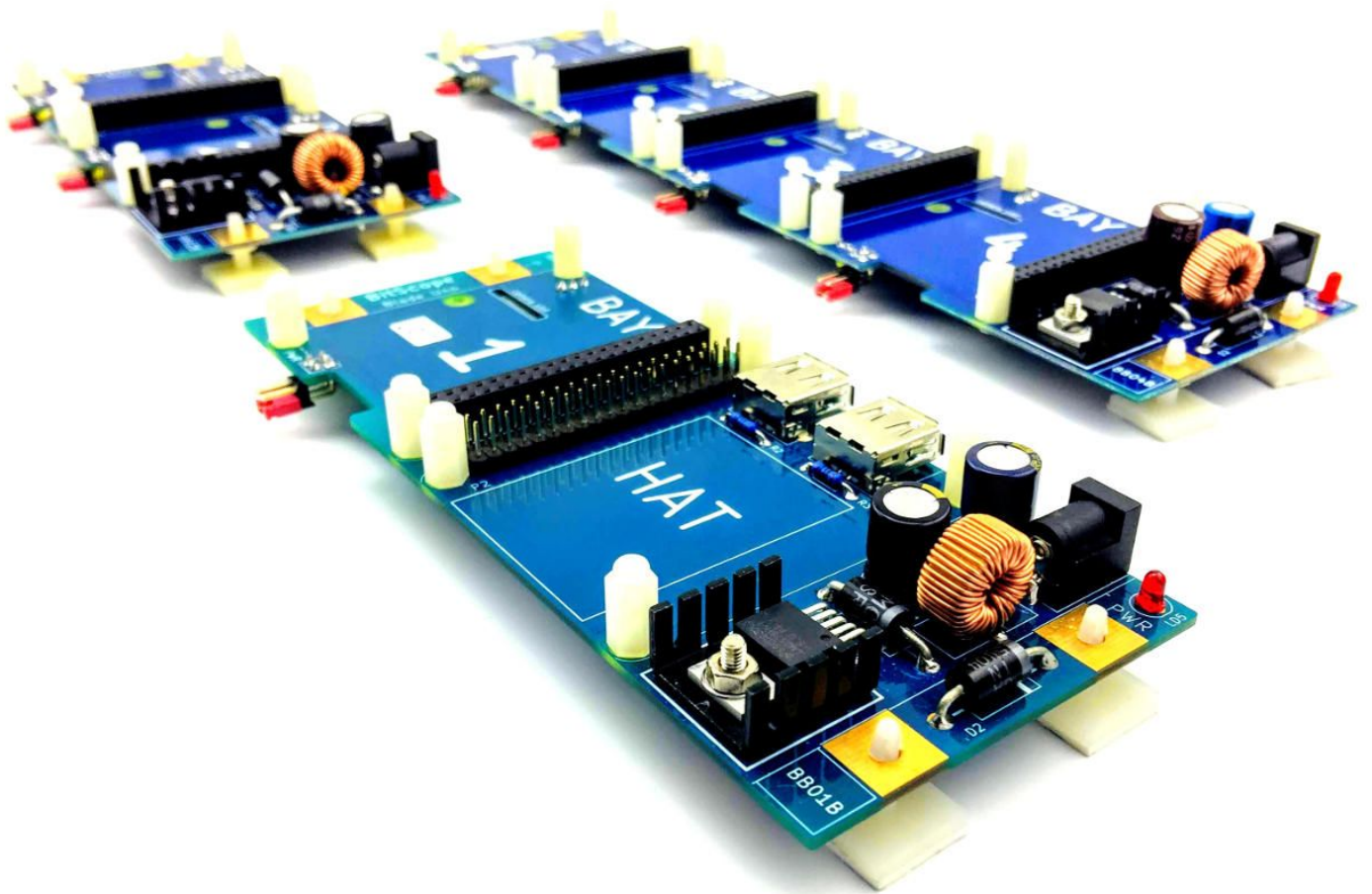


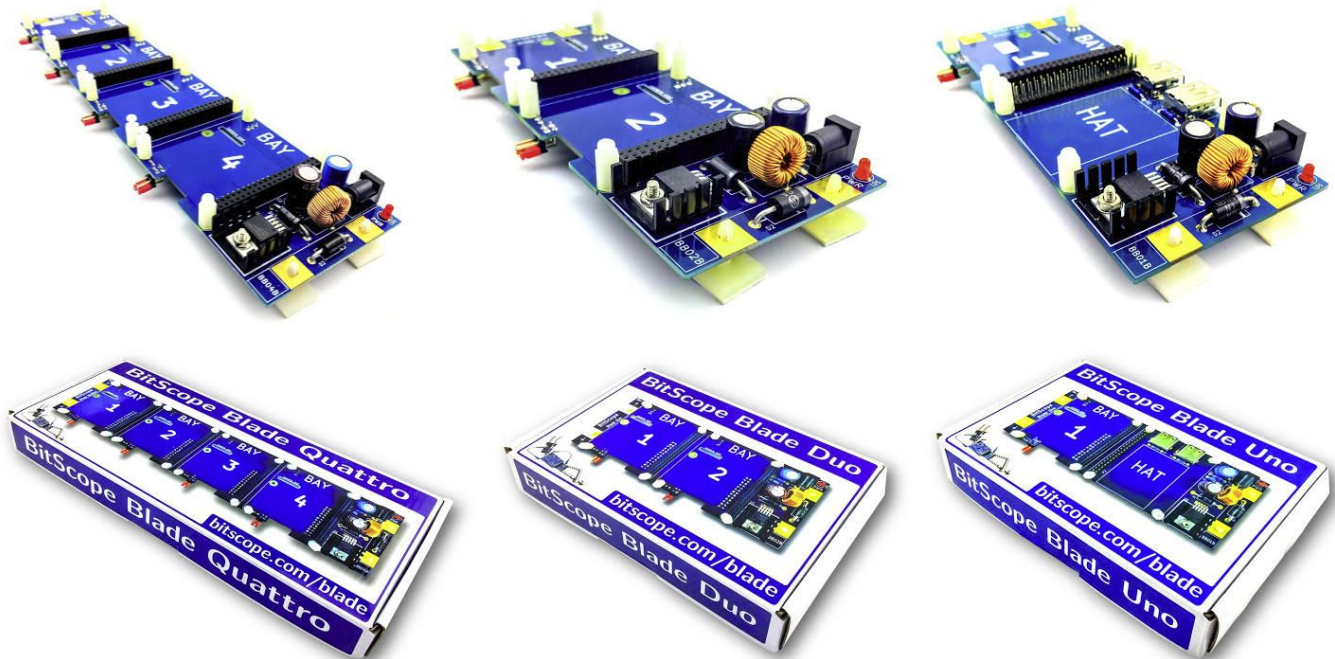
BitScope

Blade



Industrial Deployment Solutions for Raspberry Pi.

Overview >



BitScope Blade is a robust and flexible power and mounting system for Raspberry Pi.

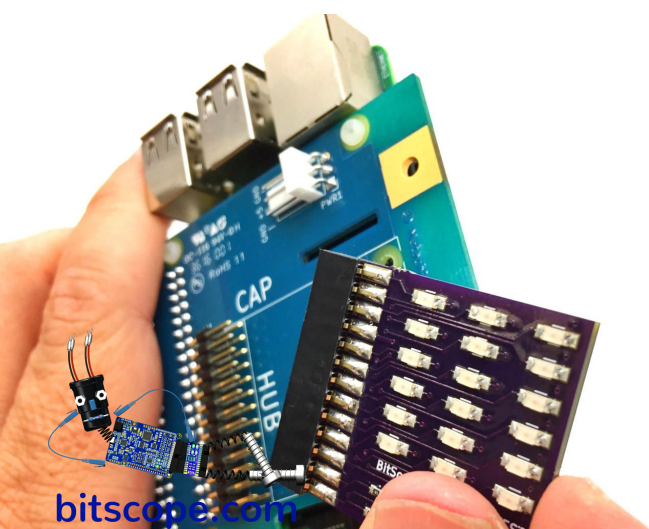
It simplifies industrial deployment with a range of mounting options from open frame with M3 mounting tabs, desktop and wall mounting to 19" racks, cluster packs and modules.

Blade accepts DC power input from 12V to 48V via a power socket or the mounting tabs. Local 5V regulation ensures the Raspberry Pi and expansion cards are powered reliably and auxiliary connectors are available to power external devices such as cooling fans.

The USB and Ethernet ports are accessible at the rear, Micro SD cards at the front and one HDMI port at the edge for connection of a monitor to the adjacent Raspberry Pi. An expansion bus supports hub cards connected underneath for I2C, SPI, GPIO and serial I/O.

There are three products in the Blade range, **Uno**, **Duo** and **Quattro**, for mounting one, two or four Raspberry Pi. Blade Uno also supports HATs and has two USB sockets to power external devices.

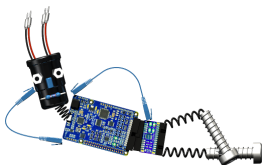
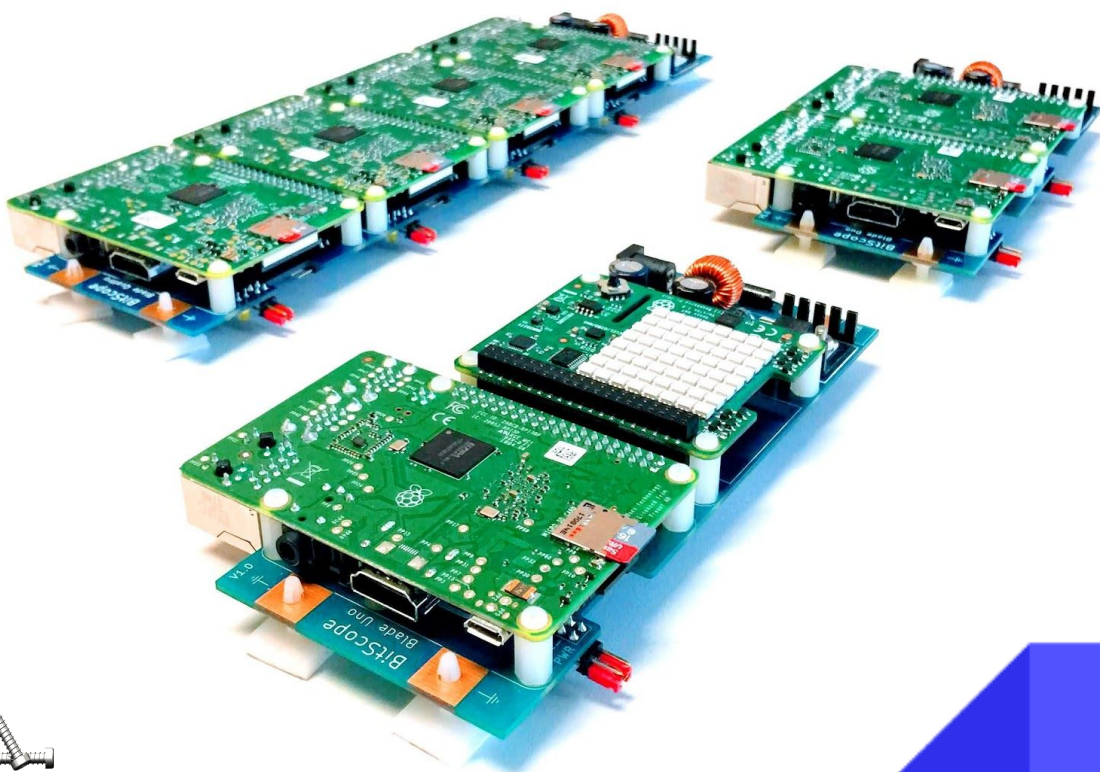
BitScope Blade makes it easy to build highly scalable Industrial IoT, Edge and Cluster compute applications with Raspberry Pi; from a small custom IoT module with BitScope HAT, to full a size Raspberry Pi Cluster.



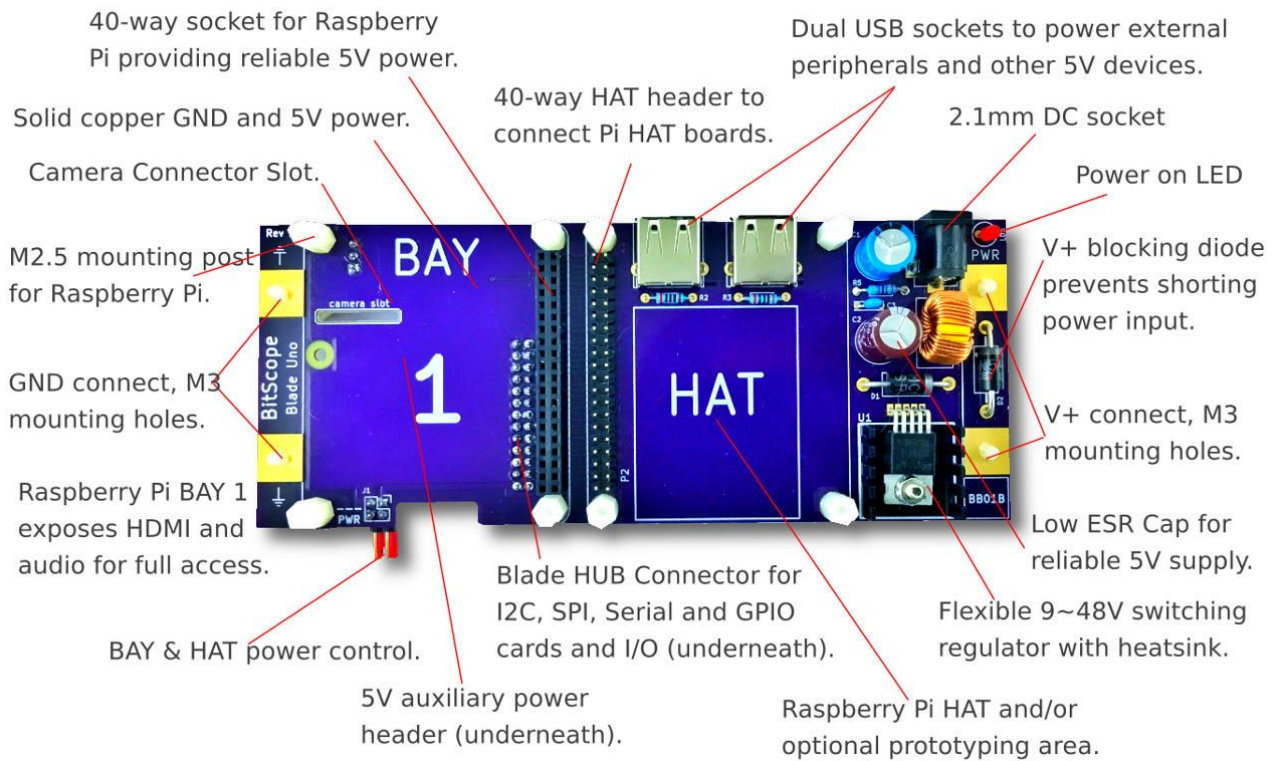
Features >

BitScope Blade offers the following features and capabilities:

1. Supports **Raspberry Pi A+, B+, 2B, 3B, 3B+, 4B** and **Zero W**.
2. Accepts DC power from **12V to 48V DC** (up to 20W).
3. Connect power via **2.1mm/2.5mm** or **Power Tabs**.
4. Supports **Passive PoE** with (optional) injector cables.
5. **Regulated 5V power** for attached devices (such as fans).
6. Can power **external USB devices** such as SSD and HDD.
7. Individual **power** and **interrupt** control for each Raspberry Pi.
8. Accessible **USB** and **Network** ports and one **HDMI** port.
9. Blade **HUB expansion** bus and **HAT Support** (Blade Uno).
10. Supports **Pack, Rack** and **Cluster Module** solutions.
11. Compatible with **BitScope Control Planes** (for clusters).



Industrial Computing >



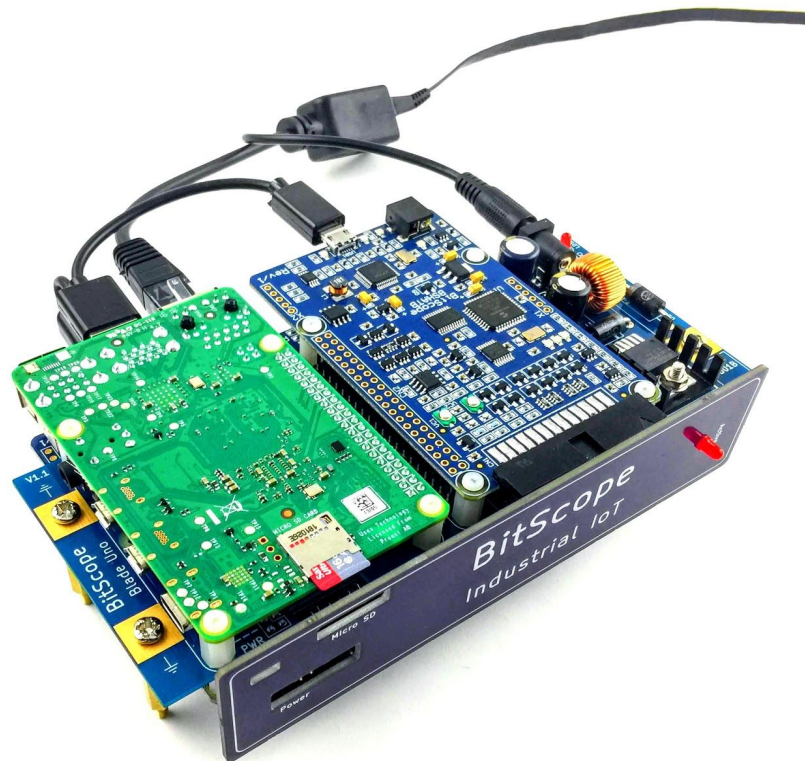
BitScope Blade Uno (shown here) is representative. All Blades have Raspberry Pi BAYs.

Each BAY hosts one Raspberry Pi. Duo supports two and Quattro, four. The BAYs also include a HUB bus and AUX power (underneath). A header and associated LED controls BAY power for each Raspberry Pi.

The standard kit includes stand-offs and mounting tabs and screws to enable Blade to be used as is.

Blade Uno is ideal for stand-alone IoT applications combined with BitScope or third party HAT solutions. Passive PoE solutions enable power cable free operation.

Blade Duo and Quattro are designed for cluster pack and rack based solutions to clusters that scale from 2 to 1000 or more nodes. Mix and match Uno and Duo in one installation.



Small Racks >

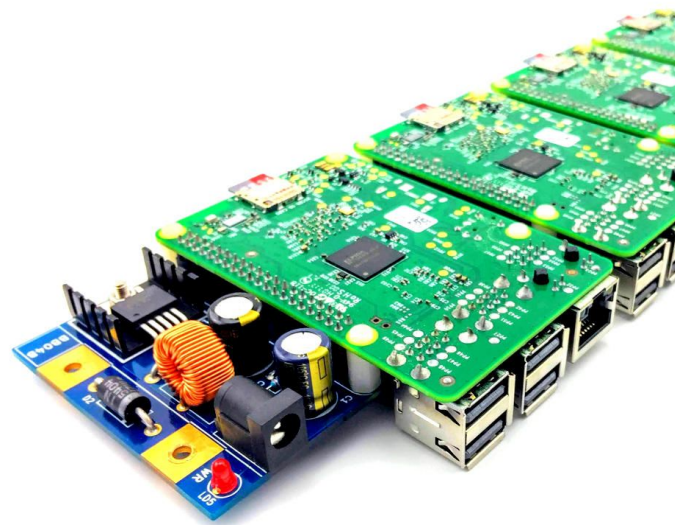
BitScope Blade Racks built with multiple Raspberry Pi and networking are available.



The 1RU **Blade Rack Four** integrates one Blade Quattro and a 5-port GBit network switch internally mounted. The perspex front panel allows WiFi and Bluetooth radios to be accessed externally.

The BitScope Blade and an internal switch are included. The Raspberry Pi are sold separately. Power supplies from 12V to 48V with sufficient power rating are compatible. Raspberry Pi 3B requires up to 7W and 3B+ requires up to 10W per node. Passive PoE cables may be used to power the Blade boards and network switch.

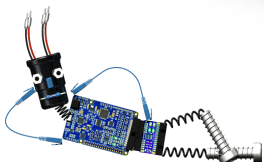
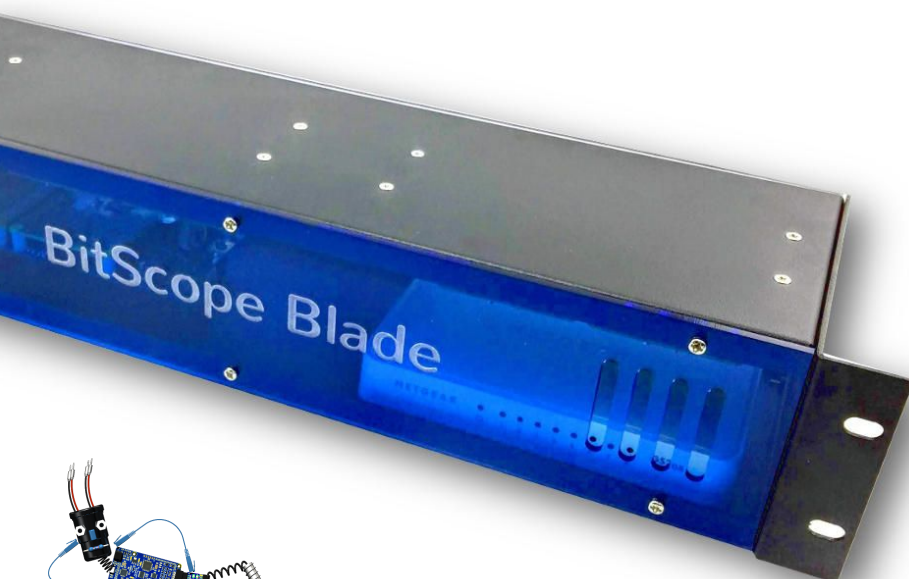
For more demanding workloads or more Raspberry Pi nodes, the 2RU **Blade Rack Six** is also available.



Built with 3 x Blade Duo and an 8-port network switch Six the ideal solution to build small clusters with Raspberry Pi 3B+.

A range of other configurations are available upon request.

All are built with Blade.



Cluster Packs >

For larger installations using many more Raspberry Pi, **Cluster Packs** can be used.

Cluster Packs consolidate up to five BitScope Blade to offer a compact and convenient way to power and mount a large number Raspberry Pi.

When used with Blade Uno, each Cluster Pack supports up to five Raspberry Pi and five HAT devices.



When used with Blade Duo, up to 10 Raspberry Pi can be supported and with Blade Quattro, up to 20 Raspberry Pi.

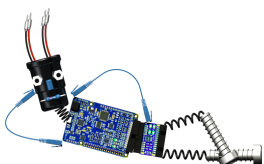
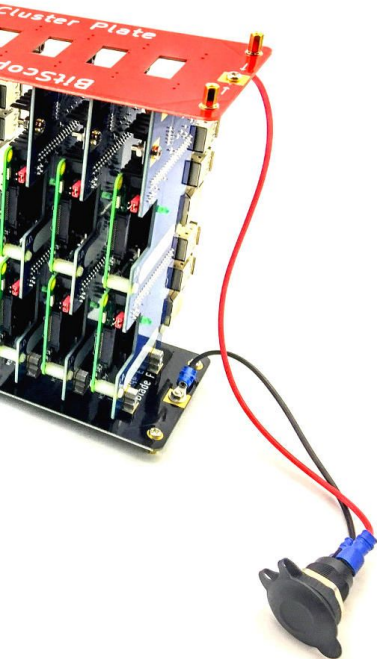
It's also possible to mix and match Blade Uno and Blade Duo in a single Cluster Pack. Cluster Packs are built with **Cluster Plates**.

Cluster Plates are available separately or bundled are part of a Cluster Pack.

They include the nuts, bolts, mounting tabs and power wiring required to connect a power source.

Cluster Plates distribute power to all Blade boards in the pack eliminating the need to individual power wiring for each Blade.

Mechanical specifications are available to enable mounting in custom metalwork and for larger applications, cluster plates are available that support 60 Raspberry Pi in one pack.



Large Racks >

Large Blade Racks are built using one or two Cluster Packs.

Blade Racks are available in sizes supporting up to 40 Raspberry Pi in a single rack.

They work with Raspberry Pi 2B, 3B and 3B+ subject to the power budget and the power supply used.

One Blade Rack comprise two Cluster Pack 10 (Blade Rack 20) or two Cluster Pack 20 (Blade Rack 40).

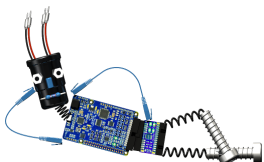
Like the smaller racks, these models are compatible with standard 19" racks.



Racks have removable perspex front panels for operational visibility and WiFi accessibility. They also allow access to Micro SD cards. Four cooling fans, powered by the Blade boards, are mounted at the rear of rack to ensure airflow.

All Raspberry Pi USB and LAN ports are accessible at the rear and the HDMI ports of each Raspberry Pi in Blade Bay 1 are available at the base of the rack unit.

Power is connected via single or dual power bus (depending on configuration) for use with a single or a pair of power DC supplies. Any power supply that meets the power load of the rack and provides 12V to 48V will work. It does not even need to be a regulated power source. For example, typical power supplies used for 24V LED lighting are ideal.



Cluster Modules >

BitScope **Cluster Modules** are a turn-key compute cluster solutions for Raspberry Pi. They comprise Blade Duo and Quattro in large Cluster Packs mounted in 19" rack units.



Available in 48, 96 and 144 node sizes, they use the same power and mounting solution as the Large Blade Racks but they also include an integrated network fabric with up to 60Gb/s external bandwidth, built-in power supplies and rack stackable cooling systems.

Each module includes a Cluster Control Plane for out-of-band remote power control.

Whether it's a single Raspberry Pi and HAT for Industrial IoT or a 3000 core cluster for HPC R&D, BitScope Blade offers the perfect scalable deployment solution.



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