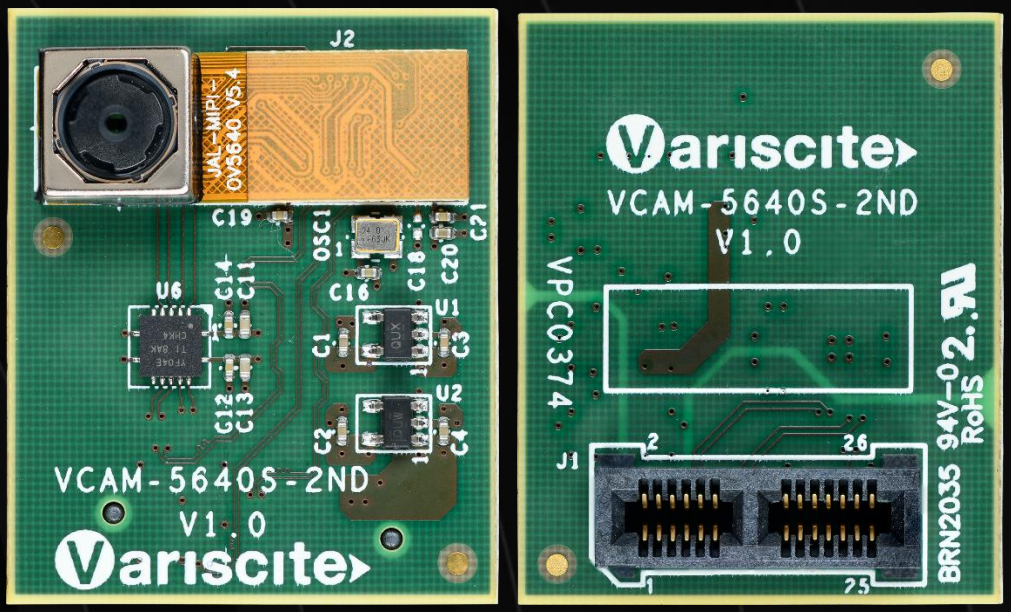
Rev. 1.0, 01/2020

VARISCITE LTD.

VCAM-5640S-2ND Datasheet

i.MX8M-PLUS 2nd Camera Extension Board V 1.x



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Revision History

Revision	Date	Notes
1.00	Oct 20 2020	Preliminary

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1 Overview

This chapter gives an overview of the VCAM-5640S-2ND.

1.1 General Information

The VCAM-5640S-2ND is a serial 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-MX8M-PLUS 2nd MIPI-CSI2 interface exported from the SOM.

1.1.1 VCAM-5640S-2ND Features:

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

1.1.2 Supporting Variscite Carrier Boards

- Symphony-Board
- Concerto-Board

1.1.3 Compatible Variscite SOM

- VAR-SOM-MX8M-PLUS

1.1.4 Supporting O.S

- Android
- Linux

1.1.5 Additional Information

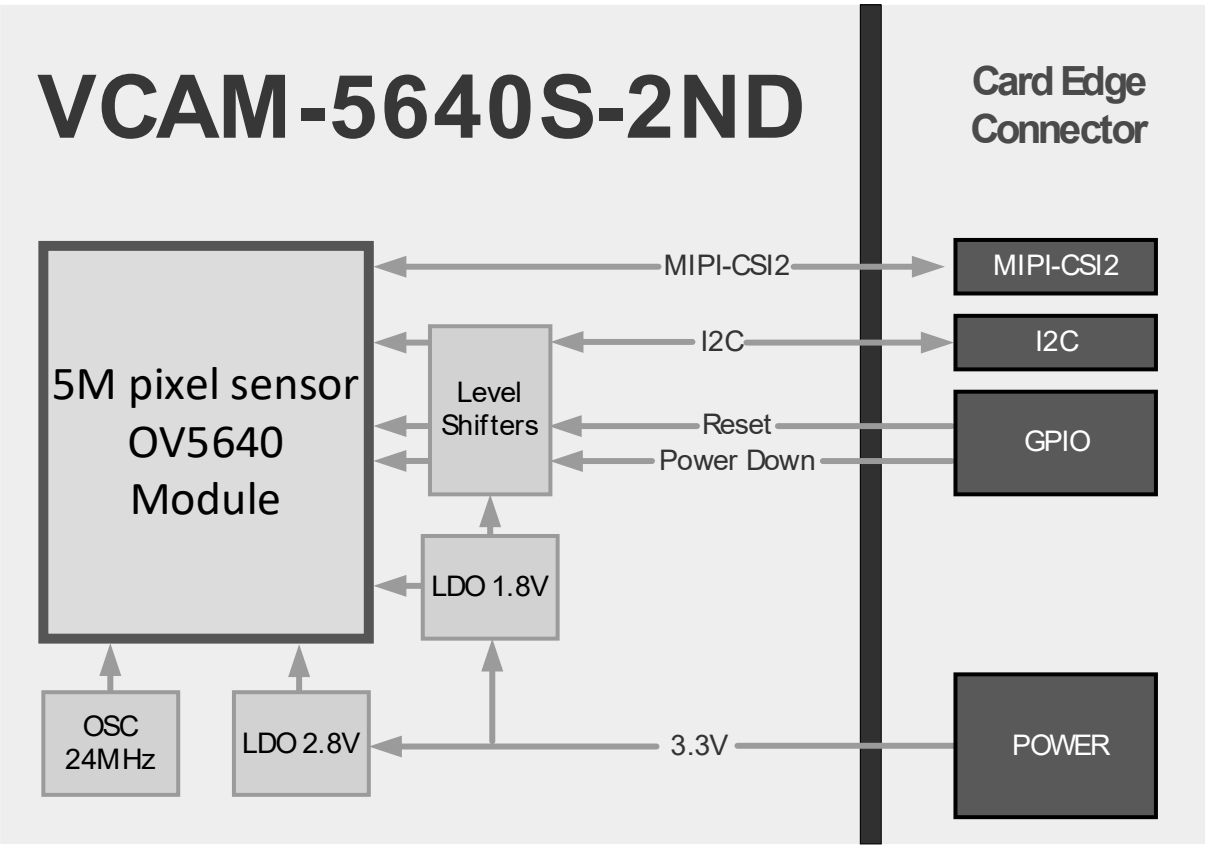
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1.2 VCAM-5640S-2ND Features Summary

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

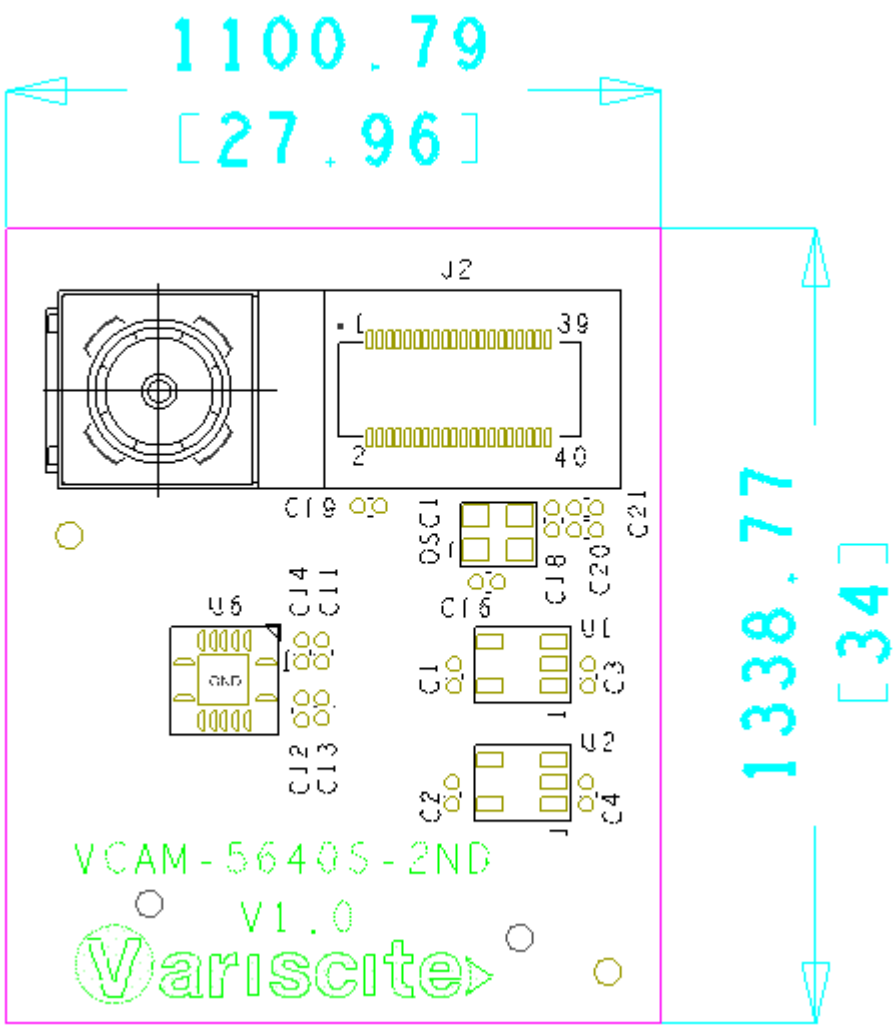
1.3 Block Diagram



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1.4 Board Layout

The VCAM-5640S-2ND physical dimensions are 27.96 x 34 mm.



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

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1.5 VCAM-5640S-2ND Connectors

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

Table 1-1 VCAM-5640S-2ND 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)

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2 Detailed Description

2.1 Overview

This chapter details the VCAM-5640S-2ND 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-5640S-2ND schematic signal name
Description		Short Pin functionality description

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2.2 VCAM-5640S-2ND Interfaces

2.2.1 Card Edge Connector

The Supporting Variscite Carrier Boards export the Compatible Variscite SOM 2nd MIPI-CSI2 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			
2	BASE_PER_3V3	P	Camera Power supply 3.3V
3	J1.48-{MX8MP}_GPIO4_IO27	O	Camera power down control; Active high
4	BASE_PER_3V3	P	Camera Power supply 3.3V
5			
6			
7	J1.173-{MX8MP}_GPIO1_IO09/*/GPIO4_IO19	O	Camera Reset control; Active low
8	I2C5_SCL	O	Camera I2C Clock signal
9			
10	I2C5_SDA	IO	Camera I2C Data signal
11			
12			
13	GND	P	Digital Ground
14	GND	P	Digital Ground
15	J1.152-{MX8MP}_MIPI_CSI2_CLK_P	DSI	MIPI-CSI2 Clock; Positive
16	J1.155-{MX8MP}_MIPI_CSI2_D0_P	DSI	MIPI-CSI2 Lane0; Positive
17	J1.150-{MX8MP}_MIPI_CSI2_CLK_N	DSI	MIPI-CSI2 Clock; Negative
18	J1.157-{MX8MP}_MIPI_CSI2_D0_N	DSI	MIPI-CSI2 Lane0; Negative
19	GND	P	Digital Ground
20	GND	P	Digital Ground
21			
22	J1.146-{MX8MP}_MIPI_CSI2_D1_P	DSI	MIPI-CSI2 Lane1; Positive
23			
24	J1.148-{MX8MP}_MIPI_CSI2_D1_N	DSI	MIPI-CSI2 Lane1; Negative
25	GND	P	Digital Ground
26	GND	P	Digital Ground

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2.2.2 OV5640 V5.0 5 Mega Pixel Camera Module Connector

The VCAM-5640S-2ND 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 *Note: Signal level is 1.8V*
6			
7	CAM_I2C_SCL	I	I2C clock *Note: Signal level is 1.8V*
8	VCC_2V8	P	Camera 2.8V Power supply
9	CAM_RESET	I	Camera Reset control; Active low *Note: Signal level is 1.8V*
10			
11			
12			
13			
14			
15			
16	J1.146-{MX8MP}_MIPI_CSI2_D1_P		Camera MIPI-CSI2 Lane 1; Positive
17	CAM_PWDN	I	Camera power down control; Active high *Note: Signal level is 1.8V*
18	J1.148-{MX8MP}_MIPI_CSI2_D1_N		Camera MIPI-CSI2 Lane 1; Negative
19			
20	GND	P	Digital Ground
21			
22	J1.152-{MX8MP}_MIPI_CSI2_CLK_P		Camera MIPI-CSI2 Clock; Positive
23			
24	J1.150-{MX8MP}_MIPI_CSI2_CLK_N		Camera MIPI-CSI2 Clock; Negative
25			
26	GND	P	Digital Ground
27			
28	J1.155-{MX8MP}_MIPI_CSI2_D0_P		Camera MIPI-CSI2 Lane 0; Positive
29			
30	J1.157-{MX8MP}_MIPI_CSI2_D0_N		Camera MIPI-CSI2 Lane 0; Negative

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Pin #	Mating connector Signal	Type	Description
31			
32	GND	P	Digital Ground
33			
34	CAM_MCLK	I	Camera Reference clock *Note: Signal level is 1.8V*
35			
36	VCC_1V5	O	Camera internal LDO 1.5V output
37			
38	VCC_1V8	P	Camera 1.8V Power supply
39			
40	GND	P	Digital Ground

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3 Environmental Specifications

Table 3-1: Environmental Specification

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

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