

Hardware Documentation

*ADP-MIPI2DVI1
for HW Revision 1.00*

Preliminary

Version 001
(2021-04-30)



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About This Document

This document describes how to use the [ADP-MIPI2DVI1](#) adapter board with mechanical and electrical information. The latest version of this document can be found at:

<http://www.fs-net.de>.

ESD Requirements



All F&S hardware products are ESD (electrostatic sensitive devices). All products are handled and packaged according to ESD guidelines. Please do not handle or store ESD-sensitive material in ESD-unsafe environments. Negligent handling will harm the product and warranty claims become void.

History

Date	V	Platform	A,M,R	Chapter	Description	Au
29.04.2021	001	All		-	Initial Version	MD

V Version
A, M, R Added, Modified, Removed
Au Author

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1 Physical Characteristics

ADP-MIPI2DVI1 is a passive shield adapter which is compatible with PicoCoreMX8MP baseboard that converts MIPI-DSI input connector into DVI output connector.

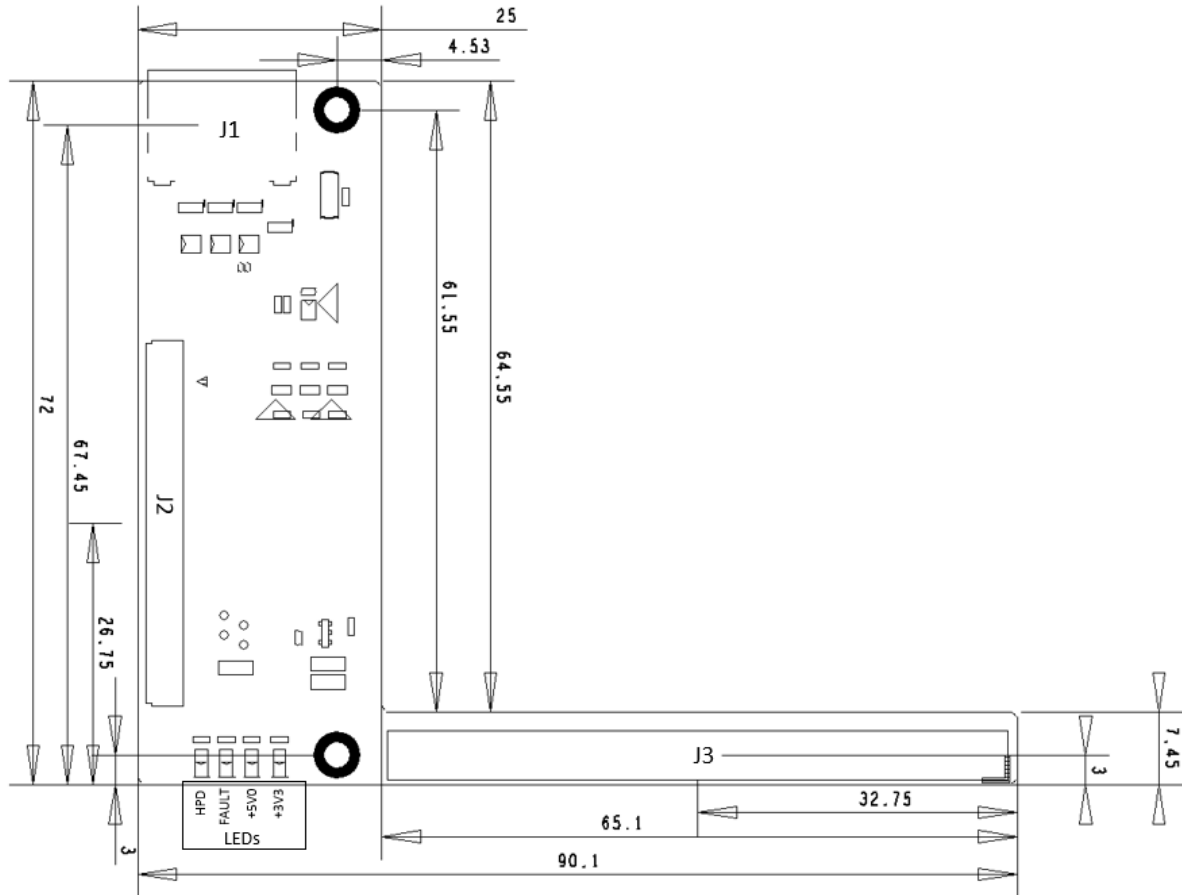


Figure 1: ADP-MIPI2DVI1 Adapter Board

Ref	Description	I/O	No. of Pins	Connector Type
J1	MIPI-DSI Connector	I	30	FI-X30SSLA-HF-R2500
J2	DVI Connector	O	19	eiSos 685 119 134 923 (Würth)
J3	Feature Connector	I/O	50	Pin Header (2.54mm)
---	Mating Connector for J1	-	30	FI-X30H & FI-X30HL

Table 1: Connectors List and Types

2 Connector Pin Layouts

J1: MIPI Connector - Input				
Pin	Signal Name	I/O	Voltage	Description
1	N.C.	X	X	Not Connected
2	N.C.	X	X	Not Connected
3	N.C.	X	X	Not Connected
4	N.C.	X	X	Not Connected
5	N.C.	X	X	Not Connected
6	N.C.	X	X	Not Connected
7	GND			
8	N.C.	X	X	Not Connected
9	N.C.	X	X	Not Connected
10	N.C.	X	X	Not Connected
11	N.C.	X	X	Not Connected
12	HDMI_TXD0_N	I	1.8V	DVI TX Data0-
13	HDMI_TXD0_P	I	1.8V	DVI TX Data0+
14	GND			
15	HDMI_TXD1_N	I	1.8V	DVI TX Data1-
16	HDMI_TXD1_P	I	1.8V	DVI TX Data1+
17	GND			
18	HDMI_TXD2_N	I	1.8V	DVI TX Data2-
19	HDMI_TXD2_P	I	1.8V	DVI TX Data2+
20	HDMI_TXDC_N	I	1.8V	DVI TX Clock-
21	HDMI_TXDC_P	I	1.8V	DVI TX Clock+
22	EARC_N_HPD	O	1.8V	EARC_N / Hot Plug Detect
23	EARC_P_UTIL	I	1.8V	EARC_P / Utility
24	GND			
25	I2C_SDA	I/O	3.3V	I2C Touch-Control Serial Data
26	I2C_IRQn	O	3.3V	I2C Touch-Control Interrupt Request
27	I2C_SCL	I	3.3V	I2C Touch-Control Clock
28	MIPI_RSTn	I	3.3V	MIPI Reset Signal
29	VLCD	PWR	3.3V	LCD Supply Voltage
30	VLCD	PWR	3.3V	LCD Supply Voltage

Table 2: MIPI Connector Pin Layout

J2: DVI Connector - Output				
Pin	Signal Name	I/O	Voltage	Description
1	HDMI_CN_TXD2_P	O	1.8V	DVI TX Data2+
2	GND			
3	HDMI_CN_TXD2_N	O	1.8V	DVI TX Data2-
4	HDMI_CN_TXD1_P	O	1.8V	DVI TX Data1+
5	GND			
6	HDMI_CN_TXD1_N	O	1.8V	DVI TX Data1-
7	HDMI_CN_TXD0_P	O	1.8V	DVI TX Data0+
8	GND			
9	HDMI_CN_TXD0_N	O	1.8V	DVI TX Data0-
10	HDMI_CN_CLK_P	O	1.8V	DVI TX Clock+
11	GND			
12	HDMI_CN_CLK_N	O	5.0V	DVI TX Clock-
13	HDMI_CN_CEC	O	5.0V	DVI Consumer Electronics Control
14	HDMI_CN_UTIL	O	5.0V	DVI Utility
15	HDMI_CN_DDC_SCL	O	5.0V	DVI I2C Serial Clock
16	HDMI_CN_DDC_SDA	I/O	5.0V	DVI I2C Serial Data
17	GND			
18	+5VS_HDMI	O	5.0V	DVI Supply Voltage
19	HDMI_CN_HPD	I	5.0V	DVI Hot Plug Detect

Table 3: DVI Connector Pin Layout

J3:Feature Connector – Input / Output

Pin	Signal Name	I/O	Voltage	Description
1	+3V3	PWR	3.3V	3.3V Supply Voltage
2	+5VS	PWR	5.0V	5.0V Supply Voltage
3	SPI_B_SCLK	O	3.3V	SPI_B Serial Clock
4	SPI_B_SS0	O1	3.3V	SPI_B Slave Select
5	SPI_B_MISO	I/O	3.3V	SPI_B Master In-Slave Out
6	SPI_B_MOSI	I/O	3.3V	SPI_B Master Out-Slave In
7	I2S_B_TXD0	O	1.8V/3.3V	Audio_B TXD0 (I2S)
8	GPIO_J1_54	I/O	3.3V	GPIO
9	I2S_B_RXD0	I	1.8V/3.3V	Audio_B RXD0 (I2S)
10	I2S_B_MCLK	O	1.8V/3.3V	Audio_B MCLK (I2S)
11	GND			
12	I2S_B_TXFS	O	1.8V/3.3V	Audio_B TXFS (I2S)
13	UART_D_TXD	O	3.3V	UART_D Transmit Data
14	I2S_B_TXC	O	1.8V/3.3V	Audio_B TXC (I2S)
15	UART_D_RXD	I	3.3V	UART_D Receive Data
16	HDMI_CEC	O	3.3V	DVI Consumer Electronics Control
17	HDMI_HPD	I	3.3V	DVI Hot Plug Detect
18	GPIO_J1_52	I/O	3.3V	GPIO
19	SD_A_DATA4	O	1.8V/3.3V	SDIO_A Data4
20	SD_A_DATA5	O	1.8V/3.3V	SDIO_A Data5
21	SD_A_DATA6	O	1.8V/3.3V	SDIO_A Data6
22	SD_A_DATA7	O	1.8V/3.3V	SDIO_A Data7
23	SD_B_DATA3	O	1.8V/3.3V	SDIO_B Data3
24	HDMI_DDC_SDA	I/O	3.3V	DVI DDC I2C Serial Data
25	SD_B_DATA2	O	1.8V/3.3V	SDIO_B Data2
26	HDMI_DDC_SCL	O	3.3V	DVI DDC I2C Serial Clock
27	GND			
28	SD_B_DATA1	O	1.8V/3.3V	SDIO_B Data1
29	SD_B_DATA0	O	1.8V/3.3V	SDIO_B Data0
30	SD_B_CLK	O	1.8V/3.3V	SDIO_B Clock
31	SD_B_CMD	O	1.8V/3.3V	SDIO_B Command
32	SD_B_CD	I	1.8V/3.3V	SDIO_B Card Detect

33	SD_B_WP	I	1.8V/3.3V	SDIO_B Write Protect
34	PWM	O	3.3V	PWM Output
35	SD_B_RST	O	1.8V/3.3V	SDIO_B Reset
36	UART_A_RTS	O	3.3V	UART_A Ready to Send
37	GND			
38	UART_A_CTS	I	3.3V	UART_A Clear to Send
39	+3V3	PWR	3.3V	3.3V Supply Voltage
40	+5VS	PWR	5.0V	5.0V Supply Voltage
41	AUDIO_A_MIC	I	-	Audio_A Microphone Input
42	GND			
43	N.C.	X	X	Not Connected
44	AUDIO_A_LIN_R	I	-	Audio_A Line In Right
45	AUDIO_A_LOUT_R	O	-	Audio_A Line Out Right
46	GND			
47	GND			
48	AUDIO_A_LIN_L	I	-	Audio_A Line In Left
49	AUDIO_A_LOUT_L	O	-	Audio_A Line Out Left
50	GND			

Table 4: Feature Connector Pin Layout

3 LEDs

LED	Function
+3V3	DVI 3V3 Power LED
+5VS	DVI 5V Power LED
FAULT	5V Over Current Fault LED [LED is ON if $I_{5VS} > 0.5A$]
HPD	DVI Hot Plug Detect LED [LED is ON if DVI cable is plugged]

Table 5: Electrical Characteristics

4 Electrical Characteristics

Signal Name	Description	Min	Typ.	Max	Unit
+5VS	Input Supply Voltage	4.5	5.0	5.5	V
+3V3	Input Supply Voltage	3.0	3.3	3.6	V
VLCD	LCD Supply Voltage	3.0	3.3	3.6	V
GND	Ground	-	-	-	-

Table 6: Electrical Characteristics

5 ESD and EMI Implementation

The DVI data lanes were filtered via ferrite beads in order to reduce the EMI. We highly recommend using the adapter board with wires as short as possible.

ESD Rating of the chip is ± 2 kV (HBM). The DVI signals are protected against ESD with TVS diodes which are located nearby the DVI connector.

A helpful guide is available from TI; just search for slva680 at ti.com.

6 Second source rules

F&S qualifies their second sources for parts autonomously, as long as this does not touch the technical characteristics of the product. This is necessary to guarantee delivery times and product life. A setup of release samples with released second sources is not possible.

F&S does not use broker components without the consent of the customer.

7 Storage conditions

Maximum storage on room temperature with non-condensing humidity: 6 months

Maximum storage on controlled conditions 25 ± 5 °C, max. 60% humidity: 12 months

For longer storage, we recommend vacuum dry packs.

8 ROHS and REACH statement

All F&S designs are created from lead-free components and are completely ROHS compliant.

The products we supply do not contain any substance on the latest candidate list published by the European Chemicals Agency according to Article 59(1,10) of Regulation (EC) 1907/2006 (REACH) in a concentration above 0.1 mass %.

Consequently, the obligations in No. 1 and 2 paragraphs in Annex are not relevant here.

Please understand that F&S is not performing any chemical analysis on its products to testify REACH compliance and is therefore not able to fill out any detailed inquiry forms.

9 Packaging

All F&S ESD-sensitive products will shipping either in trays or in bags.

10 Matrix Code Sticker

All F&S hardware will ship with a matrix code sticker including the serial number. Enter your serial number here <https://www.fs-net.de/en/support/serial-number-info-and-rma/> to get information on shipping date and type of board.



Figure 2: Matrix Code Sticker

11 Appendix

Important Notice

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