

**GEODE** Quick-Ship Easy-Expansion Rugged Systems



**COM**  **Express**®  **PCIe104**

FEATURES

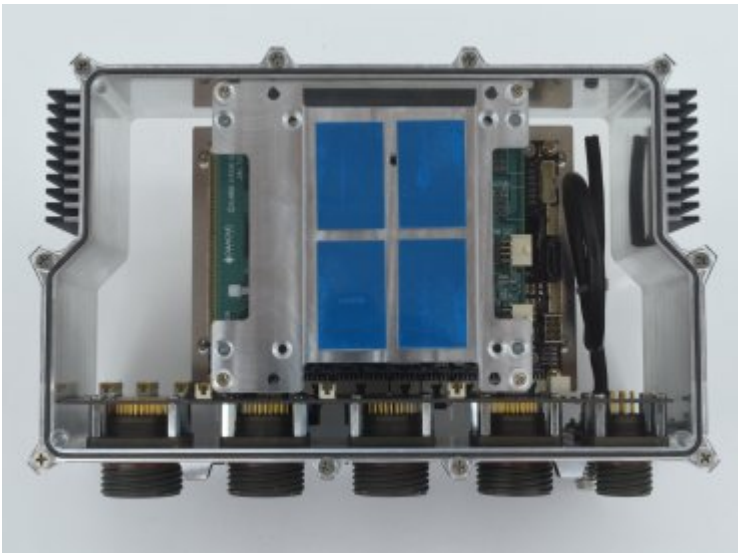


**Internal view showing JASPER COM Express carrier with expansion sockets direct-connected**

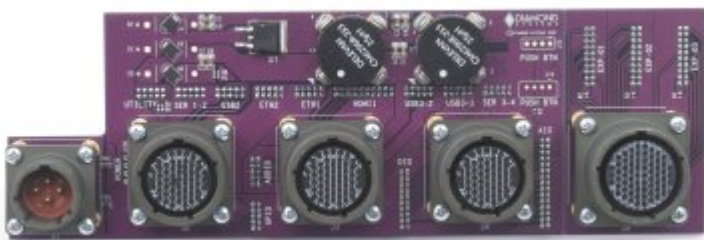
to panel I/O board



**Top view showing COM Express module**



**Bottom view showing optional conduction cooled MIL-grade power supply with filtering**

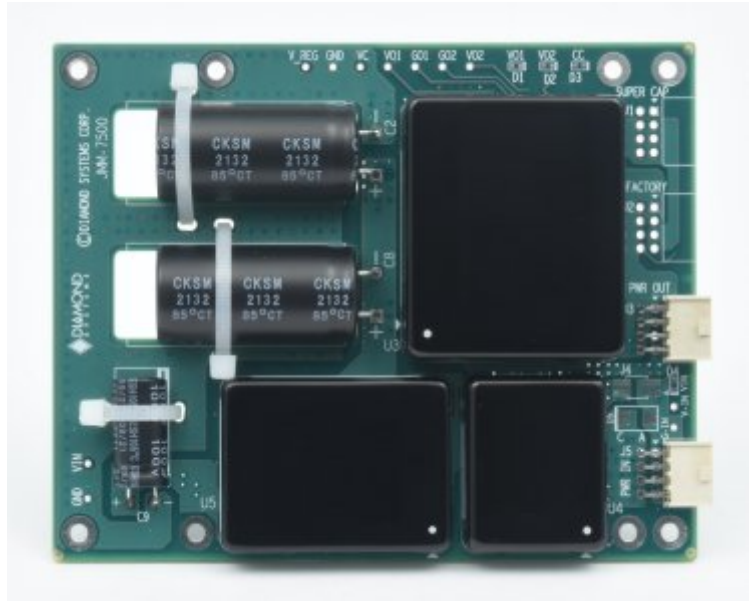


**Panel I/O board eliminates most cables**

GEODE offers easy customization and quick availability for rugged computers due to its novel architecture that includes pre-integrated expansion connectors for easy addition of I/O, plus the use of COM Express modules to support flexible CPU choices. With GEODE you can add up to 3 I/O boards in the system without requiring any change to the enclosure or cabling. The elimination of custom enclosure and cabling design effort dramatically reduces up-front costs and delivery times, and the resulting use of common components across multiple product configurations helps keep production costs down and facilitates the production of small quantities for pilot or small-run programs.

A MIL-grade power supply with MIL-STD-461, -704, and -1275 compatibility and wide input range is available with both isolated and non-isolated configurations. For cost and weight reduction, a MIL-STD-461 filter circuit can be built right into the connector board, eliminating the separate power supply. Both the processor and power supply are direct-coupled to the enclosure for efficient conduction cooling.

A MIL-grade power supply with MIL-STD-461, -704, and -1275 compatibility and wide input range is available with both isolated and non-isolated configurations. For cost and weight reduction, a MIL-STD-461 filter circuit can be built right into the connector board, eliminating the separate power supply. Both the processor and power supply are direct-coupled to the enclosure for efficient conduction cooling.

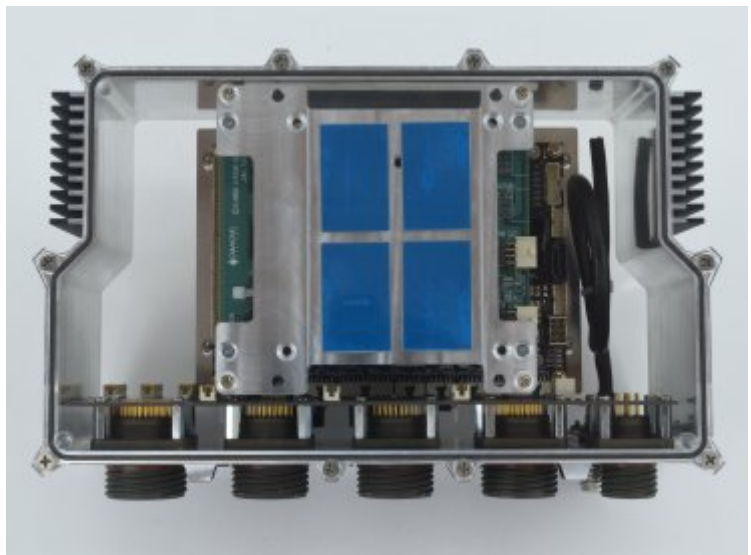


The COM is thermally coupled to the top surface of the enclosure (heat spreader removed for illustration purposes)



**The COM is thermally coupled to the top surface of the enclosure (heat spreader removed for illustration purposes)**

The filtered power supply is thermally coupled to the bottom surface of the enclosure.

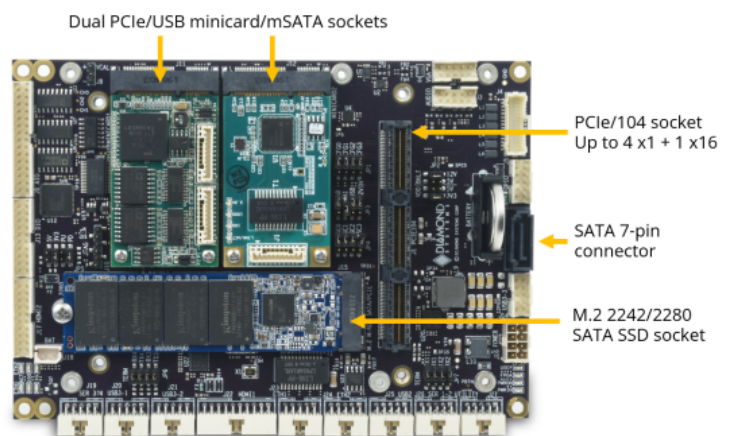


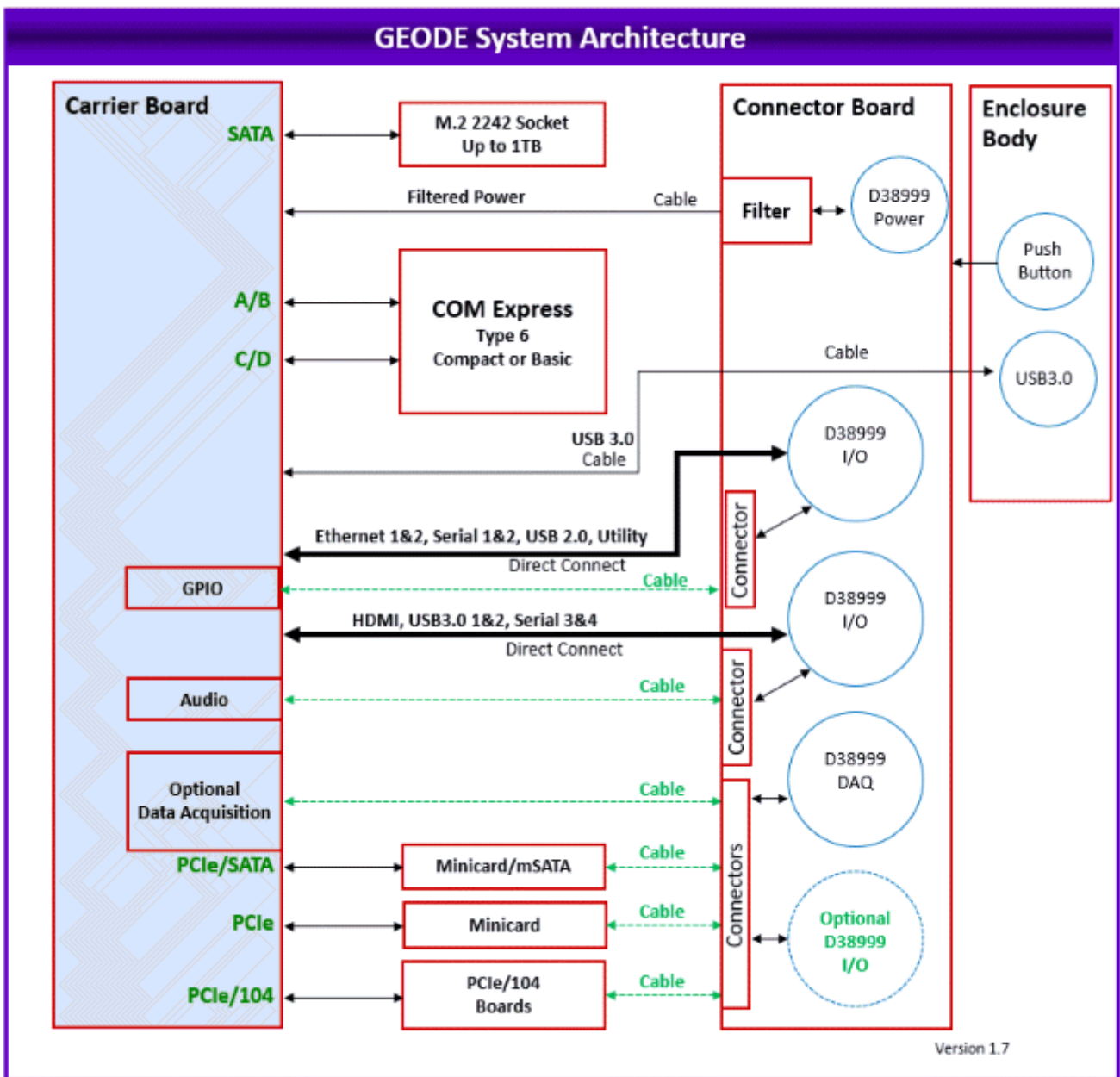
The filtered power supply is thermally coupled to the bottom surface of the enclosure.

The entire system is housed in a rugged 3-part enclosure that eliminates all T joints and includes seals at all joints to ensure IP67 compliance.



GEODE is based on Diamond's **JASPER** COM Express carrier board featuring a high level of I/O as well as multiple sockets for I/O expansion. The optional integrated data acquisition circuit provides high-accuracy analog I/O with autocalibration and programming library support. Dual minicard sockets and a PCIe/104 socket with PCIe x1 and x16 links (depending on the installed COM) enable feature upgrade with the widest range of I/O modules, from low-cost minicards up to high-performance graphics and 10Gb Ethernet, all without modifying the case or cables.





### ◆ Mass Storage and I/O Expansion

Mass storage is provided by an M.2 2242/2280 size solid-state disk module with capacity up to 2TB. Additional storage can be provided with an add-on drive using the built-in SATA connector.

I/O expansion is readily accomplished with the use of PCIe / USB minicards as well as PCIe/104 I/O modules. The PCIe/104 socket supports up to 4 x1 links and 1 x16 link, depending on the installed COM. A Core i7 or lower performance COM will typically support 3-4 PCIe x1 links. A Xeon or higher COM will typically support the x1 links as well as the x16 link.

Slide Id Jasper callouts not found

### ◆ Direct-Coupled Connector Board Eliminates Cables

Internal cables are a leading cost, leadtime, and size driver for rugged systems, as well as the usually the most failure-prone element in the design. With Geode, most I/O connectors are mounted on a circuit board that plugs directly into the main computer board and eliminates most internal cables. This design reduces cost, reduces failure, reduces size, increases ruggedness, and simplifies assembly. Attachment points are provided for optional dust caps for all connectors. The rightmost connector is on a breakaway portion of the circuit board and can be removed to support smaller systems that have lesser I/O requirements.



One front panel I/O connector is reserved for cable connection to allow flexibility and support high speed interfaces such as USB 3.0, high speed graphics, and 10G Ethernet. The default system configuration provides USB 3.0 in this position.



### ◆ How to Order

Geode Systems are configured to order based on customer I/O requirements. Depending on your I/O needs and current stock levels, a Geode system can be configured and shipped in as little as one week. **Contact Diamond Systems Sales** to discuss your system requirements and obtain a quote.

[sales@diamondsystems.com](mailto:sales@diamondsystems.com)

The Jasper standard enclosure and panel board can satisfy a preponderance of typical rugged system requirements. The design can also be customized for special situations, for example to change the size or type of the I/O connectors or to install SMA connectors for antenna attachment.

