Amphenol ABSI VPX Backplanes
Amphenol ABSI’s VPX high performance backplanes are available in both 3U & 6U form factors. All VPX backplanes are compliant to VITA VPX specifications. ABSI can customize the VPX backplane against our customer’s specific requirements.

Amphenol ABSI VPX backplane order configuration part number table.
The following configuration table provides the part numbering structure applicable to the full range of VPX backplanes on offer from Amphenol ABSI. We can engage with you on any VPX backplane requirement that you may have. Please contact us for further details.

```
VPX-XX-XX-XX-XX-XX-(xx . xx . xx)
```

- **Height:**
  - 01 = 3U
  - 02 = 6U

- **Slots:**
  - 02 = 2 slots
  - 03 = 3 slots
  - ... ...
  - 20 = 20 slots

- **Connector Type:**
  - 01 = VITA46 connector
  - 02 = VITA67 connector

- **Power Entry:**
  - 01 = power studs
  - 02 = power taps
  - 03 = custom

- **Options:**
  - 01 = Data rate 2.5Gbps
  - 02 = Data rate 3.125Gbps
  - 03 = Data rate 5Gbps
  - 04 = Data rate 6.25Gbps
  - 05 = Data rate 10Gbps

- **Standard**
  - xx . xx . xx = Section number in VITA65 spec.

**Configuration part number example**
VPX-01-06-01-03-02 (15.2.10) specifies a 3U 6 slot 3.125Gbps VPX J2 backplane, configured with VITA46 connectors and customer specific custom power entry requirements. The backplane topology is described in VITA 46 specification section 15.2.10. See next page for details on Vita Spec.
Amphenol ABSI VPX Datasheet

VPX Topology.

Below are the sections of the VPX spec that define backplane architecture. The VPX Spec is only available to VITA members.

11.2 6U BACKPLANE PROFILES USING VITA 46.0 CONNECTORS
11.2.1 Common Section for 6U Backplanes Using VITA 46.0 Connectors
11.2.2 16 Slot BKP6-CEN16-11.2.2-2-n (14 Payload + 2 Switch)
11.2.3 20 Slot BKP6-CEN20-11.2.3-3-n (18 Payload + 2 Switch)
11.2.4 10 Slot BKP6-CEN10-11.2.4-4-n (9 Payload + 1 Switch)
11.2.5 5 Slot BKP6-CEN05-11.2.5-5-n (4 Payload + 1 Switch)
11.2.6 10 Slot BKP6-CEN10-11.2.6-6-n (8 Payload + 2 Switch)
11.2.7 10 Slot BKP6-CEN10-11.2.7-7-n (8 Payload + 2 Switch)
11.2.8 6 Slot BKP6-CEN06-11.2.8-8-n (5 Payload + 1 Switch)
11.2.9 12 Slot BKP6-CEN12-11.2.9-9-n (10 Payload + 2 Switch)
11.2.10 6 Slot BKP6-DIS06-11.2.10-10-n (5 Payload + 1 Switch)
11.2.11 17 Slot BKP6-HYB17-11.2.11-11-n (12 Payload + 3 VME + 2 Switch)
11.2.12 8 Slot BKP6-HYB08-11.2.12-12-n (1 Payload + 3 Peripheral + 1 VME Bridge + 3 VME)
11.2.13 9 Slot BKP6-CEN09-11.2.13-13-n (1 Payload + 8 Peripheral)
11.2.14 6 Slot BKP6-CEN06-11.2.14-14-n (1 Payload + 5 Peripheral)
11.2.15 6 Slot BKP6-DIS06-11.2.15-15-n (5 Payload + 1 Switch)
11.2.16 5 Slot BKP6-DIS05-11.2.16-16-n (5 Payload)
11.2.17 16 Slot BKP6-CEN16-11.2.17-17-n (14 Payload + 2 Switch)
11.2.18 6 Slot BKP6-DIS06-11.2.18-18-n (6 Payload)
11.2.19 9 Slot BKP6-DIS09-11.2.19-19-n (9 payload)
11.2.20 7 Slot BKP6-HYB07-11.2.20-20-n (3 Payload + 2 VME Bridge + 2 VME)

11.3 6U BACKPLANE PROFILES USING VITA 67 CONNECTORS
11.3.1 Common Section for 6U Backplanes Using VITA 67 Connectors
11.3.2 6 Slot BKP6-CEN06 11.3.2-2-n (5 Payloads + 1 Switch)
11.3.3 7 Slot BKP6-CEN07 11.3.3-3-n (6 Payloads + 1 Switch)
11.3.4 10 Slot BKP3 CEN10 11.3.4-4-n (8 Payload + 2 Switch)
11.3.5 10 Slot BKP3 CEN10 11.3.5-5-n (8 Payload + 2 Switch)
11.3.6 12 Slot BKP3 CEN12 11.3.6-6-n (10 Payloads + 2 Switch)
11.3.7 6 Slot BKP3 DIS06 11.3.7-7-n (5 Payload + 1 Switch)
11.3.8 2 Slot BKP3 DIS02 11.3.8-8-n (1 Payload + 1 Peripheral)
11.3.9 3 Slot BKP3 CEN03 11.3.9-9-n (1 Payload + 2 Peripheral)
11.3.10 6 Slot BKP3 CEN06 11.3.10-10-n (1 Payload + 5 Peripheral)
11.3.11 9 Slot BKP3 CEN09 11.3.11-11-n (1 Payload + 8 Peripheral)
11.3.12 6 Slot BKP3 CEN06 11.3.12-12-n (1 Payload + 4 Peripheral + 1 Switch)
11.3.13 5 Slot BKP3 DIS05 11.3.13-13-n (3 Payload + 2 Peripheral)
11.3.14 6 Slot BKP3 DIS06 11.3.14-14-n (5 Payload + 1 Switch)
11.3.15 8 Slot BKP3 CEN08 11.3.15-15-n (6 Payloads + 2 Integrated Switches)
11.3.16 8 Slot BKP3 CEN08 11.3.16-16-n (6 Payloads + 2 Segregated Switches)
11.3.17 9 Slot BKP3 CEN09 11.3.17-17-n (8 Payload + 1 Switch)

15.2 3U BACKPLANE PROFILES USING VITA 46.0 CONNECTORS
15.2.1 Common Section for 3U Backplanes Using VITA 46.0 Connectors
15.2.2 6 Slot BKP3 CEN06 15.2.2-2-n (5 Payloads + 1 Switch)
15.2.3 7 Slot BKP3 CEN07 15.2.3-3-n (6 Payloads + 1 Switch)
15.2.4 10 Slot BKP3 CEN10 15.2.4-4-n (8 Payload + 2 Switch)
15.2.5 10 Slot BKP3 CEN10 15.2.5-5-n (8 Payload + 2 Switch)
15.2.6 12 Slot BKP3 CEN12 15.2.6-6-n (10 Payloads + 2 Switch)
15.2.7 6 Slot BKP3 DIS06 15.2.7-7-n (5 Payload + 1 Switch)
15.2.8 2 Slot BKP3 DIS02 15.2.8-8-n (1 Payload + 1 Peripheral)
15.2.9 3 Slot BKP3 CEN03 15.2.9-9-n (1 Payload + 2 Peripheral)
15.2.10 6 Slot BKP3 CEN06 15.2.10-10-n (1 Payload + 5 Peripheral)
15.2.11 9 Slot BKP3 CEN09 15.2.11-11-n (1 Payload + 8 Peripheral)
15.2.12 6 Slot BKP3 CEN06 15.2.12-12-n (1 Payload + 4 Peripheral + 1 Switch)
15.2.13 5 Slot BKP3 DIS05 15.2.13-13-n (3 Payload + 2 Peripheral)
15.2.14 6 Slot BKP3 DIS06 15.2.14-14-n (5 Payload + 1 Switch)
15.2.15 8 Slot BKP3 CEN08 15.2.15-15-n (6 Payloads + 2 Integrated Switches)
15.2.16 8 Slot BKP3 CEN08 15.2.16-16-n (6 Payloads + 2 Segregated Switches)
15.2.17 9 Slot BKP3 CEN09 15.2.17-17-n (8 Payload + 1 Switch)

15.3 3U BACKPLANE PROFILES USING VITA 46.0 AND 67 CONNECTORS
15.3.2 5 Slot BKP3 DIS05 15.3.2-2-n (2 Payload + 3 Payload with RF Cavities)
15.3.3 5 Slot BKP3 CEN05 15.3.3-3-n (2 Payload + 2 Payload with RF Cavities and 1 Switch)
Amphenol ABSI VPX Datasheet

Description
VPX is an evolutionary step forward for the provision of high-speed interconnects in harsh-environment applications. VPX improves the network bandwidth by replacing DIN41612 connector with higher speed connectors. The maximum form factor expands to a 20slot backplane. VPX meets most system interconnects requirements including:
- Multi-gigabit differential technology
- Core computing cluster switched fabrics
- Serial Rapid IO, PCI Express, Hypertransport, Inifiniband or 10G Ethernet
- Sufficient ports to enable distributed switching or centralized switching

Open VPX defines 2 different backplane heights as 3U and 6U. The 6U backplane configuration is defined in section 11 of ANSI/VITA 65-2010 (R2012) and the 3U backplane configuration is defined in section 15. In each sub-section, the specification provides the backplane topology for each communication plane and a slot interconnection definition for each slot type used. Each backplane profile references a slot profile for each slot position on the backplane and then defines how each pipe in each slot is interconnected and the electrical performance for each pipe. The backplane profiles defined in the OpenVPX standard are specifically targeted for use in standard development chassis profiles. The backplane profile defines which pins or set of pins are routed in the backplane, and which pins are available on RTM (Rear Transition Module) connectors at the rear of the backplane. The backplane profile also defines the slot-to-slot pitch. Amphenol ABSI’s open VPX backplanes are compliant to VITA 65.
Routing Topology
VPX supports 3 routing topology: single star, dual star and full mesh.

Star topology:
In single star topology, each node slot is connected to a central switch slot with point-to-point connections. All nodes connect to the switch through differential pairs on the VPX backplane.

Dual Star topology:
Unlike the single star topology, the dual star topology contains 2 central switch slots. In dual star topology the node slot is connected to a central 2 switch slots with point-to-point connections. All nodes connect to the switch through differential pairs on the VPX backplane.

Full Mesh
In some applications, nodes require full connections between each other. In this case each node makes connection with each node in the system. In the full mesh VPX backplane, each node has DIFF pairs connected to other nodes.
Amphenol ABSI VPX Datasheet

Amphenol ABSI VPX Features:
- Compliant to VITA 65 Specification
- Compliant to the latest VITA 46 Specifications
- Centralized Star, Distributed configuration
- Rugged Eurocard 3U form factor
- 4 or 5 HP slot pitch
- High-speed Multi-gig/RVPX connectors
- Support RTMs (Rear Transition Module)
- M3/M4 studs for power entry, Optional to use ATX connector
- Flexible keying and alignment mechanism
- System Management Interface
- JTAG interface
- RoHS and Halogen-Free

PCB information:
- 22 to 26 layers board
- Slot pitch 0.8”/1.0”
- Independent power and ground layers for power distribution
- Signal impedance Z0 SE 50 Ohms +/-10%, DIFF 100Ohms +/-10%
- Middle loss level material
Amphenol ABSI VPX Datasheet

**Connector Type:**
VITA 46 has introduced a single 8-wafer PCB 7-Row connector and six 16-wafer PCB 7-Row backplane connectors for J1~J6. The VPX connector is a high-speed board-to-board interconnect system capable of data rates in excess of 10 Gbps, meeting and exceeding VITA 46 standards. This connector system gives users modularity and flexibility by utilizing PCB wafer construction with customized wafer-loading patterns.
The connector is available from Amphenol AAO, TE, EPT etc.

**Power entry solution**
Amphenol ABSI VPX backplanes have a few power entry solutions to meet our customer’s configuration requirements. Choose between power tags, screws or studs as the power input. We also offer industry standard power entry options on VPX backplanes to meet your power entry requirement.

**Power tags example ERNI 214787:**
Press-fit power tags is an option on the VPX backplane. Each power tap can carry 40A current.

**Power Studs example PEM KFH-632-8-ET**
Use of press-fit studs is also an option on VPX backplane. Each power tap can carry 30A current.

**Custom**
Our customers can also specify a custom power entry solution that they will use.
## Amphenol ABSI VPX Backplane Sizes

3U Dimension Table on 0.8” slot pitch,

<table>
<thead>
<tr>
<th>Slot Numbers</th>
<th>Height in Inch</th>
<th>Height in mm</th>
<th>Length in Inch</th>
<th>Length in mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>5.067</td>
<td>128.7</td>
<td>2.332</td>
<td>59.24</td>
</tr>
<tr>
<td>3</td>
<td>5.067</td>
<td>128.7</td>
<td>3.132</td>
<td>79.56</td>
</tr>
<tr>
<td>4</td>
<td>5.067</td>
<td>128.7</td>
<td>3.932</td>
<td>99.88</td>
</tr>
<tr>
<td>5</td>
<td>5.067</td>
<td>128.7</td>
<td>4.732</td>
<td>120.2</td>
</tr>
<tr>
<td>6</td>
<td>5.067</td>
<td>128.7</td>
<td>5.532</td>
<td>140.52</td>
</tr>
<tr>
<td>7</td>
<td>5.067</td>
<td>128.7</td>
<td>6.332</td>
<td>160.84</td>
</tr>
<tr>
<td>8</td>
<td>5.067</td>
<td>128.7</td>
<td>7.132</td>
<td>181.16</td>
</tr>
<tr>
<td>9</td>
<td>5.067</td>
<td>128.7</td>
<td>7.932</td>
<td>201.48</td>
</tr>
<tr>
<td>10</td>
<td>5.067</td>
<td>128.7</td>
<td>8.732</td>
<td>221.8</td>
</tr>
<tr>
<td>11</td>
<td>5.067</td>
<td>128.7</td>
<td>9.532</td>
<td>242.12</td>
</tr>
<tr>
<td>12</td>
<td>5.067</td>
<td>128.7</td>
<td>10.332</td>
<td>262.44</td>
</tr>
<tr>
<td>13</td>
<td>5.067</td>
<td>128.7</td>
<td>11.132</td>
<td>282.76</td>
</tr>
<tr>
<td>14</td>
<td>5.067</td>
<td>128.7</td>
<td>11.932</td>
<td>303.08</td>
</tr>
<tr>
<td>15</td>
<td>5.067</td>
<td>128.7</td>
<td>12.732</td>
<td>323.4</td>
</tr>
<tr>
<td>16</td>
<td>5.067</td>
<td>128.7</td>
<td>13.532</td>
<td>343.72</td>
</tr>
<tr>
<td>17</td>
<td>5.067</td>
<td>128.7</td>
<td>14.332</td>
<td>364.04</td>
</tr>
<tr>
<td>18</td>
<td>5.067</td>
<td>128.7</td>
<td>15.132</td>
<td>384.36</td>
</tr>
<tr>
<td>19</td>
<td>5.067</td>
<td>128.7</td>
<td>15.932</td>
<td>404.68</td>
</tr>
<tr>
<td>20</td>
<td>5.067</td>
<td>128.7</td>
<td>16.732</td>
<td>425</td>
</tr>
</tbody>
</table>
## Amphenol ABSI VPX Backplane Sizes

6U Dimension Table 1.0” slot pitch:

<table>
<thead>
<tr>
<th>Slot Numbers</th>
<th>Height in Inch</th>
<th>Height in mm</th>
<th>Length in Inch</th>
<th>Length in mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>10.317</td>
<td>262.05</td>
<td>2.332</td>
<td>59.24</td>
</tr>
<tr>
<td>3</td>
<td>10.317</td>
<td>262.05</td>
<td>3.132</td>
<td>79.56</td>
</tr>
<tr>
<td>4</td>
<td>10.317</td>
<td>262.05</td>
<td>3.932</td>
<td>99.88</td>
</tr>
<tr>
<td>5</td>
<td>10.317</td>
<td>262.05</td>
<td>4.732</td>
<td>120.2</td>
</tr>
<tr>
<td>6</td>
<td>10.317</td>
<td>262.05</td>
<td>5.532</td>
<td>140.52</td>
</tr>
<tr>
<td>7</td>
<td>10.317</td>
<td>262.05</td>
<td>6.332</td>
<td>160.84</td>
</tr>
<tr>
<td>8</td>
<td>10.317</td>
<td>262.05</td>
<td>7.132</td>
<td>181.16</td>
</tr>
<tr>
<td>9</td>
<td>10.317</td>
<td>262.05</td>
<td>7.932</td>
<td>201.48</td>
</tr>
<tr>
<td>10</td>
<td>10.317</td>
<td>262.05</td>
<td>8.732</td>
<td>221.8</td>
</tr>
<tr>
<td>11</td>
<td>10.317</td>
<td>262.05</td>
<td>9.532</td>
<td>242.12</td>
</tr>
<tr>
<td>12</td>
<td>10.317</td>
<td>262.05</td>
<td>10.332</td>
<td>262.44</td>
</tr>
<tr>
<td>13</td>
<td>10.317</td>
<td>262.05</td>
<td>11.132</td>
<td>282.76</td>
</tr>
<tr>
<td>14</td>
<td>10.317</td>
<td>262.05</td>
<td>11.932</td>
<td>303.08</td>
</tr>
<tr>
<td>15</td>
<td>10.317</td>
<td>262.05</td>
<td>12.732</td>
<td>323.4</td>
</tr>
<tr>
<td>16</td>
<td>10.317</td>
<td>262.05</td>
<td>13.532</td>
<td>343.72</td>
</tr>
<tr>
<td>17</td>
<td>10.317</td>
<td>262.05</td>
<td>14.332</td>
<td>364.04</td>
</tr>
<tr>
<td>18</td>
<td>10.317</td>
<td>262.05</td>
<td>15.132</td>
<td>384.36</td>
</tr>
<tr>
<td>19</td>
<td>10.317</td>
<td>262.05</td>
<td>15.932</td>
<td>404.68</td>
</tr>
<tr>
<td>20</td>
<td>10.317</td>
<td>262.05</td>
<td>16.732</td>
<td>425</td>
</tr>
</tbody>
</table>
Amphenol ABSI
Amphenol ABSI is an industry leader of backplane and system solutions. Amphenol ABSI has been a leading designer and manufacture of backplanes for more than 30 years.

Amphenol ABSI delivers:
• Industry leading interconnect technology
• Advanced printed circuit capabilities and partnerships
• Innovative backplane system design and manufacturing
• Integrated design / applications engineering services
• Flexible, global support and supply chain management
• Most extensively tooled Backplane Supplier in the industry
• Industry leading Mechanical and SI test solutions
• Lowest cost solution on highest performance backplane