

# VPX Carrier Data Sheet

Revision History:

- Rev 1.3** 30.01.2023 Minor typo fixes
- Rev 1.2** 12.08.2022 Added Electrical and Environmental parameters
- Rev 1.1** 03.05.2018 Added signal description
- Rev 1.0** 25.11.2015 Initial version

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# 1 Mechanical Drawing

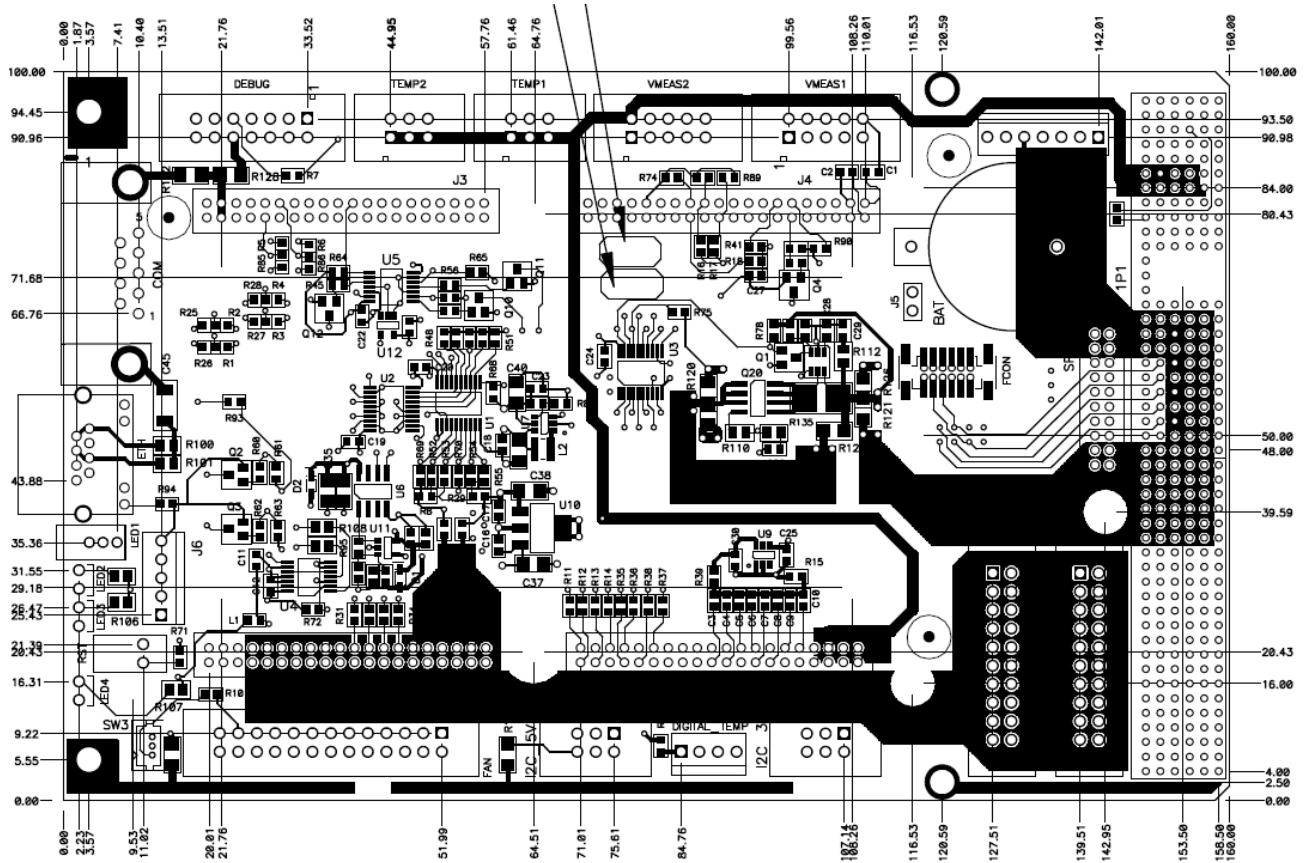


Figure 1: PCB Dimensions

## 2 Layout / Position of the connectors

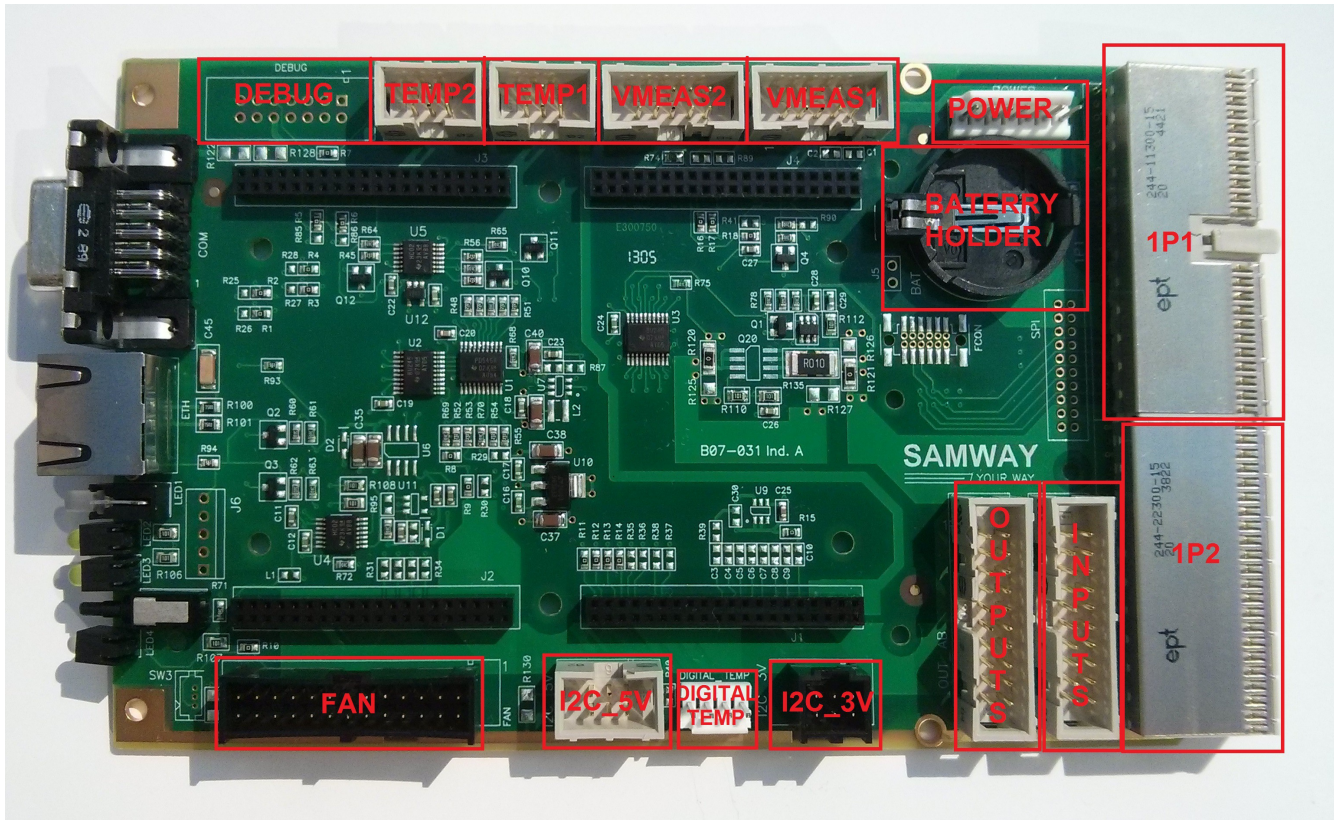


Figure 2: Connector Positions

Note:

- SMW05A002 – Fix mounted version: all connectors assembled except 1P1 and 1P2.
- SMW05A012 – Pluggable version: all connectors not assembled except 1P1 and 1P2.

### 3 Connectors

<b>Connector</b>	<b>Manufacturer</b>	<b>Part Number</b>
<b>Power</b>	TE Connectivity	640456-7
<b>VMEAS1,VMEAS2</b>	Wuerth	61201021621
<b>TEMP1,TEMP2</b>	Wuerth	61200621621
<b>FAN</b>	Molex	90130-1226
<b>I2C_5V</b>	Harting	09185066324
<b>Digital Temp</b>	TE Connectivity	640456-4
<b>I2C_3V</b>	Molex	90130-1206
<b>Outputs, Inputs</b>	Wuerth	61202021621
<b>1P1</b>	EPT	244-11300-15
<b>1P2</b>	EPT	244-22300-15
<b>Battery Holder</b>	Keystone Electronics	1066
<b>IPMB</b>	Harwin	M80-8531042

*Table 1: Connectors*

## 4 Connector Pin Assignments

PIN	SIGNAL	PIN	SIGNAL
1	+3.3V	2	
3	+3.3V	4	
5	GND	6	PWM_1
7	GND	8	TACH_11
9	TACH_10	10	TACH_9
11	PWM_3	12	+5V
13	TACH_8	14	TACH_7
15	GND	16	TACH_6
17	PWM_2	18	TACH_5
19	TACH_4	20	+5V
21	TACH_3	22	PWM_1
23	GND	24	TACH_2
25	TACH_1	26	TACH_0

Table 2: Fan Connector

PIN	SIGNAL
1	SDA_2
2	SCL_2
3	SYS_RST
4	INT_2
5	+5V
6	GND

Table 3: I2C\_5V Connector

PIN	SIGNAL
1	+5V
2	SDA_3
3	GND
4	SCL_3

Table 4: Digital Temp Connector

PIN	SIGNAL
1	SCL_1
2	VCC
3	SDA_1
4	GND
5	SDA_0
6	SCL_0

Table 5: I2C\_3V Connector

PIN	SIGNAL	PIN	SIGNAL
1	OUT1	2	OUT2
3	OUT3	4	VIO
5	OUT4	6	OUT5
7	GND	8	OUT6
9	OUT7	10	OUT8
11	OUT9	12	VIO
13	OUT10	14	OUT11
15	GND	16	OUT12
17	OUT13	18	OUT14
19	OUT15	20	OUT16

Table 6: Outputs Connector

PIN	SIGNAL	PIN	SIGNAL
1	IN1	2	IN2
3	IN3	4	VIO
5	IN4	6	IN5
7	GND	8	IN6
9	IN7	10	IN8
11	IN9	12	VIO
13	IN10	14	IN11
15	GND	16	IN12
17	IN13	18	IN14
19	IN15	20	IN16

Table 7: Inputs Connector

PIN	SIGNAL
1	SYSRESET#
2	ACFAIL#
3	AN3_IN(-12V)
4	GND
5	AN2_IN(+12V)
6	GND
7	AN0_IN (+3.3V)
8	GND
9	AN1_IN (+5V)
10	GND

Table 10: VMEAS1 Connector

PIN	SIGNAL
1	VREF
2	Temp3
3	VREF
4	Temp2
5	VREF
6	Temp1

Table 8: Temp1 Connector

PIN	SIGNAL
1	SYSFAIL#
2	VREF
3	AN6_IN
4	GND
5	AN7_IN
6	GND
7	AN5_IN
8	GND
9	AN4_IN
10	GND

Table 11: VMEAS2 Connector

PIN	SIGNAL
1	VREF
2	Temp6
3	VREF
4	Temp5
5	VREF
6	Temp5

Table 9: Temp2 Connector

PIN	SIGNAL
1	
2	
3	GND
4	GND
5	
6	+3.3V_IN
7	PWR_FAIL

Table 12: Power Connector

PIN	A	B	C	D	E
25	ETH_TX+	ETH_RX+	GND	E1R+	T1R+
24	ETH_TX-	ETH_RX-	PRIM_IN#	E1R-	T1R-
23	GND	GND	PRES#	GND	GND
22	HLY_OUT#	HLY_IN#	PRIM_OUT#	UPDATE_RX	UPDATE_TX
21	GND	SDA_3	SCL3	INT_3	GND
20	RS232_TX				VREF
19		VREF	TEMP6	AN4_IN	TEMP5
18		VCC	TEMP4	AN5_IN	
17	RS232_RX	VCC	TEMP5	AN7_IN	
16		VCC	TEMP2	AN6_IN	
15		VCC	TEMP1	SYSFAIL*	
11	SDA_2	SCL_2	INT_2	GND	FTP_0
10	TACH_0	TACH_1	TACH_2	+3.3V_IN	FTP_1
9	PWM1	TACH_3	TACH_4	+5V_IN	FTP_2
8	PWM2	TACH_5	TACH_6	+3.3V_IN	FTP_3
7	PWM3	TACH_7	TACH_8	+5V_IN	AN2_IN(+12V)
6	PWM1	TACH_9	TACH_10	+3.3V_IN	AN3_IN(-12V)
5	TACH11	SDA_1	SCL_1	+5V_IN	AN4_IN
4	GND	SDA_0	SCL_0	+3.3V_IN	AN0_IN (+3.3V)
3	IPMB_SDA_B	IPMB_SCL_B	IPMB_SDA_A	+5V_IN	AN1_IN (+5V)
2	IPMB_SCL_A			POWER_FAIL	GND
1	SYSRESET*	ACFAIL*	SYS_RST_SW	GA1	GA0
	A	B	C	D	E

Table 13: IP1 Connector

PIN	A	B	C	D	E
22					
21			+5V		
20					
19			GND		
18					
17					
16					
15				OUT10	OUT9
14			+5V	OUT8	OUT7
13	OUT16	OUT15		OUT6	OUT5
12	OUT14	OUT13		OUT4	OUT3
11	OUT12	OUT11	GND	OUT2	OUT1
10					
9			+5V		
8			GND		
7					
6					
5					
4			GND		IN16
3	IN13	IN10	IN7	IN4	IN1
2	IN14	IN11	IN8	IN5	IN2
1	IN15	IN12	IN9	IN6	IN3

Table 14: 1P2 Connector



IPMB connector. Mounted only for fixed mounted version on 1P1 footprint, pins A2-E2, A3-E3

		IPMB-SDA-A	IPMB-SCL-B	IPMB-SDA-B
GND				IPMB-SCL-A

Table 15: IPMB Connector pinout

## 5 Signal Description

Signal	Description
+3.3V_IN	3.3V Power supply input
+5V_IN	5V Power input. Not used
GND	Ground Signal
VCC	Output Pin. ChMC supply voltage 3.3V
VIO	Output Pin. Hardware fixed to either 3.3V (Maximum output current 200mA.) or 5V (Maximum output current 100mA)
VREF	Output pin. 2.5V voltage reference for thermistor temperature measurement
AN0_IN (+3.3V), AN1_IN (+5V), AN2_IN(+12V), AN3_IN(-12V), AN4_IN, AN5_IN, AN6_IN, AN7_IN	Analog inputs. Default configuration has the following input range: AN0_IN (+3.3V): 0V..5V → Sensor No. 2 AN1_IN (+5V) : 0V..8V → Sensor No. 3 AN2_IN(+12V) : 0V..16.5V → Sensor No. 4 AN3_IN(-12V) : -14V..2.5V → Sensor No. 5 AN4_IN, AN5_IN, AN6_IN, AN7_IN: 0V..5V → Sensor No. 6..9
TEMP1, TEMP2, TEMP3, TEMP4, TEMP5, TEMP6	Thermistor sensor inputs. ( $\beta = 3950$ $R_{25C} = 10K \Omega$ ) Sensor No. 26..31
TACH_0...TACH11	Fan Tachometer signal input. Sensor no. 37..47
PWM1,PWM2,PWM3	PWM output signal. Open collector
INPUT1..INPUT16	Digital INPUTS. 10K pull up to VIO (3.3V) on board.

Signal	Description
	Sensor No. 64...79
OUT1..OUT16	Digital Outputs. Open Collector. 10K pull up to VIO (3.3V) on board. Sensor No. 80..95
ETH_TX+, ETH_RX+, ETH_TX-, ETH_RX-	10/100 Base-T Ethernet link
RS232_TX, RS232_RX	RS232 interface
IPMB_SDA_A, IPMB_SCL_A	IPMB A
IPMB_SDA_B, IPMB_SCL_B	IPMB B
SDA_0, SCL_0	3.3V I2C Bus for communicating to EEPROM1 on the chassis
SDA_1, SCL_1	3.3V I2C Bus for communicating to EEPROM2 on the chassis, the LCD or TFT display
SDA_3, SCL3, INT_3	5V I2C Bus for monitoring I2C temperature sensors
<b>Reserved for future use</b>	
SDA_2, SCL_2, INT_2	5V I2C Bus reserved for future use
T1R+,T1R-,E1R+,E1R-	Reserved for future use
UPDATE_RX, UPDATE_TX	Reserved for future use
PRIM_IN#, HLY_IN#, PRES#,PRIM_OUT#,HLY_OUT#	Reserved for future use
GA1,GA0	Geographical Address, Reserved for future use
FTP_0 , FTP_1, FTP_2, FTP_3	Reserved for future use. (Assembly options for Input11, Input12, Input14, Input16)
SYSFAIL*, POWER_FAIL, ACFAIL*, SYS_RST_SW	Input signal. Reserved for future use
SYSRESET*	Output signal. Reserved for future use

## 6 Electrical and Environmental Parameters

**Power supply:** 3.3VDC

**Current consumption:** 800mA maximum

**PWM:** Open drain (100mA max). Pull-up required on fans.

**Digital Input/Output signal level:** Depending on VIO setting (3.3V or 5V)

**Digital Output type:** open drain with 10K pull-up to VIO.

**Digital Output max loading:** sinking 25mA on single output but all 16 outputs shall not exceed 200mA.

**Operating Temperature:** -40..85 deg C

**Storage Temperature:** -40..85 deg C

**Flammability Rating:** UL 94V-0