



EDIMM STARTER KIT USR manual 1.5 MIPI test 1.0.1

(Available only with i.Core 1.5 MX6 Series)

***** 1.0.1 *****

DATE	REVISION	CHANGE DESCRIPTION
20/12/16	1.0.0	Release
03/05/17	1.0.1	Added "Product Compliance" chapter

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1. Cable Map Overview

This document is an overview about cable connecting map of EVB for i.CoreM6 rev 1.5 system. It describes the connector and the interface unit available to user, and it specifies the electrical characteristic of the signals.

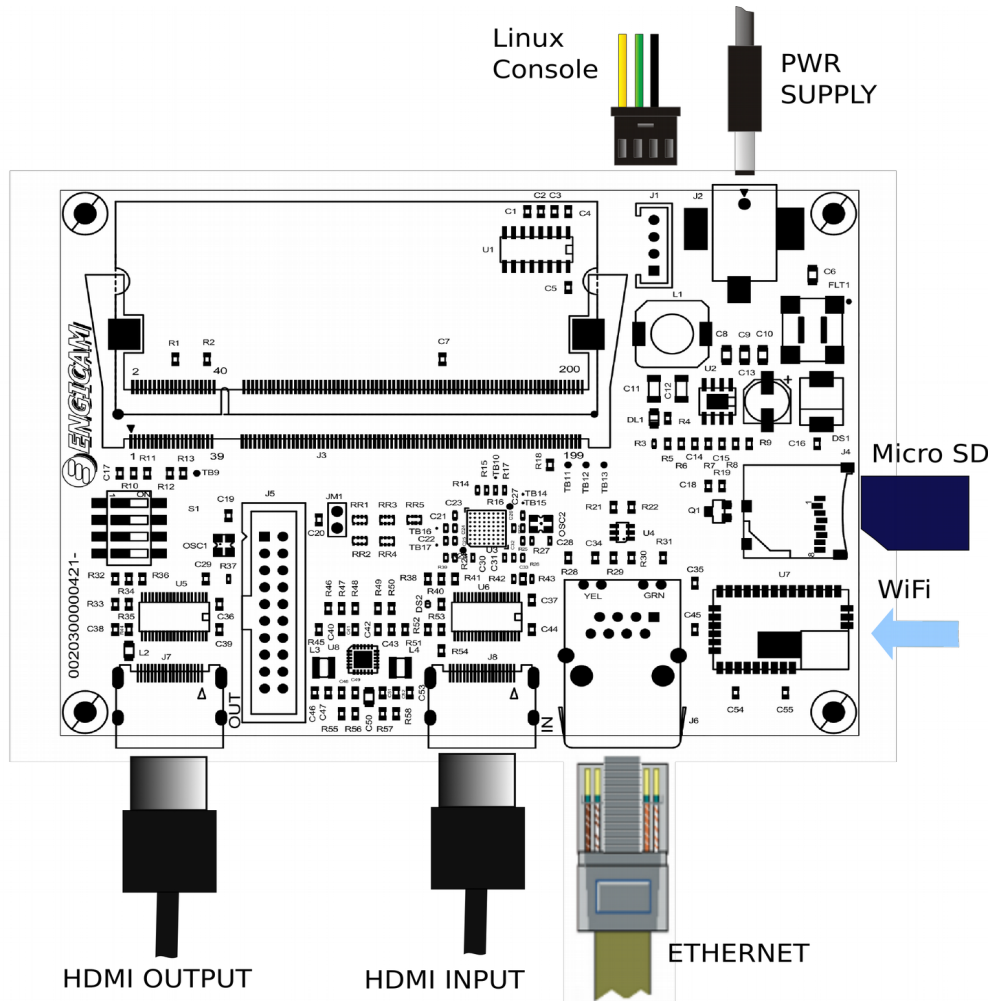


fig1

The figure1 shows the whole wiring map and its join connectors. This document will try to analyse all type of used connections to help the user's start up.

2. Ordering Information

Following we provide the ordering informations and the description for the Basic technical specifications:

Ordering Code	MPQ	Description	Operating temperature range °C
0026S00024E45A	1	i.Core 1.5 MX6 Quad starterkit (OV5640 module and BSP Linux included)	-40 to + 85 *
0026S00023E45A	1	i.Core 1.5 MX6 Dual starterkit (OV5640 module and BSP Linux included)	-40 to + 85 *
0026S00022E45A	1	i.Core 1.5 MX6 DL starterkit (OV5640 module and BSP Linux included)	-40 to + 85 *
0026S00021E45A	1	i.Core 1.5 MX6 Solo starterkit (OV5640 module and BSP Linux included)	-40 to + 85 *

Table 1

* **OV5640 module excluded**

WARNING

All the starterkit are designed only for **i.Core 1.5 MX6 series** modules

Note: optional WiFi module WF111 is available

In the following table the mipi line number available for each module

Module	Available MIPI LINE
i.Core 1.5 MX6 Quad	up to 4 D-PHY Rx Data Lanes
i.Core 1.5 MX6 Dual	up to 4 D-PHY Rx Data Lanes
i.Core 1.5 MX6 DL	2
i.Core 1.5 MX6 Solo	2

Table 2

3. Carrier Board Specifications

In this chapter are described the informations about the EVB carrier board, these specifications include the descriptions of all the available peripheral assembled on the board and the code or the family of any mating connectors for each interface.

3.1 Micro SD Connections

The EVB board has a Micro SD switch detected connector (J4). It uses both SD standard type card and SD High Capacity type card. It's possible to boot the system from SD card closing JM1 jumper

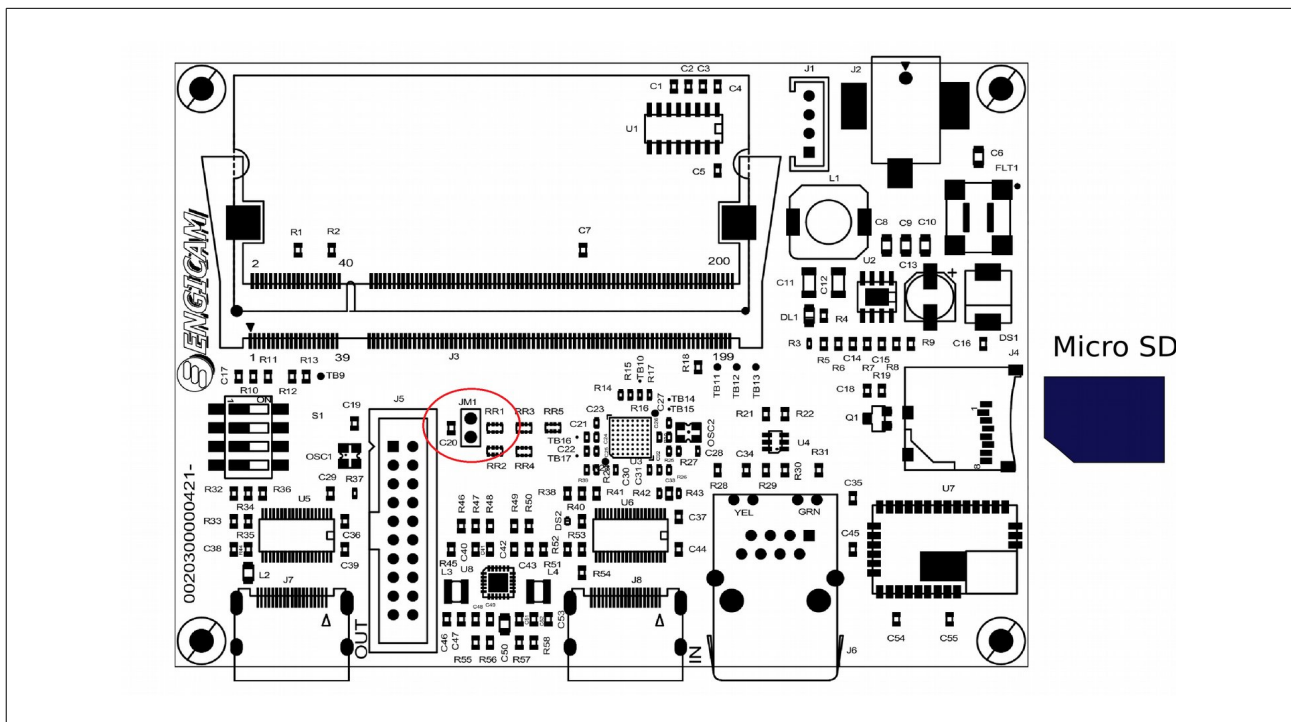


fig3

Micro SD card features are:

- Capacity: variable from 32 MB to 32 GB
- Length: 15 mm
- Depth: 11 mm
- Height: 1 mm
- Voltage supply 2,7 V 3,6 V
- Slot: TransFlash
- MTBF: 1.000.000 h/e

3.2 Ethernet Connections

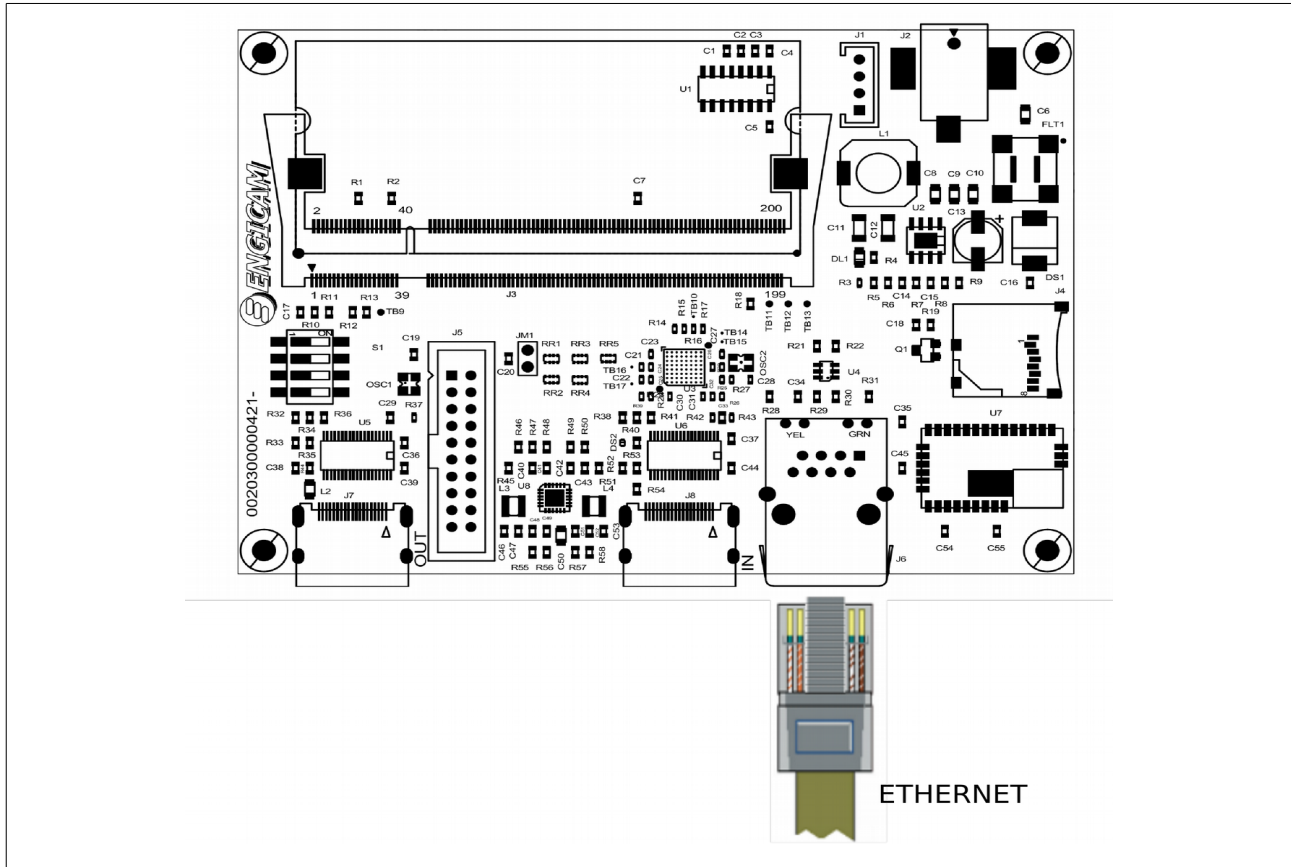


fig7

The figure5 represents the Ethernet 10/100 connection. This connection uses a RJ45 standard plug (8 wires) and the following table shows the wiring map.

Pin number	Signal Name	Function Description	Voltage reference
1	TX-	Transmit positive signal	Standard Ethernet
2	TX+	Transmit negative signal	Standard Ethernet
3	RX+	Receive positive signal	Standard Ethernet
4	NC	-	-
5	NC	-	-
6	RX-	Receive negative signal	Standard Ethernet
7	NC	-	-
8	NC	-	-

Table 3

3.3 Power Supply Connections

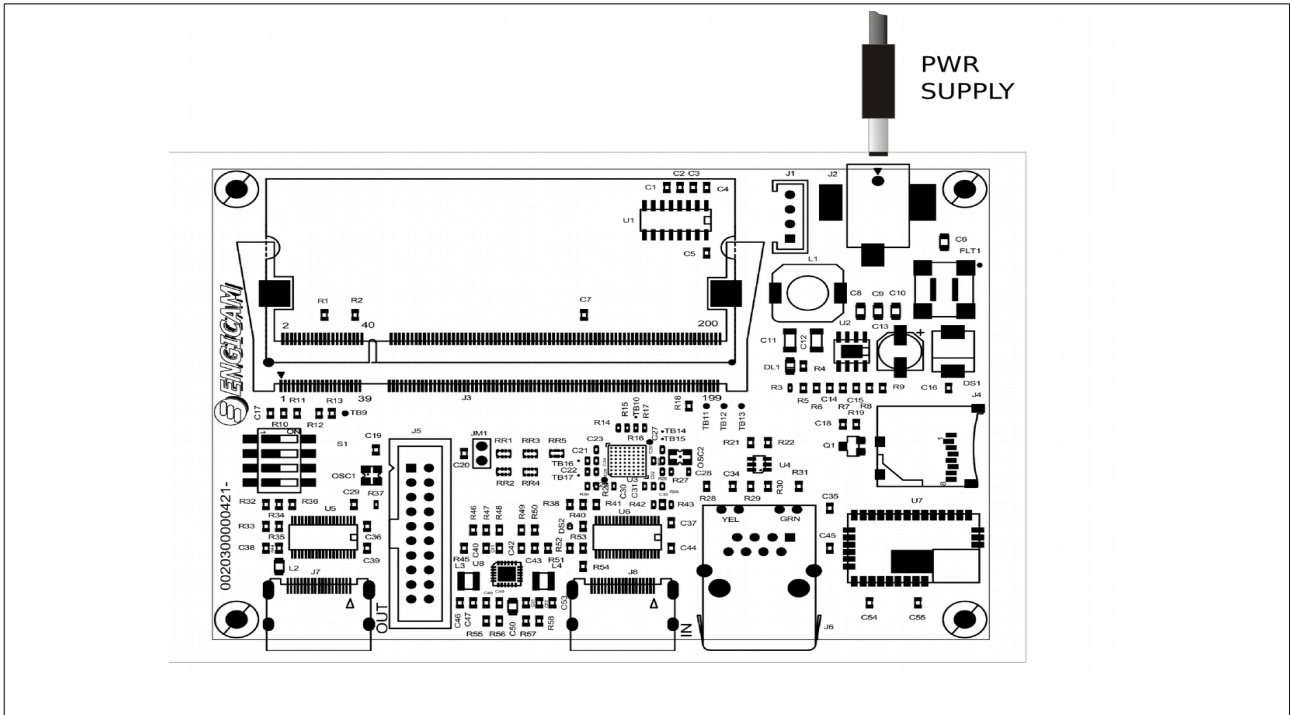


fig8

The figure shows the power supply connection. The Open-Frame receives an input DC voltage, which ranging from +12V to +24V. J2 is a SOCKET PCB DC 2.5MM PK10, linked as follows:

3.3.1 Current consumption

The following table shows the system's current consumption measured at 12 V and at 24 V

On Board	Current @ 12V	Current @ 24V
i.CoreM6Q 1.5	tbd	tbd

Table 4

The measure is done during the standard operating mode

3.4 Linux Console Debug Connections

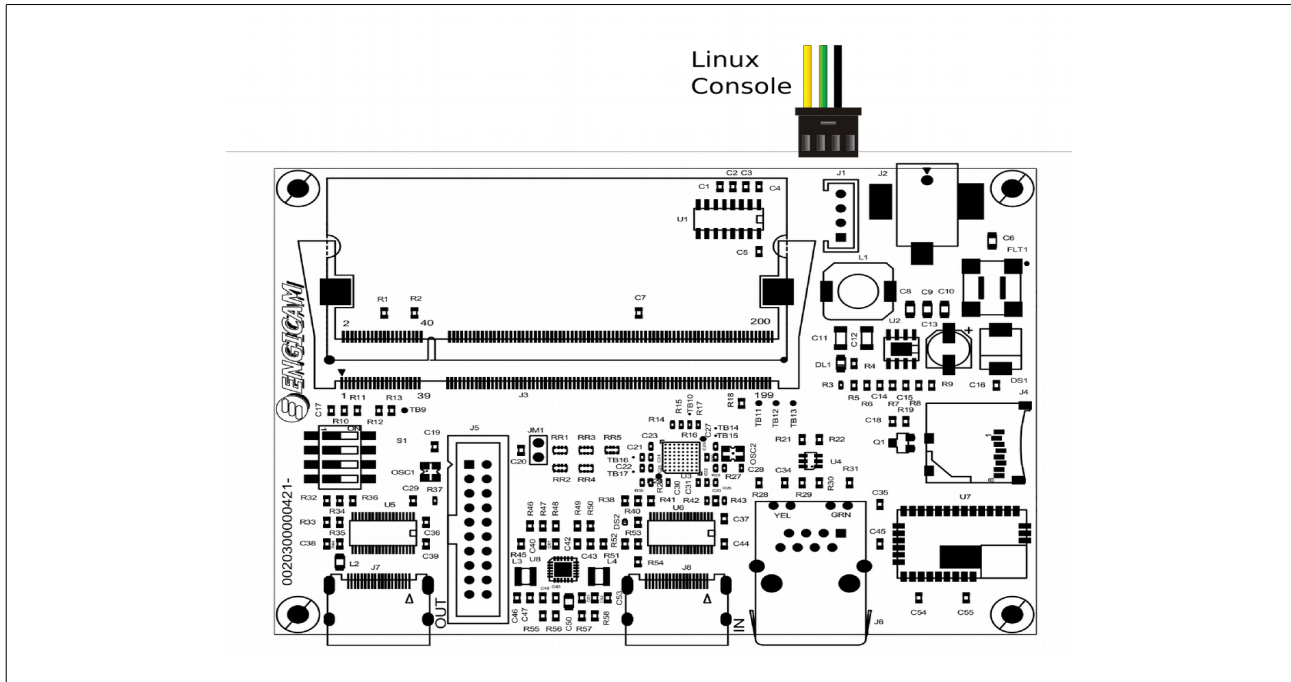


fig9

When Linux OS is installed on the Open-Frame module, UART1 is used as console. The connector used is a connectors Modu II type (4 poles); in the following table is shown the electrical features:

Pin number	Signal Name	Function Description	Voltage reference
1	TX	Transmit Signal	Standard RS232
2	RX	Receive Signal	Standard RS232
3	GND	Power Signal	-
4	NC	-	-

Table 5

The default communications settings is shown in following table

Console Default Settings	
Baud rate	115200
Data length	8 bit
Parity	none
Stop	1bit

Table 6

3.5 HDMI OUTPUT

HDMI is a compact audio/video interface for transferring uncompressed digital audio/video data from a HDMI - compliant device to a compatible digital audio device, computer monitor, video projector, and digital television. For information about the HDMI specifications refer to the HDMI standard.

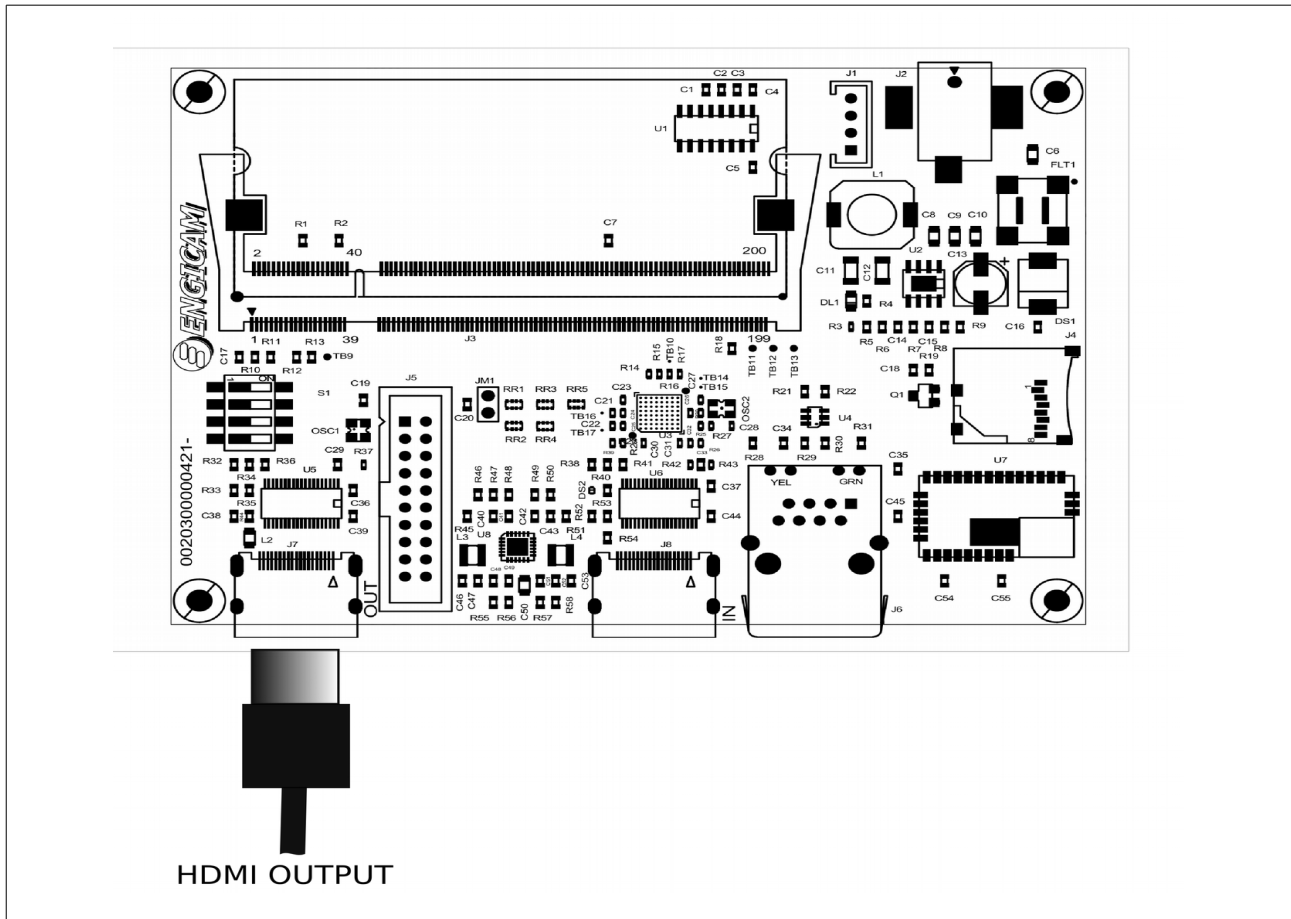


Fig10

The connector is a standard HDMI type 19 poles (J7). In the table is shown the standard pin configuration.

Pin number	Signal Name
PIN 1	TMDS Data2+
PIN 2	TMDS Data2 Shield
PIN 3	TMDS Data2 -
PIN 4	TMDS Data1+
PIN 5	TMDS Data1 Shield
PIN 6	TMDS Data1-
PIN 7	TMDS Data0+
PIN 8	TMDS Data0 Shield
PIN 9	TMDS Data0-

Pin number	Signal Name
PIN 10	TMDS Clock+
PIN 11	TMDS Clock Shield
PIN 12	TMDS Clock-
PIN 13	CEC
PIN 14	Reserved
PIN 15	SCL
PIN 16	SDA
PIN 17	GND
PIN 18	+5V
PIN 19	Hot Plug detect / HEC Data+

Table 7

3.6 HDMI INPUT

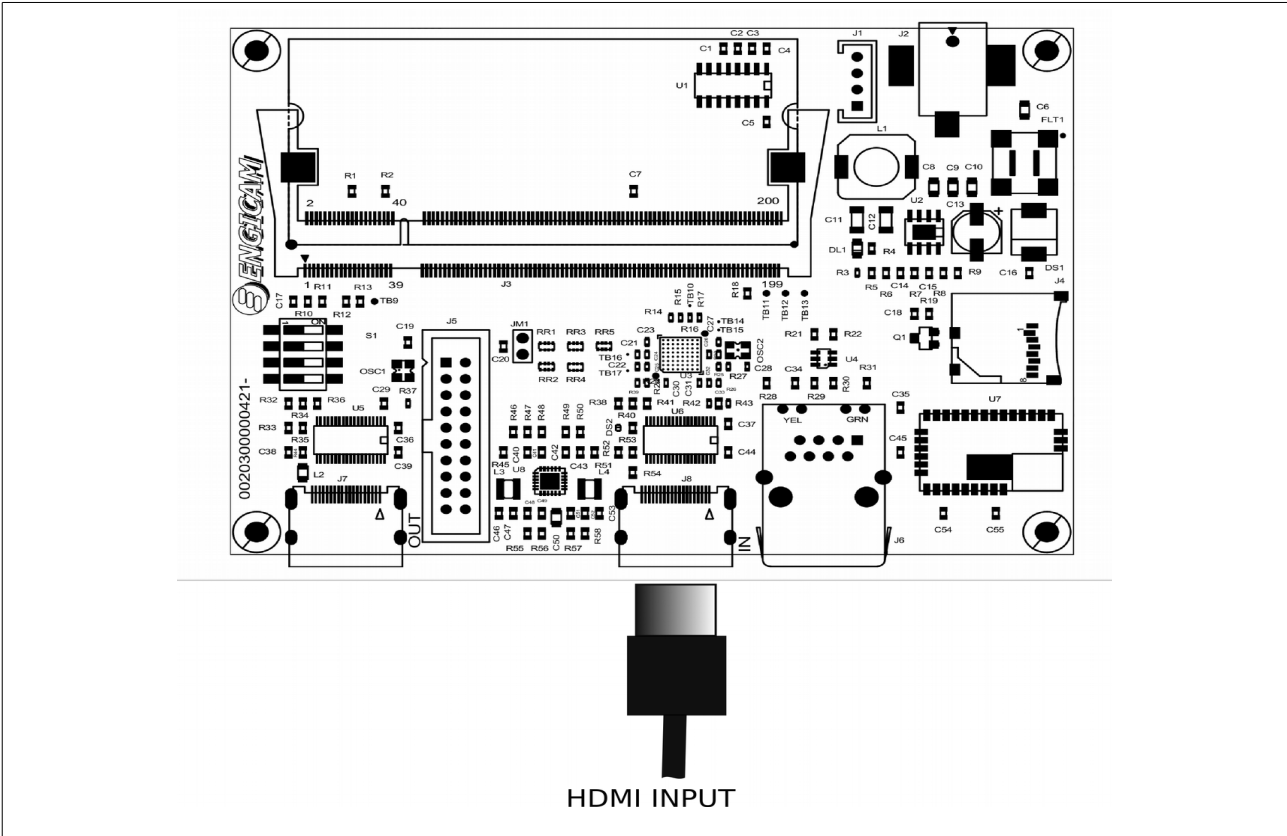


fig12

The standard INPUT is obtained by J8, a HDMI connector type 19 poles. In the table is shown the standard pin configuration.

Pin number	Signal Name
PIN 1	TMDS Data2+
PIN 2	TMDS Data2 Shield
PIN 3	TMDS Data2 -
PIN 4	TMDS Data1+
PIN 5	TMDS Data1 Shield
PIN 6	TMDS Data1-
PIN 7	TMDS Data0+
PIN 8	TMDS Data0 Shield
PIN 9	TMDS Data0-
PIN 10	TMDS Clock+
PIN 11	TMDS Clock Shield
PIN 12	TMDS Clock-
PIN 13	CEC

Pin number	Signal Name
PIN 14	Reserved
PIN 15	SCL
PIN 16	SDA
PIN 17	GND
PIN 18	+5V
PIN 19	Hot Plug detect / HEC Data+

Table 8

Warning

In the rev - The HDMI audio input does not work, this bug will be fixed in the board revision A

It's possible to change the standard HDMI input by using J5 (STRIP 2x10MA 2.54) CMOS interface with ArduCAM board **5MP: OV5640** (<http://www.arducam.com/camera-modules/5mp-ov5640/>) by moving the array resistor RR1 in RR2 position and RR3 in RR4 position.

Pin number	Signal Name	Pin number	Signal Name
1	GND	2	3V3_OUT
3	I2C1_SDA	4	I2C1_SCL
5	NC	6	NC
7	CLK	8	NC
9	CMOS_MIPI_D1N	10	CMOS_MIPI_D1P
11	CMOS_MIPI_CLKN	12	CMOS_MIPI_CLKP
13	CMOS_MIPI_D0N	14	CMOS_MIPI_D0P
15	NC	16	NC
17	GND	18	3V3_OUT
19	CMOS_PWDN	20	CMOS_nRST

Table 9

Odd and even row are inverted to match the ArduCAM board pinout using a standard flat cable.

In the following table the mipi line number available for each module

Module	Available MIPI LINE
i.Core 1.5 MX6 Quad	up to 4 D-PHY Rx Data Lanes
i.Core 1.5 MX6 Dual	up to 4 D-PHY Rx Data Lanes
i.Core 1.5 MX6 DL	2
i.Core 1.5 MX6 Solo	2

Table

4. Product Compliance

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

Warning!

The current product board mounts a VL-1220/HFN Rechargeable Battery, that has the following elements included into the SVHC list:

- ***1,2-dimethoxyethane, ethylene glycol dimethyl ether (EGDME)***

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 is 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

Information in this document is provided solely to enable system and software implementers to use Engicam products. Engicam does not guarantee that the information in this manual is up-to-date, correct, complete or of good quality. Nor does Engicam assume guarantee for further usage of the information.

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