AI.DEV
USR MANUAL

REVISION HISTORY

DATE	REVISION	CHANGE DESCRIPTION
22/09/2025	1.0.0	Release

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1. CABLE MAP OVERVIEW

This document is an overview about the cable connecting map of the AI.DEV carrier board. It describes the connectors and the interface unit available to user, and it specifies the electrical characteristics of the signals.

TOP LAYER

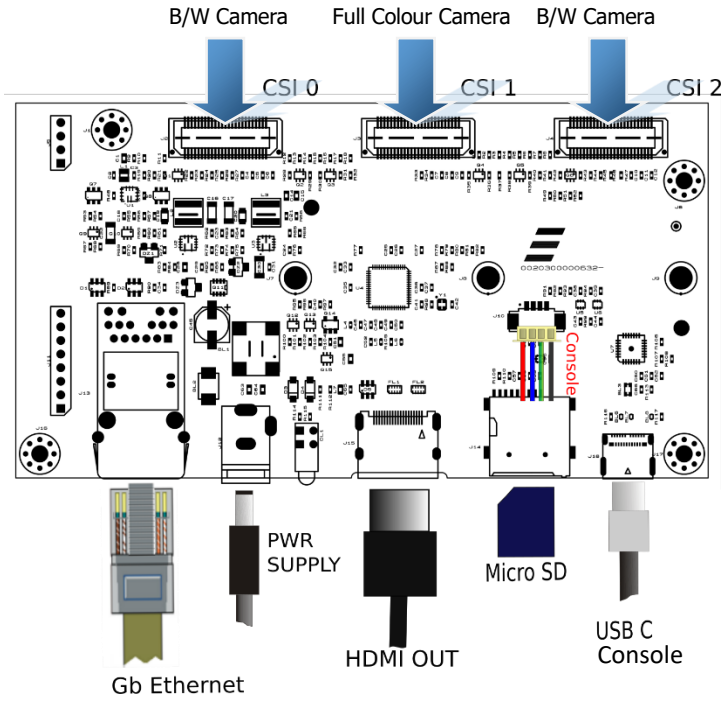


Fig. 1

The figure above shows the top view wiring map and its join connectors.
This document will try to analyse all types of used connections to help the user's start up.

2. ORDERING INFORMATION

Following we provide the ordering information and the description of the Basic technical specifications:

Ordering Code	MPQ	Description	Operating temperature range °C
0026S0055HI770	**1**	TIA RZ/V2H starterkit with camera (**module included:** TIA RZ/V2H 8GB/32GB)	-40 to +85
0026K0055HI770	**1**	TIA RZ/V2H starterkit without camera (**module included:** TIA RZ/V2H 8GB/32GB)	-40 to +85

Tab. 1

3. CARRIER BOARD SPECIFICATIONS

In this chapter is described the information about the carrier board AI.DEV carrier, these specifications include the description of all the available peripherals assembled on the board and the code or the family of any mating connectors for each interface.
Concerning the useful requirements for the design of a complete customized system, is reported the information about the mechanical dimensions of the carrier board, and the fixed points and the size of the holes.

3.1 MECHANICAL INFORMATION

In the following picture is reported the drawing and the size of the carrier board. This can be useful for the customer to integrate and fix the carrier into a custom system.

TOP LAYER

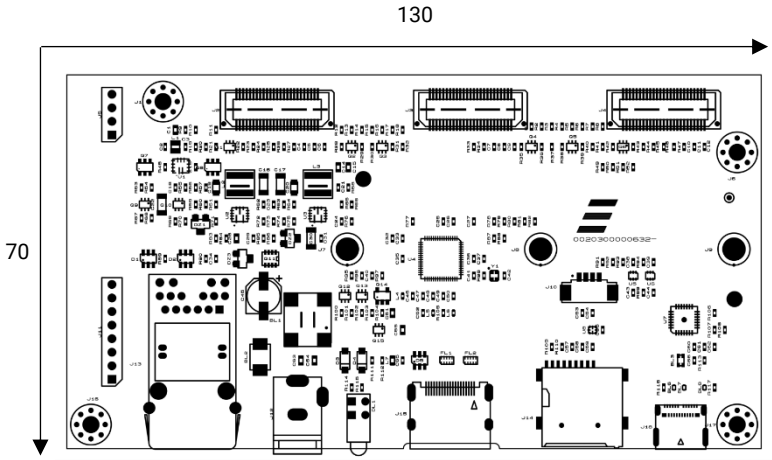


Fig. 2

BOTTOM LAYER

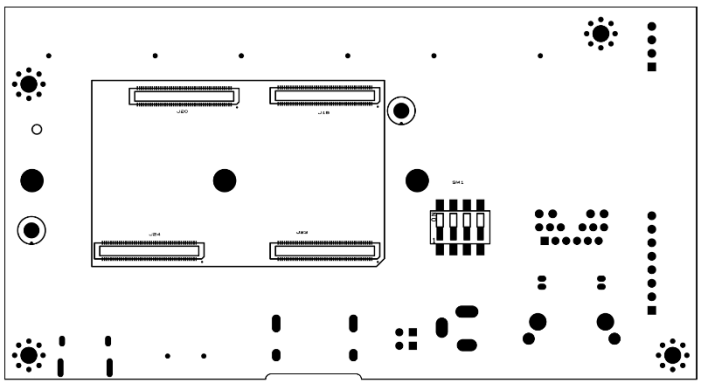


Fig. 3

Note: *all the reported measures are in mm*

3.2 CONSOLE ON USB INTERFACES

The AI.DEV Carrier is equipped with a Host port USB C interface connected to the CPU UART console.

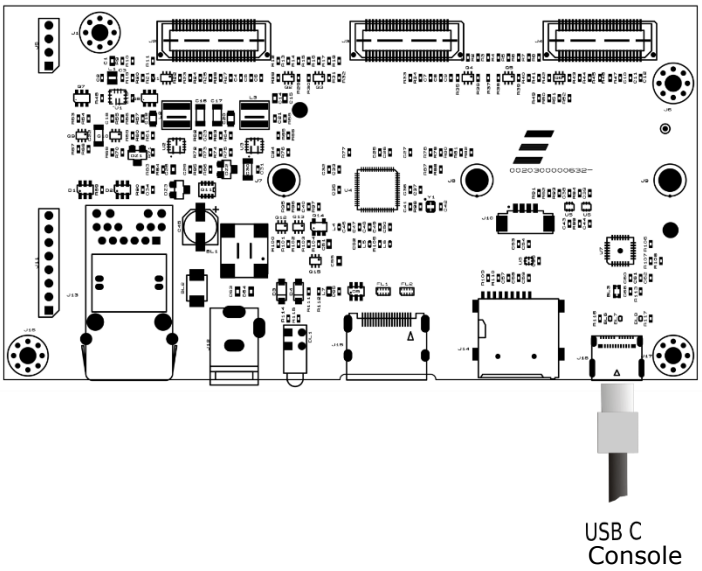


Fig. 4

The J18 connector is mapped as follows

Pin number	Signal Name	Function Description	Voltage reference
A4	VBUS1	Power signal	Standard USB
A9	VBUS2	Power signal	Standard USB
B9	VBUS3	Power signal	Standard USB
B4	VBUS4	Power signal	Standard USB
A6	DP1	Data P	Standard USB
A7	DN1	Data N	Standard USB
B6	DP2	Data P	Standard USB
B7	DN2	Data N	Standard USB
A1	GND	Power signal	Standard USB
A12	GND	Power signal	Standard USB
B12	GND	Power signal	Standard USB
B1	GND	Power signal	Standard USB

Tab. 3

3.3 ETHERNET CONNECTION

The figure represents the Ethernet connection. There is a Gb ethernet connection by J13 connector.

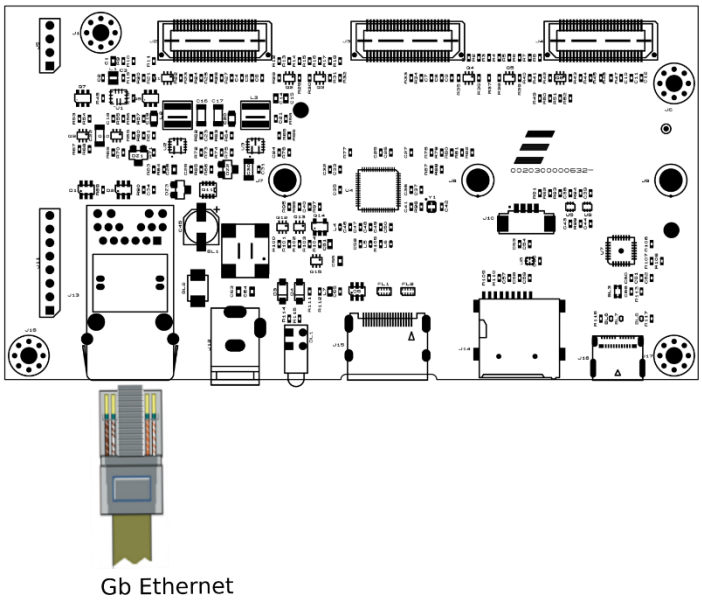


Fig. 5

The following table shows the wiring map for the J13 Gb Ethernet Signal

Pin Number	Signal Name	Function Description	Voltage reference
1	ETH_CTREF	-	-
2	ETH_MDI2_D-	Ethernet signal	Standard Ethernet
3	ETH_MDI2_D+	Ethernet signal	Standard Ethernet
4	ETH_MDI1_D+	Ethernet signal	Standard Ethernet
5	ETH_MDI1_D-	Ethernet signal	Standard Ethernet
6	ETH_CTREF	-	-
7	ETH_CTREF		
8	ETH_MDI3_D+	Ethernet signal	Standard Ethernet
9	ETH_MDI3_D-	Ethernet signal	Standard Ethernet
10	ETH_MDI0_D-	Ethernet signal	Standard Ethernet
11	ETH_MDI0_D+	Ethernet signal	Standard Ethernet
12	ETH_CTREF	-	-

Tab. 4

Note: Power on Ethernet available on demand

3.4 POWER SUPPLY CONNECTIONS CARRIER

The figure shows the power supply connection. The AI.DEV Carrier receives an input DC voltage, which ranges from +15V to +30V (typically 24V).

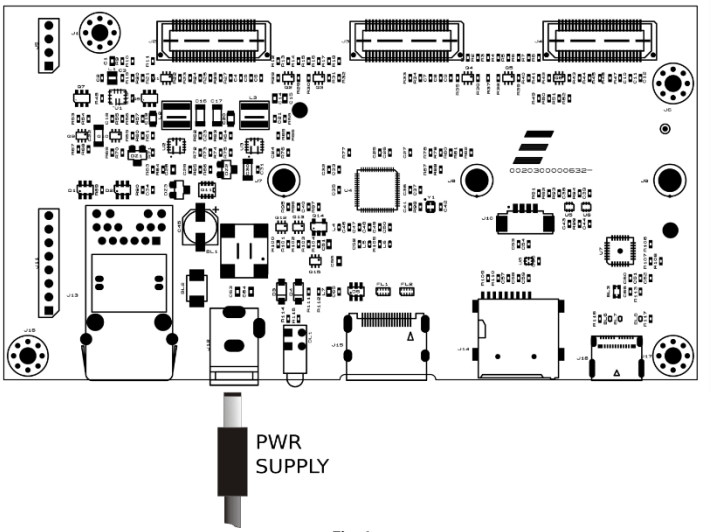


Fig. 6

The power supply interface is a MORS M cs 2 Poli p.5.08mm 90° screw-lock.

Pin number	Signal Name	Function Description	Min Voltage	Typical Voltage	Max Voltage
1	Vin	Power Signal	15 VDC	24 VDC	30 VDC
2	GND	Power Signal			-
3	GND	Power Signal			

Tab. 5

Note: Power on Ethernet available on demand

3.5 CSI INTERFACES

The following figure shows the CSI interface connection, which is mated with a bushing connector type QSS-025-01-F-D-A.

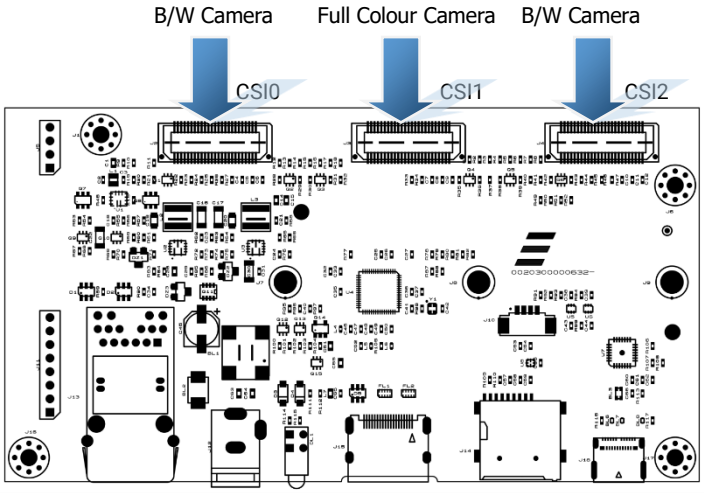


Fig. 7

CSI0 Interface is mapped as follows, ref Connector J2

Pin number	Signal Name	Voltage reference
1	GND	-
2	GND	-
3	I2C_CAM0_SCL	+1,8V
4	GND	-
5	I2C_CAM0_SDA	+1,8V
6	NC	-
7	GND	-
8	GND	-
9	CSI0_DATA3_P	+1,8V
10	GND	-
11	CSI0_DATA3_N	+1,8V
12	NC	-
13	GND	-
14	GND	-
15	CSI0_DATA2_P	+1,8V
16	GND	-
17	CSI0_DATA2_N	+1,8V
18	NC	-
19	GND	-
20	NC	-
21	CSI0_DATA1_P	+1,8V
22	NC	-
23	CSI0_DATA1_N	+1,8V
24	USB2_0_DP	+1,8V

Pin number	Signal Name	Voltage reference
25	GND	-
26	USB2_0_DM	+1,8V
27	CSI0_DATA0_P	+1,8V
28	NC	-
29	CSI0_DATA0_N	+1,8V
30	NC	-
31	GND	-
32	NC	-
33	CSI0_CLK_P	+1,8V
34	NC	-
35	CSI0_CLK_N	+1,8V
36	NC	-
37	GND	-
38	NC	-
39	NC	-
40	NC	-
41	NC	-
42	NC	-
43	NC	-
44	NC	-
45	NC	-
46	NC	-
47	NC	-
48	NC	-
49	CAM0_TRIGGER/PWR	-
50	CAM0_RST_N	-
51	GND	-
52	GND	-
53	GND	-
54	GND	-

Tab. 6

CSI1 Interface is mapped as follows, ref Connector J3

Pin number	Signal Name	Voltage reference
1	GND	-
2	GND	-
3	I2C_CAM1_SCL	+1,8V
4	GND	-
5	I2C_CAM1_SDA	+1,8V
6	NC	-
7	GND	-
8	GND	-
9	CSI1_DATA3_P	+1,8V
10	GND	-
11	CSI1_DATA3_N	+1,8V

Pin number	Signal Name	Voltage reference
12	NC	-
13	GND	-
14	GND	-
15	CSI1_DATA2_P	+1,8V
16	GND	-
17	CSI1_DATA2_N	+1,8V
18	NC	-
19	GND	-
20	NC	-
21	CSI1_DATA1_P	+1,8V
22	NC	-
23	CSI1_DATA1_N	+1,8V
24	USB2_1_DP	+1,8V
25	GND	-
26	USB2_1_DM	+1,8V
27	CSI1_DATA0_P	+1,8V
28	NC	-
29	CSI1_DATA0_N	+1,8V
30	NC	-
31	GND	-
32	NC	-
33	CSI1_CLK_P	+1,8V
34	NC	-
35	CSI1_CLK_N	+1,8V
36	NC	-
37	GND	-
38	NC	-
39	NC	-
40	NC	-
41	NC	-
42	NC	-
43	NC	-
44	NC	-
45	NC	-
46	NC	-
47	NC	-
48	NC	-
49	CAM1_PWR	-
50	CAM1_RST_N	-
51	GND	-
52	GND	-
53	GND	-
54	GND	-

Tab. 7

CSI2 Interface is mapped as follows, ref Connector J4

Pin number	Signal Name	Voltage reference
1	GND	-
2	GND	-
3	I2C_CAM2_SCL	+1,8V
4	GND	-
5	I2C_CAM2_SDA	+1,8V
6	NC	-
7	GND	-
8	GND	-
9	CSI2_DATA3_P	+1,8V
10	GND	-
11	CSI2_DATA3_N	+1,8V
12	NC	-
13	GND	-
14	GND	-
15	CSI2_DATA2_P	+1,8V
16	GND	-
17	CSI2_DATA2_N	+1,8V
18	NC	-
19	GND	-
20	NC	-
21	CSI2_DATA1_P	+1,8V
22	NC	-
23	CSI2_DATA1_N	+1,8V
24	USB3_0_DP	+1,8V
25	GND	-
26	USB3_0_DM	+1,8V
27	CSI2_DATA0_P	+1,8V
28	NC	-
29	CSI2_DATA0_N	+1,8V
30	NC	-
31	GND	-
32	NC	-
33	CSI2_CLK_P	+1,8V
34	NC	-
35	CSI2_CLK_N	+1,8V
36	NC	-
37	GND	-
38	NC	-
39	NC	-
40	NC	-
41	NC	-
42	NC	-
43	NC	-
44	NC	-
45	NC	-
46	NC	-

Pin number	Signal Name	Voltage reference
47	NC	-
48	NC	-
49	CAM2_PWR	-
50	CAM2_RST_N	-
51	GND	-
52	GND	-
53	GND	-
54	GND	-

Tab. 8

3.6 HDMI INTERFACE

The AI.DEV carrier is equipped with a standard HDMI Header Assembly.

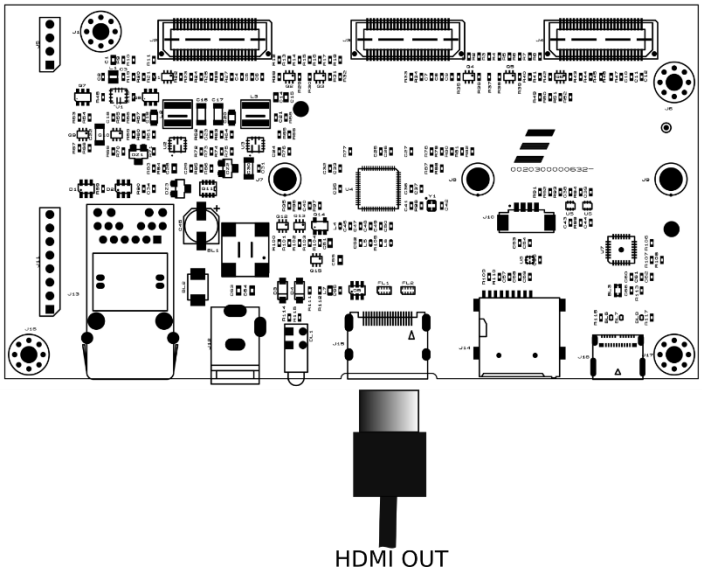


Fig. 8

The reference connector is J38 and has the following PIN Configuration on board:

Pin Number	Name
1	TMDS Data2+
2	TMDS Data2 Shield
3	TMDS Data2–
4	TMDS Data1+
5	TMDS Data1 Shield
6	TMDS Data1–
7	TMDS Data0+
8	TMDS Data0 Shield
9	TMDS Data0–
10	TMDS Clock+
11	TMDS Clock Shield
12	TMDS Clock–
13	CEC
14	Reserved
15	SCL
16	SDA
17	Ground
18	+5V
19	Hot Plug detect / HEC Data+

Tab. 9

3.7 SD CARD

The evaluation Board has a Micro SD switch detected connector. It uses both Micro SD standard type card and Micro SD High-Capacity type card.

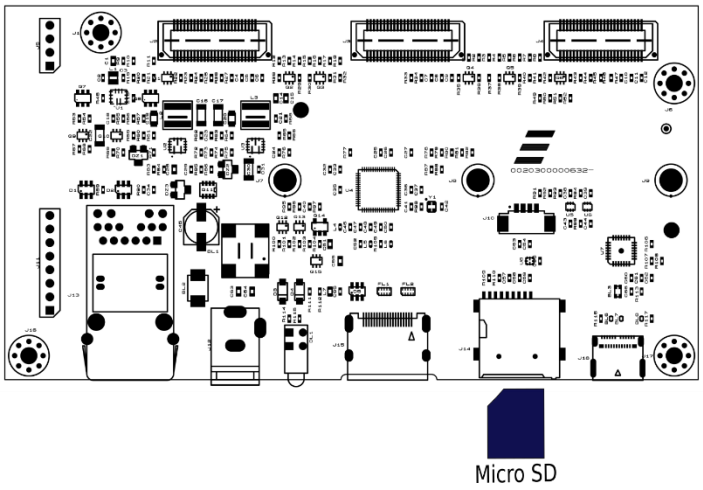


Fig. 9

MicroSD card features are:

- Length: 15 mm
- Depth:11 mm
- Height: 1 mm
- Voltage supply 2,7V - 3,6V
- Slot : TransFlash
- MTBF: 1.000.000 h/e

SD connector interface:

Number	Name	Voltage
P4	+3V3_uSD	+3,3V
P3	SD1_CMD	+3,3V/+1,8V
P5	SD1_CLK	+3,3V/+1,8V
P7	SD1_DAT0	+3,3V/+1,8V
P8	SD1_DAT1	+3,3V/+1,8V
P1	SD1_DAT2	+3,3V/+1,8V
P2	SD1_DAT3	+3,3V/+1,8V
P6	GND	-
C1	SD1_CD#	+3,3V/+1,8V

Tab. 10

4. PRODUCT COMPLIANCE

In order to respect own internal policy regarding the environmental regulations and safety laws, Engicam in this chapter confirms the compliance, when applicable, of its own products to the normative ROHS and REACH and to the recognized hazards.

5. ON-LINE SUPPORT

We offer an on-line support to allow the customer to stay updated on the development of software release and on the enhancement of the documentation.
Following are shown the references for ENGICAM on-line support.

5.1 SUPPORT

ENGICAM Product Experts are available to answer questions via email:

support@engicam.com

5.2 DISCLAIMER

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