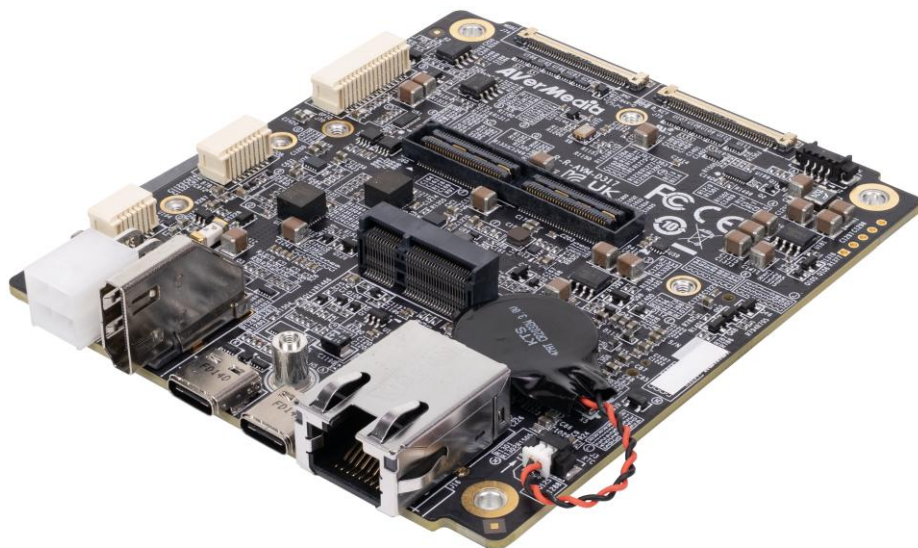


## **AVerMedia D317**

Applies to NVIDIA® Jetson AGX Orin 32G/64G & Industrial module



AVerMedia Technologies, Inc.

No. 135, Jian 1st Rd., Zhonghe Dist., New Taipei City 23585, Taiwan

Tel: 886-2-2226-3630

Fax: 886-2-3234-4842

Sales and Marketing: [Contact](#)

Technical Support: [Professional User](#)

## Table of Contents

<b>Preface</b> .....	<b>3</b>
<b>Disclaimer</b> .....	<b>3</b>
<b>Technical Support</b> .....	<b>3</b>
<b>Contact Enquiry</b> .....	<b>3</b>
<b>Download User Manual</b> .....	<b>3</b>
<b>Revision History</b> .....	<b>4</b>
<b>Product Warranty</b> .....	<b>6</b>
<b>Copyright Notice</b> .....	<b>6</b>
<b>Trademark Acknowledgement</b> .....	<b>7</b>
<b>ESD Warning</b> .....	<b>7</b>
<b>Safety Precaution</b> .....	<b>8</b>
<b>1.0 Introduction</b> .....	<b>9</b>
<b>1.1 Product Specifications</b> .....	<b>10</b>
<b>1.2 Product Overview</b> .....	<b>12</b>
<b>1.3 Connector Summary</b> .....	<b>14</b>
<b>1.4 Carrier Board Interface</b> .....	<b>15</b>
<b>2.0 Feature Description</b> .....	<b>17</b>
<b>2.1 Jetson module Connector</b> .....	<b>17</b>
<b>2.2 Fan Power connector</b> .....	<b>17</b>
<b>2.3 RTC Battery Connector</b> .....	<b>18</b>
<b>2.4 HDMI OUTPUT</b> .....	<b>18</b>
<b>2.5 USB 3.2 Gen 2 Type-C Connector</b> .....	<b>18</b>
<b>2.6 M.2 E key 2230</b> .....	<b>19</b>
<b>2.7 M.2 M key 2280</b> .....	<b>19</b>

<b>2.8 Gigabit Ethernet Connector</b>	<b>19</b>
<b>2.9 30-Pin expansion header</b>	<b>20</b>
<b>2.10 OOB board connector</b>	<b>22</b>
<b>2.11 DMIC&amp;USB2 connector</b>	<b>23</b>
<b>2.12 ATX 4P</b>	<b>24</b>
<b>2.13 Board to board connector (to Camera board)</b>	<b>24</b>
<b>2.14 Switch Button</b>	<b>24</b>
<b>2.15 Power &amp; Recovery Button</b>	<b>25</b>
<b>2.16 Expansion 40pin coaxial</b>	<b>26</b>
<b>3.0 Installation</b>	<b>26</b>
<b>3.1 BSP Setup Instructions</b>	<b>27</b>
<b>4.0 Software</b>	<b>29</b>
<b>5.0 Force Recovery Mode</b>	<b>31</b>
<b>6.0 Power Consumption</b>	<b>32</b>
<b>7.0 Accessory Drawings</b>	<b>33</b>
<b>7.1 Fan Module/ Adapter/ Power Cord (Original)</b>	<b>33</b>
<b>7.2 Fan Module/ Adapter/ Power Cord (PCN20230906-1)</b>	<b>34</b>
<b>8.0 D317AO (2D Drawing)</b>	<b>40</b>
<b>9.0 D317+ERMI module connection guide</b>	<b>41</b>

## **Preface**

### **Disclaimer**

The information contained in this user manual, including but not limited to any product specification, is subject to change without notice. AVerMedia assumes no liability for any damage incurred directly or indirectly from any technical or typographical errors or omissions contained herein or for discrepancies between the product and the user manual.

### **Technical Support**

If you experience the difficulty after reading this manual and/or using the product, please contact the reseller from which you purchased the product. In most cases, the reseller can help you with the product installation and the difficulty you encountered.

In case the reseller is not able to resolve your problem, our highly capable global technical support team can certainly assist you. Our technical support section is available 24 hours a day and 7 days a week through our website, with the [click here](#). For more contact information, you may find it in the section of AVerMedia Global Offices.

### **Contact Enquiry**

For more information of our products, pricing, and order placement, please fill in our inquiry form [here](#), we will contact you within 24 hours.

### **Download User Manual**

Please click the link [here](#) to download the file of this user manual from AVerMedia website.

## Revision History

Revision	Date	Updates
V0.1	Mar 28, 2025	1 <sup>st</sup> Released
V0.2	July 30, 2025	2 <sup>nd</sup> Released
V0.3	Sep. 11, 2025	Modify Carrier board weight and product warranty
V0.4	Sep. 23, 2025	Add D317+ERMI module connection guide
V0.5	Apr. 09, 2026	Add D317 Connector J74/75 description

## AVerMedia Global Offices

<https://www.avermedia.com/professional/contact>

### Headquarters

#### Taiwan Office

No. 135, Jian 1st Rd., Zhonghe Dist., New Taipei City 23585, Taiwan

Tel:  +886-2-2226-3630

Fax: +886-2-3234-4842

Sales & Marketing: [Contact](#)

Technical Support: [Home users](#) / [Professional users](#)

---

### The Americas

#### USA Office

4038 Clipper Court Fremont, CA 94538

Tel:  (510) 403-0006

Fax: (510) 403-0022

Sales & Marketing: [Contact](#)

Technical Support: [Home users](#) / [Professional users](#)

#### Brazil Office

Sales & Marketing: [Contact](#)

Technical Support: [Home users](#) / [Professional users](#)

#### Latin America Office

Sales & Marketing: [Contact](#)

Technical Support: [Home users](#) / [Professional users](#)

---

### Europe

#### Head Office EU

AVT Solutions GmbH

Hanauer Landstrasse 291 B 60314 Frankfurt Hessen

Germany

 technicalsupport\_120

Sales & Marketing: [Contact](#)

Technical Support: [Home users](#) / [Professional users](#)

#### Russia Office

Sales & Marketing: [Contact](#)

Technical Support: [Home users](#) / [Professional users](#)

Professional Solutions Support Tel:

 +7 (925) 834-0310

#### Spain Office

AVerMedia Europe Group

Ronda de Poniente no. 4 segundo H 28760 Tres cantos, Madrid

Spain:

 technicalsupport\_120

Sales & Marketing: [Contact](#)

Technical Support: [Home users](#) / [Professional users](#)

---

### Asia-Pacific

#### China Office

Room 1510, No.488, Hitech Plaza, South Wuning Rd., Jingan District, Shanghai, China

Tel:  +86-021-5298 7985

Fax: +86-021-5298 7981

Sales & Marketing: [Contact](#)

Technical Support: [Home users](#) / [Professional users](#)

#### Japan Office

6F, Kojimachi Syuei Bldg, 4-3-13 Kudan-minami, Chiyoda-ku, Tokyo, 102-0074, Japan

Sales & Marketing: [Contact](#)

Technical Support: [Home users](#) / [Professional users](#)

## Product Warranty

Please refer to [Support | Warranty And Rma Services | AVerMedia](#)

## Copyright Notice

The information contained in this document is subject to change without notice. AVerMedia shall not be liable for errors contained herein or for incidental consequential damages in connection with the furnishing, performance, or use of this material. This document contains proprietary information that is protected by copyright. All rights are reserved. No part of this document may be photocopied, reproduced, or translated to another language without the prior written consent by AVerMedia.

## **Trademark Acknowledgement**

AVerMedia acknowledges all the trademarks, registered trademarks, and/or copyrights referred to in this document as the property of their respective owners. Not listing all possible trademarks or copyright acknowledgments does not constitute the lack of acknowledgment to the rightful owners of the trademarks and copyrights mentioned in this document.

## **ESD Warning**

Electronic components and circuits are sensitive to Electrostatic Discharge (ESD). When handling any circuit board assemblies including AVerMedia products, it is highly recommended that ESD safety precautions can be observed. ESD safe best practices can include but are not limited to the following ones.

1. Leave the circuit board in the antistatic package until it is ready to be installed.
2. Use a grounded wrist strap when handling the circuit board. At a minimum, you need to touch a grounded metal object to dissipate any static charge, which may be present on you.
3. Avoid handling the circuit board in the carpeted areas.
4. Handle the board by the edges and avoid contact with the components.
5. Only handle the circuit boards in ESD safe areas, which may include ESD floor and/or table mats, wrist strap stations, and ESD safe lab coats.

**Safety Precaution:**

1. All cautions and warnings on the device should be noted.
2. For safety consideration, do NOT open the device if not a qualified service staff.
3. Place the device on a solid surface during installation to prevent falls.
4. Keep the device away from humidity.
5. Do NOT leave this device in an un-controlled environment with temperatures beyond the device's permitted storage temperature to avoid damage.
6. All adaptors and cables supplied by AVerMedia are verified. Do NOT use any others not supplied by AVerMedia to avoid any malfunction or fires.
7. Make sure the power source matches the power rating of the device.
8. Place the power cord where people cannot step on it. Do not put anything on the power cord.
9. Always completely disconnect the power while the device is not used or idle for a long time.
10. Disconnect the device from any AC supply before cleaning. While cleaning, use damp cloth instead of liquid or spray detergents.
11. Make sure the device is installed near a power outlet and easy for accessibility.
12. Do not cover the openings on the device to ensure optimal heat dissipation.
13. Watch out the heatsink or heat spreader of the device when the system is running.
14. Never pour any liquid into the openings. This could cause fire or electrical shock.
15. The static electricity should be noted while installing any internal components. Consider using a grounding wrist strap and put all electronic parts in static-shielded containers.

If the following situations occur, please contact our service personnel:

- (1) The device is dropped or damaged
  - (2) Damaged power cord or plug
  - (3) Exposure to moisture
  - (4) Liquid intrusion into the device
  - (5) Any obvious signs of damage displayed on the device
  - (6) The device is not working as expected or in a manner as described in this manual
16. The static electricity should be noted while installing any internal components. Consider to



## 1.0 Introduction

AVerMedia AVerMedia D317 includes fully featured carrier board which is all developed for NVIDIA® Jetson AGX Orin 32G/64G & Industrial modules. D317 provide multiple I/O include one HDMI video output, two USB 3.2 ports, one GbE, 30-pin expansion, one M.2 Key E, two M.2 key M.

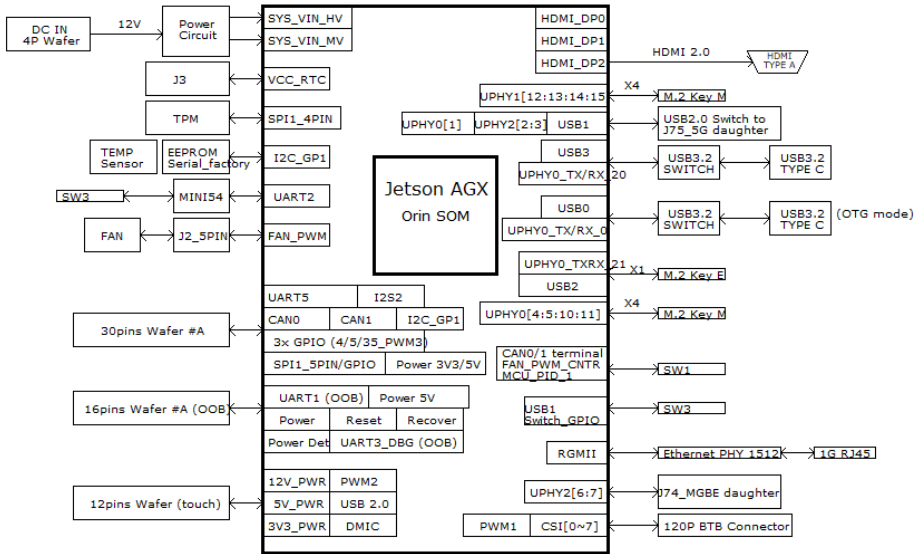
Operating with NVIDIA® Jetson AGX Orin 32G/64G & Industrial modules and the rich I/O functions, AVerMedia D317 is the perfect choice for high-end performance AI edge computing platform for intelligent video analytics applications.

## 1.1 Product Specifications

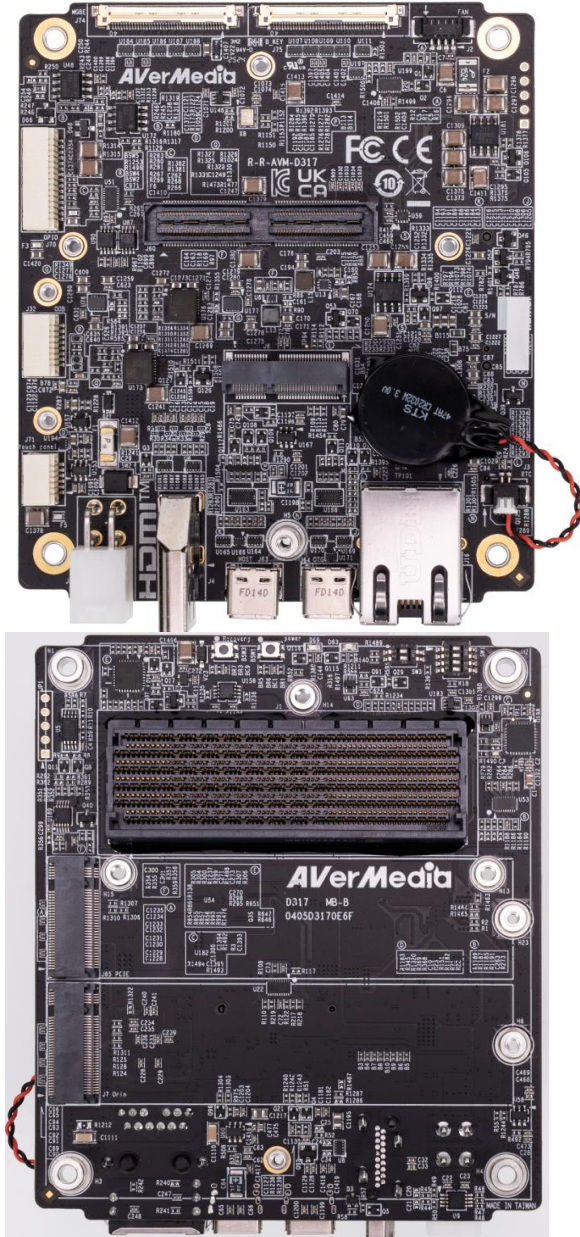
<b>NVIDIA Jetson SoM</b>	NVIDIA® Jetson AGX Orin™ module (32GB or 64GB) & Industrial
<b>Networking</b>	<ul style="list-style-type: none"> <li>• 1x GbE RJ-45</li> <li>• 1 x M.2. key E 2230 for wifi 6</li> <li>• Optional 2x 10G RJ-45 (via daughter board) (TBD)</li> <li>• Optional 8x PoE (via daughter board) (TBD)</li> <li>• Optional 1x M.2 Key B for 5G connection (via 5G · PoE/5G · USB/5G daughter board) (TBD)</li> </ul>
<b>Display Output</b>	1x HDMI output
<b>Temperature</b>	<ul style="list-style-type: none"> <li>• Operating temperature: -40 to 85°C (carrier board), -20 to 70°C (with fan) (TBD)</li> <li>• Storage temperature -40°C ~ 85°C (TBD)</li> <li>• Relative humidity 40 °C @ 95%, Non-Condensing</li> </ul>
<b>MIPI &amp; SerDes Camera (120-pin)</b>	1x 120pin for GMSL camera board
<b>USB</b>	<ul style="list-style-type: none"> <li>• 1x USB 3.2 Type-C for BSP install (supports OTG mode,when using with PoE/5G daughter board or USB/5G daughter board, the USB 3.2 OTG port becomes USB 2.0)</li> <li>• 1x USB 3.2 Type-C (host mode only)</li> <li>• Optional 8x USB3.2 Type-A (via daughter board) (TBD)</li> </ul>
<b>Storage</b>	2x NVMe M.2 Key M 2280 (1x only support S1 Type Top side component SSD J65)
<b>Expansion Header</b>	<ul style="list-style-type: none"> <li>• 30pin header: 1xUART, 1xI2C, 3xGPIO,1xSPI(occupied by TPM), 2xCAN BUS, 1xI2S, 5V(Maximum 0.7A), 3.3V(Maximum 0.7A)</li> <li>• 12pin header: 1x12V(Maximum 0.7A), 1x5V(Maximum 1A), 1x3.3V(Maximum 1A) power Output, 1xUSB 2.0, 1xDMIC</li> <li>• 16pin wafer for OOB or External Button:</li> <li>• OOB: 1xUART, 1xDebug UART, 1xPower button, 1xReset button, 1x Power detect (via out-of-band management module)</li> <li>• External Buttons: 1xPower Button, 1xReset button,1xRecovery button,1xPWR_LED (via external button cable)</li> <li>• 40pin coaxial connector for 10G expansion</li> <li>• 40pin coaxial connector for PCIe expansion</li> </ul>
<b>Power requirement</b>	ATX 4pin ,12V +/- 5% DC Input
<b>Thermal Solution</b>	<ul style="list-style-type: none"> <li>• Fan solution (12V fan wafer)</li> </ul>
<b>Buttons</b>	Power and Recovery
<b>RTC Battery</b>	Support RTC Battery and Battery Life Monitoring by MCU
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>• W: 92mm x L: 107mm (TBD)</li> <li>• Weight: 150g (TBD)</li> </ul>
<b>Certifications</b>	CE, FCC,VCCI, KC (TBA)
<b>GPS</b>	Optional Dual-RTK GNSS support (via daughter board)
<b>Sensor</b>	Temperature sensor for PCB top/bot Temperature measure

<b>LED</b>	1x system power , 1x input power
<b>Package</b>	1x Carrier board Screws Nuts

## 1.2 Product Overview



## Front View and Back View of Carrier board



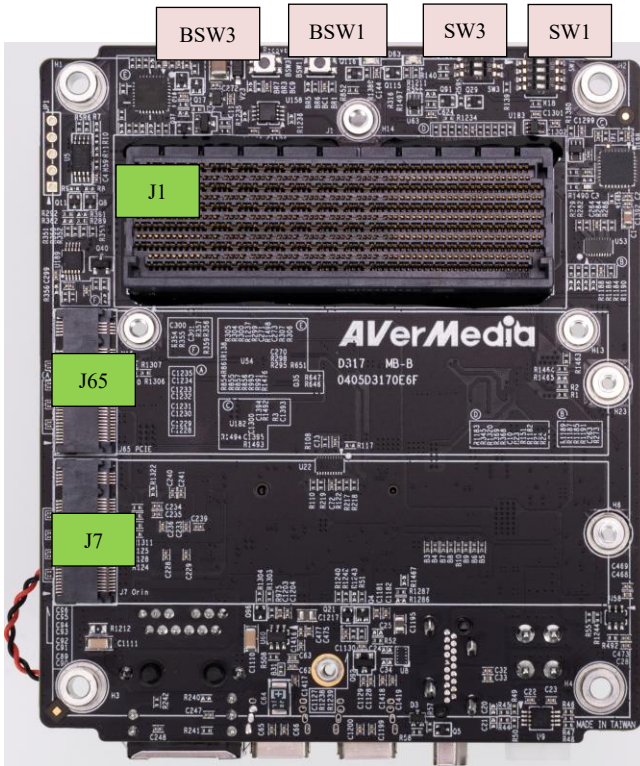
## 1.3 Connector Summary

J1	699-pin high-speed/high-density connector
J2	Fan Wafer
J3	External RTC Battery wafer
J4	HDMI output Type-A Vertical Side Connector (Female)
J64	USB 3.2 Gen2 Type C Connector (supports OTG mode)
J6	M.2 E-Key Socket
J7	M.2 M-Key Socket
J65	M.2 M-Key Socket
J63	USB 3.2 Gen2 Type C Connector
J32	16-pin OOB or External Button
J70	30-pin Expansion
J71	12-pin power Output, 1xUSB 2.0, 1xDMIC
J16	Gigabit Ethernet Connector w/LEDs
J31	Input Power – 4.2mm Pitch 90° ATX Power 4P
J60	120-pin high speed board to board connector (to Camera board)
J74	40pin coaxial connector for 10G expansion
J75	40pin coaxial connector for PCIe expansion

## 1.4 Carrier Board Interface

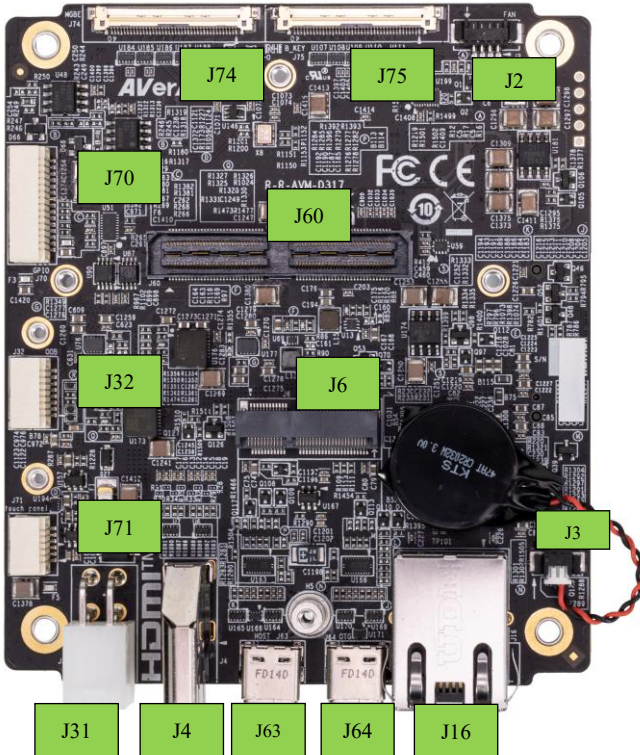
### Top View Interface

J1	699-pin high-speed/high-density connector
J65	M.2 M-Key Socket
J7	M.2 M-Key Socket
SW1	Switch Button
SW3	Switch Button
BSW3	Recovery Button w/o LEDs
BSW1	Power Button w/o LEDs




## Bottom View Interface

J2	Fan Wafer
J3	External RTC Battery wafer
J4	HDMI output Type-A Vertical Side Connector (Female)
J64	USB 3.2 Gen2 Type C Connector (supports OTG mode)
J6	M.2 E-Key Socket
J63	USB 3.2 Gen2 Type C Connector
J32	16-pin OOB or External Button
J70	30-pin Expansion
J71	12-pin power Output, 1xUSB 2.0, 1xDMIC
J16	Gigabit Ethernet Connector w/LEDs
J31	Input Power – 4.2mm Pitch 90° ATX Power 4P
J60	120-pin high speed board to board connector (to Camera board)
J74	40pin coaxial connector for 10G expansion
J75	40pin coaxial connector for PCIe expansion




## 2.0 Feature Description


### 2.1 Jetson module Connector

Function	Provide connection with NVIDIA® Jetson™ AGX Xavier™ module	
Location	J1	
Type Description	MOLEX 699pin socket	
Manufacturer and Part Number	MOLEX,203456-0003	
Mating Connector	MOLEX,203456-0003	
Pinout	Please refer to NVIDIA Jetson™ AGX Orin™ and AGX Orin™ System-on-Module datasheet for pinout details.	
Remarks	<a href="https://developer.nvidia.com/embedded/downloads">https://developer.nvidia.com/embedded/downloads</a>	


### 2.2 Fan Power connector

Function	Fan Power Connector		
Location	J2		
Type Description	WAFER_1*4PIN_1.25 mm_90°		
Manufacturer and Part Number	ACES 50271-0040N-001_BLACK		
Mating Connector	ACES 50276-004H0H0-001		
Pinout	Pin #	Description	
	PIN 1	GND	
	PIN 2	+12V Power	
	PIN 3	FAN_TACH	
	PIN 4	FAN_PWM	
Remarks	None		


## 2.3 RTC Battery Connector

Function	RTC battery for module		
Location	J3		
Type Description	1.25mm wire-to-board header		
Manufacturer and Part Number	宏致_ACES 50271-00201-001_BLACK		
Mating Connector	Molex, 51021-8602		
Pinout	Pin #	Description	
	PIN1	GND	
	PIN2	3V Power	
Remarks	RTC Battery:, CR2032 3V		


## 2.4 HDMI OUTPUT

Function	HDMI output connector		
Location	J4		
Type Description	HDMI Type-A female connector		
Manufacturer and Part Number	捷湧 EDL TECHNOLOGY CO. HM-FVD480B		
Mating Connector	Any HDMI standard Type-A interface cable or device.		
Pinout	Please refer to HDMI standard.		
Remarks	None		


## 2.5 USB 3.2 Gen 2 Type-C Connector #1 , #2

Function	USB 3.2 Gen 2 Type-C connector #1 #2		
Location	J63/J64		
Type Description	USB 3.2 Gen 2 Type-C female connector		
Manufacturer and Part Number	宏致 ACES 57988-0240D-001		
Mating Connector	Any USB 3.2 Gen 2 standard Type-C interface cable or device.		
Pinout	Please refer to USB 3.2 Gen 2 standard.		
Remarks	None		


## 2.6 M.2 E key 2230

Function	M.2 E key	
Location	J6	
Type Description	SOCKET_M.2-KEY E_75PIN_90°_SMD	
Manufacturer and Part Number	宏致_ACES 51748-07502-005_P0.5 mm-H8.5 mm	
Mating Connector	Any M.2 E key 2230 card standard interface device.	
Pinout	Please refer to M.2 E key card standard for the pinout details.	
Remarks	None	

## 2.7 M.2 M key 2280


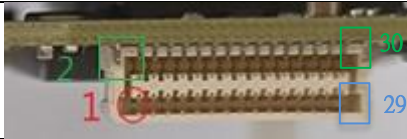
Function	M.2 M key	
Location	J7/J65	
Type Description	SOCKET_M.2-M KEY _75PIN_90°_SMD	
Manufacturer and Part Number	宏致_ACES 51733-06702-012_P0.5 mm-H3.05 mm	
Mating Connector	Any M.2 M key 2280 card standard interface device.	
Pinout	Please refer to M.2 M key card standard for the pinout details.	
Remarks	None	

## 2.8 Gigabit Ethernet Connector

Function	1Gb single-port Ethernet connector, used to connect to the host system.	
Location	J16	
Type Description	RJ45 with integrated magnetics	
Manufacturer and Part Number	湧德(U.D.Electronic) S26-ZZ-0084_1G-LEFT(G/Y)+RIGHT(Y)-UP	

Mating Connector	Any standard 1Gb Ethernet mating connector can be applicable.	
Pinout	Comply with Ethernet standards.	
Remarks	None	

## 2.9 30-Pin expansion header

Function	General-purpose input/output	
Location	J70	
Type Description	WAFER_2*15PIN_1 mm_90°_SMD	
Manufacturer and Part Number	宏致_ACES 50487-03001-001	
Mating Connector	Aces 50420-030HKH0-001	
Pinout		


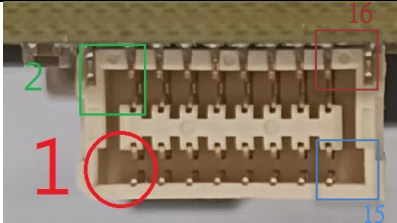
## 1.2 30 Pin Definition

Connector	Module Pin Name	Module Pin#	Description
1			+3V3_SYSTEM-1
2	I2C1_CLK	K5	I2C_GPI_CLK_3V3
3			+3V3_SYSTEM-1
4	I2C1_DAT	L8	I2C_GPI_DAT_3V3
5	GND		GND
6	I2S2_CLK	G4	I2S2_CLK_3V3
7	+5V_SYSTEM-1		+5V_SYSTEM-1
8	I2S2_SDOUT	F5	I2S2_SDOUT_3V3
9	GND		GND
10	I2S2_FS	E4	I2S2_FS_3V3
11	SPI1_CLK	J57	SPI1_SCK_3V3
12	I2S2_DIN	F6	I2S2_SDIN_3V3
13	SPI1_MISO	A56	SPI1_MISO_3V3
14	SPI1_MOSI	D98	SPI1_MOSI_3V3
15	SPI1_CS1_N	B56	SPI1_CS1_3V3
16	SPI1_CS0_N	E55	SPI1_CS0_3V3
17	GND		GND
18	GND		GND
19	CAN1_DOUT	H61	CAN1H
20	CAN0_DOUT	D99	CAN0H
21	CAN1_DIN	B61	CAN1L
22	CAN0_DIN	F58	CAN0L
23	GND		GND
24	GND		GND
25	GPIO05	A59	GPIO05_A59_3V3
26	GPIO35	L50	GPIO35_PWM3_3V3
27	GPIO04	B59	GPIO4_B59_3V3
28	GND		GND
29	UART5_TX	J58	UART5_TX_A
30	UART5_RX	H58	UART5_RX_A

Note

None

## 2.10 OOB board connector

Function	Connector of OOB board			
Location	J32			
Type Description	WAFER_2*8PIN_1 mm_90°_SMD			
Manufacturer and Part Number	宏致 ACES 50487-01601-001			
Mating Connector	宏致 ACES 50420-016HKH0-001			
Pinout				
	<b>1.3 16 Pin Definition_OOB</b>			
	Connector	Module Pin Name	Module Pin#	Description
	1			+5V_MINI_A
	2	GND		GND
	3			/POWER_BTN
	4			/POWER_BTN
	5			OOB_RST
	6			LED_
	7			+5V_SYSTEM_PG
8			+3V3_SYSTEM-1	
9	UART1_TX	K53	UART1_TXD_OOB	
10	GND		GND	
11	UART1_RX	K54	UART1_RXD_OOB	
12	SYS_RESET_N	L60	/RESET_IN	
13	UART3_TX_DEBUG	H62	UART3_TXD_OOB	
14	GND		GND	
15	UART3_RX_DEBUG	K60	UART3_RXD_OOB	
16	FORCE_RECOVERY_N	L10	/FORCE_RECOVERY	
Note	None			

## 2.11 DMIC&USB2 connector

Function	Connector of DMI&USB2 connector																																																				
Location	J71																																																				
Type Description	WAFER_2*6PIN_1 mm_90°_SMD																																																				
Manufacturer and Part Number	宏致 ACES 50487-01201-001																																																				
Mating Connector	宏致 ACES 50420-012HKH0-001																																																				
Pinout																																																					
	<p>1.4 12 Pin Definition_DMIC&amp;USB2_</p> <table border="1"> <thead> <tr> <th>Connector</th> <th>Module Pin Name</th> <th>Module Pin#</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td>+12V_GMSL</td> </tr> <tr> <td>2</td> <td>GPIO8</td> <td>B62</td> <td>DMIC_DAT_3V3</td> </tr> <tr> <td>3</td> <td>GND</td> <td></td> <td>GND</td> </tr> <tr> <td>4</td> <td>GPIO9</td> <td>C61</td> <td>DMIC_CLK_3V3</td> </tr> <tr> <td>5</td> <td>GPIO27</td> <td>H52</td> <td>GPIO27_PWM2_40PIN_3V3</td> </tr> <tr> <td>6</td> <td></td> <td></td> <td>+3V3_DMIC</td> </tr> <tr> <td>7</td> <td>GND</td> <td></td> <td>GND</td> </tr> <tr> <td>8</td> <td>GND</td> <td></td> <td>GND</td> </tr> <tr> <td>9</td> <td>GND</td> <td></td> <td>GND</td> </tr> <tr> <td>10</td> <td>USB1_N</td> <td>C10</td> <td>IO_DN</td> </tr> <tr> <td>11</td> <td></td> <td></td> <td>+5V_SYSTEM-1_LS</td> </tr> <tr> <td>12</td> <td>USB1_P</td> <td>C11</td> <td>IO_DP</td> </tr> </tbody> </table>		Connector	Module Pin Name	Module Pin#	Description	1			+12V_GMSL	2	GPIO8	B62	DMIC_DAT_3V3	3	GND		GND	4	GPIO9	C61	DMIC_CLK_3V3	5	GPIO27	H52	GPIO27_PWM2_40PIN_3V3	6			+3V3_DMIC	7	GND		GND	8	GND		GND	9	GND		GND	10	USB1_N	C10	IO_DN	11			+5V_SYSTEM-1_LS	12	USB1_P	C11
Connector	Module Pin Name	Module Pin#	Description																																																		
1			+12V_GMSL																																																		
2	GPIO8	B62	DMIC_DAT_3V3																																																		
3	GND		GND																																																		
4	GPIO9	C61	DMIC_CLK_3V3																																																		
5	GPIO27	H52	GPIO27_PWM2_40PIN_3V3																																																		
6			+3V3_DMIC																																																		
7	GND		GND																																																		
8	GND		GND																																																		
9	GND		GND																																																		
10	USB1_N	C10	IO_DN																																																		
11			+5V_SYSTEM-1_LS																																																		
12	USB1_P	C11	IO_DP																																																		
Note	None																																																				

## 2.12 ATX 4P

Function	ATX 4P	
Location	J31	
Type Description	WAFER_2*2PIN_4.2 mm_90°_DIP	
Manufacturer and Part Number	燦達 Jiont Tech C4255WR-2X02PN2NT1N00B	
Mating Connector	Follow ATX 4pin power standard	
Pinout	Pin Number	Description
	1	GND
	2	GND
	3	12V Power
	4	12V Power
Remarks	None	



## 2.13 Board to board connector (to Camera board)

Function	Board to board connector	
Location	J60	
Type Description	WAFER_2*60PIN_0.5 mm_180°_SMD	
Manufacturer and Part Number	SAMTEC QSH-060-01-L-D-A-K-TR BTB-RECEPTACLE	
Mating Connector	SAMTEC QTH-060-03-H-A-D BTB-PLUG QTH-060-04-H-A-D BTB-PLUG	
Pinout	Comply with NVIDIA Devkit pinout.	
Remarks	None	




## 2.14 Switch Button

Function	Switch Button	
Location	SW1 , SW3	
Type Description	4 SPST DIP switch	




Manufacturer and Part Number	圓達 DIPTRONICS IN OFF-SWITCHING 0.025A/24VDC	
Pinout	SW1	
	Pin #	Description
	1	OFF=>Auto Power ON=>Button Power
	2	OFF=>FAN PWM ON=>FAN Always
	3	OFF=>CAN0 W/O Terminal ON=>CAN0 W/ Terminal
	4	OFF=>CAN1 W/O Terminal ON=>CAN1 W/ Terminal
	SW3	
Pin #	Description	
1	OFF=>Auto Power on ON=>Always Power mode	
2	OFF=>USB1 connect to J75 ON=>USB1 connect to J71	
Remark	NA	

## 2.15 Power & Recovery Button

Function	Power & Recovery control button	
Location	BSW1, BSW3	
Type Description	Button	
Manufacturer and Part Number	冠泰 Champway 12VDC/0.05A-160G-H1.8 mm-BLACK	
Pinout	N/A	
Remark	None	

## 2.16 Expansion 40pin coaxial

Function	Expansion 40pin coaxial	
Location	J75 J75	
Type Description	WAFER_40PIN_0.5 mm_90°_SMD	
Manufacturer and Part Number	I-PEX 20455-040E-12	
Pinout	J74 D317-TG 10G Ethernet Board J75 D317-USB board or D317-POE board	
Remark	None	

### Other Switches and Jumpers

Other switches and jumpers listed on the board but not mentioned in this manual are reserved for internal use by AVerMedia. They are not open to the client application.

### 3.0 Installation

- Check and ensure all external system power supplies are turned off.
- Connect the power cord to CB/devkit/Box PC DC in jack or ATX 4pin
- Connect the USB Type-C cable to CB/devkit/Box PC connector.
- Press and hold on the Recover button
- Plug in AC power

(Since the DCINJACK is slightly tight, be careful not to shake it when inserting the CB/devkit/Box PC)

- **Installation Notice: 40-pin Coaxial Cable Connection Procedure**

To avoid hardware damage, follow the steps below when connecting the 40-pin coaxial cable to the motherboard (D317) and daughter board:

1. **Motherboard Side (D317)**

Connect one end of the cable to the motherboard connector. Ensure the red wire

aligns with the **Pin 1 arrow indicator**, then fully insert and secure the locking mechanism.

**2. Daughter Board Side**

Connect the other end to the daughter board connector and ensure it is fully inserted and secured.

**Note:** Do not connect or disconnect the cable while the system is powered on.

**3.1 BSP Setup Instructions**

BSP (board support package) file: AVERMEDIA\_JETPACK-R1.\*.\*.\*.\*\_desktop.tar.gz for D317AO

If you want to get the BSP download link, please contact AVerMedia FAE.

Default login username/password of the BSP is nvidia/nvidia

If you have difficulties to access the BSP download link, please visit AVerMedia website at <https://www.avermedia.com/professional/download>, or contact technical support at [https://www.avermedia.com/professional/technical\\_support](https://www.avermedia.com/professional/technical_support) or e-mail us at [eusupport@avermedia.com](mailto:eusupport@avermedia.com) for further assistance.

BSP Installation steps for NVIDIA Jetson board: (Important Note: Please backup your personal files before re-flashing BSP)

After you download the BSP file and put the file in a Linux PC, please refer to the steps below to re-flash BSP.

**1. Let the JETSON AGX Orin initiate recovery mode.**

You have to keep pressing “Recovery” button and then power on the NVIDIA Jetson board to initiate recovery mode.

When connecting a NVIDIA Jetson board to a Linux PC via a USB Type-C to USB cable, you can check kernel messages with `dmesg` command in the Linux PC.

Once you see similar messages as below, it means that the NVIDIA Jetson board is in the recovery mode.

[24685.229129] usb 1-7: Product: APX

[24685.229132] usb 1-7: Manufacturer: NVIDIA Corp

**2. Using the commands below in the Linux PC to start re-flashing BSP.**

# sudo is required to extract BSP

\$ sudo tar zxvf AVERMEDIA\_JETPACK-R1.\*.\*.\*\_desktop.tar.gz

\$ cd JetPack\_\*.\*\*\_desktop/Linux\_for\_Tegra

\$ installation steps: refer to AVERMEDIA\_JETPACK-R1.\*.\*.\*\_ReleaseNote.txt

## 4.0 Software

This section describes BSP's features for D317AO

1. Support optional M.2 WI-FI/Bluetooth modules (Intel® Wireless-AX210), the manager UI of AX210 WiFi/Bluetooth is located on the upper-right corner of Ubuntu desktop. It can be also controlled by nmcli/bluetoothctl in command line.
2. Power Mode  
Power mode can be modified by the UI on the upper-right corner of Ubuntu or the following commands.

```
# get current power mode
$ sudo nvpmode -q
# setup power mode
# where <x> is power mode number, please refer to
https://docs.nvidia.com/jetson/archives/r36.4.3/DeveloperGuide/SD/PlatformPowerAndPerformance/JetsonOrinNanoSeriesJetsonOrinNxSeriesAndJetsonAgxOrinSeries.html#supported-modes-and-power-efficiency for more information
$ sudo nvpmode -m <x>
```

\* Current default power mode:

D317AO: MODE 30W (2)

3. RTC Battery  
The following command can get RTC battery voltage.

```
$ sudo avt tool -a | grep -oP "AIN5.*[\K[^\]]*"
```

4. Fan Speed  
The following commands can get PWM fan information.

```
# get current speed setting of PWM Fan (0 ~ 255)
$ cat /sys/devices/platform/pwm-fan/hwmon/hwmon<x>/pwm1

# get Fan RPM value
$ cat /sys/class/hwmon/hwmon<y>/rpm

* Where <x> and <y> are dynamic hwmon indexes.
```

5. CAN Bus (removed to daughter board)
6. Camera (removed to daughter board)
7. GPIO usage

(1) Locate the GPIO Pin:

Use the `gpiofind` command to determine the pin's location in the system. For example, to locate the SODIMM Pin 99, which corresponds to PX.04, execute:

```
$ sudo gpiofind PX.04
```

# This command will return the GPIO chip and offset. For example, it might return `gpiochip0 118`, indicating that PX.04 is at offset 118 on `gpiochip0`

(2) Set the GPIO Pin Voltage:

**Set High Voltage:** To set the pin to a high voltage (logic level 1), use the following command:

```
$ sudo gpiowrite --mode=wait 0 118=1
```

**Set Low Voltage:** To set the pin to a low voltage (logic level 0), use this command:

```
$ sudo gpiowrite --mode=wait 0 118=0
```

For L4T (Linux for Tegra) BSP support and the other software support associated with NVIDIA® Jetson AGX Orin, please visit AVerMedia website to contact our technical support function. (<https://www.avermedia.com/tw/support/contact>)

## 5.0 Force Recovery Mode

USB Type-C port (J64) of D317 can be used to re-program NVIDIA® Jetson AGX Orin by using the other host system running NVIDIA Jetpack, as the procedure described below.

1. Before you start
  - Please make sure to use a Linux host PC with Ubuntu 22.04 or 20.04 operating system.
  - Please use a native setup (no virtual machine) installation file in the following steps.
  - You will also need a high-quality standard USB Type C connector.
  - Download installation file from AVermedia.
2. Connect carrier board to host PC
3. Connect the system to the Linux host PC. Please use a USB Type C cable (J64 on the carrier board).
4. After connecting to the host PC powering up the system. The system will detect the host PC and automatically enter the flashing state (also called force recovery mode).
5. Check that the connection is established with the `lsusb` command. You should find one entry with Nvidia Corp. as highlighted below.
6. Flashing of system
  - Use the flash cmd script in the extracted bootloader folder to transfer the software into the Jetson compute module and flash it.
  - Please connect a monitor to the system. After the flashing process has completed the should automatically boot and show the Ubuntu desktop.
  - You now have a functioning system ready for your needs.

## 6.0 Power Consumption

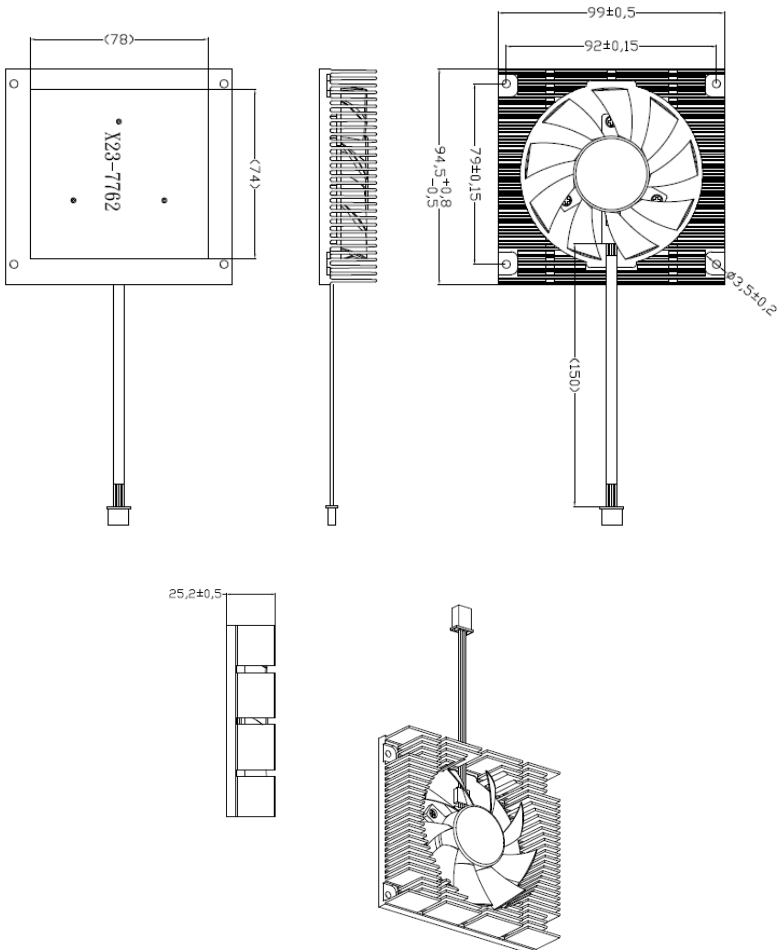
Item Description	Power Consumption
Theoretical Maximum System Power Consumption	<ul style="list-style-type: none"> <li>● Power Consumption of D317-32G: 11.5W(*1) to 46W (*2)</li> <li>*1: The condition is Normal Mode and connected to SSD-500G*2/ WIFI (Intel AX210)</li> <li>*2: The condition is Full Loading Mode and connected SSD-500G*2/ WIFI (Intel AX210)</li> </ul>
Typical System Power Consumption	The power consumption under the normal operating mode depends on the application software running with NVIDIA® Jetson AGX Orin

## 7.0 Accessory Drawings

### 7.1 Fan Module/ Adapter/ Power Cord (Original)

Fan Module for AGX Orin

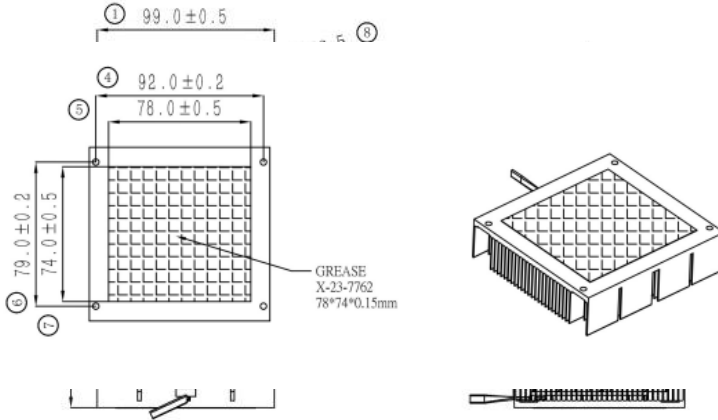
- Rated Voltage: 12V
  - Operating Voltage Range: 11.4V~12.6V
  - Rated Speed: 4200±10% RPM  
(Testing Speed After Continuous 3Minute Operation at Ambient Temperature Of 25°C)
  - Life Expectancy: 50,000hours at 40°C (5 TO 90% RH)
  - Bearing Type: Two Ball



## 7.2 Fan Module/ Adapter/ Power Cord (PCN20230906-1)

Fan Module for AGX Orin

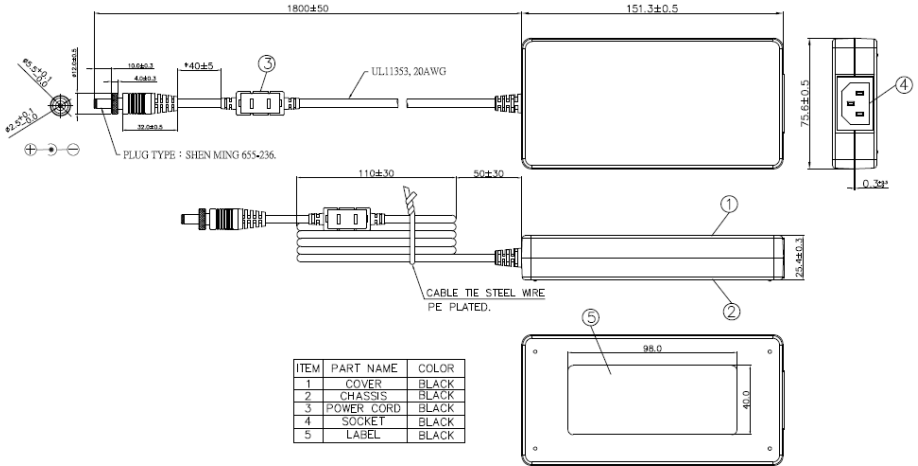
- Rated Voltage: 12V
- Operating Voltage Range: 11.4V~12.6V
- Rated Speed: 4200±10% RPM  
(Testing Speed After Continuous 3Minute Operation at Ambient Temperature Of 25°C)
- Life Expectancy: 50,000hours at 40°C (5 TO 90% RH)
- Bearing Type: Two Ball



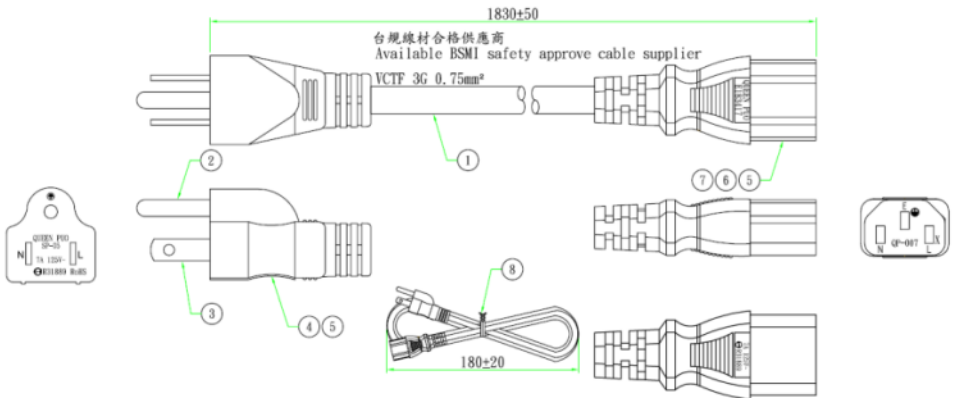
**Table1:**

<p>1st source thermal module</p>	<p>Vendor A</p>
<p>2nd source thermal module</p>	<p>Vendor B</p>

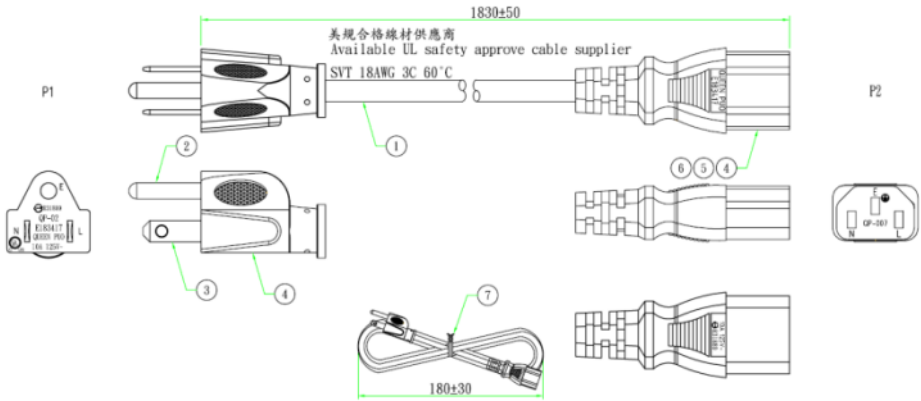
## Power Adapter 041318GOUANL



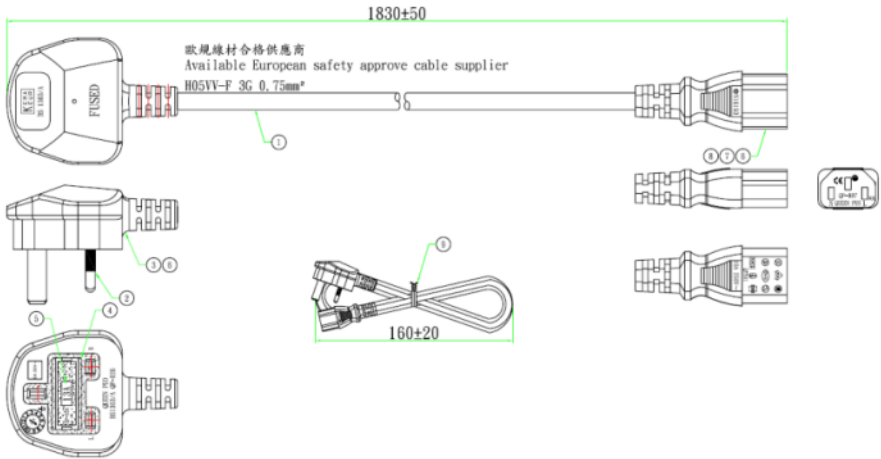
## 64APOWBRX-IPD (TW version)



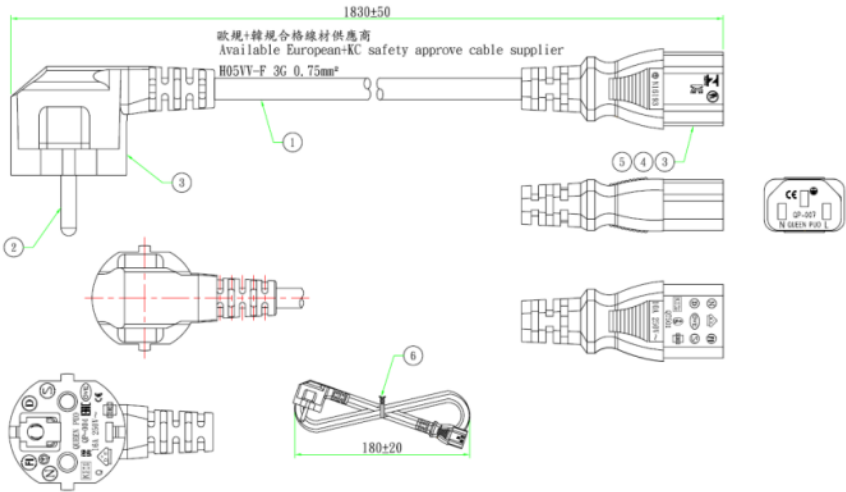
## 064APOWBR2-IPD (US version)



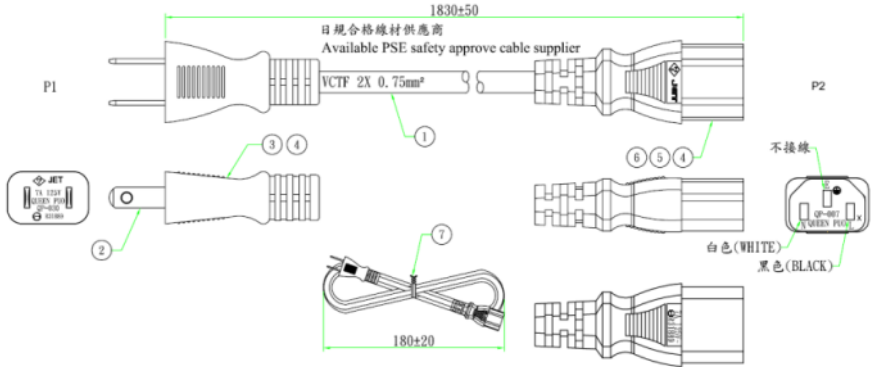
## 064APOWBRW-IPD (UK version)



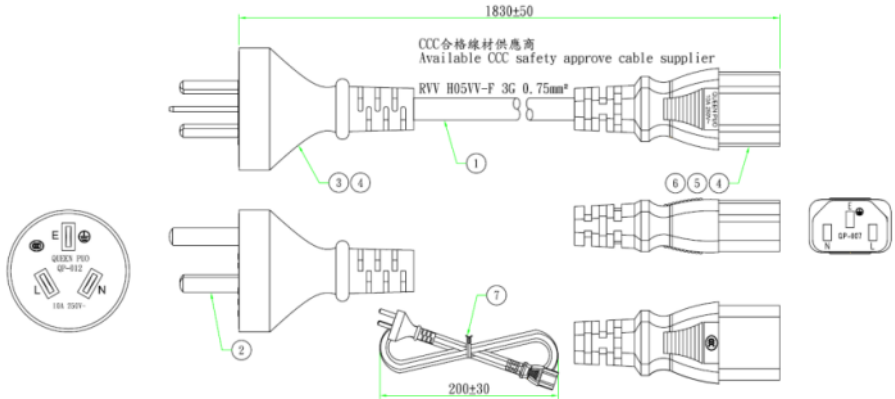
## 064APOWBR5-IPD (EU version)



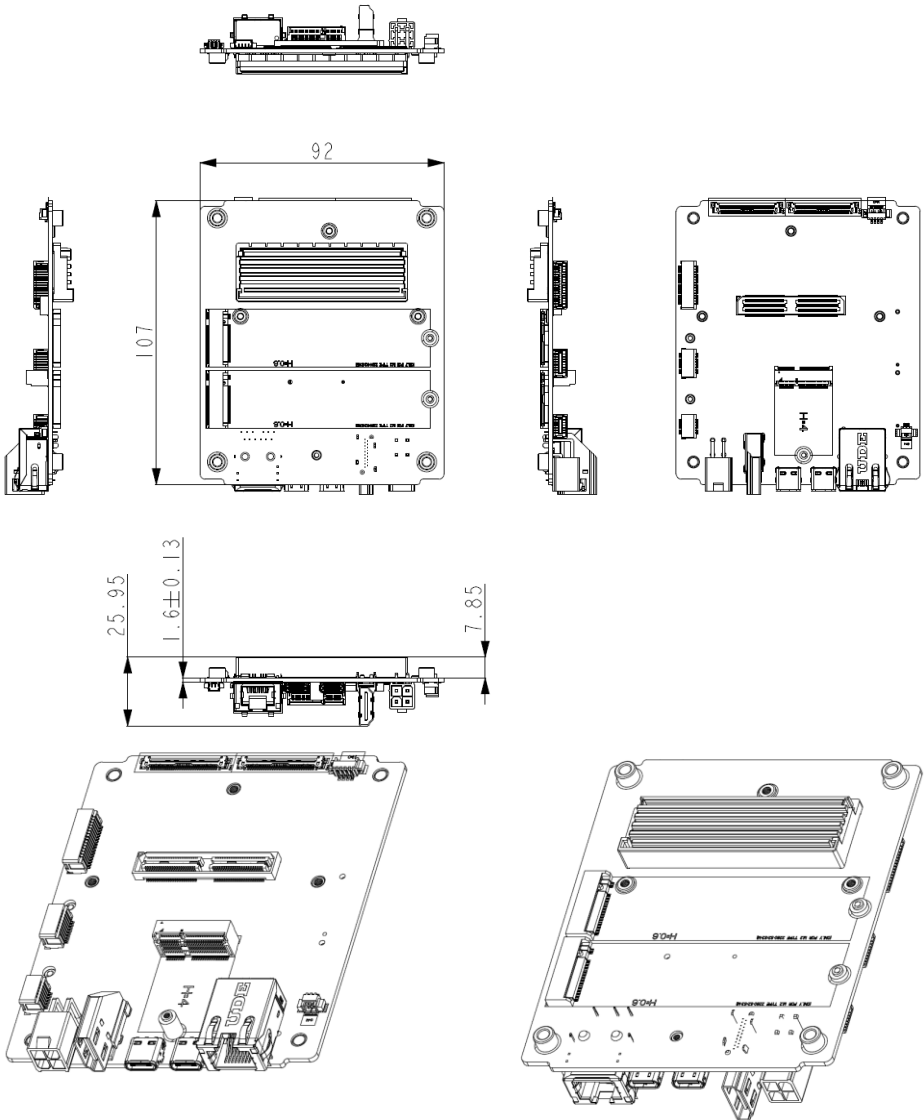
## 064APOWBRSL (JP version)



## 064APOWBR4-IPD (CN version)



8.0 D317AO (2D Drawing)



**9.0 D317+ERMI module connection guide**

Please refer to [ERMI Module | Out-of-Band Management | AVerMedia](#)