Technical Details

MDSER-FPD-1CH 3.10

THE IMAGINGSOURCE
TECHNOLOGY BASED ON STANDARDS

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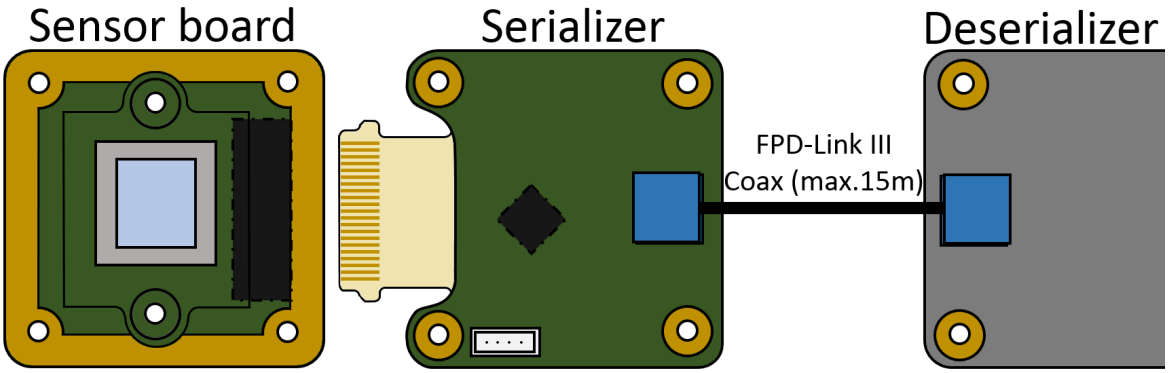
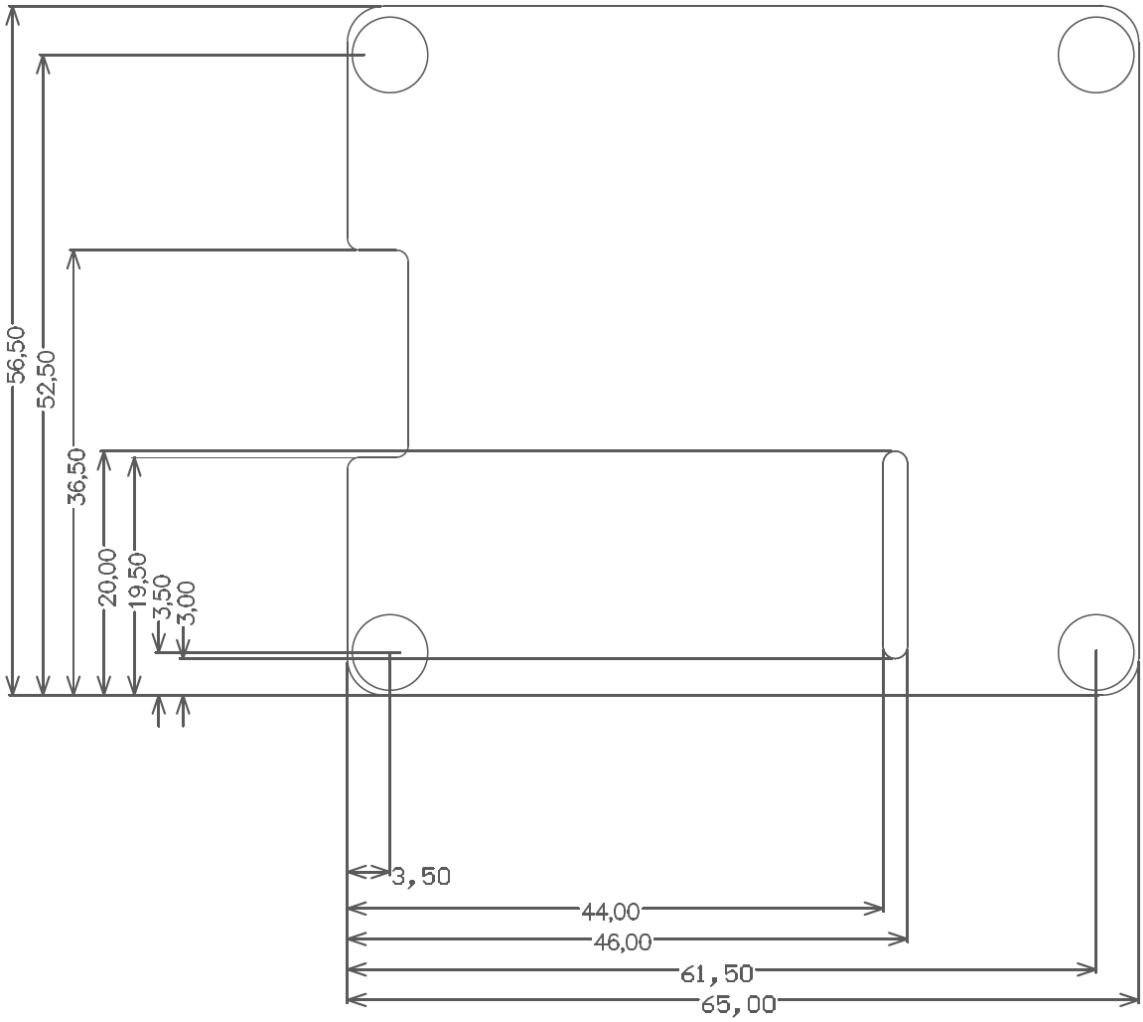
1 Introduction

MDSER-FPD-1CH 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 Raspberry Pi platforms (from Rev. 3) or with the NVIDIA® Jetson Nano™ A02 (single-camera interface) and a single FPD-Link III MIPI CSI-2 camera. Hardware trigger and strobe can also be connected/probed via the deserializer board. The typical setup is shown below:



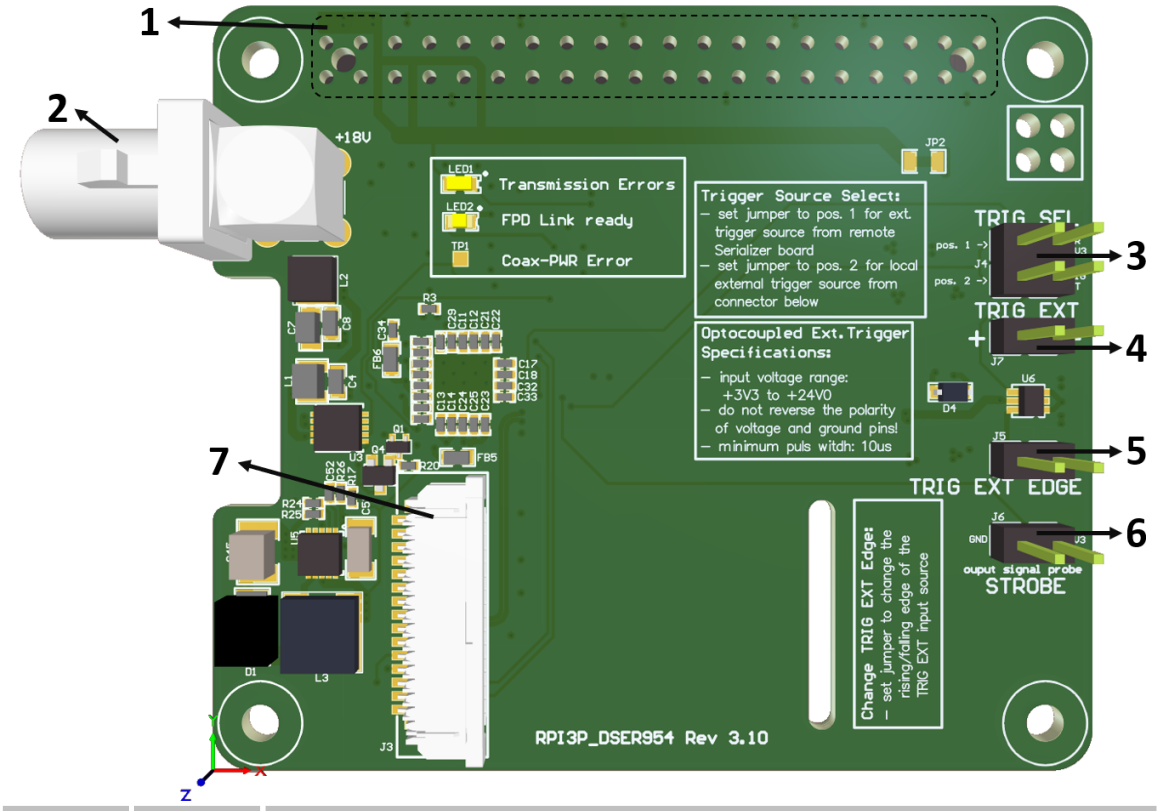
2 MDSER-FPD-1CH Rev 3.10

The dimensions of the MDSER-FPD-1CH board are shown below:



2.1 Connector Description

The following diagram shows the position and function of the connectors on the MDSER-FPD-1CH board:



No.	Name	Description
1	J2	Header for 40-pin connector from embedded system
2	J1	FAKRA connector male code Z 50 Ohm for FPD-Link III
3	J4	Jumper for trigger source selection
4	J7	Connector for external trigger input
5	J5	Jumper to invert the level of external trigger signal
6	J6	Connector to probe strobe signal from CMOS sensor
7	J3	Connector for embedded system sensor interface (contacts on top)

The trigger input J7 is opto-decoupled. To drive the trigger input, a 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 J7 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.

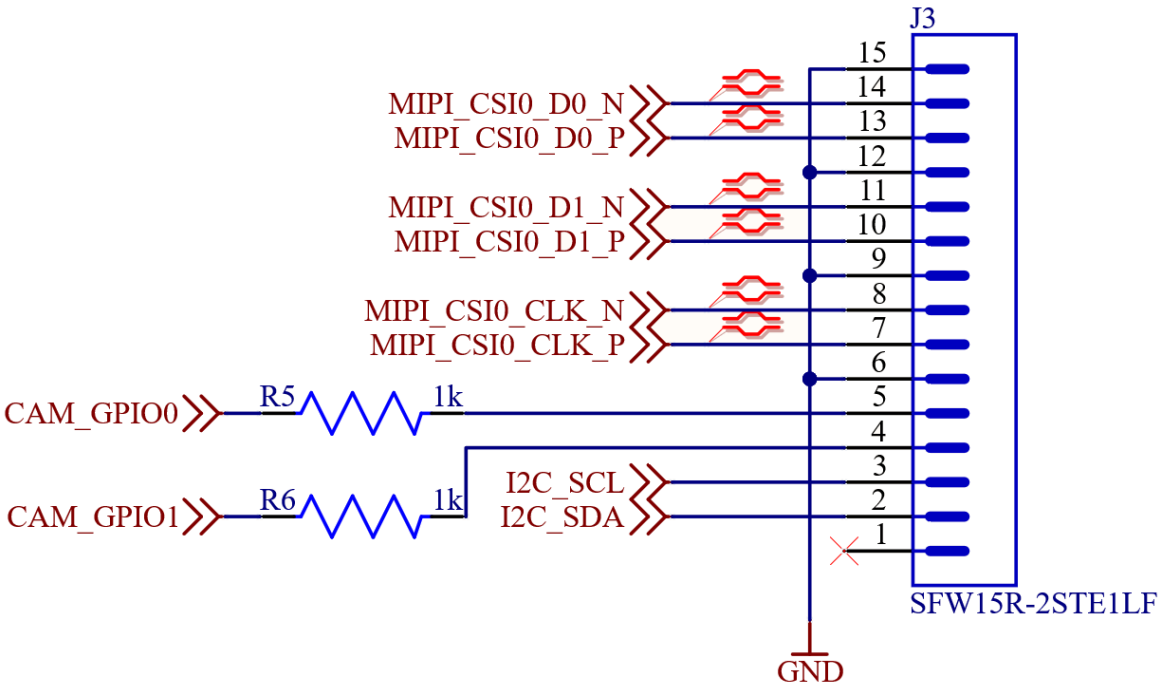
Name	Functions
J4	Trigger source selection Pos.1: GPIO6 from deserializer Pos.2: External trigger source (J7) from deserialzer board
J5	External trigger source level polarity Set: External trigger input source level is inverted

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 J1. 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 Connector J3 on the MSER-FPD-1CH Board

The sensor interface connector J3 has 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 connected I/O signals on the deserializer chip DS90UB954-Q1 (Texas Instruments) are listed in the following table:

Pin	Name	Dir	Description
28(GPIO0)	CAM_GPIO0	I/O	Unused GPIO0 signal from sensor interface J3
27(GPIO1)	CAM_GPIO1	I/O	Unused GPIO1 signal from sensor interface J3
26(GPIO2)	PWR_ON	O	Coax power for FPD-Link enable, active high
25(GPIO3)	SW_TRIG_PWM	I	Software trigger from embedded system (J2 Pin 31)
10(GPIO4)	HW_TRIGGER	I	Hardware trigger signal selected between remote serializer or external deserializer trigger
9(GPIO5)	STROBE_3V3	O	CMOS sensor strobe signal from sensor board
8(GPIO6)	TRIG_SER_3V3	O	Remote hardware trigger signal from serializer board

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, Xinhu 1st Road
Taipei City 114, Neihu District, Taiwan
Phone: +886 2-2792-3153

www.theimagingsource.com