

ATX motherboard supports 14nm LGA1151 6th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor, DDR4, dual independent display via VGA and HDMI, dual Intel® GbE LAN, USB 3.1 Gen 1, SATA 6Gb/s, HD Audio and RoHS

IMBA-H112

Quick Installation Guide **Version 1.0**

October 21, 2019.

Package List

IMBA-H112 package includes the following items:

- 1 x IMBA-H112 single board computer
- 1 x I/O shielding
- 2 x SATA cable
- 1 x QIG



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Specifications

- CPU:
LGA1151 socket supports 6th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor
- System Chipset: Intel® H110
- Memory:
Two 288-pin 2133MHz dual-channel DDR4 SDRAM un-buffered DIMM slots (system max. 64 GB)
- BIOS: AMI UEFI BIOS
- Graphics Engine:
Intel® HD Graphics Gen 9 engine with 16 low-power execution units supports DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
- Display Output:
Dual independent display
1 x VGA
1 x HDMI
1 x iDP
- Ethernet:
LAN1: Intel® I219LM PHY
LAN2: Intel® I211 PCIe Ethernet controller
- External I/O Interface:
4 x USB 3.1 Gen 1 (5Gb/s)
2 x USB 2.0
1 x RS-232
- Internal I/O Interface:
1 x KB/MS (1x6 pin)
4 x RS-232 (2x5 pin, P=2.54)
1 x RS-232/422/485 (2x5 pin, P=2.54)
2 x USB 2.0 (via 2x4 pin, P=2.54)
1 x USB 2.0 (type A)
3 x SATA 6Gb/s (support hot plug)
1 x LPT (2x13 pin, P=2.54)

- SIO: Fintek 81866D-I
- EC: IT8528E
- Audio:
 - Realtek ALC662 HD Audio codec supports 5.1-channel (line-in, line-out, mic-in)
- Front Audio: 2x5-pin header
- Front Panel:
 - 1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Expansion:
 - 1 x PCIe x16 slot (Gen 3)
 - 1 x PCIe x4 slot
 - 4 x PCI slots
 - 1 x Full-size PCIe Mini card slot
- Watchdog Timer:
 - Software Programmable support 1~255 sec. System reset
- Fan Connector:
 - 1 x CPU smart fan (1x4 pin)
 - 2 x System smart fan (1x3 pin)
- Power supply: ATX/AT power supply
- Power Consumption: 3.3V@1.53A, 5V@2.95A, 12V@8.38A, 5VSB@3.2A (4.0 GHz Intel® Core™ i7-6700K CPU with two 8 GB 2133 MHz DDR4 memory)
- Operation Temperature: -20°C ~ 60°C
- Storage Temperature: -20°C~70°C
- Operation Humidity: 5% ~ 95%, non-condensing
- Weight (GW/NW): 1200g/700g
- EMC: Class A

All the drivers and One Key Recovery utility for the IMBA-H112 are available on IEI Resource Download Center. Type IMBA-H112 and press Enter to find all the relevant software, utilities, and documentation. To install software from the downloaded ISO file, mount the file as a virtual drive to view its content.

IEI Resource Download Center

<https://download.ieiworld.com>



Ordering Information

- **IMBA-H112-R10:**
ATX motherboard supports 14nm LGA1151 6th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor, DDR4, dual independent display via VGA and HDMI, dual Intel® GbE LAN, USB 3.1 Gen 1, SATA 6Gb/s, HD Audio and RoHS
- **32801-000703-500-RS:**
SATA power cable, MOLEX 5264-4P to SATA15P

Jumpers setting and connectors

LABEL	FUNCTION
J_ATX_AT1	AT/ATX Power Mode Setting
J_CMOS1	Clear CMOS Button
USB SW1, USB SW2	USB Power Setting
J_FLASH1	Flash Descriptor Security Override
F_PANEL1	PWR & RST Buttons and Indicators
COM1/VGA1	VGA and RS-232 Serial Port Connectors
HDMI1	HDMI Connector
DP1	Internal DisplayPort Connector
LAN1_USB1	RJ-45 LAN and USB 3.1 Gen 1 Connectors
LAN2_USB2	RJ-45 LAN and USB 3.1 Gen 1 Connectors
K/M_USB1	Keyboard & Mouse and USB 2.0 Connectors
KB_MS1	6-pin header Keyboard/Mouse Connector
USB1	Internal USB 2.0 Connector
USB2-3	Internal USB 2.0 Connector (Type A)
COM2~5	Internal RS-232 Serial Port Connectors
COM6	Internal RS-232/422/485 Serial Port Connector
AUDIO_CV1	HD Audio Connector
FRONT_PANEL1	Front Panel Audio Connector
S_ATA1, S_ATA2, S_ATA3	SATA 6Gb/s Connectors
MPCIE1	M-SATA Card Connector
CPU_FAN1	CPU Fan Connector
SYS_FAN1, SYS_FAN2	System Fan Connectors
PCIEx4_1	PCIe x4 Connector
ATX1	24-pin ATX Power Source Connector
CPU12V1	+12V Power Source Connector
ATXPWR1	PCIe Power Connector
CN1	EC Debug Port Connector
JSPI1	Flash SPI ROM Connector
JSPI2	Flash EC ROM Connector
SMB1	SMBUS Connector
I2C1	I ² C Connector (to EC)

LED_LAN1	LAN1 Link LED Connector
LED_LAN2	LAN2 Link LED Connector
CHASSIS1	Chassis Status Connector
LPT1	Parallel Port Connector

J_ATX_AT1: AT/ATX Power Mode Setting	
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

USB SW1, USB SW2: USB Power Setting	
USB SW1	DESCRIPTION
+5V DUAL	5V DUAL (default)
+5V	+5V

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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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J_FLASH1: Flash Descriptor Security Override	
PIN NO.	DESCRIPTION
Short 1 - 2	Disabled (default)
Short 2 - 3	Enabled

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	

COM1/VGA1: VGA and RS-232 Serial Port Connectors			
VGA1: 15-pin Female Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
V1	BR	V2	BG
V3	BB	V4	N/C
V5	GND	V6	GND
V7	GND	V8	GND
V9	+CRT_VCC	V10	Display_GND
V11	N/C	V12	5VDDCDA
V13	5HSYNC	V14	5VSYNC
V15	5VDDCLK		
COM1: External RS-232 Serial Port Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
C1	-NDCD1	C2	NSIN1
C3	NSOUT1	C4	-NDTR1
C5	GND	C6	-NDSR1
C7	-NRTS1	C8	-NCTS1
C9	-XRI1		

HDMI1: HDMI Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDMI_DATA2	13	N/C
2	GND	14	N/C
3	HDMI_DATA2#	15	HDMI_SCL
4	HDMI_DATA1	16	HDMI_SDA
5	GND	17	GND
6	HDMI_DATA1#	18	+5V
7	HDMI_DATA0	19	HDMI_HPD
8	GND	20	HDMI_GND
9	HDMI_DATA0#	21	HDMI_GND
10	HDMI_CLK	22	HDMI_GND
11	GND	23	HDMI_GND
12	HDMI_CLK#		

DP1 : Internal DisplayPort 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		

LAN1_USB1: Ethernet and USB 3.1 Gen 1 Connectors			
USB1: External USB 3.1 Gen 1 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

K/M_USB1: PS/2 Keyboard & Mouse and USB 2.0 Connectors			
USB1: 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
K/M: PS/2 Keyboard and Mouse Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
9	GND	10	KEYBOARD DATA
11	MOUSE DATA	12	VCC
13	KEYBOARD CLOCK	14	MOUSE CLOCK

LAN2_USB2: Ethernet and USB 3.1 Gen 1 Connectors			
USB2: External USB 3.1 Gen 1 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+
LAN2: 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

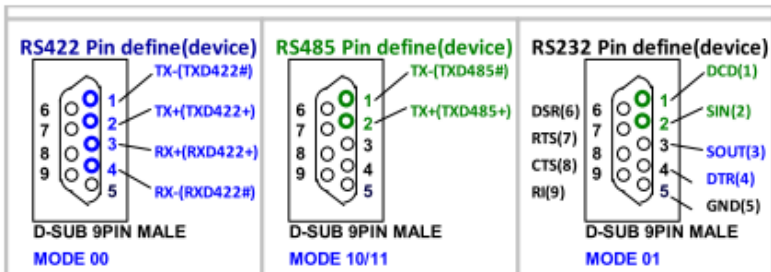
KB_MS1: 6-pin header Keyboard/Mouse Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	Mouse Data
3	Mouse Clock	4	Keyboard Data
5	Keyboard Clock	6	GND

USB1: Internal USB 2.0 Connector			
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

USB2-3: Internal USB 2.0 Connector (Type A)			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	DATA-
3	DATA+	4	GND

COM2~5: Internal RS-232 Serial Port Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RST
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND

COM6: Internal RS-232/422/485 Serial Port Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RST
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND



AUDIO_CV1: HD Audio 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

FRONT-PANEL1: Front Panel Audio Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LMIC2-L	2	AUD_GND
3	LMIC2-R	4	PRESENCE#
5	LLINE2-R	6	MIC2-JD
7	FRONT-IO	8	NC
9	LLINE2-L	10	LINE2-JD

S_ATA1, S_ATA2, S_ATA3: SATA 6Gb/s Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	5	SATA_RX-
2	SATA_TX+	6	SATA RX+
3	SATA_TX-	7	GND
4	GND	8	N/C

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 Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	FANIO	2	+12V (PWM)
3	GND		

MPCIE1: mSATA 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

PCIEx4_1: PCIe x4 Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
B1	+V12S	A1	PCIEX8_PRSNT1_N_1
B2	+V12S	A2	+V12S
B3	+V12S	A3	+V12S
B4	GND	A4	GND
B5	SMB_CLK_PCIE1	A5	@
B6	SMB_DATA_PCIE1	A6	@
B7	GND	A7	@
B8	+V3P3S	A8	@
B9	@	A9	+V3P3S
B10	+V3P3A_PCIEAUX	A10	+V3P3S
B11	@	A11	PLTRST_N
B12	@	A12	GND
B13	GND	A13	CLK_PCIE_PCI_P
B14	EXP_A_TX_0_C_DP	A14	CLK_PCIE_PCI_N
B15	EXP_A_TX_0_C_DN	A15	GND
B16	GND	A16	PCIE_RXP1
B17	PCIEX8_PRSNT1_N_1	A17	PCIE_RXN1
B18	GND	A18	GND
B19	EXP_A_TX_1_C_DP	A19	@
B20	EXP_A_TX_1_C_DN	A20	GND
B21	GND	A21	PCIE_RXP2
B22	GND	A22	PCIE_RXN2
B23	EXP_A_TX_2_C_DP	A23	GND
B24	EXP_A_TX_2_C_DN	A24	GND
B25	GND	A25	PCIE_RXP3
B26	GND	A26	PCIE_RXN3
B27	EXP_A_TX_3_C_DP	A27	GND
B28	EXP_A_TX_2_C_DN	A28	GND
B29	GND	A29	PCIE_RXP4
B30	@	A30	PCIE_RXN4
B31	PCIEX8_PRSNT1_N_1	A31	GND
B32	GND	A32	@

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: PCIe Power Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	GND
3	GND	4	+12V

CN1: EC Debug Port 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

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

SMB1: SMBUS Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SMB_DATA
3	SMB_CLK	4	+5V

I2C1: I²C Connector (to EC)			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	PCH_GP38
3	PCH_GP39	4	+5V

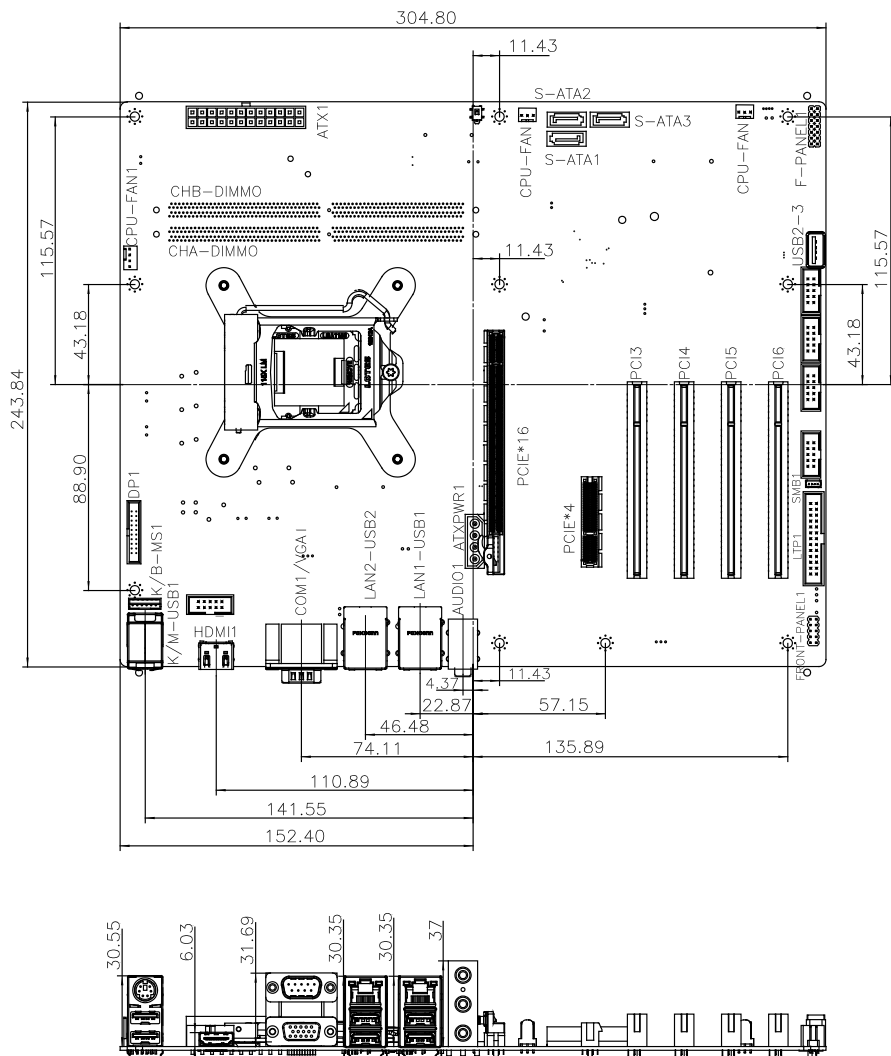
LED_LAN1: LAN Link LED Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	+3.3V	2	LAN1_LED_LNK#_ACT

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	+VRTC	2	CHASSIS OPEN

LPT1 : Parallel Port Connector			
PIN NO.	DESCRIPTION	PIN NO.	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		

Board Layout: Jumper and Connector Locations



(Unit: mm)