

# 3U OpenVPX BACKPLANE BKP3-CEN06-15.2.2-3

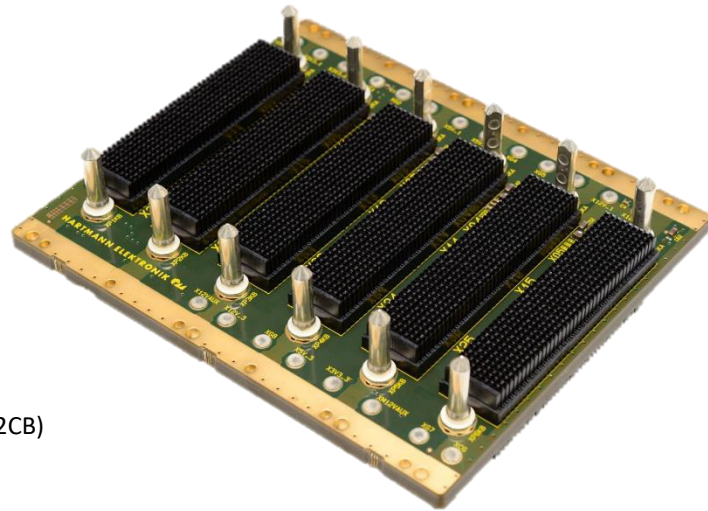
VITA 46  
VITA 65



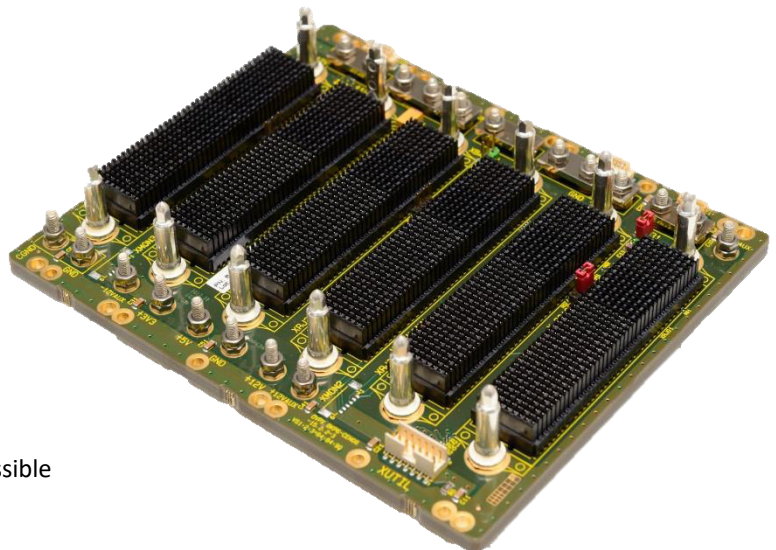
## Key figures:

- Compliant to VITA 46.0 baseline specification
- Compliant to OpenVPX VITA65 
- 6 Slots VPX, 5 Payload Slots , 1 Switch Slots
- Extension Plane (FP) from slot to slot
- Single Star X4 (FP) configuration for Data Plane
- Single Star X1 (UTP) configuration for Control Plane
- M3 studs for power entry
- PCB size 128.5mm x 149.3mm x 5.4mm
- 5 HP from slot to slot (25.40 mm)
- Flexible keying and alignment mechanism
- System Management Interface on the backplane (I2CA, I2CB)
- with geographical address pins
- Reference clock
- Non-Volatile Memory Read Only signal set by Jumper BR1
- Battery backup option setting by Jumper XBAT Vbat external or connected to 3.3 AUX.
- Power Consumption:  
VS1:VS2:VS3 = 84A : 84A : 90A  
(15A/ Slot and Voltage)
- System Reset
- Operating temperature: -40° - +85°C
- Storage temperature: -55°C - +85°C
- Flammability rating: UL94-V0
- Optional with: +5V termination
- Other configurations on request
- Assembly of Meritec frames/ cable rear side possible
- **Order number: B193511561**

Front side



Rear side



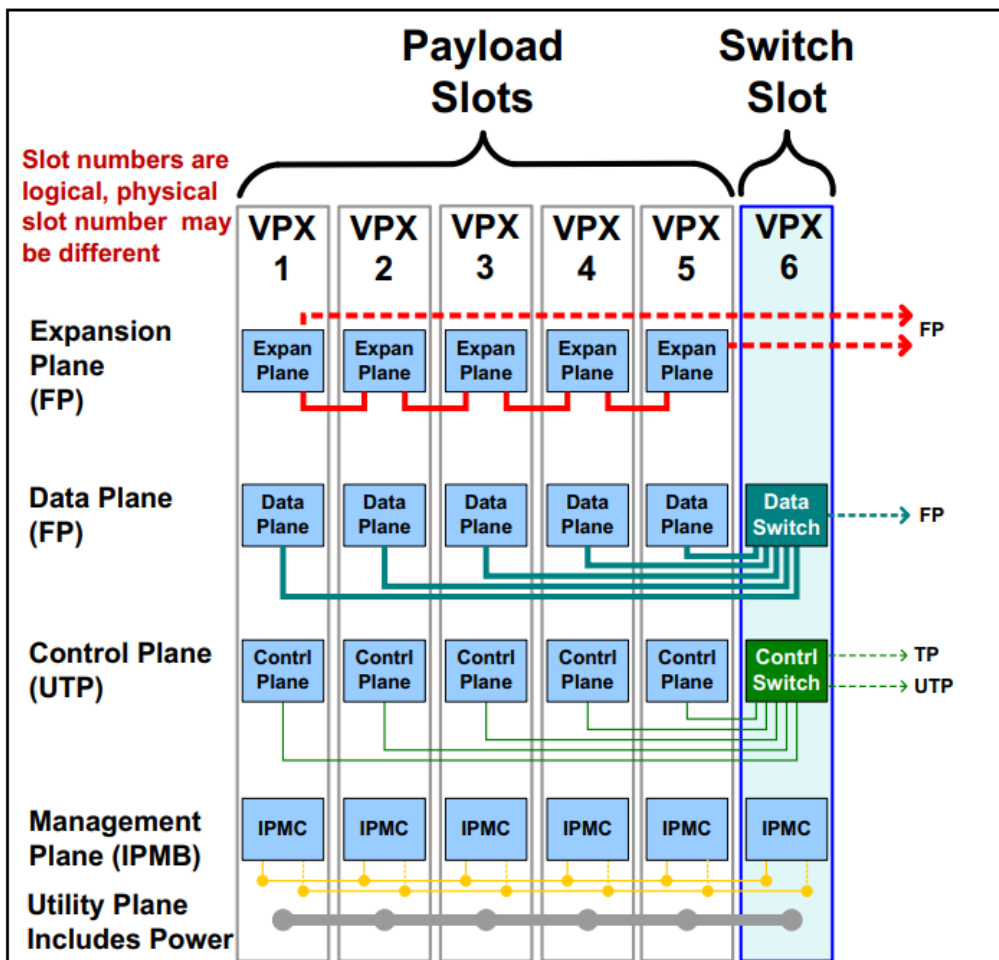
3U Open VPX  
BACKPLANE  
BKP3-CEN06-15.2.2-3

VITA 46  
VITA 65



1) Topology: Single Star BKP3-CEN06-15.2.2-n  
(5 Payloads + 1 integrated Switches)

Profil Switch slots: SLT3-SWH-6F6U-14.4.1  
Profil Payload slots: SLT3-PAY-1F2F2U-14.2.2



**3U Open VPX  
BACKPLANE  
BKP3-CEN06-15.2.2-3**

**VITA 46  
VITA 65**



## 2) Plane Port Connection

### Control Plane Port connections BKP3-CEN06-15.2.2-n

| Logical Payload Slot | Payload Control Plane Port | Switch Control Plane Port |
|----------------------|----------------------------|---------------------------|
| 1                    | CPutp01                    | CPutp01                   |
| 1                    | Cputp02                    | No Connect, can go to RTM |
| 2                    | CPutp01                    | CPutp02                   |
| 2                    | Cputp02                    | No Connect, can go to RTM |
| 3                    | CPutp01                    | CPutp03                   |
| 3                    | Cputp02                    | No Connect, can go to RTM |
| 4                    | CPutp01                    | CPutp04                   |
| 4                    | Cputp02                    | No Connect, can go to RTM |
| 5                    | CPutp01                    | CPutp05                   |
| 5                    | Cputp02                    | No Connect, can go to RTM |

### Data Plane Port connections BKP3-CEN06-15.2.2-n

| Logical Payload Slot | Payload Data Plane Port | Switch Data Plane Port |
|----------------------|-------------------------|------------------------|
| 1                    | DP01                    | DP01                   |
| 2                    | DP01                    | DP02                   |
| 3                    | DP01                    | DP03                   |
| 4                    | DP01                    | DP04                   |
| 5                    | DP01                    | DP05                   |

3U Open VPX  
BACKPLANE  
BKP3-CEN06-15.2.2-3

VITA 46  
VITA 65

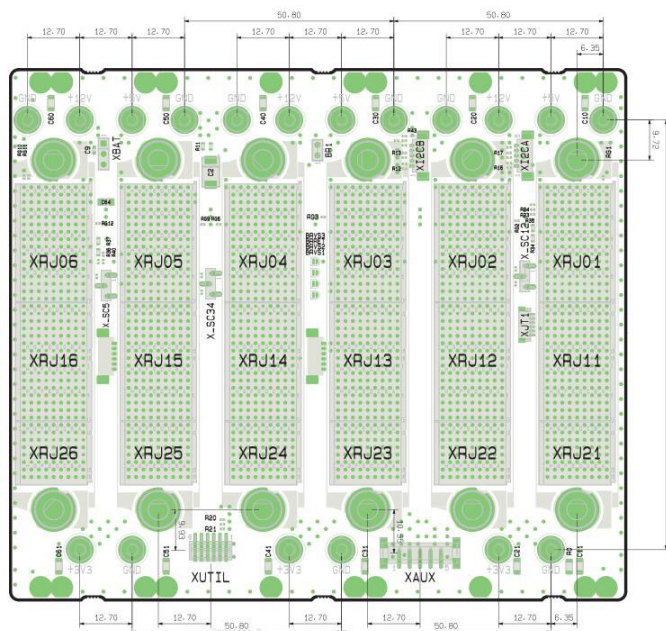


3) Drawings

Front side



Rear side



# 3U Open VPX BACKPLANE BKP3-CEN06-15.2.2-3

VITA 46  
VITA 65



## 4) Pin Assignment

### Utility Plane Signals on P0

|   | Row G | Row F    | Row E    | Row D    | Row C    | Row B     | Row A |
|---|-------|----------|----------|----------|----------|-----------|-------|
| 1 | Vs1   | Vs1      | Vs1      | No Pad*  | Vs2      | Vs2       | Vs2   |
| 2 | Vs1   | Vs1      | Vs1      | No Pad*  | Vs2      | Vs2       | Vs2   |
| 3 | Vs3   | Vs3      | Vs3      | No Pad*  | Vs3      | Vs3       | Vs3   |
| 4 | SM2   | SM3      | GND      | -12V_Aux | GND      | SYSRESET* | NVMRO |
| 5 | GAP*  | GA4*     | GND      | 3.3V_Aux | GND      | SM0       | SM1   |
| 6 | GA3*  | GA2*     | GND      | +12V_Aux | GND      | GA1*      | GA0*  |
| 7 | TCK   | GND      | TDO      | TDI      | GND      | TMS       | TRST* |
| 8 | GND   | REF_CLK- | REF_CLK+ | GND      | AUX_CLK- | AUX_CLK+  | GND   |

### Utility Plane Signals on J0

|   | Row i | Row h    | Row g    | Row f | Row e    | Row d    | Row c     | Row b | Row a |
|---|-------|----------|----------|-------|----------|----------|-----------|-------|-------|
| 1 | Vs1   | Vs1      | Vs1      | Vs1   | No Pad*  | Vs2      | Vs2       | Vs2   | Vs2   |
| 2 | Vs1   | Vs1      | Vs1      | Vs1   | No Pad*  | Vs2      | Vs2       | Vs2   | Vs2   |
| 3 | Vs3   | Vs3      | Vs3      | Vs3   | No Pad*  | Vs3      | Vs3       | Vs3   | Vs3   |
| 4 | GND   | SM2      | SM3      | GND   | -12V_Aux | GND      | SYSRESET* | NVMRO | GND   |
| 5 | GND   | GAP*     | GA4*     | GND   | 3.3V_Aux | GND      | SM0       | SM1   | GND   |
| 6 | GND   | GA3*     | GA2*     | GND   | +12V_Aux | GND      | GA1*      | GA0*  | GND   |
| 7 | TCK   | GND      | GND      | TDO   | TDI      | GND      | GND       | TMS   | TRST* |
| 8 | GND   | REF_CLK- | REF_CLK+ | GND   | GND      | AUX_CLK- | AUX_CLK+  | GND   | GND   |

# 3U Open VPX BACKPLANE

BKP3-CEN06-15.2.2-3

VITA 46  
VITA 65



## Payload Slot Profile SLT3-PAY-1F2F2U 14.2.2 — P1 & J1

| Plug-In Module P1 |                     | Row G           | Row F       | Row E       |             | Row D       | Row C       | Row B       |             | Row A       |
|-------------------|---------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Bplane J1         |                     | Row i           | Row h       | Row g       | Row f       | Row e       | Row d       | Row c       | Row b       | Row a       |
| 1                 | Data Plane Port 1   | GDiscrete1      | GND         | GND-J1      | DP01-TD0-   | DP01-TD0+   | GND         | GND-J1      | DP01-RD0-   | DP01-RD0+   |
| 2                 |                     | GND             | DP01-TD1-   | DP01-TD1+   | GND-J1      | GND         | DP01-RD1-   | DP01-RD1+   | GND-J1      | GND         |
| 3                 |                     | P1-VBAT         | GND         | GND-J1      | DP01-TD2-   | DP01-TD2+   | GND         | GND-J1      | DP01-RD2-   | DP01-RD2+   |
| 4                 |                     | GND             | DP01-TD3-   | DP01-TD3+   | GND-J1      | GND         | DP01-RD3-   | DP01-RD3+   | GND-J1      | GND         |
| 5                 | Expan. Plane Port 1 | SYS_CON*        | GND         | GND-J1      | EP00-TD-    | EP00-TD+    | GND         | GND-J1      | EP00-RD-    | EP00-RD+    |
| 6                 |                     | GND             | EP01-TD-    | EP01-TD+    | GND-J1      | GND         | EP01-RD-    | EP01-RD+    | GND-J1      | GND         |
| 7                 |                     | Reserved        | GND         | GND-J1      | EP02-TD-    | EP02-TD+    | GND         | GND-J1      | EP02-RD-    | EP02-RD+    |
| 8                 |                     | GND             | EP03-TD-    | EP03-TD+    | GND-J1      | GND         | EP03-RD-    | EP03-RD+    | GND-J1      | GND         |
| 9                 | Expan. Plane Port 2 | UD              | GND         | GND-J1      | EP04-TD-    | EP04-TD+    | GND         | GND-J1      | EP04-RD-    | EP04-RD+    |
| 10                |                     | GND             | EP05-TD-    | EP05-TD+    | GND-J1      | GND         | EP05-RD-    | EP05-RD+    | GND-J1      | GND         |
| 11                |                     | UD              | GND         | GND-J1      | EP06-TD-    | EP06-TD+    | GND         | GND-J1      | EP06-RD-    | EP06-RD+    |
| 12                |                     | GND             | EP07-TD-    | EP07-TD+    | GND-J1      | GND         | EP07-RD-    | EP07-RD+    | GND-J1      | GND         |
| 13                | User Defined        | UD              | GND         | GND-J1      | UD          | UD          | GND         | GND-J1      | UD          | UD          |
| 14                |                     | GND             | UD          | UD          | GND-J1      | GND         | UD          | UD          | GND-J1      | GND         |
| 15                | Control Plane       | Maskable Reset* | GND         | GND-J1      | CPutp02-TD- | CPutp02-TD+ | GND         | GND-J1      | CPutp02-RD- | CPutp02-RD+ |
| 16                |                     | GND             | CPutp01-TD- | CPutp01-TD+ | GND-J1      | GND         | CPutp01-RD- | CPutp01-RD+ | GND-J1      | GND         |

## Universal Ground Pattern User Defined pins for J2 acc. Table 6.3.3.1-5

| Backplane J2 | Row i | Row h | Row g | Row f | Row e | Row d | Row c | Row b | Row a |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1            | UD    | UD    | UD    | UD    | UD    | GND   | UD    | UD    | UD    |
| 2            | GND   | UD    | UD    | GND   | UD    | UD    | UD    | UD    | GND   |
| 3            | UD    | UD    | UD    | UD    | UD    | GND   | UD    | UD    | UD    |
| 4            | GND   | UD    | UD    | GND   | UD    | UD    | UD    | UD    | GND   |
| 5            | UD    | UD    | UD    | UD    | UD    | GND   | UD    | UD    | UD    |
| 6            | GND   | UD    | UD    | GND   | UD    | UD    | UD    | UD    | GND   |
| 7            | UD    | UD    | UD    | UD    | UD    | GND   | UD    | UD    | UD    |
| 8            | GND   | UD    | UD    | GND   | UD    | UD    | UD    | UD    | GND   |
| 9            | UD    | UD    | UD    | UD    | UD    | GND   | UD    | UD    | UD    |
| 10           | GND   | UD    | UD    | GND   | UD    | UD    | UD    | UD    | GND   |
| 11           | UD    | UD    | UD    | UD    | UD    | GND   | UD    | UD    | UD    |
| 12           | GND   | UD    | UD    | GND   | UD    | UD    | UD    | UD    | GND   |
| 13           | UD    | UD    | UD    | UD    | UD    | GND   | UD    | UD    | UD    |
| 14           | GND   | UD    | UD    | GND   | UD    | UD    | UD    | UD    | GND   |
| 15           | UD    | UD    | UD    | UD    | UD    | GND   | UD    | UD    | UD    |
| 16           | GND   | UD    | UD    | GND   | UD    | UD    | UD    | UD    | GND   |

# 3U Open VPX BACKPLANE BKP3-CEN06-15.2.2-3

VITA 46  
VITA 65



## Switch Slot Profile SLT3-SWH-6F6U 14.4.1 — P1 & J1

| Plug-In   | Row G           | Row F     | Row E     |           | Row D     | Row C     | Row B     |           | Row A     |
|-----------|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Module P1 |                 |           | Even      | Odd       |           |           | Even      | Odd       |           |
| Bplane J1 | Row i           | Row h     | Row g     | Row f     | Row e     | Row d     | Row c     | Row b     | Row a     |
| 1         | GDIscrete1      | GND       | GND-J1    | DP01-TD0- | DP01-TD0+ | GND       | GND-J1    | DP01-RD0- | DP01-RD0+ |
| 2         | GND             | DP01-TD1- | DP01-TD1+ | GND-J1    | GND       | DP01-RD1- | DP01-RD1+ | GND-J1    | GND       |
| 3         | P1-VBAT         | GND       | GND-J1    | DP01-TD2- | DP01-TD2+ | GND       | GND-J1    | DP01-RD2- | DP01-RD2+ |
| 4         | GND             | DP01-TD3- | DP01-TD3+ | GND-J1    | GND       | DP01-RD3- | DP01-RD3+ | GND-J1    | GND       |
| 5         | SYS_CON*        | GND       | GND-J1    | DP02-TD0- | DP02-TD0+ | GND       | GND-J1    | DP02-RD0- | DP02-RD0+ |
| 6         | GND             | DP02-TD1- | DP02-TD1+ | GND-J1    | GND       | DP02-RD1- | DP02-RD1+ | GND-J1    | GND       |
| 7         | Reserved        | GND       | GND-J1    | DP02-TD2- | DP02-TD2+ | GND       | GND-J1    | DP02-RD2- | DP02-RD2+ |
| 8         | GND             | DP02-TD3- | DP02-TD3+ | GND-J1    | GND       | DP02-RD3- | DP02-RD3+ | GND-J1    | GND       |
| 9         | UD              | GND       | GND-J1    | DP03-TD0- | DP03-TD0+ | GND       | GND-J1    | DP03-RD0- | DP03-RD0+ |
| 10        | GND             | DP03-TD1- | DP03-TD1+ | GND-J1    | GND       | DP03-RD1- | DP03-RD1+ | GND-J1    | GND       |
| 11        | UD              | GND       | GND-J1    | DP03-TD2- | DP03-TD2+ | GND       | GND-J1    | DP03-RD2- | DP03-RD2+ |
| 12        | GND             | DP03-TD3- | DP03-TD3+ | GND-J1    | GND       | DP03-RD3- | DP03-RD3+ | GND-J1    | GND       |
| 13        | UD              | GND       | GND-J1    | DP04-TD0- | DP04-TD0+ | GND       | GND-J1    | DP04-RD0- | DP04-RD0+ |
| 14        | GND             | DP04-TD1- | DP04-TD1+ | GND-J1    | GND       | DP04-RD1- | DP04-RD1+ | GND-J1    | GND       |
| 15        | Maskable Reset* | GND       | GND-J1    | DP04-TD2- | DP04-TD2+ | GND       | GND-J1    | DP04-RD2- | DP04-RD2+ |
| 16        | GND             | DP04-TD3- | DP04-TD3+ | GND-J1    | GND       | DP04-RD3- | DP04-RD3+ | GND-J1    | GND       |

## Switch Slot Profile SLT3-SWH-6F6U 14.4.1 — P2 & J2

| Plug-In   | Row G | Row F       | Row E       |             | Row D       | Row C       | Row B       |             | Row A       |
|-----------|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Module P2 |       |             | Even        | Odd         |             |             | Even        | Odd         |             |
| Bplane J2 | Row i | Row h       | Row g       | Row f       | Row e       | Row d       | Row c       | Row b       | Row a       |
| 1         | UD    | GND         | GND-J2      | DP05-TD0-   | DP05-TD0+   | GND         | GND-J2      | DP05-RD0-   | DP05-RD0+   |
| 2         | GND   | DP05-TD1-   | DP05-TD1+   | GND-J2      | GND         | DP05-RD1-   | DP05-RD1+   | GND-J2      | GND         |
| 3         | UD    | GND         | GND-J2      | DP05-TD2-   | DP05-TD2+   | GND         | GND-J2      | DP05-RD2-   | DP05-RD2+   |
| 4         | GND   | DP05-TD3-   | DP05-TD3+   | GND-J2      | GND         | DP05-RD3-   | DP05-RD3+   | GND-J2      | GND         |
| 5         | UD    | GND         | GND-J2      | DS01-TD0-   | DS01-TD0+   | GND         | GND-J2      | DS01-RD0-   | DS01-RD0+   |
| 6         | GND   | DS01-TD1-   | DS01-TD1+   | GND-J2      | GND         | DS01-RD1-   | DS01-RD1+   | GND-J2      | GND         |
| 7         | UD    | GND         | GND-J2      | DS01-TD2-   | DS01-TD2+   | GND         | GND-J2      | DS01-RD2-   | DS01-RD2+   |
| 8         | GND   | DS01-TD3-   | DS01-TD3+   | GND-J2      | GND         | DS01-RD3-   | DS06-RD3+   | GND-J2      | GND         |
| 9         | UD    | GND         | GND-J2      | CSutp01-TD- | CSutp01-TD+ | GND         | GND-J2      | CSutp01-RD- | CSutp01-RD+ |
| 10        | GND   | CPutp05-TD- | CPutp05-TD+ | GND-J2      | GND         | CPutp05-RD- | CPutp05-RD+ | GND-J2      | GND         |
| 11        | UD    | GND         | GND-J2      | CPutp04-TD- | CPutp04-TD+ | GND         | GND-J2      | CPutp04-RD- | CPutp04-RD+ |
| 12        | GND   | CPutp03-TD- | CPutp03-TD+ | GND-J2      | GND         | CPutp03-RD- | CPutp03-RD+ | GND-J2      | GND         |
| 13        | UD    | GND         | GND-J2      | CPutp02-TD- | CPutp02-TD+ | GND         | GND-J2      | CPutp02-RD- | CPutp02-RD+ |
| 14        | GND   | CPutp01-TD- | CPutp01-TD+ | GND-J2      | GND         | CPutp01-RD- | CPutp01-RD+ | GND-J2      | GND         |
| 15        | UD    | GND         | GND-J2      | UD          | UD          | GND         | GND-J2      | UD          | UD          |
| 16        | GND   | UD          | UD          | GND-J2      | GND         | UD          | UD          | GND-J2      | GND         |

# 3U Open VPX BACKPLANE BKP3-CEN06-15.2.2-3

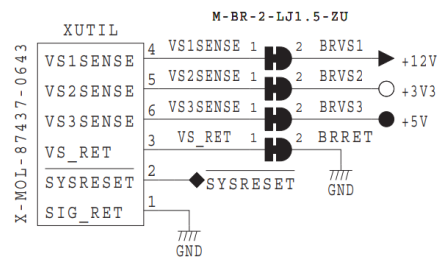
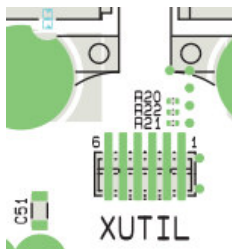
VITA 46  
VITA 65



## 5) Current Capability:

|             |      |
|-------------|------|
| ■ +12V      | 84 A |
| ■ +3.3V     | 84 A |
| ■ +5V       | 90 A |
| ■ -12V AUX  | 6 A  |
| ■ +12V AUX  | 6 A  |
| ■ +3.3V AUX | 6 A  |

## 6) UTILITY (Connector XUTIL)



## 7) JTAG (connector XJT1)

For test and programming a JTAG connector (6-poles) is implemented (XJT1).

| XJT1 | Signal |
|------|--------|
| 1    | GND    |
| 2    | TCK    |
| 3    | TMS    |
| 4    | TRST-  |
| 5    | TDI    |
| 6    | TDO    |



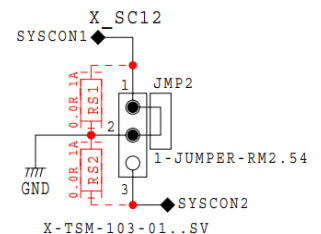
## 8) SYSCON

By setting the signal Syscon to GND the system slot is defined. In general the system slot is slot 1.

There are additional connectors X\_SC34, X\_SC56 X\_SC7 so you can select any slot as system slot

### X\_SC12

|   |         |
|---|---------|
| 1 | SYSCON1 |
| 2 | GND     |
| 3 | SYSCON2 |



We offer 2 options for setting:

- Jumper (standard)
- 0 Ohm Resistor for rugged applications

# 3U Open VPX BACKPLANE BKP3-CEN06-15.2.2-3

VITA 46  
VITA 65



## 9) I2C connector

There are 2 connectors for system- management XI2CA and XI2CB.

For customer specific board assembly are Zero-Ohm resistors available.

Usable voltages for I2C are 3.3V-AUX

**XI2CA**

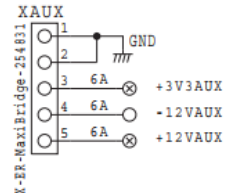
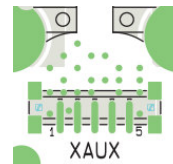
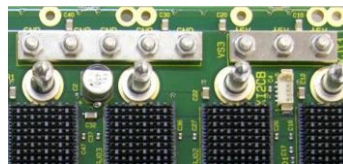
|   |          |
|---|----------|
| 1 | IPMB_SCL |
| 2 | GND      |
| 3 | IPMB_SDA |
| 4 | IPMB_PWR |
| 5 | NC       |

**XI2CB**

|   |          |
|---|----------|
| 1 | IPMB_SCL |
| 2 | GND      |
| 3 | IPMB_SDA |
| 4 | IPMB_PWR |
| 5 | NC       |

## 10) Power Studs M3

The main operating voltages (+12V, +3.3V, +5V) and GND are supplied with M3 screw terminals. The auxiliary operating voltages are supplied via a 5 poles connector XAUX.



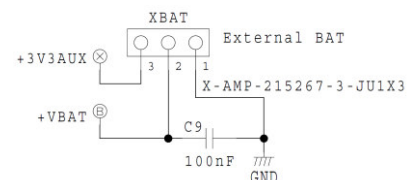
## 11) XBAT

Normally a battery voltage with approximately 3V is available at Pin VBAT of connector VPX-J1.

The voltage is externally accessible with connector XBAT or internally using 3.3V\_AUX by closing Jumper BR2.

**XBAT**

|   |           |
|---|-----------|
| 1 | GND       |
| 2 | +VBAT     |
| 2 | +3.3V_AUX |



## 12) NVMRO

If Jumper BR1 is closed NVRMO is set to memory writeable.

**BR1**

|   |       |
|---|-------|
| 1 | NVMRO |
| 2 | GND   |

### Germany

Hartmann Electronic GmbH  
Phone: +49 711 13 98 90  
Fax: +49 711 8 66 11 91  
[vertrieb.he@kontron.com](mailto:vertrieb.he@kontron.com)  
[www.hartmann-electronic.com](http://www.hartmann-electronic.com)

### USA

Kontron  
Fabian Hemmann  
Phone: +1 937-324-2420  
Mobile: +1 937 346 7878  
[fabian.hemmann@us.kontron.com](mailto:fabian.hemmann@us.kontron.com)  
[www.hartmann-electronic.com](http://www.hartmann-electronic.com)

### France

Kontron Modular Computers S.A.S.  
Serge Pichat  
Phone: +33 (0)9 66 44 03 15  
Mobile: +33 (0)6 82 62 16 00  
[Serge.pichat@kontron.com](mailto:Serge.pichat@kontron.com)  
[www.hartmann-electronic.com](http://www.hartmann-electronic.com)

### India

Hartmann Electronic GmbH  
Vivek Deshpande  
Phone: +1 91 20 66 74 51 23  
[Vivek.Deshpande@kontron.com](mailto:Vivek.Deshpande@kontron.com)  
[www.hartmann-electronic.com](http://www.hartmann-electronic.com)