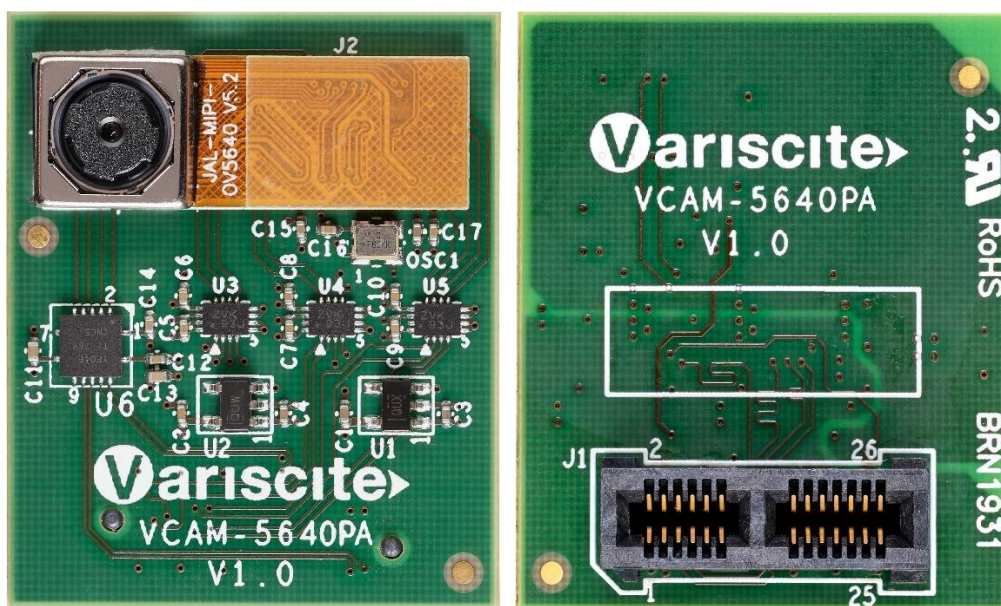




VARISCITE LTD

VCAM-5640PA Datasheet

i.MX8X Parallel Camera Extension Board V 1.x



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Revision History

Revision	Date	Notes
1.00	Jan 29 2020	Preliminary
1.1	Oct 20 2020	Fixed description section 1.1

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1 Overview

This chapter gives an overview of the VCAM-5640PA.

1.1 General Information

The VCAM-5640PA is a Parallel camera extension board for the Variscite Symphony-Board & Concerto-Board. It allows evaluation and easy integration between an OV5640 camera module and the VAR-SOM-MX8X SOM.

1.1.1 VCAM-5640PA Features:

- 1 x 5 Mega Pixel Camera module, based on OV5640 sensor.

1.1.2 Supporting Variscite Carrier Boards

- Concerto-Board
- Symphony-Board

1.1.3 Compatible Variscite SOM

- VAR-SOM-MX8X

1.1.4 Supporting O.S

- Android
- Linux

1.1.5 Additional information

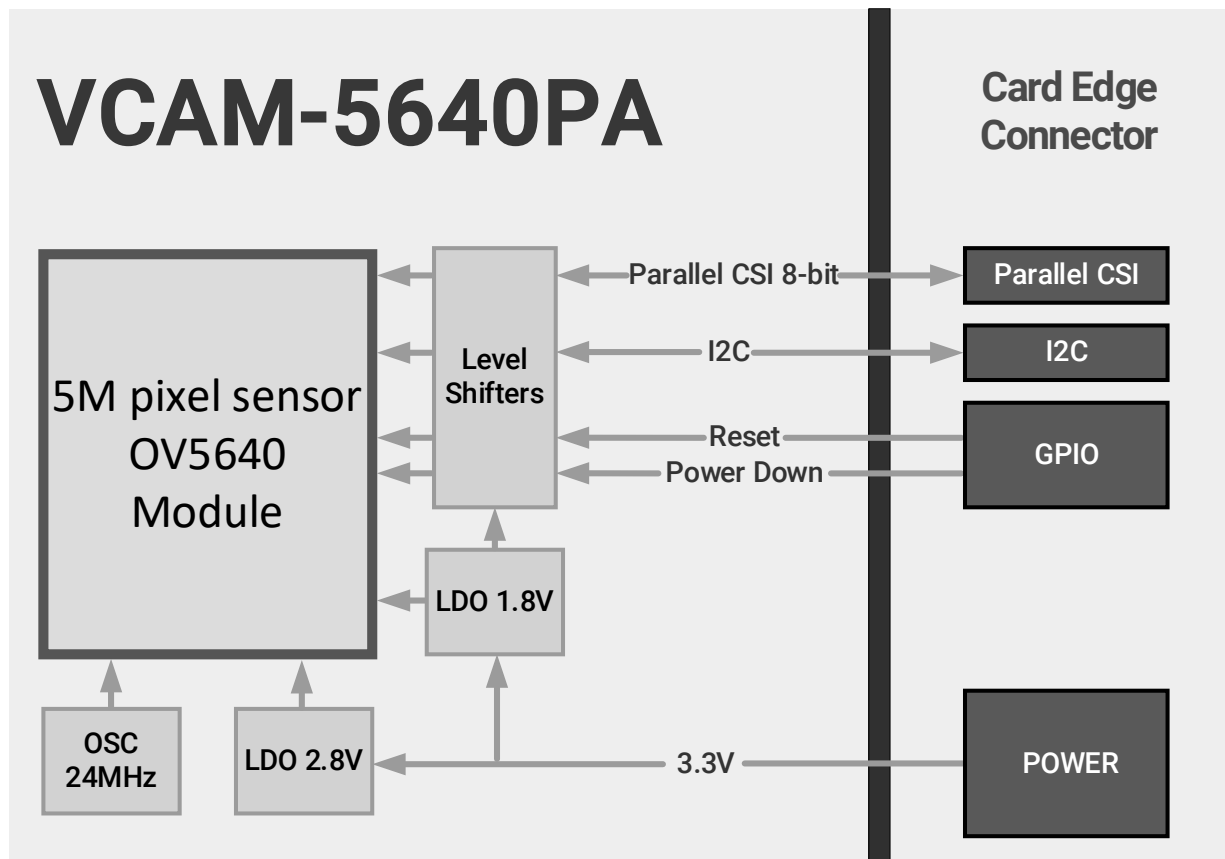
Board schematics is available to download at www.variscite.com,

For further information contact Variscite support at support@variscite.com.

1.2 VCAM-5640PA features summary

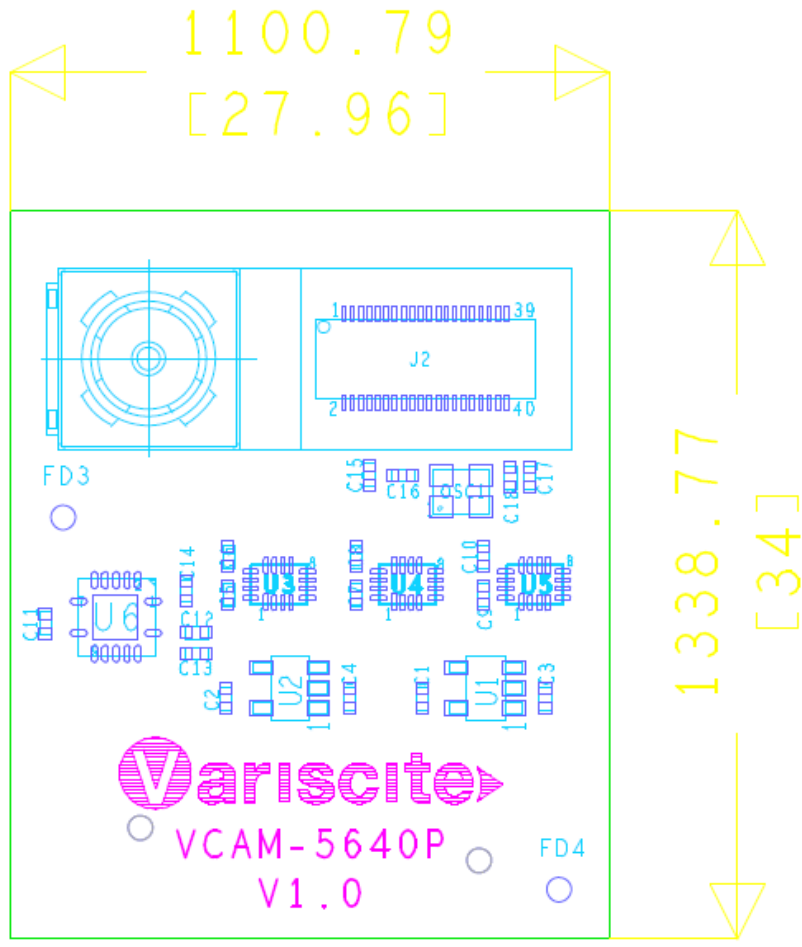
- 1 x 26 pin Card Edge Connector compatible with various carrier board; see section Supporting Variscite Carrier Boards
- 1 x JAL-MIPI-OV5640 V5.0 camera module

1.3 Block Diagram



1.4 Board Layout

The VCAM-5640PA physical dimensions are 27.96 x 34 mm.



Detailed CAD files are available for download at www.variscite.com.

1.5 VCAM-5640PA connectors

The below table lists all available connectors on the VCAM-5640PA, refer to chapter 2 for a more detailed description and Pin-out of each connector.

Table 1-1 VCAM-5640PA connectors

Reference	Function	Type
J1	Symphony-Board and Concerto-Board edge connector mating	Card edge connector 0.8mm 26pins SAMTEC P/N: HSEC8-113-01-L-DV-A-K
J2	JAL-MIPI-OV5640 V5.0 camera module mating connector	Board to board, 40 pos., 0.4mm Hirose P/N: DF30FC-40DS-0.4V(82)

2 Detailed Description

2.1 Overview

This chapter details the VCAM-5640PA features and external interfaces.

Please refer to the Compatible Variscite SOM section data sheets for more information.

Table 2-1 describes this chapter table header and acronyms used.

Table 2-1: 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		VCAM-5640PA schematic signal name
Description		Short Pin functionality description

2.2 VCAM-5640PA Interfaces

2.2.1 Card Edge connector

The Supporting Variscite Carrier Boards export the Compatible Variscite SOM 8-bit parallel CSI camera interface to a 26POS 0.8mm PCB Edge connector.

Mating connector is SAMTEC P/N: HSEC8-113-01-L-DV-A-K

Table 2-2: Card Edge connector pin out (J1)

Pin #	Connector Signal	Type	Description
1	J1.79-{MX8X}_CSI_RST_B	O	Camera Reset control; Active low
2	BASE_PER_3V3	P	Camera Power supply 3.3V
3	J1.48-{MX8X}_CSI_EN	O	Camera power down control; Active high
4	BASE_PER_3V3	P	Camera Power supply 3.3V
5	J1.84-{MX8X}_CSI_PCLK	I	Camera Pixel Clock Input
6			
7	J1.173-{MX8X}_CSI_VSYNC	I	Camera Vertical Sync Input
8	I2CO_SCL	O	Camera I2C Clock signal
9	J1.154-{MX8X}_CSI_HSYNC	I	Camera Horizontal Sync Input
10	I2CO_SDA	IO	Camera I2C Data signal
11	J1.156-{MX8X}_CSI_D05	I	Camera Data 5 Input
12			
13	GND	P	Digital Ground
14	GND	P	Digital Ground
15	J1.152-{MX8X}_CSI_D01	I	Camera Data 1 Input
16	J1.155-{MX8X}_CSI_D03	I	Camera Data 3 Input
17	J1.150-{MX8X}_CSI_D00	I	Camera Data 0 Input
18	J1.157-{MX8X}_CSI_D02	I	Camera Data 2 Input
19	GND	P	Digital Ground
20	GND	P	Digital Ground
21	J1.151-{MX8X}_CSI_D07	I	Camera Data 7 Input
22			
23	J1.153-{MX8X}_CSI_D06	I	Camera Data 6 Input
24	J1.148-{MX8X}_CSI_D04	I	Camera Data 4 Input
25	GND	P	Digital Ground
26	GND	P	Digital Ground

2.2.2 OV5640 V5.0 5 Mega Pixel camera module connector

The VCAM-5640PA features a 5 Mega Pixel camera module based on OV5640 sensor. The mating connector is Hirose DF30FC-40DS-0.4V(82)

Table 2-3: Camera Module mating connector pin out (J2)

Pin #	Mating connector Signal	Type	Description
1	GND	P	Digital Ground
2	GND	P	Digital Ground
3			
4	VCC_2V8	P	Camera 2.8V Power supply
5	CAM_I2C_SDA	IO	I2C data <i>Note: Signal level is 1.8V</i>
6			
7	CAM_I2C_SCL	I	I2C clock <i>Note: Signal level is 1.8V</i>
8	VCC_2V8	P	Camera 2.8V Power supply
9	CAM_RESET	I	Camera Reset control; Active low <i>Note: Signal level is 1.8V</i>
10			
11	CAM_PIXCLK	O	Camera Pixel Clock output <i>Note: Signal level is 1.8V</i>
12			
13	CAM_VSYNC	O	Camera Vertical Sync output <i>Note: Signal level is 1.8V</i>
14			
15	CAM_HSYNC	O	Camera Horizontal Sync output <i>Note: Signal level is 1.8V</i>
16			
17	CAM_PWDN	I	Camera power down control; Active high <i>Note: Signal level is 1.8V</i>
18			
19	CAM_DATA7	O	Camera Data 7 output <i>Note: Signal level is 1.8V</i>
20	GND	P	Digital Ground
21	CAM_DATA6	O	Camera Data 6 output <i>Note: Signal level is 1.8V</i>
22			
23	CAM_DATA5	O	Camera Data 5 output <i>Note: Signal level is 1.8V</i>
24			
25	CAM_DATA4	O	Camera Data 4 output <i>Note: Signal level is 1.8V</i>
26	GND	P	Digital Ground

VAR-EXT-5640PA CAMERA BOARD

Pin #	Mating connector Signal	Type	Description
27	CAM_DATA3	O	Camera Data 3 output <i>Note: Signal level is 1.8V</i>
28			
29	CAM_DATA2	O	Camera Data 2 output <i>Note: Signal level is 1.8V</i>
30			
31	CAM_DATA1	O	Camera Data 1 output <i>Note: Signal level is 1.8V</i>
32	GND	P	Digital Ground
33	CAM_DATA0	O	Camera Data 0 output <i>Note: Signal level is 1.8V</i>
34	CAM_MCLK	I	Camera Reference clock <i>Note: Signal level is 1.8V</i>
35			
36	VCC_1V5	O	Camera internal LDO 1.5V output
37			
38	VCC_1V8	P	Camera 1.8V Power supply
39	GND	P	Digital Ground
40	GND	P	Digital Ground

3 Environmental specifications

Table 3-1: 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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