PXI™ -5

PXI Express Hardware Specification Revision 1.0 ECN 1

Revision 2.0
February 15, 2008

PXI Systems Alliance

IMPORTANT INFORMATION

Copyright

NOTICE

The *PXI Express Hardware Specification Revision 1.0 ECN 1* is authored and copyrighted by the PXI Systems Alliance. Visit the PXI Systems Alliance Web site at http://www.pxisa.org/ for contact information and to learn more about the PXI Systems Alliance.

The attention of adopters is directed to the possibility that compliance with or adoption of the PXI Systems Alliance specifications may require use of an invention covered by patent rights. The PXI Systems Alliance shall not be responsible for identifying patents for which a license may be required by any PXI Systems Alliance specification, or for conducting legal inquiries into the legal validity or scope of those patents that are brought to its attention. PXI Systems Alliance specifications are prospective and advisory only. Prospective users are responsible for protecting themselves against liability for infringement of patents.

The information contained in this document is subject to change without notice. The material in this document details a PXI Systems Alliance specification in accordance with the license and notices set forth on this page. This document does not represent a commitment to implement any portion of this specification in any company's products.

The PXI Systems Alliance makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. The PXI Systems Alliance shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Compliance with this specification does not absolve manufacturers of PXI equipment from the requirements of safety and regulatory agencies (UL, CSA, FCC, IEC, etc.).

Trademarks

PXI™ is a trademark of the PXI Systems Alliance.

PICMG™ and CompactPCI® are trademarks of the PCI Industrial Computation Manufacturers Group.

Product and company names are trademarks or trade names of their respective companies.

1. Background

The *PXI Express Hardware Specification* allows 6U PXI Express Peripheral and System Timing Modules to have an optional eHM connector in the XJ8 position for additional power. The corresponding connector for 6U PXI Express Peripheral, Hybrid, and System Timing Slots, XP8, is required to be populated on 6U backplanes. Revision 1.0 of the PXI Express Hardware Specification did not explicitly define the pin assignments for these connectors. Also, Revision 1.0 of the PXI Express Hardware Specification did not include the additional current handling provided by the XP8 connector in the table showing the PXI Express backplane continuous current capability. This table also had requirements for the System Slot that were too high. Lastly, there is a need to increase the amount of current that a backplane can deliver to the peripheral slots.

This ECN provides the XP8/XJ8 pin assignments and provides an updated table showing the PXI Express backplane continuous current capability that includes the XP8 connector along with the lowered System Slot requirements. It also requires backplanes to allow higher continuous current delivery to peripheral slots which will allow modules to be developed that are multiple slots wide with a single eHM connector as well as allowing the development modules that need to provide more power that may or may not be dissipated within the chassis. PXI Express module and backplane suppliers will need to comply with any PXI Express Hardware Specification ECNs and the PXI Express Hardware Specification to claim compliance with PXI Express. The content of this ECN will be incorporated into the next revision of the PXI Express Hardware Specification.

2. XP8/XJ8 Connector Pin Assignments

RULE: 6U PXI Express Peripheral, Hybrid, and System Timing Slots and 6U PXI Express Peripheral and System Timing Modules SHALL use the pin assignments in Table 2-1.

Table 2-1 XP8/XJ8 Pin Assignments

Pin	Z	A	B	C	D	E	F	
1	GND	RSV	RSV	RSV	RSV	RSV	GND	XP8 / XJ8 Connector
2	GND	5Vaux	GND	RSV	RSV	RSV	GND	
3	GND	12V	12V	GND	GND	GND	GND	
4	GND	GND	GND	3.3V	3.3V	3.3V	GND	
5	GND	RSV	RSV	RSV	GND	RSV	GND	
6	GND	RSV	GND	RSV	RSV	RSV	GND	
7	GND	RSV	RSV	RSV	GND	RSV	GND	
8	GND	RSV	GND	RSV	RSV	RSV	GND	

OBSERVATION: The XP8 pin assignments are only used if a 6U PXI Express Peripheral, Hybrid, or System Timing slot does not support stacking 3U modules. 6U PXI Express slots that support stacking 3U Modules route the signals and follow the pin assignments for the upper and lower 3U Slots according to the type of 3U Slots being implemented within the 6U Slot (System, Hybrid, PXI Express Peripheral, PXI-1 or System Timing Slot).

3. PXI Express Backplane Continuous Current Capability

RULE: A PXI Express Chassis backplane and connectors SHALL be capable of transferring the amount of current to each slot specified in Table 3-1 below instead of Table 4-15 in the PXI Express Hardware Specification Revision 1.0.

OBSERVATION: Table 3-1 below supersedes Table 4-15 in the PXI Express Hardware Specification Revision 1.0.

RULE: The backplane and connectors SHALL be capable of receiving as much return current as they are capable of delivering.

Table 3-1 PXI Express Backplane Continuous Current Capability

	5 V	**V(I/O)**	**3.3 V**	**+12 V**	**-12 V**	**$5V_{AUX}$**
PXI Express System Controller Slot	9 A	0 A	9 A	11 A	0 A	1 A
3U PXI Express Peripheral Slot	0 A	0 A	6 A	4 A	0 A	1 A
6U PXI Express Peripheral Slot	0 A	0 A	12 A	8 A	0 A	2 A
3U Hybrid Slot	6 A	5 A	6 A	4 A	1 A	1 A
6U Hybrid Slot	6 A	5 A	12 A	8 A	1 A	2 A
PXI-1 Peripheral Slot	6 A	11 A	6 A	1 A	1 A	0 A

RULE: 3U Hybrid slots SHALL be able to deliver and receive as much current through the XP4 connector pins as required for 3U PXI Express Peripheral Slots. Similarly, 6U Hybrid slots SHALL be able to deliver and receive as much current through the XP4 and XP8 connector pins as required for 6U PXI Express Peripheral Slots.

OBSERVATION: It may be necessary to calculate the total current for each voltage rail drawn by all modules and compare these values to the PXI Express chassis specifications in order to determine whether a specific PXI Express system configuration will be powered properly. It may also be necessary to calculate the total power dissipation in each module to determine whether the module will be adequately cooled by a chassis.