



VPX KNOWLEDGE BASE

VPX is a specification defining rugged conduction-cooled system architecture for COTS military and industrial applications.

Extreme environments where VPX products are deployed require rugged modules and a hardened enclosure. The VITA 48.2 Specification defines rugged, conduction-cooled system architecture for COTS military and industrial applications.

Under the VITA 48.2 / VPX Specification, the Conduction-cooled heat frame assembly (CCA) on the modules provides a thermal path from high energy components on the circuit board to the outer metal frame of the module. SolidWedge wedgelocks mounted on the heat frame serve to secure the module into the chassis cold-wall in order to withstand the necessary shock and vibration conditions. Forces provided by the wedgelocks ensure firm contact between the module edges and the chassis slots in order to transfer thermal energy from the module to the enclosure in this conduction-cooled configuration.

Overview	Vibration Class V1	
<ul style="list-style-type: none"> • Basic air-cooled characteristics • Basic conduction-cooling characteristics • Wedgelocks • Shock and vibration hardened • Extended temperature • Level 2 Maintenance 	1 hour per axis: 5 Hz to 100 Hz PSD = 0.04 g ² /Hz	
	Vibration Class V2	
	1 hour per axis: 5 Hz to 100 Hz PSD increasing at 3 dB/octave 100 Hz to 1000 Hz PSD 0.04 g ² /Hz 1000 Hz to 2000 Hz PSD decreasing at 6 dB/octave	
3U Module Dimensions	Vibration Class V3	
3.94" x 6.30" 4HP or 5HP	1 hour per axis: 5 Hz to 100 Hz PSD increasing at 3 dB/octave 100 Hz to 1000 Hz PSD 0.1 g ² /Hz 1000 Hz to 2000 Hz PSD decreasing at 6 dB/octave	
Applications Served -	Module Operating Temperature	
<ul style="list-style-type: none"> • Military Applications: Air, Land, and Sea • Mobile commercial or Transport Industry • Machine Industrial control • Outdoor Telecom = Edge and Customer Premise Equipment • Medical • Enterprise and Data • Digital Imaging 	Conduction-Cooled Class Min/Max CC1: 0°C / 55°C CC2: -40°C / 55°C CC3: -40°C / 70°C CC4: -40°C / 85°C	
	Conduction-Cooled	Liquid-Cooled
	Class Min/Max CC1: 0°C / 55°C CC2: -40°C / 55°C CC3: -40°C / 70°C CC4: -40°C / 85°C	Inlet Outlet Class Min/Max LC1: 0°C / 50°C LC2: -40°C / 55°C LC3: -40°C / 60°C LC4: -40°C / 70°C