



MDSER-FPD-2CH 1.00

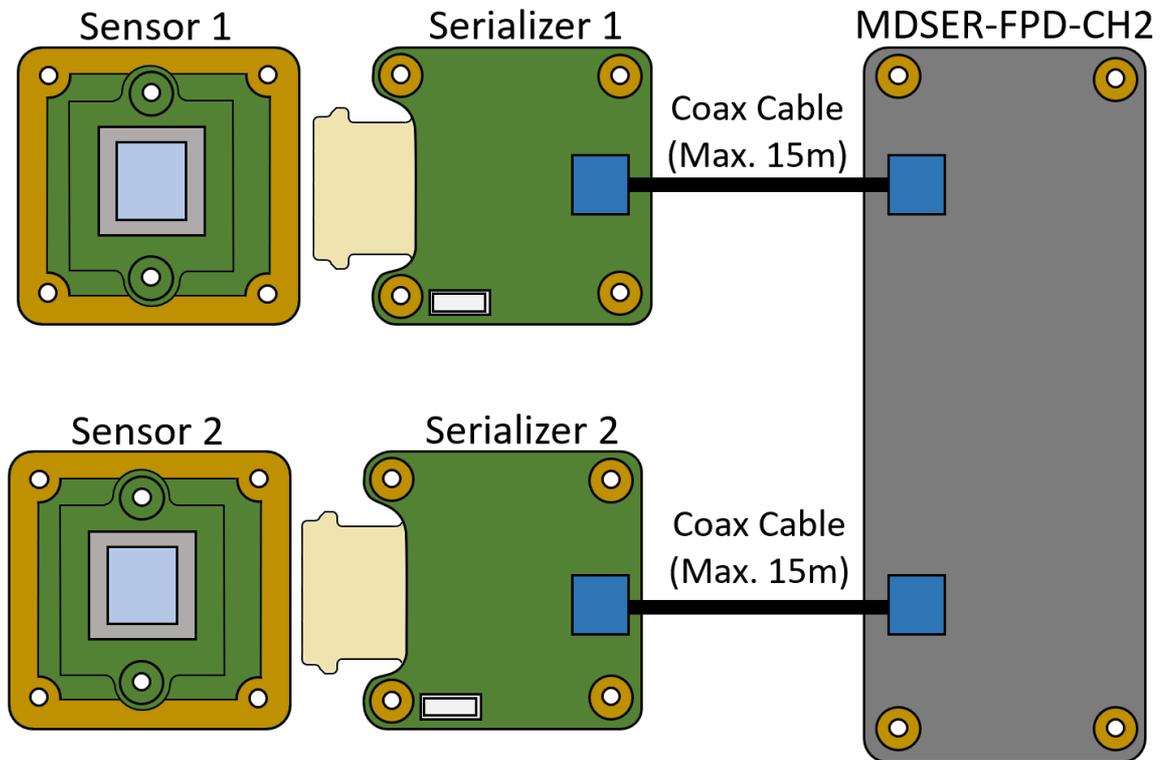


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1 Introduction

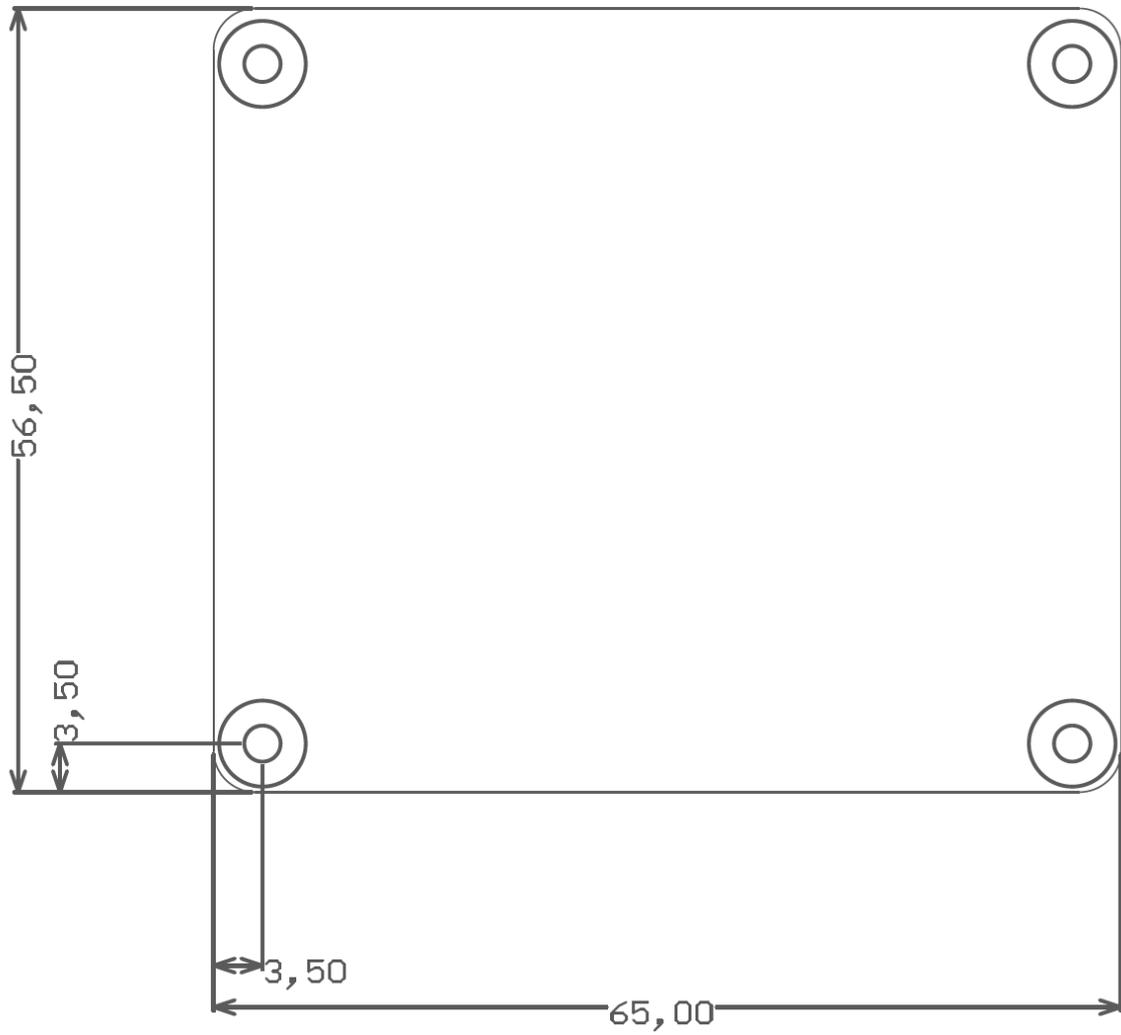
MDSER-FPD-2CH is a deserializer board from the MDSER product family which is based on the Texas Instruments FPD-Link III deserializer chip, DS90UB954-Q1. This board is intended for use with the NVIDIA® Jetson Nano™ B02 (dual-camera interface) or the Jetson® Xavier NX™ and two FPD-Link III MIPI CSI-2 cameras. Hardware trigger and strobe can also be connected/probed on the deserializer board. The typical setup is shown below:





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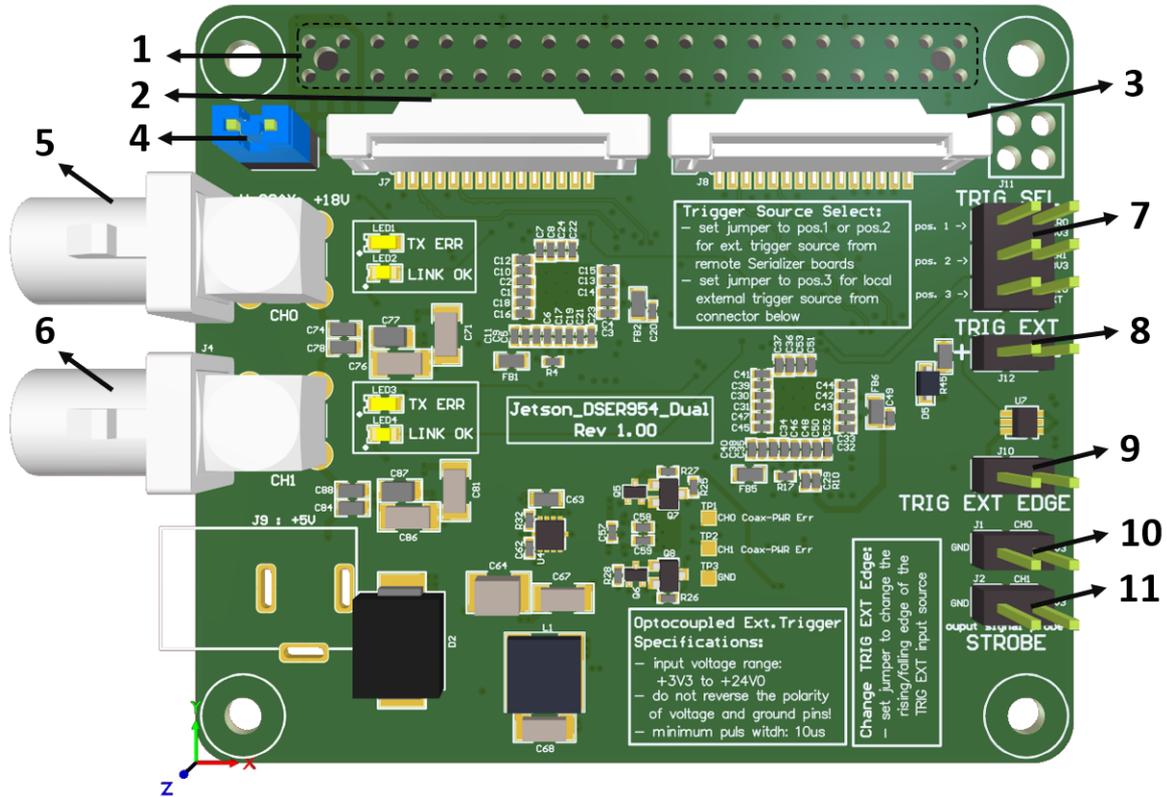
The dimensions of the MDSER-FPD-2CH board are shown below:





2.1 Connector Description

The following diagram shows the position and function of the connectors on the MDSER-FPD-2CH board:



No.	Name	Description
1	J6	Header for 40-pin connector from embedded system
2	J7	Vertical FFC connector for embedded system sensor interface CH0 (1-Sided Contacts)
3	J8	Vertical FFC connector for embedded system sensor interface CH1 (1-Sided Contacts)
4	J5	Jumper for power supply sourcing from embedded system
5	J3	FAKRA connector male code Z 50 Ohm for FPD-Link III CH0
6	J4	FAKRA connector male code Z 50 Ohm for FPD-Link III CH1
7	J11	Jumper for trigger source selection
8	J12	Connector for external trigger input
9	J10	Jumper to invert the level of external trigger signal
10	J1	Connector to probe strobe signal from CMOS sensor CH0
11	J2	Connector to probe strobe signal from CMOS sensor CH1



The trigger input J12 is opto-decoupled. To drive the trigger input, voltage must be applied to pins 1 and 2. Note: pin 1 is the positive input; pin 2 is the negative input.

The recommended operating conditions of the trigger input connector J12 are displayed in the following table. CAUTION: Functional operation beyond the recommended operating conditions is not assumed.

Parameter	Min	Max
Trigger input voltage	3.3V ± 5%	24V ± 5%

The functions of the jumper settings are displayed in the following table.

Name	Functions
J11	Trigger source selection Pos. 1: GPIO6 from deserializer CH0 Pos. 2: GPIO6 from deserializer CH1 Pos. 3: External trigger source (J12) from deserializer board
J10	External trigger source level polarity Set: External trigger input source level is inverted

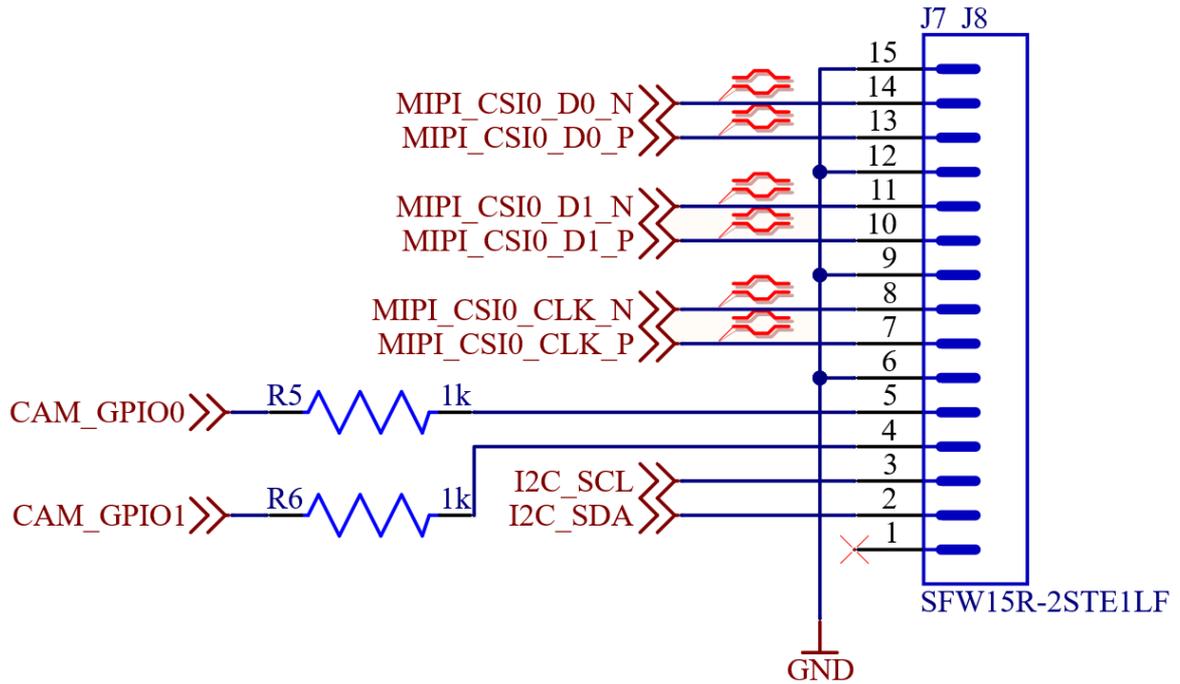
GPIO6 is connected to the remote hardware trigger signal from serializer board by default. For master/slave applications, it can be reprogrammed to connect to the sensor's strobe output instead.

Please note: this board provides a phantom power supply of +18V at the FAKRA connector J3 and J4. If this board is not used in combination with a product from The Imaging Source, please ensure that the 3rd party serializer board can withstand this high voltage.



2.2 FPC Connectors J7 and J8 on the MSER-FPD-2CH Board

The sensor interface connectors J7 and J8 have the following pinout:



The CAM_GPIOs and I2C-bus signals have the I/O voltage of 3.3V.



2.3 I/O Signals on DS90UB954-Q1

The MDSER-PFD-2CH board has two DS90UB954-Q1 deserializer chips (Texas Instruments). The 7-bit I2C-addresses of CH0 and CH1 sensor interface are 0x30 and 0x34. The connected I/O signals and their positions are identical on both chips:

Pin	Name	Dir	Description
28 (GPIO0)	CAMx_GPIO0	I/O	Unused GPIO0 signal from sensor interface J7 / J8
27 (GPIO1)	CAMx_GPIO1	I/O	Unused GPIO1 signal from sensor interface J7 / J8
26 (GPIO2)	PWR_ONx	O	Coax power for FPD-Link III enable, active high for CH0 and CH1
25 (GPIO3)	SW_TRIG_PWM	I	Software trigger from embedded system (J2 Pin 31) shared for both sensor boards
10 (GPIO4)	HW_TRIGGER	I	Hardware trigger signal selected with Jumper J11
9 (GPIO5)	STROBEx_3V3	O	CMOS sensor strobe signal from sensor board CH0 / CH1
8 (GPIO6)	TRIG_SERx_3V3	O	Remote hardware trigger signal from serializer board CH0 / CH1

x = Sensor interface CH0 or CH1



2.4 On-board LEDs

There are two status-LEDs on the MDSER board:

Name	Color	Description
LED1	Red	FPD-Link III transmission errors
LED2	Green	FPD-Link III connection has been established



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All weights and dimensions are approximate. Unless otherwise specified, the lenses shown in the context of cameras are not shipped with these cameras.

Headquarters:

*The Imaging Source Europe GmbH
Überseetor 18, D-28217 Bremen, Germany
Phone: +49 421 33591-0*

North & South America:

*The Imaging Source, LLC
6926 Shannon Willow Rd, S 400, Charlotte, NC 28226, USA
Phone: +1 704-370-0110*

Asia Pacific:

*The Imaging Source Asia Co., Ltd.
2F., No.8, Xinhua 1st Road
Taipei City 114, Neihu District, Taiwan
Phone: +886 2-2792-3153*

www.theimagingsource.com