



NerdQaxe++ Rev 6.1

4-Chip Open-Source Bitcoin & Bitcoin Cash Solo Miner

NERDQaxe++



User Manual

Firmware: NerdOS (ESP-Miner fork) | Document version 1.4
www.smartmining.com | support@smartmining.com

⚠ IMPORTANT SAFETY WARNINGS — READ BEFORE USE

- Use only the included 12V 15A 180W power supply. Third-party power supplies may cause permanent hardware damage or fire.
- Keep the device away from children and pets. Fan blades and PCB surfaces become hot during operation.
- Do not insert fingers, tools, or objects into fan openings while the device is powered.
- If you detect smoke, a burning smell, or unusual noise: disconnect power immediately. Do not use water on electrical fires.
- Do not expose the device to liquids, moisture, condensation, or direct sunlight.
- Ensure adequate ventilation at all times. Never operate in an enclosed space without airflow.
- Do not operate above 40°C (104°F) ambient temperature.
- Do not modify PCB components — this voids the warranty.



Open-Source Acknowledgement: The NerdQaxe++ Rev 6.1 is based on the open-source Nerd*axe hardware project. Firmware (NerdOS) is a fork of ESP-Miner, distributed under its open-source licence. All schematics, PCB layouts, and firmware source code are publicly available. Smart Mining S.r.l. does not claim ownership of the open-source components.

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1. Product Overview

1.1 Introduction

Bitcoin and Bitcoin Cash operate using a process called proof-of-work mining. Specialised chips called ASICs perform trillions of SHA-256 calculations per second, competing to solve a mathematical puzzle. The first miner in the world to find the answer wins the current block reward — currently 3.125 BTC or 3.125 BCH — paid directly to the winner's wallet. A new block is produced approximately every ten minutes, so a new draw takes place 144 times every day.

Solo mining means competing for the full block reward on your own, without splitting it with anyone. The NerdQaxe++ Rev 6.1 is part of the open-source Nerd*axe family, packing four BM1370 ASIC chips — the same silicon found in Bitmain's industrial Antminer S21 Pro — onto a single desktop board. It delivers approximately 6 TH/s, placing it in a class previously occupied only by professional mining equipment costing thousands of euros.

This hardware family has a verified track record. Solo miners using NerdQaxe++ hardware have confirmed multiple full block wins on-chain, with the largest payout to date exceeding €297,000 at the time of the win. Every entry on the Bitcoin blockchain is permanent and publicly verifiable.

1.2 Technical Specifications

Technical Specifications	
ASIC chip	4× Bitmain BM1370 (5nm)
Hashrate	~6 TH/s
Algorithm	SHA-256
Supported coins	Bitcoin (BTC) and Bitcoin Cash (BCH)
Power draw	~98 W
Efficiency	~16.3 J/TH
Connectivity	Wi-Fi 2.4 GHz + USB-C (debug only, not for power)
Display	Colour LCD 1.9" (LILYGO T-Display S3)
Fan configuration	2× 90mm brushless PWM
Noise level	~33 dB
Input voltage	12V DC (XT30 connector)
Power adapter	12V 15A 180W
Dimensions	16 x 9.5 x 17.5cm
Weight	523g
Dual Mining (BTC + BCH)	Yes — simultaneous BTC/BCH (NerdOS)
Firmware	NerdOS (open-source, ESP-Miner fork)
First released	November 2025
Warranty	12 months commercial warranty — Smart Mining S.r.l.

NerdOS provides a browser-based dashboard — no app to install, no account to create. Every setting is accessible from any phone or laptop on your home network. Firmware updates are applied over Wi-Fi in under two minutes.

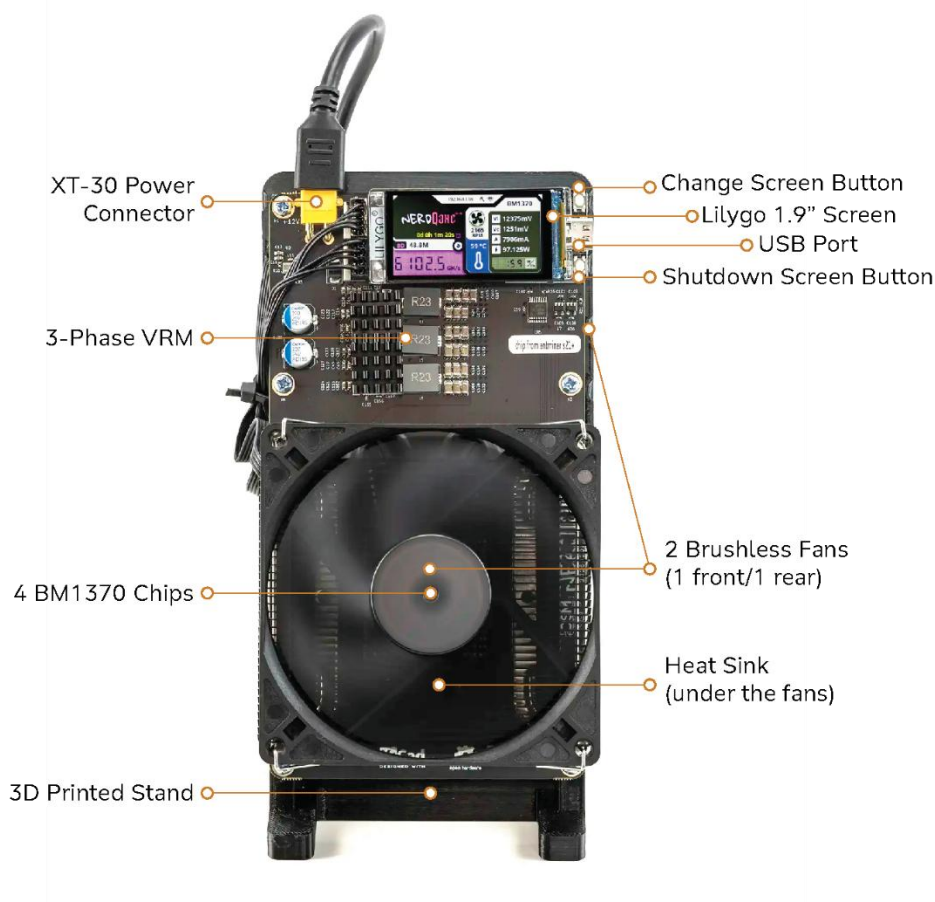
1.3 Getting to Know Your Device

1.3.1 What Is in the Box

- NerdQaxe++ Rev 6.1 6 TH/s device unit (with 4x BM1370 chips, premium heatsink, 2 brushless cooling fans)
- 12V 15A 180W power adapter with XT30 connector
- Power cable with regional adapter
- 3D-printed black desktop stand
- A Quick Start Guide (step-by-step setup instructions in English and Italian)

Use only the included 12V 15A 180W power adapter. Using an incompatible power supply will cause voltage instability and may permanently damage the device.

1.3.2 Device Diagram



1.3.3 Component Identification

The heart of the NerdQaxe++ is four BM1370 ASIC chips arranged on the PCB. These chips perform the SHA-256 hashing calculations. Each chip has its own heatsink contact point, covered by a thermal pad and secured under a common heatsink assembly. Two 90mm PWM fans — one drawing air in from the front and one exhausting from the rear — maintain airflow across the entire chip array.

An ESP32-S3 microcontroller manages Wi-Fi connectivity, runs the NerdOS firmware, drives the colour LCD display, and coordinates all four ASIC chips. A VRM (Voltage Regulator Module) on the PCB converts the 12V input from the power supply to the precise lower voltages required by the BM1370 chips. The LILYGO T-Display S3 module — a compact colour LCD with two integrated buttons — is mounted on the front face and provides at-a-glance statistics without requiring a browser.

2. Before You Begin

2.1 What You Will Need

- A Wi-Fi router with 2.4 GHz band enabled (5 GHz is NOT supported)
- A phone, tablet, or laptop with Google Chrome (for initial setup and monitoring)
- A valid Bitcoin (BTC) and/or Bitcoin Cash (BCH) on-chain wallet address

2.2 Your Wallet Address

Your wallet address is where the full block reward is sent if your NerdQaxe++ finds a block. It also serves as your worker identifier on the mining pool — no account registration is required. The address is public information and safe to share; what must never be shared with anyone is your wallet's seed phrase (the 12 or 24 words generated when you create the wallet).

2.2.1 Creating a Bitcoin (BTC) Wallet Address

Download a self-custody wallet such as Electrum (desktop, electrum.org) or BlueWallet (mobile, bluewallet.io). Create a new wallet, write down the seed phrase and store it securely offline, then copy a receiving address. Use a native SegWit address beginning with `bc1q` — Taproot addresses beginning with `bc1p` may cause compatibility issues with some solo mining pools.

2.2.2 Creating a Bitcoin Cash (BCH) Wallet Address

Download Electron Cash (electroncash.org) for desktop or the Bitcoin.com Wallet for mobile. Create a new wallet, back up the seed phrase offline, and copy a receiving address. BCH addresses in CashAddr format begin with `q` (e.g., `qp3w...`) — this is the correct format for mining pool configuration.

Never use an exchange address (Coinbase, Binance, Kraken, etc.) as your mining address. Exchanges may reject direct mining payouts or restrict accounts that receive them. Always use a self-custody wallet where you control the private keys.

2.3 Device Placement and Ventilation

The NerdQaxe++ draws 98W and generates significant heat. Proper placement is not optional — it directly affects performance, longevity, and safety. Place the device on a hard, flat, non-flammable surface using the included stand. Maintain a minimum clearance of 15 cm on the front fan-inlet side and 15 cm on the rear fan-exhaust side. Do not place the device in a drawer, cabinet, or enclosed shelf without dedicated forced ventilation.

The optimal ambient temperature for sustained operation is 15–30°C (59–86°F). At ambient temperatures above 30°C, monitor chip temperatures from the dashboard and consider reducing the operating frequency. Keep the device away from moisture, direct sunlight, curtains, and other flammable materials. Dust accumulation on the fans and heatsink will increase temperatures over time — inspect and clean the device monthly using compressed air.

3. Initial Setup

3.1 First Power-On

Connect the XT30 connector from the included power supply to the XT30 port on the rear of the device. Plug the power supply into a wall outlet. The two fans will start, the colour LCD will light up showing the NerdOS splash screen, and within 15–30 seconds the device will display its SSID — a network name in the format Nerdaxe_XXXX, where XXXX is a unique identifier. The device is now ready for Wi-Fi configuration.

3.2 Connecting to Your Home Wi-Fi

1. On your phone, tablet, or laptop, open Wi-Fi settings and scan for available networks.
2. Connect to the Nerdaxe_XXXX network. No password is required for this initial hotspot.
3. A setup page (captive portal) should open automatically in your browser. If it does not, open Chrome and navigate to <http://192.168.4.1>
4. In the setup portal, enter your home Wi-Fi network name (SSID) and password. Remember that only 2.4 GHz networks are supported.
5. Tap Save, then tap Reset / Restart.
6. The device reboots and connects to your home network. After 15–20 seconds, the IP address assigned by your router appears on the LCD screen — for example, 192.168.1.45.

Tip: set a static DHCP reservation for the NerdQaxe++ in your router's admin panel using the device's MAC address (shown on the System screen). This ensures the IP address never changes, so your browser bookmark always works.

3.2.1 Wi-Fi Troubleshooting

Problem	Likely Cause	Solution
Hotspot not visible after 60 seconds	Boot not complete	Unplug and re-plug the power supply; wait 30 seconds
Cannot connect to Nerdaxe_XXXX	Phone auto-connecting to 5 GHz	Manually select the Nerdaxe_XXXX network in Wi-Fi settings
Captive portal does not open	Browser did not detect portal	Open Chrome and navigate to http://192.168.4.1
Wrong password — device will not connect	Typo in credentials	Unplug power; wait 10 s; re-plug; reconnect to hotspot; re-enter
ASUS router — device cannot connect	AI Protection blocking the connection	In router admin panel: disable AI Protection; retry
Device connects to Wi-Fi but no IP shown	Router DHCP limit reached	Check router DHCP client list and free a lease if needed

3.3 Accessing the Web Interface

Ensure your phone or laptop is connected to your home Wi-Fi — not to the Nerdaxe hotspot. Open Google Chrome and type the IP address shown on the LCD screen into the address bar (e.g., <http://192.168.1.45>). The NerdOS dashboard loads immediately and updates in real time. Bookmark this address for future access.

3.4 Configuring Mining Settings

The screenshot shows the NerdQaxe++ Settings interface. On the left is a sidebar with navigation links: Dashboard, Swarm, Settings (active), InfluxDB, Alerts, Security, and System. The main content area is titled 'Settings' and contains three sections:

- WiFi Settings:** Includes fields for Hostname (nerdqaxe-rev6.1), WiFi Network (SSID) (TIM-27349329), and WiFi Password (masked with dots).
- Stratum Settings:** Includes a Pool Mode dropdown set to 'Dual Pool', a Pool Balance slider (50% / 50%) with a description 'Distributes jobs between the primary and secondary pool, e.g., 70/30.', a checked checkbox for 'Enable Stratum TCP Keepalive', and tabs for 'POOL 1 (SV1)' and 'POOL 2 (SV1)'. Under POOL 1, there are fields for Stratum Protocol (Stratum V1), Stratum Host (eusolo.ckpool.org), Stratum Port (3333), Username (bc1q0upv5sxx6t0t2fzqr038vaveffx2hu0lv0jv.nerdqaxe_e0), and Password (masked). There are also checkboxes for 'Encrypted connection (TLS)' and 'Enable Extranonce Subscribe'.
- Mining Settings:** Includes fields for Frequency (745), Core Voltage (1240), and Initial Suggested Stratum Difficulty (1000).

3.4.1 Selecting a Mining Pool

In the NerdOS dashboard, navigate to Settings. Under the Stratum Settings section, enter the URL and port of your chosen mining pool in the Stratum Host and Stratum Port fields. The miner is preconfigured to dual mine Bitcoin (BTC) with the Europe Solo CKPool (Pool 1), and Bitcoin Cash (BCH) with Solopool.eu (Pool 2) simultaneously. These are two of the most popular mining pools that offer low latency for users in Europe, low difficulty that is ideal for the NerdQaxe++, and no registration requirement.

Dual mining does not increase power consumption; it divides the existing 6 TH/s between the two coins according to your split configuration. If you want to mine Bitcoin (BTC) or Bitcoin Cash (BCH) singularly, change the Pool Mode pulldown menu from Dual Pool to Failover (Primary/Fallback). You can select different mining pools by entering the Stratum Host and Stratum Port of your selected pool in the Pool 1 and Pool 2 Stratum Host and Stratum Port fields. You can also set the hashrate split between the two pools with the Pool Balance slider — for example, 70% BTC and 30% BCH.

Pool	Stratum URL	Port	Fee	BTC	BCH
Solo CKPool	solo.ckpool.org	3333	2%	✓	—
Solopool.eu	bch.solopool.eu	3333	0.5%	—	✓
Solopool.eu	btc.solopool.eu	3337	1%	✓	—

Solo mining means your NerdQaxe++ competes for the complete 3.125 BTC block reward on its own. Pool mining splits rewards across thousands of participants and pays out small, predictable amounts. The vast majority of buyers of this hardware choose solo mining.

3.4.2 Entering Your Wallet Addresses

In the Username field, enter your Bitcoin or Bitcoin Cash wallet address exactly as copied from your wallet app, followed by a period and the name you want to give your miner. This is the address that receives the block reward if your device wins. Leave the Stratum Password field blank or enter the letter x — no real password is required for Stratum V1 pools. Do this for both the Pool 1 and Pool 2 settings.

3.4.3 Saving Settings and Starting Mining

After entering all settings, click Save and then Restart. The device reboots and begins hashing within 30–60 seconds. On the dashboard, the displayed hashrate will fluctuate significantly during the first five to ten minutes — this is normal while the rolling average builds up. Do not adjust settings based on readings taken in the first few minutes. After ten minutes, the hashrate display stabilises at approximately 6 TH/s.

3.4.4 Pool Monitoring

To monitor your Bitcoin (BTC) mining pool, navigate to <https://stats.ckpool.org/> (or your pool URL if you selected a different BTC pool) and enter your BTC wallet address.

To monitor your Bitcoin Cash (BCH) mining pool, navigate to <https://solopool.eu/miner/> (or your pool URL if you selected a different BCH pool) and enter your BCH wallet address.

Pool-side data updates every few minutes — do not expect second-by-second accuracy. Your Best Difficulty score is the most meaningful long-term indicator: the higher it climbs, the closer you are getting to solving a full block.

4. Device Interface

4.1 Physical Buttons

The NerdQaxe++ has two buttons on the front panel, integrated into the LILYGO T-Display S3 module. The lower button switches off the screen, and the upper button cycles through the display screens.

4.2 The Colour LCD Display

The 1.9-inch colour LCD displays real-time mining statistics across four screens. Unlike a smartphone notification, these screens are not interactive — they are read-only status indicators. All configuration is performed through the web interface.

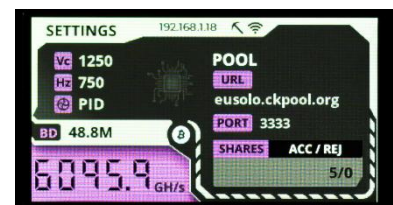
Screen 1 — Mining Summary

The home screen shows the device's current IP address, the uptime since last restart, your best difficulty (BD - the highest-difficulty share your device has ever submitted — this is your closest approach to finding a full block and climbs over time), the current hashrate in TH/s, the fan RPM speed, the temperature of the ASIC chips, the power settings, and the power efficiency.



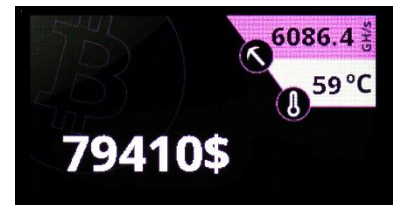
Screen 2 — Settings and Pool Status

This screen shows the device's current IP address, the current voltage (Vc), frequency (Hz), fan setting, your best difficulty (BD), the current hashrate in TH/s, the pool URL and PORT, and the hashing shares accepted and rejected by the pool.



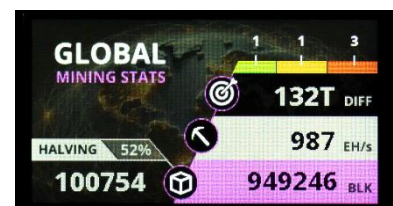
Screen 3 — Live Bitcoin Price

This screen shows the current hashrate in TH/s, the temperature of the ASIC chips, and the live Bitcoin (BTC) price in USD.



Screen 4 — Global Mining Stats

This screen shows the percentage of the current Bitcoin block until the halving, the actual halving Bitcoin block, the Bitcoin network difficulty, the Bitcoin network hashrate, and the current Bitcoin block.



Block Found Notification

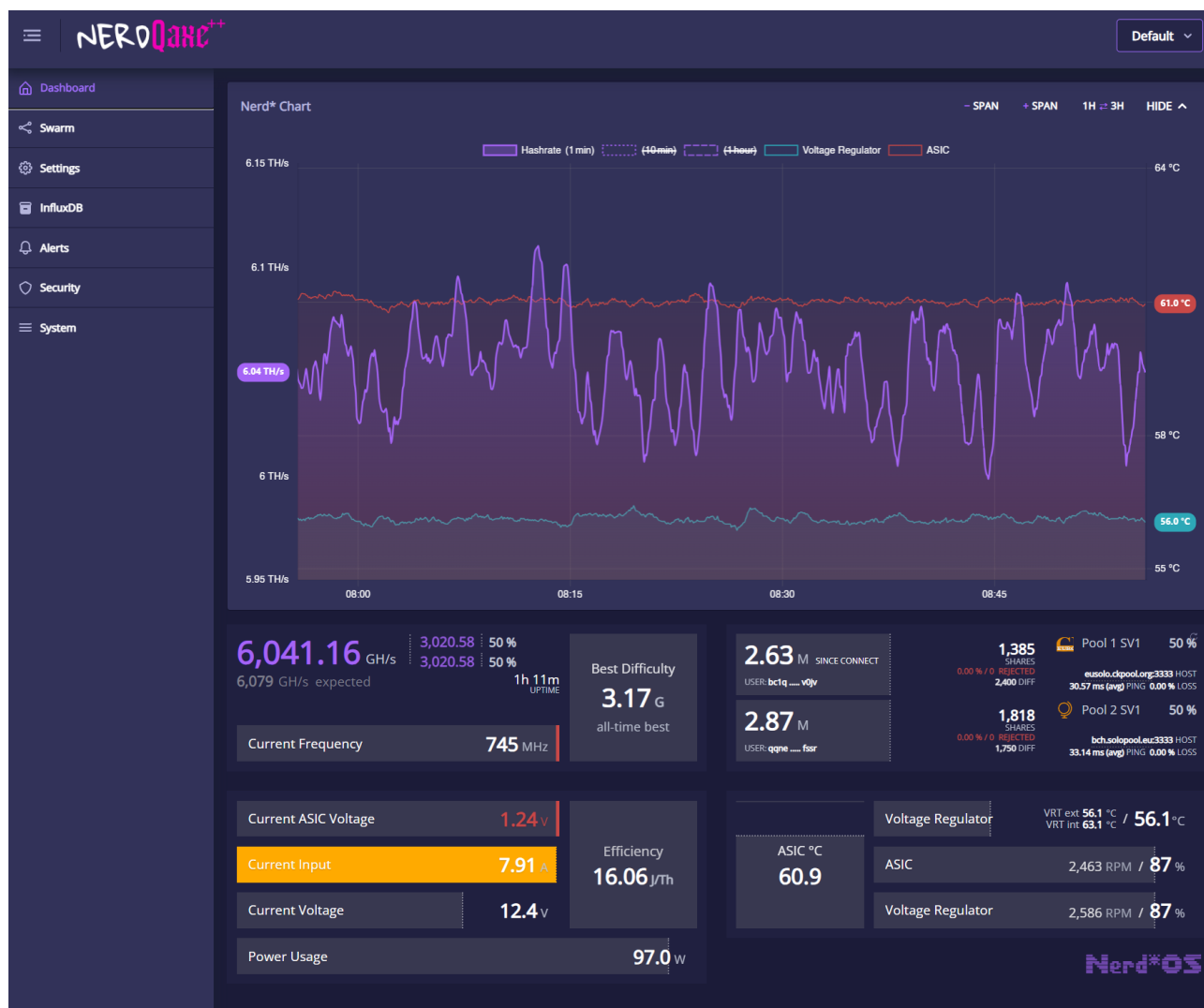
If you are lucky enough to mine a BTC/BCH block, the following notification will be shown.



5. Web Interface (NerdOS)

The NerdOS web dashboard is your primary tool for monitoring and configuration. Access it by typing the device's IP address into Chrome on any phone or laptop connected to the same Wi-Fi network. The dashboard updates every few seconds.

5.1 Dashboard — Main View



The main dashboard shows your current total hashrate and the hashrate for each of the 2 pools (if dual mining), your all-time best difficulty, your best difficulty since last reboot, pool mining data including a share counter (accepted and rejected), mining difficulty, pool URLs and ports, pool latency and network connection packet loss percentage, current power details, temperatures of the ASIC chips and the voltage regulators, the fan RPM and the fan speed percentage. For the rejected shares, a value below 2% is normal and acceptable; values above 5% may indicate thermal stress or an unstable overclock.

5.2 Settings Screen

The Settings screen is where the mining configurations are defined. The Wi-Fi section allows you to change the home network name and password. The Stratum Settings section allows you to change the pool configurations (see above). The Mining Settings section controls the core frequency core voltage (see below). The Fan Controller defines the fan settings, and the overheat shutdown temperature thresholds. The Misc. Settings allow you to make modifications to the integrated display. The Language section allows you to set the UI language. Lastly, the Release & Update / Legacy Update allows you to updated the devices firmware (see below).

6. Performance Tuning

6.1 Understanding Frequency and Voltage

Every BM1370 chip operates at a clock frequency measured in MHz. Higher frequency means more SHA-256 calculations per second — more hashrate. The relationship is roughly linear: raising frequency from 525 MHz to 700 MHz increases hashrate by approximately 33%. However, higher frequency also requires higher core voltage to remain stable, and produces more heat. The NerdQaxe++ is preconfigured to the overclock settings of ~745 MHz / ~1240 mV — settings that balance hashrate, efficiency, and long-term reliability.

6.2 Underclocking

Underclocking reduces frequency and voltage, trading hashrate for lower power consumption, cooler temperatures, and quieter fans. This is the right choice if the device is running in a warm room (above 30°C ambient), or if you want to reduce electricity consumption. To underclock, navigate to Settings, reduce the frequency in steps of 25–50 MHz, click Save, and Restart.

6.3 Overclocking

Overclocking increases hashrate, heat, power consumption, and component wear. Smart Mining's 12-month guarantee does not cover damage caused by overclocking beyond safe parameters. Run the device at the preconfigured settings for at least 24 hours before attempting any tuning.

6.3.1 Step-by-Step Procedure

1. Open NerdOS Settings. Set fan mode to Manual and fan speed to 100%.
2. Note your current frequency and voltage — write them down or take a screenshot.
3. Raise frequency by 25 MHz. Click Save, then Restart. To select values not present in the Frequency and Core Voltage dropdown menus, click on the Danger Zone button on the right.
4. Wait 10 minutes after restart. Let the hashrate and temperature stabilise.
5. Check: The maximum power draw is 120W with the supplied power adapter. The power draw must stay below this value. Any higher and you risk damage to the power adapter. Also, chip temperature must stay below 65°C. Error percentage should ideally stay below 2%. Device must not reboot spontaneously.
6. If stable, return to Step 3 and repeat. If unstable: reduce frequency by 25 MHz and increase voltage by 25 mV before trying again.
7. Run the confirmed stable settings for at least 6 hours before considering them confirmed.

6.3.2 Community-Documented Settings for the NerdQaxe++

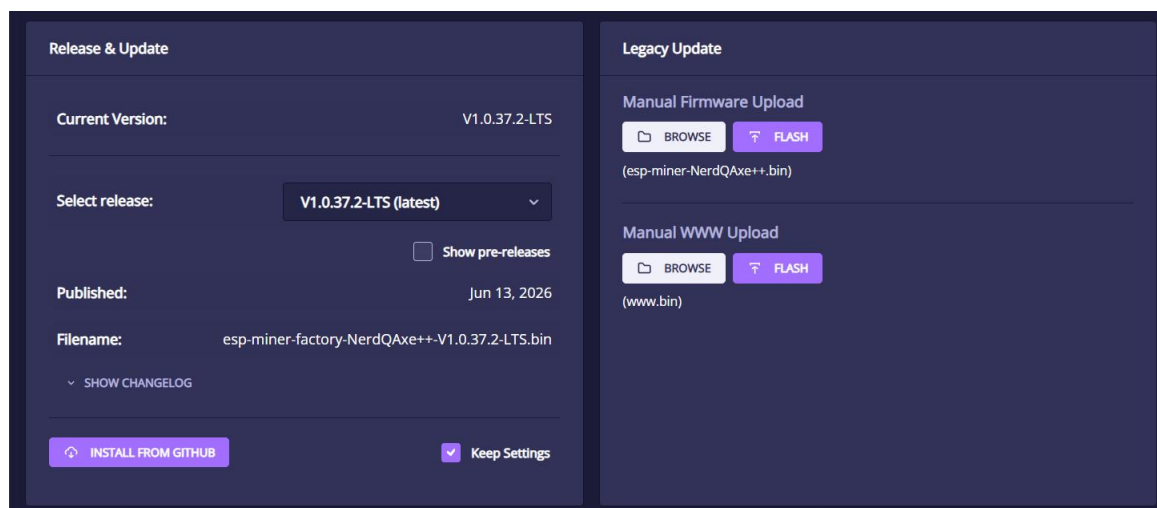
These are starting points, not guarantees. Every unit is different — this is called the "silicon lottery". Your NerdQaxe++ may be stable at higher or lower settings than those listed.

Profile	Frequency	Voltage	Hashrate	Power Draw	Efficiency	Notes
Underclocking	~550 MHz	~1120 mV	~4.3 TH/s	61 W	14.2 J/TH	Eco / silent mode (when ambient above 30°C)
Stock	600 MHz	1150 mV	~4.8 TH/s	70 W	14.6 J/TH	Device default — stable on all units
Overclocking	745 MHz	1240 mV	~6.0 TH/s	98 W	16.3 J/TH	SmartMining.com preconfigured setting
Aggressive OC	800 MHz	1320 mV	~6.5 TH/s	117 W	18.0 J/TH	Maximum advised setting for supplied power adapter

7. Firmware Updates

NerdOS is actively developed by the open-source community. Keeping the firmware current ensures you have the latest performance improvements, bug fixes, and features such as dual mining support and improved pool compatibility.

7.1 OTA Update via Web Interface



1. Open the NerdOS web interface and navigate to the Release and Update section at the bottom of the Settings page.
2. If the version shown in the Select release dropdown menu is higher than the version shown in the Current Version, click the “INSTALL FROM GITHUB” button. Make sure the Keep Settings checkbox is selected to preserve your current device configuration. Avoid loading pre-releases (by checking the Show pre-releases checkbox) if you want to be sure to have a stable device firmware.
3. If manual upload is required: download the .bin firmware file from GitHub, and in the Legacy Update section select the file with the “Browse” button, and click on the “Flash” button.
4. Wait approximately 4 to 8 minutes. The device will automatically load the latest firmware and reboot automatically once the update is written. Sometimes the web interface is not refreshed automatically. If after around 10 minutes the web interface still shows updating, but you can see the device is actually mining, just refresh the webpage.

7.2 Emergency Firmware Recovery

If the device is unresponsive after a failed update and does not broadcast its Wi-Fi hotspot, it can be recovered by flashing firmware via the USB-C debug port. Connect the device to a PC or Mac using a USB-C cable. Open the ESPHome Web Flasher at <https://web.esphome.io> in Google Chrome, or use the Espressif esptool-js at <https://espressif.github.io/esptool-js>. Select the correct .bin file for NerdQaxe++ Rev 6.1 and follow the on-screen instructions. If you are uncertain about this process, contact support@smartmining.com before proceeding.

8. Troubleshooting

8.1 Device Does Not Power On

Symptom	Likely Cause	Solution
No display, no fan	Power supply not connected	Check XT30 connection at both ends; verify wall outlet
No display, fans run	Display connection loose	Power off; inspect display ribbon connection; contact support
Display flickers then shuts off	Voltage drop — power supply overloaded	Use only the included 12V 15A 180W PSU; avoid multi-device extension cords

8.2 Wi-Fi Issues

See the full Wi-Fi Troubleshooting table in Section 3.2.1.

8.3 Low or Unstable Hashrate

Symptom	Likely Cause	Solution
Hashrate shows 0 for first 10 minutes	Normal — ASIC initialising	Wait; hashrate stabilises after 5–10 minutes
Hashrate wildly fluctuating	Normal SHA-256 variance	Judge by the 15-minute rolling average, not instant reading
Hashrate consistently below 5 TH/s at stock	Thermal throttling	Check per-chip temperatures; improve airflow
One chip significantly lower than others	Uneven heatsink contact	Power off; re-seat heatsink; check thermal pad
Hashrate drops to 0 after long run	Lost pool connection	Check Wi-Fi signal; restart device; check pool status online
High error percentage (>5%)	Unstable overclock or overheating	Reduce frequency; check temperatures; reduce voltage

8.4 Overheating

Symptom	Likely Cause	Solution
Chip temp above 65°C at stock	Insufficient airflow or high ambient	Increase clearance; check fans are spinning; reduce ambient temp
Auto-shutdown — device powers off	Shutdown threshold reached (75–80°C)	Check placement; reduce frequency; clean fans and heatsink
Fans running at 100% constantly	High ambient temperature or aggressive OC	Reduce frequency; move to cooler location
Temperatures rising slowly over weeks	Thermal paste degradation	Re-apply quality thermal paste; contact support if unsure
One chip much hotter than others	Uneven heatsink or chip fault	Re-seat heatsink; if problem persists, contact support

8.5 Pool Connection Issues

Symptom	Likely Cause	Solution
Pool status shows Disconnected	Wrong URL or port	Verify URL and port in Settings against Appendix A
Shares submitted but pool shows 0 hashrate	Wrong wallet address format	Check wallet address — must be a valid on-chain bc1q address for BTC
"Rejected" shares appearing	Pool config error or stale firmware	Check pool URL; update firmware
Pool dashboard shows miner but hashrate is 0	Pool-side delay	Pool dashboards update slowly — wait 15 minutes then refresh

8.6 Display and Interface Issues

Symptom	Likely Cause	Solution
LCD blank after boot	Display connection issue	Power off and back on; if persistent, contact support
Garbled display text	Firmware corruption	Update to latest NerdOS firmware
Web interface does not load	Wrong IP or wrong network	Check IP on LCD screen; ensure phone is on home Wi-Fi, not the device hotspot
Settings do not save	Browser cache or firmware bug	Clear browser cache; try Chrome; update firmware

9. Regulatory Compliance & Environmental Information

9.1 Regulatory Compliance

9.1.1 CE Declaration of Conformity

Smart Mining S.r.l. declares that the NerdQaxe++ Rev 6.1 complies with the following EU Directives: 2014/30/EU (Electromagnetic Compatibility); 2014/35/EU (Low Voltage); 2011/65/EU as amended by 2015/863/EU (RoHS); and 2014/53/EU (Radio Equipment Directive, applicable to the Wi-Fi module). The CE mark affixed to the product confirms this conformity.



9.1.2 FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to: (1) this device may not cause harmful interference; (2) this device must accept any interference received, including interference that may cause undesired operation. Changes not expressly approved by Smart Mining S.r.l. could void the user's authority to operate the equipment.



9.1.3 UKCA Declaration

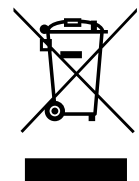
This product complies with the UK Radio Equipment Regulations 2017, the Electromagnetic Compatibility Regulations 2016, and the Electrical Equipment (Safety) Regulations 2016.



9.2 Environmental Information

9.2.1 WEEE (EU 2012/19/EU)

This product is marked with the crossed-out wheeled bin symbol, indicating that it must not be disposed of with unsorted municipal waste. At the end of its useful life, dispose of this product through an authorised WEEE collection point or return it to Smart Mining S.r.l. for recycling. Incorrect disposal may cause environmental harm due to potentially hazardous substances in electronic components. For WEEE disposal in Italy, contact your local Comune or visit www.cdcreaee.it.



9.2.2 RoHS Compliance

This product complies with EU Directive 2011/65/EU (RoHS) as amended by 2015/863/EU (RoHS 3), restricting the use of hazardous substances including lead, mercury, cadmium, hexavalent chromium, PBBs, and PBDEs in electrical and electronic equipment.



9.2.3 Battery Information

This product contains no user-replaceable batteries.



10. Support and Warranty

10.1 Smart Mining Commercial Guarantee

Your NerdQaxe++ Rev 6.1 is covered by a 12-month commercial guarantee from the date of delivery, in addition to the statutory legal guarantee of conformity under D.Lgs. 206/2005 (Italian Consumer Code). The commercial guarantee covers manufacturing defects and hardware failures under normal operating conditions.

What's Covered:

- Dead-on-arrival (DOA) units that fail to power on or hash correctly out of the box
- Component failures under normal operating conditions (e.g. fan failure, ASIC failure, PCB defects, LED display issues)
- Firmware issues directly attributable to the pre-installed software
- Power supply failures

What's NOT Covered:

- Physical damage from drops, liquid exposure, or electrical surges
- Damage resulting from overclocking beyond manufacturer specifications
- Modifications to hardware or firmware by the user
- Use of third-party power supplies
- Damage caused by exposing liquids to the device
- Operation outside the specified temperature range
- Normal wear and tear (fan dust over time, fan noise increase over time, thermal paste degradation)

EU consumers have additional statutory warranty rights under EU Directive 2019/771, which may extend or complement the above terms.

To make a claim: email support@smartmining.com with your order number and a description. We respond within 2 business days.

10.2 Open-Source Community

The NerdQaxe++ is part of a large and active open-source mining community. For firmware discussions, overclock settings, and community support, visit the NerdOS GitHub repository at <https://github.com/shufps/ESP-Miner-NerdQaxe>, or search #NerdQaxe++ and #OpenSourceMining on Twitter/X. The r/BitcoinMining subreddit is also a helpful resource for setup questions and performance tips.

10.3 Contacting Smart Mining S.r.l.

Email:	support@smartmining.com
Webmail:	smartmining.com/contact/
Response:	within 2 business days

Appendix A — Glossary

Term	Definition
ASIC	Application-Specific Integrated Circuit — a chip designed exclusively for SHA-256 hashing
BM1370	Bitmain's 5nm SHA-256 ASIC chip, the same silicon used in the Antminer S21 Pro
SHA-256	Secure Hash Algorithm 256-bit — the mathematical function used for Bitcoin and Bitcoin Cash proof-of-work
Hashrate	The number of SHA-256 calculations per second. TH/s = terahashes per second (1 TH/s = 1,000,000,000,000 hashes per second)
Block reward	The amount of BTC or BCH paid to the miner who solves a block (currently 3.125 BTC / 3.125 BCH)
Solo mining	Competing alone for the full block reward. High variance — possibly life-changing if you win
Pool mining	Mining with many others. Rewards are split proportionally — small, regular payments
Stratum	The network protocol used for communication between miners and mining pools
Best difficulty	The highest-difficulty share your device has found. Your closest approach to a full block win
Dual mining	Mining BTC and BCH simultaneously from one device, with configurable hashrate split
NerdOS	The open-source firmware for NerdQaxe++ and NerdOctaxe devices — a fork of ESP-Miner
ESP32-S3	The microcontroller that runs NerdOS and manages Wi-Fi connectivity
VRM	Voltage Regulator Module — converts 12V input to the precise voltage required by the BM1370 chips
OTA update	Over-the-Air firmware update — applied wirelessly through the NerdOS web interface
WEEE	Waste Electrical and Electronic Equipment — EU directive governing e-waste recycling and disposal