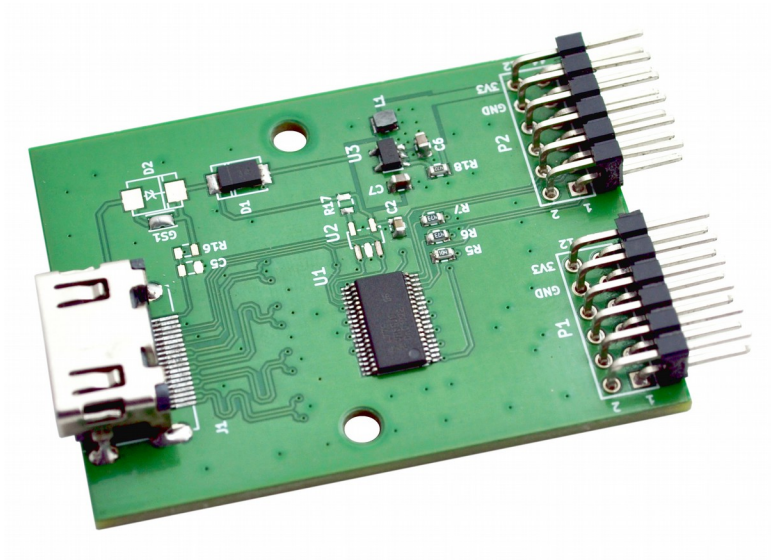

IP4776CZ38 HDMI Transmitter Expansion Module
User Guide

NUMATO LAB

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Rev 9

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Introduction

IP4776CZ38 HDMI Module features a buffered DVI-D/HDMI interface with HDMI buffer IP4776CZ38 for better signal strength and signal integrity. The on board DVI-D/HDMI interface can be used to generate high quality HD video up to 1080p. This module is designed to be used with Numato Lab's FPGA boards featuring a 2×6 pin Expansion connector. It can also be used with other boards and connector types by using manual wiring.

Applications

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

Board features

- DVI-D/HDMI Connector
- IP4776CZ38 HDMI Buffer
- On board Voltage step up booster (XC9140)
- Dimension: 40mm X 52.5mm

How to use the module

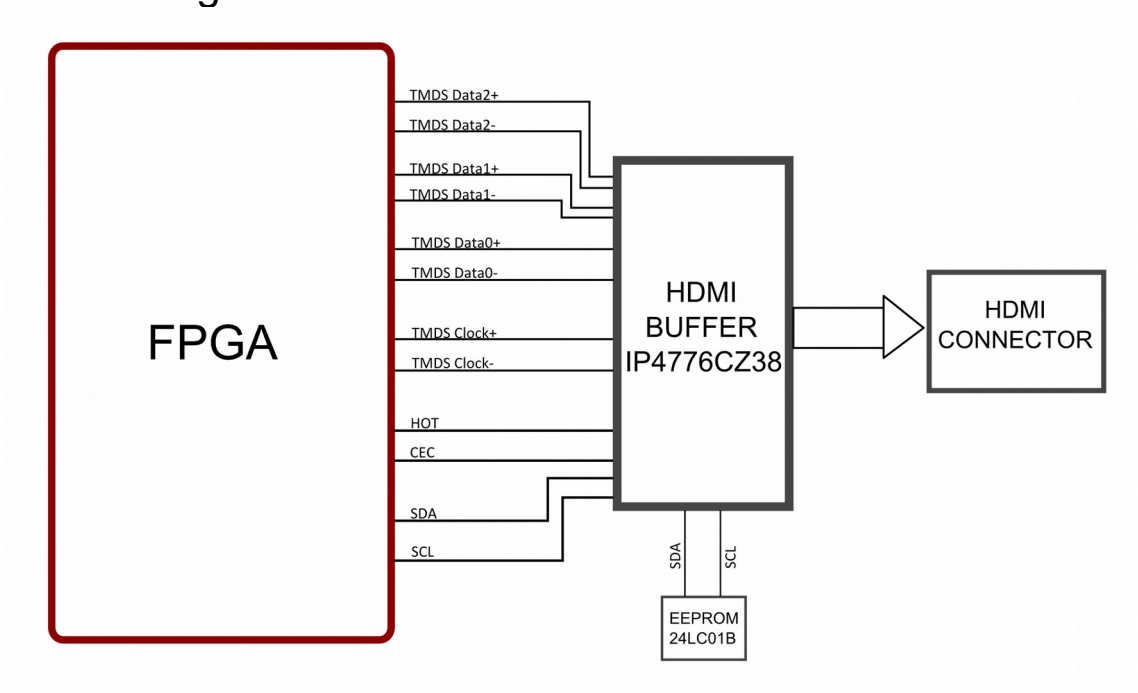
The following section describes how to use this module.

Components/Tools required

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

1. Any FPGA board featuring a 2×6 pin Expansion connector, (recommended to use with Saturn expansion connector on P7-P11 header)
2. DC Power supply (Optional).

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. EEPROM 24LC01B is not installed on HDMI transmitter module.

To use this module, directly attach the 1×6 male header on the expansion module to the upper or lower row of a 2×6 expansion connector on FPGA development board. If 2×6 female headers are not available, manually make the connections as per the connection details below.

Connection Details

Header P1

Header Pin No.	Pin Details	Trace Length (mm)
1	D2-	63.290
2	D2+	63.261
3	D1-	63.348
4	D1+	63.320
5	D0-	63.301
6	D0+	63.342
7	CK-	63.323
8	CK+	63.328
9	GND	-
10	GND	-
11	VCC3V3	-
12	VCC3V3	-

Header P2

Header Pin No.	Pin Details
1	CEC
2	SCL
3	SDA
4	HOT
5	-
6	-
7	-
8	-
9	GND
10	GND
11	VCC3V3
12	VCC3V3

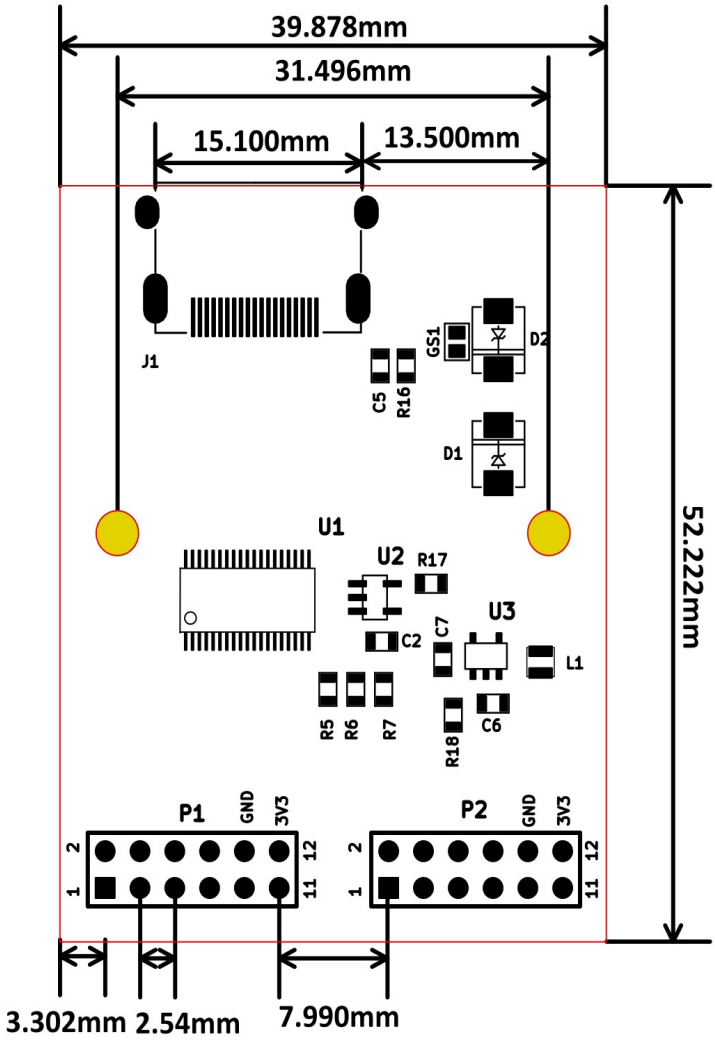
For more information, refer the schematics below.

Technical Specifications

Parameter *	Value	Unit
Basic Specifications		
Supply Voltage	3.3	V
Current drawn by the circuit	350	mA
HDMI Buffer (IP4776CZ38)		
supply current (5.0 V)	130	µA
supply current (3.3 V)	5	MA
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.

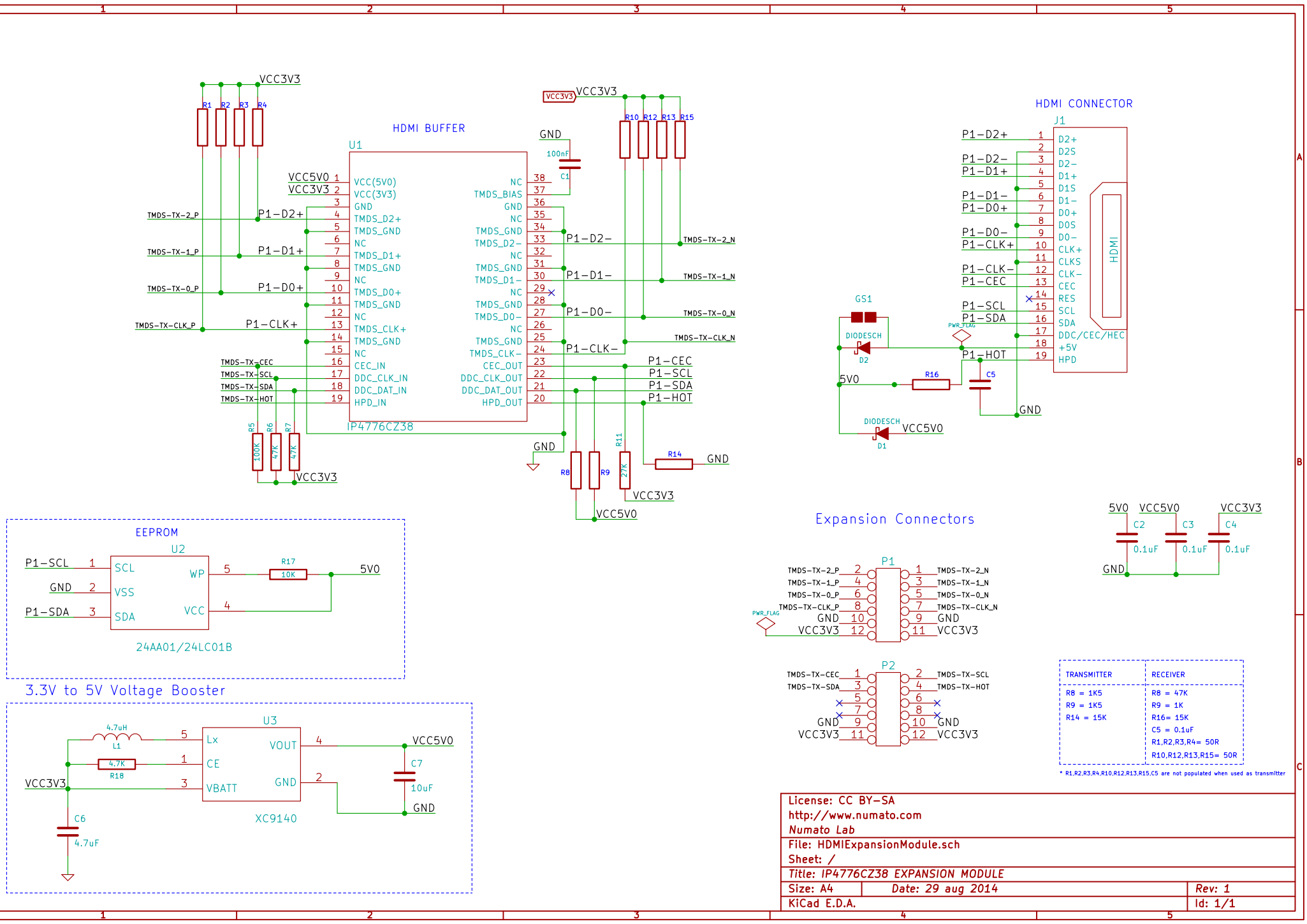
Physical Dimensions



L x W x H : 52.222 mm x 39.878 mm x 10 mm
Mechancal Hole Diameter : 3.2 mm

Schematics

See next page.



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File: HDMIExpansionModule.sch
Sheet: /

Title: IP4776CZ38 EXPANSION MODULE

Size: A4 | Date: 29 aug 2014 | Rev: 1

KiCad E.D.A. | Id: 1/1