Technical Information – Overview & Connectors
IOB33 (7015-005, 7015-004, 7015-002 & 7015-000) Option Card

IOB33 Overview

The IOB33 is an optional I/O expansion board designed for use with all Trenton PICMG® 1.3 system host boards. The IOB33 versions listed in the chart below offer slightly different I/O plate configurations based on specific SHB and IOB33 connector configurations. The IOB33 provides legacy I/O support and features a x4 PCIe edge connector along the bottom edge of the card. This x4 card edge connector routes either a x1 or x4 PCI Express® electrical link from the SHB down to the PCIe expansion slot on select PICMG 1.3 backplanes. The electrical width and the PCIe interface type of this expansion link is determined by the SHB design. For example, an IOB33 used with a Trenton BXT7059 or BXTS7059 will route a PCIe 3.0, x4 electrical link from CPU0 on the SHB down to a PCIe expansion slot on the backplane. Check the specifics of your Trenton SHB for the PCIe expansion link parameters.

The optional IOB33 also expands the I/O capabilities of the system. The IOB33 has the following interfaces available for use by the system designer:

- Two - RS232 communication ports
- One - Floppy drive interface
- One - Parallel printer interface
- One – PS/2 Mini-DIN connector for PS/2 keyboard and mouse connections
  - May also include separate, on-board PS/2 keyboard and mouse headers for systems that require separate PS/2 connections

There are four versions of the Trenton IOB33 I/O expansion board. This optional board was initially designed for the JXT6966 and JXTS6966 SHBs, but now additional versions are available for use on other Trenton SHBs. The chart below identifies the IOB33 version that is compatible with specific Trenton SHBs.

IOB Module	TSB7053 (7053)	T4L (6483)	TML (6490)	TQ9 (6731)	MCG-Series (6680, 6690, 6675, 6695)	NLI / NLT (6313, 6396)	SLT / SLI (6515, 6521)	MCX-Series (6633, 6685, 6638, 6700)	JXT / JXTS (6966)	BXT / BXTS (7059)
IOB33HJX (7015-005)	X								X	X
IOB33JX (7015-004)	X								X	X
IOB33MC (7015-002)				X	X			X		
IOB33 (7015-000)		X	X			X	X			

IOB33 Models

Model #	Model Name	Description
7015-005	IOB33HJX	Includes the I/O Plate for use with the BXT/JXT/TSB boards and has on-board serial port headers **instead** of I/O plate COMM ports **plus** the PS/2 MiniDIN is removed.
7015-004	IOB33JX	Includes the I/O Plate for use with the BXT/JXT/TSB boards. *This IOB33 version is used in most BXT/JXT/TSB applications.*
7015-002	IOB33MC	Includes the I/O Plate for use with MCX, MCG and TQ9 system host boards.
7015-000	IOB33	Includes the I/O Plate for use with TML, SLT, SLI, NLT, NLI and T4L system host boards.

NOTE: When an IOB33 is connected to the TSB7053's P20 I/O expansion connector, a second Super I/O chip is placed into the system by virtue of the LPC Bus routing through the controlled impedance connector. A future TSB7053 BIOS revision will be necessary to use this second Super I/O chip to support the IOB33's on-board headers and I/O bracket port connectors. All of the legacy I/O and serial communication ports featured on the IOB33; with the exception of the floppy and parallel ports, are now available directly on the TSB7053 board itself. The PCIe x4 link routing to a PICMG 1.3 backplane expansion slot works fine with the current TSB7053 BIOS revision.

IOB33 Features

IOB33 (7015-005, 004, 7015-002, 7015-001)
- I/O plate versions for a variety of Trenton system host boards

- Two serial ports and PS/2 mouse/keyboard mini DIN on the I/O bracket*

- PS/2 mouse, keyboard, parallel port and floppy drive connectors

- PCI Express expansion capability for use with PCI Express backplanes

- Compatible with PCI Industrial Computer Manufacturers Group (PICMG®) PCI Express Specification
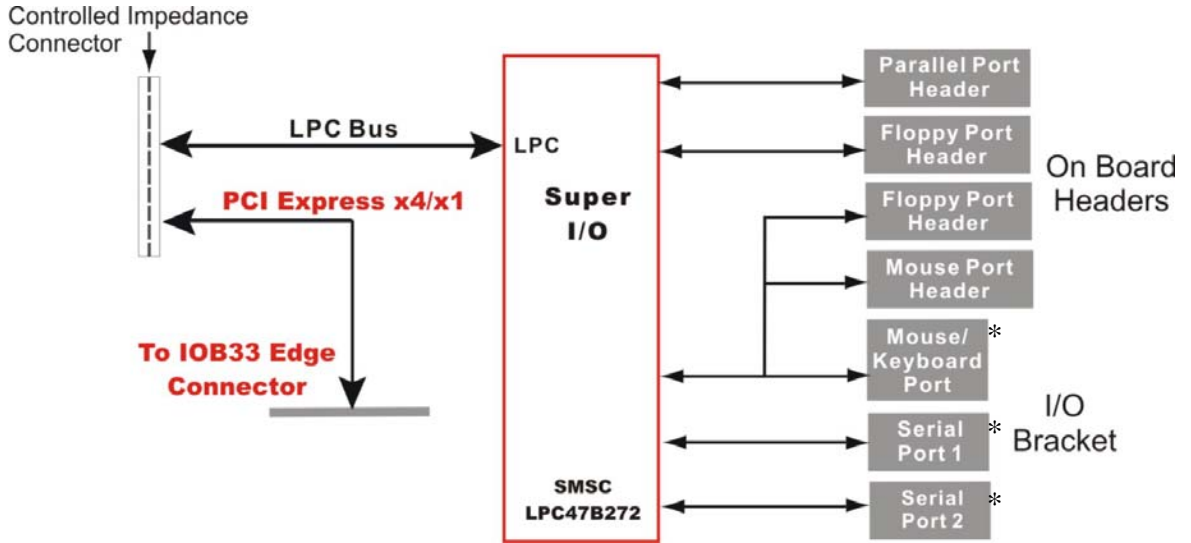
Except on the 7015-005 version of the IOB33

IOB33 Temperature/Environment

Operating Temperature: 0º C. to 60º C.

Storage Temperature: -20º C. to 70º C.

Humidity: 5% to 90% non-condensing

IOB33 (7015-005, 004, -002 and -000) Block Diagram

Controlled Impedance Connector

LPC Bus

PCI Express x4/x1

To IOB33 Edge Connector

LPC

Super I/O

SMSC
LPC47B272

Parallel Port Header

Floppy Port Header

Floppy Port Header

Mouse Port Header

On Board Headers

Mouse/ Keyboard Port *

Serial Port 1 *

I/O Bracket

Serial Port 2 *

Except on the 7015-005 version of the IOB33

IOB33 (7015-005, 004, -002 and –000) Layout Diagram

P8 PS/2 Mouse

Keyboard P7

Parallel Port P5

Floppy Drive P4

x4 PCIe Edge
Connector

SHB Mounting Tab

P3* PS/2 Mouse/
Keyboard

P1* Serial 1

P2* Serial 2

SHB I/O Plate

Except on the 7015-005 version of the IOB33
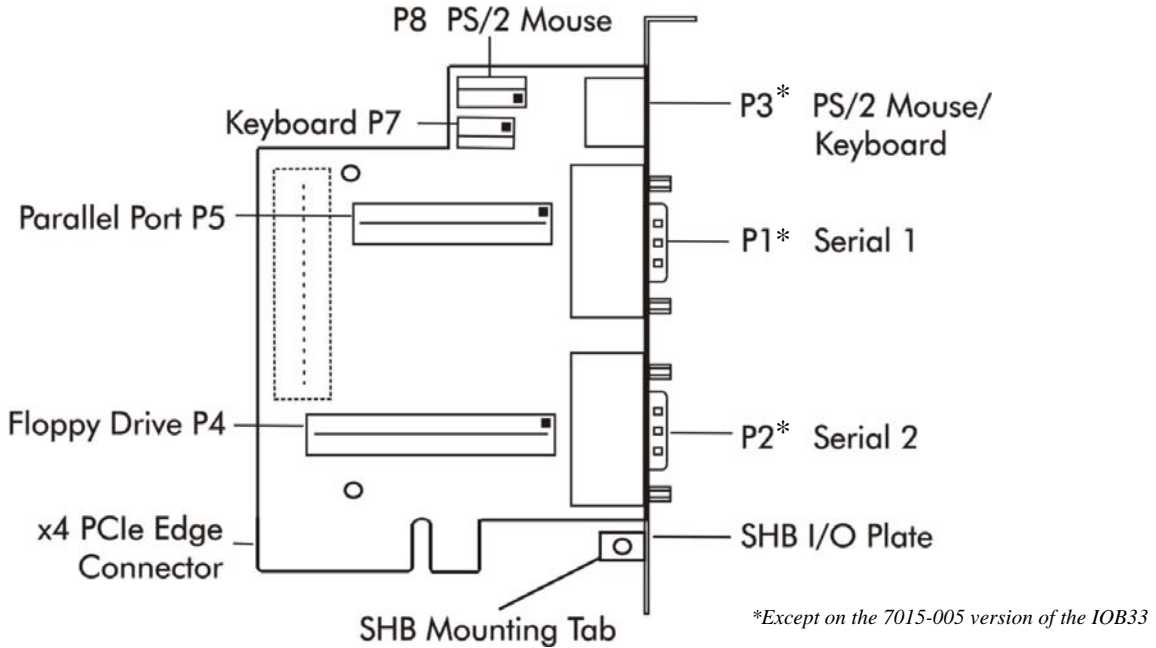
IOB33 (7015-005, 004, -002 and -000) I/O Plate Diagram

IOB33 - I/O Plate

IOB33 Side

SHB Side
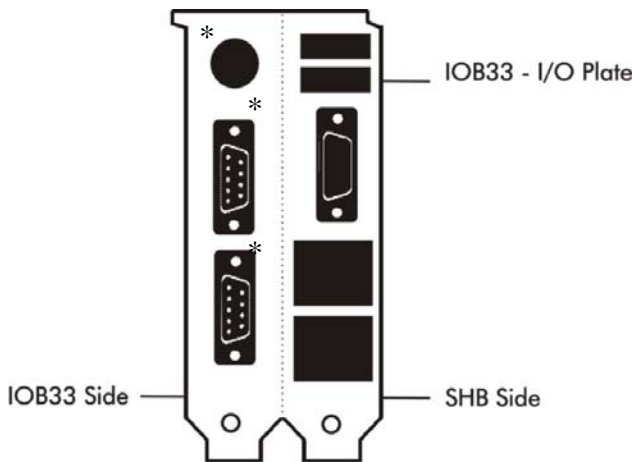
IOB33 Connectors

NOTE: Pin 1 on the connectors is indicated by the square pad on the PCB.

P1 - **Serial Port Connector***
9 position "D" right angle, Spectrum #56-402-001 (*Replaced with header on tab –005)

Pin	Signal	Pin	Signal
1	Carrier Detect	6	Data Set Ready-I
2	Receive Data-I	7	Request to Send-O
3	Transmit Data-O	8	Clear to Send-
4	Data Terminal Ready-O	9	Ring Indicator-I
5	Signal Gnd		

P2 - **Serial Port Connector***
9 position "D" right angle, Spectrum #56-402-001 (*Replaced with header on tab –005)

Pin	Signal	Pin	Signal
1	Carrier Detect	6	Data Set Ready-I
2	Receive Data-I	7	Request to Send-O
3	Transmit Data-O	8	Clear to Send-
4	Data Terminal Ready-O	9	Ring Indicator-I
5	Signal Gnd		

P3 - **PS/2 Mouse and Keyboard Connector***
6 pin mini DIN, Kycon #KMDG-6S-B4T (*Removed on tab –005 version)

Pin	Signal
1	Ms Data
2	Kbd Data
3	Gnd
4	Power (+5V fused) with self-resetting fuse
5	Ms Clock
6	Kbd Clock

P1A, - **Serial Port Headers***
P2A 10 pin vertical connector, Amp #1761602-3 (*IOB33 tab –005 version only)

Pin	Signal	Pin	Signal
1	Carrier Detect	2	Data Set Ready-I
3	Receive Data-I	4	Request to Send-O
5	Transmit Data-O	6	Clear to Send-
7	Data Terminal Ready-O	8	Ring Indicator-I
9	Signal Gnd	10	NC

Except on the 7015-005 version of the IOB33

IOB33 Connectors (continued)

P4 - Floppy Drive Connector

34 pin dual row header, Amp #103308-7

Pin	Signal	Pin	Signal
1	Gnd	2	N-RPM
3	Gnd	4	NC
5	Gnd	6	D-Rate0
7	Gnd	8	P-Index
9	Gnd	10	N-Motoron 1
11	Gnd	12	N-Drive Sel2
13	Gnd	14	N-Drive Sel1
15	Gnd	16	N-Motoron 2
17	Gnd	18	N-Dir
19	Gnd	20	N-Stop Step
21	Gnd	22	N-Write Data
23	Gnd	24	N-Write Gate
25	Gnd	26	P-Track 0
27	Gnd	28	P-Write Protect
29	Gnd	30	N-Read Data
31	Gnd	32	N-Side Select
33	Gnd	34	Disk Change

P5 - Parallel Port Connector

26 pin dual row header, Amp #103308-6

Pin	Signal	Pin	Signal
1	Strobe	2	Auto Feed XT
3	Data Bit 0	4	Error
5	Data Bit 1	6	Init
7	Data Bit 2	8	Slct In
9	Data Bit 3	10	Gnd
11	Data Bit 4	12	Gnd
13	Data Bit 5	14	Gnd
15	Data Bit 6	16	Gnd
17	Data Bit 7	18	Gnd
19	ACK	20	Gnd
21	Busy	22	Gnd
23	Paper End	24	Gnd
25	Slct	26	NC

P7 - Keyboard Header

5 pin single row header, Amp #640456-5

Pin	Signal
1	Kbd Clock
2	Kbd Data
3	Key
4	Kbd Gnd
5	Kbd Power (+5V fused) with self resetting fuse

IOB33 Connectors (continued)

P8   -   PS/2 Mouse Header

6 pin single row header, Amp #640456-6

<u>Pin</u>   <u>Signal</u>
1   Ms Data
2   Reserved
3   Gnd
4   Power (+5V fused) with self-resetting fuse
5   Ms Clock
6   Reserved

IOB33 Connectors (continued)

P6   -   Impedance Connector
76 pin controlled impedance connector,
Samtec #MIS-038-01-FD-K

Pin	Signal	Pin	Signal
1	+12	2	+5V_STANDBY
3	NC	4	+5V_STANDBY
5	NC	6	+5V_DUAL
7	NC	8	+5V_DUAL
9	NC	10	NC
11	NC	12	NC
13	ICH_SMI#	14	ICH_RCIN#
15	ICH_SIOPME#	16	ICH_A20GATE
17	Gnd	18	Gnd
19	L_FRAME#	20	L_AD3
21	L_DRQ1#	22	L_AD2
23	L_DRQ0#	24	L_AD1
25	SERIRQ	26	L_AD0
27	Gnd	28	Gnd
29	PCLK14SIO	30	PCLK33LPC
31	Gnd	32	Gnd
33	SMBDATA_RESUME	34	IPMB_DAT
35	SBMCLK_RESUME	36	IPMB_CLK
37	SALRT#_RESUME	38	IPMB_ALRT#
39	Gnd	40	Gnd
41	EXP_CLK100	42	EXP_RESET#
43	EXP_CLK100#	44	ICH_WAKE#
45	Gnd	46	Gnd
47	C_PE_TXP4	48	C_PE_RXP4
49	C_PE_TXN4	50	C_PE_RXN4
51	Gnd	52	Gnd
53	C_PE_TXP3	54	C_PE_RXP3
55	C_PE_TXN3	56	C_PE_RXN3
57	Gnd	58	Gnd
59	C_PE_TXP2	60	C_PE_RXP2
61	C_PE_TXN2	62	C_PE_RXN2
63	Gnd	64	Gnd
65	C_PE_TXP1	66	C_PE_RXP1
67	C_PE_TXN1	68	C_PE_RXN1
69	Gnd	70	Gnd
71	+3.3V	72	+5V
73	+3.3V	74	+5V
75	+3.3V	76	+5v