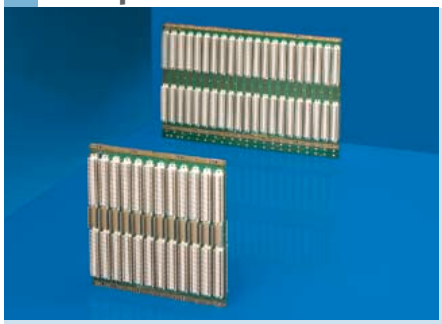
Backplanes VME64x



Technical Specifications:

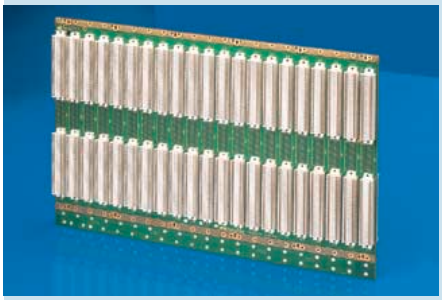
Number of layers	10
Layer structure	Optimized for best RF protection. Outer layers designed as shielding surface
PCB thickness	4.3 mm
Ohmic resistance of signal lines	< 1.5 Ohm
Surge impedance Z of signal lines	50 Ohm
Basic current consumption with termination on two sides	active: <0.1 A
Power supply: - Busbar with M6 screw terminal - M4 screw terminal and Faston 6.3 x 0.8 mm - < 5 slots	 x x FASTON .3 x 0.8 mm
Current carrying capacity of busbar	200 A
Current carrying capacity of a combined double flat-pin connector/screw terminal	25 A
Current carrying capacity of a FASTON flat-pin connector	10 A
Current carrying capacity of the assembly, per slot	+3.3 V 12.5 A +12 V 9.0 A -12 V 1.5 A +5 VSTDBY 1.5 A +48 V (35-75 V) 3.0 A
Termination of ON/IN board	active
Installation height	6U/6.5U
Distance between slots	4HP
Connector	Press-fit system, quality category 2, 400 connection cycles 160 pins compatible with c96 J0 optional distance 2 mm, 95/133 pins
Operating temperature range	Active termination 0°…+70°C Passive termination -40°…+85°C
Relative humidity	90%, non-condensing

Material:
Glass epoxy to DIN 40 802 (type FR4)

Supply Includes:
1 backplane, fully populated

VME64x 6U

Slot	Dimensions (H x W) mm	Order No. without PO connector	Order No. with PO connector
5	261.6 x 100	**3687608**	**3687609**
7	261.6 x 161.5	**3687610**	**3687611**
9	261.6 x 181.5	**9904930**	**9904932**
10	261.6 x 202	**9904931**	**9904933**
12	261.6 x 242.5	**3686634**	**3686473**
21	261.6 x 425.5	**3686635**	**3686474**

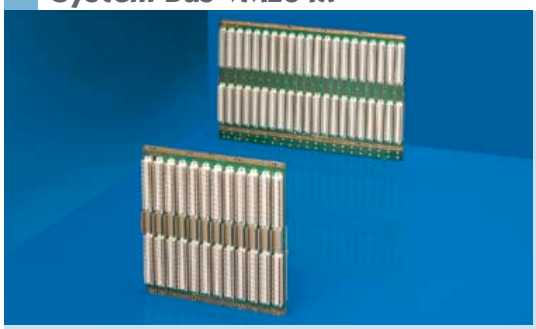


VME64x 6.5U

Slot	Dimensions (H x W) mm	Order No. without PO connector	Order No. with PO connector
5	283.7 x 100	**9910012**	**9910007**
7	283.7 x 161.5	**9910013**	**9910008**
9	283.7 x 181.5	**9910014**	**9910009**
10	283.7 x 202	**9904928**	**9904929**
12	283.7 x 242.5	**9910015**	**9910010**
21	283.7 x 425.5	**9910016**	**9910011**

Accessories for mounting of the backplanes, see page 122-123

System Bus VME64x



Order No. see page 127.

Applications Areas

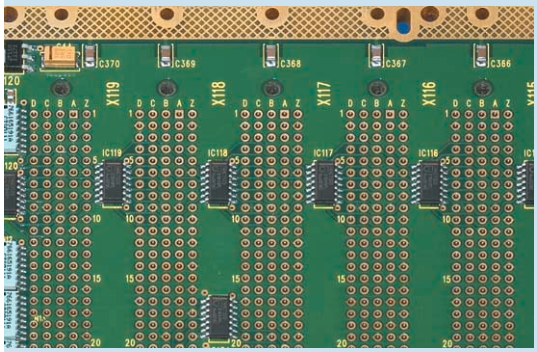
Installation in VME computer systems for power and signal distribution, for plug-in boards and assemblies for

- Medical
- Process control
- Traffic guidance systems
- Image processing
- Automation
- Military

Especially suitable for data transfer using fast drivers

Design Features

- High-speed VME system bus
- Optical fiber epoxide to DIN 40 802 (type FR4)
- 6U and 6.5U with 64-bit data width
- 5, 7, 9, 10, 12, 21 slots
- Automatic daisy chaining
- 10 layer multilayer
- With or without PO connector



User Benefits

- High-speed backplane
- Conforms to ANSI/VITA 1.1 and IEEE 1101
- Automatic daisy chaining
- Optionally available with or without PO connector

System Bus VME J1/J2 Monolithic

Order No. see page 130.

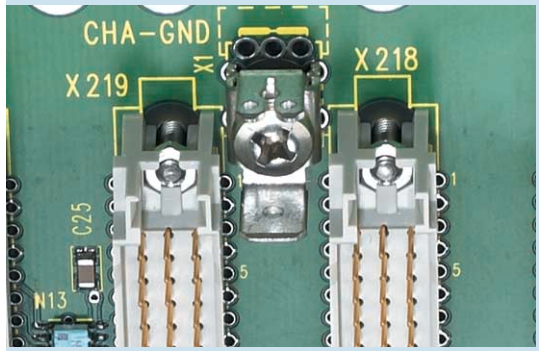
Applications Areas

Installation in VME computer systems for power and signal distribution, for plug-in boards and assemblies for

- Process control
- Traffic guidance systems
- Image processing
- Automation
- Medical
- Military

Design Features

- High-speed VME system bus
- Optical fiber epoxide to DIN 40 802 (type FR4)
- 6U with 32-bit data width
- 2 - 21 slots
- Automatic daisy chaining
- 6 layer multilayer
- Termination of ON/IN Board passive or active



User Benefits

- High-speed backplane
- Conforms to ANSI/VITA 1.1 and IEEE 1101
- Automatic daisy chaining
- Passive or active termination

General Technical Data For The VMEbus

The VMEbus, based on standard IEEE 1014 and IEC 821, has become established worldwide as an industry standard.

The VME64 is an extension to the VME family according to ANSI/VITA 1-1994, and supports 64-bit data traffic. VME64x is an addition to the VME family according to ANSI/VITA 1.1-1997 and is available with an optional 133-pin, 2 mm J0 connector. 160-pin connectors are used for VME64x. This system remains backward-compatible, so that assemblies with 96-pin connectors to DIN 41612 can still be used. All Kaparel/Rittal VMEbus boards are of a HIGHSPEED DESIGN. Minimum reflections are achieved, due to even surge impedance on the signal track. Consistent shielding of every signal trace ensures minimum coupling and therefore guarantees problem-free operation, even with an expansion to 64-bit mode with the 2e protocol (160Mbyte/s).

Daisy Chain Connection

For daisy chain connections, a distinction is made between manual daisy chaining and automatic daisy chaining. Automatic daisy chaining eliminates the need for jumper connection, and time-consuming insertion and extraction are eliminated. Furthermore, possible mis-connections are avoided. Automatic daisy chaining can be achieved in two ways. Kaparel/Rittal VMEbuses are generally supplied with automatic daisy chaining.

Pin assignment J1

Pin assignment for J1 connector, VME64x

		Pin assignment for J1 connector, VME			
Pin No.	**Row z**	**Row a**	**Row b**	**Row c**	**Row d**
1	MPR	D00	BBSY	D08	VPC
2	GND	D01	BCLR	D09	GND
3	MCLK	D02	ACFAIL	D10	+V1
4	GND	D03	BG0IN	D11	+V2
5	MSD	D04	BG0OUT	D12	RsvU
6	GND	D05	BG1IN	D13	-V1
7	MMD	D06	BG1OUT	D14	-V2
8	GND	D07	BG2IN	D15	RsvU
9	MCTL	GND	BG2OUT	GND	GAP
10	GND	SYSCLK	BG3IN	SYSFAIL	GAO
11	RTRY1	GND	BG3OUT	BERR	GA1
12	GND	DS1	BR0	SYSRESET	+3.3 V
13	RsvBus	DS0	BR1	LWORD	GA2
14	GND	WRITE	BR2	AM5	+3.3 V
15	RsvBus	GND	BR3	A23	GA3
16	GND	DTACK	AM0	A22	+ 3.3 V
17	RsvBus	GND	AM1	A21	GA4
18	GND	AS	AM2	A20	+ 3.3 V
19	RsvBus	GND	AM3	A19	RsvBus
20	GND	IACK	GND	A18	+ 3.3 V
21	RsvBus	IACKIN	SERCLK(1)	A17	RsvBus
22	GND	IACKOUT	SERDAT(1)	A16	+ 3.3 V
23	RsvBus	AM4	GND	A15	RsvBus
24	GND	A07	IRQ7	A14	+ 3.3 V
25	RsvBus	A06	IRQ6	A13	RsvBus
26	GND	A05	IRQ5	A12	+ 3.3 V
27	RsvBus	A04	IRQ4	A11	LI/I
28	GND	A03	IRQ3	A10	+ 3.3 V
29	SBB	A02	IRQ2	A09	LI/O
30	GND	A01	IRQ1	A08	+ 3.3 V
31	SBA	- 12 V	+5 V STDBT	+ 12 V	GND
32	GND	+ 5 V	+ 5 V	+ 5 V	VPC

Termination

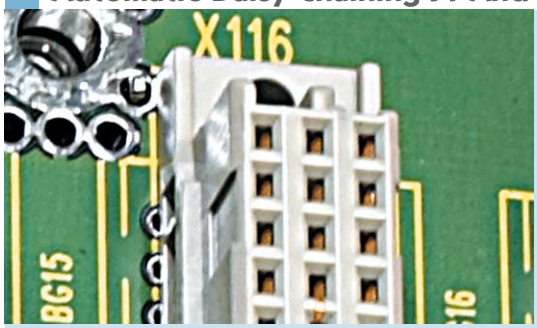
In order to avoid malfunctions on signal tracks caused by reflections at the open track end, these must be terminated with the VMEbus. Termination may be either at the ON/IN board (on the backplane) or the OFF board (external). There are two types of termination - passive and active. The advantage of active termination lies in its lower closed-circuit current consumption, whilst passive termination is distinguished by a superior frequency response and a wider temperature range.

Pin assignment J2

Pin assignment for J2 connector, VME64x

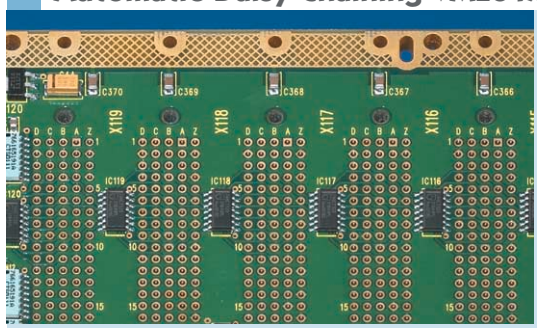
		Pin assignment for J2 connector, VME			
Pin No.	**Row z**	**Row a**	**Row b**	**Row c**	**Row d**
1	UD	User def.	+ 5 V	User def.	UD
2	GND	User def.	GND	User def.	UD
3	UD	User def.	Retry	User def.	UD
4	GND	User def.	A24	User def.	UD
5	UD	User def.	A25	User def.	UD
6	GND	User def.	A26	User def.	UD
7	UD	User def.	A27	User def.	UD
8	GND	User def.	A28	User def.	UD
9	UD	User def.	A29	User def.	UD
10	GND	User def.	A30	User def.	UD
11	UD	User def.	A31	User def.	UD
12	GND	User def.	GND	User def.	UD
13	UD	User def.	+ 5 V	User def.	UD
14	GND	User def.	D16	User def.	UD
15	UD	User def.	D17	User def.	UD
16	GND	User def.	D18	User def.	UD
17	UD	User def.	D19	User def.	UD
18	GND	User def.	D20	User def.	UD
19	UD	User def.	D21	User def.	UD
20	GND	User def.	D22	User def.	UD
21	UD	User def.	D23	User def.	UD
22	GND	User def.	GND	User def.	UD
23	UD	User def.	D24	User def.	UD
24	GND	User def.	D25	User def.	UD
25	UD	User def.	D26	User def.	UD
26	GND	User def.	D27	User def.	UD
27	UD	User def.	D28	User def.	UD
28	GND	User def.	D29	User def.	UD
29	UD	User def.	D30	User def.	UD
30	GND	User def.	D31	User def.	UD
31	UD	User def.	GND	User def.	UD
32	GND	User def.	+ 5 V	User def.	UD

Automatic Daisy Chaining J1 And J1/J2



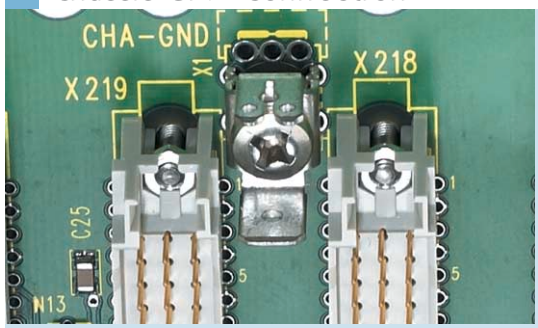
Due to the use of connectors with integral mechanical switches, the contact is automatically opened when the daughterboard is inserted, and closed again when it is extracted.

Automatic Daisy Chaining VME64x



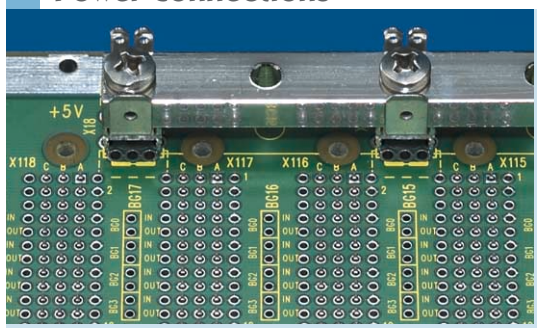
In this case, the option for automatic daisy chaining is achieved due to an “or” logic integrated onto the backplane. When the daughterboard is extracted, the logic closes the daisy chain.

Chassis GND Connection



A continuous, electrically conductive chassis GND plane is connected to the backplane mounting points on the subrack. This facilitates EMC-sealed mounting of the backplane on the subrack. In the case of VME64x, the subrack and system earth are RF-coupled by means of capacitors (10nF, 200 V on each slot). Static charges are discharged via a resistor (≥ 1MΩ). A combined connection component is available for connecting the enclosure earth (screw M4 and FASTON 2.8 or 6.3 x 0.8 mm).

Power Connections



Infeed of the main operating voltage + 5 V/+ 3.3 V and GND is achieved via busbars with an M6 screw connection. The auxiliary operating voltages are supplied via double-FASTONs with an additional M4 screw terminal. The arrangement of the feed modules on the backplane ensures optimum power supply to the daughterboards for problem-free operation.

Utility Connector

Special signals to the power supply unit and to external LEDs are routed on a separate connector on the backplanes.

Depending on the backplane type, a 7-pin, 10-pin or 14-pin connector with 2.54 mm spacing is provided.

Pin Assignment, 7 Pins

1	GND Sense
2	+ 5 V Sense
3	GND
4	+ 5 V
5	ACFAIL-
6	SYSFAIL-
7	SYSRESET-

Pin Assignment, 10/14 Pins

GND	1	2	GND Sense (5 V)
+ 5 V	3	4	+ 5 V Sense
ACFAIL-	5	6	ACFAIL-
SYSFAIL-	7	8	SYSFAIL-
SYSRESET-	9	10	SYSRESET-
+ 3.3 V	11	12	+ 3.3 V
GND	13	14	GND Sense (3.3 V)

Geographical Address Pin Assignments (VME64x)

Slot Number	GAP Pin J1-D9	GA4 Pin J1-D17	GA3 Pin J1-D15	GA2 Pin J1-D13	GA1 Pin J1-D11	GA0 Pin J1-D10
1	Open	Open	Open	Open	Open	GND
2	Open	Open	Open	Open	GND	Open
3	GND	Open	Open	Open	GND	GND
4	Open	Open	Open	GND	Open	Open
5	GND	Open	Open	GND	Open	GND
6	GND	Open	Open	GND	GND	Open
7	Open	Open	Open	GND	GND	GND
8	Open	Open	GND	Open	Open	Open
9	GND	Open	GND	Open	Open	GND
10	GND	Open	GND	Open	GND	Open
11	Open	Open	GND	Open	GND	GND
12	GND	Open	GND	GND	Open	Open
13	Open	Open	GND	GND	Open	GND
14	Open	Open	GND	GND	GND	Open
15	GND	Open	GND	GND	GND	GND
16	Open	GND	Open	Open	Open	Open
17	GND	GND	Open	Open	Open	GND
18	GND	GND	Open	Open	GND	Open
19	Open	GND	Open	Open	GND	GND
20	GND	GND	Open	GND	Open	Open
21	Open	GND	Open	GND	Open	GND

Pin Assignments J0

PIN Number	ROW Z	ROW A	ROW B	ROW C	ROW D	ROW E	ROW F
1	GND	User defined	User defined	User defined	User defined	User defined	GND
2	GND	User defined	User defined	User defined	User defined	User defined	GND
3	GND	User defined	User defined	User defined	User defined	User defined	GND
4	GND	User defined	User defined	User defined	User defined	User defined	GND
5	GND	User defined	User defined	User defined	User defined	User defined	GND
6	GND	User defined	User defined	User defined	User defined	User defined	GND
7	GND	User defined	User defined	User defined	User defined	User defined	GND
8	GND	User defined	User defined	User defined	User defined	User defined	GND
9	GND	User defined	User defined	User defined	User defined	User defined	GND
10	GND	User defined	User defined	User defined	User defined	User defined	GND
11	GND	User defined	User defined	User defined	User defined	User defined	GND
12	GND	User defined	User defined	User defined	User defined	User defined	GND
13	GND	User defined	User defined	User defined	User defined	User defined	GND
14	GND	User defined	User defined	User defined	User defined	User defined	GND
15	GND	User defined	User defined	User defined	User defined	User defined	GND
16	GND	User defined	User defined	User defined	User defined	User defined	GND
17	GND	User defined	User defined	User defined	User defined	User defined	GND
18	GND	User defined	User defined	User defined	User defined	User defined	GND
19	GND	User defined	User defined	User defined	User defined	User defined	GND