

EPIC-KB07

AMD® Embedded G-series

Quad/ Dual SoC APU

DDR3/DDR3L 1600 SODIMM

18/24-bit Single/Dual-channel LVDS LCD

5 USB2.0, 2 USB3.0, 6 COM

1 SATA, 1 mSATA

2 GbE, SIM Card, Mini Card

Copyright Notice

This document is copyrighted, 2014. All rights are reserved. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, or for any infringements upon the rights of third parties that may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, AAEON assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein.

AAEON reserves the right to make changes in the product design without notice to its users.

Acknowledgments

All other products' name or trademarks are properties of their respective owners.

- AMD[®] is trademark of Advanced Micro Devices.
- Microsoft Windows[®] is a registered trademark of Microsoft Corp.
- ITE is a trademark of Integrated Technology Express, Inc.
- IBM, PC/AT, PS/2, and VGA are trademarks of International Business Machines Corporation.

All other product names or trademarks are properties of their respective owners.

Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- 1709070500 SATA Cable
- 1702150155 SATA Power Cable
- 9657666600 Jumper Cap
- Heat Spreader (by model request)
- DVD-ROM for manual (in PDF format) and drivers
- EPIC-KB07

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

Contents

Chapter 1 General Information

1.1 Introduction.....	1-2
1.2 Features	1-3
1.3 Specifications	1-4

Chapter 2 Quick Installation Guide

2.1 Safety Precautions	2-2
2.2 Location of Connectors and Jumpers	2-3
2.3 Mechanical Drawing	2-4
2.4 List of Jumpers	2-7
2.5 List of Connectors	2-8
2.6 Setting Jumpers	2-10
2.7 LVDS1 Backlight Voltage Selection (JP1).....	2-11
2.8 LVDS1 Backlight Control Selection (JP2)	2-11
2.9 LVDS1 VCC Selection (JP3).....	2-11
2.10 LVDS2 Backlight Voltage Selection (JP4).....	2-12
2.11 LVDS2 Backlight Control Selection (JP5)	2-12
2.12 LVDS2 VCC Selection (JP6).....	2-12
2.13 AT/ATX Selection (JP8)	2-12
2.14 LPT_DIO Selection (JP9).....	2-13
2.15 COM2 Ring_12V_5V Selection (JP10)	2-13
2.16 COM2 Slew Selection (JP11).....	2-13
2.17 Touch Screen Selection (JP12)	2-14

2.18 COM1 Slew Selection (JP13).....	2-14
2.19 COM1 Ring_12V_5V Selection (JP14)	2-14
2.20 Clear CMOS Selection (CN9)	2-15
2.21 mSATA / PCIe Selection (CN37)	2-15
2.22 Display setting Selection (SW1).....	2-15
2.23 Fan Connector (CN2)	2-16
2.24 SPI Flash Header (CN3)	2-16
2.25 LAN1 Ethernet RJ-45 Connector (CN5).....	2-17
2.26 LAN2 Ethernet RJ-45 Connector (CN6).....	2-17
2.27 DP0 Connector (CN7)	2-18
2.28 1 st Backlight Connector (CN10).....	2-19
2.29 1 st LVDS Connector (CN11).....	2-19
2.30 2 nd Backlight Connector (CN13)	2-21
2.31 2 nd LVDS Connector (CN14)	2-21
2.32 3G SIM Connector (CN15).....	2-23
2.33 Dual USB3.0 Connector (CN16)	2-23
2.34 SATA CONNCETOR (CN17)	2-24
2.35 SATA CONNCETOR (CN18)	2-25
2.36 SATA Power Connector (CN19)	2-26
2.37 RS-232 Serial Port Dual Connector (CN20)	2-26
2.38 RS-232 Serial Port Connector (CN21)	2-28
2.39 LPT_DIO Connector (CN22)	2-29
2.40 RS-232 Serial Port Connector (CN23).....	2-32
2.41 LPC Connector (CN24)	2-32
2.42 Touch Screen Connector (CN25).....	2-33

2.43 Audio Connector (CN26)	2-34
2.44 AMP-R Channel Connector (CN27)	2-35
2.45 AMP-L Channel Connector (CN28).....	2-35
2.46 RS-232 Serial Port Connector (CN30)	2-35
2.47 RS-232 Serial Port Connector (CN31)	2-36
2.48 VGA CONNECTOR (CN32)	2-37
2.49 RTC Battery Connector (CN33)	2-38
2.50 Front Panel Connector (CN34)	2-38
2.51 4-Pin Power IN Connector (CN35).....	2-39
2.52 2-Pin Power IN Connector (CN36).....	2-39
2.53 1 st MINI Card Slot (PCIE1A1)	2-40
2.54 2 nd MINI Card Slot (PCIE1A2).....	2-42
2.55 USB2.0 Connector (USB1)	2-45
2.56 USB2.0 Connector (USB2)	2-45
2.57 USB2.0 Connector (USB3)	2-46
2.58 USB2.0 Connector (USB4)	2-46
2.59 USB2.0 Connector (USB5)	2-47
2.60 PS2 Keyboard and Mouse Connector (KB1)	2-47
2.67 HDMI Connector (HDMI1)	2-48

Chapter 3 AMI BIOS Setup

3.1 System Test and Initialization.	3-2
3.2 AMI BIOS Setup	3-3

Chapter 4 Driver Installation

4.1 Installation	4-3
------------------------	-----

Appendix A Programming The Watchdog Timer

A.1 Programming	A-2
A.2 F81866 Watchdog Timer Initial Program.....	A-5

Appendix B I/O Information

B.1 I/O Address Map	B-2
B.2 Memory Address Map	B-4
B.3 IRQ Mapping Chart.....	B-5
B.4 DMA Channel Assignments.....	B-8

Appendix C Mating Connector

C.1 List of Mating Connectors and Cables.....	C-2
---	-----

Appendix D Electrical Specifications for I/O Ports

D.1 Electrical Specifications for I/O Ports	D-2
---	-----

Appendix E DIO

E.1 DIO.....	E-2
--------------	-----

Chapter

1

General Information

1.1 Introduction

AAEON announces a brand new EPIC Board EPIC-KB07, designed to fit in diverse applications that demand for fitting in different space limitations and high performance.

EPIC-KB07 accommodates onboard AMD® Embedded G-series™ SoC APU and features DDR3/DDR3L (default) SODIMM 1600 system memory up to 8GB.

Moreover, EPIC-KB07 deploys Realtek® 8111E Ethernet chip to feature two RJ-45 ports onboard to display the transcendent performance of network connections. The display chipset of EPIC-KB07 supports 18/24-bit dual/single channel LVDS LCD and optional DisplayPort/ HDMI function.

In addition to the SIM Card and Mini Card expansions, EPIC-KB07 also features one SATA, one mSATA for the storage and five USB2.0, two USB3.0, six COM, 16-bit Digital I/O co-lay with LPT function for flexible I/O expansion. EPIC-KB07 is an excellent solution for your vital applications.

1.2 Features

- AMD Embedded G-series Quad/Dual Core SoC APU (BGA based, $\leq 25W$)
 - AMD® GX-420CA Quad-core 2.0GHz SoC with AMD Radeon™ HD 8400E Graphics
 - AMD® GX-217GA Dual-core 1.65GHz SoC with AMD Radeon™ HD 8280E Graphics
- 1 x 204-pin Single Channel DDR3/DDR3L (default) 1600MHz SODIMM up to 8GB
- Display Configuration (supports dual displays and VGA +DP0 default setting)
 - VGA+DP1; VGA+LVDS1(18-bit Single Channel) or LVDS2
 - DP0 (Rear I/O) or HDMI + VGA ; DP0 (Rear I/O) or HDMI + LVDS2(24-bit Dual Channel)
 - LVDS1(18-bit Single Channel) +LVDS2(24-bit Dual Channel)
 - DP0 or HDMI + DP1(optional)
- 10/100/1000Base-TX, RJ-45 x 2
- SATA6.0 Gb/s x 1, USB 3.0 x 2, USB2.0 x 5
- RS-232 x 4, RS-232/422/485 x 2(COM 1,2)
- Mini Card Socket x 2 (One for Mini Card, the other one for mSATA/ Mini Card and selected by Jumper CN37)
- Touch Panel Control Chip Supports 4/5/8-wire Touch Screen (Optional)
- 1.8 mm PCB, 8-layer PCB Layout

1.3 Specifications

System

- Form Factor EPIC Board
- Processor AMD[®] Embedded G-series™
Quad/ Dual Core SoC APU
- System Memory SODIMM DDR3/DDR3L (default)
1600 MHz Up to 8 GB
- Chipset AMD Embedded G-series Quad/
Dual Core SoC APU
- I/O Chipset Fintek 81866D
- Ethernet 10/100/1000Base-TX (Realtek[®]
8111E), RJ-45 x 2
- BIOS AMI Plug & Play BIOS
- Wake On LAN Yes
- Watchdog Timer Generates a time-out system reset
- H/W Status Monitoring Monitoring system temperature,
voltage, and cooling fan status
- Expansion Interface Mini Card socket x 1, SIM Card
socket x 1
- Battery Lithium battery
- Power Requirement ATX 4-pin connector x 1 or
co-lay 2-pin block terminal;
12 V or DC9~24V DC input x 1;
SATA power with 2-pin wafer x 1
Smart fan with 4-pin wafer x 1

- Board Size 4.5" x 6.5" (115mm x 165mm)
- Gross Weight 0.44 lb (0.2 Kg)
- Operation Temperature 32°F ~ 140°F (0°C ~ 60°C)
- Storage Temperature -4°F ~ 158°F (-20°C ~ 70°C)
- Operation Humidity 10% ~ 80% relative humidity, non-condensing

Display: Supports CRT/LCD/DP simultaneous/ dual view displays

- Chipset AMD® Embedded G-series SoC integrated
- Resolutions Up to 2048x1536 @ 75 Hz for CRT; 1920x1200 @ 85Hz for LCD; 1920x1200 @ 60Hz for DisplayPort
- LCD Interface VGA+DP1; VGA+LVDS1(18 bit Single CH) or LVDS 2; DP 0 or HDMI + VGA ; DP 0 or HDMI + LVDS2(24 bit Dual CH) LVDS1(18 bit Single CH) + LVDS2 (24 bit Dual CH); DP 0 or HDMI + DP 1(optional)

Note 1: VGA and DP0 are default display

Note 2: DP1 co-lay with LVDS2 controlled by BIOS setting

Note 3: Please refer to Chapter 2 **2.22 Display Setting Selection (SW1)** for settings above.

I/O

- Storage SATA 6.0Gb/s x 1, mSATA x 1
- Serial Port RS-232 x 4, RS-232/422/485 x 2
- Parallel Port SPP/EPP/ECP Mode
- USB USB2.0 x 5, USB3.0 x 2
- PS/2 Port Keyboard x 1, Mouse x 1
- Digital I/O Supports 16-bit (programmable), Colay with LPT Port (default and selected by Jumper JP9)
- Audio Line-in, Line-out, & Mic-in
- Touch Screen Supports 4/5/8-wire resistive touch screen (optional)

Chapter

2

**Quick
Installation
Guide**

2.1 Safety Precautions

Warning!

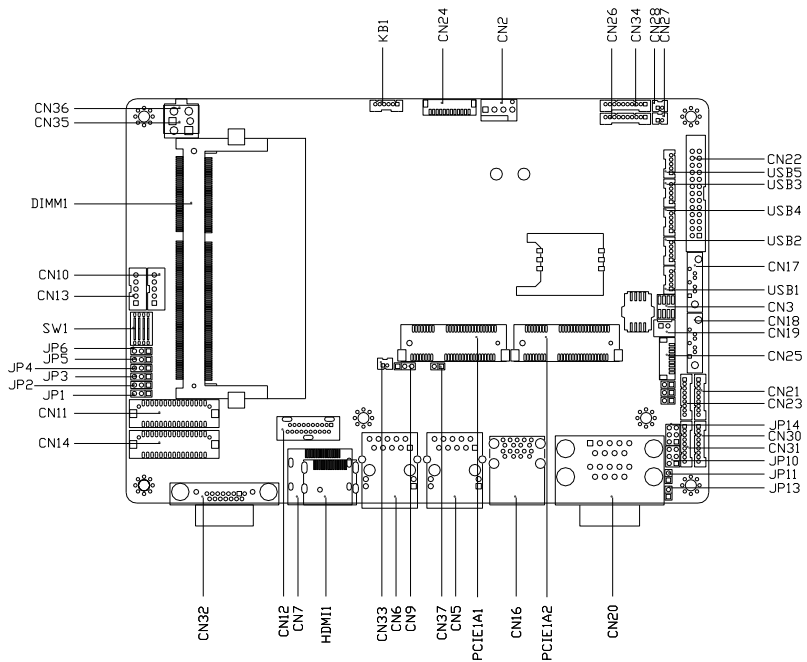
Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

Caution!

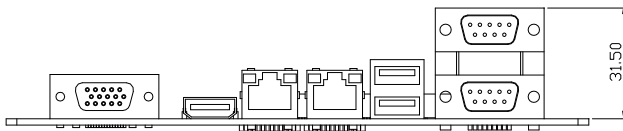
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis

2.2 Location of Connectors and Jumpers

Component Side

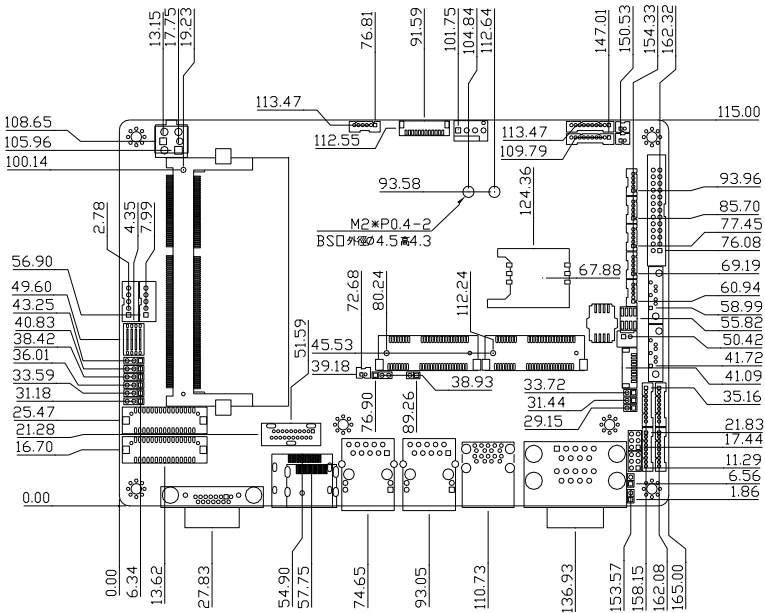


Component Side

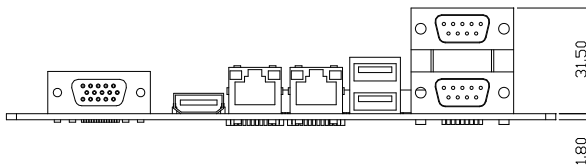


2.3 Mechanical Drawing

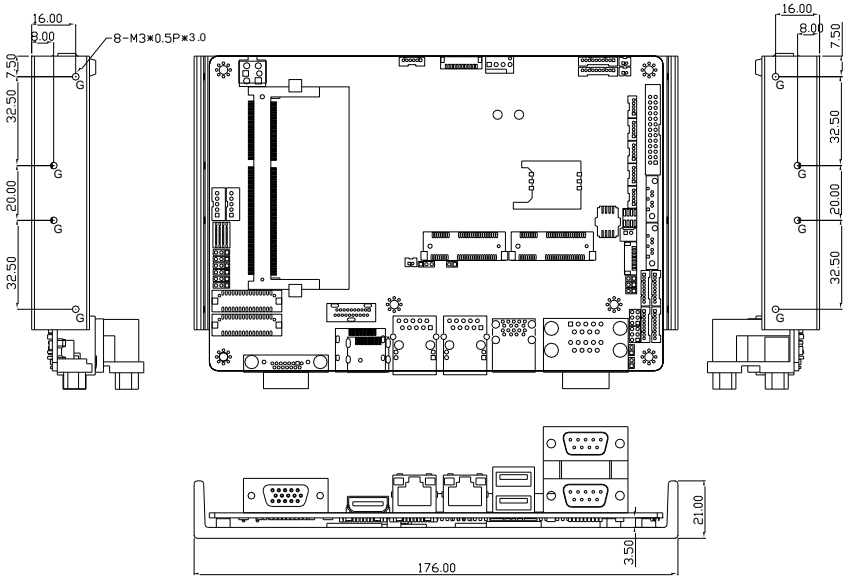
Component Side



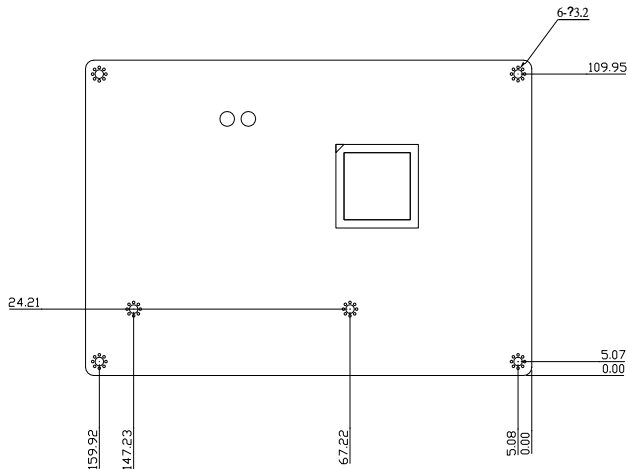
Component Side



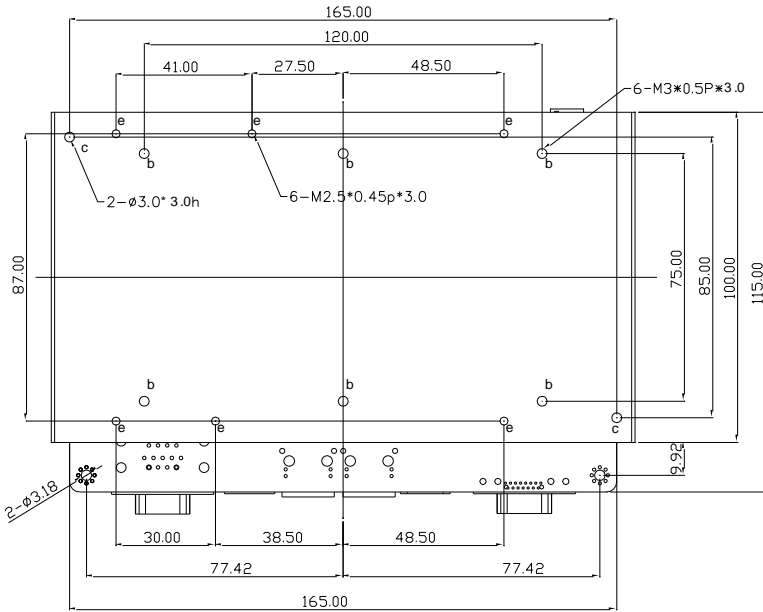
With Heat Spreader



Solder Side



Heat spreader (just for one of design reference)



2.4 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

Label	Function
JP1	LVDS1 Backlight Voltage Selection
JP2	LVDS1 Backlight Control Selection
JP3	LVDS1 VCC Selection
JP4	LVDS2 Backlight Voltage Selection
JP5	LVDS2 Backlight Control Selection
JP6	LVDS2 VCC Selection
JP8	AT/ATX Selection
JP9	LPT_DIO Selection
JP10	COM2 Ring_12V_5V Selection
JP11	COM2 Slew Selection
JP12	Touch Screen Connector Selection
JP13	COM1 Slew Selection
JP14	COM1 Ring_12V_5V Selection
SW1	Display setting Selection
CN37	mSATA / PCIe Selection

2.5 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

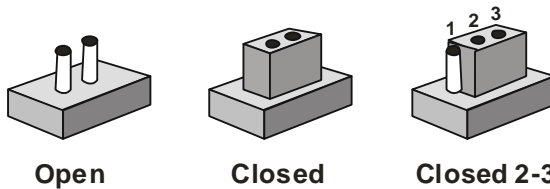
Label	Function
CN2	Fan Connector
CN3	SPI Flash Header
CN5	1000 Base-Tx Ethernet LAN1 Connector
CN6	1000 Base-Tx Ethernet LAN2 Connector
CN7	DP0 Connector
CN9	Clear CMOS
CN10	1 st Backlight Connector
CN11	1 st LVDS Connector
CN12	DP1 Connector
CN13	2 nd Backlight Connector
CN14	2 nd LVDS Connector
CN15	3G SIM Connector
CN16	Dual USB3.0 Connector
CN17	SATA Connector
CN18	SATA Connector
CN19	SATA Power Connector
CN20(Dual A)	COM1 RS-232/422/485 Serial Port Connector
CN20(Dual B)	COM2 RS-232/422/485 Serial Port Connector
CN21	COM3 RS-232 Serial Port Connector
CN22	LPT_DIO Connector

CN23	COM4 RS-232 Serial Port Connector
CN24	LPC Connector
CN25	Touch Screen Connector
CN26	Audio Connector
CN27	Amp R-channel Connector
CN28	Amp L-channel Connector
CN30	COM5 RS-232 Serial Port Connector
CN31	COM6 RS-232 Serial Port Connector
CN32	VGA Connector
CN33	RTC Battery Connector
CN34	Front Panel Connector
CN35	4-Pin Power In Connector
CN36	2-Pin Power in Connector
PCIE1A1	1 st MINI Card Slot
PCIE1A2	2 nd MINI Card Slot
USB1	USB2.0 Connector
USB2	USB2.0 Connector
USB3	USB2.0 Connector
USB4	USB2.0 Connector
USB5	USB2.0 Connector
KB1	PS/2 Keyboard Mouse Connector
HDMI1	HDMI Connector

2.6 Setting Jumpers

You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip.

To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any change.

Generally, you simply need a standard cable to make most connections.

2.7 LVDS1 Backlight Voltage Selection (JP1)



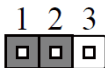
+12V



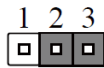
+5V

JP1	Function
1-2	+12V
2-3	+5V (Default)

2.8 LVDS1 Backlight Control Selection (JP2)



Voltage Mode



PWM Mode

JP2	Function
1-2	Voltage Mode
2-3	PWM Mode (Default)

2.9 LVDS1 VCC Selection (JP3)



+5V



+3.3V

JP3	Function
1-2	+5V
2-3	+3.3V (Default)

2.10 LVDS2 Backlight Voltage Selection (JP4)



JP4	Function
1-2	+12V
2-3	+5V (Default)

2.11 LVDS2 Backlight Control Selection (JP5)



JP5	Function
1-2	Voltage Mode
2-3	PWM Mode (Default)

2.12 LVDS2 VCC Selection (JP6)



JP6	Function
1-2	+5V
2-3	+3.3V (Default)

2.13 AT/ATX Selection (JP8)



JP8	Function
1-2 (short)	AT (Default)
OPEN	ATX

2.14 LPT_DIO Selection (JP9)



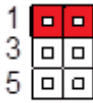
LPT



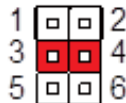
DIO

JP9	Function
1-2 (short)	DIO
OPEN	LPT (Default)

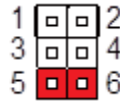
2.15 COM2 Ring_12V_5V Selection (JP10)



+12V



RI2



+5V

JP10	Function
1-2	+12V
3-4	RI2 (Default)
5-6	+5V

2.16 COM2 Slew Selection (JP11)



250kbps



1M/10Mbps

JP11	Function
1-2 Short	1Mbps/10Mbps (Default)

OPEN 250kbps

2.17 Touch Screen Selection (JP12)



4, 8 Wires



5 Wires

JP12	Function
1-2 (short)	4,8 Wires (Default)
OPEN	5 Wires

2.18 COM1 Slew Selection (JP13)



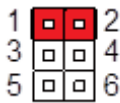
250kbps



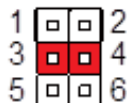
1M/10Mbps

JP13	Function
1-2 Short	1Mbps/10Mbps (Default)
OPEN	250kbps

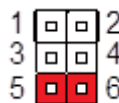
2.19 COM1 Ring_12V_5V Selection (JP14)



+12V



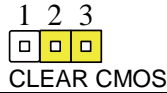
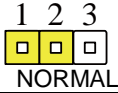
RI1



+5V

JP14	Function
1-2	+12V
3-4	RI1 (Default)
5-6	+5V

2.20 Clear CMOS Selection (CN9)



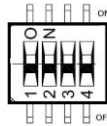
CN9	Function
1-2	Protected (Default)
2-3	Clear

2.21 mSATA / PCIe Selection (CN37)



CN37	Function
1-2 Short	PCIe
OPEN	mSATA (Default)

2.22 Display setting Selection (SW1)

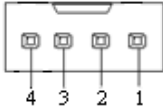


Function	1	2
LVDS1 (CN11) 18Bit	ON	ON
HDMI	OFF	ON
DP0(CN7)	OFF	OFF

Function	3	4

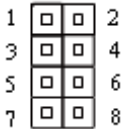
DP1(CN12)	ON	OFF
LVDS2 (CN14) 24Bit	OFF	OFF

2.23 Fan Connector (CN2)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	FAN_CTL	OUT	
3	FAN_TAC	OUT	
4	FAN_CTL_R	OUT	

2.24 SPI Flash Header (CN3)

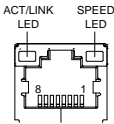


Pin	Pin Name	Signal Type	Signal Level
1	+3V3_SPI	PWR	+3.3V
2	GND	GND	
3	SPI_CS#_F	IN	
4	SPI_CLK_F	I/O	
5	SPI_DATAIN_F	OUT	
6	SPI_DATAOUT_F	IN	

7 N/A

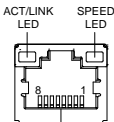
8 N/A

2.25 LAN1 Ethernet RJ-45 Connector (CN5)



Pin	Pin Name	Signal Type	Signal Level
1	LAN1_MDI0P	I/O	
2	LAN1_MDI0N	I/O	
3	LAN1_MDI1P	I/O	
4	LAN1_MDI1N	I/O	
5	LAN1_MDI2P	I/O	
6	LAN1_MDI2N	I/O	
7	LAN1_MDI3P	I/O	
8	LAN1_MDI3N	I/O	

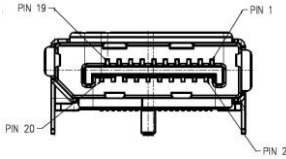
2.26 LAN2 Ethernet RJ-45 Connector (CN6)



Pin	Pin Name	Signal Type	Signal Level
1	LAN2_MDI0P	I/O	
2	LAN2_MDI0N	I/O	
3	LAN2_MDI1P	I/O	

4	LAN2_MDI1N	I/O
5	LAN2_MDI2P	I/O
6	LAN2_MDI2N	I/O
7	LAN2_MDI3P	I/O
8	LAN2_MDI3N	I/O

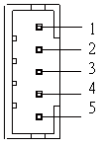
2.27 DP0 Connector (CN7)



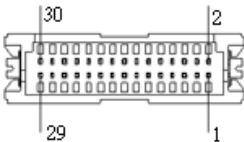
Pin	Pin Name	Signal Type	Signal Level
1	Lane0 (P)	I/O	
2	GND	GND	
3	Lane0(N)	I/O	
4	Lane1 (P)	I/O	
5	GND	GND	
6	Lane1 (N)	I/O	
7	Lane2 (P)	I/O	
8	GND	GND	
9	Lane2 (N)	I/O	
10	Lane3 (P)	I/O	
11	GND	GND	
12	Lane3 (N)	I/O	

EPIC Board**EPIC-KB07**

13	GND	GND	
14	GND	GND	
15	AUX CH (P)	I/O	
16	GND	GND	
17	AUX CH (N)	I/O	
18	Hot Plug		
19	Return PWR (GND)	GND	
20	DP_PWR	PWR	+3.3V

2.28 1st Backlight Connector (CN10)

Pin	Pin Name	Signal Type	Signal Level
1	INV_1ND_PWR	PWR	+5V OR +12V
2	LVD1_BKLCTL	OUT	
3	GND	GND	
4	GND	GND	
5	LVD1_BKLTEN	OUT	

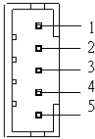
2.29 1st LVDS Connector (CN11)

Pin	Pin Name	Signal Type	Signal Level
1	LVD1_BKLTEN	OUT	
2	LVD1_BKLCTL	OUT	
3	VLCD_1ND	PWR	+3.3V OR +5V
4	GND	GND	
5	LVD1_A_CLKN	OUT	
6	LVD1_A_CLKP	OUT	
7	VLCD_1ND	PWR	+3.3V OR +5V
8	GND	GND	
9	LVD1_A_TXN2	I/O	
10	LVD1_A_TXP2	I/O	
11	LVD1_A_TXN1	I/O	
12	LVD1_A_TXP1	I/O	
13	LVD1_A_TXN0	I/O	
14	LVD1_A_TXP0	I/O	
15	NC	NC	
16	NC	I/O	
17	LVD1_DDC_SDA	I/O	
18	LVD1_DDC_SCL	I/O	
19	NC	NC	
20	NC	NC	
21	NC	NC	
22	NC	NC	
23	NC	NC	

EPIC Board		EPIC-KB07	
------------	--	-----------	--

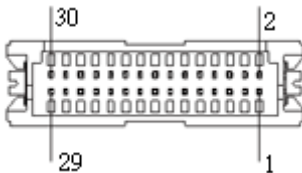
24	NC	NC	
25	NC	NC	
26	NC	NC	
27	VLCD_1ND	PWR	+3.3V OR +5V
28	GND	GND	
29	NC	NC	
30	NC	NC	

2.30 2nd Backlight Connector (CN13)



Pin	Pin Name	Signal Type	Signal Level
1	INV_2ND_PWR	PWR	+5V OR +12V
2	LVD2_BKLCTL	OUT	
3	GND	GND	
4	GND	GND	
5	LVD2_BKLTEN	OUT	

2.31 2nd LVDS Connector (CN14)

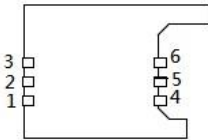


Pin	Pin Name	Signal Type	Signal Level
1	LVD2_BKLTEN	OUT	
2	LVD2_BKLCTL	OUT	
3	VLCD_2ND	PWR	+3.3V OR +5V
4	GND	GND	
5	LVDS_A_CLKN	I/O	
6	LVDS_A_CLKP	I/O	
7	VLCD_2ND	PWR	+3.3V OR +5V
8	GND	GND	
9	LVDS_A_TX#0	I/O	
10	LVDS_A_TX0	I/O	
11	LVDS_A_TX#1	I/O	
12	LVDS_A_TX1	I/O	
13	LVDS_A_TX#2	I/O	
14	LVDS_A_TX2	I/O	
15	LVDS_A_TX#3	I/O	
16	LVDS_A_TX3	I/O	
17	LVDS_DDC_DATA	I/O	
18	LVDS_DDC_CLK	I/O	
19	LVDS_B_TX#0	I/O	
20	LVDS_B_TX0	I/O	
21	LVDS_B_TX#1	I/O	
22	LVDS_B_TX1	I/O	
23	LVDS_B_TX#2	I/O	

EPIC Board		EPIC-KB07	
------------	--	-----------	--

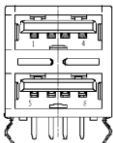
24	LVDS_B_TX2	I/O	
25	LVDS_B_TX#3	I/O	
26	LVDS_B_TX3	I/O	
27	VLCD_2ND	PWR	+3.3V OR +5V
28	GND	GND	
29	LVDS_B_CLKN	I/O	
30	LVDS_B_CLKP	I/O	

2.32 3G SIM Connector (CN15)



Pin	Pin Name	Signal Type	Signal Level
1	UIM_PWR	PWR	+3.3V
2	UIM_RST	OUT	
3	UIM_CLK	OUT	
4	GND	GND	
5	UIM_VPP	GND	
6	UIM_DAT	I/O	

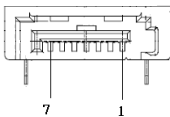
2.33 Dual USB3.0 Connector (CN16)



Pin	Pin Name	Signal Type	Signal Level
1	+V5A_USB_0	PWR	+5V
2	USBD8-	I/O	
3	USBD8+	I/O	
4	GND	GND	
5	USB3_RX0_CON_N	I/O	
6	USB3_RX0_CON_P	I/O	
7	GND	GND	
8	USB3_TX0_CON_N	I/O	
9	USB3_TX0_CON_P	I/O	
10	+V5A_USB_0	PWR	+5V
11	USBD9-	I/O	
12	USBD9+	I/O	
13	GND	GND	
14	USB3_RX1_CON_N	I/O	
15	USB3_RX1_CON_P	I/O	
16	GND	GND	
17	USB3_TX1_CON_N	I/O	
18	USB3_TX1_CON_P	I/O	

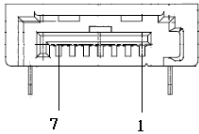
Note: For the AMD platform limitation. The USB 3.0 can't be detected during implement Windows 7 OS. When the OS and USB 3.0 driver are ready, you can use this feature.

2.34 SATA CONNCTOR (CN17)



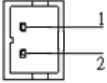
Pin	Pin Name	Signal type	Signal Level
1	GND	GND	
2	SATA_TXP0_C	I/O	
3	SATA_TXN0_C	I/O	
4	GND	GND	
5	SATA_RXN0_C	I/O	
6	SATA_RXP0_C	I/O	
7	GND	GND	

2.35 SATA CONNNECTOR (CN18)



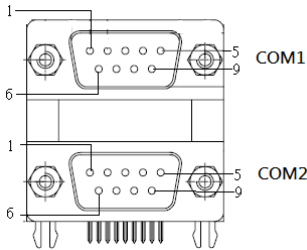
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA_TXP1_C	I/O	
3	SATA_TXN1_C	I/O	
4	GND	GND	
5	SATA_RXN1_C	I/O	
6	SATA_RXP1_C	I/O	
7	GND	GND	

2.36 SATA Power Connector (CN19)



Pin	Pin Name	Signal Type	Signal Level
1	+5V	PWR	+5V
2	GND	GND	GND

2.37 RS-232 Serial Port Dual Connector (CN20)



COM1 (RS-232)

Pin	Pin Name	Signal Type	Signal Level
1	DCD1	IN	
2	RX1	IN	
3	TX1	OUT	
4	DTR1	OUT	
5	GND	GND	
6	DSR1	IN	

7	RTS1	OUT
8	CTS1	IN
9	RI1_5V_12V	IN/PWR

COM2 (RS-232)

Pin	Pin Name	Signal Type	Signal Level
1	DCD2	IN	
2	RX2	IN	
3	TX2	OUT	
4	DTR2	OUT	
5	GND	GND	
6	DSR2	IN	
7	RTS2	OUT	
8	CTS2	IN	
9	RI2_5V_12V	IN/PWR	

COM1/2 (RS-422)

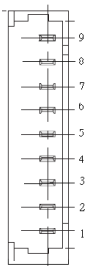
Pin	Pin Name	Signal Type	Signal Level
1	422TXD-	OUT	
2	422TXD+	OUT	
3	422RXD+	IN	
4	422RXD-	IN	
5	NC		
6	NC		
7	NC		

8	NC		
9	NC/+5V/+12V	PWR	+5V/+12V

COM1/2 (RS-485)

Pin	Pin Name	Signal Type	Signal Level
1	485D-	I/O	
2	485D+	I/O	
3	NC		
4	NC		
5	NC		
6	NC		
7	NC		
8	NC		
9	NC/+5V/+12V	PWR	+5V/+12V

2.38 RS-232 Serial Port Connector (CN21)

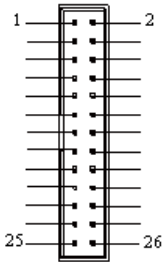


Pin	Pin Name	Signal Type	Signal Level
1	DCD3	IN	

EPIC Board	EPIC-KB07
-------------------	------------------

2	DSR3	IN
3	RX3	IN
4	RTS3	OUT
5	TX3	OUT
6	CTS3	IN
7	DTR3	OUT
8	RI3	IN
9	GND	GND

2.39 LPT_DIO Connector (CN22)



LPT Mode

Pin	Pin Name	Signal Type	Signal Level
1	STOBE#	I/O	
2	#AFD	I/O	
3	PPD0	I/O	
4	ERR#	I/O	
5	PPD1	I/O	
6	PINIT#	I/O	

EPIC Board**EPIC-KB07**

7	PPD2	I/O
8	SLIN#	I/O
9	PPD3	I/O
10	GND	GND
11	PPD4	I/O
12	GND	GND
13	PPD5	I/O
14	GND	GND
15	PPD6	I/O
16	GND	GND
17	PPD7	I/O
18	GND	GND
19	ACK#	I/O
20	GND	GND
21	BUSY	I/O
22	GND	GND
23	PE	I/O
24	GND	GND
25	SLCT	I/O
26	+5V	

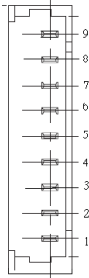
DIO Mode

Pin	Pin Name	Signal Type	Signal Level
1	GPIO15	I/O	
2	GPIO14	I/O	

EPIC Board**EPIC-KB07**

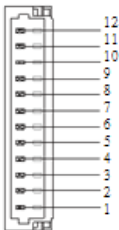
3	GPIO0	I/O
4	GPIO13	I/O
5	GPIO1	I/O
6	GPIO12	I/O
7	GPIO2	I/O
8	GPIO11	I/O
9	GPIO3	I/O
10	GND	GND
11	GPIO4	I/O
12	GND	GND
13	GPIO5	I/O
14	GND	GND
15	GPIO6	I/O
16	GND	GND
17	GPIO7	I/O
18	GND	GND
19	GPIO10	I/O
20	GND	GND
21	GPIO9	I/O
22	GND	GND
23	GPIO8	I/O
24	GND	GND
25	NC	
26	NC	

2.40 RS-232 Serial Port Connector (CN23)



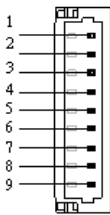
Pin	Pin Name	Signal Type	Signal Level
1	DCD4	IN	
2	DSR4	IN	
3	RX4	IN	
4	RTS4	OUT	
5	TX4	OUT	
6	CTS4	IN	
7	DTR4	OUT	
8	RI4	IN	
9	GND	GND	

2.41 LPC Connector (CN24)



Pin	Pin Name	Signal Type	Signal Level
1	LAD0	I/O	
2	LAD1	I/O	
3	LAD2	I/O	
4	LAD3	I/O	
5	+3.3V	PWR	+3.3V
6	LFRAME#	IN	
7	BUF_PLTRST#	IN	
8	GND	GND	
9	LPC_CLK1	OUT	
10	LDRQ0#	OUT	
11	NC	NC	
12	SERIRQ	I/O	

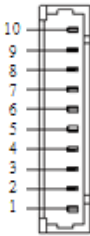
2.42 Touch Screen Connector (CN25)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	Y-	IN	
3	Y+	IN	

EPIC Board		EPIC-KB07
4	X-	IN
5	X+	IN
6	SENSE	IN
7	Y+	IN
8	X-	IN
9	X+	IN

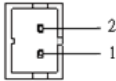
2.43 Audio Connector (CN26)



Pin	Pin Name	Signal Type	Signal Level
1	MIC_L	IN	
2	MIC_R	IN	
3	AUD_GND	GND	
4	LIN_L	IN	
5	LIN_R	IN	
6	AUD_GND	GND	
7	LOUT_L	OUT	
8	AUD_GND	GND	
9	LOUT_R	OUT	

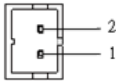
10	VDD_AUD	PWR	+5VSB
----	---------	-----	-------

2.44 AMP-R Channel Connector (CN27)



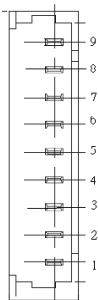
Pin	Pin Name	Signal Type	Signal Level
1	SKR_R+	OUT	
2	SKR_R-	OUT	

2.45 AMP-L Channel Connector (CN28)



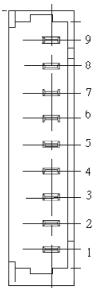
Pin	Pin Name	Signal Type	Signal Level
1	SKR_L+	OUT	
2	SKR_L-	OUT	

2.46 RS-232 Serial Port Connector (CN30)



Pin	Pin Name	Signal Type	Signal Level
1	DCD5	IN	
2	DSR5	IN	
3	RX5	IN	
4	RTS5	OUT	
5	TX5	OUT	
6	CTS5	IN	
7	DTR5	OUT	
8	RI5	IN	
9	GND	GND	

2.47 RS-232 Serial Port Connector (CN31)



Pin	Pin Name	Signal Type	Signal Level
1	DCD6	IN	
2	DSR6	IN	
3	RX6	IN	
4	RTS6	OUT	
5	TX6	OUT	

EPIC Board**EPIC-KB07**

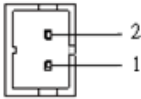
6	CTS6	IN
7	DTR6	OUT
8	RI6	IN
9	GND	GND

2.48 VGA CONNECTOR (CN32)

Pin	Pin Name	Signal Type	Signal Level
1	RED	I/O	
2	GREEN	I/O	
3	BLUE	I/O	
4	NC		
5	GND	GND	
6	GND	GND	
7	GND	GND	
8	GND	GND	
9	+5V	PWR	5V
10	CRT_PLUG	IN	
11	NC		
12	DDC_DAT	I/O	
13	HSYNC	I/O	
14	VSYNC	I/O	
15	DDC_CLK	I/O	
16	GND	GND	
17	GND	GND	

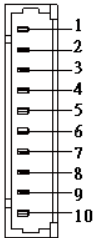
18	NC
<hr/>	
19	NC

2.49 RTC Battery Connector (CN33)



Pin	Pin Name	Signal Type	Signal Level
1	RTCBAT	PWR	+3.3V
2	GND	GND	

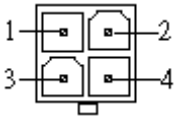
2.50 Front Panel Connector (CN34)



Pin	Pin Name	Signal Type	Signal Level
1	PWRSIN#	IN	
2	GND	GND	
3	+5V	PWR	+5V
4	FP_SPKR	IN	
5	+3.3V	PWR	+3.3V
6	HDD_LED#	IN	

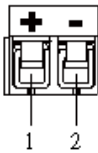
EPIC Board		EPIC-KB07	
7	+3.3V	PWR	+3.3V
8	GND	GND	
9	HWRST#	IN	
10	GND	GND	

2.51 4-Pin Power IN Connector (CN35)



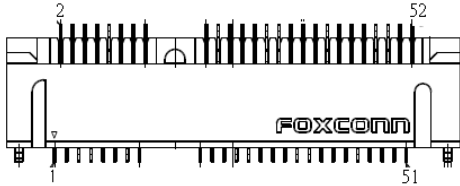
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	GND	GND	
3	+VIN	PWR	+12V
4	+VIN	PWR	+12V

2.52 2-Pin Power IN Connector (CN36)



Pin	Pin Name	Signal Type	Signal Level
1	+VIN	PWR	+12V
2	GND	GND	

2.53 1st MINI Card Slot (PCIE1A1)



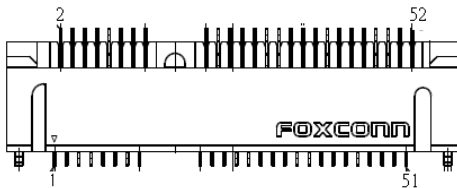
Pin	Pin Name	Signal Type	Signal Level
1	PCIE_WAKE#	OUT	
2	+3.3V_A_MC1	PWR	+3.3V
3	Reserved		
4	GND	GND	
5	Reserved		
6	+1.5V	PWR	+1.5V
7	PEGB_CLKRQ#	OUT	
8	Reserved		
9	GND	GND	
10	Reserved		
11	mSATA_PCl_e_CLKN	I/O	
12	Reserved		
13	mSATA_PCl_e_CLKP	I/O	
14	Reserved		
15	GND	GND	
16	Reserved		

17	Reserved		
18	GND	GND	
19	Reserved		
20	W_DISABLE#	IN	
21	XSD	OUT	
22	BUF_PLTRST#	IN	
23	PERn0_RX+	I/O	
24	+3.3V_A_MC1	PWR	+3.3V
25	PERp0_RX-	DIFF	
26	GND	GND	
27	GND	GND	
28	+1.5V	PWR	+1.5V
29	GND	GND	
30	SCLK1	I/O	
31	PETn0_TX-	I/O	
32	SDATA1	I/O	
33	PETp0_TX+	I/O	
34	GND	GND	
35	GND	GND	
36	USB4N	I/O	
37	GND	GND	
38	USB4P	I/O	
39	+3.3V_A_MC1	PWR	+3.3V
40	GND	GND	

EPIC Board	EPIC-KB07		
-------------------	------------------	--	--

41	+3.3V_A_MC1	PWR	+3.3V
42	Reserved		
43	NC		
44	Reserved		
45	Reserved	I/O	
46	Reserved		
47	Reserved	I/O	
48	+1.5V	PWR	+1.5V
49	Reserved	I/O	
50	GND	GND	
51	Reserved	I/O	
52	+3.3V_A_MC1	PWR	+3.3V

2.54 2nd MINI Card Slot (PCIE1A2)



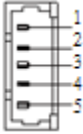
Pin	Pin Name	Signal Type	Signal Level
1	PCIE_WAKE#	OUT	
2	+3.3V_A_MC2	PWR	+3.3V
3	Reserved		
4	GND	GND	

5	Reserved		
6	+1.5V	PWR	+1.5V
7	PEGB_CLKRQ#	OUT	
8	UIM_PWR		
9	GND	GND	
10	UIM_DAT		
11	MiniCard2_CLKN	I/O	
12	UIM_CLK		
13	MiniCard2_CLKP	I/O	
14	UIM_RST		
15	GND	GND	
16	UIM_VPP	OUT	+3.3V
17	Reserved		
18	GND	GND	
19	Reserved		
20	W_DISABLE#	IN	
21	GND	GND	
22	BUF_PLT_RST#	IN	
23	PCIE_MiniCard2_RX3_N	I/O	
24	+3.3V_A_MC2	PWR	+3.3V
25	PCIE_MiniCard2_RX3_P	I/O	
26	GND	GND	
27	GND	GND	
28	+1.5V	PWR	+1.5V

EPIC Board**EPIC-KB07**

29	GND	GND	
30	SCLK1	I/O	
31	PCIE_MiniCard2_TX3_N	I/O	
32	SDATA1	I/O	
33	PCIE_MiniCard2_TX3_P	I/O	
34	GND	GND	
35	GND	GND	
36	USB5N	I/O	
37	GND	GND	
38	USB5P	I/O	
39	+3.3V_A_MC2	PWR	+3.3V
40	GND	GND	
41	+3.3V_A_MC2	PWR	+3.3V
42	Reserved		
43	GND	GND	
44	Reserved		
45	Reserved		
46	Reserved		
47	Reserved		
48	+1.5V	PWR	+1.5V
49	Reserved		
50	GND	GND	
51	Reserved		
52	+3.3V_A_MC2	PWR	+3.3V

2.55 USB2.0 Connector (USB1)



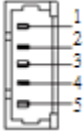
Pin	Pin Name	Signal Type	Signal Level
1	+V5A_USB_1	PWR	+5V
2	USBD0-	I/O	
3	USBD0+	I/O	
4	GND	GND	
5	GND	GND	

2.56 USB2.0 Connector (USB2)



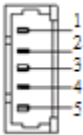
Pin	Pin Name	Signal Type	Signal Level
1	+V5A_USB_1	PWR	+5V
2	USBD1-	I/O	
3	USBD1+	I/O	
4	GND	GND	
5	GND	GND	

2.57 USB2.0 Connector (USB3)



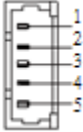
Pin	Pin Name	Signal Type	Signal Level
1	+V5A_USB_2	PWR	+5V
2	USBD2-	I/O	
3	USBD2+	I/O	
4	GND	GND	
5	GND	GND	

2.58 USB Connector (USB4)



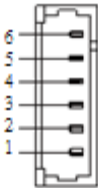
Pin	Pin Name	Signal Type	Signal Level
1	+V5A_USB_2	PWR	+5V
2	USBD3-	I/O	
3	USBD3+	I/O	
4	GND	GND	
5	GND	GND	

2.59 USB Connector (USB5)



Pin	Pin Name	Signal Type	Signal Level
1	+V5A_USB_3	PWR	+5V
2	USBD7-	I/O	
3	USBD7+	I/O	
4	GND	GND	
5	GND	GND	

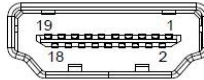
2.60 PS2 Keyboard and Mouse Connector (KB1)



Pin	Pin Name	Signal Type	Signal Level
1	KBDATA	OUT	
2	KBCLK	OUT	
3	GND	GND	
4	+V5A_KBMS	PWR	+5V
5	MSDATA	OUT	

6	MSCLK	OUT
---	-------	-----

2.61 HDMI Connector (HDMI1)



Pin	Pin Name	Signal Type	Signal Level
1	TMDS_DAT2+	DIFF	
2	GND	GND	
3	TMDS_DAT2-	DIFF	
4	TMDS_DAT1+	DIFF	
5	GND	GND	
6	TMDS_DAT1-	DIFF	
7	TMDS_DAT0+	DIFF	
8	GND	GND	
9	TMDS_DAT0-	DIFF	
10	TMDS_CLK+	DIFF	
11	GND	GND	
12	TMDS_CLK-	DIFF	
13	NC		
14	NC		
15	DDC_CLK	I/O	+5V
16	DDC_DATA	I/O	+5V
17	GND	GND	

EPIC Board**EPIC-KB07**

18	+5V	PWR	+5V
19	HPLG_DETECT		

Below Table for China RoHS Requirements

产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

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)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
<p>O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。</p> <p>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/T 11363-2006 标准规定的限量要求。</p> <p>备注: 此产品所标示之环保使用期限, 系指在一般正常使用状况下。</p>						

Chapter

3

**AMI
BIOS Setup**

3.1 System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors.

System configuration verification

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The CMOS memory has lost power and the configuration information has been erased.

The EPIC-KB07 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2 AMI BIOS Setup

AMI BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM and BIOS NVRAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press or <F2> immediately. This will allow you to enter Setup.

Main

Set the date, use tab to switch between date elements.

Advanced

Enable/disable boot option for legacy network devices.

Chipset

Host bridge parameters.

Boot

Enables/disables quiet boot option.

Security

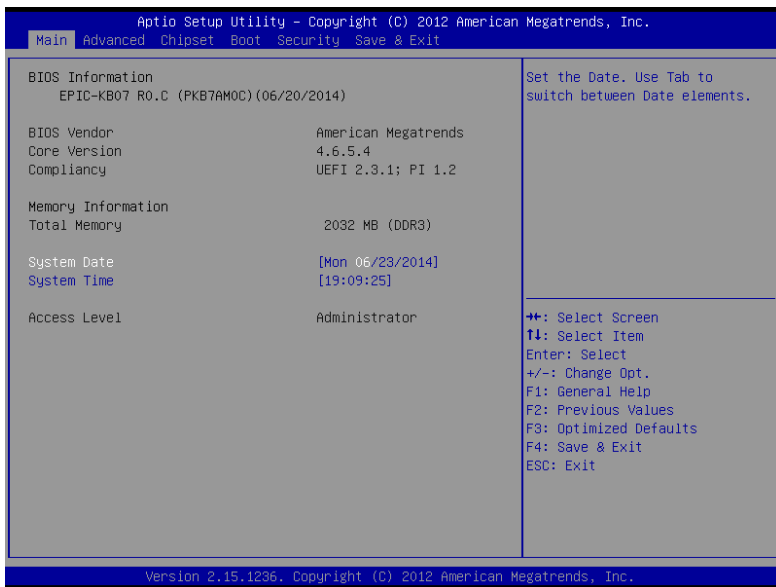
Set setup administrator password.

Save & Exit

Exit system setup after saving the changes.

Setup Menu

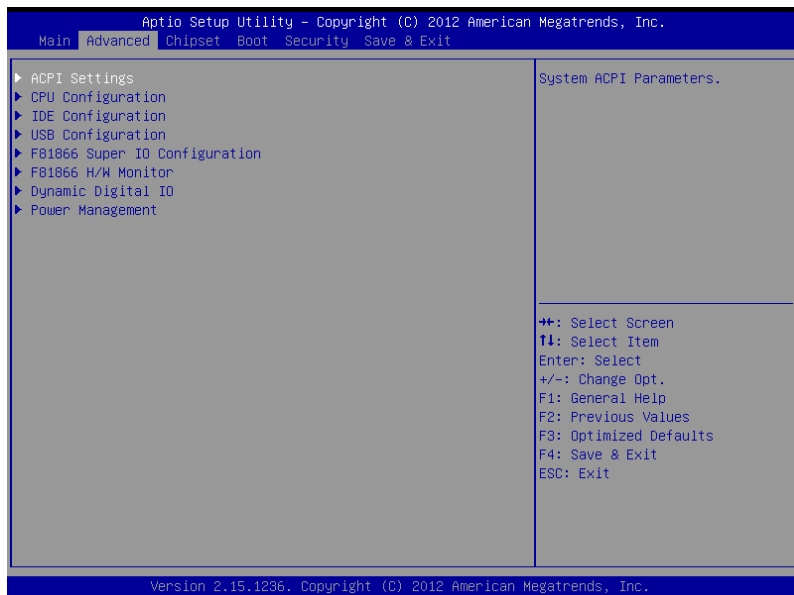
Setup submenu: Main



Options summary: (*default setting*)

System Date	Day MM:DD:YYYY	
Change the month, year and century. The 'Day' is changed automatically.		
System Time	HH : MM : SS	
Change the clock of the system.		

Setup submenu: Advanced

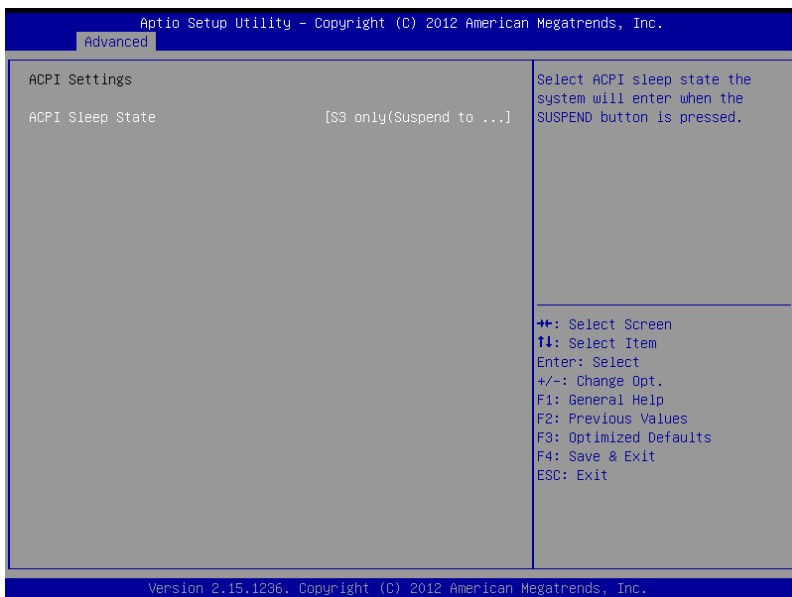


Options summary: (**default setting**)

ACPI Settings		
System ACPI Parameters		
CPU Configuration		
CPU Configuration Parameters		
IDE Configuration		
SATA Device Options Settings		
USB Configuration		
USB Configuration Parameters		
F81866 Super IO Configuration		

System Super IO Chip Parameters		
F81866 H/W Monitor		
Monitor hardware status		
Dynamic Digital IO		
Dynamic Digital IO settings		
Power Management		
ATX/AT, Power Failure, Wake function settings		

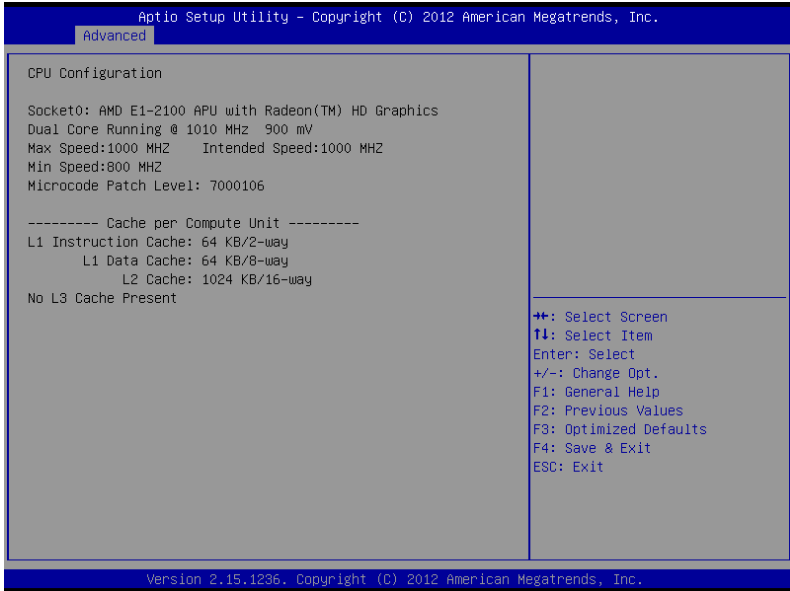
ACPI Settings



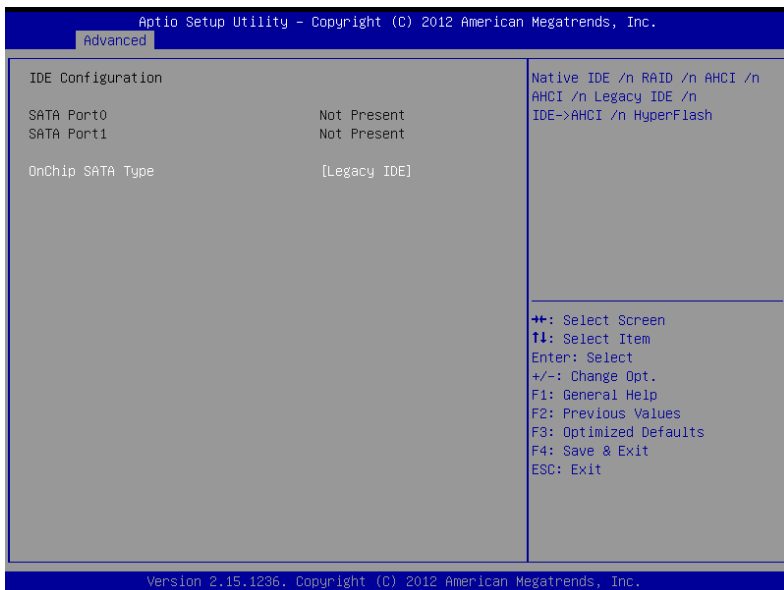
Options summary: (**default setting**)

ACPI Sleep State	S3 (Suspend to RAM)	
Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.		

- CPU Configuration



IDE Configuration



Options summary: (**default setting**)

OnChip SATA Type	ACHI	
	Legacy IDE	
Configure SATA controller operating as Legacy IDE/AHCI mode.		

USB Configuration

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

Advanced

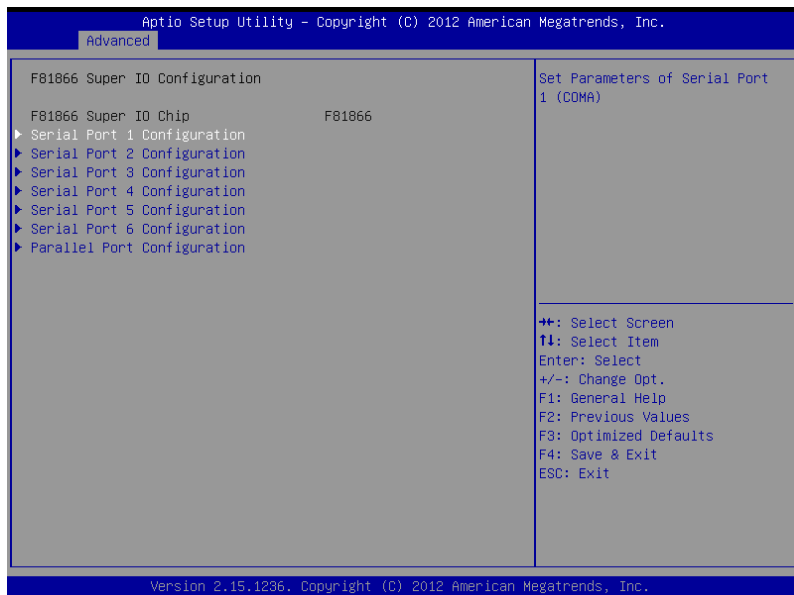
<p>USB Configuration</p> <p>USB Devices: 1 Drive, 3 Keyboards, 3 Mice, 1 Point</p> <p>Legacy USB Support [Enabled]</p>	<p>Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.</p> <hr/> <p> ++: Select Screen T1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </p>
--	---

Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

Options summary: (**default setting**)

Legacy USB Support	Enabled	
	Disabled	
	Auto	
<p>Enables Legacy USB Support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications</p>		

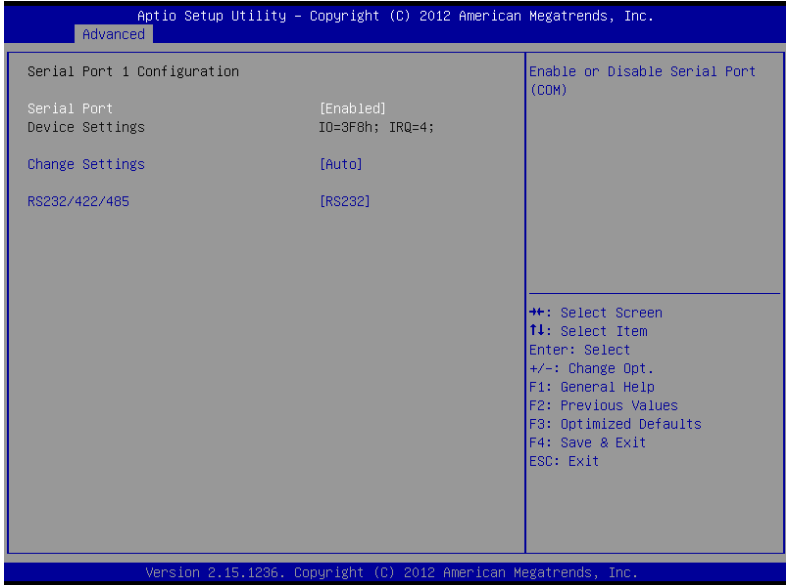
F81866 Super IO Configuration



Options summary: **(default setting)**

Serial Port x Configuration		
Set Parameters of Serial Port x.		
Parallel Port Configuration		
Set Parameters of Parallel Port		

Serial Port 1/2 Configuration



Options summary: **(default setting)**

Serial Port	Disabled	
	Enabled	
En/Disable specified serial port.		
Change Settings	Auto	
	IO=3F8h; IRQ=4;	
	IO=3F8h; IRQ=3,4;	
	IO=2F8h; IRQ=3,4;	
Select an optimal setting for Super IO device.		
RS232/422/485	RS232	

	RS422	
	RS485	
Select an optimal setting for Super IO device.		

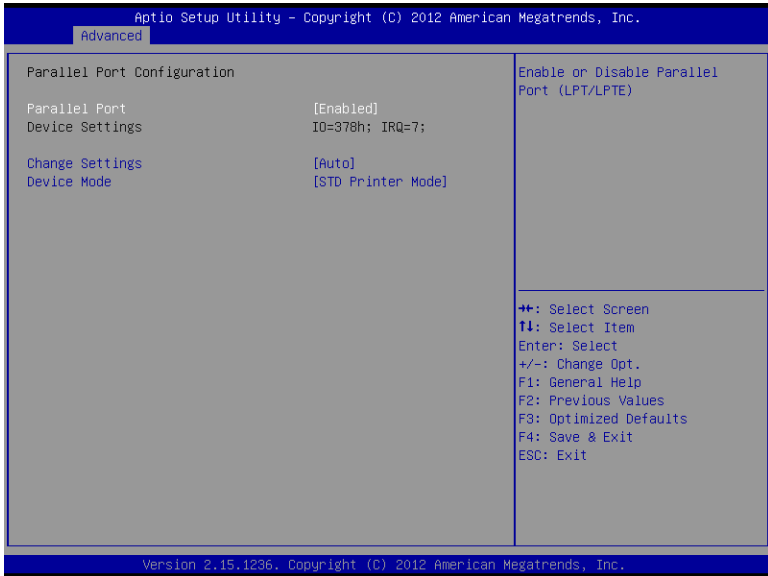
Serial Port 3/4/5/6 Configuration



Options summary: (**default setting**)

Serial Port	Disabled	
	Enabled	
En/Disable specified serial port.		
Change Settings	Auto	
	IO=3F8h; IRQ=4;	
	IO=3F8h; IRQ=3,4;	
	IO=2F8h; IRQ=3,4;	
Select an optimal setting for Super IO device.		

Parallel Port Configuration

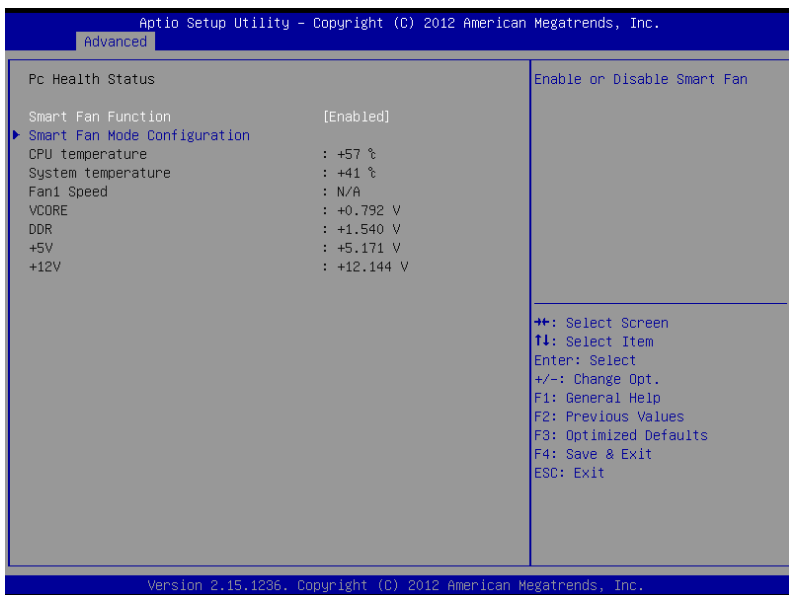


Options summary: **(default setting)**

Parallel Port	Disabled	
	Enabled	
En/Disable Parallel port.		
Change Settings	Auto	
	IO=378h; IRQ=5;	
	IO=378h; IRQ=5, 6, 7, 10, 11, 12;	
	IO=278h; IRQ=5, 6, 7, 10, 11, 12;	

	IO=3BCh; IRQ=5, 6, 7, 10, 11, 12;	
Select an optimal setting for Super IO device.		
Device Mode	STD Printer Mode	
	SPP Mode	
	EPP-1.9 and SPP Mode	
	EPP-1.7 and SPP Mode	
	ECP Mode	
	ECP and EPP 1.9 Mode	
	ECP and EPP 1.7 Mode	
Select an optimal setting for Super IO device.		

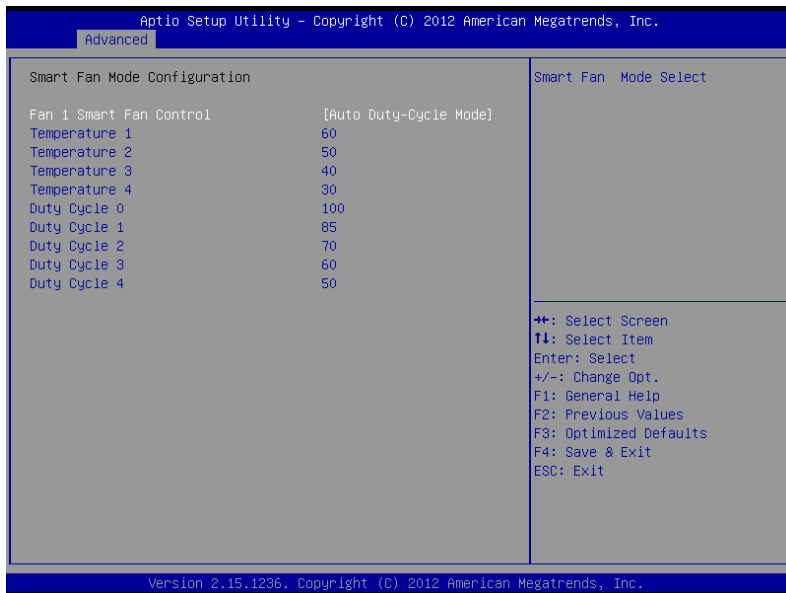
F81866 H/W Monitor



Options summary: (**default setting**)

Smart Fan Function	Disabled	
	Enabled	
En/Disable specified Smart Fan Function		
Smart Fan Mode Configuration		
Select an optimal setting for Smart Fan.		

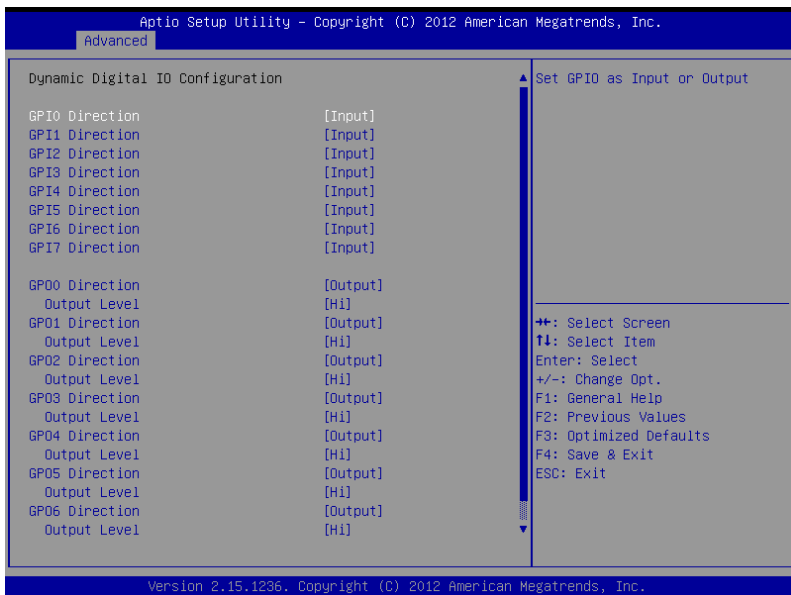
Smart Fan Mode Configuration



Options summary: **(default setting)**

Fan1 Smart Fan Control	Manual Duty Mode	
	Auto Duty-Cycle Mode	
Smart Fan Mode Select		
Manual Duty Mode		
Manual mode fan control, from 1-100.		
Temperature x		
Fan speed will follow different temperature by different duty cycle, from 1-100		
Duty Cycle x		
Fan speed will follow different temperature by different duty cycle, from 1-100		

Dynamic Digital IO



Options summary: (**default setting**)

GPIOx/GPOx Direction	Input	
	Output	
Select GPIOx/GPOx I/O direction		
Output Level	Hi	
	Low	
Select the output level when setting as Output ping.		

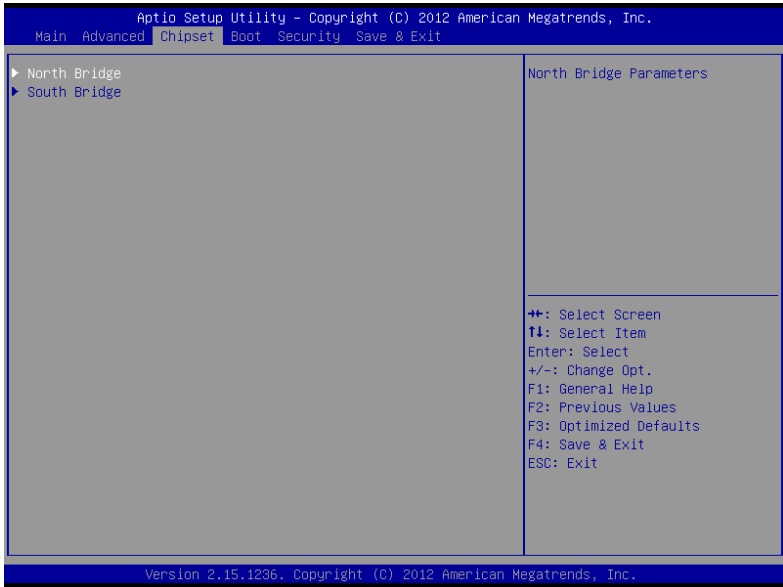
Power Management Configuration



Options summary: (**default setting**)

Power Mode	AT Type	
	ATX Type	
Select power supply mode		
Resume from PCIE	Enabled	
	Disabled	
En/Dis PCIE wake function.		

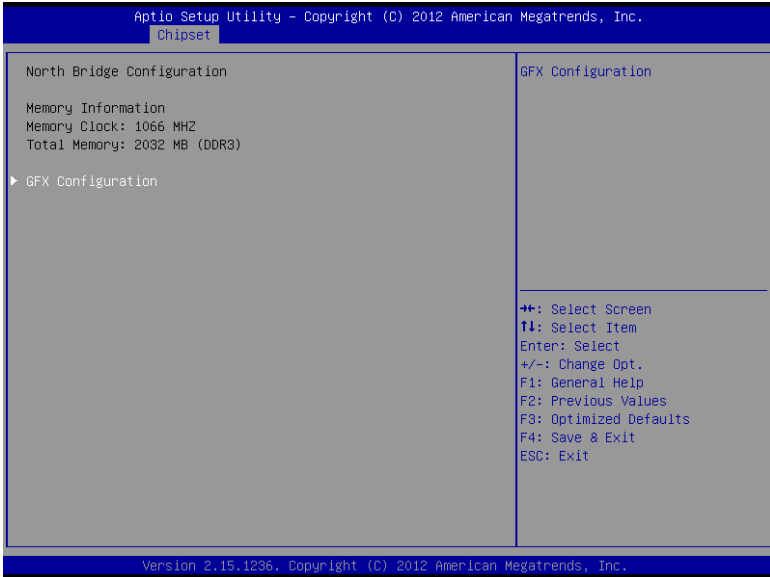
Setup submenu: Chipset



Options summary: **(default setting)**

North Bridge		
North Bridge Parameters		
South Bridge		
South Bridge Parameters		

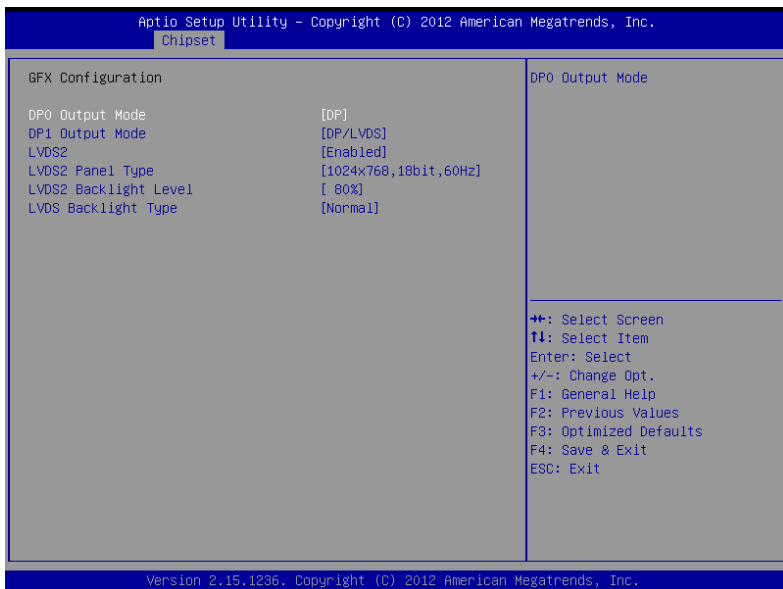
North Bridge



Options summary: (**default setting**)

GFX Configuration		
Configure Graphics Settings.		

GFX Configuration



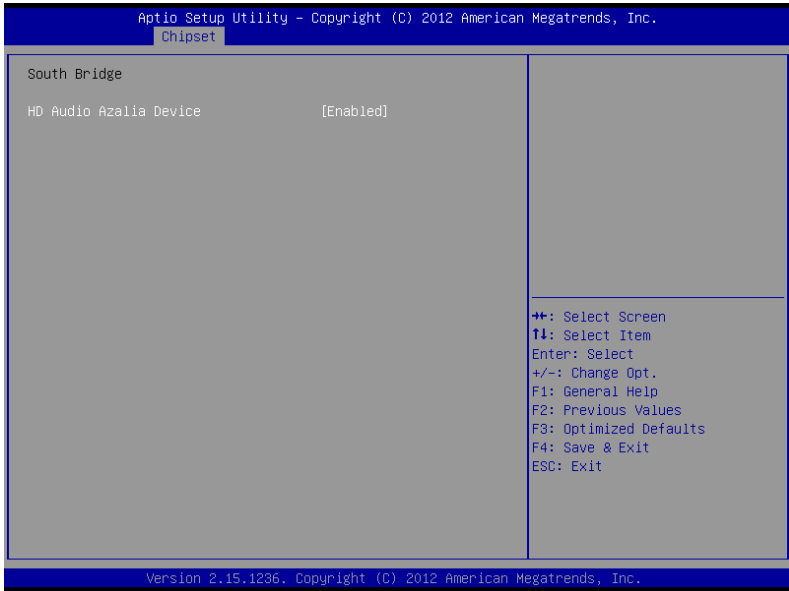
Options summary: (**default setting**)

DPO Output Mode	DP	
	HDMI	
	LVDS	
	Disabled	
DPO Output Mode		
EDID Panel Support	Enabled	
	Disabled	
Chipset will load panel EDID. (DPO mode as LVDS)		
LVDS Panel Type	800x600, 18bit, 60Hz	

	1024x768, 18bit, 60Hz	
	1280x1024, 18bit, 60Hz	
	1600x900, 18bit, 60Hz	
LVDS1 resolution		
LVDS1 Backlight Level		
Select Backlight brightness of LVDS		
LVDS1 Backlight Type	Normal	
	Inverted	
Select Backlight Control Type.		
DP1 Output Mode	DP/LVDS	
	HDMI	
	Disabled	
DP01 Output Mode		
LVDS2	Enabled	
	Disabled	
LVDS(CH7511) Enabled/Disabled (DP1 mode as DP/LVDS)		
LVDS2 Panel Type	640x480, 18bit, 60Hz	
	800x480, 18bit, 60Hz	
	800x600, 18bit, 60Hz	
	1024x600, 18bit, 60Hz	
	1024x768, 18bit, 60Hz	
	1024x768, 24bit, 60Hz	
	1280x768, 18bit, 60Hz	
	1280x1024, 48bit, 60Hz	

	1366x768, 24bit, 60Hz	
	1440x900, 48bit, 60Hz	
	1600x1200, 48bit, 60Hz	
	1920x1080, 48bit, 60Hz	
	1920x1200, 48bit, 60Hz	
LVDS2 resolution		
LVDS2 Backlight Level		
Select Backlight brightness of LVDS		
LVDS2 Backlight Type	Normal	
	Inverted	
Select Backlight Control Type.		

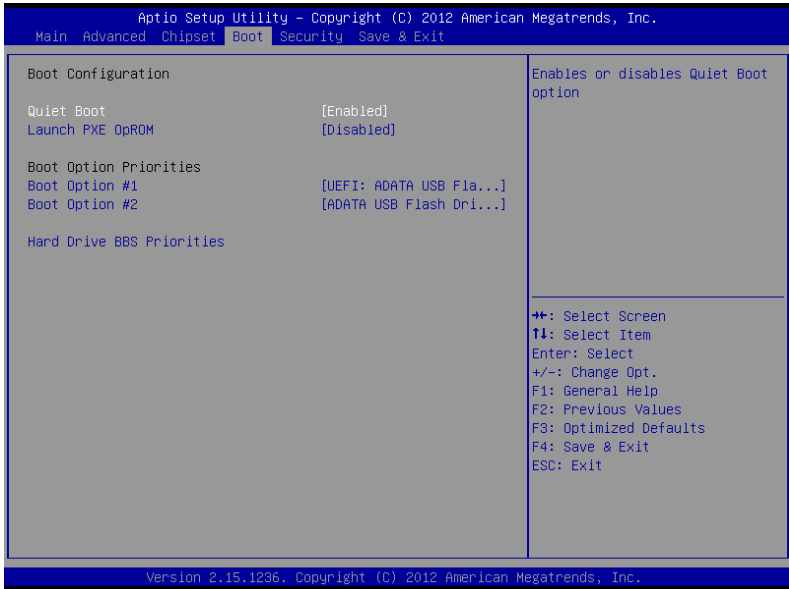
South Bridge



Options summary: (*default setting*)

HD Audio Azalia Device	Auto	
	Disabled	
	Enabled	
Options for SB HD Azalia.		

Setup submenu: Boot

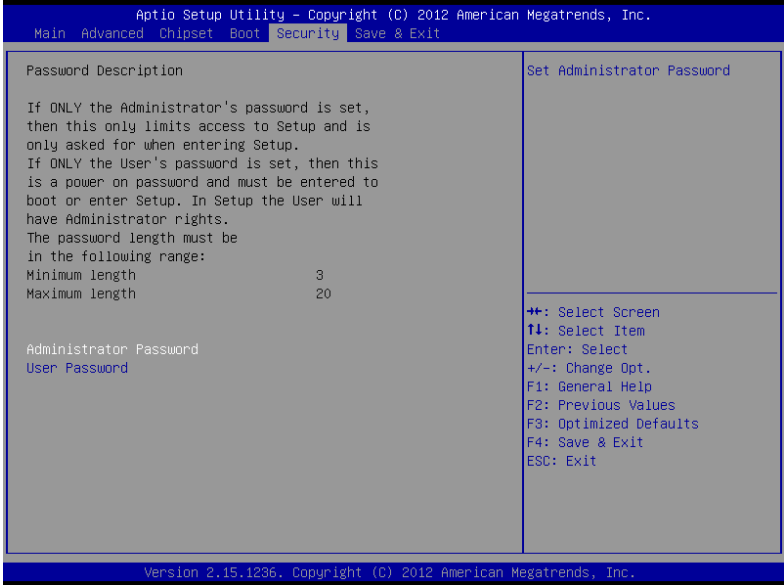


Options summary: (default setting)

Quiet Boot	Disabled	
	Enabled	
En/Disable showing boot logo.		
Launch PXE OpROM.	Disabled	
	Enabled	
En/Disable PXE boot for RTL8111E LAN		
Boot Option #x		
Set the system boot order.		
Hard Drive BBS Priorities		

Set the order of the legacy devices in this group

Setup submenu: Security



Options summary: **(default setting)**

Administrator Password/	Not set	
User Password		

You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

Install the Password:

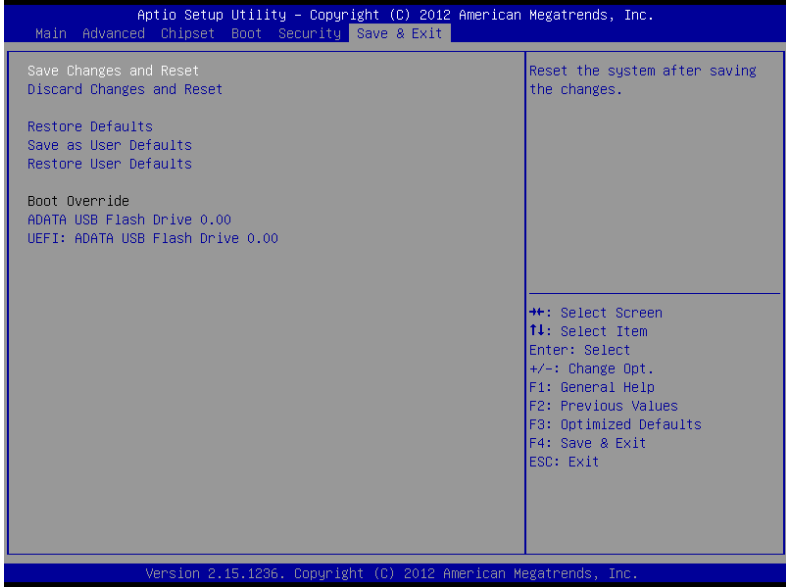
Press Enter on this item, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation.

Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

Removing the Password:

Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

Setup submenu: Save & Exit



Options summary: **(default setting)**

Save Changes and Reset		
Reset the system after saving the changes		
Discard Changes and Reset		
Reset system setup without saving any changes		
Restore Defaults		
Restore/Load Default values for all the setup options.		
Save as User Defaults		
Save the changes done so far as User Defaults		
Restore User Defaults		

Restore the User Defaults to all the setup options

Chapter

4

**Driver
Installation**

The EPIC-KB07 comes with a DVD-ROM that contains all drivers and utilities that meet your needs.

Follow the sequence below to install the drivers:

Step 1 – Install Chipset & Display Driver

Step 2 – Install LAN Driver

Step 3 – Install Audio Driver

Step 4 – Install ACPI Driver

Step 5 – Install UART Driver

Step 6 – Install Touch Driver

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the EPIC-KB07 DVD-ROM into the DVD-ROM Drive. And install the drivers from Step 1 to Step 6 in order.

Step 1 – Install Chipset Driver

1. Click on the **STEP1 - Chipset & Display** folder and select the OS folder your system is
2. Double click on the **Setup.exe** located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 2 – Install LAN Driver

1. Click on the **STEP2-LAN** folder and select the OS folder your system is
2. Double click on the **setup.exe** located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 3 – Install Audio Driver

1. Click on the **STEP3-Audio** folder and double click on the **Setup.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 4 – Install ACPI Driver

The driver can be installed either by running the CIM installer or by **Device Manager** to install.

Using INF File

To install

1. Run Device Manager, select device item which Device Id equal ASD0001.
2. Right-click the device item, and then chose Update driver software, and then follow the instruction step by step.
3. After installation is complete, reboot the computer.

To uninstall

1. Run Device Manager, select device item which Device Id equal ASD0001.
2. Right-click the device item, and then chose Uninstall, and then chose delete driver software from device. Then follow the instruction step by step.
3. After uninstall is complete, reboot the computer.

Using Catalyst Install Manager

You can install/uninstall the driver by running the CIM installer. This method will correctly show the driver as WHQL certified in the Device Manager.

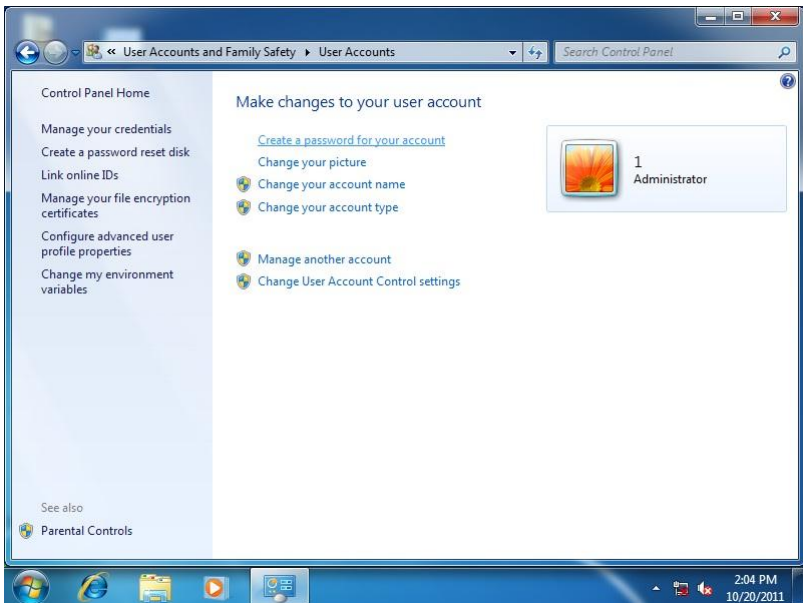
Note: For driver installation, you must log in as administrator or have administrator rights for your domain login.

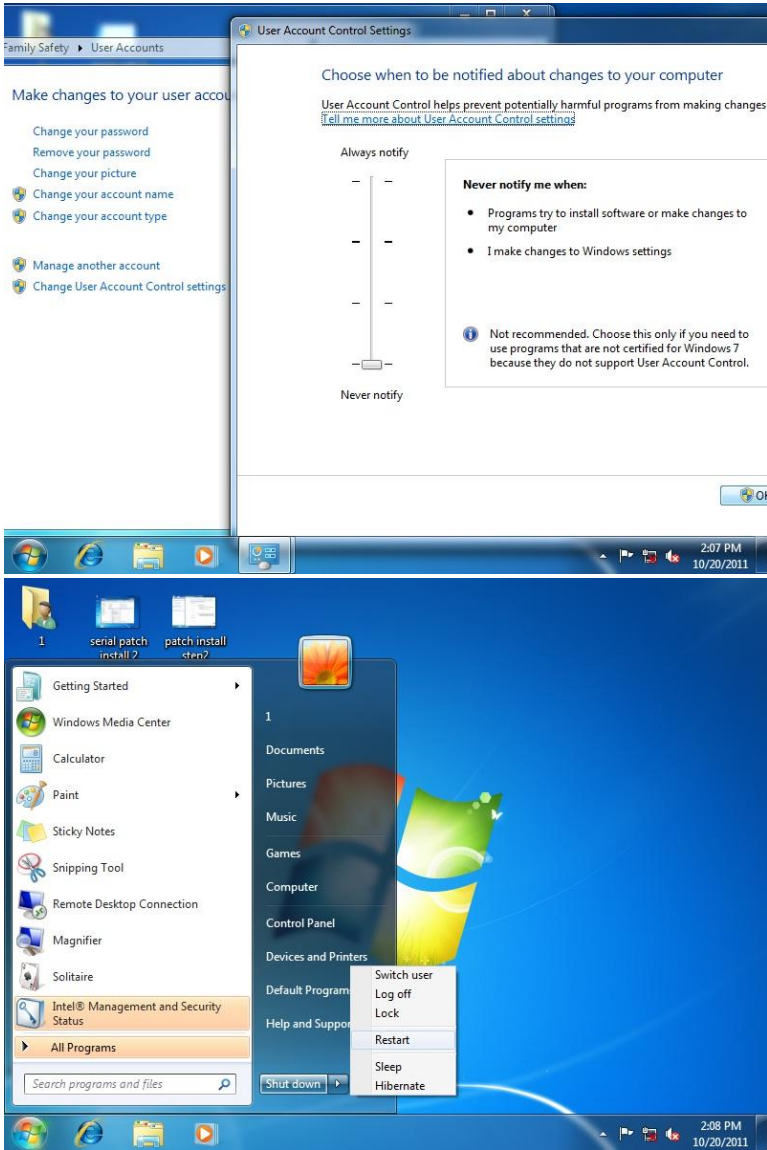
Step 5 – Install UART Driver

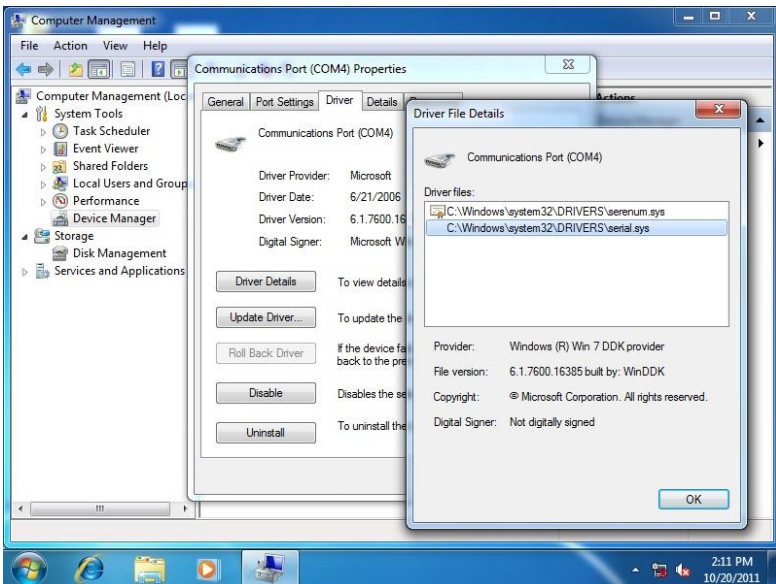
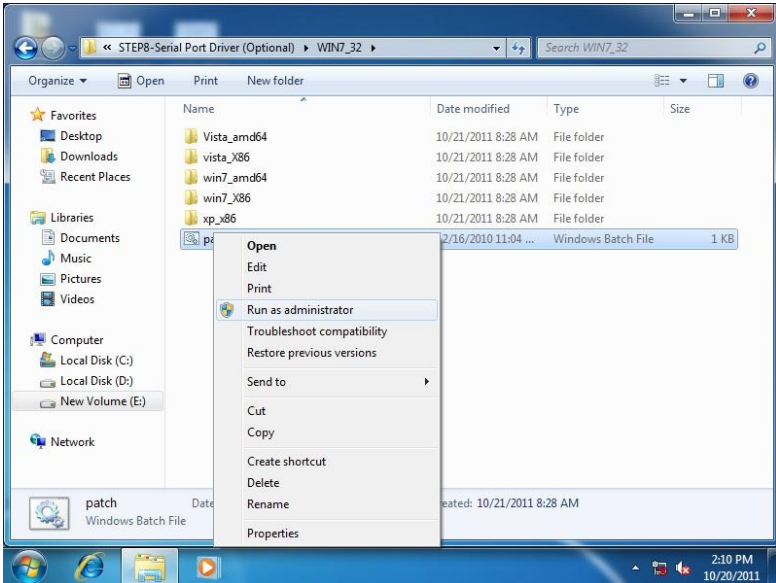
For Windows XP

1. Click on the **STEP5-UART** folder and select the folder of **xp_x86**
2. Double click on the **Setup.exe**
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

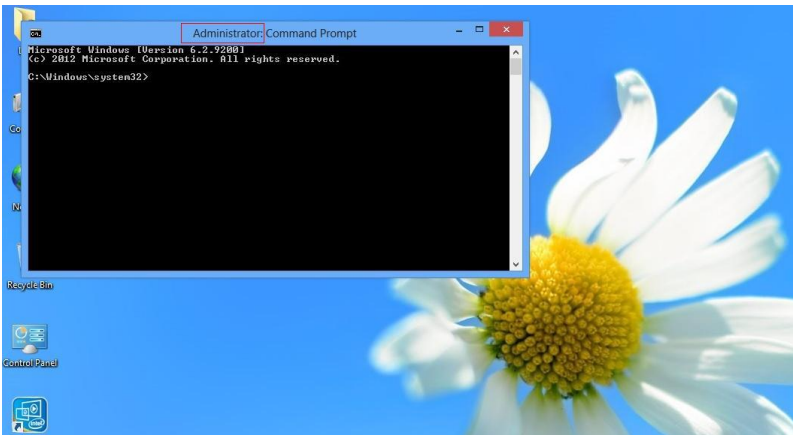
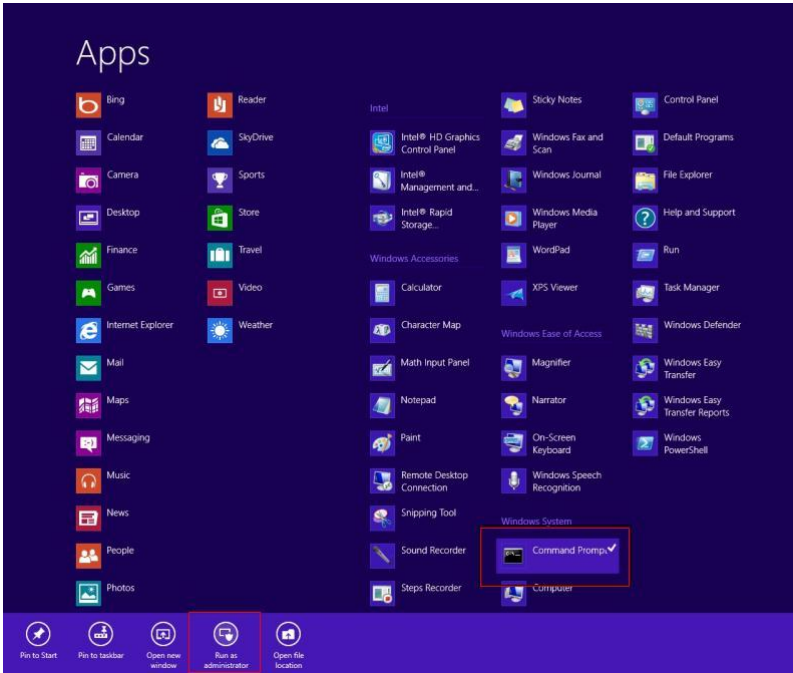
For Windows 7

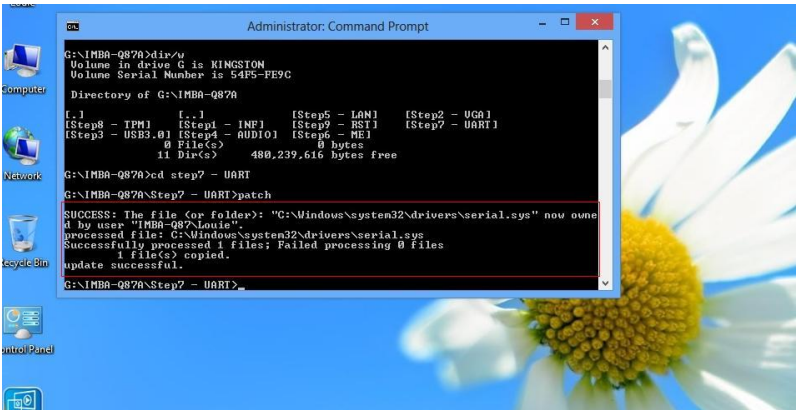
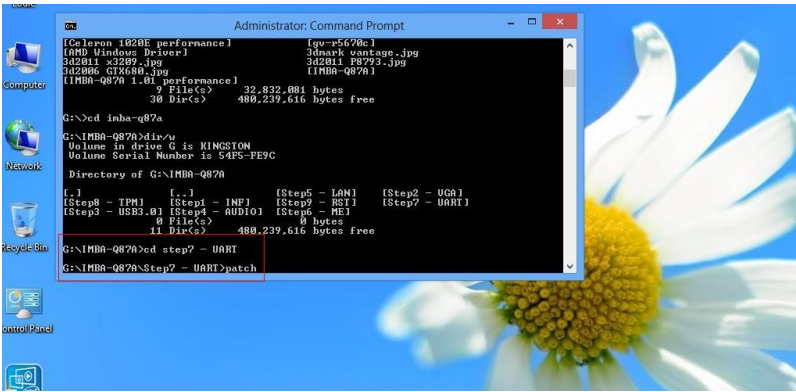


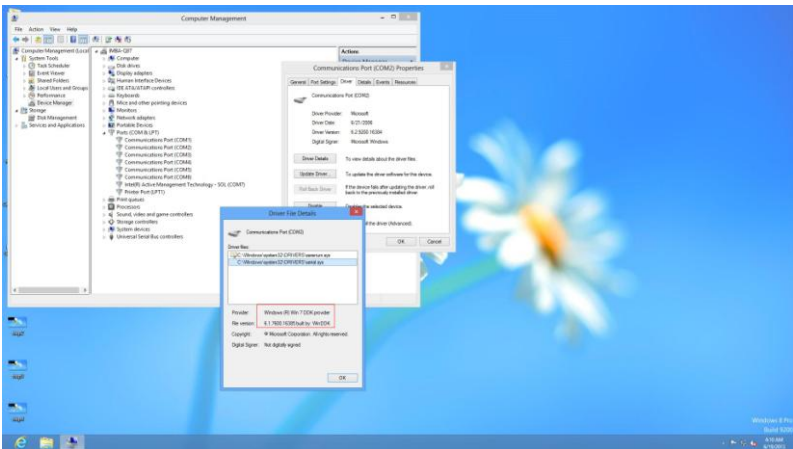




For Windows 8







Step 6 – Install Touch Driver

1. Click on the **STEP6-TOUCH** folder and select the OS folder your system is
2. Double click on the **Setup.exe** located in each OS folder

3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Appendix

A

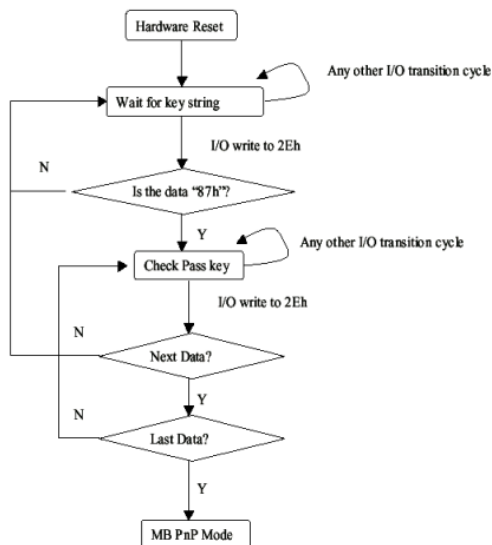
Programming the Watchdog Timer

A.1 Programming

EPIC-KB07 utilizes FINTEK 81866 chipset as its watchdog timer controller. Below are the procedures to complete its configuration and the AAEON initial watchdog timer program is also attached based on which you can develop customized program to fit your application.

Configuring Sequence Description

After the hardware reset or power-on reset, the FINTEK 81866 enters the normal mode with all logical devices disabled except KBC. The initial state (enable bit) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.



There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(1) Enter the MB PnP Mode

To enter the MB PnP Mode, four special I/O write operations are to be performed during Wait for Key state. To ensure the initial state of the key-check logic, it is necessary to perform four write operations to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

-o 4e 87

-o 4e 87 (enable configuration)

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the MB PnP Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

(3) Exit the MB PnP Mode

Write exit key 0xAA to the index port.

-o 4e aa (disable configuration)

Watch Dog Timer 1, 2, 3 Control Register (Index=F5h,F6h,FAh Default=00h)

7.8.4 Watchdog Control Configuration Register 1 — Index F5h

Bit	Name	R/W	Reset	Default	Description
7	Reserved	R	-	0	Reserved
6	WDTMOUT_STS	R/W	5VSB	0	If watchdog timeout event occurred, this bit will be set to 1. Write a 1 to this bit will clear it to 0.
5	WD_EN	R/W	5VSB	0	If this bit is set to 1, the counting of watchdog time is enabled.
4	WD_PULSE	R/W	5VSB	0	Select output mode (0: level, 1: pulse) of RSTOUT# by setting this bit.
3	WD_UNIT	R/W	5VSB	0	Select time unit (0: 1sec, 1: 60 sec) of watchdog timer by setting this bit.
2	WD_HACTIVE	R/W	5VSB	0	Select output polarity of RSTOUT# (1: high active, 0: low active) by setting this bit.
1-0	WD_PSWIDTH	R/W	5VSB	0	Select output pulse width of RSTOUT# 0: 1 ms 1: 25 ms 2: 125 ms 3: 5 sec

7.8.5 Watchdog Timer Configuration Register 2 — Index F6h

Bit	Name	R/W	Reset	Default	Description
7-0	WD_TIME	R/W	5VSB	0	Time of watchdog timer (0~255)

7.8.6 Watchdog PME Enable Configuration Register 2 — Index FAh

Bit	Name	R/W	Reset	Default	Description
7	WDT_PME	R	5VSB	0	0: No WDT PME occurred. 1: WDT PME occurred. The WDT PME is occurred one unit before WDT timeout.
6	WDT_PME_EN	R/W	5VSB	0	0: Disable Watchdog PME. 1: enable Watchdog PME.
5	Reserved	R	-	0	Reserved
4	WDT_CLK_SEL	R/W	5VSB	1	WDT Clock Source Select 0: Internal 1KHz clock. 1: 1KHZ clock driven by CLKIN.
3-1	Reserved	R	-	0	Reserved
0	WDOUT_EN	R/W	5VSB	0	0: disable Watchdog time out output via WDTRST#. 1: enable Watchdog time out output via WDTRST#.

A.2 F81866 Watchdog Timer Initial Program

```
Main(){
```

```
    aaeonSuperIOOpen();
```

```
    aaeonWdtSetCountMode(BOOL bMinute); // Set wdt count mode
```

```
    aaeonWdtSetTimeoutCount(BYTE tTimeout); // Set wdt timer
```

```
    aaeonWdtSetEnable(BOOL bEnable); // Enable wdt
```

```
    aaeonSuperIOClose();
```

```
}
```

```
Void aaeonSuperIOOpen(){ // Config F81866 Entry key
```

```
    aaeonioWritePortByte(F81866_INDEX, 0x87);
```

```
    aaeonioWritePortByte(F81866_INDEX, 0x87);
```

```
}
```

```
Void aaeonWdtSetCountMode(BOOL bMinute){
```

```
    BYTE WDT_CONTROL = f81866ReadByte(F81866_WDT_CONTROL_REG);
```

```
    if(bMinute)
```

```
        f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_CONTROL | 0x08);
```

```
    else
```

```
        f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_CONTROL & 0xF7);
```

```
}
```

```
Void aaeonWdtSetTimeoutCount(BYTE tTimeout){
    f81866SetLdn(0x07);
    f81866WriteByte(F81866_WDT_TIME_REG, tTimeout);
}

Void aaeonWdtSetEnable(BOOL bEnable){
    f81866SetLdn(0x07);
    if(bEnable){
        f81866WriteByte(0x30, 0x01);
        WDT_BASE_ADDR =
            (f81866ReadByte(F81866_WDT_BASEADDR_REG_MSB) << 8)
            | f81866ReadByte(F81866_WDT_BASEADDR_REG_LSB);
        WDT_STATUS = f81866ReadByte(F81866_WDT_CONTROL_REG);
        f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_STATUS | 0x20);
        WDT_STATUS = f81866ReadByte(F81866_WDT_PME_REG);
        f81866WriteByte(F81866_WDT_PME_REG, WDT_STATUS | 0x01);
    }else{
        f81866WriteByte(0x30, 0x00);
        WDT_BASE_ADDR = 0;
        WDT_STATUS = f81866ReadByte(F81866_WDT_CONTROL_REG);
        f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_STATUS & 0xDF);
        WDT_STATUS = f81866ReadByte(F81866_WDT_PME_REG);
        f81866WriteByte(F81866_WDT_PME_REG, WDT_STATUS & 0xFE);
    }
}
```















































```
Void aaeonSuperIOClose(){  
    aaeonioWritePortByte(F81866_INDEX, 0xaa);  
}
```









































Appendix

B

I/O Information

B.1 I/O Address Map

Input/output (IO)	
	[00000000 - 0000000F] Direct memory access controller
	[00000000 - 0000000F] Motherboard resources
	[00000000 - 000003AF] PCI bus
	[00000010 - 0000001F] Motherboard resources
	[00000010 - 0000001F] Motherboard resources
	[00000020 - 00000021] Programmable interrupt controller
	[00000022 - 0000003F] Motherboard resources
	[00000022 - 0000003F] Motherboard resources
	[00000040 - 00000043] System timer
	[00000044 - 0000005F] Motherboard resources
	[00000061 - 00000061] System speaker
	[00000063 - 00000063] Motherboard resources
	[00000065 - 00000065] Motherboard resources
	[00000067 - 0000006F] Motherboard resources
	[00000070 - 00000071] System CMOS/real time clock
	[00000072 - 0000007F] Motherboard resources
	[00000072 - 0000007F] Motherboard resources
	[00000080 - 00000080] Motherboard resources
	[00000080 - 00000080] Motherboard resources
	[00000081 - 00000083] Direct memory access controller
	[00000084 - 00000086] Motherboard resources
	[00000084 - 00000086] Motherboard resources
	[00000087 - 00000087] Direct memory access controller
	[00000088 - 00000088] Motherboard resources
	[00000088 - 00000088] Motherboard resources
	[00000089 - 0000008B] Direct memory access controller
	[0000008C - 0000008E] Motherboard resources
	[0000008C - 0000008E] Motherboard resources
	[0000008F - 0000008F] Direct memory access controller
	[00000090 - 0000009F] Motherboard resources
	[00000090 - 0000009F] Motherboard resources
	[000000A0 - 000000A1] Programmable interrupt controller
	[000000A2 - 000000BF] Motherboard resources
	[000000A7 - 000000BF] Motherboard resources
	[000000B1 - 000000B1] Motherboard resources
	[000000C0 - 000000DF] Direct memory access controller
	[000000E0 - 000000EF] Motherboard resources
	[000000E0 - 000000EF] Motherboard resources
	[000000F0 - 000000FF] Numeric data processor
	[000002C0 - 000002C7] Communications Port (COM6)
	[000002D0 - 000002D7] Communications Port (COM5)
	[000002E8 - 000002EF] Communications Port (COM4)
	[000002F8 - 000002FF] Communications Port (COM2)
	[00000378 - 0000037F] Printer Port (LPT1)




































	[000003B0 - 000003BB]	AMD Radeon HD 8210
	[000003B0 - 000003DF]	PCI bus
	[000003C0 - 000003DF]	AMD Radeon HD 8210
	[000003E0 - 00000CF7]	PCI bus
	[000003E8 - 000003EF]	Communications Port (COM3)
	[000003F8 - 000003FF]	Communications Port (COM1)
	[0000040B - 0000040B]	Motherboard resources
	[000004D0 - 000004D1]	Motherboard resources
	[000004D0 - 000004D1]	Motherboard resources
	[000004D6 - 000004D6]	Motherboard resources
	[00000500 - 0000050F]	Motherboard resources
	[00000510 - 0000051F]	Motherboard resources
	[00000520 - 0000052F]	Motherboard resources
	[00000800 - 0000089F]	Motherboard resources
	[00000900 - 0000090F]	Motherboard resources
	[00000910 - 0000091F]	Motherboard resources
	[00000B20 - 00000B3F]	Motherboard resources
	[00000C00 - 00000C01]	Motherboard resources
	[00000C14 - 00000C14]	Motherboard resources
	[00000C50 - 00000C51]	Motherboard resources
	[00000C52 - 00000C52]	Motherboard resources
	[00000C6C - 00000C6C]	Motherboard resources
	[00000C6F - 00000C6F]	Motherboard resources
	[00000CD0 - 00000CD1]	Motherboard resources
	[00000CD2 - 00000CD3]	Motherboard resources
	[00000CD4 - 00000CD5]	Motherboard resources
	[00000CD6 - 00000CD7]	Motherboard resources
	[00000CD8 - 00000CDF]	Motherboard resources
	[00000D00 - 0000FFFF]	PCI bus
	[0000D000 - 0000D0FF]	Realtek PCIe GBE Family Controller
	[0000D000 - 0000DFFF]	PCI standard PCI-to-PCI bridge
	[0000E000 - 0000E0FF]	Realtek PCIe GBE Family Controller #2
	[0000E000 - 0000EFFF]	PCI standard PCI-to-PCI bridge
	[0000F000 - 0000F0FF]	AMD Radeon HD 8210
	[0000F100 - 0000F10F]	AMD SATA Controller
	[0000F110 - 0000F113]	AMD SATA Controller
	[0000F120 - 0000F127]	AMD SATA Controller
	[0000F130 - 0000F133]	AMD SATA Controller
	[0000F140 - 0000F147]	AMD SATA Controller
	[0000FE00 - 0000FEFE]	Motherboard resources




































B.2 Memory Address Map




































Address Range	Device
[000A0000 - 000BFFFF]	AMD Radeon HD 8210
[000A0000 - 000BFFFF]	PCI bus
[000C0000 - 000DFFFF]	PCI bus
[5F000000 - 7EFFFFFF]	Motherboard resources
[7F000000 - FFFFFFFF]	PCI bus
[C0000000 - CFFFFFFF]	AMD Radeon HD 8210
[D0000000 - D07FFFFF]	AMD Radeon HD 8210
[D0800000 - D0803FFF]	Realtek PCIe GBE Family Controller
[D0800000 - D08FFFFF]	PCI standard PCI-to-PCI bridge
[D0900000 - D0903FFF]	Realtek PCIe GBE Family Controller #2
[D0900000 - D09FFFFF]	PCI standard PCI-to-PCI bridge
[E0000000 - EFFFFFFF]	System board
[FE900000 - FE900FFF]	Realtek PCIe GBE Family Controller
[FE900000 - FE9FFFFF]	PCI standard PCI-to-PCI bridge
[FEA00000 - FEA00FFF]	Realtek PCIe GBE Family Controller #2
[FEA00000 - FEAFFFFF]	PCI standard PCI-to-PCI bridge
[FEB00000 - FEB3FFFF]	AMD Radeon HD 8210
[FEB60000 - FEB63FFF]	High Definition Audio Controller
[FEB64000 - FEB67FFF]	High Definition Audio Controller
[FEB68000 - FEB69FFF]	AMD USB 3.0 Host Controller
[FEB6A000 - FEB6A0FF]	Standard Enhanced PCI to USB Host Controller
[FEB6B000 - FEB6BFFF]	Standard OpenHCD USB Host Controller
[FEB6C000 - FEB6C0FF]	Standard Enhanced PCI to USB Host Controller
[FEB6D000 - FEB6DFFF]	Standard OpenHCD USB Host Controller
[FEB6E000 - FEB6E3FF]	AMD SATA Controller
[FEC00000 - FEC00FFF]	Motherboard resources
[FEC10000 - FEC10FFF]	Motherboard resources
[FED00000 - FED003FF]	High precision event timer
[FED00000 - FED00FFF]	Motherboard resources
[FED61000 - FED70FFF]	Motherboard resources
[FED80000 - FED8FFFF]	Motherboard resources
[FEE00000 - FEE00FFF]	Motherboard resources
[FF000000 - FFFFFFFF]	Motherboard resources

B.3 IRQ Mapping Chart




Interrupt request (IRQ)	
(ISA) 0x00000000 (00)	System timer
(ISA) 0x00000003 (03)	Communications Port (COM2)
(ISA) 0x00000004 (04)	Communications Port (COM1)
(ISA) 0x00000008 (08)	System CMOS/real time clock
(ISA) 0x0000000A (10)	Communications Port (COM5)
(ISA) 0x0000000A (10)	Communications Port (COM6)
(ISA) 0x0000000B (11)	Communications Port (COM3)
(ISA) 0x0000000B (11)	Communications Port (COM4)
(ISA) 0x0000000D (13)	Numeric data processor
(ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
(ISA) 0x00000052 (82)	Microsoft ACPI-Compliant System
(ISA) 0x00000053 (83)	Microsoft ACPI-Compliant System
(ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
(ISA) 0x00000055 (85)	Microsoft ACPI-Compliant System
(ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
(ISA) 0x00000057 (87)	Microsoft ACPI-Compliant System
(ISA) 0x00000058 (88)	Microsoft ACPI-Compliant System
(ISA) 0x00000059 (89)	Microsoft ACPI-Compliant System
(ISA) 0x0000005A (90)	Microsoft ACPI-Compliant System
(ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
(ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
(ISA) 0x0000005D (93)	Microsoft ACPI-Compliant System
(ISA) 0x0000005E (94)	Microsoft ACPI-Compliant System
(ISA) 0x0000005F (95)	Microsoft ACPI-Compliant System
(ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
(ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
(ISA) 0x00000062 (98)	Microsoft ACPI-Compliant System
(ISA) 0x00000063 (99)	Microsoft ACPI-Compliant System
(ISA) 0x00000064 (100)	Microsoft ACPI-Compliant System
(ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
(ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
(ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
(ISA) 0x00000068 (104)	Microsoft ACPI-Compliant System
(ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System

	(ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
	(ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
	(ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
	(ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
	(ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System
	(ISA) 0x00000074 (116)	Microsoft ACPI-Compliant System
	(ISA) 0x00000075 (117)	Microsoft ACPI-Compliant System
	(ISA) 0x00000076 (118)	Microsoft ACPI-Compliant System
	(ISA) 0x00000077 (119)	Microsoft ACPI-Compliant System
	(ISA) 0x00000078 (120)	Microsoft ACPI-Compliant System
	(ISA) 0x00000079 (121)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007A (122)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007B (123)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007C (124)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007D (125)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007E (126)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007F (127)	Microsoft ACPI-Compliant System
	(ISA) 0x00000080 (128)	Microsoft ACPI-Compliant System
	(ISA) 0x00000081 (129)	Microsoft ACPI-Compliant System
	(ISA) 0x00000082 (130)	Microsoft ACPI-Compliant System
	(ISA) 0x00000083 (131)	Microsoft ACPI-Compliant System
	(ISA) 0x00000084 (132)	Microsoft ACPI-Compliant System
	(ISA) 0x00000085 (133)	Microsoft ACPI-Compliant System
	(ISA) 0x00000086 (134)	Microsoft ACPI-Compliant System
	(ISA) 0x00000087 (135)	Microsoft ACPI-Compliant System
	(ISA) 0x00000088 (136)	Microsoft ACPI-Compliant System
	(ISA) 0x00000089 (137)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008A (138)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008B (139)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008C (140)	Microsoft ACPI-Compliant System

	(ISA) 0x0000008D (141)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008E (142)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008F (143)	Microsoft ACPI-Compliant System
	(ISA) 0x00000090 (144)	Microsoft ACPI-Compliant System
	(ISA) 0x00000091 (145)	Microsoft ACPI-Compliant System
	(ISA) 0x00000092 (146)	Microsoft ACPI-Compliant System
	(ISA) 0x00000093 (147)	Microsoft ACPI-Compliant System
	(ISA) 0x00000094 (148)	Microsoft ACPI-Compliant System
	(ISA) 0x00000095 (149)	Microsoft ACPI-Compliant System
	(ISA) 0x00000096 (150)	Microsoft ACPI-Compliant System
	(ISA) 0x00000097 (151)	Microsoft ACPI-Compliant System
	(ISA) 0x00000098 (152)	Microsoft ACPI-Compliant System
	(ISA) 0x00000099 (153)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009A (154)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009B (155)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009C (156)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009D (157)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009E (158)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009F (159)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A0 (160)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A1 (161)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A2 (162)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A3 (163)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System

	(ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
	(PCI) 0x00000010 (16)	High Definition Audio Controller
	(PCI) 0x00000011 (17)	Standard Enhanced PCI to USB Host Controller
	(PCI) 0x00000011 (17)	Standard Enhanced PCI to USB Host Controller
	(PCI) 0x00000012 (18)	Standard OpenHCD USB Host Controller
	(PCI) 0x00000012 (18)	Standard OpenHCD USB Host Controller
	(PCI) 0x00000013 (19)	AMD SATA Controller
	(PCI) 0x00000019 (25)	PCI standard PCI-to-PCI bridge
	(PCI) 0x0000001A (26)	PCI standard PCI-to-PCI bridge
	(PCI) 0x0000002D (45)	High Definition Audio Controller
	(PCI) 0xFFFFFFF4 (-12)	Realtek PCIe GBE Family Controller #2
	(PCI) 0xFFFFFFF5 (-11)	Realtek PCIe GBE Family Controller
	(PCI) 0xFFFFFFF6 (-10)	AMD USB 3.0 Host Controller
	(PCI) 0xFFFFFFF7 (-9)	AMD USB 3.0 Host Controller
	(PCI) 0xFFFFFFF8 (-8)	AMD USB 3.0 Host Controller
	(PCI) 0xFFFFFFF9 (-7)	AMD USB 3.0 Host Controller
	(PCI) 0xFFFFFFFA (-6)	AMD USB 3.0 Host Controller
	(PCI) 0xFFFFFFFB (-5)	AMD USB 3.0 Host Controller
	(PCI) 0xFFFFFFFC (-4)	AMD USB 3.0 Host Controller
	(PCI) 0xFFFFFFFD (-3)	AMD USB 3.0 Host Controller
	(PCI) 0xFFFFFFF0 (-2)	AMD Radeon HD 8210

B.4 DMA Channel Assignments

	Direct memory access (DMA)
	3 Printer Port (LPT1)
	4 Direct memory access controller

Appendix

C

Mating Connector

C.1 List of Mating Connectors and Cables

The table notes mating connectors and available cables.

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model number		
CN2	Fan Connector	PINREX	742-75-04W001		
CN10	1st Backlight Connector	CATCH	H732-05		
CN11	1st LVDS Connector	E-call	0109-02-522-300		
CN13	2nd Backlight Connector	CATCH	H732-05		
CN14	2nd LVDS Connector	E-call	0109-02-522-300		
CN17	SATA Connector	PINREX			1709070500
CN18	SATA Connector	PINREX			1709070500
CN19	SATA Power Connector	PINREX	721-75-02W001		1702150155
CN21	COM3 RS-232 Serial Port Connector	PINREX	712-75-09W001		1701090150
CN22	LPT_DIO Connector	Astron	25-2103-213-1G-R		1701260200
CN23	COM4 RS-232 Serial Port Connector	PINREX	712-75-09W001		1701090150
CN24	LPC Connector	CATCH	H746-12		1703120130
CN25	Touch Screen Connector	PINREX	710-75-09W001		

EPIC Board**EPIC-KB07**

CN26	Audio Connector	PINREX	712-75-10W001		1709100254
CN27	Amp R-channel Connector	PINREX	712-75-02W001		
CN28	Amp L-channel Connector	PINREX	712-75-02W001		
CN30	COM5 RS-232 Serial Port Connector	PINREX	712-75-09W001		1701090150
CN31	COM6 RS-232 Serial Port Connector	PINREX	712-75-09W001		1701090150
CN33	RTC Battery Connector	PINREX	712-75-02W001		
CN34	Front Panel Connector	PINREX	712-75-10W001		
USB1	USB2.0 Connector	PINREX	712-75-05W001		1700050207
USB2	USB2.0 Connector	PINREX	712-75-05W001		1700050207
USB3	USB2.0 Connector	PINREX	712-75-05W001		1700050207
USB4	USB2.0 Connector	PINREX	712-75-05W001		1700050207
USB5	USB2.0 Connector	PINREX	712-75-05W001		1700050207
KB1	PS/2 Keyboard Mouse Connector	CATCH	H752-06		1700060155

Appendix

D

Electrical Specifications for I/O Ports

D.1 Electrical Specifications for I/O Ports

I/O	Reference	Signal Name	Rate Output
LVDS1	CN11	VCC	+3.3V/1A or +5V/1A
LVDS2	CN14	VCC	+3.3V/1A or +5V/1A
LPC Port	CN24	+3.3V	+3.3V/0.5A
LVDS1 Inverter / Backlight Connector	CN10	VDD	+5V/1A or +12V/1A
LVDS2 Inverter / Backlight Connector	CN13	VDD	+5V/1A or +12V/1A
+5V Output for SATA HDD	CN19	+5V	+5V/1A
Audio I/O Port	CN26	+5V	+5V/0.5A
2Pin PWRIN (Optional)	CN36	+VIN	+12V/3A
ATX 4Pin PWRIN	CN35	+VIN	+12V/3A
FAN	CN2	+12V	+12V/0.5A
mSATA Slot	PCIE1A1	+3.3VSB +1.5V	+3.3V/1A +1.5V/0.375A
Mini Card Slot	PCIE1A2	+3.3VSB +1.5V	+3.3V/1A +1.5V/0.375A
USB 3.0 Ports	CN16	+5VSB	+5V/1A (per channel)
USB 2.0 Ports	USB1/USB2 USB3/USB4 USB5	+5VSB	+5V/0.5A (per channel)
COM Port 1/2	CN20	+5V/+12V	+5V/1A or +12V/1A
Digital IO Port	CN22	GPIO0~GPIO15	+5V (Ext. Pull Up)
VGA Ports	CN32	+5V	+5V/1A
PS2 KB/MS	KB1	+5VSB	+5VSB/0.5A

EPIC Board**EPIC - KB07**

DP0	CN7	+3.3V	+3.3V/0.5A
DP1	CN12	+3.3V	+3.3V/0.5A
HDMI	HDMI1	+5V	+5V/1A

Appendix

E

DIO

E.1 DIO

The related register for configuring DIO is list as follows:

7.1.2 Logic Device Number Register (LDN) — Index 07h

Bit	Name	R/W	Reset	Default	Description
7-0	LDN	R/W	LRESET#	00h	00h: Select FDC device configuration registers. 03h: Select Parallel Port device configuration registers. 04h: Select Hardware Monitor device configuration registers. 05h: Select KBC device configuration registers. 06h: Select GPIO device configuration registers. 07h: Select WDT device configuration registers. 0Ah: Select PME, ACPI and ERP device configuration registers. 10h: Select UART1 device configuration registers. 11h: Select UART2 device configuration registers. 12h: Select UART3 device configuration registers. 13h: Select UART4 device configuration registers. 14h: Select UART5 device configuration registers. 15h: Select UART6 device configuration registers. Otherwise: Reserved.

GPIO7 Output Enable Register — Index 80h

Bit	Name	R/W	Reset	Default	Description
7	GPIO7_OE	R/W	LRESET#	0	0: GPIO77 is in input mode. 1: GPIO77 is in output mode.
6	GPIO76_OE	R/W	LRESET#	0	0: GPIO76 is in input mode. 1: GPIO75 is in output mode.
5	GPIO75_OE	R/W	LRESET#	0	0: GPIO75 is in input mode. 1: GPIO75 is in output mode.
4	GPIO74_OE	R/W	LRESET#	0	0: GPIO74 is in input mode. 1: GPIO74 is in output mode.
3	GPIO73_OE	R/W	LRESET#	0	0: GPIO73 is in input mode. 1: GPIO73 is in output mode.
2	GPIO72_OE	R/W	LRESET#	0	0: GPIO72 is in input mode. 1: GPIO72 is in output mode.
1	GPIO71_OE	R/W	LRESET#	0	0: GPIO71 is in input mode. 1: GPIO71 is in output mode.
0	GPIO70_OE	R/W	LRESET#	0	0: GPIO70 is in input mode. 1: GPIO70 is in output mode.

GPIO7 Output Data Register — Index 81h (This byte could be also written by base address + 3)

Bit	Name	R/W	Reset	Default	Description
7	GPIO77_VAL	R/W	LRESET#	1	0: GPIO77 outputs 0 when in output mode. 1: GPIO77 outputs 1 when in output mode.
6	GPIO76_VAL	R/W	LRESET#	1	0: GPIO76 outputs 0 when in output mode. 1: GPIO76 outputs 1 when in output mode.
5	GPIO75_VAL	R/W	LRESET#	1	0: GPIO75 outputs 0 when in output mode. 1: GPIO75 outputs 1 when in output mode.
4	GPIO74_VAL	R/W	LRESET#	1	0: GPIO74 outputs 0 when in output mode. 1: GPIO74 outputs 1 when in output mode.
3	GPIO73_VAL	R/W	LRESET#	1	0: GPIO73 outputs 0 when in output mode. 1: GPIO73 outputs 1 when in output mode.
2	GPIO72_VAL	R/W	LRESET#	1	0: GPIO72 outputs 0 when in output mode. 1: GPIO72 outputs 1 when in output mode.
1	GPIO71_VAL	R/W	LRESET#	1	0: GPIO71 outputs 0 when in output mode. 1: GPIO71 outputs 1 when in output mode.
0	GPIO70_VAL	R/W	LRESET#	1	0: GPIO70 outputs 0 when in output mode. 1: GPIO70 outputs 1 when in output mode.

GPIO7 Pin Status Register — Index 82h (This byte could be also read by base address + 3)

Bit	Name	R/W	Reset	Default	Description
7	GPIO77_IN	R	-	-	The pin status of GPIO77/STB#.
6	GPIO76_IN	R	-	-	The pin status of GPIO76/AFD#.
5	GPIO75_IN	R	-	-	The pin status of GPIO75/ERR#.
4	GPIO74_IN	R	-	-	The pin status of GPIO74/INIT#.
3	GPIO73_IN	R	-	-	The pin status of GPIO73/SLIN#.
2	GPIO72_IN	R	-	-	The pin status of GPIO72/ACK#.
1	GPIO71_IN	R	-	-	The pin status of GPIO71/BUSY.
0	GPIO70_IN	R	-	-	The pin status of GPIO70/PE/FANCTRL3/PWM_DAC3.

GPIO8 Output Enable Register — Index 88h

Bit	Name	R/W	Reset	Default	Description
7	GPIO87_OE	R/W	LRESET#	0	0: GPIO87 is in input mode. 1: GPIO87 is in output mode.
6	GPIO86_OE	R/W	LRESET#	0	0: GPIO86 is in input mode. 1: GPIO85 is in output mode.
5	GPIO85_OE	R/W	LRESET#	0	0: GPIO85 is in input mode. 1: GPIO85 is in output mode.
4	GPIO84_OE	R/W	LRESET#	0	0: GPIO84 is in input mode. 1: GPIO84 is in output mode.
3	GPIO83_OE	R/W	LRESET#	0	0: GPIO83 is in input mode. 1: GPIO83 is in output mode.
2	GPIO82_OE	R/W	LRESET#	0	0: GPIO82 is in input mode. 1: GPIO82 is in output mode.
1	GPIO81_OE	R/W	LRESET#	0	0: GPIO81 is in input mode. 1: GPIO81 is in output mode.
0	GPIO80_OE	R/W	LRESET#	0	0: GPIO80 is in input mode. 1: GPIO80 is in output mode.

GPIO8 Output Data Register — Index 89h (This byte could be also written by base address + 2)

Bit	Name	R/W	Reset	Default	Description
7	GPIO87_VAL	R/W	LRESET#	1	0: GPIO87 outputs 0 when in output mode. 1: GPIO87 outputs 1 when in output mode.
6	GPIO86_VAL	R/W	LRESET#	1	0: GPIO86 outputs 0 when in output mode. 1: GPIO86 outputs 1 when in output mode.
5	GPIO85_VAL	R/W	LRESET#	1	0: GPIO85 outputs 0 when in output mode. 1: GPIO85 outputs 1 when in output mode.
4	GPIO84_VAL	R/W	LRESET#	1	0: GPIO84 outputs 0 when in output mode. 1: GPIO84 outputs 1 when in output mode.
3	GPIO83_VAL	R/W	LRESET#	1	0: GPIO83 outputs 0 when in output mode. 1: GPIO83 outputs 1 when in output mode.
2	GPIO82_VAL	R/W	LRESET#	1	0: GPIO82 outputs 0 when in output mode. 1: GPIO82 outputs 1 when in output mode.
1	GPIO81_VAL	R/W	LRESET#	1	0: GPIO81 outputs 0 when in output mode. 1: GPIO81 outputs 1 when in output mode.
0	GPIO80_VAL	R/W	LRESET#	1	0: GPIO80 outputs 0 when in output mode. 1: GPIO80 outputs 1 when in output mode.

GPIO8 Pin Status Register — Index 8Ah (This byte could be also read by base address + 2)

Bit	Name	R/W	Reset	Default	Description
7	GPIO87_IN	R	-	-	The pin status of GPIO87/PD7.
6	GPIO86_IN	R	-	-	The pin status of GPIO86/PD6.
5	GPIO85_IN	R	-	-	The pin status of GPIO85/PD5.

4	GPIO84_IN	R	-	-	The pin status of GPIO84/PD4.
3	GPIO83_IN	R	-	-	The pin status of GPIO83/PD3.
2	GPIO82_IN	R	-	-	The pin status of GPIO82/PD2.
1	GPIO81_IN	R	-	-	The pin status of GPIO81/PD1.
0	GPIO80_IN	R	-	-	The pin status of GPIO80/PD0.

The following is a sample code for 8 in (DIO 0-7) 8 out (DIO 8-15, 4 low 4 high)

```
Outputb(0x2E,0x87); //enter configuration
```

```
Outputb(0x2E,0x87);
```

```
Outputb(0x2E,0x07); //set LDN
```

```
Outputb(0x2F,0x06);
```

```
Outputb(0x2E,0x88); //GPIO set 8 register
```

```
Outputb(0x2F,0x00); //Set GPIO8x (DIO 0-7) as input mode
```

```
Outputb(0x2E,0x80); //GPIO set 7 register
```

```
Outputb(0x2F,0xFF); //Set GPIO7x (DIO 8-15) as output mode
```

```
Outputb(0x2E,0x81); //GPIO output data register
```

```
Outputb(0x2F,0xF0); //DIO 8-11 as Low, DIO 9-15 as high
```

```
Outputb(0x2E,0xAA); //exit configuration
```