurations [Enhanced]**

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

➔ **Disabled** Disables the on-board ATA/IDE controller.

➔ **Compatible** Configures the on-board ATA/IDE controller to be in compatible mode. In this mode, a SATA channel will replace one of the IDE channels. This mode supports up to 4 storage devices.

➔ **Enhanced** **DEFAULT** Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA channels are separated. This mode supports up to 6 storage devices. Some legacy OS do not support this mode.



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➔ **Configure SATA as [IDE]**

Use the **Configure SATA as** option to configure SATA devices as normal IDE devices.

➔ **IDE** **DEFAULT** Configures SATA devices as normal IDE device.

➔ **AHCI** Configures SATA devices as AHCI device.

### 5.3.5 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 7**) to read USB configuration information and configure the USB settings.

```
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.

USB Configuration                          |
                                           |
USB Devices:                               |
      None                                 |
                                           |
Legacy USB Support              [Enabled]  |  ←→: Select Screen
                                           |  ↑ ↓: Select Item
                                           |  Enter Select
                                           |  +/-:  Change Opt.
                                           |  F1    General Help
                                           |  F2    Previous Values
                                           |  F3    Optimized Defaults
                                           |  F4    Save & Exit
                                           |  ESC   Exit

Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

**BIOS Menu 7: USB Configuration**

➔ **USB Devices**

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

➔ **Legacy USB Support [Enabled]**

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



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

### 5.3.6 Super IO Configuration

Use the **Super IO Configuration** menu (**BIOS Menu 8**) to set or change the configurations for the FDD controllers, parallel ports and serial ports.

```
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.

Super IO Configuration                    |
                                          |
Super IO Chip                  Fintek F81865
> Serial Port 0 Configuration
> Serial Port 1 Configuration            ←→: Select Screen
> Serial Port 2 Configuration            ↑ ↓: Select Item
> Serial Port 3 Configuration            Enter Select
> Parallel Port Configuration            +/-:  Change Opt.
                                          F1   General Help
                                          F2   Previous Values
                                          F3   Optimized Defaults
                                          F4   Save & Exit
                                          ESC  Exit

Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

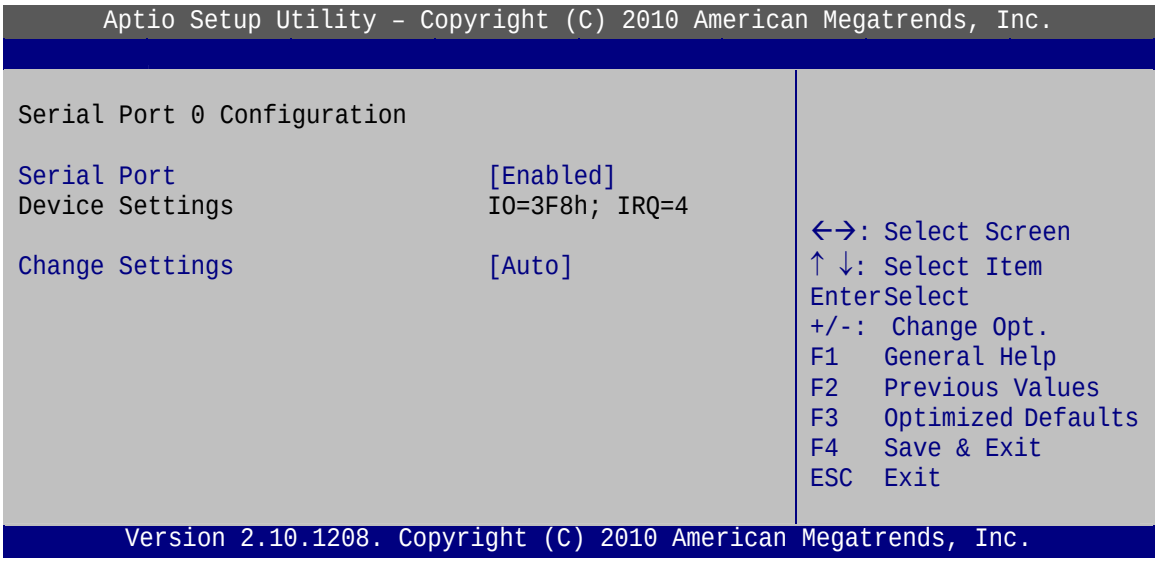
**BIOS Menu 8: Super IO Configuration**



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### 5.3.6.1 Serial Port 0 Configuration

Use the **Serial Port 0 Configuration** menu (**BIOS Menu 9**) to configure the serial port 0.




**BIOS Menu 9: Serial Port 0 Configuration Menu**

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

| | | | |
|---|---|---|---|
| ➔ | **Disabled** | | Disable the serial port |
| ➔ | **Enabled** | **DEFAULT** | Enable the serial port |

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

| | | | |
|---|---|---|---|
| ➔ | **Auto** | **DEFAULT** | The serial port IO port address and interrupt address are automatically detected. |
| ➔ | **IO=3F8h; IRQ=4** | | Serial Port I/O port address is 3F8h and the interrupt address is IRQ4 |
| ➔ | **IO=3F8h; IRQ=3, 4** | | Serial Port I/O port address is 3F8h and the interrupt address is IRQ3 and IRQ4 |



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| | | |
|---|---|---|
| ➔ **IO=2F8h; IRQ=3, 4** | | Serial Port I/O port address is 2F8h and the interrupt address is IRQ3 and IRQ4 |

#### 5.3.6.1.1 Serial Port 1 Configuration

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

| | | |
|---|---|---|
| ➔ **Disabled** | | Disable the serial port |
| ➔ **Enabled** | **DEFAULT** | Enable the serial port |

➔ **Device Mode**

Use the **Device Mode** option to set the Serial Port 1 signaling mode.

| | | |
|---|---|---|
| ➔ **RS232** | **DEFAULT** | Serial Port 1 signaling mode is RS-232 |
| ➔ **RS485** | | Serial Port 1 signaling mode is RS-422/RS-485 |

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

| | | |
|---|---|---|
| ➔ **Auto** | **DEFAULT** | The serial port IO port address and interrupt address are automatically detected. |
| ➔ **IO=2F8h; IRQ=3** | | Serial Port I/O port address is 2F8h and the interrupt address is IRQ3 |
| ➔ **IO=3F8h; IRQ=3, 4** | | Serial Port I/O port address is 3F8h and the interrupt address is IRQ3, 4 |
| ➔ **IO=2F8h; IRQ=3, 4** | | Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4 |



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#### 5.3.6.1.2 Serial Port 2 Configuration

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

| | | |
|---|---|---|
| ➔ **Disabled** | | Disable the serial port |
| ➔ **Enabled** | **DEFAULT** | Enable the serial port |

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

| | | |
|---|---|---|
| ➔ **Auto** | **DEFAULT** | The serial port IO port address and interrupt address are automatically detected. |
| ➔ **IO=3E8h; IRQ=11** | | Serial Port I/O port address is 3E8h and the interrupt address is IRQ11 |
| ➔ **IO=3E8h; IRQ=10, 11** | | Serial Port I/O port address is 3E8h and the interrupt address is IRQ10, 11 |
| ➔ **IO=2E8h; IRQ=10, 11** | | Serial Port I/O port address is 2E8h and the interrupt address is IRQ10, 11 |

#### 5.3.6.1.3 Serial Port 3 Configuration

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

| | | |
|---|---|---|
| ➔ **Disabled** | | Disable the serial port |
| ➔ **Enabled** | **DEFAULT** | Enable the serial port |

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.



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| | | |
|---|---|---|
| ➔ **Auto** | **DEFAULT** | The serial port IO port address and interrupt address are automatically detected. |
| ➔ **IO=2E8h; IRQ=10** | | Serial Port I/O port address is 2E8h and the interrupt address is IRQ10 |
| ➔ **IO=3E8h; IRQ=10, 11** | | Serial Port I/O port address is 3E8h and the interrupt address is IRQ10, 11 |
| ➔ **IO=2E8h; IRQ=10, 11** | | Serial Port I/O port address is 2E8h and the interrupt address is IRQ10, 11 |

### 5.3.6.2 Parallel Port Configuration

Use the **Parallel Port Configuration** menu (**BIOS Menu 9**) to configure the serial port n.

```
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.

Parallel Port Configuration

Parallel Port                    [Enabled]
Device Settings                  IO=378h; IRQ=7

Change Settings                  [Auto]
Device Mode                      [Printer Mode]

                                 ←→: Select Screen
                                 ↑ ↓: Select Item
                                 EnterSelect
                                 +/-:  Change Opt.
                                 F1    General Help
                                 F2    Previous Values
                                 F3    Optimized Defaults
                                 F4    Save & Exit
                                 ESC   Exit

Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

**BIOS Menu 10: Parallel Port Configuration Menu**

➔ **Parallel Port [Enabled]**

Use the **Parallel Port** option to enable or disable the parallel port.

| | | |
|---|---|---|
| ➔ **Disabled** | | Disable the parallel port |
| ➔ **Enabled** | **DEFAULT** | Enable the parallel port |



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➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the parallel port IO port address and interrupt address.

| | | |
|---|---|---|
| ➔ **Auto** | **DEFAULT** | The parallel port IO port address and interrupt address are automatically detected. |
| ➔ **IO=378h; IRQ=7** | | Parallel Port I/O port address is 378h and the interrupt address is IRQ7 |
| ➔ **IO=378h; IRQ=7** | | Parallel Port I/O port address is 378h and the interrupt address is IRQ7 |
| ➔ **IO=278h; IRQ=7** | | Parallel Port I/O port address is 278h and the interrupt address is IRQ7 |
| ➔ **IO=3BCh IRQ=7** | | Parallel Port I/O port address is 3BCh and the interrupt address is IRQ7 |

➔ **Device Mode [Printer Mode]**

Use the **Device Mode** option to select the mode the parallel port operates in. Configuration options are listed below.

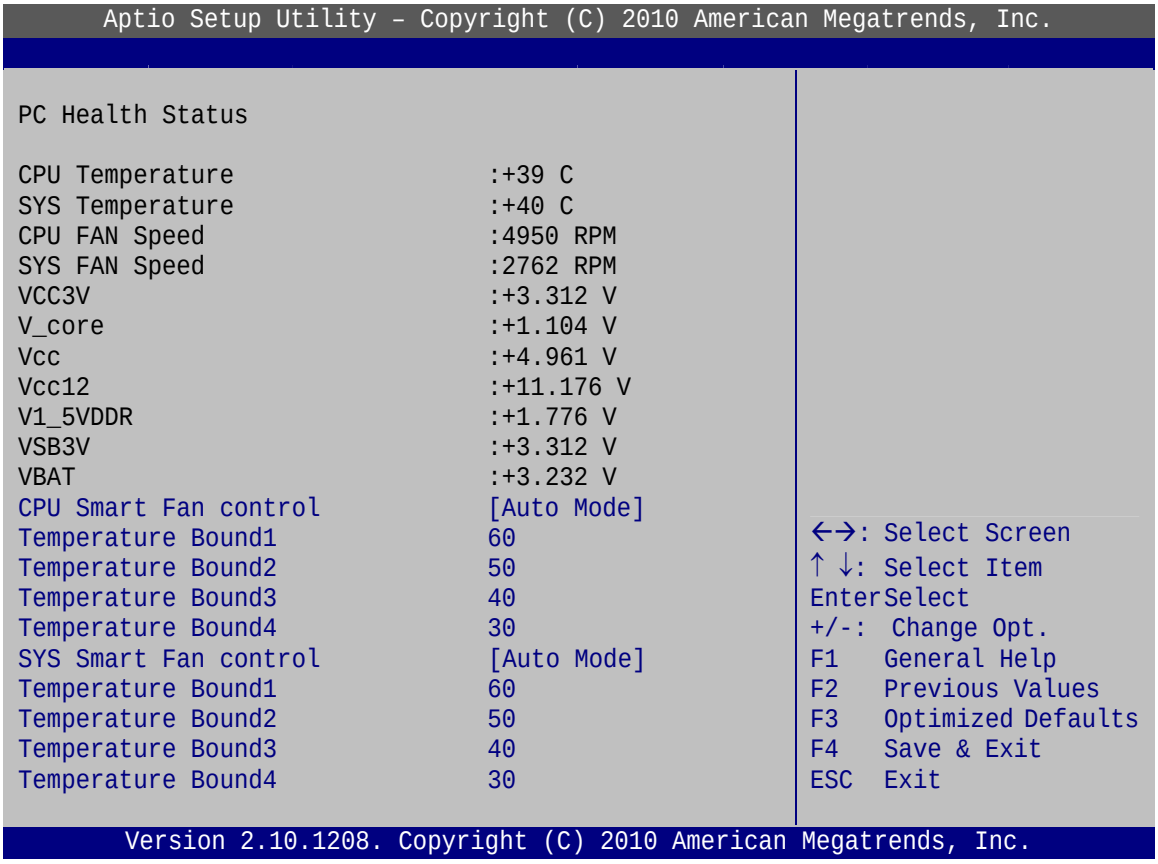
- Printer Mode **Default**
- SPP Mode
- EPP-1.9 and SPP Mode
- EPP-1.7 and SPP Mode
- ECP Mode
- ECP and EPP 1.9 Mode
- ECP and EPP 1.7 Mode



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### 5.3.7 H/W Monitor

The H/W Monitor menu (**BIOS Menu 11**) shows the operating temperature, fan speeds and system voltages.




**BIOS Menu 11: Hardware Health Configuration**

➔ **PC Health Status**

The following system parameters and values are shown. The system parameters that are monitored are:

- System Temperatures:
  - CPU Temperature
  - System Temperature
- Fan Speeds:
  - CPU Fan Speed
  - SYS Fan Speed



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- Voltages:
  - VCC3V
  - V_core
  - Vcc
  - Vcc12
  - Vcc1_5VDDR
  - VSB3V
  - VBAT

➔ **CPU Smart Fan control [Auto Mode]**

Use the **CPU Smart Fan control** option to configure the CPU fan.

| | |
|---|---|
| ➔ **Auto Mode** | The fan adjusts its speed using these settings:<br>Temperature Bound 1<br>Temperature Bound 2<br>Temperature Bound 3<br>Temperature Bound 4 |
| ➔ **Manual Mode** | The fan spins at the speed set in:<br>Manual Duty Cycle Setting |

➔ **SYS Smart Fan control [Auto Mode]**

Use the **SYS Smart Fan control** option to configure the SYS fan.

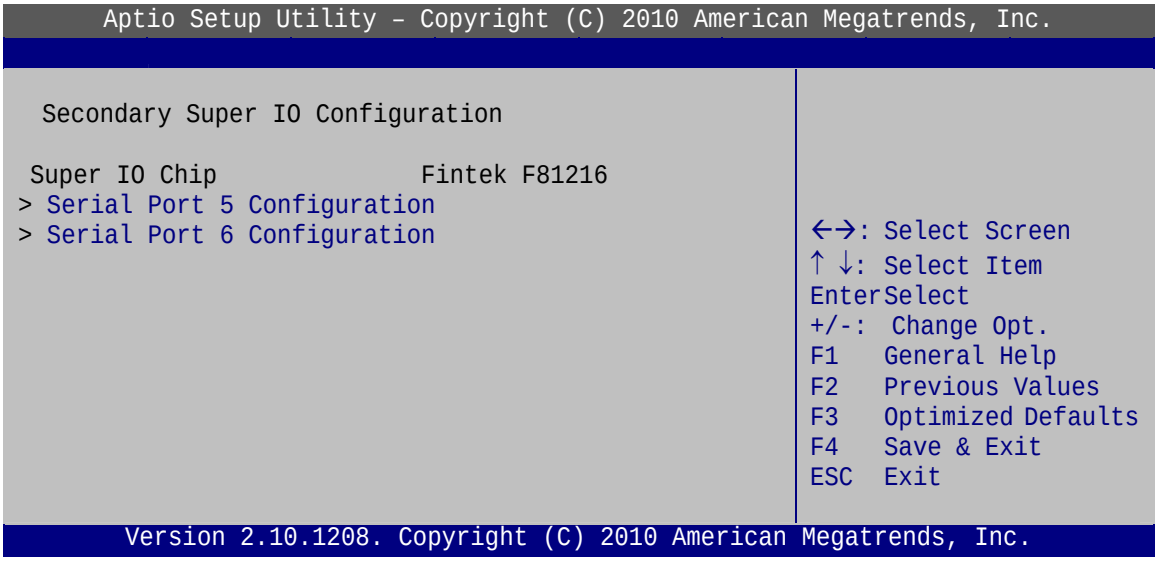
| | |
|---|---|
| ➔ **Auto Mode** | The fan adjusts its speed using these settings:<br>Temperature Bound 1<br>Temperature Bound 2<br>Temperature Bound 3<br>Temperature Bound 4 |
| ➔ **Manual Mode** | The fan spins at the speed set in:<br>Manual Duty Cycle Setting |



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### 5.3.8 Secondary Super IO Configuration

The **Secondary Super IO Configuration** (**BIOS Menu 13**) displays IO chip type and the submenus for configuring the external SATA ports 5 and 6.




**BIOS Menu 12: Secondary Super IO Configuration**

#### 5.3.8.1 Serial Port 5 Configuration

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

| | | |
|---|---|---|
| ➔ **Disabled** | | Disable the serial port |
| ➔ **Enabled** | **DEFAULT** | Enable the serial port |

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

| | | |
|---|---|---|
| ➔ **Auto** | **DEFAULT** | The serial port IO port address and interrupt address are automatically detected. |



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- ➔ **IO=2C0h; IRQ=11** Serial Port I/O port address is 2C0h and the interrupt address is IRQ11
- ➔ **IO=2C0h; IRQ=10, 11** Serial Port I/O port address is 2C0h and the interrupt address is IRQ10, 11
- ➔ **IO=2C8h; IRQ=10, 11** Serial Port I/O port address is 2C8h and the interrupt address is IRQ10, 11
- ➔ **IO=2D0h; IRQ=10, 11** Serial Port I/O port address is 2D0h and the interrupt address is IRQ10, 11
- ➔ **IO=2D8h; IRQ=10, 11** Serial Port I/O port address is 2D8h and the interrupt address is IRQ10, 11
- ➔ **IO=2E0h; IRQ=10, 11** Serial Port I/O port address is 2E0h and the interrupt address is IRQ10, 11

### 5.3.8.2 Serial Port 6 Configuration

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

- ➔ **Disabled** Disable the serial port
- ➔ **Enabled** **DEFAULT** Enable the serial port

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

- ➔ **Auto** **DEFAULT** The serial port IO port address and interrupt address are automatically detected.
- ➔ **IO=2E0h; IRQ=10** Serial Port I/O port address is 2E0h and the interrupt address is IRQ10
- ➔ **IO=2C0h; IRQ=10, 11** Serial Port I/O port address is 2C0h and the interrupt address is IRQ10, 11

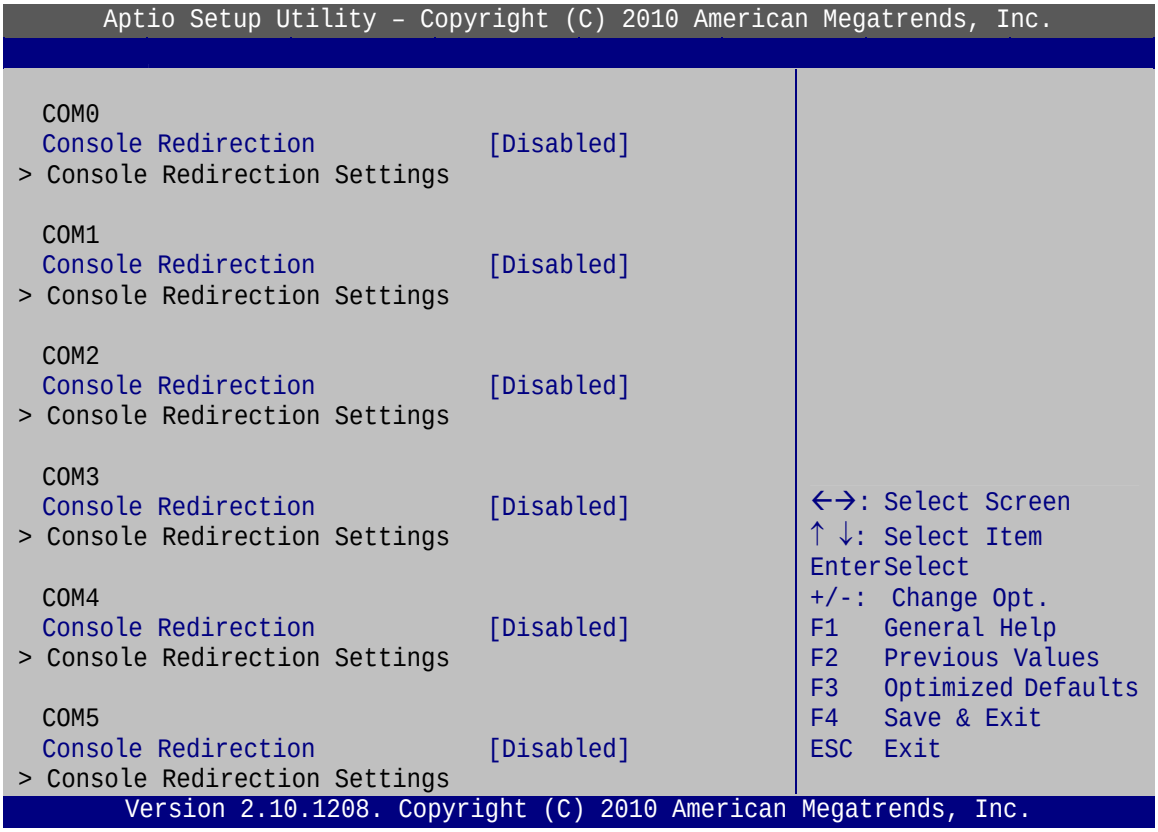


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| | | |
|---|---|---|
| ➔ | **IO=2C8h; IRQ=10, 11** | Serial Port I/O port address is 2C8h and the interrupt address is IRQ10, 11 |
| ➔ | **IO=2D0h; IRQ=10, 11** | Serial Port I/O port address is 2D0h and the interrupt address is IRQ10, 11 |
| ➔ | **IO=2D8h; IRQ=10, 11** | Serial Port I/O port address is 2D8h and the interrupt address is IRQ10, 11 |
| ➔ | **IO=2E0h; IRQ=10, 11** | Serial Port I/O port address is 2E0h and the interrupt address is IRQ10, 11 |

### 5.3.9 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 13**) allows the console redirection options to be configured. Console redirection allows users to maintain a system remotely by re-directing keyboard input and text output through the serial port.




**BIOS Menu 13: Serial Port Console Redirection**



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➔ **Console Redirection [Disabled]**

Use **Console Redirection** option to enable or disable the console redirection function.

| | | | |
|---|---|---|---|
| ➔ | **Disabled** | **DEFAULT** | Disabled the console redirection function |
| ➔ | **Enabled** | | Enabled the console redirection function |

## 5.4 Chipset

Use the **Chipset** menu (**BIOS Menu 14**) to access the Northbridge and Southbridge configuration menus

**WARNING!**

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

```
      Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
  Main    Advanced  Chipset    Boot    Security  Save & Exit

> Host Bridge
> South Bridge
> Intel ICD SWSCI OpRegion

                                          ←→: Select Screen
                                          ↑ ↓: Select Item
                                          EnterSelect
                                          +/-:  Change Opt.
                                          F1    General Help
                                          F2    Previous Values
                                          F3    Optimized Defaults
                                          F4    Save & Exit
                                          ESC   Exit

      Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

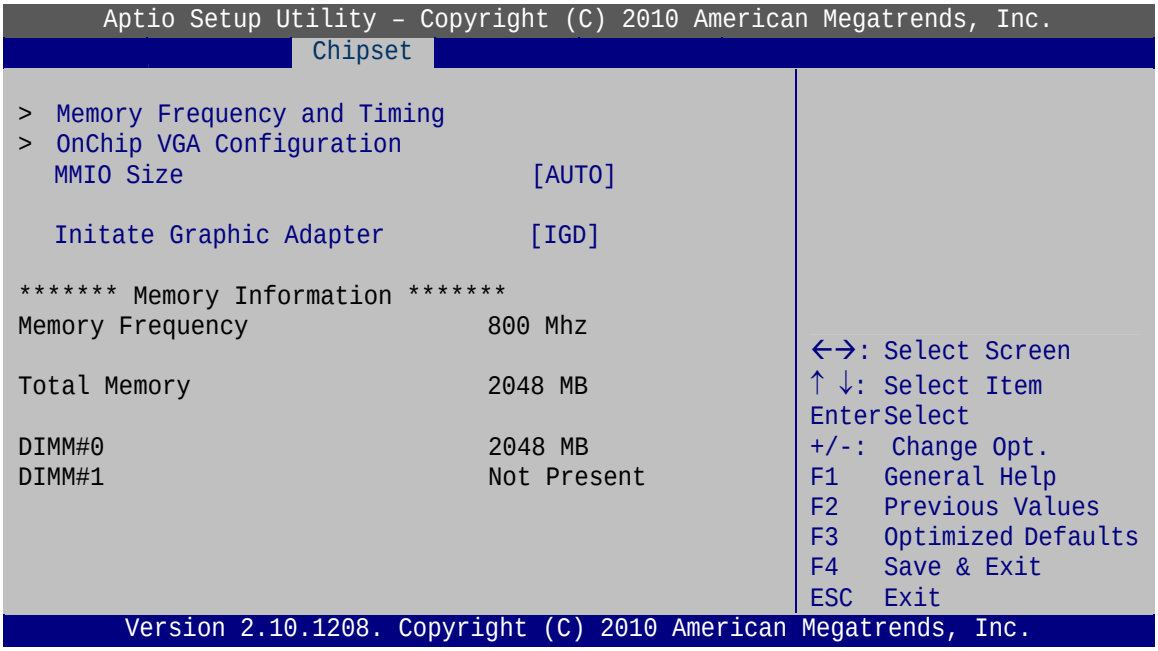
**BIOS Menu 14: Chipset**



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### 5.4.1 Host Bridge Configuration

Use the **Host Bridge Configuration** menu (**BIOS Menu 15**) to configure the Northbridge chipset.




**BIOS Menu 15: Host Bridge Chipset Configuration**

➔ **MMIO Size**

Use the **MMIO Size** option to set the MMIO reserve memory size.

- ➔ **AUTO** **DEFAULT**
- ➔ **1GB** Enables ION graphics controller.
- ➔ **2GB** Enables PCI/PEG graphics controller.

➔ **Initate Graphic Adapter [IGD]**

Use **Initate Graphic Adapter** option to select which graphics controller to use as the primary boot device. Select either an ION graphics controller or a combination of PCI graphics controller and PCI express (PEG) controller. Configuration options are listed in the table below:



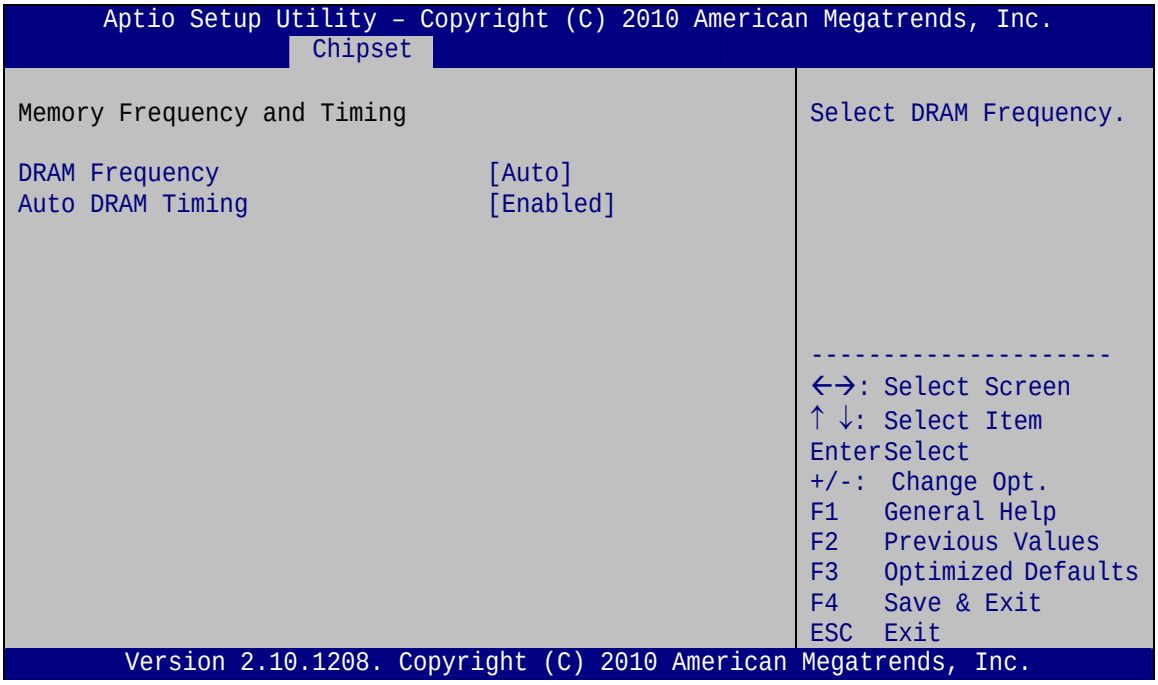
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➔ **ION** **DEFAULT** Enables ION graphics controller.

➔ **PCI/PEG** Enables PCI/PEG graphics controller.

### 5.4.1.1 Memory Frequency and Timing

Use the **Memory Frequency and Timing** submenu (**BIOS Menu 16**) to configure memory frequency and timing settings.




**BIOS Menu 16: Memory Frequency and Timing Configuration**

➔ **DRAM Frequency**

The **DRAM Frequency** option sets the DRAM Frequency.

➔ **Auto** **DEFAULT**

➔ **667 Mhz** Sets DRAM Frequency to 667 Mhz

➔ **800 Mhz** Sets DRAM Frequency to 800 Mhz

➔ **Auto DRAM Timing**

The **Auto DRAM Timing** option enables or disables DRAM Timing by SPD.



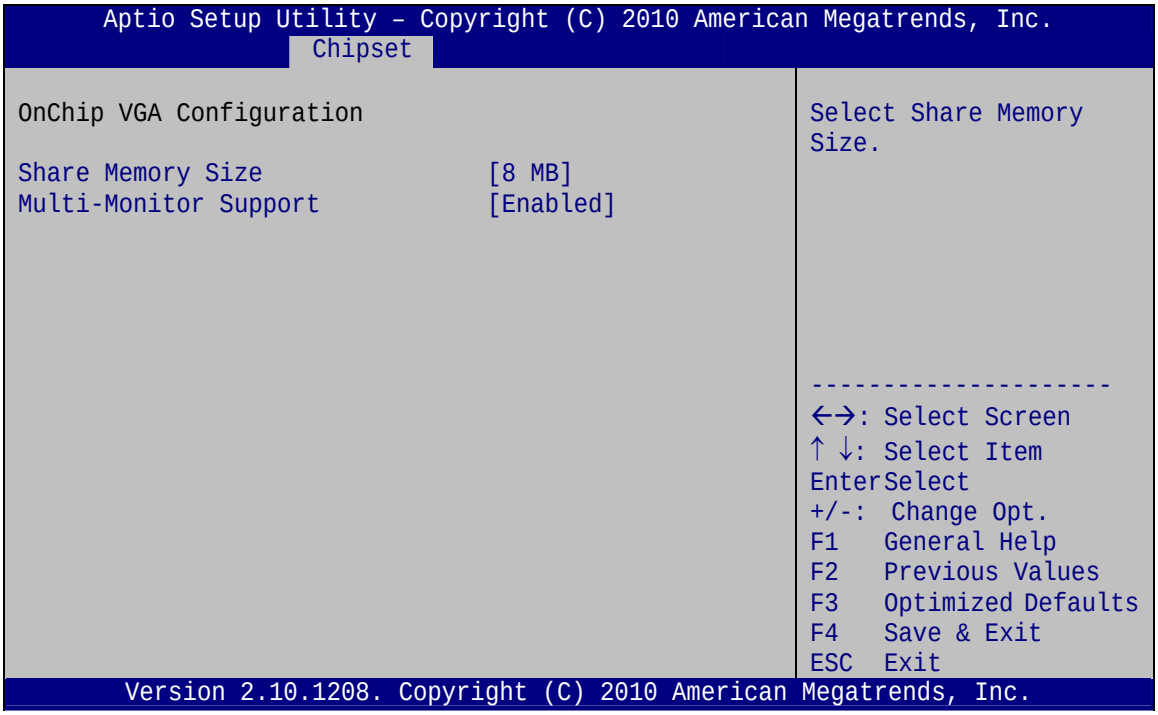
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➔ **Enabled** **DEFAULT** Enables DRAM Timing.

➔ **Disabled** Disables DRAM Timing.

### 5.4.1.2 OnChip VGA Configuration

Use the **OnChip VGA Configuration** submenu (**BIOS Menu 16**) to configure the OnChip VGA.




**BIOS Menu 17: OnChip VGA Configuration**

➔ **Share Memory Size [8 MB]**

Use the **Share Memory Size** option to set the amount of system memory allocated to the integrated graphics processor when the system boots. The system memory allocated can then only be used as graphics memory, and is no longer available to applications or the operating system. Configuration options are listed below:

- Disabled
- 1 MB
- 8 MB **Default**



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➔ **Multi-Monitor Support [Enabled]**

Use **Multi-Monitor Support** option to enable or disable the multi-monitor function.

| | | | |
|---|---|---|---|
| ➔ | **Disabled** | | Disabled the multi-monitor function |
| ➔ | **Enabled** | **DEFAULT** | Enabled the multi-monitor function |

## 5.4.2 South Bridge Configuration

Use the **South Bridge Configuration** menu (**BIOS Menu 18**) to configure the Southbridge chipset.

```
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.

Auto Power Button Function      [Disabled]
Restore AC Power Loss           [Last State]
High Definition Audio Controller [Enabled]
USB Function                    [Enabled]
USB 2.0(EHCI) Support           [Enabled]
Set Spread Spectrum function    [Disabled]

                                ←→: Select Screen
                                ↑ ↓: Select Item
                                Enter Select
                                +/-:  Change Opt.
                                F1   General Help
                                F2   Previous Values
                                F3   Optimized Defaults
                                F4   Save & Exit
                                ESC  Exit

Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

**BIOS Menu 18: South Bridge Chipset Configuration**

➔ **Restore AC Power Loss [Last State]**

Use the **Restore AC Power Loss** to select which AC power state is applied after power failure.

| | | | |
|---|---|---|---|
| ➔ | **Power Off** | | Restores the system to power off. |
| ➔ | **Power On** | | Restores the system to power on. |
| ➔ | **Last State** | **DEFAULT** | Restores the system to last power state. |



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➔ **HD Audio Controller [Enabled]**

Use the **HD Audio Controller** option to enable or disable the High Definition Audio controller.

- ➔ **Enabled** **DEFAULT** The onboard High Definition Audio controller automatically detected and enabled
- ➔ **Disabled** The onboard High Definition Audio controller is disabled

➔ **USB Function [Enabled]**

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

- ➔ **Disabled** USB function support disabled
- ➔ **Enabled** **DEFAULT** USB function support enabled

➔ **USB 2.0 (EHCI) Support [Enabled]**

Use the **USB 2.0 (EHCI) Support** BIOS option to enable or disable USB 2.0 support.

- ➔ **Enabled** **DEFAULT** USB 2.0 (EHCI) support enabled
- ➔ **Disabled** USB 2.0 (EHCI) support disabled

➔ **Set Spread Spectrum Function [Disabled]**

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

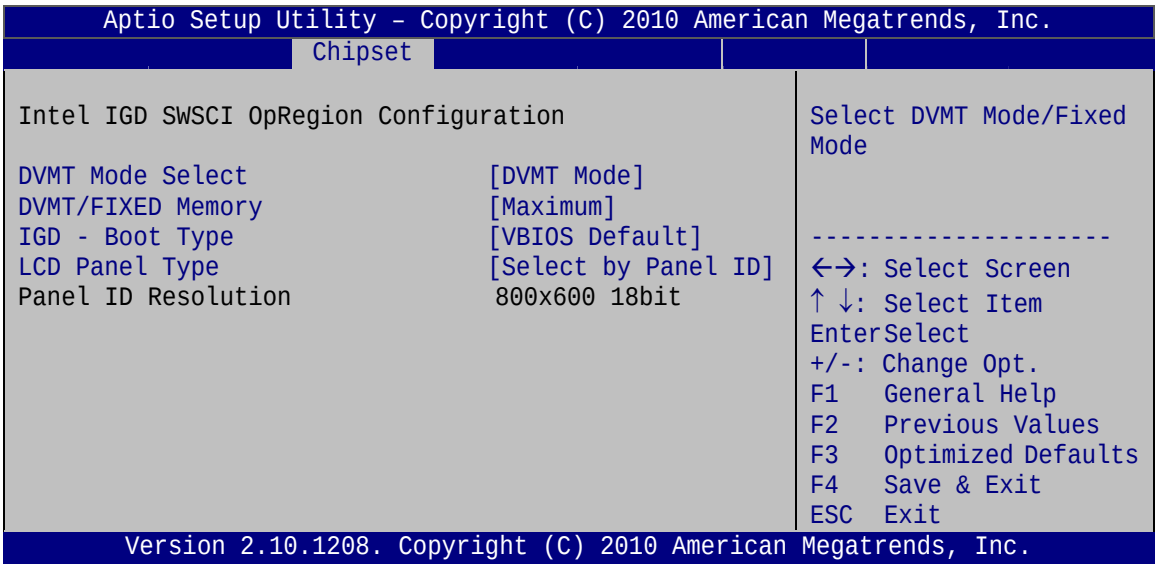
- ➔ **Disabled** **DEFAULT** The spread spectrum mode is disabled
- ➔ **Enabled** The spread spectrum mode is enabled

### 5.4.3 Intel IGD SWSCI OpRegion

Use the **Intel IGD SWSCI OpRegion** menu (**BIOS Menu 19**) to configure the video device connected to the system.



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**BIOS Menu 19: Intel IGD SWSCI OpRegion**

➔ **DVMT Mode Select [DVMT Mode]**

Use the **DVMT Mode Select** option to select the Intel Dynamic Video Memory Technology (DVMT) operating mode.

➔ **Fixed Mode** A fixed portion of graphics memory is reserved as graphics memory.

➔ **DVMT Mode** **DEFAULT** Graphics memory is dynamically allocated according to the system and graphics needs.

➔ **DVMT/FIXED Memory [Maximum]**

Use the **DVMT/FIXED Memory** option to specify the maximum amount of memory that can be allocated as graphics memory. Configuration options are listed below.

- 128 MB
- 256 MB
- Maximum **Default**

➔ **IGD - Boot Type [VBIOS Default]**

Use the **IGD - Boot Type** option to select the display device used by the system when it boots. Configuration options are listed below.



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- VBIOS Default **DEFAULT**
- CRT
- LFP
- CRT + LFP

➔ **LCD Panel Type [VBIOS Default]**

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

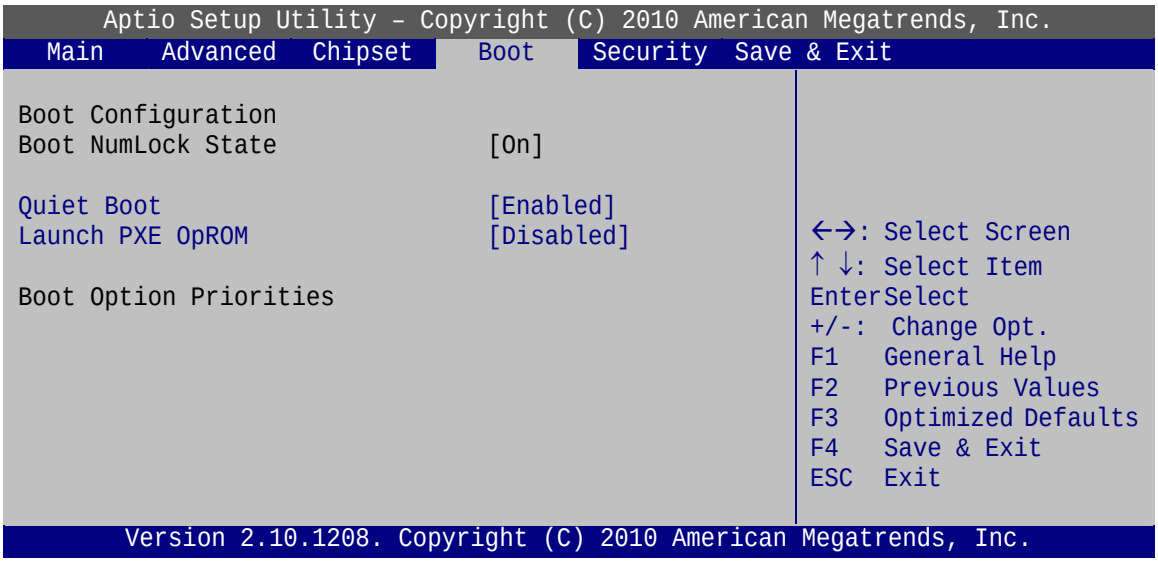
- Select by Panel ID **DEFAULT**
- 640x480 18bit
- 800x480 18bit
- 800x600 18bit
- 1024x768 18bit
- 1280x1024 18bit
- 1366x768 18bit
- 1280x800 18bit
- 1280x600 18bit



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## 5.5 Boot

Use the **Boot** menu (**BIOS Menu 20**) to configure system boot options.




**BIOS Menu 20: Boot**

➔ **Bootup NumLock State [On]**

Use the **Bootup NumLock State** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **On** **DEFAULT** Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

➔ **Off** Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.



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➔ **Quiet Boot [Enabled]**

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

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

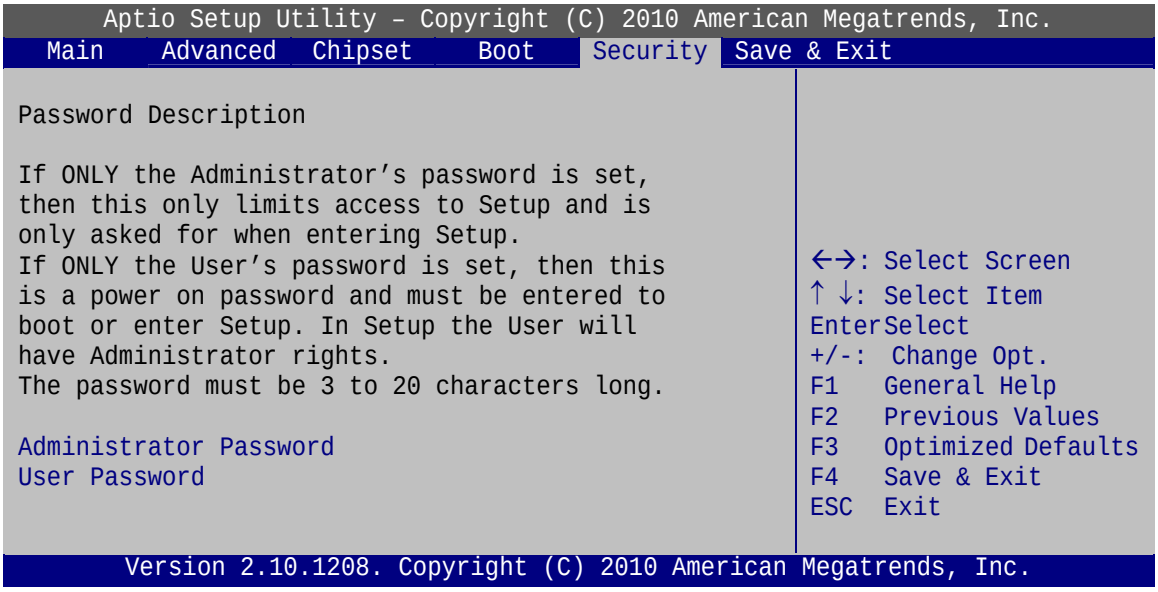
➔ **Launch PXE OpROM [Disabled]**

Use the **Launch PXE OpROM** option to enable or disable boot option for legacy network devices.

| | | |
|---|---|---|
| ➔ **Disabled** | **DEFAULT** | Ignore all PXE Option ROMs |
| ➔ **Enabled** | | Load PXE Option ROMs. |

## 5.6 Security

Use the **Security** menu (**BIOS Menu 21**) to set system and user passwords.




**BIOS Menu 21: Security**

➔ **Administrator Password**

Use the **Administrator Password** option to set or change an administrator password.



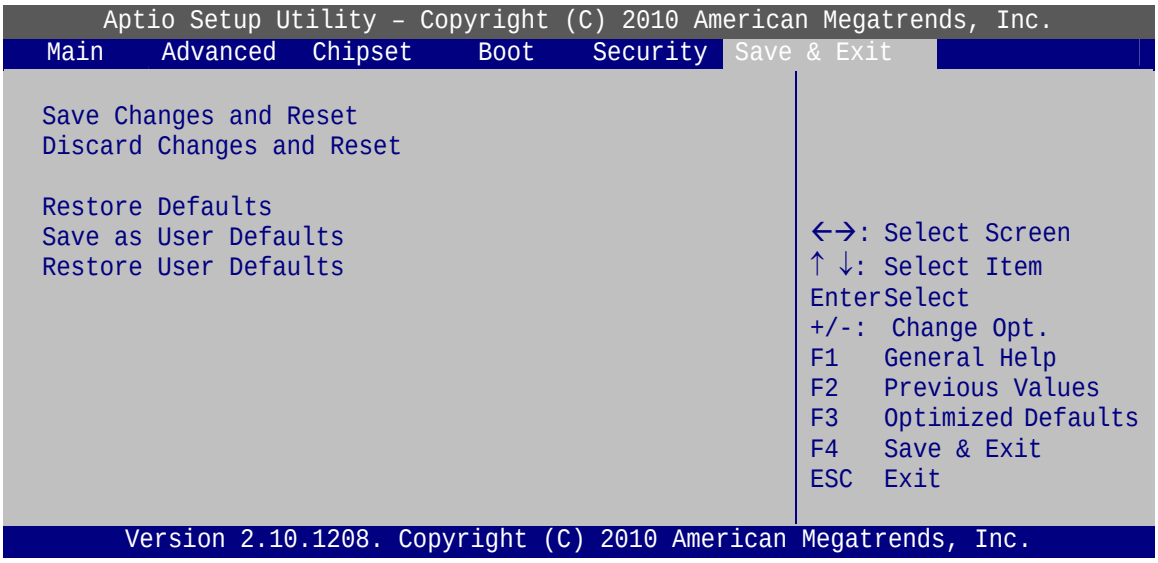
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➔ **User Password**

Use the **User Password** option to set or change a user password.

## 5.7 Exit

Use the **Exit** menu (**BIOS Menu 22**) to load default BIOS values, optimal failsafe values and to save configuration changes.




**BIOS Menu 22: Exit**

➔ **Save Changes and Reset**

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

➔ **Discard Changes and Reset**

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

➔ **Restore Defaults**

Use the **Restore Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F3 key can be used for this operation.**



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➔ **Save as User Defaults**

Use the **Save as User Defaults** option to save the changes done so far as user defaults.

➔ **Restore User Defaults**

Use the **Restore User Defaults** option to restore the user defaults to all the setup options.



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Appendix

A

# Regulatory Compliance



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## DECLARATION OF CONFORMITY

This equipment has been tested and found to comply with specifications for CE marking. If the user modifies and/or installs other devices in the equipment, the CE conformity declaration may no longer apply.

## FCC WARNING

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



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Appendix

B

# BIOS Options



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

**BIOS Information** ..... **68**
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Appendix

C

# Terminology



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



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



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



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Appendix

D

# Digital I/O Interface



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## D.1 Introduction

The DIO connector on the KINO-PV-D5252/D4252 is interfaced to GPIO ports on the 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 Super I/O chipset.

The BIOS interrupt call **INT 15H** controls the digital I/O.

**INT 15H:**

| **AH – 6FH** | |
|---|---|
| Sub-function: | |
| **AL – 8** | :Set the digital port as INPUT |
| **AL** | :Digital I/O input value |



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## D.2 Assembly Language Sample 1

```
MOV     AX, 6F08H       ;setting the digital port as input
INT     15H             ;
```

**AL low byte = value**

| AH – 6FH | |
|---|---|
| Sub-function: | |
| **AL – 9** | :Set the digital port as OUTPUT |
| **BL** | :Digital I/O input value |

## D.3 Assembly Language Sample 2

```
MOV     AX, 6F09H       ;setting the digital port as output
MOV     BL, 09H         ;digital value is 09H
INT     15H             ;
```

**Digital Output is 1001b**



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Appendix

E

# Watchdog Timer



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**NOTE:**

The following discussion applies to DOS. Contact IEI support or visit the IEI website for drivers for other operating systems.

The Watchdog Timer is a hardware-based timer that attempts to restart the system when it stops working. The system may stop working because of external EMI or software bugs. The Watchdog Timer ensures that standalone systems like ATMs will automatically attempt to restart in the case of system problems.

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

INT 15H:

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

**Table E-1: AH-6FH Sub-function**

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

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



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**NOTE:**

The Watchdog Timer is activated through software. The software application that activates the Watchdog Timer must also deactivate it when closed. If the Watchdog Timer is not deactivated, the system will automatically restart after the Timer has finished its countdown.

## 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

F

# Hazardous Materials Disclosure



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

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

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

Please refer to the table on the next page.



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| 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 | O | O | O | O | O | O |
| Display | O | O | O | O | O | O |
| Printed Circuit Board | O | O | O | O | O | O |
| Metal Fasteners | O | O | O | O | O | O |
| Cable Assembly | O | O | O | O | O | O |
| Fan Assembly | O | O | O | O | O | O |
| Power Supply Assemblies | O | O | O | O | O | O |
| Battery | O | O | O | O | O | O |

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

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



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

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

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

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

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



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