EMB-KB1

Industrial Motherboard

E8620

First Edition

October 2013

Copyright Notice

Acknowledgments

Contents

Chapter 1

Product overview

1.1   Package contents

Check your industrial motherboard package for the following items.

- ☑   1 x Industrial Motherboard
- ☑   1 x SATA Cable
- ☑   1 x I/O Shield
- ☑   1 x Support CD

If any of the above items is damaged or missing, contact your distributor or sales representative immediately.

1.2   Features

- •   AMD® 1st Generation APU SoC (FT3 BGA package), Quad-core GX-420CA, Dual-core GX-217GA (optional)
- •   Two DDR3 / DDR3L 1600 / 1333 MHz SO-DIMMs up to 16GB
- •   SATA 6.0 Gb/s x 2, USB3.0 x 2, USB2.0 x 8
- •   PCI-Express x 4, Full-size Mini Card (PCIe + USB + mSATA) + SIM card (mSATA BOM optional) x 1, Half-size Mini Card (PCIe + USB) x 1
- •   VGA, DVI, 18/24-bit Dual Channel LVDS support

1.3   Specifications

SYSTEM	
Form factor	Mini-ITX
CPU	AMD® 1st generation APU SoC (FT3 BGA package) Quad core GX-420CA, Dual-core GX-217GA (optional)
Memory	2 x SO-DIMM (8GB per DIMM), max. 16GB, unbuffered, non-ECC DDR3 / DD3L 1600 / 1333 MHz
	Single channel memory architecture
I/O Chipset	Fintek F81866D-I
Ethernet	2 x Realtek PCIe Gb LAN 8111F
BIOS	64Mbit Flash AMI BIOS ROM
Wake on LAN	Yes (WOL/PXE)
Watchdog Timer	1~255 steps by software program
H/W Status Monitor	Monitors CPU/Chassis temperature
	Monitors Vcore/5V/3.3V/12V voltages
	Monitors CPU/Chassis fan speed
Smart Fan Control	CPU Fan/Chassis Fan
Power State	S3, S4, S5
Expansion slot	4 x PCI Express
	1 x Mini Card (PCIe + USB + mSATA) + SIM card (mSATA optional) Full-size
	1 x Mini Card (PCIe + USB) Half size
Battery	Lithium battery
Power requirement	1 x ATX connector
Board size	6.7 in. x 6.7 in. (17.0 cm x 17.0 cm)
Gross weight	1.1 lb (0.5 Kg)
Operating temperature	32ºF~140ºF (0ºC~60ºC)
Storage temperature	-40ºF~185ºF (-40ºC~85ºC)
Operating humidity	0%~90% relative humidity, non-condensing
Power compliance	Compliant with Eup/ErP
Certificate	CE/FCC

DISPLAY	
Chipset	Quad-core GX-420CA / Dual-core GX-217GA (Integrated)
Resolution	Up to 1920x1200@60Hz for VGA
	Up to 1920x1200@60Hz for DVI
	Up to 1920x1080@60Hz, Dual Channel 18/24-bit
Output interface	1 x LVDS
	1 x VGA
	1 x DVI
I/O	
Storage	2 x SATA 6.0Gb/s ports
	1 x SATA power connector
Serial port	1 x RS-232/422/485 supports 5V/12V/RI option (COM1 on rear I/O)
	5 x RS-232 (COM2 on rear I/O, COM3-COM6 for box header)
USB	2 x USB3.0 (2 ports at rear panel)
	8 x USB2.0 (2 ports at rear panel, 4 ports at mid-board, 2 ports at Mini Card interface)
Fan	1 x CPU Fan connector (4-pin)
	1 x Chassis Fan connector (4-pin)
RTC	Internal RTC
Keyboard/Mouse	2 x PS/2 Keyboard / mouse port on rear I/O
Audio	Mic-in
	Line-out
	Internal audio for 2W speakers
Ethernet	2 x RJ-45 ports on rear I/O
Display	1 x VGA port on rear I/O
	1 x DVI-D port on rear I/O
Others	1 x 8-bit Programmable Digital I/O
	1 x Front panel connector
	1 x AT/ATX mode select jumper

Chapter 2

Motherboard information

2.1 Before you proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.

CAUTION!

- Unplug the power cord from the wall socket before touching any component.

- Before handling components, use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, to avoid damaging them due to static electricity.

- Hold components by the edges to avoid touching the ICs on them.

- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.

- Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, or components.

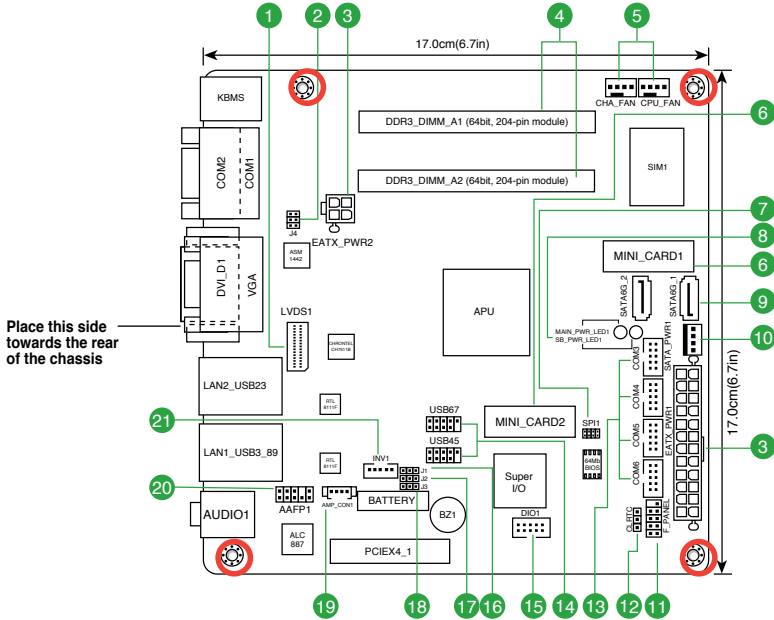## 2.2 Motherboard layout

NOTE: Place four screws into the holes indicated by circles to secure the motherboard to the chassis.

CAUTION! Do not overtighten the screws! Doing so can damage the motherboard.

EMB-KB1

Connectors/Jumpers/Slots	Page
1. LVDS connector (30-pin LVDS1)	2-19
2. COM1 Ring/+5V/+12V selection (6-pin J4)	2-10
3. ATX power connectors (24-pin EATXPWR1, 4-pin EATX_PWR2)	2-14
4. SO-DIMM memory slots	2-6
5. CPU and chassis fan connectors (4-pin CPU_FAN, 4-pin CHA_FAN)	2-15
6. Minicard connector (MINI_CARD1, MINI_CARD2)	2-20
7. BIOS programmable connector (8-pin SPI1)	2-21
8. Standby Power LED (Main_PWR_LED1, SB_PWR_LED1)	2-11
9. Serial ATA 6.0Gb/s connectors (7-pin SATA6G_1, SATA6G_2)	2-18
10. SATA power connector (SATA_PWR1)	2-18
11. System panel connector (10-1 pin F_Panel)	2-17
12. Clear RTC RAM (CLRTC)	2-8
13. Serial port connectors (10-1 pin COM3~6)	2-21
14. USB 2.0 connector (10-1 pin USB67, USB45)	2-20
15. Digital I/O connector (DIO1)	2-22
16. LVDS panel voltage selection (3-pin J1)	2-9
17. Inverter voltage selection (3-pin J2)	2-9
18. Inverter backlight control of inverter selector (3-pin J3)	2-10
19. Speaker out connector (AMP_CON1)	2-21
20. Front panel audio connector (10-1 pin AAFP1)	2-16
21. Backlight inverter power connector (5-pin INV1)	2-19

2.3 Screw size

2.3.1 Component side
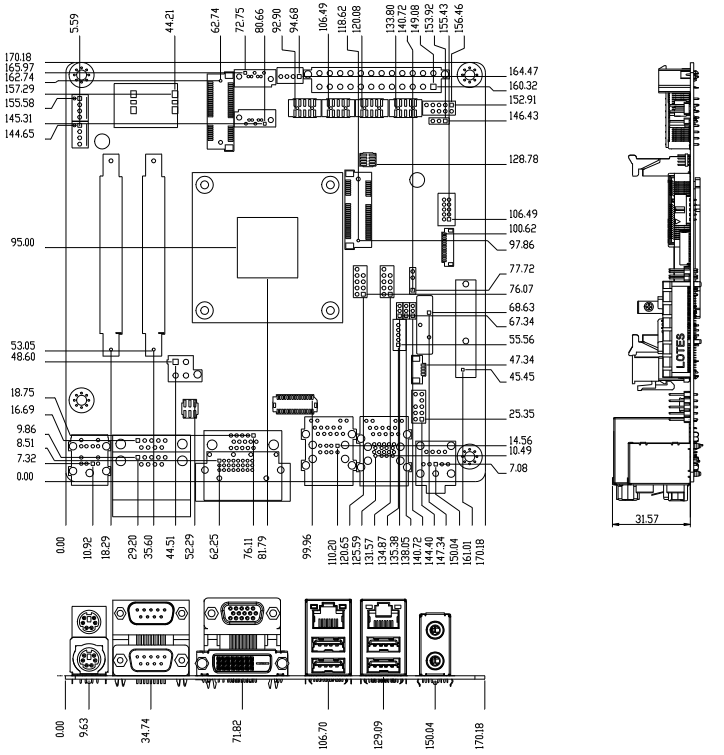
2.3.2   Solder side
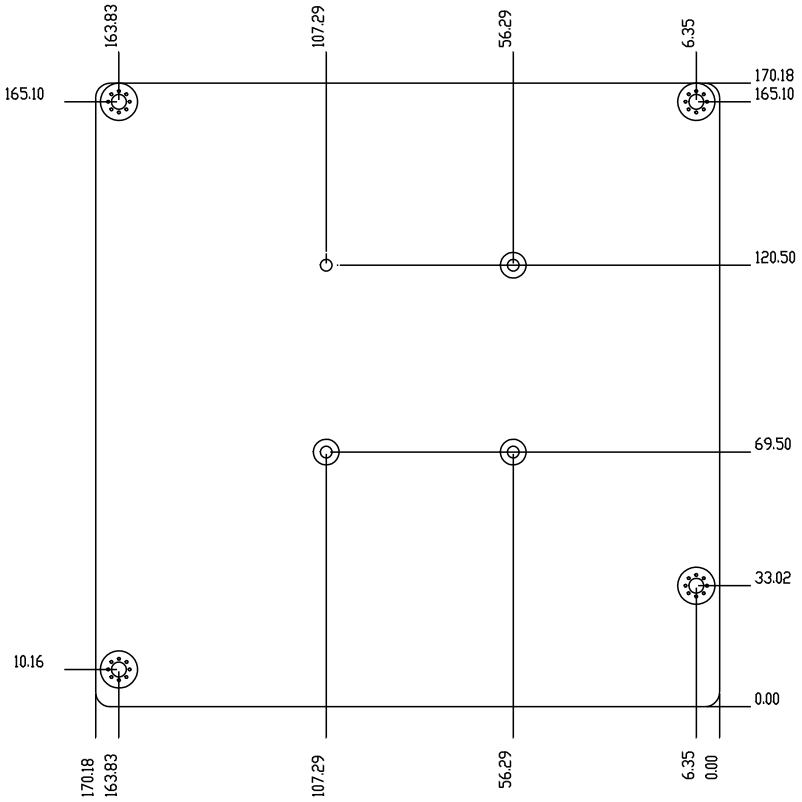
2.4   AMD Accelerated Processing Unit

The motherboard comes with an AMD® 1st Generation APU SoC Quad Core GX-420CA, Dual-core GX-217GA (optional).

→ APU

EMB-KB1 APU
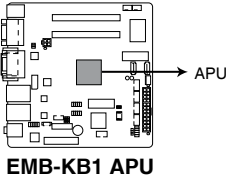
2.5   System memory

This motherboard comes with two Double Data Rate 3 / Double Data Rate 3 Low Voltage (DDR3/DD3L) Small Outline Dual Inline Memory Modules (SO-DIMM) socket. The figure illustrates the location of the DDR3 / DDR3L DIMM socket:

DIMM_A1
DIMM_A2

EMB-KB1 204-pin DDR3 / DD3L SO-DIMM sockets
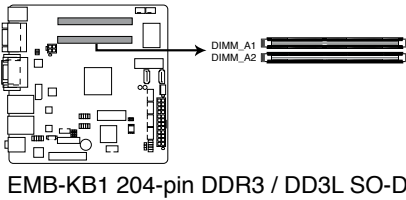
NOTE: Use the SO-DIMM_A2 slot when inserting only one SO-DIMM.

2.5.1   Installing a DIMM
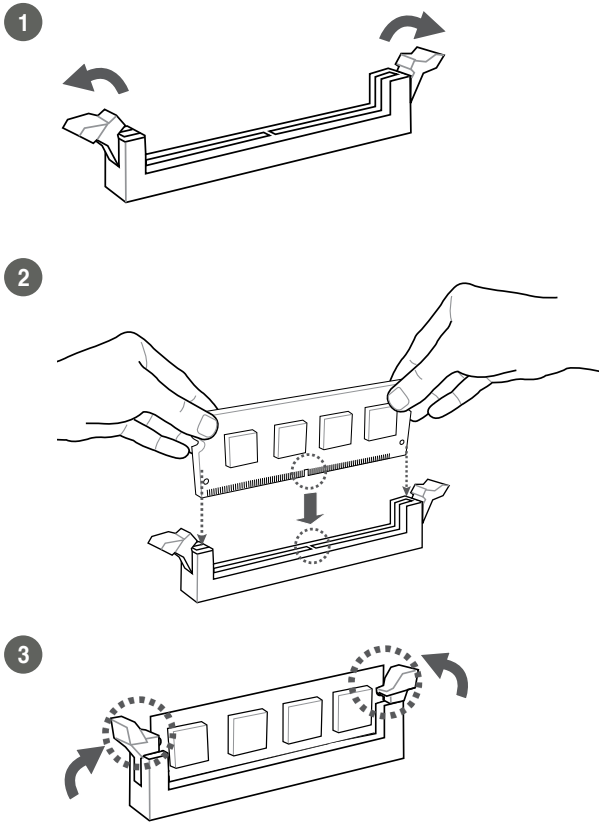
To remove a DIMM
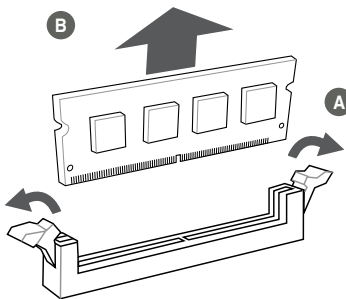
2.6   Jumpers

1.   Clear RTC RAM (CLRTC)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.
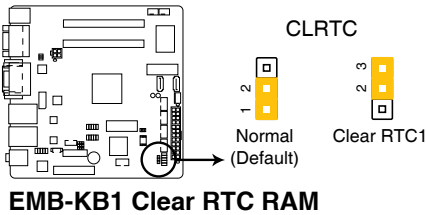
EMB-KB1 Clear RTC RAM

To erase the RTC RAM:

1.   Turn OFF the computer and unplug the power cord.

2.   Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.

3.   Plug the power cord and turn ON the computer.

4.   Hold down the **<Del>** key during the boot process and enter BIOS setup to reenter data.

**CAUTION!** Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!

NOTES:

•   If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After clearing the CMOS, reinstall the battery.

•   You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the CPU Parameter Recall (C.P.R) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values.

2.   LVDS panel voltage selection (3-pin J1)

J1

1 2   2 3

+5V   +3V
            (Default)
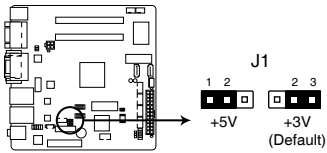
EMB-KB1 LVDS Panel Voltage Selection

Setting	Pins
+5V	1-2
+3.3V	2-3

3.   Inverter voltage selection (3-pin J2)

J2

1 2   2 3

+12V   +5V
            (Default)
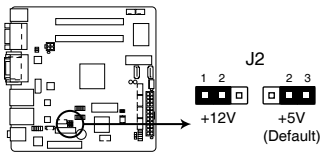
EMB-KB1 Inverter Voltage Selection

Setting	Pins
+12V	1-2
+5V (Default)	2-3

4. Inverter Backlight Control of Inverter selector (3-pin J3)
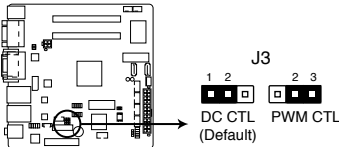
EMB-KB1 Mode Selection for Backlight Control of Inverter

Setting	Pins
DC Voltage Control	1-2
PWM Control (Default)	2-3

5. COM1 Ring/+5V/+12V selector (COM1)
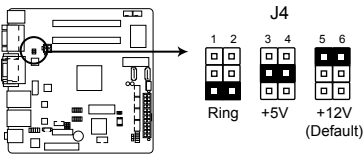
EMB-KB1 **COM1 Ring/+5V/+12V Selection**

Setting	Pins
+12V (Default)	5-6
+5V	3-4
Ring	1-2

2.7   Onboard LEDs

1.   Standby Power LED

The motherboard comes with a standby power LED that lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED.

MAIN_PWR_LED1   SB_PWR_LED1

ON   OFF   ON   OFF
Main Power   Main Power Off   Standby Power   Powered Off
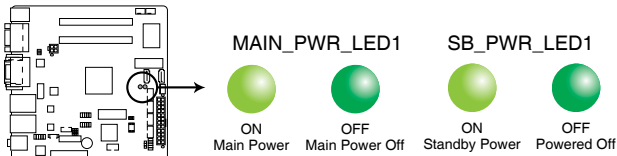
EMB-KB1 Onboard LEDs

2.8 Connectors

2.8.1 Rear panel connectors
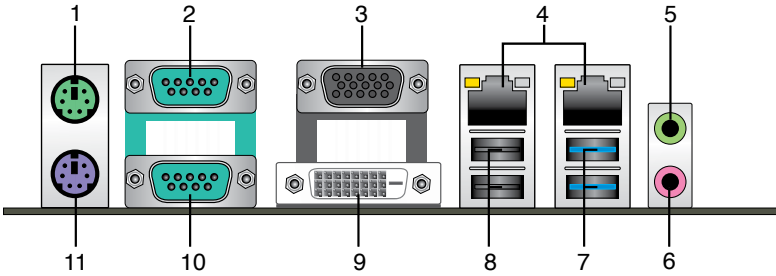
1. **PS/2 Mouse port (green).** This port is for a PS/2 mouse.

2. **Serial port (COM1).** This port connects a modem, or other devices that conform with serial specification. This serial port also supports RS-232 / RS-422 / RS-485 connections.

Pin	Signal	Pin	Signal
1	DCD (422TXD-/485DATA-)	2	RXD (422RXD+)
3	TXD (422TXD+/485DATA+)	4	DTR (422RXD-)
5	GND	6	DSR
7	RTS	8	CTS
9	RI/+12V/+5V	10	N.C.

3. **Video Graphics Adapter (VGA) port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.

> **NOTE:** Disable LVDS support when using only the VGA port. Refer to the section on System Agent (SA) Configuration in Chapter 3 for details.

4. **LAN1~2 (RJ-45) ports.** These ports allow Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN2 port LED indications.

LAN port LED indications

ACT/LINK LED		SPEED LED	
Status	Description	Status	Description
OFF	No link	OFF	10 Mbps connection
ORANGE	Linked	ORANGE	100 Mbps connection
BLINKING	Data activity	GREEN	1 Gbps connection

Activity Link LED   Speed LED

LAN port
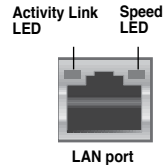
5. **Line Out port (lime)**. This port connects to a headphone or a speaker.

6. **Microphone port (pink)**. This port connects to a microphone.

7. **USB 3.0 ports.** These two 9-pin Universal Serial Bus (USB) ports connect to USB 3.0/2.0 devices.

NOTES:

- DO NOT connect a keyboard / mouse to any USB 3.0 port when installing Windows® operating system.

- Due to USB 3.0 controller limitation, USB 3.0 devices can only be used under Windows® OS environment and after the USB 3.0 driver installation.

- USB 3.0 devices can be used for data storage only.

- We strongly recommend that you connect USB 3.0 devices to USB 3.0 ports for a faster and better performance from your USB 3.0 devices.

8. **USB 2.0 ports.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0/1.1 devices.

9. **DVI-D port.** This port is for any DVI-D compatible device.

10. **Serial port.** This port connects a modem, or other devices that conform with serial specification.

11. **PS/2 Keyboard port (purple).** This port is for a PS/2 keyboard.

2.9.2 Internal connectors

1. ATX power connectors (24-pin EATXPWR1, 4-pin EATXPWR2)

These connectors are for ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.
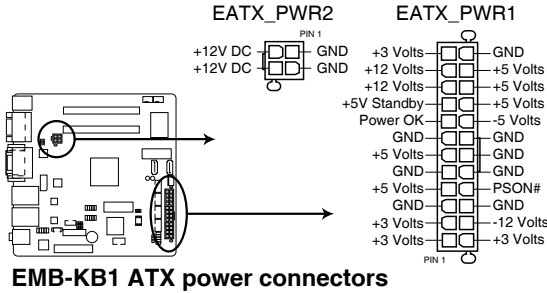
EMB-KB1 ATX power connectors

IMPORTANT:

- For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V Specification 2.0 (or later version).

- DO NOT forget to connect the 4-pin ATX +12V power plug. Otherwise, the system will not have enough power.

- We recommend that you use a PSU with higher power output when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.

2. **CPU and chassis fan connectors (4-pin CPU_FAN, 4-pin CHA_FAN)**

    Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector.

    CHA_FAN   CPU_FAN

    GND VCC SENSE PWM   GND VCC SENSE PWM
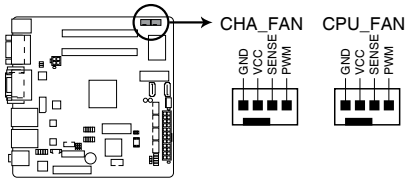
    EMB-KB1 Fan connectors

    CAUTION: Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!

    NOTE: The CPU_FAN connector supports a CPU fan of maximum 2A (24 W) fan power.

3. **Front panel audio connector (10-1 pin AAFP1)**

This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC`97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.
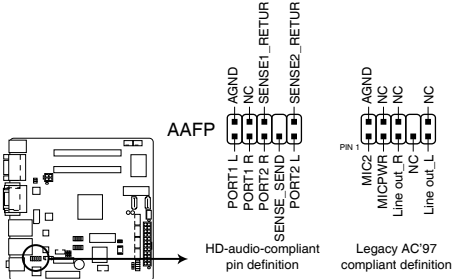
EMB-KB1 Front panel audio connector

IMPORTANT:

•   We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.

4. System panel connector (10-1 pin F_PANEL)

This connector supports several chassis-mounted functions.
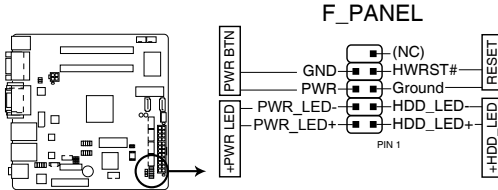
F_PANEL

EMB-KB1 System panel connector

- **System power LED (2-pin PWR_LED)**

  This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Hard disk drive activity LED (2-pin HDD_LED)**

  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The HDD LED lights up or flashes when data is read from or written to the HDD.

- **ATX power button/soft-off button (2-pin PWR_BTN)**

  This 2-pin connector is for the system power button.

- **Reset button (2-pin RESET)**

  This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

5. **Serial ATA 6.0Gb/s connector (7-pin SATA6G_1, SATA6G_2)**

ThIS connector connects to Serial ATA 6.0 Gb/s hard disk drives via Serial ATA 6.0 Gb/s signal cables.

SATA6G_2   SATA6G_1

GND	GND
RSATA_RXP2	RSATA_TXP1
RSATA_RXN2	RSATA_TXN1
GND	GND
RSATA_TXN2	RSATA_RXN1
RSATA_TXP2	RSATA_RXP1
GND	GND
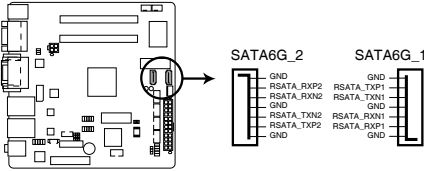
EMB-KB1 SATA 6.0Gb/s connectors

IMPORTANT:

- You must install Windows® XP Service Pack 3 or later version before using Serial ATA hard disk drives.

- When using hot-plug and NCQ, set the SATA Mode Selection item in the BIOS to [AHCI]. See section **3.3.3 IDE Configuration** for details.

6. **SATA power connector (4-pin SATA_PWR1)**

This connector is for the SATA power cable. The power cable plug is designed to fit this connector in only one orientation. Find the proper orientation and push down firmly until the connector completely fit.

SATA_PWR1

+12V
GND
GND
+5V
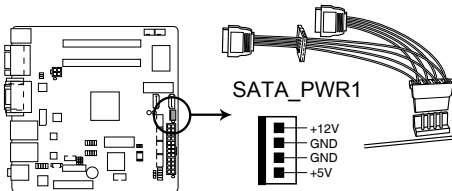
EMB-KB1 SATA POWER Connector

7. LVDS connector (30-pin LVDS1)

This connector is for an LCD monitor that supports Low-Voltage Differential Signaling (LVDS) interface.

LVDS1

Left			Right
Back Light Control for DC mode	■ ■		LVDS Panel Enable
GND	■ ■		LVDS VCC
LVDS0_CLK+	■ ■		LVDS0_CLK-
GND	■ ■		LVDS VCC
LVDS0_D0+	■ ■		LVDS0_D0-
LVDS0_D1+	■ ■		LVDS0_D1-
LVDS0_D2+	■ ■		LVDS0_D2-
LVDS0_D3+	■ ■		LVDS0_D3-
EDID_Clk	■ ■		EDID_Data
LVDS1_D0+	■ ■		LVDS1_D0-
LVDS1_D1+	■ ■		LVDS1_D1-
LVDS1_D2+	■ ■		LVDS1_D2-
LVDS1_D3+	■ ■		LVDS1_D3-
GND	■ ■		LVDS VCC
LVDS1_CLK+	■ ■		LVDS1_CLK-

PIN 1
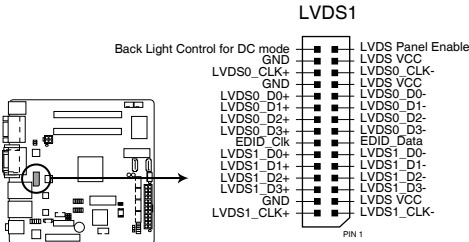
EMB-KB1 LVDS connector

8. Backlight inverter power connector (5-pin INV1)

Connect the backlight inverter power cable to this connector.

INV1

PIN1 ■ ■ ■ ■ ■

Inverter VCC
Back Light Control
GND
GND
Back Light Enable
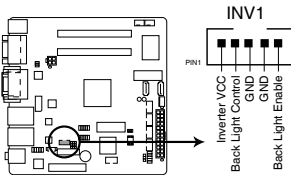
EMB-KB1 Inverter Connector

9. Minicard connector

Use this connector to connect a Minicard reader.

MINI_CARD1
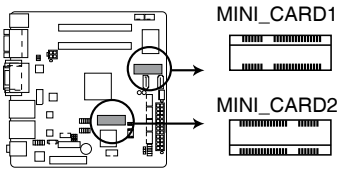
MINI_CARD2

EMB-KB1 MINICARD connectors

> **NOTE:** The Mini-card module is purchased separately.

10. USB 2.0 connector (10-1 pin USB67 and USB45)

This connector is for USB 2.0 ports. Connect the USB module cable to connector USB1112. This USB connector complies with USB 2.0 specification that supports up to 480 Mbps connection speed.

USB67

USB45
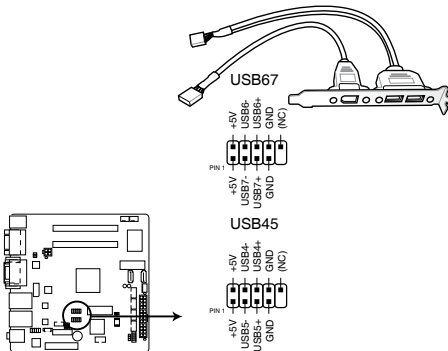
EMB-KB1 USB2.0 connectors

> Never connect a 1394 cable to the USB connector. Doing so will damage the motherboard.

> The USB module cable is purchased separately.

11. BIOS programmable connector (8-pin SPI1)

Use this connector to flash the BIOS ROM.

SPI1
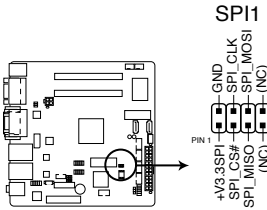
EMB-KB1 **BIOS Programmable Connector**

12. Serial port connectors (10-1 pin COM3~COM6)

These connectors are for serial (COM) ports. Connect the serial port module cable to this connector, then install the module to a slot opening at the back of the system chassis.

COM3

COM4

COM5

COM6
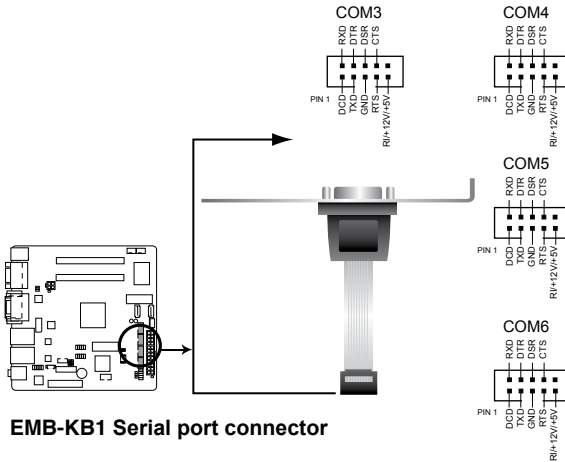
EMB-KB1 Serial port connector

NOTE: The COM module is purchased separately.

13. Speaker out connector (4-pin AMP_CON1)

The 4-pin connector is for the chassis-mounted speaker.

AMP_CON1

LOUTP
LOUTN
ROUTN
ROUTP

PIN 1
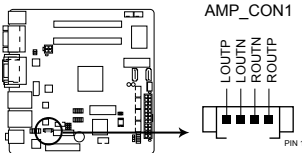
EMB-KB1 SPEAKER OUT Connector

NOTE: The Speaker module is purchased separately.

14. Digital I/O connector (10-pin DIO1)

This connector includes 8 I/O lines (In/Out programmable). All of the Digital I/O lines are programmable and each I/O pin can be individually programmed to support various devices.

DIO1

DIO_P#2(GPIO81)
DIO_P#4(GPIO83)
DIO_P#6(GPIO85)
DIO_P#8(GPIO87)
GND

PIN 1

DIO_P#1(GPIO80)
DIO_P#3(GPIO82)
DIO_P#5(GPIO84)
DIO_P#7(GPIO86)
+5V
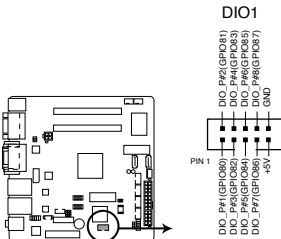
EMB-KB1 **DIO connector**

Chapter 3
BIOS setup

3.1   BIOS setup

Use the BIOS Setup to update the BIOS or configure settings. The BIOS screens include navigation keys and help to guide you in using the BIOS Setup program.

Entering BIOS Setup at startup

To enter BIOS Setup at startup:

Press <Delete> during the Power-On Self Test (POST). If you do not press <Delete>, POST continues with its routine.

Entering BIOS Setup after POST

To enter BIOS Setup after POST:

*   Press **<Ctrl>**+**<Alt>**+**<Del>** simultaneously.

*   Press the reset button on the system chassis.

*   Press the power button to turn the system off then back on. Do this option only if you failed to enter BIOS Setup using the first two options.

> **NOTE:**   Using the power button, reset button, or the <Ctrl>+<Alt>+<Del> keys to reboot a running operating system can cause damage to your data or system. Always shut down the system properly from the operating system.

> **IMPORTANT:**
>
> *   The default BIOS settings for this motherboard apply to most working conditions and ensures optimal performance. If the system becomes unstable after changing any BIOS settings, load the default settings to regain system stability. Select the option **Restore Defaults** under the Save & Exit Menu. See section **3.7 Exit Menu**.
>
> *   The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.

3.1.1   Menu bar

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

Main	For changing the basic system configuration.
Advanced	For changing the advanced system settings.
Chipset	For viewing and changing chipset settings.
Boot	For changing the system boot configuration.
Security	For setting up BIOS security settings.
Save & Exit	For selecting the exit options and loading default settings.

To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted.

3.2   Main menu

The Main menu provides you an overview of the basic system information, and allows you to set the system date, time, language, and security settings.

3.2.1   System Date [Day MM/DD/YYYY]

Allows you to set the system date.

3.2.2   System Time [HH:MM:SS]

Allows you to set the system time.

3.3   Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.

⚠ Be cautious when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

3.3.1   ACPI Settings

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

Select ACPI sleep state the system will enter when the Suspend button is pressed.

3.3.2   CPU Configuration

The CPU Configuration page displays information about the installed CPU.

3.3.3   IDE Configuration

While entering Setup, the BIOS automatically detects the presence of SATA devices. The SATA Port items show **Not Present** if no SATA device is installed to the corresponding SATA port.

OnChip SATA Type [Legacy IDE]

Allows you to set the SATA configuration.

[AHCI]   Set to [AHCI] when you want the SATA hard disk drives to use AHCI (Advanced Host Controller Interface). AHCI allows the onboard storage driver to enable advanced Serial ATA features that increases storage performance on random workloads by allowing the drive to internally optimize the order of commands.

[Legacy IDE]   Set to [IDE] when you want to use the Serial ATA hard disk drives as Parallel ATA physical storage devices.

3.3.4   USB Configuration

> The USB Devices item lists auto-detected values. If no USB device is detected, the item shows **None**.

Legacy USB Support [Enabled]

[Enabled]	Enables the support for USB devices on legacy operating systems (OS).
[Disabled]	USB devices are only available when running BIOS Setup.
[Auto]	Allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

3.3.5   F81866 Super IO Configuration

Serial Port1~6 Configuration

The sub-items in this menu allow you to set the serial port configuration.

Serial Port [Enabled]

Allows you to enable or disable the serial port (COM).
Configuration options: [Enabled] [Disabled]

Change Settings [Auto]

Allows you to select the Serial Port base address.
Configuration options:
[Auto] [IO=3F8h; IRQ=4] [IO=2F8h; IRQ=3]

RS Mode [RS232]

Allows you to select COM RS Mode.
Configuration options: [RS232] [RS422] [RS485]

3.3.6   F81866 H/W Monitor

The items in this menu allow you to configure hardware monitoring settings.

Smart Fan Function [Enabled]

Allows you to enable or disable Smart Fan Function. Configuration options:
[Enabled] [Disabled]

Smart Fan Mode Configuration

Fan 1~2 Smart Fan Control [Auto Duty-Cycle Mode]

Select Smart Fan mode. Configuration options: [Auto Duty Cycle Mode]
[Manual RPM Mode] [Manual Duty Mode] [Auto RPM Mode]

Temperature 1~4

Input temperature value to configure fan control. Input value range: [1~100]

Duty Cycle 1~4

Input duty cycle to configure fan control. Input value range: [1~100]

> The following item replaces Duty Cycle when Smart Fan Control is set to Auto
> RPM Mode.

RPM Percentage 1~4

Input RPM percentage to configure fan control. Input value range: [1~100]

Manual Duty Mode [60]

Input duty cycle value for PWM fan. Input value range: [1~100]

> Manual Duty Mode is the only available item when Smart Fan Control is set to
> Manual Duty Mode.

Manual RPM Mode [2000]

Input RPM count value for PWM fan. Input value range: [500~10000]

> Manual RPM Mode is the only available item when Smart Fan Control is set to
> Manual RPM Mode.

3.3.7   Dynamic Digital IO

The items in this menu allow you to modify Digital IO settings.

GPIO1~3 Direction [Input]

Set GPIO data flow as Input or Output. Configuration options: [Input] [Output]

GPO0~3 Direction [Output]

Set GPO0 data flow as Input or Output. Configuration options: [Input] [Output]

> **Output Level [Hi]**
> Configuration options: [Hi][Low]

3.3.8   Power Management

Power Mode [ATX Type]

Select power supply mode. Configuration options: [ATX Type] [AT Type]

Power Failure [Last State]

Select AC power loss/failure response. Configuration options: [Last State] [Always On] [Always Off]

ERP Function [Enabled]

This item disables/enables ERP mode for energy star compliance.
Configuration options: [Disabled] [Enabled]

Resume from RI [Enabled]

This item disables/enables Resume from RI.
Configuration options: [Disabled] [Enabled]

3.3.9 S5 RTC Wake Settings

Wake System with Fixed Time [Disabled]

Enable or disable system wake on at an alarm event. When enabled, the system will wake up at the specified hr::min::sec. Configuration options: [Disabled] [Enabled]

> The following items appear when **Wake System with Fixed Time** is enabled.

Wake up day/hour/minute/second [0]
Specify the values for day/hour/minute/second.

Wake System with Dynamic Time [Disabled]

Enable or disable system wake on at an alarm event. When enabled, the system will wake up at the current time plus a specified number of minutes.

> The following items appear when **Wake System with Dynamic Time** is enabled.

Wake up minute increase [1]
Specify the number of minutes added to the current time before waking up system.

3.4   Chipset menu

The Chipset menu items allow you to change configuration options for the North Bridge and South Bridge.

3.4.1   North Bridge

DDR3L Voltage Selection [1.5V]

Configuration options: [1.35V] [1.5V]

PCI GEN Speed [GEN2]

Configuration options: [GEN1] [GEN2]

GFX Configuration

DP0 Output Mode [LVDS]

Configuration options: [LVDS] [Disabled]

LVDS1 [Enabled]

Configuration options: [Disabled] [Enabled]

LVDS1 Panel Type [1024x768, 18bit, 60Hz]

Select the type of LCD panel used as display.Configuration options: [640x480, 18bit, 60Hz] [800x480, 18bit, 60Hz] [800x600, 18bit, 60Hz] [1024x600, 18bit, 60Hz] [1024x768, 18bit, 60Hz] [1024x768, 24bit, 60Hz] [1280x768, 24bit, 60Hz] [1280x1024, 48bit, 60Hz] [1366x768, 24bit, 60Hz] [1440x900, 48bit, 60Hz] [1600x1200, 48bit, 60Hz] [1920x1080, 48bit, 60Hz] [1920x1200, 48bit, 60Hz]

LVDS Backlight Level [80%]

Select the default backlight brightness of the LVDS display. Configuration options: [100%] [90%] [80%] ~ [0%]

LVDS Backlight Type [Normal]

Select backlight control type. Configuration options: [Normal] [Inverted]

DP1 Output Mode [Single Link DVI-D]

Configuration options: [Single Link DVI-D] [Disabled]

3.4.2   South Bridge

HD Audio Azalia Device [Enabled]

Configuration options: [Enabled] [Disabled]

3.5   Boot menu

The Boot menu items allow you to change the system boot options.

3.5.1   Boot Configuration

Quiet Boot [Enabled]

This item enables/disables Quiet Boot.
Configuration options: [Disabled] [Enabled]

Launch PXE OpROM [Disabled]

This item enables/disables Legacy PXE OpROM.
Configuration options: [Disabled] [Enabled]

3.5.2   Boot Option Priorities

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.

- • To select the boot device during system startup, press <F7> during POST.

- • To access Windows OS in Safe Mode, do any of the following:

   - - Press <F5> during POST.
   - - Press <F8> after POST.

3.6 Security menu

The Security menu items allow you to change the system security settings.

3.6.1 Administrator Password

If you have set an administrator password, we recommend that you enter the administrator password for accessing the system. Otherwise, you might be able to see or change only selected fields in the BIOS setup program.

To set an administrator password:

1. Select the **Administrator Password** item and press <Enter>.

2. From the **Create New Password** box, key in a password, then press <Enter>.

3. Confirm the password when prompted.

To change an administrator password:

1. Select the **Administrator Password** item and press <Enter>.

2. From the **Enter Current Password** box, key in the current password, then press <Enter>.

3. From the **Create New Password** box, key in a new password, then press <Enter>.

4. Confirm the password when prompted.

To clear the administrator password, follow the same steps as in changing an administrator password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **Administrator Password** item on top of the screen shows **Not Installed**.

3.6.2 User Password

If you have set a user password, you must enter the user password for accessing the system. The User Password item on top of the screen shows the default Not Installed. After you set a password, this item shows Installed.

To set a user password:

1. Select the **User Password** item and press <Enter>.

2. From the **Create New Password** box, key in a password, then press <Enter>.

3. Confirm the password when prompted.

To change a user password:

1. Select the **User Password** item and press <Enter>.

2. From the **Enter Current Password** box, key in the current password, then press <Enter>.

3. From the **Create New Password** box, key in a new password, then press <Enter>.

4. Confirm the password when prompted.

To clear the user password, follow the same steps as in changing a user password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **User Password** item on top of the screen shows **Not Installed**.

3.7   Save & Exit menu

Save Changes & Reset

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved. When you select this option, a confirmation window appears. Select Yes to save changes and exit.

Discard Changes & Reset

This option allows you to exit the Setup program without saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. Select Yes to discard changes and exit.

Restore Defaults

This option allows you to restore/load default values for all setup options.

Save as User Defaults

This item saves current configuration as User Default.

Restore User Defaults

This option restores User Defaults to all setup options.

Boot Override

These items displays the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. Click an item to start booting from the selected device.

Appendix

Notices

Federal Communications Commission Statement

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

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

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING! The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

DO NOT throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

電子信息產品污染控制標示：圖中之數字為產品之環保使用期限。僅指電子信息產品中含有的有毒有害物質或元素不致發生外洩或突變從而對環境造成污染或對人身、財產造成嚴重損害的期限。

有毒有害物質或元素的名稱及含量說明標示：

部件名稱	有害物質或元素					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六 價 鉻 (Cr(VI))	多 溴 聯 苯 (PBB)	多溴二苯醚 (PBDE)
印刷電路板及其電子組件	×	○	○	○	○	○
外部信號連接頭及線材	×	○	○	○	○	○

○：表示該有毒有害物質在該部件所有均質材料中的含量均在 SJ/T 11363-2006 標准規定的限量要求以下。

×：表示該有毒有害物質至少在該部件的某一均質材料中的含量超出 SJ/T 11363-2006 標准規定的限量要求，然該部件仍符合歐盟指令 2002/95/EC 的規范。

備註：此產品所標示之環保使用期限，係指在一般正常使用狀況下。