OpenVPX Backplanes—3U VITA 66, VITA 67

VPX 306, 307 Backplanes

VPX30X KEY FEATURES

- Compliant to latest VITA 65, VITA 66.x and VITA 67.x specifications
- Various OpenVPX profiles—contact Pixus for details
- Various slot sizes and configurations available
- 3U backplane design
- 1.0” slot pitch standard, customized sizes available
- Data rate options up to 100GbE with RT-3 high speed connectors
- Selectable rear IO options
- Fast turnaround, superior performance
- Customization available
- Conformal coating optional

OpenVPX is a process that defines system level VPX interoperability for multi-vendor, multi-module, integrated systems environment. The OpenVPX process defines clear interoperability points necessary for integration between Module to Module, Module to Backplane and Chassis. VITA 66 adds optical and VITA 67 adds RF capability to the backplane with multi-position connectors.

Pixus has an experienced team of OpenVPX experts and can help you find or create the OpenVPX backplane profile for your application. We offer various data signal speed options and have optional testing services. Pixus is ISO9001:2015 and ITAR registered.

The backplanes are typically 1.0” pitch, but 0.8” pitch is available in some configurations. Contact Pixus for details.

*Pixus Technologies can modify this product to meet special customer requirements without NRE (minimum order placement is required).*
## Specifications

<table>
<thead>
<tr>
<th>Architecture</th>
<th>Dimensions</th>
<th>Height: 3U</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width: Depending on slot #</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pitch: 1.0” standard</td>
<td></td>
</tr>
<tr>
<td>Connectors</td>
<td>MultiGig RT-2 or RT-3 for above 40GbE speeds, VITA 66.x optical, VITA 67.x coax</td>
<td></td>
</tr>
<tr>
<td>Layers</td>
<td>18-24 layers typical</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standards</th>
<th>Type</th>
<th>VITA 65, VITA 46 for OpenVPX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type</td>
<td>VITA 66 for optical and VITA 67 for RF over OpenVPX</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Power</th>
<th>3.3V, 3.3V_AUX, 5V, +/- 12V, +/- 12V_AUX</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Environmental</th>
<th>Temperature</th>
<th>Operating temperature: up to -40° to +85°C options</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Storage temperature: up to -55° to +90°C options</td>
<td></td>
</tr>
<tr>
<td>PCB</td>
<td>FR406 or equivalent, Nelco4000-13SI, Meg7 or equivalent for higher speeds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(consult Pixus)</td>
<td></td>
</tr>
<tr>
<td>PCB traces</td>
<td>0.5 oz. copper standard</td>
<td></td>
</tr>
<tr>
<td>Conformal coating</td>
<td>Upon request (See page 6 selection “J” for available options)</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Other</th>
<th>MTBF</th>
<th>MIL Handbook 217-F @ TBD Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Certifications</td>
<td>Designed to meet FCC, CE and EN/UL/TUV certifications where applicable</td>
</tr>
<tr>
<td></td>
<td>Warranty</td>
<td>Two years</td>
</tr>
<tr>
<td></td>
<td>Trademarks and logos</td>
<td>The Pixus Logo is a registered trademark of Pixus Technologies Inc. other registered trademarks are the property of their respective owners. Specs. subject to change without notice.</td>
</tr>
</tbody>
</table>
Connectors & Signals

Connector Ratings

Multi-Gig RT-2 (contact factory for RT-3):

- Operating Voltage: 50 Volts AC peak or DC
- Current: 1 Ampere at <30°C (single circuit, free air)
- Temperature: -55 to 105°C
- Low level contact resistance, circuit: 80 milliohms maximum initial
  - 5 milliohms maximum average increase
  - 10 milliohms maximum individual increase
- Low level contact resistance, compliant pin: 1 milliohm maximum initial
  - 1 milliohm maximum change
- Insulation resistance: 1000 megohms minimum
- Withstanding voltage: 1 minute hold with no breakdown or flashover
- Temperature rise vs. current: 30°C maximum temperature at 1 Ampere load, single circuit in free air using thermography
- Mechanical Vibration, sinusoidal:
- Mechanical Vibration: No discontinuities of 1 microsecond or longer duration
- Mechanical Shock: No discontinuities of 1 microsecond or longer duration
- Mating Force: 0.75 N [2.7 ozf] maximum per contact. Average for entire connector.
- Unmating Force: 0.15 N [0.57 ozf] minimum per contact. Average for entire connector.
- Compliant pin insertion: 31 N [7 lbf] maximum per pin average
- Compliant pin retention: 13.35 N [3 lbf] minimum

Multi-Gig RT-3:

- Speed: 25+ Gbps
- Mating cycles: 500
- PCB hole dimensions: 0.37 (ref)

Signal Definitions:

Fat Pipe: A channel that is comprised of four links (4 Tx pairs + 4 Rx pairs) is now being referred to as a fat pipe or by use of the x4 nomenclature. 10Gbps capable 10GBase-KX4, 10GBase-BX4, 10GBase-T, PCIe-x4, sRIO-x4, Infiniband-x4

Thin Pipe: A channel that is comprised of two links (2 Tx pairs + 2 Rx pairs) is now being referred to as a thin pipe or by use of the x2 nomenclature. 5Gbps capable 10/100/1000Base-T, 1000Base-BX, PCIe-x2, sRIO-x2, Infiniband-x2

Ultra-thin Pipe: A channel that is comprised of one link (1 Tx pair + 1 Rx pair) is now being referred to as an ultra-thin pipe or by use of the x1 nomenclature. 10GBase-KR, 1GBase-KX, PCIe-x1, sRIO-x1, Infiniband-x1a
3U Drawing—9-Slot Example with 1.0” Pitch
Ordering Options

VPX306=3U OpenVPX Backplane, VITA 66
VPX307=3U OpenVPX Backplane, VITA 67

VPX30X-ABCCD-EE-FGHI-J

AB = VPX Slots
   = 01-16

CC = VITA 66/67 Slots
   = 01-16

D = VITA 66/67 Type

0 = VITA 67.1
1 = VITA 67.3
4 = Mix of types
2 = VITA 67.2
3 = Other
5 = VITA 66.4

EE = Profile Topology

AA = Reserved

XX = Other

F = Installation

0 = Optical/RF housings/contacts not installed (cutouts only)
1 = Optical/RF housings/contacts installed
2 = Partial installation (custom)

G = Rear IO

A = Full rear IO connectors
X = No rear IO connectors
C = Partially loaded or custom

H = Data Rate

1 = Reserved
3 = 6.25 Gbaud
5 = 40GbE (4 x ~10Gbps)
2 = 100GbE (4 x ~25Gbps)
4 = 8.0 Gbaud (PCIe Gen3)
6 = Other

I = Power Interface

1 = M3 threaded power element
2 = 1 x VITA 62 PSU interface
3 = Other

J = Conformal Coating

0 = None
1 = Humiseal 1A33 Polyurethane
2 = Humiseal 1B31 Acrylic