



## *CustomBoard 320 Manual*

*Preliminary*

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# 1. Copyright notice

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## 2. About This Manual

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The CustomBoard 320 can be used for evaluating of Variscite's high-end Software and Hardware solutions, based on Marvell® PXA320 Processor, and as an end-product platform.

The CustomBoard 320 is comprised of two major components:

- i. CustomBoard 320
- ii. VAR-320SBC Module

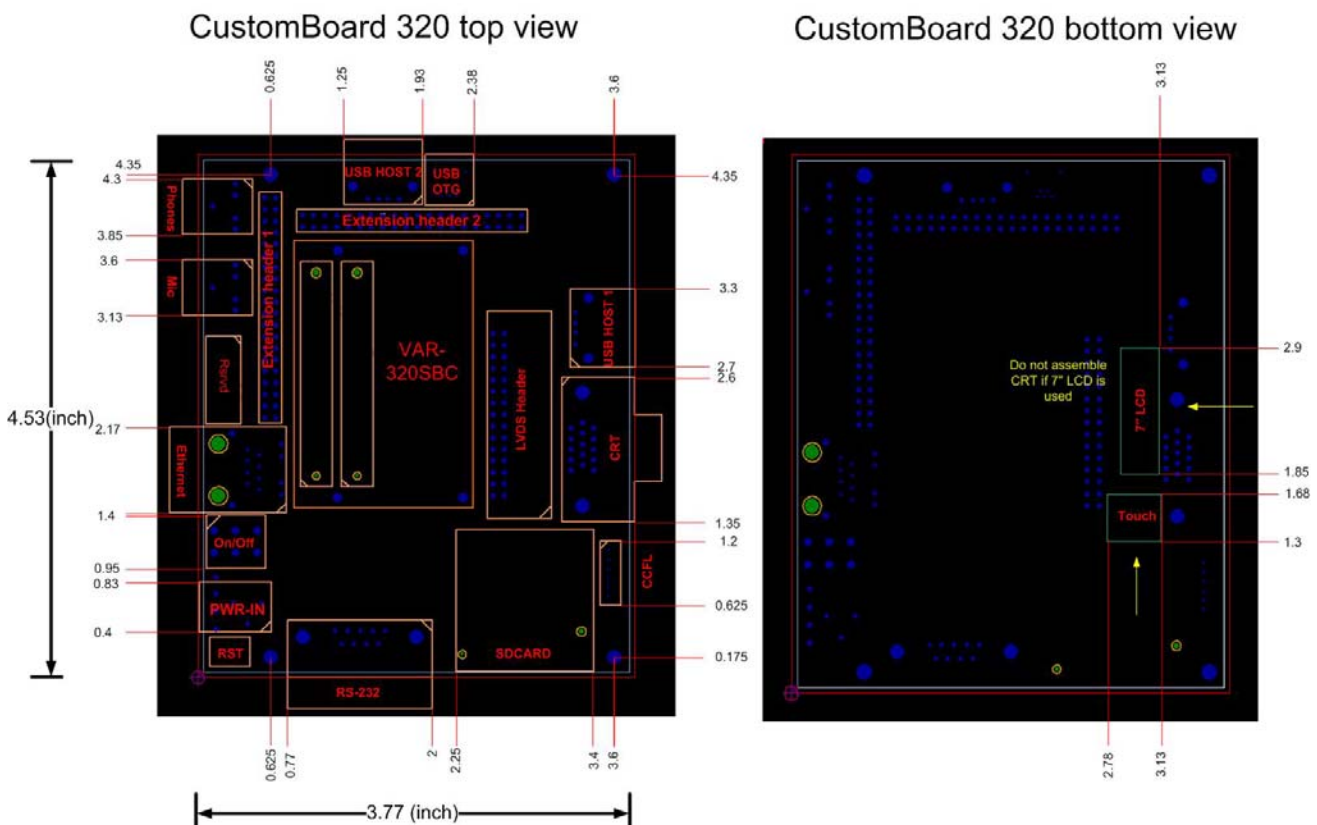
This manual contains hardware specification, usage method, installation procedures and technical information for the Variscite CustomBoard 320.

### *Related Documents*

- VAR-SBC320 Datasheet

### 3. Electrical, Mechanical and Environmental Specifications

#### Mechanical specification



**Total Height: 0.8 inch**

### *Supply Voltage*

Two power supply options:

1. Single 5v (2A) supply. Use built-in 3.3v power regulator, and 12v boost regulator for LVDS CCFL inverter (Optional)
2. Dual, 5v (1.5A) + 3.3v(500ma) power supplies, to save 3.3v built-in power regulator

### *Power consumption*

2W to 5W in full activity, depending on CPU speed and selected features

### *Operation temp*

Commercial: 0° to 70° C  
Extended: -20° to 70° C

### *Storage temp*

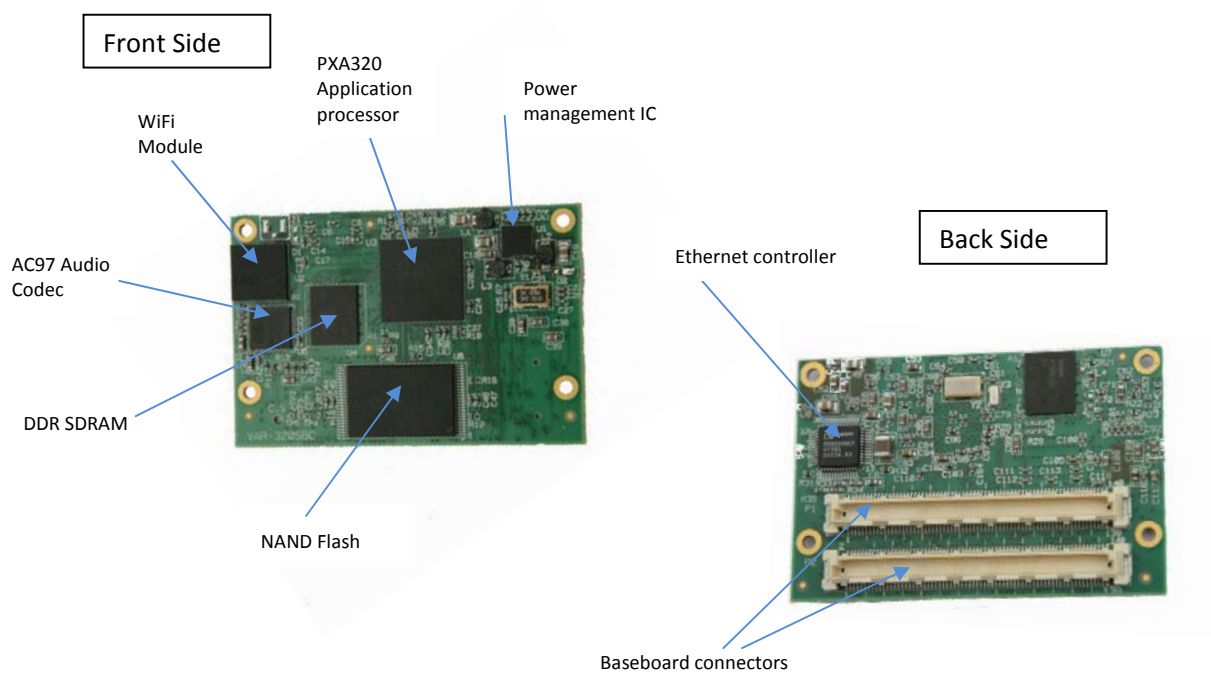
-40° to 85° C

### *MTBF*

>10000 hours

## 4. Hardware Specifications

### VAR-320SBC



#### **Microprocessor CPU**

The VAR-320SBC is based on Marvell's PXA320 application processor.

#### **NAND Flash Memory**

128MB-1GB NAND Flash

#### **DDR SDRAM**

64-256MB mobile DDR SDRAM

#### **Audio Codec**

The VAR-320SBC is equipped with Wolfson WM9705 Audio Codec and Touch screen interface. It is connect through the PXA320 AC97 interface.

WM9705 supports:

- Microphone
- Mono Speaker output
- Built-in Headphones interface

**Ethernet Controller**

Davicom DM9000 for high-speed Ethernet

**Power Supply Circuit**

- National LP3972<sup>®</sup> power management IC. Supports SpeedStep™ technology to achieve the most efficient power consumption.
- Lowest power solution, down to 1mw in sleep mode.  
Single 3-4.8V power supply.(One lithium-ion cell battery)
- Backup battery charger

## *CustomBoard 320*

### ***SD/SDIO***

SD/SDIO uses the processor built-in SD/MMC Controller

### ***USB1.1 Client Port***

Connected to processor's built-in USB 1.1 Client Controller

### ***USB1.1 Host Ports***

- Option 1: Use processor's single built-in USB host controller.
- Option 2: Use On-Board TI TUSB2046 USB HUB with 3 UBS host ports.

### ***CRT, LCD & Touch Panel***

- Option 1: 7" TFT LCD , 800 × 480 installed (optional) connected to processor's built-in TTL LCD interface
- Option 2: Use onboard LVDS transmitter to use with TFT LVDS LCD
- Option 3: CRT monitor

4-wire Touch Panel connector onboard.

### ***UARTs***

3 UARTs are available on Extension headers

UART1 is also connected to RS-232 Transceiver and RS-232 connector

## Extension headers

Extension header 1 (J8):

BT_TXD	1	2	FFCTS
BT_RXD	3	4	FFRTS
BT_CTS	5	6	GPIO127
BT_RTS	7	8	GPIO123
GPIO49	9	10	GPIO121
GPIO50	11	12	GPIO124
GPIO51	13	14	I2C_SCL
GPIO52	15	16	I2C_SDA
GPIO53	17	18	GPIO75
GPIO54	19	20	GPIO114
GPIO55	21	22	STD_TXD
GPIO56	23	24	STD_RXD
GPIO57	25	26	HP_LOUT
GPIO59	27	28	HP_ROUT
RSVD	29	30	SSP4_SCLK
RSVD	31	32	SSP4_SFRM
RSVD	33	34	SSP4_TXD
RSVD	35	36	SSP4_RXD
NVDD	37	38	FFRXD
GND	39	40	FFTXD

Pin name	GPIO	Functionality
BT_TXD	111	BTUART(UART2) TX
BT_RXD	110	BTUART(UART2) RX
BT_CTS	112	BTUART(UART2) Clear To Send
BT_RTS	109	BTUART(UART2) Request To Send
FFTXD	42	FFUART(UART1) TX
FFRXD	41	FFUART(UART1) RX
FFCTS	43	FFUART(UART1) Clear To Send
FFRTS	48	FFUART(UART1) Request To Send
I2C_SCL		I2C Bus - Serial Clock Line
I2C_SDA		I2C Bus - Serial Data Line
STD_TXD	107	STUART(UART3) TX
STD_RXD	108	STUART(UART3) RX
SSP4_SCLK	93	SSP Ch #4 CLK
SSP4_SFRM	94	SSP Ch #4 CLK
SSP4_TXD	95	SSP Ch #4 TX
SSP4_RXD	96	SSP Ch #4 RX
STD_TXD	107	STUART(UART3) TX
STD_RXD	108	STUART(UART3) RX
HP_LOUT		Headphones out - L
HP_ROUT		Headphones out - R
GPIO49	49	
GPIO50	50	
GPIO51	51	
GPIO52	52	
GPIO53	53	
GPIO54	54	
GPIO55	55	
GPIO56	56	
GPIO57	57	
GPIO59	59	
GPIO75	75	
GPIO114	114	
GPIO121	121	
GPIO123	123	
GPIO124	124	
GPIO127	127	

Extension header 2(J4):

GPIO60	1	2	VCC_1P8V
GPIO61	3	4	VCC_1P8V
GPIO62	5	6	VCC5
NC	7	8	VCC5
USB_HUB_DP3	9	0	VCC3_3
USB_HUB_DP3	11	12	VCC3_3
GPIO12	13	14	VCC_USB1_C
GPIO125	15	16	USB_DP1_C
GND	17	18	USB_DN1_C
RS232_RX	19	20	GND_USB1_C
RS232_TX	21	22	GND
NC	23	24	USB_OTG_VBUS_C
NC	25	26	USB_OTG_P
GPIO116	27	28	USB_OTG_N
GPIO117	29	30	USB_OTG_ID
GPIO118	31	32	GND_OTG_C
GPIO119	33	34	GPIO105
GPIO120	35	36	GPIO105
NC	37	38	GPIO113
GND	39	40	GPIO115

Pin name	GPIO	Functionality
GPIO60	60	
GPIO61	61	
GPIO62	62	
GPIO12	12	Also as SD card detect
GPIO125	125	Also as SD card Write-Protect
GPIO116	116	
GPIO117	117	
GPIO118	118	
GPIO119	119	
GPIO120	120	
GPIO105	105	
GPIO106	106	
GPIO113	113	
GPIO115	115	
VCC_1P8		500ma 1.8V output
VCC5		1A 5v output
VCC3_3		500ma 3.3v output
VCC_USB1_C		5v USB power output, 500ma limited
USB_DP1_C		USB host 1, DP
USB_DN1_C		USB host 1, DN
GND_USB1_C		USB host1, GND
USB_OTG_VBUS_C		USB client 5v input
USB_OTG_P		USB Client, DP
USB_OTG_N		USB Client, DN
USB_OTG_ID		USB OTG ID
GND_OTG_C		USB Client GND
USB_HUB_DP3		USB host 3 (HUB), DP
USB_HUB_DN3		USB host 3 (HUB), DN

LVDS header:

VCC3_3	1	2	VCC3_3
NC	3	4	GND
GND	5	6	GND
GND	7	8	GND
GND	9	10	NC
MMC_DAT_0_R	11	12	NC
MMC_DAT_1_R	13	14	NC
MMC_DAT_2_R	15	16	NC
MMC_DAT_3_R	17	18	NC
MMC_CLK	19	20	NC
MMC_CMD_0	21	22	GND
CLKIN-	23	24	CLKIN+
RXIN2-	25	26	RXIN2+
RXIN1-	27	28	RXIN1+
RXIN0-	29	30	RXIN0+

Pin name	GPIO	Functionality
VCC3_3		3v supply to LCD LVDS controller
CLKIN-		LVDS CLK -
CLKIN+		LVDS CLK +
RXIN0-		LVDS RXIN0-
RXIN0+		LVDS RXIN0+
RXIN1-		LVDS RXIN1-
RXIN1+		LVDS RXIN1+
RXIN2-		LVDS RXIN2-
RXIN2+		LVDS RXIN2+
MMC_DAT_0_R		SD / MMC DAT 0
MMC_DAT_1_R		SD / MMC DAT 1
MMC_DAT_2_R		SD / MMC DAT 2
MMC_DAT_3_R		SD / MMC DAT 3
MMC_CLK		SD / MMC CLK
MMC_CMD_0		SD / MMC CMD

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