IEI Integration Corp.

MODEL:

PUZZLE-9030

1U Network Appliance with AMD® EPYC™ Milan 7543 Processors, Up to 4TB DDR4, M.2 NVMe, U.2 NVMe, Gen-Z 4C+ Interfaces, Redundant 1300W PSU, Rack Mount, and RoHS Compliant

User Manual

Rev. 1.00 – September 18, 2023

RoHS Lead Free

Revision

Date	Version	Changes
September 18, 2023	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.

Table of Contents

List of Figures

List of Tables

Chapter

1

Introduction

1.1 Overview

Figure 1-1: PUZZLE-9030 Series

The PUZZLE-9030 is a 1U network appliance series powered by two AMD® EPYC™ Milan 7543 processors, which is made for cybersecurity vendors that require faster CPU performance to accelerate SD-WAN architecture, and secure access service edge (SASE) solutions. It is also capable of supporting4TB system memory.

The PUZZLE-9030 supports four IEI network modules through Gen-Z 4C+ interfaces to improve HPC, cloud and enterprise workload performance. In addition, it is equipped with two PCIe Gen4 x16 slots for upgrading with expansion cards, such as NIC cards or accelerator cards. Multiple storage interfaces for fast and stable data transmission are offered, including two M.2 M key 2280 slots, two SATA 6Gb/s connectors for 3.5" HDD or two U.2 connectors for 2.5" U.2 NVMe SSD.

WARNING:

This equipment is not suitable for use in locations where children are likely to be present.

1.2 Features

The PUZZLE-9030 features are listed below:

- Powered by two AMD® EPYC™ Milan 7543 processors
- Support 16 DDR4 3200 MHz ECC & register RDIMM/LRDIMM (system max. 4 TB)
- Support multiple storage options, including M.2 NVMe SSD, U.2 NVMe SSD and 2.5" SATA 6Gb/s SSD
- Equipped four Gen-Z 4C+ connectors, supporting IEI PuIM-100G2SF-CX6 network interface cards
- Upgradable with future expansion cards by two PCIe Gen4 slots
- One RJ-45 console port
- Dual 1300W redundant power supply, 80+ platinum
- Six hot-swappable fan modules
- 1U chassis for rack mounting
- CE, FCC and RoHS compliant

1.3 Front Panel

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

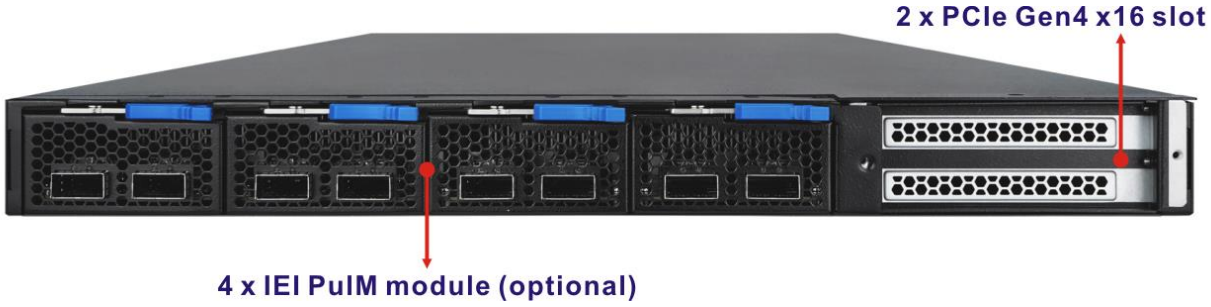


Figure 1-2: PUZZLE-9030 Front Panel

1.4 Rear Panel

An overview of the PUZZLE-9030's rear panel is shown in **Figure 1-3** below. The rear panel also contains several LED indicators:

- PSU LED
- Fan module LED
- Status LED (green)
- Power LED (green)
- Alert LED (red)

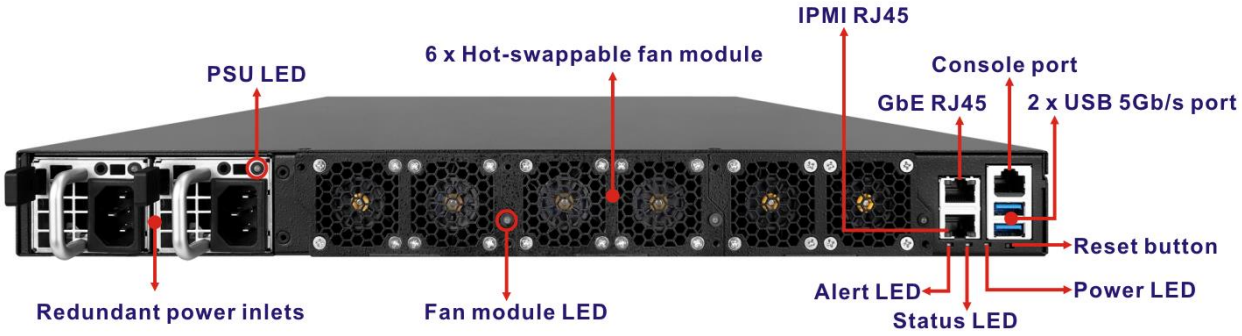


Figure 1-3: PUZZLE-9030 Rear Panel

1.5 Technical Specifications

The PUZZLE-9030 technical specifications are listed in **Table 1-1**.

System	
Form Factor	1U
CPU (SoC)	2 x AMD® EPYC™ Milan 7543
Chipset	Integrated in CPU
Memory	Technology: ECC & Register DDR4 3200 MHz memory, up to 256GB per DIMM Capacity: RDIMM/LRDIMM, up to 4TB Socket: 16 x 288-pin DIMM (8 DIMM/CPU), eight channels
IPMI	1 x AST2620 (RTL8211E)
Networking	Ethernet port: 1 x GbE RJ-45 via Intel® I211 Network module slot: 4 x Optional PulM-100G2SF-CX6 (Gen-Z 4C+, PCIe Gen4 x16, dual QSFP28, 1/10/25/40/50/100 Gb/s)
Storage	2 x M.2 M key 2280 (PCIe Gen4 x4) 2 x U.2 (PCIe Gen4 x4) or 2 x SATA 6Gb/s - (colay design)
Expansion	2 x PCIe Gen4 x16 slot (FHHL)
I/O and Indicators	
Console	1 x RJ-45
USB	2 x USB 3.2 Gen 1 (5 Gb/s) port (external)
Indicator	Power LED (green) Status LED (green) Alert LED (red) Fan module LED (green) PSU LED (green)
Button	1 x Reset button
TPM	1 x TPM 2.0 (2x10 pin header)
Power	
Power Input	AC power inlet on PSU AC 100V ~ 240V @47~63Hz

Type/Watt	YM-2132EAR 90 ~ 132VAC @900W 100 ~ 132VAC @1000W 110 ~ 132VAC @1100W 180 ~ 264VAC @1300W
Processor Cooling	2 x CPU heatsink
System Cooling	6 x Individual hot-swappable cooling fans
Environmental and Mechanical	
Mounting	1U rack mount
Operating Temperature	0°C~40°C (32°F~104°F)
Storage Temperature	-10°C~50°C (14°F~122°F)
Operating Humidity	5%~90%, non-condensing
Safety	RoHS, CE, FCC, UL
Weight	14.80 kg
Physical Dimensions	438 mm x 670 mm x 44.2 mm (W x D x H)
Operating System	Linux (CentOS, Red Hat, Ubuntu, etc.)

Table 1-1: Technical Specifications

1.6 Dimensions

The physical dimensions are shown below:

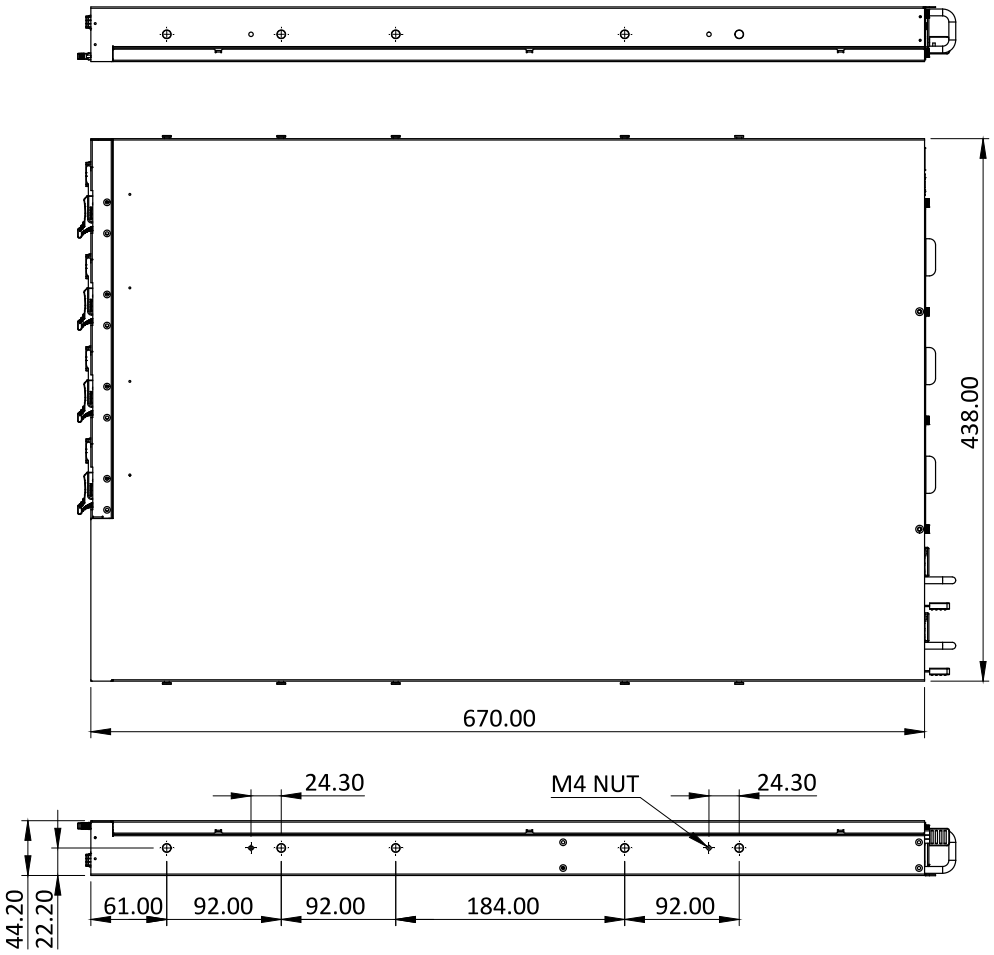


Figure 1-4: Physical Dimensions (millimeters)

Chapter

2

Unpacking

2.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during installation may result in permanent damage to the PUZZLE-9030 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PUZZLE-9030. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PUZZLE-9030 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 PUZZLE-9030, place it on an anti-static pad. This reduces the possibility of ESD damaging the PUZZLE-9030.

2.2 Unpacking Precautions

When the PUZZLE-9030 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 PUZZLE-9030 does not fall out of the box.
- Make sure all the components shown in **Section 2.3** are present.

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 PUZZLE-9030 from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@ieiworld.com.

The PUZZLE-9030 is shipped with the following components:

Quantity	Item	Image
1	PUZZLE-9030	
2	Power cord	
1	USB to console cable	

2.4 Optional Items

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

Optional Item	Image
Sliding rails (**P/N**: 45009-0019C0-00-RS)	

Optional Item	Image
USB to console cable (**P/N**: 32013-004000-100-RS)	
RS-232 to console cable (**P/N**: 32005-005100-100-RS)	

Chapter

3

Installation

3.1 Installation Precautions

CAUTION!

The PUZZLE-9030 series has more than one power supply connection point. To reduce the risk of electric shock, disconnect all power sources before installing or servicing the PUZZLE-9030 series.

During installation, be aware of the precautions below:

- **Read the user manual**: The user manual provides a complete description of the PUZZLE-9030, installation instructions and configuration options.
- **DANGER! Disconnect Power**: Power to the PUZZLE-9030 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 PUZZLE-9030 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 PUZZLE-9030. The PUZZLE-9030's cooling vents must not be obstructed by any objects. Blocking the vents can cause overheating of the PUZZLE-9030. Leave at least 5 cm of clearance around the PUZZLE-9030 to prevent overheating.
- **Grounding**: The PUZZLE-9030 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 PUZZLE-9030.

3.2 Top Cover Removal

WARNING:

Never open the equipment. For safety reasons, the equipment should be opened only by qualified skilled person.

Before installing or maintaining the internal components, the top cover must be removed from the PUZZLE-9030. Follow the steps below to complete the task.

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

Step 2: Slide the top cover towards the rear side and gently lift the top cover (**Figure 3-1**).

Figure 3-1: Top Cover Removal

3.3 DIMM Installation

CAUTION:

For multiple channel configuration, always install identical memory modules that feature the same capacity, timings, voltage, number of ranks and the same brand.

To install the DIMM module, please follow the steps below.

Step 1: Remove the top cover from the PUZZLE-9030. Please follow the instruction described in **Section 3.2**.

Step 2: Locate the DIMM slots on the motherboard.

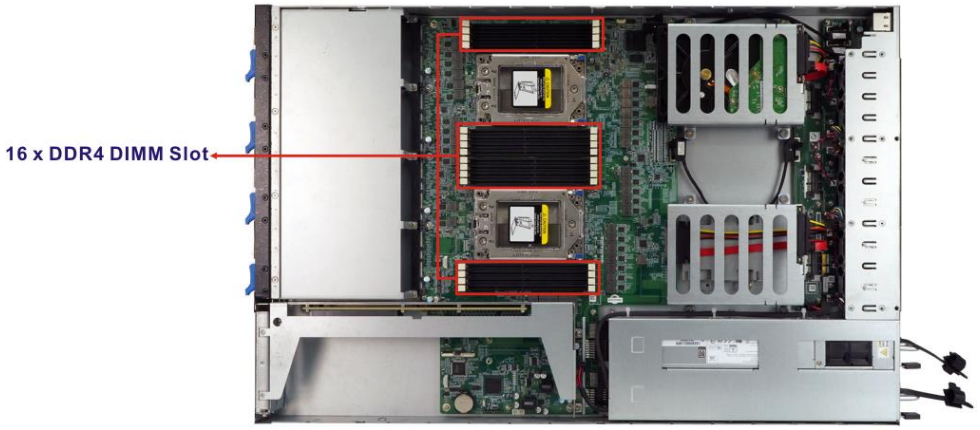


Figure 3-2: DIMM Slot Locations

Step 3: Open the DIMM socket handles. Open the two handles outwards as far as they can.

Step 4: Align the DIMM so the notch on the memory lines up with the notch on the memory socket.

Step 5: Once aligned, press down until the DIMM is properly seated. Clip the two handles into place.

To remove a DIMM, push both handles outward. The memory module is ejected by a mechanism in the socket.

3.4 HDD/SSD Installation

The PUZZLE-9030 allows installation of two 3.5" SATA HDD/SSD or two 2.5" U.2 NVMe SSD. To install SSDs into the system, please follow the steps below.

3.4.1 3.5" SATA HDD/SSD

Step 1: Remove the top cover from the PUZZLE-9030. Please follow the instruction described in **Section 3.2**.

Step 2: Remove the HDD bracket from the system. To do this, remove the four retention screws indicated below and disconnect the SATA cable from the motherboard.

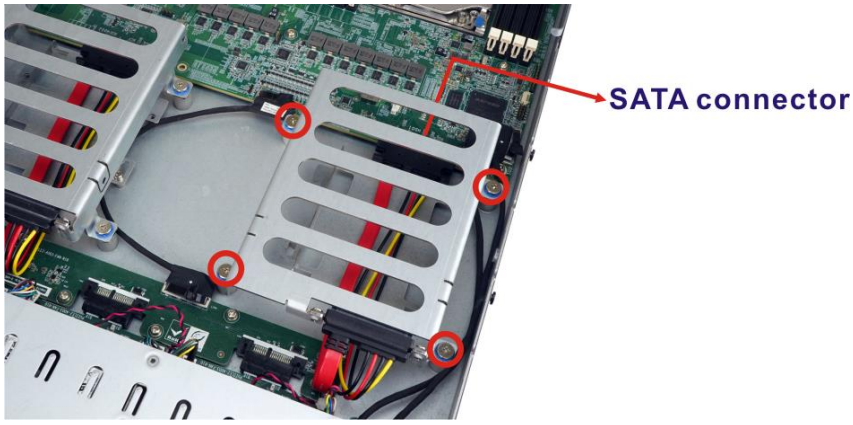


Figure 3-3: HDD Bracket Retention Screws

Step 3: Insert an HDD into the bracket until the HDD is properly connected to the SATA connector. Secure the HDD with four retention screws. See **Figure 3-5**.

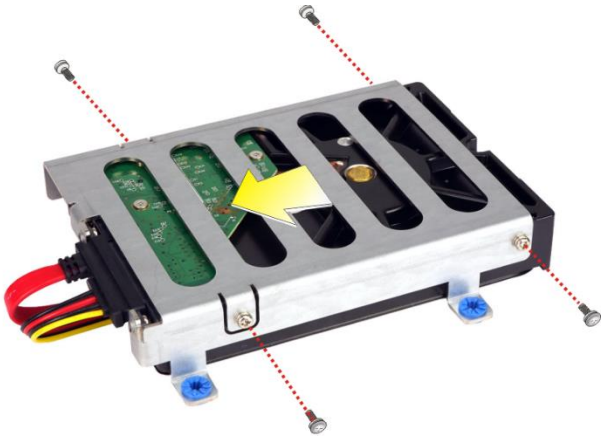


Figure 3-4: Secure HDD to the Bracket

Step 4: Re-connect the SATA cable to the motherboard. Secure the bracket to the chassis with four screws removed previously (**Figure 3-5**).

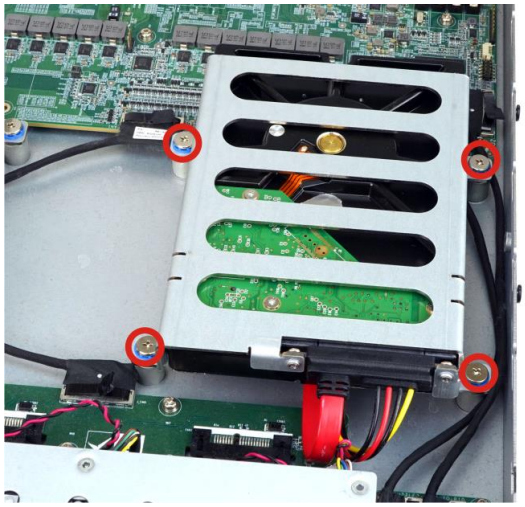


Figure 3-5: HDD Installation

Step 5: Re-install and secure the top cover to the system.

3.4.2 2.5" U.2 SSD

Step 1: Remove the top cover from the PUZZLE-9030. Please follow the instruction described in **Section 3.2**.

Step 2: Remove the 3.5" HDD bracket from the system. To do this, remove the four retention screws indicated below and disconnect the SATA cable from the motherboard.

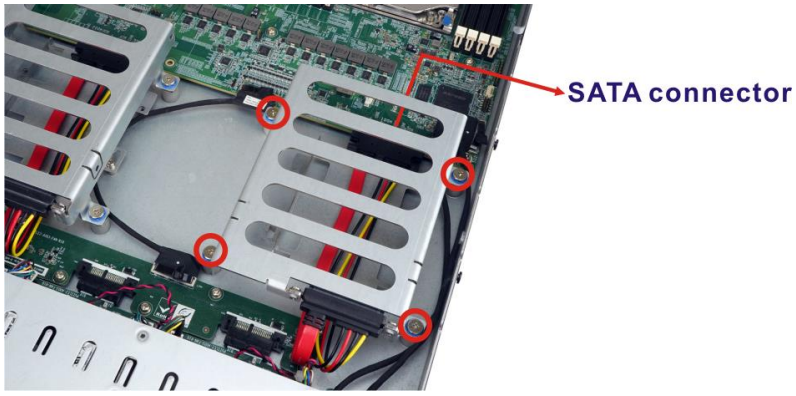


Figure 3-6: 3.5" HDD Bracket Retention Screws

Step 3: Remove the 2.5" SSD bracket from the system by remove the four retention screws indicated belowFigure 3-5.

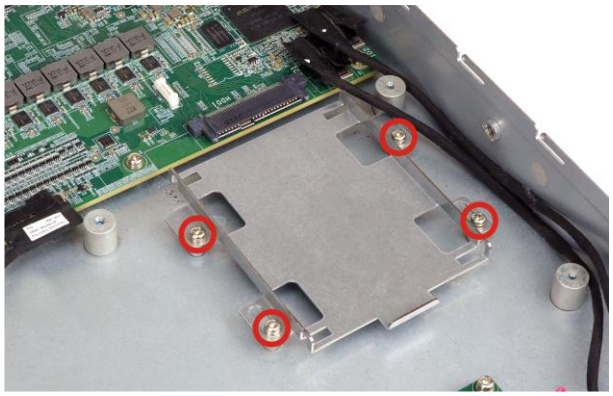


Figure 3-7: 2.5" SSD Bracket Retention Screws

Step 4: Place an U.2 SSD onto the bracket and secure it with four retention screws (M3*4).

Figure 3-8: Secure SSD to the Bracket

Step 5: Insert the SSD into the SATA connector on the motherboard. Secure the bracket to the chassis with four screws removed previously.

Figure 3-9: SSD Installation

Step 6: Re-install and secure the top cover to the system.

3.5 PCIe Expansion Card Installation

The PUZZLE-9030 allows installation of two PCIe x16 card. To install a PCIe expansion card, please follow the steps below.

Step 1: Remove the top cover from the PUZZLE-9030 (refer to **Section 3.2**).

Step 2: Remove the four riser card module retention screws indicated below.

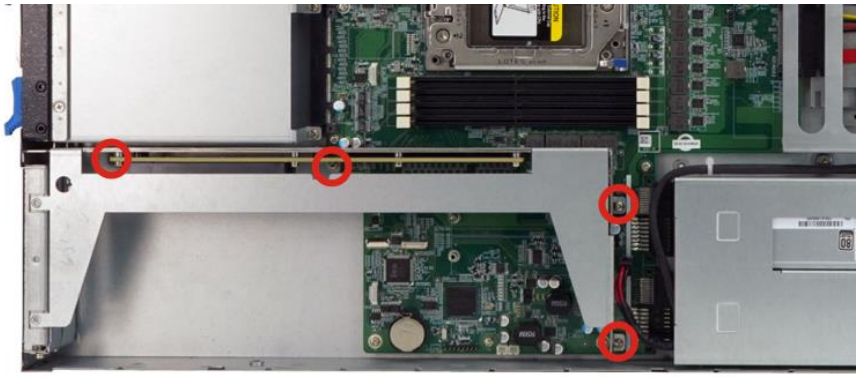


Figure 3-10: Riser Card Module Retention Screws

Step 3: Lift the riser card module to disconnect the module from the expansion slot of the motherboard.

Step 4: Remove the blank bracket panel that aligns with the PCIe slot for installing the expansion card. Save the bracket screw.

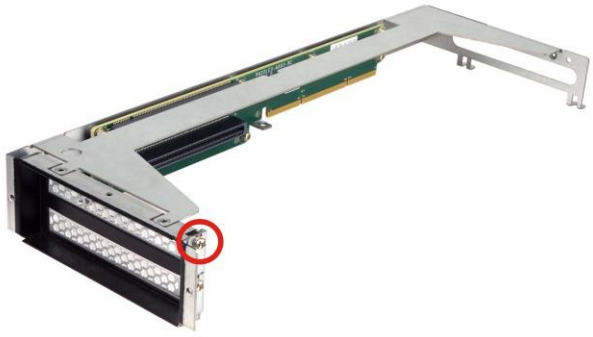


Figure 3-11: Blank Bracket Screw

Step 5: Align the expansion card to the PCIe slot. Press gently, but firmly, to seat the expansion card correctly in the slot. Install the bracket screw to secure the card to the expansion slot module.

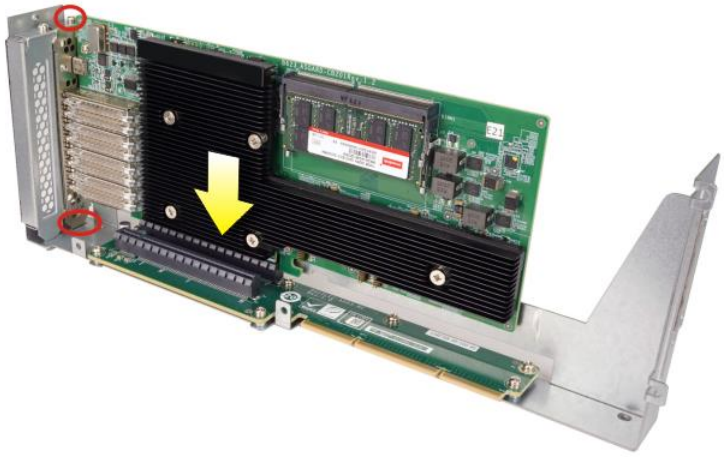


Figure 3-12: PCIe Expansion Card Installation

Step 6: Place the riser card module back to the original position. Insert the riser card module into the expansion slot to install it. Secure the riser card module with the four retention screws previously removed (**Figure 3-13**).

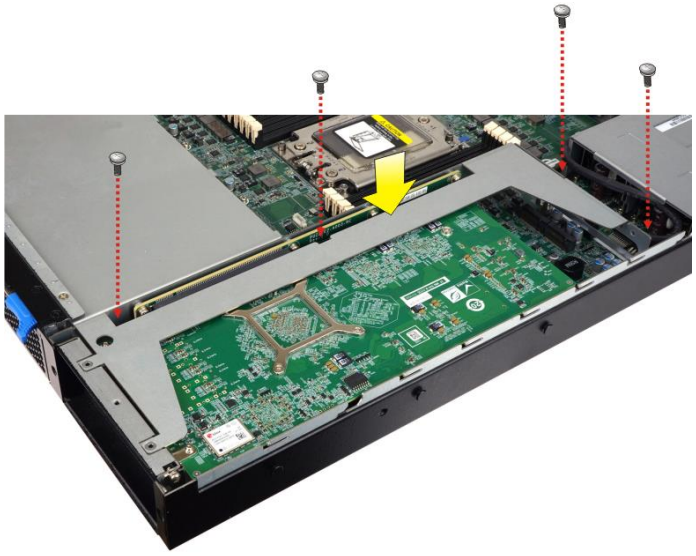


Figure 3-13: Riser Card Module Installation

3.6 IEI Networking Module Installation

The PUZZLE-9030 allows installation of four IEI PulM networking modules. To install a networking module, please follow the steps below.

Step 1: Disconnect all power sources from the system. **NOTE:** To install or replace the networking module, the power supply must be fully disconnected before installation.

Step 2: Remove the slot cover. To do this, push the latch leftwards first, and pull the latch out to release the slot cover. Pull out the slot cover and remove it.

Figure 3-14: Networking Module Slot Cover Removal

Step 3: Slide an IEI networking module into the slot until the notch of the latch almost reach the frame of the slot.

CAUTION:

When inserting the module, the bottom of the networking module must be as close to the system base as possible so that the module can be slid into the guide rails.

When removing the module, slide the module horizontally all the way until it is completely out of the system. Lifting up the module before completely sliding out may cause the components on the module to be damaged by the chassis structure.

Figure 3-15: Inserting Networking Module

Step 4: Clip the latch to the frame and push the latch inwards.

Step 5: Secure the latch by pushing it leftwards first and then inwards.

Figure 3-16: Securing Networking Module

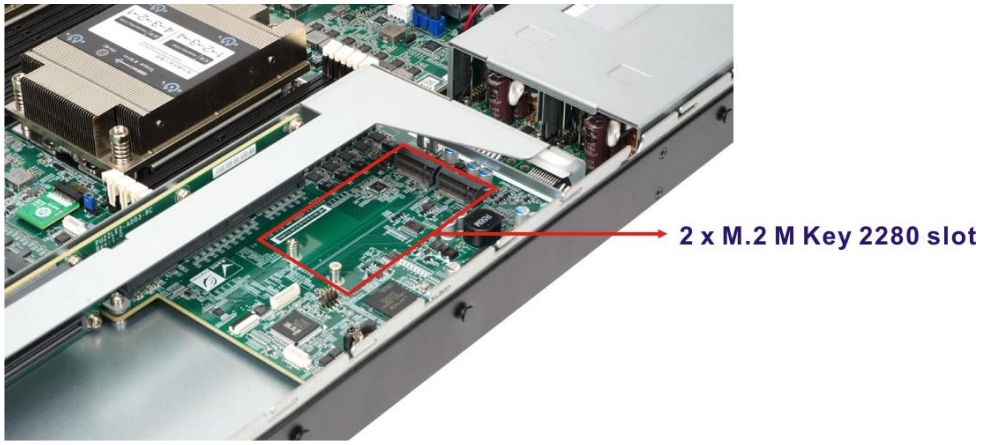
Step 6: Re-install the top cover.

3.7 M.2 Module Installation

The two M.2 slots are both keyed in the M position and provide mounting screw position for 2280-size M.2 modules. To install an M.2 module, please follow the steps below.

Step 1: Remove the top cover from the PUZZLE-9030. See **Section 3.2**.

Step 2: Locate the M.2 slots on the motherboard.



Step 3: Remove the on-board retention screw.

Step 4: 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.

Step 5: Push the M.2 module down and secure it with the previously removed retention screw.

3.8 LAN Connection

The 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	TRD0+	5	TRD2-
2	TRD0-	6	TRD1-
3	TRD1+	7	TRD3+
4	TRD2+	8	TRD3-

Table 3-1: LAN Pinouts

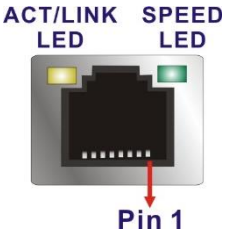


Figure 3-17: RJ-45 Ethernet Connector

The RJ-45 Ethernet connector has two status LEDs, one yellow and one green/orange. The yellow LED indicates activity on the port and the green/orange LED indicates the speed. See **Table 3-2**.

Activity/Link LED		**Speed LED**	
STATUS	**DESCRIPTION**	**STATUS**	**DESCRIPTION**
Off	No link	Off	10 Mbps connection
Yellow	Linked	Green	100 Mbps connection
Blinking	TX/RX activity	Orange	1 Gbps connection

Table 3-2: RJ-45 Ethernet Connector LEDs

3.9 Console Connection

The PUZZLE-9030 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	-NRTS1	5	GND
2	-NDTR1	6	NSIN1
3	NSOUT1	7	-NDSR1
4	GND	8	-NCTS1

Table 3-3: RJ-45 Serial Port Pinouts

The console port (RJ-45) connects to a cable with a standard D-sub 9 connector or a USB connector (varied from SKU) at the other end.

3.9.1 Enable Console Port When Booting

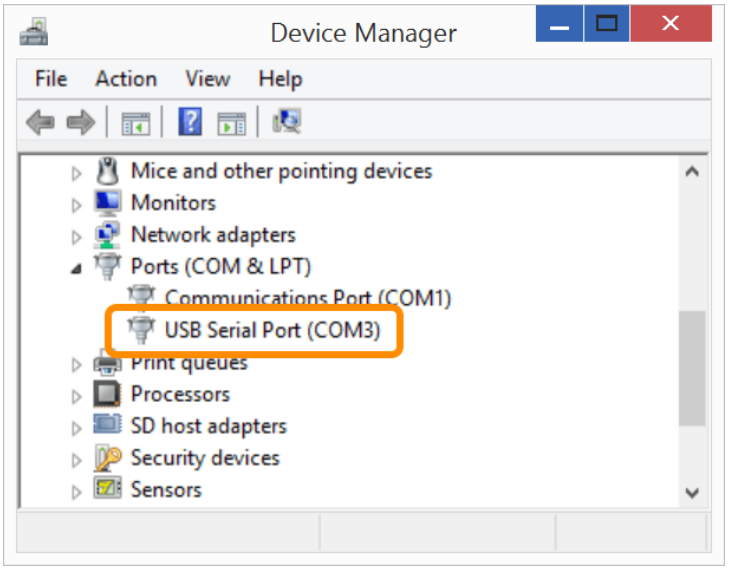
To configure the PUZZLE-9030 to make it auto enable the console port when booting, follow the steps below.

NOTE:

This method only works in Linux Ubuntu, the default operating system.

Step 1: Use the console cable shipped with the product to connect the RJ-45 console port of the PUZZLE-9030 with your PC.

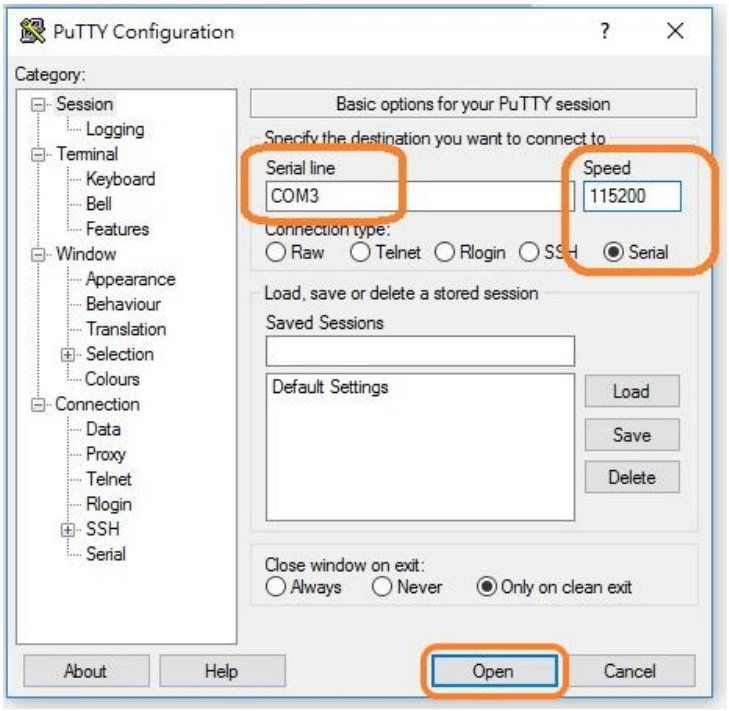
Step 2: In your PC, go to Windows **Device Manager** and check for the serial line of the connected USB serial port. In this case, it is COM3.



Step 3: Open a serial console application, PuTTY, as an example.

Step 4: Set the speed of the serial connection to “115200”, and choose “Serial” for Connection Type.

Step 5: Click “Open” on PuTTY.



Step 6: Enter the following command:

```
sudo vi /lib/systemd/system/ttyS0.service
```

Step 7: Ensure the information shown match the followings:

```
[Unit]
Description=Serial Console Service

[Service]
ExecStart=/sbin/getty -L 115200 ttyS0 vt102
Restart=always

[Install]
WantedBy=multi-user.target
```

Step 8: Run the following commands one by one:

```
sudo systemctl daemon-reload
sudo systemctl enable ttyS0
sudo systemctl start ttyS0
```

3.10 Power-On Procedure

WARNING:

1. 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.

2. Ensure to connect the power cord to a socket-outlet with earthing connection.

To power-on the PUZZLE-9030 please follow the steps below:

Step 1: Connect the power source to the power inlets on the rear panel.

Ensure to connect the power cord to a socket-outlet with earthing connection.

Step 2: The power LED indicator on the rear panel turns to green.

Step 3: Use the following information when prompted for the username and password for login to the system.

Username: puzzle

Password: admin

Figure 3-18: Power-on

3.11 Available Drivers

All the drivers for the PUZZLE-9030 are available on IEI Resource Download Center (https://download.ieiworld.com). Type PUZZLE-9030 and press Enter to find all the relevant software, utilities, and documentation.

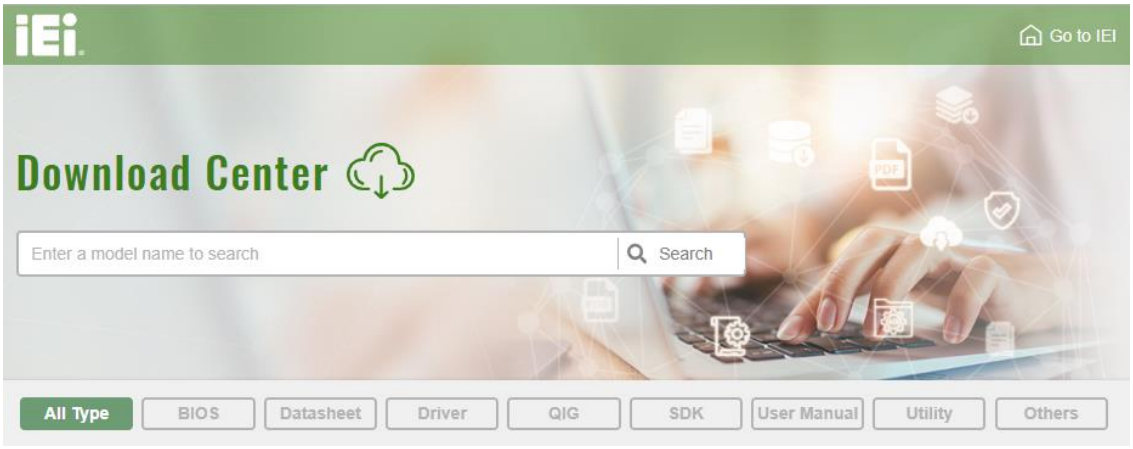


Figure 3-19: IEI Resource Download Center

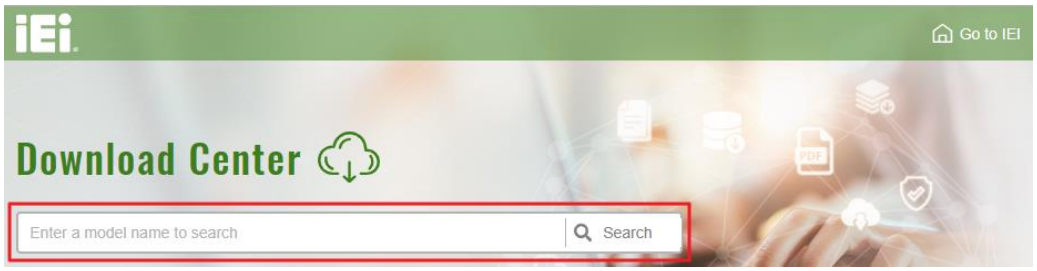
NOTE:

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.

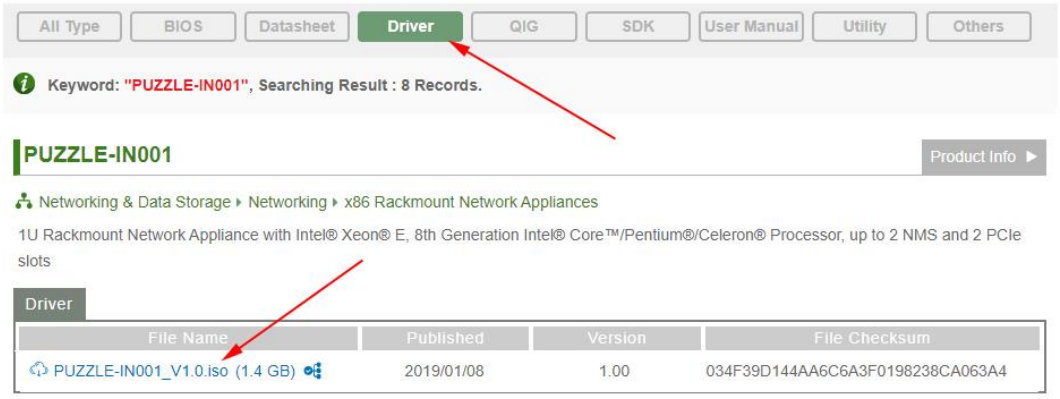
3.11.1 Driver Download

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

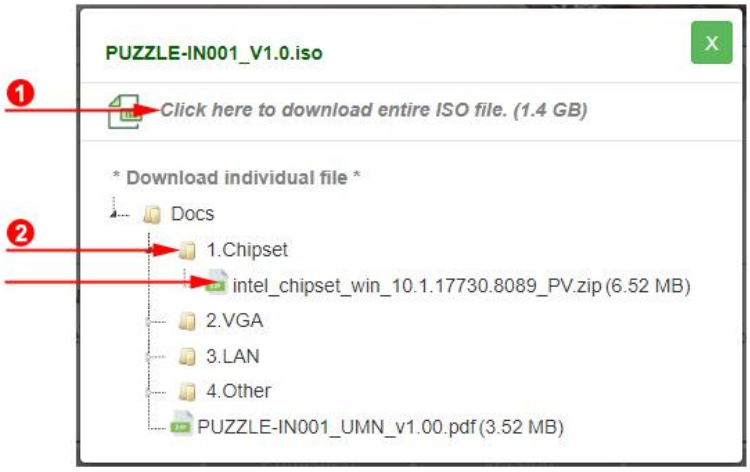
Step 1: Go to https://download.ieiworld.com. Type PUZZLE-9030 and press Enter.



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



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 double click an individual item to find its driver file and click the file name to download (❷).



3.12 Maintenance

WARNING:

The following instructions should only be performed by an authorized and trained technician.

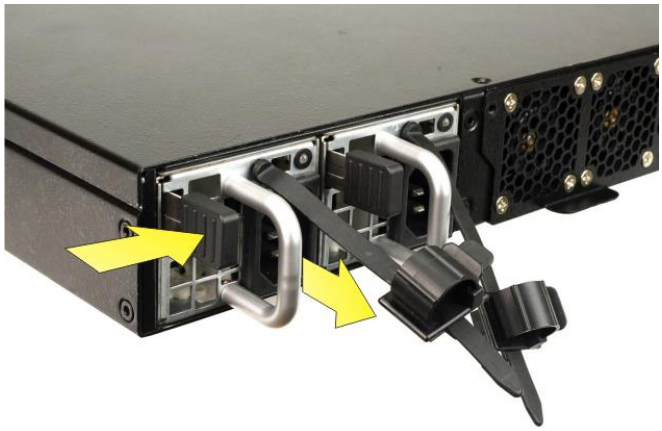
Before starting, please ensure that you turn off the PUZZLE-9030, disconnect the power cords, network cable(s), and also remove any other device/cable that is attached to the server.

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**.

3.12.1 Power Supply Unit Replacement

The two power supply unites (PSU) of the PUZZLE-9030 series are hot-swappable, which means users can replace the PSU when the system is up and running. To replace a failed power supply unit, please follow the steps below.

Step 1: Firmly press and hold the black button on back of PSU downwards. Pull out power supply by pulling the black handle.



Step 2: Insert new power supply into the PUZZLE-9030.

Step 3: Connect the power cord to the PUZZLE-9030.

Step 4: Power on the system.

3.12.2 Fan Module Replacement

The system fan modules of the PUZZLE-9030 series are hot-swappable. To replace a failed fan module, please follow the steps below.

Step 1: Loosen the two fan module captive screws. Pull out the fan module.

Step 2: Insert a new fan module into the PUZZLE-9030. Fasten the two captive screws to secure the fan module.

3.12.3 Jumper Settings

To configure the jumper settings, please follow the steps below.

Step 1: Remove the top cover. See **Section 3.2**.

Step 2: Locate the jumper on the embedded motherboard.

Step 3: Make the jumper settings in accordance with the settings described and defined in the following sections.

3.12.3.1 Clear CMOS

If the PUZZLE-9030 fails to boot due to improper BIOS settings, use the clear CMOS jumper to clear the CMOS data and resets the system BIOS information. To reset the BIOS, move the jumper to the "Clear BIOS" position for 3 seconds or more, then move back to the default position.

Setting	Description
1-2	Keep current BIOS setup
2-3	Clear BIOS

Table 3-4: Clear BIOS Jumper Settings

The clear CMOS button location is shown in **Figure 3-20** below.

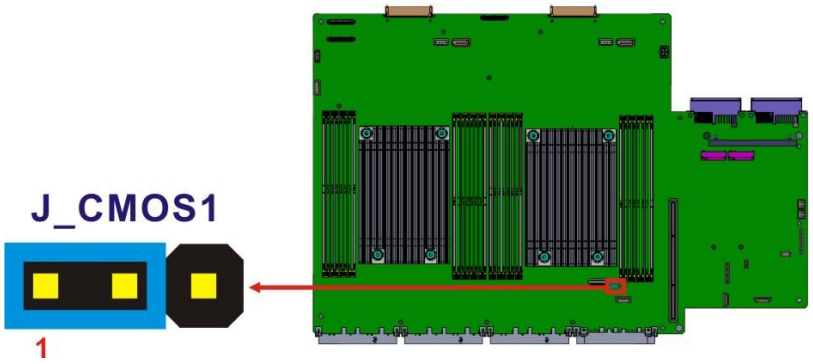


Figure 3-20: Clear CMOS Button Location

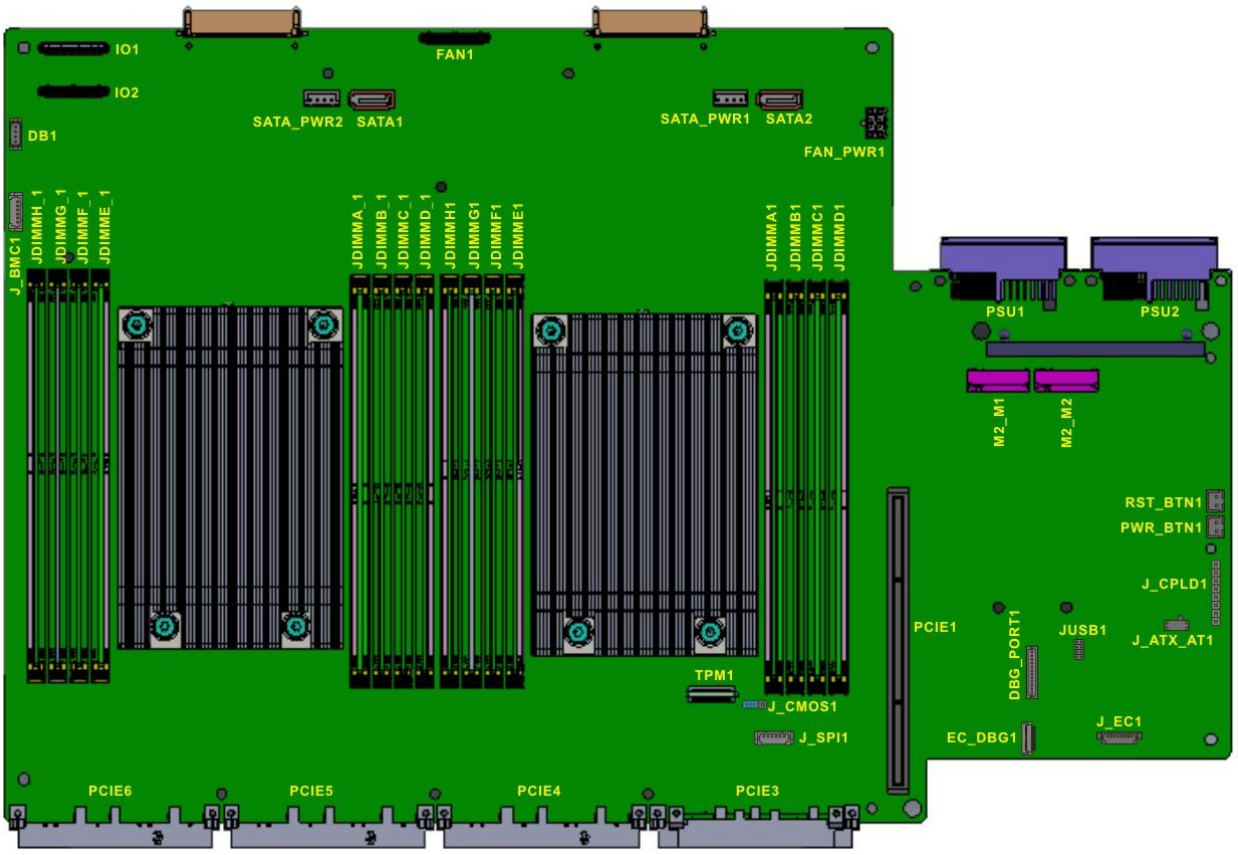
Chapter

4

Interface Connectors

4.1 Peripheral Interface Connectors

The connector locations of the PUZZLE-9030's motherboard are shown below. The connector pinouts for these connectors are listed in the following sections.



4.2 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
BMC debug connector	4-pin wafer	DB1
BMC programming connector	6-pin wafer	J_BMC1
CPLD programming connector	8-pin header	J_CPLD1

Connector	Type	Label
Debug port connector	12-pin wafer	DBG_PORT1
EC debug connector	20-pin FPC	EC_DBG1
Fan board power connector	4-pin connector	FAN_PWR1
Fan board connector	40-pin edge connector	FAN1
I/O board connector	40-pin connector	IO1, IO2
M.2 M-key slots	M.2 M-key 2280	M2_M1, M2_M2
Memory slots	DDR4 DIMM slot	JDIMMA1 ~ JDIMMH1 JDIMM_A1 ~ JDIMM_H1
Power button connector	2-pin wafer	PWR_BTN1
Power input connector	Edge connector	PSU1, PSU2
Reset button connector	2-pin wafer	RST_BTN1
SATA connector	SATA connector	SATA1, SATA2
SATA power connector	4-pin wafer	SATA_PWR1, SATA_PWR2
SPI flash connector	6-pin wafer	J_SPI1
SPI flash connector (EC)	6-pin wafer	J_EC1
TPM module connector	20-pin slot	TPM1
USB 2.0 connector	8-pin header	JUSB1
Networking module slots	Gen-Z 4C	PCIE3, PCIE4, PCIE5, PCIE6
PCIe riser card slot	280-pin slot	PCIE1

Table 4-1: Peripheral Interface Connectors

4.2.1 BMC Debug Connector (DB1)

PIN NO.	DESCRIPTION
1	GND
2	TXD
3	RXD
4	GND

Table 4-2: BMC Debug Connector (DB1) Pinouts

4.2.2 BMC Programming Connectors (J_BMC1)

PIN NO.	DESCRIPTION
1	VCC3.3
2	CS
3	MISO
4	CLK
5	MOSI
6	GND

Table 4-3: BMC Programming Connector (J_BMC1) Pinouts

4.2.3 CPLD Programming Connector (J_CPLD1)

PIN NO.	DESCRIPTION
1	VCC3.3
2	TDO
3	TDI
4	NC
5	NC
6	TMS
7	GND
8	TCK

Table 4-4: CPLD Programming Connector (J_CPLD1) Pinouts

4.2.4 Debug Port Connector (DBG_PORT1)

PIN NO.	DESCRIPTION
1	NC
2	VCC3.3
3	GND
4	LPC_SERIRQ
5	LPC_LAD3

6	LPC_LAD2
7	LPC_LAD1
8	LPC_LAD0
9	LPC_FRAME
10	RESET
11	LPC_CLK
12	GND

Table 4-5: Debug Port Connector (DBG_PORT1) Pinouts

4.2.5 EC Debug Connector (EC_DBG1)

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 4-6: EC Debug Connector (EC_DBG1) Pinouts

4.2.6 Fan Board Power Connector (FAN_PWR1)

PIN NO.	DESCRIPTION
1	GND
2	GND
3	VCC12
4	VCC12

Table 4-7: Fan Board Power Connector (FAN_PWR1) Pinouts

4.2.7 Fan Board Connector (FAN1)

Pin	Description	Pin	Description
1	VCC5	21	FAN_IN_3A
2	VCC5	22	FAN_CTL_3B
3	VCC5	23	FAN_IN_3B
4	VCC5	24	FAN_CTL_4A
5	GND	25	FAN_IN_4A
6	GND	26	FAN_CTL_4B
7	GND	27	FAN_IN_4B
8	GND	28	DET_FAN3_4#
9	FAN_CTL_1A	29	FAN_LED3-4
10	FAN_IN_1A	30	NC
11	FAN_CTL_1B	31	FAN_CTL_5A
12	FAN_IN_1B	32	FAN_IN_5A
13	FAN_CTL_2A	33	FAN_CTL_5B
14	FAN_IN_2A	34	FAN_IN_5B
15	FAN_CTL_2B	35	FAN_CTL_6A
16	FAN_IN_2B	36	FAN_IN_6A
17	DET_FAN1_2#	37	FAN_CTL_6B
18	FAN_LED1-2	38	FAN_IN_6B
19	NC	39	DET_FAN5_6#
20	FAN_CTL_3A	40	FAN_LED5-6

Table 4-8: Fan Board Connector (FAN1) Pinouts

4.2.8 I/O Board Connectors (IO1, IO2)

Pin	Description	Pin	Description
1	VCC5	21	I210-1_MDI1_P
2	VCC5	22	GND
3	VCC5	23	I210-1_MDI2_N
4	VCC5	24	I210-1_MDI2_P
5	VCC5	25	GND

Pin	Description	Pin	Description
6	VCC5	26	I210-1_MDI3_N
7	LAN_LINK_ACT	27	I210-1_MDI3_P
8	LAN_PW	28	GND
9	LAN_100	29	GBE_MDI0_N
10	LAN_1000	30	GBE_MDI0_P
11	GBE_LED_ACT	31	GND
12	GBE_LED_PW	32	GBE_MDI1_N
13	GBE_LED_LINK	33	GBE_MDI1_P
14	GBE_LED_LINK_ACT	34	GND
15	GND	35	GBE_MDI2_N
16	GND	36	GBE_MDI2_P
17	I210-1_MDI0_N	37	GND
18	I210-1_MDI0_P	38	GBE_MDI3_N
19	GND	39	GBE_MDI3_P
20	I210-1_MDI1_N	40	GND

Table 4-9: I/O Board Connectors (IO1) Pinouts

Pin	Description	Pin	Description
1	VCC5	21	ALARM_LED
2	VCC5	22	GND
3	VCC5	23	USB2_EXT1_DN
4	VCC5	24	USB2_EXT1_DP
5	VCC5	25	GND
6	VCC5	26	USB2_EXT2_DN
7	VCC3.3	27	USB2_EXT2_DP
8	VCC3.3	28	GND
9	RTS	29	USB3_EXT1_RX_DN
10	DTR	30	USB3_EXT1_RX_DP
11	SOUT	31	GND
12	SIN	32	USB3_EXT1_TX_DN
13	DSR	33	USB3_EXT1_TX_DP
14	CTS	34	GND

Pin	Description	Pin	Description
15	GND	35	USB3_EXT2_RX_DN
16	GND	36	USB3_EXT2_RX_DP
17	CONSOL_DET	37	GND
18	RST_BTN	38	USB3_EXT2_TX_DN
19	GND	39	USB3_EXT2_TX_DP
20	STATUS_LED	40	GND

Table 4-10: I/O Board Connectors (IO2) Pinouts

4.2.9 Power Button Connector (PWR_BTN1)

PIN NO.	DESCRIPTION
1	PWR_BTN+
2	PWR_BTN-

Table 4-11: Power Button Connector (PWR_BTN1) Pinouts

4.2.10 Power Input Connector (PSU1, PSU2)

Pin	Description	Pin	Description
P2-1	VCC12	P4-1	VCC12
P2-2	VCC12	P4-2	VCC12
P2-3	VCC12	P4-3	VCC12
P2-4	VCC12	P4-4	VCC12
P1-1	GND	P3-1	GND
P1-2	GND	P3-2	GND
P1-3	GND	P3-3	GND
P1-4	GND	P3-4	GND
S12	VCC5SB	S24	VCC5SB
S11	VCC5SB	S23	VCC5SB
S10	PSU_A1	S22	NC
S9	PWOK	S21	GND
S8	PS_ON	S20	AC_OK

Pin	Description	Pin	Description
S7	PSKILL	S19	NC
S6	SCL	S18	NC
S5	SDA	S17	NC
S4	ALERT	S16	NC
S3	CR_SHARE	S15	PSU_A0
S2	RS-	S14	PRESENT
S1	RS+	S13	NC

Table 4-12: Power Input Connector (PSU1, PSU2) Pinouts

4.2.11 Reset Button Connector (RST_BTN1)

PIN NO.	DESCRIPTION
1	RESET+
2	RESET-

Table 4-13: Reset Button Connector (RST_BTN1) Pinouts

4.2.12 SATA Power Connector (SATA_PWR1, SATA_PWR2)

PIN NO.	DESCRIPTION
1	VCC12
2	GND
3	GND
4	VCC12

Table 4-14: SATA Power Connector Pinouts

4.2.13 SPI Flash Connector (J_SPI1)

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

Table 4-15: SPI Flash Connector (J_SPI1) Pinouts

4.2.14 SPI Flash Connector - EC (J_EC1)

PIN NO.	DESCRIPTION
1	+3.3V
2	SPI_CS#0_CN_EC
3	SPI_SO_SW_EC
4	SPI_CLK_SW_EC
5	SPI_SI_SW_EC
6	GND

Table 4-16: SPI Flash Connector - EC (J_EC1) Pinouts

4.2.15 TPM Connector (TPM1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
		2	NC
3	TPM_PG	4	NC
5	GND	6	VCC3.3
7	CLK	8	NC
9	NC	10	MISO
11	NC	12	MOSI
13	CS	14	GND
15	NC	16	NC
17	IRQ	18	VCC3.3
19	RST	20	NC

Table 4-17: TPM Connector (TPM1) Pinouts

4.2.16 USB 2.0 Connector (JUSB1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	USB_DATA-	4	USB_DATA+
5	USB_DATA+	6	USB_DATA-
7	GND	8	VCC

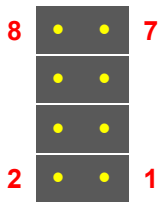


Table 4-18: USB 2.0 Connector (JUSB1) Pinouts

4.2.17 Networking Module Gen-Z 4C+ Slots (PCIE3, PCIE4, PCIE5, PCIE6)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
BO1	NC	AO1	PERST2
BO2	NC	AO2	PERST3
BO3	NC	AO3	WAKE
BO4	DATA_IN	AO4	ARB_IN
BO5	DATA_OUT	AO5	ARB_OUT
BO6	NC	AO6	SLOT_ID1
BO7	SLOT_ID0	AO7	RBT_TX_EN
BO8	RBT_RXD1	AO8	RBT_TXD1
BO9	RBT_RXD0	AO9	RBT_TXD0
BO10	GND	AO10	GND
BO11	NC	AO11	NC
BO12	NC	AO12	NC
BO13	GND	AO13	GND
BO14	RTB_CRS_DV	AO14	RBT_CLK_IN
B1	VCC12	A1	GND
B2	VCC12	A2	GND
B3	VCC12	A3	GND
B4	VCC12	A4	GND
B5	VCC12	A5	GND
B6	VCC12	A6	GND
B7	NC	A7	SCL
B8	NC	A8	SDA
B9	NC	A9	NC
B10	PREST0	A10	PRSNTA
B11	VCC3.3	A11	NC
B12	NC	A12	PRSNTB2
B13	GND	A13	GND
B14	CLK100M_N	A14	NC
B15	CLK100M_P	A15	NC
B16	GND	A16	GND
B17	PETn0	A17	PERn0

B18	PETp0	A18	PERp0
B19	GND	A19	GND
B20	PETn1	A20	PERn1
B21	PETp1	A21	PERp1
B22	GND	A22	GND
B23	PETn2	A23	PERn2
B24	PETp2	A24	PERp2
B25	GND	A25	GND
B26	PETn3	A26	PERn3
B27	PETp3	A27	PERp3
B28	GND	A28	GND
B29	GND	A29	GND
B30	PETn4	A30	PERn4
B31	PETp4	A31	PERp4
B32	GND	A32	GND
B33	PETn5	A33	PERn5
B34	PETp5	A34	PERp5
B35	GND	A35	GND
B36	PETn6	A36	PERn6
B37	PETp6	A37	PERp6
B38	GND	A38	GND
B39	PETn7	A39	PERn7
B40	PETp7	A40	PERp7
B41	GND	A41	GND
B42	PRSNTB0	A42	PRSNTB1
B43	GND	A43	GND
B44	PETn8	A44	PERn8
B45	PETp8	A45	PERp8
B46	GND	A46	GND
B47	PETn9	A47	PERn9
B48	PETp9	A48	PERp9
B49	GND	A49	GND
B50	PETn10	A50	PERn10
B51	PETp10	A51	PERp10

B52	GND	A52	GND
B53	PETn11	A53	PERn11
B54	PETp11	A54	PERp11
B55	GND	A55	GND
B56	PETn12	A56	PERn12
B57	PETp12	A57	PERp12
B58	GND	A58	GND
B59	PETn13	A59	PERn13
B60	PETp13	A60	PERp13
B61	GND	A61	GND
B62	PETn14	A62	PERn14
B63	PETp14	A63	PERp14
B64	GND	A64	GND
B65	PETn15	A65	PERn15
B66	PETp15	A66	PERp15
B67	GND	A67	GND
B68	PPS_IN	A68	NC
B69	PPS_OUT	A69	NC
B70	PRSNTB3	A70	LANMDA

Table 4-19: Networking Module Gen-Z 4C+ Slot Pinouts

4.2.18 PCIe Riser Card Slot (PCIE1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
B1	VCC12	A1	VCC12
B2	VCC12	A2	VCC12
B3	VCC12	A3	VCC12
B4	VCC12	A4	VCC12
B5	VCC12	A5	VCC12
B6	VCC3.3	A6	VCC3.3
B7	VCC3.3	A7	VCC3.3
B8	VCC3.3	A8	VCC3.3
B9	VCC3.3	A9	VCC3.3

B10	NC	A10	PPS_OUT
B11	NC	A11	PPS_IN
B12	NC	A12	NC
B13	GND	A13	GND
B14	GND	A14	GND
B15	VCC3.3SB	A15	VCC3.3SB
B16	VCC3.3SB	A16	VCC3.3SB
B17	GND	A17	GND
B18	GND	A18	GND
B19	GND	A19	GND
B20	SCL_B	A20	SCL_A
B21	SDA_B	A21	SDA_A
B22	GND	A22	GND
B23	RESET_B	A23	RESET_A
B24	GND	A24	GND
B25	WAKE_B	A25	WAKE_A
B26	GND	A26	GND
B27	PRSNT_B	A27	PRSNT_A
B28	GND	A28	GND
B29	GND	A29	GND
B30	CLK100M_B_P	A30	CLK100M_A_P
B31	CLK100M_B_N	A31	CLK100M_A_N
B32	GND	A32	GND
B33	GND	A33	GND
B34	PET_A_p0	A34	PER_A_p0
B35	PET_A_n0	A35	PER_A_n0
B36	GND	A36	GND
B37	PET_A_p1	A37	PER_A_p1
B38	PET_A_n1	A38	PER_A_n1
B39	GND	A39	GND
B40	GND	A40	GND
B41	GND	A41	GND
B42	GND	A42	GND
B43	GND	A43	GND

B44	PET_A_p2	A44	PER_A_p2
B45	PET_A_n2	A45	PER_A_n2
B46	GND	A46	GND
B47	PET_A_p3	A47	PER_A_p3
B48	PET_A_n3	A48	PER_A_n3
B49	GND	A49	GND
B50	PET_A_p4	A50	PER_A_p4
B51	PET_A_n4	A51	PER_A_n4
B52	GND	A52	GND
B53	PET_A_p5	A53	PER_A_p5
B54	PET_A_n5	A54	PER_A_n5
B55	GND	A55	GND
B56	PET_A_p6	A56	PER_A_p6
B57	PET_A_n6	A57	PER_A_n6
B58	GND	A58	GND
B59	PET_A_p7	A59	PER_A_p7
B60	PET_A_n7	A60	PER_A_n7
B61	GND	A61	GND
B62	PET_A_p8	A62	PER_A_p8
B63	PET_A_n8	A63	PER_A_n8
B64	GND	A64	GND
B65	PET_A_p9	A65	PER_A_p9
B66	PET_A_n9	A66	PER_A_n9
B67	GND	A67	GND
B68	PET_A_p10	A68	PER_A_p10
B69	PET_A_n10	A69	PER_A_n10
B70	GND	A70	GND
B71	PET_A_p11	A71	PER_A_p11
B72	PET_A_n11	A72	PER_A_n11
B73	GND	A73	GND
B74	PET_A_p12	A74	PER_A_p12
B75	PET_A_n12	A75	PER_A_n12
B76	GND	A76	GND
B77	PET_A_p13	A77	PER_A_p13

B78	PET_A_n13	A78	PER_A_n13
B79	GND	A79	GND
B80	PET_A_p14	A80	PER_A_p14
B81	PET_A_n14	A81	PER_A_n14
B82	GND	A82	GND
B83	PET_A_p15	A83	PER_A_p15
B84	PET_A_n15	A84	PER_A_n15
B85	GND	A85	GND
B86	GND	A86	GND
B87	GND	A87	GND
B88	PET_B_p0	A88	PER_B_p0
B89	PET_B_n0	A89	PER_B_n0
B90	GND	A90	GND
B91	PET_B_p1	A91	PER_B_p1
B92	PET_B_n1	A92	PER_B_n1
B93	GND	A93	GND
B94	PET_B_p2	A94	PER_B_p2
B95	PET_B_n2	A95	PER_B_n2
B96	GND	A96	GND
B97	PET_B_p3	A97	PER_B_p3
B98	PET_B_n3	A98	PER_B_n3
B99	GND	A99	GND
B100	GND	A100	GND
B101	GND	A101	GND
B102	GND	A102	GND
B103	GND	A103	GND
B104	PET_B_p4	A104	PER_B_p4
B105	PET_B_n4	A105	PER_B_n4
B106	GND	A106	GND
B107	PET_B_p5	A107	PER_B_p5
B108	PET_B_n5	A108	PER_B_n5
B109	GND	A109	GND
B110	PET_B_p6	A110	PER_B_p6
B111	PET_B_n6	A111	PER_B_n6

B112	GND	A112	GND
B113	PET_B_p7	A113	PER_B_p7
B114	PET_B_n7	A114	PER_B_n7
B115	GND	A115	GND
B116	PET_B_p8	A116	PER_B_p8
B117	PET_B_n8	A117	PER_B_n8
B118	GND	A118	GND
B119	PET_B_p9	A119	PER_B_p9
B120	PET_B_n9	A120	PER_B_n9
B121	GND	A121	GND
B122	PET_B_p10	A122	PER_B_p10
B123	PET_B_n10	A123	PER_B_n10
B124	GND	A124	GND
B125	PET_B_p11	A125	PER_B_p11
B126	PET_B_n11	A126	PER_B_n11
B127	GND	A127	GND
B128	PET_B_p12	A128	PER_B_p12
B129	PET_B_n12	A129	PER_B_n12
B130	GND	A130	GND
B131	PET_B_p13	A131	PER_B_p13
B132	PET_B_n13	A132	PER_B_n13
B133	GND	A133	GND
B134	PET_B_p14	A134	PER_B_p14
B135	PET_B_n14	A135	PER_B_n14
B136	GND	A136	GND
B137	PET_B_p15	A137	PER_B_p15
B138	PET_B_n15	A138	PER_B_n15
B139	GND	A139	GND
B140	GND	A140	GND

Table 4-20: PCIe Riser Card Slot (PCIE1) Pinouts

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY

CE

This equipment is in conformity with the following EU directives:

- EMC Directive 2014/30/EU
- Low-Voltage Directive 2014/35/EU
- RoHS II Directive 2011/65/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 zařízení 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 □ntegration 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.

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.
Ελληνική [Greek] IEI Integration Corp ΔΗΛΩΝΕΙ ΟΤΙ ΕΞΟΠΛΙΣΜΟΣ ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
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-Dirrettiva 1999/5/EC.
Magyar [Hungarian] IEI Integration Corp nyilatkozom, hogy a berendezés megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
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.

Româna [Romanian] IEI Integration Corp declară că acest echipament este in conformitate cu cerinţele esenţiale şi 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.
Suomi [Finnish] IEI Integration Corp vakuuttaa täten että laitteet on direktiivin 1999/5/EY 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 1999/5/EG.

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

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 PUZZLE-9030.

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 PUZZLE-9030 may result in permanent damage to the PUZZLE-9030 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PUZZLE-9030. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PUZZLE-9030 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 Product Disposal

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);

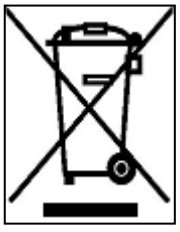
Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion;

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.

- 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.

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the PUZZLE-9030, please follow the guidelines below.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the PUZZLE-9030, please read the details below.

- The interior of the PUZZLE-9030 does not require cleaning. Keep fluids away from the PUZZLE-9030 interior.
- Be cautious of all small removable components when vacuuming the PUZZLE-9030.
- Turn the PUZZLE-9030 off before cleaning the PUZZLE-9030.
- Never drop any objects or liquids through the openings of the PUZZLE-9030.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the PUZZLE-9030.
- Avoid eating, drinking and smoking within vicinity of the PUZZLE-9030.

B.2.2 Cleaning Tools

Some components in the PUZZLE-9030 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 PUZZLE-9030.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the PUZZLE-9030.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the PUZZLE-9030.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the PUZZLE-9030 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 PUZZLE-9030. Dust and dirt can restrict the airflow in the PUZZLE-9030 and cause its circuitry to corrode.
- ***Swabs*** - Swaps 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

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
Display	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
显示	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。