IEI Integration Corp.

MODEL:

TANGO-3010 Series

Embedded System with Intel® Celeron™ J6412 Processor, LPDDR4X, Two HDMI 1.4b, Three 2.5 GbE LAN, RS-232/422/485, USB 3.2 RoHS Compliant

User Manual

Rev. 1.00 – November 29, 2022

RoHS Lead Free

Revisions

Date	Version	Changes
November 29, 2022	1.00	Initial release

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Manual Conventions

WARNING

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously.

CAUTION

Cautionary messages should be heeded to help reduce the chance of losing data or damaging the product.

NOTE

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes.

HOT SURFACE

This symbol indicates a hot surface that should not be touched without taking care.

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1

Introduction

1.1 Overview

Figure 1-1: TANGO-3010 Series-J6412

The TANGO-3010 Series is an embedded system with Intel® Celeron® J6412 processor and 8GB LPDDR4X on-board memory. It is equipped with three 2.5 GbE LAN ports, two USB 3.2 Gen 2 (10Gb/s) ports, two USB 2.0 ports, one RS-232 (3T5R) port and one RS-232/422/485 port.

The TANGO-3010 Series has two HDMI 1.4b ports supporting up to 4k@ 30Hz resolution, and includes one M.2 2230 A-key slot and one M.2 2280 M-key slot for expansions.

1.2 Features

The TANGO-3010 Series features are listed below:

- Intel® Celeron® J6412 2.0 GHz processor (up to 2.6 GHz, quad-core, TDP 10W) and 8GB LPDDR4X on-board memory
- Dual independent displays with high resolution support
- Rich high-speed I/O interfaces
- One 2.5" HDD/SSD SATA 6Gb/s bay (supports up to 9.5 mm SSD)
- One M.2 A-key and M.2 M-key expansion

1.3 Front Panel

The front panel of the TANGO-3010 Series has the following features **(See** Figure 1-2**):**

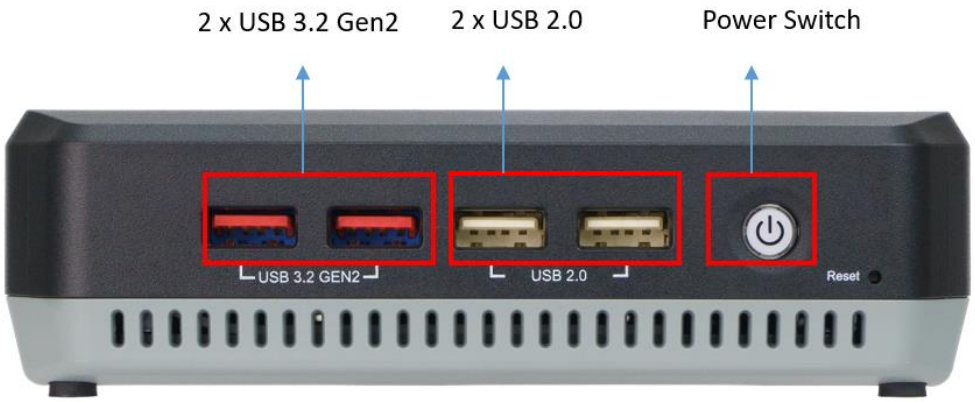


Figure 1-2: Front Panel

1.4 Rear Panel

The rear panel of the TANGO-3010 Series is shown below **(See** Figure 1-3**).**

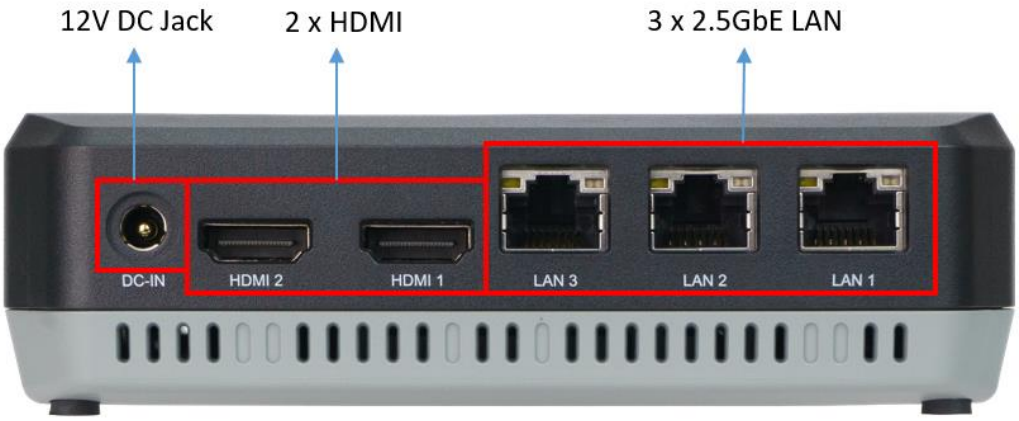


Figure 1-3: Rear Panel

1.5 Left Side Panel

The left side panel of the TANGO-3010 Series is shown below **(See** Figure 1-3**).**

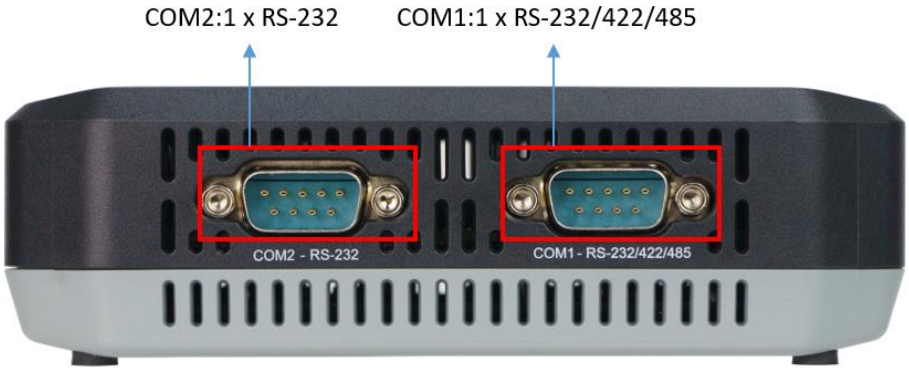


Figure 1-4: Left Side Panel

1.6 Technical Specifications

The TANGO-3010 Series technical specifications are listed **in Table 1-1, Table 1-2**

Specifications	
Chassis	
Color	Black C & grey (Pantone 430C)
Dimensions (WxDxH) (mm)	139 x 137 x 39.8
System Fan	Fanless
Chassis Construction	ABS Plastic + Aluminum
Motherboard	
CPU	Intel® Celeron® J6412 2GHz (up to 2.6GHz, TDP 10W)
Chipset	SoC
System Memory	LPDDR4X on board 8GB (up to 16G)
Storage	
Hard Drive	1 x 2.5" HDD/SSD SATA 6Gb/s bay (supports up to 9.5 mm SSD)
I/O Interfaces	
Ethernet	3 x RJ-45 2.5 GbE by I225V controller
USB	2 x USB 3.2 Gen 2 (10Gb/s) 2 x USB 2.0
Display	2 x HDMI 1.4b with CEC support (up to 4K @ 30Hz)
COM	1 x RS-232 (DB9) 1 x RS-232/422/485 (DB9)
Wireless	INTEL AX210 WiFi 6E & Bluetooth 5.2 Module built-in 2T2R antenna

TPM 2.0	Intel® PTT
Expansions	
M.2	1 x 2230 A-key (PCIe 1/USB2.0)(preinstalled WIFI Module) 1 x 2280 M-key (PCIe 4)
Power	
Power Input	DC jack: 12 V DC
Power Consumption	+12V@2.95A (Intel® Celeron J6412 with 8GB memory)
Reliability	
Mounting	60.6 x 11.55 With conversion vesa75/100 bracket
Operating Temperature	0 ~ 40°C with air flow (SSD)
Operating Humidity	10% ~ 95%, non-condensing
Storage Temperature	-10°C ~ 60°C with air flow (SSD)
Storage Humidity	10% ~ 90%, non-condensing
Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
Operating Vibration	MIL-STD-810G 514.6C-1 (with SSD)
Weight (Net/Gross)	0.57/1.35kg
Safety/EMC	CE/RED/FCC
Watchdog Timer	Programmable 1~255 sec/min
Others	
Switch	1 x Power Button (with LED) 1 x Reset Button

OS	
Supported OS	Microsoft® Windows® 10 / Windows® 11 Linux

Table 1-1: Technical Specifications

Technology	Frequency range/MHz	Max.E.I.R.P/dBm
WLAN 2.4GHz	2400-2483.5	20
WLAN 5GHz	5150–5250	23
WLAN 5GHz	5250–5350	23
WLAN 5GHz	5470–5725	23
WLAN 5GHz	5725–5850	13.98
WLAN 6GHz	5945–6425	14
Bluetooth BR/EDR	2402-2480	20
Bluetooth LE	2402-2480	20

Table 1-2:WLAN/Bluetooth Frequency range and power

3.1 Physical Dimensions

The physical dimensions of the TANGO-3010 are shown in **Figure 1-4**.

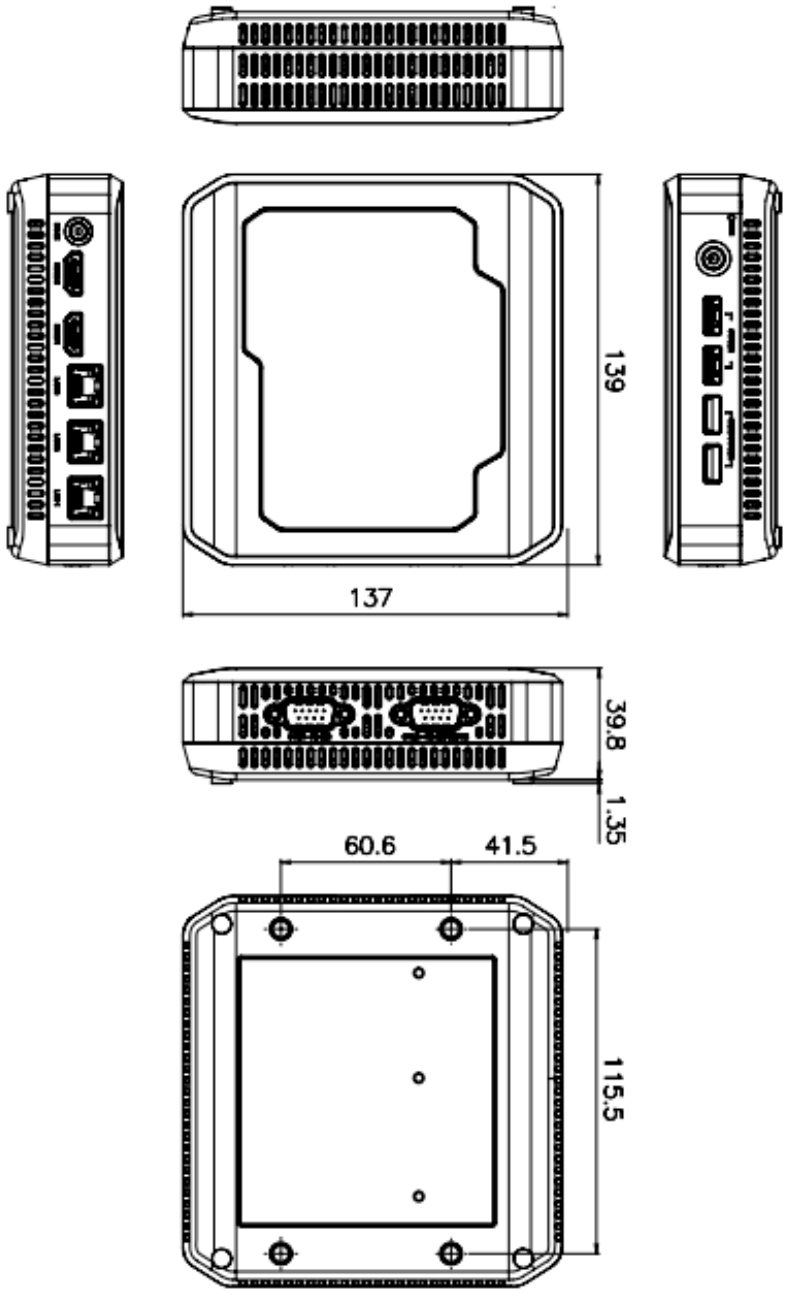


Figure 1-4: Physical Dimensions

Chapter

2

Unpacking

4.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during installation may result in permanent damage to the TANGO-3010 Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the TANGO-3010 Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the TANGO-3010 Series or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the TANGO-3010 Series, place it on an antic-static pad. This reduces the possibility of ESD damaging the TANGO-3010 Series.

4.2 Unpacking Precautions

When the TANGO-3010 Series is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 4.1**.
- Make sure the packing box is facing upwards so the TANGO-3010 Series does not fall out of the box.
- Make sure all the components shown in **Section 4.2** are present.

4.3 Unpacking Checklist

NOTE:

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the TANGO-3010 Series from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@ieiworld.com.

The TANGO-3010 Series is shipped with the following components:

Quantity	Item and Part Number	Image
Standard		
1	TANGO-3010 Series	
1	VESA mounting kit	
1	Mounting screw pack	
1	Power cord	

Quantity	Item and Part Number	Image
Standard		
1	Power adapter (P/N: 63040-380060-101-RS)	
1	Screw driver	

Table 2-1: Packing List

Chapter

3

Installation

5.1 Installation Precautions

During installation, be aware of the precautions below:

- **Read the user manual**: The user manual provides a complete description of the TANGO-3010 Series, installation instructions and configuration options.
- **DANGER! Disconnect Power**: Power to the TANGO-3010 Series must be disconnected during the installation process, or before any attempt is made to access the rear panel. Electric shock and personal injury might occur if the rear panel of the TANGO-3010 Series is opened while the power cord is still connected to an electrical outlet.
- **Qualified Personnel**: The TANGO-3010 Series must be installed and operated only by trained and qualified personnel. Maintenance, upgrades, or repairs may only be carried out by qualified personnel who are familiar with the associated dangers.
- **Air Circulation**: Make sure there is sufficient air circulation when installing the TANGO-3010 Series. The cooling vents of TANGO-3010 Series must not be obstructed by any objects. Leave at least 5 cm of clearance around the TANGO-3010 Series to prevent overheating.
- **Grounding**: The TANGO-3010 Series should be properly grounded. The voltage feeds must not be overloaded. Adjust the cabling and provide external overcharge protection per the electrical values indicated on the label attached to the back of the TANGO-3010 Series.

5.2 Back Cover Removal

Before installing or maintaining the internal components, the back cover must be removed from the TANGO-3010. Follow the steps below to complete the task.

Step 1: Turn the TANGO-3010 over and remove the 4 screws on the back cover.

Step 1: Take off the back cover **(See Figure 5-5).**

Figure 5-5: Remove the Cover

5.3 Storage Installation

The TANGO-3010 supports two types of storage, one via M.2 2280 M-key slot and one via 2.5" SATA drive bay.

5.3.1 Tool-Less HDD/SSD Installation

The TANGO-3010 Series allow installation of one 2.5" HDD/SSD. With mechanical latch lock, no tool is needed for drive installation, allowing quick and easy swapping of drives. The installation procedures are described below.

Step 1: Connect the SATA cable to an HDD/SSD after removing the back cover.

Step 2: The HDD/SSD bay is located inside the back cover. Align the holes on the hard disk with the grips on the HDD bracket, and insert the hard disk into the grips.

Figure 5-6: Connect the HDD/SSD and Align with the Bracket

Step 3: Press down the other side of the HDD/SSD to securely seat it onto the HDD bracket.

Figure 5-7: Seat the HDD/SSD to the Bracket

5.3.2 HDD/SSD Removal

You can easily remove the HDD/SSD by the tool in the packing or others like a tweezer or a screwdriver. Follow the steps below to complete the task.

Step 1: Locate the two gaps on the inside edge of the back cover, and use a pair of tweezers or a screwdriver to pry up the HDD/SSD

Step 4: Take out the HDD/SSD and disconnect the SATA cable.

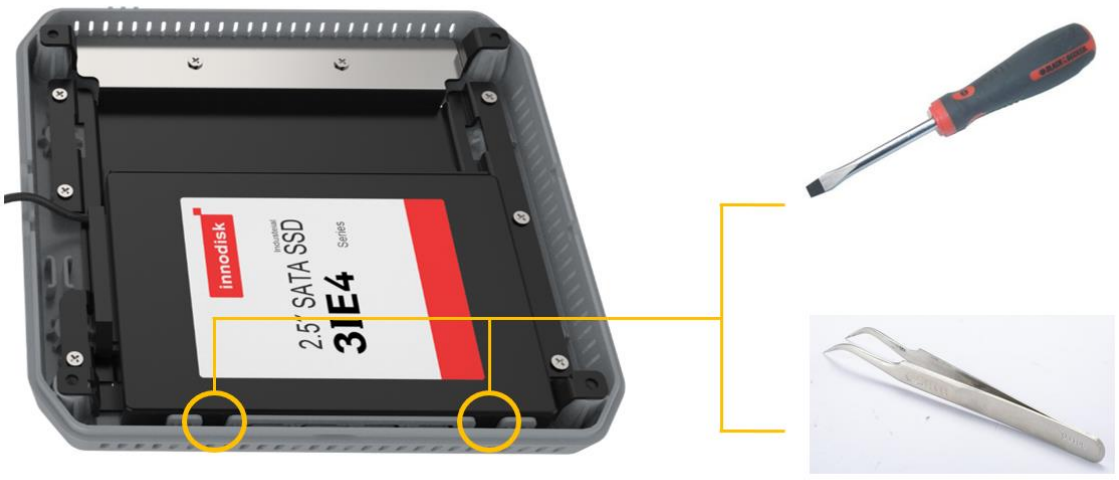


Figure 5-8: Remove the HDD/SSD

5.3.3 M.2 SSD Installation

The TANGO-3010 Series allows installation of one M.2 2280 M-key card. Follow the steps below to complete the task.

Step 1: Locate the M.2 2280 M-key slot. *See* **Figure 6-21**.

Step 2: Remove the on-board retention screw as shown below **(See** Figure 5-9**).**

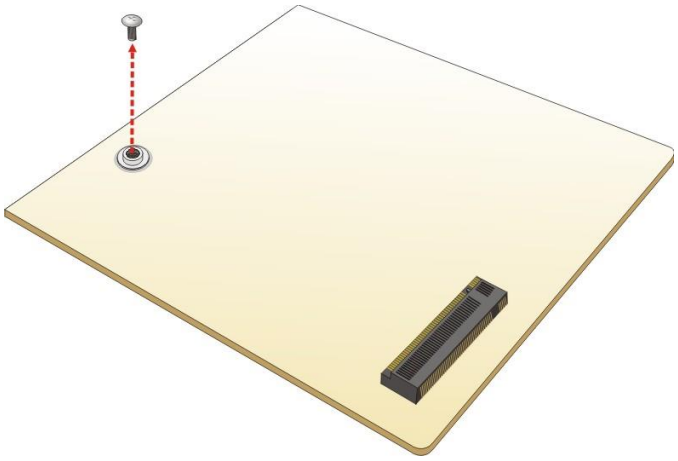


Figure 5-9: Removing the M.2 Module Retention Screw

Step 3: **Line up the notch on the module with the notch on the slot. Slide the M.2 module into the socket at an angle of about 20º (**Figure 5-10**).**

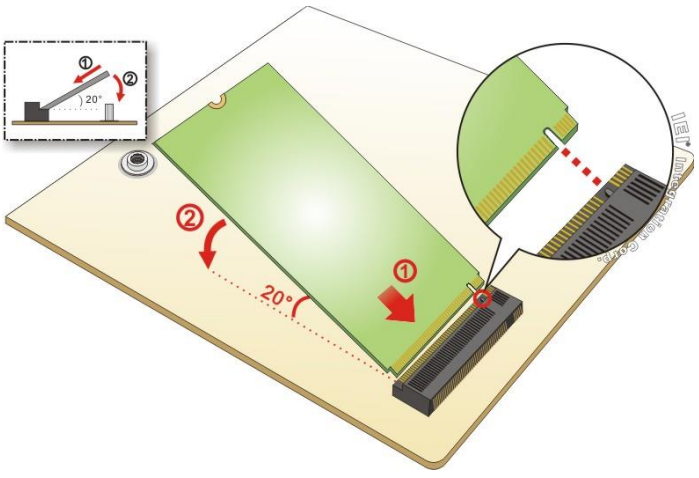


Figure 5-10: Inserting the M.2 Module into the Slot at an Angle

Step 4: Secure the M.2 module with the previously removed retention screw.

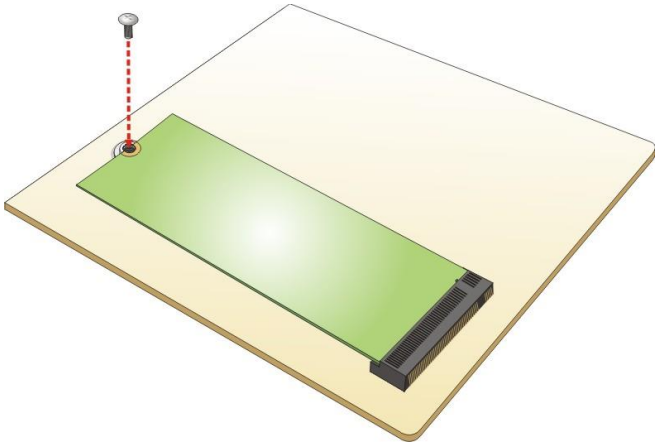


Figure 5-11: Securing the M.2 Module

5.4 Back Cover Installation

Install the back cover and fasten the 4 screws to secure it **(See Figure 5-12).**

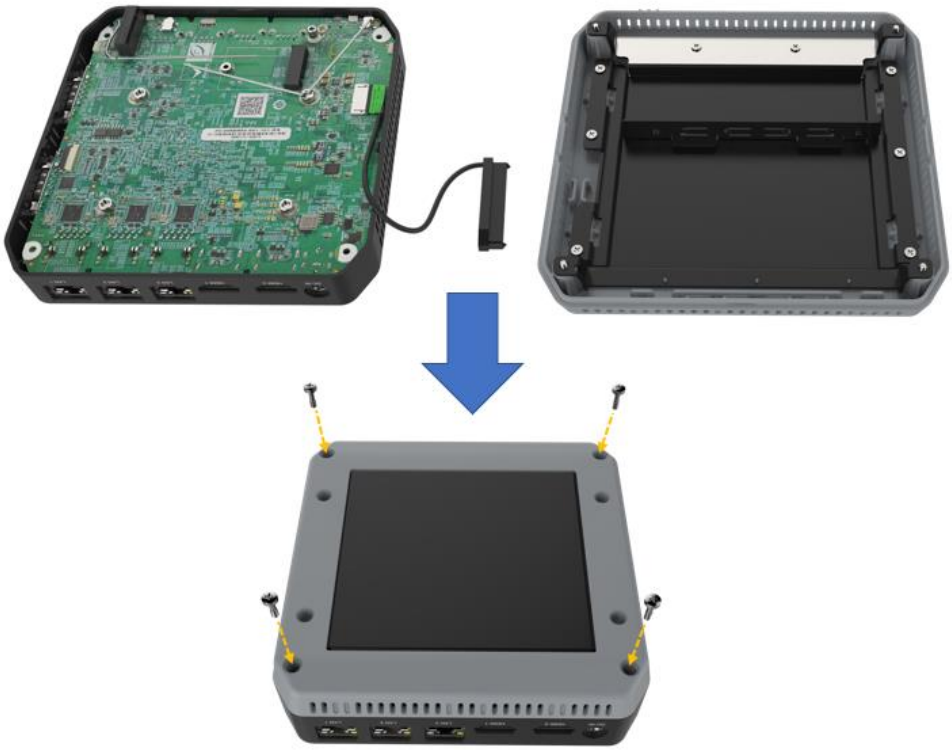


Figure 5-12: Back Cover Installation

5.5 External Peripheral Interface Connectors

5.5.1 HDMI Connection

To connect the HDMI devices, please plug in HDMI connector in the right direction as shown below:

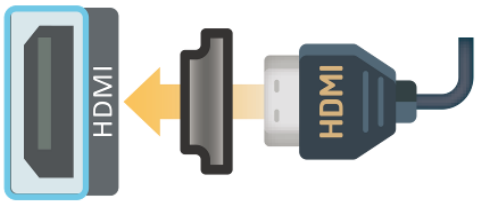


Figure 5-13: HDMI Connection

5.5.2 USB Device Connection

The TANGO-3010 Series has two USB 3.2 ports and two USB 2.0 ports. To connect a USB device, please follow the instructions below.

Step 1: **Located the USB connectors**. The locations of the USB connectors are shown in **Chapter 1**.

Step 2: **Align the connectors.** Align the USB device connector with one of the connectors on the I/O panel **(See Figure 5-14).**

Insert the device connector. Once aligned, gently insert the USB device connector into the onboard connector.

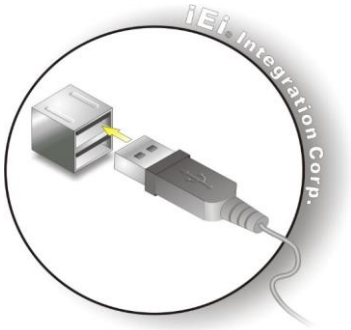


Figure 5-14: USB Connection

5.5.3 LAN Connection

The LAN connectors allow connection to an external network.

Step 1: **Locate the RJ-45 connectors**. The locations of the RJ-45 connectors are shown in **Chapter 1**.

Step 5: **Align the connectors. Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the TANGO-3010 Series. (See Figure 5-15).**

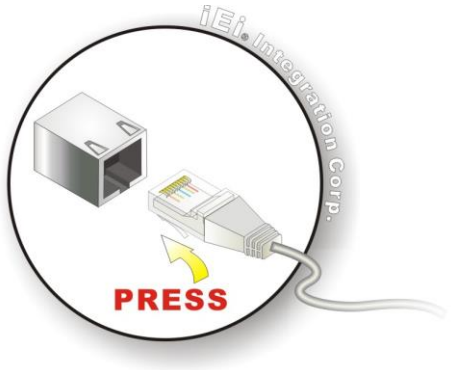


Figure 5-15: LAN Connection

Step 6: **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the on-board RJ-45 connector.

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked. See Table 5-1

Activity/Link LED		Speed LED	
STATUS	**DESCRIPTION**	**STATUS**	**DESCRIPTION**
Off	No link	Off	100 Mbps connection
Yellow	Linked	Orange	1 Gbp connection
Blinking	TX/RX activity	Green	2.5 Gbps connection

Table 5-1: RJ-45 Ethernet Connector LEDs

5.5.4 RS-232/422/485 Serial Port Connection

The system has one RS-232/422/485 port & one RS-232 serial port. The pinouts for the serial ports are listed in the table below **(See Table 5-2).**

PIN NO.	RS232	RS422	RS485
1	DCD#	TX-	TX-
2	RXD	TX+	TX+
3	TXD	RX+	
4	DTR#	RX-	
5	GND		
6	DSR#		
7	RTS#		
8	CTS#		
9	RI#		

Table 5-2: RS-232 (COM1) & RS-232/422/485 (COM2) Connector Pinouts

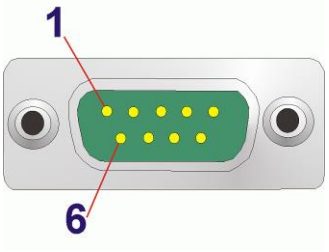


Figure 5-16: DB-9 Serial Port Connector

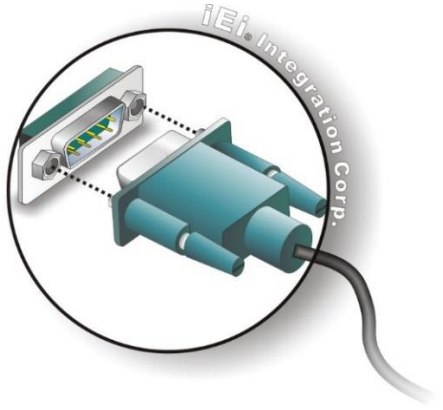


Figure 5-17: Serial Device Connection

5.6 Powering On/Off the System

WARNING:

Make sure a power supply with the correct input voltage is being fed into the system. Incorrect voltages applied to the system may cause damage to the internal electronic components and may also cause injury to the user.

- **Power on** the system: press the power button for 3 seconds
- **Power off** the system: press the power button for 6 seconds
- The power of this system can be less than 250w-20A.

Figure 5-18: Power Button

5.7 Power Input

The power connector is a 2-pin DC jack connector on the rear panel that can directly connect to a power adapter. The supported power input voltage is 12 VDC.

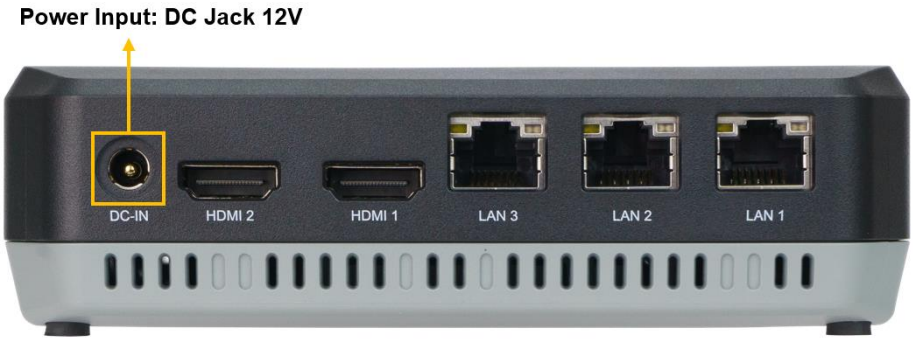


Figure 5-19: Power Connector

5.8 Available Drivers

All the drivers for the TANGO-3010 Series are available on IEI Resource Download Center (https://download.ieiworld.com). Type TANGO-3010 Series and press Enter to find all the relevant software, utilities, and documentation.

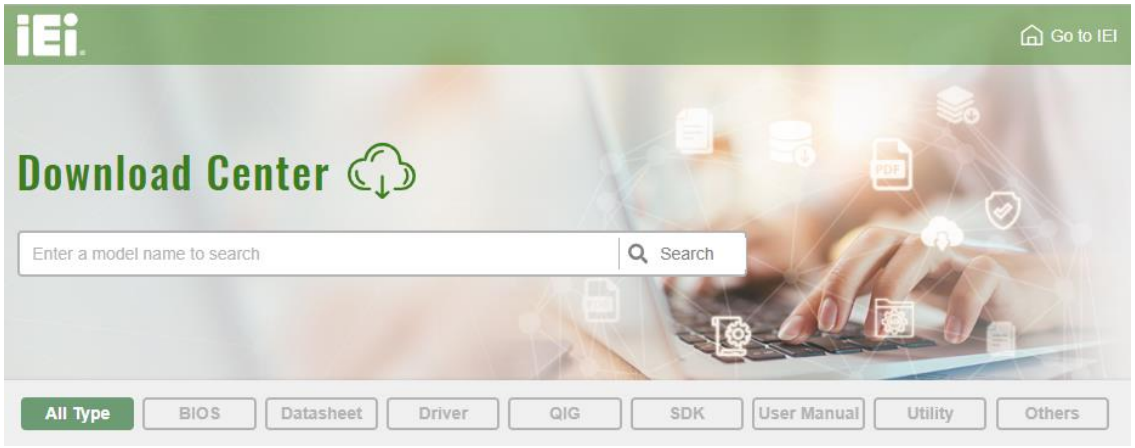
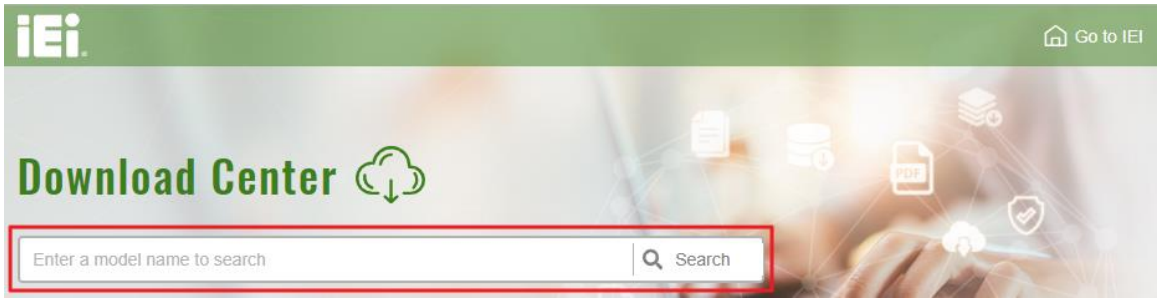


Figure 5-20: IEI Resource Download Center

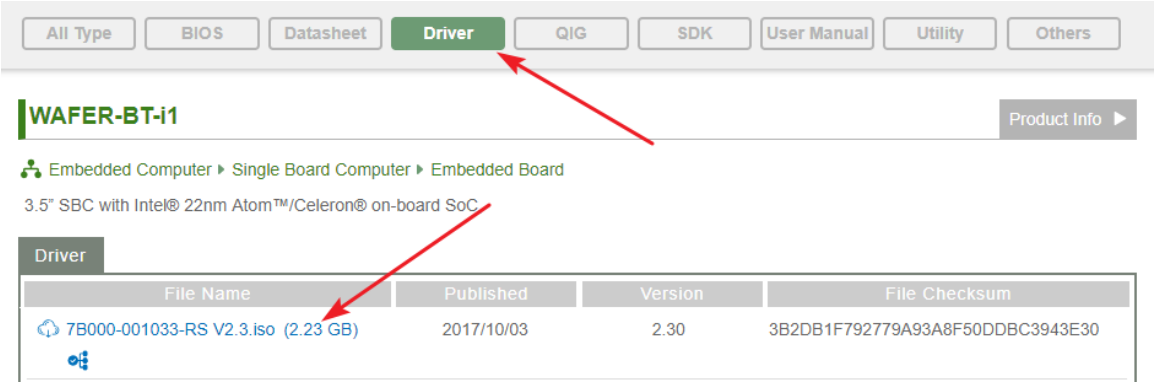
5.8.1 Driver Download

To download drivers from IEI Resource Download Center, follow the steps below.

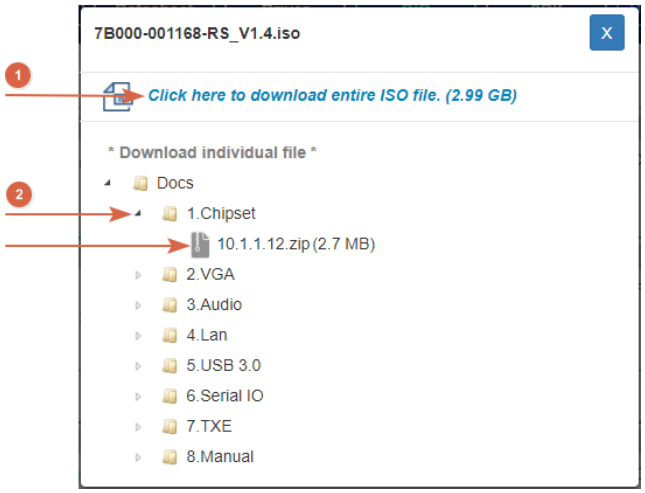
Step 1: Go to https://download.ieiworld.com. Type TANGO-3010 Series and press Enter.



Step 7: All product-related software, utilities, and documentation will be listed. You can choose **Driver** to filter the result.



Step 8: Click the driver file name on the page and you will be prompted with the following window. You can download the entire ISO file ( ), or click the small arrow to find an individual driver and click the file name to download ( ).



NOTE:

To install software from the downloaded ISO image file in Windows 10 (or later), double-click the ISO file to mount it as a virtual drive to view its content.

Chapter

4

System Motherboard

6.1 Overview

This chapter details all the jumpers and connectors of the system motherboard.

6.1.1 Layout

The figures below show all the connectors and jumpers of the system motherboard.

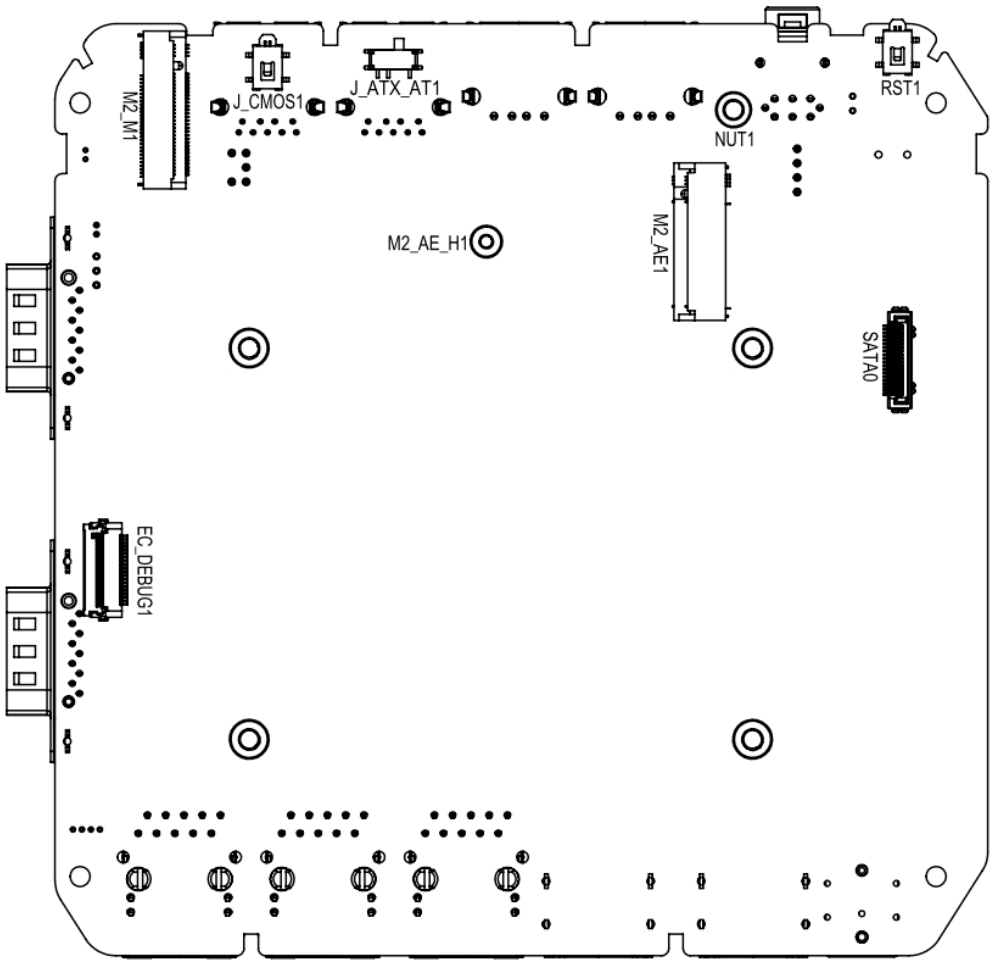


Figure 6-21: System Motherboard (Solder Side)

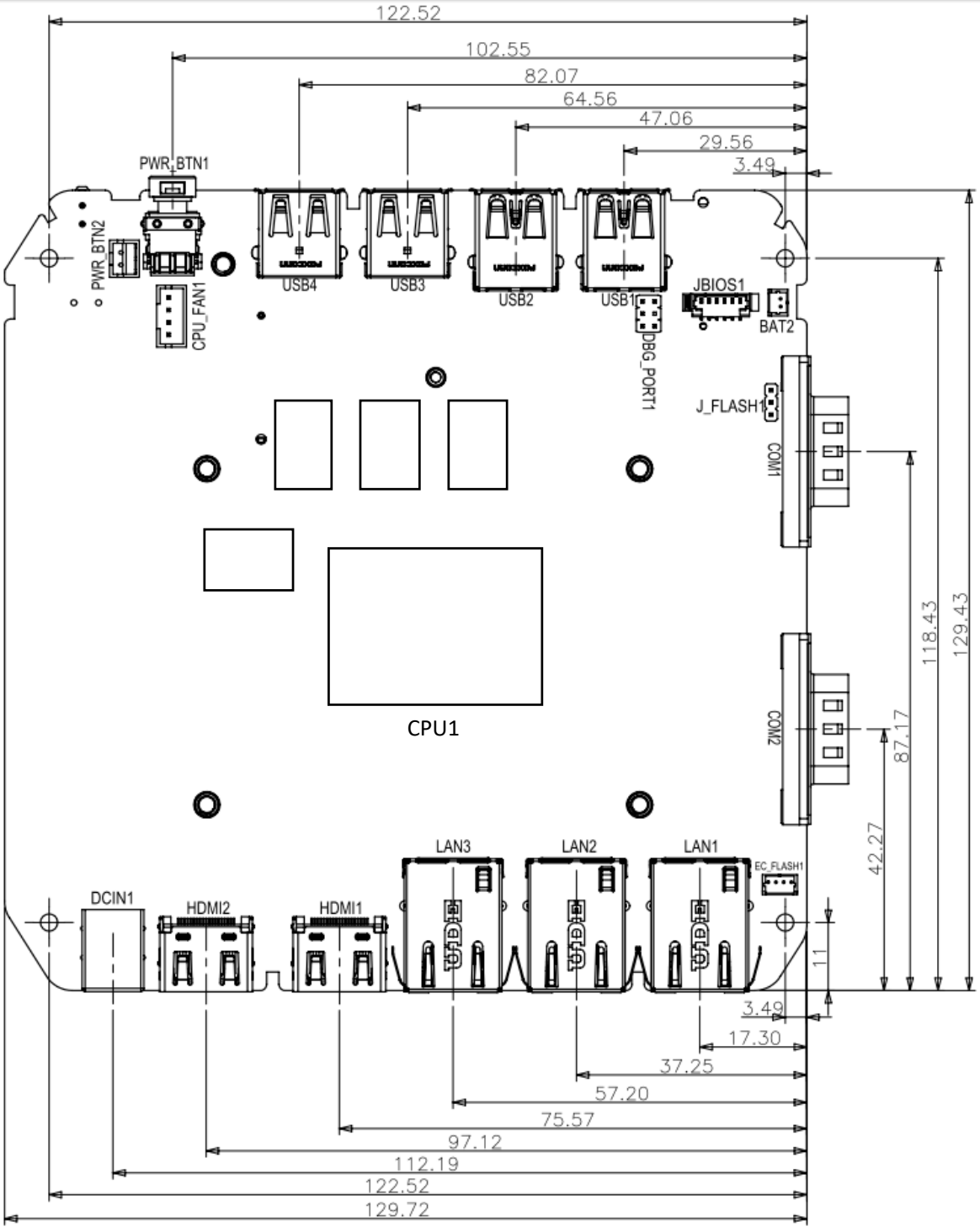


Figure 6-22: System Motherboard

6.2 Internal Peripheral Connectors

The table below shows a list of the internal peripheral interface connectors on the system motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
Battery Connector	2-pin wafer	BAT2
CPU Fan Connector	4-pin wafer	CPU_FAN1
System Debug Connector	6-pin header	DBG_PORT1
EC Debug Connector	20-pin FPC connector	EC_DEBUG1
EC Flash Connector	4-pin wafer	EC_FLASH1
M.2 A key Slot	2230 A-key slot	M2_AE1
M.2 M key Slot	2280 M-key slot	M2_M1
Power Button Connector	2-pin wafer	PWR_BTN2
SATA Connector	20-pin Wire to Board	SATA0
AT/ATX Power Mode Switch	3-pin switch	J_ATX_AT1
BIOS Programming Connector	6-pin wafer	JBIOS1
Clear CMOS Button	Push button	J_CMOS1
Flash Override Jumper	3-pin header	J_FLASH1

Table 6-1: Peripheral Interface Connectors

6.2.1 Battery Connector (BAT2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VBATT	2	GND

Table 6-2: Battery Connector Pinouts

6.2.2 CPU Fan Connector (CPU_FAN1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC12V
3	FANIO	4	PWM

Table 6-3: CPU Fan Connector Pinouts

6.2.3 System Debug Connector (DBG_PORT1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	2	EDICS
3	EDIDO	4	EDICLK
5	EDIDI	6	GND

Table 6-4: System Debug Connector Pinouts

6.2.4 EC Debug Connector (EC_DEBUG1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	KSI0	11	KSO9
2	KSO0	12	KSO10
3	KSO1	13	KSO12
4	KSO2	14	KSI1
5	KSO3	15	KSO11
6	KSO4	16	KSI2
7	KSO5	17	KSI3
8	KSO6	18	GND
9	KSO7	19	GND
10	KSO8	20	GND

Table 6-5: EC Debug Connector Pinouts

6.2.5 EC Flash Connector (EC_FLASH1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	EC_FLASH_DAT
3	EC_FLASH_CLK	4	NC

Table 6-6: EC Flash Connector Pinouts

6.2.6 Power Button Connector (PWR_BTN2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PWR_BTN+	2	PWR_BTN-

Table 6-7: Power Button Connector Pinouts

6.2.7 SATA Connector (SATA0)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	11	VCC1
2	GND	12	NC2
3	GND	13	NC1
4	GND	14	GND
5	GND	15	SATA_RXP0_C
6	NC3	16	SATA_RXN0_C
7	VCC5	17	GND
8	VCC4	18	SATA_TXN0_C
9	VCC3	19	SATA_TXP0_C
10	VCC2	20	GND

Table 6-8: SATA Connector Pinouts

6.2.8 AT/ATX Power Mode Switch (J_ATX_AT1)

Use the **J_ATX_AT1** switch to specify the systems power mode as AT or ATX

PIN NO.	DESCRIPTION
A-B (Right)	ATX Power Mode (default)
B-C (Left)	AT Power Mode

Table 6-9: AT/ATX Power Mode Switch Pinouts

6.2.9 BIOS Programming Connector (JBIOS1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+V3.3M_SPI_CON	2	SPI_CS#0_N
3	SPI_SO_N	4	SPI_CLK_N
5	SPI_SI_N	6	GND

Table 6-10: BIOS Programming Connector Pinouts

6.2.10 Clear CMOS Button (J_CMOS1)

To clear the CMOS Setup (for example if you have forgotten the password, you should clear the CMOS and then reset the password), you should press the button for about 3 seconds. This will set back to normal operation mode.

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

Table 6-11: Clear CMOS Button Pinouts

6.2.11 Flash Override Jumper (J_FLASH1)

PIN NO.	DESCRIPTION
Short 1-2	Disabled (default)
Short 2-3	Enabled

Table 6-12: Flash Descriptor Security Override Jumper Pinouts

To update the ME firmware, please follow the steps below.

Step 1: Before turning on the system power, short pin 2-3 of the Flash Descriptor Security Override jumper.

Step 1: Update the BIOS and ME firmware, and then turn off the system power.

Step 2: Remove the metal clip on the Flash Descriptor Security Override jumper or return to its default setting (short pin 1-2).

Step 3: Restart the system. The system will reboot 2 ~ 3 times to complete the ME firmware update.

6.3 External Interface Panel Connectors

The table below shows a list of the external interface panel connectors on the system motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
HDMI Connectors	HDMI 1.4b	HDMI1, HDMI2
LAN 2.5GbE Connectors	RJ45	LAN1, LAN2, LAN3
Power Input Connector	2-pin DC jack	DCIN1
Power Button	8-pin electronic switch	PWR_BTN1
Reset Button	4-pin electronic switch	RST1
RS-232/422/485 Connector	DB9	COM1
RS-232 Connector	DB9, 3T5R	COM2
USB 3.2 Gen 2 Connectors	Dual USB 3.2 Gen 2	USB1, USB2
USB 2.0 Connectors	Dual USB 2.0 Type-A	USB3, USB4

Table 6-13: Rear Panel Connectors

6.3.1 External HDMI 1.4 Combo Connectors (HDMI1, HDMI2)

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

Table 6-14: HDMI Connector Pinouts

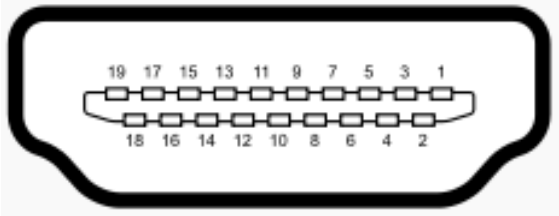


Figure 6-23: HDMI Connector

6.3.2 External 2.5GbE LAN Connectors (LAN1, LAN2, LAN3)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDIA3-	5	MDIA1+
2	MDIA3+	6	MDIA2+
3	MDIA2-	7	MDIA0-
4	MDIA1-	8	MDIA0+

Table 6-15: LAN Connectors Pinouts

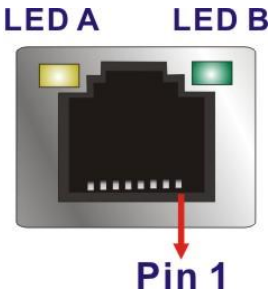


Figure 6-24: LAN Connectors

LED.	DESCRIPTION	PIN NO.	DESCRIPTION
Off	No link	Off	100 Mbps connection
Yellow	Linked	Orange	1 Gbp connection
Blinking	TX/RX activity	Green	2.5 Gbps connection

Table 6-16: LAN Connectors LEDs

6.3.3 External RS-232/422/485 Serial Port Connector (COM1)

Mode	RS-232	RS-422	RS-485
PIN NO.	DESCRIPTION	DESCRIPTION	DESCRIPTION
1	DCD#	TX-	TX-
2	RXD	TX+	TX+
3	TXD	RX+	
4	DTR#	RX-	
5	GND		
6	DSR#		
7	RTS#		
8	CTS#		
9	RI#		

Table 6-17: RS-232/422/485 Serial Port Connector Pinouts

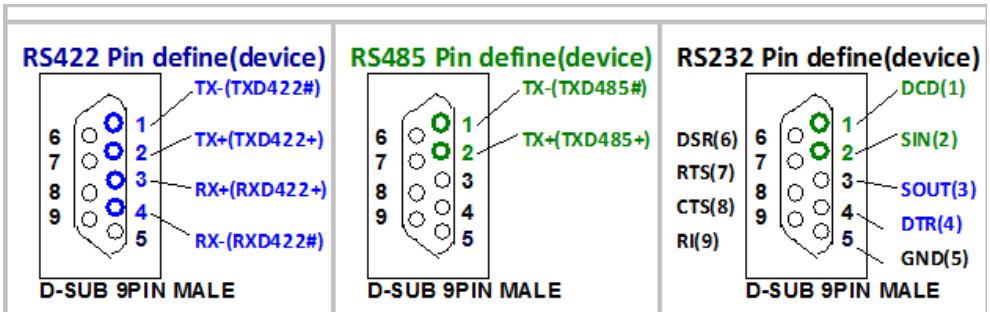


Figure 6-25: RS-232/422/485 Serial Port Connectors

6.3.4 External RS-232 Serial Port Connector (COM2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	6	DSR
2	SIN	7	RTS
3	SOUT	8	CTS
4	DTR	9	RI
5	GND		

Table 6-18: RS-232 Serial Port Connector Pinouts

6.3.5 External USB 3.2 Gen 2 Connectors (USB1, USB2)

PIN	DESCRIPTION	PIN	DESCRIPTION
1	VCC	10	VCC
2	USB_DATA0-	11	USB_DATA1-
3	USB_DATA0+	12	USB_ DATA1+
4	GND	13	GND
5	USB3_RX0-	14	USB3_RX1-
6	USB3_RX0+	15	USB3_ RX1+
7	GND	16	GND
8	USB3_TX0-	17	USB3_TX1-
9	USB3_TX0+	18	USB3_TX1+

Table 6-19: USB 3.2 Gen 2 Connectors Pinouts

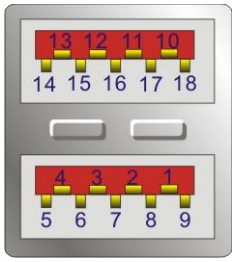


Figure 6-26: USB 3.2 Gen 2 Port Location

6.3.6 External USB 2.0 Type-A Connectors (USB3, USB4)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
2	USB DATA-	4	USB DATA+
3	USB DATA+	6	USB DATA-
4	GND	8	VCC

Table 6-20: USB 2.0 Type-A Connectors Pinouts

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY

CE

This equipment is in conformity with the following EU directives:

- EMC Directive (2004/108/EC, 2014/30/EU)
- Low-Voltage Directive (2006/95/EC, 2014/35/EU)
- RoHS II Directive (2011/65/EU, 2015/863/EU)

If the user modifies and/or install other devices in the equipment, the CE conformity declaration may no longer apply.

If this equipment has telecommunications functionality, it also complies with the requirements of the Radio Equipment Directive 2014/53/EU.

English

IEI Integration Corp declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

Български [Bulgarian]

IEI Integration Corp. декларира, че този оборудване е в съответствие със съществените изисквания и другите приложими правила на Директива 2014/53/EU.

Česky [Czech]

IEI Integration Corp tímto prohlašuje, že tento zařízení je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 2014/53/EU.

Dansk [Danish]

IEI Integration Corp erklærer herved, at følgende udstyr overholder de væsentlige krav og øvrige relevante krav i direktiv 2014/53/EU.

Deutsch [German]

IEI Integration Corp, erklärt dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 2014/53/EU.

Eesti [Estonian]

IEI Integration Corp deklareerib seadme seadme vastavust direktiivi 2014/53/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.

Español [Spanish]

IEI Integration Corp declara que el equipo cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2014/53/EU.

Ελληνική [Greek]

IEI Integration Corp ΔΗΛΩΝΕΙ ΟΤΙ ΕΞΟΠΛΙΣΜΟΣ ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2014/53/EU.

Français [French]

IEI Integration Corp déclare que l'appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2014/53/EU.

Italiano [Italian]

IEI Integration Corp dichiara che questo apparecchio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/EU.

Latviski [Latvian]

IEI Integration Corp deklarē, ka iekārta atbilst būtiskajām prasībām un citiem ar to saistītajiem noteikumiem Direktīvas 2014/53/EU.

Lietuvių [Lithuanian]

IEI Integration Corp deklaruoja, kad šis įranga atitinka esminius reikalavimus ir kitas 2014/53/EU Direktyvos nuostatas.

Nederlands [Dutch]

IEI Integration Corp dat het toestel toestel in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EU.

Malti [Maltese]

IEI Integration Corp jiddikjara li dan prodott jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 2014/53/EU.

Magyar [Hungarian]

IEI Integration Corp nyilatkozom, hogy a berendezés megfelel a vonatkozó alapvetõ követelményeknek és az 2014/53/EU irányelv egyéb elõírásainak.

Polski [Polish]

IEI Integration Corp oświadcza, że wyrobu jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2014/53/EU.

Português [Portuguese]

IEI Integration Corp declara que este equipamento está conforme com os requisitos essenciais e outras disposições da Directiva 2014/53/EU.

Româna [Romanian]

IEI Integration Corp declară că acest echipament este in conformitate cu cerinţele esenţiale şi cu celelalte prevederi relevante ale Directivei 2014/53/EU.

Slovensko [Slovenian]

IEI Integration Corp izjavlja, da je ta opreme v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 2014/53/EU.

Slovensky [Slovak]

IEI Integration Corp týmto vyhlasuje, že zariadenia spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 2014/53/EU.

Suomi [Finnish]

IEI Integration Corp vakuuttaa täten että laitteet on direktiivin 2014/53/EU oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

Svenska [Swedish]

IEI Integration Corp förklarar att denna utrustningstyp står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2014/53/EU.

FCC WARNING

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause undesired operation.

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.

Federal Communication Commission Interference Statement

This equipment has been assembled with components that comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device.

FCC Radiation Exposure Statement

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains Transmitter Module FCC ID: PD9AX210NG Or Contains FCC ID: PD9AX210NG”

When the module is installed inside another device, the user manual of the host must contain below warning statements;

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Any company of the host device which install this modular with limit modular approval should perform the test of radiated emissionand spurious emission according to FCC part 15C : 15.247 and 15.209 requirement,Only if the test result comply with FCC part 15C : 15.247 and 15.209 requirement，then the host can be sold legally.

UKCA WARNING

Hereby, IEI INTEGRATION CORP declares that the radio equipment type TANGO-3010 Series is in compliance with the Radio Equipment Regulations 2017(S.I. 2017/1206)

The full text of the system UK declaration of conformity is available at **https://www.ieiworld.com**

Appendix

B

Safety Precautions

B.1 Safety Precautions

WARNING:

The precautions outlined in this appendix should be strictly followed. Failure to follow these precautions may result in permanent damage to the TANGO-3010 Series.

Please follow the safety precautions outlined in the sections that follow:

B.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Make sure the power is turned off and the power cord is disconnected*** when moving, installing or modifying the system.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if opened while still powered on.
- ***Do not drop or insert any objects*** into the ventilation openings.
- ***If considerable amounts of dust, water, or fluids enter the system***, turn off the power supply immediately, unplug the power cord, and contact the system vendor.
- **DO NOT**:
  - Drop the system against a hard surface.
  - In a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the TANGO-3010 Series may result in permanent damage to the TANGO-3010 Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the TANGO-3010 Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the TANGO-3010 Series is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

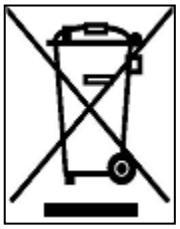
B.1.3 Product Disposal

CAUTION:

Risk of explosion if battery is replaced by and incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union – If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union – The device that produces less waste and is easier to recycle is classified as electronic device in terms of the European Directive 2012/19/EU (WEEE), and must not be disposed of as domestic garbage.



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the TANGO-3010 Series, please follow the guidelines below.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the TANGO-3010 Series, please read the details below.

- The interior of the TANGO-3010 Series does not require cleaning. Keep fluids away from the TANGO-3010 Series interior.
- Be cautious of all small removable components when vacuuming the TANGO-3010 Series.
- Turn the TANGO-3010 Series off before cleaning the TANGO-3010 Series.
- Never drop any objects or liquids through the openings of the TANGO-3010 Series.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the TANGO-3010 Series.
- Avoid eating, drinking and smoking within vicinity of the TANGO-3010 Series.

B.2.2 Cleaning Tools

Some components in the TANGO-3010 Series may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the TANGO-3010 Series.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the TANGO-3010 Series.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the TANGO-3010 Series.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the TANGO-3010 Series as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the TANGO-3010 Series. Dust and dirt can restrict the airflow in the TANGO-3010 Series and cause its circuitry to corrode.
- ***Cotton swabs*** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

C

Error Beep Code

C.1 PEI Beep Codes

Number of Beeps	Description
1	Memory not Installed
1	Memory was installed twice (InstallPeiMemory routine in PEI Core called twice)
2	Recovery started
3	DXEIPL was not found
3	DXE Core Firmware Volume was not found
4	Recovery failed
4	S3 Resume failed
7	Reset PPI is not available

C.2 DXE Beep Codes

Number of Beeps	Description
1	Invalid password
4	Some of the Architectural Protocols are not available
5	No Console Output Devices are found
5	No Console Input Devices are found
6	Flash update is failed
7	Reset protocol is not available
8	Platform PCI resource requirements cannot be met

NOTE:

If you have any question, please contact IEI for further assistance.

Appendix

D

Hazardous Materials Disclosure

D.1 RoHS II Directive (2015/863/EU)

The details provided in this appendix are to ensure that the product is compliant with the RoHS II Directive (2015/863/EU). The table below acknowledges the presences of small quantities of certain substances in the product, and is applicable to RoHS II Directive (2015/863/EU).

Please refer to the following table.

Part Name	Toxic or Hazardous Substances and Elements									
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)	Bis(2-ethylhexyl) phthalate (DEHP)	Butyl benzyl phthalate (BBP)	Dibutyl phthalate (DBP)	Diisobutyl phthalate (DIBP)
Housing	O	O	O	O	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O	O	O	O	O
Battery	O	O	O	O	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in Directive (EU) 2015/863.

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in Directive (EU) 2015/863.

D.2 China RoHS

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签,此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件,像是电池或灯管,这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11364-2014 與 GB/T26572-2011 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11364-2014 與 GB/T26572-2011 标准规定的限量要求。