IQEXTENDER IQ Module

Board Manual

March 1998

Order Number: 272942-002

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1.1 Overview

The Product Name extends the secondary PCI bus to three standard PCI connectors. Users can prototype Intelligent I/O systems with off-the-shelf PCI I/O boards. The Product Name may be hosted on an Intel IQ80960RP or IQ80960RD66 cards.

1.2 Features

- Three PCI slots connected to the secondary PCI bus
- Logic Analyzer test leaders for all secondary PCI bus signals

1.3 Specifications

Physical Characteristics:

Length x Width 7.000" x 7.900"

PCI boards mount horizontal

1.4 Related Information

1.4.1 Third-Party Vendor Contact Information

In addition to the printed technical documentation — the "traditional" collection of product information — Intel is providing technical (and other) information to you electronically via FaxBACK, Application Bulletin Board Service (BBS) and World Wide Web (WWW). The following subsections identify related technical information, sources for electronic file download, and technical support.

Table 1-1. Related Third-Party Information

Company	Product	Contact
PCI Special Interest Group	*PCI Local Bus Specification* Revision 2.1	(503) 797-4207 (International) (503) 234-6762 (Fax)

1.4.2 Intel Documentation

Documentation is available from your local Intel Sales Representative or Intel Literature Sales:

Intel Corporation
Literature Sales
PO Box 5937
Denver, CO 80217-9808
(800) 548-4725

Table 1-2. Related Intel Documentation

Document Title	Order #
IQ80960RP Evaluation Platform User's Guide	272913
i960® RP Microprocessor User's Manual	272736
80960RP the IQ Series Intelligent I/OMicroproccessor data sheet	272737

1.4.3 "Electronic" Information

Up-to-date product and technical information is available electronically from these sources:

Table 1-3. Related Electronic Information

Intel's World Wide Web (WWW) Location:[1]	http://www.intel.com/
FaxBACK Service:	
US and Canada	800-628-2283
Europe	+44(0)793-496646
Worldwide	916-356-3105
Application Bulletin Board Service:	
up to 14.4 Kbaud line, Worldwide	916-356-3600
dedicated 2400 baud line, Worldwide	916-356-7209
Europe	+44(0)793-496340

1 Intel's presence on the WWW is evolving rapidly; file locations may have changed after this manual was printed. If you are not finding the desired information, contact Customer Support for assistance.

1.4.4 Intel Customer Support Contacts

Table 1-4. Intel Customer Support Telephone Numbers

Customer Support (US and Canada):		800-628-8686
Country	**Literature**	**Technical Support**
Australia National Sydney	Contact Local Distributor	008-257-307 61-2-975-3300 61-3-810-2141
Belgium, Netherlands, Luxembourg	010-4071-111	010-4071-111
Canada	800-468-8118	Contact Local Distributor
Finland	358-0-544-644	358-0-544-644
France	33-1-30-57-70-00	33-1-30-57-72-22
Germany	49-89-9-099-2257	Hardware:49-89-903-8529 Software:49-89-903-2025
Israel	972-3-498080	972-3-548-3232
Italy	39-02-89200950	39-02-89200950
Japan	Contact Local Distributor	0120-1-80387
Sweden	46-8-7340100	46-8-7340100
United States	800-548-4725	800-628-8686

Installation 2

2.1 Installation On A Host

Warning: Static discharge can severely damage integrated circuits. The host board and IQEXTENDER IQ Module should only be handled with proper static protection. IQEXTENDER IQ Modules should always be installed with power to the host board OFF. Mounting or dismounting a module with the host power ON could permanently damage the circuitry on the module.

Refer to the IQEXTENDER IQ Module's host board user's manual for mounting locations.

To install the IQEXTENDER IQ Module (Figure 2-1) proceed with the following steps:

1. Mount the I/O card panel onto the IQEXTENDER IQ Module board with two screws. The panel mounts on the same side as the PCI connectors on the IQEXTENDER IQ Module.
2. Align the module and host connectors.
3. With the module and host aligned, press the two assemblies together, fully mating the connectors.
4. Secure the IQEXTENDER IQ Module to the host with the four nylon screws.

Figure 2-1. IQEXTENDER IQ Module Installation on Host

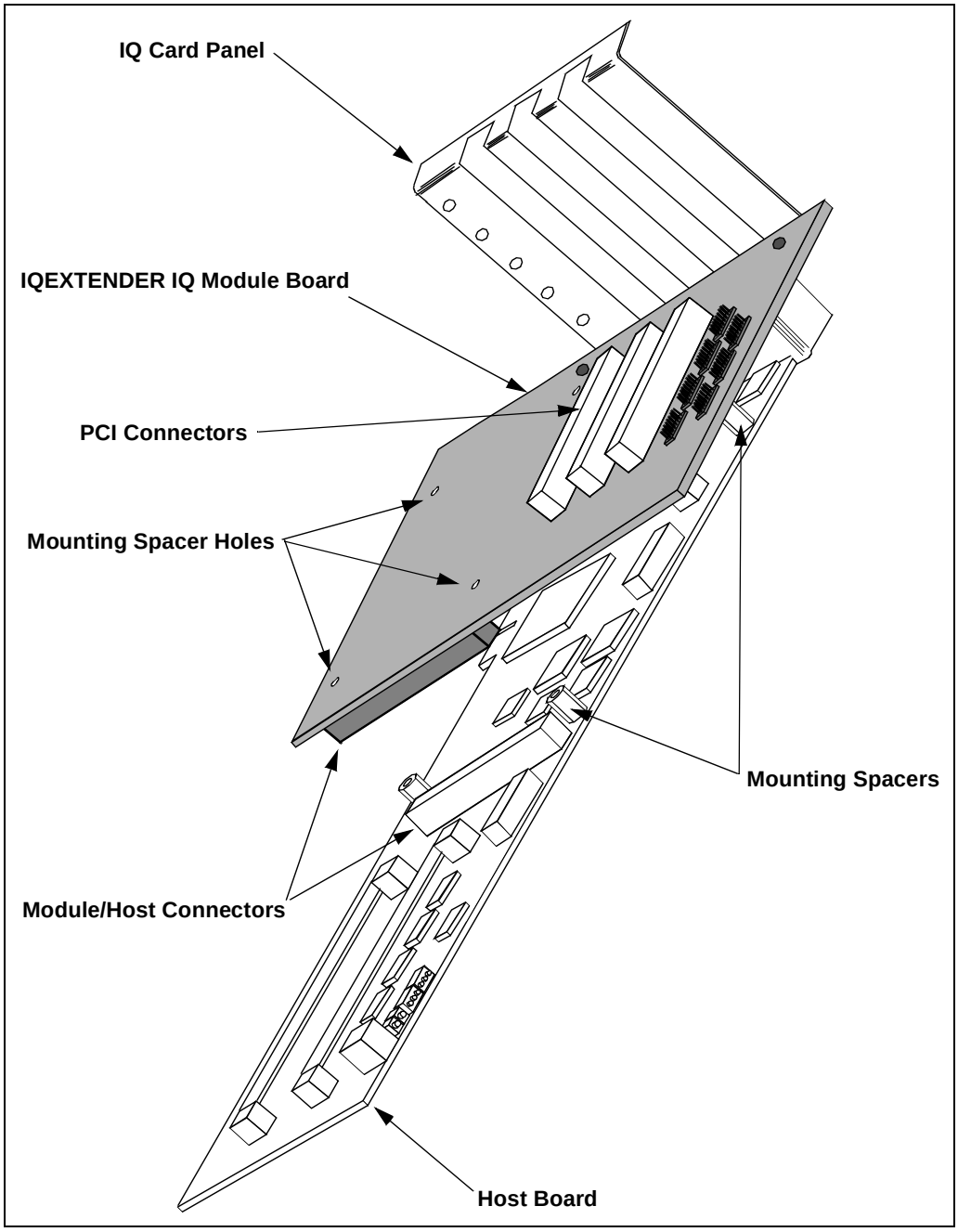
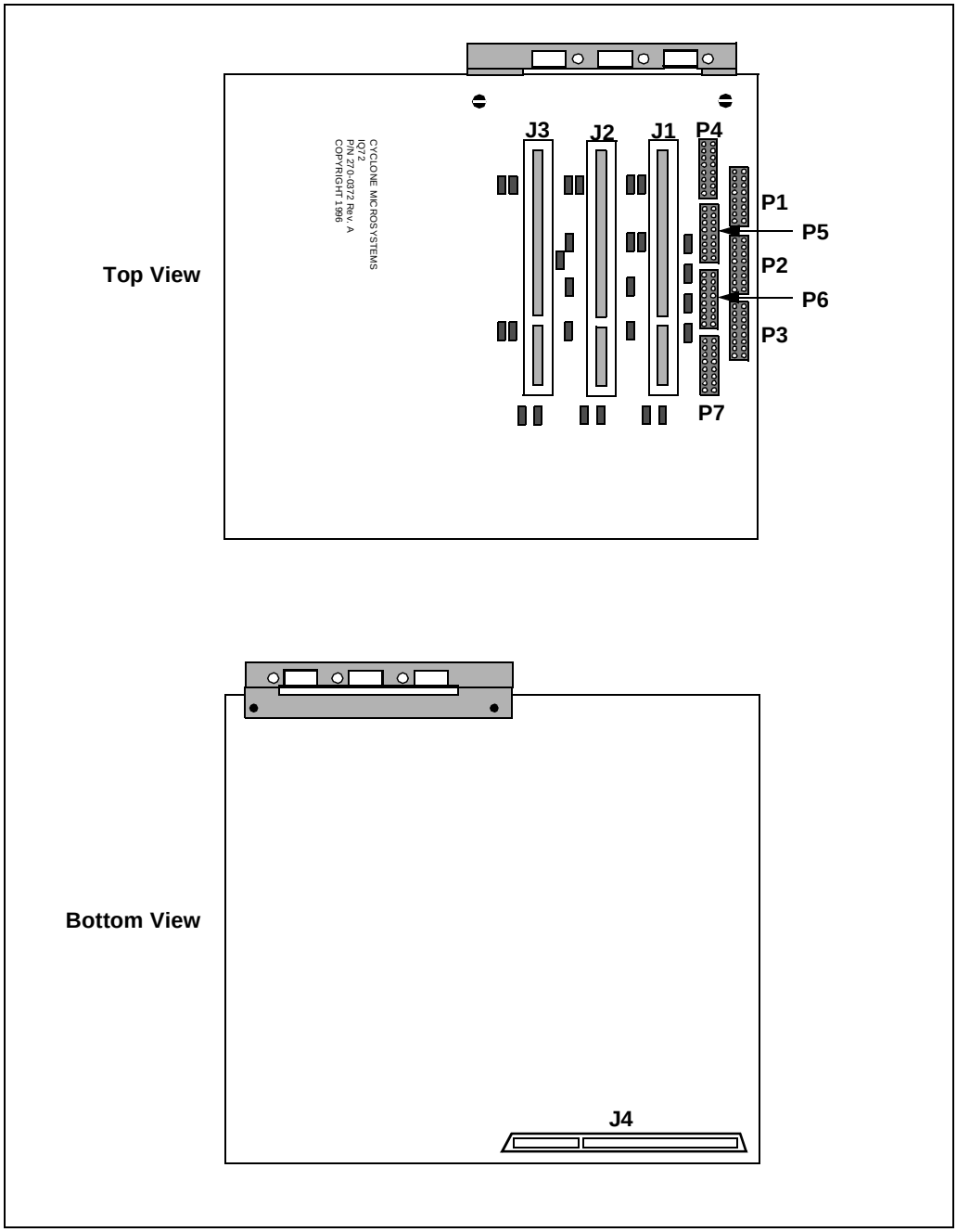


Figure 2-2. IQEXTENDER IQ Module



Hardware Description 3

3.1 Introduction

This chapter describes the hardware and general operation of the IQEXTENDER IQ Module. The module extends the secondary PCI bus to three standard PCI connectors and logic analyzer test leaders.

3.2 PCI ExpansionN Slots

Three PCI Expansion Slots are available on the IQEXTENDER IQ Module. The slots are designed for +5 V PCI signalling and accommodate PCI cards with +5 V or universal signalling capabilities.

3.3 PCI Slots Power Availability

The IQEXTENDER IQ Module routes +5 V, +12 V, -12 V and +3.3 V to the PCI slots from the IQ Module connector. A positive 3.3 V is not supplied by any of the current host boards (Intel's IQ80960RP or Cyclone's PCI914 boards) to the IQ Module connector. As per the *PCI Local Bus Specification* Revision 2.1, the +3.3 V pins are used as AC return paths.

3.4 Interrupt and IDSEL Routing

Secondary PCI bus interrupts and IDSEL are signals routed as shown in Table 3-1.

Table 3-1. Secondary PCI Bus Interrupt and IDSEL Routing

Connector	IDSEL	INTA#	INTB#	INTC#	INTD#
J1	A18	S_INTC#	S_INTB#	S_INTA#	S_INTD#
J2	A17	S_INTB#	S_INTA#	S_INTD#	S_INTC#
J3	A16	S_INTA#	S_INTD#	S_INTC#	S_INTB#

3.5 IQEXTENDER IQ Module Board Bill of Materials

Table 3-2. IQEXTENDER IQ Module Bill of Materials

Qty.	Part Description	Manufacturer P/N Reference	Component Location
3	5 V Through Hole PCI Slot Connector	AMP #145154-4	J1, J2, J3
1	120-Pin Connector (Receptacle)	AMP #176372-5	J4
7	16-Pin (2x8) Header	Molex #10-89-6168	P1 - P7
15	0.1 µF (1206) Capacitor	Generic	C1 - C15
3	000 Ω, 5% (1206) Resistor	Generic	R1, R3, R7
6	10 KΩ, 5% (1206) Resistor	Generic	R2, R4, R5, R6, R8, R9
2	2.7 KΩ, 5% (1206) Resistor	Generic	R10, R11

3.6 Pin Assignments

This chapter gives the pin assignments to the logic analyzer headers.

Table 3-3. Logic Analyzer Header P1

Pin	Signal	Pin	Signal
1	AD31	2	GND
3	AD30	4	GND
5	AD29	6	GND
7	AD28	8	GND
9	AD27	10	GND
11	AD26	12	GND
13	AD25	14	GND
15	AD24	16	GND

Table 3-4. Logic Analyzer Header P2

Pin	Signal	Pin	Signal
1	C/BE3#	2	GND
3	C/BE2#	4	GND
5	FRAME#	6	GND
7	IRDY#	8	GND
9	TRDY#	10	GND
11	DEVSEL#	12	GND
13	STOP#	14	GND
15	LOCK#	16	GND

Table 3-5. Logic Analyzer Header P3

Pin	Signal	Pin	Signal
1	PERR#	2	GND
3	SERR#	4	GND
5	PAR	6	GND
7	C/BE1#	8	GND
9	C/BE0#	10	GND
11	N/C	12	GND
13	N/C	14	GND
15	N/C	16	GND

Table 3-6. Logic Analyzer Header P4

Pin	Signal	Pin	Signal
1	INTA#	2	GND
3	INTB#	4	GND
5	INTC#	6	GND
7	INTD#	8	GND
9	CLKD	10	GND
11	RST#	12	GND
13	GNT3#	14	GND
15	REQ3#	16	GND

Table 3-7. Logic Analyzer Header P5

Pin	Signal	Pin	Signal
1	AD23	2	GND
3	AD22	4	GND
5	AD21	6	GND
7	AD20	8	GND
9	AD19	10	GND
11	AD18	12	GND
13	AD17	14	GND
15	AD16	16	GND

Table 3-8. Logic Analyzer Header P6

Pin	Signal	Pin	Signal
1	AD15	2	GND
3	AD14	4	GND
5	AD13	6	GND
7	AD12	8	GND
9	AD11	10	GND
11	AD10	12	GND
13	AD9	14	GND
15	AD8	16	GND

Table 3-9. Logic Analyzer Header P7

Pin	Signal	Pin	Signal
1	AD7	2	GND
3	AD6	4	GND
5	AD5	6	GND
7	AD4	8	GND
9	AD3	10	GND
11	AD2	12	GND
13	AD1	14	GND
15	AD0	16	GND