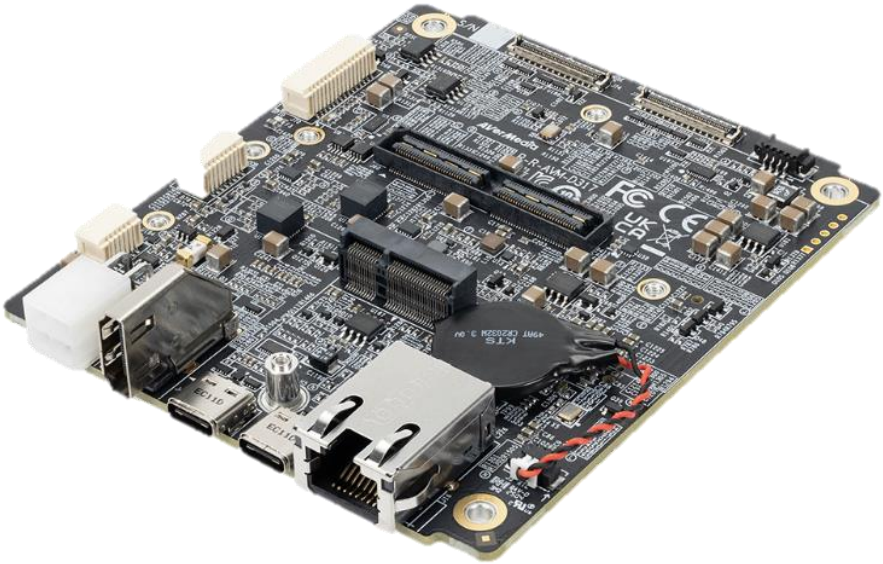
AVerMedia D317

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



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Preface

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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	1st Released
V0.3	May 5, 2025	Update 1.1 Product Specifications

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Limited Product Warranty

AVerMedia provides the one-year product warranty. Should this product, in AVerMedia's opinion, fail to be in the good working order during the warranty period, AVerMedia will, at its option, repair or replace it at no charge, provided that the product has not been subjected to abuse, misuse, accident, disaster, or non-AVerMedia authorized modification or repair.

You may obtain the warranty service by delivering this product to an authorized AVerMedia business partner or to AVerMedia along with the proof of purchase. Product returned to AVerMedia must be pre-authorized by AVerMedia with an RMA (Return Material Authorization) number marked on the outside of the package and sent prepaid, insured, and packaged for the safe shipment. AVerMedia will return the product by prepaid shipment service.

It is not recommended to disassemble the box PC, which will impact the warranty. The limited product warranty is only valid over the serviceable life of the product. This is defined as the period during which all components are available. Should the product prove to be irreparable, AVerMedia reserves the right to substitute an equivalent product if available or to retract the product warranty if no replacement is available.

The above product warranty is the only warranty authorized by AVerMedia. Under no circumstances will AVerMedia be liable in any way for any damages, including any lost profits, lost savings, or other incidental or consequential damages arising out of the use of, or inability to use, such product.

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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 the 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 stuff.
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 usage or idle for a long time.
10. Disconnect the device from any AC supply before cleaning. While cleaning, use a damp cloth instead of liquid or spray detergents.
11. Make sure the device is installed near a power outlet and easy for accessible.
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 electric shock.
15. The static electricity should be noted while installing any internal components. Consider to use 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) 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 include 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 .

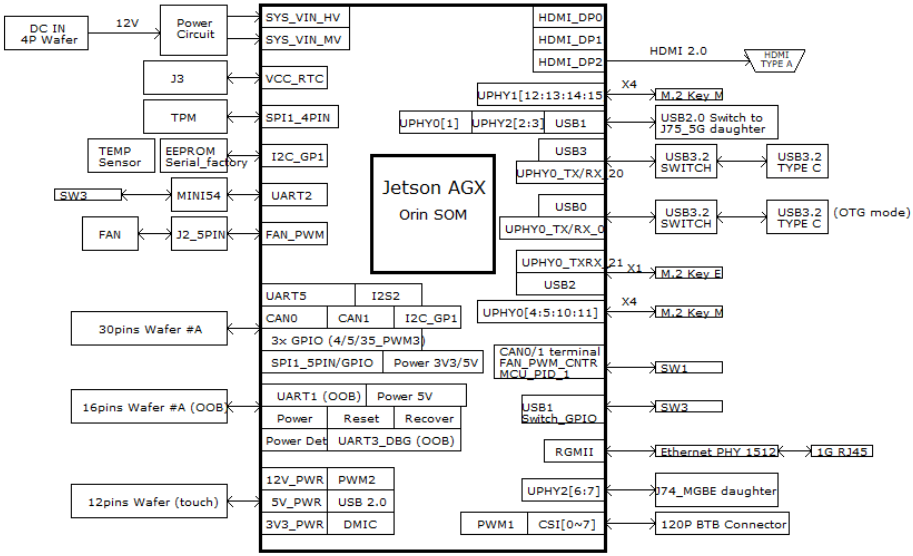
Operating with NVIDIA® Jetson AGX Orin 32G/64G & Industrial modules and the rich I/O functions, AVerMedia D317 is the perfect choice for high-end performance AI edge computing platform for intelligent video analytics applications.

1.1 Product Specifications

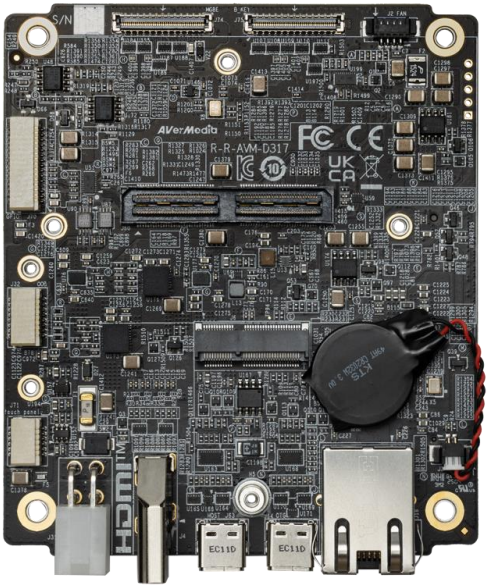
NVIDIA Jetson SoM	NVIDIA® Jetson AGX Orin™ module (32GB or 64GB) & Industrial
Networking	• 1x GbE RJ-45 • 1 x M.2. key E 2230 for wifi 6 • Optional 2x 10G RJ-45 (via daughter board) (TBD) • Optional 8x PoE (via daughter board) (TBD) • Optional 1x M.2 Key B for 5G connection (via 5G、PoE/5G、USB/5G daughter board) (TBD)
Display Output	1x HDMI output
Temperature	Operating temperature: -40 to 85℃ (carrier board), -20 to 70℃ (with fan) (TBD) Storage temperature -40℃ ~ 85℃ (TBD) Relative humidity 40 ℃ @ 95%, Non-Condensing
MIPI & SerDes Camera (120-pin)	1x 120pin for GMSL camera board
USB	• 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) • 1x USB 3.2 Type-C (host mode only) • Optional 8x USB3.2 Type-A (via daughter board) (TBD)
Storage	2x NVMe M.2 Key M 2280 (1x only support S1 Type Top side component SSD)
Expansion Header	• 30pin header: 1xUART, 1xI2C, 3xGPIO,1xSPI, 2xCAN BUS, 1xI2S, 5V(Maximum 0.7A), 3.3V(Maximum 0.7A) • 12pin header: 1x12V(Maximum 0.7A), 1x5V(Maximum 1A), 1x3.3V(Maximum 1A) power Output, 1xUSB 2.0, 1xDMIC • 16pin wafer for OOB or External Button: • -OOB: 1xUART, 1xDebug UART, 1xPower button, 1xReset button, • 1x Power detect (via out-of-band management module) • -External Buttons: 1xPower Button, 1xReset button, 1xRecovery button, • 1xPWR_LED (via external button cable) • 40pin coaxial connector for 10G expansion • 40pin coaxial connector for PCIe expansion
Power requirement	ATX 4pin ,12V +/- 5% DC Input
Thermal Solution	• Fan solution (12V fan wafer)
Buttons	Power and Recovery
RTC Battery	Support RTC Battery and Battery Life Monitoring by MCU
Dimensions	• W: 92mm x L: 107mm (TBD) • Weight: 1kg (TBD)
Certifications	CE, FCC,VCCI, KC (TBA)
GPS	Optional Dual-RTK GNSS support (via daughter board)

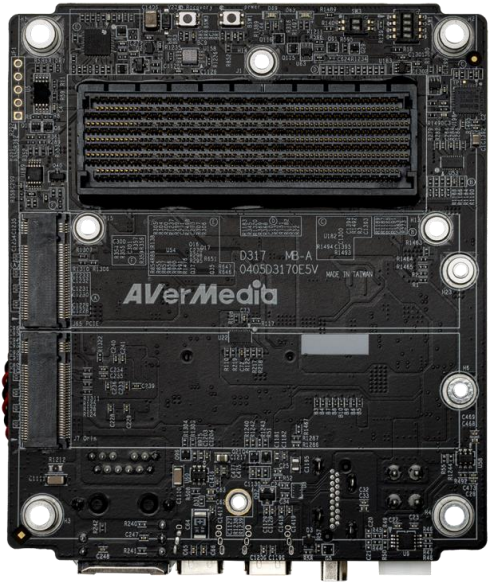
Sensor	Temperature sensor for PCB top/bot Temperature measure
LED	1x system power，1x input power
Package	1x Carrier board Screws Nuts

1.2 Product Overview



Front View and Back View of Carrier board





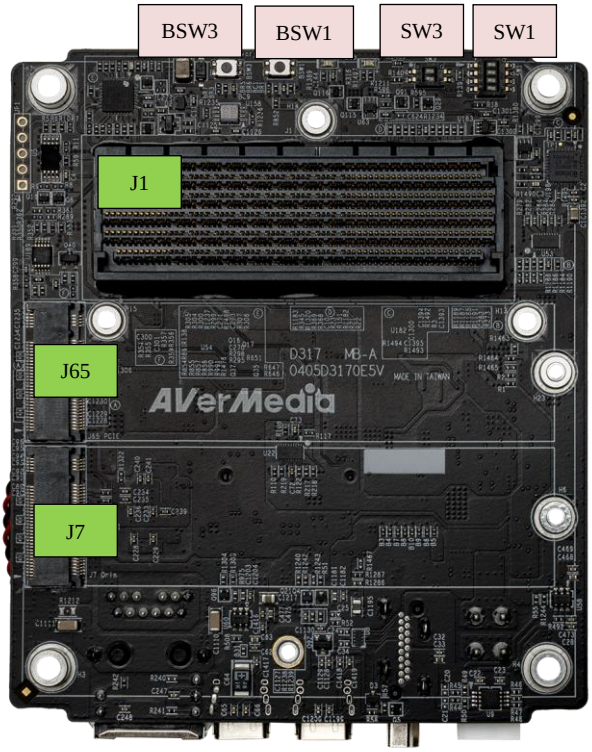
1.3 Connector Summary

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(TBD)
J75	40pin coaxial connector for PCIe expansion(TBD)

1.4 Carrier Board Interface

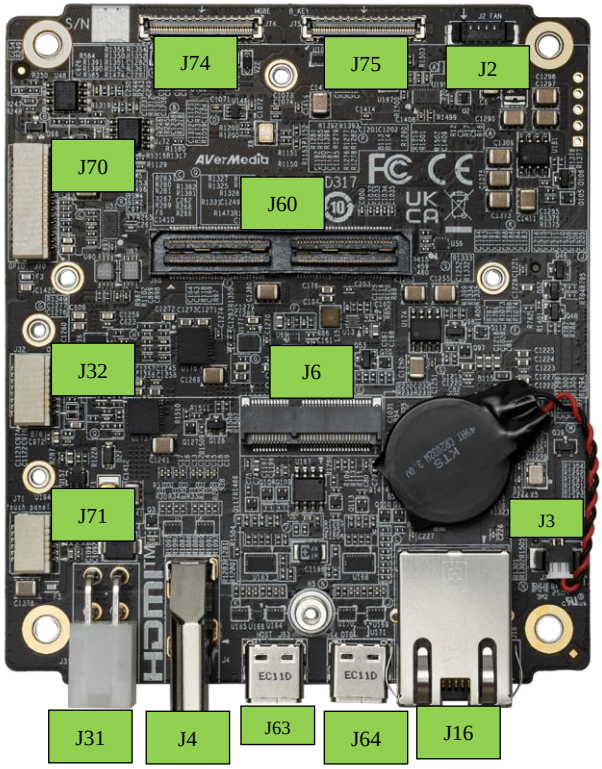
Top View Interface

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/LEDs
BSW1	Power Button w/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(TBD)
J75	40pin coaxial connector for PCIe expansion(TBD)



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	https://developer.nvidia.com/ embedded/downloads	

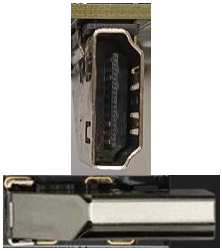
2.2 Fan Power connector

Function	Fan Power Connector	
Location	J2	
Type Description	WAFER_1*4PIN_1.25 ㎜_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 ㎜-H8.5 ㎜	
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 ㎜-H3.05 ㎜	
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㎜_90°_SMD
Manufacturer and Part Number	宏致_ACES 50487-03001-001
Mating Connector	Aces 50420-030HKH0-001

Pinout

1.2 30 Pin Definition

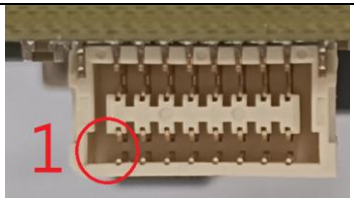
Connector	Module Pin Name	Module Pin#	Description
1			+3V3_SYSTEM-1
2	I2C1_CLK	K5	I2C_GP1_CLK_3V3
3			+3V3_SYSTEM-1
4	I2C1_DAT	L8	I2C_GP1_DAT_3V3
5	GND		GND
6	I2S2_CLK	G4	I2S2_CLK_3V3
7	+5V_SYSTEM-1		+5V_SYSTEM-1
8	I2S2_SDOUT	F5	I2S2_SDOUT_3V3
9	GND		GND
10	I2S2_FS	E4	I2S2_FS_3V3
11	SPI1_CLK	J57	SPI1_SCK_3V3
12	I2S2_DIN	F6	I2S2_SDIN_3V3
13	SPI1_MISO	A56	SPI1_MISO_3V3
14	SPI1_MOSI	D55	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	D59	CAN0H
21	CAN1_DIN	B61	CAN1L
22	CAN0_DIN	F58	CAN0L
23	GND		GND
24	GND		GND
25	GPIO05	A59	GPIO5_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 ㎜_90°_SMD	
Manufacturer and Part Number	宏致 ACES 50487-01601-001	
Mating Connector	宏致 ACES 50420-016HKH0-001	

Pinout

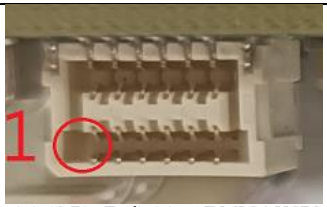


1.3 16 Pin Definition_OOB

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㎜_90°_SMD	
Manufacturer and Part Number	宏致 ACES 50487-01201-001	
Mating Connector	宏致 ACES 50420-012HKH0-001	
Pinout		
Note	None	

1.4 12 Pin Definition_DMIC&USB2

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

2.12 ATX 4P

<table>
<tr><td>Function</td><td colspan="2">ATX 4P</td><td rowspan="6"> 

 </td></tr>
<tr><td>Location</td><td colspan="2">J31</td></tr>
<tr><td>Type Description</td><td colspan="2">WAFER_2*2PIN_4.2 ㎜_90°_DIP</td></tr>
<tr><td>Manufacturer and Part Number</td><td colspan="2">燦達 Jiont Tech
C4255WR-2X02PN2NT1N00B</td></tr>
<tr><td>Mating Connector</td><td colspan="2">Follow ATX 4pin power standard</td></tr>
<tr><td>Pinout</td><td colspan="2"><table>
<tr><th>Pin Number</th><th>Description</th></tr>
<tr><td>1</td><td>GND</td></tr>
<tr><td>2</td><td>GND</td></tr>
<tr><td>3</td><td>12V Power</td></tr>
<tr><td>4</td><td>12V Power</td></tr>
</table></td></tr>
<tr><td>Remarks</td><td colspan="3">None</td></tr>
</table>

2.13 Board to board connector (to Camera board)

Function	Board to board connector	
Location	J60	
Type Description	WAFER_2*60PIN_0.5 ㎜_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	圜達 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 ㎜-BLACK	
Pinout	N/A	
Remark	None	

Other Switches and Jumpers

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