

**ATX motherboard supports 22nm LGA 1150 Intel® 4th generation
Core™ i7/i5/i3, Pentium® and Celeron® H81, DDR3,
VGA/DVI-D/iDP, Dual Intel® PCIe GbE, USB3.0,
SATA 6Gb/s, HD Audio and RoHS**

IMBA-H810

Quick Installation Guide **Version 1.0**

Mar 06, 2015.

Package List

IMBA-H810 package includes the following items:

- 1 x IMBA-H810-R10 Single board computer
- 1 x I/O shielding (P/N: 45014-0008C0-00-RS)
- 2 x SATA cable (P/N: 32000-062800-RS)
- 1 x One Key Recovery CD
- 1 x QIG
- 1 x Utility CD



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Specifications

- CPU:
LGA1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® processor supported
- Chipset: Intel® H81
- Memory:
Two 240-pin 1333/1600 MHz Dual-Channel DDR3 SDRAM Unbuffered DIMM supported (system max. 16GB)
- BIOS: UEFI BIOS
- Graphic Engine:
Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2 Full MPEG2, VC1, AVC Decode
- Display Output:
VGA (up to 1920x1200 @ 60 Hz)
DVI-D
iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160 @60 Hz)
- Ethernet:
LAN1: Intel® I217-LM
LAN2: Intel® I211-AT PCIe Controller
- External I/O Interface:
1 x PS/2
2 x RS-232
2 x USB 2.0
2 x USB 3.0
- Internal I/O Interface:
1 x IR (1x5 pin)
1 x KB/MS (1x6 pin)
1 x LPT (2x13 pin)
1 x mSATA (share with SATA4)
3 x RS-232 (2x5 pin, P=2.54)
1 x RS-422/485 (1x4 pin, P=2.0)

- 1 x USB 2.0 (180 degree type A)
- 4 x USB 2.0 (2x4 pin, P=2.54)
- 2 x SATA 3Gb/s (SATA3, SATA4) (Red)
- 2 x SATA 6Gb/s (SATA1, SATA2) (H81 supports AHCI, no RAID) (Blue)
- Audio:
 - Support 5.1 channel HD audio by ALC662 (2x5 pin)
- Front Panel:
 - 1 x Front panel (2x7 pin, Power LED, HDD LED, Speaker, Power Button, Reset Button)
- LEN LED: 2 x LAN LED (1x2 pin)
- TPM: 1 x TPM (2x10 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Expansion:
 - 1 x PCIe x16
 - 2 x PCIe x1
 - 4 x PCI
 - 1 x PCIe mini
- Watchdog Timer:
 - Software programmable support 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector:
 - 1 x CPU smart fan (1x 4 pin)
 - 2 x System smart fan (2x 3 pin)
- Chassis Open: 1 x 2 pin
- Power supply: AT/ATX
- Power Consumption:
 - 3.3V@0.83A, 5V@2.2A, 12V@3.88A, 5VSB@0.3A
 - (Intel® Core™ i7-4770K 3.90GHz CPU with 8GB (2x4 GB) 1333MHz DDR3 memory)
- Operation Temperature: -20°C ~ 60°C

- Operation Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244mm x 305mm

Ordering Information

- **IMBA-H810:**
ATX motherboard supports 22nm LGA 1150 Intel® 4th generation Core™ i7/i5/i3, Pentium® and Celeron® H81, DDR3, VGA/DVI-D/ iDP, Dual Intel® PCIe GbE, USB3.0, SATA 6Gb/s, HD Audio and RoHS
- **19800-000049-RS:** LPT cable
- **19800-000051-RS:** RS-232 cable, 230mm (P=2.54)
- **19800-000075-RS:** PS/2 KB/MS Y-cable with bracket, 220mm
- **19800-010500-100-RS:** USB 3.0 cable 457mm with bracket
- **32102-000100-200-RS:**
SATA power cable, MOLEX 5264-4P to SATA15P
- **32205-001203-100-RS:** RS-232 cable, 40-pin to four DB-9
- **32205-003800-100-RS:** RS-422/485 cable, 200mm
- **DP-LVDS-R10:**
DisplayPort to 24 bit dual channel LVDS converter board
(For iEi IDP connector)
- **DP-HDMI-R10:**
DisplayPort to HDMI converter board (For iEi IDP connector)
- **DP-DVI-R10:**
DisplayPort to DVI-D converter board (For iEi IDP connector)
- **DP-VGA-R10:**
DisplayPort to VGA converter board (For iEi IDP connector)
- **DP-DP-R10:**
DisplayPort to DisplayPort converter board (For iEi IDP connector)
- **CF-1156A-RS-R11:**
High performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W

- **CF-1156E-R11:**
High performance LGA1155/LGA1156 cooler kit, 95W
- **TPM-IN01-R11:** 20-Pin Infineon TPM module, software management tool, firmware V3.17

Jumpers setting and connectors

LABEL	FUNCTION
J_ATX_AT1	AT/ATX mode select switch
J_CMOS1	Clear CMOS button
PCIEX16 Power	PCIEX16 Power Setting
USB SW1, USB SW2	USB power setting
J_FLASH1	Flash Descriptor Security Override
MSATA_SW1	MSATA Selection
F_PANEL1	PWR & RST Buttons and indicators
VIDEO1	VGA 15-pin Female Connector
VIDEO1	DVI-D Connector
LAN1_USB1	RJ-45 LAN and USB 3.0 Connector
LAN2_USB2	RJ-45 LAN and USB 2.0 Connector
K/M_USB1	Keyboard & Mouse And USB 2.0 Connector
KBMS1	6 Pin-header Keyboard & Mouse Connector
USB1, USB2	Internal USB 2.0 Connectors
COM1, COM2	External Serial Port DB-9 Connector
COM3, COM5, COM6	Internal Serial Port Connectors
COM4	Internal Serial Port RS-422/RS-485 Connector
AUDIO_CV1	HD Audio Connector
FRONT_PANEL1	Front Panel Audio Connector
SATA1, SATA2	Serial ATA 3.0 Connectors
SATA3, SATA4	Serial ATA 2.0 Connectors
CN2	Mini Card Connector (M-SATA Only)
CPU_FAN1	CPU Fan Connector
SYS_FAN1, SYS_FAN2	System Fan Connectors
DIO1	Digital I/O Connector
ATX1	24-Pin ATX Power Source Connector
CPU12V1	+12V Power Source Connector
ATXPWR1	Additional Power Source Connector
TPM1	TPM Connector
CN1	SMBUS Connector
CN5	I2C Connector

LPT1	Internal Parallel Port Connector
LED_LAN1	LAN1 LINK LED Connector
LED_LAN2	LAN2 LINK LED Connector
CHASSIS1	Chassis Status Connector
JSPI1	Flash SPI ROM
JSPI2	Flash EC ROM
CN3	EC Debug Port Connector
DP1	Display Port Connector

J_ATX_AT1: AT/ATX mode select switch	
PIN NO.	DESCRIPTION
Short 1 - 2	ATX Mode (default)
Short 2 - 3	AT Mode

J_CMOS1: Clear CMOS button	
PIN NO.	DESCRIPTION
NC (default)	Keep CMOS Setup (Normal Operation)
Press button	Clear CMOS Setup

PCIEX16 Power: PCIEX16 channel mode setting	
PCIEX16	DESCRIPTION
1 x16 PCIe (default)	(Normal Operation)

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Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
  Chipset
Auto Power Button Status          [Disabled(ATX)]
Restore AC Power Loss              [Last State]
> PCI Express Configuration
> PCI Azalia Configuration
Power Saving Function(ERP)         [Disabled]
PCIEX16 Power                      [1 x16 PCIe]
USB SW1                            [+5V DUAL]
USB SW2                            [+5V DUAL]
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

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USB SW1, USB SW2: USB power setting	
USB SW1	DESCRIPTION
+5V DUAL	Normal Operation (default)
+5V	

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.		
Chipset		
Auto Power Button Status	[Disabled(ATX)]	
Restore AC Power Loss	[Last State]	-----
> PCI Express Configuration		
> PCI Azalia Configuration		
Power Saving Function(ERP)	[Disabled]	
PCIEX16 Power	[1 x16 PCIE]	
USB SW1	[+5V DUAL]	
USB SW2	[+5V DUAL]	
Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.		

J_FLASH1: Flash descriptor security override	
PIN NO.	DESCRIPTION
Short 1 - 2	Disabled (default)
Short 2 - 3	Enabled

MSATA_SW1: MSATA Selection	
PIN NO.	DESCRIPTION
OFF	Auto detect M-SATA (default)
Short 1 - 2	M-SATA Enable

F_PANEL1: PWR & RST buttons and indicators					
	PIN	DESCRIPTION	PIN	DESCRIPTION	
PWR LED	1	+5V	2	BEEP_PWR	SPKR
	3	NC	4	IPMI ID_LED+	IPMI LED
	5	GND	6	IPMI ID_LED-	
PWR BTN	7	PWRBTN_SW#	8	PC_BEEP	SPKR
	9	GND	10	NC	
HDD LED	11	+5V	12	EXTRST-	RESET
	13	SATA_LED#	14	GND	

VIDEO1 : 15-pin Female Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
V1	RED	V2	GREEN
V3	BLUE	V4	NC
V5	GND	V6	GND
V7	GND	V8	GND
V9	VCC	V10	GND
V11	NC	V12	DDCDA
V13	HSYNC	V14	VSYNC
V15	DDCCLK		

VIDEO1: DVI-I(Dual Link)+CRT			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
C1	RED	10	DVI_DATA1
C2	GREEN	11	GND
C3	BLUE	12	N/C
C4	HS	13	N/C
C5	GND	14	+5V
C6	NC	15	Hot Plug Detect
1	DVI_DATA2#	16	HPDET
2	DVI_DATA2	17	DVI_DATA0#
3	GND	18	DVI_DATA0
4	N/C	19	GND
5	N/C	20	N/C
6	DDC CLK	21	N/C
7	DDC DATA	22	N/C
8	VS	23	DVI_CLK
9	DVI_DATA1#	24	DVI_CLK#

LAN1_USB1: Ethernet and USB 3.0 connectors			
USB1: External USB 3.0 connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	10	VCC
2	USB_DATA-	11	USB_DATA-
3	USB_DATA+	12	USB_DATA+
4	GND	13	GND
5	USB3_RX-	14	USB3_RX-
6	USB3_RX+	15	USB3_RX+
7	GND	16	GND
8	USB3_TX-	17	USB3_TX-
9	USB3_TX+	18	USB3_TX+
LAN1: RJ-45 LAN connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
20	LAN1_MDI0P	24	LAN1_MDI2P
21	LAN1_MDI0N	25	LAN1_MDI2N
22	LAN1_MDI1P	26	LAN1_MDI3P
23	LAN1_MDI1N	27	LAN1_MDI3N

LAN2_USB2: Ethernet and USB 2.0 connectors			
USB2: External USB 2.0 connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	5	VCC
2	USB_DATA-	6	USB_DATA-
3	USB_DATA+	7	USB_DATA+
4	GND	8	GND
LAN2: RJ-45 LAN connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
P2	TRD2P0	P6	TRD2P2
P3	TRD2N0	P7	TRD2N2
P4	TRD2P1	P8	TRD2P3
P5.	TRD2N1	P9	TRD2N3

KBMS1: PS/2 Keyboard and mouse connector			
KBMS1 (Purple): 6-pin Mini-DIN keyboard connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Keyboard Data	2	NC
3	GND	4	VCC
5	Keyboard Clock	6	NC
KBMS1 (Green): 6-pin Mini-DIN Mouse Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
7	Mouse Data	8	NC
9	GND	10	VCC
11	Mouse Clock	12	NC

KB_MS1: 6-pin header Keyboard/Mouse Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	Mouse Data
3	Mouse Clock	4	Keyboard Data
5	Keyboard Clock	6	GND

USB1, USB2: Internal USB 2.0 connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	USB_DATA-	4	USB_DATA+
5	USB_DATA+	6	USB_DATA-
7	GND	8	VCC

COM1: External RS-232 serial port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD1	2	RXD1
3	TXD1	4	DTR1
5	GND1	6	DSR1
7	RTS1	8	CTS1
9	RI1		

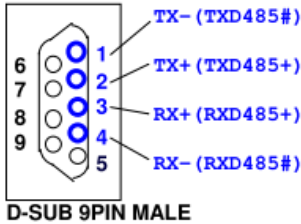
COM2: External RS-232 serial port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD2	2	RXD2
3	TXD2	4	DTR2
5	GND2	6	DSR2
7	RTS2	8	CTS2
9	RI2		

COM3, COM5, COM6: Internal RS-232 serial port connectors				
Function	PIN	DESCRIPTION	PIN	DESCRIPTION
COM3	11	DCD	12	DSR
	13	RXD	14	RST
	15	TXD	16	CTS
	17	DTR	18	RI
	19	GND	20	GND
COM5	21	DCD	22	DSR
	23	RXD	24	RST
	25	TXD	26	CTS
	27	DTR	28	RI
	29	GND	30	GND
COM6	31	DCD	32	DSR
	33	RXD	34	RST
	35	TXD	36	CTS
	37	DTR	38	RI
	39	GND	40	GND

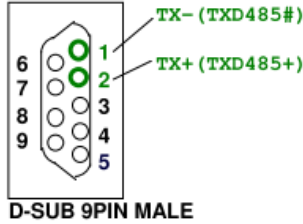
AUDIO_CV1 : Audio Line-In/Out MIC Connector	
PIN NO.	DESCRIPTION
Line_In (Blue)	CD/DVD or other audio source input port
Line_Out (Green)	Connect this port to headphone or speaker
Microphone (Pink)	Connect this port to microphone

COM4: RS-422/485 serial port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RXD485#	2	RXD485+
3	TXD485+	4	TXD485#

RS422 Pin define



RS485 Pin define



FRONT-PANEL1 : Audio Source Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MIC2-L	2	GND
3	MIC2-R	4	Presence#
5	LINE2-R	6	MIC2-JD
7	FRONT-IO	8	NC
9	LINE2-L	10	LINE2-JD

SATA1, SATA2, SATA3, SATA4: Serial ATA 3.0 connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SATA_TX+
3	SATA_TX-	4	GND
5	SATA_RX-	6	SATA RX+
7	GND	8	N/C

SATA3, SATA4: Serial ATA 2.0 connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SATA_TX+
3	SATA_TX-	4	GND
5	SATA_RX-	6	SATA RX+
7	GND	8	N/C

CN2: M-SATA card connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PCIE_WAKE#	2	+3.3V
3	N/C	4	GND
5	N/C	6	1.5V
7	N/C	8	N/C
9	GND	10	N/C
11	MSATA_CLK#	12	N/C
13	MSATA_CLK	14	N/C
15	GND	16	N/C
17	PLTRST_N	18	GND
19	N/C	20	+3.3V
21	GND	22	PLTRST_N
23	SATA_RX+	24	+3.3V
25	SATA_RX-	26	GND
27	GND	28	1.5V
29	GND	30	SMB_CLK
31	SATA_TX-	32	SMB_DATA
33	SATA_TX+	34	GND
35	GND	36	USB_DATA-
37	GND	38	USB_DATA+
39	+3.3V	40	GND
41	+3.3V	42	N/C
43	+3.3V	44	N/C
45	CLINK_CLK	46	N/C
47	CLINK_DATA	48	1.5V
49	CLINK_RST#	50	GND
51	MSATA_DET	52	+3.3V

CPU_FAN1: CPU fan connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+12V
3	FANIO	4	PWM

SYS_FAN1, SYS_FAN2: System fan connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	FANIO	2	+12V (PWM)
3	GND		

DIO1 : Digital Input / Output Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC
3	Output 3	4	Output 2
5	Output 1	6	Output 0
7	Input 3	8	Input 2
9	Input 1	10	Input 0

ATX1: 24-pin ATX power source connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power good	20	-5V
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

CPU12V1: +12V power source connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	+12V	4	+12V

ATXPWR1: Additional Power Source Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+12V	2	GND
3	GND	4	VCC

TPM1: Trusted Platform Module Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LCLK	2	GND
3	LFRAME#	4	KEY
5	LRERST#	6	+5V
7	LAD3	8	LAD2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	SCL	14	SDA
15	SB3V	16	SERIRQ
17	GND	18	GLKRUN#
19	LPCPD#	20	LDRQ#

CN1: SMBUS connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SMB_DATA
3	SMB_CLK	4	+5V

CN5: I2C connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	PCH_GP38
3	PCH_GP39	4	+5V

LPT1: Parallel Port Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	STROBE#	14	AUTO FORM FEED #
2	DATA0	15	ERROR#
3	DATA1	16	INITIALIZE#
4	DATA2	17	PRINTER SELECT LN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACKNOWLEDGE#	23	GND
11	BUSY	24	GND
12	PAPER EMPTY	25	GND
13	PRINTER SELECT		

LED_LAN1: LAN Link LED Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	+3.3V	2	LAN1_LED_LNK#_ACT

LED_LAN2: LAN Link LED Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	+3.3V	2	LAN2_LED_LNK#_ACT

CHASSIS1: Chassis Status Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	+3.3VSB	2	CHASSIS OPEN

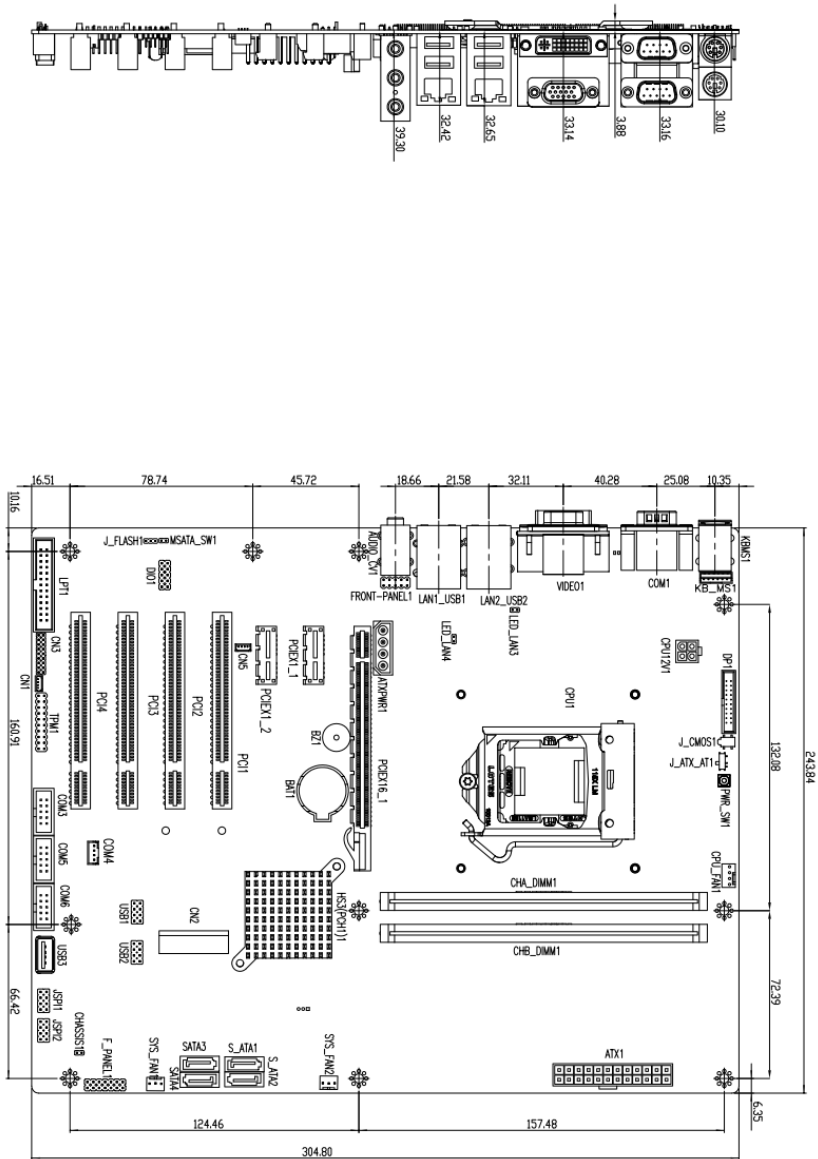
JSPI1: Flash SPI ROM connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	2	SPI_CS#
3	SPI_SO	4	NC
5	GND	6	SPI_CLK
7	SPI_SI	8	NC

JSPI2: Flash EC ROM connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	2	SPI_CS#
3	SPI_SO	4	NC
5	GND	6	SPI_CLK
7	SPI_SI	8	NC

CN3: EC debug connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	EC_EPP_STB#	2	EC_EPP_AFD#
3	EC_EPP_PD0	4	NC
5	EC_EPP_PD1	6	EC_EPP_INIT#
7	EC_EPP_PD2	8	EC_EPP_SLIN#
9	EC_EPP_PD3	10	GND
11	EC_EPP_PD4	12	NC
13	EC_EPP_PD5	14	EC_EPP_BUSY
15	EC_EPP_PD6	16	EC_EPP_KSI5
17	EC_EPP_PD7	18	EC_EPP_KSI4

DP1: Display port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	11	AUXP
2	LANE1N	12	AUXN
3	LANE1P	13	GND
4	GND	14	LANE2P
5	LANE3N	15	LANE2N
6	LANE3P	16	GND
7	GND	17	LANE0P
8	AUX_CTRL_DET_D	18	LANE0N
9	GND	19	+3.3V
10	HPD		

Board Layout: Jumper and Connector Locations



(Unit: mm)