

SupremeJBOF Product Manual

Graid Powered **Smart JBOF** — GPU-Accelerated Storage Designed for DGX Spark or like AI Workloads

October 1, 2026 | Based on V1.1

CHAPTER 1: INTRODUCTION

Product Overview

SupremeJBOF combines the GP Spark JBOF (Just a Bunch of Flash) storage device with SupremeRAID™ AEC on a supported NVIDIA GB10-based host running NVIDIA DGX OS. GP Spark is the NVMe-oF storage target; the host running SupremeRAID™ AEC acts as the initiator and provides GPU-accelerated RAID. Together they form the complete storage solution.



GP Spark integrates an RDMA / NVMe-oF hardware offload engine in a compact chassis. The configuration covered here uses a 100GbE connection with four 25 Gb/s NRZ lanes (4 × 25G NRZ) and RoCEv2. RAID processing runs on the host GPU through SupremeRAID™ AEC. Application throughput, IOPS and latency depend on the SSDs, RAID level, host software, workload and test conditions; link speed is not a guaranteed application transfer rate.-

Key Features of SupremeRAID™ AEC

Supported RAID Levels: RAID 0, 1, 5, 6 and 10.

Supported Platforms: Selected NVIDIA GB10-based systems running supported NVIDIA DGX OS releases. Confirm the exact host, OS, kernel, NVIDIA driver and AEC package combination before deployment.

Maximum Physical Drives: SupremeRAID™ AEC supports up to 4 physical drives.

Data Protection: Protection depends on the selected RAID level. RAID 0 provides no redundancy. RAID protection does not replace a backup.

Network Connection: 100GbE / 4 × 25G NRZ, RoCEv2, and NVMe-oF. The four lanes form one 100GbE link, not four independent ports.

AEC License: Perpetual

Product Warranty: 3 years

Key Features of GP Spark

Ready-to-Use JBOF Target: GP Spark provides the storage-device side of the solution out of the box. After installing compatible SSDs and connecting power and networking, a prepared host can discover the target through NVMe-oF. Host network configuration, NIC/RDMA support and NVMe-oF tools are

still required. For the SupremeJBOF RAID solution, install and activate SupremeRAID™ AEC on the supported host and configure RAID using the User Guide.

Four-Drive Storage Expansion: GP Spark provides four M.2 NVMe SSD slots. SupremeRAID™ AEC supports up to four physical drives. Drive form factor, capacity and exact SSD model must match the applicable GP Spark compatibility specifications. RAID usable capacity is lower than raw capacity for redundant RAID levels.

Desktop Storage Performance: A 100GbE NVMe-oF / RoCEv2 connection provides the storage transport. Evaluate actual RAID and application performance using the intended SSDs, host configuration and workload.

Compact Deployment: GP Spark supplies the JBOF target; SupremeRAID™ AEC supplies the host-side initiator and RAID layer. Follow the User Guide quick start to turn the connected hardware into an initialized, mounted RAID volume.

Application Scenarios

- AI training and inference workflows, subject to model size and application integration
- RAG datasets and knowledge-base storage
- KV-cache storage workflows where supported by the application
- High-speed data backup & migration
- 8K video editing & rendering
- Data science (DuckDB / Polars / Dask big data processing)
- Medical imaging dataset storage and processing
- Synthetic data closed-loop generation
- Edge AI deployment (low-altitude economy, smart cities, vehicle-infrastructure coordination)

Technical Specifications

Storage Protocol	NVMe-oF (NVMe over Fabrics)
Network Protocol	100GbE RDMA (RoCE v2)
Max Capacity	Four SSD slots. Raw capacity is the sum of installed SSD capacities; four qualified 8 TB SSDs would provide 32 TB raw capacity. If RAID is configured, the usable storage capacity will vary depending on the selected RAID level and system overhead.
Hardware Architecture	Dedicated ASIC Hardware Offload Engine
GPU Data Access	GPU data-access behavior depends on the supported host, NVIDIA software and application integration. Confirm GPUDirect RDMA and GDS operating mode for the deployed configuration; native GDS or zero-copy application behavior is not guaranteed by the JBOF connection alone.

Performance	100GbE link. Application throughput, IOPS and latency require a benchmark with stated RAID, SSD, host and workload conditions; no unqualified performance guarantee is specified here.
Dimensions & Volume	150mm × 150mm × 35mm (0.81L)
Power Consumption	< 65W
Chassis & Cooling	Unibody aluminum-magnesium alloy chassis with a quiet cooling fan.
Operating Ambient Temperature	0–40°C
Default IP & Port	10.10.10.12/24; NVMe-oF service port 4420. Confirm the unit's configured address.

CHAPTER 2: HARDWARE INSTALLATION

Package Contents

Verify the supplied items against your order and packing list. Optional items may not be included:

- GP Spark Main Unit × 1
- External DC power adapter × 1 (Optional, not included as standard for environmental reasons.),
TypeC 20V/3.25A or more
- TypeC Power cable × 1(Optional)
- QSFP28 DAC high-speed cable (100GbE) × 1; see the cable-specific warranty terms in Chapter 6.
- Screwdriver × 1
- Thermal pads × 5
- SupremeRAID™ AEC license activation code × 1





Step 1: Installing SSDs

1. Ensure GP Spark is powered off and the power cable is unplugged.
2. Remove the bottom-cover screws marked in Figure 2-1, then lift off the bottom cover.

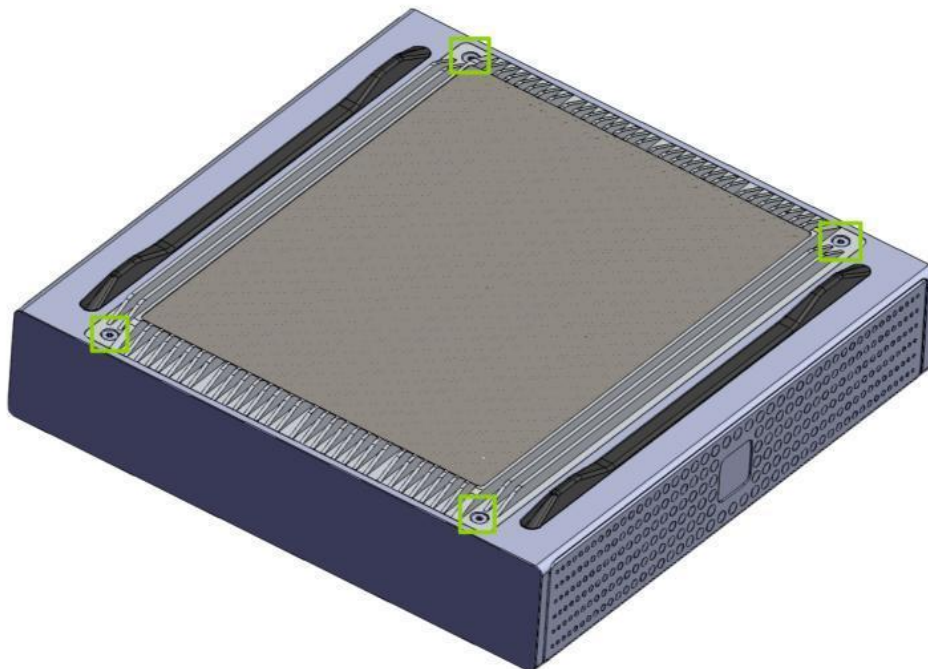


Figure 2-1. Bottom-cover screw locations.

3. Insert each M.2 NVMe SSD (2280 or 22110 form factor) into an M.2 slot, gently press down, and secure it with a screw. Repeat for each additional drive.
4. Apply a thermal pad to each SSD according to the hardware installation instructions.
5. Replace the bottom cover and tighten the screws.

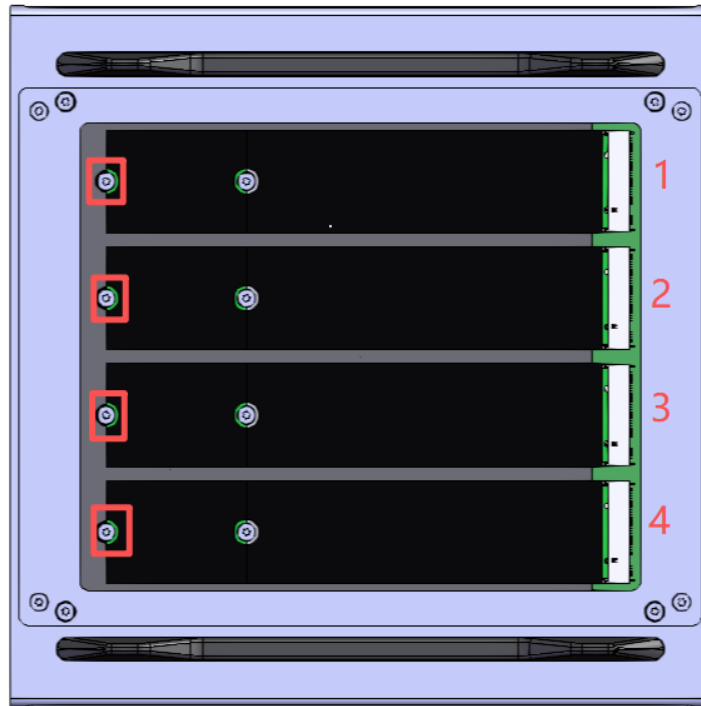


Figure 2-2. M.2 SSD slot positions (1–4).

⚠ ESD Warning: Before installing or removing SSDs, touch a grounded metal object to discharge static electricity and prevent ESD damage to electronic components.

Step 2: Network Connection

- Connect one end of the 100G QSFP28 cable to the GP Spark's 100G QSFP28 port.
- Connect the other end to a compatible host NIC or switch port configured for 100GbE using 4 × 25G NRZ. A nominal port speed alone does not establish signaling compatibility.
- Ensure the cable is firmly seated, with no looseness.

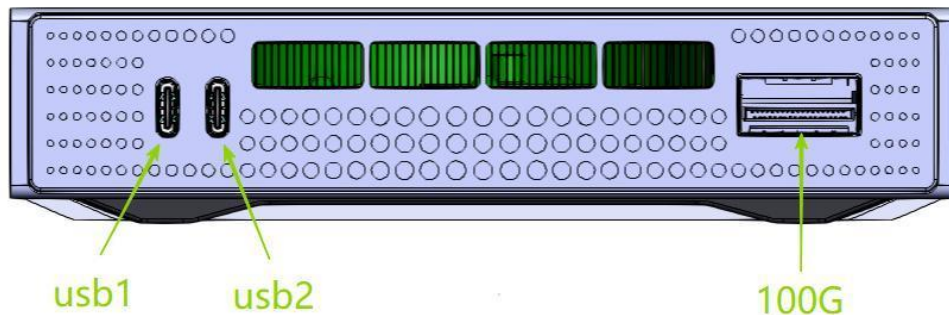


Figure 2-3. Rear interfaces.

Port	Function	Description
usb1	Power input	Connect the approved power adapter.
usb2	Configuration Port	For engineering service and debug
100G	QSFP28 storage data port	Connect a compatible DAC cable or optical transceiver.

Step 3: Power On

- Connect the vendor-approved DC power adapter, checking the required voltage 20V/3.25A or more.
- Connect power and allow the device to complete startup before checking reachability.

CHAPTER 3: SOFTWARE CONFIGURATION

System Requirements

GP Spark connectivity scope only: the following OS list concerns access to the JBOF target. It is not a SupremeRAID™ AEC support matrix; a minimum kernel version alone does not establish integrated-solution support.

- CentOS 7.5 or later
- Ubuntu 18.04 or later
- Rocky Linux 9 or later
- Kylin V10 SP1 or later
- UnionTech UOS
- CS2C Foundry / Loongson OS

SupremeRAID™ AEC scope: only selected NVIDIA GB10-based systems running supported NVIDIA DGX OS releases. Confirm the exact model, OS, kernel, NVIDIA driver, installer and dedicated AEC license with Graid Support. NIC compatibility must include 100GbE / 4 × 25G NRZ and the required RDMA support; do not infer compatibility from a NIC family name alone.

Network Configuration

The default GP Spark target address is 10.10.10.12/24. Configure a different, unused host address in the same subnet, for example 10.10.10.3/24, then test target reachability. Use the unit's actual configured address throughout.

```
ping 10.10.10.12
```

Device Configuration (WebUI)

Use the WebUI to view device status and configure management Wi-Fi, storage networking and software updates. The illustrations below have been translated into English; labels on the device may appear in Chinese. Addresses, temperatures, identifiers and file names shown are examples unless explicitly identified as defaults.

Web Login

1. Power on GP Spark. On a computer or phone, connect to the device Wi-Fi network named GP-Spark-xxxxxxxxx. The factory Wi-Fi password is 12345678.

2. Open <http://192.168.10.1> in a browser. Enter the factory username admin and password 123, then select Log In. Change factory credentials where supported before a non-isolated deployment.

The Wi-Fi/WebUI management address is separate from the default NVMe-oF storage address, 10.10.10.12/24, and NVMe-oF service port 4420.

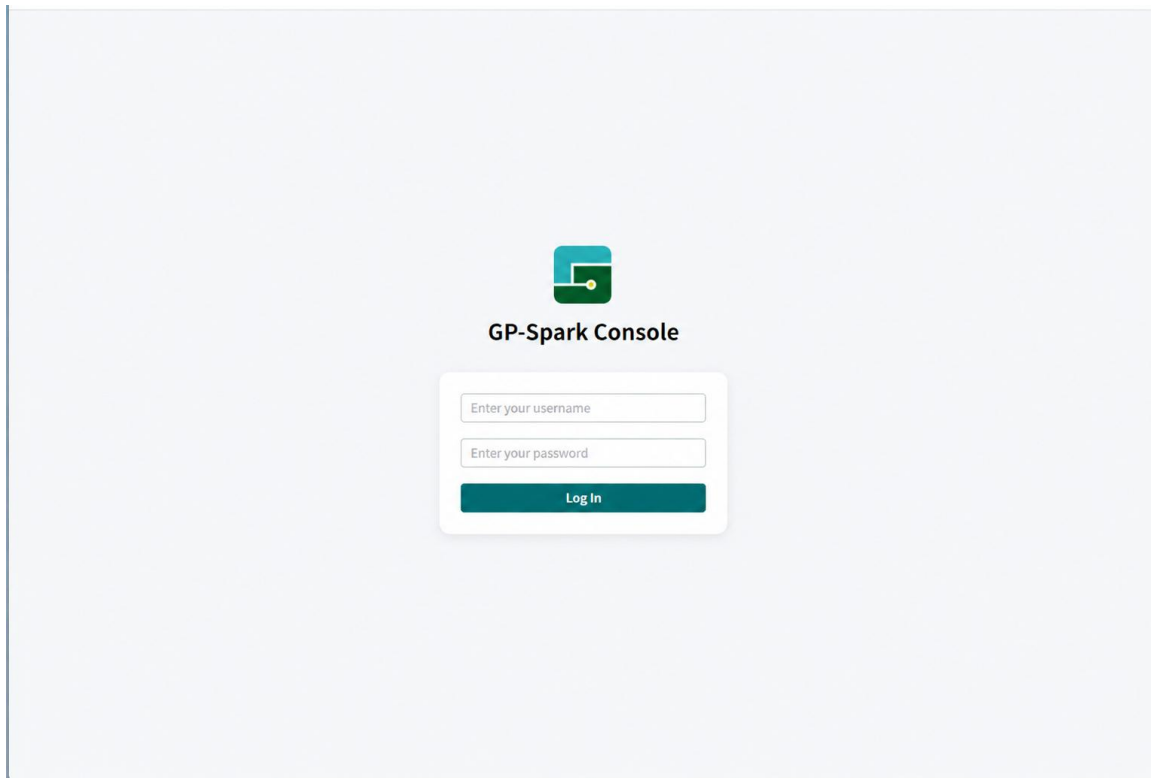


Figure 3-1. WebUI login.

System Overview

The Home page displays uptime, internal temperatures, device power state, SSD information and product information. It also provides Power On, Restart, Power Off and Power Follow controls. Before restarting or powering off a storage device in use, stop I/O and follow the Proper Shutdown Procedure in Chapter 5.

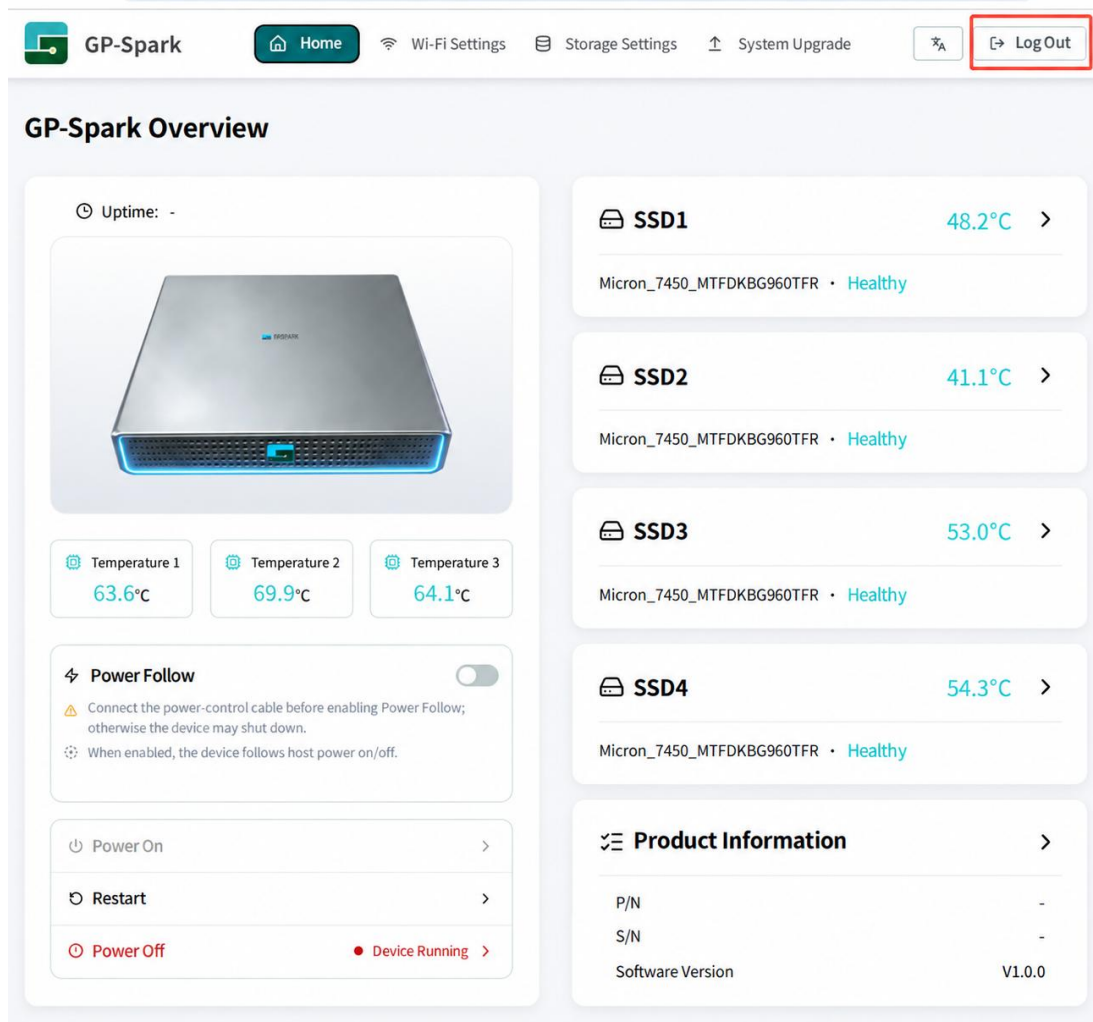


Figure 3-2. Home page and device status.

Device Uptime

Uptime shows how long the device has been running since startup. A dash (–) means that the runtime information could not be retrieved.

Temperature

The temperature fields report internal chip temperatures. A dash (–) means that the temperature could not be retrieved. An alarm-colored value indicates an over-temperature condition; check cooling and follow the overheating guidance in Chapter 5.

Power Follow

Power Follow is disabled by default, allowing manual device power on/off. When enabled, GP Spark follows host power on/off, and manual power on/off is unavailable. Before enabling it, ensure the device power supply is connected and connect the host Type-C power-control cable to GP Spark usb2; otherwise the device may shut down.

Change the Power Follow switch and check the result message. If the current Power Follow configuration cannot be retrieved, the setting cannot be changed.

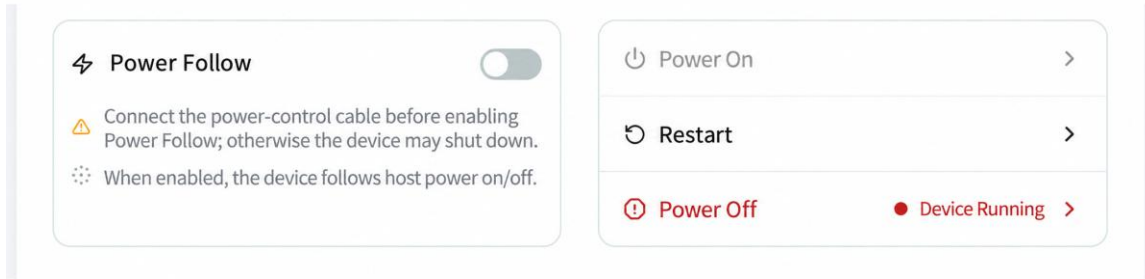


Figure 3-3. Power Follow and power controls.

SSD Information

The SSD cards show drive presence/status, temperature, manufacturer, NQN and serial number (SN). Expand a card to see its details. If SSD information cannot be retrieved, the relevant fields are empty. An over-temperature warning is shown when an SSD becomes too hot.

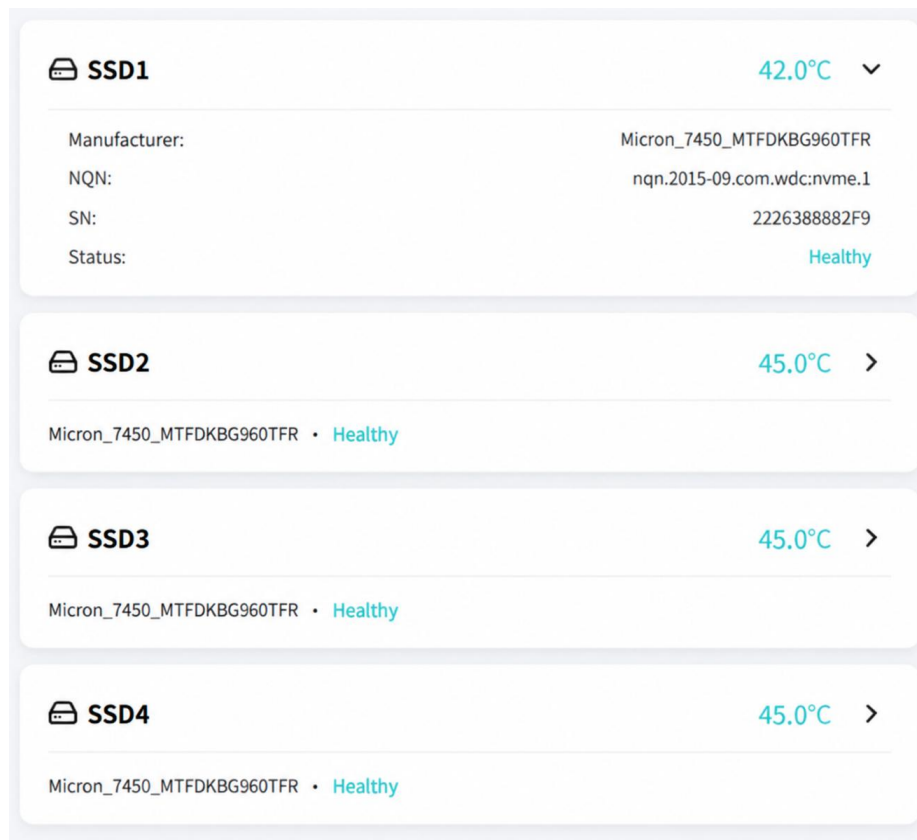
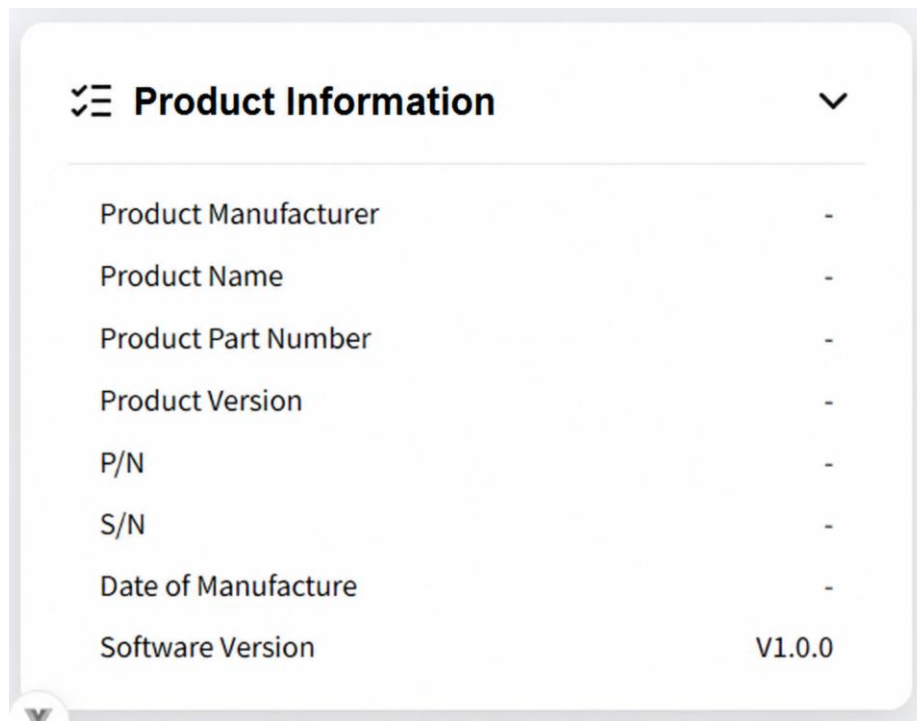


Figure 3-4. Expanded SSD information.

Product Information

Expand Product Information to view the manufacturer, product name, part number, product version, serial number, manufacturing date and software version. Refer to the actual values on your device. A dash (–) means that the information could not be retrieved.



Product Information	
Product Manufacturer	-
Product Name	-
Product Part Number	-
Product Version	-
P/N	-
S/N	-
Date of Manufacture	-
Software Version	V1.0.0

Figure 3-5. Product information.

Wi-Fi Configuration

Configure this page only while connected to GP Spark's own Wi-Fi network and accessing <http://192.168.10.1>. The page displays the Wi-Fi MAC address, connection status and management IP settings. Empty fields indicate that the information has not been retrieved.

GP-Spark Home **Wi-Fi Settings** Storage Settings System Upgrade

Wi-Fi Settings

MAC Address(WIFI):aca7:04:f4:7a:98

Wi-Fi Connection

Connected to Wi-Fi: LSKJ-2.4G

SSID: LSKJ-2.4G

Password:

Submit

IP Configuration

☐ Static ☒ DHCP

IP Address: 192.168.1.133

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

Cancel Submit

Figure 3-6. Wi-Fi connection and DHCP management settings.

Connecting to a Wi-Fi Network

1. Open the SSID list and select the desired Wi-Fi network. The device does not discover 5 GHz Wi-Fi networks; use a compatible 2.4 GHz network.
2. If the network is not listed, select the refresh button or Add an option to enter its SSID manually.
3. Enter the Wi-Fi password and select Submit. Check the result message and connection status to confirm the connection. If it fails, verify the SSID and password before retrying.

Management IP Configuration

Connect GP Spark to the desired Wi-Fi network before changing its management IP settings. Select Static to enter the IP Address, Subnet Mask and Default Gateway for that network. Select DHCP to obtain an address automatically; manually entered values are not used in DHCP mode.

Select Submit and check the result message. After applying the configuration, connect your computer or phone to the same network as GP Spark and open its assigned management IP address to continue. These settings do not change the NVMe-oF storage IP.

A screenshot of a web form for configuring static IP settings. At the top, there is a section titled "IP Configuration" with two radio buttons: "Static" (which is selected and highlighted with a green dot) and "DHCP". Below this, there are three text input fields. The first is labeled "IP Address" and contains the value "192.168.1.72". The second is labeled "Subnet Mask" and contains the value "255.255.255.0". The third is labeled "Default Gateway" and contains the value "192.168.1.1". At the bottom right of the form, there are two buttons: a "Cancel" button and a "Submit" button (which is highlighted in green).

Figure 3-7. Static management IP settings (example values).

Storage Configuration

The Storage Settings page displays the storage-interface MAC address, network mode, IP configuration and SSD NQNs. Blank fields indicate that data has not been retrieved. Before changing storage network settings or NQNs on an active system, stop I/O and release host access using the shutdown procedure in Chapter 5.

 GP-Spark

[Home](#) [Wi-Fi Settings](#) [Storage Settings](#) [System Upgrade](#)

Storage Settings

MAC

MAC Address(LAN1):08:a5:79:d8:01:06

Network Mode Configuration

Network Mode

RS-FEC

Cancel Submit

IP Configuration

IP Address

10.10.10.12

Subnet Mask

255.255.255.0

Default Gateway

10.10.10.1

Cancel Submit

SSD NQN Configuration

SSD1

nqn.2015-09.com.wdc:nvme.1

SSD2

nqn.2015-09.com.wdc:nvme.2

SSD3

nqn.2015-09.com.wdc:nvme.3

SSD4

nqn.2015-09.com.wdc:nvme.4

Cancel Submit

Figure 3-8. Storage network mode, IP and SSD NQN settings.

Network Mode Configuration

The factory network mode is RS-FEC. Select the required network mode, select Submit, and check the result message. Keep the setting compatible with the connected 100GbE host or switch port.

Storage IP Configuration

Enter the required storage IP Address, Subnet Mask and Default Gateway, then select Submit and check the result message. The default storage address is 10.10.10.12/24. A gateway value shown in an illustration is an example; use the value appropriate for your network.

After changing the storage address, update the host configuration and use the new address for ping, discovery and target-connection commands. The WebUI management address is configured separately under Wi-Fi Settings.

SSD NQN Configuration

Edit the required SSD NQN fields and select Submit. Check the result message to confirm that the configuration was applied. If an NQN changes, update dependent host target definitions before reconnecting the storage.

System Upgrade

The System Upgrade page provides Firmware Upgrade and Web Upgrade tabs. Both use the same workflow. Obtain the appropriate update file for the device and selected tab before starting. Follow the shutdown procedure in Chapter 5 to stop I/O and release host storage access before an update that restarts the device.

1. Select Firmware Upgrade or Web Upgrade, as appropriate for the supplied package.
2. Select Choose File and select the prepared update file. The www.bin name in the illustration is an example for a Web update.
3. Select Start Upgrade and confirm the operation. Allow approximately one minute for the update, then wait for the completion result. Do not interrupt power during the update.

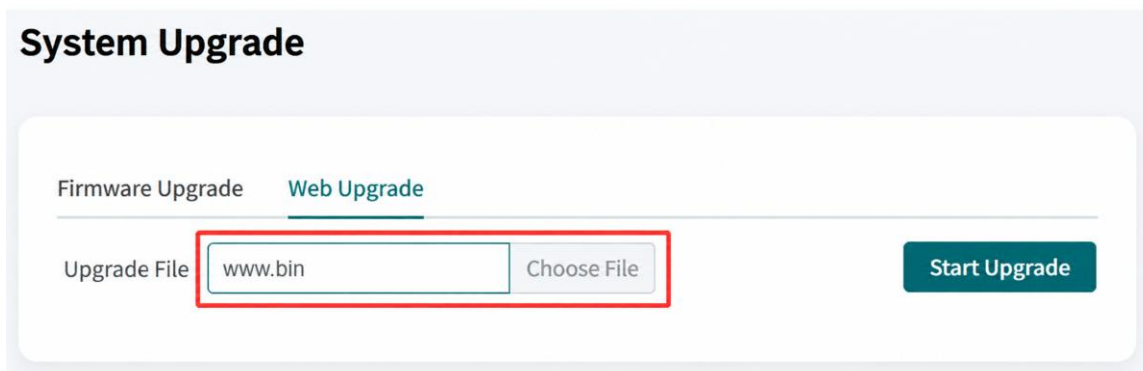


Figure 3-9. Selecting a Web update file.

After a successful update, the device restarts and the page reloads. Reloading can take additional time; refresh the browser if it does not return after the device is ready. An upgrade failure may reset the device to factory settings. If it fails, check the result message and contact support before retrying.

Log Out

The WebUI does not automatically log out by default. Select Log Out in the upper-right corner when you finish; its location is highlighted in Figure 3-2.

Installation Guide

Use the SupremeJBOF Implementation Manual (User Guide), Section 6.1, for first deployment. Prepare the network and matching installer packages, and disable Secure Boot before installation. Before re-enabling Secure Boot, verify signatures and trusted keys for all required NVIDIA and AEC kernel modules. The default setup installs software without creating RAID; choose the RAID-creation path explicitly. The package/device QR code or your support contact can provide the current User Guide.

Existing RAID recovery: follow User Guide Section 6.5 and use `--restore-config` when appropriate. It backs up the current configuration if present, prompts for the target, and restores interactively. Review the restored configuration before restarting services; never format a restored VD.



SupremeRAID™ AE



Quick Start

CHAPTER 4: APPLICATION EXAMPLES

1. NVIDIA DGX Spark High-Speed Storage Expansion

GP Spark supplies external NVMe-oF storage for a supported DGX Spark deployment. Use SupremeRAID™ AEC to organize the connected drives into a RAID volume for application data.

- Store datasets on the configured RAID filesystem. Raw and usable capacity depend on the installed drives and RAID level; GP Spark does not imply a fixed-size application cache.
- The deployed connection is one 100GbE link using 4 × 25G NRZ. Parallel SSD access shares this link. GPU access paths depend on the host software and application configuration.
- Validate the intended application with the completed RAID and filesystem before production use.

2. LLM Fine-Tuning & Training

Training Data and Offload Storage: Applications may use the RAID volume for datasets and supported offload workflows. Activation or gradient offload requires application/framework support and performance validation; it is not an automatic GP Spark feature.

Checkpoint Storage: Applications can save checkpoints on the RAID filesystem. Snapshots, rollback and recovery behavior depend on the selected application and filesystem; this manual does not claim built-in RDMA snapshots or one-click rollback.

Model Loading: Applications may read model data in parallel from the RAID volume. All traffic shares the deployed 100GbE connection. Weight streaming, computation overlap and loading time depend on the application and require validation.

3. Edge AI Deployment

A supported NVIDIA DGX Spark with SupremeJBOF can provide compute and external RAID storage for edge applications. The following are potential application scenarios, not built-in product functions or validated scale/performance guarantees:

- Low-altitude flight compliance audits (drone fleet scheduling, airspace management)
- Vehicle-infrastructure cooperative safety verification
- Robotic inspection
- Campus video AI analytics
- Edge data governance

CHAPTER 5: TROUBLESHOOTING & SAFETY

Device Won't Power On

- Check that the power adapter is properly connected.
- Check that the power cable is undamaged.
- Check the Power LED against the front-panel indicator table in Chapter 2 and confirm host-side device discovery.
- Use a vendor-approved replacement power cable or adapter with the correct electrical specifications.

Network Unreachable (Ping Fails)

- Check that the cable is properly connected, with no looseness.
- Use `ip link show` to confirm the port status is UP.
- Confirm that the host and target addresses are distinct and in compatible subnets (factory example: 10.10.10.0/24).
- Confirm 100GbE / 4 × 25G NRZ compatibility first. If the link remains down, follow User Guide Section 3.3 for the optional auto-negotiation troubleshooting procedure; speed 100000 alone does not guarantee the correct signaling mode.

NVMe Discovery Failed

- Confirm the RDMA/NVMe-oF stack and NIC drivers are ready; see User Guide Sections 3.5 and 3.7. A list of NVMe modules alone does not prove RDMA connectivity.
- Confirm `nvme-cli` is installed.
- Confirm port 4420 is not blocked by the firewall.
- Review target/network configuration and logs before restarting the device. Stop I/O and follow the shutdown procedure before any power cycle.

Performance Below Expectations After Mount

- Confirm a compatible MTU along the host, switch (if present) and target path. The User Guide uses MTU 5000 as its configuration example; verify support throughout the path.
- Confirm the NIC port and cable/transceiver combination support 100GbE / 4 × 25G NRZ.
- Use the connection method appropriate to the deployment. The `--nr-io-queues=8` example applies to standalone `nvme-cli` connections, not a universal AEC performance setting; normal AEC target connections use `graidctl`.
- Confirm the SSD's own performance meets its rated specifications.

System Hangs / Fails to Boot

- Inspect whether a bare NVMe-oF namespace was added to `/etc/fstab` without the required connection being available at boot. Distinguish that namespace from an AEC virtual drive.
- Use the host recovery procedure to correct the problematic entry. Do not remove valid AEC virtual-drive entries indiscriminately; see User Guide Section 4.1.
- For standalone access, connect the namespace with `nvme-cli` and then mount its existing filesystem as separate operations. For AEC, verify its services and managed target connection before mounting the existing virtual drive. Do not format existing data.

Device Overheating

- Keep the chassis ventilation paths clear and use the device on a firm surface with adequate clearance.
- Confirm that the operating ambient temperature is within 0–40°C, and inspect SSD temperatures and system logs.
- Check that the cooling fan is operating and that its airflow is not obstructed.
- If overheating persists, stop I/O, shut down safely and contact support.

Important Notes

[!] Distinguish Raw Namespaces from RAID Virtual Drives in fstab

For standalone GP Spark namespace access, follow the User Guide restrictions on early-boot mounting. With SupremeRAID™ AEC, the service manages the target connection, and virtual drives may use the documented network/service-dependent fstab and automount configuration. Do not add the underlying NVMe-oF namespaces as if they were local disks. See User Guide Sections 4.1 and 6.3.2.

[!] Proper Shutdown Procedure

Before powering off, stop applications and I/O, stop any configured automount units, unmount affected filesystems and verify that no holders remain. For AEC, stop the RAID and management services after releasing the volumes and use the supported target-disconnection/shutdown procedure; do not apply a raw nvme disconnect command to an active AEC RAID. For standalone nvme-cli access only, disconnect the released namespace with `sudo nvme disconnect -n <nqn>`. Power off GP Spark only after dependent hosts have released access. See User Guide Section 4.2.

[!] Power Requirements

Use the supplied or vendor-approved power adapter with the correct rated output, polarity, connector and applicable local safety approvals. If the optional adapter was not ordered, obtain an approved compatible adapter before use. Do not use damaged adapters.

[!] Cooling & Ventilation

Operate the device at an ambient temperature of 0–40°C. Keep the ventilation openings on the bottom and sides clear to maintain airflow for the cooling fan. Do not place the device in an enclosed space or on a fabric surface.

[!] Network Environment

Use the target's actual configured address (default: 10.10.10.12/24). Configure a distinct host address in the same subnet. Either direct or switched connections must meet the 100GbE / 4 × 25G NRZ and RoCEv2 requirements.

[!] SSD Compatibility

GP Spark supports **M.2 2280 and 22110 form factor NVMe SSDs**. Enterprise-grade high-performance SSDs are recommended; QLC low-end SSDs are not recommended.

[!] ESD Protection

When installing or removing SSDs, touch a metal object first to discharge static electricity and avoid ESD damage to electronic components.

CHAPTER 6: WARRANTY & SUPPORT

Warranty Policy

- Product Warranty: 3 years for the GP Spark main unit, from the date of purchase. Confirm accessory coverage, including any optional adapter, in the applicable purchase terms.

AEC License: Perpetual

- QSFP28 DAC High-Speed Cable (100GbE) DOA support and no RMA warranty.
- SSDs are covered under their original manufacturer's warranty policy.
- Human-caused damage, natural disasters, and unauthorized modifications are not covered under warranty.

Technical Support

- Technical Support Email: Support@eagleheart.com.tw
- Official Website: <https://eagle-heart.com/>
- Technical Documentation: Visit the official website for the latest user manuals, white papers, and FAQs.
- For setup and diagnostics, use the support-provided User Guide and tools appropriate to your release.

Contact Us

- Company Name: [Eagleheart Technology Co., Ltd.](#)
- Website: [EagleHeart Technology](#)
- Technical Support: Support@eagleheart.com.tw

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Eagleheart Technology Co., Ltd.