



## CompactPCI General and technical information

The CompactPCI bus is compatible with the PCI bus known from the PC world as far as the electrical specifications are concerned.

The mechanical specifications were adapted to the commonly used Euro-board plug-in system in the 19" card rack. Therefore this bus is also suitable for industrial purposes.

Previously unattained signal speeds supported by the layout technology developed by Hartmann Electronic guarantee more stability and reliability for assemblies operating in the limit range.

The backplanes manufactured by Hartmann Electronic are distinguished by a completely novel energy buffering feature which works across the entire frequency range.

This feature guarantees improved reliability thanks to more stable supply voltages directly at the slot in conjunction with fluctuating loads.

### Chassis GND connection

A continuous electrically conductive chassis GND surface is located in the area where the bus board is mounted on the card rack. An M3 screw connection is available to connect the chassis ground. By installing a connecting bracket or terminal bar, the chassis GND can be connected to GND in a low-resistance star arrangement.

### JTAG connector

A separate 6-pin connector for JTAG boundary scan is implemented on the backplane.

Faster, simpler system initialization and testing by means of the JTAG bus even in the completely mounted state are achieved by direct access via an additional connector on the backplane.

### Utility connector

The special signals to the power supply unit and external LEDs are routed to separate plug-in connectors on the backplanes. Depending on the backplane type, either a 10-pin or a 14-pin connector is used.

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## General and technical information



### ATX connector

The ATX power supply connector used in the PC world is integrated in some backplane variants.

This results in a highly efficient and economic solution for supplying power to the backplane via ATX connectors and for the wiring of fans and drives.

### Pin Assignments

Pin	ATX connector	10-pins Utility connector RM = 2.0 mm	10-/14-pins Utility connector RM = 2.54 mm	IPMB connector	JTAG connector
1	+3.3 V	PRST-	PRST-	IPMB_SCL	GND
2	+3.3 V	FAL-	PRST-	GND	TCK
3	GND	DEG-	DEG-	IPMB_SDA	TMS
4	+5 V	+3.3 V Sense	DEG-	IPMB_PWR	TRST-
5	GND	+3.3 V	FAL-	SMB_RSV SMB_ALERT-	TDI
6	+5 V	GND Sense (3.3 V)	FAL-		TDO
7	GND	+5 V	+5 V		
8	PW-OK <sup>1)</sup>	+5 V Sense	+5 V Sense		
9	+5 V SB <sup>2)</sup>	GND	GND		
10	+12 V	GND Sense (5 V)	GND Sense (5 V)		
11	+3.3 V <sup>3)</sup>		+3.3 V		
12	-12 V		+3.3 V Sense		
13	GND		GND		
14	PS-ON <sup>4)</sup>		GND Sense (3.3 V)		
15	GND				
16	GND				
17	GND				
18	-5 V <sup>5)</sup>				
19	+5 V				
20	+5 V				

<sup>1)</sup>: via jumper J4 to DEG-

<sup>2)</sup>: to jumper J6

<sup>3)</sup>: also Main 3.3 V Sense

<sup>4)</sup>: via jumper J2 to GND

<sup>5)</sup>: to jumper J5

# CompactPCI® PICMG 2.0 R 3.0



## CompactPCI Pin Assignments

### PICMG 2.11 R1.0 P47 Power Connector Pin Assignments

Pin	Signal	Pin	Signal	Pin	Signal
1	V1			2	V1
3	V1			4	V1
5	RTN			6	RTN
7	RTN			8	RTN
9	RTN			10	RTN
11	RTN			12	RTN
13	V2			14	V2
15	V2			16	V2
17	V2			18	V2
19	RTN			20	V3
21	V4	22	RTN	23	Reserved
24	RTN	25	GA0	26	Reserved
27	EN-	28	GA1	29	V1ADJ
30	V1 Sense	31	GA2	32	V2ADJ
33	V2 Sense	34	S RTN	35	V1 Share
36	V3 Sense	37	IPMB_SCL	38	DEG-
39	INH-	40	IPMB_SDA	41	V2 Share
42	FAL-	43	IPMB_PWR	44	V3 Share
				45	CGND
46	ACN/+DC IN				
				47	ACL/-DC IN

V1 (typically 5 V)  
V2 (typically 3.3 V)  
V3 (typically +12 V)  
V4 (typically -12 V)  
RTN (GND)

### PICMG 2.11 R1.0 DIN Type M Power Connector Pin Assignments

Pin	Row A	Row B	Row C
2		ACL	
5		ACN	
8		---	
11		CG	
13	SP	+3.3 V	EN-
14	INH-	+3.3 V	DEG-
15	ISH	+3.3 V	FAL-
16	5S-	+3.3 V	+3.3 V
17	5S+	+3.3 V	+3.3 V
18	+3.3 V	+3.3 V	+3.3 V
19	+12 V	+12 V	+12 V
20	-12 V	-12 V	-12 V
22		+5 V	
25		GND	
28		+DC	
31		-DC	

# CompactPCI

## Pin Assignments CompactPCI System

### Slot 64-bit Connector



22	GND	GA4	GA3	GA2	GA1	GA0	GND	
21	GND	CLK6	GND	RSV	RSV	RSV	GND	
20	GND	CLK5	GND	RSV	GND	RSV	GND	
19	GND	GND	GND	SMBB SDA	SMBB SCL	SMB RSV	GND	P2
18	GND	BRSVP2A18	BRSVP2B18	BRSVP2C18	GND	BRSVP2E18	GND	/
17	GND	BRSVP2A17	GND	PRST#	REQ6#	GNT6#	GND	J2
16	GND	BRSVP2A16	BRSVP2B16	DEG#	GND	BRSVP2E16	GND	
15	GND	BRSVP2A15	GND	FAL#	REQ5#	GNT5#	GND	
14	GND	AD[35]	AD[34]	AD[33]	GND	AD[32]	GND	
13	GND	AD[38]	GND	V(I/O)	AD[37]	AD[36]	GND	
12	GND	AD[42]	AD[41]	AD[40]	GND	AD[39]	GND	
11	GND	AD[45]	GND	V(I/O)	AD[44]	AD[43]	GND	
10	GND	AD[49]	AD[48]	AD[47]	GND	AD[46]	GND	C
9	GND	AD[52]	GND	V(I/O)	AD[51]	AD[50]	GND	O
8	GND	AD[56]	AD[55]	AD[54]	GND	AD[53]	GND	N
7	GND	AD[59]	GND	V(I/O)	AD[58]	AD[57]	GND	N
6	GND	AD[63]	AD[62]	AD[61]	GND	AD[60]	GND	E
5	GND	C/BE[5]#	GND	V(I/O)	C/BE[4]#	PAR64	GND	C
4	GND	V(I/O)	BRSVP2B4	C/BE[7]#	GND	C/BE[6]#	GND	T
3	GND	CLK4	GND	GNT3#	REQ4#	GNT4#	GND	O
2	GND	CLK2	CLK3	SYSEN#	GNT2#	REQ3#	GND	R
1	GND	CLK1	GND	REQ1#	GNT1#	REQ2#	GND	
25	GND	5 V	REQ64#	ENUM#	3.3 V	5 V	GND	
24	GND	AD[1]	5 V	V(I/O)	AD[0]	ACK64#	GND	
23	GND	3.3 V	AD[4]	AD[3]	5 V	AD[2]	GND	
22	GND	AD[7]	GND	3.3 V	AD[6]	AD[5]	GND	P1
21	GND	3.3 V	AD[9]	AD[8]	M66EN	C/BE[0]#	GND	/
20	GND	AD[12]	GND	V(I/O)	AD[11]	AD[10]	GND	J1
19	GND	3.3 V	AD[15]	AD[14]	GND	AD[13]	GND	
18	GND	SERR#	GND	3.3 V	PAR	C/BE[1]#	GND	
17	GND	3.3 V	IPMB SCL	IPMB SDA	GND	PERR#	GND	
16	GND	DEVSEL#	GND	V(I/O)	STOP#	LOCK#	GND	C
15	GND	3.3 V	FRAME#	IRDY#	GND	TRDY#	GND	O
12-14				KEY AREA				N
11	GND	AD[18]	AD[17]	AD[16]	GND	C/BE[2]#	GND	N
10	GND	AD[21]	GND	3.3 V	AD[20]	AD[19]	GND	E
9	GND	C/BE[3]#	GND	AD[23]	GND	AD[22]	GND	C
8	GND	AD[26]	GND	V(I/O)	AD[25]	AD[24]	GND	T
7	GND	AD[30]	AD[29]	AD[28]	GND	AD[27]	GND	O
6	GND	REQ0#	GND	3.3 V	CLK0	AD[31]	GND	R
5	GND	BRSVP1A5	BRSVP1B5	RST#	GND	GNT0#	GND	
4	GND	IPMB PWR	HEALTHY#	V(I/O)	INTP	INTS	GND	
3	GND	INTA#	INTB#	INTC#	5 V	INTD#	GND	
2	GND	TCK	5 V	TMS	TDO	TDI	GND	
1	GND	5 V	-12 V	TRST#	12 V	5 V	GND	
Pin	Z	A	B	C	D	E	F	
length of pins		short		medium		long		

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## CompactPCI Pin Assignment CompactPCI Peripheral Slot Rear-Panel I/O Connectors

21	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	
20	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	
19	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	P2
18	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	/
17	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	J2
16	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	
15	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	
14	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	
13	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	
12	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	
11	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	
10	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	C
9	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	O
8	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	N
7	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	N
6	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	E
5	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	C
4	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	T
3	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	O
2	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	R
1	GND	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	BP(I/O)	GND	
25	GND	5 V	REQ64#	ENUM#	3.3 V	5 V	GND	
24	GND	AD[1]	5 V	+V(I/O)	AD[0]	ACK64#	GND	
23	GND	3.3 V	AD[4]	AD[3]	5 V	AD[2]	GND	
22	GND	AD[7]	GND	3.3 V	AD[6]	AD[5]	GND	P1
21	GND	3.3 V	AD[9]	AD[8]	M66EN	C/BE[0]#	GND	/
20	GND	AD[12]	GND	+V(I/O)	AD[11]	AD[10]	GND	J1
19	GND	3.3 V	AD[15]	AD[14]	GND	AD[13]	GND	
18	GND	SERR#	GND	3.3 V	PAR	C/BE[1]#	GND	
17	GND	3.3 V	IPMB SCL	IPMB SDA	GND	PERR#	GND	
16	GND	DEVSEL#	GND	+V(I/O)	STOP#	LOCK#	GND	C
15	GND	3.3 V	FRAME#	IRDY#	BD SEL#	TRDY#	GND	O
12-14				KEY AREA				N
11	GND	AD[18]	AD[17]	AD[16]	GND	C/BE[2]#	GND	N
10	GND	AD[21]	GND	3.3 V	AD[20]	AD[19]	GND	E
9	GND	C/BE[3]#	IDSEL	AD[23]	GND	AD[22]	GND	C
8	GND	AD[26]	GND	+V(I/O)	AD[25]	AD[24]	GND	T
7	GND	AD[30]	AD[29]	AD[28]	GND	AD[27]	GND	O
6	GND	REQ#	GND	3.3 V	CLK	AD[31]	GND	R
5	GND	BRSVP1A5	BRSVP1B5	RST#	GND	GNT#	GND	
4	GND	IPMB PWR	HEALTHY#	+V(I/O)	INTP	INTS	GND	
3	GND	INTA#	INTB#	INTC#	5 V	INTD#	GND	
2	GND	TCK	5 V	TMS	TDO	TDI	GND	
1	GND	5 V	-12 V	TRST#	12 V	5 V	GND	
Pin	Z	A	B	C	D	E	F	
length of pins		short		medium		long		

Physical Slot Addresses GA0 to GA4 alternative as BP(I/O)

# CompactPCI Technical data



CompactPCI®

Base material	Fiberglass epoxide acc. to DIN 40802 (type FR4)
PCB design	Optimized for best HF behavior
Card thickness	2.8 mm (3 U)/3.4 mm (6 U)
Installation height	3 U/6 U
Impedance Z of bare PCB	65 Ω
Ohmic resistance of signal lines	< 1.5 Ω
Permissible current loading of backplane	5 V up to 8 A per slot 3.3 V up to 10 A per slot
Power supply connection type	depending on variant: Screw-type terminals, blade connectors, ATX connectors, socket connectors to DIN 41612 type M, P47 power connector
Supply voltage V (I/O)	3.3 V/5 V, fixed setting or selection via jumper
Clock frequency	33/66 MHz (≤ 5 slots)
Transfer mode	32 bit/64 bit
Termination, 8 slots	On-board Schottky barrier diodes
Plug-in connectors	2 mm press-fit connectors, quality grade 2
Hot swap	acc. to PICMG 2.1 R1.0
Operating temperature range	< 8 slots: -40 °C ... +85 °C ≥ 8 slots: 0 °C ... +70 °C
Relative humidity	90 %, non-condensing