Celerity Quad-Port Overview:

ATTO’s Celerity 16Gb/s Quad-Port (FC-164E) Fibre Channel Host Bus Adapter (HBA) addresses the needs of high performance computing, virtualization, and other high IOP enterprise environments running on Linux and Windows® platforms, and is available exclusively through authorized original equipment manufacturers (OEM) and systems integrators. Because of these high performance capabilities, the Celerity FC-164E HBA is a full height PCIe 3.0 x8 adapter that has very specific power and cooling requirements to ensure proper operation.

Thermal & Airflow Recommendation:

All high-performance add-in cards require adequate airflow to operate at peak performance while maintaining their reliability and efficiency, and the Celerity quad-port HBA is no exception. The chart below provides the recommended airflow around the Celerity Host Bus Adapter, measured in linear feet per minute (LFM). ATTO supports configurations requiring lower than 300 LFM based on meeting the proper balance of ambient temperature and altitude.

<table>
<thead>
<tr>
<th>Ambient Operating Temperature</th>
<th>Required Air Flow</th>
<th>Altitude (m)</th>
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</thead>
<tbody>
<tr>
<td>Maximum Operating Conditions</td>
<td></td>
<td></td>
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<tr>
<td>00 – 40 °C</td>
<td>100 LFM</td>
<td>3048</td>
</tr>
<tr>
<td>40 – 49 °C</td>
<td>200 LFM</td>
<td>3048</td>
</tr>
<tr>
<td>50 – 55 °C</td>
<td>300 LFM</td>
<td>3048</td>
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</table>

When installing your high-performance Celerity HBA, the following guidelines should be followed to ensure proper performance and reliability:

- Check with your workstation, server, or storage chassis manufacturer to ensure that you have identified and installed the proper cooling kit recommended for high-performance add-in cards.
- Activate the system configuration’s intelligent fan speed control and thermal management technology through the BIOS. If additional cooling is required, increase the fan speed until adequate airflow is provided.
- Install the adapter to maximize the space available between existing cards, positioning for the greatest air flow across the Celerity HBA.

Please Note: In the event of insufficient air flow, the adapter may reach its thermal threshold, at which time it will shut down for adapter protection.
Power Design:

Designed in accordance with the industry PCIe specification, the 164EN version of ATTO’s Celerity 16Gb/s HBA family requires more than the 25 watts that a standard x8 PCIe bus supplies, and therefore must be installed with an external power extension cable as shown in Figure 1.

In order to prevent a current overload condition on the PCIe bus, the Celerity HBA will verify that the PCIe power extension cable is attached. In the event that the cable is not properly installed, the card will be placed in RESET mode and the LEDs will display a blink pattern, notifying the user that the card has been disabled and anything connected to it will be inaccessible.

Conclusion:

The ATTO Celerity 16Gb/s Quad-Channel HBA is designed to deliver the highest bandwidth and port density, providing original equipment manufacturers and system integrators with an unprecedented solution when designing state-of-the-art storage infrastructures.

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