

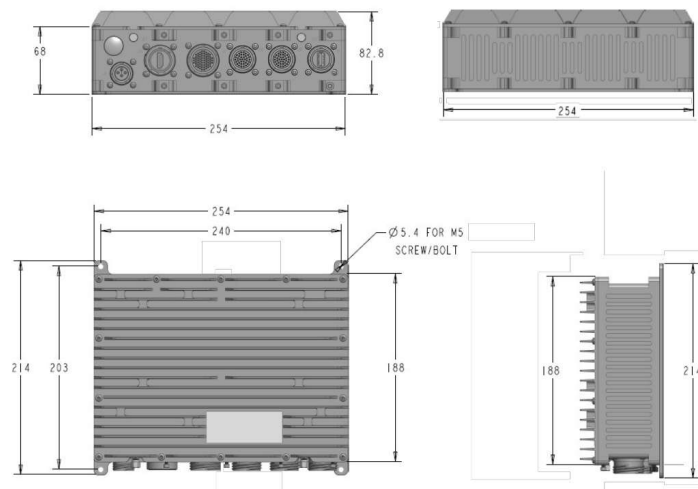
SABRECOM-JSP Rugged x86-Based Computers
with Easy Customization



FEATURES

- Intel Core i7 or Xeon 11th or 13th gen processor
- 32-64GB RAM with ECC option
- 128GB-2TB integrated solid state flashdisk
- Choice of Linux or Windows 64-bit OS
- 2 1Gbps Ethernet, 1-3 USB 3.0, 2 USB 2.0
- 4 RS-232/422/485, audio I/O
- 1 HDMI on dedicated connector
- Optional 16-channel 16-bit A/D with autocalibration
- Optional 4-channel 16-bit D/A with autocalibration
- Optional 22 GPIO
- 3 front panel expansion connectors support easy customization with additional I/O
- I/O expansion with PCIe minicards and PCIe/104 boards
- Choice of MIL-STD-461 filter or isolated power supply with MIL-STD-461/704/1275 filtering

Short case



Rugged enclosure with verified IP67 rating

MIL-DTL-38999 connectors for extreme ruggedness

Designed to meet MIL-STD-810H shock and vibration requirements

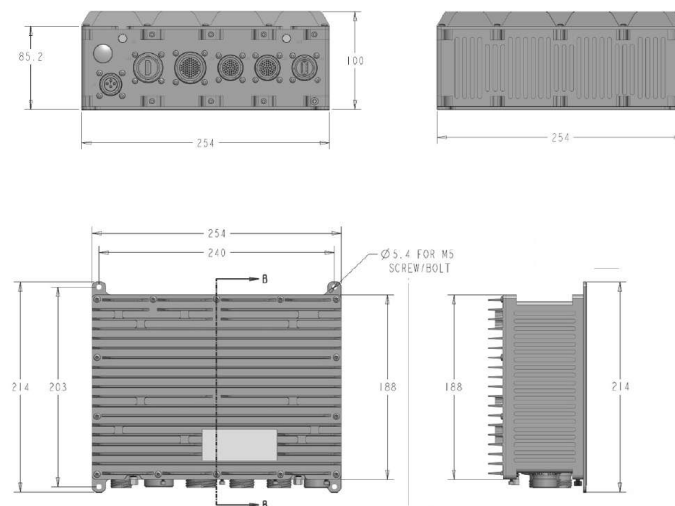
Internal electronics qualified to MIL-STD-202H shock and vibration requirements

10-60VDC input range

-40 to +80C operating temperature

Dimensions: 10.0"W x 7.4"D x 3.0"H / 254mmW x 188mmD x 77mmH

Tall case



SabreCom-JSP is Diamond's new rugged platform for applications requiring custom I/O. Three connector positions are provided to support standard I/O options as well as

customer-specific I/O. High-speed interfaces such as HDMI and USB 3.0 are supported via dedicated connectors. I/O expansion can be provided by a combination of PCIe/104 and PCIe minicard I/O modules.

The system is based on Diamond's Jasper SBC which utilizes a COM Express CPU core. This design yields several important benefits. The system can be configured for a wide range of performance and power consumption levels by choosing from a variety of prequalified COMs. If the currently chosen COM reaches end of life, the program's lifetime can be easily extended by selecting a newer one, avoiding the cost and risk associated with purchasing obsolete / EOL products or designing a new system that is backward compatible.

Generation	Type	Processor	PassMark* (approx.)	Max RAM
11 - Tiger Lake	Core i7	1185GRE	7,800	32GB
13 - Raptor Lake	Core i7	1365URE	10,900	64GB
13 - Raptor Lake	Core i7	1370PRE	20,300	64GB
13 - Raptor Lake	Core i5	120U	14,900	64GB
11 - Tiger Lake	Xeon	11865MRE	19,600	64GB / ECC 32GB

PassMark ratings are as reported by PassMark.com and are provided for comparison purposes only.

SabreCom-JSP contains a suite of features making it ideal for the most demanding military and rugged applications. Diamond's **rugged DC/DC power supply** with MIL-STD-461/704/1275 compliance provides up to 80 watts of isolated power for internal electronics, providing ample capacity for almost any I/O configuration. Rugged D38999 or D38999-style connectors are used for all I/O. The rugged enclosure provides IP67 protection with seals at every joint. Both the embedded processor board and the power supply are conduction-cooled with direct mounting to the top and bottom surfaces of the enclosure. The product is built using the same materials, components, and methods of our **Geode** system which has passed MIL-STD-810H testing (see test results [here](#)).

◆ I/O Connector Scheme



B1: Power button

A1, A2: SMA connector locations

SabreCom-JSP contains 6 connectors for power and I/O. The left three connectors J1, J2, and J3 are standard and are used for power input and all standard SBC I/O, including HDMI, gigabit Ethernet, USB 2.0, serial ports, audio, and utility signals. The remaining three connectors J4, J5, and J6 are 38999 D size and are available for standard and/or custom I/O.

The SBC used in SabreCom-JSP can be provided with a built-in data acquisition circuit. When this configuration is selected, J4 is used for analog I/O and J5 for digital I/O, leaving J6 free for a USB 3.0 connector or customer-selected I/O. The three expansion I/O connectors can however be used in a mix-and-match method to support any combination of connectors that fit in the front panel cutouts. Available combinations are shown in the photos below.



- 3 38999-D
- 2 DAQ + 1 38999-D
- 1 DAQ + 2 38999-D



2 USB 3.0 + 1 38999-D

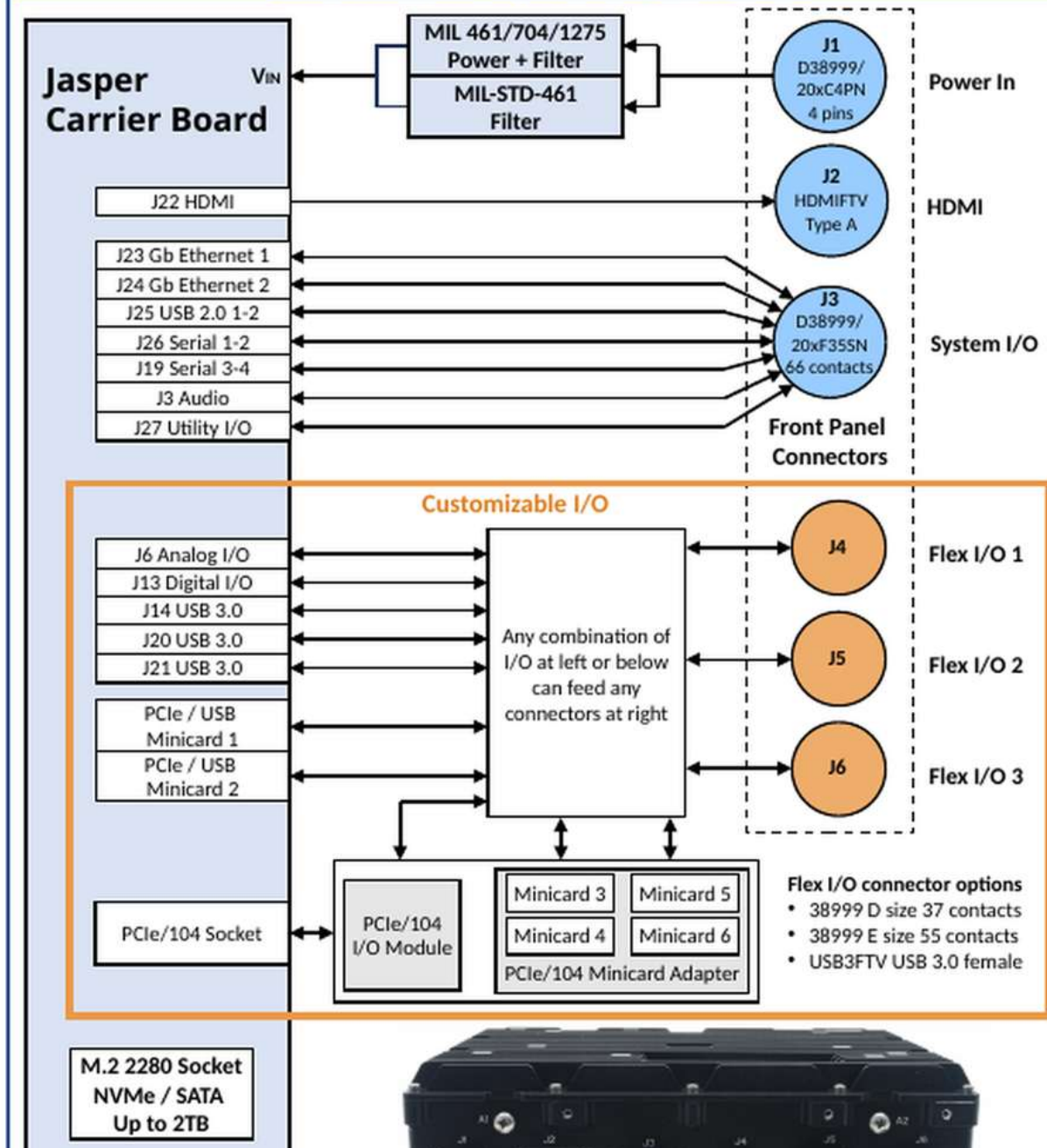


- 1 USB 3.0 + 2 38999-D
- 2 DAQ + 1 USB 3.0



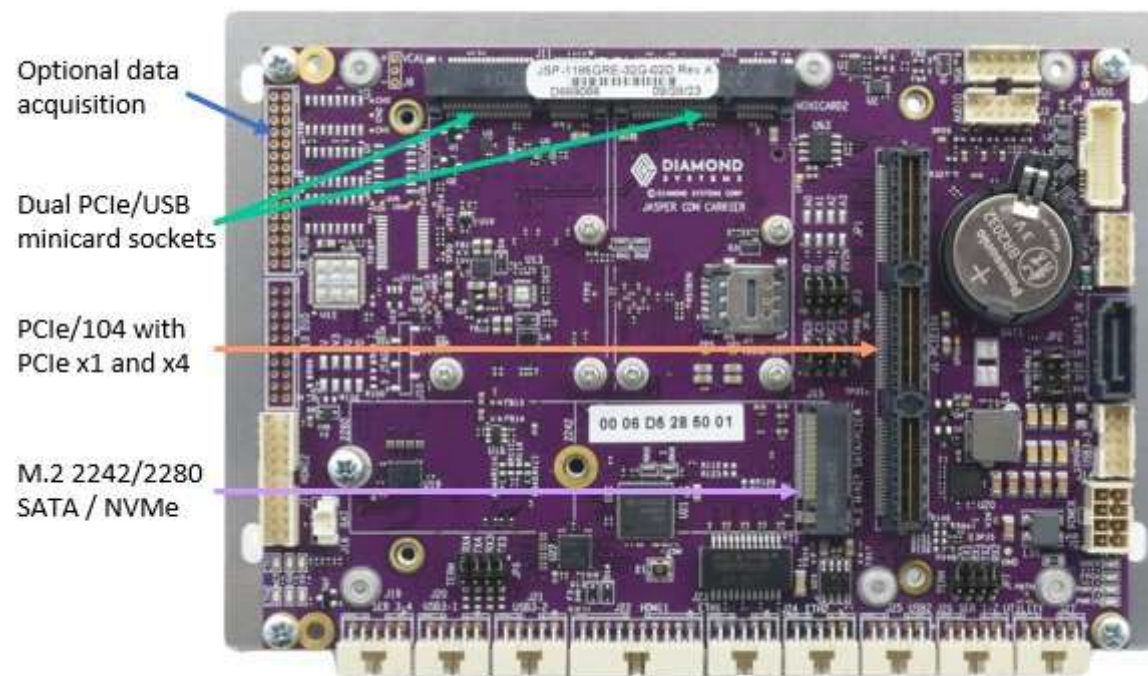
3 USB 3.0

SabreCom-JSP System Architecture





◆ I/O Expansion and Mass Storage



I/O expansion can be realized via installed PCIe/104 and PCIe / USB minicard expansion modules. A maximum of 2 minicards + 1 PCIe/104 module, or 6 minicards, can be accommodated. Both Diamond I/O boards and third-party I/O boards can be used.

The standard height enclosure supports up to 2 minicards. Adding more than 2 minicards, or any PCIe104 module, requires the use of the taller enclosure to support the additional

boards. connector cutouts. Custom front panel designs can also be provided if different size or style connectors are needed.

Common I/O expansion types available include (quantities shown are per installed I/O card):

- Serial ports: 4 RS-232/422/485 ports with optional isolation per minicard, or 8 ports via PCIe/104 module
- CAN: single, dual, and quad isolated CAN via minicard
- Ethernet: one 1GbE or 2.5GbE port via minicard
- USB 3.0: The Jasper SBC used in SabreCom-4 contains 3 USB 3.0 ports. Any or all of them can be brought out to the front panel as needed.
- MIL-STD-1553: dual redundant ports available via minicard
- Digital I/O: up to 36 I/O via minicard or 22 GPIO via optional integrated DAQ circuit on Jasper SBC
- Analog I/O: 8 16-bit inputs and 4 16-bit outputs, along with 16 GPIO, per minicard, or 16 16-bit inputs and 4 16-bit outputs via optional integrated DAQ circuit on Jasper SBC

Mass storage is provided via an M.2 M-Key SSD up to 2TB in capacity. Both NVMe and SATA interfaces can be supported, depending on the selected COM. All standard configurations utilize M.2 SATA SSDs.

Ordering Information

Use the ordering guide below to configure your system. Submit the part number and other details to our sales team to obtain your quote. Systems with custom I/O will generally require a nominal NRE charge for design of the cabling, creation of a suitable test procedure, and related documentation. Due to commonality among customer requests, occasionally we may have previously defined systems with similar configurations that can meet your needs without incurring any NRE charge.

Ordering No.: **SCM-JSP-A-B-C-D-E-F-G-H**

Select one option each from A-H below.
* denotes the most common option.

A Processor and RAM

* i7-1185GRE 32G	1185-32
i7-1365URE 32G	1365-32
i7-1365URE 64G	1365-64
i7-1370PRE 32G	1370-32
i7-1370PRE 64G	1370-64
i5-120U 32G	120U-32
i5-120U 64G	120U-64
i7-11865MRE 32G ECC	11865-32E
i7-11865MRE 64G	11865-64

B Jasper Baseboard

* JSP-BB02D without DAQ	D
JSP-BB03A with DAQ (SEE NOTE)	A

C I/O Connector Layout

3 USB 3.0	U3
* 2 USB 3.0 + 1 38999	U2D
1 USB 3.0 + 2 38999	UD2
3 38999	D3
2 DAQ + 1 38999	AD1
1 DAQ + 2 38999	AD2
2 DAQ + 1 USB 3.0	AU

H Connector Caps

* Plastic protective caps	(Blank)
Metal sealing caps	C

G I/O Expansion (Features are in addition to standard I/O)

* No additional I/O	00
Data Acquisition (16 A/D, 4 D/A, 22GPIO)	01
Custom I/O (XX determined by Diamond Systems)	XX

F Operating System (Options may depend on processor)

* Linux 64-bit	LNx
Windows 10 64-bit	W10
Windows 11 64-bit	W11

E Flashdisk (Contains operating system)

* 1TB	1
2TB	2
512GB	5
128GB	8

D Power Supply

* MIL isolated power, 10-60VDC	J
MIL-STD-461 filter, 12V or 18-34VDC	F
Direct input, 12V or 18-34VDC	X

Example: **SCM-JSP-1185-32-AAUJ1-LNX-01C**

SabreCom-JSP Rugged System, 1185GRE CPU, 32GB RAM, Data Acquisition, 1 USB 3.0, MIL Iso Power, 1TB SSD, Linux, Sealing Caps

NOTE: If A is selected, then:

C must be AD1, AD2, or AU

G must be 01 or XX

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