Liquid-Cooled Enclosures

These advanced liquid-cooled enclosures in an answer-to-reset (ATR) format support high-power, high-density, electronic modules plugging into an industry-standard backplane. The resulting embedded computer is suitable for ruggedized military, aerospace, industrial, and commercial applications.

The top-loaded enclosure accepts 6U double-Eurocard-format conduction-cooled modules constructed to meet the IEEE1101.2 specification. The liquid-cooled chassis sidewalls will support electronic modules each dissipating in excess of 150 watts. These rugged enclosures are available to support either one-inch or 0.8-inch pitch backplanes. The enclosure is readily adaptable to support a 6U or 3U module size (or combination of both) at either backplane pitch. Proprietary and open architecture backplanes are supported and include VPX, VME, and compactPCI.

Multiple I/O connections may be supported via rigid-flex circuits connecting the backplane to the front panel. Military circular (IEEE38999) connectors are mounted directly to a rigid-flex assembly for maximum signal integrity.

Internal power supply systems are compatible with most platforms. The power supply solution includes an input module that can be uniquely configured to filter and condition the power prior to entering the backplane environment. Plug-in module (or modules) then provide the appropriate DC power to the backplane.

- Top load ATR format
- High-performance backplane
- Single low-volume liquid loop
- I/O front panel support
- Unique cross-over cold plate supports high-power plug-in modules and/or power supplies
- Options for blind mate, shock mount tray, or 19-inch rack mounting
- Integrated ATR and heat exchanger solution available

Application
High-performance embedded computers addressing signal intelligence, radar, and directed energy applications for airborne, shipboard, sub-surface, and ground mobile platforms.

Features
- Supports 6U VME, cPCI, and VPX modules at 0.8-inch and/or 1.0-inch pitch
- Meets VITA58 specification with multiple sizes available
- Single liquid entry and exit points via liquid quick disconnects
- Liquid flows adjacent to module edge provide a predictable temperature gradient
- Low-volume liquid flow through side walls (cold plates) are manufactured in-house
- Side wall cold plates compatible with most di-electric (e.g. PAO/fluorocarbon) or non-dielectric (e.g. EGW/PGW) cooling fluids
- Embedded cold plates in module slots available to cool high-heat modules and/or power supplies

Specifications

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration</td>
<td>Application sizes typically 8” H x 10”W x 20” L</td>
</tr>
<tr>
<td>Performance</td>
<td>Application specific, typically 2,000 watts</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-54° to +71°F</td>
</tr>
<tr>
<td>Communication interfaces</td>
<td>VPX - 14 slots @ 1” pitch</td>
</tr>
<tr>
<td>Environmental rating</td>
<td>MIL-STD-810F and MIL-STD-461E</td>
</tr>
</tbody>
</table>

Optional Features
- A blind mate ARINC600 connector solution for high speed I/O, together with liquid quick disconnects is available
- Custom solutions available up to four kW that provide a fully integrated heat collection and rejection combination in a single 19-inch rack-mounted package
- Separate heat rejection is available using an ARINC format heat rejection unit, a liquid-to-air heat exchanger capable of dissipating one kW

Contact Information
Parker Hannifin Corporation
Parker Aerospace
Gas Turbine Fuel Systems Division
8940 Tyler Boulevard
Mentor, Ohio 44060
Phone: (440) 266-2300
Fax: (440) 266-2311
www.parker.com

ENGINEERING YOUR SUCCESS.