TRENTON Technology Inc.
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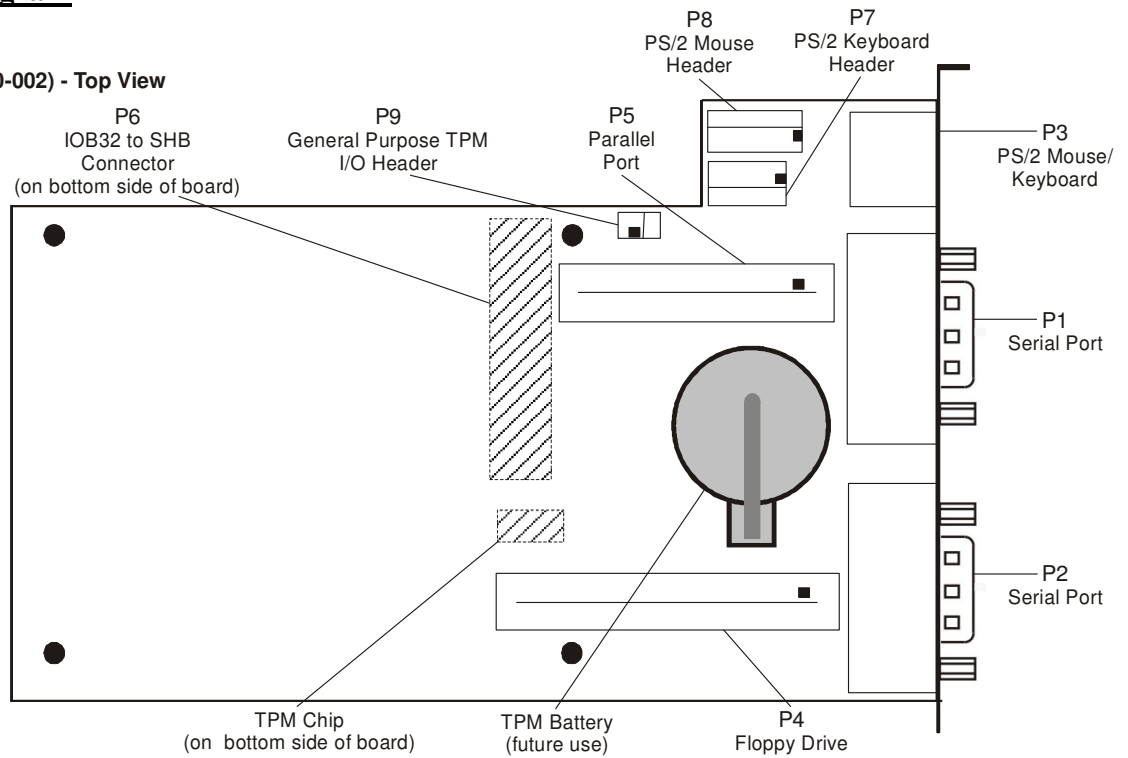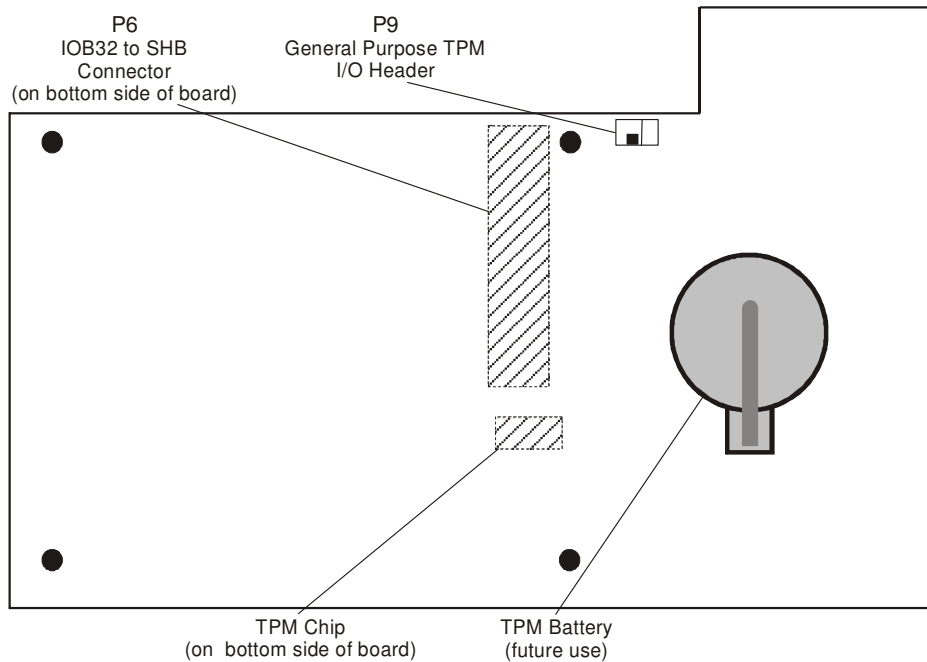Sales (800) 875-6031 • Phone (770) 287-3100 • Fax (770) 287-3150

Technical Information – Jumpers, Connectors and Memory
IOB32 (6830-xxx) IO and PCI Express Expansion Board

Layout Diagram

IOB32MC (6830-002) - Top View

P8
PS/2 Mouse
Header

P7
PS/2 Keyboard
Header

P6
IOB32 to SHB
Connector
(on bottom side of board)

P9
General Purpose TPM
I/O Header

P5
Parallel
Port

P3
PS/2 Mouse/
Keyboard

P1
Serial Port

P2
Serial Port

TPM Chip
(on bottom side of board)

TPM Battery
(future use)

P4
Floppy Drive

IOB32NI (6830-001) - Top View

P6
IOB32 to SHB
Connector
(on bottom side of board)

P9
General Purpose TPM
I/O Header

TPM Chip
(on bottom side of board)

TPM Battery
(future use)

Connectors

NOTES:

Pin 1 on the connectors is indicated by the square pad on the PCB. All connectors listed are used on the 6830-002 model of the IOB32. Connectors P6 and P9 are used on the 6830-001 and 6830-002 models of the IOB32 module.

P1 - SERIAL PORT 1 CONNECTOR

9 position "D" right angle, Spectrum #56-402-001

PIN	SIGNAL	PIN	SIGNAL
1	Carrier Detect	6	Data Set Ready-I
2	Receive Data-I	7	Request to Send-O
3	Transmit Data-0	8	Clear to Send-I
4	Data Terminal Ready-0	9	Ring Indicator-I
5	Signal Gnd		

P2 - SERIAL PORT 2 CONNECTOR

9 position "D" right angle, Spectrum #56-402-001

PIN	SIGNAL	PIN	SIGNAL
1	Carrier Detect	6	Data Set Ready-I
2	Receive Data-I	7	Request to Send-O
3	Transmit Data-0	8	Clear to Send-I
4	Data Terminal Ready-0	9	Ring Indicator-I
5	Signal Gnd		

P3 - PS/2 Mouse and Keyboard Connector

6 pin mini DIN, Tyco 5750071-1

PIN	SIGNAL
1	Ms Data
2	Kbd Data
3	Gnd
4	Power (+5v fused) with self-resetting fuse
5	MS Clock
6	Kbd Clock

P6 - I/O Expansion Mezzanine Card Connector

76 pin controlled impedance connector,
Samtec #MIT-038-05-FD

PIN	SIGNAL	PIN	SIGNAL
1	+12V	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	SMBCLK_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

P4 - FLOPPY DRIVE CONNECTOR
34 pin dual row header, Molex #702463401

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

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

P8 - PS/2 MOUSE HEADER
6 pin single row header, Amp #640456-6

PIN	SIGNAL
1	Ms Data
2	Reserved
3	Gnd
4	Power (+5V fused) with self-resetting fuse
5	Ms Clock
6	Reserved

P5 - PARALLEL PORT CONNECTOR
26 pin dual row header, Molex #702462601

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

General Purpose TPM I/O Header
2 pin single row header, Amp #640456-2

PIN	SIGNAL
1	Gnd
2	Contact closure to/from the TPM Module

19	ACK	20	Gnd
21	Busy	22	Gnd
23	Paper End	24	Gnd
25	Slct	26	NC

TPM INTRODUCTION & OVERVIEW

The Trusted Platform Module or TPM is a component from the Atmel Corporation that is mounted on the bottom of a Trenton IOB32 board. The data protection and system access schemes of the past housed data encryption and security key operations in a computer's storage device or system memory. The results being that no matter how good the protection scheme was, the system was still vulnerable to attack. A TPM increases a systems' data security while providing a highly controlled level of access by placing key system operations and tasks within the protected environment of the TPM itself.

An IOB32 plugged into a Trenton PICMG 1.3 System Host Board (SHB) provides the TPM functionality that enables an industrial computer to meet the various Trusted Computing specifications and standards that have been defined by the Trusted Computing Group™. TPM is designed to provide computer platform security by using sophisticated data encryption techniques and platform user authentication.

The operating system software, NTRU CTSS (Core TCG Software Stack), TPM driver, TPM application software and the SHB's BIOS all work together to provide the software support needed to implement TPM. The BIOS is part of the SHB and the TPM driver from Trenton includes the CTSS. The CTSS is used by 3rd party TPM application software such as the EMBASSY® Trusted Suite (ETS) from Wave Systems Corp. to unlock the full feature set of the IOB32's TPM.

The TPM and the associated software mentioned in the previous paragraph provide two different types of locks that protect the computer's data and platform access. Two different keys are needed for the TPM locks: migratable keys and non-migratable keys. The use of keys and platform specific authentication information within the TPM help protect a system from a wide variety of software-based attacks.

Visit the Trusted Computing Group's website

SYSTEM REQUIREMENTS
(Full TPM Implementation)

- Trenton MCX-series, or MCG-series or TQ9 System Host Board (SHB)
- Microsoft Windows XP Professional (SP2) 32-bit or Microsoft
- Windows Vista Ultimate 32-bit operating system
- Trenton/Atmel TPM Driver (includes NTRU CTSS - Core TCG Software Stack)
- Microsoft Internet Explorer 5.5 or later
- Adobe Acrobat 5.0 or later
- EMBASSY Trust Suite - TPM Application Software

SYSTEM REQUIREMENTS
(Basic TPM Implementation)

- Trenton MCX-series, or MCG-series or TQ9 System Host Board (SHB)
- Windows Vista Ultimate 32-bit or 64-bit operating system
  - Bit Locker functionality used for basic TPM implementations
- Trenton/Atmel TPM Driver (includes NTRU CTSS - Core TCG Software Stack)
- Microsoft Internet Explorer 5.5 or later
- Adobe Acrobat 5.0 or later

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(www.TrustedComputing.org) to learn more about what TPM is and how it enables a system to operate as a "Trusted Computing" solution platform.

NOTE: The IOB32's TPM is defaulted to "OFF" and the SHB's Trusted Computing BIOS settings are defaulted to "NO" for TCG/TPM Support and "Disable" for Execute TPM Card. Refer to the IOB32 Reference Guide for instructions on how to install the IOB32 and set up the system's TPM software elements for Trusted Computing operation.

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