

Ghost Shell Mining System — Quickstart & Per-Chip Tuning Guide

Supported Equihash ASIC Fleet: Z15 · Z15 Pro · Z15j · Z15e · Z15k · Z11 · Z9 · Z9 Mini | Control Boards: C55 · C52 · C43 · C74

1. Supported Hardware Matrix & Verified Operating Envelopes

Miner Model	Control Board	Chain & ASIC Topology	Factory Spec	Ghost Shell Bench-Verified Range	Thermal & Cooling Guardrails
Z15 Pro	C74 / C55	3 Chains (BM1746)	840 KSol/s @ 2,560 W	960+ KSol/s (~2.9 J/KSol)	65–72 °C chip target · 85 °C cutoff
Z15 / Z15k	C55 & C52	3 Chains × 3 ASICs	420 KSol/s @ 1,510 W (3.60 J/KSol)	480.8–505+ KSol/s (3.39–3.40 J/KSol)	65–72 °C chip target · Dual-fan quorum
Z15j	C55 & C52	3 Chains × 3 ASICs	320 KSol/s @ 1,510 W (4.72 J/KSol)	414.0 KSol/s (+29.4% · 3.56 J/KSol)	65–72 °C chip target · Dual-fan quorum
Z15e	C55 & C52	3 Chains × 3 ASICs	200 KSol/s @ 1,510 W (7.55 J/KSol)	256.4 KSol/s (+28.2% · 6.73 J/KSol)	65–72 °C chip target · Dual-fan quorum
Z11	C43 (Zynq-7007S)	3 Chains × 3 ASICs (BM1744)	135 KSol/s @ 1,418 W (10.50 J/KSol)	159.7 KSol/s (+18.3% · ~9.70 J/KSol)	65–75 °C chip target · 85 °C throttle
Z9 (Full-Size)	C43 (Zynq-7007S)	3 Chains × 16 ASICs (BM1740)	42 KSol/s @ 1,150 W (27.38 J/KSol)	55.5–59.0 KSol/s (+32.2%–40.4% · ~23.2 J/KSol)	65–75 °C chip target · Dual-fan quorum
Z9 Mini	C43 (Green & Black PCB)	3 Chains × 4 ASICs (BM1740)	10 KSol/s @ 300 W (30.00 J/KSol)	16.0–16.35 KSol/s (+59.6%–63.5% · 22.3 J/KSol)	Single-fan & dual-fan quorum support

2. Non-Destructive microSD Boot & Deployment Workflow

- Prepare FAT32 microSDHC Media:** Format a 2 GB – 32 GB microSDHC card as FAT32 (MBR partition table) and extract the model-matched boot files (B00T.bin , devicetree.dtb , uImage , uramdisk.image.gz) directly to the root directory of the card.
- Matte-Black C43 Control Boards (Batch 2/3):** Green Batch 1 C43 PCBs (0x0000b031) use the default B00T.bin . For late-batch Matte-Black C43 PCBs (0x200ac513), copy z9mini3-orig-B00T.bin over B00T.bin on the card prior to booting.
- Boot & Discover:** Insert the microSD card with power off, ensure the SD boot jumper (JP4 on C43) is set to SD mode if applicable, and power on. After 45–75 seconds of DHCP acquisition, open http://<miner-ip>/ in your browser.

3. Per-Chip Silicon Tuning, Thermal Control & Pool Setup

- Per-Chip Clock & Voltage Optimization:** Ghost Shell sweeps individual ASIC domains rather than forcing an entire chain down to its weakest core. Strong chips scale up to their optimal Sol/W ceiling

while degraded or high-error chips step down automatically in 12–25 MHz increments.

- **Closed-Loop Thermal Target:** Set your target chip temperature (65–72 °C recommended on Z15 series; 65–75 °C on C43 series) so fans modulate smoothly without sawtooth RPM hunting.
- **Production Stratum Configuration:** Configure Primary (`Pool 0`) and Failover (`Pool 1` , `Pool 2`) Equihash endpoints. Based on 72-hour lab verification, GHOST Inc. recommends `stratum+tcp://gate.emcd.network:8866` and `stratum+tcp://mining.viabtc.io:3002` (with `mining.viabtc.io:302` as tertiary failover; avoid `eu.emcd.network:8866`).