PCE-5B12-00A1E Backplane: 12-slot BP for 20-slot chassis, 10 PCIe x16, and 1 PCIe x4 Startup Manual

Packing List

Before you begin installing your card, please make sure that the following items have been shipped:

- PCE-5B12-00A1E startup manual 1st ED
- M4*6*0.7 Round Screws P/N: 1939000410
- 2-year Quality Warranty Card P/N: 2190000902

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

Specifications

Standard Functions

- **PICMG 1.3 slots:** PCE-5B12-00A1E supports PCE-5000 and 7000 series CPU boards
- **PCIe slots:** 10 PCIe x16 and 1 PCIe x4
  *If you have any questions about memory, I/O or IRQ resource limitations, please contact Advantech locally or FAE for further support.
- **PCIe switch:** One 5 ports/48 lanes and two 24 ports/96 lane PCIe Gen2 switch reduce data latency
- **USB (2.0) ports:** 4 Universal Serial Bus ports as pin headers

Mechanical and Environment

- **Dimensions:** 327.66 x 417 mm
- **Power supply voltage:** +12 V, +5 V, -12 V, -5 V, +3.3 V, 5 VSB
- **Power requirements:** Refer to CPU board, add-on card & peripheral documentation
- **Operating temperature:** 0 ~ 60° C (Depending on system thermal solution)
- **Weight:** 1.1 kg (weight of board)

For more information on this and other Advantech products, please visit our website at:

http://www.advantech.com

http://www.advantech.com/eplatform

For technical support and service, please visit our support website at:

http://www.advantech.com/support/

This manual is for PCE-5B12-00A1E.

Part No. 20065B1200 Edition 1,
Printed in China May 2013

Connectors and Jumpers

The backplane has a number of connectors and jumpers that allow you to configure your system to suit your application. The table below lists the function of each of the connectors and jumpers.

Connectors	
Part Reference	**Function**
SHBA1 ~ SHBD1	PICMG 1.3 CPU board slot
PPCIEX4_1	PCIe x4 with PCIe x16 slot
P1PCIEX16_1~5	PCIe x16 slot
P2PCIEX16_1~5	PCIe x16 slot
EATXPWR1	ATX 2.0 24-pin power connector
EATPWR1	AT 12-pin Power connector
ATX12V1	ATX 12 V Auxiliary 4-pin power connector
ATX12V2	ATX 12 V Auxiliary 4-pin power connector
EATX12V1	ATX 12 V 8-pin power connector
EATX12V2	ATX 12 V 8-pin power connector
PWR3V1	3.3 V Auxiliary power connector
PWR3V2	3.3 V Auxiliary power connector
PWR_4P1	ATX 5V & 12V 4-pin power connector
VOLT1	Alarm board
FAN1 ~ FAN7	Fan connectors
FANDEC1	Fan speed detect connector
SMBUS1 ~ SMBUS2	Chassis sensor board connectors
JFP1	Power and reset button connector
IPMB1	IPMB connector
USB12	USB connector
USB34	USB connector
PSON2	ATX feature Connector (5 VSB, PSON) for Advantech redundant power supply: 1757001757, 1757001760, 1757001758, 1757001761, 1757001759, 1757001677

Connectors and Jumpers

Jumpers	
Part Reference	**Function**
PSON1	ATX/AT mode select connector 1-2: AT mode 2-3: ATX mode (default)
JGEN1	PCIe generation selection connector for primary switch 1-2: Gen1 2-3: Gen2 (default) * The PCIe generation setting is backwards compatible. Suggest to choose “Gen2” setting.
JGEN2	PCIe generation selection connector for Secondary switch 1-2: Gen1 2-3: Gen2 (default) * The PCIe generation setting is backwards compatible. Suggest to choose “Gen2” setting.

EATXPWR1	
Pin	**Name**
1	3.3 V
2	3.3 V
3	GND
4	5 V
5	GND
6	5 V
7	GND
8	PWROK
9	5VSB
10	12 V
11	12 V
12	3.3 V
13	3.3 V
14	-12 V
15	GND
16	PSON#
17	GND
18	GND
19	GND
20	-5 V
21	5 V
22	5 V
23	5 V
24	GND

EATPWR1	
Pin	**Name**
1	PWROK
2	5 V
3	12 V
4	-12 V
5	GND
6	GND
7	GND
8	GND
9	-5 V
10	5 V
11	5 V
12	5 V

ATX12V1 ~ ATX12V2	
Pin	**Name**
1	GND
2	GND
3	12 V
4	12 V

EATX12V1 ~ EATX12V2	
Pin	**Name**
1	GND
2	GND
3	GND
4	GND
5	12 V
6	12 V
7	12 V
8	12 V

PWR3V1~ PWR3V2	
Pin	**Name**
1	3.3 V
2	3.3 V

3	3.3 V
4	GND
5	GND
6	GND

VOLT1	
Pin	**Name**
1	5VSB
2	GND
3	GND
4	-5 V
5	5 V
6	3.3 V
7	-12 V
8	12 V

FAN1 ~ FAN7	
Pin	**Name**
1	GND
2	12 V
3	FANIO1 ~ FANIO7

FANDEC1	
Pin	**Name**
1	FANIO1
2	FANIO2
3	FANIO3
4	FANIO4
5	FANIO5
6	FANIO6
7	FANIO7

SMBUS1~ SMBUS2	
Pin	**Name**
1	5 V
2	C-SMBCLK
3	C-SMBDAT
4	GND

JFP1	
Pin	**Name**
1	PWRBTN#
2	GND
3	RESET#
4	GND

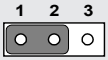
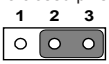
IPMB1	
Pin	**Name**
1	IPMB_CLK
2	IPMB_DAT
3	GND

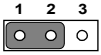
USB12	
Pin	**Name**
1	USBV0
2	USBV0
3	USBD0-
4	USBD1-
5	USBD0+
6	USBD1+
7	GND
8	GND
9	Null
10	NC

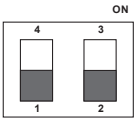
USB34	
Pin	**Name**
1	USBV2
2	USBV2
3	USBD2-
4	USBD3-
5	USBD2+
6	USBD3+
7	GND
8	GND
9	Null
10	NC

Connectors and Jumpers

PSON2	
Pin	**Name**
1	PSON#
2	NC
3	+5 VSB

PSON1: ATX/AT Mode Selection	
Jumper Setting	**Function**
1 - 2 closed pins 	AT mode
2 - 3 closed pins 	ATX mode (default)

JGEN1 & JGEN2: PCIe Generation Selection Connector	
Jumper Setting	**Function**
2 - 3 closed pins 	Gen2 (Default)
1 - 2 closed pins 	Gen1

SW1: PCIe Gen1 card Compatibility for Non-Compliant Gen1 endpoints		
SW1	**Pin**	**Function**
	1	U13 Disable (Default)
	2	U14 Disable(Default)
	3	U14 Enable
	4	U13 Enable

Block Diagram

PICMG_V1.3 BACKPLANE

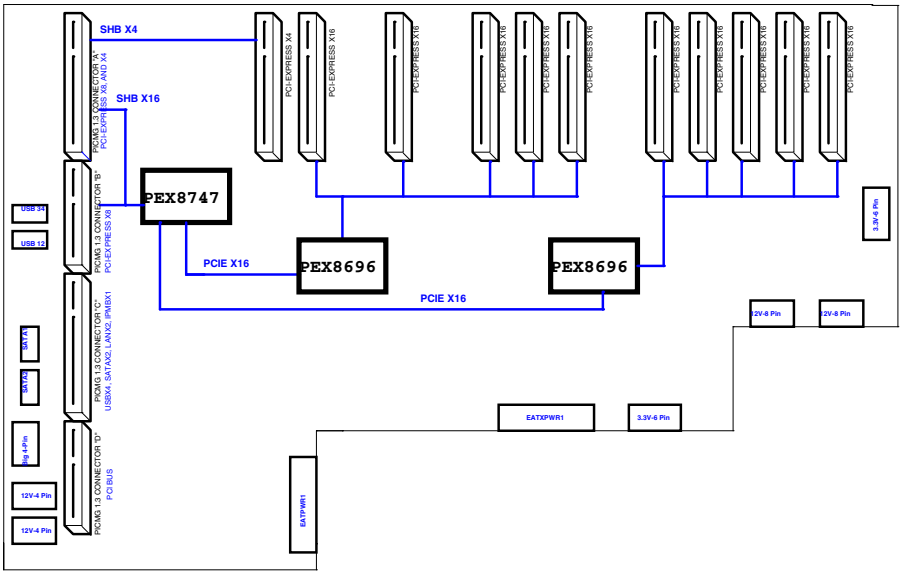


Figure 1: Block Diagram

Locating Jumpers & Connectors

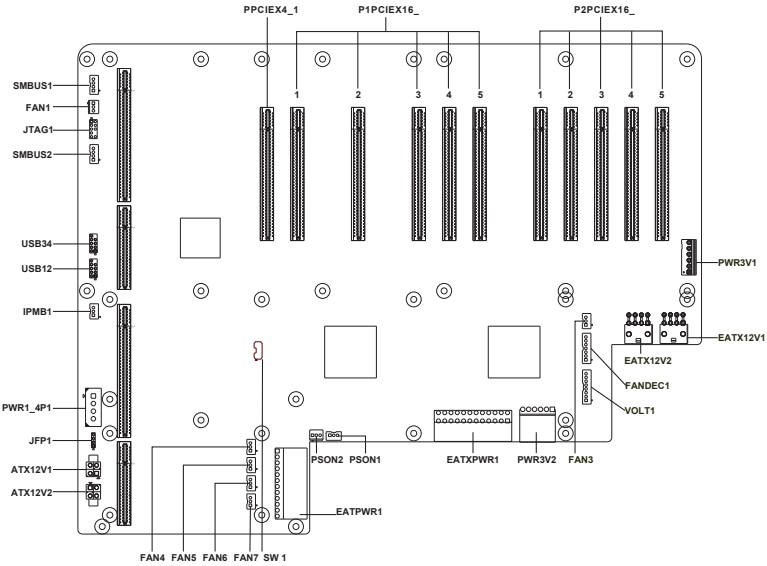


Figure 2: Locating Jumpers & Connectors

Board Dimensions

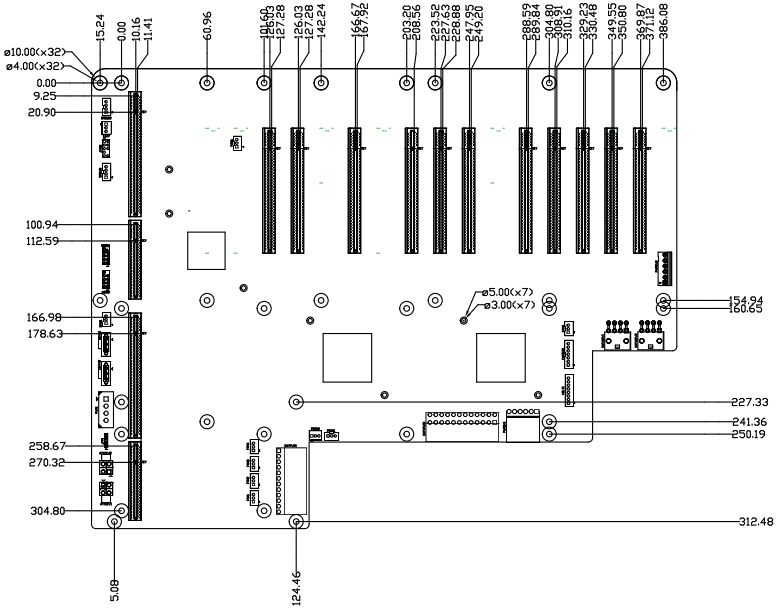


Figure 3: Board Dimensions

PCE-5B12(7B13)-07 Backplane: 12(13)-slot BP for 14-Slot Chassis, 1 PICMIG 1.3, 4(5) PCIe, 7 32-bit/33-MHz PCI Startup Manual

Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- One 2 Ports USB Cable P/N: 1700002204
- PCE-5B12(7B13)-07 Startup Manual
- M4*6*0.7 Round Screws (20 pieces) P/N: 1939000410
- 2-year quality warranty card P/N: 2190000902

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

Specifications

Standard functions

- **PICMG 1.3 Slot:**
  PCE-5B12-07 supports PCE-5XXX CPU Cards
  PCE-7B13-07 supports PCE-7XXX CPU Cards
- **PCIe Slots:**
  PCE-5B12-07: 1 PCIe x16, 3 PCIe x4
  PCE-7B13-07: 2 PCIe x8, 3 PCIe x4
- **32-bit PCI Slots:**
  PCE-5B12-07: 7 32-bit/33-MHz PCI
  PCE-7B13-07: 7 32-bit/33-MHz PCI
- **USB (2.0) support:** Four Universal Serial Bus ports to Backplane

Note: Some add-on cards installed on this backplane may cause CPU card BIOS resource allocation problems, if this occurs please contact Advantech technical support staff for help in solving the problems.

Mechanical and Environment

- **Dimensions:** 327.66 x 315.45 mm
- **Power supply voltage:** +12 V, +5 V, -12 V, -5 V, +5 V SBY, +3.3 V
- **Power requirements:** Depends on the CPU board, addon card & peripherals
- **Operating temperature:** 0 ~ 60° C

For more information on this and other Advantech products, please visit our website at:

http://www.advantech.com

http://www.advantech.com/eplatform

For technical support and service, please visit our support website at:

http://www.advantech.com/support

This manual is for the PCE-5B12-07A1E(PCE-7B13-07A1E) series.

Part No. 200K5B1211 2nd Edition,
Printed in China August 2012

Connectors and Jumpers

This table shows the function of each jumper and connector:

Connectors	
Label	**Function**
SHBA1~SHBD1	PICMG1.3 CPU board slot
PPCIE2	PCIe x 16 slot (Only on PCE-5B12-07)
PPCIE1, PPCIE2	PCIe x8 slots (Only on PCE-7B13-07)
P1PCIE1~P1PCIE3	PCIe x4 slots
P1PCI1~ P1PCI3	32 Bit / 33 MHz PCI Bus slots
P2PCI1~P2PCI4	32 Bit / 33 MHz PCI Bus slots
EATXPWR1	ATX2.0 24-pin Power Connector
EATX12V1	ATX 12V Auxiliary 8-pin Power Connector
ATX12V1	ATX 12V 4-pin Power Connector
PWR3V1	3.3V Auxiliary Power Connector
PWR3V2	3.3V Auxiliary Power Connector
VOLT1	Alarm board / CMM Power Connector
FAN1~6	FAN Connector (Horizontal Type)
FAN7	FAN Connector (Vertical Type)
FANDEC1	FAN speed detector Connector (Optional)
SMBUS1~SMBUS3	System Management Bus (Optional)
JFP1	Power and Reset button Connector
IPMB1	IPMB Connector (Optional)
USB12	Two USB port pin header
USB34	Two USB port pin header

Note: In this backplane's default configuration, FANDEC1, SMBUS1~SMBUS3, IPMB1 pin-headers are NOT populated, those footprints are reserved for customization.

Jumpers	
Label	**Function**
PSON1	ATX / AT Mode Selection

EATXPWER1	
Pin	**Name**
1	3.3 V
2	3.3 V
3	GND
4	5 V
5	GND
6	5 V
7	GND
8	Power OK
9	5 V SBY
10	12 V
11	12 V
12	3.3 V
13	3.3 V
14	-12 V
15	GND
16	PSON#
17	GND
18	GND
19	GND
20	-5 V
21	-5 V
22	5 V
23	5 V
24	GND

ATX12V1	
Pin	**Name**
1	GND
2	GND
3	12 V
4	12 V

EATX12V1	
Pin	**Name**
1	GND
2	GND
3	GND
4	GND
5	12 V
6	12 V
7	12 V
8	12 V

PWR3V1 & PWR3V2	
Pin	**Name**
1	3.3V
2	3.3V
3	3.3V
4	GND
5	GND
6	GND

VOLT1	
Pin	**Name**
1	5 V SBY
2	GND
3	GND
4	-5 V
5	5 V
6	3.3 V
7	-12 V
8	12 V

FAN1~FAN7	
Pin	**Name**
1	GND
2	12 V
3	FANIO1~FANIO7

FANDEC1	
Pin	**Name**
1	FANIO1
2	FANIO2
3	FANIO3
4	FANIO4
5	FANIO5
6	FANIO6
7	FANIO7

SMBUS1~SMBUS3	
Pin	**Name**
1	5 V
2	C-SMBBUS
3	C-SMBDAT
4	GND

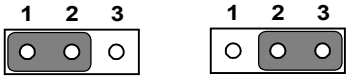
IPMB1	
Pin	**Name**
1	IPMB_CLK
2	IPMB_DAT
3	GND

USB12	
Pin	**Name**
1	USBV0
2	USBV0
3	USBD0-
4	USBD1-
5	USBD0+
6	USBD1+
7	GND
8	GND
9	Null
10	GND

USB34	
Pin	**Name**
1	USBV2
2	USBV2
3	USBD2-
4	USBD3-
5	USBD2+
6	USBD3+
7	GND
8	GND
9	Null
10	GND

PSON1: ATX / AT Mode Selection	
Setting	**Function**
1-2	AT Mode
2-3*	ATX Mode

* Default



JFP1	
Pin	**Name**
1	VCC
2	PWRBTN
3	RESET#
4	GND

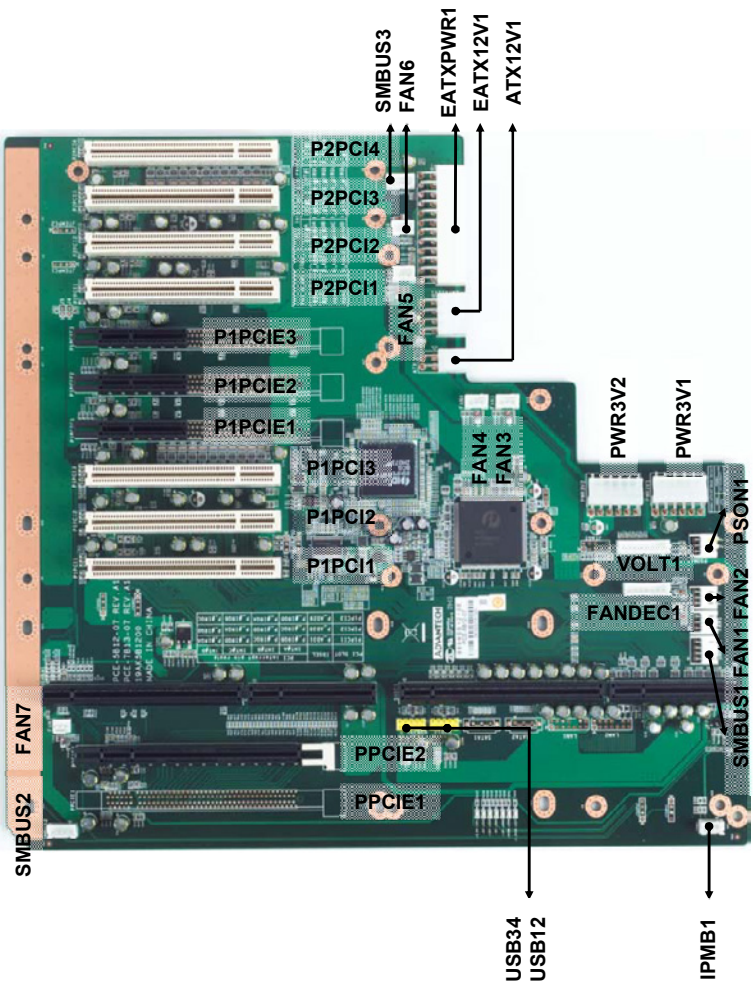


Figure 1: Board Layout

Note:
1. Some add-on cards installed on this backplane may cause CPU card BIOS resource allocation problems, if this occurs please contact Advantech technical support staff for help in solving the problems.
2. In this backplane's default configuration, FANDEC1, SMBUS1~SMBUS3, IPMB1 pin-headers are NOT populated, those footprints are reserved for customization.

Board Dimensions

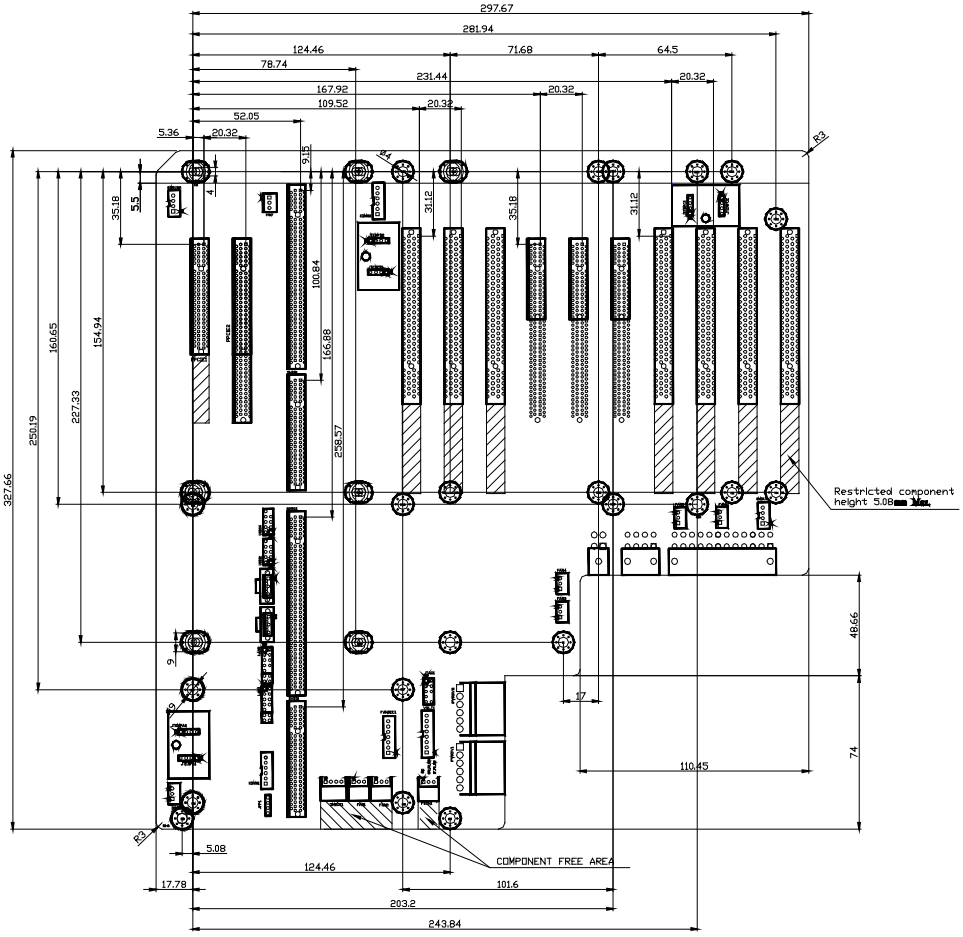


Figure 2: Board Dimensions

Board Diagram

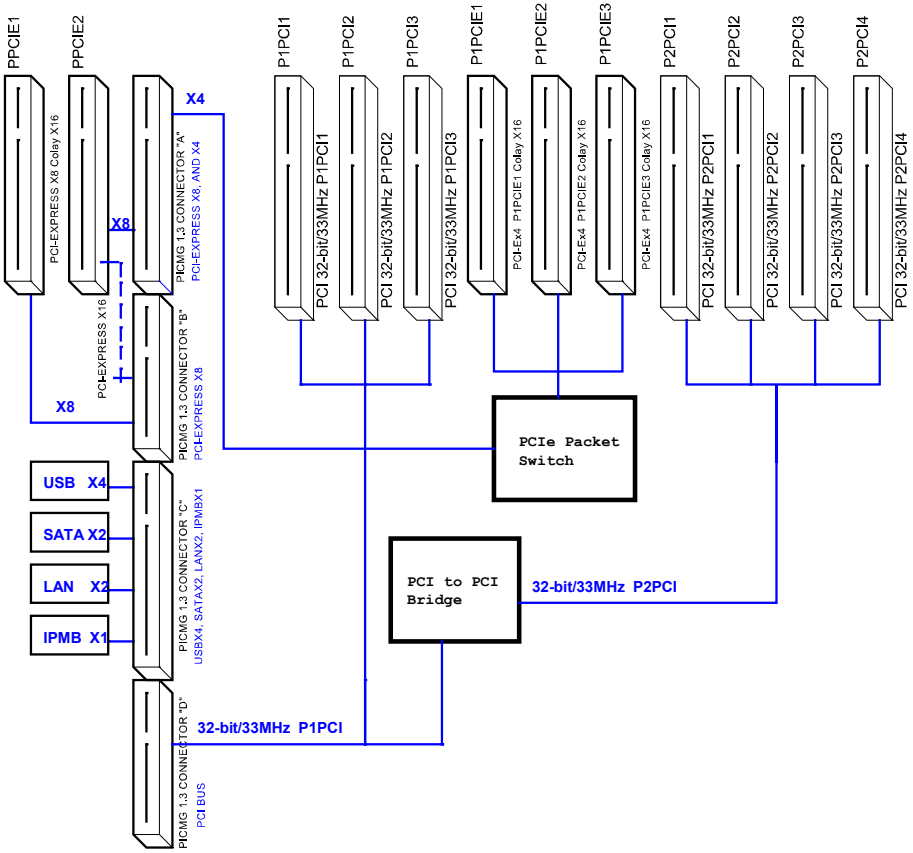


Figure 3: Board Diagram

PCI Routing Table

PCI 32-bit from ICH				
PCI Interrupt Pin Route	**PCI Slot**	**PPCI1**	**PPCI2**	**PPCI3**
	IDSEL	AD31	AD30	AD29
	INTA	INTB	INTC	INTD
	INTB	INTC	INTD	INTA
	INTC	INTD	INTA	INTB
	INTD	INTA	INTB	INTC

PCI 32-bit from Switch					
PCI Interrupt Pin Route	**PCI Slot**	**P2PCI1**	**P2PCI2**	**P2PCI3**	**P2PCI4**
	IDSEL	AD20	AD21	AD22	AD23
	INTA	INTA	INTB	INTC	INTD
	INTB	INTB	INTC	INTD	INTA
	INTC	INTC	INTD	INTA	INTB
	INTD	INTD	INTA	INTB	INTC

PCE-7B13-64B1E (PCE-5B12-64B1E) Backplane: 13(12)-slot BP for 14 slots Chassis, 1 PICMIG 1.3, 2(1) PCIe, 6 64-bit PCI-X, 4 32-bit PCI

Before you begin installing your card, please make sure that the following materials have been shipped:

- 2 Two Port USB Cable p/n: 1700002204
- PCE-7B13-64B1E(PCE-5B12-64B1E) User Manual 2nd. ED p/n: 20027B1301
- M4*6*0.7 Round Screws [15 pcs.] p/n: 1939000410
- 2 years quality warranty card p/n: 2190000902

If any PCE-7B13-64B1E (PCE-5B12-64B1E) of these items are missing or damaged, contact your distributor or sales representative immediately.

Standard Functions

- **PICMIG 1.3 slots:**
  PCE-7B13-64 supports PCE-7xxx CPU boards
  PCE-5B12-64 supports PCE-5xxx CPU boards
- **PCIe slots:**
  PCE-7B13-64 Supports two PCIe x8 slot
  PCE-5B12-64 Supports one PCIe x16 slot
- **64-bit PCI-X slots:**
  Four 64 Bit / 66Mhz PCI-X slot
  Two 64 Bit / 100Mhz PCI-X slot
- **Chipset:**
  Intel 6700PXH
- **32-bit PCI:**
  Four 32 Bit / 33Mhz PCI slot
- USB **(2.0) support:** Four Universal Serial Bus ports to Backplane

Mechanical and Environment:

- Dimensions: 327.66 x 297.67 mm
- Power supply voltage: +12V, +5V, -12V, -5V, +3.3V, +5VSBY
- Power requirements: Refer to the CPU Board , add-on Card & Peripherals
- Operating temperature: 0 ~ 60°C
- Weight: 0.6kg (weight of board)

For more information on this and other Advantech products, please visit our website at:

http://www.advantech.com

http://www.advantech.com/eplatform

For technical support and service, please visit our support website at:

http://www.advantech.com/support

This manual is for the PCE-7B13-64B1E (PCE-5B12-64B1E) series Rev. B1.

Part No. 20027B1301 1st. Edition
Printed in Taiwan December 2006

1. Connectors and Jumpers

The backplane has a number of connectors and jumpers that allow you to configure your system to suit your application. The table below lists the function of each of the connectors and jumpers.

Connectors

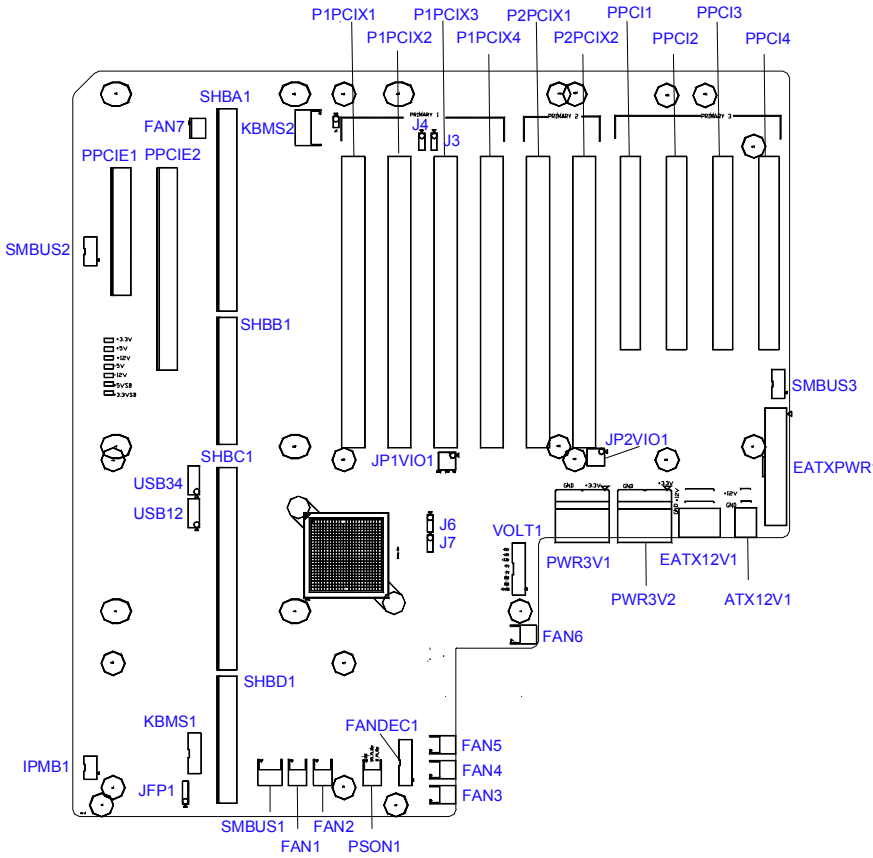
Part Reference	Function
SHBA1~SHBD1	PICMG 1.3 CPU board slot
PPCIE1	PCE-7B13-64: PCIe x8 slot PCE-5B12-64: Not Available
PPCIE2	PCE-7B13-64: PCIe x8 slot PCE-5B12-64: PCIe x16 slot
P1PCIX1~ P1PCIX4	64 Bit / 66MHz PCI-X Bus Slot (Primary 1)
P2PCIX1, P2PCIX2	64 Bit / 100MHz PCI-X Bus Slot (Primary 2)
PPCI1~PPCI4	32 Bit / 33MHz PCI Bus Slot (Primary 3)
EATXPWR1	ATX2.0 24-Pin Power connector
ATX12V1	ATX 12V 4-pin power connector
EATX12V1	ATX 12V Auxiliary 8-pin power connector
PWR3V1	3.3V Auxiliary power connector
PWR3V2	3.3V Auxiliary power connector
VOLT1	Alarm board/CMM Power connector.
FAN1	FAN Connector
FAN2	FAN Connector
FAN3	FAN Connector
FAN4	FAN Connector
FAN5	FAN Connector
FAN6	FAN Connector
FAN7	FAN Connector
FANDEC1	Fan speed detector connector
SMBUS1	SMBus connector for chassis monitor
SMBUS2	SMBus connector for chassis monitor
SMBUS3	SMBus connector for chassis monitor
KBMS1	External Keyboard/Mouse Connector
KBMS2	External Keyboard/Mouse Connector
JFP1	Power and Reset Button connector
IPMB1	IPMB Connector
USB12	Two USB port pin header
USB34	Two USB port pin header

Jumpers

Part Reference	Function
JP1VIO1	Primary 1 PCI-X Bus VIO voltage selection
JP2VIO1	Primary 2 PCI-X Bus VIO voltage selection
J3	Primary 1 PCI(-X) Bus capability selection
J4	Primary 1 PCI Bus freq. selection
J6	Primary 2 PCI Bus freq. selection
J7	Primary 2 PCI(-X) Bus capability selection
PSON1	ATX/AT mode selection

PCE-7B13-64B1E (PCE-5B12-64B1E) Backplane: 13(12)-slot BP for 14 slots Chassis, 1 PICMIG 1.3, 2(1) PCIe, 6 64-bit PCI-X, 4 32-bit PCI

2. Board Layout



Board Layout: Jumper and Connector Locations

3. Connector Pin Definitions

EATXPWER1

Pin	Name
1	3.3V
2	3.3V
3	GND
4	5V
5	GND
6	5V
7	GND
8	Power OK
9	5VSBY
10	12V
11	12V
12	3.3V
13	3.3V
14	-12V
15	GND
16	PSON#
17	GND
18	GND
19	GND
20	-5V
21	-5V
22	5V
23	5V
24	GND

ATX12V1

Pin	Name
1	GND
2	GND
3	12V
4	12V

EATX12V1

Pin	Name
1	GND
2	GND
3	GND
4	GND
5	12V
6	12V
7	12V
8	12V

PWR3V1

Pin	Name
1	3.3V
2	3.3V
3	3.3V
4	GND
5	GND
6	GND

PWR3V2

Pin	Name
1	3.3V
2	3.3V
3	3.3V
4	GND
5	GND
6	GND

VOLT1

Pin	Name
1	5VSBY
2	GND
3	GND
4	-5V
5	5V
6	3.3V
7	-12V
8	12V

FAN1 - FAN7

Pin	Name
1	GND
2	12V
3	FANIO1~FANIO7

FANDEC1

Pin	Name
1	FANIO1
2	FANIO2
3	FANIO3
4	FANIO4
5	FANIO5
6	FANIO6
7	FANIO7

3. Connector Pin Definitions (cont.)

SMBUS1 ~ SMBUS3

Pin	Name
1	5V
2	C-SMBBUS
3	C-SMBDAT
4	GND

KBMS1 ~ KBMS2

Pin	Name
1	KBCLK
2	KBDAT
3	MSDAT
4	GND
5	5V
6	MS_CLK

IPMB1

Pin	Name
1	IPMB_CLK
2	IPMB_DAT
3	GND

USB12

Pin	Name
1	USBV0
2	USBV0
3	USBD0-
4	USBD1-
5	USBD0+
6	USBD1+
7	GND
8	GND
9	Null
10	GND

USB34

Pin	Name
1	USBV2
2	USBV2
3	USBD2-
4	USBD3-
5	USBD2+
6	USBD3+
7	GND
8	GND
9	Null
10	GND

JP1VIO1

Pin	Name
1	5V
2	5V
3	5V
4	PB_VIO
5	PB_VIO
6	PB_VIO
7	3.3V
8	3.3V
9	3.3V

JP2VIO1

Pin	Name
1	5V
2	5V
3	5V
4	PA_VIO
5	PA_VIO
6	PA_VIO
7	3.3V
8	3.3V
9	3.3V

4. PCI Routing Tables

Primary 1 PCI-X Channel B 64-bit					
	PCI Slot	**P1PCIX1**	**P1PCIX2**	**P1PCIX3**	**P1PCIX4**
PCI-X	IDSEL	AD 31	AD 30	AD 29	AD 28
Interrupt	INTA	INT 15	INT 10	INT 5	INT 0
Pin	INTB	INT 12	INT 11	INT 6	INT 1
Route	INTC	INT 13	INT 8	INT 7	INT 2
	INTD	INT 14	INT 9	INT 4	INT 3

Primary 2 PCI-X Channel A 64-bit			
	PCI Slot	**P2PCIX1**	**P2PCIX2**
PCI-X	IDSEL	AD 31	AD 30
Interrupt	INTA	INT 7	INT 2
Pin	INTB	INT 4	INT 3
Route	INTC	INT 5	INT 0
	INTD	INT 6	INT 1

Note: Original pin assignment from the PCIe-PCIX bridge names the pins, "IRQ0~IRQ15". In order to isolate the concept of a common IRQ in PCI resources, we have renamed those pins, "INT0~INT15" for better understanding.

Primary 3 PCI 32-bit					
	PCI Slot	**PPCI1**	**PPCI2**	**PPCI3**	**PPCI4**
PCI	IDSEL	AD 31	AD 30	AD 29	AD28
Interrupt	INTA	INT B	INT C	INT D	INT A
Pin	INTB	INT C	INT D	INT A	INT B
Route	INTC	INT D	INT A	INT B	INT C
	INTD	INT A	INT B	INT C	INT D

5. Jumper Settings

J3: Primary 1 PCI(X) Bus capability selection:

Jumper Setting	Function
1 - 2 closed pins	PCI-X 66MHz mode (default)
	
2 - 3 closed pins	2 - 3: PCI mode
	

J4: Primary 1 PCI Bus Frequency selection:

Jumper Setting	Function
1 - 2 closed pins	PCI 66MHz
	
2 - 3 closed pins	PCI 33MHz (default)
	

PSON1: ATX/AT Mode Selection

Jumper Setting	Function
1 - 2 closed pins	AT mode
	
2 - 3 closed pins	ATX mode (default)
	

JP1VIO1: Primary 1 PCI-X Bus VIO voltage selection

Jumper Setting	VIO
	3.3V (default)
	
	5V
	

J7: Primary 2 PCI(X) Bus Capability selection

Jumper Setting	Function
1 - 2 closed pins	PCI-X 66MHz mode
	
2 - 3 closed pins	PCI mode
	
Pin header open	PCI-X 100MHz (default)
	

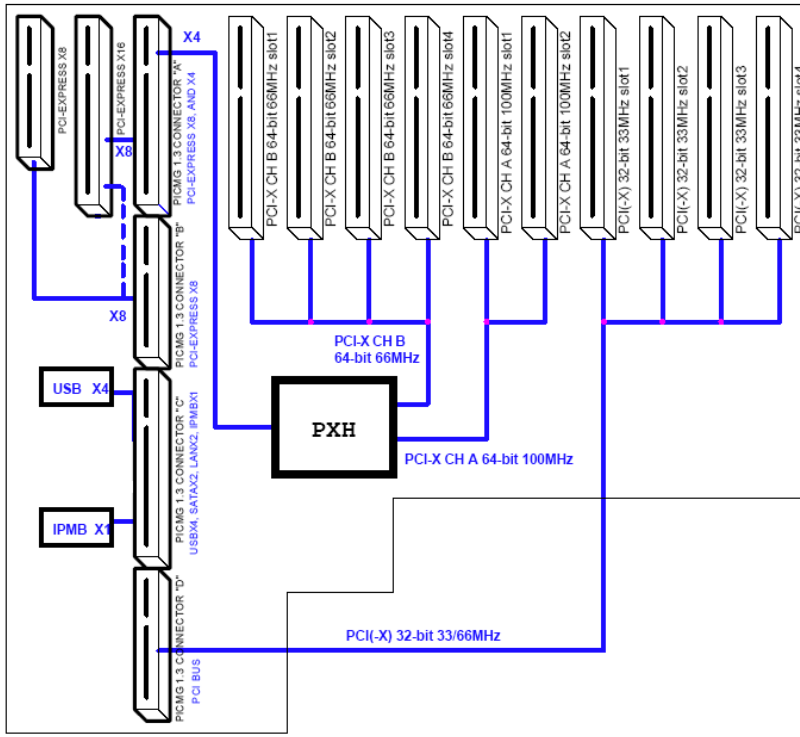
J6: Primary 2 PCI Bus Frequency selection

Jumper Setting	Function
1 - 2 closed pins	PCI 66MHz
	
2 - 3 closed pins	PCI 33MHz (default)
	

JP2VIO1: Primary 2 PCI-X Bus VIO voltage selection

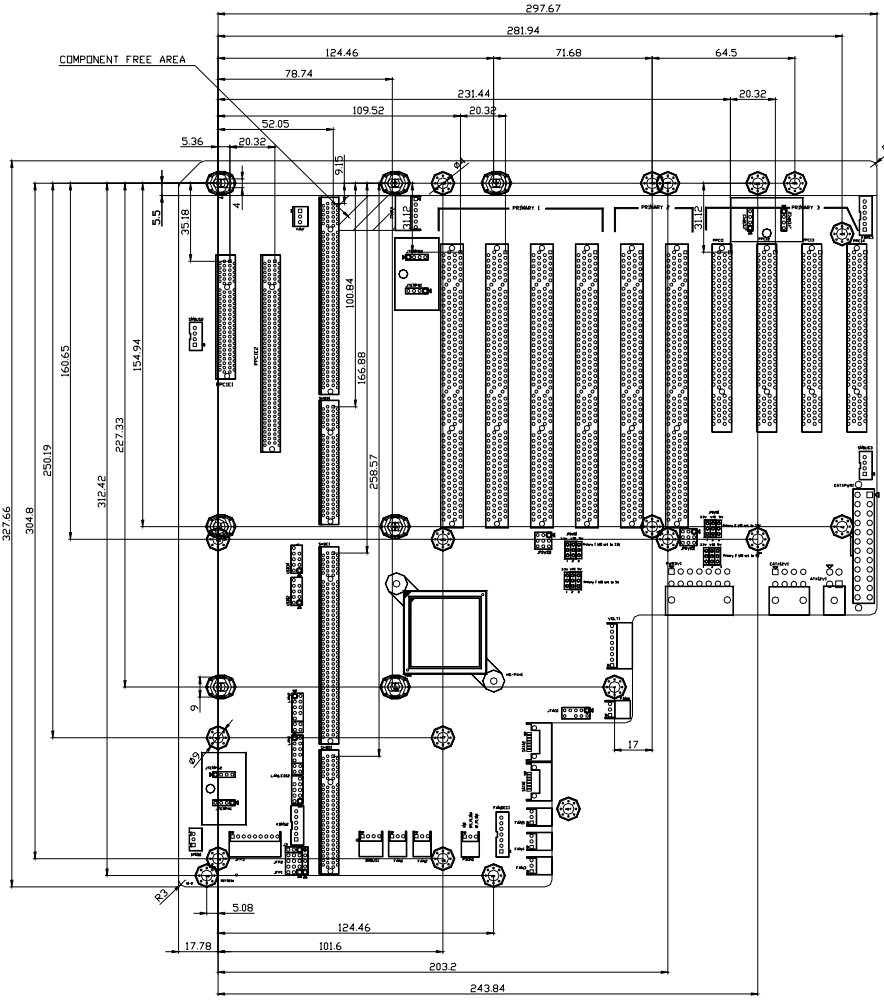
Jumper Setting	VIO
	3.3V (default)
	
	5V
	

6. Board Diagram



Board Layout: Jumper and Connector Locations

7. Board Dimensions



Board Dimensions (mm)