Manuals+ — User Manuals Simplified.

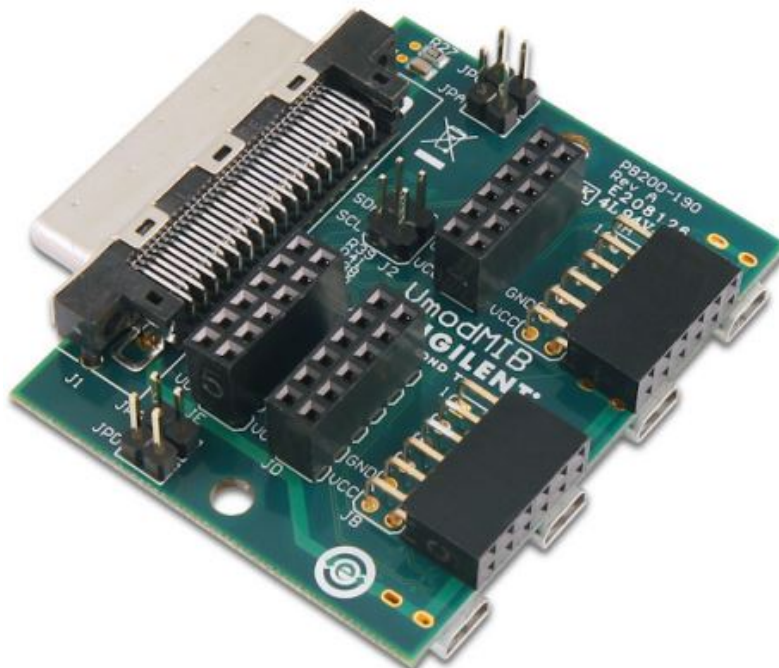# VmodMIB Digilent Vmod Module Interface Board Owner's Manual

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VmodMIB Digilent Vmod Module Interface Board

Overview

The Digilent Vmod Module Interface Board (VmodMIB) is a simple solution for interfacing additional peripheral modules and HDMI devices to VHDCI-equipped Digilent system boards.

Features include:

- VHDCI peripheral board connector
- Four HDMI and five 12-pin Pmod™ connectors

Functional Description

The VmodMIB is an expansion board that connects to the VHDCI connector on Digilent system boards and provides additional Pmod and HDMI connections.

Power Connections

The VmodMIB provides two power buses and a ground bus. The two power buses are labeled VCC and VU. These two buses are made available at each connector position on the board. There is also a ground plane that connects the ground pins from all connectors. The usual Digilent convention is to power the VCC bus at 3.3V and the VCCFX2 bus at 5.0V. However, depending on the system board connected and the power supply used, other voltages may be present. Use caution when using any voltage other than 3.3V on the VCC bus. Most Digilent system boards will be damaged if the voltage on the VCC bus is greater than 3.3V.

68 Pin, VHDCI Connector

VHDCI connector J1 is provided on one side of the board for connection to Digilent system boards, like the Genesys™ and Atlys™, which contain a VHDCI-style connector. The Digilent VHDCI connector signal convention provides for 40 general-purpose I/O signals. The 40 general-purpose I/O signals from the VHDCI connector are brought out to the Pmod and HDMI connectors. See Table 1 for a description of the relationship between the VHDCI connector pins and the signal names, Table 2 for the relationship between signal names and Pmod pins and Table 3 for the relationship between signal names and HDMI pins.

Pmod Connectors

Digilent Pmods provide various peripheral functions. These can be as simple as buttons or switches for inputs and LEDs for outputs, or as complex as graphical LCD display panels, accelerometers, and keypads. All Digilent Pmods use either a 6-wire interface or a 12-wire interface. The 6-wire interface provides four I/O signals, power, and ground. The twelve-wire interface provides 8 I/O signals, two powers, and two grounds. The signal definitions for the I/O signals as well as the voltage requirements for the power supply depend on the specific module. The VmodMIB provides five 12-pin Pmod connectors.

HDMI Connectors

The VmodMIB also provides four HDMI type-D connectors to allow audio/video connections to the system board. They use 19 pins and the relationship between these pins and the signal names from the VHDCI connector are described in table 3. Each HDMI connector has a jumper which can be used to select a 5V source when shorted. Also, data can be sent to the HDMI connectors via an I2C bus from signals JE1/SDA and JE2/SCL when the jumpers at J2 are shorted. Keep in mind that all HDMI ports share signals with Pmod ports. JA is shares signals with JAA, JB with JBB, JC with JCC, and JD with JDD. All HDMI ports share pins with Pmod port JE, which contains the I2C bus signals.

Table 1: VHDCI Signals and Connector Pinout

J1

1	JC-CLK_P	35		JC-CLK_N	
2	GND	36		GND	
3	JC-D0_P	37		JC-D0_N	
4	JC-D1_P	38		JC-D1_N	
5	GND	39		GND	
6	JC-D2_P	40		JC-D2_N	
7	JA-D0_P	41		JA-D0_N	
8	GND	42		GND	
9	JA-D1_P	43		JA-D1_N	
10	JA-D2_P	44		JA-D2_N	
11	GND	45		GND	
12	JB-D0_P	46		JB-D0_N	
13	JB-D1_P	47		JB-D1_N	
14	GND	48		GND	
15	JA-CLK_P	49		JA-CLK_N	
16	VCCB	50		VCCB	
17	VCC5V0	51		VCC5V0	
18	VCC5V0	52		VCC5V0	
19	VCCB	53		VCCB	
20	JB-CLK_P	54		JB-CLK_N	
21	GND	55		GND	
22	JB-D2_P	56		JB-D2_N	
23	JE8	57		JE7	
24	GND	58		GND	

25	JE2/SCL	59	JE1/SDA
26	JE10	60	JE9
27	GND	61	GND
28	JE4	62	JE3
29	JD-CLK_P	63	JD-CLK_N
30	GND	64	GND
31	JD-D0_P	65	JD-D0_N
32	JD-D1_P	66	JD-D1_N
33	GND	67	GND
34	JD-D2_P	68	JD-D2_N
S1	SHIELD	S2	SHIELD

Table 2: Pmod Connector Pin Layouts

JA Top Set of Pins

Pin	Pinout
1	JA-D0_N
2	JA-D0_P
3	JA-D2_N
4	JA-D2_P
5	GND
6	VCCB

JB Top Set of Pins

Pin	Pinout
1	JB-D0_N
2	JB-D0_P
3	JB-D2_N
4	JB-D2_P
5	GND
6	VCCB

JC Top Set of Pins

Pin	Pinout
1	JC-D0_N
2	JC-D0_P
3	JC-D2_N
4	JC-D2_P
5	GND
6	VCCB

JD Top Set of Pins

Pin	Pinout
1	JD-D0_N
2	JD-D0_P
3	JD-D2_N
4	JD-D2_P
5	GND
6	VCCB

JE Top Set of Pins

Pin	Pinout
1	JE1/SDA
2	JE2/SCL
3	JE3
4	JE4
5	GND
6	VCCB

NOTE: All signals are connected via a 50-ohm resistor with the exception of the VCCB and GND signals.

JA Bottom Set of Pins

Pin	Pinout
7	JA-CLK_N
8	JA-CLK_P
9	JA-D1_N
10	JA-D1_P
11	GND
12	VCCB

JB Bottom Set of Pins

Pin	Pinout
7	JB-CLK_N
8	JB-CLK_P
9	JB-D1_N
10	JB-D1_P
11	GND
12	VCCB

JC Bottom Set of Pins

Pin	Pinout
7	JC-CLK_N
8	JC-CLK_P
9	JC-D1_N
10	JC-D1_P
11	GND
12	VCCB

JD Bottom Set of Pins

Pin	Pinout
7	JD-CLK_N
8	JD-CLK_P
9	JD-D1_N
10	JD-D1_P
11	GND
12	VCCB

JE Bottom Set of Pins

Pin	Pinout
1	JE7
2	JE8
3	JE9
4	JE10
5	GND
6	VCCB

Table 3: HDMI Connector Pin Layouts

JAA

Pin	Pinout
1	VCC5V0
2	VCCB
3	JA-D2_P
4	GND
5	JA-D2_N
6	JA-D1_P
7	GND
8	JA-D1_N
9	JA-D0_P
10	GND
11	JA-D0_N
12	JA-CLK_P
13	GND
14	JA-CLK_N
15	VCCB
16	GND
17	JE2/SCL
18	JE1/SDA
19	VCC5V0

JBB

Pin	Pinout
1	VCC5V0
2	VCCB
3	JB-D2_P
4	GND
5	JB-D2_N
6	JB-D1_P
7	GND
8	JB-D1_N
9	JB-D0_P
10	GND
11	JB-D0_N
12	JB-CLK_P
13	GND
14	JB-CLK_N
15	VCCB
16	GND
17	JE2/SCL
18	JE1/SDA
19	VCC5V0

JCC

Pin	Pinout
1	VCC5V0
2	VCCB
3	JC-D2_P
4	GND
5	JC-D2_N
6	JC-D1_P
7	GND
8	JC-D1_N
9	JC-D0_P
10	GND
11	JC-D0_N
12	JC-CLK_P
13	GND
14	JC-CLK_N
15	VCCB
16	GND
17	JE2/SCL
18	JE1/SDA
19	VCC5V0

JDD

Pin	Pinout
1	VCC5V0
2	VCCB
3	JD-D2_P
4	GND
5	JD-D2_N
6	JD-D1_P
7	GND
8	JD-D1_N
9	JD-D0_P
10	GND
11	JD-D0_N
12	JD-CLK_P
13	GND
14	JD-CLK_N
15	VCCB
16	GND
17	JE2/SCL
18	JE1/SDA
19	VCC5V0

NOTE: All signals are connected via a 50-ohm resistor

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Documents / Resources

DIGILENT VmodMIB Digilent Vmod Module Interface Board [pdf] Owner's Manual
VmodMIB Digilent Vmod Module Interface Board, VmodMIB, Digilent Vmod Module Interface Board, Interface Board, Board

References

- ⚠ **Digilent â€" Start Smart, Build Brilliant.**