Hardware Installation Guide

ACQ196CPCI

96 Channel Simultaneous Analog Input CPCI Card

1 Installation Notes

The ACQ196CPCI Card is a complex electronic subassembly. Special care should be taken in handling. The card is susceptible to damage by ESD and improper power connections.

1.1 Ensure ESD precautions [chassis, body grounding] are taken before opening card from packaging.

1.2 This card only fits in 6U CPCI Backplane Systems. It requires that J3 and J5 connectors be fitted to backplane.

1.3 If a Rear Transition Module RTM is fitted, ensure that it is ACQ1xx compatible. Connection to third party RTM may cause damage to your board.

Please note that ACQ32, ACQ2xx RTM modules are not compatible with ACQ1xx.

1.4 Ensure proper ESD precautions are taken during installation.

1.5 Please be extremely careful to ensure correct card guide alignment when plugging in the cards to avoid backplane pin damage.

IMPORTANT

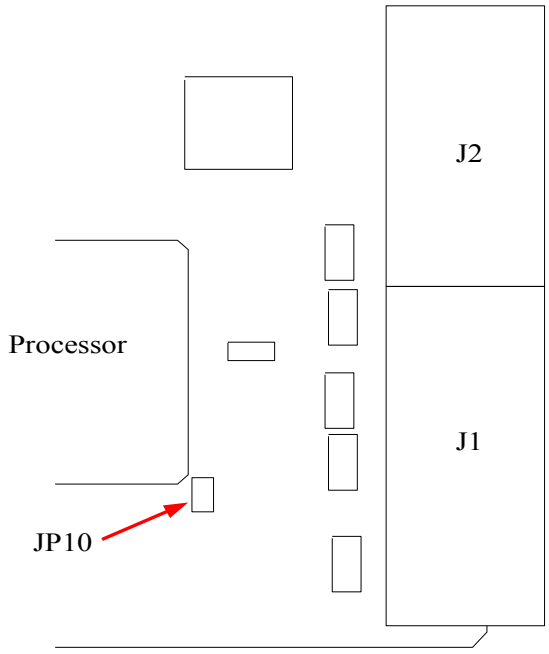
The ACQ196CPCI is designed to operate either as a Peripheral Card / System Slot Card or a Stand Alone Card. When in Stand Alone mode the card ignores all PCI signals and only derives power from the CPCI Backplane.

The Stand Alone mode is selected via a jumper, System Slot / Peripheral Mode is determined by which slot the board is plugged into. This Jumper must be set for correct system operation.

JP10 Jumper Fitted = Stand Alone Operation

JP10 Jumper Not Fitted = PCI Operation, System Slot / Peripheral Slot auto sensed

The location of JP10 is at the bottom of the card near the CPCI J1 connector as shown in the diagram below.



2 Standards Compatibility

Product conforms to PICMG2.0 rev 3.0.

The PCI interface supports Universal [3.3 or 5V] signaling.

The card is capable of performing the CPCI System Slot function.

3 Connectors

It is common practice for customers to manufacture their own cables and termination units, to fit in with their own sensor requirements. The following sections explains each connector configuration.

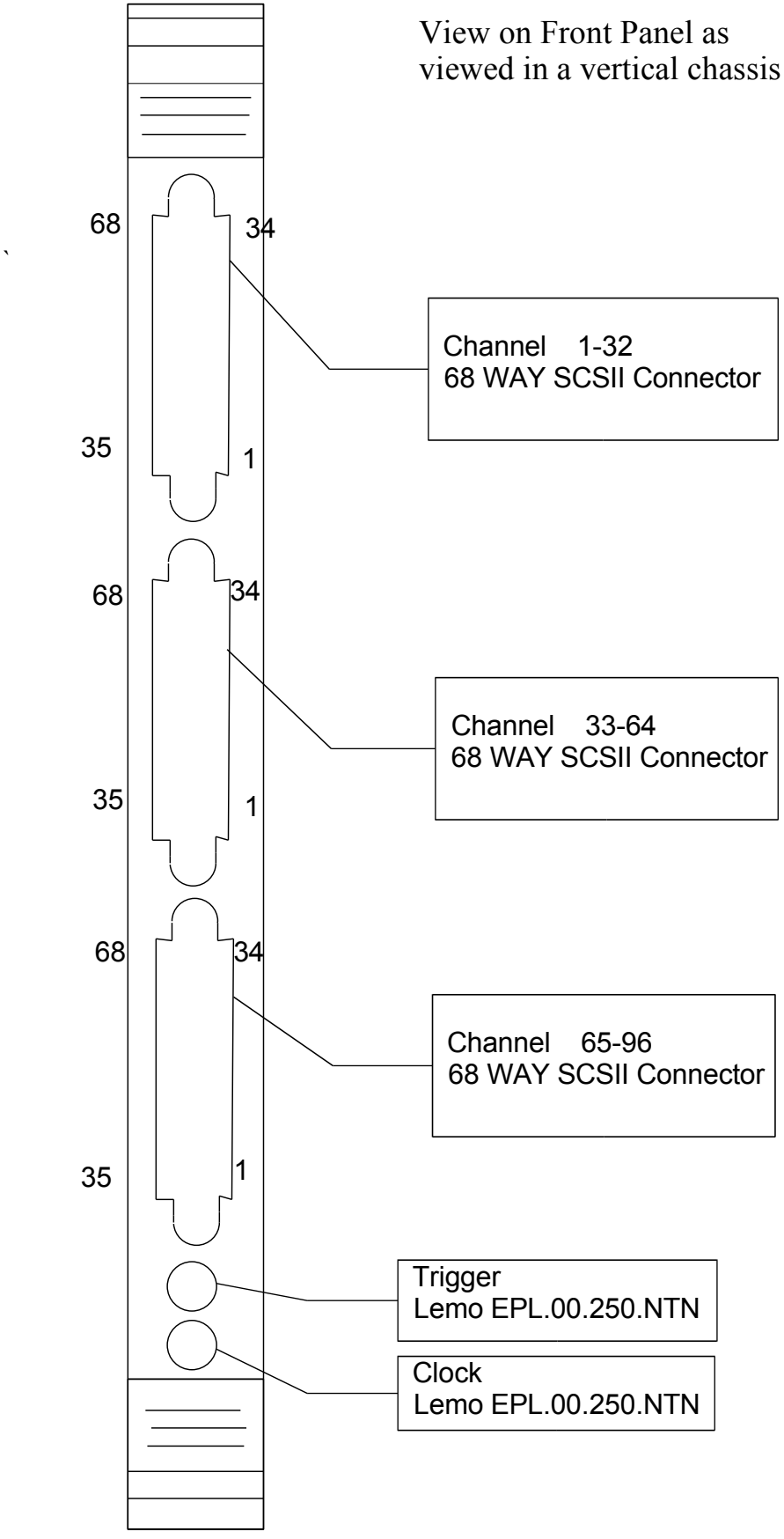
D-TACQ Solutions supply a standard range of cable and termination accessories, and can also produce custom solutions.

3.1 Front Panel External Clock and Trigger Connectors

Currently fitted with LEMO type EPL.00.250.NTN. Various connector can be used LEMO. Please refer to LEMO catalogue or website (www.lemo.com). A readily available type is FFA.00.250.CTAC29Z for use with RG174, RG179 and RG188 co-axial cable

Signal Requirements: Signal is opto-coupled. Recommend 5V, centre positive, current in the ON state will be ~5mA. Clock and Trigger are both edge triggered, but for interlock reasons it is recommended that the Trigger signal be active for a duration longer than one Clock.

3.2 Front panel Layout



3.3 Analog Input Connector on Front Panel for Channel 1 to 32

Pin No.	Signal	Pin No.	Signal
1	0V	35	0V
2	0V	36	0V
3	Analog In 1+	37	Analog In 1-
4	Analog In 2+	38	Analog In 2-
5	Analog In 3+	39	Analog In 3-
6	Analog In 4+	40	Analog In 4-
7	Analog In 5+	41	Analog In 5-
8	Analog In 6+	42	Analog In 6-
9	Analog In 7+	43	Analog In 7-
10	Analog In 8+	44	Analog In 8-
11	Analog In 9+	45	Analog In 9-
12	Analog In 10+	46	Analog In 10-
13	Analog In 11+	47	Analog In 11-
14	Analog In 12+	48	Analog In 12-
15	Analog In 13+	49	Analog In 13-
16	Analog In 14+	50	Analog In 14-
17	Analog In 15+	51	Analog In 15-
18	Analog In 16+	52	Analog In 16-
19	Analog In 17+	53	Analog In 17-
20	Analog In 18+	54	Analog In 18-
21	Analog In 19+	55	Analog In 19-
22	Analog In 20+	56	Analog In 20-
23	Analog In 21+	57	Analog In 21-
24	Analog In 22+	58	Analog In 22-
25	Analog In 23+	59	Analog In 23-
26	Analog In 24+	60	Analog In 24-
27	Analog In 25+	61	Analog In 25-
28	Analog In 26+	62	Analog In 26-
29	Analog In 27+	63	Analog In 27-
30	Analog In 28+	64	Analog In 28-
31	Analog In 29+	65	Analog In 29-
32	Analog In 30+	66	Analog In 30-
33	Analog In 31+	67	Analog In 31-
34	Analog In 32+	68	Analog In 32-

Matching connector type is 68 way male Micro D (SCSI-II Type) with 4-40 screw. Cable can be 68 way ribbon or, preferably, 34 sheathed wire pairs.

3.4 Analog Input Connector on Front Panel for Channel 33 to 64

Pin No.	Signal	Pin No.	Signal
1	0V	35	0V
2	0V	36	0V
3	Analog In 33+	37	Analog In 33-
4	Analog In 34+	38	Analog In 34-
5	Analog In 35+	39	Analog In 35-
6	Analog In 36+	40	Analog In 36-
7	Analog In 37+	41	Analog In 37-
8	Analog In 38+	42	Analog In 38-
9	Analog In 39+	43	Analog In 39-
10	Analog In 40+	44	Analog In 40-
11	Analog In 41+	45	Analog In 41-
12	Analog In 42+	46	Analog In 42-
13	Analog In 43+	47	Analog In 43-
14	Analog In 44+	48	Analog In 44-
15	Analog In 45+	49	Analog In 45-
16	Analog In 46+	50	Analog In 46-
17	Analog In 47+	51	Analog In 47-
18	Analog In 48+	52	Analog In 48-
19	Analog In 49+	53	Analog In 49-
20	Analog In 50+	54	Analog In 50-
21	Analog In 51+	55	Analog In 51-
22	Analog In 52+	56	Analog In 52-
23	Analog In 53+	57	Analog In 53-
24	Analog In 54+	58	Analog In 54-
25	Analog In 55+	59	Analog In 55-
26	Analog In 56+	60	Analog In 56-
27	Analog In 57+	61	Analog In 57-
28	Analog In 258	62	Analog In 58-
29	Analog In 59+	63	Analog In 59-
30	Analog In 60+	64	Analog In 60-
31	Analog In 61+	65	Analog In 61-
32	Analog In 62+	66	Analog In 62-
33	Analog In 63+	67	Analog In 63-
34	Analog In 64+	68	Analog In 64-

Matching connector type is 68 way male Micro D (SCSI-II Type) with 4-40 screw. Cable can be 68 way ribbon or preferably, 34 sheathed wire pairs.

3.5 Analog Input Connector on Front Panel for Channel 65 to 96

Pin No.	Signal	Pin No.	Signal
1	0V	35	0V
2	0V	36	0V
3	Analog In 65+	37	Analog In 65-
4	Analog In 66+	38	Analog In 66-
5	Analog In 67+	39	Analog In 67-
6	Analog In 68+	40	Analog In 68-
7	Analog In 69+	41	Analog In 69-
8	Analog In 70+	42	Analog In 70-
9	Analog In 71+	43	Analog In 71-
10	Analog In 72+	44	Analog In 72-
11	Analog In 73+	45	Analog In 73-
12	Analog In 74+	46	Analog In 74-
13	Analog In 75+	47	Analog In 75-
14	Analog In 76+	48	Analog In 76-
15	Analog In 77+	49	Analog In 77-
16	Analog In 78+	50	Analog In 78-
17	Analog In 79+	51	Analog In 79-
18	Analog In 80+	52	Analog In 80-
19	Analog In 81+	53	Analog In 81-
20	Analog In 82+	54	Analog In 82-
21	Analog In 83+	55	Analog In 83-
22	Analog In 84+	56	Analog In 84-
23	Analog In 85+	57	Analog In 85-
24	Analog In 86+	58	Analog In 86-
25	Analog In 87+	59	Analog In 87-
26	Analog In 88+	60	Analog In 88-
27	Analog In 89+	61	Analog In 89-
28	Analog In 90+	62	Analog In 90-
29	Analog In 91+	63	Analog In 91-
30	Analog In 92+	64	Analog In 92-
31	Analog In 93+	65	Analog In 93-
32	Analog In 94+	66	Analog In 94-
33	Analog In 95+	67	Analog In 95-
34	Analog In 96+	68	Analog In 96-

Matching connector type is 68 way male Micro D (SCSI-II Type) with 4-40 screw. Cable can be 68 way ribbon or, preferably, 34 sheathed wire pairs.

4 Rear Transition Module RTM for ACQ196CPCI

The ACQ196CPCI normally requires a Rear transition Module for operation. Choice of three:

ACQ196CPCI-RTM1 – Digital Inputs, Ethernet, RS232.

ACQ196CPCI-RTM-DIO32 – Digital Inputs, Ethernet, RS232, 32 Digital I/O.

ACQ196CPCI-RTM1-A0 – Digital Inputs, Ethernet, RS232, 32 Digital I/O and 16 channels of analog output, which can be used for control and/or waveform generation.

4.1 Console Connector. 9 pin standard D plug

Standard RS232 format

4.2 Ethernet Connectors

Standard RJ45 connector for 100 Base-T Ethernet

4.3 Clock and trigger Connectors

Utilises a micro D 15 way connector (standard VGA) for clock and triggers.

Pin	Description
1	External Clock 1
2	External Clock 1 Return
3	External Trigger 1
4	External Trigger 1 Return
5	External Clock 2
6	External Clock 2 Return
7	External Trigger 2
8	External Trigger 2 Return
9	External Clock 3
10	External Clock 3 Return
11	External Trigger 3
12	External Trigger 3 Return
13	NC
14	NC
15	NC

4.4 Digital I/O 32 Connector

Pin No.	Signal	Pin No.	Signal
1	NC	35	0V
2	NC	36	0V
3	Digital I/O 1	37	0V
4	Digital I/O 2	38	0V
5	Digital I/O 3	39	0V
6	Digital I/O 4	40	0V
7	Digital I/O 5	41	0V
8	Digital I/O 6	42	0V
9	Digital I/O 7	43	0V
10	Digital I/O 8	44	0V
11	Digital I/O 9	45	0V
12	Digital I/O 10	46	0V
13	Digital I/O 11	47	0V
14	Digital I/O 12	48	0V
15	Digital I/O 13	49	0V
16	Digital I/O 14	50	0V
17	Digital I/O 15	51	0V
18	Digital I/O 16	52	0V
19	Digital I/O 17	53	0V
20	Digital I/O 18	54	0V
21	Digital I/O 19	55	0V
22	Digital I/O 20	56	0V
23	Digital I/O 21	57	0V
24	Digital I/O 22	58	0V
25	Digital I/O 23	59	0V
26	Digital I/O 24	60	0V
27	Digital I/O 25	61	0V
28	Digital I/O 26	62	0V
29	Digital I/O 27	63	0V
30	Digital I/O 28	64	0V
31	Digital I/O 29	65	0V
32	Digital I/O 30	66	0V
33	Digital I/O 31	67	0V
34	Digital I/O 32	68	0V

Matching connector type is 68 way male Micro D (SCSI-II Type) with 4-40 screw. Cable can be 68 way ribbon or, preferably, 34 sheathed wire pairs.

4.5 Analog Out AO16 Connector

Pin No.	Signal	Pin No.	Signal
1	0V	35	0V
2	0V	36	0V
3	Analog Out Chan 1	37	0V
4	Analog Out Chan 2	38	0V
5	Analog Out Chan 3	39	0V
6	Analog Out Chan 4	40	0V
7	Analog Out Chan 5	41	0V
8	Analog Out Chan 6	42	0V
9	Analog Out Chan 7	43	0V
10	Analog Out Chan 8	44	0V
11	Analog Out Chan 9	45	0V
12	Analog Out Chan 10	46	0V
13	Analog Out Chan 11	47	0V
14	Analog Out Chan 12	48	0V
15	Analog Out Chan 13	49	0V
16	Analog Out Chan 14	50	0V
17	Analog Out Chan 15	51	0V
18	Analog Out Chan 16	52	0V
19	Analog Out Chan 1	53	0V
20	Analog Out Chan 2	54	0V
21	Analog Out Chan 3	55	0V
22	Analog Out Chan 4	56	0V
23	Analog Out Chan 5	57	0V
24	Analog Out Chan 6	58	0V
25	Analog Out Chan 7	59	0V
26	Analog Out Chan 8	60	0V
27	Analog Out Chan 9	61	0V
28	Analog Out Chan 10	62	0V
29	Analog Out Chan 11	63	0V
30	Analog Out Chan 12	64	0V
31	Analog Out Chan 13	65	0V
32	Analog Out Chan 14	66	0V
33	Analog Out Chan 15	67	0V
34	Analog Out Chan 16	68	0V

Matching connector type is 68 way male Micro D (SCSI-II Type) with 4-40 screw. Cable can be 68 way ribbon or , preferably, 34 sheathed wire pairs.