XE1 Technical User Guide
(Used in the Beta x86 Product Range)

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CE

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[Note that compliance with the R&TTE directive is only required for those versions of the product equipped with radio frequency interfaces].

FCC

NOTE:
FCC compliance of product versions equipped with radio frequency interfaces may require specific approval for the finished products.

WARNING:

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Safety Warning for North America

If the power lead (cord) is not supplied with the computer, select a power lead according to your local electrical regulations. In the USA use a 'UL listed' lead. In Canada use a CSA approved or 'cUL listed' lead.

Si le cordon secteur n'est pas livré avec l'ordinateur, utiliser un cordon secteur en accord avec votre code electrique nationale. En l'Etat Unis utiliser un cordon secteur 'UL listed'. En Canada utiliser un cordon secteur certifié CSA, ou 'cUL listed'.

Technical User Guide Structure

This manual describes in detail the XE1 host board for use with the Beta range of products.

In this document we have tried to include as much information as possible but we have not duplicated information that is provided in other XE1 documents or standard Technical References, unless it proved to be necessary to aid in the understanding of the product.

The manual is sectioned as follows:

Introduction
Hardware interfaces & connectors
Layout, showing where the various connectors are located, and their pin-out details;
Overviews, showing outline dimensions and installation tips;
Maintenance details

We strongly recommend that you study this manual carefully before attempting to interface with the XE1 or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

IT IS PARTICULARLY IMPORTANT THAT YOU READ THE ESD SECTION BEFORE HANDLING ANY COMPONENTS INSIDE THE UNIT.

If you have any suggestions or find any errors concerning this manual and want to inform us of these, please contact our Technical Services department with the relevant details.

Introduction

The Blue Chip Technology XE1 Host Board is designed to support our Beta range of products and also function as a standalone SBC.

The Beta LCD range includes screen sizes from 7.1" (800*480) and 9.7" (1024*768) together with either resistive or projected capacitance touch screens up to much larger displays either through the LVDS or HDMI interfaces. For the Beta products there is a front panel/bezel available, for further details please see our Beta range of products. If you do not require a touch screen then we recommend that you choose the resistive touch screen version if you require the lowest cost. Alternatively if you require the most resilient screen we recommend the projected capacitance version which has a glass top surface.

The XE1 Host Board supports a number of interfaces:

Standard connectivity includes LAN, USB 3.0 Host, USB 2.0 Hosts, SM Bus, SATA, RS232s, RS422/485, Stereo Audio (input/output), General Purpose IO signals, Real Time Clock and two M.2 sockets. The M.2 sockets can be utilised for additional SSDs, Wifi, Bluetooth, 3G/4G, GPS and LANs.

The XE1 also provides for a Lithium Battery (via two pin connector) to keep the Real Time Clock alive, retain time and data when the unit is powered off.

The mechanical options include open frame operation to allow integration into customers own mechanical assembly or with an optional rear cover to allow it to be used as a standalone device. Mounting Kits are also available and include VESA mount, panel mount, etc.

Operating Systems supported include Windows 10 IOT Enterprise and Linux. However as the XE1 is a modern standard x86 platform a wide variety of operating systems can be supported. If you require support for any other operating support please contact your sales person.

NOTE:
For the panel mount option, please ensure that the thickness of the panel is sufficient to prevent deforming of the panel when the unit is attached, or fit strengthening bars to prevent deforming.

Functional Overview

The XE1 is a unique x86/PC platform produced by Blue Chip Technology to be used as the SBC for the Beta range of products and for standalone use.

The XE1 features include:

- 1GHz Dual Core AMD G-Series LX 210 "Jaguar" x86 CPU Cores with 1MB shared L2 cache
- AMD R1E GCU Graphics (1CU) Radeon™ Graphics Core
- Support for up to two independent displays (HDMI 1.4 & LVDS)
- Multi format encode and decode support
- Support for DirectX® 11.2
- High performance, integrated Controller Hub
- 2GB or 4GB memory options
- MicroSD Socket (4 bit transfer rate)
- LAN 10/100/1000Mbit
- SATA
- USB Host 3.0
- Dual USB Host 2.0 (one presented on P13)
- 12 off General purpose Input / Outputs
- Low power consumption
- Triple RS232 (two presented on P13 and one presented on P23)
- Single RS232/422/485 - configured at factory (presented on P13)
- SMBus
- Stereo Audio inputs and outputs
- Mono Audio Amplifier
- Battery backed Real Time Clock
- Custom Splash Screen option
- Extended Temperature range
- Power Button & Reset support

Beta Display Options

- 7.1” 800*480 resolution
- 9.7" 1024*768 resolution

Beta Touch Screen Options

- 7.1” – resistive
- 7.1” – projected capacitive
- 9.7” – resistive
- 9.7” – projected capacitive

Beta Model Range

Model	432H	712H	432V	712V	432C	712C	432A	712A	972H	972V	972C	972A	714V	974V
LCD 4.3”	✓		✓		✓		✓							
LCD 7.1”		✓		✓		✓		✓					✓	
LCD 9.7"									✓	✓	✓	✓		✓
Host Board	HB5	HB5	HB6	HB6	HB7	HB7	HB8	HB8	HB5	HB6	HB7	HB8	XE1	XE1
Resistive Touch	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Capactive Touch	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LAN	1	1	1	1			1	1	1	1		1	1	1
USB Host	1	1	1	1	2	2	✓	✓	1	1	2	✓	2	2
USB Device	1	1	1	1	1	1	✓	✓	1	1	1	✓		
RS232	2	2	2	2	2	2	✓	✓	2	2	2	✓	3	3
RS232/ 422/485	1	1	1	1	1	1	✓	✓	1	1	1	✓	1	1
GPIO	12	12	12	12	✓	✓	✓	✓	12	12	✓	✓	12	12
WiFi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bluetooth	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
I2C/ SMBus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
SPI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Class D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CAN					2	2	2	2			2	2	✓	✓
3G					✓	✓					✓		✓	✓
GPS					✓	✓					✓		✓	✓
Accelerometer					✓	✓					✓			
Light Sensor					✓	✓					✓			
ADC							✓	✓				✓		
DAC							✓	✓				✓		
Relay							✓	✓				✓		
PWM							✓	✓				✓		
Battery					✓	✓					✓			
Automotive PSU					✓	✓					✓			
Rear Cover			✓	✓	✓	✓	✓	✓			✓	✓		

Legend	Meaning	Legend	Meaning		
✓	Standard	✓	Standard - to be confirmed		
✓	Available - option	✓	Available - option - to be confirmed		
2	Number available as standard	2	Number available as standard - to be confirmed		
2	Number available - option	2	Number available - option - to be confirmed		

Please check the latest specifications with your sales contact as this document may not reflect the current situation.

Please read this (even if you do not read any other part of this manual)

Power Supply

The XE1 Touch Computer requires a 12 volt DC power input DC.

It **does not have protection** for reverse polarity, so please take care when applying power.

Power can be applied through the following connectors:

1. Jack plug (2.5mm centre diameter which is the positive contact) with a 5.5mm overall diameter. See below:

2. Screw terminal connector when ordered instead of the Jack connector
3. If the Screw terminal PCB (as opposed to the screw terminal connector in 2 above) is fitted then power can be applied through pins **a** (12 volts) and **b**. Please note that these are lower case letters and **not A** and **B.**

Serial Ports

Your XE1 has four asynchronous serial ports.

Ports 1, 2 and 4 are fixed as RS232 ports and are TX + RX only (i.e. no hardware handshaking – which is not usual an issue these days as the XE1 is fast enough to cope with most baud rates, etc).

The debug port is COM 4 and is available on P23 (Picoblade connector).

Unless we tell you otherwise or you change the settings the serial setup is as follows:

Baud Rate	115,200
Data Bits	8
Start Bits	1
Stop Bits	1
Parity	None
Handshaking	Off

We supply cable sets for the serial ports (and other interfaces) so if you want to buy them just contact your sales contact.

If you wish to switch off the debug stream to COM 4, please contact your Blue Chip Technology sales person.

COM 3 can be configured at the factory as another RS232 port or as an RS422 / RS485 port. The default configuration is RS422 / 485. If you would like to change it to RS232 please contact your Blue Chip Technology sales person.

Touch Screen Support

The XE1 has the ability to support both Resistive and Projected Capacitance touch screens. Which touch screen is active is controlled in the BIOS.

After applying power press ESC on your keyboard (you will need a USB keyboard as the BIOS does not support on screen keyboards controlled by the touch screen).

Then press 3 for the setup screen and navigate to the Touch Screen option. By pressing the left or right arrows on your keyboard you can select either Capacitive or Resistive operation.

After you have selected your touch screen press F3 to save and exit.

It is important to wait for the reboot to start and then remove power to ensure that your selection "sticks".

If you remove the Real Time Clock battery then the touch screen selection will revert to Capacitive.

Connectors

The XE1 has the following industry standard connectors:

Ethernet

RJ45 – 10/100/1000 Mbit
LEDs – show connection speed and activity

USB Host 3.0

Type A Connector - Blue inner

USB Host 2.0

Type A Connector - White inner

SATA

SATA data connector

The RTC Battery and Speaker connectors are not industry standard and the details are as follows:

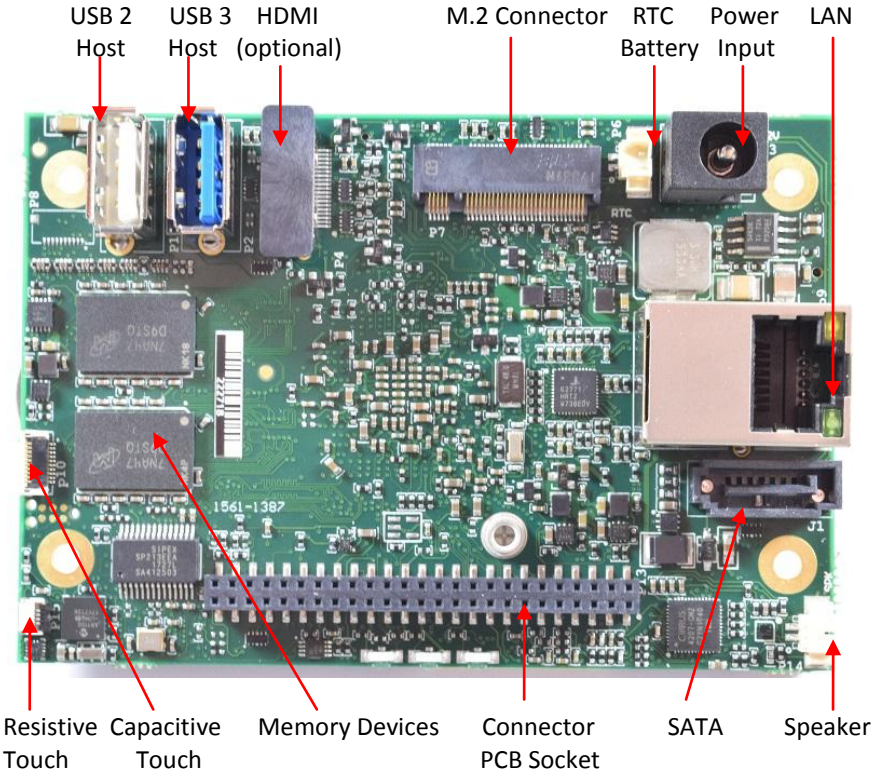
Connector P6 – Real Time Clock Battery

Pin	Signal	Comments	Voltage
1	Battery Positive	CR2032 or equivalent	Nominal 3.6 volts
2	Battery Negative	CR2032 or equivalent	0 volts

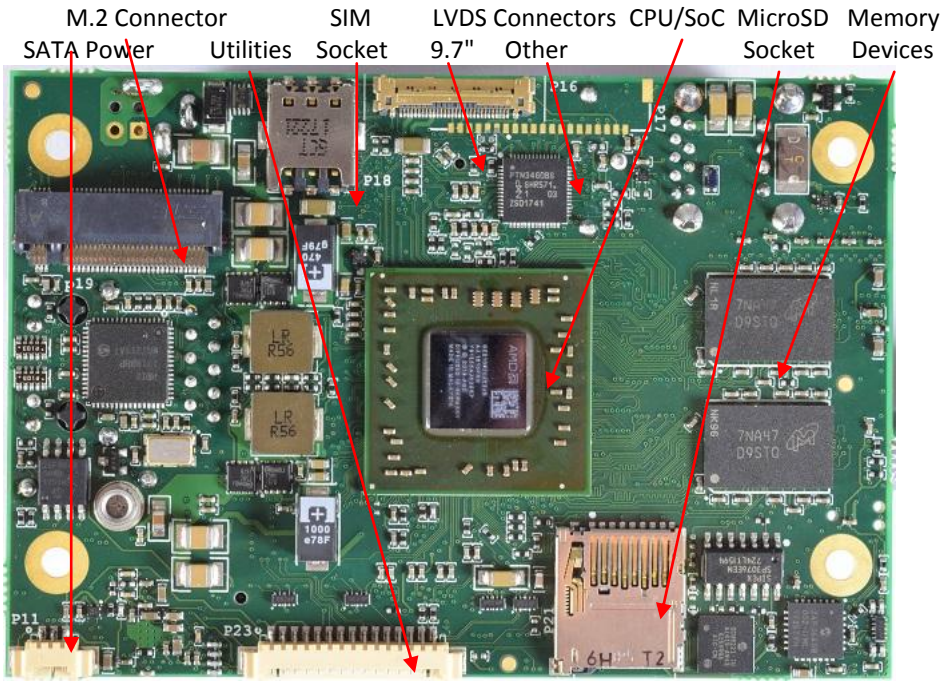
Connector P14 – Audio Amplifier Output to Speaker (parallel connection on P13)

Pin	Signal	Comments
1	Speaker Negative	Speaker load to be no lower than 4 ohms with 2.5 watts handling
2	Speaker Positive	Speaker load to be no lower than 4 ohms with 2.5 watts handling

The connectors and key devices mounted on the top of the XE1 are:



The connectors and key devices mounted on the bottom of the XE1 are:



The XE1 is offered with three standard connector options, one provides screw terminals, the second provides Molex Picoblade connectors. The third is custom PCBs can be created. If you would like to design your own

connector PCB for your new product then we are happy to supply XE1 units without a Connector PCB fitted. If you would like us to design the connector PCB (with or without additional electronics) just contact us.

Please note that the speaker fitted on the XE1 PCB (as shown above) is in parallel with the speaker connections on the Connector PCB. If you connect two low impedance speakers up in parallel then the audio amplifier will probably sense the low impedance and shut down. The XE1 will need to be powered off for a few seconds, one of the speakers removed and then powered on again to re-activate the audio amplifier.

If you would like to design your own Connector PCB you will need the pin out of the 50 way connector on our XE1 which provides the connector interface and therefore pin out which is as follows:

Pin	Signal	Comment	Pin	Signal	Comment
1	0 volts		2	0 volts	
3	LINEOUT_R	Audio line out – right channel	4	GPIO 12	GPIO signal - 3.3 Volt
5	LINEOUT_L	Audio line out – left channel	6	GPIO 11	GPIO signal - 3.3 Volt
7	0 volts		8	GPIO 10	GPIO signal - 3.3 Volt
9	LINEIN_R	Audio line in – right channel	10	GPIO 9	GPIO signal - 3.3 Volt
11	LINEIN_L	Audio line in – left channel	12	GPIO 8	GPIO signal - 3.3 Volt
13	0 volts		14	GPIO 7	GPIO signal - 3.3 Volt
15	SPEAKER_H	Audio speaker output – Positive	16	GPIO 6	GPIO signal - 3.3 Volt
17	SPEAKER_L	Audio speaker output – Negative	18	GPIO 5	GPIO signal - 3.3 Volt
19	0 volts		20	GPIO 4	GPIO signal - 3.3 Volt
21	COM1_TX	RS232 Port 1 Transmit – RS232 level	22	GPIO 3	GPIO signal - 3.3 Volt
23	COM1_RX	RS232 Port 1 Receive – RS232 level	24	GPIO 2	GPIO signal - 3.3 Volt
25	0 volts		26	GPIO 1	GPIO signal - 3.3 Volt
27	COM2_TX	RS232 Port 2 Transmit – RS232 level	28	0 volts	
29	COM2_RX	RS232 Port 2 Receive – RS232 level	30	5V_RUN	USB 5 Volts
31	0 volts		32	USB_0_P	USB +ve
33	CTX3_P	COM Port 3 Transmit – Positive / COM 3 RS232 Transmit – 3volts level for RS422/485, RS232 levels for RS232	34	USB_0_N	USB -ve
35	CTX3_N	COM Port 3 Transmit – Negative / COM 3 RS232 Receive – 3volts level for RS422/485, RS232 levels for RS232	36	0 volts	USB 0 Volts
37	CRX3_P	COM Port 3 Receive – Positive – 3volts level for RS422/485, RS232 levels for RS232	38	PWROFF#	Apply logic low to power down the unit
39	CRX3_N	COM Port 3 Receive – 3volts level for RS422/485, RS232 levels for RS232	40	RESET#	Apply logic low to reset the unit
41	0 volts		42	SLEEP RQ#	Apply logic low while the system in operational to signal that the OS should go into suspend. Apply logic low while the system in suspend wake up the system.
43	SMBus SCL	SMBus Clock at a 3 volts level	44	SLEEP S3#	Enter S3 mode
45	SMBus SDA	SMBus Data at a 3 volts level	46	0 volts	

47	0 volts		48	VCC	3.3 volts
49	VIN	12 volts DC Power INPUT – in parallel with the main power in connector on XE1	50	RTC_BAT	Nominal 3.6 volts DC for Real Time Clock

Notes:

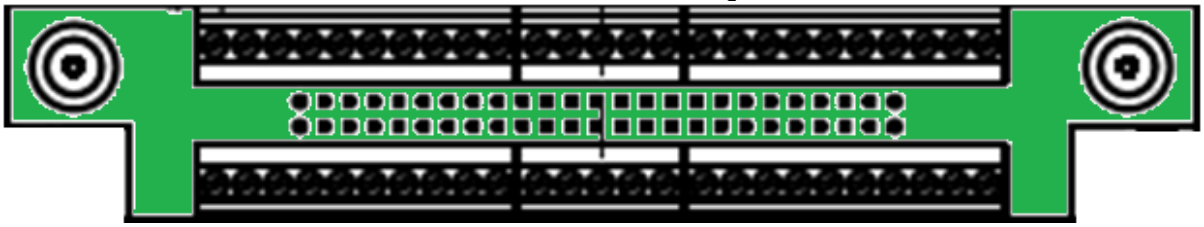
1. The details of the connector are:
    a. 50 way 2mm pitch socket.

Standard Connector PCBs

Screw Terminal Version

For users who prefer screw terminal connections we offer dual 25 way rows of 3.5mm pitch connectors. Due to the limited space available we have chosen to mark the connections using the upper and lower case alphabet rather than numbers.
Please see below for the connection details (note that we have underlined the lower case characters to help identification):

A B C D E F G H I J K L M N O P Q R S T U V W X Y

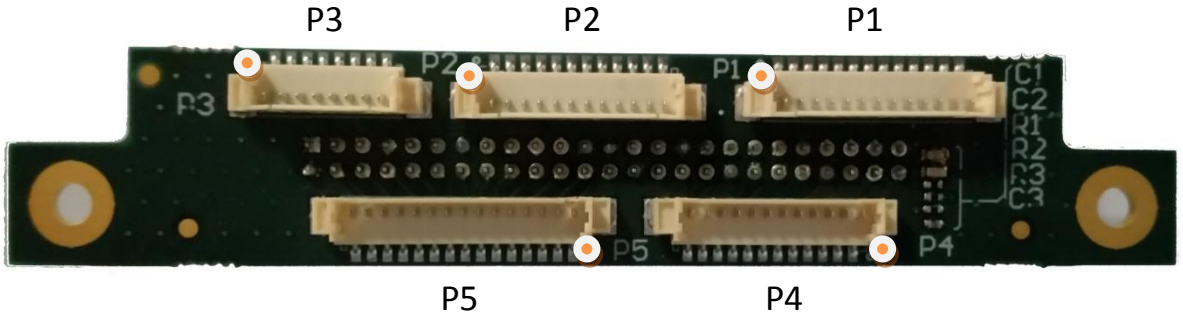


a b c d e f g h i j k l m n o p q r s t u v w x y

Pin	Signal	Comment	Pin	Signal	Comment
A	RTC_BAT	Nominal 3.6 volts DC for Real Time Clock	a	VIN	5 volts Power INPUT – in parallel with the main power in connector on XE1
B	VCC_3V	3 volts DC	b	0 volts	
C	0 volts		c	SMBus SDA	SMBus Data at a 3 volts level
D	SLEEP S3#	Enter S3 mode	d	SMBus SCL	SMBus Clock at a 3 volts level
E	SLEEP_RQ#	Apply logic low while the system in operational to signal that the OS should go into suspend. Apply logic low while the system in suspend wake up the system.	e	0 volts	
F	RESET#	Apply logic low to reset the unit	f	CRX3_N	COM Port 3 Receive – Negative – 3volts level for RS422/485, RS232 levels for RS232
G	PWROFF#	Apply logic low to power down the unit	g	CRX3_P	COM Port 3 Receive – Positive – 3volts level for RS422/485, RS232 levels for RS232
H	0 volts		h	CTX3_N	COM Port 3 Transmit – Negative / COM 3 RS232 Receive – 3volts level for RS422/485, RS232 levels for RS232
I	USB_0_N	USB -ve	i	CTX3_P	COM Port 3 Transmit – Positive / COM 3 RS232 Transmit – 3volts level for RS422/485, RS232 levels for RS232
J	USB_0_P	USB +ve	j	0 volts	
K	5V	USB 5 Volts	k	COM2_RX	RS232 Port 2 Receive – RS232 levels
L	0 volts		l	COM2_TX	RS232 Port 2 Transmit – RS232 levels
M	GPIO 1	GPIO signal	m	0 volts	
N	GPIO 2	GPIO signal	n	COM1_RX	RS232 Port 1 Receive – RS232

					levels
O	GPIO 3	GPIO signal - 3.3 Volts	o	COM1_TX	RS232 Port 1 Transmit – RS232 levels
P	GPIO 4	GPIO signal - 3.3 Volts	p	0 volts	
Q	GPIO 5	GPIO signal - 3.3 Volts	q	SPEAKER_L	Audio speaker output – Negative
R	GPIO 6	GPIO signal - 3.3 Volts	r	SPEAKER_H	Audio speaker output – Positive
S	GPIO 7	GPIO signal - 3.3 Volts	s	0 volts	
T	GPIO 8	GPIO signal - 3.3 Volts	t	LINEIN_L	Audio line in – left channel
U	GPIO 9	GPIO signal - 3.3 Volts	u	LINEIN_R	Audio line in – right channel
V	GPIO 10	GPIO signal - 3.3 Volts	v	0 volts	
W	GPIO 11	GPIO signal - 3.3 Volts	w	LINEOUT_L	Audio line out – left channel
X	GPIO 12	GPIO signal - 3.3 Volts	x	LINEOUT_R	Audio line out – right channel
Y	0 volts		y	0 volts	

Picoblade Version



Denotes pin 1 on each connector

Connector P1 - Utilities

Pin	Signal	Comments
1	PWROFF#	Apply logic low to power down the unit
2	0 volts	
3	RESET#	Apply logic low to reset the unit
4	0 volts	
5	SMBus SCL	SMBus Clock
6	SMBus SDA	SMBus Data
7	0 volts	
8	SLEEP RQ#	Apply logic low while the system in operational to signal that the OS should go into suspend. Apply logic low while the system in suspend wake up the system.
9	0 volts	
10	Reserved	
11	0 volts	
12	SLEEP S3#	Apply logic low to enter S3 sleep.
13	0 volts	

Connector P2 - RS232

Pin	Signal	Comments
1	0 volts	Ground for COM 1 RS232 channel
2	COM 1 RX	RS232 receive channel – console for Linux & Android
3	COM 1 TX	RS232 transmit channel – console for Linux & Android
4	Reserved	
5	Reserved	
6	Reserved	
7	Reserved	
8	Reserved	
9	Reserved	
10	Reserved	
11	Reserved	
12	Reserved	

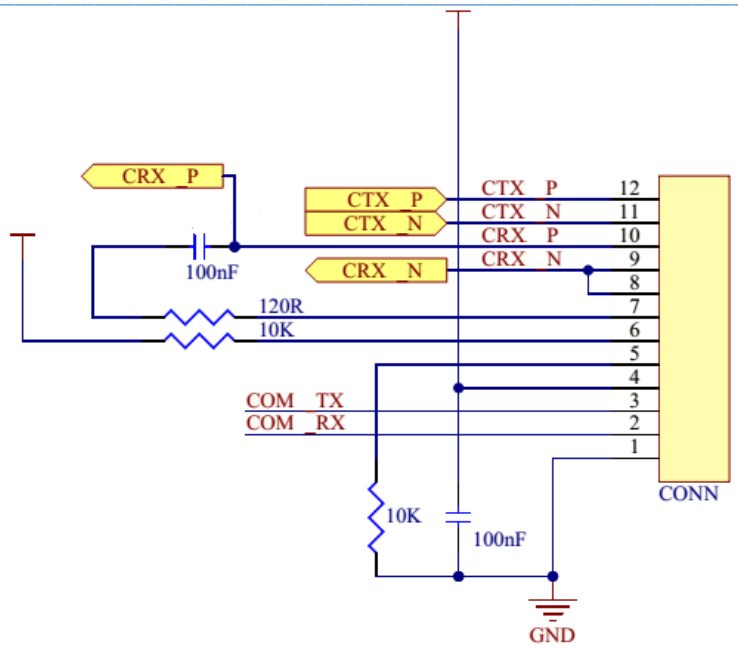
Connector P3 - Audio

Pin	Signal	Comments
1	Line out right channel	Audio line level signal
2	Line out left channel	Audio line level signal
3	0 volts	Audio ground
4	Line in left channel	Audio line level signal
5	Line in right channel	Audio line level signal
6	0 volts	Audio ground
7	Speaker negative	Combined left and right audio channels amplified – Negative (not 0 volts)
8	Speaker positive	Combined left and right audio channels amplified - Positive

Connector – P4 – RS232 & RS232/422/485

Pin	Signal	Comments
1	0 volts	Ground for COM 2 RS232 channel
2	COM 2 RX	RS232 receive channel
3	COM 2 TX	RS232 transmit channel
4	VCC	3 Volts
5	Termination – low	10K ohm to 0 volts
6	Termination – high	10K ohm to 3 volts
7	Termination – signal	120 ohm and 100nF in series and then pin 10 (COM 3 RX +ve)
8	COM 3 Receive –ve	Differential signal – negative. Connected to pin 9 to allow termination to be connected in circuit
9	COM 3 Receive –ve	Differential signal – negative. Connected to pin 8 to allow termination to be connected in circuit
10	COM 3 Receive +ve	Differential signal – positive. Connected to 100nF and 120 ohm then pin 7
11	COM 3 Transmit –ve	RS422/485 Differential signal – negative. COM 3 RS232 Receive
12	COM 3 Transmit +ve	RS422/485 Differential signal – positive. COM 3 RS232 Transmit

For those of you who may be puzzled by the termination options; well they say that a picture speaks a thousand words....



RS422 & RS485 Operation

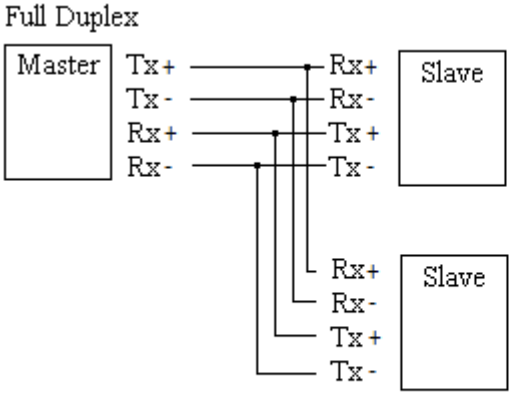
RS422 is a four wire interface and supports full duplex (both transmit and receive active at the same time) communications.

RS485 is a two wire interface and therefore supports half duplex operation. Therefore you need to connect the Transmit +ve and Receive +ve signals together and the Transmit –ve and Receive –ve signals together to thereby create the two wire interface required to connect to RS485 devices.

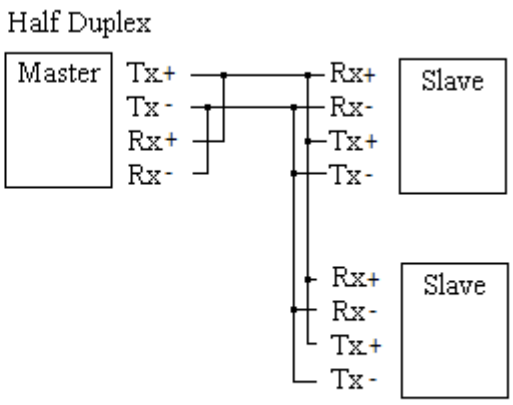
RS485 requires one device on the network to be the master and to set the protocol.

Remember that by connecting the Transmit and Receive differential pairs together (as above) then when you transmit you will effectively place the transmit data into your receive buffer! So you need to ensure that you discard this data before you look for data in your receive buffer.

RS422



RS485



Connector – P5 – GPIO

Pin	Signal	Comments
1	3 volts	3.3 volts DC source for GPIO signal pull ups etc
2	GPIO 1	GPIO signal - 3.3 Volts
3	GPIO 2	GPIO signal - 3.3 Volts
4	GPIO 3	GPIO signal - 3.3 Volts
5	GPIO 4	GPIO signal - 3.3 Volts
6	GPIO 5	GPIO signal - 3.3 Volts
7	GPIO 6	GPIO signal - 3.3 Volts
8	GPIO 7	GPIO signal - 3.3 Volts
9	GPIO 8	GPIO signal - 3.3 Volts
10	GPIO 9	GPIO signal - 3.3 Volts
11	GPIO 10	GPIO signal - 3.3 Volts
12	GPIO 11	GPIO signal - 3.3 Volts
13	GPIO 12	GPIO signal - 3.3 Volts
14	Reserved	
15	0 volts	0 volt reference for GPIO signals

Using the GPIO

For this explanation of using/testing the XE1 GPIOs we have assumed that you will use our screw terminal IO board 1981-140 7 to make connections.

Firstly make sure the the AMDeGPIODemo driver is loaded on your unit.

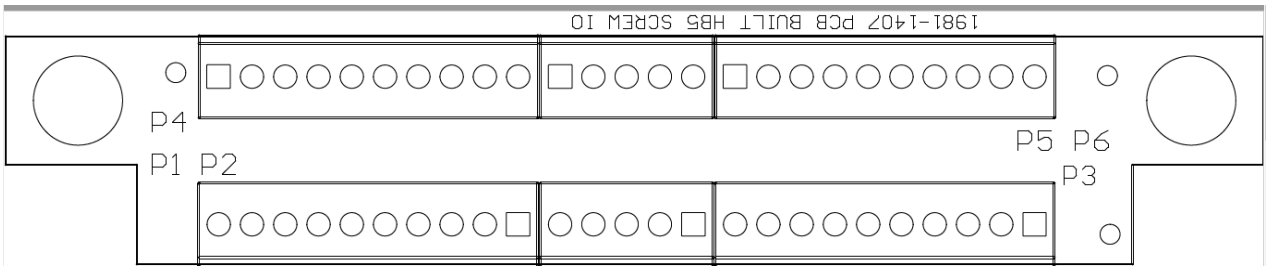
For output, set each GPIO to both states and confirm with a DVM.
For input, the GPIO is pulled high and will return 1. Short each input to ground and confirm that it reads low.
The logical GPIO mapping number is used with the GPIO application.
The application is run with commands such as

AMDeGPIODemo write 85 1
AMDeGPIODemo read 85

These access GPIO_1.

NET	PAD	Logical	Mux Reg	Mux val for GPIO	GPIO Reg
GPIO_1	FANOUT0/GPIO52	AGPIO85	0x55	1	0x154
GPIO_2	GENINT1_L/GPIO32	AGPIO89	0x59	0	0x164
GPIO_3	GPIO58	AGPIO69	0x49	0	0x114
GPIO_4	GPIO64	AGPIO71	0x47	2	0x11C
GPIO_5	GENINT2_L/GPIO33	AGPIO90	0x5A	0	0x168
GPIO_6	GPIO70	AGPIO76	0x4C	0	0x130
GPIO_7	GPIO174	AGPIO10	0x0A	0	0x028
GPIO_8	GPIO71	AGPIO77	0x4D	0	0x134
GPIO_9	DEVSLP[1]/GPIO59	AGPIO70	0x46	3	0x118
GPIO_10	GPIO69	AGPIO73	0x49	0	0x124
GPIO_11	GPIO68	AGPIO72	0x48	0	0x120
GPIO_12	GPIO57	AGPIO68	0x44	1	0x110
WL_DISABLE1#	GPIO51	AGPIO66	0x42	2	0x108
WL_DISABLE2#	GPIO50	AGPIO65	0x41	2	0x104
WWAN_DISABLE#	GEVENT4_L	AGPIO4	0x04	1	0x010
GNSS_DISABLE#	GEVENT7_L	AGPIO5	0x05	1	0x014
WWAN_CARD_POWER_OFF#	GEVENT10_L	AGPIO6	0x06	1	0x018
WAKE_WWAN#	GEVENT11_L	AGPIO7	0x07	1	0x01c
BLINK#	BLINK/GEVENT18_L	AGPIO11	0x0b	0	0x02c
SLEEP_RQ#	GEVENT22_L	AGPIO9	0x09	1	0x024
LCD_SEL	USB_OC0_L/SPI_TPM_CS_L/ TRST_L/GEVENT12_L	AGPIO16	0x10	1	0x040
TOUCH_SELECT	CLK_REQG_L/GPIO65/OSCIN	EGPIO132	0x84	1	0x210
ETH_OFF#	IR_RX1/GEVENT20_L	AGPIO15	0x0f	1	0x03c
MemSel0	AC_PRES/IR_RX0/GEVENT16_L	AGPIO23	0x17	2	0x05c
MemSel1	IR_TX0/GEVENT21_L	AGPIO13	0x0d	1	0x034
MiscSel	IR_TX1/GEVENT6_L	AGPIO14	0x0e	1	0x038
	USB_OC2_L/TCK/GEVENT14_L	AGPIO18	0x12	1	0x048

Results



NET	Logical	Measure	Input	Output
GPIO_1	AGPIO85	P5.3	Pass	Pass
GPIO_2	AGPIO89	P5.4	Reserved	Reserved
GPIO_3	AGPIO69	P5.5	Pass	Pass
GPIO_4	AGPIO71	P6.1	Pass	Pass
GPIO_5	AGPIO90	P6.2	Reserved	Reserved
GPIO_6	AGPIO76	P6.3	Pass	Pass
GPIO_7	AGPIO10	P6.4	Pass	Pass
GPIO_8	AGPIO77	P6.5	Pass	Pass
GPIO_9	AGPIO70	P6.6	Pass	Pass
GPIO_10	AGPIO73	P6.7	Pass	Pass
GPIO_11	AGPIO72	P6.8	Pass	Pass
GPIO_12	AGPIO68	P6.9	Pass	Pass
WLAN_DISABLE1#	AGPIO66	P19.56		Bottom Side
WLAN_DISABLE2#	AGPIO65	P19.54		Bottom Side
WWAN_DISABLE#	AGPIO4			Reserved
GNSS_DISABLE#	AGPIO5			Reserved
WWAN_CARD_POWER_OFF#	AGPIO6			Reserved
WAKE_WWAN#	AGPIO7			Reserved
BLINK#	AGPIO11			Reserved
SLEEP_RQ#	AGPIO9			Reserved
LCD_SEL	AGPIO16			Reserved
TOUCH_SELECT	EGPIO132			Reserved
ETH_OFF#	AGPIO15			Reserved

Connector – P1 – SATA DOM Power

Pin	Signal	Comments
1	GND	0 Volts
2	GND	0 Volts
3	5V_SATA	5 Volts
4	GND	0 Volts
5	GND	0 Volts
6	GPIO 5	GPIO signal - 3.3 Volts

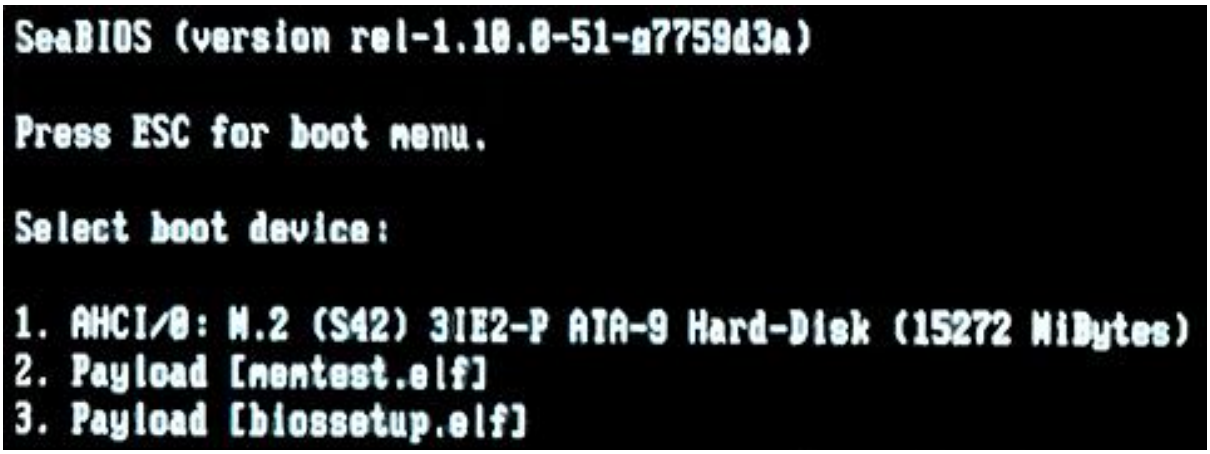
Connector – J1 – SATA

Pin	Signal	Comments
1	GND	0 volts
2	TX+	Transmit Data +ve
3	TX-	Transmit Data -ve
4	GND	0 volts
5	RX-	Receive Data -ve
6	RX+	Receive Data +ve
7	GND	0 volts

BIOS

The XE1 BIOS has been deliberately minimised to make operation and maintenance as straightforward as possible preventing unnecessary complexity and confusion.

To enter the BIOS you will need a USB keyboard attached (the touch screen is not active at the BIOS level) and press the ESC button when instructed.



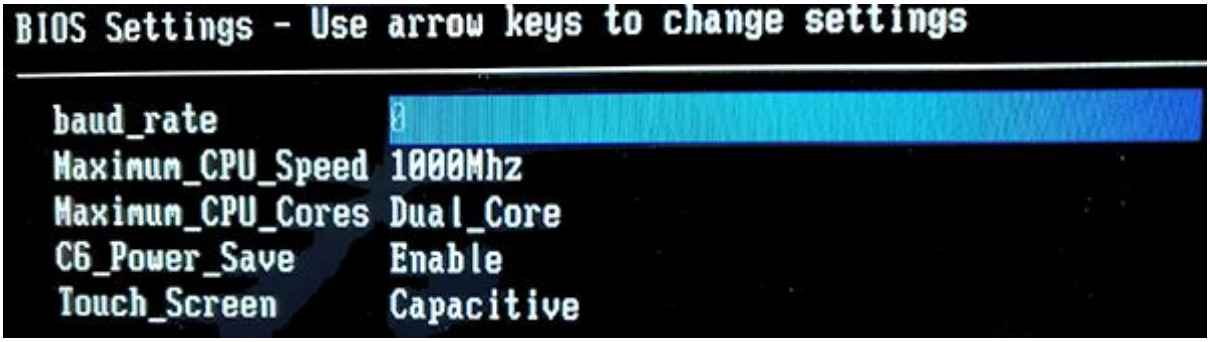
You are then presented with three choices:

1. Boot from the detected disk

2. Run Memory test

3. Enter BIOS Setup

Press 3 to enter the BIOS Configuration and 1 if you wish to continue with the boot from the detected drive.

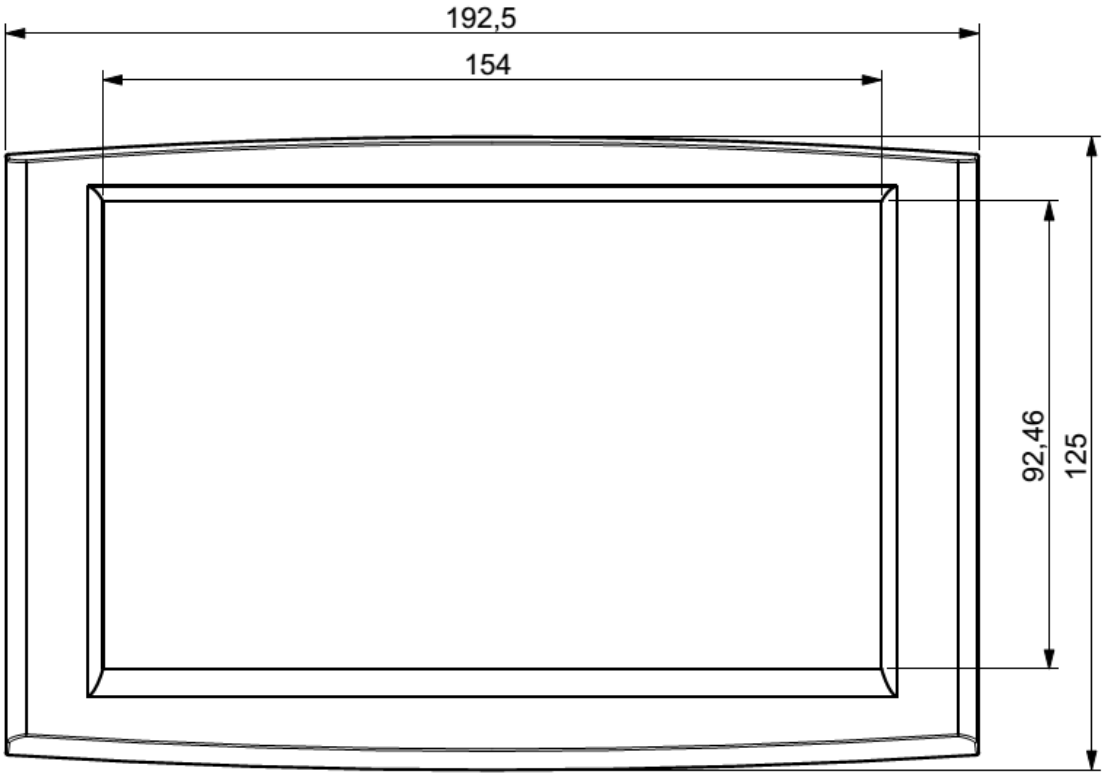


The only settings that you are likely to change are the Maximum number of cores (choice of single or dual) and Touch Screen (Resistive and Capacitive). If you wish to change these settings then use the up and down arrow keys to select the parameter and then the left and right arrow keys to select the required setting.

Then press F3 to save the settings and reboot.

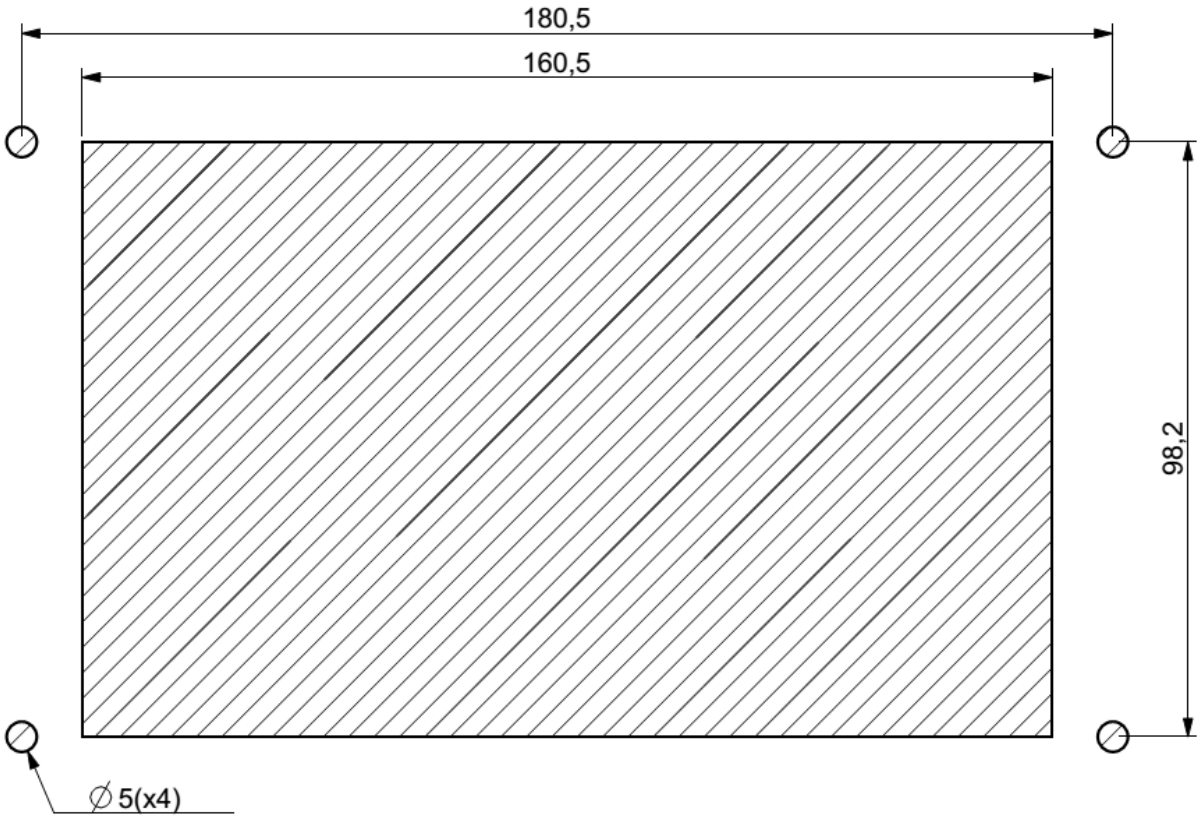
Mechanical Specifications

Outline Dimensions - Beta 713V



All dimensions are shown in millimetres.

Mounting Outline - Beta 713V



All dimensions are shown in millimetres.

Your Beta 713V is supplied with four threaded nylon studs which are to be screwed into the rear of the Beta 713V in the four M4 brass inserts.

Once located you can mount your Beta 713V into the outline (as above) and then attach the supplied four thumb nuts screws onto the nylon studs with your fingers. When the thumb nuts are finger tight the Beta 713V is mounted into your unit.

Please do not use pliers or any other tool to increase the tightness on the thumb nuts as this may cause the nylon studs to break.

General Precautions

Your Beta H series Touch Computer is susceptible to damage by electrostatic discharges. In order to avoid damage, you should work at an anti-static bench and observe normal anti-static precautions. Wear an anti-static wrist strap connected to an earth point *before* opening any packaging.

Where a wrist strap is not available, discharge any static charge you may have built-up by touching an earth point. Avoid any further movement that could build up another static charge. Touch an earth point from time to time to avoid further build-up, and remove the items from their anti-static bags only when required

Electro-Static Discharges

If you are going to open up the unit, it is important to realise that the devices on the cards within this unit can be damaged by static electricity. Bear in mind that the damage caused by static electricity may vary from total destruction to partial damage, which may not be immediately obvious. This could have an effect on the product's reliability and warranty. Before opening the chassis, ensure that you take necessary static precautions. Ideally you should work at an anti-static bench and wear an approved wrist strap or if that is not possible, touch a suitable ground to discharge any static build up before touching the electronics. This should be repeated if the handling continues for any length of time.

If it is necessary to remove a board or electronic assembly, place it into an anti-static bag. This will prevent any static electricity build up damaging the board. Metallised bags are preferred. Do not use black anti-static bags for any item containing a battery because these tend to be conductive and will discharge the battery.

On-Board Battery

The processor board Real time Clock can be fed from an external Lithium battery. Great care should be taken with this type of battery. If the battery is mistreated in any way there is a very real possibility of fire, explosion, and personal harm. Under NO circumstances should it be short-circuited, exposed to temperatures in excess of 100°C or burnt, immersed in water, recharged or disassembled.

Expired batteries remain hazardous and must be disposed of in a safe manner, according to local regulations.

Le panneau de processeur est équipé d'une batterie de lithium. Le grand soin devrait être pris avec ce type de batterie. Si la batterie est mistreated il y a de dans de toute façon un possibility très vrai du feu, d'expolosion et de mal personnel. Dans au cunes circonstances il est sous peu circuité, exposé aux températures au dessus de 100 degrés de centrigrade ou brûlé, immergé dans l'eau, rechargée ou dissassambled.

Les batteries expirées restent dazaedous et doivent être reejetées d'une façon sûre, selon des règlements locaux.

Electromagnetic Compatibility

This product has been assessed operating in representative, standard configurations. As with any computer product, however, final installation & configuration can vary significantly, and so the following guidelines are offered to help ensure that compatibility is maintained.

- All components added to a system should either carry appropriate equivalent levels of compliance, or be tested for compliance as part of the final system, and should be installed in accordance with supplier recommendations.
- The external enclosure should be securely fastened (with standard lids and covers in place) to ensure good metal-to-metal contact around the internal electronics
- Any metal back plate must be securely screwed to the chassis of the computer to ensure good metal-to-metal (i.e. earth) contact.
- Any metal, screened, connector bodies should be securely connected to the enclosure.
- The external cabling to boards causes most EMC problems. It is recommended that any external cabling to the board be totally screened, and that the screen of the cable connects to the metal end bracket of the board or the enclosure and hence to earth. Round, screened cables with a braided wire screen are used in preference to those with a foil screen and drain wire. Wherever possible, use metal connector shells that connect around the full circumference of the cable screen: they are far superior to those that earth the screen by a simple “pig-tail”.
- If used, a keyboard or mouse will play an important part in the compatibility of the processor card since they are ports into the board. Similarly, they will affect the compatibility of the complete system. Fully compatible peripherals must be used otherwise the complete system could be degraded. They may radiate or behave as if keys/buttons are pressed when subject to interference. Under these circumstances it may be beneficial to add a ferrite clamp on the leads as close as possible to the connector. A suitable type is the Chomerics type H8FE-1004-AS.
- USB cables should be high quality screened types.
- Ensure that the screens of any external cables are bonded to a good RF earth at the remote end of the cable.

Failure to observe these recommendations may invalidate the EMC compliance

Amendment History

Issue Level	Issue Date	Author	Amendment Details
1.0	28/11/2017	BH	Initial release
1.1	04/12/2017	BH	Mounting information added
1.2	05/02/2018	BH	RS422 & RS485 connectivity explained
1.3	25/02/2018	BH	Minor text changes
1.4	14/03/2018	BH	SATA data and power connectors added

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http://support.bluechiptechnology.co.uk/

**To request a Returns Authorisation number, use the RMA portal at

http://rma.bluechiptechnology.co.uk