

## RoHS Recast Compliant **Out-Of-Band Module** Product Specifications



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Version 1.1



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## Specifications Overview:

- **OOB Features**
  - Supports PWR and Recover signal
  - Supports 3.3V~5V power input
  - Built-in  $\pm 15\text{KV}$  ESD protection for Ethernet Port (Air Discharge)
  - Built-in  $\pm 2\text{KV}$  ESD protection for I/O Pin (Contact Discharge)
  - Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV
- **Connector Type**
  - 10-pin OOB connector

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## 1. Introduction

Apacer Out-Of-Band (OOB) Module is a hardware module empowered by out-of-band remote management technology. It provides a separate channel or communication path used for transmitting data outside the main data channel, and can be used for various purposes such as monitoring, troubleshooting, or emergency recovery. Apacer OOB Module offers an alternate method of device control during the case of a system disaster.

## 2. Product Features

Apacer OOB Module has the following features:

- Supports PWR and Recover signal
- Supports 3.3V~5V power input
- Built-in  $\pm 15\text{KV}$  ESD protection for Ethernet Port (Air Discharge)
- Built-in  $\pm 2\text{KV}$  ESD protection for I/O Pin (Contact Discharge)
- Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV

## 3. Functional Block

Apacer OOB module includes a microcontroller unit (MCU), NOR Flash, Ethernet PHY and RJ45 connector as indicated in Figure 3-1. Being the management unit, the MCU is designed to not only activate the OOB module along with the NOR Flash, but also connect to the Internet via Ethernet PHY and the RJ45 connector using the Ethernet protocol.

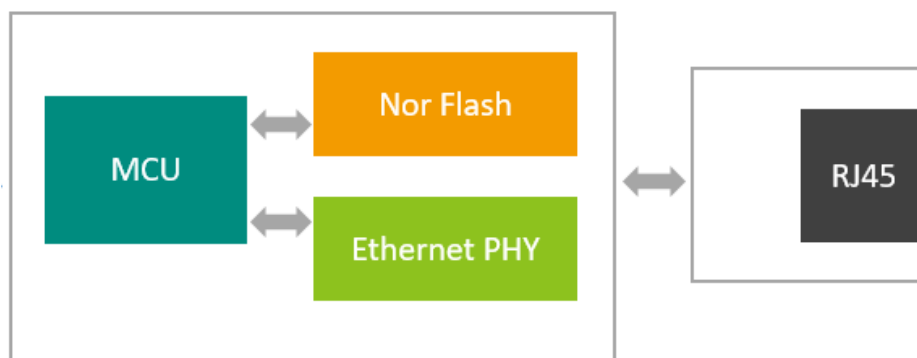


Figure 3-1 Functional Block Diagram

## 4. Pin Assignments

Table 4-1, 4-2 and 4-3 describe the pins for OOB Module.

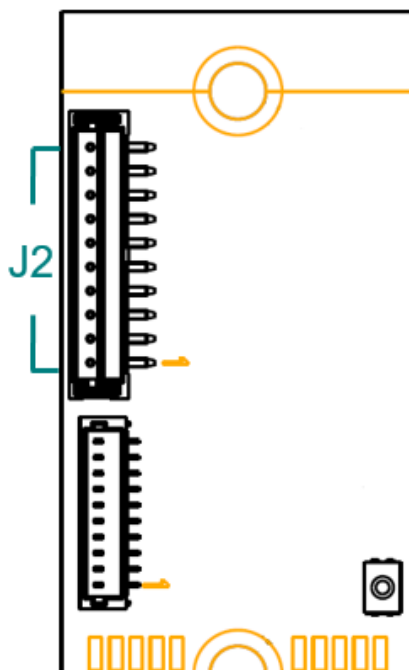


Figure 4-1 J2 Connectors

Table 4-1 J2 Pin Assignments

J2: Ethernet Signal		
Pin No.	Type	Description
1	LED+	Output: Ethernet ACT (blinking)
2	LED-	
3	RX-	Receive Input Pair
4	RX+	
5	GND	Ground
6	GND	Ground
7	TX-	Transmit Output Pair
8	TX+	
9	LED+	Output: 100M Link
10	EX_VCC	External Power Input

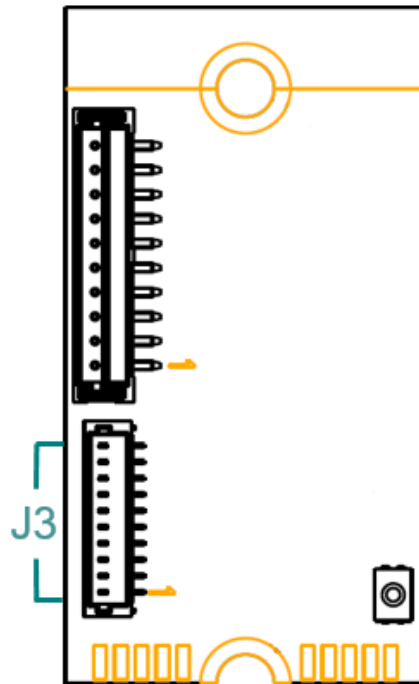


Figure 4-2 J3 Connectors

Table 4-2 J3 Pin Assignments

J3: External I/O Signal		
Pin No.	Type	Description
1	Reserved by Apacer	Debug: Boot Select
2	Reserved by Apacer	Debug USB Signal
3	Reserved by Apacer	
4	Reserved by Apacer	Debug UART Signal
5	Reserved by Apacer	
6	Recovery	OUTPUT: Recovery Signal (OD)
7	GND	Ground
8	MB_POWER	OUTPUT: Motherboard Power Signal (OD)
9	GND	Ground
10	EX_VCC	External Power Input

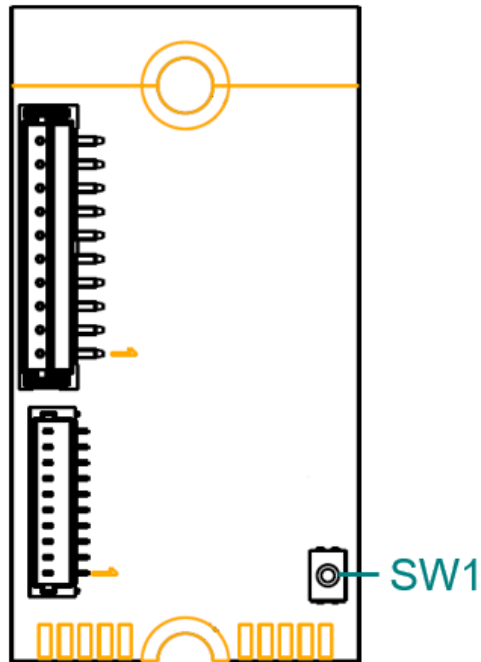


Figure 4-3 SW1 Connectors

Table 4-3 SW1 Pin Assignments

SW1: Reset Button	
Description	
Used for system reboot without turning off the system power.	

## 5. Product Specifications

### 5.1 Ethernet Communication

Table 5-1 describes the specifications of Ethernet for OOB Module.

**Table 5-1 Ethernet Specifications**

Parameter	Specifications
Ethernet Standard	IEEE 802.3, IEEE 802.3u (100Base-T)
Connector Type	RJ-45
Transmission Speed	10/100 Mbps
Port Number	1
Protection	15 KV ESD protection

### 5.2 Power

Table 5-2 lists the power specifications for OOB Module.

**Table 5-2 Power Specifications**

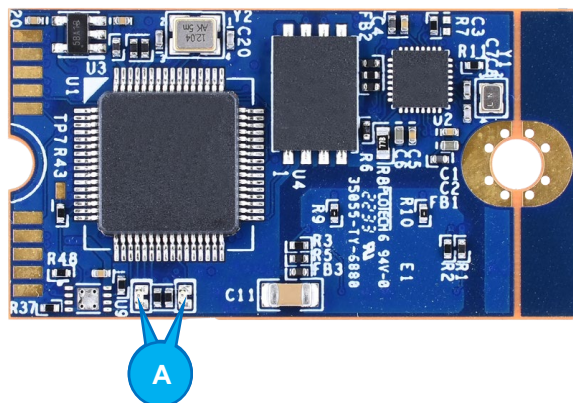
Parameter	Specifications
Power Source	+3.3~5 VDC
Power Consumption	1W @ 3.3 VDC
Connector Type	BOX header

### 5.3 LED Indicator Behavior

The behavior of the OOB Module LED indicators is described in Table 5-3.

**Table 5-3 LED Behavior**

Location	LED	Description
LED A	HDDA1	LED blinks when the drive is being accessed



## 6. Mechanical Specifications

### 6.1 OOB Module

Table 6-1 OOB Module Physical Dimensions

Parameter	Unit	Dimension
Length	mm	$41.50 \pm 0.15$
Width		$22.00 \pm 0.15$
Height (Max.)		7.75

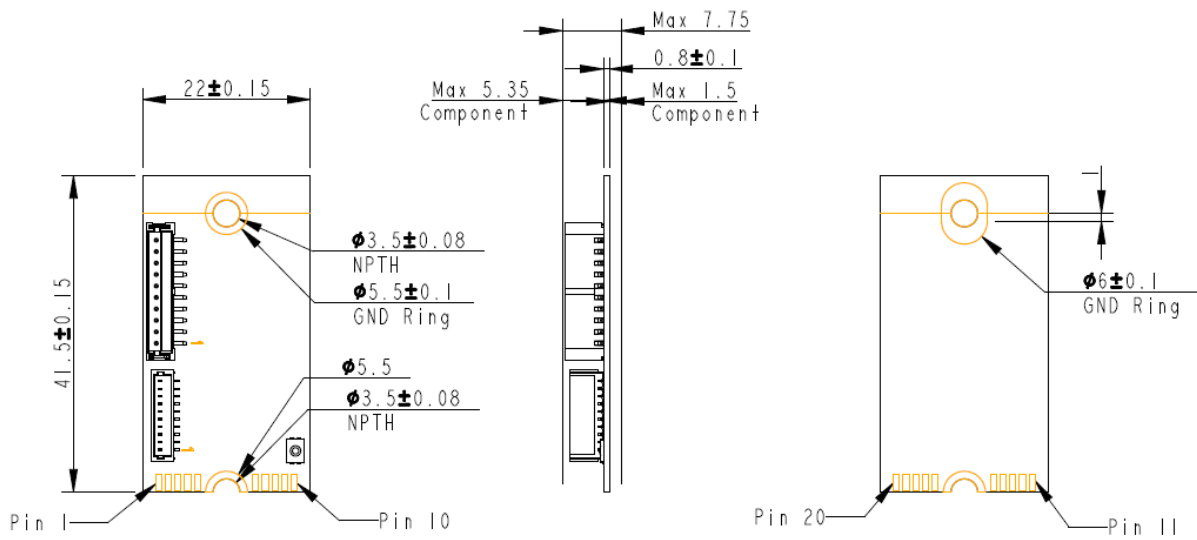


Figure 6-1 OOB Module Mechanical Drawing

## 6.2 RJ45

Table 6-2 RJ45 Physical Dimensions

Parameter	Unit	Dimensions
Length	mm	$35.30 \pm 0.30$
Width		29.50
Height		19.10

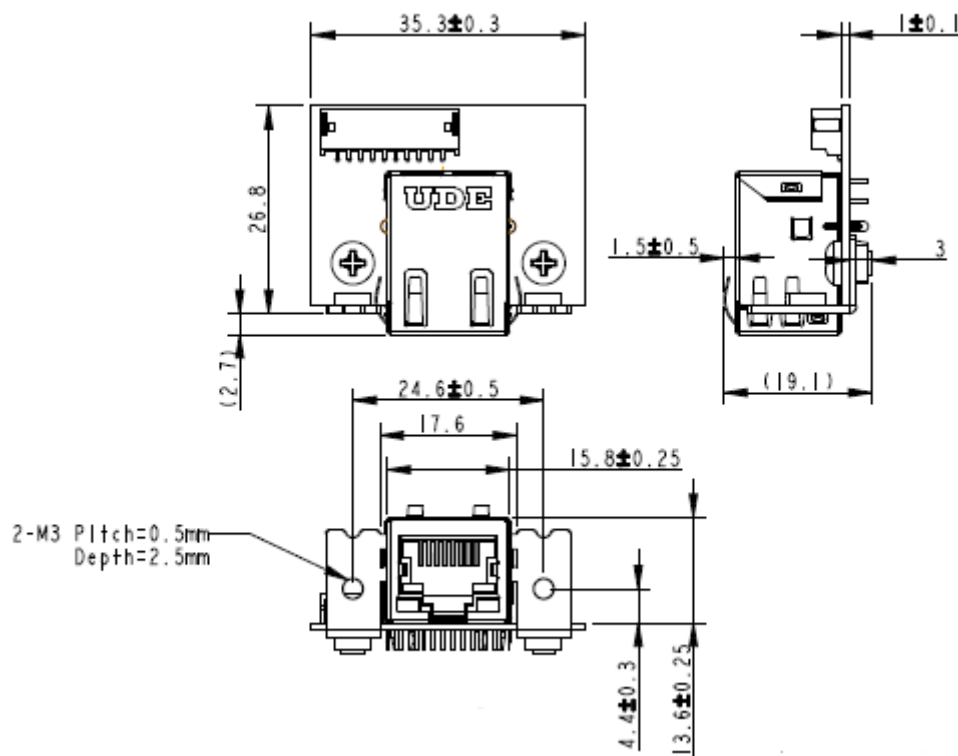


Figure 6-2 RJ45 Mechanical Drawing

### 6.3 I/O Board Cable

- **Function:** Connect to the RJ-45 I/O board
- **Specifications:** 10P Wafer Pitch 1.5mm to 10P Wafer Pitch 1.5mm L=150mm

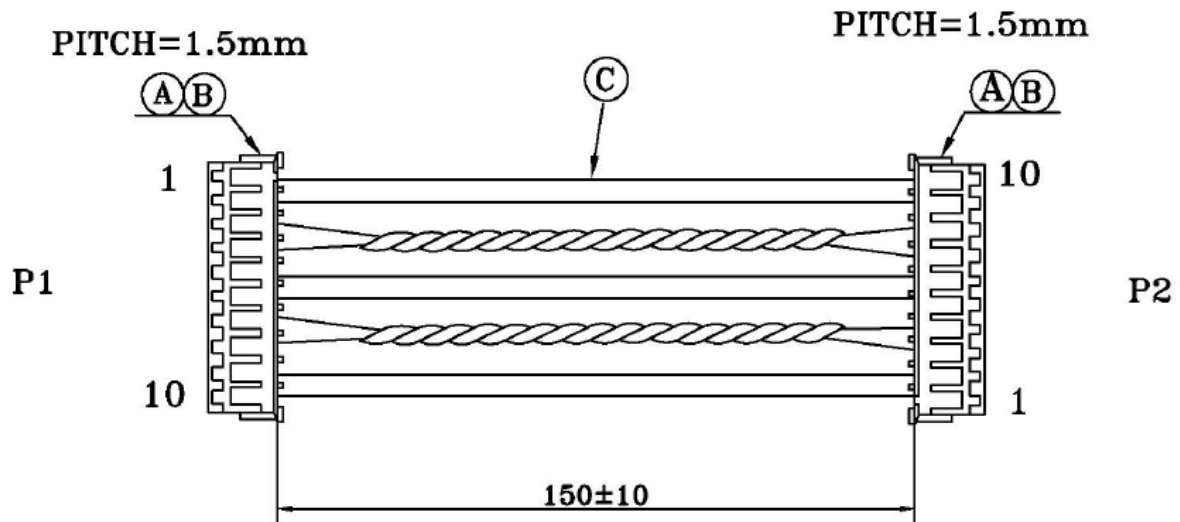


Figure 6-3 I/O Board Cable Mechanical Drawing

Table 6-3 I/O Board Cable Mechanical Specification

1	Brown		10
2	Blue		9
3	White	Twisted pair cables	8
4	Green		7
5	Black		6
6	Black		5
7	Orange	Twisted pair cables	4
8	White		3
9	Yellow		2
10	Red		1
<b>P1</b>	<b>Color</b>		<b>P2</b>

C	Wire	10	Wire UL 1061 #24 AWG
B	Terminal	20	Terminal 1501 AMA or 1510-P ECI
A	Housing	2	Housing 1501-10Y or AMA 1510H-10P ECI
<b>No.</b>	<b>Name</b>	<b>Quantity</b>	<b>Description</b>

## 6.4 Power Management Cable

- **Function:** Connect to the motherboard
- **Specifications:** 10P Wafer Pitch 1.0mm to 1X4P DuPont Pitch 2.54mm+3P Wafer M/B Pitch 1.25mm L=250mm

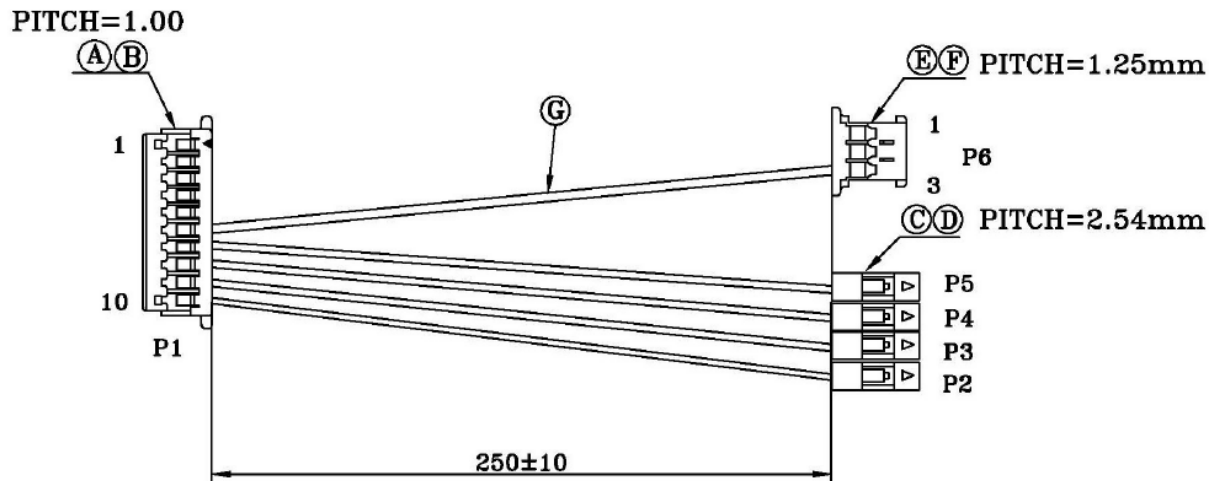


Figure 6-4 Power Management Cable Mechanical Drawing

Table 6-4 I/O Power Management Cable Mechanical Specification

6	Red	Recovery	P6-3
7	Black	GND	P5
8	White	MB_POWER	P4
9	Black	GND	P3
10	Red	EX_VCC	P2
<b>P1</b>	<b>Color</b>	<b>Description</b>	<b>P2-P6</b>

G	5	Wire UL1571#28 AWG REI HSING or EQUIV
F	1	Terminal 1256-G-P WL or 1254-1 AMA or M125A-T ECI
E	4	Housing 1256-H-03 WL or 1254-3Y AMA or M125AH-03P ECI
D	4	Terminal 2563T-00 ECI or EQUIV
C	4	Housing 2561H-01 ECI or EQUIV
B	5	Terminal 1010-T-T-S-D WL or 1002 AMA or E001-P ECI or EQUIV
A	1	Housing 1010-H-10 WL or 1002-10Y AMA or E001H-10P ECI or EQUIV
<b>No.</b>	<b>Quantity</b>	<b>Description</b>

## 7. Product Ordering Information

The following table lists the available model of the Apacer OOB Module which are in mass production or will be in mass production. Consult your Apacer sales representative to confirm availability of valid combinations and to determine availability of new combinations.

Model	Valid Combination
OOB Module	BJ2.F1001B.00201

## Revision History

Revision	Description	Date
1.0	Initial release	3/6/2023
1.1	Modified the description of pin 8 at Table 4-2 J3 Pin Assignments	3/8/2023

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