



MODEL:  
**DRPC-330-A7K**

**Fanless Embedded System with Marvell® ARMADA®  
88F7040 CPU, 10GbE SFP+, Dual GbE, Isolated Serial Ports,  
USB 3.2 Gen 1, M.2 Slots, 9V~36V DC Power Input,  
DIN Rail Mounting Support and RoHS Compliant**

## User Manual

# Revision

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Date	Version	Changes
January 7, 2021	1.00	Initial release

# Copyright

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# Manual Conventions

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## **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.



## **IEC 60417-5009: STAND-BY**

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Chapter

1

# Introduction

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## 1.1 Overview



**Figure 1-1: DRPC-330-A7K Series**

The DRPC-330-A7K fanless embedded system is powered by the Marvell® ARMADA® 88F7040 processor. It is designed for harsh environment applications, and supports DIN rail mounting method.

The DRPC-330-A7K accepts a wide range of DC power input (9 V ~ 36 V), allowing it to be powered anywhere. Two USB 3.2 Gen 1 (5Gb/s), two isolated RS-232/422/485, two isolated RS-232, two GbE RJ-45 and one 10GbE SFP+ provide rich I/O options for various applications.

## DRPC-330-A7K Embedded System

### 1.2 Features

The DRPC-330-A7K features are listed below:

- Fanless design
- Marvell® ARMADA® 88F7040 processor (1.4GHz, quad-core)
- On-board 4GB DDR4 memory
- 32GB eMMC 5.1 and one microSD slot for storage
- Wide range DC power input (9 V ~ 36 V)
- Extended temperature fanless design supports -20°C ~ 60°C
- 2.5kV isolated serial interfaces: two RS-232/422/485, two RS-232
- Supports one 10GbE SFP+ and two GbE RJ-45
- Three M.2 slots for expansions
- Low power consumption
- DIN rail mounting support
- RoHS compliant

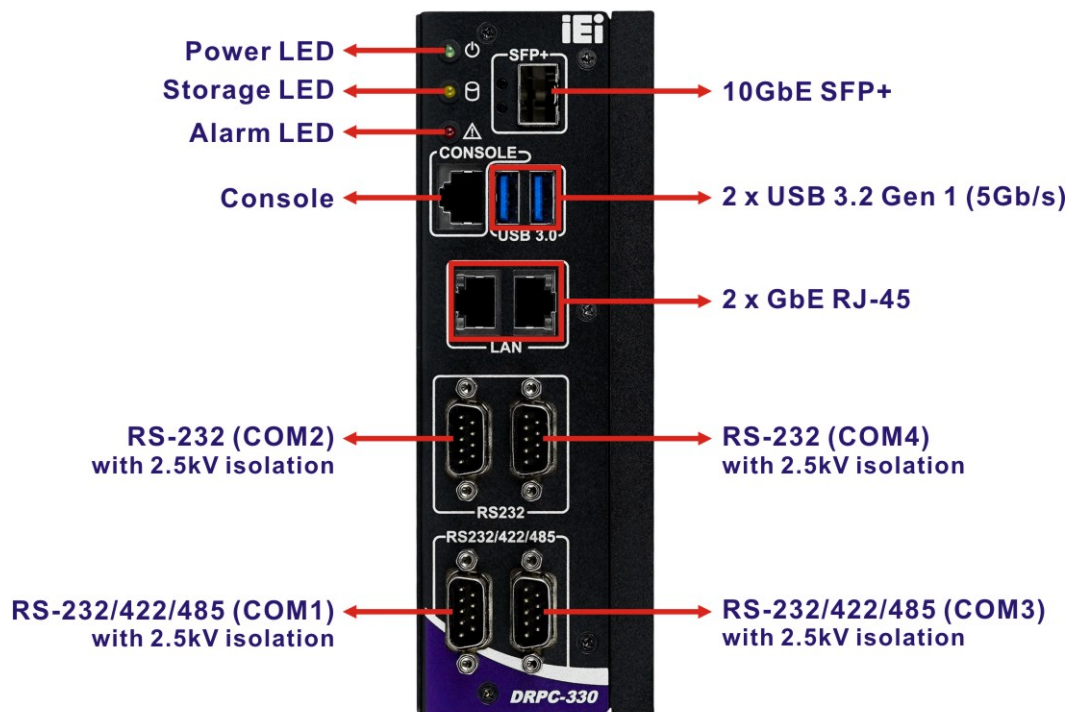


### 1.3 Front Panel

The DRPC-330-A7K front panel contains:

- 1 x SFP+ 10 Gigabit LAN port
- 2 x RJ-45 Gigabit LAN port
- 2 x RS-232/422/485 serial port with 2.kV isolation
- 2 x RS-232 serial port with 2.kV isolation
- 1 x Console port
- 2 x USB 3.2 Gen 1 (5Gb/s) port
- 1 x Power LED (green)
- 1 x Storage LED (yellow)
- 1 x Alarm LED (red)

The overview of the front panels is shown in **Figure 1-2**.



**Figure 1-2: Front Panel**

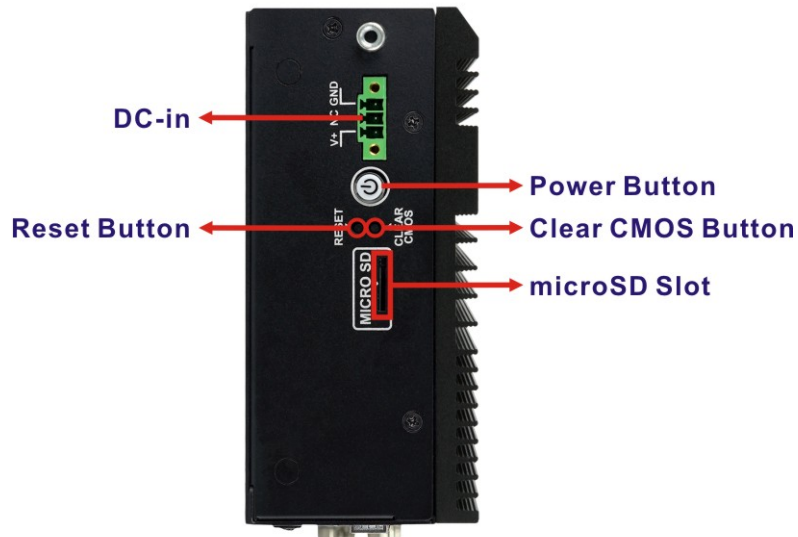
## DRPC-330-A7K Embedded System

### 1.4 Top Panel

The DRPC-330-A7K top panel contains:

- 1 x 9 V ~ 36 V DC power terminal block
- 1 x microSD slot
- 1 x Power button
- 1 x Reset button
- 1 x Clear CMOS button

An overview of the top panel is shown in **Figure 1-3** below.



**Figure 1-3: Top Panel**

## 1.5 Technical Specifications

The DRPC-330-A7K technical specifications are listed in **Table 1-1**.

<b>System</b>	
<b>CPU (SoC)</b>	Marvell® ARMADA® 88F7040 processor 1.4GHz (quad-core)
<b>Memory</b>	On-board 4GB 2400MHz DDR4
<b>Wireless</b>	802.11a/b/g/n/ac (optional)
<b>Watchdog Timer</b>	Software programmable, support 1~255 sec. system reset
<b>Supported OS</b>	Linux Ubuntu 18.10
<b>Storage</b>	
<b>HDD</b>	One microSD slot
<b>eMMC</b>	eMMC 5.1 supported (32 GB pre-installed)
<b>I/O and Indicators</b>	
<b>Ethernet</b>	2 x GbE RJ-45 port by Marvell® 88E1512 1 x 10GbE SFP+ port by Marvell® 88F7040 <i>Note: The 10GbE SFP+ port has no transceiver.</i>
<b>COM Port</b>	1 x Console (RJ-45) 2 x RS-232/422/485 with AFC (DB-9, 2.5kV isolation) 2 x RS-232 (DB-9, 2.5kV isolation)
<b>USB</b>	2 x USB 3.2 Gen 1 (5Gb/s) ports
<b>Digital I/O</b>	8-bit, 4-bit input/4-bit output (DB-9)
<b>TPM</b>	1 x TPM 2.0 (2x10 pin) (optional)
<b>Expansions</b>	1 x M.2 2230 A-key slot (PCIe x1 / USB 2.0) 1 x M.2 2280 B-key slot (PCIe x1) 1 x M.2 2242/2280 B-key slot with SIM card slot (PCIe x1 / USB 3.2 / USB 2.0)
<b>LED Indicators</b>	1 x Storage LED (yellow) 1 x Power LED (green) 1 x Alarm LED (red)

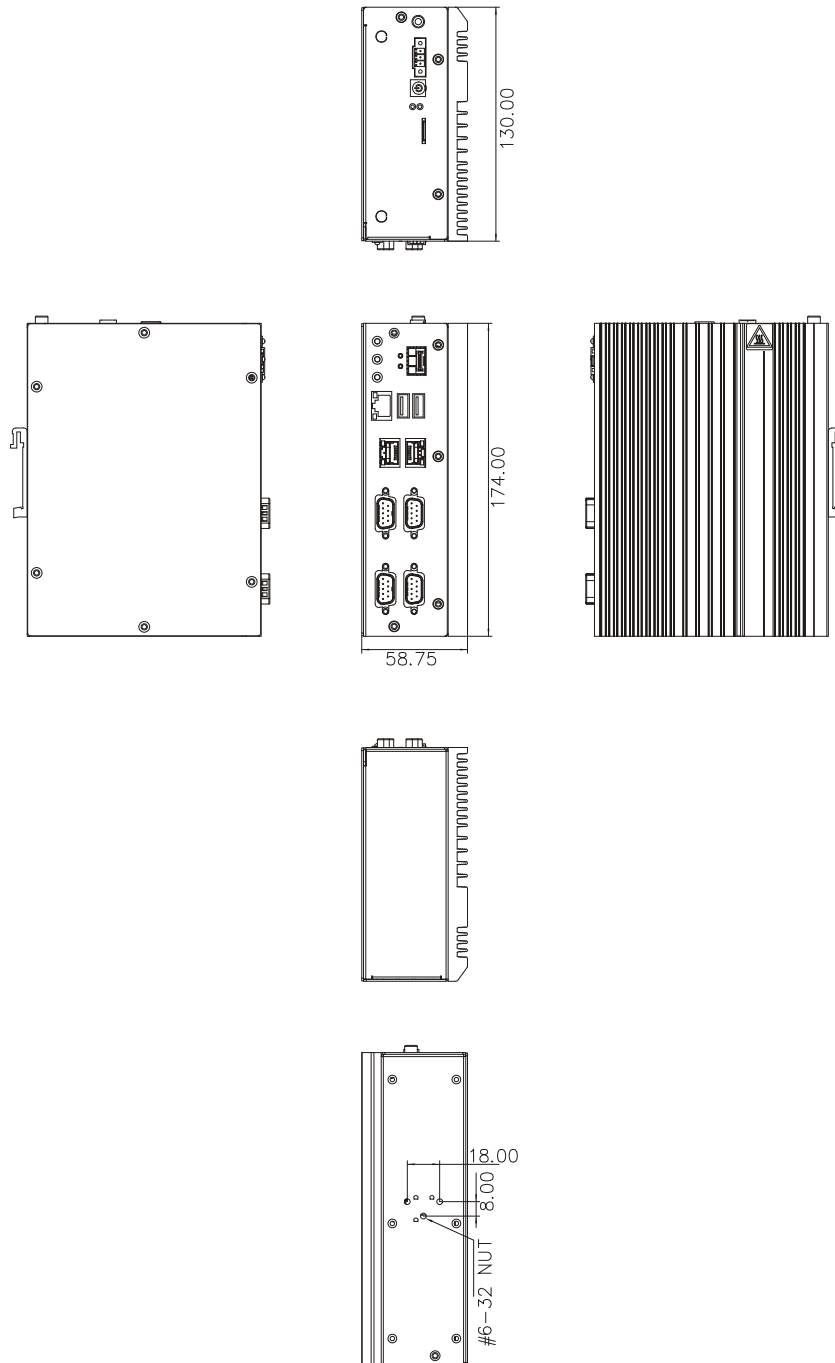
## DRPC-330-A7K Embedded System

<b>Buttons</b>	Power button Reset button Clear CMOS button
<b>Power</b>	
<b>Power Input</b>	One power connector (3-pin terminal block) 9 V ~ 36 V DC
<b>Power Consumption</b>	36 V @ 0.86 A
<b>Environmental and Mechanical</b>	
<b>Mounting</b>	DIN rail
<b>Operating Temperature</b>	-20°C~60°C with air flow
<b>Storage Temperature</b>	-40°C~80°C with air flow
<b>Operating Humidity</b>	10%~95%, non-condensing
<b>Storage Humidity</b>	10%~90%, non-condensing
<b>Chassis Construction</b>	Extruded aluminum alloy for fanless support
<b>Color</b>	Black
<b>Operating Shock</b>	Half-sine shock 5G, 11ms, 100 shocks per axis, IEC68-2-27
<b>Operating Vibration</b>	MIL-STD-810G 514.6C-1
<b>Safety</b>	CE/FCC
<b>Weight (Net/Gross)</b>	1.3 kg/1.45 kg
<b>Physical Dimensions</b>	174 mm x 58.75 mm x 130 mm (H x W x D)

**Table 1-1: Technical Specifications**

## 1.6 Dimensions

The physical dimensions are shown below:



**Figure 1-4: Physical Dimensions (millimeters)**



Chapter

**2**

# Unpacking

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## 2.1 Anti-static Precautions

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### WARNING:

Failure to take ESD precautions during installation may result in permanent damage to the DRPC-330-A7K and severe injury to the user.

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Electrostatic discharge (ESD) can cause serious damage to electronic components, including the DRPC-330-A7K. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the DRPC-330-A7K 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 DRPC-330-A7K, place it on an anti-static pad. This reduces the possibility of ESD damaging the DRPC-330-A7K.

## 2.2 Unpacking Precautions

When the DRPC-330-A7K is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 2.1**.
- Make sure the packing box is facing upwards so the DRPC-330-A7K does not fall out of the box.
- Make sure all the components shown in **Section 2.3** are present.

**DRPC-330-A7K Embedded System**




**2.3 Packing List**



**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 DRPC-330-A7K from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to [sales@ieiworld.com](mailto:sales@ieiworld.com).

The DRPC-330-A7K is shipped with the following components:

Quantity	Item and Part Number	Image
1	DRPC-330-A7K	
1	DIN rail mounting bracket	
3	Mounting bracket screw	

## 2.4 Optional Items

The following table lists the optional items that can be purchased separately.

Optional	
Power adapter <sup>1</sup> , 36 W (P/N: 63040-010036-210-RS)	
Power cable <sup>1</sup> , DC jack to 3-pin terminal block, 200 mm (P/N: 32102-026500-100-RS)	
Power cord (P/N: 32702-000200-100-RS)	
USB to console cable (P/N: 32013-004000-100-RS)	
Wi-Fi module <sup>2</sup> (P/N: 27319-000009-RS)	
Antenna <sup>2</sup> (P/N: 32505-000900-100-RS)	
RF cable <sup>2</sup> (P/N: 32501-004000-100-RS)	
20-pin Infineon TPM 2.0 module, software management tool, firmware v7.63 (P/N: TPM-IN03-R10)	
<p>1. It is required to order a power cable together with the power adapter for power usage.</p> <p>2. Each Wi-Fi module needs two antennas and two RF cables to fully support Wi-Fi function.</p>	

Chapter

**3**

# Installation

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## 3.1 Installation Precautions

During installation, be aware of the precautions below:

- **Read the user manual:** The user manual provides a complete description of the DRPC-330-A7K, installation instructions and configuration options.
- **DANGER! Disconnect Power:** Power to the DRPC-330-A7K must be disconnected during the installation process. Failing to disconnect the power may cause severe injury to the body and/or damage to the system.
- **Qualified Personnel:** The DRPC-330-A7K 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 DRPC-330-A7K. The DRPC-330-A7K's cooling vents must not be obstructed by any objects. Blocking the vents can cause overheating of the DRPC-330-A7K. Leave at least 5 cm of clearance around the DRPC-330-A7K to prevent overheating.
- **Grounding:** The DRPC-330-A7K 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 DRPC-330-A7K.

### 3.1.1 High Surface Temperature



#### **WARNING:**

Some surfaces of the equipment may become hot during operation.

The surface temperature may be up to several tens of degrees hotter than the ambient temperature. Under these circumstances, the equipment needs to be protected against accidental contact.

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The equipment is intended for installation in a RESTRICTED ACCESS LOCATION.

## DRPC-330-A7K Embedded System

- Access can only be gained by SERVICE PERSONS or by USERS who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- Access is through the use of a TOOL or lock and key, or other means of security, and is controlled by the authority responsible for the location.

### 3.2 Internal Access Panel Removal

Before installing or maintaining the internal components, the internal access panel must be removed from the DRPC-330-A7K. Follow the steps below to complete the task.

**Step 1:** Remove the six retention screws indicated in **Figure 3-1**.

**Step 2:** Lift the panel to remove it.



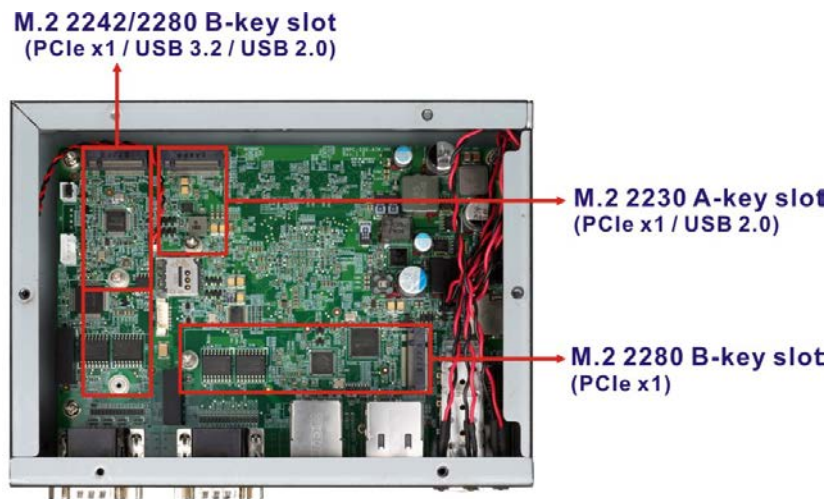
**Figure 3-1: Internal Access Panel Retention Screws**

### 3.3 M.2 Module Installation

The DRPC-330-A7K has three M.2 slots on the motherboard. To install a M.2 module, follow the instructions below.

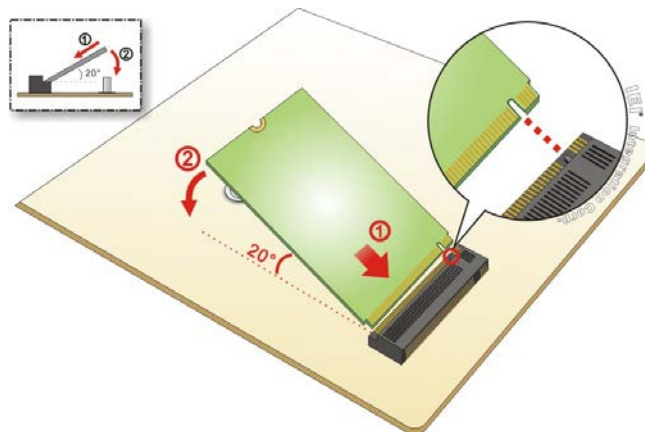
**Step 1:** Remove the internal access panel from the DRPC-330-A7K. See **Section 3.2**.

**Step 2:** Locate the M.2 slots on the motherboard (**Figure 3-2**). Remove the corresponding on-board retention screw.



**Figure 3-2: M.2 Slot Locations**

**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 20° (**Figure 3-3**).



**Figure 3-3: Inserting the M.2 Module into the Slot at an Angle**

## DRPC-330-A7K Embedded System

**Step 4:** Secure the M.2 module with the retention screw removed previously (Figure 3-4).

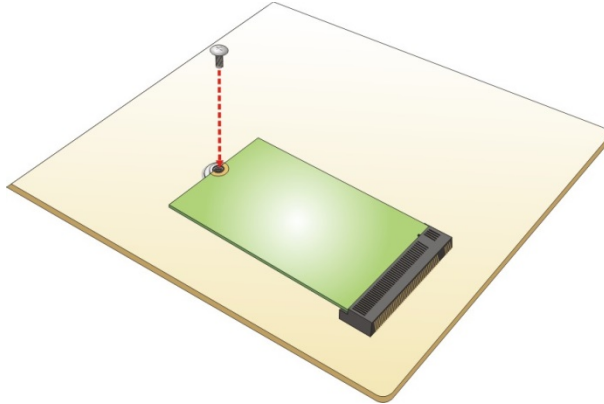


Figure 3-4: Securing the M.2 Module

### 3.4 SIM Card Installation



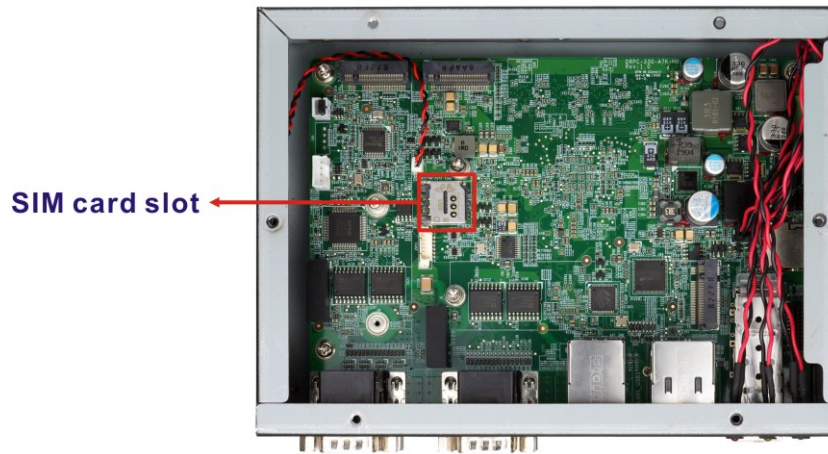
**NOTE:**

A WWAN module must be installed in the M.2 2242/2280 B-key slot (M\_2\_B1) to provide WWAN communication.

To install a SIM card, please follow the steps below.

**Step 1:** Locate the Micro SIM card slot (Figure 3-5).





**Figure 3-5: Unlock SIM Card Slot Cover**

**Step 2:** Unlock the SIM card slot cover by sliding the cover in the direction as shown by the arrow in **Figure 3-6**.

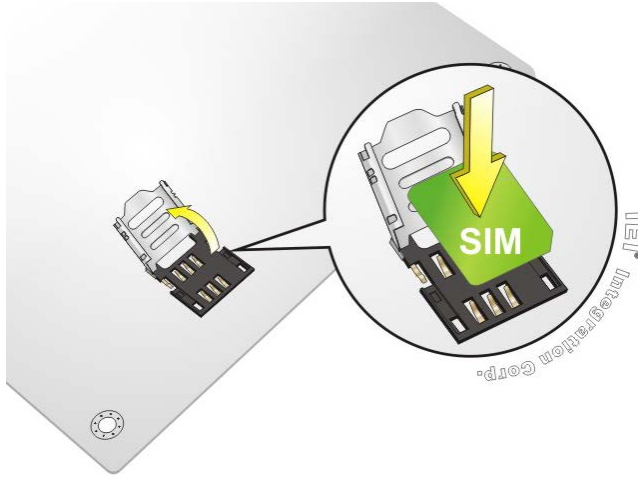


**Figure 3-6: Unlock SIM Card Slot Cover**



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**Step 3:** Open the slot cover and place a SIM card onto the slot. The cut mark on the corner should be facing away from the slot as shown in **Figure 3-7**.



**Figure 3-7: SIM Card Installation**

**Step 4:** Close the slot cover and lock it by sliding it in the direction as shown by the arrow in **Figure 3-8**.



**Figure 3-8: Lock SIM Card Slot Cover**

### 3.5 Wireless LAN Module Installation (Optional)

To install the optional wireless LAN (WLAN) module, please follow the steps below.

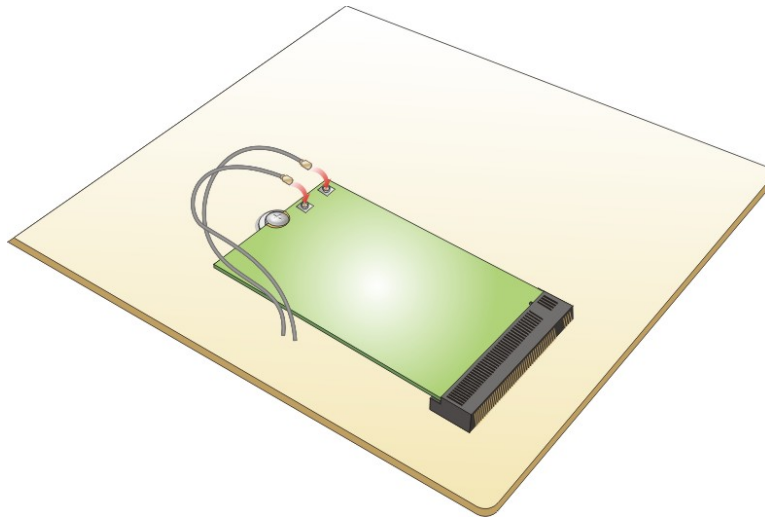
- Step 1:** Remove the internal access panel from the DRPC-330-A7K. Please follow the instruction described in **Section 3.2**.
- Step 2:** Remove the two knockout holes for antenna installation. The two knockout holes are located on the top panel of the DRPC-330-A7K as shown below.



**Figure 3-9: Knockout Holes for Wireless Antenna**

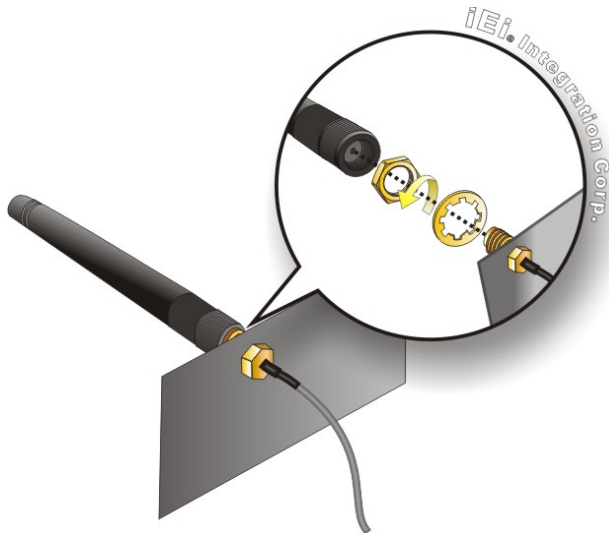
- Step 3:** Locate the **M.2 2230 A-key** slot on the motherboard.
- Step 4:** Refer **Step 3 ~ Step 4** in **Section 3.3** to install the WLAN module.
- Step 5:** Connect the two RF cables to the antenna connectors on the WLAN module (**Figure 3-10**).

## DRPC-330-A7K Embedded System



**Figure 3-10: Connecting RF Cables**

- Step 6:** Remove the nut and washer from the SMA connector at the other end of the RF cable.
- Step 7:** Insert the SMA connector to the antenna connector holes on the rear panel.
- Step 8:** Secure the SMA connector by inserting the washer and tightening it with nut.
- Step 9:** Install the external antenna.

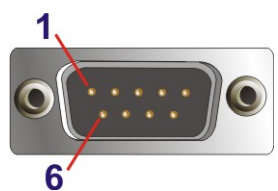


**Figure 3-11: Securing SMA Connector and External Antenna Installation**

### 3.6 RS-232/422/485 Serial Port Connection

The DRPC-330-A7K has two D-sub 9 male connectors with 2.5kV isolation for RS-232/422/485 connection. The pinouts of the D-sub 9 connectors are listed below.

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

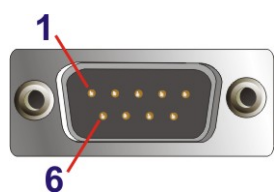


**Table 3-1: RS-232/422/485 Connector Pinouts**

### 3.7 RS-232 Serial Port Connection

The DRPC-330-A7K has two DB-9 connectors with 2.5kV isolation for RS-232 connection. The pinouts of the DB-9 connectors are listed below.

PIN NO.	RS-232
1	DATA CARRIER DETECT (DCD)
2	RECEIVE DATA (RXD)
3	TRANSMIT DATA (TXD)
4	DATA TERMINAL READY (DTR)
5	GROUND (GND)
6	DATA SET READY (DSR)
7	REQUEST TO SEND (RTS)
8	CLEAR TO SEND (CTS)
9	RING INDICATOR (RI)



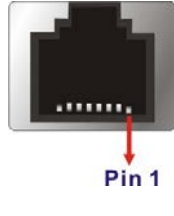
**Table 3-2: RS-232 DB-9 Connector Pinouts**

## DRPC-330-A7K Embedded System

### 3.8 Console Connection

The DRPC-330-A7K has one RJ-45 serial device connector on the front panel. The RJ-45 connector for the serial port can be identified easily as the RJ-45 for the network has two LEDs on the port, while the connectors for the serial cables don't. The pinouts of the serial port are listed below.

Pin	Description	Pin	Description
1	NC	5	GND
2	NC	6	FB_NSIN1
3	FB_NSOUT1	7	NC
4	GND	8	NC

A diagram of an RJ-45 connector. A red arrow points to the first pin on the left side of the connector, which is labeled "Pin 1" in blue text.

**Table 3-3: RJ-45 Serial Port Pinouts**

The serial device slot (RJ-45) connects to an optional cable with a USB connector at the other end.

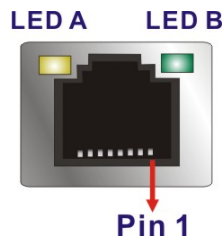


### 3.9 LAN Connection - 1GbE

The two 1GbE LAN connectors on the front panel allow connection to an external network. The pinouts of the LAN connectors are listed below.

Pin	Description	Pin	Description
1	MDI_P0	5	MDI_P2
2	MDI_N0	6	MDI_N2
3	MDI_P1	7	MDI_P3
4	MDI_N1	8	MDI_N3

**Table 3-4: 1GbE Port Pinouts**



**Figure 3-12: RJ-45 1GbE Connector**

The RJ-45 Ethernet connector has two status LEDs, one yellow and one green. The yellow LED indicates activity on the port and the green/orange LED indicates the speed. See **Table 3-5**.

Speed	LED A	LED B
10 Mb/s	Blinking yellow	Blinking green
100 Mb/s	Blinking yellow	Off
1000 Mb/s	Off	Blinking green

**Table 3-5: RJ-45 1GbE Connector LEDs**



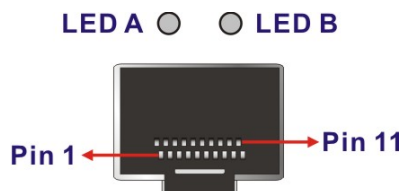
## DRPC-330-A7K Embedded System

### 3.10 LAN Connection - 10GbE SFP+

The 10GbE SFP+ connector on the front panel allows transfer rate of up to 10 gigabits per second. The pinouts of the 10GbE LAN connectors are listed below.

Pin	Description	Pin	Description
1	GND	11	GND
2	SFP+_TX_FAULT	12	SFP+_RD-
3	SFP+_TX_DISABLE	13	SFP+_RD+
4	SFP+_SDA	14	GND
5	SFP+_SCL	15	SFP+_VCCR
6	SFP+_MOD_ABS	16	SFP+_VCCT
7	SFP+_RS0	17	GND
8	SFP+_LOS	18	SFP+_TD+
9	SFP+_RS1	19	SFP+_TD-
10	GND	20	GND

**Table 3-6: 10GbE Port Pinouts**



**Figure 3-13: 10GbE SFP+ Connector**

LED A	LED B
Off: No link	Orange: 1 Gbps connection
Orange: Linked	Green: 10 Gbps connection

**Table 3-7: 10GbE SFP+Connector LEDs**



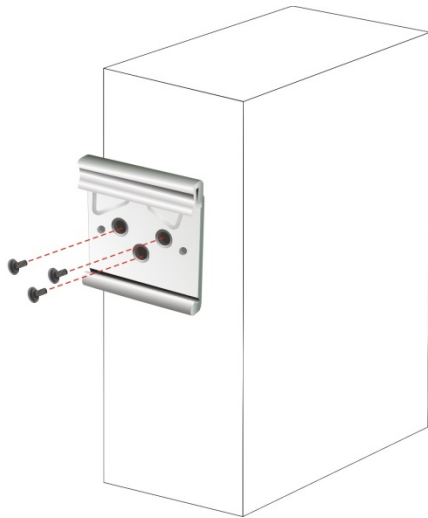
**NOTE:**

The 10GbE SFP+ port has no transceiver.

### 3.11 DIN Rail Mounting

To mount the DRPC-330-A7K embedded system onto a DIN rail, please follow the steps below.

**Step 1:** Attach the supplied DIN rail mounting bracket to the rear panel of the embedded system. Secure the bracket to the embedded system with three retention screws (Figure 3-14).



**Figure 3-14: DIN Rail Mounting Bracket Installation**



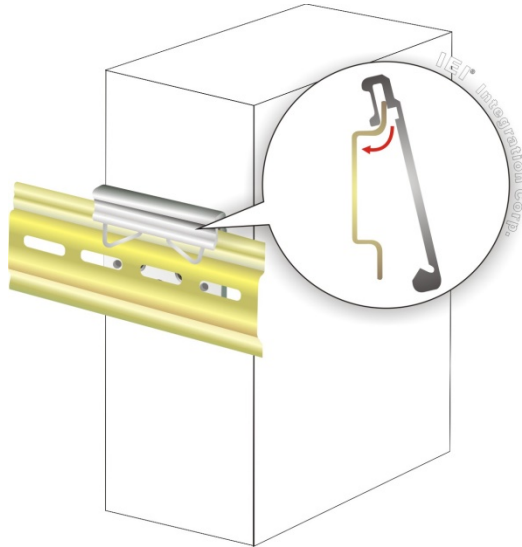
**NOTE:**

In the diagrams below, the DIN rail is already installed on a surface or on a chassis.

---

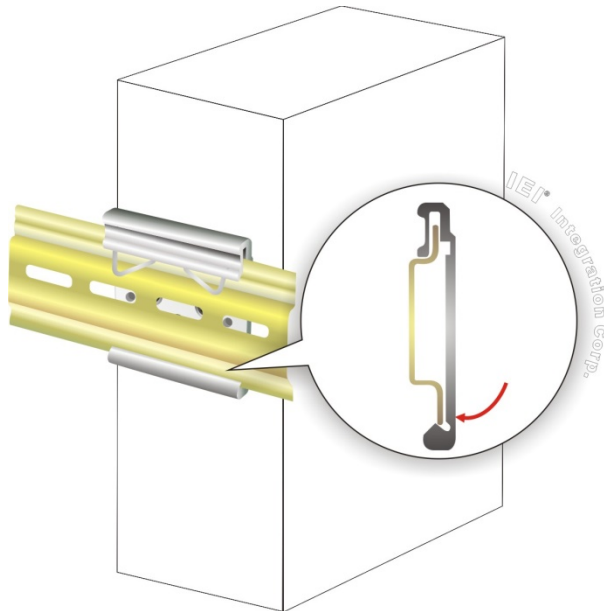
## DRPC-330-A7K Embedded System

**Step 2:** Attach the upper edge of the mounting bracket to the DIN rail as shown in **Figure 3-15**.



**Figure 3-15: Attach the Mounting Bracket to the DIN Rail**

**Step 3:** Push the system toward the DIN rail until the mounting bracket clips into place firmly (**Figure 3-16**).



**Figure 3-16: Mounting the System**

## 3.12 Power-On Procedure

### 3.12.1 Installation Checklist



#### 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.

---

To power on the embedded system please make sure of the following:

- The rear surface panel is installed
- All peripheral devices (monitor, serial communications devices etc.) are connected
- The system is securely mounted

### 3.12.2 Terminal Block Pinouts

The DRPC-330-A7K model has a 9 V – 36 V power input terminal block. The terminal block pinouts are shown below. Make sure that the power and ground wires are attached to the correct sockets of the connector.

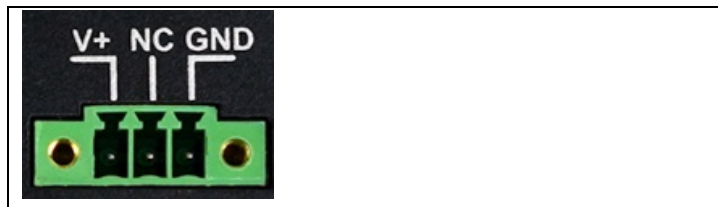


Table 3-8: 3-pin Power Terminal Block Pinouts

## DRPC-330-A7K Embedded System

### 3.12.3 Power-on Procedure

To power-on the DRPC-330-A7K please follow the steps below:

**Step 1:** Connect the power source to the power input terminal block.

**Step 2:** Short press the power button and the power LED (green) will turn on.

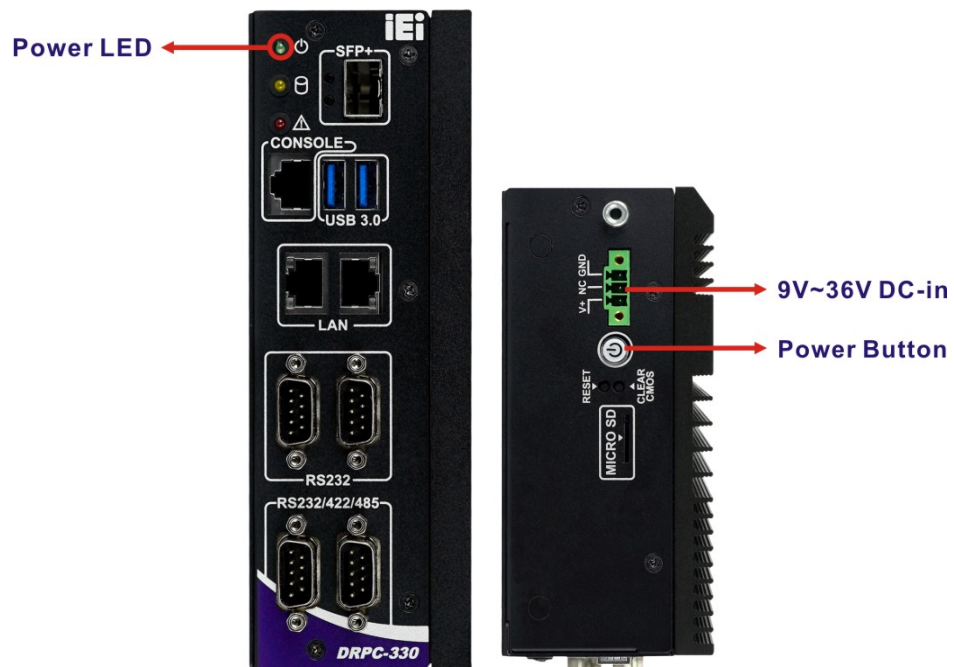
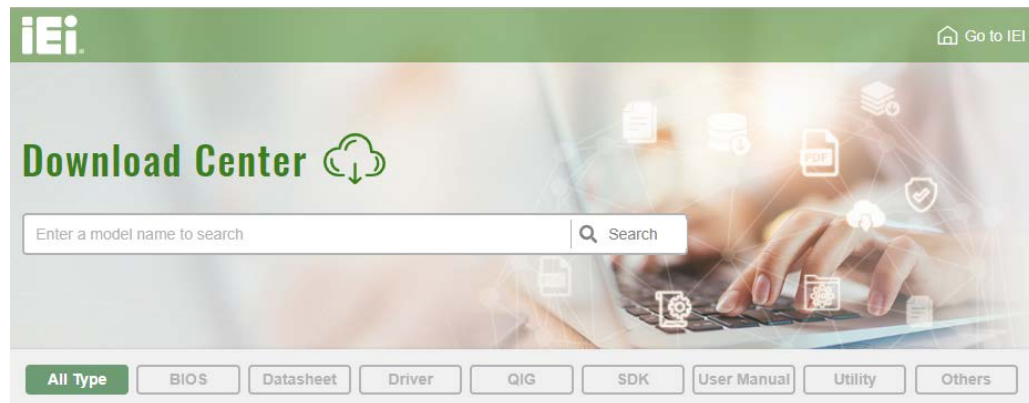


Figure 3-17: Power-on



### 3.13 Available Drivers

All the drivers for the DRPC-330-A7K are available on IEI Resource Download Center (<https://download.ieiworld.com>). Type DRPC-330-A7K and press Enter to find all the relevant software, utilities, and documentation.

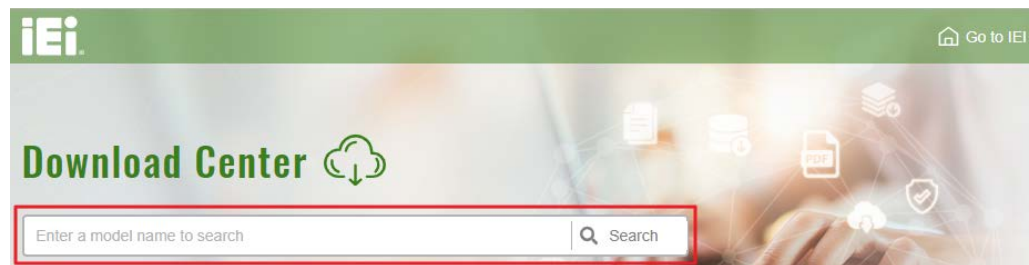


**Figure 3-18: IEI Resource Download Center**

#### 3.13.1 Driver Download

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

**Step 1:** Go to <https://download.ieiworld.com>. Type DRPC-330-A7K and press Enter.



**Step 2:** All product-related software, utilities, and documentation will be listed. You can choose **Driver** to filter the result.



## DRPC-330-A7K Embedded System

[All Type](#)
[BIOS](#)
[Datasheet](#)
[Driver](#)
[QIG](#)
[SDK](#)
[User Manual](#)
[Utility](#)
[Others](#)

**WAFER-BT-i1** Product Info ▶

[Embedded Computer](#) ▶ [Single Board Computer](#) ▶ [Embedded Board](#)  
 3.5" SBC with Intel® 22nm Atom™/Celeron® on-board SoC

**Driver**

File Name	Published	Version	File Checksum
<a href="#">7B000-001033-RS V2.3.iso (2.23 GB)</a>	2017/10/03	2.30	3B2DB1F792779A93A8F50DDBC3943E30

**Step 3:** Click the driver file name on the page and you will be prompted with the following window. You can download the entire ISO file (❶), or click the small arrow to find an individual driver and click the file name to download (❷).

7B000-001168-RS\_V1.4.iso

❶ [Click here to download entire ISO file. \(2.99 GB\)](#)

**\* Download individual file \***

- Docs
  - 1.Chipset
    - ❷ 10.1.1.12.zip (2.7 MB)
    - 2.VGA
    - 3.Audio
    - 4.Lan
    - 5.USB 3.0
    - 6.Serial IO
    - 7.TXE
    - 8.Manual



### NOTE:

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

Chapter

**4**

# Troubleshooting and Maintenance

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## DRPC-330-A7K Embedded System

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### WARNING:

Take Anti-Static precautions whenever maintenance is being carried out on the system components. Failure to take anti-static precautions can cause permanent system damage. For more details on anti-static precautions, please refer to **Section 2.1**.

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## 4.1 System Maintenance Overview

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### NOTE:

When doing maintenance operations on the system, please follow the instructions in this chapter. Failure to follow these instructions may lead to personal injury and system damage.

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To preserve the working integrity of the DRPC-330-A7K embedded system, the system must be properly maintained. If embedded system components need replacement, the proper maintenance procedures must be followed to ensure the system can continue to operate normally.

## 4.2 System Troubleshooting

This section provides some simple troubleshooting suggestions.

### 4.2.1 The System Doesn't Turn On

If after turning the system on, there is no power (indicated by the power LED on the front panel not turning on) please do the following:

- Step 1:** Check that the power cable connector is properly connected to the system rear panel.
- Step 2:** Check that the power cable connector is properly plugged into the power source.

**Step 3:** Make sure the power button is turned on.

**Step 4:** Plug the system into a monitor and check to see if anything appears on the screen. If the boot-up screen appears it means the power LED has failed. To fix this problem, contact an IEI sales representative directly.

#### 4.2.2 The System Doesn't Boot Up

If the system doesn't boot up please do the following:

**Step 1:** Check the power is turned on. See **Section 4.2.1** above.

**Step 2:** Make sure the SO-DIMM modules are properly installed.

#### 4.2.3 More Troubleshooting

***Nothing appears on the monitor after booting up the system:*** Make sure the monitor is properly connected to the system and the monitor is connected to a power supply and turned on.



**WARNING:**

If all troubleshooting measures have been taken and the system still fails to start, contact the IEI reseller or vendor you purchased the DRPC-330-A7K from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to [sales@ieiworld.com](mailto:sales@ieiworld.com).

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## DRPC-330-A7K Embedded System

### 4.3 Jumper Settings

#### 4.3.1 Clear CMOS

If the DRPC-330-A7K fails to boot due to improper BIOS settings, the clear CMOS button clears the CMOS data and resets the system BIOS information. To do this, push the clear CMOS button for a few seconds.

The clear CMOS button location is shown in **Figure 4-1** below.



Figure 4-1: Clear CMOS Button Location

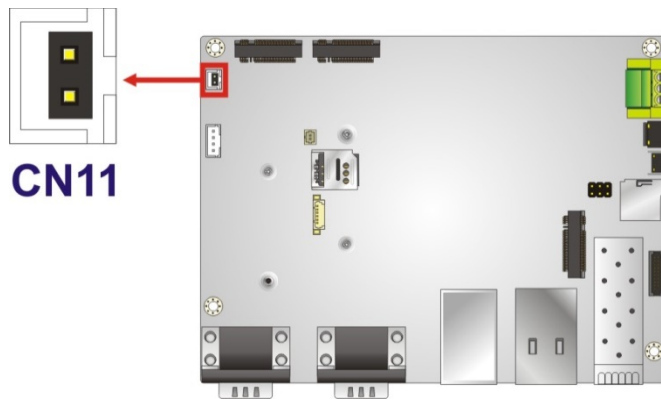


### 4.3.2 Watchdog Timer Jumper

The Watchdog Timer Jumper (CN11) allows users to enable or disable the watchdog timer function. Refer to **Figure 4-2** and **Table 4-1** for the jumper location and settings.

Setting	Description
Open	Disable watchdog timer
Short	Enable watchdog timer (default)

**Table 4-1: Watchdog Timer Jumper Settings**



**Figure 4-2: Watchdog Timer Jumper Location**

Chapter

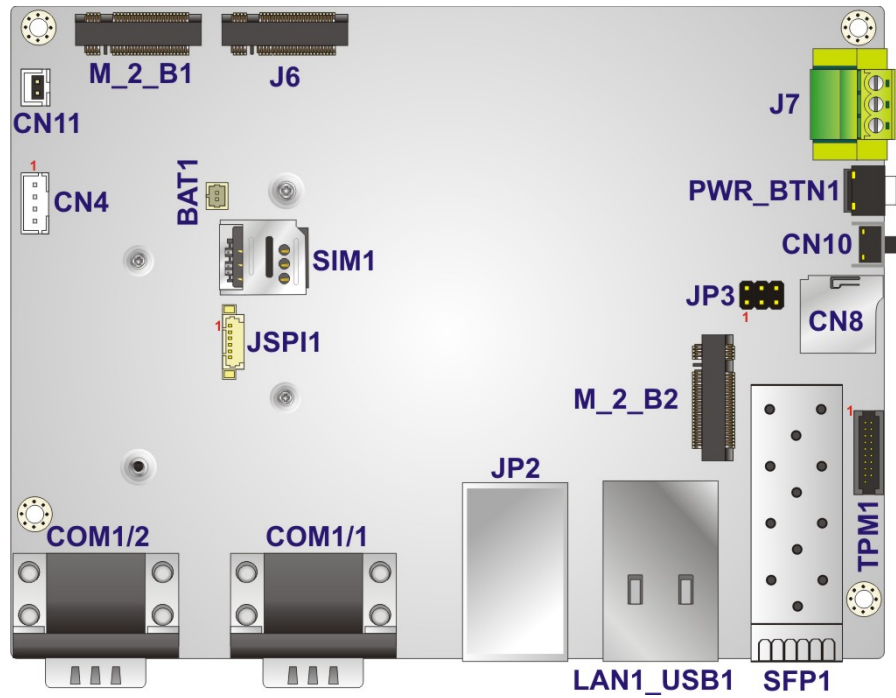
**5**

# Interface Connectors

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## 5.1 Peripheral Interface Connectors

The DRPC-330-A7K embedded system motherboard comes with a number of peripheral interface connectors and configuration jumpers. The connector locations are shown in **Table 5-1**. The Pin 1 locations of the on-board connectors are also indicated in the diagrams. The connector pinouts for these connectors are listed in the following sections.



**Figure 5-1: Main Board Layout Diagram**

## DRPC-330-A7K Embedded System

### 5.2 Internal Peripheral Connectors

Internal peripheral connectors on the motherboard and are only accessible when the motherboard is outside of the chassis. The table below shows a list of the connectors on the motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
Battery connector	2-pin wafer	BAT1
I <sup>2</sup> C connector	4-pin wafer	CN4
LED connector	6-pin header	JP3
M.2 A-key slot	2230 A-key slot	J6
M.2 B-key slot	2280 B-key slot	M_2_B2
M.2 B-key slot	2242/2280 B-key slot	M_2_B1
SIM card slot	Micro SIM slot	SIM1
SPI flash connector	6-pin wafer	JSPI1
TPM connector	20-pin header	TPM1

**Table 5-1: Peripheral Interface Connectors**

#### 5.2.1 Battery Connector (BAT1)

PIN NO.	DESCRIPTION
1	+3V
2	GND

**Table 5-2: Battery Connector (BAT1) Pinouts**

### 5.2.2 I<sup>2</sup>C Connector (CN4)

PIN NO.	DESCRIPTION
1	NC
2	Clock
3	Data
4	GND

**Table 5-3: I<sup>2</sup>C Connector (CN4) Pinouts**

### 5.2.3 LED Connector (JP3)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	DC_IN
3	GPIO_HDD	4	3.3V
5	GPIO_Alarm	6	3.3V

**Table 5-4: LED Connector (JP3) Pinouts**

### 5.2.4 M.2 2230 A-key Slot (J6)

The M.2 2230 A-key Slot (J6) supports USB 2.0 and PCIe x1 signals.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	3V3A_Mini_3
3	U2_M2A_P_C	4	3V3A_Mini_3
5	U2_M2A_M_C	6	NC
7	GND	8	Module Key
9	Module Key	10	Module Key
11	Module Key	12	Module Key
13	Module Key	14	Module Key
15	Module Key	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	GND	24	GND



## DRPC-330-A7K Embedded System

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
25	NC	26	NC
27	NC	28	NC
29	GND	30	GND
31	NC	32	NC
33	GND	34	NC
35	M.2_PCIE_TXp_0_C	36	GND
37	M.2_PCIE_TXn_0_C	38	NC
39	GND	40	NC
41	M.2_PCIE_RXp_0	42	NC
43	M.2_PCIE_RXn_0	44	NC
45	GND	46	NC
47	M.2_PCIEx1_CLKp_0_C	48	NC
49	M.2_PCIEx1_CLKn_0_C	50	NC
51	GND	52	PCIE_RSTn_3V3
53	CLKREQ#_C_3	54	
55	LAN_WOL#_3V3	56	W_DISABLE#_A
57	GND	58	CPO_I2C1_SDA
59	NC	60	CPO_I2C1_SCK
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	3.3V
71	NC	72	3V3A_Mini_3
73	NC	74	3V3A_Mini_3
75	GND		

**Table 5-5: M.2 2230 A-key Slot (J6) Pinouts**

### 5.2.5 M.2 2280 B-key Slot (M\_2\_B2)

The M.2 2280 B-key Slot (M\_2\_B2) supports PCIe x1 signal.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	3V3A_Mini_1
3	GND	4	3V3A_Mini_1
5	GND	6	NC
7	U2_M2B_P_C	8	W_DISABLE#_B
9	U2_M2B_M_C	10	Module Key
11	GND	12	Module Key
13	Module Key	14	Module Key
15	Module Key	16	Module Key
17	Module Key	18	Module Key
19	Module Key	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	RX_U3_N3	30	NC
31	RX_U3_P3	32	NC
33	GND	34	NC
35	TX_U3_N3	36	NC
37	TX_U3_P3	38	NC
39	GND	40	NC
41	M.2_PCIE_RXn_5	42	NC
43	M.2_PCIE_RXp_5	44	NC
45	GND	46	NC
47	M.2_PCIE_TXn_5_C	48	NC
49	M.2_PCIE_TXp_5_C	50	PCIE_RSTn_3V3
51	GND	52	CLKREQ#_C_1
53	M.2_PCIEx1_CLKn_2	54	LAN_WOL#_3V3
55	M.2_PCIEx1_CLKp_2	56	CPO_I2C1_SDA
57	GND	58	CPO_I2C1_SCK

## DRPC-330-A7K Embedded System

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	PCIE_RSTn_3V3	68	NC
69	GND	70	3V3A_Mini_1
71	GND	72	3V3A_Mini_1
73	GND	74	3V3A_Mini_1
75	GND		

**Table 5-6: M.2 2280 B-key Slot (M\_2\_B2) Pinouts**

### 5.2.6 M.2 2242/2280 B-key Slot (M\_2\_B1)

The M.2 2242/2280 B-key Slot (M\_2\_B1) supports PCIe x1, USB 3.2 and USB 2.0 signals; it also supports WWAN communication together with the on-board SIM card slot.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	3V3A_Mini_1
3	GND	4	3V3A_Mini_1
5	GND	6	NC
7	U2_M2B_P_C	8	W_DISABLE#_B
9	U2_M2B_M_C	10	Module Key
11	GND	12	Module Key
13	Module Key	14	Module Key
15	Module Key	16	Module Key
17	Module Key	18	Module Key
19	Module Key	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	RX_U3_N3	30	SIM_RST

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
31	RX_U3_P3	32	SIM_CLK
33	GND	34	SIM_IO
35	TX_U3_N3	36	SIM_VCC
37	TX_U3_P3	38	NC
39	GND	40	NC
41	M.2_PCIE_RXn_5	42	NC
43	M.2_PCIE_RXp_5	44	NC
45	GND	46	NC
47	M.2_PCIE_TXn_5_C	48	NC
49	M.2_PCIE_TXp_5_C	50	PCIE_RSTn_3V3
51	GND	52	CLKREQ#_C_1
53	M.2_PCIEx1_CLKn_2	54	LAN_WOL#_3V3
55	M.2_PCIEx1_CLKp_2	56	CPO_I2C1_SDA
57	GND	58	CPO_I2C1_SCK
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	PCIE_RSTn_3V3	68	NC
69	GND	70	3V3A_Mini_1
71	GND	72	3V3A_Mini_1
73	GND	74	3V3A_Mini_1
75	GND		

**Table 5-7: M.2 2280 B-key Slot (M\_2\_B1) Pinouts**

## DRPC-330-A7K Embedded System

### 5.2.7 SPI Flash Connector (JSPI1)

PIN NO.	DESCRIPTION
1	+3.3V
2	SPI_CS#
3	SPI_SO
4	SPI_CLK
5	SPI_SI
6	GND

**Table 5-8: SPI Flash Connector (JSPI1) Pinouts**

### 5.2.8 TPM Connector (TPM1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	2	TPM_RST#
3	+3.3V_TPM	4	TPM_PIRQ#
5	NC	6	NC
7	GND	8	TPM_CS#0_SW
9	TPM_SI_SW	10	NC
11	TPM_SO_SW	12	NC
13	NC	14	TPM_CLK_SW
15	+3.3V_TPM	16	GND
17	NC	18	TPM_GPIO
19	NC	20	NC

**Table 5-9: TPM Connector (TPM1) Pinouts**



Appendix

**A**

# Regulatory Compliance

---

**DECLARATION OF CONFORMITY**

This equipment is in conformity with the following EU directives:

- EMC Directive 2004/30/EU
- Low-Voltage Directive 2014/35/EU
- RoHS II Directive 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 R&TTE Directive 1999/5/EC.

---

English

IEI Integration Corp declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

---

Български [Bulgarian]

IEI Integration Corp. декларира, че този оборудване е в съответствие със съществените изисквания и другите приложими правила на Директива 1999/5/EC.

---

Česky [Czech]

IEI Integration Corp tímto prohlašuje, že tento zařizení je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.

---

Dansk [Danish]

IEI Integration Corp erklærer herved, at følgende udstyr overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.

---

Deutsch [German]

IEI Integration Corp, erklärt dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 1999/5/EU.

---

Eesti [Estonian]

IEI Integration Corp deklareerib seadme seadme vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.

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**Español [Spanish]**

IEI Integration Corp declara que el equipo cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.

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**Ελληνική [Greek]**

IEI Integration Corp ΔΗΛΩΝΕΙ ΟΤΙ ΕΞΟΠΛΙΣΜΟΣ ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/EK.

---

**Français [French]**

IEI Integration Corp déclare que l'appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.

---

**Italiano [Italian]**

IEI Integration Corp dichiara che questo apparecchio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.

---

**Latviski [Latvian]**

IEI Integration Corp deklarē, ka iekārta atbilst būtiskajām prasībām un citiem ar to saistītajiem noteikumiem Direktīvas 1999/5/EK.

---

**Lietuvių [Lithuanian]**

IEI Integration Corp deklaruoja, kad šis įranga atitinka esminius reikalavimus ir kitas 1999/5/EB 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 1999/5/EG.

---

**Malti [Maltese]**

IEI Integration Corp jiddikjara li dan prodott jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Direttiva 1999/5/EC.

---

**Magyar [Hungarian]**

IEI Integration Corp nyilatkozom, hogy a berendezés megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyeb előírásainak.

---

**Polski [Polish]**

IEI Integration Corp oświadcza, że wyrobu jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.

---

**Português [Portuguese]**

IEI Integration Corp declara que este equipamento está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.

---

## DRPC-330-A7K Embedded System

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Româna [Romanian]

IEI Integration Corp declară că acest echipament este în conformitate cu cerințele esențiale și cu celelalte prevederi relevante ale Directivei 1999/5/CE.

---

Slovensko [Slovenian]

IEI Integration Corp izjavlja, da je ta opreme v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.

---

Slovensky [Slovak]

IEI Integration Corp týmto vyhlasuje, že zariadenia spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.

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Suomi [Finnish]

IEI Integration Corp vakuuttaa täten että laitteet on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

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Svenska [Swedish]

IEI Integration Corp förklarar att denna utrustningstyp står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

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**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, and
- 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.

**ROHS STATEMENT**

The label on the product indicates this product conforms to European (EU) Restriction of Hazardous Substances (RoHS) that set maximum concentration limits on hazardous materials used in electrical and electronic equipment.

**CHINA ROHS**

The label on the product indicates the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.



Appendix

**B**

# Safety Precautions

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## B.1 Safety Precautions

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### WARNING:

The precautions outlined in this appendix should be strictly followed. Failure to follow these precautions may result in permanent damage to the DRPC-330-A7K.

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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.
- ***This equipment is not suitable for use in locations where children are likely to be present.***
- **DO NOT:**
  - Drop the system against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

## DRPC-330-A7K Embedded System

### B.1.2 Anti-static Precautions



#### WARNING:

Failure to take ESD precautions during the installation of the DRPC-330-A7K may result in permanent damage to the DRPC-330-A7K and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the DRPC-330-A7K. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the DRPC-330-A7K 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 anti-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 Explanation of Graphical Symbols



This symbol warns the user that the part has this symbol is hot. Therefore, it is dangerous to make any kind of contact with this part.



This symbol alerts the user that important information concerning the operation and maintenance of this unit has been included. Therefore, the information should be read carefully in order to avoid any problems.

### B.1.4 Product Disposal

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**CAUTION:**

Risk of explosion if the battery is replaced by an incorrect type;

Replacement of a battery with an incorrect type that can defeat a safeguard (for example, in the case of some lithium battery types);

Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion;

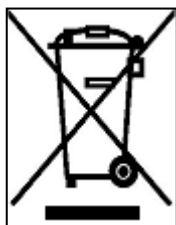
Leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas;

A battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas.

Dispose of used batteries according to instructions and local regulations.

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- 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:



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.

## DRPC-330-A7K Embedded System

### B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the DRPC-330-A7K, please follow the guidelines below.

#### B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the DRPC-330-A7K, please read the details below.

- The interior of the DRPC-330-A7K does not require cleaning. Keep fluids away from the DRPC-330-A7K interior.
- Be cautious of all small removable components when vacuuming the DRPC-330-A7K.
- Turn the DRPC-330-A7K off before cleaning the DRPC-330-A7K.
- Never drop any objects or liquids through the openings of the DRPC-330-A7K.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the DRPC-330-A7K.
- Avoid eating, drinking and smoking within vicinity of the DRPC-330-A7K.

#### B.2.2 Cleaning Tools

Some components in the DRPC-330-A7K 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 DRPC-330-A7K.

- **Cloth** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the DRPC-330-A7K.
- **Water or rubbing alcohol** – A cloth moistened with water or rubbing alcohol can be used to clean the DRPC-330-A7K.
- **Using solvents** – The use of solvents is not recommended when cleaning the DRPC-330-A7K 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 DRPC-330-A7K. Dust and dirt can restrict the airflow in the DRPC-330-A7K and cause its circuitry to corrode.



- **Swabs** - Swabs moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas. Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

C

# Watchdog Timer

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**NOTE:**

The following discussion applies to DOS. Contact IEI support or visit the IEI website for drivers for other operating systems.

The Watchdog Timer is a hardware-based timer that attempts to restart the system when it stops working. The system may stop working because of external EMI or software bugs. The Watchdog Timer ensures that standalone systems like ATMs will automatically attempt to restart in the case of system problems.

A BIOS function call (INT 15H) is used to control the Watchdog Timer.

INT 15H:

<b>AH – 6FH Sub-function:</b>	
AL – 2:	Sets the Watchdog Timer’s period.
BL:	Time-out value (Its unit-second is dependent on the item “Watchdog Timer unit select” in CMOS setup).

**Table C-1: AH-6FH Sub-function**

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. When the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

## DRPC-330-A7K Embedded System

**NOTE:**

The Watchdog Timer is activated through software. The software application that activates the Watchdog Timer must also deactivate it when closed. If the Watchdog Timer is not deactivated, the system will automatically restart after the Timer has finished its countdown.

**EXAMPLE PROGRAM:**

**; INITIAL TIMER PERIOD COUNTER**

;

**W\_LOOP:**

;

```

MOV      AX, 6F02H      ;setting the time-out value
MOV      BL, 30         ;time-out value is 48 seconds
INT      15H

```

;

**; ADD THE APPLICATION PROGRAM HERE**

;

```

CMP      EXIT_AP, 1     ;is the application over?
JNE      W_LOOP        ;No, restart the application

```

```

MOV      AX, 6F02H      ;disable Watchdog Timer
MOV      BL, 0         ;
INT      15H

```

;

**; EXIT ;**

Appendix

**D**

# Error Beep Code

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## DRPC-330-A7K Embedded System

## D.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

## D.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

**E**

# Hazardous Materials Disclosure

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## DRPC-330-A7K Embedded System

### E.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
<p>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.</p> <p>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.</p>										

## E.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	○	○	○	○	○	○
印刷电路板	○	○	○	○	○	○
金属螺帽	○	○	○	○	○	○
电缆组装	○	○	○	○	○	○
风扇组装	○	○	○	○	○	○
电力供应组装	○	○	○	○	○	○
电池	○	○	○	○	○	○

○: 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。