AUVIDEA
X230D, X230D-AI
TECHNICAL REFERENCE MANUAL

SCOPE OF WORK
Providing technical information and documentation of the X221D and the X221D-AI carrier boards for the AGX series.

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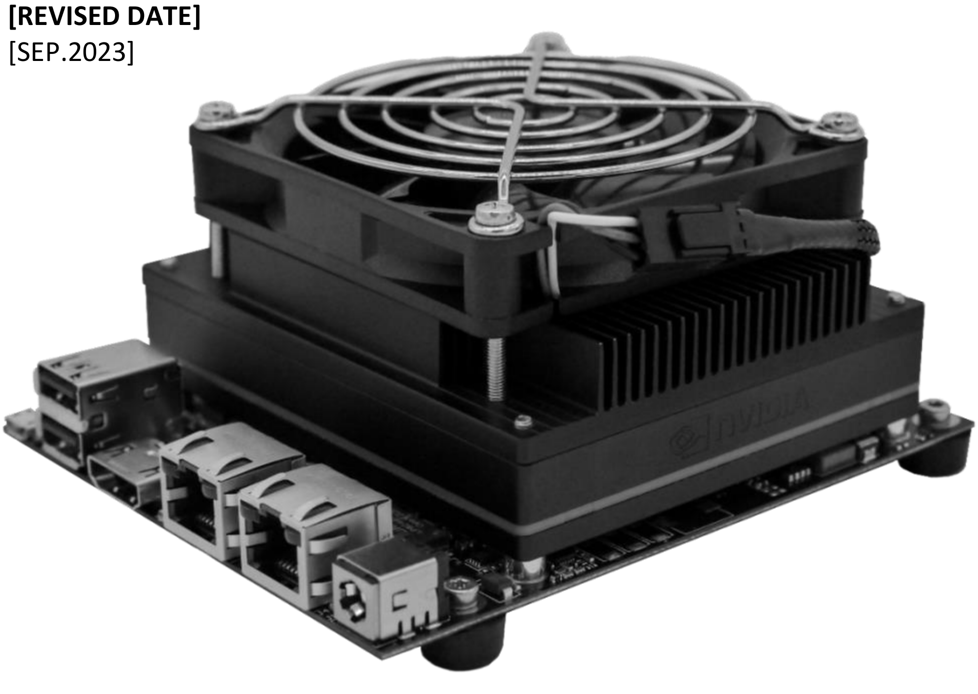


CONTENTS

SECTION 1 Document revisions and changes

Document version	Changes
0.1	Initial document, internal verification process
0.3	Reduced board variety, fixed appendix B
0.4	Added AI Version and bottom pinout description and information about swapped labels for J5 and J28
1.0	Integration of X221D-AI version
1.1	Added missing Information to several chapters

SECTION 2 Product revisions and changes

Product version	Changes
38500-1	Initial release version
	(Only version?)

SECTION 3 Overview

3.1 Introduction

The X221D is intended to be a great development platform with
These systems let you dive into AI with ease. They allow you to explore AI applications like people detection, face masking and more. The full suite of NVIDIA SDKs may be installed. At your choice these systems may be equipped with the entire family of NVIDIA compute modules with the AGX Xavier form factor.
The X221D features an industrial strength design and is commercially deployable in any volume.

3.2 Carrier board features

X221D only components on top side
X221D-AI (All In) top and bottom parts

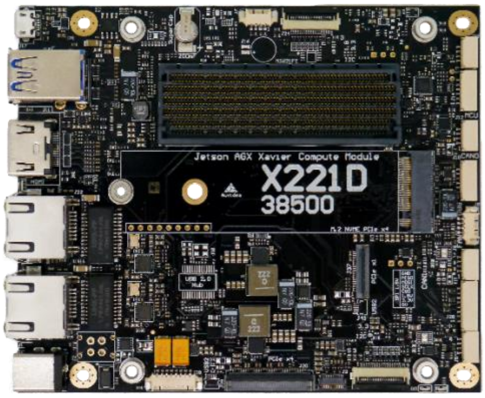
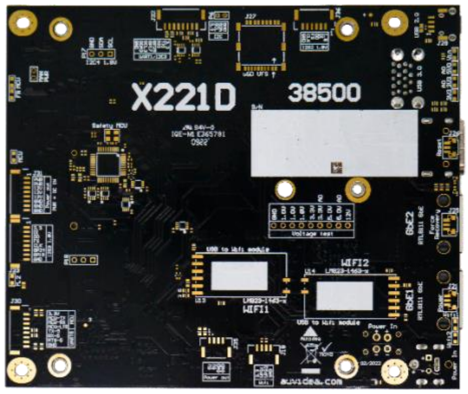
Description	X221D	X221D-AI
Operating Voltage	12V (20V abs. max)	12V (20V abs. max)
Jetson power modes	30W + MAXN	30W + MAXN
Supported modules	AGX-Xavier, AGX-Xavier-Industrial	AGX-Xavier, AGX-Xavier-Industrial
Supported module configurations	Configuration 2	Configuration 2
Super Cap UPS	(optional)	(optional)
RTC super cap	200mF	200mF
Rechargeable lithium cell (MS621FE)	(optional)	(optional)
Power out	-	5V 2A (J35) 12V 3A (J31)
Power/Reset/Force-Recovery Buttons	-	yes
Revers voltage protection	yes	yes
Overvoltage protection	yes	yes
HDMI out (4kp60)	1x	1x
USB 2.0	1x microUSB	1x quad USB2.0 hub: (1: J41, 2: U14 (LM823), 3: U13 (LM823) (or J39 - optional)) 1x microUSB
USB 3.0	2x USB-A (J15) +1x FPC (J3)	2x USB-A (J15) + 1x FPC (J3)
Safety MCU	-	yes (UART via LTE option)
Basic MCU	yes	-
GbE (RJ45)	2x RTL8111 (PCIe to GbE)	2x RTL8111 (PCIe to GbE)
WIFI	-	- (2x optional LM823-1463)
MicroSD/UFS card slot	-	1x
CAN1 (RX/TX only) (J6)	1x	1x
CAN0 (J12)	1x	1x
UART5 (user UART)	-	1x RX/TX/RTS (3.3V) (J30)
UART1 (user UART)	-	1x UART1 (3.3V) + 2x GPIO
SPI	1x (1.8V) (J28)	1x (1.8V) (J28)
I2S	-	1x I2S2 (1.8V) (J36) 1x I2S3 (1.8V) (J23) + 2x GPIO
I2C	2x J7 + J33	2x J7 + J33 1x J32
PCIe x4	1x 40p FPC (J20)	1x 40p FPC (J20)
PCIe x1	1x 22p FPC (J37)	1x 22p FPC (J37)
CSI-2 (4 lanes each)	2x (3.3V) (J24+J19) 1.8V/5V opt.	2x (3.3V) (J24+J19) 1.8V/5V opt.

Auto flashing	yes	yes
Debug port	yes (J10)	yes (J10)
Fan connector (5V, PWM)	1x	1x
RGB LED (GPIO controlled)	yes	yes
Crypto authentication chip	- (planned for rev. 3)	- (planned for rev. 3)

3.3 Technical specification

Description		Note
HDMI	2.0, 4k60p	
USB 3.1	10Gb/s	
Physical size	125mm x 104.6mm	3D STP model available
Mounting holes	For 4x M3 (3.2mm)	
Temperature range	-25°C to +70°C	Cold temperature monitoring with MCU optional
Humidity	Noncondensing humidity	
Longevity	Very good	No temperature sensitive electrolytic capacitors used

3.4 Model pictures

<table>
<tr><th></th><th>Top side</th><th>Bottom side</th></tr>
<tr><td>X221D</td><td>
</td><td>
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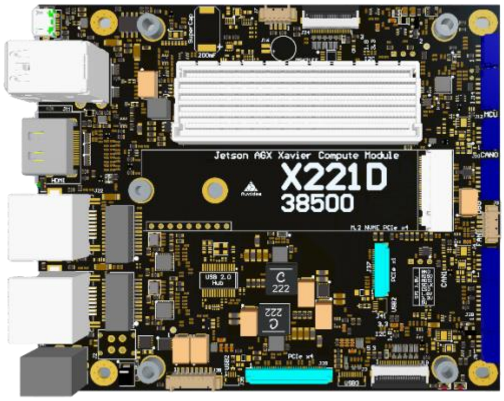
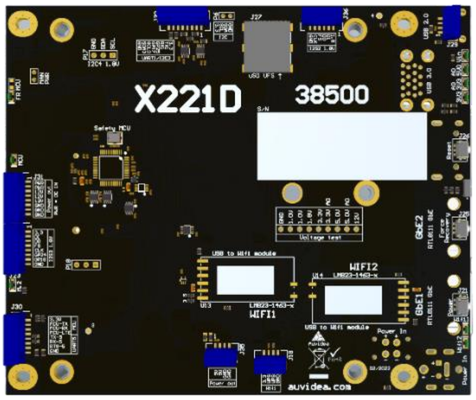
<tr><td>X221D-AI</td><td>
</td><td>
</td></tr>
<tr><td>X221D with module and cooler</td><td></td><td></td></tr>
</table>

The heatsink is designed for the AGX Xavier & AGX Xavier Industrial & AGX Orin. It is designed to mount a standard 80x80mm fan. A production version is available. The Heatsink is not included with the base board. Sets may be available.
Pleas see our Heatsink and Fan solution on our website: https://auvidea.eu/product/70861/
Or our Product Brief for the Heatsink and Fan: https://auvidea.eu/download/D70861.pdf

3.5 Power consumption and efficiency

Description	X221D & X221D-AI
Carrier board logic	1-2W

1.8/3.3/5V power converter efficiency	>90%
Power in converter efficiency	-

3.6 Carrier board comparison

Auvidea provides a variety of compatible boards for the AGX Xavier and AGX Orin. The following table tries to help you find the best fitting carrier board for your needs. For more in depth information about each board pleas see the respective manual.

Description	AGX Xavier compatible	AGX Orin compatible
extendable carrier board with M222, etc	X221	X230
Developer series (fixed function)	X221D	X230D
X231 = X230 plus 2x PCIe x8 connector	-	X231

The following table shows the features and differences in more detail.

	AGX Xavier	AGX Xavier	AGX Orin	AGX Orin
Compatible board	**X220**	**X221D**	**X230D**	**X230/X231**
Recommended configuration	config 2	config 2	config 2	config 2
UPHY_RX0/TX0	PCIe x1		PCIe x1 FPC	GbE 2
UPHY_RX1/TX1	USB 3 (ext. optional)	USB 3 FPC 12p	USB 3 Type A	USB 3 Type A
UPHY_RX20/TX20			USB 3 Type A	USB 3 Type A
UPHY_RX21/TX21			GbE 1	GbE 1
UPHY_RX22/TX22			GbE 2	M.2 NVME (C4), RP
UPHY_RX23/TX23				
UPHY_RX10/TX10	UFS	UFS		
UPHY_RX11/TX11	USB 3 Type A	USB 3 Type A		
UPHY_RX11/TX11	M.2 NVME	M.2 NVME	M.2 NVME	PCIe x8 (C5), RP/EP
UPHY_RX13/TX13				
UPHY_RX14/TX14				
UPHY_RX15/TX15				
UPHY_RX16/TX16				
UPHY_RX17/TX17				
UPHY_RX18/TX18				
UPHY_RX19/TX19				
UPHY_RX2/TX2	PCIe x4 on extension connector (for 38451 add-on)	PCIe x4 FPC (J20)	PCIe x4 FPC (J20)	PCIe x8 (C7), RP/EP
UPHY_RX3/TX3				
UPHY_RX4/TX4				
UPHY_RX5/TX5				
UPHY_RX6/TX6	USB 3 Type A	USB 3 Type A		
UPHY_RX7/TX7	GbE 1	GbE 1		
UPHY_RX8/TX8	GbE 2	GbE 2		
UPHY_RX9/TX9				

SECTION 4 Features

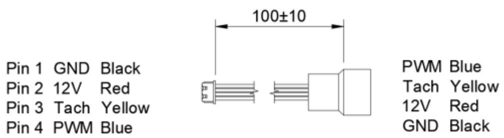
4.1 Crypto authentication chip

Pin	Description
Model	ATSHA204A-SSHDA-T
Datasheet	https://ww1.microchip.com/downloads/en/DeviceDoc/ATSHA204A-Data-Sheet-40002025A.pdf

The crypto chip can be used for authentication, software licensing and copy protection.
The crypto authentication chip is currently not supported. Support is planned for revision 3 of this product.

4.2 Fan connection

4.2.1 Fan + Adapter specification

	Image	Note
X221D + Fan		On the left you see a standard 80x80x15mm fan connected with the adapter cable to the J8 Fan connector.
Adapter cable		On the left you see a drawing of the adapter Kable and the pin description.

4.2.2 Set Fan speed

Set FAN speed to lowest value. Some FANs don't stop when speed is 0.

```
echo 0 > /sys/devices/pwm-fan/target_pwm
```

Set FAN speed to highest value possible

```
echo 255 > /sys/devices/pwm-fan/target_pwm
```

4.2.3 Read Fan speed

command to read FAN tachometer. Value displays in rounds per minute.
(Depending on the FAN this value may need to be scaled/converted)

```
cat /sys/devices/generic_pwm_tachometer/hwmon/hwmon1/rpm
```

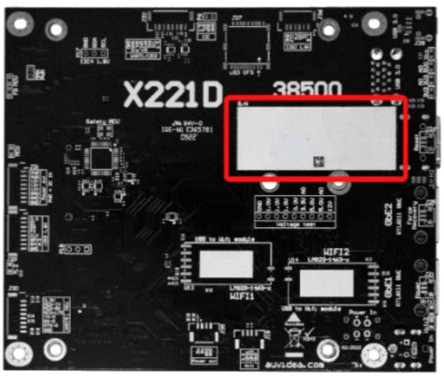
4.3 Manufacturing options

4.3.1 Enclosure

Auvidea can provide custom enclosures for its carrier boards. These enclosures provide a passively cooled solution. This solution is designed for the AGX models. With a max power draw of 35W (normal mode) the enclosure temperature reaches 55C° while in 24°C room temperature which is a safe temperature for Human contact.
The MaxN mode (up to 90W) is not recommended as the enclosure temperature increases above acceptable levels for direct human contact.
It is also possible to apply your branding on the front and back Plate of the Enclosure. Auvidea has inhouse capabilities of laser and milling engraving.

4.3.2 Branding and QR codes

Besides the branding options for the enclosure, it is also possible to customize the label field on the carrier board.

	Image	Note
		In the left image the label field is highlighted.

Auvidea uses the label field to engrave a small QR code and serial number to track production processes.
It is possible to add your custom engravings like logos, text or QR codes to this field.

4.3.3 A laser engraver is used.Custom configurations

The standard carrier board configuration is designed to suit most use cases.
Please see the Pinout description for customization examples like voltage configurations (3.3V or 1.8V).
We take pride in tailoring our products to your special need and are capable to adjust it in small production series. Please contact Auvidea with your special requests to work out a solution.

SECTION 5 Pinout description top side

5.1 J1 – Power jack

Barrel plug.
12V Input, please use a high quality power supply for stable operation.

5.2 J2 – Power port

Molex MicroFit 3.0 (alternative power input)

5.3 J3 – USB3

Pin	Description	Socket pin	Note
1	VUSB3-3	F54	3.3V (GPIO22: EN = 1, default = 1)
2	VUSB3-3	F54	3.3V
3	USB2_D_N	A11	
4	USB2_D_P	A10	
5	GPIO22	F54	Optional (R198)
6	GND		
7	UPHY_RX1_N	C22	
8	UPHY_RX1_P	C23	
9	GND		
10	UPHY_TX1_N	G22	
11	UPHY_TX1_P	G23	
12	GND		

5.4 J4 – Ethernet

RJ45
Standard pinout.

5.5 J5 – CAM_LED

Pin	Description	Socket pin	Note
1	VCC_SRC		Max 1A
2	VDD_5V		Max 1A
3	GPIO35_PWM3	L50	Low side switch to GND, can be controlled with GPIO35_PWM3 or CAM1-MCLK (1.8-5V) or CAM2-MCLK (1.8-5V) (please see schematic image), Max 3.7A
4	GND		

Please note that on REV 2 and below the J5 and J28 label printed on the pcb is swapped, this mistake is fixed in newer revisions.
Q13 (pin 3) is not over current protected (Max 3.7A).
Set GPIO35_PWM3 too low to activate Q13 (pin3).
As you can see you can control the J5 pin 3 with three options.
The CAM1 and CAM2 control are intended to be set by your camera device

5.6 J6 – CAN1

JST-GH 1.25mm

Pin	Description	Socket pin	Note
1	NC		Not powered
2	CAN1_TX	H61	2.5V center voltage, with CAN transceiver
3	CAN1_RX	B61	2.5V center voltage, with CAN transceiver
4	GND		

CAN1 is RX/TX only and is not outputting power

5.7 J7 – I2C

PicoBlade 1.25mm

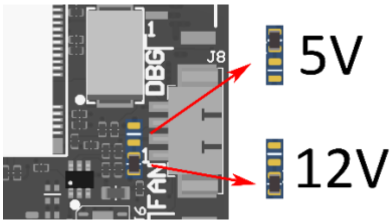
Pin	Description	Socket pin	Note
1	3.3V		
2	SCL	J61	3.3V, open drain
3	SDA	K61	3.3V, open drain
4	GND		

5.8 J8 – FAN

PicoBlade 1.25mm

Pin	Description	Socket pin	Note
1	GND		
2	12V		1A
3	TACH	E54	1.8V input 100K pull up to 1.8V, fan speed tacho
4	PWM	K62	open drain output with 10k pullup to 12V

For the use of a 5V fan there is an option to resolder a component appropriately.



5.9 J10 – Debug port

JST-GH 1.25mm

Pin	Description	Socket pin	Note
1	3.3V		
2	UART3_TX	H62	3.3V, AGX Xavier debug console transmit
3	UART3_RX	K60	3.3V, AGX Xavier debug console receive
4	GPIO13_OUT	G7	3.3V, G7 (AGX Xavier ball), output from Jetson
5	GPIO4_IN	B59	3.3V, B59 (AGX Xavier ball), input to Jetson
6	GND		

5.10 J11 – HDMI

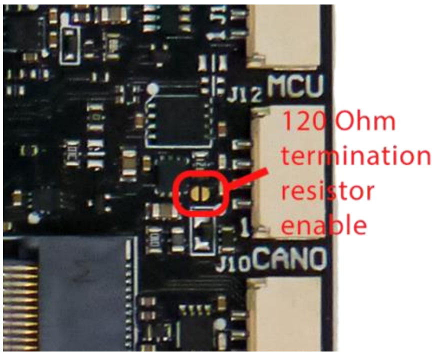
Standard pinout, connected to DP-2

5.11 J12 – CAN0

JST-GH 1.25mm

Pin	Description	Socket pin	Note
1	5V	C61	max 500mA (with current limiting switch), can be controlled with CAN0_STBY (GPIO09), socket pin C61 with low = on, high = off, pin is also reverse power protected
2	CAN0_H	F58	2.5V center voltage, with CAN transceiver
3	CAN0_L	D59	2.5V center voltage, with CAN transceiver
4	GND		

You can set a solder ball to enable 120Ohm Termination resistor as shown in the picture below.



5.12 J14 – MCU

JST-GH 1.25mm

Pin	Description	Socket pin	Note
1	3.3V		
2	MCU_TX		3.3V, MCU console debug port, transmit, 115200 baud, 8N1
3	MCU_RX		3.3V, MCU console debug port, receive, 115200 baud, 8N1
4	SWCLK		ST-Link programming interface of MCU
5	SWDIO		ST-Link programming interface of MCU
6	GND		

With the AI model of the X221 you have access to the safety MCU features. Please contact Auvidea for more information.
The basic MCU of the non AI models only handle power up functionality.

5.13 J15 – 2x USB 3.1

Nexus-3815RFY

Pin	Description	Socket pin	Note
1	Vin		1A, 5V
2	USB3_D_N	G10	
3	USB3_D_P	G11	
4	GND		
5	UPHY_RX11_N	D13	
6	UPHY_RX11_P	D12	
7	GND		
8	UPHY_TX11_N	H13	
9	UPHY_TX11_P	H12	
10	Vin		1A, 5V
11	USB1_D_N	C10	

12	USB1_D_P	C11
13	GND	
14	UPHY_RX6_N	B17
15	UPHY_RX6_P	B16
16	GND	
17	UPHY_TX6_N	K16
18	UPHY_TX6_P	K17
19	GND	
20	GND	
21	GND	
22	GND	

Standard pinout (type A).
10Gb/s.
Power can be Enabled/Disabled with GPIO22

5.14 J17 – MICRO USB

Standard pinout.
Host and device mode supported.
Powered by power limiting switch with 500mA.
Alternatively, you can use the J29 connector, using the same pins.

5.15 J19 – CSI-2

Pin	Description	Socket pin	Note
1	VDD_3V3		3.3V
2	SDA-1	K61	Connected to I2C_GP2_Dat_LVS or I2C_GP2_DAT depending on config. I2C bus number 1.
3	SCL-1	J61	Connected to I2C_GP2_CLK_LVS or I2C_GP2_CLK depending on config. I2C bus number 1.
4	GND		
5	CAM1_MCLK	J28	Connected to J28 CAM LED pin 3
6	CAM1_PWDN	K57	Can be controlled with PWM01_40Pin (GPIO_07), default configuration is high, open drain output with pullup 2.2k to 3.3V, this also connects to CAM2_PWDN.
7	GND		
8	CSID3-1_P	C47	
9	CSID3-1_N	C48	
10	GND		
11	CSID2-1_P	A44	
12	CSID2-1N	A45	
13	GND		
14	CSIC-1_P	J44	
15	CSIC-1_N	J45	
16	GND		
17	CSID1-1_P	H46	
18	CSID1-1_N	H45	
19	GND		
20	CSID0-1_P	K44	
21	CSID0-1_N	K43	

22	GND

Per special request Auvidea can manufacture the board with CAM1_PWDN and CAM2_PWDN with pullup to 1.8V.

5.16 J20 – PCIe x4

Pin	Description	Socket pin	Note
1	VDD_3V3		3.3V
2	VDD_3V3		3.3V
3	VDD_3V3		3.3V
4	GND		
5	PEX_CLK0_P	E15	
6	PEX_CLK0_N	E14	
7	GND		
8	UPHY_TX2_P	K21	
9	UPHY_TX2_N	K20	
10	GND		
11	UPHY_RX2_P	B21	
12	UPHY_RX2_N	B20	
13	GND		
14	UPHY_TX3_P	H20	
15	UPHY_TX3_N	H21	
16	GND		
17	UPHY_RX3_P	D20	
18	UPHY_RX3_N	D21	
19	GND		
20	UPHY_TX4_P	J18	
21	UPHY_TX4_N	J19	
22	GND		
23	UPHY_RX4_P	A18	
24	UPHY_RX4_N	A19	
25	GND		
26	UPHY_TX5_P	G19	
27	UPHY_TX5_N	G18	
28	GND		
29	UPHY_RX5_P	C19	
30	UPHY_RX5_N	C18	
31	GND		
32	PEX_WAKE_N	A8	
33	PEX_L0_RST_N	D10	
34	GND		
35	I2C_GP2_DAT_LVS	K61	3.3V (2.2k pullup)
36	I2C_GP2_CLK_LVS	J61	3.3V 2.2k (pullup)
37	PEX_L0_CRQ_N	E11	
38	VDD_3V3		3.3V
39	VDD_3V3		3.3V
40	VDD_3V3		3.3V

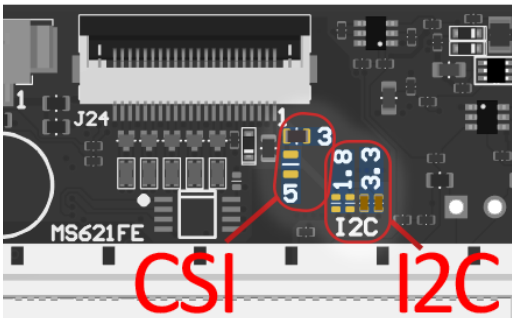
5.17 J22 – ETHERNET

Standard pinout.

5.18 J24 – CSI-1

Pin	Description	Socket pin	Note
1	VDD		3.3V (5V optional)
2	I2C-GP5 (FT_SDA)		3.3V (1.8V optional)
3	I2C-GP5 (FT_SCL)		3.3V (1.8V optional)
4	GND		
5	CAM2_MCLK	F57	Can be controlled with PWM01_40Pin (GPIO_07, socket pin F57), default configuration is high, open drain output with pullup 2.2k to 3.3V, this also connects to CAM1_PWDN
6	CAM2— PWDN		Connected to J28 CAM LED pin 3
7	GND		
8	CSID3-2_P	J41	
9	CSID3-2_N	J42	
10	GND		
11	CSID2-2_P	G41	
12	CSID2-2_N	G42	
13	GND		
14	CSIC-2_P	F43	
15	CSIC-2_N	F42	
16	GND		
17	CSID1-2_P	E39	
18	CSID1-2_N	E38	
19	GND		
20	CSID0-2_P	E42	
21	CSID0-2_N	E41	
22	GND		

Per special request Auvidea can manufacture the board with CAM1_PWDN and CAM2_PWDN with pullup to 1.8V.
CSI default voltage is 3.3V but it can be changed to 5V. To perform this modification, you need to move the bead from the 3.3V location (marked with the number 3 as shown in the picture) to the 5V location (marked with the number 5 as shown in the picture).
The same process applies to I2C where you must move two beads to the desired location of 1.8 (1.8V) or 3.3 (3.3V).
This modification should be performed with care and some good soldering skills.
Auvidea does not cover damages inflicted by poorly performed modifications.
Please contact Auvidea for custom configurations.

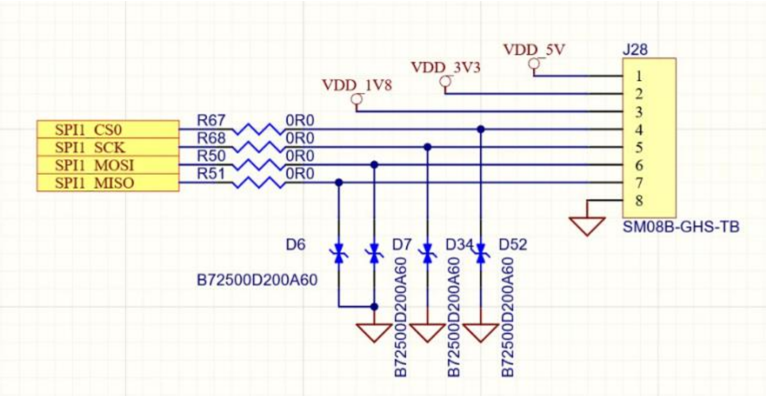


5.19 J28 – SPI

SM08B-GHS-TB

Pin	Description	Socket pin	Note
1	VDD_5V		5V
2	VDD_3V3		3.3V
3	VDD_1V8		1.8V
4	SPI1_CS0	E55	
5	SPI1_SCK	J57	
6	SPI1_MOSI	D55	
7	SPI1_MISO	A56	
8	GND		

Please note that on REV 2 and below the J5 and J8 label printed on the pcb is swapped, this mistake is fixed in newer revisions.



5.20 J33 – I2C

Pin	Description	Socket pin	Note
1	VDD_5V		5V
2	I2C_GP5_SCL	A53	3.3V (2.2k pullup)
3	I2C_GP5_SDA	C53	3.3V (2.2k pullup)
4	GND		

5.21 J37 – PCIe x1

Pin	Description	Socket pin	Note
1	GND		
2	GPIO17	A54	
3	PEX_WAKE_N	A8	
4	GND		
5	PEX_L1_CRQ_N	D9	
6	PEX_L1_RST_N	B9	
7	GND		
8	UPHY_RX0_N	A23	
9	UPHY_RX0_P	A22	
10	GND		
11	UPHY_TX0_N	J23	
12	UPHY_TX0_P	J22	
13	GND		

14	PEX_CLK1_N	F17	
15	PEX_CLK1_P	F16	
16	GND		
17	VDD_3V3		3.3V
18	VDD_3V3		3.3V
19	GND		
20	VDD_5V		5V
21	VDD_5V		5V
22	GND		

5.22 J38 – VCC_SRC

Pin	Description	Socket pin	Note
1	VCC_SRC		12V
2	VCC_SRC		12V
3	VCC_SRC		12V
4	VCC_SRC		12V
5	GND		
6	GND		
7	GND		
8	GND		

5A total

5.23 J39 – USB2

Pin	Description	Socket pin	Note
1	GND		
2	VDD_3V3		3.3V
3	D1_P	A10	Internal USB hub AND LM823 module share lane! HUB: USB2_D_P (socket pin A10)
4	D1_N	A11	Internal USB hub AND LM823 module share lane! HUB: USB2_D_N (socket pin A11)
5	VUSB2_3		5V 500mA (controlled by GPIO22 – EN=1)

This functionality is not available in standard configuration.
Per special request Auvidea can manufacture the board with this function.

5.24 J41 – USB2

Pin	Description	Socket pin	Note
1	GND		
2	VDD_3V3		3.3V
3	D2_P	A10	Internal USB hub, HUB: USB2_D_P(socket pin A10)
4	D2_N	A11	Internal USB hub, HUB: USB2_D_N (socket pin A11)
5	VDD_5V		5V

This functionality is not available in standard configuration (only AI version).

5.25 RGB LED

Pin	Description	Socket pin	Note
LED-R	GPIO14	L15	ON = 1, default = 0 (red)

LED-G	GPIO16	F9	ON = 1, default = 0 (green)
LED-B	GPIO11	B8	ON = 1, default = 0 (blue)

SECTION 6 Pinout description bottom side

6.1 J18 – WiFi (LM823: U13 and U14)

SM04B-GHS-TB

Pin	Description	Socket pin	Note
1	VDD_3V3		
2	WPS_U13		
3	WPS_U14		
4	GND		

6.2 J21 – Power button

6.3 J23 – I2S3

SM08B-GHS-TB

Pin	Description	Socket pin	Note
1	VDD		3V3
2	I2S3_DIN	J59	1.8V
3	I2S3_DOUT	K59	1.8V
4	I2S3_FS	C60	1.8V
5	I2S3_SCLK	C59	1.8V
6	GPIO24	J51	1.8V
7	GPIO19	K56	1.8V
8	GND		

6.4 J25 – Force recovery button

6.5 J26 – Reset button

6.6 J27 – MicroSD UFS

Standard pinout.

6.7 J29 – USB 2.0

SM04B-GHS-TB

Pin	Description	Socket pin	Note
1	V_USB		5V 500mA (MCU control)
2	USB0-D N	F13	
3	USB0-D P	F12	
4	GND		

Alternative connector for J17 (Micro USB), uses same pins.

6.8 J30 – UART5 + MCU

SM08B-GHS-TB

Pin	Description	Socket pin	Note
1	VDD		3.3V

2	UART_TXD		3.3V, to safety MCU
3	UART_RXD		3.3V, to safety MCU
4	LTE_INT		3.3V, to safety MCU
5	UART5_TX	J58	3.3V, output
6	UART5_RX	H58	3.3V, input
7	UART5_RTS	K58	3.3V, output
8	GND		

6.9 J31 – Power out

SM08B-GHS-TB

Pin	Description	Socket pin	Note
1	VCC_SRC_FET		Input Voltage = 12V (always on)
2	VCC_SRC_FET		Input Voltage = 12V (always on)
3	VCC_SRC		12V 1A max
4	VCC_SRC		12V 1A max
5	VCC_SRC		12V 1A max
6	GND		
7	GND		
8	GND		

6.10 J32 – UART1/I2C3

SM08B-GHS-TB

Pin	Description	Socket pin	Note
1	VDD		3.3V
2	UART1_TX	K53	3.3V
3	UART1_RX	K54	3.3V
4	GPIO_25_Out	D56	3.3V (output only)
5	GPIO_15_In	F10	3.3V (input only)
6	I2C_GP3_CLK	F53	3.3V (2.2k pullup)
7	I2C_GP3_DAT	E53	3.3V (2.2k pullup)
8	GND		

6.11 J35 – Power out

SM04B-GHS-TB

Pin	Description	Socket pin	Note
1	VDD_5V		5V 1A max
2	VDD_5V		5V 1A max
3	GND		
4	GND		

6.12 J36 – I2S2

SM06B-GHS-TB

Pin	Description	Socket pin	Note
1	VDD_1V8		1.8V
2	I2S2_SDIN	F6	1.8V
3	I2S2_SDOUT	F5	1.8V

4	I2S2_FS	E4	1.8V
5	I2S2_CLK	G4	1.8V
6	GND		

6.13 U13 – LM823-1463 bay

Bay for the additional WiFi option. Default 3.3V, can be configured for 5V options.

6.14 U14 – LM823-1463 bay

Bay for the additional WiFi option. Default 3.3V, can be configured for 5V options.

6.15 P6 – Jumper

Do not use. For production purposes only.

6.16 P17 – I2C4

Pin	Description	Socket pin	Note
1	I2C_GP4_CLK	D61	1k pullup to 1.8V
2	I2C_GP4_DAT	E60	1k pullup to 1.8V
3	GND		

6.17 P18 – Alternativ power button and monitoring pin

Pin	Description	Socket pin	Note
1	BUTTON_POWER_ON*	MCU	Low active, secondary power button
2	VIN_PWR_ON	MCU	High active, output for monitoring power up of main power control of carrier board
3	GND		