

Galatea IP4776CZ38 HDMI Expansion Module User Guide

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Mailing Address

Numato Systems Pvt Ltd
1st Floor, #56C Wipro Avenue
Phase 1 - Electronic City
Bangalore, KA-560100, India

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Introduction

Galatea IP4776CZ38 HDMI Module features two buffered DVI-D interface with HDMI buffer IP4776CZ38 for better signal strength and signal integrity. The on board DVI-D interface can be used to transmit high quality HD video. This module is designed to be used with Numato Lab's Galatea FPGA board.

Applications

- Product prototyping
- Gaming consoles
- Audio/Video playback devices

Board features

- DVI-D/HDMI Connector
- IP4776CZ38 HDMI Buffer
- Dimension: 57.075mm X 83.80mm

How to use the module

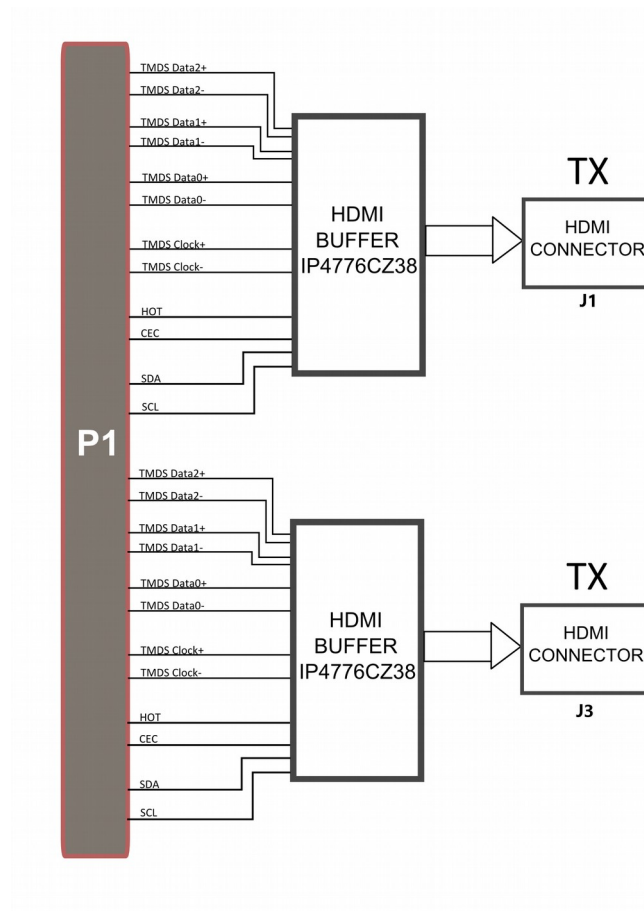
The following section describes how to use this module.

Components/Tools required

Along with the module, you may need the items in the list below for easy and fast installation.

1. Numato lab's Galatea FPGA board.

Connection Diagram



This diagram should be used as a reference only. For detailed information, see the schematics at the end of this document. Details of individual connectors are as below.

Connection Details

Header P1

SL No.	Pin Details	Header Pin No.	Trace Length (mm)
HDMI TX (J1)			
1	TMDS-TX-CLK_P	28	69.636
2	TMDS-TX-CLK_N	29	69.578
3	TMDS-TX-0_P	37	69.576
4	TMDS-TX-0_N	38	69.588
5	TMDS-TX-1_P	34	69.599
6	TMDS-TX-1_N	35	69.583
7	TMDS-TX-2_P	31	69.594
8	TMDS-TX-2_N	32	69.627
9	TMDS-TX-HOT	40	-
10	TMDS-TX-SDA	41	-
11	TMDS-TX-SCL	43	-
12	TMDS-TX-CEC	44	-
HDMI TX (J3)			
13	TMDS-RX-CLK_P	83	72.255
14	TMDS-RX-CLK_N	84	72.294
15	TMDS-RX-0_P	86	72.288
16	TMDS-RX-0_N	87	72.286
17	TMDS-RX-1_P	89	72.307
18	TMDS-RX-1_N	90	72.322
19	TMDS-RX-2_P	92	72.226
20	TMDS-RX-2_N	93	72.304
21	TMDS-RX-HOT	101	-
22	TMDS-RX-SDA	102	-
23	TMDS-RX-SCL	104	-
24	TMDS-RX-CEC	105	-

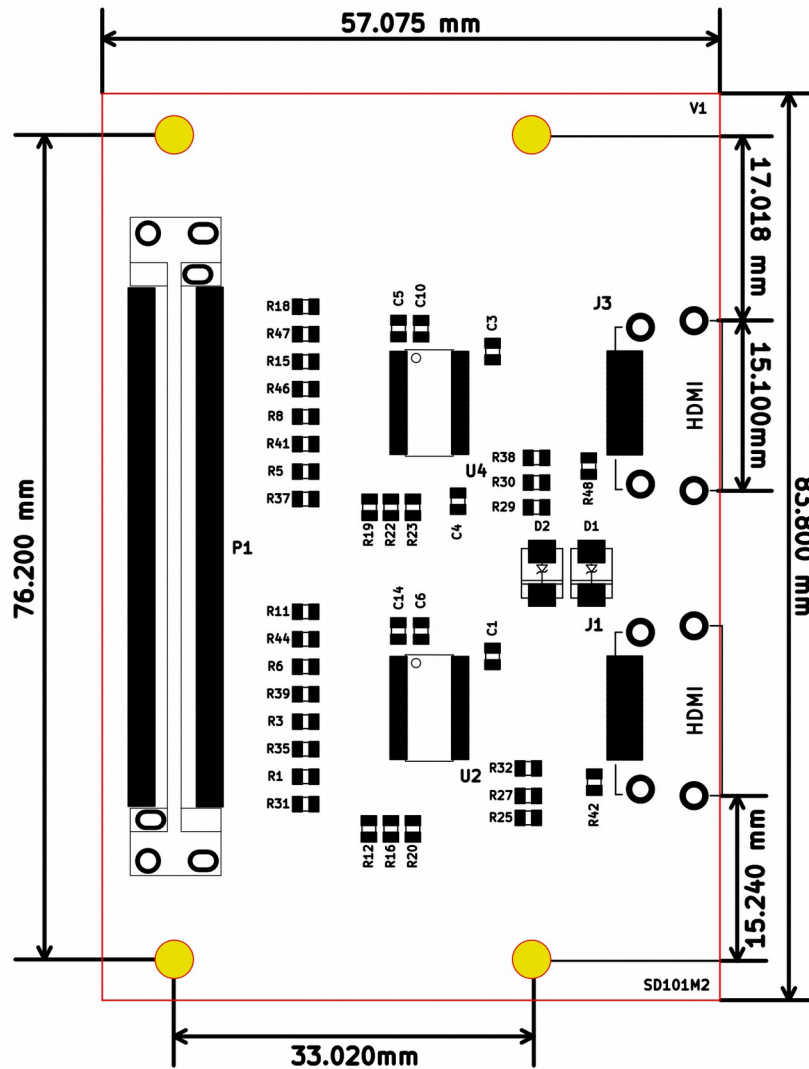
For more information, refer the schematics at the end of this document.

Technical Specifications

Parameter *	Value	Unit
Basic Specifications		
Supply Voltage	3.3	V
Current drawn by the circuit	100	mA
HDMI Buffer (IP4776CZ38)		
supply current (5.0 V)	130	μA
supply current (3.3 V)	5	μA
EEPROM (24LC01B)		
Supply Voltage	2.5-5.5	V
Max Clock Frequency	400	KHz

* All parameters considered nominal. Numato Systems Pvt Ltd reserve the right to modify products without notice.

Physical Dimensions

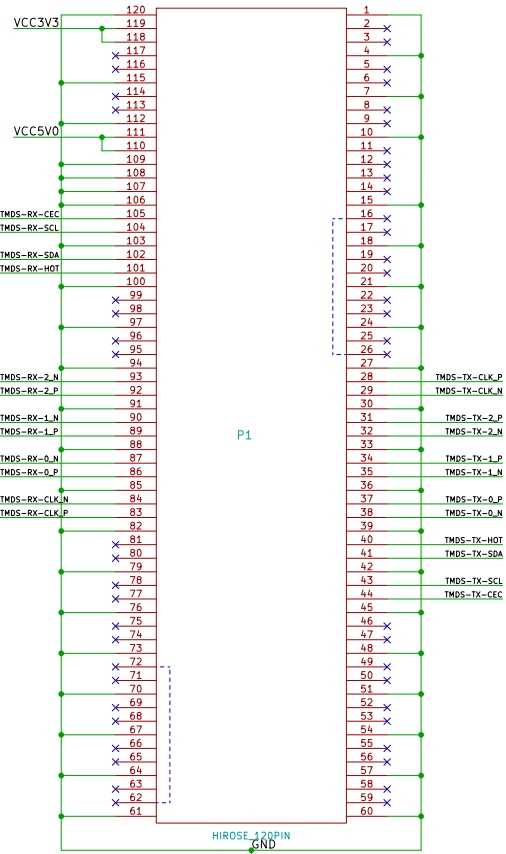


L x W x H : 83.800 mm x 57.075 mm x 11 mm

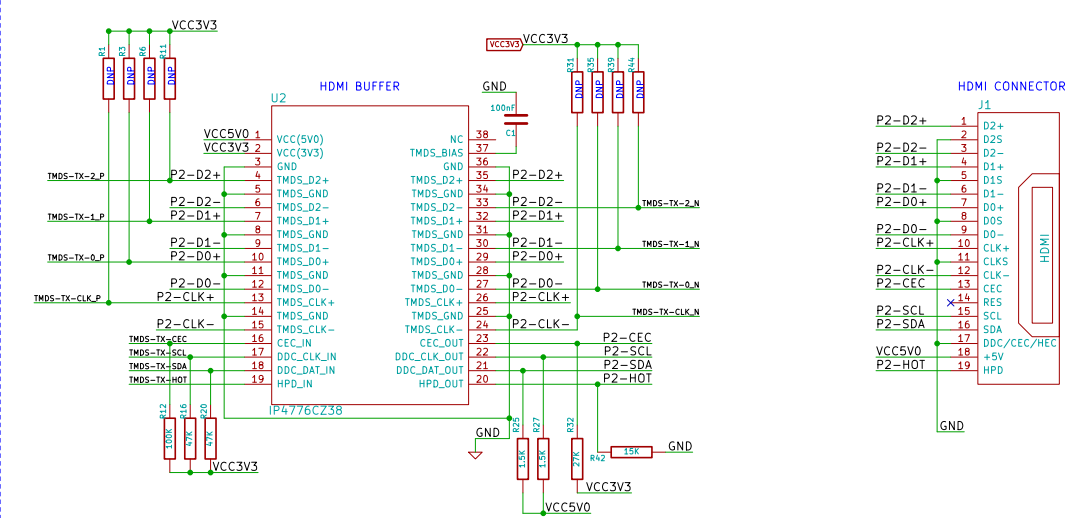
Mechanical Hole Diameter- 3.25 mm

Schematics

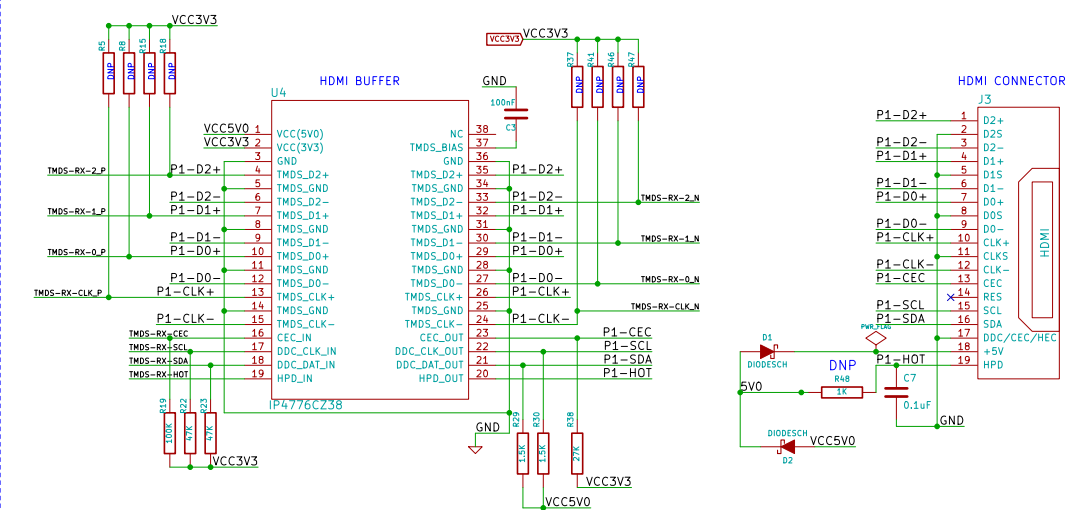
See next page.



HDMI Transmitter



HDMI Transmitter



DNP

