IEI Integration Corp.

MODEL:

KINO-SE-i2

Mini-ITX SBC with AMD® Embedded G-Series SoC with VGA/Dual HDMI, Dual GbE, Dual PCIe Mini, USB 3.0, SATA 6GB/s, Audio, iRIS-2400 and RoHS

User Manual

Rev. 1.00 - 27 January, 2015

RoHS Lead Free

Revision

Date	Version	Changes
27 January, 2015	1.00	Initial release

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TRADEMARKS

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Chapter

1

Introduction

1.1 Introduction

Figure 1-1: KINO-SE-i2

The KINO-SE-i2 PICO-ITX motherboard is an AMD® G-Series SoC processor platform. It supports two 1600/1333 MHz DDR3 & DDR3L SO-DIMM modules up to 8.0 GB.

The KINO-SE-i2 includes a VGA connector and two HDMI connectors. Expansion and I/O include two USB 3.0 connectors on the rear panel, two USB 2.0 connectors on the rear panel, two USB 2.0 connectors by pin header and two SATA 6Gb/s connectors. Serial device connectivity is provided by three internal RS-232 connectors, one external RS-232 connector and one internal RS-422/485 connector. Two RJ-45 Ethernet connectors provide the system with smooth connections to an external LAN.

1.2 Model Variations

The model variations of the KINO-SE-i2 Series are listed below.

Model No.	SoC
KINO-SE-i2-4241-R10	AMD® 28nm quad core GX-424CC 2.4GHz (25W)
KINO-SE-i2-4121-R10	AMD® 28nm quad core GX-412HC 1.2GHz (7W)
KINO-SE-i2-2121-R10	AMD® 28nm dual core GX-212JC 1.2GHz (6W)
KINO-SE-i2-2091-R10	AMD® 28nm dual core GX-209HA 1.0GHz (9W)
KINO-SE-i2-4111-R10	AMD® 28nm quad core GX-411GA 1.0GHz (15W)

Table 1-1: KINO-SE-i2 Model Variations

1.3 Features

Some of the KINO-SE-i2 motherboard features are listed below:

- Mini-ITX form factor with AMD® Embedded G-Series SoC
- 12V only single voltage design for AT/ATX power
- Dual independent display by VGA, dual HDMI
- Supporting Dual PCIe Mini card slot with mSATA, wireless card, DOM capabilities
- Support IPMI 2.0 with with iRIS module
- IEI One Key Recovery solution allows you to create rapid OS backup and recovery

1.4 Connectors

The connectors on the KINO-SE-i2 are shown in the figure below.

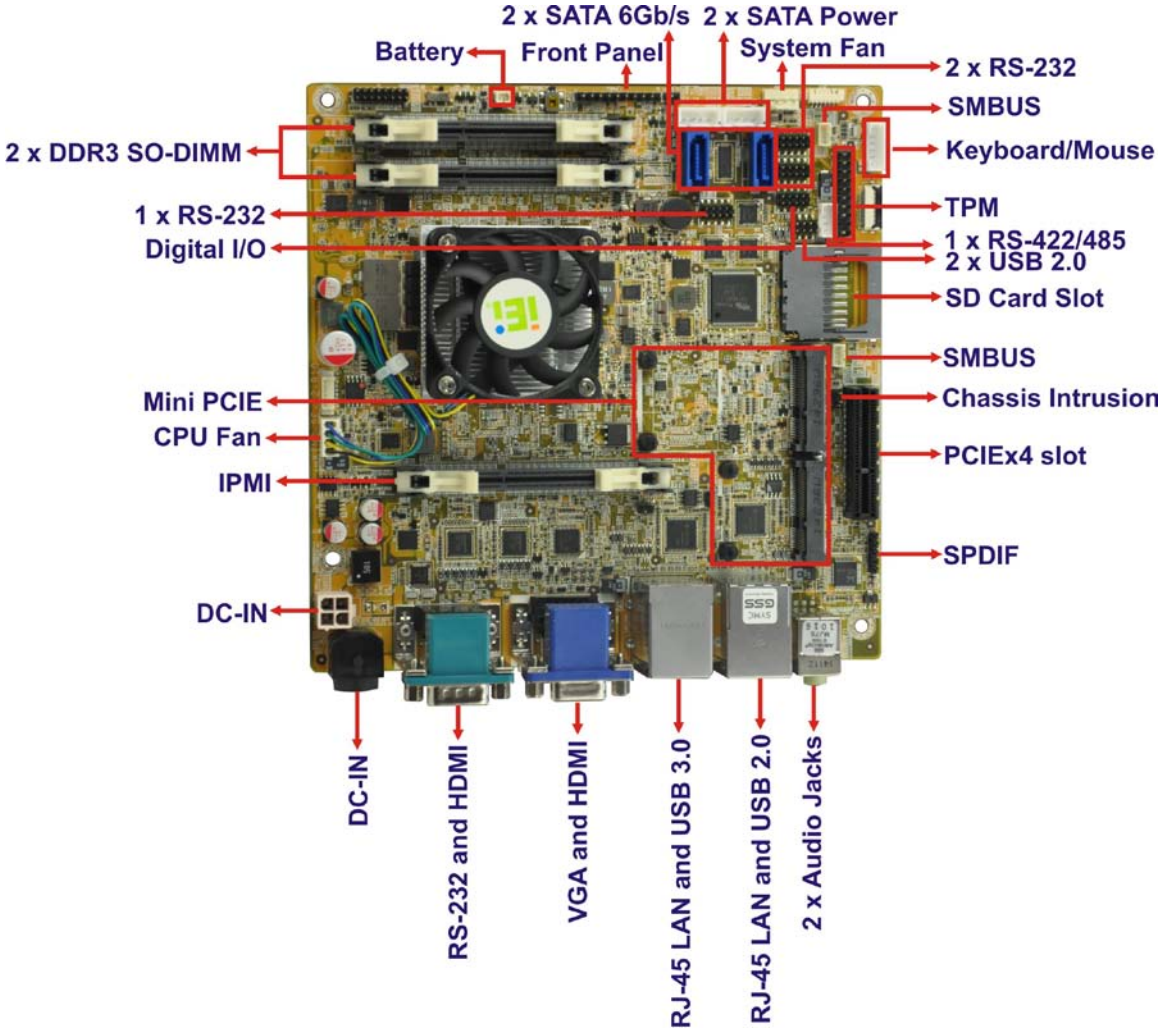

Figure 1-2: Connectors

1.5 Dimensions

The dimensions of the board are listed below:

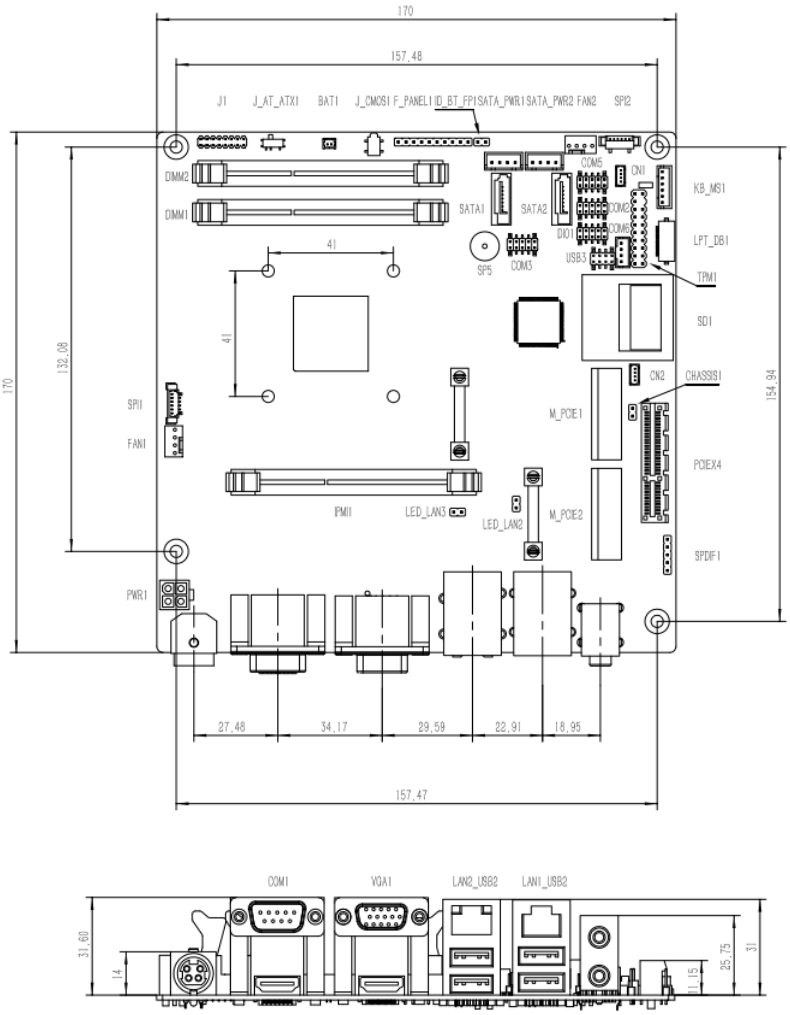

Figure 1-3: Dimensions (mm)

1.6 Data Flow

Figure 1-4 shows the data flow between the system chipset, the CPU and other components installed on the motherboard.

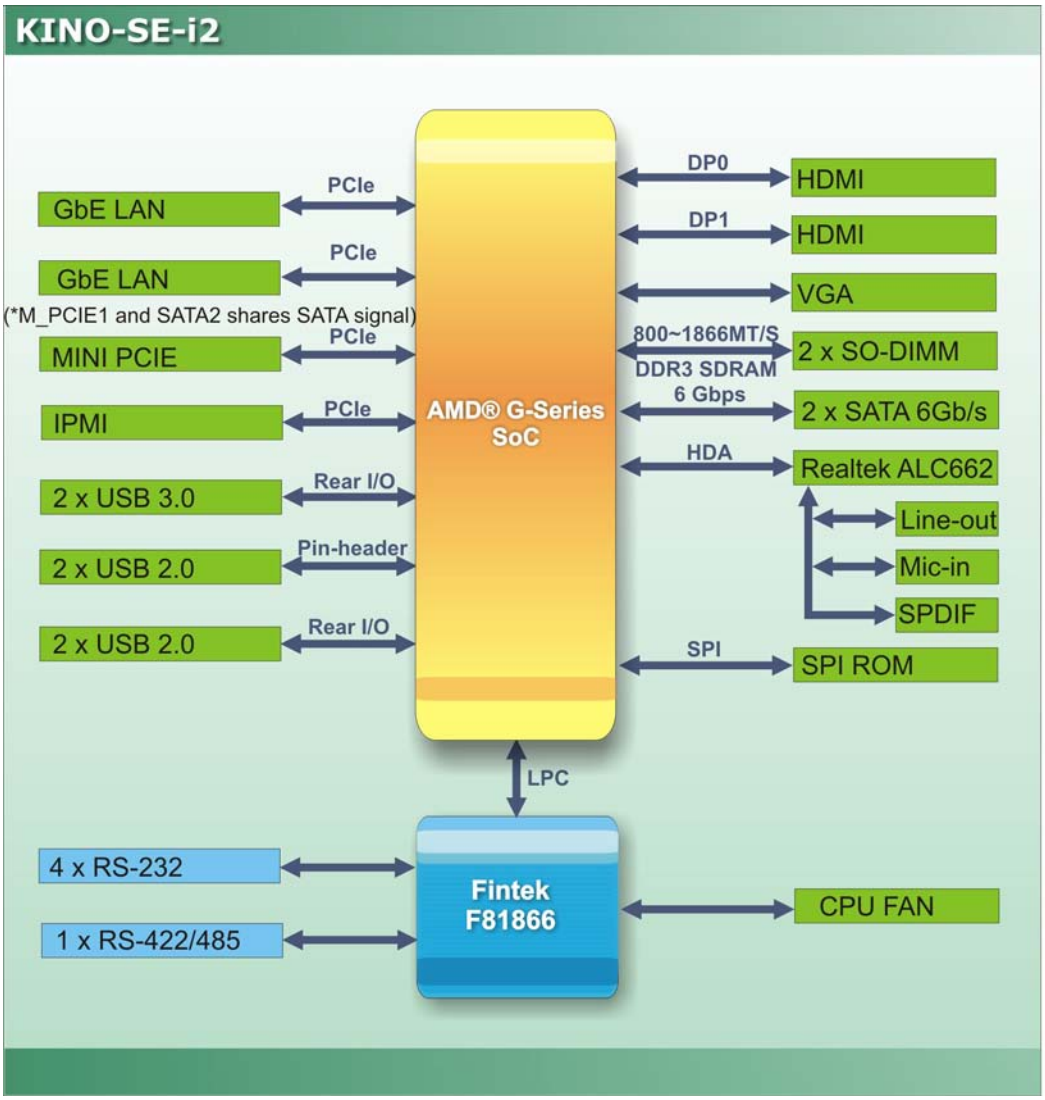

Figure 1-4: Data Flow Diagram

1.7 Technical Specifications

KINO-SE-i2 technical specifications are listed below.

Specification	KINO-SE-i2
SoC	AMD® Embedded G-Series G-Series SoC GX-424CC on-board Soc (2.4GHz, quad-core, 2MB cache, TDP=25W) GX-412HC on-board Soc (1.2GHz, quad-core, 2MB cache, TDP=7W) (by request) GX-212JC on-board Soc (1.2GHz, dual-core, 1MB cache, TDP=6W) (by request) GX-209HA on-board Soc (1.0GHz, dual-core, 1MB cache, TDP=9W) (by request) GX-411GA on-board Soc (1.0GHz, quad-core, 2MB cache, TDP=15W)
BIOS	UEFI BIOS
Memory	Two 204-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs support up to 8GB
Graphics Engine	GPU frequency 497MHz for GX-424CC GPU frequency 300MHz for GX-412HC GPU frequency 300MHz for GX-212JC GPU frequency 225MHz for GX-209HA GPU frequency 300MHz for GX-411GA Support DX11.1, OpenGL 4.1 and OpenCL1.2 UVD4.2 decode for H.264, MPEG2/4, VC1, MVC VCE 2.0 encode for H.264, VCE
Display Output	2 x HDMI (up to 3840x2160@60Hz) 1 x VGA (up to 2048x1536@60Hz)
Ethernet	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I211-AT PCIe controller
Super IO	Fintek F81866

Specification	KINO-SE-i2
I/O Interfaces	1 x RS-422/485 4 x RS-232 (1 on rear I/O, 3 by pin header) 1 x SD card 2 x SATA 6Gb/s with SATA power connector 2 x USB 3.0 (2 on rear I/O) 4 x USB 2.0 (2 on rear I/O, 2 by pin header) 1 x mSATA (colay SATA port 2) 1 x 6-pin wafer for PS/2 KB/MS
iRIS Remote Management Module	1 x iRIS-2400 slot
SMBus	2 x 4-pin (1x4) wafer
Audio	Realtek AL892 HD Audio codec 1 x S/PID by 4-pin (1x4) header for digital audio 1 x Line-out / Mic-in audio jack on rear IO
Front Panel	1 x Front panel (Power LED, HDD LED, Power Button, Reset Button)
LAN LED	2 x 2-pin headers for LAN1 Link LED, LAN2 Link LED
Expansion	1 x Half-size PCIe Mini card slot 1 x PCIe x4 slot
Digital I/O	8-bit digital I/O (4-bit input / 4-bit output)
Fan Connector	1 x 4-pin system fan connector
Watchdog Timer	Software programmable supports 1~255 sec. system reset
Environmental and Power Specifications	
Power Supply	12V only DC input 1 x Internal 4-pin (2x2) power connector 1 x External DC jack (4-pin DIN) Support AT/ATX mode

Specification	KINO-SE-i2
Power Consumption	+12V@ 2.7A (AMD GX-424CC 2.4GHz CPU with 1600MHz 8GB DDR3 memory)
Operating Temperature	-10°C ~ 60°C
Storage Temperature	-20°C ~ 85°C
Humidity	5% ~ 95%, non-condensing
Physical Specifications	
Dimensions	170mm x 170mm
Weight GW/NW	600 g / 250 g

Table 1-2: Technical Specifications

Chapter

2

Unpacking

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-SE-i2 is unpacked, please do the following:

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

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-SE-i2 was purchased from or contact an IEI sales representative directly by sending an email to sales@iei.com.tw.

The KINO-SE-i2 is shipped with the following components:

Quantity	Item and Part Number	Image
1	KINO-SE-i2 motherboard	
2	SATA with power output cable kit (**P/N**:32801-000100-300-RS)	
1	I/O Shielding (**P/N**: 45014-0029C0-00-RS)	
1	Utility CD	
1	One Key Recovery CD	
1	Quick Installation Guide	

2.4 Optional Items

The following are optional components which may be separately purchased:

Item and Part Number	Image
RS-232 cable with bracket, 300mm 19800-000300-100-RS	
Dual-port USB cable with bracket, 300mm (**P/N**:19800-003100-200-RS) CB-USB02A-RS	
RS-422/485 cable, 200mm (**P/N**:32200-074800-RS) 32205-003800-300-RS	

Chapter

3

Connectors

3.1 Peripheral Interface Connectors

This chapter details all the jumpers and connectors.

3.1.1 KINO-SE-i2 Layout

The figures below show all the connectors and jumpers.

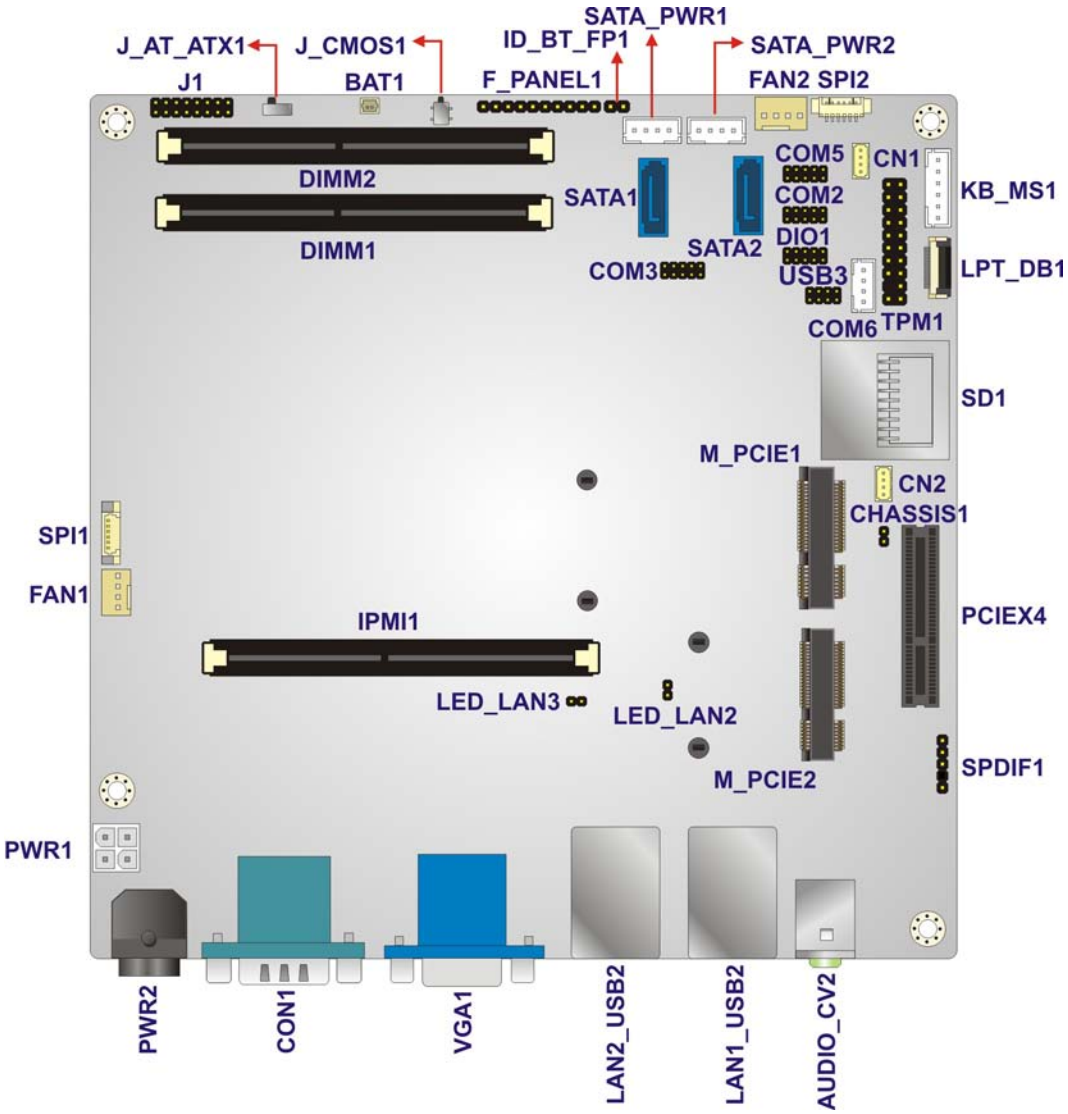

Figure 3-1: Connector and Jumper Locations

3.1.2 Peripheral Interface Connectors

The table below lists all the connectors on the board.

Connector	Type	Label
AT/ATX mode select switch	switch	J_ATX_AT1
Battery connector	2-pin wafer	BAT1
Clear CMOS button	button	J_CMOS1
CPU fan connector	4-pin wafer	FAN1
DC-IN connector	4-pin Molex	PWR1
DDR3 SO-DIMM slots	DDR3 SO-DIMM slot	DIMM1, DIMM2
Digital I/O connector	10-pin header	DIO1
EC debug connector	20-pin FPC connector	LPT_DB1
Front panel connector	10-pin wafer	F_PANEL1
IPMI slot	204-pin slot	IPMI1
Keyboard and mouse connector	6-pin wafer	KB_MS1
LAN LED connectors	2-pin header	LED_LAN2, LED_LAN3
PCIe x4 slot	PCIe x4 slot	PCIEX4
PCIe Mini Card Slots	PCIe mini card slot	M_PCIE1, M_PCIE2
RS-232 serial port connector	10-pin header	COM2, COM3, COM5
RS-422/485 serial port connector	4-pin wafer	COM6
SATA 6Gb/s drive connectors	7-pin SATA connector	SATA1, SATA2
SATA power connectors	2-pin wafer	SATA_PWR1, SATA_PWR2
SD card slot	SD card slot	SD1

SMBus connectors	4-pin wafer	CN1, CN2
SPDIF connector	5-pin header	SPDIF1
SPI Flash connectors	6-pin wafer	SPI1, SPI2
System fan connector	4-pin wafer	FAN2
TPM connector	20-pin connector	TPM1
USB connector	8-pin header	USB3

Table 3-1: Peripheral Interface Connectors

3.1.3 External Interface Panel Connectors

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

Connector	Type	Label
Audio jacks	Audio jack	AUDIO_CV2
Ethernet and USB 2.0 ports	RJ-45, USB 2.0	LAN1_USB2
Ethernet and USB 3.0 ports	RJ-45, USB 3.0	LAN2_USB2
Power connector	DC power jack	PWR2
Serial port and HDMI connectors	DB-9, HDMI	COM1,HDMI1
VGA and HDMI connectors	15-pin female, HDMI	VGA1,HDMI2

Table 3-2: Rear Panel Connectors

3.2 Internal Peripheral Connectors

The section describes all of the connectors on the KINO-SE-i2.

3.2.1 AT/ATX Mode Select Switch

CN Label: **J_ATX_AT1**

CN Type: switch

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

CN Settings: See **Table 3-3**

The AT/ATX mode select switch specifies the systems power mode as AT or ATX. AT/ATX mode select switch settings are shown in **Table 3-3**.

Setting	Description	
Short 1-2	AT Mode	
Short 2-3	ATX Mode	Default

Table 3-3: AT/ATX Mode Select Switch Settings

The location of the AT/ATX mode select switch is shown in **Figure 3-2** below.

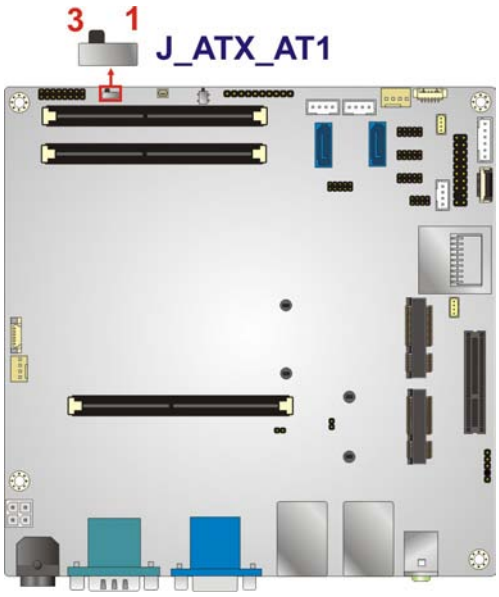

Figure 3-2: AT/ATX Mode Select Switch Location

3.2.2 Battery Connector

CN Label: **BAT1**

CN Type: 2-pin wafer, P=1.25 mm

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

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

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

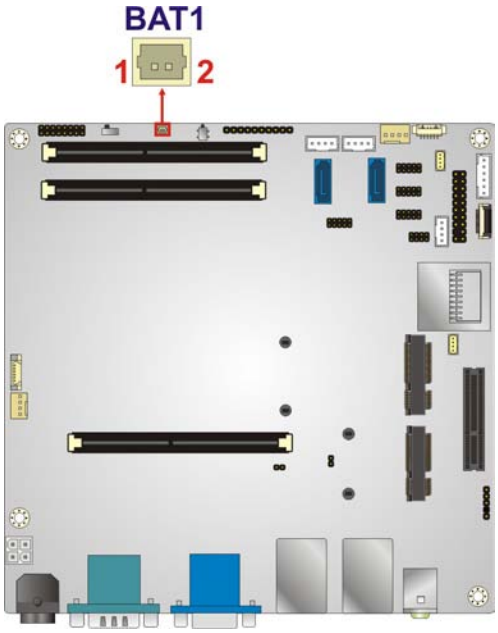

Figure 3-3: Battery Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+VBAT	2	GND

Table 3-4: Battery Connector Pinouts

3.2.3 Clear CMOS Button

CN Label: J_CMOS1

CN Type: button

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

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

If the KINO-SE-i2 fails to boot due to improper BIOS settings, use the button to clear the CMOS data and reset the system BIOS information.

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

Setting	Description	
Open	Normal Operation	Default
Push	Clear CMOS Setup	

Table 3-5: Clear CMOS Button Settings

The location of the clear CMOS button is shown in **Figure 3-4**.

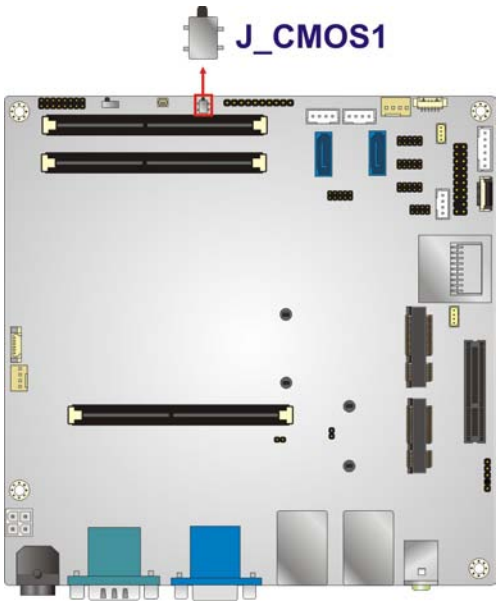

Figure 3-4: Clear CMOS Button Location

3.2.4 CPU Fan Connector

CN Label: FAN1

CN Type: 4-pin wafer, P=2.54 mm

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

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

The fan connector attaches to a CPU cooling fan.

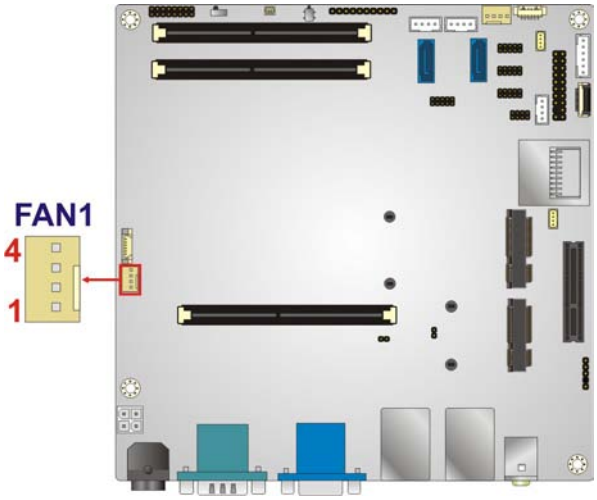

Figure 3-5: CPU Fan Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+12V
3	FAN1IN	4	FAN1OUT

Table 3-6: CPU Fan Connector Pinouts

3.2.5 DC-IN Connector

CN Label: PWR1

CN Type: 4-pin Molex, P=4.20 mm

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

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

The DC-IN connector provides power to the motherboard.

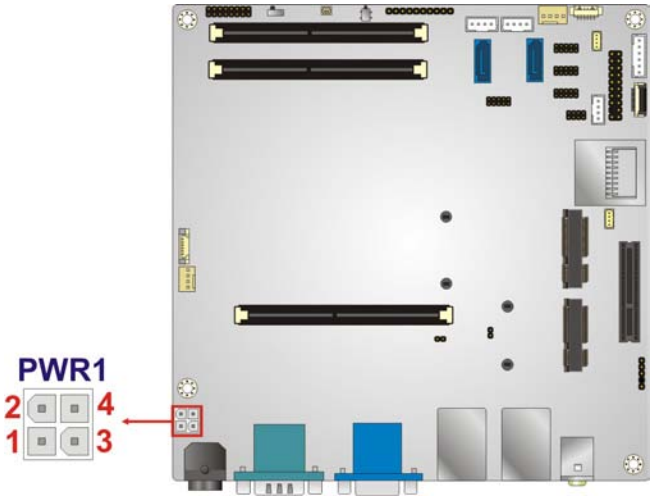

Figure 3-6: CPU Power Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND_VIN	2	GND_VIN
3	12VIN_1	4	12VIN_1

Table 3-7: CPU Power Connector Pinouts

3.2.6 DDR3 SO-DIMM Slots

CN Label: DIMM1, DIMM2

CN Type: DDR3 SO-DIMM slot

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

The DDR3 SO-DIMM slot is for DDR3 SO-DIMM memory module.

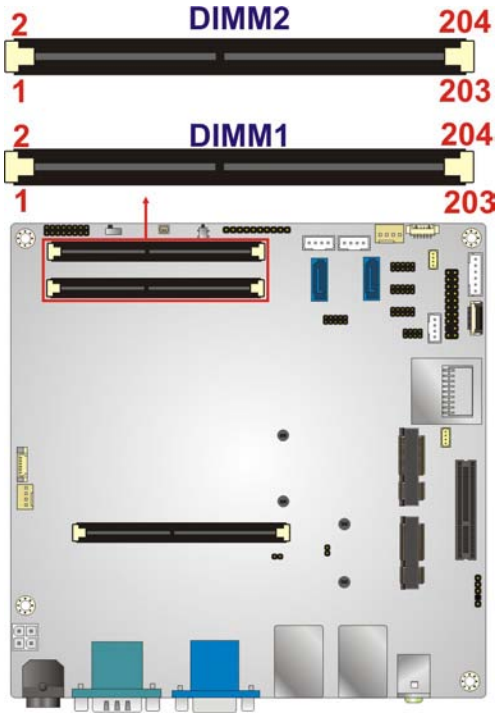

Figure 3-7: DDR3 SO-DIMM Slot Location

3.2.7 Digital I/O Connector

CN Label:	**DIO1**
CN Type:	10-pin header, P=2.00 mm
CN Location:	See **Figure 3-8**
CN Pinouts:	See **Table 3-8**

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.

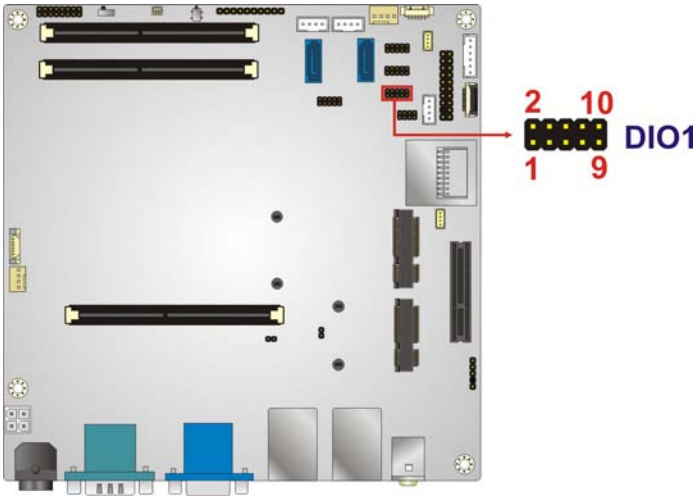

Figure 3-8: Digital I/O Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+5V
3	DOUT3	4	DOUT2
5	DOUT1	6	DOUT0
7	DIN3	8	DIN2
9	DIN1	10	DIN0

Table 3-8: Digital I/O Connector Pinouts

3.2.8 EC Debug Connector

CN Label: LPT_DB1

CN Type: 20-pin FPC connector, P=0.50 mm

CN Location: See **Figure 3-9**

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

The EC debug connector connects to a debug card for Embedded Controller (EC) debug.

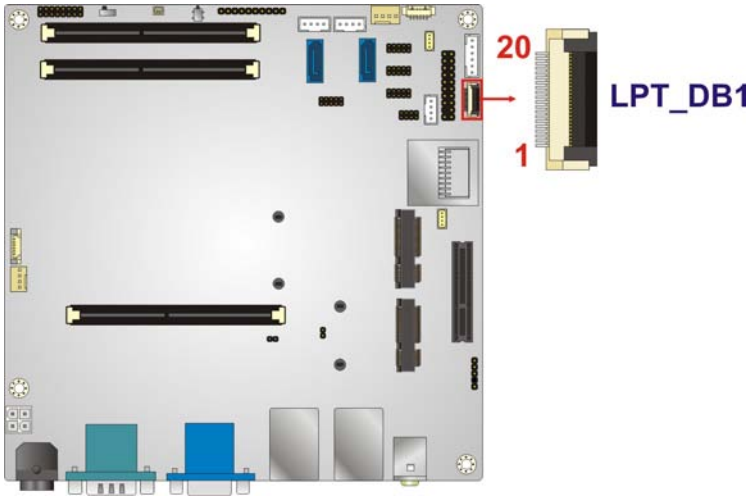

Figure 3-9: EC Debug Connector Location

Pin	Description	Pin	Description
1	KSI0	11	KSO9
2	KSO0	12	KSO10
3	KSO1	13	KSO12
4	KSO2	14	KSI1
5	KSO3	15	KSO11
6	KSO4	16	KSI2
7	KSO5	17	KSI3
8	KSO6	18	GND
9	KSO7	19	GND
10	KSO8	20	GND

Table 3-9: EC Debug Connector Pinouts

3.2.9 Front Panel Connector

CN Label: F_PANEL1

CN Type: 10-pin header, P=2.54 mm

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

CN Pinouts: See **Table 3-10**

The front panel connector connects to the indicator LEDs on the system front panel.

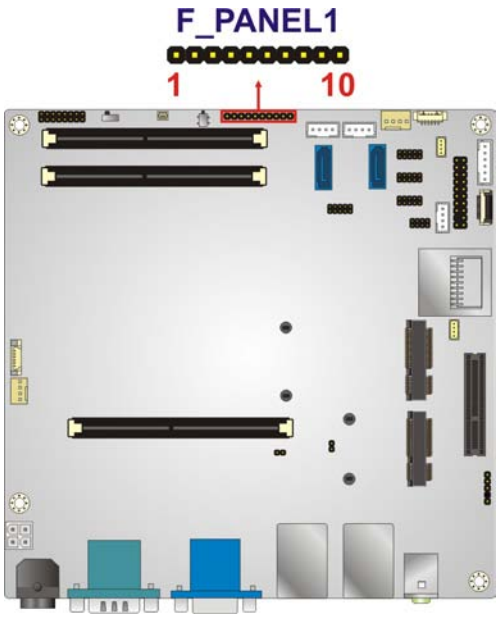

Figure 3-10: Front Panel Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	2	PWRBTN+
3	GND	4	HDD LED+
5	HDD LED-	6	PWR LED+
7	PWR LED+	8	PWR LED-
9	RST BTN+	10	GND

Table 3-10: Front Panel Connector Pinouts

3.2.10 IPMI Slot

CN Label: IPMI1

CN Type: IPMI slot

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

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

The IPMI slot is for IPMI module card.

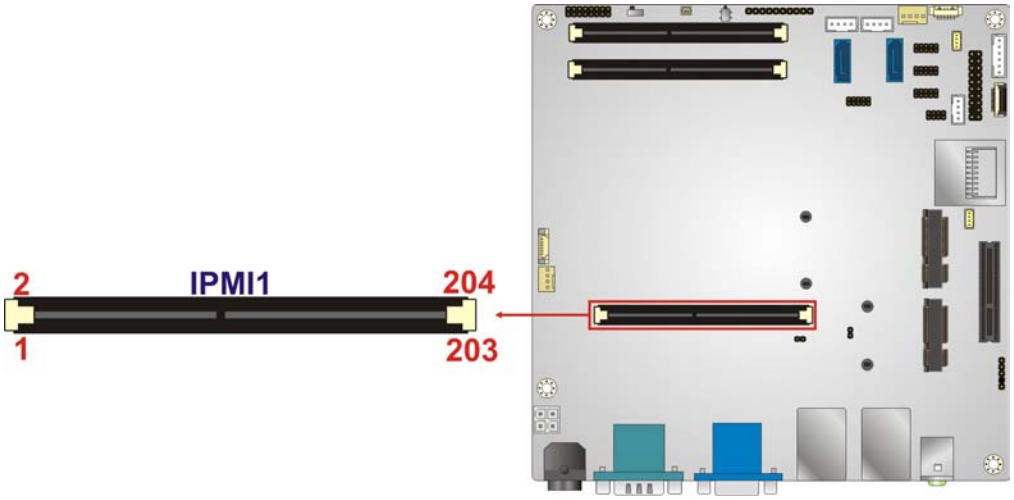

Figure 3-11: IPMI Slot Location

PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION
1	VGA_G2	52	NC	103	NC_SI_RXD1	154	PMBUS_ALERT#
2	NC	53	SDATA1_LAN1	104	NC_SI_TXD1	155	GND
3	VGA_R2	54	GND	105	+5V_DUAL	156	GND
4	NC	55	GND	106	+5V_DUAL	157	NC
5	VGA_B2	56	DATA5_P	107	NC	158	NC
6	NC	57	DATA4_P	108	NC_SI_CRS_DV	159	NC
7	NC	58	DATA5_N	109	NC_SI_CLK_IN	160	NC
8	NC	59	DATA4_N	110	NC_SI_TX_EN	161	GND
9	VSYNC2	60	GND	111	+5V_DUAL	162	GND
10	NC	61	GND	112	+5V_DUAL	163	RTS#4
11	HSYNC2	62	APU_PROCHOT#_IPMI	113	APU_VDD_RUN	164	RXD4
12	NC	63	GND	114	NC	165	DTR#4
13	VI_DDCDAT	64	+3.3V	115	+0.95V_ALW	166	TXD4
14	NC	65	GND	116	APU_VDDIO_SUS	167	GND
15	VI_DDCCLK	66	GND	117	+5V	168	GND
16	NC	67	NC	118	+5V	169	-CASEOPEN
17	NC	68	NC	119	NC	170	GND
18	NC	69	NC	120	APU_VTT_SUS	171	SYS_RST#
19	GND	70	NC	121	NC	172	GND

20	GND	71	GND	122	SPI_SWITCH	173	GND
21	SMB_PCIE_3V3_CLK	72	GND	123	+3.3V	174	BMC_TXD5
22	SMB_IPMB_3VSB_CLK	73	APU_VDD_RUN	124	+3.3V	175	DSR#4
23	SMB_PCIE_3V3_DATA	74	NC	125	ID_BT_FP#	176	BMC_RXD5
24	SMB_IPMB_3VSB_DATA	75	+3.3V_DUAL	126	NC	177	CTS#4
25	GND	76	+3.3V_DUAL	127	GND	178	GND
26	GND	77	NC	128	IPMI_DET#	179	GND
27	BMC_SPKR	78	AMBER_LED-_BMC	129	SPI_BMC_BIOS_CS0_N	180	LAD2
28	GND	79	NC	130	SPI_PATBRG_R_CS0_N	181	LAD0
29	APU_VDD_PWRGD_IPMI	80	GREEN_LED-_BMC	131	SPI_BMC_BIOS_CLK	182	LAD3
30	NC	81	+3.3V_DUAL	132	SPI_PATBRG_R_CLK	183	LAD1
31	GND	82	+3.3V_DUAL	133	GND	184	GND
32	GND	83	NC	134	GND	185	GND
33	SMB_TEMP_3VSB_CLK	84	ID_LED#_BMC	135	SMI_ACTIVE#	186	PWRBTSW#
34	NC	85	PCIE_RST#	136	GND	187	GND
35	SMB_TEMP_3VSB_DATA	86	PCIE_WAKE_UP#	137	NMI_EVENT#	188	PWRBTSW_BMC
36	NC	87	+3.3V_DUAL	138	GND	189	GND
37	GND	88	+3.3V_DUAL	139	GND	190	GND
38	GND	89	NC	140	SPI_PATBRG_R_MOSI	191	NC
39	SCLK1_BMC	90	GPP_CLK3N	141	SPI_BMC_BIOS_MOSI	192	LFRAME#
40	ACLK_LAN2	91	NC	142	SPI_PATBRG_MISO	193	LPC_CLK0_IPMI

41	SDATA1_BMC	92	GPP_CLK3P	143	SPI_BMC_BIOS_MISO	194	SERIRQ
42	SDATA1_LAN2	93	+3.3V_DUAL	144	GND	195	GND
43	GND	94	+3.3V_DUAL	145	GND	196	GND
44	GND	95	IPMI_RXN	146	NC	197	PM_RSMRST#_SIO
45	SYS_PWRGD_IPMI	96	IPMI_TXN	147	NC	198	PME#
46	GND	97	IPMI_RXP	148	NC	199	NC
47	SYS_PWRGD_IPMI	98	IPMI_TXP	149	NC	200	SLP_S3#
48	GND	99	+5V_DUAL	150	GND	201	SLP_S4#
49	GND	100	+5V_DUAL	151	GND	202	SLP_S5#
50	NC	101	NC_SI_RXD0	152	PBG_SYS_RESET_N_BMC	203	BMC_PSON
51	ACLK_LAN1	102	NC_SI_TXD0	153	GND	204	PS_ON#

Table 3-11: IPMI Slot Pinouts

3.2.11 Keyboard/Mouse Connector

CN Label: KB_MS1

CN Type: 6-pin wafer, P=2.00 mm

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

CN Pinouts: See **Table 3-15**

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

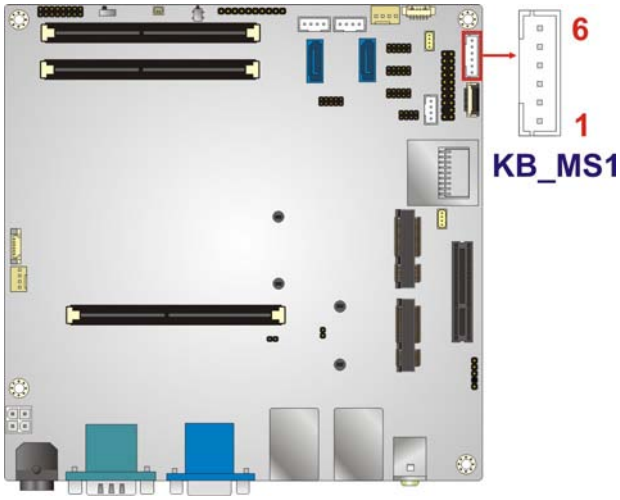

Figure 3-12: Keyboard/Mouse Connector Location

Pin	Description
1	VCC5_KBMS
2	MSDATA
3	MSCLK
4	KBDATA
5	KBCLK
6	KBMS_GND

Table 3-12: Keyboard/Mouse Connector Pinouts

3.2.12 LAN LED Connector

CN Label: LED_LAN2, LED_LAN3

CN Type: 2-pin header, P=2.54 mm

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

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

The LAN LED connectors connect to the LAN link LEDs on the system.

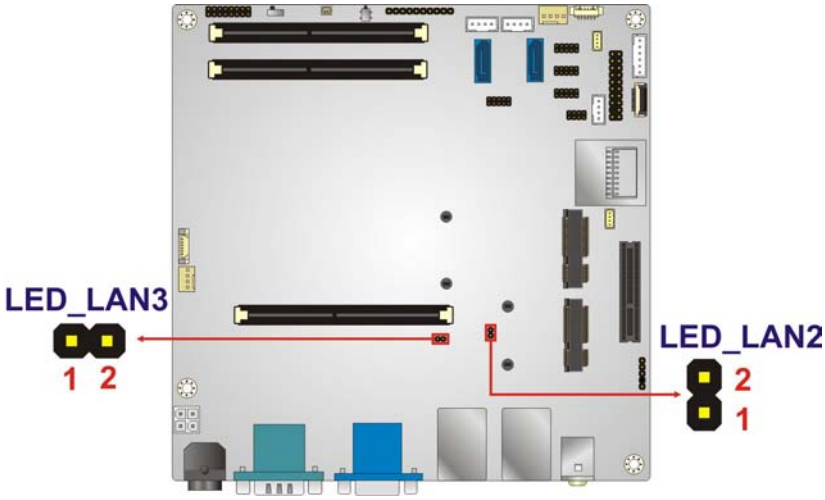

Figure 3-13: LAN LED Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PWR	2	L1/2_LINK_ACT-

Table 3-13: LAN LED Connector Pinouts

3.2.13 PCIe x4 Slot

CN Label: PCIEX4

CN Type: PCIe x4 slot, P=1.00 mm

CN Location: See **Figure 3-14**

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

The PCIe x4 slot is for PCIe x4 expansion cards.

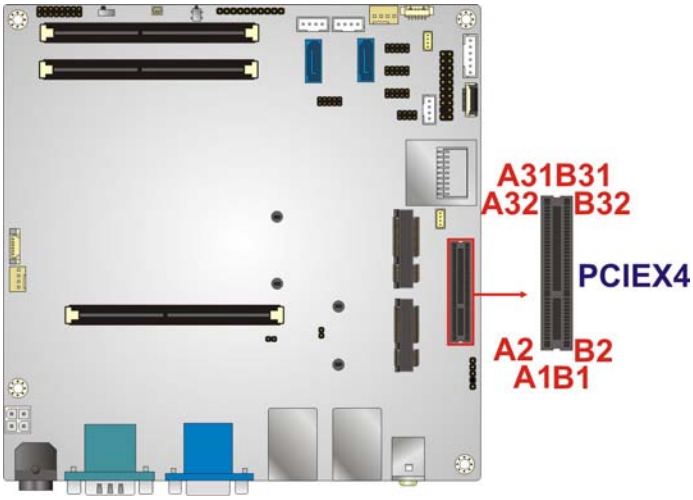

Figure 3-14: PCIe x4 Slot Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
A1	NC	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	+12V
A4	GND	B4	GND
A5	NC	B5	SCLK1
A6	NC	B6	SDATA1
A7	NC	B7	GND
A8	NC	B8	+3.3V
A9	+3.3V	B9	NC
A10	+3.3V	B10	+3.3V_DUAL
A11	PCIE_RST#	B11	PCIE_WAKE_UP#
A12	GND	B12	NC
A13	GFX_CLK0P	B13	GND
A14	GFX_CLK0N	B14	P_GFX_TXP0
A15	GND	B15	P_GFX_TXN0
A16	P_GFX_RXP0	B16	GND
A17	P_GFX_RXN0	B17	NC
A18	GND	B18	GND
A19	NC	B19	P_GFX_TXP1
A20	GND	B20	P_GFX_TXN1

A21	P_GFX_RXP1	B21	GND
A22	P_GFX_RXN1	B22	GND
A23	GND	B23	P_GFX_TXP2
A24	GND	B24	P_GFX_TXN2
A25	P_GFX_RXP2	B25	GND
A26	P_GFX_RXN2	B26	GND
A27	GND	B27	P_GFX_TXP3
A28	GND	B28	P_GFX_TXN3
A29	P_GFX_RXP3	B29	GND
A30	P_GFX_RXN3	B30	NC
A31	GND	B31	NC
A32	NC	B32	GND

Table 3-14: PCIe x4 Slot Pinouts

3.2.14 PCIe Mini Card Slot

CN Label: M_PCIE1, M_PCIE2

CN Type: PCIe Mini card slot, P=0.80 mm

CN Location: See **Figure 3-15**

CN Pinouts: See **Table 3-15** and **Table 3-16**

The PCIe mini card slot enables a PCIe mini card expansion module to be connected to the board. M_PCIE2 supported include among others wireless LAN (WLAN) cards and IEI PCIe Mini disk on module (DOM) SSD cards. M_PCIE1 only supports mSATA.

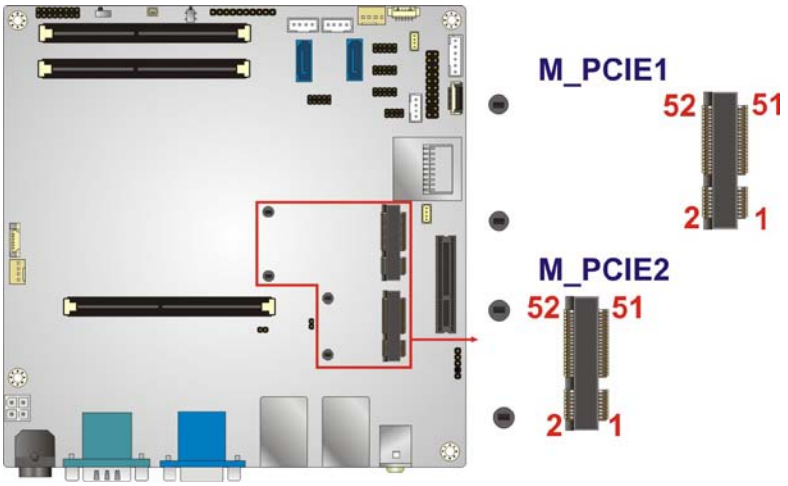

Figure 3-15: PCIe Mini Card Slot Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	27	GND
2	VCC3_MINI_1	28	+V1.5_MINI_1
3	NC	29	GND
4	GND	30	SCLK1
5	NC	31	MPCIE_TXDN
6	+V1.5_MINI_1	32	SDATA1
7	NC	33	MPCIE_TXDP
8	NC	34	GND
9	GND	35	GND
10	NC	36	USB6N
11	GPP_CLK2N	37	GND
12	NC	38	USB6P
13	GPP_CLK2P	39	VCC3_MINI_1
14	NC	40	GND
15	GND	41	VCC3_MINI_1
16	NC	42	NC
17	PCIE_RST#	43	NC
18	GND	44	NC
19	NC	45	NC
20	N48174558	46	NC

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
21	GND	47	NC
22	PCIE_RST#	48	+V1.5_MINI_1
23	MPCIE_RXDN	49	NC
24	+3.3V_DUAL	50	GND
25	MPCIE_RXDP	51	mSATA_DET#
26	GND	52	VCC3_MINI_1

Table 3-15: PCIe Mini Card Slot Pinouts (M_PCIE1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	27	GND
2	VCC3_MINI_2	28	+V1.5_MINI_2
3	NC	29	GND
4	GND	30	SCLK1
5	NC	31	MINISLOT1_TXDN
6	+V1.5_MINI_2	32	SDATA1
7	MINI_PCIE_SLT1_CLKREQ#	33	MINISLOT1_TXDP
8	NC	34	GND
9	GND	35	GND
10	NC	36	USB7N
11	NC	37	GND
12	NC	38	USB7P
13	NC	39	VCC3_MINI_2
14	NC	40	GND
15	GND	41	VCC3_MINI_2
16	NC	42	NC
17	PCIE_RST#	43	NC
18	GND	44	NC
19	NC	45	NC
20	WL_DISABLE1#	46	NC
21	GND	47	NC
22	PCIE_RST#	48	+V1.5_MINI_2

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
23	MINISLOT1_RXDN	49	NC
24	+3.3V_DUAL	50	GND
25	MINISLOT1_RXDP	51	NC
26	GND	52	VCC3_MINI_2

Table 3-16: PCIe Mini Card Slot Pinouts (M_PCIE2)

3.2.15 RS-232 Serial Port Connector

CN Label: COM2, COM3, COM5

CN Type: 10-pin header, P=2.00 mm

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

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

The serial connector provides RS-232 connection.

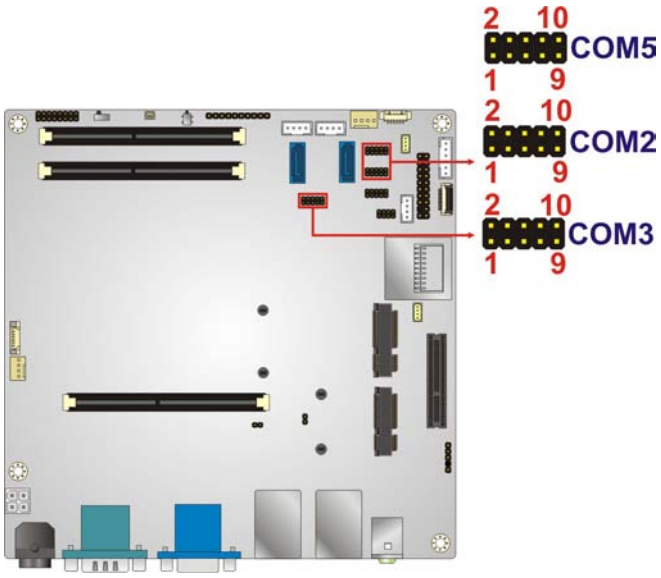

Figure 3-16: RS-232 Serial Port Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD2/3/5	2	NDSR2/3/5
3	NRX2/3/5	4	NRTS2/3/5
5	NTX2/3/5	6	NCTS2/3/5

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
7	NDTR2/3/5	8	NRI2/3/5
9	GND	10	GND

Table 3-17: RS-232 Serial Port Connector Pinouts

3.2.16 RS-422/485 Serial Port Connector

CN Label: COM6

CN Type: 4-pin wafer, P=2.00 mm

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

CN Pinouts: See **Table 3-16**

This connector provides RS-422 or RS-485 communications.

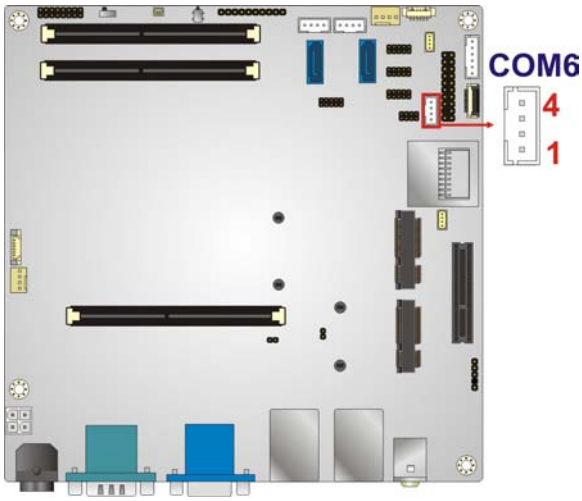

Figure 3-17: RS-422/485 Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RXD485#	2	RXD485+
3	TXD485+	4	TXD485#

Table 3-18: RS-422/485 Connector Pinouts

3.2.17 SATA 6Gb/s Drive Connector

CN Label: **SATA1, SATA2**

CN Type: 7-pin SATA connector

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

The SATA 6Gb/s drive connector is connected to a SATA 6Gb/s drive. The SATA 6Gb/s drive transfers data at speeds as high as 6Gb/s.

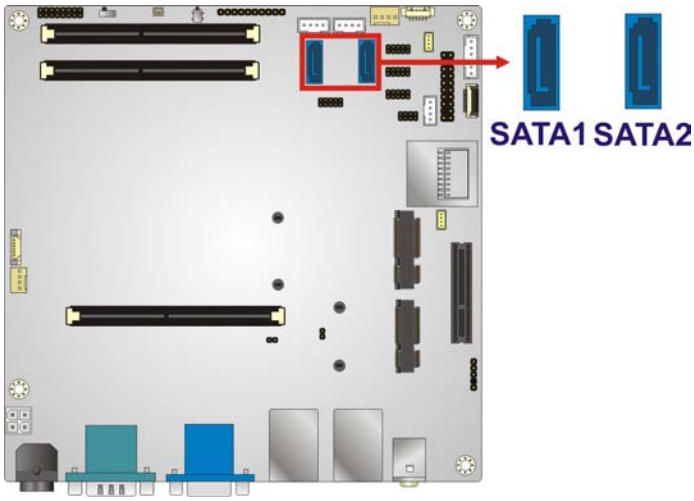

Figure 3-18: SATA 6Gb/s Drive Connector Location

3.2.18 SATA Power Connector

CN Label: **SATA_PWR1, SATA_PWR2**

CN Type: 4-pin wafer, P=2.50 mm

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

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

The SATA power connector provides +5V power output to the SATA connector.

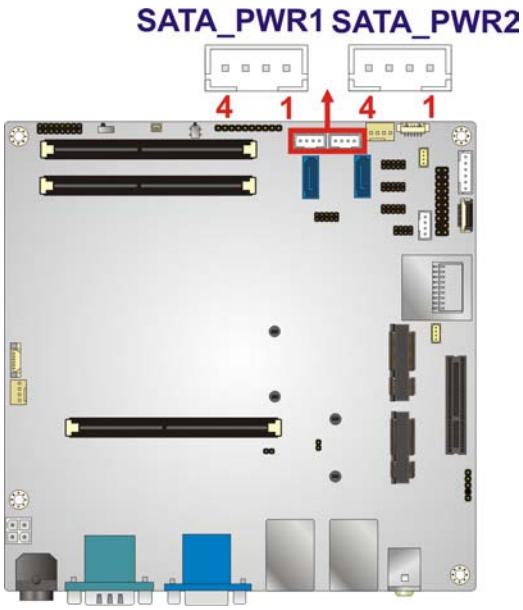

Figure 3-19: SATA Power Connector Location

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

Table 3-19: SATA Power Connector Pinouts

3.2.19 SD Card Slot

CN Label: **SD1**

CN Type: SD card slot

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

An SD memory card can be inserted to the SD card slot on the KINO-SE-i2.

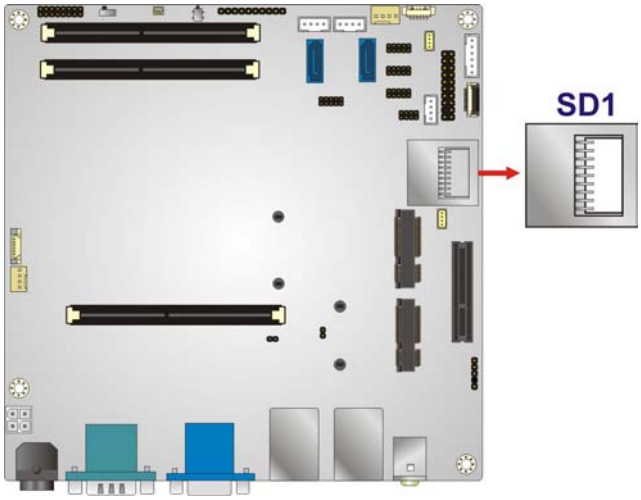

Figure 3-20: SD Card Slot Location

3.2.20 SMBUS Connector

CN Label:	CN1, CN2
CN Type:	4-pin wafer, P=1.25 mm
CN Location:	See **Figure 3-21**
CN Pinouts:	See **Table 3-20**

The SMBus (System Management Bus) connector provides low-speed system management communications.

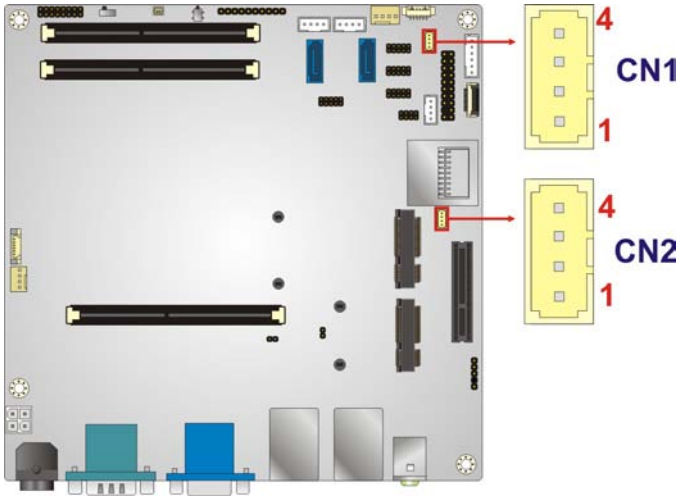

Figure 3-21: SMBus Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SDATA0/1
3	SCLK0/1	4	+5V

Table 3-20: SMBus Connector Pinouts

3.2.21 SPDIF Connector

CN Label: SPDIF1

CN Type: 5-pin header, P=2.54 mm

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

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

Use the SPDIF connector to connect digital audio devices to the system.

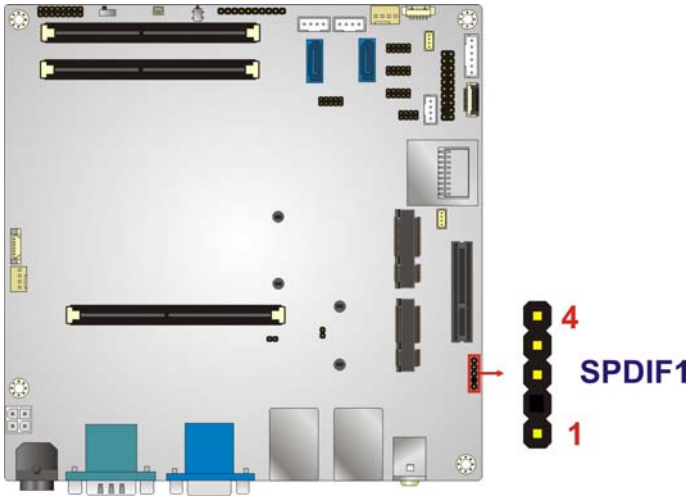

Figure 3-22: SPDIF Connector Location

Pin	Description
1	+5V
2	NC
3	SPDIF OUT
4	GND
5	SPDIF IN

Table 3-21: SPDIF Connector Pinouts

3.2.22 SPI Flash Connector

CN Label: SPI1, SPI2

CN Type: 6-pin wafer, P=1.25 mm

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

CN Pinouts: See **Table 3-22** and **Table 3-23**

The SPI Flash connector is used to flash the BIOS.

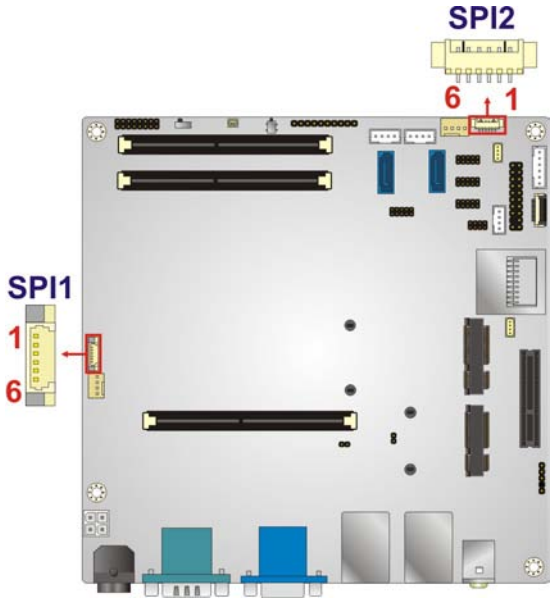

Figure 3-23: SPI Flash Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	SPI_POWER	2	SPI_CS#_CONN
3	SPI_DATAIN_CONN	4	SPI_CLK_CONN
5	SPI_DATAOUT_CONN	6	GND

Table 3-22: SPI Flash Connector Pinouts (SPI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	EC_SPI_VCC	2	FSCE#
3	FMISO	4	FSCK
5	FMOSI	6	GND

Table 3-23: SPI Flash Connector Pinouts (SPI2)

3.2.23 System Fan Connector

CN Label: FAN2

CN Type: 4-pin wafer, P=2.54 mm

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

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

The fan connector attaches to a system cooling fan.

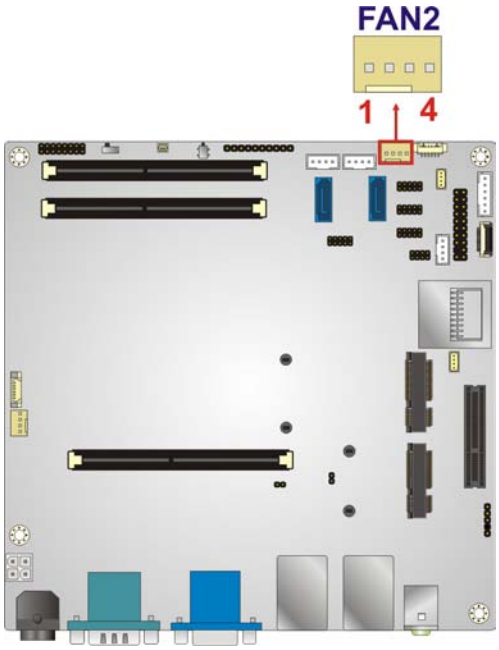

Figure 3-24: System Fan Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+12V
3	FAN2IN	4	FAN2OUT

Table 3-24: System Fan Connector Pinouts

3.2.24 TPM Connector

CN Label: TPM1

CN Type: 20-pin header, P=2.54 mm

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

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

The Trusted Platform Module (TPM) connector secures the system on bootup.

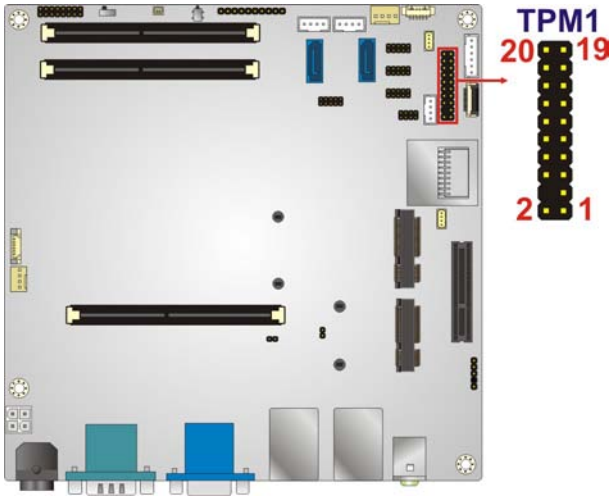

Figure 3-25: TPM Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LPC_CLK1	2	GND
3	LFRAME#	4	NC
5	LPC_RST#	6	+5V
7	LAD3	8	LAD2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	SCLK0	14	SDATA0
15	+3.3V_DUAL	16	SERIRQ
17	GND	18	LPC_CLKRUN#
19	LPCPD#	20	LDRQ#0

Table 3-25: TPM Connector Pinouts

3.2.25 USB Connector

CN Label: **USB3**

CN Type: 8-pin header, P=2.00 mm

CN Location: See **Figure 3-26**

CN Pinouts: See **Table 3-26**

The USB connector provides two USB 2.0 ports by dual-port USB cable.

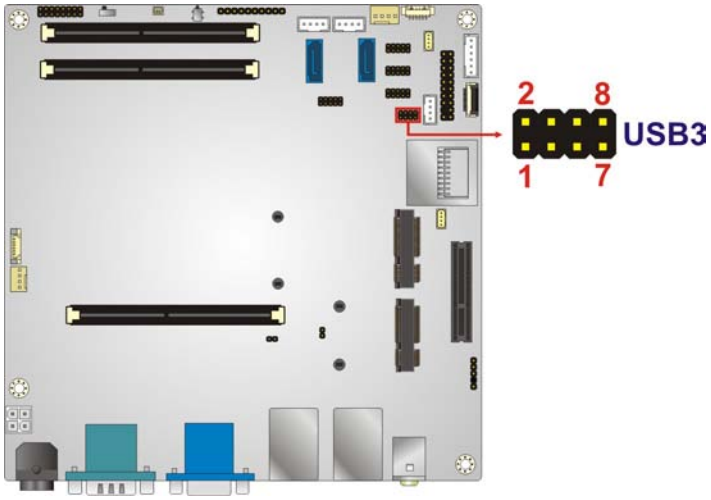

Figure 3-26: USB Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USBV2L	2	GND
3	DATA2_N	4	DATA3_P
5	DATA2_P	6	DATA3_N
7	GND	8	USBV2L

Table 3-26: USB Connector Pinouts

3.3 External Peripheral Interface Connector Panel

Figure 3-27 shows the KINO-SE-i2 external peripheral interface connector (EPIC) panel. The EPIC panel consists of the following:

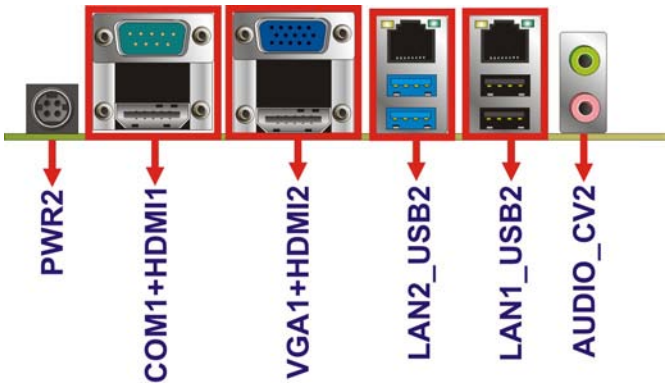

Figure 3-27: External Peripheral Interface Connector

3.3.1 Audio Connector

CN Label:	AUDIO_CV2
CN Type:	Audio jacks
CN Location:	See **Figure 3-27**

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 3-28: Audio Connector

3.3.2 Ethernet and USB Connectors

CN Label: **LAN1_USB2, LAN2_USB2**

CN Type: RJ-45 , USB 2.0 and USB 3.0 ports

CN Location: See **Figure 3-27**

CN Pinouts: See **Figure 3-29 , Table 3-27** and **Table 3-28**

The LAN connector connects to a local network.

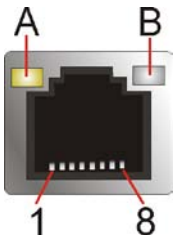

Figure 3-29: LAN Connector

The USB 2.0 ports are for attaching USB 2.0 peripheral devices to the system. The pinouts of LAN1 and USB 2.0 connectors are shown below.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USBV0L	16	NC
2	DATA0_N	P1	1.5VLAN1
3	DATA0_P	P2	TRD1P0
4	GND	P3	TRD1N0
5	USBV0L	P4	TRD1P1
6	DATA1_N	P5	TRD1N1
7	DATA1_P	P6	TRD1P2
8	GND	P7	TRD1N2
9	NC	P8	TRD1P3
10	NC	P9	TRD1N3
11	NC	P10	GND
12	NC	P11	L1_100-
13	NC	P12	L1_1000-

14	NC	P13	L1_LINK_ACT-
15	NC	P14	+V3.3LAN1

Table 3-27: LAN1_USB2 Connector Pinouts

The USB 3.0 ports are for attaching USB 3.0 peripheral devices to the system. To be able to use the USB 3.0 ports, please make sure the USB 3.0 driver is installed. The pinouts of LAN2 and USB 3.0 connectors are shown below.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
G1	IO_GND_1	R8	TRD2P3
G2	IO_GND_1	R9	TRD2N3
G3	IO_GND_1	U1	USB_3P0_VCC1
G4	IO_GND_1	U2	USB2P8_DM0_L
G5	IO_GND_1	U3	USB2P8_DP0_L
G6	IO_GND_1	U4	GND
G7	IO_GND_1	U5	USB3P0_RXDN0_C
G8	IO_GND_1	U6	USB3P0_RXDP0_C
L1	L2_100-	U7	GND
L2	L2_1000-	U8	USB3P0_TXDN0_C
L3	L2_LINK_ACT-	U9	USB3P0_TXDP0_C
L4	+V3.3LAN2	U10	USB_3P0_VCC2
R1	1.5VLAN2	U11	USB2P9_DM1_L
R10	GND	U12	USB2P9_DP1_L
R2	TRD2P0	U13	GND
R3	TRD2N0	U14	USB3P0_RXDN1_C
R4	TRD2P1	U15	USB3P0_RXDP1_C
R5	TRD2N1	U16	GND
R6	TRD2P2	U17	USB3P0_TXDN1_C
R7	TRD2N2	U18	USB3P0_TXDP1_C

Table 3-28: LAN2_USB2 Connector Pinouts

3.3.3 HDMI Connector

CN Label: HDMI1, HDMI2

CN Type: HDMI connector

CN Location: See **Figure 3-27**

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

The HDMI connector connects to a display device with HDMI interface.

Pin	Description	Pin	Description
1	HDMI_DATA2	13	N/C
2	GND	14	N/C
3	HDMI_DATA2#	15	HDMI_SCL
4	HDMI_DATA1	16	HDMI_SDA
5	GND	17	GND
6	HDMI_DATA1#	18	+5V
7	HDMI_DATA0	19	HDMI_HPD
8	GND	20	HDMI_GND
9	HDMI_DATA0#	21	HDMI_GND
10	HDMI_CLK	22	HDMI_GND
11	GND	23	HDMI_GND
12	HDMI_CLK#		

Table 3-29: HDMI Connector Pinouts

3.3.4 Power Connector

CN Label: PWR2

CN Type: 4-pin DIN

CN Location: See **Figure 3-27**

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

The power connector supports 12V DC power input.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	12VIN_2	4	GND_VIN
2	GND_VIN	5	GND_VIN
3	12VIN_2		

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION

Table 3-30: Power Connector Pinouts

3.3.5 Serial Port Connector (COM1)

CN Label: COM1

CN Type: DB-9 Male connector

CN Location: See **Figure 3-27**

CN Pinouts: See **Table 3-31** and **Figure 3-30**

The RS-232 serial connector provides serial connection in the RS-232 mode.

Pin	Description	Pin	Description
1	NDCD1	6	NDSR1
2	NRX1	7	NRTS1
3	NTX1	8	NCTS1
4	NDTR1	9	NRI1
5	GND		

Table 3-31: Serial Port Pinouts

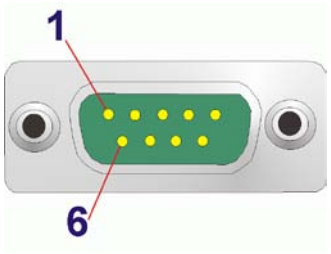

Figure 3-30: Serial Port Pinout Locations

3.3.6 VGA Connector

CN Label: VGA1

CN Type: D-sub 15-pin female connector

CN Location: See **Figure 3-27**

CN Pinouts: See **Figure 3-31** an **Table 3-32**

The standard 15-pin female VGA connector connects to a CRT or LCD monitor.

Pin	Description	Pin	Description	Pin	Description
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	5VDDCDA
3	BLUE	8	GND	13	VGA_HSYNC
4	NC	9	CRT_VCC	14	VGA_VSYNC
5	GND	10	GND	15	5VDDCLK

Table 3-32: VGA Connector Pinouts

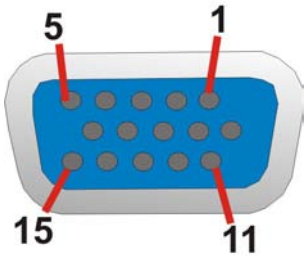

Figure 3-31: VGA Connector

Chapter

4

Installation

4.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the KINO-SE-i2 may result in permanent damage to the KINO-SE-i2 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the KINO-SE-i2. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the KINO-SE-i2 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-SE-i2, place it on an antic-static pad. This reduces the possibility of ESD damaging the KINO-SE-i2.
- ***Only handle the edges of the PCB***: When handling the PCB, hold the PCB by the edges.

4.2 Installation Considerations

NOTE:

The following installation notices and installation considerations should be read and understood before installation. All installation notices must be strictly adhered to. Failing to adhere to these precautions may lead to severe damage and injury to the person performing the installation.

WARNING:

The installation instructions described in this manual should be carefully followed in order to prevent damage to the KINO-SE-i2, KINO-SE-i2 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-SE-i2 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-SE-i2 on an antistatic pad:
  - When installing or configuring the motherboard, place it on an antistatic pad. This helps to prevent potential ESD damage.
- Turn all power to the KINO-SE-i2 off:
  - When working with the KINO-SE-i2, 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-SE-i2 **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.

4.2.1 SO-DIMM Installation

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

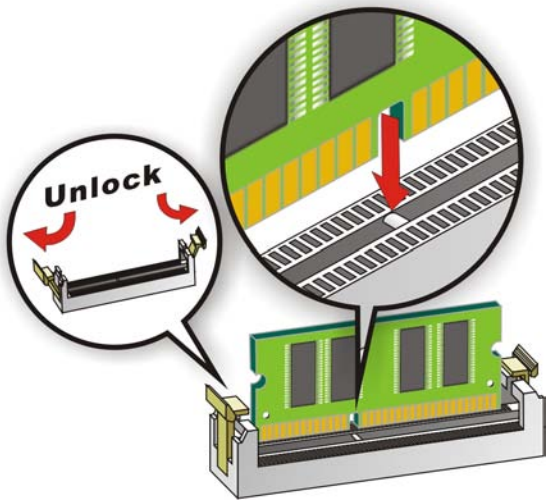

Figure 4-1: SO-DIMM Installation

Step 1: **Open the SO-DIMM socket handles**. Open the two handles outwards as far as they can. See **Figure 4-1**.

Step 2: **Align the SO-DIMM with the socket**. Align the DIMM so the notch on the memory lines up with the notch on the memory socket. See **Figure 4-1**.

Step 3: **Insert the SO-DIMM**. Once aligned, press down until the SO-DIMM is properly seated. Clip the two handles into place. See **Figure 4-1**.

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

4.3 Internal Peripheral Device Connections

This section outlines the installation of peripheral devices to the on-board connectors

4.3.1 SATA Drive Connection

The KINO-SE-i2 is shipped with two SATA drive cable. To connect the SATA drive to the connector, please follow the steps below.

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

Step 2: **Insert the cable connector**. Insert the cable connector into the on-board SATA drive connector and the SATA power connector. See **Figure 4-2**.

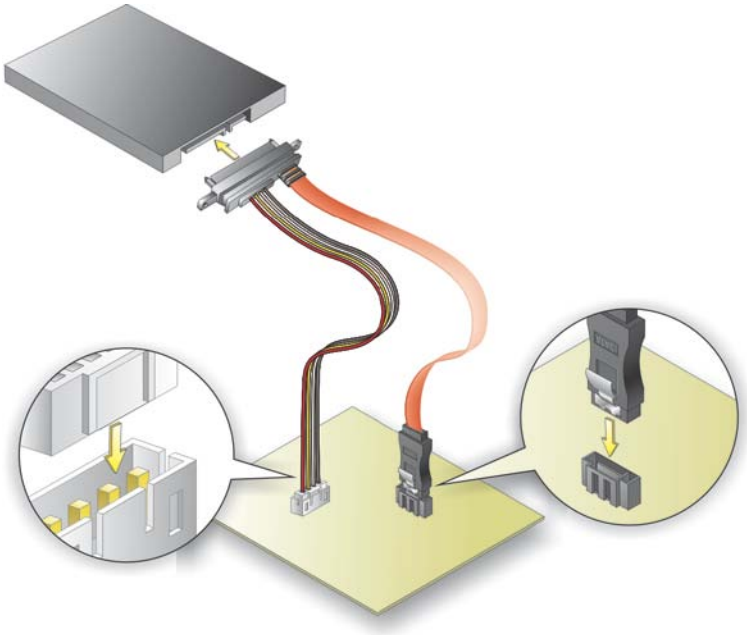

Figure 4-2: SATA Drive Cable Connection

Step 3: **Connect the cable to the SATA disk**. Connect the connector on the other end of the cable to the connector at the back of the SATA drive. See Figure 4-2.

Step 4: To remove the SATA cable from the SATA connector, press the clip on the connector at the end of the cable.

4.3.2 Single RS-232 Cable

The single RS-232 cable consists of one serial port connector attached to a serial communications cable that is then attached to a D-sub 9 male connector. 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 4-3**. A key on the front of the cable connectors ensures the connector can only be installed in one direction.

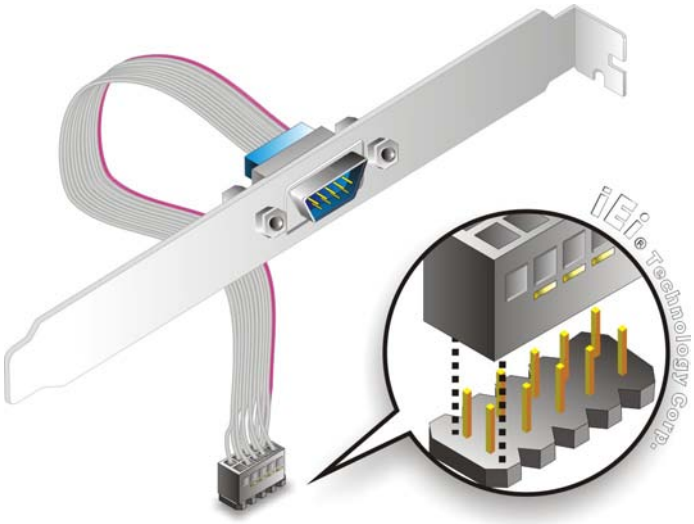

Figure 4-3: Single RS-232 Cable Installation

Step 3: **Secure the bracket**. The single RS-232 connector has two retention screws that must be secured to a chassis or bracket.

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

4.4 External Peripheral Interface Connection

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

- Audio devices
- HDMI devices
- RJ-45 Ethernet cable connector
- Serial port devices
- USB devices
- VGA monitor

To install these devices, connect the corresponding cable connector from the actual device to the corresponding KINO-SE-i2 external peripheral interface connector making sure the pins are properly aligned.

4.4.1 Audio Connection

The audio jacks on the external audio connector enable the KINO-SE-i2 to be connected to a stereo sound setup. To install the audio devices, follow the steps below.

Step 1: **Identify the audio plugs**. The plugs on your home theater system or speakers may not match the colors on the rear panel. If audio plugs are plugged into the wrong jacks, sound quality will be very bad.

Step 2: **Plug the audio plugs into the audio jacks**. Plug the audio plugs into the audio jacks. If the plugs on your speakers are different, an adapter will need to be used to plug them into the audio jacks.

- **Line Out port (Lime):** Connects to a headphone or a speaker.
- **Microphone (Pink):** Connects to a microphone.

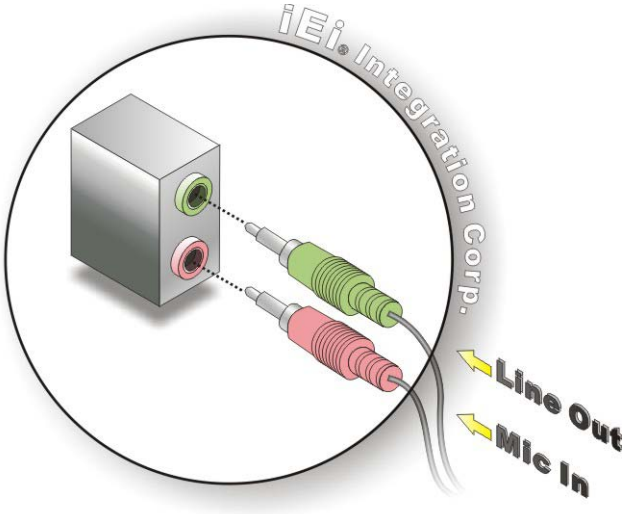

Figure 4-4: Audio Connector

Step 3: **Check audio clarity**. Check that the sound is coming through the right speakers by adjusting the balance front to rear and left to right.

4.4.2 HDMI Display Device Connection

The HDMI connector transmits a digital signal to compatible HDMI display devices such as a TV or computer screen. To connect the HDMI cable to the KINO-SE-i2, follow the steps below.

Step 1: **Locate the HDMI connector.** The location is shown in **Chapter 3.**

Step 2: **Align the connector.** Align the HDMI connector with the HDMI port. Make sure the orientation of the connector is correct.

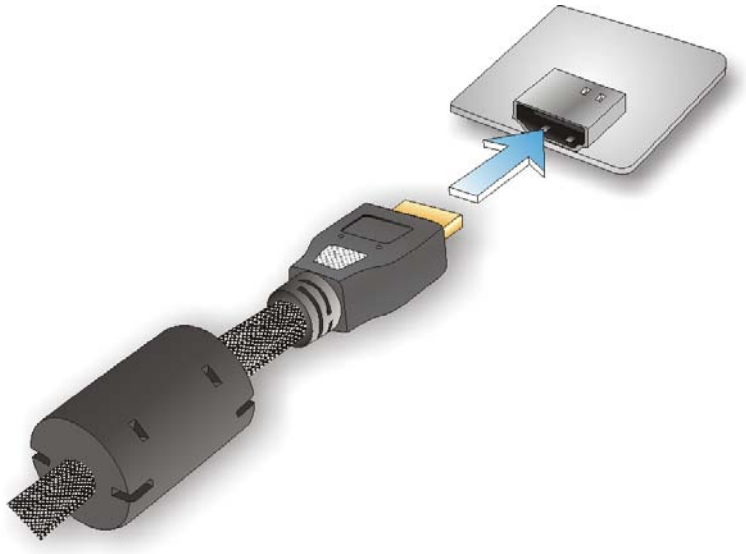

Figure 4-5: HDMI Connection

Step 3: **Insert the HDMI connector.** Gently insert the HDMI connector. The connector should engage with a gentle push. If the connector does not insert easily, check again that the connector is aligned correctly, and that the connector is being inserted with the right way up.

4.4.3 LAN Connection

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

Step 1: **Locate the RJ-45 connectors**. The locations of the LAN connectors are shown in **Chapter 3**.

Step 2: **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the KINO-SE-i2. See **Figure 4-6**.

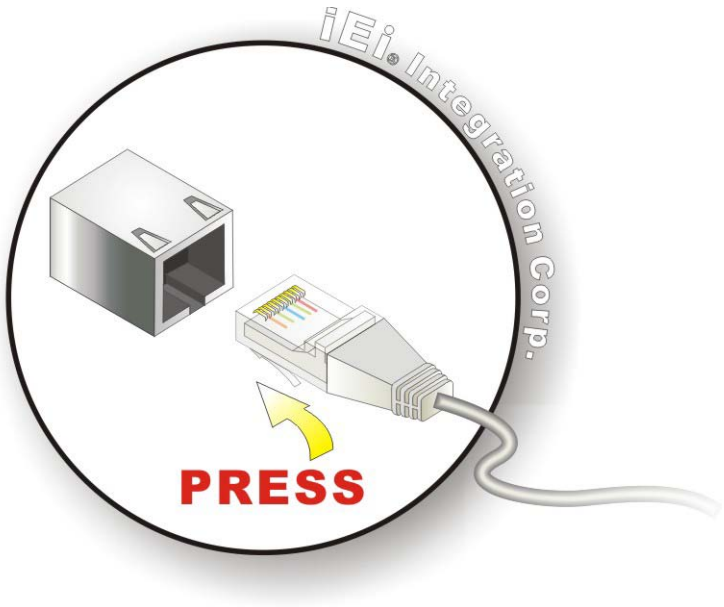

Figure 4-6: LAN Connection

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

4.4.4 Serial Device Connection

The KINO-SE-i2 has two single female DB-9 connectors on the external peripheral interface panel for a serial device. Follow the steps below to connect a serial device to the KINO-SE-i2.

Step 1: **Locate the DB-9 connector**. The locations of the DB-9 connectors are shown in **Chapter 3**.

Step 2: **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the external peripheral interface. See **Figure 4-7**.

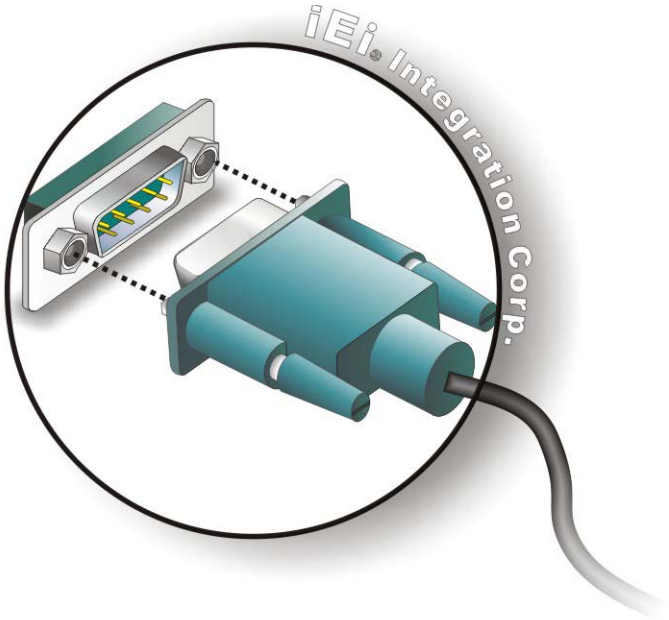

Figure 4-7: Serial Device Connector

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

4.4.5 USB Connection

The external USB Series "A" receptacle connectors provide easier and quicker access to external USB devices. Follow the steps below to connect USB devices to the KINO-SE-i2.

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

Step 2: **Insert a USB Series "A" plug**. Insert the USB Series "A" plug of a device into the USB Series "A" receptacle on the external peripheral interface. See **Figure 4-8**.

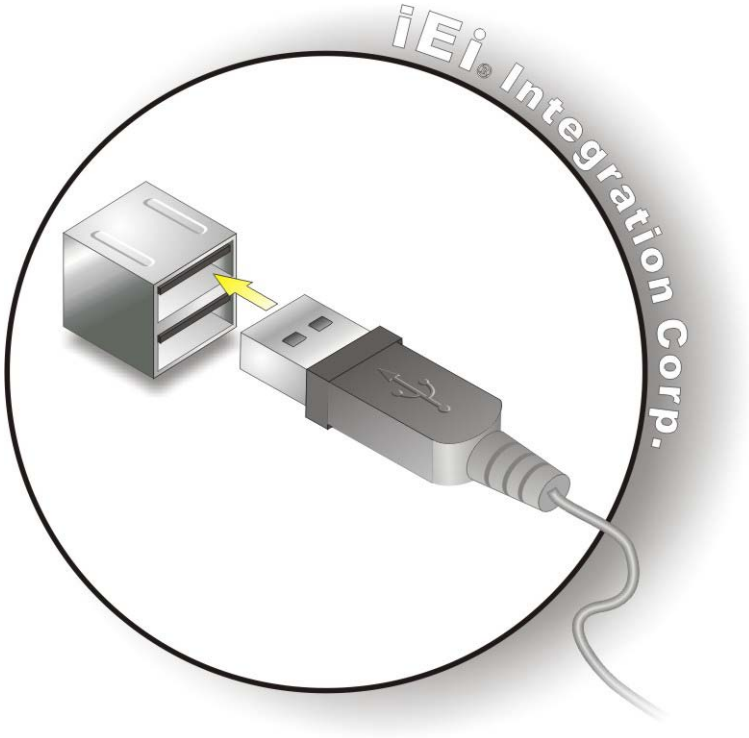

Figure 4-8: USB Connector

4.4.6 VGA Monitor Connection

The KINO-SE-i2 has a single female DB-15 connector on the external peripheral interface panel. The DB-15 connector is connected to a CRT or VGA monitor. To connect a monitor to the KINO-SE-i2, please follow the instructions below.

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

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

Step 3: **Insert the VGA connector**. Once the connectors are properly aligned with the insert the male connector from the VGA screen into the female connector on the KINO-SE-i2. See **Figure 4-9**.

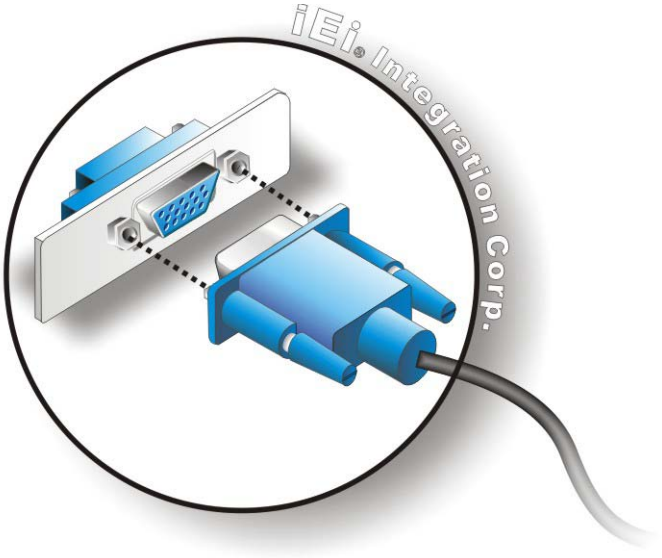

Figure 4-9: VGA Connector

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

Chapter

5

BIOS

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.

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

If the message disappears before the **DELETE** or **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.

Key	Function
Up arrow	Move to the item above
Down arrow	Move to the 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
Page up	Move to the next page
Page down	Move to the previous page

Key	Function
Esc	Main Menu – Quit and do not save changes into CMOS 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 **3**.

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.

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.

```
      Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
  Main   Advanced   Chipset    Boot    Security  Save & Exit   Server Mgmt

BIOS Information                                   Set the Date. Use Tab to
BIOS Vendor                    American Megatrends switch between Data
Core Version                   4.6.5.4             elements.
Compliency                     UEFI 2.3.1; PI 1.2
Project Version                SAC8AR11.rom        ---------------------
Build Date and Time            11/21/2014 16:26:18
                                                   ←→: Select Screen
iWDD Vendor                    IEI                 ↑ ↓: Select Item
iWDD Version                   SAC8ER10.bin        EnterSelect
                                                   +/-: Change Opt.
IPMI Module                    N/A                 F1:  General Help
Chassis Open                   Opened              F2:  Previous Values
                                                   F3:  Optimized Defaults
System Date                    [Fri 01/09/2014]    F4:  Save & Exit
System Time                    [19:43:27]          ESC: Exit

Access Level                   Administrator
       Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

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
- **Compliency:** Current compliant 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.

➔ 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) 2013 American Megatrends, Inc.
  Main    Advanced  Chipset    Boot    Security  Save & Exit  Server Mgmt

> ACPI Settings                                   System ACPI Parameters.
> Trusted Computing
> RTC Wake Settings
> CPU Configuration
> IDE Configuration                               ----------------------
> USB Configuration                               ←→: Select Screen
> F81866 Super IO Configuration                   ↑ ↓: Select Item
> F81866 H/M Monitor                              EnterSelect
> Serial Port Console Redirection                 F1   General Help
                                                  F2   Previous Values
                                                  F3   Optimized Defaults
                                                  F4   Save
                                                  ESC  Exit
        Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 2: Advanced

5.3.1 ACPI Settings

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

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

ACPI Settings                                   Select ACPI sleep state
                                                the system will enter
ACPI Sleep State                [S3 only(Suspend to…]  when the SUSPEND button
                                                is pressed.

                                                ----------------------

                                                ←→: Select Screen
                                                ↑ ↓: Select Item
                                                EnterSelect
                                                +/-: Change Opt.
                                                F1:  General Help
                                                F2:  Previous Values
                                                F3:  Optimized Defaults
                                                F4:  Save & Exit
                                                ESC: Exit
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 3: ACPI Configuration

➔ ACPI Sleep State [S3 only (Suspend to RAM)]

The fields in **ACPI Sleep State** option cannot be changed.

➔ **Suspend Disabled** — Disable the suspend function.

➔ **S3 only (Suspend to RAM)** DEFAULT — 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.

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).

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

Configuration                                  Enables or Disables BIOS
  Security Device Support        [Disable]     support for security
                                               device. O.S. will not
Current Status Information                     show Security Device.
  NO Security Device Found                     TCG EFI protocol and
                                               INT1A interface will not
                                               be available.

                                               ----------------------

                                               ←→: Select Screen
                                               ↑ ↓: Select Item
                                               Enter Select
                                               F1   General Help
                                               F2   Previous Values
                                               F3    Optimized
                                               Defaults
                                               F4    Save
                                               ESC   Exit
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 4: Trusted Computing

➔ Security Device Support [Disable]

Use the **Security Device Support** option to configure support for the security device.

➔ **Disable** **DEFAULT** Security device support is disabled.

➔ **Enable** Security device support is enabled.

5.3.3 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 5**) configures RTC wake event.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

RTC Wake Settings                                  Enable or disable System
                                                   wake on alarm event. When
Wake system with Fixed Time      [Disabled]        enabled, System will
                                                   wake on the
                                                   date::hr::min::sec
                                                   specified

                                                   ----------------------

                                                   ←→: Select Screen
                                                   ↑ ↓: Select Item
                                                   Enter Select
                                                   F1   General Help
                                                   F2   Previous Values
                                                   F3   Optimized Defaults
                                                   F4   Save
                                                   ESC  Exit
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 5: RTC Wake Settings

➔ Wake system with Fixed Time [Disabled]

Use the **Wake system with Fixed Time** option to enable or disable the system wake on alarm event.

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

➔ **Enabled** If selected, the **Wake up every day** option appears allowing you to enable to disable the system to wake every day at the specified time. Besides, the following options appear with values that can be selected:

Wake up date

Wake up hour

Wake up minute

Wake up second

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

5.3.4 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 6**) to view detailed CPU specifications and configure the CPU.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

CPU Configuration                                   Enable/disable CPU
                                                    Virtualization
Socket0: AMD GX-212JC SOC with Radeon(TM)R2E Graphics
Dual Core Running @ 1211 MHZ 962 mV
Processor Family: 16h
Processor Model: 30h-3Fh
Max Speed: 1200 MHZ   Intended Speed: 1200 MHZ      ----------------------
Min Speed: 600 MHZ
Microcode Patch Level: 7030105                      ←→: Select Screen
                                                    ↑ ↓: Select Item
---------Cache per Compute Unit---------            EnterSelect
                                                    F1   General Help
L1 Instruction Cache: 64 KB/2-way                   F2   Previous Values
      L1 Data Cache : 64 KB/8-way                   F3    Optimized
            L2 Cache: 1024 KB/16-way                Defaults
No L3 Cache Present                                 F4    Save
                                                    ESC   Exit
SVM Mode                  [Enabled]
Core Leveling Mode        [Automatic mode]

Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 6: CPU Configuration

➔ SVM Mode [Enabled]

Use the **SVM Mode** option to enable or disable the CPU virtualization function.

➔ **Disabled**		Disables the CPU virtualization function
➔ **Enabled**	**DEFAULT**	Enables the CPU virtualization function

➔ Core Leveling Mode [Automatic mode]

Use the **Core Leveling Mode** option to configure the number of the active processor cores.

➔ **Automatic mode**	**DEFAULT**	Active the processor cores by automatic mode

- **Three cores per processor** — Active three of the processor cores
- **Two cores per processor** — Active two of the processor cores
- **One core per processor** — Active one of the processor cores

5.3.5 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 7**) to change and/or set the configuration of the SATA devices installed in the system.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

IDE Configuration

OnChip SATA Channel              [Enabled]          ---------------------
OnChip SATA Type                 [IDE]
                                                    ←→: Select Screen
SATA Port1                       Not Present        ↑ ↓: Select Item
SATA Port2                       Not Present        EnterSelect
                                                    F1   General Help
                                                    F2   Previous Values
                                                    F3    Optimized
                                                    Defaults
                                                    F4    Save
                                                    ESC   Exit
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 7: IDE Configuration

- OnChip SATA Channel [Enabled]

Use the **OnChip SATA Channel** option to configure Onchip SATA channel.

- **Disabled** — Disables Onchip SATA channel.
- **Enabled** **DEFAULT** — Enables Onchip SATA channel.

- OnChip SATA Type [IDE]

Use the **OnChip SATA Type** option to configure Onchip SATA type.

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

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

5.3.6 USB Configuration

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

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

USB Configuration                                  Enables Legacy USB
                                                   support. AUTO option
USB Devices:                                       disables legacy support
      1 Keyboard                                   if no USB devices are
                                                   connected. DISABLE
Legacy USB Support              [Enabled]          option will keep USB
                                                   devices available only
                                                   for EFI applications.

                                                   ---------------------
                                                   ←→: Select Screen
                                                   ↑ ↓: Select Item
                                                   EnterSelect
                                                   F1   General Help
                                                   F2   Previous Values
                                                   F3    Optimized
                                                   Defaults
                                                   F4    Save
                                                   ESC   Exit
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 8: 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.

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

5.3.7 F81866 Super IO Configuration

Use the **F81866 Super IO Configuration** menu (**BIOS Menu 9**) to set or change the configurations for the serial ports.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

F81216 Super IO Configuration                    Set Parameters of Serial
                                                 Port 1 (COMA)
Super IO Chip                  Fintek F81866
> Serial Port 1 Configuration                    ---------------------
> Serial Port 2 Configuration                    ←→: Select Screen
> Serial Port 3 Configuration                    ↑ ↓: Select Item
> Serial Port 5 Configuration                    EnterSelect
> Serial Port 6 Configuration                    F1   General Help
                                                 F2   Previous Values
                                                 F3    Optimized
                                                 Defaults
                                                 F4    Save
                                                 ESC   Exit

Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 9: Super IO Configuration

5.3.7.1 Serial Port n Configuration

Use the **Serial Port n Configuration** menu (**BIOS Menu 10**) to configure the serial port n.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

Serial Port 1 Configuration                    Enable or Disable Serial
                                               Port (COM)
Serial Port                  [Enabled]
Device Settings              IO=3F8h; IRQ=4
                                               ---------------------
Change Settings              [Auto]            ←→: Select Screen
                                               ↑ ↓: Select Item
                                               EnterSelect
                                               F1   General Help
                                               F2   Previous Values
                                               F3    Optimized
                                               Defaults
                                               F4    Save
                                               ESC   Exit
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 10: Serial Port n Configuration Menu

5.3.7.1.1 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

➔ 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, 4,5,6,7,10,11,12** — Serial Port I/O port address is 3F8h and the interrupt address is IRQ3,4,5,6,7,10,11,12
- **IO=2F8h; IRQ=3, 4,5,6,7,10,11,12** — Serial Port I/O port address is 2F8h and the interrupt address is IRQ3,4,5,6,7,10,11,12
- **IO=3E8h; IRQ=3, 4,5,6,7,10,11,12** — Serial Port I/O port address is 3E8h and the interrupt address is IRQ3,4,5,6,7,10,11,12
- **IO=2E8h; IRQ=3, 4,5,6,7,10,11,12** — Serial Port I/O port address is 2E8h and the interrupt address is IRQ3,4,5,6,7,10,11,12

5.3.7.1.2 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=2F8h; IRQ=3** — Serial Port I/O port address is 2F8h and the interrupt address is IRQ3
- **IO=3F8h; IRQ=3, 4,5,6,7,10,11,12** — Serial Port I/O port address is 3F8h and the interrupt address is IRQ3,4,5,6,7,10,11,12
- **IO=2F8h; IRQ=3, 4,5,6,7,10,11,12** — Serial Port I/O port address is 2F8h and the interrupt address is IRQ3,4,5,6,7,10,11,12
- **IO=3E8h; IRQ=3, 4,5,6,7,10,11,12** — Serial Port I/O port address is 3E8h and the interrupt address is IRQ3,4,5,6,7,10,11,12

➔ **IO=2E8h; IRQ=3, 4,5,6,7,10,11,12**	Serial Port I/O port address is 2E8h and the interrupt address is IRQ3,4,5,6,7,10,11,12

5.3.7.1.3 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.

➔ **Auto**	**DEFAULT**	The serial port IO port address and interrupt address are automatically detected.
➔ **IO=3E8h; IRQ=10**		Serial Port I/O port address is 3E8h and the interrupt address is IRQ10
➔ **IO=3E8h; IRQ=3, 4,5,6,7,10,11,12**		Serial Port I/O port address is 3E8h and the interrupt address is IRQ3,4,5,6,7,10,11,12
➔ **IO=2E8h; IRQ=3, 4,5,6,7,10,11,12**		Serial Port I/O port address is 2E8h and the interrupt address is IRQ3,4,5,6,7,10,11,12
➔ **IO=2D0h; IRQ=3, 4,5,6,7,10,11,12**		Serial Port I/O port address is 2D0h and the interrupt address is IRQ3,4,5,6,7,10,11,12
➔ **IO=2D8h; IRQ=3, 4,5,6,7,10,11,12**		Serial Port I/O port address is 2D8h and the interrupt address is IRQ3,4,5,6,7,10,11,12

\

5.3.7.1.4 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.
➔ **IO=2D0h; IRQ=10**		Serial Port I/O port address is 2D0h and the interrupt address is IRQ10
➔ **IO=3E8h; IRQ=3, 4,5,6,7,10,11,12**		Serial Port I/O port address is 3E8h and the interrupt address is IRQ3,4,5,6,7,10,11,12
➔ **IO=2E8h; IRQ=3, 4,5,6,7,10,11,12**		Serial Port I/O port address is 2E8h and the interrupt address is IRQ3,4,5,6,7,10,11,12
➔ **IO=2D0h; IRQ=3, 4,5,6,7,10,11,12**		Serial Port I/O port address is 2D0h and the interrupt address is IRQ3,4,5,6,7,10,11,12
➔ **IO=2D8h; IRQ=3, 4,5,6,7,10,11,12**		Serial Port I/O port address is 2D8h and the interrupt address is IRQ3,4,5,6,7,10,11,12

5.3.7.1.5 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=2D8h; IRQ=10** Serial Port I/O port address is 2D8h and the interrupt address is IRQ10
- **IO=3E8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 3E8h and the interrupt address is IRQ3,4,5,6,7,10,11,12
- **IO=2E8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 2E8h and the interrupt address is IRQ3,4,5,6,7,10,11,12
- **IO=2D0h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 2D0h and the interrupt address is IRQ3,4,5,6,7,10,11,12
- **IO=2D8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 2D8h and the interrupt address is IRQ3,4,5,6,7,10,11,12

5.3.8 F81866 H/W Monitor

The **F8186 H/W Monitor** menu (**BIOS Menu 11**) shows the operating temperature, fan speeds and system voltages.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

PC Health Status                                  Enable or Disable Smart
                                                  Fan
  Smart Fan Function              [Enabled]
> Smart Fan Mode Configuration

CPU Temperature                   :-41 C
SYS Temperature                   :+23 C
FAN1 Speed                        :3267 RPM
FAN2 Speed                        :N/A                  ---------------------
                                                        ←→: Select Screen
                                                        ↑ ↓: Select Item
                                                        EnterSelect
                                                        F1   General Help
                                                        F2   Previous Values
                                                        F3    Optimized
                                                        Defaults
                                                        F4    Save
                                                        ESC   Exit
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

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
  - SYS Temperature
- Fans Speeds:
  - FAN1 Speed
  - FAN2 Speed

➔ Smart Fan Function [Enabled]

Use the **Smart Fan Function** option to enable or disable the smart fan function.

➔ **Disabled** Disables the smart fan function.

➔ **Enabled** **DEFAULT** Enables the smart fan function.

5.3.8.1 Smart Fan Mode Configuration

Use the **Smart Fan Mode Configuration** submenu (**BIOS Menu 12**) to configure the smart fan temperature and speed settings.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

Smart Fan Mode Configuration                    Smart Fan Mode Select

FAN1 Smart Fan Control          [Auto Duty-Cycle Mode]
CPU Temperature 1               60
CPU Temperature 2               50
CPU Temperature 3               40
CPU Temperature 4               30
FAN2 Smart Fan Control          [Auto Duty-Cycle Mode]   ---------------------
SYS Temperature 1               60                       ←→: Select Screen
SYS Temperature 2               50                       ↑ ↓: Select Item
SYS Temperature 3               40                       EnterSelect
SYS Temperature 4               30                       + -   Change Opt.
                                                         F1    General Help
                                                         F2    Previous Values
                                                         F3    Optimized Defaults
                                                         F4    Save & Exit
                                                         ESC   Exit

Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 12: FAN 1 Configuration

➔ FAN1 Smart Fan Control [Auto Duty-Cycle Mode]

Use the **FAN1 Smart Fan Control** option to configure the CPU Smart Fan.

➔ **Manual Duty Mode** The fan spins at the speed set in Manual by Duty Cycle settings

➔ **Auto Duty-Cycle Mode** **DEFAULT** The fan adjusts its speed using Auto by Duty-Cycle settings

➔ CPU Temperature n

Use the + or – key to change the fan **CPU Temperature n** value. Enter a decimal number between 1 and 100.

➔ FAN2 Smart Fan Control [Auto Duty-Cycle Mode]

Use the **FAN2 Smart Fan Control** option to configure the System Smart Fan.

➔ **Manual Duty Mode**	The fan spins at the speed set in Manual by Duty Cycle settings
➔ **Auto Duty-Cycle DEFAULT Mode**	The fan adjusts its speed using Auto by Duty-Cycle settings

➔ SYS Temperature n

Use the + or – key to change the fan **SYS Temperature n** value. Enter a decimal number between 1 and 100.

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.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

  COM1                                          Console Redirection
  Console Redirection            [Disabled]     Enable or Disable
> Console Redirection Settings

  COM2
  Console Redirection            [Disabled]
> Console Redirection Settings

  COM3
  Console Redirection            [Disabled]
> Console Redirection Settings                  ---------------------
                                                ←→: Select Screen
  COM5                                          ↑ ↓: Select Item
  Console Redirection            [Disabled]     EnterSelect
> Console Redirection Settings                  + -   Change Opt.
                                                F1    General Help
  COM6                                          F2    Previous Values
  Console Redirection            [Disabled]     F3    Optimized Defaults
> Console Redirection Settings                  F4    Save
                                                ESC   Exit
  IPMI (Disabled)
  Console Redirection            Port Is Disabled
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 13: Serial Port Console Redirection

➔ 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

5.3.9.1 Console Redirection Settings

The **Console Redirection Settings** menu (**BIOS Menu 14**) allows the console redirection options to be configured. The option is active when Console Redirection option is enabled.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Advanced

COM1                                          Emulation: ANSI:
Console Redirection Settings                  Extended ASCII char set.
                                              VT100: ASCII char set.
Terminal Type                  [ANSI]         VT100+: Extends VT100 to
Bits per second                [115200]       support color, function
Data Bits                      [8]            keys, etc. VT-UTF8: Uses
Parity                         [None]         UTF8 encoding to map
Stop Bits                      [1]            Unicode chars onto 1 or
                                              more bytes.

                                              ---------------------
                                              ←→: Select Screen
                                              ↑ ↓: Select Item
                                              EnterSelect
                                              F1   General Help
                                              F2   Previous Values
                                              F3    Optimized
                                              Defaults
                                              F4    Save
                                              ESC   Exit

Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 14: Console Redirection Settings

➔ Terminal Type [ANSI]

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

➔ **VT100**		The target terminal type is VT100
➔ **VT100+**		The target terminal type is VT100+
➔ **VT-UTF8**		The target terminal type is VT-UTF8
➔ **ANSI**	**DEFAULT**	The target terminal type is ANSI

➔ Bits per second [115200]

Use the **Bits per second** option to specify the serial port transmission speed. The speed must match the other side. Long or noisy lines may require lower speeds.

➔ **9600**	Sets the serial port transmission speed at 9600.
➔ **19200**	Sets the serial port transmission speed at 19200.

- **38400** — Sets the serial port transmission speed at 38400.
- **57600** — Sets the serial port transmission speed at 57600.
- **115200** **DEFAULT** — Sets the serial port transmission speed at 115200.

➔ Data Bits [8]

Use the **Data Bits** option to specify the number of data bits.

- **7** — Sets the data bits at 7.
- **8** **DEFAULT** — Sets the data bits at 8.

➔ Parity [None]

Use the **Parity** option to specify the parity bit that can be sent with the data bits for detecting the transmission errors.

- **None** **DEFAULT** — No parity bit is sent with the data bits.
- **Even** — The parity bit is 0 if the number of ones in the data bits is even.
- **Odd** — The parity bit is 0 if the number of ones in the data bits is odd.
- **Mark** — The parity bit is always 1. This option does not provide error detection.
- **Space** — The parity bit is always 0. This option does not provide error detection.

➔ Stop Bits [1]

Use the **Stop Bits** option to specify the number of stop bits used to indicate the end of a serial data packet. Communication with slow devices may require more than 1 stop bit.

- **1** **DEFAULT** — Sets the number of stop bits at 1.
- **2** — Sets the number of stop bits at 2.

5.4 Chipset

Use the **Chipset** menu (**BIOS Menu 15**) to access the Southbridge and Northbridge 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) 2013 American Megatrends, Inc.
  Main    Advanced  Chipset    Boot    Security  Save & Exit  Server Mgmt

> South Bridge                                      GFX Configuration
> North Bridge

                                                    ---------------------
                                                    ←→: Select Screen
                                                    ↑ ↓: Select Item
                                                    EnterSelect
                                                    F1   General Help
                                                    F2   Previous Values
                                                    F3    Optimized
                                                    Defaults
                                                    F4    Save
                                                    ESC   Exit
        Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 15: Chipset

5.4.1 South Bridge Configuration

Use the **South Bridge Configuration** menu (**BIOS Menu 17**) to configure the South Bridge chipset.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                    Chipset

Auto Power Button Function        [Enabled(AT)]

HD Audio Azalia Device            [Enabled]
Power Saving Function(ERP)        [Disabled]

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

Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 16: South Bridge Configuration

➔ HD Audio Azalia Device [Enabled]

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

- ➔ **Auto** — The onboard High Definition Audio controller will be enabled if present, disabled otherwise.
- ➔ **Disabled** — The onboard High Definition Audio controller is disabled
- ➔ **Enabled** **DEFAULT** — The onboard High Definition Audio controller is detected automatically and enabled

➔ Power Saving Function(ERP) [Disabled]

Use the **Power Saving Function** BIOS option to enable or disable the power saving function.

- ➔ **Disabled** **DEFAULT** — Power saving function is disabled.
- ➔ **Enabled** — Power saving function is enabled. It will reduce power consumption when the system is off.

5.4.2 North Bridge Configuration

Use the **North Bridge** menu (**BIOS Menu 18**) to view the memory information.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                    Chipset

North Bridge Configuration                  |
                                            |
Memory Information                          |
Memory Clock:1333 MHZ                       |  ---------------------
Total Memory:8192 MB (DDR3)                 |  ←→: Select Screen
Dimm1: size = 8192MB, speed = 1600MHZ       |  ↑ ↓: Select Item
Dimm2: Not Present                          |  EnterSelect
                                            |  + -   Change Opt.
                                            |  F1    General Help
                                            |  F2    Previous Values
                                            |  F3    Optimized Defaults
                                            |  F4    Save & Exit
                                            |  ESC   Exit
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 17: North Bridge Configuration

5.5 Boot

Use the **Boot** menu (**BIOS Menu 19**) to configure system boot options.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
 Main   Advanced   Chipset   Boot   Security  Save & Exit  Server Mgmt

Boot Configuration                          |  Select the keyboard
Bootup NumLock State          [On]          |  NumLock state
Quiet Boot                    [Enabled]     |
Option ROM Messages           [Force BIOS]  |
Launch PXE OpROM              [Disabled]    |  ---------------------
UEFI Boot                     [Disabled]    |  ←→: Select Screen
                                            |  ↑ ↓: Select Item
Boot Option Priorities                      |  EnterSelect
                                            |  F1    General Help
                                            |  F2    Previous Values
                                            |  F3     Optimized
                                            |  Defaults
                                            |  F4     Save
                                            |  ESC    Exit
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 18: 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.

➔ 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

➔ Option ROM Messages [Force BIOS]

Use the **Option ROM Messages** option to set the Option ROM display mode.

➔ **Force BIOS**	**DEFAULT**	Sets display mode to force BIOS.
➔ **Keep Current**		Sets display mode to current.

➔ 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.

➔ UEFI Boot [Disabled]

Use the **UEFI Boot** option to enable or disable to boot from the UEFI devices.

➔ **Auto**		If the first boot HDD is GPT then enable UEFI boot options, otherwise disable,
➔ **Enabled**		Boot from UEFI devices is enabled.
➔ **Disabled**	**DEFAULT**	Boot from UEFI devices is disabled.

➔ Boot Option Priority

Use the **Boot Option Priority** function to set the system boot sequence from the available devices. The drive sequence also depends on the boot sequence in the individual device section.

5.6 Security

Use the **Security** menu (**BIOS Menu 18**) to set system and user passwords.

```
      Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
  Main    Advanced   Chipset    Boot    Security  Save & Exit  Server Mgmt

Password Description                                  Set Administrator
                                                      Password
If ONLY the Administrator's password is set,
then this only limits access to Setup and is
only asked for when entering Setup                    ---------------------
If ONLY the User's password is set, then this         ←→: Select Screen
is a power on password and must be entered to         ↑ ↓: Select Item
boot or enter Setup. In Setup the User will           EnterSelect
have Administrator rights.                            F1   General Help
The password length must be:                          F2   Previous Values
Minimum length                  3                     F3    Optimized
Maximum length                  20                    Defaults
                                                      F4    Save
Administrator Password                                ESC   Exit
User Password

        Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 19: Security

➔ Administrator Password

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

➔ User Password

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

5.7 Save & Exit

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

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Main   Advanced   Chipset   Boot   Security   Save & Exit   Server Mgmt

Save Changes and Reset                    Reset the system after
Discard Changes and Reset                 saving the changes.

Restore Defaults
Save as User Defaults
Restore User Defaults

                                          ---------------------
                                          ←→: Select Screen
                                          ↑ ↓: Select Item
                                          EnterSelect
                                          F1   General Help
                                          F2   Previous Values
                                          F3    Optimized
                                          Defaults
                                          F4    Save
                                          ESC   Exit
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 20: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.**

➔ 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.

5.8 Server Mgmt

Use the **Server Mgmt** menu (**BIOS Menu 13**) to access the server management menus.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                                                Server Mgmt

BMC Self Test Status            FAILED          Press <Enter> to change
                                                the SEL event log
> System Event Log                              configuration.
> BMC network configuration

                                                ---------------------

                                                ←→: Select Screen
                                                ↑ ↓: Select Item
                                                EnterSelect
                                                + -   Change Opt.
                                                F1    General Help
                                                F2    Previous Values
                                                F3    Optimized Defaults
                                                F4    Save & Exit
                                                ESC   Exit
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 21: IDE Configuration

5.8.1.1 System Event Log

Use the **System Event Log** menu (**BIOS Menu 19**) to configure the event log.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                                                    Server Mgmt

Enabling/Disabling Options                  | Change this to anable or
SEL Components                  [Enabled]   | disable all features of
                                            | System Event Logging
Erasing Settings                            | during boot.
Erase SEL                       [No]        |
When SEL is Full                [Do Noting] | ---------------------
                                            | →←: Select Screen
NOTE : All values changed here do not take effect until | ↑ ↓: Select Item
       computer is restarted.               | Enter:  Select
                                            | +/-:  Change Opt.
                                            | F1:  General Help
                                            | F2:  Previous Values
                                            | F3:  Optimized Defaults
                                            | F4:  Save & Exit
                                            | ESC: Exit
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 22: PCH Azalia Configuration Menu

➔ SEL Components [Enabled]

Use the **SEL Components** option to enable or disable all features of system event logging during boot.

➔ **Disabled** Disables all features of system event logging during boot.

➔ **Enabled** **DEFAULT** Enables all features of system event logging during boot.

➔ Erase SEL [No]

Use **Erase SEL** option to select options for erasing SEL. The following options are available:

- No **Default**
- Yes, On next reset
- Yes, On every reset

➔ When SEL is Full [Do Nothing]

Use **When SEL is FULL** option to select options for reactions to a full SEL. The following options are available:

- Do Nothing **Default**
- Erase Immediately

5.8.1.2 BMC network configuration

Use the **BMC network configuration** menu (**BIOS Menu 19**) to configure BMC network parameters.

```
Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                                                    Server Mgmt

BMC network configuration                          Select to configure LAN channel
                                                   parameters statically or
Lan channel 1                                      dynamically(by BIOS or
Configuration Address source     [Unspecified]     BMC).Unspecified option will
Station IP address               -                 not modify any BMC network
Subnet mask                      -                 parameters during BIOS phase.
Station MAC address              -                 ---------------------
Router IP address                -                 →←: Select Screen
Router MAC address               -                 ↑ ↓: Select Item
                                                   Enter:  Select
                                                   +/-:  Change Opt.
                                                   F1:   General Help
                                                   F2:   Previous Values
                                                   F3:   Optimized Defaults
                                                   F4:   Save & Exit
                                                   ESC:  Exit
Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

BIOS Menu 23: PCH Azalia Configuration Menu

➔ Configuration Address source [Unspecified]

Use **Configuration Address source** option to configure LAN channel parameters. The following options are available:

- Unspecified **Default**
- Static
- Dynamic-Obtained by BMC
- Dynamic-Loaded by BIOS
- Dynamic-BMC running Other Protocol

Appendix

A

BIOS Menu Options

Appendix

B

Terminology

AC ’97	Audio Codec 97 (AC’97) refers to a codec standard developed by Intel® in 1997.
ACPI	Advanced Configuration and Power Interface (ACPI) is an OS-directed configuration, power management, and thermal management interface.
AHCI	Advanced Host Controller Interface (AHCI) is a SATA Host controller register-level interface.
ATA	The Advanced Technology Attachment (ATA) interface connects storage devices including hard disks and CD-ROM drives to a computer.
APM	The Advanced Power Management (APM) application program interface (API) enables the inclusion of power management in the BIOS.
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.
CMOS	Complimentary metal-oxide-conductor is a type of integrated circuit used in chips like static RAM and microprocessors.
COM	COM is used to refer to serial ports. Serial ports offer serial communication to expansion devices. The serial port on a personal

	computer is usually a male DE-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.
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.
EHCI	The Enhanced Host Controller Interface (EHCI) specification is a register-level interface description for USB 2.0 Host Controllers.
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
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.
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.
MAC	The Media Access Control (MAC) protocol enables several terminals or network nodes to communicate in a LAN, or other multipoint networks.

PCIe	PCI Express (PCIe) is a communications bus that uses dual data lines for full-duplex (two-way) serial (point-to-point) communications between the SBC components and/or expansion cards and the SBC chipsets. Each line has a 2.5 Gbps data transmission rate and a 250 MBps sustained data transfer rate.
POST	The Power-on Self Test (POST) is the pre-boot actions the system performs when the system is turned-on.
QVGA	Quarter Video Graphics Array (QVGA) refers to a display with a resolution of 320 x 240 pixels.
RAM	Random Access Memory (RAM) is a form of storage used in computer. RAM is volatile memory, so it loses its 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 3Gb/s 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, while

	USB 2.0 supports 480Mbps data transfer rates.
VGA	The Video Graphics Array (VGA) is a graphics display system developed by IBM.

Appendix

C

Watchdog Timer

NOTE:

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

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

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

INT 15H:

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

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

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

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

NOTE:

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

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BL, 30H         ;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 ;
```

Appendix

D

Hazardous Materials Disclosure

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

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

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

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	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

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。