

Passive Extender

CPCI-H110

CompactPCI Bus Extender Board

CPCI-6U

User Manual

Revision 1.1

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INTRODUCTION

The CPCI-H110 Passive Extender, can be used in any 6U CompactPCI H110 compatible system.

The CPCI-H110 Passive Extender board has short circuit and over current protection for all voltages to protect the system motherboard, the power supply and the UUT from being damaged when an unknown board is plugged in.

On-board current-to-voltage circuitry is designed in to allow current measurement for the +5V, +3.3V and +12V, using only a Voltmeter at the provided terminals.

The CPCI-H110 has easy access test points for all CPCI-H110 bus signals for connection to scope or logic analyzer probes.

Voltage margin testing of UUT boards can be facilitated when using the CPCI-H110 extender board. By removing the pre-assembled jumpers, the system bus voltages can be isolated and external voltages can be connected to the UUT via the external inputs.

All the FT voltages specified in the CPCI H110 specification are routed straight through.

INSTALLATION

To install this Extender board, make sure to turn the PC power off. Insert the Extender in any available slot and secure it's bracket to the main chassis. You are now ready to use your new extender board.

OPERATION

This Extender board provides the following extra features listed below:

CURRENT MEASUREMENT

To measure the current being drawn by the Unit-Under-Test, just connect a voltmeter to J3. Every Volt read by the meter represent One Amp. So if the voltmeter reads 0.35, it represents that the Unit-Under-Test is drawing 350 milliampere of current. J3 terminals are marked for Ground, +5I, +3.3I and +12I.

NOTE: If the VIO and +5V are on the same plane on your board, you need to remove JP10 jumper, located on the extender board, in order to get an accurate current measurement for the +5V.

CURRENT LIMIT CIRCUITRY

Red LEDs, when illuminated, indicate a short or a very low voltage. Green LEDs when illuminated, indicate voltages at their corresponding outputs. In the case of a short on the +5V, +12V, or +3.3V from the Unit Under Test, this extender will automatically switch the current limit down to about 200 milliampere and will continue to deliver this current for troubleshooting purposes. In the case a short or excessive current draw on the -12V, a resetable fuses will remain open up until the problem is corrected.

The current limit value for the +5V is set to 10 Amps with JP2 not installed and 2 Amp with JP2 installed.

EXTERNAL POWER SUPPLY

An external terminal J5 is used for the external power supply input. However remember never to connect any supply to these inputs so long as you have JP4, JP5, JP6 and JP7 installed. In case you want to use the external supply as an input you must remove these 4 jumpers in order not to cause any conflict with the bus voltages. These jumpers are, however, independent from each other. For instance if you want to bring in only a +5V from the external supply and continue to use the bus voltages for +12V, -12V, and +3.3V, you would only need to remove JP5. The list below identifies which jumper is for which supply:

JP4 = -12V

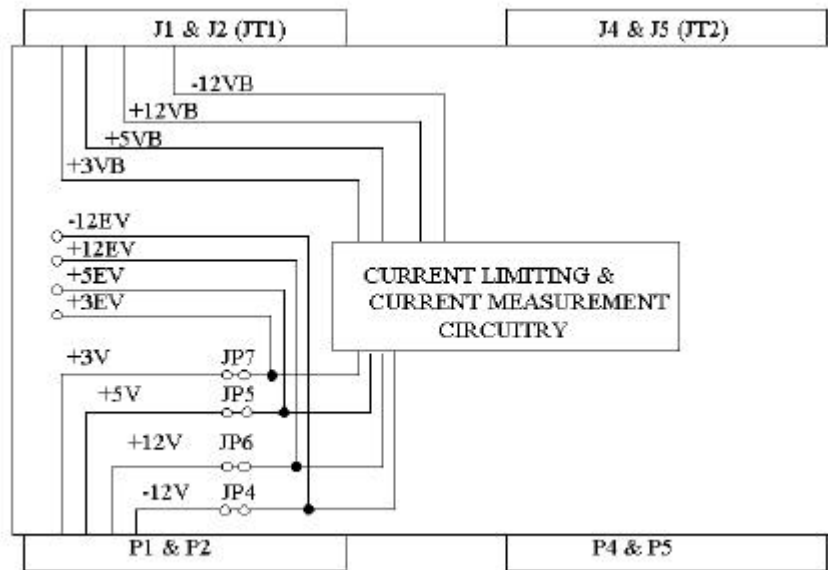
JP5 = +5V

JP6 = +12V

JP7 = +3.3V

JP7 1 & 2 for 3.3V from on board regulator, JP7 2 & 3 from the bus, not installed from the external supply.

The following diagram indicates the interconnection of the Unit-Under-Test voltages to the bus voltages and the external voltages:



As you can see, there will be conflict in case the external supply is connected while the jumper is still in place.

If you are using external power supplies do not forget to connect the Ground (GND) signals between the system and the supply. If your external power supply outputs are not isolated, make sure the ground of the system (containing the extender board) and the ground of the power supply are at the same voltage phase/level with respect to a common point, before connecting the GND signal.

If making current measurements on +5V, be sure to remove JP10 if the VIO and +5V on your board are on the same voltage plane.

JUMPERS TABLE

Description	Jumper	Utilization
External power input	J5	Inputs from external power supply
Current measurement	J3	Outputs to DVM
-12V isolation from the system	JP4	On = voltage from system, Off = from Ext. supply
+12V isolation from the system	JP6	On = voltage from system, Off = from Ext. supply
+5V isolation from the system	JP5	On = voltage from system, Off = from Ext. supply
+VIO connection to the system through the extender If this jumper is removed the UUT VIO signals must be connected to the main voltage plane.	JP10	On = VIO from the system, Off = from UUT plane
+3.3V source	JP7	On-board = Between 1 & 2, from system = 2 & 3 Square pad on the 3 pin jumper is pin 1.
+5V current limit selection	JP2	On = 2A, Off = 10A
VRG	JP30	On = voltage from system
-SELVBATRTN	JP31	On = voltage from system
-SELVBAT	JP32	On = voltage from system
-VBAT	JP33	On = voltage from system
VBATRTN	JP34	On = voltage from system
VRGRTN	JP35	On = voltage from system

LEDs

There are two sets of LED on the board, green and red. Each LED has a label which Voltage it represents. The green LED, when illuminated, indicates presence of the corresponding voltage. The red LED, when illuminated, represents a short on the corresponding voltage. Please note that the green LEDs do not necessarily indicate if the voltage is at the expected level or not.

Voltage	Green LED	Red LED
+3.3V	D5	D6
+5V	D15	D7
+12V	D4	D11
-12V	D3	D2
+VIO	D9	N/A

SPECIFICATIONS

Bus	CPCI-H110 , CompactPCI H110, 5V or 3.3V
Extender	
Voltage Requirements:	+5V, +12V & -12V @ 50 mA at no load.
UUT	
Input Voltage Source:	
+5V, +/-12 V	From the system bus or the external input, configurable by jumpers per voltage.
+3.3V	From the system bus, on board regulator, or the external input, configurable by jumper.
Output Ratings:	
+5V	Jumper selectable to 10 Amp or 2 Amp limit.
+3.3V	3.0 Amp using on board regulator, or 8A using external input voltage and bus voltage.
+/- 12V	1 Amp.
Output Voltage Drop:	
	50 mV drop for every 1 Amp drawn for +5V, +3.3V and +VIO.
	80 mV drop for every 100 mA drawn for -12V.
	50 mV drop for every 100 mA drawn for +12V.
Outputs:	
J3.1	Ground
J3.2	+5V current measurement, One Volt represents one Amp.
J3.3	+12V current measurement, One Volt represents one Amp.
J3.4	+3.3V current measurement, One Volt represents one Amp.
JT1, JT2	All CompactPCI H110 signals.
JT3, JT4	Breakout points for monitoring CompactPCI Signals
Mechanical Dimensions:	
Height	8.00 inches (203 mm)
Length	9.186 inches (233.32 mm)