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# ITX-i89H0

## Mini-ITX Industrial Motherboard

### Quick Installation Guide

Version 1.1

Form Factor
<b>Mini-ITX</b>

CPU
<b>Soldered onboard 6<sup>th</sup> Generation Intel® Core™/Xeon® Processor</b>

Video
<b>HDMI/ DisplayPort</b>

I/O
<b>SATA/ USB 2.0/ USB3.0/ UART/ PCIe/ NGFF</b>

LAN
<b>Intel i219LM GbE PHY</b>

Audio
<b>Realtek® ALC662 MIC-in/ Line-out</b>

### ◆ Technical Support

If you have any technical difficulties, please consult the user's manual or contact us at:  
<https://www.arbor-technology.com/>

### ◆ Declaration of Conformity

FCC Class A

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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CE  4041890001110P

## Packing List

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



1 x ITX-i89H0 Mini-ITX industrial motherboard

1 x Cooler



1 x Driver CD



1 x Quick Installation Guide

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

## Ordering Information

ITX-i89H0-A-6100E	Intel® Core™ Processor i3-6100E/CM236 PCH Mini-ITX motherboard
ITX-i89H0 (BTO)	Intel® Xeon® Processor E3-1505L/CM236 PCH Mini-ITX motherboard
CBK-06-89H0	2 x SATA cables 1 x SATA Power cable 1 x COM cable 1 x USB cable 1 x USB 3.0 cable

## The Installation Paths of CD Driver

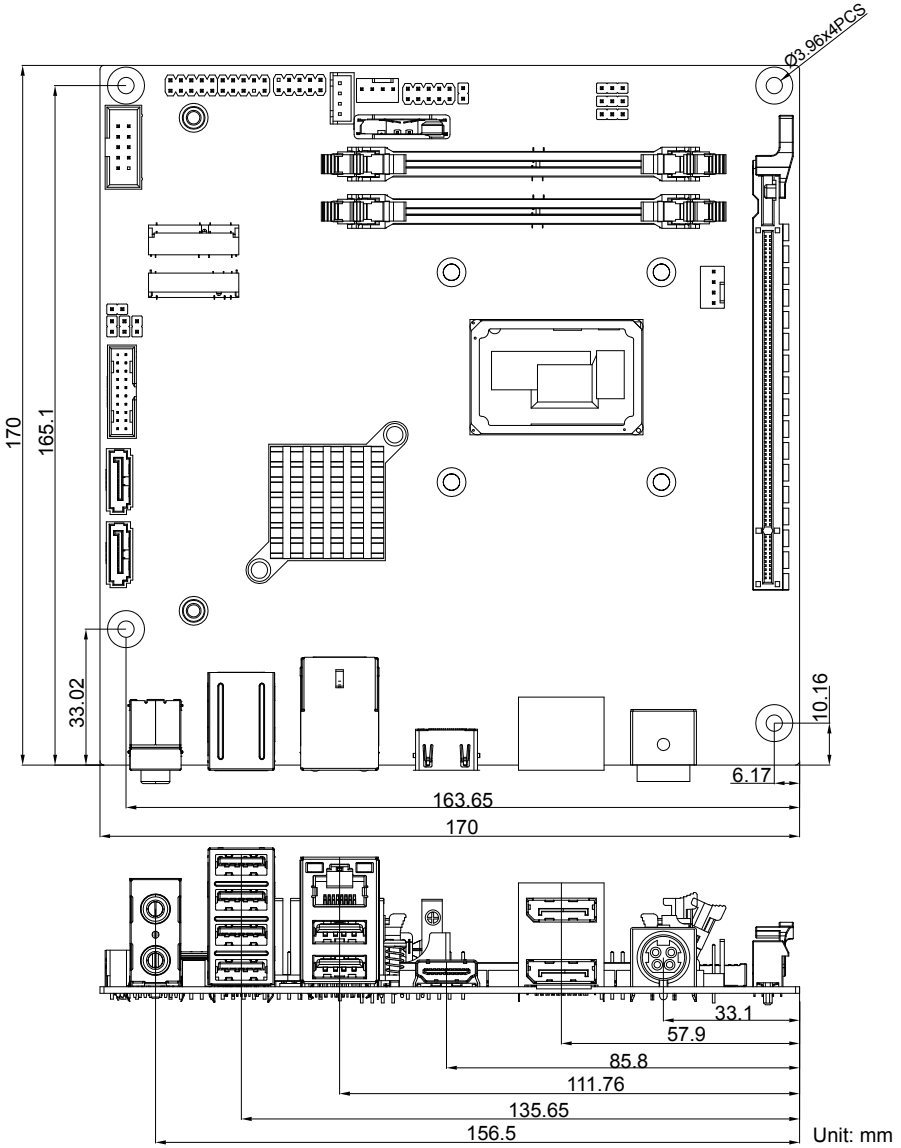
### Windows 8.1&10 (64-bit)

Driver	Path
CHIPSET	\\i89X\Chipset\Chipset_10.1.1.13_Public
GRAPHIC	\\i89X\Graphic\IntelR Graphics Driver Production Version 15.40.16.64.4364
ETHERNET	\\i89X\Ethernet
AUDIO	\\i89X\Audio\7687_PG436_Win10_Win8.1_Win8_Win7_WHQLx64
ME	\\i89X\ME\Intel(R)_ME_11.0_Corporate_11.0.0.1202
USB3.0	\\i89X\USB3.0\win8.1 64bit\Intel_USB_3.0_xHC_Adaptation_Driver_MR1_Release_1.0.1.45_PV
RAID	\\i89X\RAID\Intel Rapid Storage Technology Driver 14.8.0.1042

## Specifications

Form Factor	Mini-ITX industrial motherboard
Processor	Soldered onboard Intel® Core™ i3-6100E Dual-core 2.7GHz (Base)
	Intel® Xeon® Processor E3-1505L V5 Quad-core 2.0GHz (Base) / 2.8GHz (Turbo)
	Intel® Xeon® Processor E3-1515M V5 Quad-core 2.8GHz (Base) / 3.7GHz (Turbo)(Optional)
Chipset	Intel® CM236
Memory	2 x DDR4 SO-DIMM sockets w/ ECC, supporting up to 32GB SDRAM
BIOS	AMI BIOS
Super I/O	Nuvoton NCT6776D
Serial Port	1 x UART connector
Keyboard & Mouse	USB interface Keyboard/ Mouse
USB 2.0	4 x USB 2.0 ports
USB 3.0/2.0	6 x USB 3.0/2.0 ports
Expansion	1 x PCIe x16 Gen 3.0 slot
	1 x NGFF M.2 E-Key socket for Wireless
	1 x LPC interface
Storage	2 x Serial ATA ports with 600MB/s HDD transfer rate
	1 x NGFF M.2 M-Key socket for SSD
Ethernet Chipset	1 x Intel® i219LM GbE PHY
Audio Interface	Realtek® ALC662 5.1 Channel HD Audio CODEC, Mic-in/Line-out
Graphic Chipset	Integrated Intel® HD Graphics
Graphic Interface	1 x HDMI port
	2 x DisplayPort ports
OS Support	Windows 8.1 64-bit
	Windows 10 64-bit
Power Input	DC 12V DC jack
Power Consumption	4.17A@12V (w/ E3-1505L)
Operating Temp.	-20 ~ 70°C (-4 ~ 158°F)
Operating Humidity	10 ~ 95% @ 70°C (non-condensing)
Dimension (L x W)	170 x 170 mm (6.7" x 6.7")

# Board Dimensions



# Jumpers/Connectors Quick Reference

## Jumpers

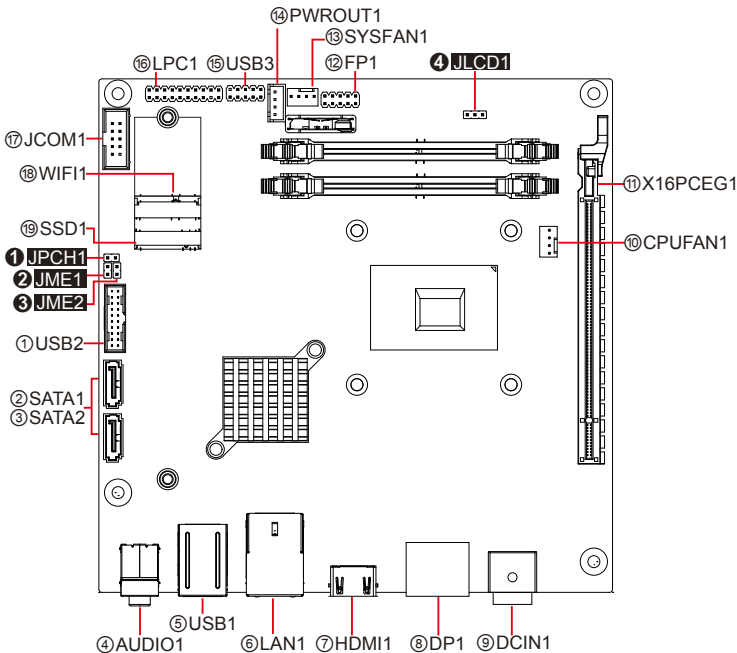
Label	Function
JPCH1	Clear CMOS Selection
JME1	ME Selection

Label	Function
JME2	SRTC Rest Selection
JLCD1	LCD Panel Voltage Selection

## Connectors

Label	Function
USB2	USB3.0/2.0 connector
SATA1~2	SATA Connectors
AUDIO1	Audio Connector
USB1	USB3.0/2.0 connector
LAN1	RJ-45 LAN and USB 2.0 Stack port
HDMI1	HDMI Connector
DP1	Displayport Connector
DCIN1	12V DC Jack



Label	Function
CPUFAN1	Fan Power Connector
X16PCEG1	PCIex16 Gen 3.0 slot
FP1	Front panel LED & audio header
SYSFAN1	FAN Connector
PWROUT1	Connector for SATA Power
USB3	USB 2.0 connector
LPC1	Low Pin Count Connector
JCOM1	UART Connector
WIFI1	M.2 E-Key Socket
SSD1	M.2 M-Key Socket



## Jumpers



### ① JPCH1: Clear CMOS Selection

Connector type: 2.54mm pitch 1×2-pin headers

Pin	Mode	
Short	Clear CMOS	
Open	Keep CMOS (default)	



### ② JME1: ME Selection

Connector type: 2.54mm pitch 1×2-pin headers

Pin	Mode	
Short	ME Disable	
Open	ME Enable (default)	



### ③ JME2: SRTC Reset Selection

Connector type: 2.54mm pitch 1×2-pin headers

Pin	Mode	
Short	Clear ME RTC	
Open	Normal (default)	

### ④ JLCD1: LCD Panel Voltage Selection

Connector type: 2.54mm pitch 1×3-pin headers

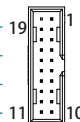
Pin	Mode	
1-2	+5V	
2-3	+3.3V (Default)	

## Connectors

### ① USB2: USB3.0/2.0 Connector

Connector Type: 2x10 pin box header

Pin Desc.	Pin Desc.
20 N/C	1 +V5S
19 +V5S	2 USB3_RXN5_C
18 USB3_RXN6_C	3 USB3_RXP5_C
17 USB3_RXP6_C	4 GND
16 GND	5 USB3_TXN5_C
15 USB3_TXN6_C	6 USB3_TXP5_C
14 USB3_TXP6_C	7 GND
13 GND	8 USBP5N
12 USBP6N	9 USBP5P
11 USBP6P	10 N/C



### ②③ SATA1~2: Serial ATA Connectors

The pin assignments conform to the industry standard.



### ④ AUDIO1: Audio Connector

Connector type: Double-stacked ø3.5mm stereo audio jacks

#### Description

Line-out

Mic-in



### ⑤ USB1: USB 3.0/2.0 Stack Connectors

Connector type: Quadruple-stacked USB connectors

The pin assignments conform to the industry standard.



### ⑥ LAN1: RJ-45 LAN and USB 2.0 Stack Connectors

Connector type: RJ-45 and double-stacked USB connectors

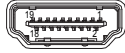
The pin assignments conform to the industry standard.



### ⑦HDMI1: HDMI Connector

Connector Type: 19-pin HDMI connector

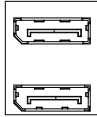
The pin assignments conform to the industry standard.



### ⑧DP1: DisplayPort Stack Connectors

Connector Type: Double-stacked DisplayPort connectors

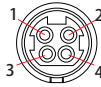
The pin assignments conform to the industry standard.



### ⑨DCIN1: DC IN Jack

Connector type: 4-pin DC in Jack

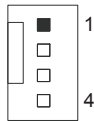
Pin Desc.	Pin Desc.
1 GND1	2 VCC1
3 GND2	4 VCC2



### ⑩⑬CPUFAN1&SYSFAN1: Fan Power Connector

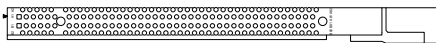
Connector Type: 2.54mm pitch 1x4-pin one-wall connector

Pin Description
1 GND
2 +12V
3 RPM
4 Control



### ⑪X16PCEG1: PCIe16 Gen 3.0 slot

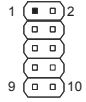
The pin assignments conform to the industry standard.



### ⑫FP1: Front panel LED & audio header

Connector Type: 2.54mm pitch 2x5-pin headers

Pin Desc.	Pin Desc.
1 HLED+	2 PLED+
3 HLED-	4 PLED-
5 RESET+	6 PSON+
7 RESET-	8 PSON-
9 +5V	10 N/C



### ⑭PWROUT1: SATA Power Connector

Connector Type: Onboard 4-pin box connector

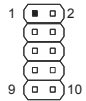
Pin Desc.
1 5V
2 GND
3 GND
4 12V



### ⑮USB3: USB 2.0 Connector

Connector Type: 2.54mm pitch 2x5-pin headers

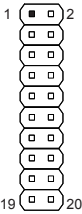
Pin Desc.	Pin Desc.
1 +5VS	2 +5VS
3 USBP7N	4 USBP8N
5 USBP7P	6 USBP8P
7 GND	8 GND
9 N/C	10 GND



### ⑯ LPC1: Low Pin Count Connector

Connector Type: 2x10-pin 2.54mm pitch male pin header

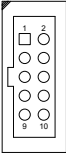
Pin Desc.	Pin Desc.
1 CLK_PC_24M	2 GND
3 L_FRAME#	4 N/C
5 PLTRST#	6 +V5S
7 L_AD3	8 L_AD2
9 +V3.3S	10 L_AD1
11 L_AD0	12 GND
13 SMBCLK_M	14 SMBDATA_M
15 +V3.3A	16 SER_IRQ
17 GND	18 TPM_CLKRUN#
19 LPCPD#_LPC	20 L_DRQ_N



### ⑰ JCOM1: UART Connector

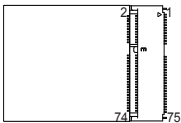
Connector Type: 2.54mm pitch 2x5 pin box header

Pin Desc.	Pin Desc.
1 N/C	6 N/C
2 RXD	7 RTS
3 TXD	8 CTS
4 N/C	9 N/C
5 GND	10 N/C



### ⑱ WIFI1: NGFF M.2 E-Key Socket

The pin assignments conform to the industry standard.



### ⑲ SSD1: NGFF M.2 M-Key Socket

The pin assignments conform to the industry standard.

