



VARISCITE LTD

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VAR-EXT-CB103

Extension Board for VAR-xxxxCustomBoard

Ver 1.0

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## Revision History

<b>Revision</b>	<b>Date</b>	<b>Notes</b>
1.0	14/01/2010	Initial release

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# 1 Overview

This chapter gives a short overview of the VAR-EXT-CB103 extension board.

## 1.1 General Information

The VAR-EXT-CB103 extension board is an add-on board, plugs into the VAR-xxxxCustomBoard extension connectors. The VAR-EXT-CB103 exposes more than 90% of the VAR-SOM-xxxx IO's and interfaces into an easy to use 2.54mm pitch through-hole connectors. The VAR-EXT-CB103 standard prototyping headers offers a fast & easy way for adding additional custom hardware to the VAR-xxxxCustomBoard.

Additional to exposing the VAR-SOM-xxxx IO's the VAR-EXT-CB103 features also:

1. On board 3 port USB2 HUB
2. Two RS-232 transceivers & connectors
3. JTAG interface adapter

### Supporting products:

- VAR-OM35CustomBoard
- VAR-MX25CustomBoard

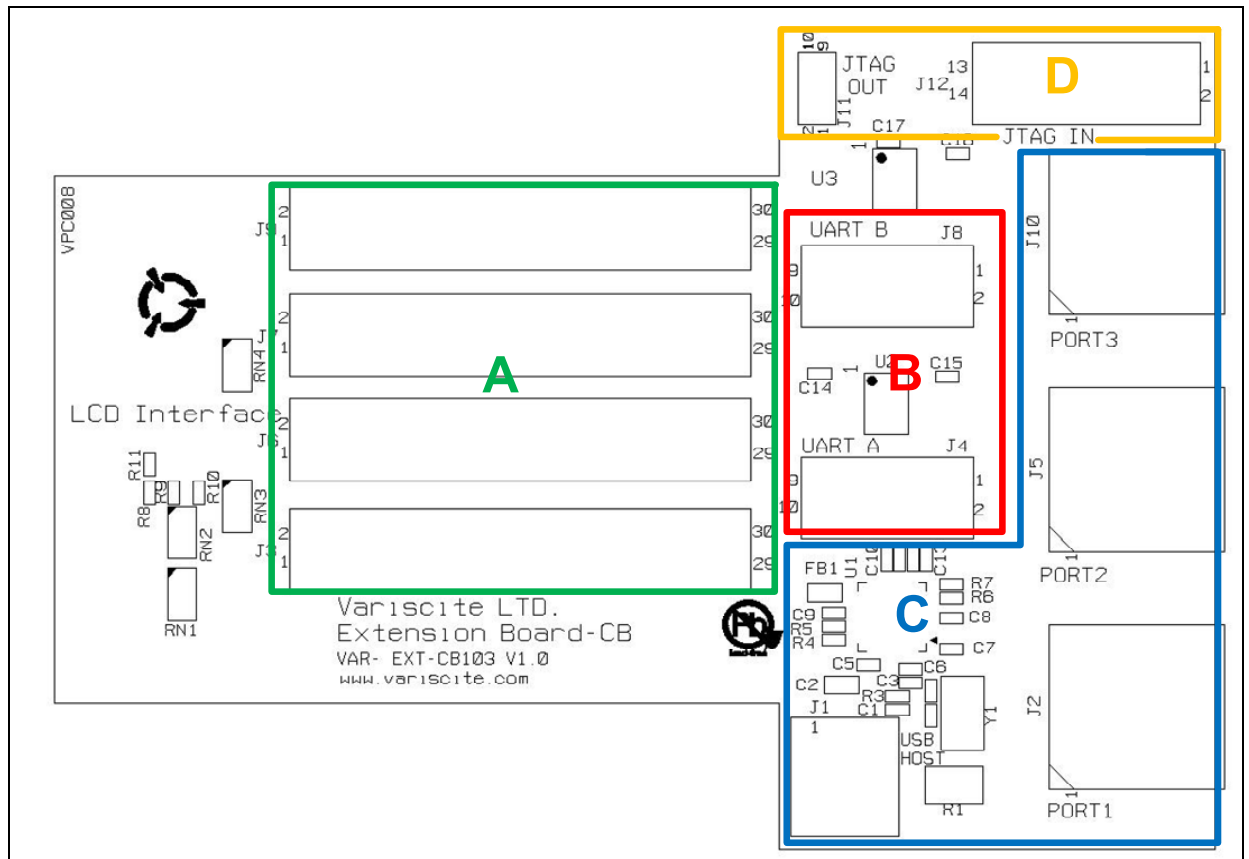
Contact support for further information: <mailto:support@variscite.com>.

## 1.2 Related Documents

Document	Location
VAR-SOM-OM35 data sheet	<a href="http://www.variscite.com/DataSheets/VAR-OM35xxSBC_DS_V1_3.pdf">http://www.variscite.com/DataSheets/VAR-OM35xxSBC_DS_V1_3.pdf</a>
VAR-SOM-MX25 data sheet	<a href="http://www.variscite.com/DataSheets/VAR-SOM-MX25_DS_V1_1.pdf">http://www.variscite.com/DataSheets/VAR-SOM-MX25_DS_V1_1.pdf</a>

## 2 Detailed Description

### 2.1 VAR-EXT-CB103 Layout & Connectors



#### 2.1.1 IO & BUS Extenders (Section A)

The VAR-EXT-SB103 features four 15x2, 2.54mm, standard header connectors. The four headers expose more than 90% of VAR-SOM-xxxx modules IOs and interfaces, among including:

- Full LCD interface.
- CAM Interface.
- SPI,I2C Serial BUS.
- MMC.
- Two A to D inputs.
- Local BUS (if featured in SOM connector).
- GPIO.

Detailed pin out can be found in section [3.1 “Extension Headers”](#)

### 2.1.2 RS-232 Level UARTS (Section B)

The VAR-EXT-SB103 features two 5x2 headers. Together with on board UART connector featured by the VAR-xxxxCustomBoard, all three VAR-SOM-xxxx UART interfaces can be directly connected to any standard RS-232 terminal.

Detailed pin out can be found in section [3.2 UARTS](#)

### 2.1.3 USB HUB (Section C)

The VAR-EXT-SB103 features stand alone, 3 ports USB2 HUB. The HUB can be connect either to VAR-xxxxCustomBoard HOST port or to the OTG port using standard USB cable.

The HUB enables to using USB1.1 devices with VAR-OM35CustomBoard HOST port without needing third party USB hub.

### 2.1.4 JTAG (Section D)

The VAR-EXT-SB103 features on board 2x7 pin, 2.57mm pitch JTAG connector to 2x5 pin, 1.27mm JTAG connector converter.

Detailed pin out can be found in section [3.3 JTAG Connectors](#)

## 3 Connectors Pin out

### 3.1 Extension Headers

#### 3.1.1 Extension Header J6 – LCD Interface

PIN#	VAR-SOM-OM35 Signal Name	VAR-SOM-MX25 Signal Name
1	VIO	VIO
2	DSS_D0	CAN_TX1
3	DSS_D1	CAN_RX1
4	DSS_D2	LCD_D0
5	DSS_D3	LCD_D1
6	DSS_D4	LCD_D2
7	DSS_D5	LCD_D3
8	DSS_D6	LCD_D4
9	DSS_D7	LCD_D5
10	DSS_D8	CSPI1_RDY
11	DSS_D9	LCD_16
12	DSS_D10	LCD_D6
13	DSS_D11	LCD_D7
14	DSS_D12	LCD_D8
15	DSS_D13	LCD_D9
16	DSS_D14	LCD_D10
17	DSS_D15	LCD_D11
18	DSS_D16	NC
19	DSS_D17	GPIO4[6]
20	DSS_D18	LCD_D12
21	DSS_D19	LCD_D13
22	DSS_D20	LCD_D14
23	DSS_D21	LCD_D15
24	DSS_D22	LCD_D16
25	DSS_D23	LCD_D17
26	DSS_PCLK	LCD_PCLK
27	DSS_VSYNC	LCD_VSYNC
28	DSS_HSYNC	LCD_HSYNC
29	GND	GND
30	DSS_ACBIAS	LCD_DRDY

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## 3.1.2 Extension Header J3 – CAM &amp; I2C

<b>PIN #</b>	<b>VAR-SOM-OM35 Signal Name</b>	<b>VAR-SOM-MX25 Signal Name</b>
1	VIO	VIO
2	NC	NC
3	CAM_D0	NC
4	NC	NC
5	CAM_D1	NC
6	NC	NC
7	CAM_D2	CSI_D2
8	NC	NC
9	CAM_D3	CSI_D3
10	NC	NC
11	CAM_D4	CSI_D4
12	NC	NC
13	CAM_D5	CSI_D5
14	NC	NC
15	CAM_D6	CSI_D6_MMC2_CMD
16	CAM_STROBE	CSPI_CS1
17	CAM_D7	CSI_D7__MMC2_CLK
18	CAM_XCLKA	CSI_MCLK_MMC2_DAT0
19	CAM_D8	CSI_D8
20	CAM_PCLK	CSI_PIXCLK_MMC2_DAT3
21	CAM_D9	CSI_D9
22	I2C3_SDA	I2C1_DATA
23	CAM_D10	NC
24	I2C3_SCL	I2C1_CLOCK
25	CAM_D11	NC
26	CAM_WEN	NC
27	CAM_VS	CSI_VSYNC_MMC2_DAT1
28	CAM_FLD	GND
29	GND	GND
30	CAM_HS	CSI_HSYNC_MMC2_DAT2

## 3.1.3 Extension Header J7 – Local Bus

<b>PIN #</b>	<b>VAR-SOM-OM35 Signal Name</b>	<b>VAR-SOM-MX25 Signal Name</b>
1	LB_IO_0	NC
2	LB_IO_1	NC
3	LB_IO_2	NC
4	LB_IO_3	NC
5	LB_IO_4	NC
6	LB_IO_5	NC
7	LB_IO_6	NC
8	LB_IO_7	NC
9	LB_IO_12	NC
10	LB_IO_9	NC
11	LB_IO_14	NC
12	LB_IO_11	NC
13	LB_IO_A1	NC
14	LB_IO_13	NC
15	LB_IO_A3	NC
16	LB_IO_15	NC
17	LB_IO_A5	NC
18	LB_IO_A2	NC
19	LB_IO_A7	NC
20	LB_IO_A4	NC
21	LB_IO_8	NC
22	LB_IO_A6	NC
23	LB_IO_10	NC
24	LB_nCS3	NC
25	LB_RE_OE_N	NC
26	LB_nADV_ALE	NC
27	LB_WE_N	3V3
28	LB_CLE	NC
29	LB_WAIT0	NC
30	LB_CLK	PWM1

## 3.1.4 Extension Header J9 – SPI, MMC &amp; ADC

<b>PIN #</b>	<b>VAR-SOM-OM35 Signal Name</b>	<b>VAR-SOM-MX25 Signal Name</b>
1	VIO	VIO
2	MsSPI2_CLK	CSPI_CLK
3	MMC1_CD	MMC1_CD
4	MsSPI2_SIMO	CSPI_MOSI
5	MMC1_CLKO	MMC1_CLKO
6	MsSPI2_SOMI	CSPI_MISO
7	MMC1_CMD	MMC1_CMD
8	MsSPI2_CS0	CSPI_CS0
9	MMC1_DAT0	MMC1_DAT0
10	GPIO28	GPIO3_16
11	MMC1_DAT1	MMC1_DAT1
12	McBSP1_CLKR	NC
13	MMC1_DAT2	MMC1_DAT2
14	McBSP1_FSR	GND
15	MMC1_DAT3	MMC1_DAT3
16	McBSP1_DX	SSI5_STXD
17	KPD.R4	GPIO4[8]
18	McBSP1_DR	SSI5_SRXD
19	HP_LOUT	HP_LOUT
20	McBSP1_FSX	SSI5_STXFS
21	HP_ROUT	HP_ROUT
22	McBSP1_CLKX	SSI5_SCK
23	CODEC_AUXADC1	CODEC_AUXADC1
24	KPD.C4	NC
25	CODEC_AUXADC2	CODEC_AUXADC2
26	KPD.C5	NC
27	AGND	#N/A
28	PWM0	LCD_CONTRAST
29	GND	GND
30	RESET_OUT_N	RESET_OUT

## 3.2 UARTs

### 3.2.1 RS232 connectors assignment

Connector	VAR-SOM-OM35	VAR-SOM-MX25
UART A (J4)	UART 2	UART 2
UART B (J8)	UART 1	UART 3

### 3.2.2 RS232 connectors pin out

Pin #	Type	Description
1	NC	
2	I	UART Receive
3	O	UART Transmit
4	NC	
5	Power	GND
6	NC	
7	O	UART RTS
8	I	UART 3 CTS
9	NC	
10	NC	

## 3.3 JTAG Connectors

### 3.3.1 JTAG In (J12)

Pin #	Pin Function
1	TDO
2	EMU1
3	nTRST
4	EMU0
5	TDS
6	NC
7	TDI
8	NC
9	TCK
10	GND

### 3.3.2 JTAG Out (J11)

Pin #	Pin Function
1	TMS
2	nTRST
3	TDI
4	GND
5	VIO
6	NC
7	TDO
8	GND

9	RTCK
10	GND
11	TCK
12	GND
13	EMU0
14	EMU1

## 4 Environmental specifications

	Min	Max
Commercial operating temperature range	0 <sup>o</sup> C	+70 <sup>o</sup> C
Extended operating temperature range	-25 <sup>o</sup> C	+85 <sup>o</sup> C
MTBF	10000hrs >	
Shock resistance	50G / 20 ms	
Relative humidity, Operational	10%	90%
Relative humidity, Storage	5%	95%
Vibration	20G / 0 - 600 Hz	

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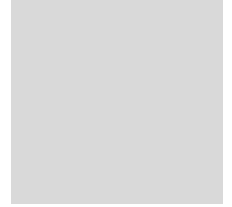
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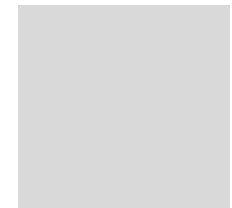
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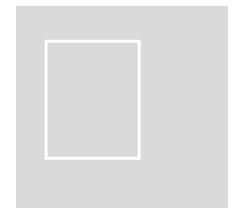
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