

# EMX-780E

AMD Athlon/ Athlon X2/ Quad-Core™ AMD Phenom™ Mini  
ITX Motherboard with AMD RS780E + SB710 Chipset

## Quick Installation Guide



1<sup>st</sup> Ed – 7 July 2010

### FCC Statement



THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

- (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.
- (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRABLE OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

### Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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# 1. Getting Started

## 1.1 Safety Precautions

### Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

### Caution!



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

**Always note** that improper disassembling action could cause damage to the motherboard. We suggest not removing the heatsink without correct instructions in any circumstance. If you really have to do this, please contact us for further support.

## 1.2 Packing List

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

- 1 x EMX-780E Mini ITX Main Board
- 2 x SATA Cable kit
- 1 x DVD-ROM contains the followings:
  - User's Manual (this manual in PDF file)
  - LAN drivers and utilities
  - Audio drivers and utilities

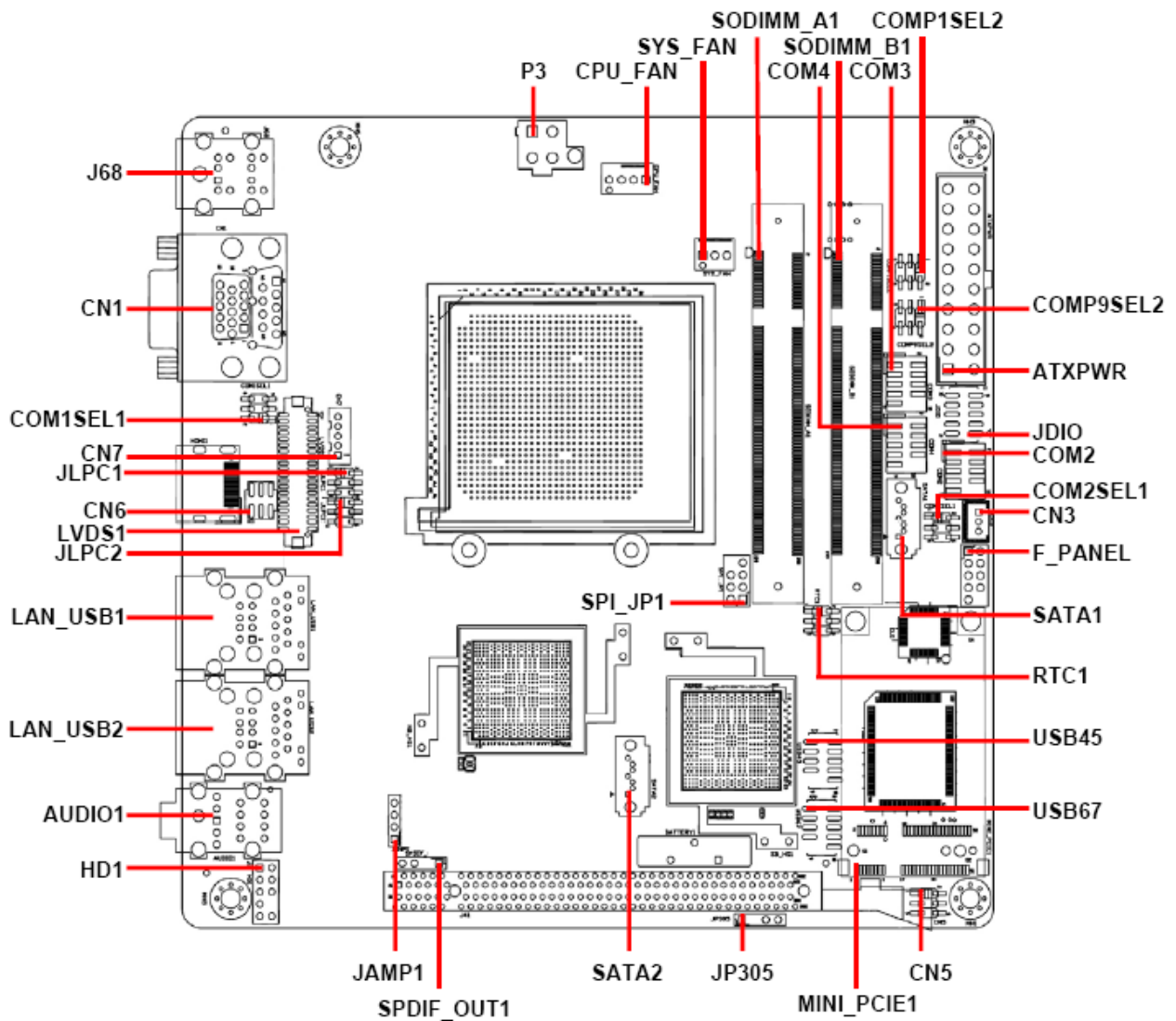


If any of the above items is damaged or missing, contact your retailer.

# 2. Hardware Configuration

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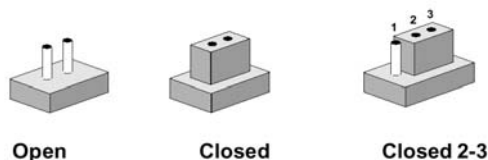
## 2.1 Product Overview



## 2.2 Jumper and Connector List

You can configure your board 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 two pins.



The jumper settings are schematically depicted in this manual as follows:



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

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

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

The following tables list the function of each of the board’s jumpers and connectors.

### Jumpers

Label	Function	Note
<b>CN5</b>	CF mode select	3 x 2 header, pitch 2.0mm
<b>CN6</b>	LVDS power select	3 x 2 header, pitch 2.0mm
<b>COM1SEL1</b>	Serial port 1 pin-9 signal select	3 x 2 header, pitch 2.0mm
<b>COM2SEL1</b>	Serial port 1 pin-10 signal select	3 x 2 header, pitch 2.0mm
<b>COMP1SEL2</b>	Serial port 3 pin-9 signal select	3 x 2 header, pitch 2.0mm
<b>COMP9SEL2</b>	Serial port 4 pin-9 signal select	3 x 2 header, pitch 2.0mm
<b>JP305</b>	Case Open	4 x 1 header, pitch 2.54mm
<b>RTC1</b>	Clear password & COMS select	3 x 2 header, pitch 2.0mm

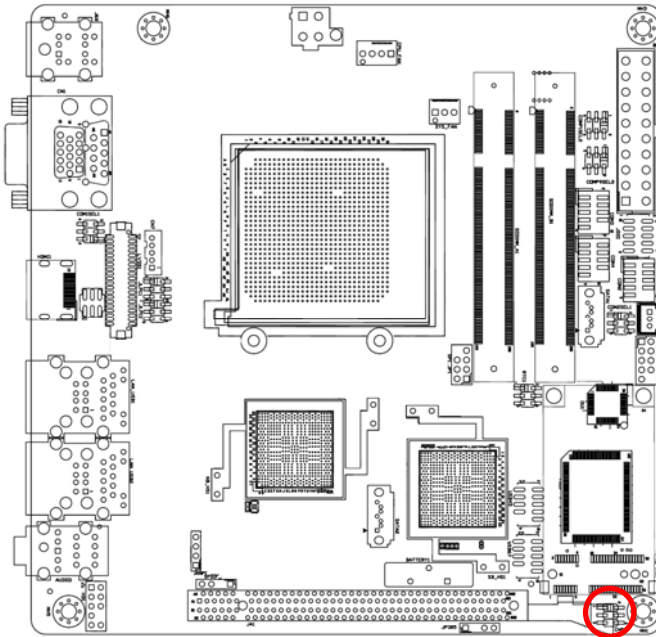
## Connectors

Label	Function	Note
<b>ATXPWR</b>	ATX power supply connector	10 x 2 header, pitch 2.54mm
<b>AUDIO1</b>	Audio connector	
<b>CN1</b>	VGA and serial port 1 connector	
<b>CN3</b>	SMB CLK & SMB DATA connector	3 x 1 wafer, pitch 1.54mm
<b>COM2</b>	Serial port 2 connector	5 x 2 header, pitch 2.0mm
<b>COM3</b>	Serial port 3 connector	5 x 2 header, pitch 2.0mm
<b>COM4</b>	Serial port 4 connector	5 x 2 header, pitch 2.0mm
<b>CPU_FAN</b>	CPU fan connector	3 x 1 wafer, pitch 254mm
<b>F_PANEL</b>	System panel connector	5 x 2 header, pitch 2.54mm
<b>HD1</b>	Audio header connector	5 x 2 header, pitch 2.54mm
<b>J68</b>	PS/S keyboard & mouse connector	
<b>JAMP1</b>	Amplifier connector	4 x 1 header, pitch 2.54mm
<b>JDIO</b>	General purpose I/O connector	5 x 2 header, pitch 2.0mm
<b>LVDS1</b>	LVDS connector	Hirose DF13-40DP-1.25V
<b>LAN_USB1</b>	Rear USB connector 0 & 1	
<b>LAN_USB2</b>	Rear USB connector 2 & 3	
<b>MINI_PCIE1</b>	PCI express mini card	
<b>P3</b>	VRM power supply connector	Wafer box 4p, pitch 4.2mm
<b>SATA1</b>	Serial ATA connector 1	
<b>SATA2</b>	Serial ATA connector 2	
<b>SODIMM_A1</b>	200-pin DDR2 SODIMM socket	
<b>SODIMM_B1</b>	200-pin DDR2 SODIMM socket	
<b>SPDIF_OUT1</b>	SPDIF out connector	4 x 1 header, pitch 2.54mm
<b>SPI_JP1</b>	SPI BIOS ROM connector	4 x 2 header, pitch 2.54mm
<b>SYS_FAN</b>	System fan connector	3 x 1 wafer, pitch 254mm
<b>USB45</b>	USB connector 4 & 5	5 x 2 header, pitch 2.0mm
<b>USB67</b>	USB connector 6 & 7	5 x 2 header, pitch 2.0mm

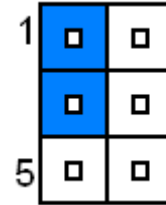
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## 2.3 Setting Jumpers & Connectors

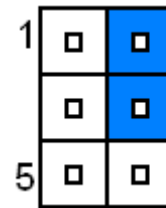
### 2.3.1 CF mode select (CN5)



Low: Master\*

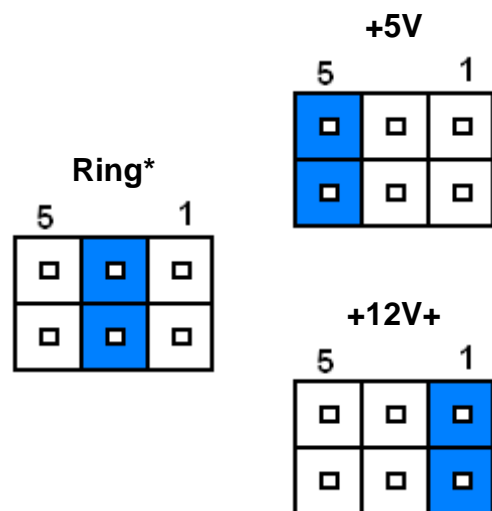
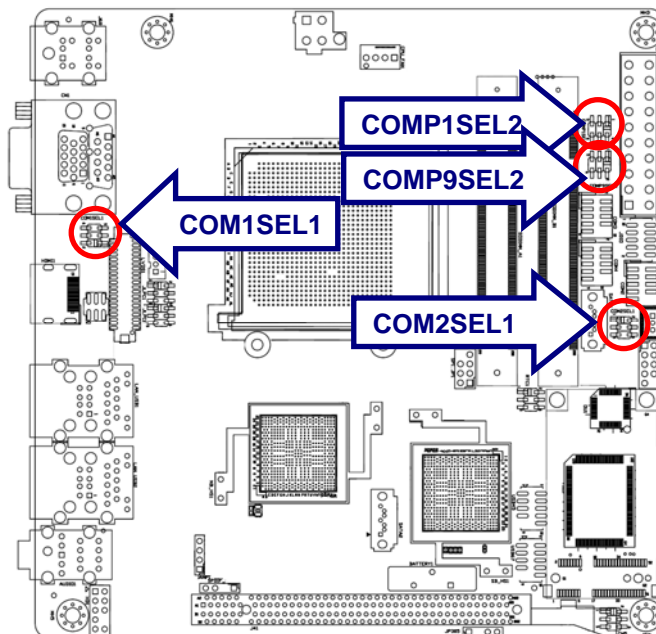


Hi: Slave



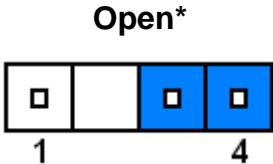
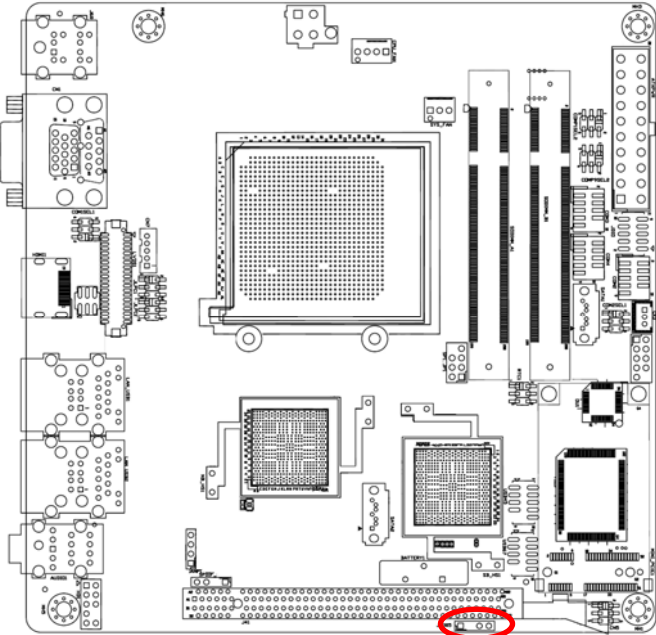
\*Default

### 2.3.2 Serial port 1/ 2/ 3/ 4 pin-9 signal select (COM1SEL1/ COM2SEL1/ COMP1SEL2/ COMP9SEL2)



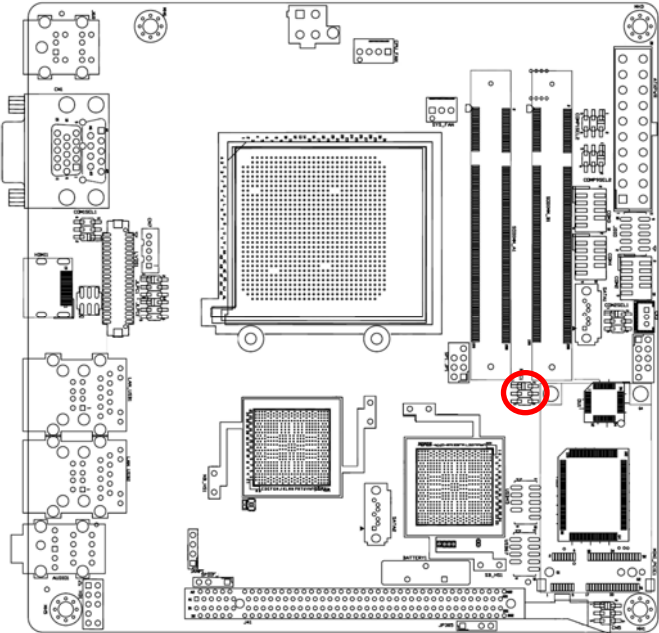
\*Default

2.3.3 Case open (JP305)

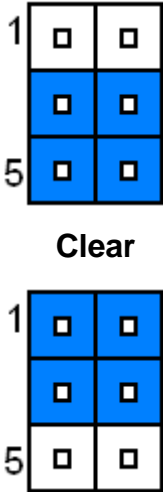


\*Default

2.3.4 Clear password & CMOS select (RTC1)



Password & CMOS\*

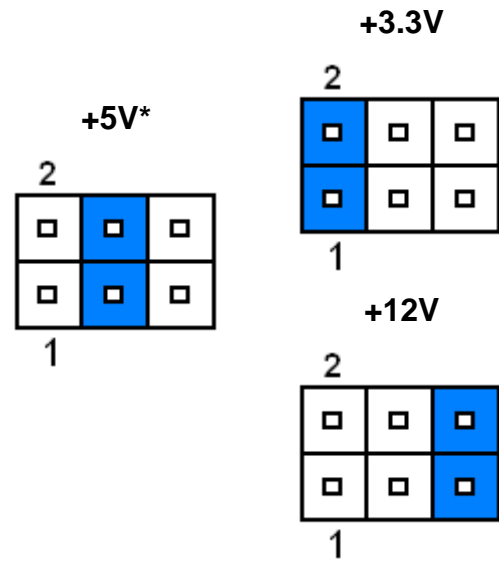
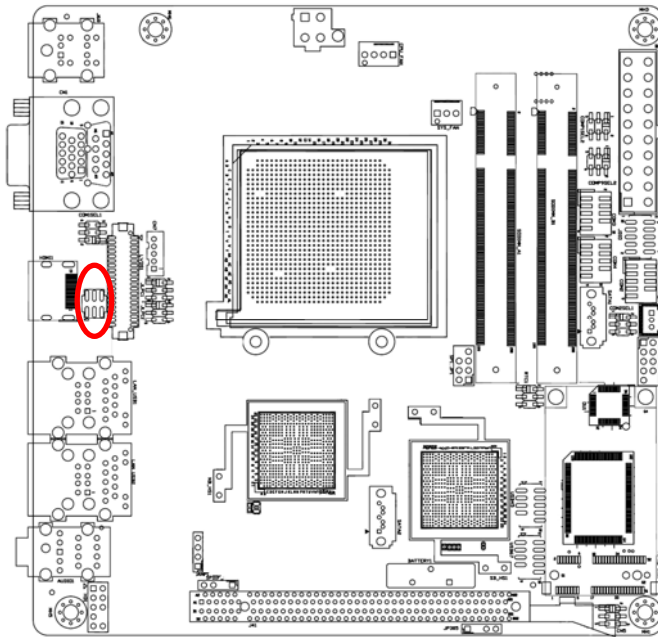


\*Default

Clear password & CMOS		
	Clear PW	Clear CMOS
Default	3-5	4-6
Clear	1-3	2-4

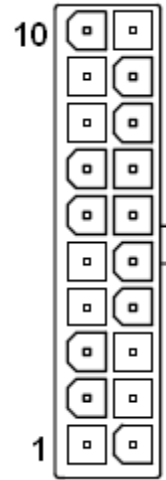
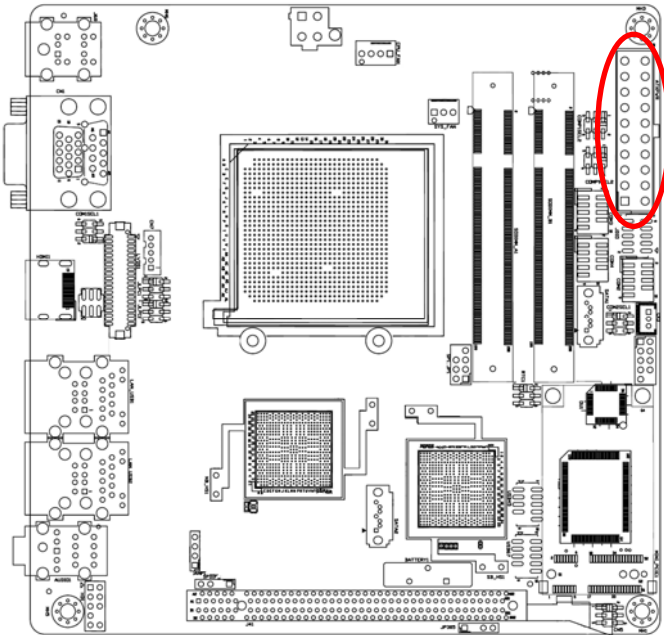
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## 2.3.5 LVDS power select (CN6)



\*Default

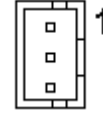
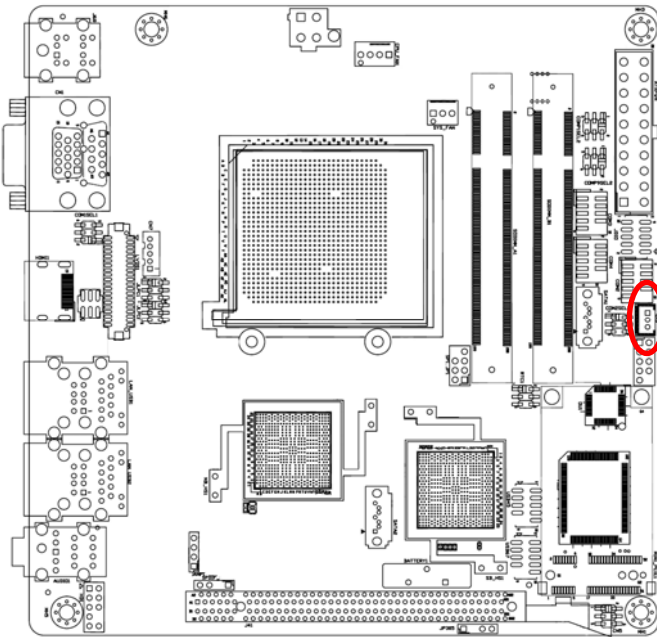
2.3.6 ATX power supply connector (ATXPWR)



Signal	PIN	PIN	Signal
+12V	10	20	+5V
5VSB	9	19	+5V
POK	8	18	-5V
GND	7	17	GND
+5V	6	16	GND
GND	5	15	GND
+5V	4	14	PSON
GND	3	13	GND
+3.3V	2	12	-12V
+3.3V	1	11	+3.3V

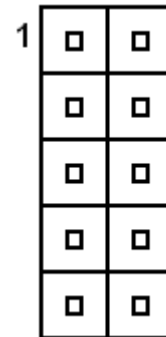
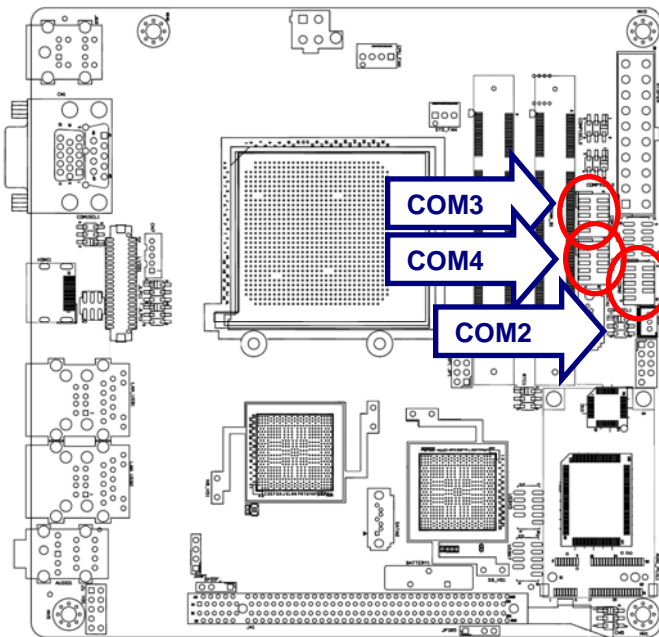
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## 2.3.7 SMB CLK & SMB DATA connector (CN3)



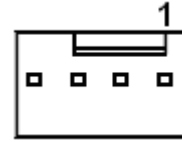
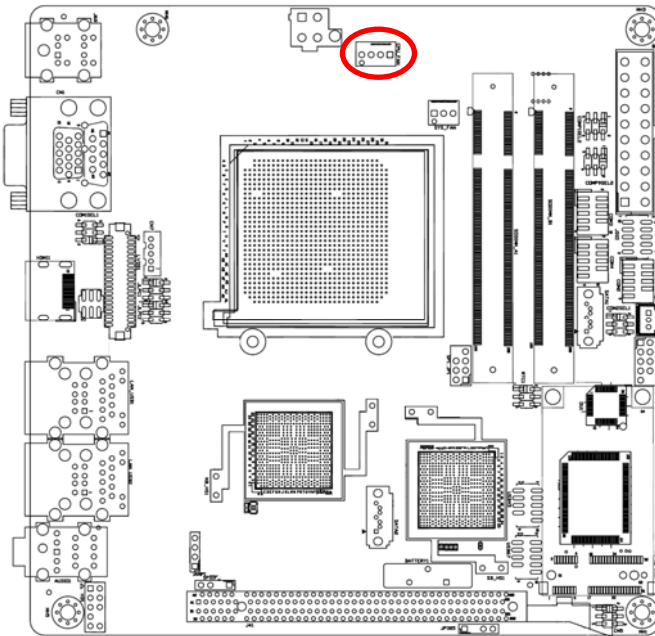
PIN	Signal
1	SMBCLK_PCI
2	SMBDATA_PCI
3	GND

## 2.3.8 Serial port 2/ 3/ 4 connector (COM2/ COM3/ COM4)



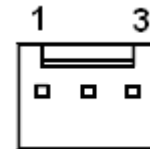
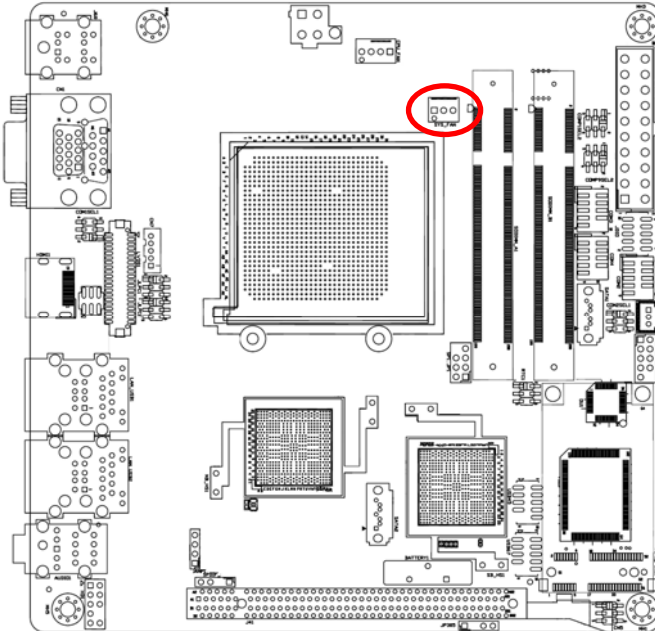
Signal	PIN	PIN	Signal
DCD	1	2	RxD
TxD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

### 2.3.9 CPU Fan (CPU\_FAN)



PIN	Signal
1	GND
2	+12V
3	CFAN_TACH
4	NC

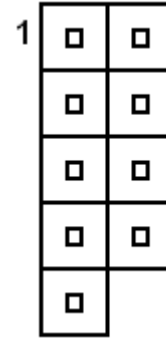
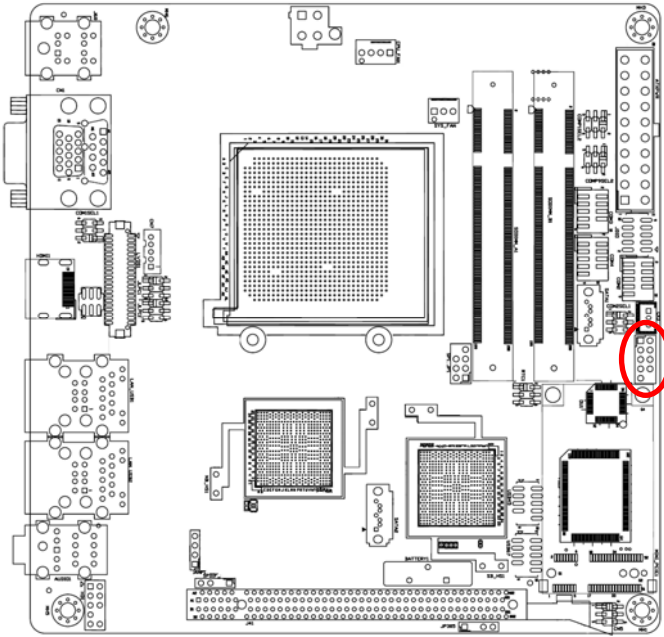
### 2.3.10 System Fan (SYS\_FAN)



PIN	Signal
1	FFAN_TACH
2	+12V
3	GND

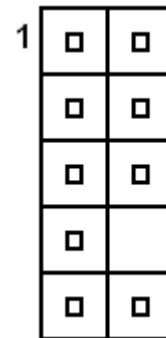
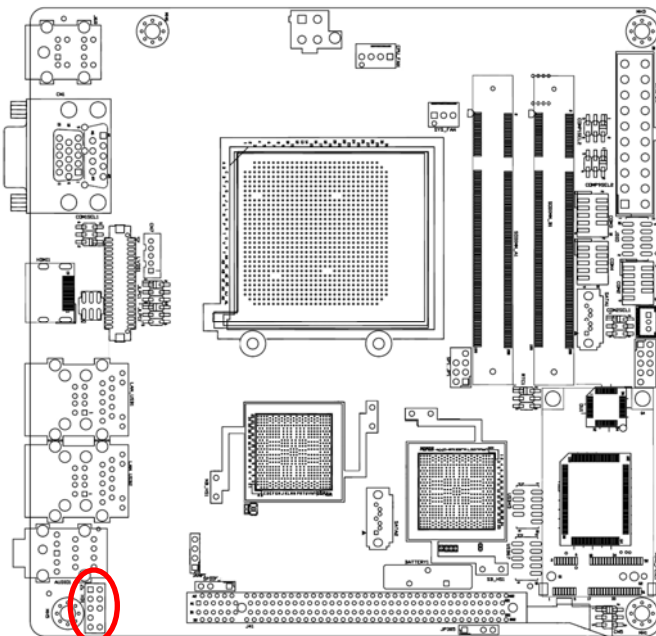
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## 2.3.11 System panel connector (F\_PANEL)



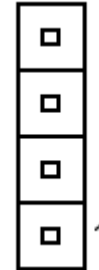
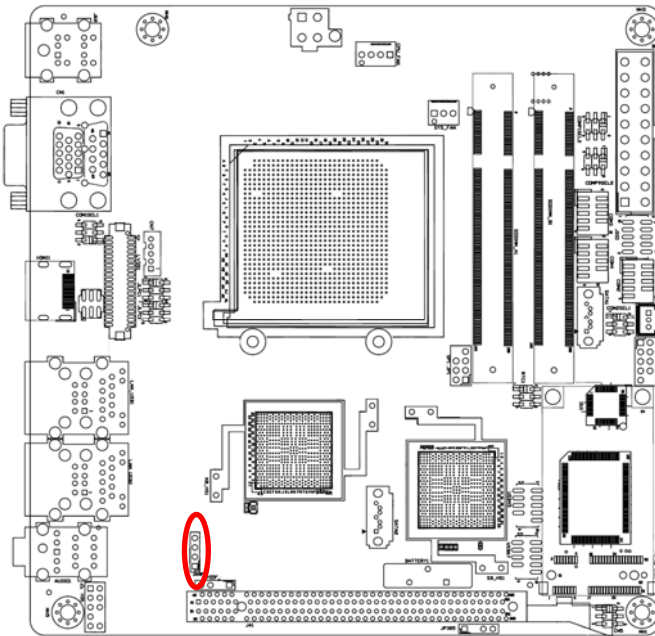
Signal	PIN	PIN	Signal
HDLED+	1	2	FP_LED+
HDLED-	3	4	FP_LED-
GND	5	6	PWRBTN
RESET	7	8	GND
NC	9		

## 2.3.12 Audio header connector (HD1)



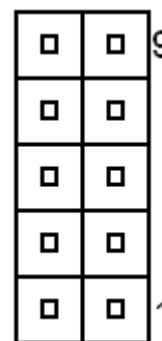
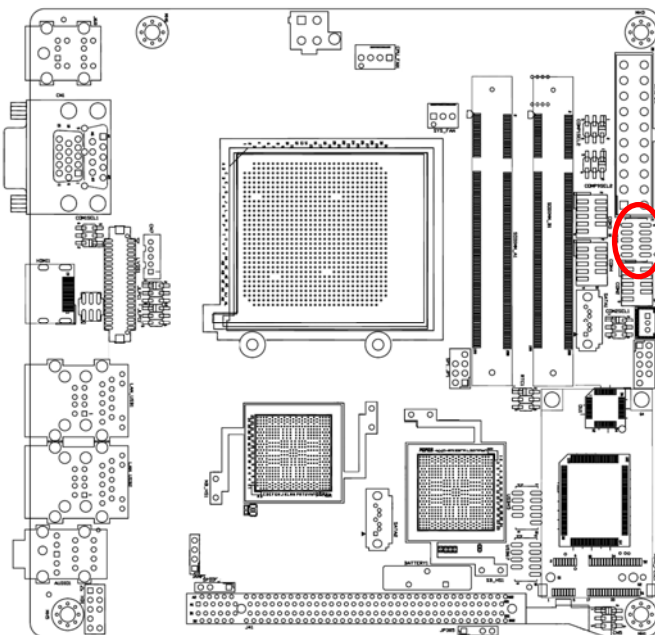
Signal	PIN	PIN	Signal
APOINT_F_L	1	2	GND
APOINT_F_R	3	4	+3.3V
APOINT_E_R	5	6	GND
FRONT-IO-SENSE	7		
APOINT_E_L	9	10	GND

### 2.3.13 Amplifier connector (JAMP1)



PIN	Signal
4	AMP_R+
3	AMP_R-
2	AMP_L+
1	AMP_L-

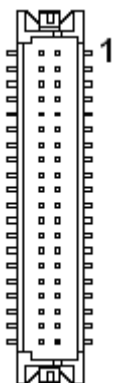
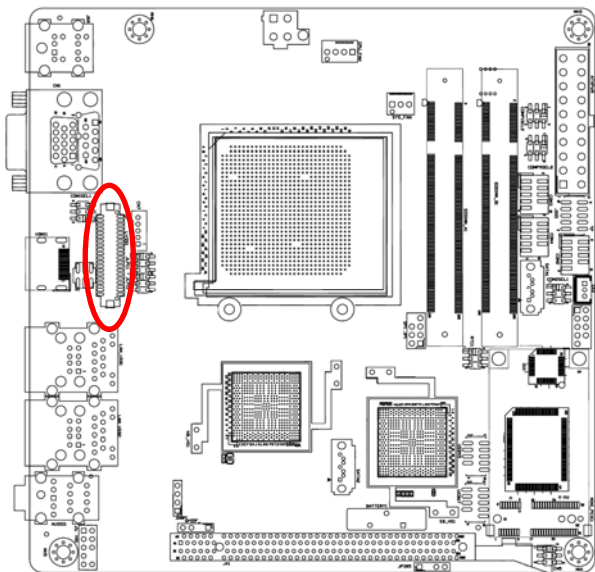
### 2.3.14 General purpose I/O connector (JDIO)



Signal	PIN	PIN	Signal
+5V	10	9	GND
DIO7	8	7	DIO3
DIO6	6	5	DIO2
DIO5	4	3	DIO1
DIO4	2	1	DIO0

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## 2.3.15 LVDS connector (LVDS1)



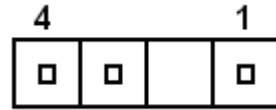
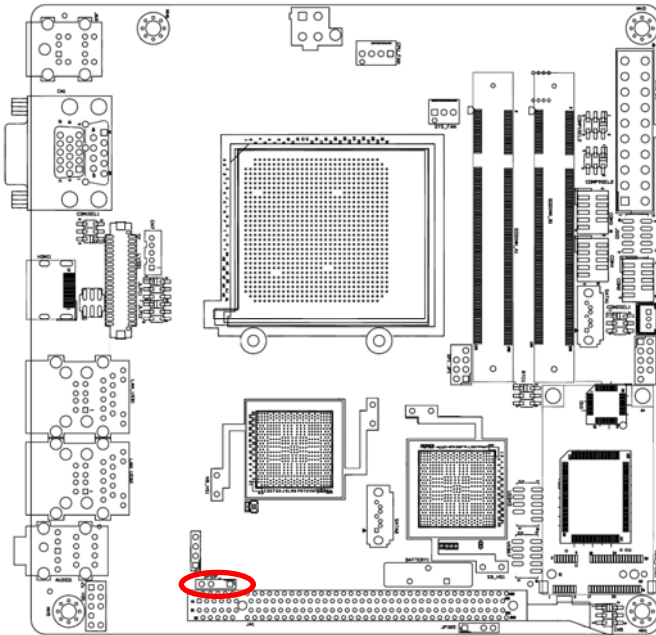
Signal	PIN	PIN	Signal
LVDS_Power	2	1	LVDS_Power
GND	4	3	GND
LVDS_Power	6	5	LVDS_Power
LVDS1_OUTD 0-	8	7	LVDS0_OUTD0-
LVDS1_OUTD0+	10	9	LVDS0_OUTD0+
GND	12	11	GND
LVDS1_OUTD1-	14	13	LVDS0_OUTD1-
LVDS1_OUTD1+	16	15	LVDS0_OUTD1+
GND	18	17	GND
LVDS1_OUTD2-	20	19	LVDS0_OUTD2-
LVDS1_OUTD2+	22	21	LVDS0_OUTD2+
GND	24	23	GND
LVDS1_OUTD CLK-	26	25	LVDS0_OUTD CLK-
LVDS1_OUTDCLK+	28	27	LVDS0_OUTDCLK+
GND	30	29	GND
I2C_DATA	32	31	I2C_CLK
GND	34	33	GND
LVDS1_OUTD3-	36	35	LVDS0_OUTD3-
LVDS1_OUTD3+	38	37	LVDS0_OUTD3+
GND	40	39	NC



**NOTE:**

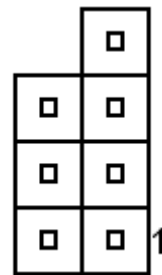
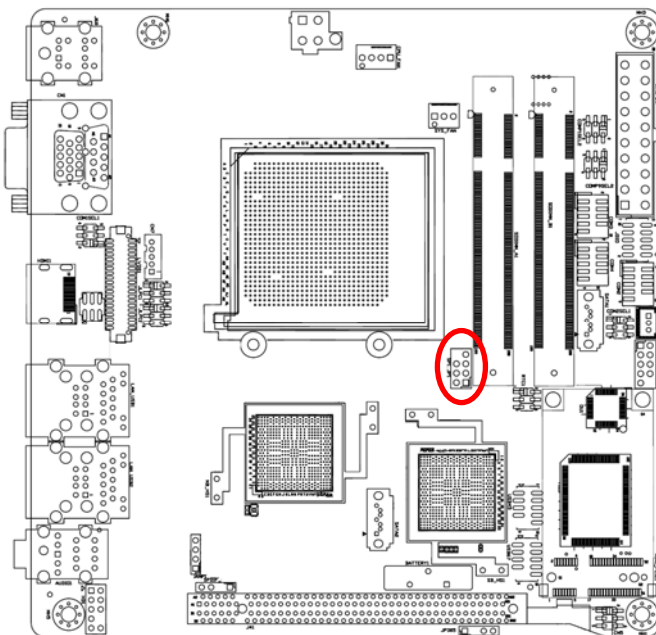
Pin1/ 2/ 5/ 6 are selected by CN6.  
Please refer to section 2.3.5 for more information.

2.3.16 SPDIF out connector (SPDIF\_OUT1)



PIN	Signal
1	+5V
3	SPDIF_O
4	GND

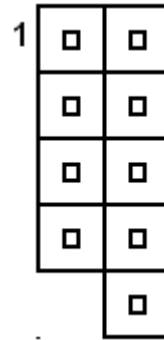
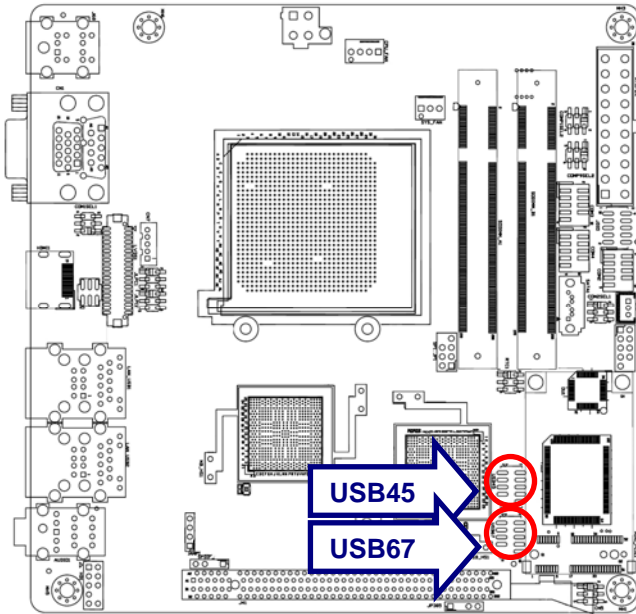
2.3.17 SPI BIOS ROM out connector (SPI\_JP1)



Signal	PIN	PIN	Signal
		7	SPI_HOLD#
SPI_MOSI	6	5	SPI_MISO
SPI_CLK	4	3	SPI_CS#
GND	2	1	+3.3V

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## 2.3.18 USB connector 4&5/ 6&7 (USB45/ USB67)



Signal	PIN	PIN	Signal
+5V	1	2	+5V
P5-/ P7-	3	4	P4-/ P6-
P5+/ P7+	5	6	P4+/ P6+
GND	7	8	GND
		10	NC



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