

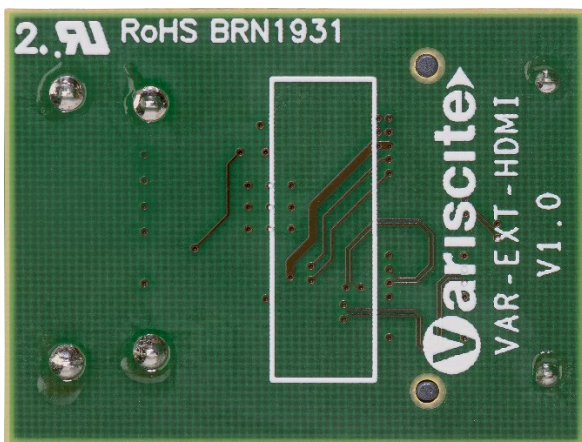


VARISCITE LTD.

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# VAR-EXT-HDMI Datasheet

## HDMI Extension Board for Symphony-Board & Concerto-Board V1.x



VARISCITE LTD.

# VAR-EXT-HDMI Datasheet

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# 1. Document Revision History

Revision	Date	Notes
1.0	05/12/2019	Initial
1.01	28/01/2020	Updated supported SOMs sections 4.1, 5.1, 5.2.1
1.02	28/12/2021	Updated the section 4.1

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## 4. Overview

This chapter gives an overview of the VAR-EXT-HDMI.

### 4.1. General Information

The VAR-EXT-HDMI is an Extension Board for the Symphony-Board.

It allows evaluation of the HDMI interface available on the VAR-SOM-MX8 and the VAR-SOM-MX8M-PLUS SOMs through the Symphony-Board.

Supporting Variscite products:

- Symphony-Board
  
- O.S support
  - ✓ Linux BSP
  - ✓ Android

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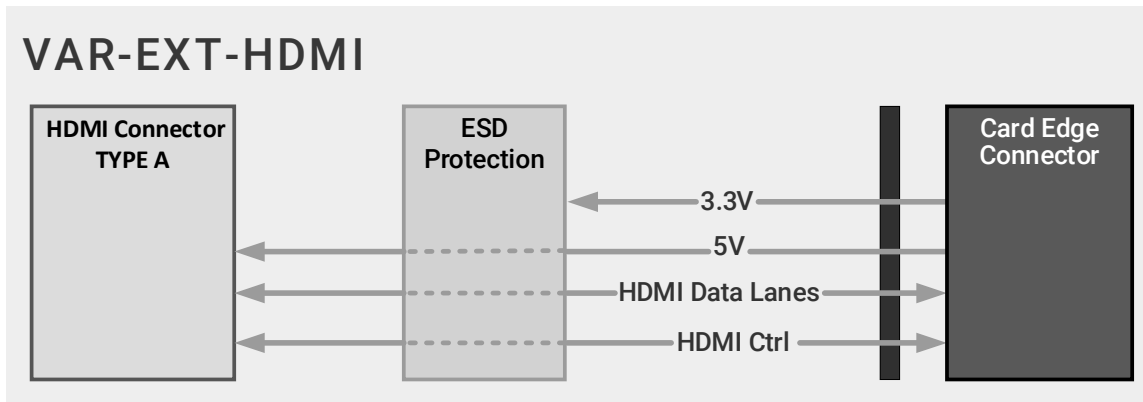
Contact Variscite support services for further information: [support@variscite.com](mailto:support@variscite.com).

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## 4.2. Features Summary

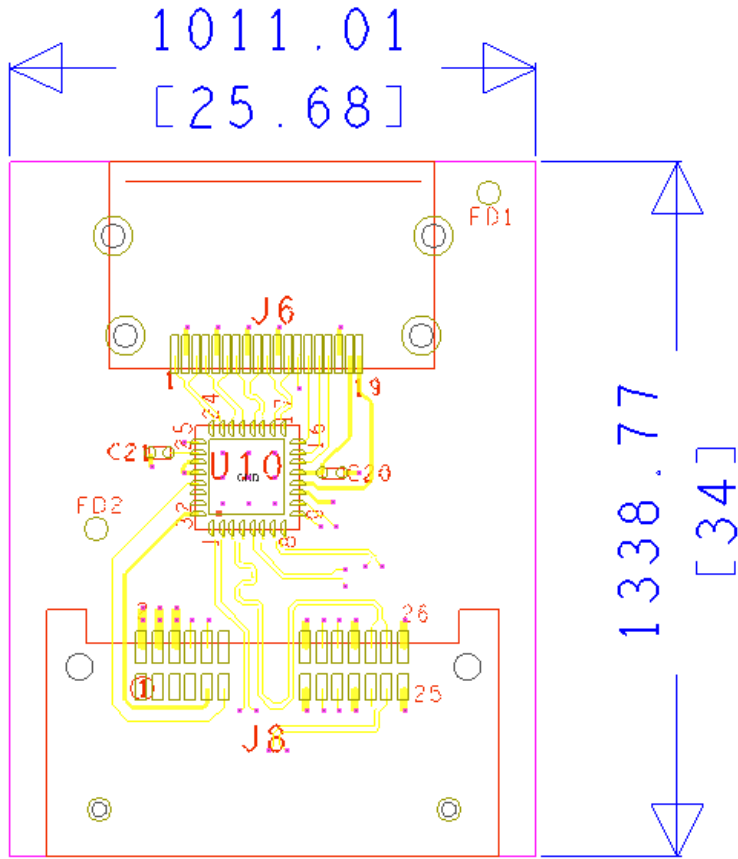
- 1 x 26 pin Card Edge Connector compatible with Symphony-Board and Concerto-Board.
- 1 x HDMI interface ESD and overcurrent protection, DDC/CEC buffering, hot plug detect and backdrive protection
- 1x HDMI Type A receptacle connector

## 4.3. Block Diagram



### 4.4. Board Layout

The VAR-EXT-HDMI physical dimensions are 25.68 x 34 mm.



Detailed CAD files are available for download at [www.variscite.com](http://www.variscite.com).



## 4.5. VAR-EXT-HDMI Connectors

The below table lists all available connectors on the VAR-EXT-HDMI, refer to chapter 2 for a more detailed description and Pin-out of each connector.

**Table 4-1 VAR-EXT-HDMI connectors**

Reference	Function	Type
J6	HDMI Type A connector	HDMI Connector receptacle TYPE A R/A FCI P/N: 10029449-001RLF
J8	Symphony-Board and Concerto-Board edge connector mating	Card edge connector 0.8mm 26pins SAMTEC P/N: HSEC8-113-01-L-RA

## 5. Detailed Description

### 5.1. Overview

This chapter details the VAR-EXT-HDMI features and external interfaces.

Please refer to the VAR-SOM-MX8/ VAR-SOM-MX6/ VAR-SOM-SOLO data sheet for more information.

Table 5-1 describes this chapter table header and acronyms used.

**Table 5-1: Acronyms used on tables column header**

Column		Meaning
Pin#	x	Pin number on a connector
Type		Pin type & direction
	I	INPUT
	O	OUTPUT
	DS	Differential Signal
	A	Analog
	P	Power
Signal		VAR-EXT-HDMI schematic signal name
Description		Short Pin functionality description

## 5.2. VAR-EXT-HDMI Interfaces

### 5.2.1. Card Edge connector

The HDMI interface of the VAR-SOM-MX8/ VAR-SOM-MX6/ VAR-SOM-SOLO is exported to the Symphony-Board and Concerto-Board via a 26POS 0.8mm PCB edge connector.

**Mating connector is SAMTEC P/N: HSEC8-113-01-L-RA**

Table 5-2: Card edge connector pin out (J8)

Pin #	Connector Signal	Type	Description
1			
2	BASE_PER_3V3	P	HDMI adaptor Power supply 3.3V
3			
4	BASE_PER_3V3	P	HDMI adaptor Power supply 3.3V
5			
6	VCC_5V	P	HDMI adaptor Power supply 5V
7			
8	HDMI_DDC_SCL	IO	HDMI DDC Clock signal
9	J1.154-{MX6/MX8}_HDMI_HPD	I	HDMI Hot plug detect signal
10	HDMI_DDC_SDA	IO	HDMI DDC Data signal
11	J1.156-{MX6/MX8}_HDMI_DDCCEC	IO	HDMI CEC signal
12			
13	GND	P	Digital Ground
14	GND	P	Digital Ground
15	J1.152-{MX6/MX8}_HDMI_CLKP	DSI	HDMI Clock lane; Positive
16	J1.155-{MX6/MX8}_HDMI_D0P	DSI	HDMI Data0 lane; Positive
17	J1.150-{MX6/MX8}_HDMI_CLKM	DSI	HDMI Clock lane; Negative
18	J1.157-{MX6/MX8}_HDMI_D0M	DSI	HDMI Data0 lane; Negative
19	GND		
20	GND		
21	J1.151-{MX6/MX8}_HDMI_D2P	DSI	HDMI Data2 lane; Positive
22	J1.146-{MX6/MX8}_HDMI_D1P	DSI	HDMI Data1 lane; Positive
23	J1.153-{MX6/MX8}_HDMI_D2M	DSI	HDMI Data2 lane; Negative
24	J1.148-{MX6/MX8}_HDMI_D1M	DSI	HDMI Data1 lane; Negative
25	GND	P	Digital Ground
26	GND	P	Digital Ground
27	GND	P	Digital Ground
28	GND	P	Digital Ground

## 5.2.2. HDMI Receptacle Type A Connector

The VAR-EXT-HDMI exposes the HDMI interface for external connection via a HDMI Receptacle Type A connector.

**Table 5-3: HDMI Type A connector pin out (J6)**

Pin #	HDMI Type A connector Signal	Type	Description
1	HDMI_D2_P	DSO	HDMI Data2 lane; Positive
2	GND	P	Digital Ground
3	HDMI_D2_N	DSO	HDMI Data2 lane; Negative
4	HDMI_D1_P	DSO	HDMI Data1 lane; Positive
5	GND	P	Digital Ground
6	HDMI_D1_N	DSO	HDMI Data1 lane; Negative
7	HDMI_D0_P	DSO	HDMI Data0 lane; Positive
8	GND	P	Digital Ground
9	HDMI_D0_N	DSO	HDMI Data0 lane; Negative
10	HDMI_CK_P	DSO	HDMI Clock lane; Positive
11	GND	P	Digital Ground
12	HDMI_CK_N	DSO	HDMI Clock lane; Negative
13	HDMI_CEC_CON	IO	HDMI CEC signal
14			
15	HDMI_SCL_CON	IO	HDMI DDC Clock signal
16	HDMI_SDA_CON	IO	HDMI DDC Data signal
17	GND	P	Digital Ground
18	HDMI_5V_CON	P	HDMI Connector +5V power
19	HDMI_HPD_CON	I	HDMI Hot plug detect signal
MTG1	GND	P	Digital Ground
MTG2	GND	P	Digital Ground
MTG3	GND	P	Digital Ground
MTG4	GND	P	Digital Ground

## 6. Environmental Specifications

**Table 6-1: Environmental Specification**

	Min	Max
Commercial operating temperature range	0°C	+70°C
MTBF	>10kHRS	
Relative humidity, Operational	10%	90%
Relative humidity, Storage	5%	95%

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