ARES-1231 Series

Fanless Embedded Controller with Intel® Bay Trail SoC Processor

User's Manual

Version 1.0

P/N: 4016123100100P

2016.08

This page is intentionally left blank.

Revision History

Version	Date	Description
1.0	August, 2016	Initial release

Copyright Notice

All Rights Reserved.

The information in this document is subject to change without prior notice in order to improve the reliability, design and function. It does not represent a commitment on the part of the manufacturer.

Under no circumstances will the manufacturer be liable for any direct, indirect, special, incidental, or consequential damages arising from the use or inability to use the product or documentation, even if advised of the possibility of such damages.

This document contains proprietary information protected by copyright. All rights are reserved. No part of this document may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of the manufacturer.

Declaration of Conformity

CE

The CE symbol on the computer indicates that it is in compliance with the directives of the Union European (EU). A Certificate of Compliance is available by contacting Technical Support.

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from ARBOR. Please contact your local supplier for ordering information.

Warning
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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.

NOTE:

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.

RoHS

ARBOR Technology Corp. certifies that all components in its products are in compliance and conform to the European Union's Restriction of Use of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive 2002/95/EC.

The above mentioned directive was published on 2/13/2003. The main purpose of the directive is to prohibit the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) in electrical and electronic products. Member states of the EU are to enforce by 7/1/2006.

ARBOR Technology Corp. hereby states that the listed products do not contain unintentional additions of lead, mercury, hex chrome, PBB or PBDB that exceed a maximum concentration value of 0.1% by weight or for cadmium exceed 0.01% by weight, per homogenous material. Homogenous material is defined as a substance or mixture of substances with uniform composition (such as solders, resins, plating, etc.). Lead-free solder is used for all terminations (Sn(96-96.5%), Ag(3.0-3.5%) and Cu(0.5%)).

SVHC / REACH

To minimize the environmental impact and take more responsibility to the earth we live, Arbor hereby confirms all products comply with the restriction of SVHC (Substances of Very High Concern) in (EC) 1907/2006 (REACH --Registration, Evaluation, Authorization, and Restriction of Chemicals) regulated by the European Union.

All substances listed in SVHC < 0.1 % by weight (1000 ppm)

Important Safety Instructions

Read these safety instructions carefully

1. Read all cautions and warnings on the equipment.
2. Place this equipment on a reliable surface when installing. Dropping it or letting it fall may cause damage
3. Make sure the correct voltage is connected to the equipment.
4. For pluggable equipment, the socket outlet should be near the equipment and should be easily accessible.
5. Keep this equipment away from humidity.
6. The openings on the enclosure are for air convection and protect the equipment from overheating. DO NOT COVER THE OPENINGS.
7. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
8. Never pour any liquid into opening. This may cause fire or electrical shock.
9. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
10. If one of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped or damaged.
    f. The equipment has obvious signs of breakage.
11. Keep this User's Manual for later reference.

Product Heat

The computer generates heat during operation. Contact the computer's chassis with your body could cause discomfort or even a skin burn.

Warning

The Box PC and its components contain very delicately Integrated Circuits (IC). To protect the Box PC and its components against damage caused by static electricity, you should always follow the precautions below when handling it:

1. Disconnect your Box PC from the power source when you want to work on the inside.
2. Use a grounded wrist strap when handling computer components.
3. Place components on a grounded antistatic pad or on the bag that came with the Box PC, whenever components are separated from the system.

Replacing Lithium Battery

Incorrect replacement of the lithium battery may lead to a risk of explosion.

The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer.

Do not throw lithium batteries into the trash can. It must be disposed of in accordance with local regulations concerning special waste.

Technical Support

You can download the related technical documents such as datasheet and user's manual as well as driver on our website at http://www.arbor-technology.com

Please do not hesitate to e-mail to our customer service when you still cannot find out the answer:

E-mail:info@arbor.com.tw

Warranty

This product is warranted to be in good working order for a period of one year from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, or inability to use this product. Vendor will not be liable for any claim made by any other related party.

Vendors disclaim all other warranties, either expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with respect to the hardware, the accompanying product's manual(s) and written materials, and any accompanying hardware. This limited warranty gives you specific legal rights.

Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.

Chapter 1

Introduction

1.1. Product Highlights

- Intel® Bay Trail SoC platform
- Fanless Design
- Multi-COMs with 5/12VDC power output
- Multi-DIOs
- 2 x Gbe Ethernet LANs connectivity
- 1 x USB3.0 + 5 x USB2.0 Ports
- 1 x RJ-11 for cash drawer
- Optional Wi-Fi connection supported

1.2. Packing List

After opening the package, carefully inspect the contents. If any of the items is missing or appears damaged, please contact your local dealer or distributor. The package should contain the following items:

1 x ARES-1231 Series Fanless Embedded Controller with Intel® Bay Trail SoC Processor

1 x Driver CD
1 x User's Manual

1.3. Ordering Information

ARES-1231	ARES-1231 Intel® Celeron® Processor N2930, barebone, 12V Input

The following items are normally optional, but some vendors may include them as a standard package, or some vendors may not carry all the items.

Optional Accessories

PAC-P060W-01	60W AC/DC Adapter Kit (ARES-1231)	

Optional Configuration (CTOS* Kit)

WiFi-AT2130	Atheros AR9462 WiFi module w/ 10cm & 20cm internal wiring	
ANT-D11	1 x Wi-Fi Dual-band 2.4G/5G antenna	
MM-3CL-4G	DDR3L-1333 4GB SDRAM	
MM-3CL-8G	DDR3L-1333 8GB SDRAM	
16GB SSD	mSATA MLC 16GB	
32GB SSD	mSATA MLC 32GB	
80GB SSD	Intel® 2.5” 80GB SATAIII SSD kit	

1.4. Specifications

System	
CPU	Intel® Celeron® Processor N2930
Memory	1 x 204-pin SO-DIMM socket, supporting up to 8 GB DDR3L 1600 MHz 4GB DDR3L memory module installed
Chipset	Intel® SoC
Graphics	Intel® HD Graphics
LAN Chipset	2 x Intel® i210AT PCIe controllers
Watchdog Timer	1~255 levels reset
I/O	
Serial Port	4 x RS-232/422/485 w/ 5V/12VDC (DB9, DIP switch Selectable) 8 x RS-232/485 (DB9, Selectable) 4 x RS-232/485 (PIN-Header, Selectable)
USB Port	1 x USB3.0/2.0 combo port 5 x additional USB2.0 ports
LAN	2 x RJ-45 GbE ports
Video Port	1 x DVI-I connector 1 x HDMI connector
Audio	Mic-in/Line-out
KB/MS	1 x PS2 Keyboard/Mouse
D-IO	16 x DI, 16 x DO (1 x DB26 w/ 8DI+8DO + 1 x pinheader w/ 8DI+8DO)
RJ-11	12V/24V for Cashdrawer
Expansion Bus	1 x mSATA slot 1 x SATA for 2.5" SSD Drive 1 x Half-Size mPCIE (PCIex1 Lane only)
Environmental	
Operating Temp.	-20 ~ 60°C (-4 ~ 140°F), ambient w/ air flow
Storage Temp.	-40 ~70 °C (-40 ~ 158°F)
Operating Humidity	10 ~ 95% @ 70°C (non-condensing)
Vibration	5~500Hz 3G rms X,Y,Z axis w/SSD, according to IEC 68-2-64

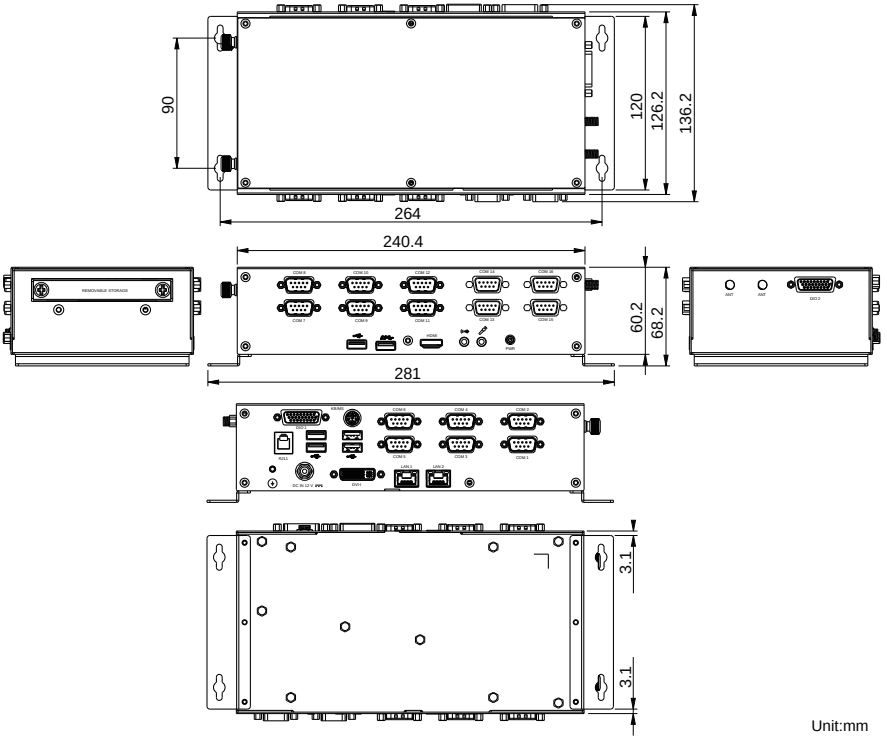
Shock & Crash	40G peak acceleration (11 m sec. duration), operation
	60G peak acceleration (11 m sec. duration), non operation
	According to IEC 68-2-27
Qualification	
Certification	CE, FCC Class A
Power Requirement	
Power Input	DC 12V Input (w/ DC-Jack)
Power Consumption	Max. 16W (w/o I/O card)
Storage	
Type	1 x mSATA socket 1 x 2.5” drive bay for SATA interface HDD/SSD Supports 600MB/s HDD transfer rate
Mechanical	
Construction	Metal, IP30
Mounting	Wall-mount
Weight	1.695kg (3.74lb)
Dimensions	240.4 (W) x 126.2 (D) x 60.2 (H) mm
OS Support	
Windows 7 / Windows 8.1 / Windows 7/8.1 Embedded	

This page is intentionally left blank.

Chapter 2

Getting Started

2.1. Dimensions

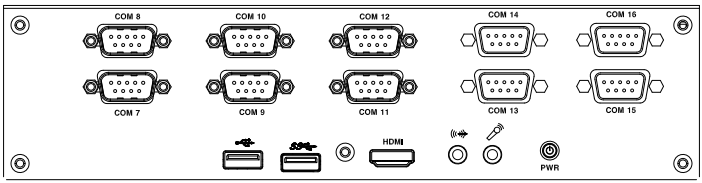


Unit:mm

2.2. Take A Tour

The computer has some I/O ports, status LED light and controls on the front, rear and side panels. The following illustrations show all the components of ARES-1231.

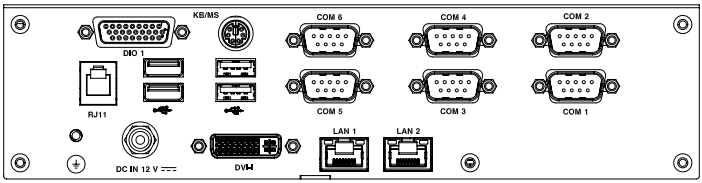
Front View



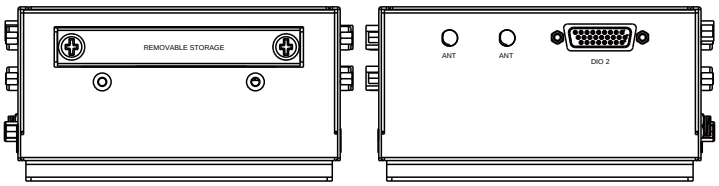
- **LED Status Indcator**
  LED indicators are recessed on the front side of the computer to draw users' prompt awareness of the computer's contiguous events such as power on/off, data transmission and so on.
  These lamps and the notifications delivered are summarized as following:

LED Lamp	Color	State	Description
PWR	Green	on	Power is on.
	Red	on	Stand by
	N/A	off	No power input.

Rear View



Side View



2.3. Driver Installation Notes

The ARES-1231 supports Windows 7 and Windows 8.1. Find the necessary drivers on the CD that comes with your purchase. For different OS, the driver/utility installation may vary slightly, but generally they are similar.

Find the drivers on CD by the following paths:

Windows 7

Device	Driver Path
Chipset	\Chipset\(SetupChipset.exe)
Ethernet	32Bit: \ LAN\Win7 \ (PROWin32.exe)
	64Bit: \ LAN\Win7 \ (PROWinx64.exe)
USB3.0	\USB3.0\ (Setup.exe)
VGA	32Bit:\ Graphic\WIN7_32bit \ (Setup.exe)
	64Bit:\ Graphic\WIN7_64bit \ (Setup.exe)
TXE	\TXE\ (SetupTXE.exe) Patch files (for fix unknown device issue in device manager, Windows 7 only) \TXE\(kmdf-1.11-Win-6.1-x86.exe) 32bit \TXE\(kmdf-1.11-Win-6.1-x64.exe) 64bit
Audio	32Bit: \Audio\(32bit_Win7_Win8_Win81_R275.exe)
	64Bit: \Audio\(64bit_Win7_Win8_Win81_R275.exe)
F81512 PCIE to COM	\F81512 PCIE to COM\x86\(Setup.exe)

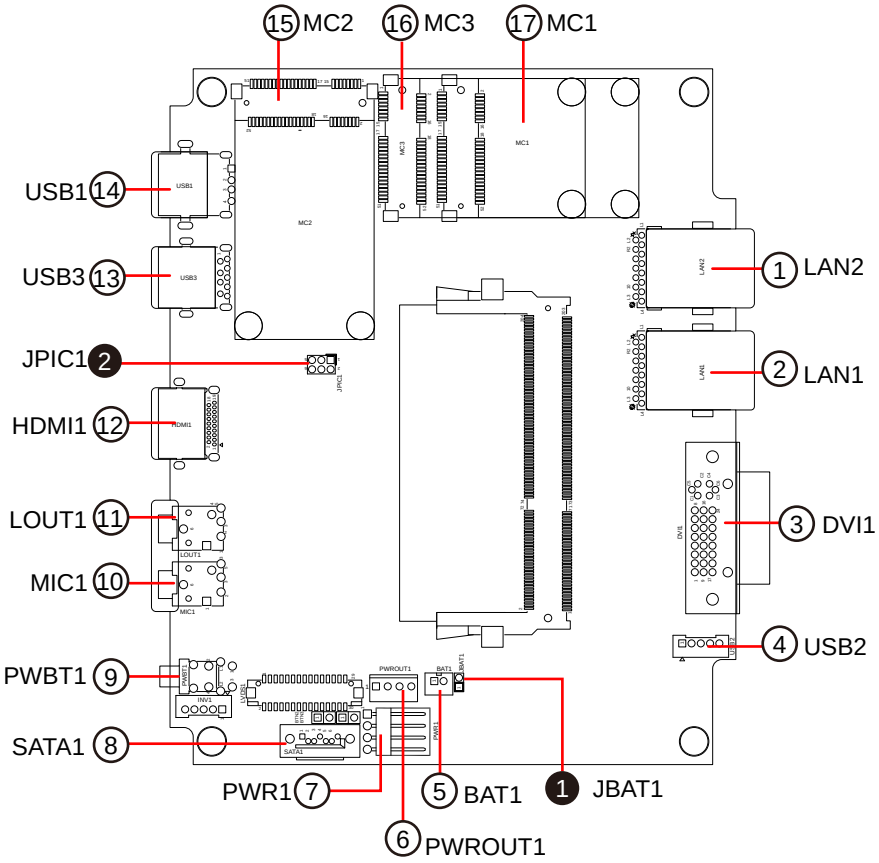
Chapter 3

System Configuration

3.1. Board Layout

3.1.1. Main Board (FMB-i230H)

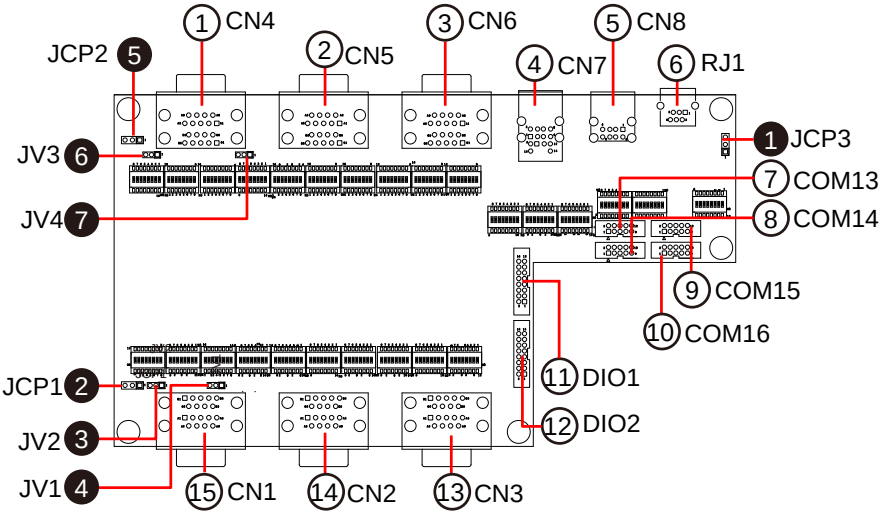
Board Top



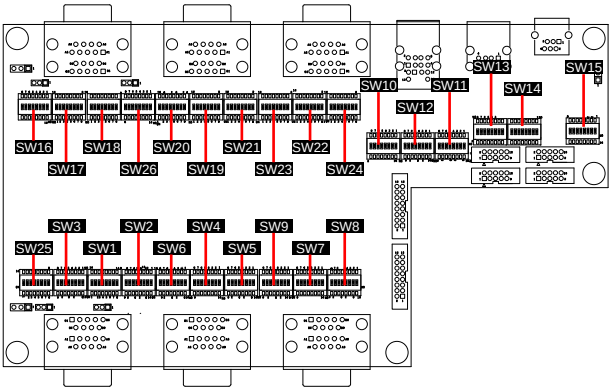
3.1.2. SCDB-128C

Board Top

Jumpers, Connectors and DIP Switches

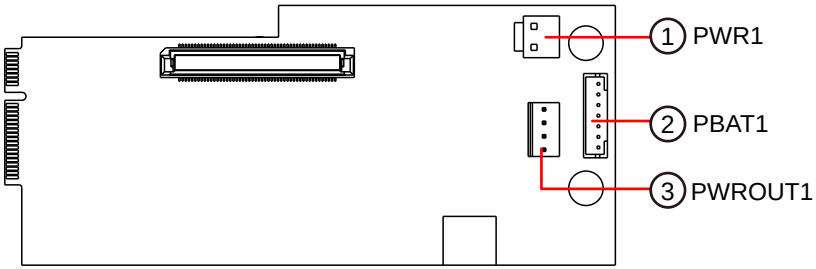


DIP Switches



3.1.3. SCDB-128B

Board Top



3.2. Jumper, Connectors and DIP Switches

3.2.1. Jumpers, Connectors and DIP Switches List

Jumpers

Board	Label	Function
Main Board (FMB-i230H)	❶JBAT1	Clears/Keeps CMOS
	❷JPIC1	AT/ATX Mode Settings
SCB-128C	❶JCP3	RJ11 Port Power Selection
	❷JCP1	COM Port 7, 8 Power Selection
	❸JV2	RI/5V/12V Selection for COM Port 8
	❹JV1	RI/5V/12V Selection for COM Port 7
	❺JCP2	COM Port 1, 2 Power Selection
	❻JV3	RI/5V/12V Selection for COM Port 1
	❼JV4	RI/5V/12V Selection for COM Port 2

Connectors

Board	Label	Function
Main Board (FMB-i230H)	①②LAN2, 1	Ethernet connectors
	③DVI1	DVI-I connector
	④USB2	Connector for the internal USB port
	⑤BAT1	RTC Battery connector
	⑥PWROUT1	Connector for SATA power
	⑦PWR1	Connector for DC-in power.
	⑧SATA1	SATA Connector
	⑨PWBT1	Power Button
	⑩MIC1	Mic-in Port
	⑪LOUT1	Line-out Port
	⑫HDMI1	HDMI connector
	⑬USB3	USB 3.0 connector
	⑭USB1	USB 2.0 connectors
	⑮MC2	Mini-card Full Size socket
	⑯MC3	mSATA socket
	⑰MC1	Mini-card half-size socket

SCDB-128C	①CN4	COM Port 1, 2 (RS-232/422/485 selectable w/ 5/12VDC power)
	②CN5	COM Port 3, 4 (RS-232/485 selectable)
	③CN6	COM Port 5, 6 (RS-232/485 selectable)
	④CN7	PS/2 Keyboard & Mouse & 2 x USB 2.0 connectors
	⑤CN8	2 x USB 2.0 connectors
	⑥RJ1	RJ11 connector
	⑦COM13	COM Port 13 (RS-232/485 selectable)
	⑧COM14	COM Port 14 (RS-232/485 selectable)
	⑨COM15	COM Port 15 (RS-232/485 selectable)
	⑩COM16	COM Port 16 (RS-232/485 selectable)
	⑪⑫DIO1, 2	Digital I/O Connectors (4-in/4-out)
	⑬CN3	COM Port 11, 12 (RS-232/485 selectable)
	⑭CN2	COM Port 9, 10 (RS-232/485 selectable)
	⑮CN1	COM Port 7, 8 (RS-232/422/485 selectable w/ 5/12VDC power)
SCDB-128B	①PWR1	12V DC-IN1
	②PBAT1	12V DC-IN2
	③PWROUT1	12VDC OUT1

Switches

SCDB-128C	SW16, 17	COM 1 RS232/422/485 Mode Switch
	SW26, 18	COM 2 RS232/422/485 Mode Switch
	SW1, 2	COM 7 RS232/422/485 Mode Switch
	SW25,3	COM 8 RS232/422/485 Mode Switch
	SW19, 20	COM 3 RS232/485 Mode Switch
	SW19, 21	COM 4 RS232/485 Mode Switch
	SW22, 23	COM 5 RS232/485 Mode Switch
	SW22, 24	COM 6 RS232/485 Mode Switch
	SW4, 5	COM 9 RS232/485 Mode Switch
	SW4, 6	COM 10 RS232/485 Mode Switch
	SW7, 8	COM 11 RS232/485 Mode Switch
	SW7, 9	COM 12 RS232/485 Mode Switch
	SW10, 11	COM 13 RS232/485 Mode Switch
	SW10, 12	COM 14 RS232/485 Mode Switch
	SW13, 14	COM 15 RS232/485 Mode Switch
	SW13, 15	COM 16 RS232/485 Mode Switch

3.2.2. Jumpers

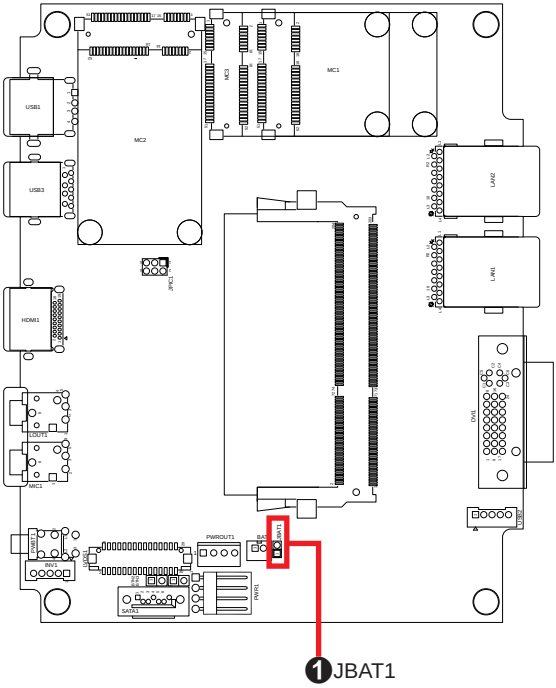
3.2.2.1. Main Board (FMB-i230H)

❶JBAT1

Function: Clears/keeps CMOS
Jumper Type: 2.00 mm pitch 1x2-pin header
Setting:

Pin	Description	
Short	Clears CMOS	1 2 
Open	Keeps CMOS (default)	1 2 

Board Top



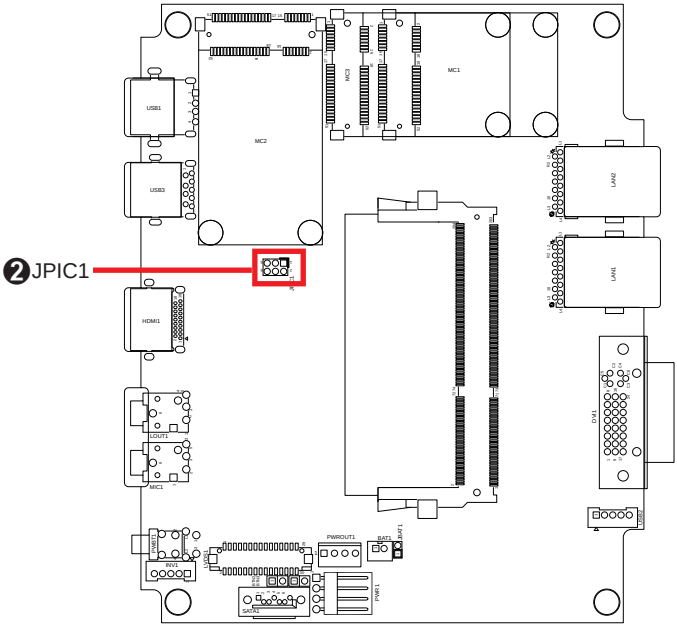
❷JPIC1

Function: AT/ATX mode settings
Jumper Type: 2.00mm pitch 2x3-pin header
Setting:

Pin	Description	
2-4	AT	
4-6	ATX mode (default)	

Note to make consistent setting in **BIOS** | **Advanced** menu | **ACPI Settings** | **Power-Supply Type** to avoid possible conflict. See 5.2.1. Boot Configuration on page 76.

Board Top



3.2.2.2. SCDB-128C

❶JCP3

Function: RJ11 Port Power Selection
Jumper Type: 2.54 mm pitch 1x3-pin header
Setting:

Pin	Description	
1-2	+12V (default)	
2-3	+24V	

❷JCP1

Function: COM Port 7, 8 Power Selection
Jumper Type: 2.54 mm pitch 1x3-pin header
Setting:

Pin	Description	
1-2	+5V (default)	
2-3	+12V	

❸JV2

Function: RI/5V/12V Selection for COM Port 8
Jumper Type: 2.00 mm pitch 1x3-pin header
Setting:

Pin	Description	
1-2	RI (default)	
2-3	5V or 12V (depends on JCP1)	

❹JV1

Function: RI/5V/12V Selection for COM Port 7
Jumper Type: 2.00 mm pitch 1x3-pin header
Setting:

Pin	Description	
1-2	RI (default)	
2-3	5V or 12V (depends on JCP1)	

❺JCP2

Function: COM Port 1, 2 Power Selection
Jumper Type: 2.54 mm pitch 1x3-pin header
Setting:

Pin	Description	
1-2	+5V (default)	
2-3	+12V	

❻JV3

Function: RI/5V/12V Selection for COM Port 1
Jumper Type: 2.00 mm pitch 1x3-pin header
Setting:

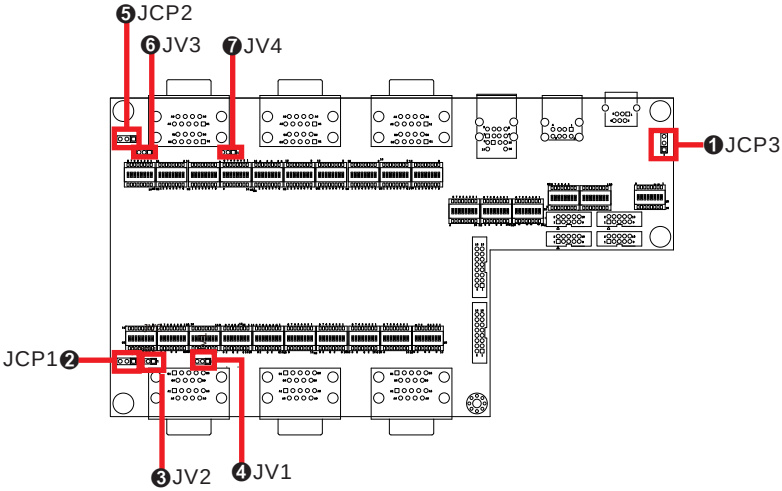
Pin	Description	
1-2	RI (default)	
2-3	5V or 12V (depends on JCP2)	

❼JV4

Function: RI/5V/12V Selection for COM Port 2
Jumper Type: 2.00 mm pitch 1x3-pin header
Setting:

Pin	Description	
1-2	RI (default)	
2-3	5V or 12V (depends on JCP2)	

Board Top



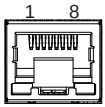
3.2.3. Connectors

3.2.3.1. Main Board (FMB-i230H)

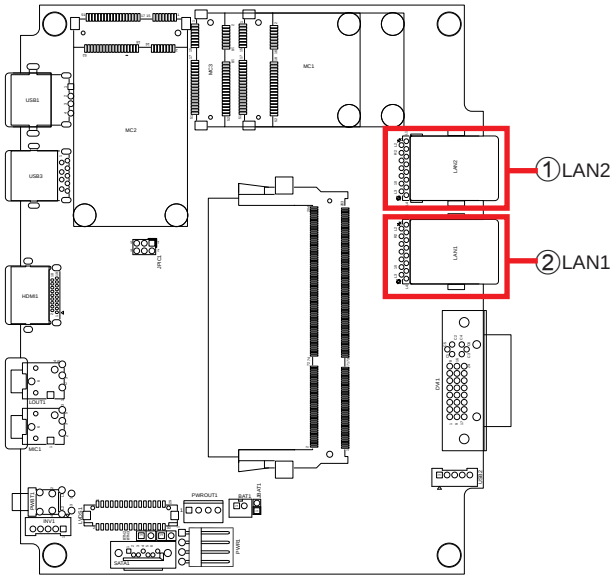
①②LAN2, 1

Function: Ethernet connectors
Connector Type: RJ-45 connector that supports 10/100/1000Mbps fast Ethernet
Pin Assignment:

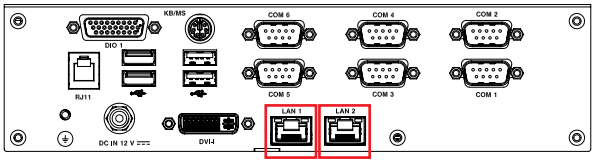
The pin assignments conform to the industry standard.



Board Top



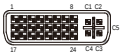
Rear Panel



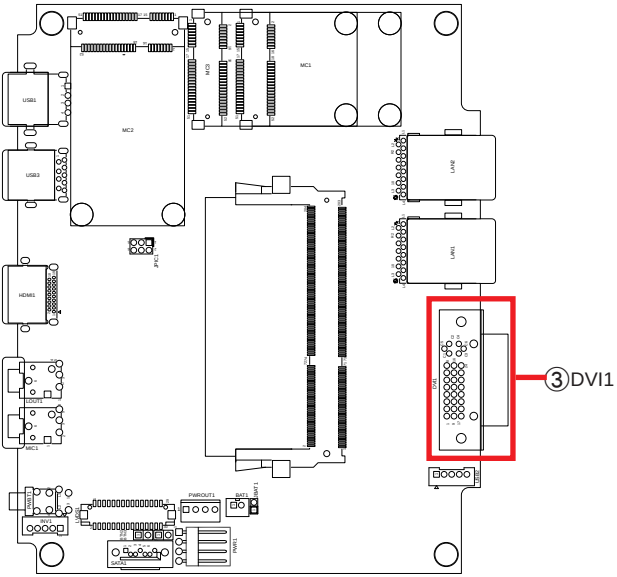
LAN1 LAN2

③DVI1

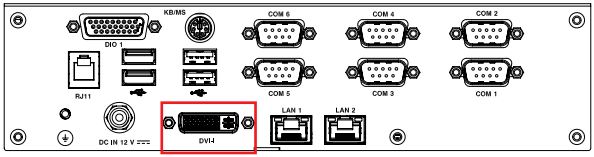
Function: DVI-I connector
Connector Type: 29-pin DIP-type female connector
Pin Assignment: The pin assignments conform to the industry standard.



Board Top

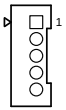


Rear Panel



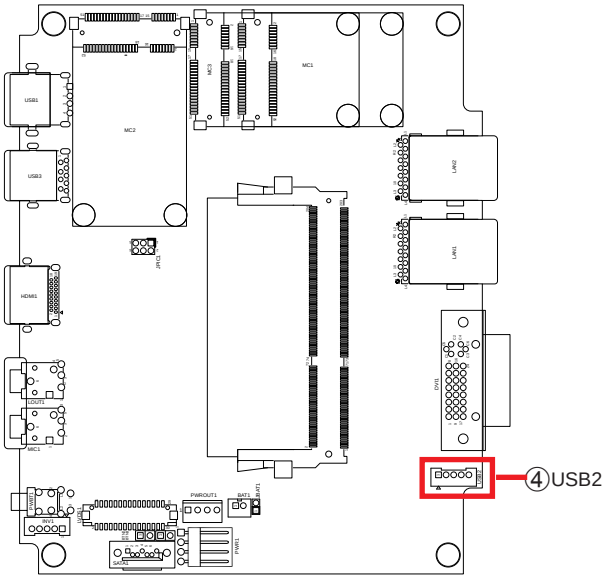
④USB2

Destription: Connector for the internal USB port
Connector Type: Pitch 2.00mm 5-pin wafer connectors
Pin Assignment:



Pin	Desc.
1	VCCUSB1
2	USBLN0
3	USBLP0
4	GND
5	GND

Board Top

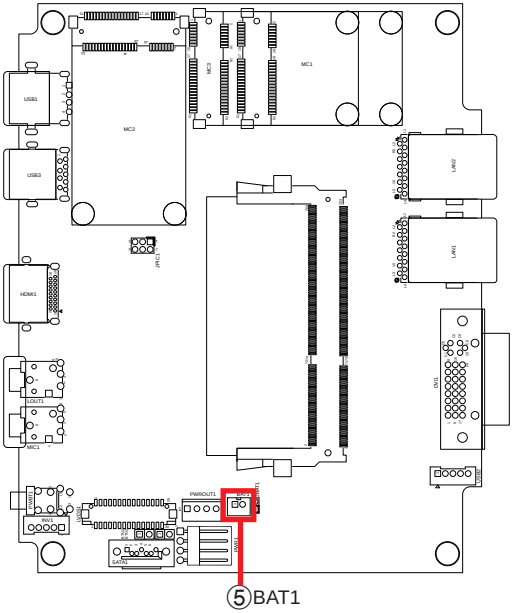


⑤BAT1

Destription: RTC Battery connector
Connector Type: Onboard 4-pin one-wall wafer connector
Pin Assignment:

Pin	Description
1	DC12V
2	DC12V
3	C-GND
4	C-GND

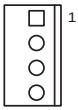
Board Top



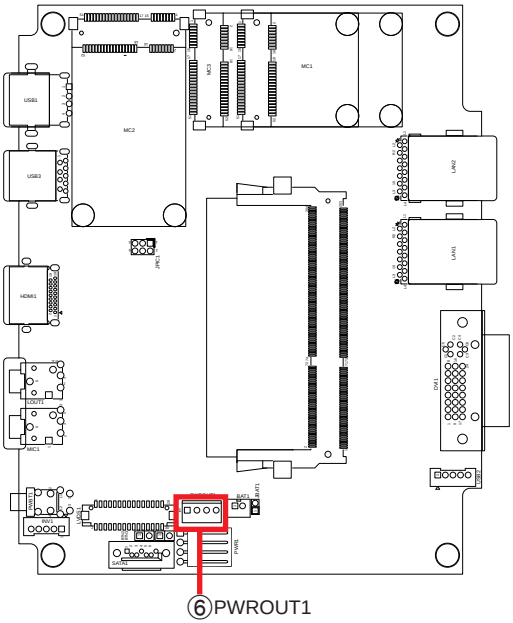
⑥PWROUT1

Destription: Connector for SATA power.
Connector Type: Onboard 4-pin one-wall wafer connector
Pin Assignment:

Pin	Description
1	5VS
2	GND
3	GND
4	12VS



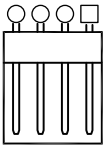
Board Top



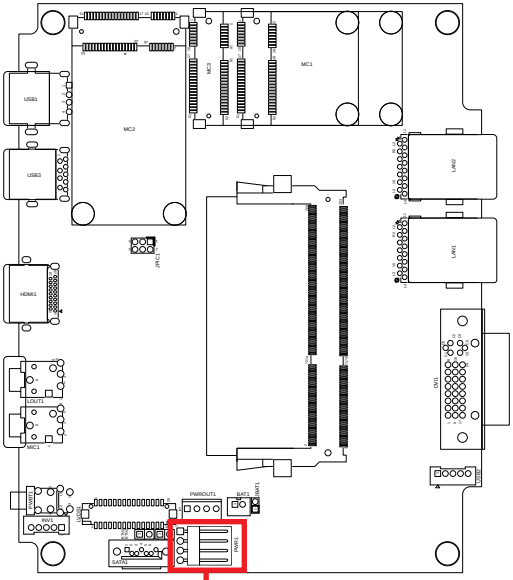
⑦PWR1

Destription: Connector for DC-in power.
Connector Type: Onboard 4-pin one-wall wafer connector
Pin Assignment:

Pin	Description
1	DC12V
2	DC12V
3	C-GND
4	C-GND

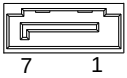


Board Top



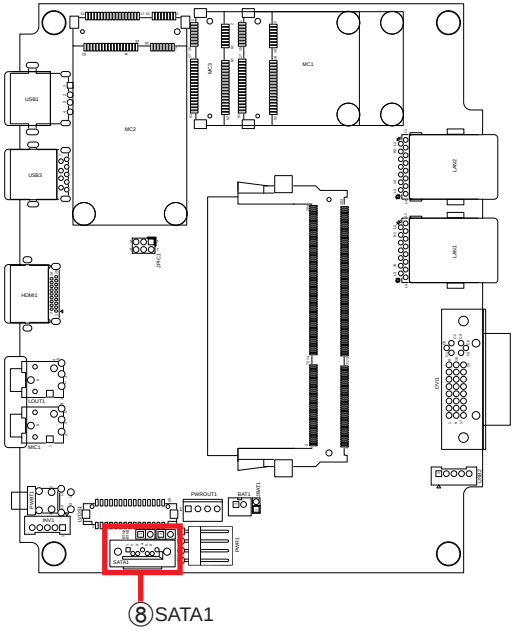
⑧SATA1

Destription: Serial ATA Connector
Connector Type: onboard 9-pin header



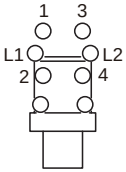
Pin	Description
1	GND
2	SATA_TXP1
3	SATA_TXN1
4	GND
5	SATA_RXN1
6	SATA_RXP1
7	GND
8	GND
9	GND

Board Top



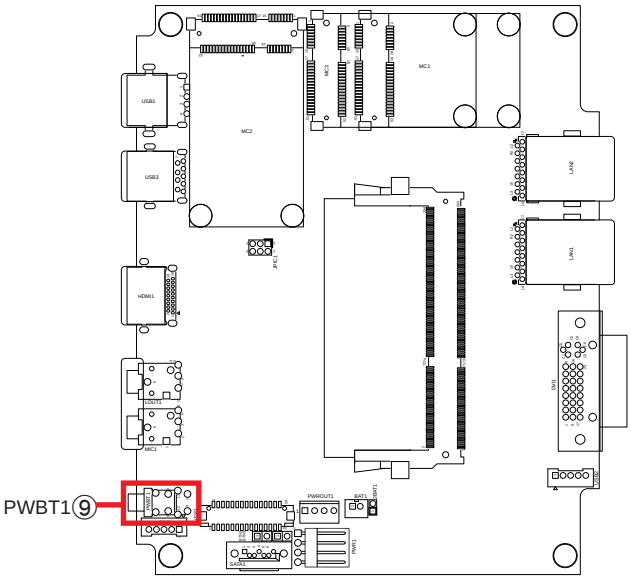
⑨PWBT1

Destription: Power Button
Connector Type: LED tact switch with green and red colors

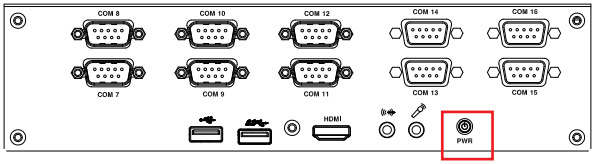


Pin	Description	Pin	Description
1	GND	2	N/A
3	BTN	4	N/A
L1	SW1_LED_N	L2	SW1_LED_P

Board Top

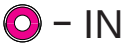


Front Panel

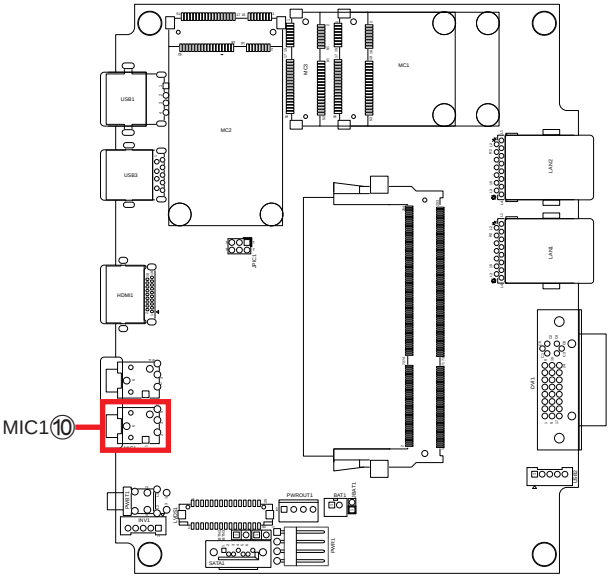


⑩MIC1

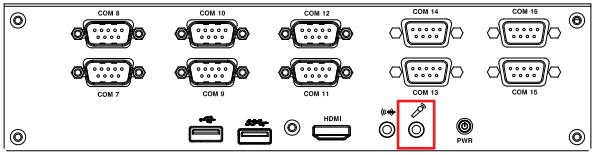
Destription: Mic-in Port
Connector Type: Pink 3.5mm audio jack



Board Top



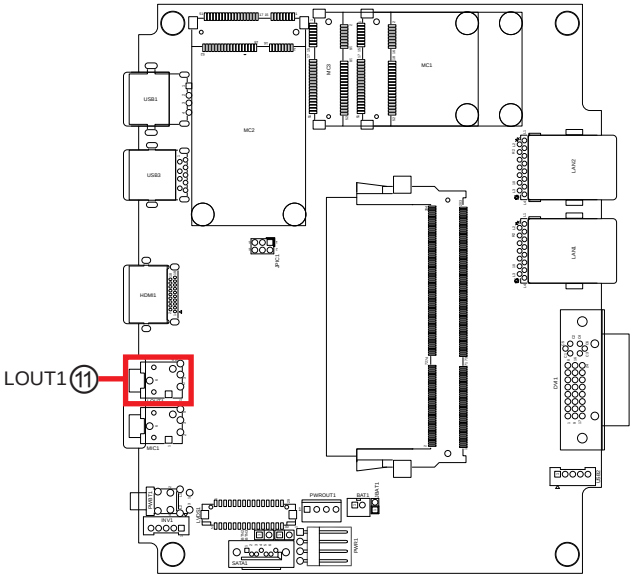
Front Panel



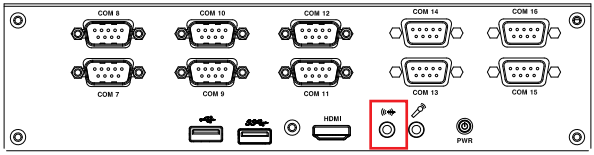
⑪LOUT1

Destription: Line-out Port
Connector Type: Lime green 3.5mm audio jack

Board Top

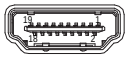


Front Panel

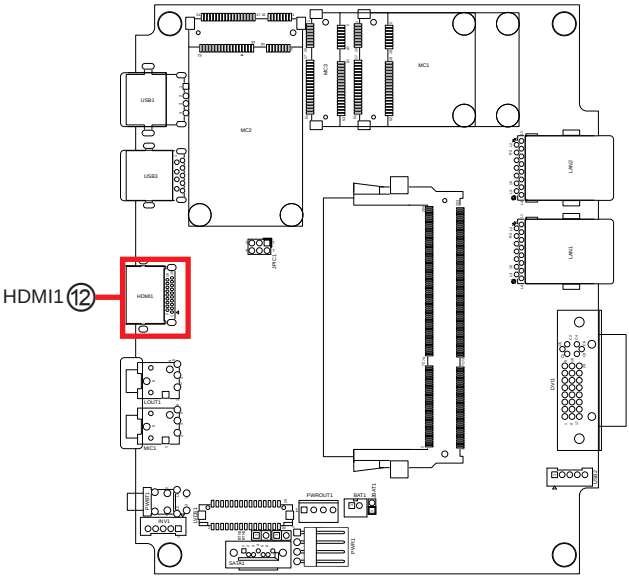


⑫HDMI1

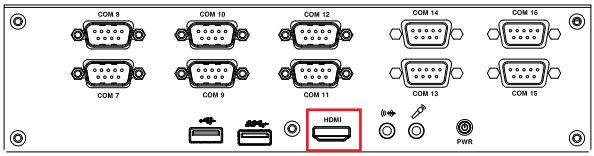
Function: HDMI connector
Connector Type: 19-pin HDMI connector with flange
Pin Assignment: The pin assignments conform to the industry standard.



Board Top

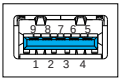


Front Panel

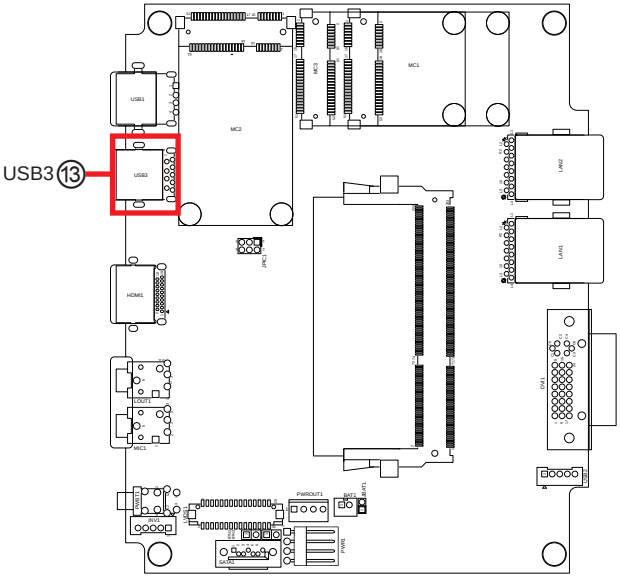


⑬USB3

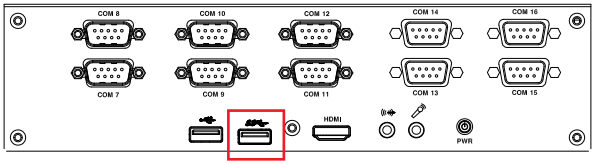
Function: USB 3.0 connector
Connector Type: USB 3.0/2.0 type-A connectors
Pin Assignment: The pin assignments conform to the industry standard.



Board Top

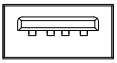


Front Panel

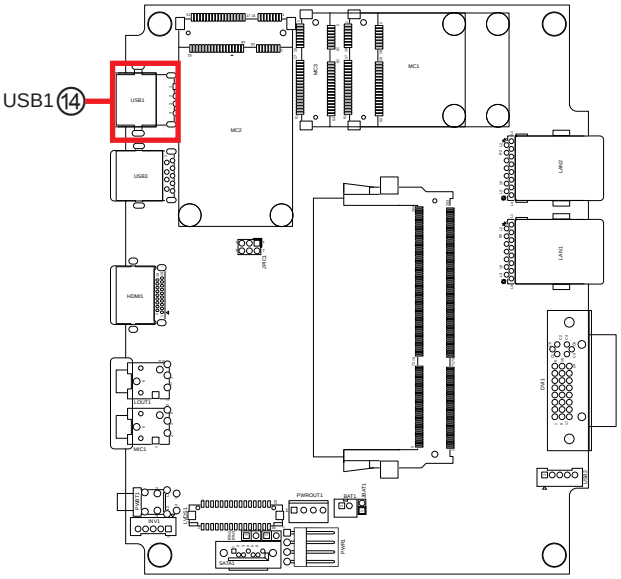


⑭USB1

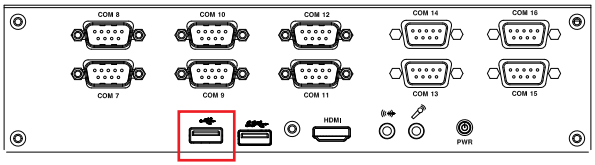
Function: USB 2.0 connector
Connector Type: USB 2.0/1.0 type-A connector
Pin Assignment: The pin assignments conform to the industry standard.



Board Top

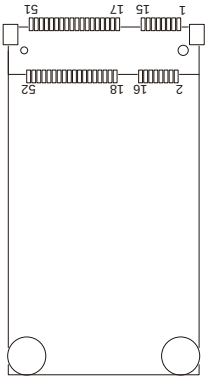


Front Panel

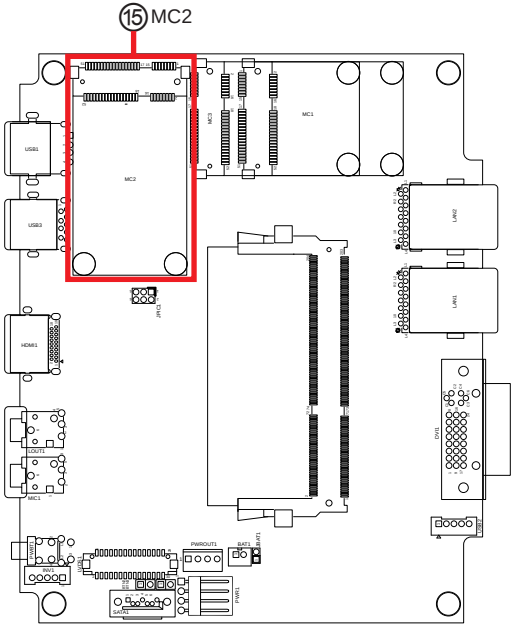


⑮MC2

Description:	Mini-card Full Size socket
Connector Type:	Onboard 0.8mm pitch 52-pin edge card connector
Pin Assignment:	The pin assignments conform to the industry standard.

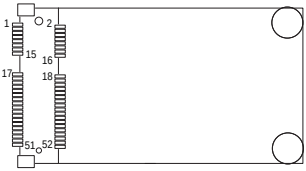


Board Top



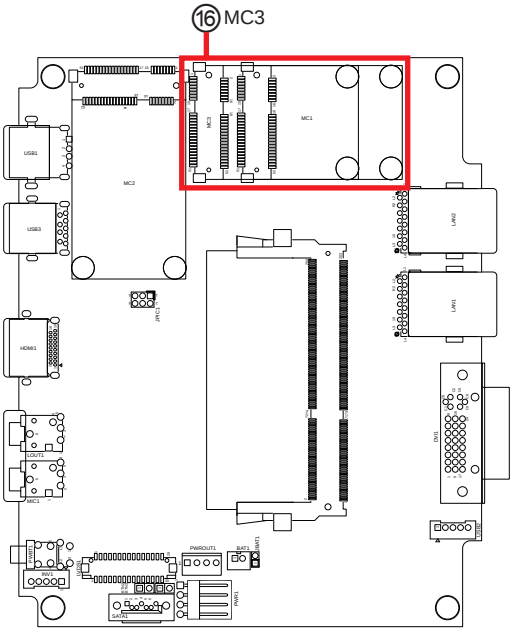
⑯MC3

Function: mSATA socket
Connector Type: Onboard 0.8mm pitch 52-pin edge card connector
Pin Assignment:



The pin assignments conform to the industry standard.

Board Top

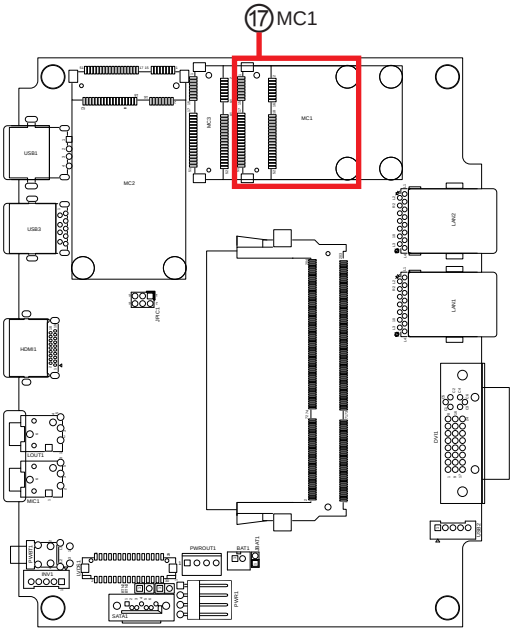


⑰MC1

Function: Mini-card half-size socket
Connector Type: Onboard 0.8mm-pitch 52-pin edge card connector
Pin Assignment:

Pin	Desc.	Pin	Desc.	Pin	Desc.
1	3.3AUX	21	GND		
2	3.3AUX	22	BUF_PLT_RST#		
3	COEX1	23	PCIE_RXN3		
4	GND	24	3.3AUX		
5	Reserved	25	PCIE_RXP3		
6	1.5VS_MINI	26	GND		
7	3.3AUX	27	GND		
8	Reserved	28	1.5VS_MINI	41	3.3AUX
9	GND	29	GND	42	Reserved
10	UIM_IO	30	SMB_CLK_MAIN	43	GND
11	PCIE_CLKN3	31	PCIE_TXN3	44	Reserved
12	UIM_CLK	32	SMB_DATA_MAIN	45	Reserved
13	PCIE_CLKP3	33	PCIE_TXP3	46	Reserved
14	UIM_RESET	34	GND	47	Reserved
15	GND	35	GND	48	1.5VS_MINI
16	Reserved	36	USBN2	49	Reserved
17	Reserved	37	GND	50	GND
18	GND	38	USBP2	51	Reserved
19	Reserved	39	3.3AUX	51	Reserved
20	Reserved	40	GND	52	3.3AUX

Board Top

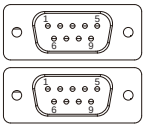


3.2.3.2 SCDB-128C

①CN4 (COM Port 1,2)

Function: COM Port 5, 6 (RS232/422/485 w/ 5/12V DC power, default: RS232)

Connector Type: 9-pin male-type DSUB connector

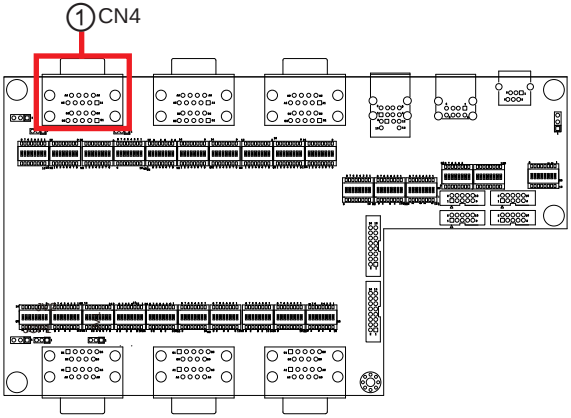


Pin Assignment:

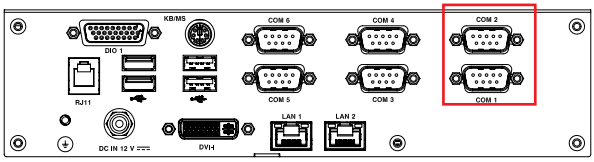
	Pin	Description	Pin	Description
RS232	1	DCD	2	RXD
	3	TXD	4	DTR
	5	GND	6	DSR
	7	RTS	8	CTS
	9	RI		

	Pin	Description	Pin	Description
RS422/ 485	1	DCD / (RS422 TX-) / (RS485-)	2	RXD / (RS422 TX+) / (RS485+)
	3	TXD / (RS422 RX+)	4	DTR / (RS422 RX-)
	5	GND	6	DSR
	7	RTS	8	CTS
	9	RI		

Board Top

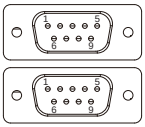


Rear Panel



②CN5 (COM Port 3, 4)

Function: COM Port 3, 4 (RS232/485, default: RS232)
Connector Type: 9-pin male-type DSUB connector

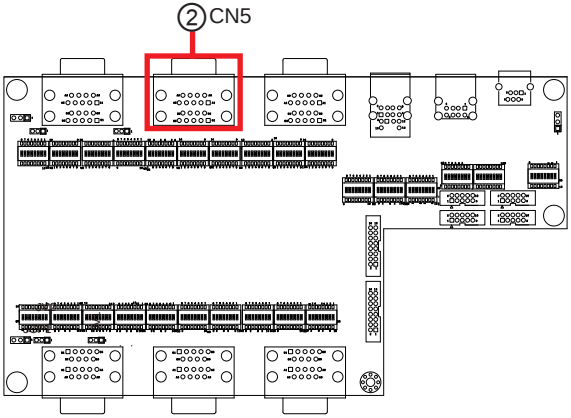


Pin Assignment:

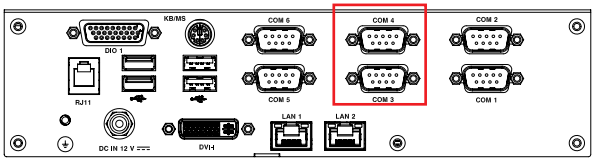
	Pin	Description	Pin	Description
RS232	1	DCD	2	RXD
	3	TXD	4	DTR
	5	GND	6	DSR
	7	RTS	8	CTS
	9	RI		

	Pin	Description	Pin	Description
RS485	1	DCD / (RS485-)	2	RXD / (RS485+)
	3	TXD	4	DTR
	5	GND	6	DSR
	7	RTS	8	CTS
	9	RI		

Board Top

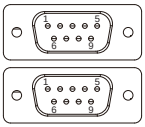


Rear Panel



③CN6 (COM Port 5, 6)

Function: COM Port 5, 6 (RS232/485, default: RS232)
Connector Type: 9-pin male-type DSUB connector



Pin Assignment:

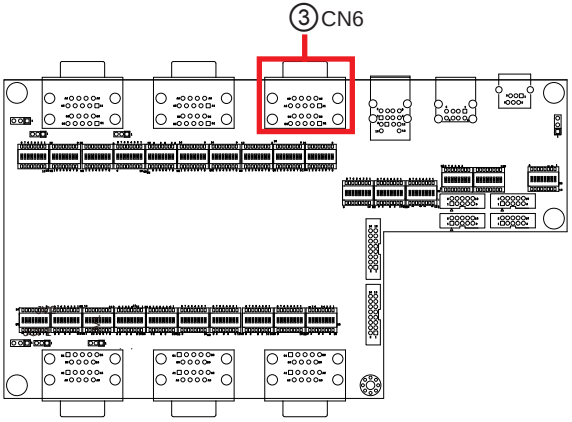
RS232

Pin	Description	Pin	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

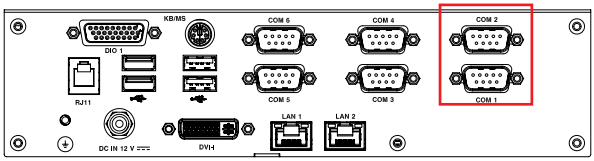
RS485

Pin	Description	Pin	Description
1	DCD / (RS485-)	2	RXD / (RS485+)
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

Board Top



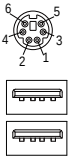
Rear Panel



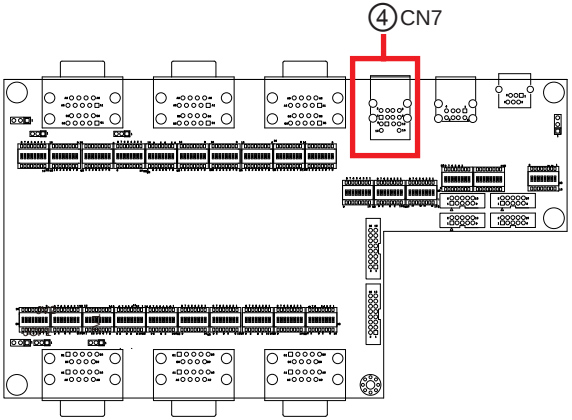
④CN7

Function: KB/MS and 2xUSB 2.0 Connectors (USB 3,4)
Connector Type: Onboard 18-pin header
Pin Assignment:

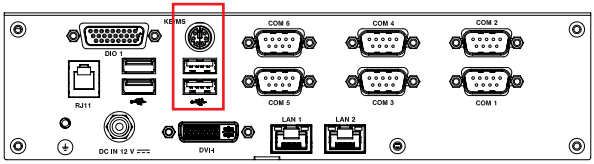
Pin	Description	Pin	Description
1	GND	9	GND
2	HUB1_USB1+	10	KDATA
3	HUB1_USB1-	11	MDATA
4	VCCUSB1	12	PS2_VCC
5	GND	13	KCLK
6	HUB1_USB2+	14	MCLK
7	HUB1_USB2-	15	GND
8	VCCUSB1	16	GND
		17	GND
		18	GND



Board Top

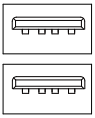


Rear Panel



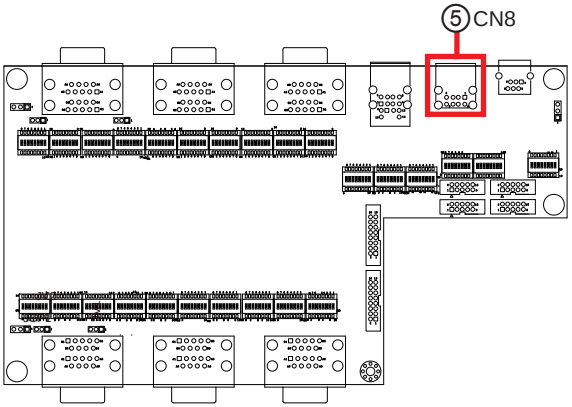
⑤CN8

Function: 2xUSB 2.0 Connectors (USB 5,6)
Connector Type: Onboard 8-pin header
Pin Assignment:

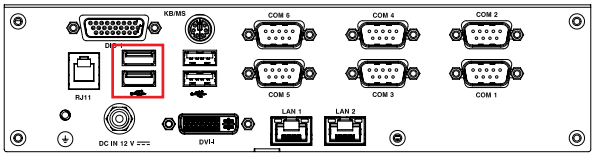


Pin	Description
1	VCCUSB3
2	HUB1_USB3-
3	HUB1_USB3+
4	GND
5	VCCUSB3
6	HUB1_USB4-
7	HUB1_USB4+
8	GND

Board Top

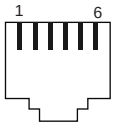


Rear Panel



⑥RJ11

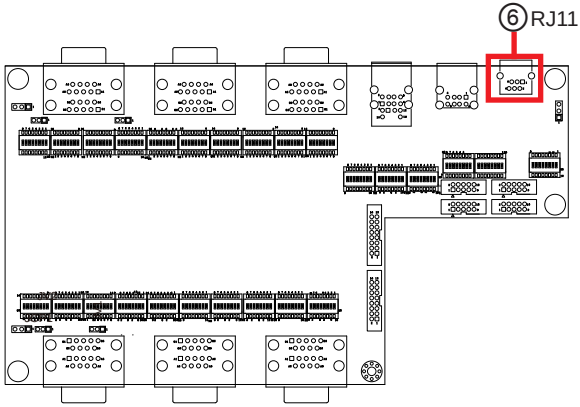
Function: RJ11 connector
Connector Type: onboard 6-pin header



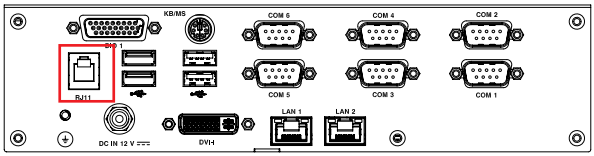
Pin Assignment:

Pin	Description
1	SIO_DI8
2	D_OUT1_N
3	RJ11_POWER
4	DI0
5	D_OUT0_N
6	GND

Board Top

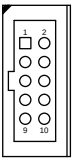


Rear Panel



⑦⑧⑨⑩COM13, 14 , 15, 16 (COM Port 13, 14, 15, 16)

Function: COM Port 13, 14, 15,16 (RS232/485, default: RS232)
Connector Type: 2.54mm pitch 2x5 pin box header
Pin Assignment:



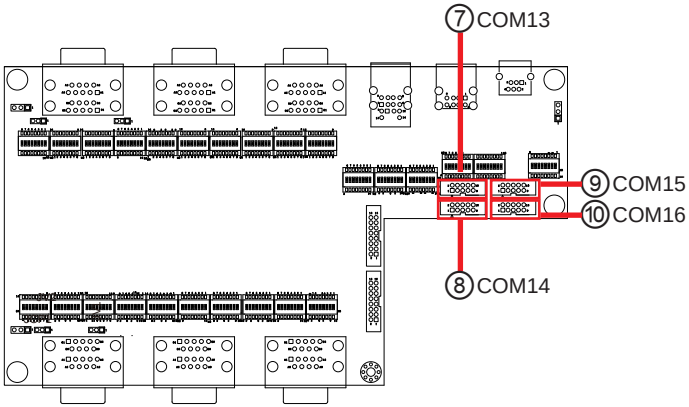
RS232

Pin	Description	Pin	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

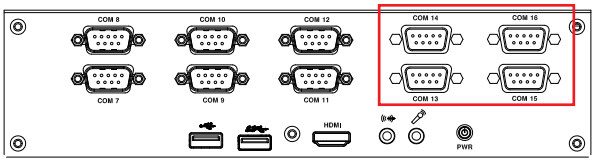
RS485

Pin	Description	Pin	Description
1	DCD / (RS485-)	2	RXD / (RS485+)
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

Board Top



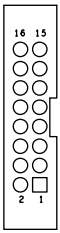
Front Panel



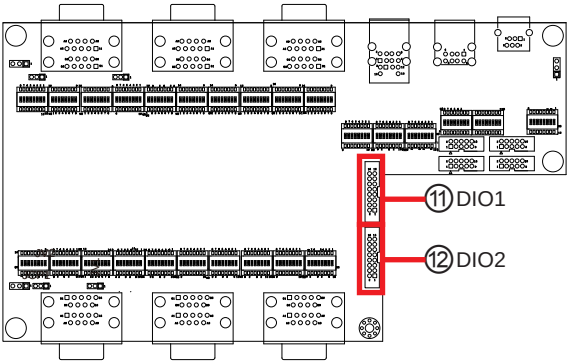
⑪⑫DIO1, 2

Function: Digital I/O Connectors (4-in/4-out)
Connector Type: onboard 2.00mm pitch 2x8-pin box header
Pin Assignment:

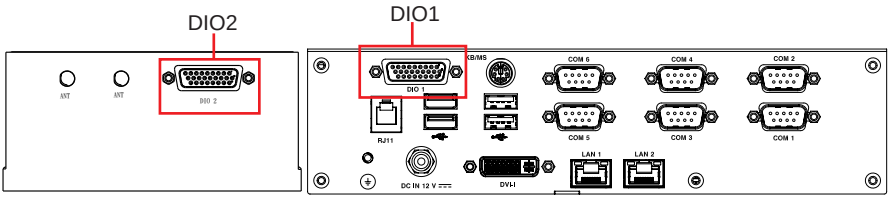
Pin	Description	Pin	Description
1	DI8	2	DI9
3	DI10	4	DI11
5	DI12	6	DI13
7	DI14	8	DI15
9	DO8	10	DO9
11	DO10	12	DO11
13	DO12	14	DO13
15	DO14	16	DO15



Board Top

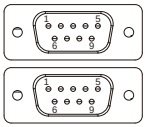


Right Side and Rear Panel



⑬CN3 (COM Port 11, 12)

Function: COM Port 11, 12 (RS232/485, default: RS232)
Connector Type: 9-pin male-type DSUB connector



Pin Assignment:

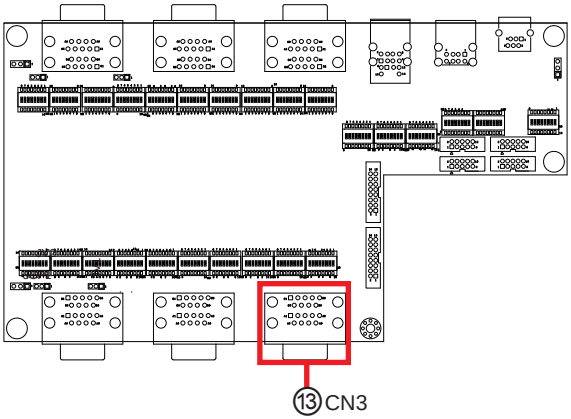
RS232

Pin	Description	Pin	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

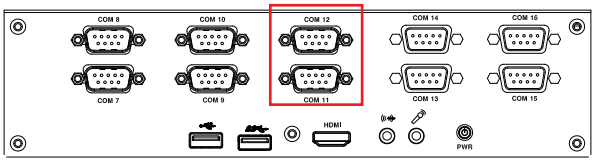
RS485

Pin	Description	Pin	Description
1	DCD / (RS485-)	2	RXD / (RS485+)
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

Board Top

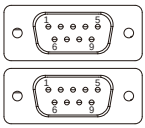


Front Panel



⑭CN2 (COM Port 9, 10)

Function: COM Port 9, 10 (RS232/485, default: RS232)
Connector Type: 9-pin male-type DSUB connector



Pin Assignment:

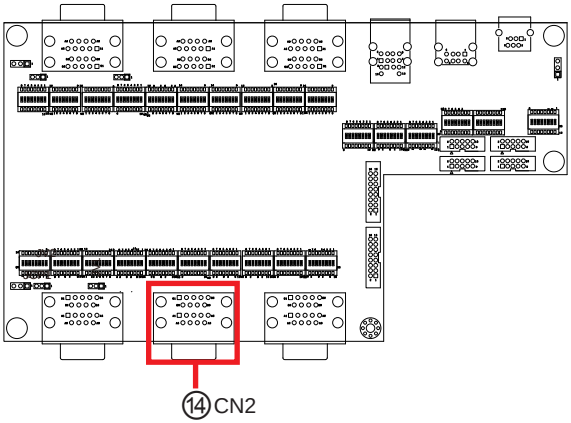
RS232

Pin	Description	Pin	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

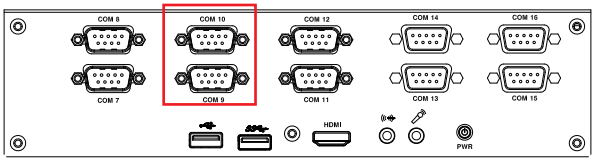
RS485

Pin	Description	Pin	Description
1	DCD / (RS485-)	2	RXD / (RS485+)
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

Board Top



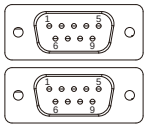
Front Panel



⑮CN1 (COM Port 7,8)

Function: COM Port 7, 8 (RS232/422/485 w/ 5/12V DC power, default: RS232)

Connector Type: 9-pin male-type DSUB connector

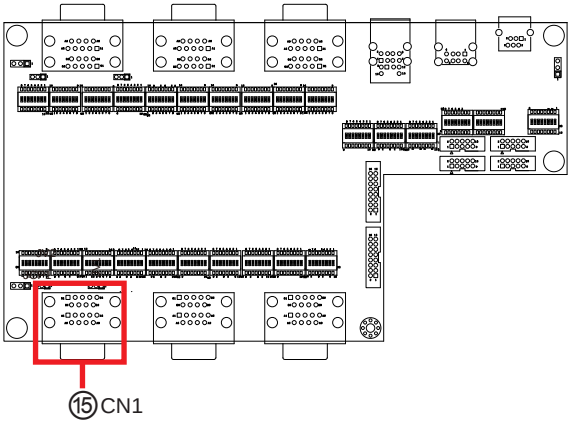


Pin Assignment:

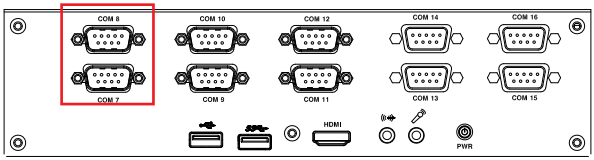
	Pin	Description	Pin	Description
RS232	1	DCD	2	RXD
	3	TXD	4	DTR
	5	GND	6	DSR
	7	RTS	8	CTS
	9	RI		

	Pin	Description	Pin	Description
RS422/ 485	1	DCD / (RS422 TX-) / (RS485-)	2	RXD / (RS422 TX+) / (RS485+)
	3	TXD / (RS422 RX+)	4	DTR / (RS422 RX-)
	5	GND	6	DSR
	7	RTS	8	CTS
	9	RI		

Board Top



Front Panel

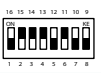


3.2.4. DIP Switches

SW 1~3, 16~18, 25, 26

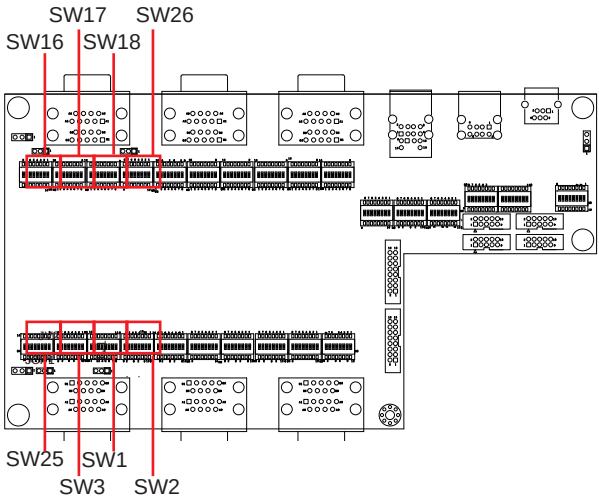
Function: COM1, 2, 7, 8 RS232/422/485 Mode Switch
Jumper Type: 1 x 8-pin DIP Switch

COM	Switch No.	Switch No.
COM1	SW16	SW17
COM2	SW26	SW18
COM7	SW1	SW2
COM8	SW25	SW3

Pins	RS232	RS422	RS485
1-16	On	Off	Off
2-15	Off	On	On
3-14	Off	On	On
4-13	Off	On	On
5-12	Off	On	Off
6-11	Off	Off	On
7-10	Off	On	Off
8-9	Off	On	Off
			

Pins	RS232	RS422	RS485
1-16	On	Off	Off
2-15	On	Off	Off
3-14	On	Off	Off
4-13	On	Off	Off
5-12	On	Off	Off
6-11	On	Off	Off
7-10	On	Off	Off
8-9	On	Off	Off
			

Board Top



SW 4~15, 19~24

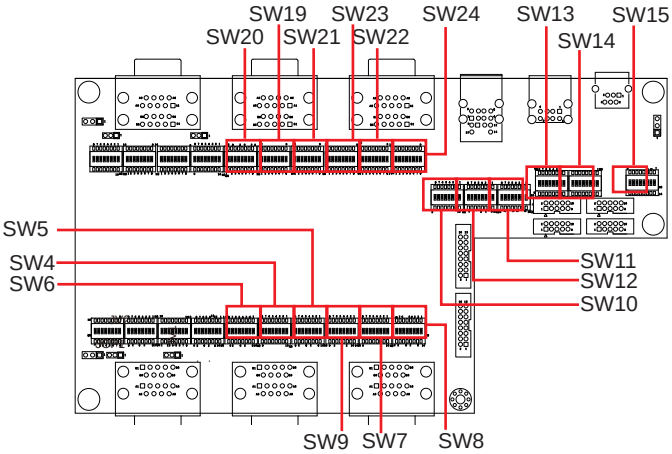
Function: COM3~6, 9~16 RS232/485 Mode Switch
Jumper Type: 1 x 8-pin DIP Switch

COM	Switch No.	Switch No.
COM3	SW19	SW20
COM4	SW19	SW21
COM5	SW22	SW23
COM6	SW22	SW24
COM9	SW4	SW5
COM10	SW4	SW6
COM11	SW7	SW8
COM12	SW7	SW9
COM13	SW10	SW11
COM14	SW10	SW12
COM15	SW13	SW14
COM16	SW13	SW15

Pins	RS232	RS485
1-16	On	Off
2-15	Off	On
3-14	Off	On
4-13	Off	On
		

Pins	RS232	RS485
1-16	On	Off
2-15	On	Off
3-14	On	Off
4-13	On	Off
5-12	On	Off
6-11	On	Off
7-10	On	Off
8-9	On	Off
		

Board Top


SW19
SW23
SW24
SW13
SW15
SW20
SW21
SW22
SW14
SW5
SW4
SW6
SW11
SW12
SW10
SW9
SW7
SW8

3.2.2.3 SCDB-128B

①PWR1

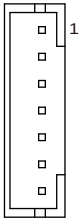
Destription: 12V DC-IN1
Connector Type: Onboard 2-pin header
Pin Assignment:

Pin	Description
1	DCIN_VCC
2	GND

②PBAT1

Destription: 12V DC-IN2
Connector Type: Onboard 7-pin header
Pin Assignment:

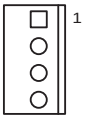
Pin	Desc.
1	GND
2	GND
3	BATT_SEN
4	SMB_DATA_MAIN
5	SMB_CLK_MAIN
6	BATT
7	BATT



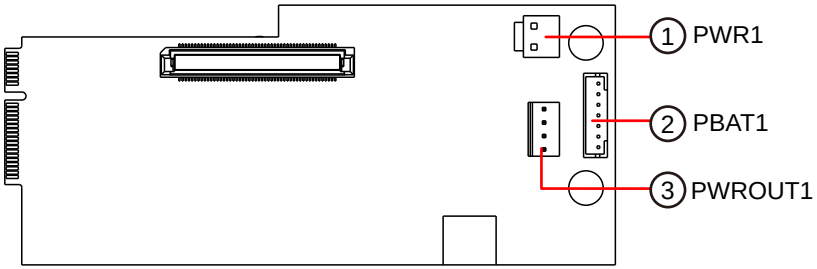
③PWOUT1

Destription:
Connector Type: Onboard 4-pin header
Pin Assignment:

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



Board Top



This page is intentionally left blank.

Chapter 4

Installation and Maintenance

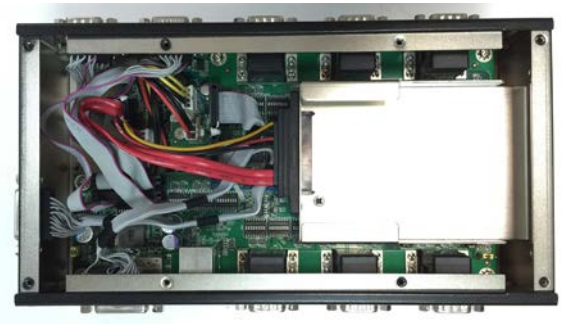
The ARES-1231 is constructed based on modular design to make it easy for users to add hardware or to maintain the computer. The following section will guide you to disassemble the computer.

4.1. Disassemble the Computer

Most of the connectors are built on the sides of the computer. To access the internal components, you need to disassemble the computer as described in this section.

1. Power off your computer and unplug the power cord and any peripherals. Place the computer on a flat surface. Loosen and remove the 8 screws as shown in the image below.

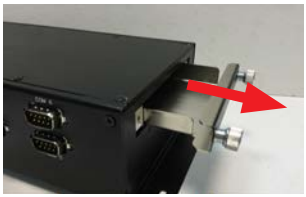
Then remove the top cover.



2. On the front panel, remove the 4 screws that fasten the panel and then the 20 screws that fasten the COM ports 7~16.

3. On the rear panel, remove the 4 screws that fasten the panel, the 2 standoff screws that fasten the DIO port and then the 12 standoff screws that fasten the COM ports 1~6.

4. On the side panel, remove the 2 screws that fasten the SSD storage tray and them remove the tray.

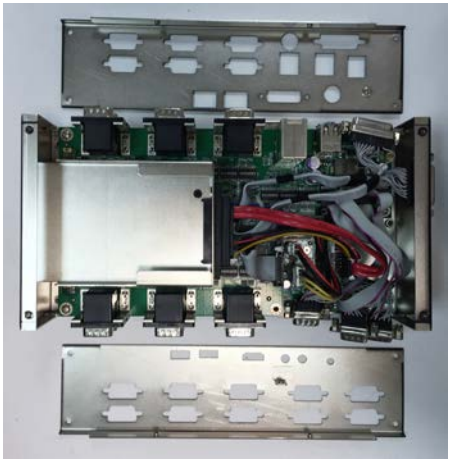


Then remove the 2 screws as shown in the image below so that you can remove the tray from the main board later.

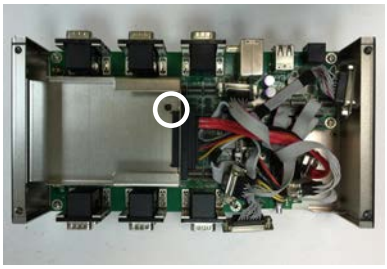
5. On the side panel, remove the 2 standoff screws that fasten the DIO port.

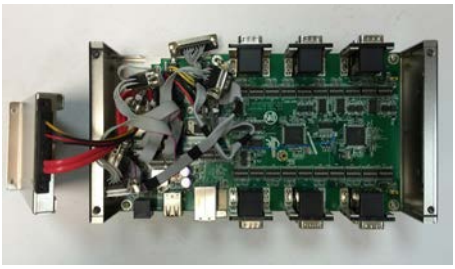
6. Remove the screw that fasten the front panel to the top board and then remove the front panel.

7. Remove the rear panel.

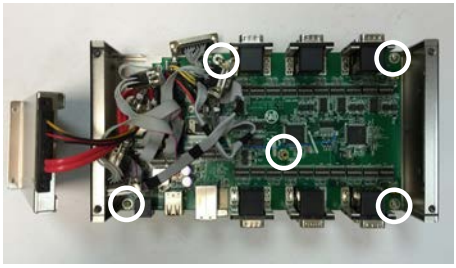


8. Remove the screw that fasten the SSD storage tray to the bottom board and place the tray aside.





9. Remove the 5 screws that fasten the top board to the bottom board.



10. Remove the top board and the bottom board will come to view.

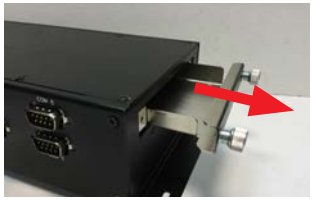
To reassemble your computer, just follow the instructions in reverse order.

4.2. Install SSD or HDD

The computer comes with a removable storage tray for SSD or 2.5" HDD installation. To install an SSD or 2.5" HDD to the computer, complete the following steps.

1. Power off your computer and unplug the power cord and any peripherals.

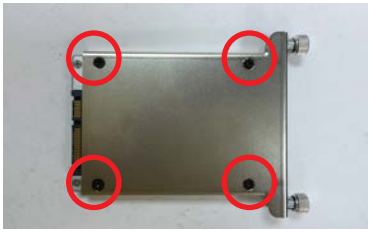
2. Loosen the 2 thumb screws of the storage tray and remove the tray from the computer.



3. Place your SSD or HDD into the tray. Orient the SSD or HDD so that the connectors are towards the inside of the computer.

Connectors towards the inside of the computer

4. Carefully turn the tray over and fasten the 4 screws to secure the SSD or HDD to the tray.

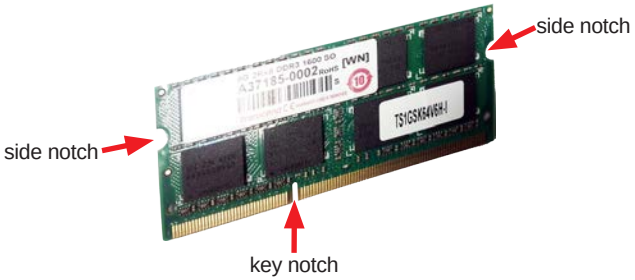


5. Insert the storage tray back into the computer case and push it all the way into the SATA connectors.

6. Fasten the 2 thumb screws of the storage tray.

4.3. Install Memory Module

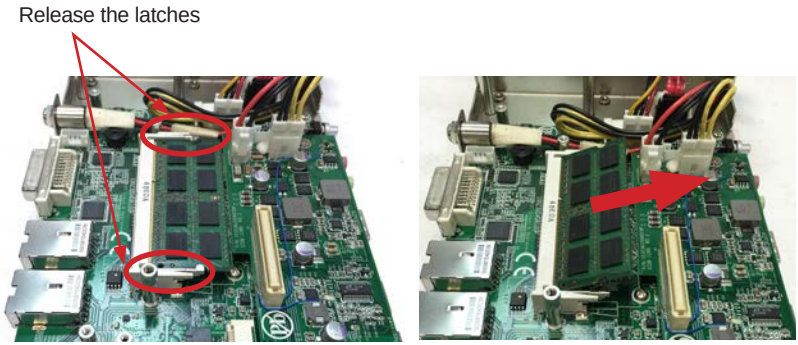
The main board has one dual inline memory module (DIMM) socket. Load the computer with a memory module to make the computer run programs. The memory module for the computer's SO-DIMM socket should be a 204-pin DDR3 with a "key notch" off the centre among the pins, which enables the memory module for particular applications. There are another two notches at each left and right side of the memory module to help fix the module in the socket.



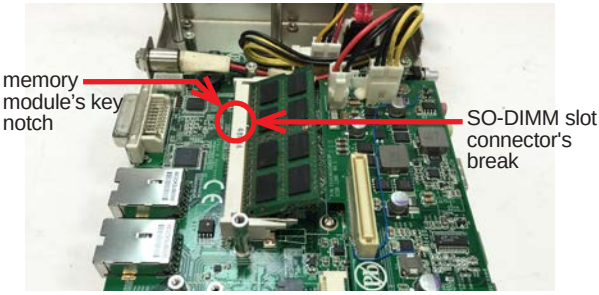
To install a memory module:

1. Access the bottom board of the computer as described in in 4.1. Disassemble the Computer on page 56.

2. To remove the existing memory module for replacement with a new one, carefully release the latches on the side of the module holder. Then gently slide the module out of the socket.

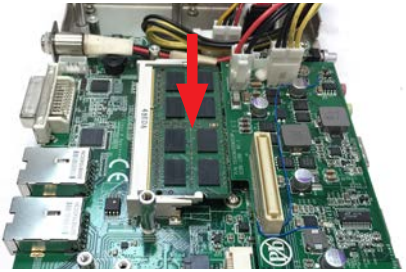


3. Confront the memory module's edge connector with the SO-DIMM slot connector. Align the memory module's key notch at the break on the SO-DIMM slot connector. By a slanted angle, fully plug the memory module until it cannot be plugged any more.



Aligh the memory module's key notch at the SO-DIMM slot connector's break.

4. Press down the memory module until it is auto-locked in place.



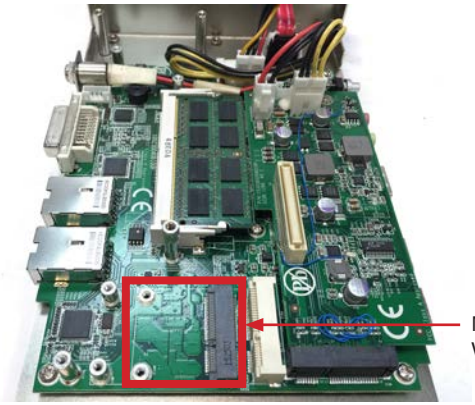
5. To reassembly the computer after the memory module installation, repeat the steps in 4.1. Disassemble the Computer on page 56 in reverse order.

4.4. Install Wi-Fi Module (Optional)

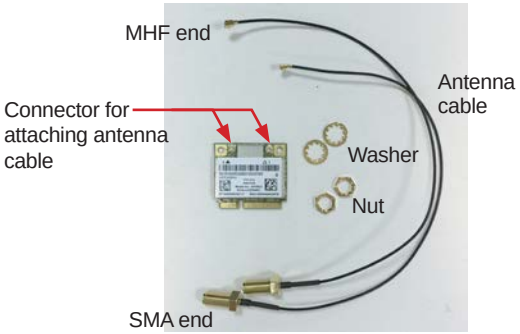
To use Wi-Fi, hardware-wise the computer needs a Wi-Fi module installed, and software-wise the computer needs the device driver and an application program. This appendix will guide you to install the Wi-Fi module and the device driver.

1. Access the bottom board of the computer as described in 4.1. Disassemble the Computer on page 56.

2. The mini-card socket for installing the Wi-Fi module is beneath the mSATA socket. If an mSATA module has been installed, you will need to remove the mSATA module first.

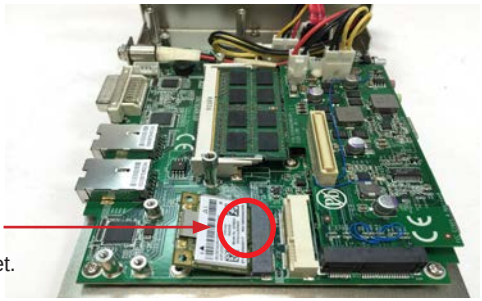


3. Prepare the Wi-Fi module kit. The module is a half-size module of PCI Express Mini-card form factor, with two small connectors for wireless antenna cables.



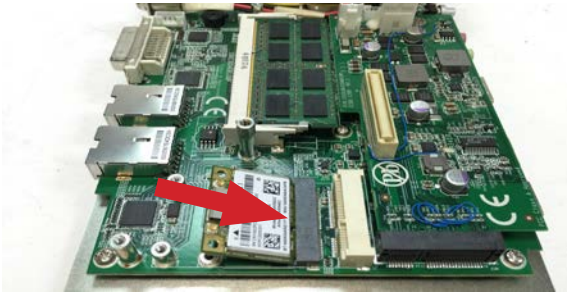
4. Use a needle-nose pliers or tweezers to remove the antenna plastic plug from the computer to reveal the antenna hole(s). Keep the plastic plug for any possible restoration in the future.

5. Align the Wi-Fi module with the socket; notches of the Wi-Fi module must match the socket keys for a correct installation.

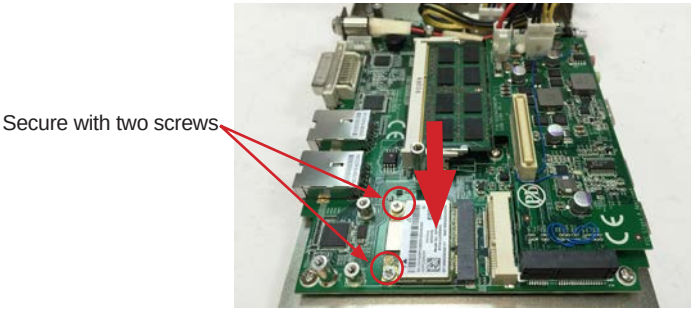


Align the notch on the Wi-Fi module with the notch in the mini-card socket.

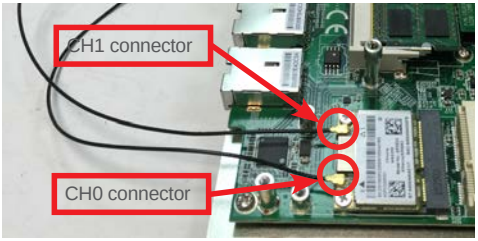
6. By a slanted angle, fully insert the Wi-Fi mini-card until it cannot be inserted any more.



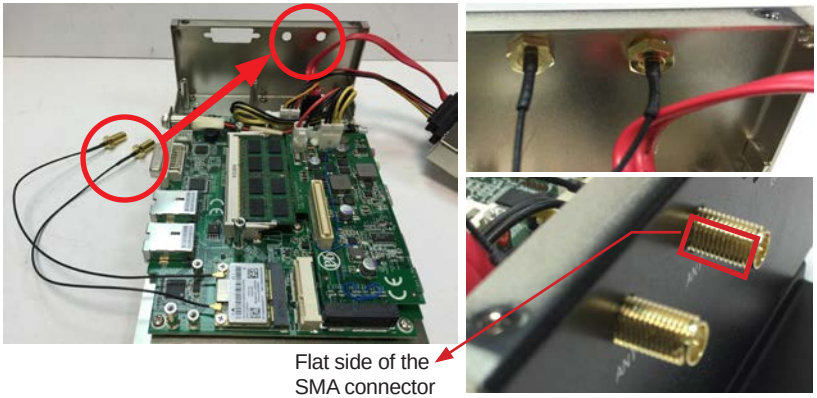
7. Press down the end of the Wi-Fi mini-card and then fix the card in place using two screws.



8. Connect the 2 antenna cables to the module. If only one antenna is to be used, connect it to the CH0 connector. Make sure that the cable has been securely fastened.



9. Slide the SMA end of the antenna cable(s) into the antenna hole(s). Note that the SMA connector comes in the form of a threaded bolt, with one flat side. Make sure to align the connector's flat side with the hole's flat side.



10. Install the washer first and then the nut to the connector to secure the antenna cable connector(s).

11. Prepare the external antenna. Screw and tightly fasten the antenna to the Wi-Fi connector(s). Then swivel the antenna to an angle of best signals.

12. Restore the mSATA module if needed

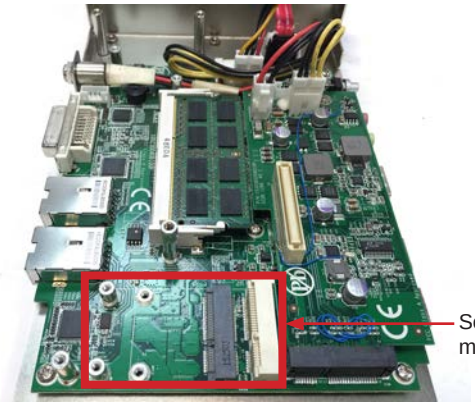
13. To reassembly the computer after the memory module installation, repeat the steps in 4.1. Disassemble the Computer on page 56 in reverse order.

4.5. Install mSATA Storage (Optional)

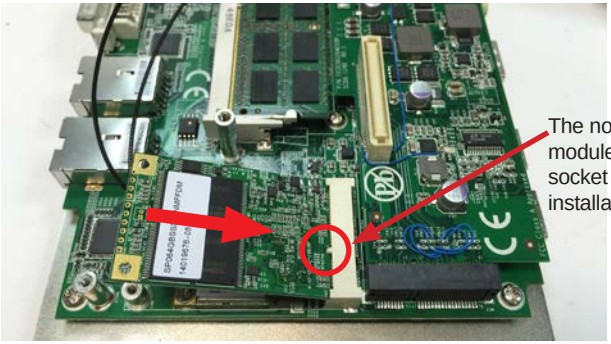
To install an mSATA storage module to the computer:

1. Access the inside of the computer as described in 4.1. Disassemble the Computer on page 56.

2. Locate the socket for mSATA module as the picture below shows.



3. Align the notches on the mSATA card with the notches in the mSATA socket. By a slanted angle, fully insert the mSATA card until it cannot be inserted any more.



4. Press down the end of the mSATA card and then fix the card in place using two screws.

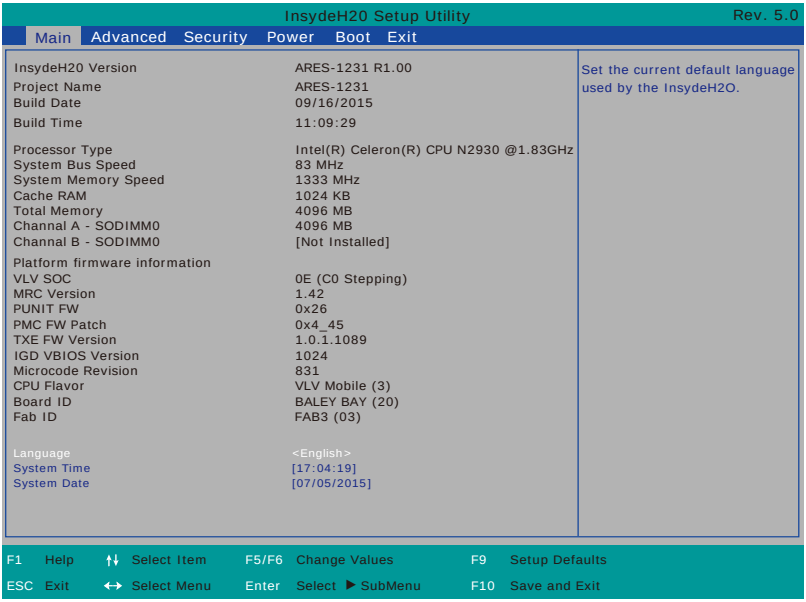
5. To reassembly the computer after the mSATA module installation, repeat the steps in 4.1. Disassemble the Computer on page 56 in reverse order.

Chapter 5

BIOS

The BIOS Setup utility for the computer is to configure the system settings stored in the system's BIOS ROM. The BIOS is activated once the computer powers on. When the computer is off, the battery on the main board supplies power to BIOS RAM.

To enter the BIOS Setup utility, keep hitting the "Esc" key upon powering on the computer.



The BIOS featured menus are:

Menu	Description
Main	See 5.1. Main on page 74.
Advanced	See 5.2. Advanced on page 75.
Security	See 5.3. Security on page 80.
Power	See 5.4. Power on page 81.
Boot	See 5.5. Boot on page 82.
Exit	See 5.6. Exit on page 83.

Key Commands

The BIOS Setup utility relies on a keyboard to receive user's instructions. Hit the following keys to navigate within the utility and configure the utility.

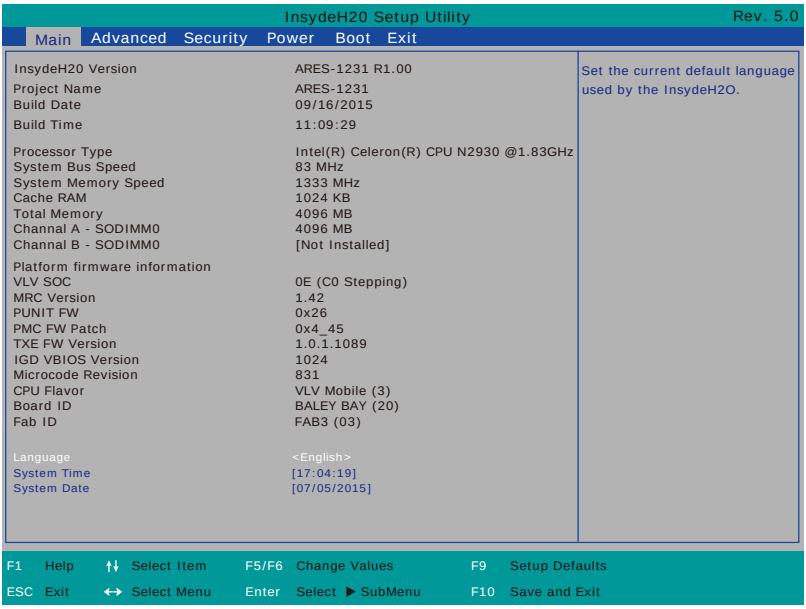
Keystroke	Function
← →	Moves left/right between the top menus.
↓ ↑	Moves up/down between highlight items.
Enter	Selects an highlighted item/field.
Esc	▸ On the top menus: Use **Esc** to quit the utility without saving changes to CMOS. (The screen will prompt a message asking you to select **OK** or **Cancel** to exit discarding changes. ▸ On the submenus: Use **Esc** to quit current screen and return to the top menu.
F5	Increases current value to the next higher value or switches between available options.
F6	Decreases current value to the next lower value or switches between available options.
F1	Opens the **Help** of the BIOS Setup utility.
F9	Restore the Setup Default (The screen then prompts a message asking you to select **OK** or **Cancel** to restore to default.)
F10	Exits the utility saving the changes that have been made. (The screen then prompts a message asking you to select **OK** or **Cancel** to exit saving changes.)

Note: Pay attention to the "WARNING" that shows at the left pane onscreen when making any change to the BIOS settings.

This BIOS Setup utility is updated from time to time to improve system performance and hence the screenshots hereinafter may not fully comply with what you actually have onscreen.

5.1. Main

The **Main** menu features the settings of **System Date** and **System Time** and displays some BIOS info and system info.



The BIOS info displayed are:

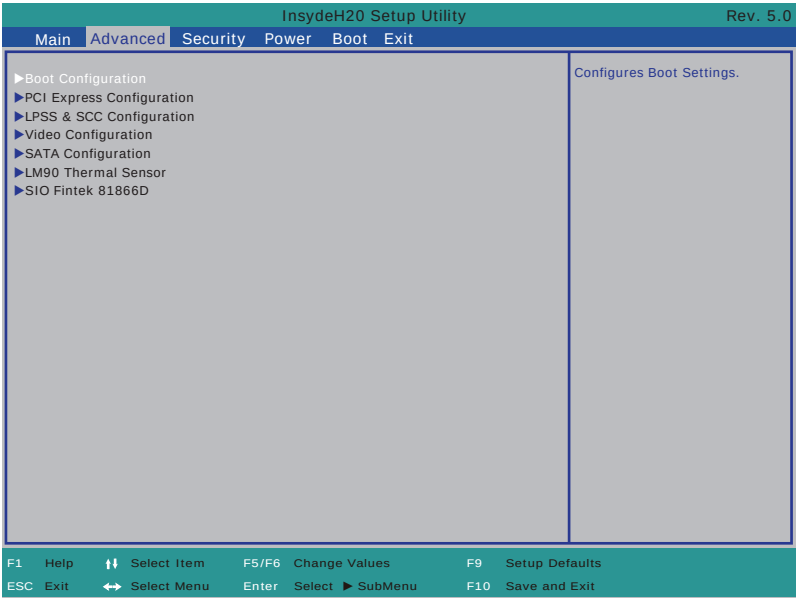
Info	Description
InsydeH20 Version	Delivers the computer's BIOS version.
Project name	Delivers the name of the project
Build Date and Time	Delivers the date and time when the BIOS Setup utility was created/ updated.
Platform firmware Information	Delivers the Platform firmware Information

The featured settings are:

Setting	Description
Language	Select the current default language used by the InsydeH20
System Time	Sets system time.
System Date	Sets system date.

5.2. Advanced

Access the **Advanced** menu to manage the computer's system configuration including the Super IO chip.



The featured settings and submenus are:

Setting	Description
Boot Configuration	See 5.2.1. Boot Configuration on page 76
PCI Express Configuration	See 5.2.2. PCI Express Configuration on page 76
LPSS & SCC Configuration	See 5.2.3. LPSS & SCC Configuration on page 76
Video Configuration	See 5.2.3. Video Configuration on page 77
SATA Configuration	See 5.2.4. SATA Configuration on page 78
LM90 Thermal Sensor	See 5.2.5. LM90 Thermal Sensor on page 79
SIO Fintek 81216	See 5.2.6. SIO Fintek 81216 on page 79

5.2.1. Boot Configuration

Setting	Description
Numlock	Select Power-on state for Num lock

5.2.2. PCI Express Configuration

Configures PCI Express by the following settings:

Setting	Description
PCI Express Root Port 1/2/3/4	▸ PCI Express Root Port 1/2/3/4 Enables/disables this PCIe port. ▸ PCIE Port 1/2/3/4 Speed Options are: Auto (default), Gen 1, Gen 2 Auto is the default. ▸ PCIE Port 1/2/3/4 ASPM Options are: Disable : disables ASPM L0s : force all links to L0s state L1 : force all links to L1 state L0sL1 : force all links to L0s+L1 state Auto : BIOS auto configure (default)

5.2.3. LPSS & SCC Configuration

Select this submenu to configure LPSS & SCC device.

The featured settings are:

Setting	Description
LPSS & SCC Device Mode	Set the mode of LPSS & SCC Device Options are **ACPI mode**(default)/**PCI mode**
OS Selection	Set the mode of OS Selection Options are Windows(default)/Android

5.2.3. Video Configuration

Configure video settings

The featured setting is:

5.2.4.1 Video Configuration

Setting	Description
Logo & SCU Resolution	Set Logo & SCU Resolution. Options are Auto/640 x480/800 x 600/1024 x 768

5.2.4.2 VBT Hook Configuration

Setting	Description
Configure CRT as	Set the option of CRT. Options are Default / CRT / No Device
CRT EDID Support	Enables/Disables CRT EDID Support
Configure DDI0 as	Set the option of DDI0. Options are Default/DisplayPort/ HDMI/DVI /DisplayPort with HDMI/ DVI Compatible / No Device
Configure DDI1 as	Set the option of DDI1. Options are Default/ LVDS/ DisplayPort/ HDMI/DVI /DisplayPort with HDMI/DVI Compatible / No Device
Configure eDP Panel Number as	Set the option of VBIOS eDP Panel Number. Options are 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16.
LFP EDID Support	Enables/Disables LFP EDID Support
EFP EDID Support	Enables/Disables EFP EDID Support

5.2.4.3 PTN3460 (eDP to LVDS) Configuration

Setting	Description
PTN3460 Output Format	Set the Output Format of PTN3460. Options are (00) VESA (24bpp) / (01) VESA or JEIDA (18bpp) / (10) JEIDA (24bpp) / (11) JEIDA (24bpp)
PTN3460 Channel Control	Set the Channel Options are Single / Dual
PTN3460 EDID Table	Set the EDID Table of PTN3460.

5.2.4. SATA Configuration

Select this submenu to configure the SATA controller and HD.

Setting	Description
SATA Controller(s)	Enables/disables the present SATA controller. ▸ **Enabled** is the default.
SATA Speed	Configures SATA Speed ▸ Options are: Gen 1, Gen 2 (default)
Configures SATA Mode	Configures how to sun the SATA drives. ▸ Options available are **AHCI** (default) and **IDE**.
SATA Port 0 Hot Plug Capability	Enables/disables hot-pluggable feature for the SATA port. ▸ **Enabled** is the default.
SATA Port 1 Hot Plug Capability	
SATA Port 0 Connect to an ODD	Enables/disables the SATA port connect to an ODD If enabled, when you connect an ODD to a SATA port. The software auto detection for media insert and tray will be enabled. ▸ **Disabled** is the default.
SATA Port 1 Connect to an ODD	
Serial ATA Port 0	Delivers the SATA port Media information and Security Mode.
Serial ATA Port 1	

5.2.5. LM90 Thermal Sensor

Setting	Description
Local Temperature	Display Local Temperature
Remote Temperature	Display Remote Temperature
Thermal Status	Display Thermal Status

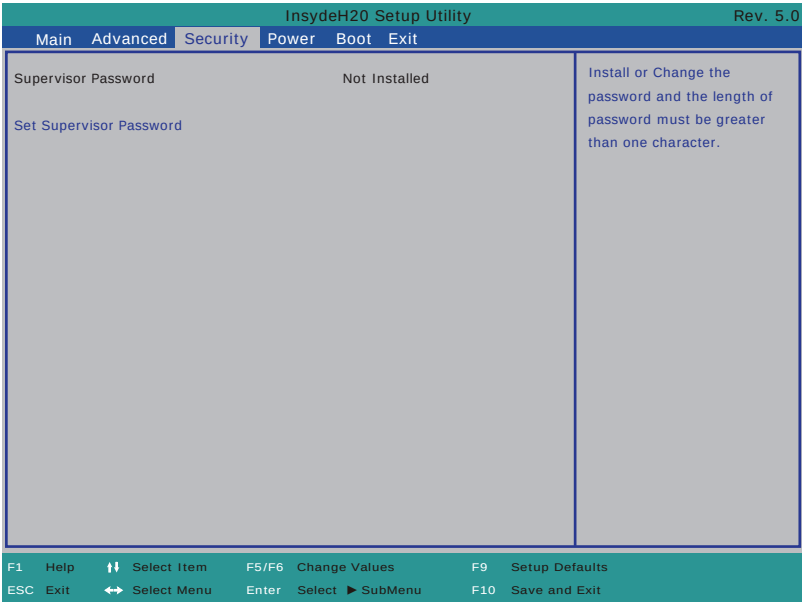
5.2.6. SIO Fintek 81216

Configures SIO by the following settings:

Setting	Description
Serial Port 1/2	▸ Serial Port 1/2 Enables/disables the Serial port. ▸ Base I/O Address Setup the Base I/O Address of the Serial Port. ▸ Interface Setup the interface of the Serial Port. Options are RS232 / RS485 ▸ Interrupt Setup the Interrupt of the Serial Port

5.3. Security

The **Security** menu sets up the password for the system's administrator account. Once the administrator password is set up, this BIOS Setup utility is limited to access and will ask for the password each time any access is attempted.

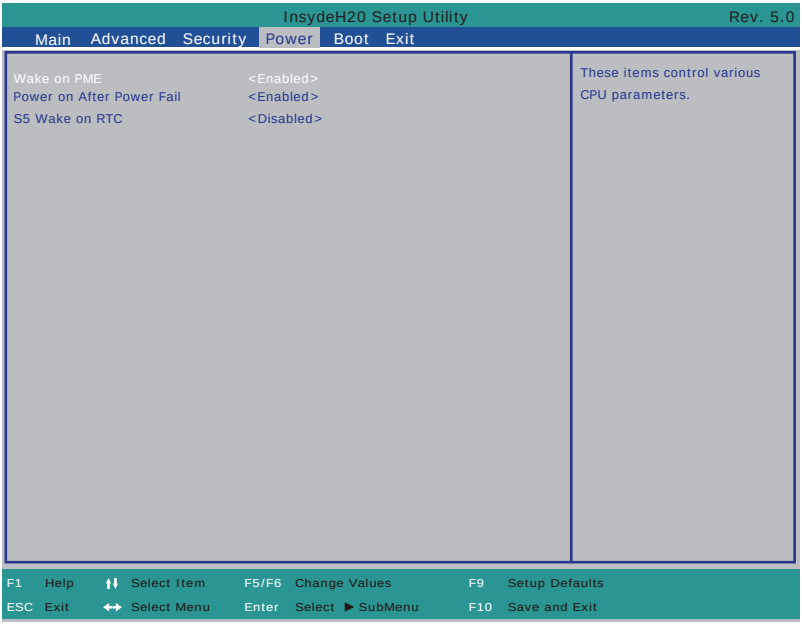


The featured setting is:

Setting	Description
Set Supervisor Password	To set up a supervisor password. 1. After selecting **Set Supervisor Password**, a dialog box then pops up on-screen. Enter and confirm your desired password. The length of the password must be greater than one character. 2. To change an existing supervisor password, you will need to enter the original password.

5.4. Power

The **Security** menu sets up the password for the system's administrator account. Once the administrator password is set up, this BIOS Setup utility is limited to access and will ask for the password each time any access is attempted.

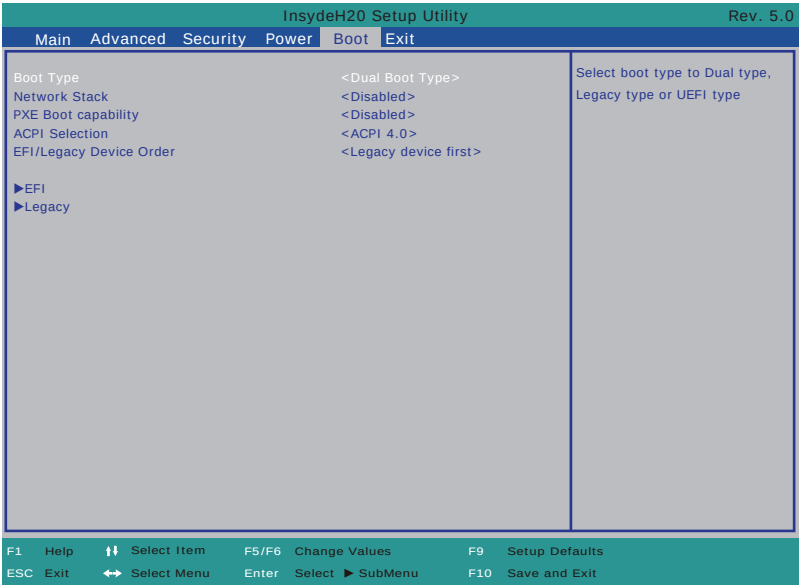


The featured setting is:

Setting	Description
Wake on PME	Enables or diables Wake on PME. Determines the action taken when the system power is off and a PCI Power Management Enable wake up event occurs.
Power On After Power Fail	Specify what state to go to when power is reapplied after a power failure.
S5 Wake on RTC	Wake on RTC from S5 state, By day of Month or fix time of every day. Options are Disabled(default) / By Every Day / By Day of Month

5.5. Boot

The **Boot** menu configures how to boot up the system such as the configuration of boot device priority.

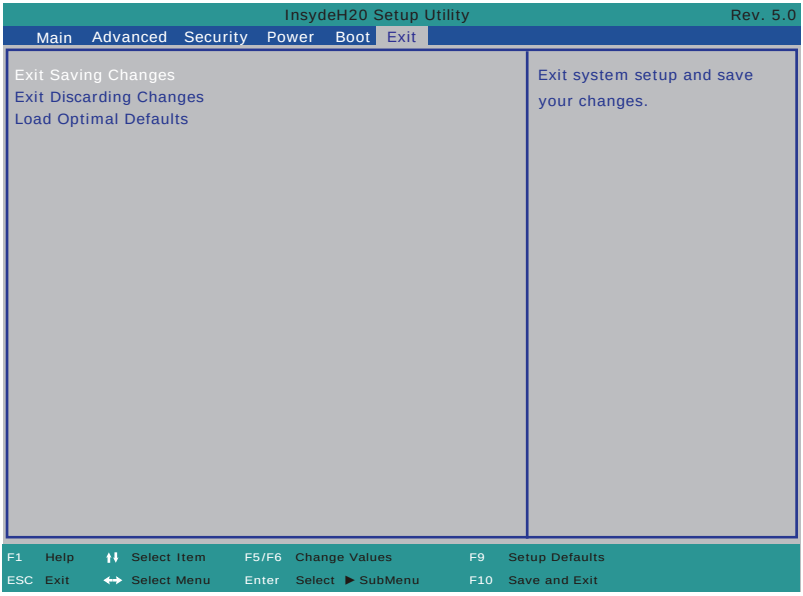


The featured settings are:

Setting	Description
Boot Type	Select Boot Type. Options are **Legacy Boot Type**(default) and **UEFI Boot Type**
PXE boot to LAN	Disables or enables PXE boot to LAN.
APCI Selection	Select boot to Acpi 3.0/Acpi 1.0B Options are Acpi 1.0B/Acpi 3.0/Acpi 4.0/Acpi 5.0

5.6. Exit

The **Save & Exit** menu features a handful of commands to launch actions from the BIOS Setup utility regarding saving changes, quitting the utility and recovering defaults.



The features settings are:

Setting	Description
Exit Saving Changes	Saves the changes and quits the BIOS Setup utility.
Exit Discard Changes	Quits the BIOS Setup utility without saving the change(s).
Load Optimal Defaults	Restores all settings to defaults. ▸ This is a command to launch an action from the BIOS Setup utility rather than a setting.

This page is intentionally left blank.