HDMI Connector Daughter Card User Guide

HDMI-DC-UG-v1.0
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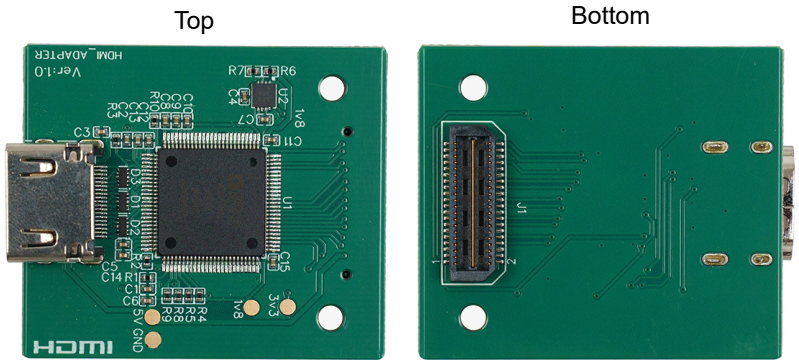
Contents

Introduction

The HDMI Connector Daughter Card (part number: EFX_FMC_DDR3_GPIO) adds an HDMI interface output to the development board. The HDMI Connector Daughter Card outputs video through the on-board HDMI transmitter, U1, from Analog Devices (part number: ADV7511). The ADV7511 is set to address 0x72, and you can access it through the I^2C interface.

Learn more: Refer to the HDMI Connector Daughter Card Schematics and BOM for the part details and schematics.

Figure 1: HDMI Connector Daughter Card



Warning: The board can be damaged without proper anti-static handling.

Supported Development Boards

You can use HDMI Connector Daughter Card with:

- 钛金系列 Ti60 F225 Development Board
- 钛金系列 Ti180 M484 Development Board (with FMC-to-QSE Adapter Card)

Features

- Analog Devices ADV7511 transmitter
- 225 MHz HDMI v1.4 with audio return channel (ARC)
- Supports resolutions of up to 1080p and 12-bit deep colors operation
- Power supplied from the development board; no external power required

What's in the Box?

The HDMI Connector Daughter Card includes:

- HDMI Connector Daughter Card
- 2 standoffs
- 2 screws
- 2 nuts

Installing Standoffs

Before using the board, attach the standoffs with the screws provided in the kit.

Warning: You can damage the board if you over tighten the screws. Tighten all screws to a torque between 4 ± 0.5 kgf/cm and 5 ± 0.5 kgf/cm.

Headers

Table 1: HDMI Connector Daughter Card Headers

Reference Designator	Description
AUDIO1	HDMI output connector
J1	40-pin QTE connector bringing GPIO signals, and power from the development board.

J1 (QTE Connector)

J1 is a 40-pin QTE connector to connect the daughter card to the QSE connector on the development board.

Table 2: J1 Pin Assignments

Pin Number	Pin Name	Description	Pin Number	Pin Name	Description
1	3V3	3.3 V supply	2	HDMI_D9	Video data
3	+5V	5.0 V supply	4	CLK	Video clock
5	GND	Ground	6	GND	Ground
7	HDMI_D8	Video data	8	HDMI_D10	Video data
9	HDMI_D7	Video data	10	HDMI_D11	Video data
11	GND	Ground	12	GND	Ground
13	HDMI_D6	Video data	14	HDMI_D12	Video data
15	HDMI_D5	Video data	16	HDMI_D13	Video data
17	GND	Ground	18	GND	Ground
19	HDMI_D4	Video data	20	HDMI_D14	Video data
21	HDMI_D3	Video data	22	HDMI_D15	Video data
23	GND	Ground	24	GND	Ground
25	HDMI_D2	Video data	26	SDA	I^2C control
27	HDMI_D1	Video data	28	SCL	I^2C control
29	GND	Ground	30	GND	Ground
31	HDMI_D0	Video data	32	N.C.	No connect
33	DE	Digital video Data Enable signal	34	INT	Interrupt signal
35	GND	Ground	36	GND	Ground
37	HSYNC	Horizontal sync	38	SPDIF_CLK	SPDIF reference clock
39	VSYNC	Vertical sync	40	SPDIF	SPDIF audio

AUDIO1 (HDMI Output Connector)

Table 3: AUDIO1 Pin Assignments

Pin Number	Signal Name	U1 Pin Name	Description
1	TMDS_DAT2p	TX2+	Differential TMDS output channel 2
2	GND	–	Ground
3	TMDS_DAT2n	TX2-	Differential TMDS output channel 2
4	TMDS_DAT1p	TX1+	Differential TMDS output channel 1
5	GND	–	Ground
6	TMDS_DAT1n	TX1-	Differential TMDS output channel 1
7	TMDS_DAT0p	TX0+	Differential TMDS output channel 0
8	GND	–	Ground
9	TMDS_DAT0n	TX0-	Differential TMDS output channel 0
10	TMDS_CLKp	TXC+	Differential TMDS clock output
11	GND	–	Ground
12	TMDS_CLKn	TXC-	Differential TMDS clock output
13	N.C.	–	No connect
14	HEACp	HEAC+	Differential ARC
15	DDCSCL	DDCSCL	Serial port data clock input
16	DDCSDA	DDCSDA	Serial port data I/O to sink
17	GND	–	Ground
18	5V0	–	5.0 V supply
19	HotPlug	HPD	Hot Plug detect signal

Revision History

Table 4: Revision History

Date	Version	Description
November 2022	1.0	Initial release.