ITX-i2203

Mini-ITX Industrial Motherboard

Quick Installation Guide

Version 1.1

Form Factor	CPU	Video
Mini-ITX	***Soldered onboard Intel® Celeron 3160 Processor***	***HDMI/LVDS***

I/O	LAN	Audio
SATA/ USB 2.0/ USB3.0/ COM/ micro SIM/ NGFF	***Intel® i210AT PCIe Controllers***	***Realtek® ALC269 MIC-in/ Line-in/ Line-out with Amplifier***

BIOS ACT
Anti-Crash Technology for system BIOS recovering

♦ Technical Support

If you have any technical difficulties, please consult the user's manual first at:

http://www.arbor-technology.com

Contact our customer service at the following addresses if your problem persists.

http://www.arbor-technology.com

E-mail: info@arbor.com.tw

♦ Declaration of Conformity

FCC Class B

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.

4041220300110P

Packing List

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

1 x ITX-i2203 Mini-ITX Industrial Motherboard w/ Heatsink

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-i2203-N3160	Intel® Celeron® Processor N3160 Embedded Mini-ITX motherboard w/ ACT

Optional Accessories

CBK-04-2203-00	Cable Kit 1 x SATA and SATA power cable 1 x Keyboard/ mouse cable 1 x Audio cable 1 x USB cable

The Installation Paths of CD Driver

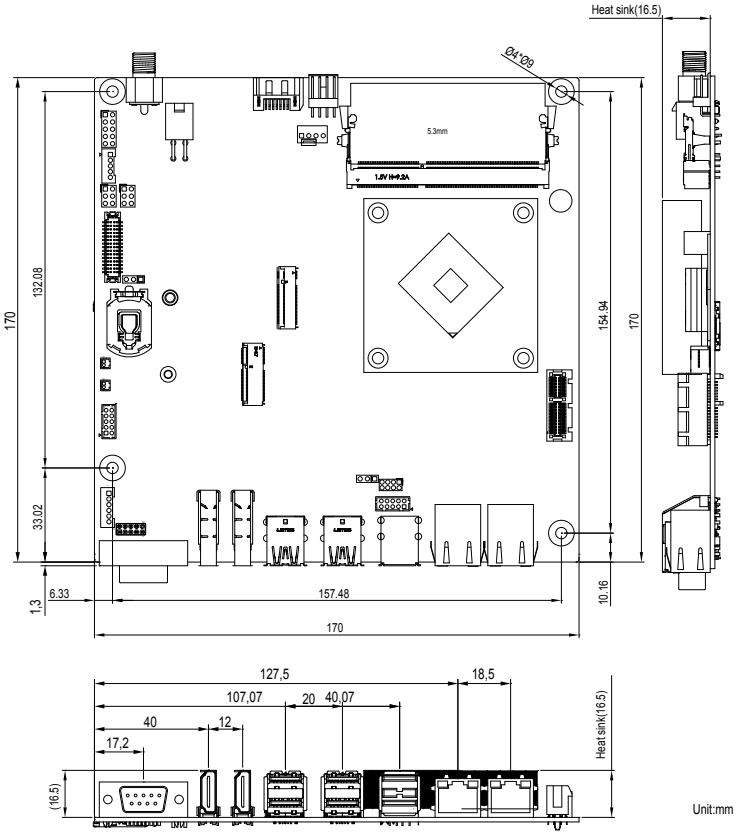
Windows 8.1

Driver	Path
CHIPSET	\i220X\Chipset\Chipset_10.1.1.11_Public
GRAPHIC	\i220X\Graphic\IntelR Graphics Driver Production Version 15.40.14.64.4352
ETHERNET	\i220X\Ethernet
AUDIO	\i220X\Audio
TXE	\i220X\TXE\win8.1\Installers
USB3.0	\i220X\USB3.0\win8.1\Intel(R) USB 3.0 eXtensible PV 1.0.0.42
SERIAL IO	\i220X\Serial IO\win8.1 64bit\SerialIO_BSW_x64

Specifications

Processor	Soldered onboard Intel® Celeron® Processor N3160 1.6GHz
Memory	1 x DDR3L SO-DIMM socket, supporting up to 8GB 1333/1600MT/s SDRAM
BIOS	AMI BIOS
Watchdog Timer	1~255 levels reset
Super I/O	Fintek F81801
Serial Port	1 x Serial Port, RS-232/422/485 selectable
Keyboard & Mouse	6-pin wafer connector for PS/2 keyboard/ mouse via Y-cable
USB 2.0	4 x USB 2.0 ports
USB 3.0/2.0	4 x USB 3.0/2.0 ports
Expansion	1 x PCIe x1 slot
	1 x NGFF M.2 E-key socket for Wireless
	1 x micro SIM socket
Storage	1 x Serial ATA port with 600MB/s HDD transfer rate
	1 x NGFF M.2 B-key socket for SSD
	Soldered onboard up to 32GB eMMC (OEM request)
Ethernet Chipset	2 x Intel® i210AT PCIe GbE controllers
Audio Interface	Realtek® ALC269 5.1 Channel HD Audio CODEC, Mic-in/ Line-in/ Line-out with Amplifier
Graphic Chipset	Integrated Intel® HD Graphics
Graphic Interface	2 x HDMI ports
	1 x Dual channels 24-bit LVDS via PTN3460BS
OS Support	Windows 8.1 64-bit
Power Input	DC 24V
Power Consumption	0.56A@+24V (max.) 0.36A@+24V (min.)
Operating Temp.	-20 ~ 70ºC (-4 ~ 158ºF)
Operating Humidity	10 ~ 95% @ 70ºC (non-condensing)
Dimension (L x W)	170 x 170 mm (6.7” x 6.7”)

Board Dimensions



Jumpers/Connectors Quick Reference

Jumpers

Label	Function
❶ JINV1	LCD Inverter Voltage Selection
❷ JLCD1	LCD Panel Voltage Selection
❸ JBAT1	Clear CMOS Selection
❹ JPIC2	AT/ATX Power Mode Selection

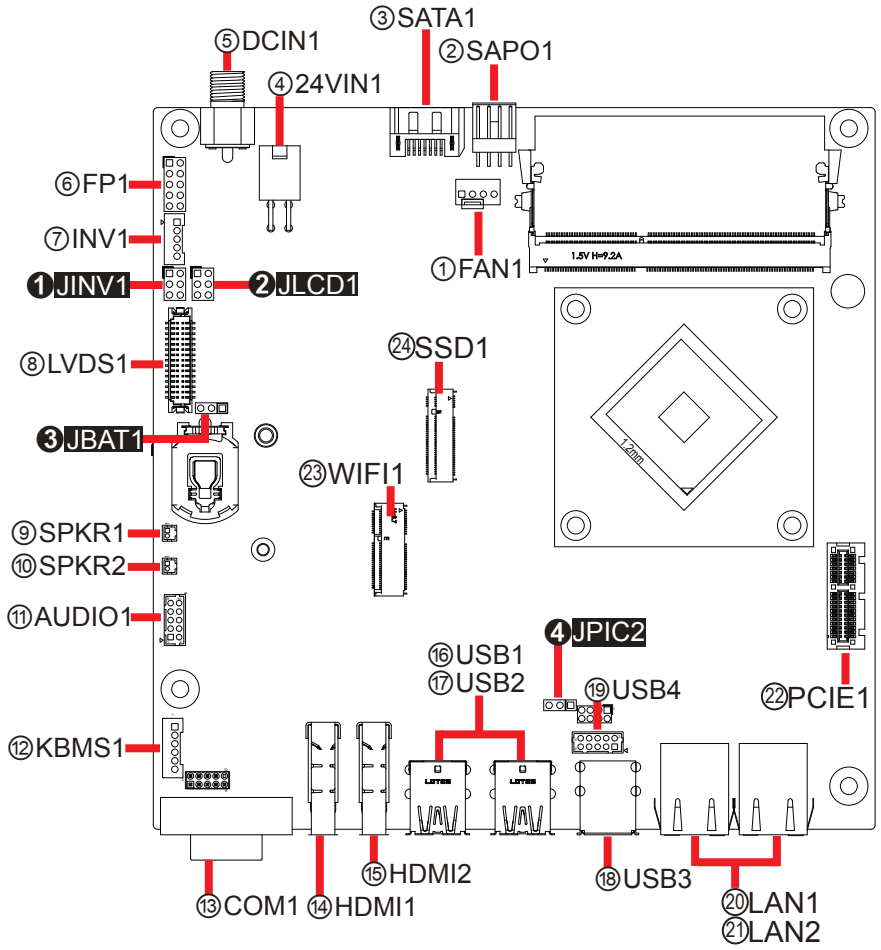
Connectors

Label	Function
①FAN1	CPU Fan Power Connector
②SAPO1	SATA Power Connector
③SATA1	SATA Connector
④24VIN1	24V DC IN Connector
⑤DCIN1	24V DC Jack
⑥FP1	Front panel switch/LED header
⑦INV1	Inverter Power Output
⑧LVDS1	LVDS Connector
⑨SPKR1	Speaker Connector
⑩SPKR2	Speaker Connector
⑪AUIDO1	Audio Connector
⑫KBMS1	KB/MS Connector
⑬COM1	Serial Port Connector
⑭HDMI1	HDMI Connector
⑮HDMI2	HDMI Connector

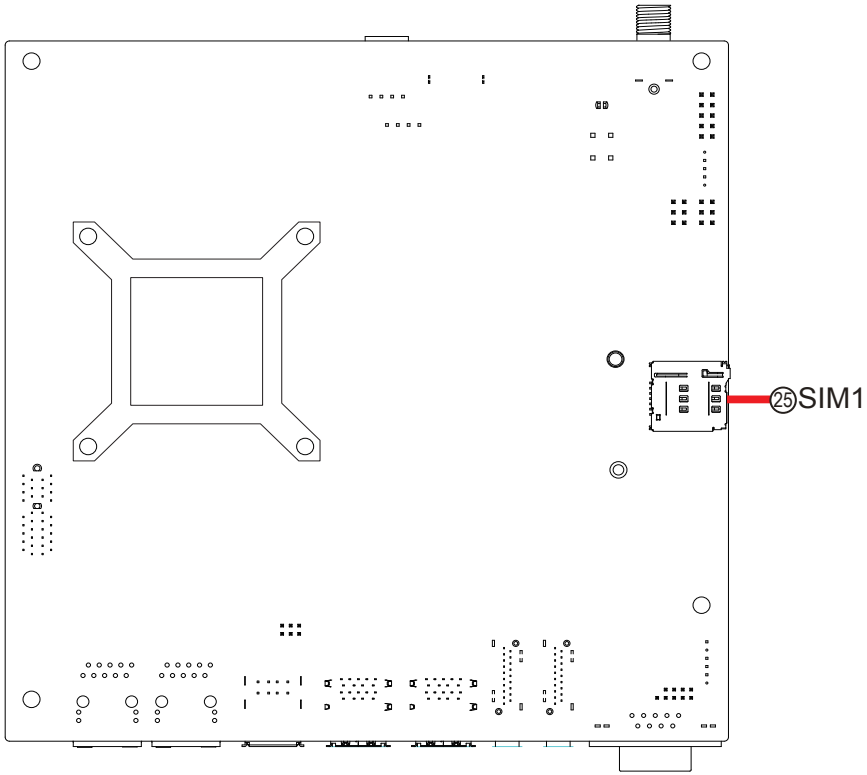
Label	Function
⑯USB1	USB3.0/2.0 Stack Connectors
⑰USB2	USB3.0/2.0 Stack Connectors
⑱USB3	USB 2.0 Stack Connectors
⑲USB4	USB 2.0 Connector
⑳LAN1	RJ-45 LAN Connector
㉑LAN2	RJ-45 LAN Connector
㉒PCIE1	PCIe x1 Connector
㉓WIFI1	M.2 E-Key Socket
㉔SSD1	M.2 B-Key Socket
㉕SIM1	micro SIM card socket (OEM request)

Jumpers & Connectors Locations

Board Top



Board Bottom



Jumpers

❶JINV1: LCD Inverter Voltage Selection

Connector type: 2.54mm pitch 2x3-pin headers.

Pin	Mode	
1-2	5V	
3-4	12V (Default)	
5-6	24V	

❷JLCD1: LCD Panel Voltage Selection

Connector type: 2.54mm pitch 2x3-pin headers.

Pin	Mode	
1-2	3.3V (Default)	
3-4	5V	
5-6	12V	

❸JBAT1: Clear CMOS Selection

Connector type: 2.54mm pitch 1x3-pin headers.

Pin	Mode	
1-2	Keep CMOS (Default)	
2-3	Clear CMOS	

❹JPIC2: AT/ATX Power Mode Selection

Connector type: 2.54mm pitch 1x3-pin headers.

Pin	Mode	
1-2	AT	
2-3	ATX (Default)	

Connectors

①FAN1: CPU Fan Power Connector

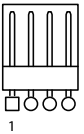
Connector Type: 2.54mm pitch 1x4-pin one-wall connector

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

②SAPO1: SATA Power Connector

Connector Type: 2.54mm pitch 1x4-pin wafer connector

Pin	Desc.
1	V5S
2	GND
3	GND
4	V12S



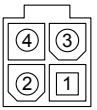
③SATA1: Serial ATA Connector

The pin assignments conform to the industry standard.

④24VIN1: 24V DC IN Connector

Connector Type: 4-pin power connector

Pin	Desc.	Pin	Desc.
4	+24V	3	+24V
2	Chassis GND	1	Chassis GND



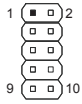
⑤DCIN1:DC In Power Jack

Connector Type: DC Φ7.4 Male connector

⑥FP1: Front Panel LED & Audio Header

Connector Type: 2.54mm pitch 2x5-pin header

Pin	Desc.	Pin	Desc.
1	RESET+	2	RESET-
3	PLED+	4	PLED-
5	HLED+	6	HLED-
7	SPEAK+	8	SPEAK-
9	PSON+	10	PSON-



⑦INV1: Inverter Power Output

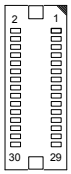
Connector Type: 2.00mm pitch 1x5-pin box wafer connector

Pin	Desc.
1	Vin
2	GND
3	On/Off
4	Brightness control
5	GND

⑧LVDS: LVDS Connector (30-Pin)

Connector Type: DF-13-30DP-1.25V connector

Pin	Desc.	Pin	Desc.
2	VDD2	1	VDD1
4	TX2_CLK+	3	TX1_CLK+
6	TX2_CLK-	5	TX1_CLK-
8	GND5	7	GND1
10	TX2_D0+	9	TX1_D0+
12	TX2_D0-	11	TX1_D0-
14	GND6	13	GND2
16	TX2_D1+	15	TX1_D1+
18	TX2_D1-	17	TX1_D1-
20	GND7	19	GND3
22	TX2_D2+	21	TX1_D2+
24	TX2_D2-	23	TX1_D2-
26	GND8	25	GND4
28	TX2_D3+	27	TX1_D3+
30	TX2_D3-	29	TX1_D3-



⑨⑩SPKR1/2: Speaker Connector

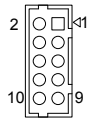
Connector Type: 1.25mm pitch 1x2 pin wafer connector

Pin	Description
1	INSPL+
2	INSPL-

⑪AUDIO1:Audio Header

Connector Type: 2.0mm pitch 2x5 pin wafer connector

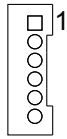
Pin	Desc.	Pin	Desc.
2	LINE_R	1	LINE_L
4	GND1	3	GND3
6	MIC_L	5	MIC_R
8	GND2	7	GND4
10	LOUT_L	9	LOUT_R



⑫KBMS1: Keyboard & Mouse Connector

Connector type: 2.0mm pitch 1x6-pin header

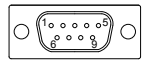
Pin	Desc.
1	KB_DATA
2	GND
3	MS_DATA
4	KB_CLK
5	PS2_VCC
6	MS_CLK



⑬COM1: RS-232/422/485 Serial Connector

Connector type: DB-9 male connector

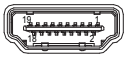
	RS232	RS422	RS485
Pin	Desc.	Desc.	Desc.
1	DCD#	TX-	D-
2	RXD	TX+	D+
3	TXD	RX-	
4	DTR	RX+	
5	GND		
6	DSR		
7	RTS		
8	CTS		
9	RI		



⑭⑮HDMI1&2: HDMI Connector

Connector Type: 19-pin HDMI connector

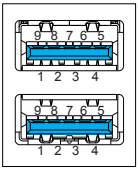
The pin assignments conform to the industry standard.



⑯⑰USB1&2: USB 3.0/2.0 Stack Connectors

Connector type: Double-stacked USB 3.0/2.0 type A connectors

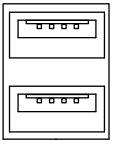
The pin assignments conform to the industry standard.



⑱USB3: USB 2.0 Stack Connectors

Connector type: Double-stacked USB 2.0 type A connectors

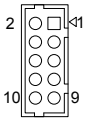
The pin assignments conform to the industry standard.



⑲USB4: USB 2.0 Connector

Connector Type: 2.0mm pitch 2x5 pin wafer connector

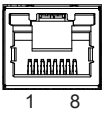
Pin	Desc.	Pin	Desc.
2	+5V	1	+5V
4	USBDN4N	3	USBDN3N
6	USBDN4P	5	USBDN3P
8	GND	7	GND
10	GND	9	GND



⑳㉑LAN1&2: Ethernet Connectors

Connector Type: 10/100/1000Mbps fast Ethernet RJ-45 connector

The pin assignments conform to the industry standard.



㉒PCIE1: PCIe x1 Connector

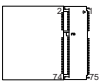
Connector Type: PCIe x1 Gen 2.0 slot

The pin assignments conform to the industry standard.

㉓WIFI1: NGFF M.2 E-Key Socket

Connector Type: NGFF M.2 E-Key socket for WIFI, supporting 22x30 module

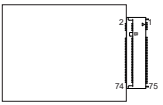
The pin assignments conform to the industry standard.



㉔SSD1: NGFF M.2 B-Key Socket

Connector Type: NGFF M.2 B-Key socket for SSD, supporting 22x42 and 30x42 modules

The pin assignments conform to the industry standard.



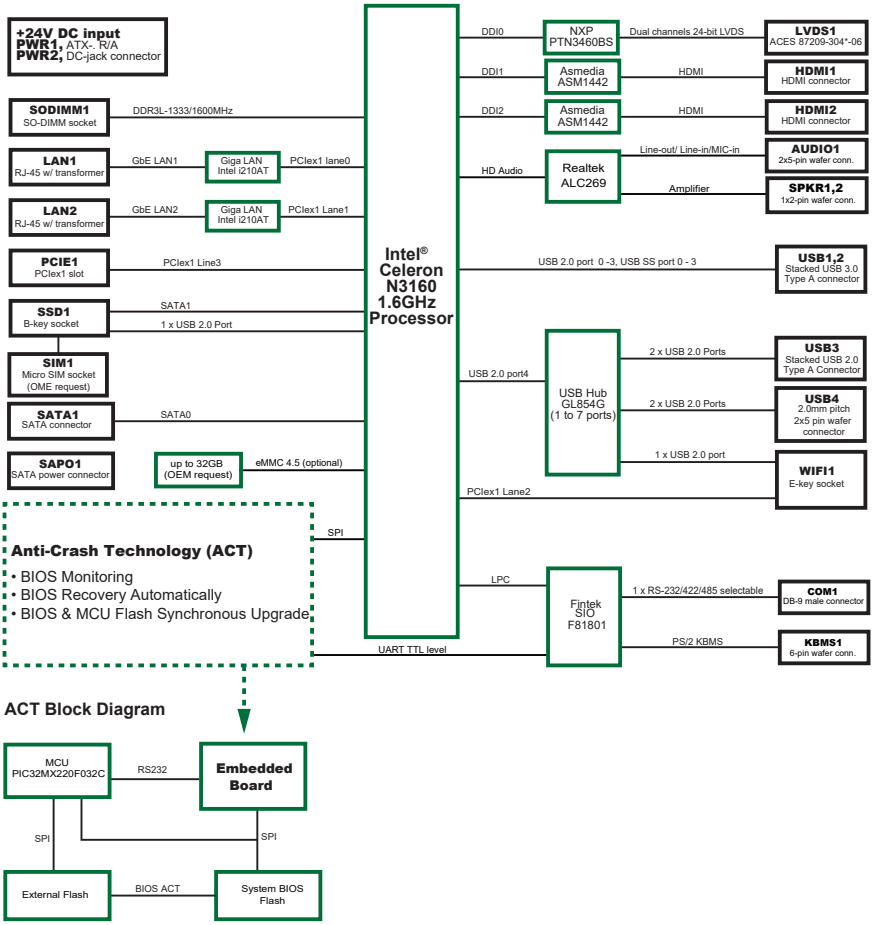
㉕ SIM1: micro SIM card socket (OEM request)

Connector type: REGO 80440GIH-061T-120L socket

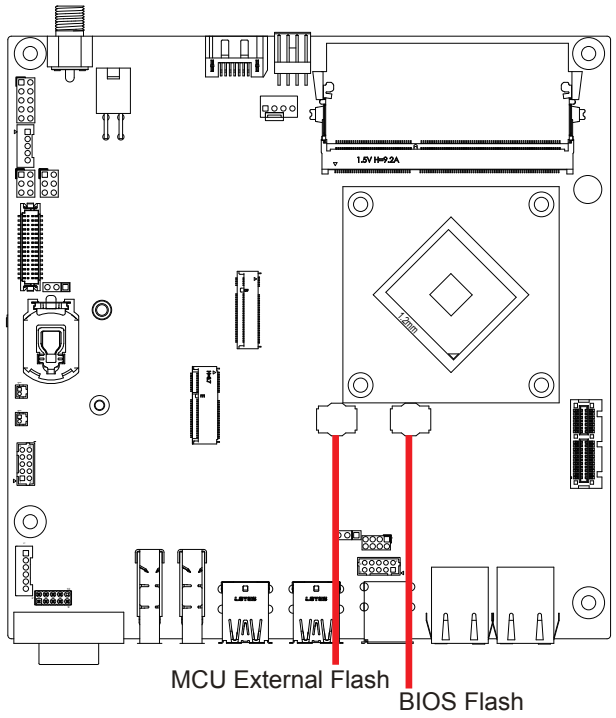
Pin	Desc.	Pin	Desc.
C1	VCC	C2	RST
C3	CLK	C5	GND
C6	VPP	C7	I/O

Anti-Crash Technology for BIOS Recovering

Board Block Diagram



ACT Block Diagram



- BIOS Flash: Master ROM for BIOS
- MCU External Flash: Slave ROM for backup BIOS

The motherboard supports Anti-Crash Technology (ACT) for automatical system BIOS recovering. If problem is detected on the BIOS flash, then the recovery process will automatically start to load the backup BIOS from the MCU external flash (slave ROM) to prevent system crash.

When a new version of BIOS is available and you want to update both the master and slave ROMs with the new BIOS, please contact ARBOR for technical support.