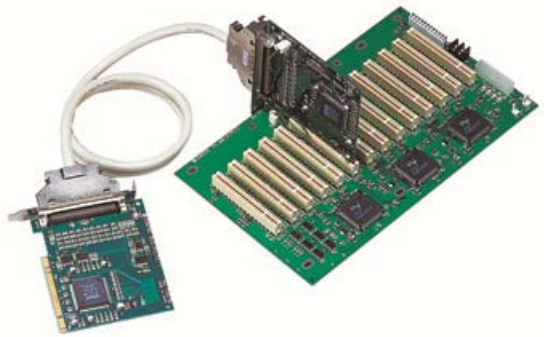
PCI Bus Expansion Adapter Set

BUF(PCI)



* Specifications, color and design of the products are subject to change without notice.

The BUF(PCI) is an expansion bus adapter that allows a PCI bus expansion slot to be added by connecting the adapter to the PC.
The BUF(PCI) product includes the following items.

- BUS-PC(PCI) : Install on the PC.
- BUS-PAC(PCI) : Install in the dedicated slot on the PC-MB8(PCI).
- PC-MB8(PCI) : Install as a motherboard in the PC case*, such as Contec's FA-UNTT-F8DR.
- ATX power control cable
- Connecting cable

* You can use a PC case, including the ones that allow a BABY-AT-size motherboard to be installed or an ATX specification-compliant case. For more information about a mountable case, see the PC-MB8(PCI) external dimension diagram provided later.

Features

- To add a PCI bus expansion slot, mount the BUS-PC(PCI) in a PCI bus expansion slot in the PC, and the PC-MB8(PCI) and BUS-PAC(PCI) in the PC case.
- Compatible with 32-bit PCI bus (+5V specifications)
- Using the ATX power for the PC-MB8(PCI) allows interconnection with the power supplied to the PC.

Packing List

- BUS-PC(PCI)... 1
- BUS-PAC(PCI)... 1
- PC-MB8(PCI)... 1
- ATX power control cable... 1
- Connecting cable ... 1
- User's Guide (this booklet) ... 1

Specifications

System Specifications

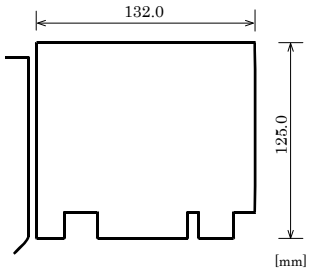
Item	Specification
Bus compatibility	32bit PCI bus (+5V spec)
Address space	32bit memory addressing, I/O addressing
Interrupt level	INTA~INTD (PCI specification spec. 2.1)
Bus operation clock	33MHz (Max.)
Connecting cable (included)	96pin shielded cable, 1m

BUS-PC(PCI) Board Specifications

Item	Specification		
Current consumption *1	DC 5V DC 5V	700mA (Max.) 300mA (Typ.)	*2 *3 *3
Operating conditions	0 to 50ºC, 30 to 90% humidity		(no condensation)
External dimensions	132.0 x 125.0 x 18.5 mm		(including slot cover)
Weight	100g		

*1: The BUF(PCI) card will not be recognized if the personal computer power is turned ON before the PC-MB8(PCI) power.
*2: Represents current consumption when only the personal computer power is on, and PC-MB8(PCI) unit power is off.
*3: Power is fed from personal computer.

Board Dimensions

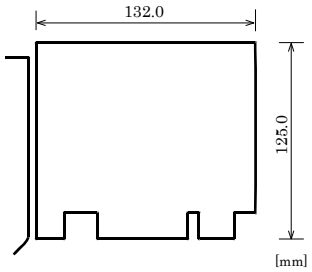


BUS-PAC(PCI) Specifications

Item	Specification		
Current consumption *1	DC 5V DC 5V	700mA (Max.) 500mA (Typ.)	*2 *3 *3
Operating conditions	0 to 50ºC, 30 to 90% humidity		(no condensation)
External dimensions	132.0 x 125.0 x 18.5 mm		(including slot cover)
Weight	100g		

*1 : BUS-PAC(PCI) specifications represent the total value of BUS-PAC(PCI) and PC-MB8(PCI) current consumption.
*2 : Represents current consumption when only the FA-UNIT-F8DR unit power is on, and personal computer power is off.
*3 : Power supplied from personal computer case.

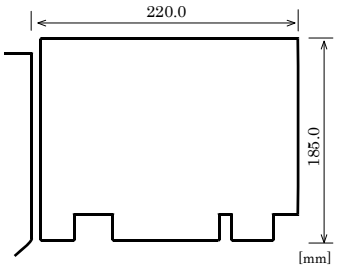
Board Dimensions



PC-MB8(PCI) Specifications

Item	Specification	
User definable slots	7 slots	
Current consumption	[The total value of BUS-PAC(PCI) and PC-MB8(PCI) current consumption is listed under BUS-PAC(PCI) specifications.]	
Operating conditions	0 to 50ºC, 30 to 90% humidity	(no condensation)
External dimensions	220.0 x 185.0 x 20.0 mm	
Weight	310g	

Board Dimensions



Restrictions

The BUF(PCI) can only be used with certain personal computers and boards. Be sure to verify operating capabilities before using.
<Personal computer compatibility>

The BUF(PCI) provides bus expansion by means of PCI-to-PCI Bridge. Recognition of the BUF(PCI) depends on whether the BIOS installed in the personal computer can recognize PCI-to-PCI Bridge. The following BIOS manufacturers support PCI-to-PCI Bridge. When the personal computer is switched on, the screen will display a message resembling one of the following examples.

(1) Personal computers with phoenix BIOS (Ver. 4.04 or later)
Message : "phoenix BIOS Verxxx"

(2) Personal computers with AMI (American Megatrends, Inc.) BIOS (Ver. 1.00.02 or later)
Message : "AMI (American Megatrends, Inc.) BIOS Verxxx"

* Even if the BIOS version number is the same as listed above, the BUF(PCI) might not operate because of its minor version difference.
<Boards that cannot be used>

The following boards cannot be used in the PC-MB8(PCI) expansion slot.

(1) Graphic display boards (VGA boards)

(2) Boards designed to increase the number of units expanded with a PCI bus.

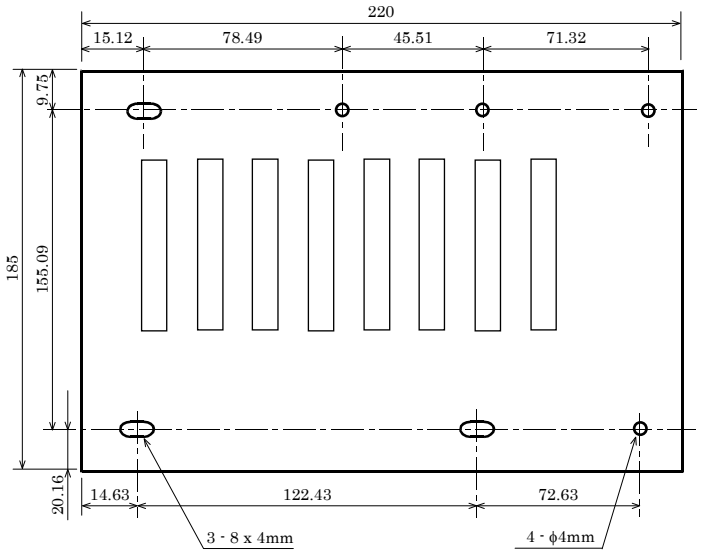
(3) A board specifically listed in the PC manual as one that cannot be used.

(4) A board might not operate depending on its specifications, although it may well be in compliance with the PCI bus specification.

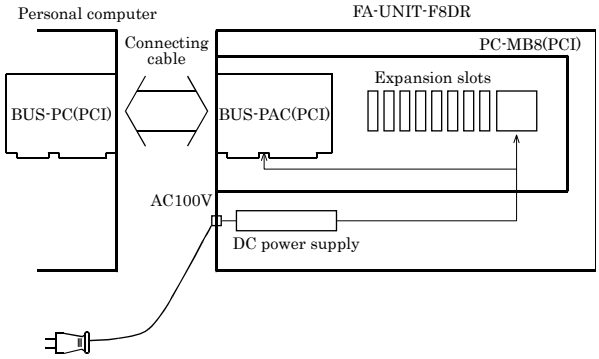
<Restrictions due to BUF(PCI) versions>

The BUF(PCI) consists of a set of three circuit boards and a number from 7067B through 7069B is stamped on the surface of each circuit board. The last alphabet in each number indicates the version of the circuit board. You cannot use a combination of boards if their versions are different. Such combination will cause malfunctions and/or failures.

PC-MB8(PCI) Board Dimensions

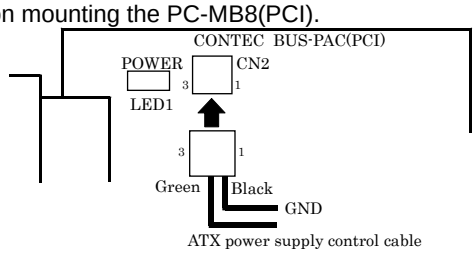


System Block Diagram



CN2 in BUS-PAC(PCI)

Connect the ATX power control cable if the PC-MB8(PCI) is powered with the ATX power. For more information, see the section on mounting the PC-MB8(PCI).



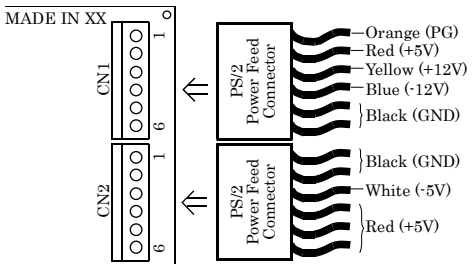
CN1 – CN7, JP1 in PC-MB8(PCI)

Connecting the Power Supply Connectors (When Using PS/2 Power)

Connectors to be connected vary with the power you are using. Make connections according to the power you are using. The connection procedure for the PS/2 power is explained here.
PS/2 power supply connectors (CN1 and CN2)

Connect PS/2 power supply connectors to CN1 and CN2.

Connector wiring is as shown below.



Pin No.	Signal
1	PG
2	+5V
3	+12V
4	-12V
5	GND
6	GND

CN1

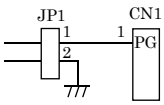
Pin No.	Signal
1	GND
2	GND
3	-5V
4	+5V
5	+5V
6	+5V

CN2

Figure 3.2. Connecting CN1 and CN2

Power Good Jumper (JP1)

Pin 1 of jumper JP1 is connected to pin 1 of connector CN1. This pin can be used to pull off the 'Power good' signal of the power feed unit.



⚠ CAUTION

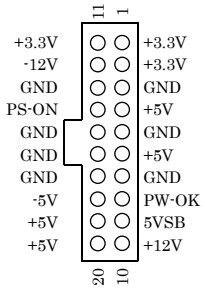
Jumper JP1 is not provided with a short connector. (Pin 2 of this jumper is connected to GND, and therefore JP1 must never be shorted under any circumstances.)

Power Supply Connections (for ATX Supply)

Different connectors are used depending on the type of power supply. Be sure to use the correct connection for the power supply you are using. The following example illustrates connections for use with an ATX power supply.

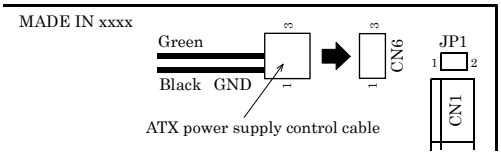
ATX power supply connector (CN3)

Connect the ATX power supply to connector CN3. The connector wiring is shown below.



ATX power supply control cable connections (CN6)

Connect the ATX power supply control cable (included) to connector CN2 on the BUS-PAC(PCI) to be installed later. This will enable the PC-MB8(PCI) power to be interlocked with the personal computer power.



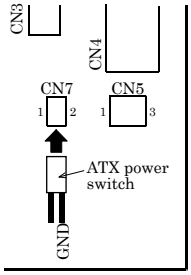
ATX power switch connector (CN7)

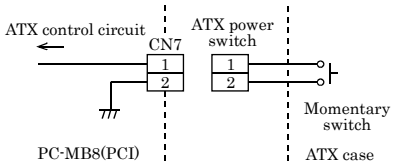
Connector CN7 is used to connect the power switch from the ATX personal computer unit. The power switch is a momentary switch, toggling the ATX power suply between ON and SLEEP modes.

* SLEEP mode indicates that the main ATX power unit is on, with only the 5VSB power (+5V power supply in standby mode) being supplied.

⚠ CAUTION

Do not switch the PC-MB8(PCI) power supply between ON and SLEEP settings while the personal computer power is on. This will cause bus adapter recognition to be cancelled. Always restart the personal computer after switching between ON and SLEEP settings.



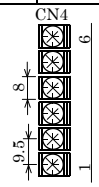


Other Connectors

Terminal block (CN4)

Supply power from CN4 when using other than the PS/2 and ATX power or if +3.3V power supply is needed when using the PS/2 power.
The input current specifications are as listed below.

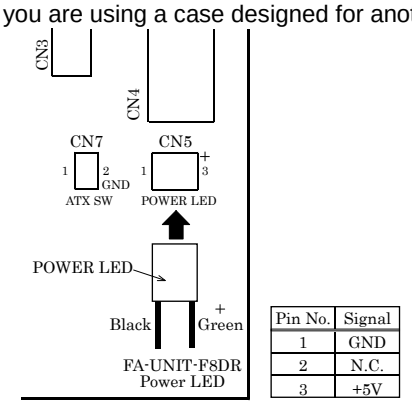
Voltage	+3.3VDC	+5VDC	+12VDC	-5VDC	-12VDC
Max. current	2A	2A	1A	0.1A	0.1A



Pin No.	Signal
6	+3.3V
5	+5V
4	-5V
3	-12V
2	+12V
1	GND

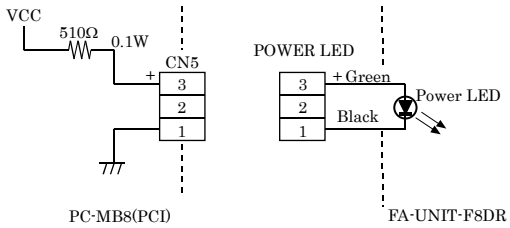
Power supply terminal for the external LED (CN5)

CN5 is the power supply terminal for the power LED in the PC case. How to connect the terminal to the power LED of the FA-UNIT-F8DR is shown below. Use this information for your reference if you are using a case designed for another PC.



Pin No.	Signal
1	GND
2	N.C.
3	+5V

< External LED Power Feed Pin >



< External LED Power Feed Circuit >

Expansion Bus Signals

The signals of the PCI bus expansion slot which has been added using the BUF(PCI) are subject to the restrictions listed in the table below. For information about the function of each signal line, see PCI bus standards. I/O directions indicate input (I) and output (O) seen from the installed board.
The 'master' and 'target' columns indicate the status of the installed board.

<1/2>

Pin No.	Signal name	Input/Output		Note	Pin No.	Signal name	Input/Output		Note
		Master	Target				Master	Target	
A01	TRST*	---	---	*1	B01	-12V	---	---	*2
A02	+12V	---	---	*2	B02	TCK	---	---	*1
A03	TMS	---	---	*1	B03	Ground	---	---	
A04	TDI	---	---	*1	B04	TDO	---	---	*1
A05	+5V	---	---	*2	B05	+5V	---	---	*2
A06	INTA*	O	O		B06	+5V	---	---	*2
A07	INTC*	O	O		B07	INTB*	O	O	
A08	+5V	---	---	*2	B08	INTD*	O	O	
A09	Reserved	---	---	*1	B09	PRSNT1*			*3 (fixed LOW)
A10	+5V(I/O)	---	---	*2	B10	Reserved	---	---	*1
A11	Reserved	---	---	*1	B11	PRSNT2*			*3(OPEN)
A12	Ground	---	---		B12	Ground	---	---	
A13	Ground	---	---		B13	Ground	---	---	
A14	Reserved	---	---	*1	B14	Reserved	---	---	*1
A15	RST*	I	I		B15	Ground	---	---	
A16	+5V(I/O)	---	---	*2	B16	CLK	I	I	
A17	GNT*	I	---		B17	Ground	---	---	
A18	Ground	---	---		B18	REQ*	O	---	
A19	Reserved	---	---	*1	B19	+5V(I/O)	---	---	*2
A20	AD[30]	I/O	I/O		B20	AD[31]	I/O	I/O	
A21	+3.3V	---	---	*2	B21	AD[29]	I/O	I/O	
A22	AD[28]	I/O	I/O		B22	Ground	---	---	
A23	AD[26]	I/O	I/O		B23	AD[27]	I/O	I/O	
A24	Ground	---	---		B24	AD[25]	I/O	I/O	
A25	AD[24]	I/O	I/O		B25	+3.3V	---	---	*2

Continued to next page

Pin No.	Signal name	Input/Output		Note	Pin No.	Signal name	Input/Output		Note
		Master	Target				Master	Target	
A26	IDSEL	I	I		B26	C/BE[3]*	O	I	
A27	+3.3V	---	---	*2	B27	AD[23]	I/O	I/O	
A28	AD[22]	I/O	I/O		B28	Ground	---	---	
A29	AD[20]	I/O	I/O		B29	AD[21]	I/O	I/O	
A30	Ground	---	---		B30	AD[19]	I/O	I/O	
A31	AD[18]	I/O	I/O		B31	+3.3V	---	---	*2
A32	AD[16]	---	---		B32	AD[17]	I/O	I/O	
A33	+3.3V	---	---	*2	B33	C/BE[2]*	O	I	
A34	FRAME*	O	I		B34	Ground	---	---	
A35	Ground	---	---		B35	IRDY*	O	I	
A36	TRDY*	I	O		B36	+3.3V	---	---	*2
A37	Ground	---	---		B37	DEVSEL*	I	O	
A38	STOP*	I	O		B38	Ground	---	---	
A39	+3.3V	---	---	*2	B39	LOCK*	O	I	
A40	SDONE	---	---	*1	B40	PERR*	I/O	O	
A41	SBO*	---	---	*1	B41	+3.3V	---	---	*2
A42	Ground	---	---		B42	SERR*	O	O	
A43	PAR	I/O	I/O		B43	+3.3V	---	---	*2
A44	AD[15]	I/O	I/O		B44	C/BE[1]*	O	I	
A45	+3.3V	---	---	*2	B45	AD[14]	I/O	I/O	
A46	AD[13]	I/O	I/O		B46	Ground	---	---	
A47	AD[11]	I/O	I/O		B47	AD[12]	I/O	I/O	
A48	Ground	---	---		B48	AD[10]	I/O	I/O	
A49	AD[09]	I/O	I/O		B49	Ground	---	---	
A50	CONNECTOR	---	---	5 Volt Key	B50	CONNECTOR	---	---	5 Volt Key
A51	KEY	---	---	5 Volt Key	B51	KEY	---	---	5 Volt Key
A52	C/BE[0]*	O	I		B52	AD[08]	I/O	I/O	
A53	+3.3V	---	---	*2	B53	AD[07]	I/O	I/O	
A54	AD[06]	I/O	I/O		B54	+3.3V	---	---	*2
A55	AD[04]	I/O	I/O		B55	AD[05]	I/O	I/O	
A56	Ground	---	---		B56	AD[03]	I/O	I/O	
A57	AD[02]	I/O	I/O		B57	Ground	---	---	
A58	AD[00]	I/O	I/O		B58	AD[01]	I/O	I/O	
A59	+5V(I/O)	---	---	*2	B59	+5V(I/O)	---	---	*2
A60	REQ64*	---	---	*3 (fixed HI)	B60	ACK64*	---	---	*3 (fixed HI)
A61	+5V	---	---	*2	B61	+5V	---	---	*2
A62	+5V	---	---		B62	+5V	---	---	*2

An asterisk (*) after a signal name denotes an active-low signal.

*1: These signals are unconnected (OPEN), and are independent from the personal computer.
*2: This signal is independent of the PC and is dependent on the power specifications of the PC-MB8(PCI).
*3: These signals are independent from the personal computer, and are used for internal buffer board operation.