



Intel® Evaluation Board Selector Guide

A reference tool for Intel® I/O Processors based on Intel XScale® technology.

Intel® Evaluation Boards for Intel XScale®-based I/O Processors

Intel® IQ81342MC Kit



The IQ81342.MC Customer Reference Board (CRB) is a standard sized Micro-ATX board with a 1200 MHz IOP342 Two Core Processor, but this can be used to emulate the single core IOP341 by jumper switch selection. The board has one x8 PCI-Express slot and one 100 MHz 64 bit PCI-X slot and is supplied with a 256MB DDR-2 533 MHz memory DIMM. The other on board peripherals include an Intel® 82546 Dual Port Gigabit Ethernet controller, Dual UARTs, Four I2C Fan Controllers, a temp sensor, and a real time clock with battery. RedBoot is programmed into the onboard flash, and allows for serial or Ethernet loading of application programs or operating systems, or the Compact Flash (CF) expansion slot can be used to hold an OS. A Mini-JTAG header is on board, and is supplied with an adapter cable for use with the included 20-pin Macraigor Raven* JTAG device to enable flash programming and debug access to both cores.

PRODUCT CODE	MM#	FORM FACTOR
IQ81342MC.kit	889950	MicroATX 7.5 in x 9.0 in (190 mm x 230 mm)
Processor Product Brief	www.intel.com/design/iio/prodbref/315033.htm	
Customer Reference Board Manual	www.intel.com/design/iio/docs/315057.htm	

Intel® IQ81342SC KIT



The IQ81342SC Customer Reference Board (CRB) is a PCI-Express* Host Bus Adapter (HBA) card with a 1200 MHz IOP342 Two Core Processor. The board has one x8 PCI-Express edge connector, for connecting to an IA-Server, or other motherboard. On board peripherals include an Intel® 82545 Gigabit Ethernet controller, Dual UARTs, a temp sensor, and a real time clock with battery. RedBoot is programmed into the onboard flash, and allows for serial or Ethernet loading of application programs or operating systems. The board is supplied with a 256MB DDR-2 533 MHz memory DIMM, but the user can replace this with a larger DIMM, up to 2 Gb/s, if required. A Mini-JTAG header is on board, and is supplied with an adapter cable for use with the included 20-pin Macraigor Raven* JTAG device to enable flash programming and debug access to both cores. The board sources power from the PCIe slot, and the 100 MHz 64 bit PCI-X slot has an auxiliary 4 pin Molex disk-style socket.

PRODUCT CODE	MM#	FORM FACTOR
IQ81342SC.kit	889947	Full Size PCIe 5.75 in x 12.25 in (145 mm x 310 mm)
Processor Product Brief	www.intel.com/design/iio/prodbref/315033.htm	
Customer Reference Board Manual	www.intel.com/design/iio/docs/315056.htm	

Intel® Evaluation Boards for Intel XScale® technology-based I/O Processors

Intel® IQ80331 Kit

The Intel® IQ80331 board provides 128 MB ECC Registered DDR2 SDRAM 400 MHz memory soldered onto the board that supports ultra-fast memory transactions due to a new dual-ported memory controller. The kit includes the PCI-X* card and a complete set of software development tools—including IDE, Compiler Suites, JTAG debugging, and flash programming hardware and software. Target applications include PCI/PCI-X host-based adapters (RAID cards, iSCSI cards, FC cards, Security/SSL NICs, etc), control plane and system controller applications utilizing PCI/PCI-X as a system interconnect and/or backplane (Virtual Private Network (VPN) devices, video servers, network gateways, Network Attached Storage (NAS), and External Storage Arrays).



PRODUCT CODE	MM#	FORM FACTOR
IQ80331.DOM	858260	Full-size PCI-X 5.75 in. x 12.25 in., (145 mm x 310 mm)
IQ80331.INT	858259	Full-size PCI-X 5.75 in. x 12.25 in., (145 mm x 310 mm)
Manual	www.intel.com/design/iiio/manuals/273948.htm	
Product Brief	www.intel.com/design/iiio/prodbref/303188.htm	
Software Support	www.intel-ioprocessortools.com	
Processor Information	www.intel.com/design/iiio/iop331.htm	

Intel® IQ80333 Kit

The Intel® IQ80333 kits include the PCI Express* card and a complete set of software development tools—including IDE, Compiler Suites, JTAG debugging, and flash programming hardware and software. Target applications include RAID on Motherboard and PCI Express host-based adapters (RAID cards, iSCSI cards, FC cards, Security/SSL NICs, etc.), and a host of other intelligent I/O applications that require a highly integrated, high-performance system-on-a-chip processor with an integrated PCI Express interface.



PRODUCT CODE	MM#	FORM FACTOR
IQ80333.DOM	869538	Full-size PCIe 5.75 in. x 12.25 in. (145 mm x 310 mm)
IQ80333.INT	869537	Full-size PCIe 5.75 in. x 12.25 in. (145 mm x 310 mm)
Manual	www.intel.com/design/iiio/manuals/306690.htm	
Product Brief	http://developer.intel.com/design/iiio/prodbref/306583.htm	
Software Support	www.intel-ioprocessortools.com	
Processor Information	www.intel.com/design/iiio/iop333.htm	

Intel® Evaluation Board Product Specifications



Intel® IQ81342MC Kit



Intel® IQ81342SC Kit



Intel® IQ80331 Kit



Intel® IQ80333 Kit

PROCESSOR	MEMORY	I/O PARTS
1.2 GHz Intel® IOP342 Processor	256 MB DR2 533 MHz DIMM. 2 GB supported 32 MBs Flash ROM. 16-bit Flash interface. Compact Flash Type II Connector.	Intel® 82546 GB Dual Port Gigabit Ethernet Controller. Two Serial Console Ports. Mini-JTAG Header. Three I ² C Ports.
1.2 GHz Intel® IOP342 Processor	256 MB DDR2 533 MHz DIMM. 2 GB supported. 32 MBs Flash ROM. 16-bit Flash Interface.	Intel® 82545 GB Ethernet Controller. Two Serial Console Ports. Mini-JTAG Header.
800 MHz Intel® 80331 I/O Processor with Intel XScale® microarchitecture	128 MB (512 MB x 16) DDR2 SDRAM 400 MHz ECC Registered memory is soldered down. 8 MB Flash ROM 3.3 V - 16-bit Flash I/F. Non-volatile RAM (NVRAM): 32 KBs in a serial I ² C EEPROM. Battery backup is provided to save any information in DDR during a power failure. The board contains a 4 V Li-ion battery, a charging circuit and a regulator circuit. Approximately 18-hour backup time for 64 MB.	Serial port: Dual RJ-11 serial port connectors. The 80331 has two integrated UART serial ports which are 16550 compatible. The two on-chip I ² C busses are brought out to connectors for external devices Intel® 82545EM Gigabit Ethernet Controller. JTAG (2 x 10 header) used for S/W debug and flash programming.
800 MHz Intel® 80333 I/O Processor with Intel XScale microarchitecture	RAM: DIMM slot ships with 256 MB (512 MB x 16). DDR2 SDRAM. 400 MHz ECC Registered DIMM. 8 MB Flash ROM 3.3 V - 16-bit Flash I/F. Non-volatile RAM (NVRAM): 32 KBs in a serial I ² C EEPROM. Battery backup is provided to save any information in DDR during a power failure. The board contains a 4 V Li-ion battery, a charging circuit and a regulator circuit. Approximately 18-hour backup time for 64 MB.	Serial port: Dual RJ-11 serial port connectors. The 80333 has two integrated UART serial ports which are 16550 compatible. The two on-chip I ² C busses are brought out to connector for external devices. Intel 82545EM Gigabit Ethernet Controller. JTAG (2 x 10 header) used for S/W debug and flash programming.

EXPANSION	INDICATORS	PERIPHERALS	POWER/MOTHERBRD. CONN.
<p>One 64-Bit PCI-X slot.</p> <p>100 MHz (the ethernet controller is on this same bus).</p> <p>One x8 PCI express slot.</p> <p>CF slot can be used for ROM expansion.</p>	<p>Two 7 Segment Hex display.</p> <p>Power LED.</p> <p>Buzzer.</p>	<p>Temp Sensor.</p> <p>4 I²C Fan monitor/controllers.</p> <p>Real Time Clock with Battery.</p>	<p>MicroATX 7.5 inch x 9.0 inch (190 mm x 230 mm).</p> <p>20 Pin Standard ATX.</p>
<p>One 64-Bit PCI-X slot.</p> <p>100 MHz (the ethernet controller is on this same bus).</p>	<p>Two 7 segment Hex display.</p> <p>8 status LED.</p> <p>Buzzer.</p>	<p>Temp Sensor.</p>	<p>Full Size PCIe 5.75 inch x 12.25 inch (145 mm x 310 mm).</p> <p>This board sources power from the x8 lane PCIe motherboard connector.</p> <p>4 Pin Molex HDD connector for power to the PCI-X slot.</p>
<p>One 64-bit PCI-X connector - 133 MHz: on top edge of board. The Intel® 82545EM Gigabit Ethernet Controller is also on this bus.</p> <p>Peripheral Bus Header: PC104-like 0.1 header for logic analyzer probing or peripheral bus prototyping.</p>	<p>Two 7-segment Hex LED displays.</p> <p>Audio buzzer.</p> <p>Power and Alarm LEDs.</p>	<p>Support for "RAID" Implementation - Ability to make the devices plugged in the secondary expansion slots "Private".</p> <p>Integrated XOR engine and two iSCSI CRC32C offload engines.</p> <p>Battery Present, Charge Level, and Battery Backup Enable is provided by an on-board CPLD.</p>	<p>This board sources 3.3 V power from the PCI-X motherboard connector. There is also an auxiliary power receptacle that is used to power the secondary PCI-X slot. This connector is compatible with a standard ATX hard drive power connector.</p> <p>Primary PCI-X Bus (1.33 MHz).</p>
<p>One 64-bit PCI-X connector - 133 MHz: on top edge of board.</p> <p>One 64-bit 100 MHz PCI-X slot. This is a right angle slot mounted on the back (non-component) side of the board. The Intel® 82545EM Gigabit Ethernet Controller is also on this 100 MHz PCI bus.</p> <p>Peripheral Bus Header: PC104-like 0.1 header for logic analyzer probing or peripheral bus prototyping.</p>	<p>Two 7-segment Hex LED displays.</p> <p>Audio buzzer.</p> <p>Power and Alarm LEDs.</p>	<p>Support for "RAID" Implementation - Ability to make the devices plugged in the secondary expansion slots "Private".</p> <p>Integrated XOR engine and two iSCSI CRC32C offload engines.</p> <p>Battery Present, Charge Level, and Battery Backup Enable is provided by an on-board CPLD.</p>	<p>This board sources 3.3 V power from the PCIe motherboard connector. There is also an auxiliary power receptacle that is used to power the secondary PCI-X slot. This connector is compatible with a standard ATX hard drive power connector.</p> <p>PCIe x8 lane.</p>

Third-Party Product Specifications

Cyclone Microsystems

MODEL	FORM FACTOR	PROCESSOR/SPEED	RAM/ROM	SERIAL PORTS	ETHERNET	PC-SERVER CONNECTION	EXPANSION CARD SLOT	MISC. I/O
CPCI-713*	Compact PCI-X 6U	80331/667 MHz	1 GB/8 MB	1 RS-232	On PMC	CompactPCI	Two PMC-x 100 MHz/ 64-bit	Temperature sensors
PCI-736*, PCI-X-738*/739*/ 742*	PCI (736), PCI-X (738/739/742)	80321/600 MHz	1 GB/8 MB	1 RS-232	1000BASE-Tx Ethernet (736), None (738), Dual 1000BASE-Tx Ethernet (739), 1000BASE-Tx + 3 1000BASE-Sx/Lx (742)	PCI (736), PCI-X (738/739/742)	PMC 66 MHz/64-bit (736), None (738/739/742)	Temperature sensors
PCI-X 740*	PCI-X	80331/667 MHz	2 GB/4 MB	1 RS-232	Two 1000BASE-Tx/Lx/Sx	PCI-X	No	Temperature sensors
PCIe 750*/751*	PCI Express*	80332/667 MHz	2 GB/4 MB	1 RS-232	Two 1000BASE-Tx/Lx/Sx (750), 1000BASE-Tx (751)	PCI Express	None (750), PMC-X 100 MHz/64-bit (751)	Temperature sensors
PCIe 755*	PCI Express*	81342/800 MHz	2 GB/16 MB	1 RS-232	Six 1000BASEx8	PCI Express		Temperature sensors

ADI

MODEL	FORM FACTOR	PROCESSOR/SPEED	RAM/ROM	SERIAL PORTS	ETHERNET	PC-SERVER CONNECTION	EXPANSION CARD SLOT	MISC. I/O
Tungsten*	Micro-ATX	80321/600 MHz	256 MB/8 MB	1	10/100/100	None	Two 66 MHz/64-bit, Two 33 MHz/32-bit, 3.3 V PCI slots	RTC, Dual UDMA100, Floppy, Dual USB 1.1

Team-ASA

MODEL	FORM FACTOR	PROCESSOR/SPEED	RAM/ROM	SERIAL PORTS	ETHERNET	PC-SERVER CONNECTION	EXPANSION CARD SLOT	MISC. I/O
NPWR-SC*	5.75 x 8.0	600 MHz 80321	256 MB/4 MB	1	Dual 10/100/1000BASE-T	None	None	Dual 160 MB/s SCSI, 4 Serial ATA ports
NPWR-FC*	5.75 x 8.0	600 MHz 80321	256 MB/4 MB	1	Dual 10/100/1000BASE-T	None	None	Dual 2 GB/s Fibre Channel ports, 4 Serial ATA ports
NPWR-XTRM*	4.0 x 6.5	1200 MHz 81342	2 GB/16 MB	2 RS-232	2 GbE	None	None	4 Serial ATA ports
NPWR-XTR2*	4.0 x 6.5	1200 MHz 81348	2 GB/16 MB	2 RS-232	2 GbE	None	None	8 SAS ports 4 Serial ATA ports

Bridge Product Specifications

Intel offers both transparent and non-transparent PCI bridges, as well as a PCI-X* transparent bridge with opaque memory mode for semi-transparent operation. Both product lines allow designers to add more PCI/PCI-X devices or more PCI/PCI-X option card slots than a single PCI bus can support. However, non-transparent bridges differ from standard, transparent PCI-to-PCI bridges

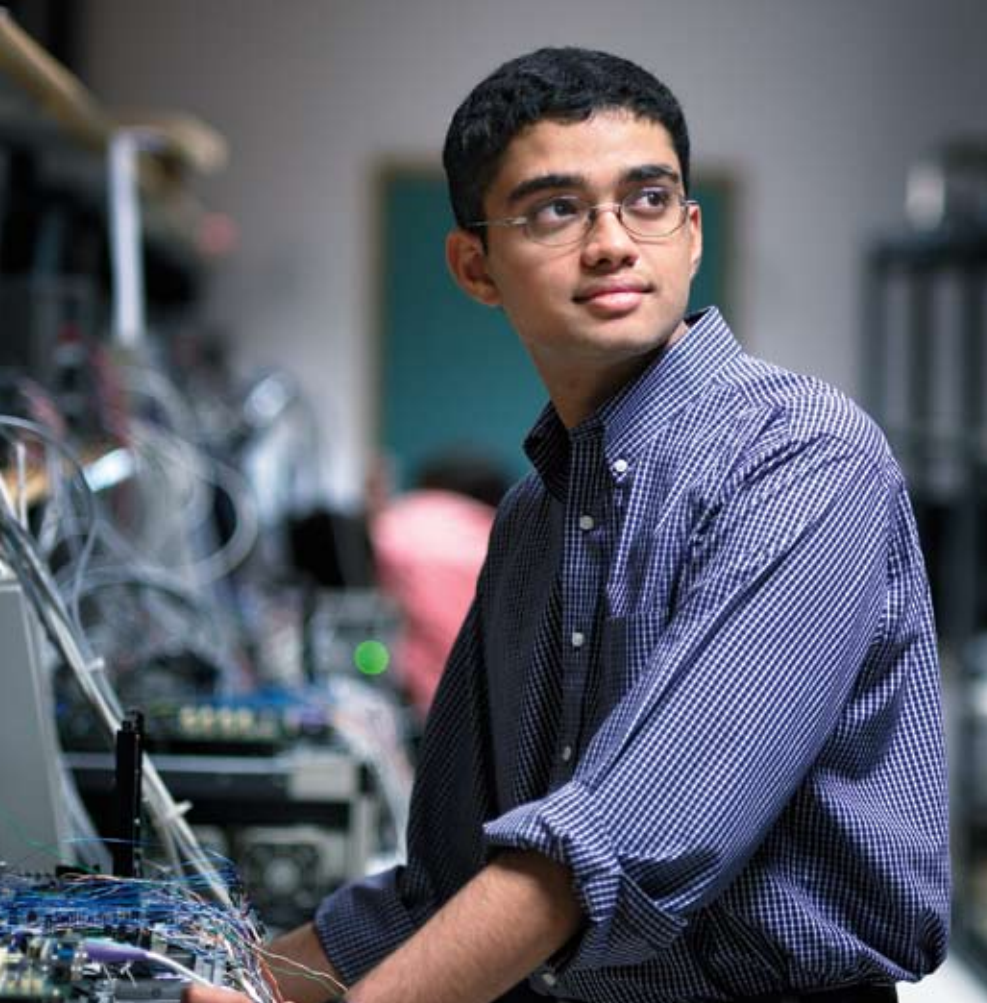
by allowing independent mapping of primary and secondary bus address spaces, a key benefit when local devices require private memory maps.

To learn more, download our PCI Bridges Overview brochure.

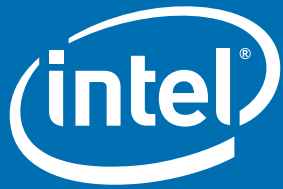
www.intel.com/design/bridge/prodbrf/252917.htm

Bridge

DESCRIPTION	PRODUCT CODE	MM#	FEATURE	MANUAL/PRODUCT BRIEF
Stand-Alone PCI Backplane	80300BP	830518	This PCI backplane for any PCI or PCI-X evaluation board can be used when the boards are used in stand-alone mode (i.e., without a PC server).	www.intel.com/design/iiio/manuals/80300BP_Manual.htm
PCI-X Bridge Evaluation Board	IQ31154	853129	The Intel® 31154 Evaluation Design Kit includes a PCI-X evaluation board featuring one 31154 with two PCI-X slots on the secondary bus, documentation, tools, and schematics.	www.intel.com/design/bridge/docs/31154_documentation.htm
PCIe to PCI-X Bridge Evaluation Board	IQ41210C1	861824	The Intel® 41210 Serial to Parallel PCI Transparent Bridge Evaluation board connects parallel and PCI-X technology-based peripheral card applications directly to the newest generation of high-speed PCI Express* serial I/O architecture-enabled system platforms.	www.intel.com/design/bridge/docs/41210.htm
Four-Port Serial ATA PCI Card	IQ3124HCO	857918	The half-size PCI-X card has one GD31244 and can be used in a PC motherboard or with any of the Intel XScale® microarchitecture-based controller cards to provide over 1.6 TB of local storage capability.	www.intel.com/design/storage/prodbrf/251579.htm



Intel® technology-based storage solutions deliver a **Flexible, Manageable, and Serviceable** answer to today's storage needs by helping to provide a lower total cost of storage ownership while maximizing total storage capacity.



www.intel.com

Intel® technology-based development solutions deliver a flexible, manageable, and serviceable answer to today's development needs by helping to provide lower total cost of ownership while maximizing total technology capability.

For more information, visit the Intel in Storage Web site at www.intel.com/go/storage

Information in this document is provided in connection with Intel products. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Intel's Terms and Conditions of Sale for such products, Intel assumes no liability whatsoever, and Intel disclaims any express or implied warranty, relating to sale and/or use of Intel products including liability or warranties relating to fitness for a particular purpose, merchantability or infringement of any patent, copyright, or other intellectual property right. Intel products are not intended for use in medical, life-saving or life-sustaining applications.

Intel may make changes to specifications and product descriptions at any time, without notice.

Designers must not rely on the absence or characteristics of any features or instructions marked "reserved" or "undefined." Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them.

Copyright © 2008, Intel Corporation. All rights reserved. Intel, the Intel logo, the Intel Leap ahead logo, Intel StrataFlash and Intel XScale are trademarks of Intel Corporation in the U.S. and other countries.

*Other brands and names may be claimed as the property of others. Printed in USA 1207/MAB/HBD/PDF Please Recycle 306062-005US