

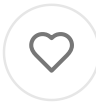
# Assembling Freedom #25

Touchscreens, Thermostats, and Doom: A Weekend of Open Mining Hacks



256 FOUNDATION

APR 22, 2026



April 22, 2026 | Hosted by [@econoalchemist](#), [@skot9000](#), & [@tylerkstevens](#)

Bitcoin mining, freedom tech, and awesome tangents from [POD256 #113](#)

Tech enthusiasts, this episode is pure weekend-warrior gold for open-source Bitcoin mining hackers. The 256 Foundation crew breaks down a frenzy of community-driven hardware hacks, firmware breakthroughs, and practical integrations that turn miners into smart home devices, retro gaming rigs, and even heating systems. No fluff—just actionable prototypes, real-world limits, and the open hardware momentum making closed-source tricks obsolete.

# 1. Skot's Touchscreen Miner Retrofit: The Ampminer Prototype on S19j Pro

Skot walks through a clean, Wi-Fi-enabled retrofit on a stock Bitmain Antminer S19j Pro using **Mujina** firmware. Key innovation: tapping the hidden USB port for connectivity without ripping open the case.

## Core Hack Breakdown (Step-by-Step as Discussed):

- **Firmware:** Flash Mujina directly onto the stock control board (Ethernet/USB method).
- **Connectivity:** Hidden USB port + USB hub → Wi-Fi dongle for wireless operation.
- **Display:** Repurposed open-source touchscreen (sourced from Bitaxe GT Touch ecosystem) wired via USB hub.
- **Dashboard:** Live readouts for hashrate, temperatures, fan speeds, and pool stats—right on the miner itself.
- **Bonus:** Native support for AC Infinity duct fans for quieter, smarter cooling.

This creates a “tidy, Wi-Fi-connected touchscreen miner” that feels like a consumer appliance. AI-assisted CAD and browser automation sped up the prototyping loop dramatically.

**Visual: Bitaxe Touch-style interface concept (the exact screen tech reused here)**

# Bitaxe Touch

## Turbo Touch Edition



The image shows a Bitaxe Touch Turbo Touch Edition Bitcoin miner. The device is a small, black, rectangular unit with a touchscreen display. The screen displays the following information:

LATEST BLOCKS			
LIVE (from mempool.space)			
938026	938025	938024	938023
-1 sat/vB 0.479 sat/vB	-2 sat/vB 1.802 sat/vB	-3 sat/vB 2.302 sat/vB	-4 sat/vB 2.802 sat/vB
0.018 BTC	0.023 BTC	0.049 BTC	0.075 BTC
2998 transactions	3099 transactions	3640 transactions	4181 transactions
6 minutes ago	12 minutes ago	18 minutes ago	24 minutes ago
MARA Pool	F2Pool	SECPool	Slush Pool

Below the screen, there are several physical buttons: a power button, a home button, a back button, a search button, a settings button, a Wi-Fi button, a mining button, and a refresh button. The brand name "Solosatoshi" is embossed on the bottom of the device.

Explore the world's most powerful open-source touchscreen Bitcoin miner.

**Solosatoshi**  
THE BEST IN BITCOIN HOME MINING

### Related X Post Spotlight

@skot9000 shared the first working prototype:

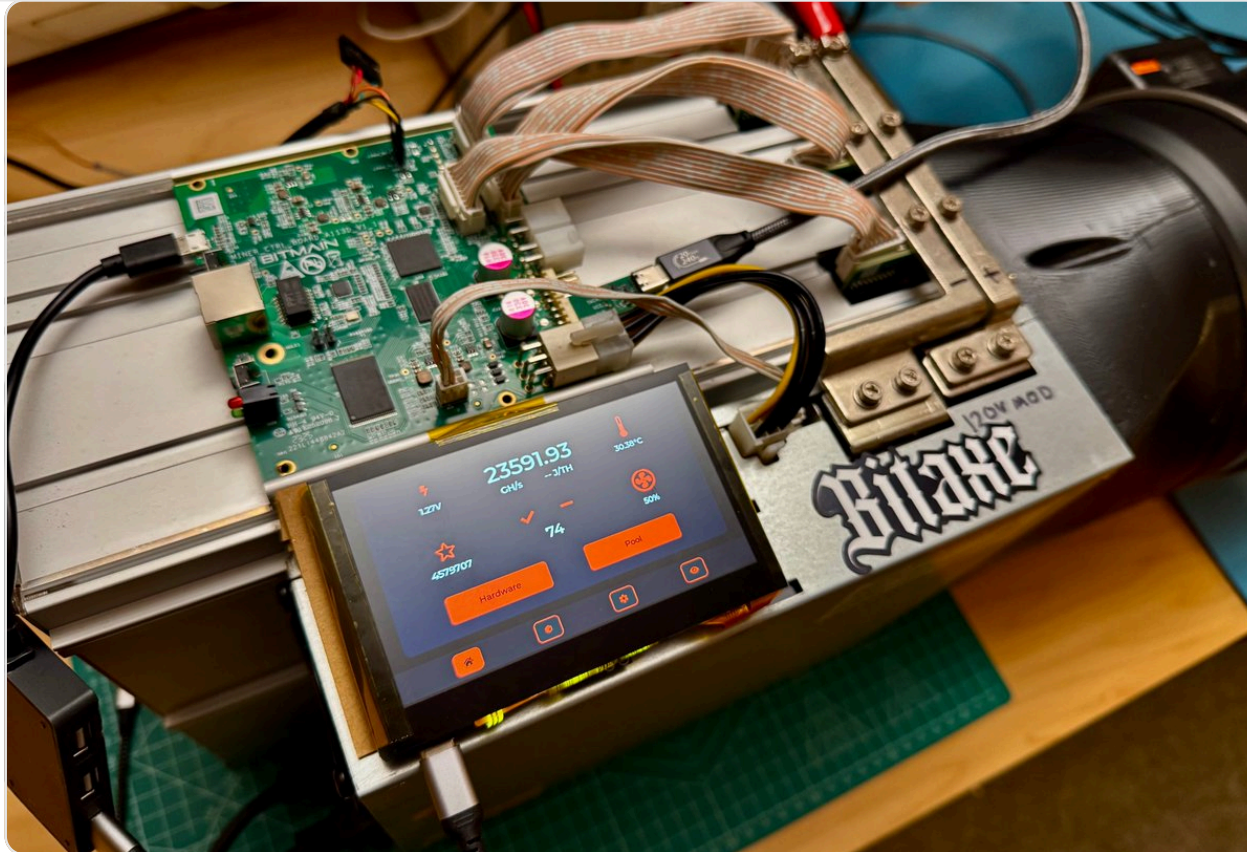
“First working prototype of The Ampminer: A stock S19j Pro running Mujina firmware with a touchscreen (from the Bitaxe GT Touch). Full WiFi connection. Native AC Infinity duct fan support.”



**skot**  
@skot9000



First working prototype of The Ampminer: A stock S19j Pro running Mujina firmware with a touchscreen (from the Bitaxe GT Touch). Full WiFi connection. Native AC Infinity duct fan support.



8:23 PM · Apr 17, 2026 · 7.01K Views

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## Components Table

Component	Role	Open-Source?	Notes
S19j Pro (stock)	Base miner	No (but firmware replaces closed parts)	Hidden USB port key
Mujina Firmware	Full control board replacement	Yes	No dev fees, full fan/PSU control
USB Hub + Wi-Fi	Wireless connectivity	Yes	Via hidden port
Bitaxe-derived Touchscreen	Live dashboard	Yes	Hashrate/temps/fans display
AC Infinity Fans	Smart cooling	N/A	Native LuxOS/Mujina support

## 2. LibreBoard + Thermostats: Turning Miner Waste Heat into Smart Home Heating

The crew brainstorms (and prototypes) using LibreBoard (the 256 Foundation's open-source mining control board) as a bridge between standard 24V home thermostats and Bitcoin miners.

## Technical Deep Dive:

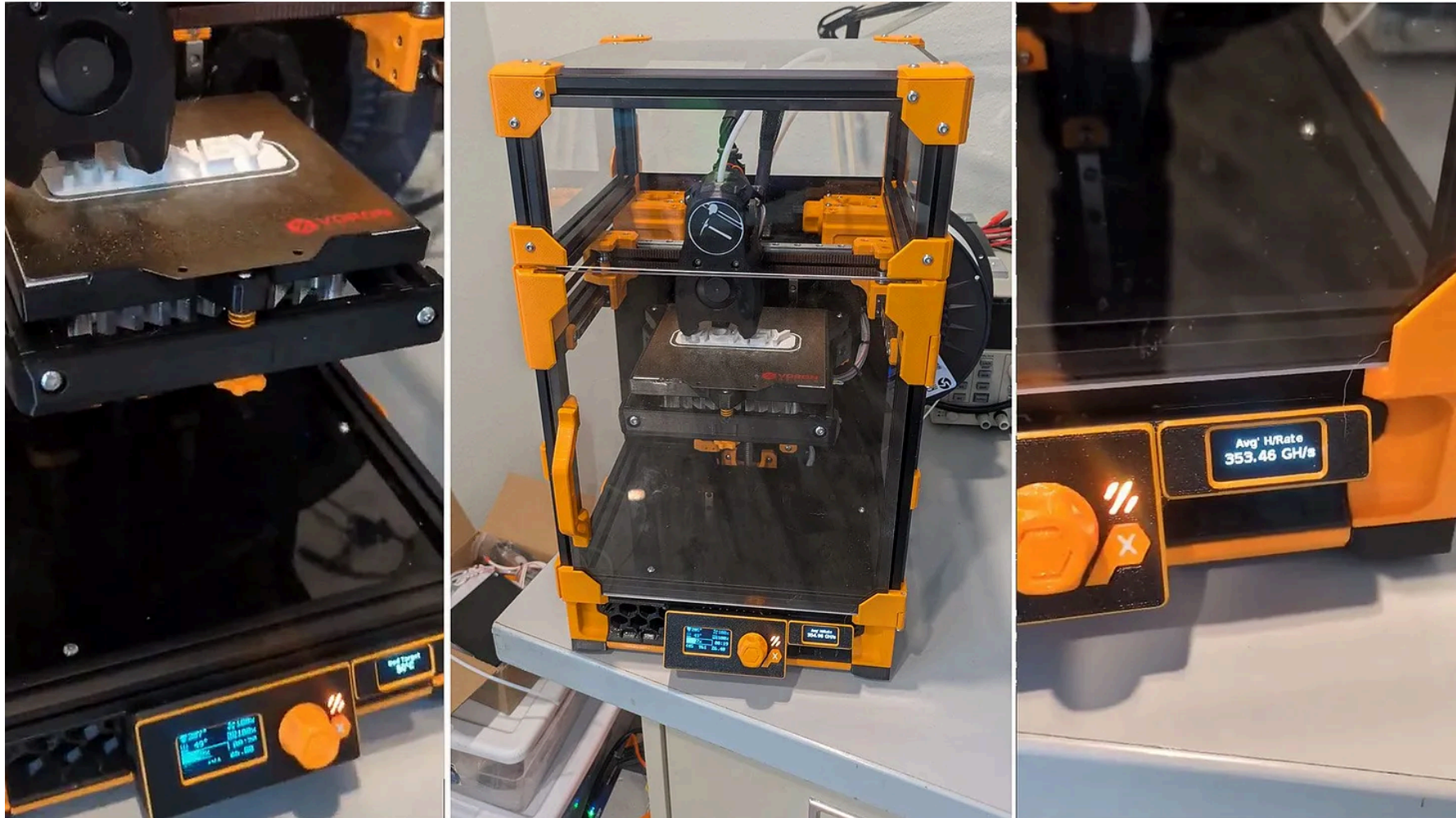
- **Bridge Logic:** LibreBoard translates thermostat “heat calls” into miner ramp-up/down commands.

## Control Modes Compared:

- **Binary Heat Calls:** On/off—simple but inefficient (full power or nothing).
- **Ramp Control:** Gradual frequency scaling for smoother heat output.
- **PID Loops:** Discussed for precise temperature targeting (Proportional-Integral-Derivative control to minimize overshoot).
- **Firmware Limits:** Frequency tuning works differently across Mujina vs. stock vs. LuxOS—real-world testing shows hardware caps on older ASICs.

This is perfect for home miners: excess heat warms your house while the miner earns sats. Community builds already include filament dryers heated by hashrate.

**Visual: Waste-heat reuse in action (3D printer/filament dryer example using miner exhaust)**



Catch the full interview with PizzAndy in [this](#) Tom's Hardware article.

## Control Modes Table

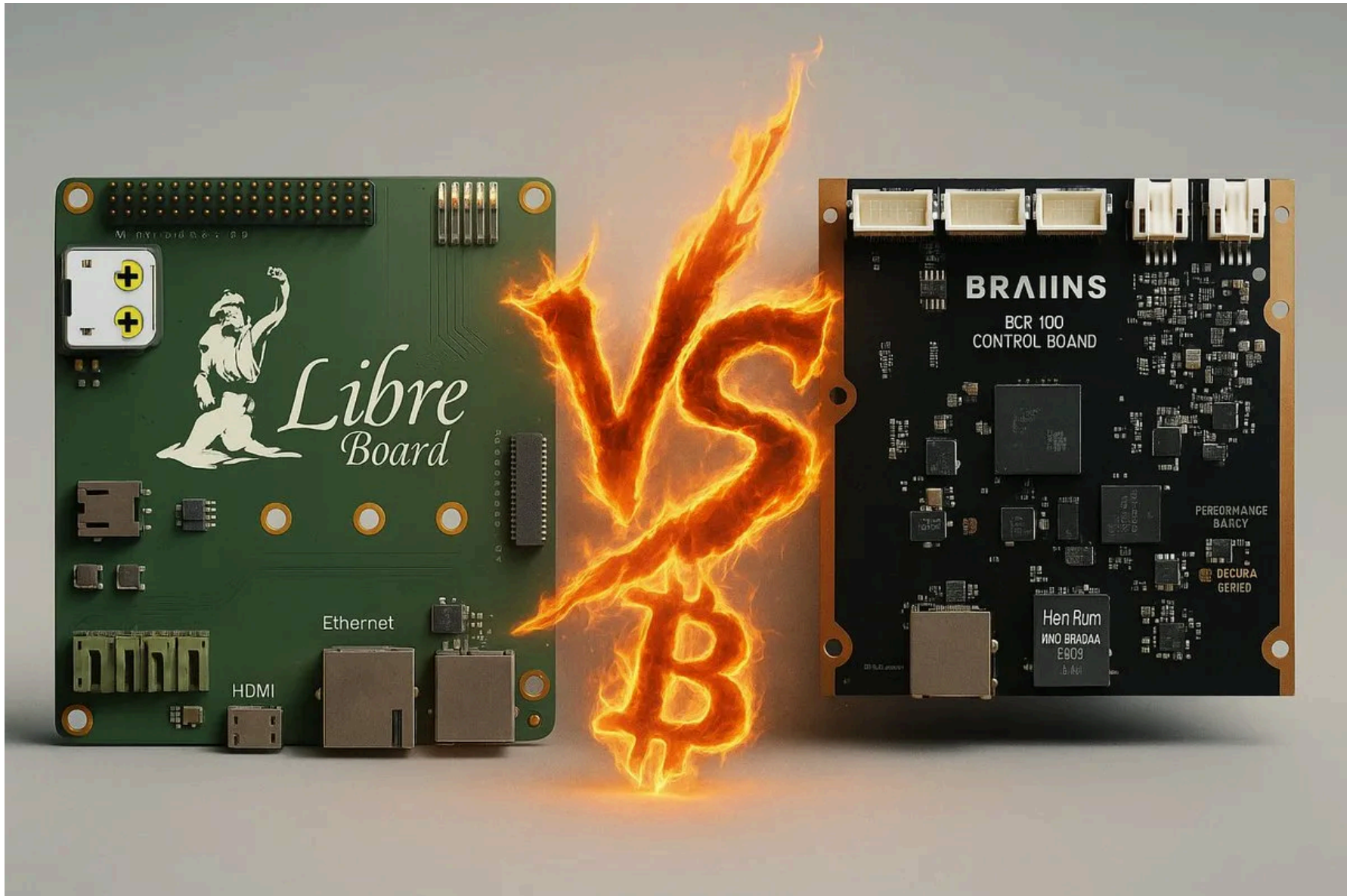
Mode	Pros	Cons	Best For
Binary (On/Off)	Simple thermostat integration	Harsh power swings, noise	Basic setups
Ramp + PID	Smooth heat, energy efficient	Requires custom LibreBoard logic	Precise home heating
Frequency Tuning	Fine-grained hashrate/heat control	Firmware-specific limits	Advanced open firmware users

### 3. Schnitzel's Doom-on-LibreBoard Test (#LibreDOOMAxe)

Pure hacker joy: Schnitzel got Doom running on the LibreBoard paired with a Bitaxe hashboard. Mujina firmware treats the Bitaxe like a hashboard via [bitaxe-raw](#), with real-time stats on an OLED display, Qwiic-connected temp sensors, fan RPM control, and even RGB temperature indicators. HDMI output shows the 256 Pool dashboard.

**Why It Matters:** Open firmware (Mujina + LibreBoard) makes proprietary “trick boards” obsolete. The path to full open firmware on WhatsMiners is accelerating—goodbye to vendor lock-in.

## Visual: LibreBoard in action (open hardware control boards)



## Related X Post Spotlight

@Schnitzel (LibreBoard lead engineer):

“LibreBoard Revision 1/2 testing continues: I built a LibreBoard-Axe! Mujina running on Libreboard with a Raspberry Pi CM5... And obviously the best: completely open source hardware and software.”



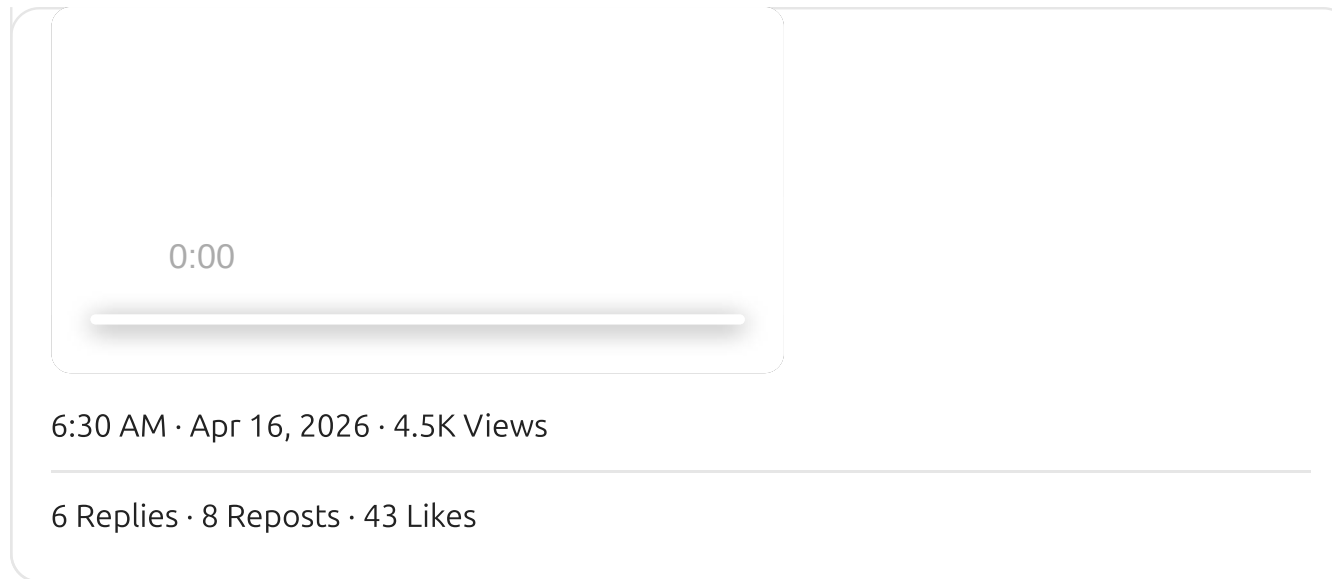
**Michael Schmid** ⚡  
@Schnitzel



LibreBoard Revision 1/2 testing continues:

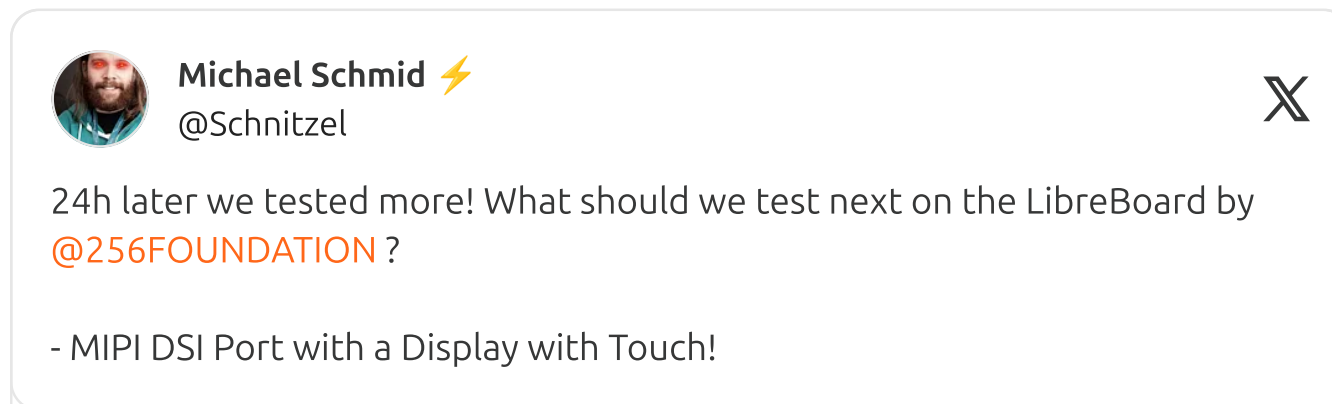
I built a LibreBoard-Axe!

- Mujina running on Libreboard with a Raspbeery Pi CM5.
- Connected via USB to a Bitaxe Gamma running Bitaxe RAW Firmware (allows Mujina to mine on the Bitaxe like it is a hash board)
- Real-time mining stats on

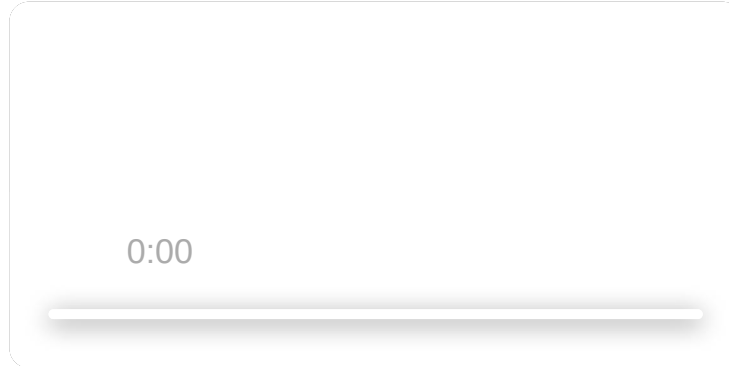


And the Doom tease:

“But can it run Doom? #LibreDOOMAxé” (with follow-up tests including MIPI DSI touch displays and full Raspberry Pi HAT support).



- Full Raspberry Pi HAT via Sense Hat with joystick, Accelerometer, Gyroscope, Brightness, Pressure and a fun 8x8 RGB LED Matrix
- Finally powered



**Michael Schmid** ⚡ @Schnitzel

LibreBoard Revision 1/2 testing continues:

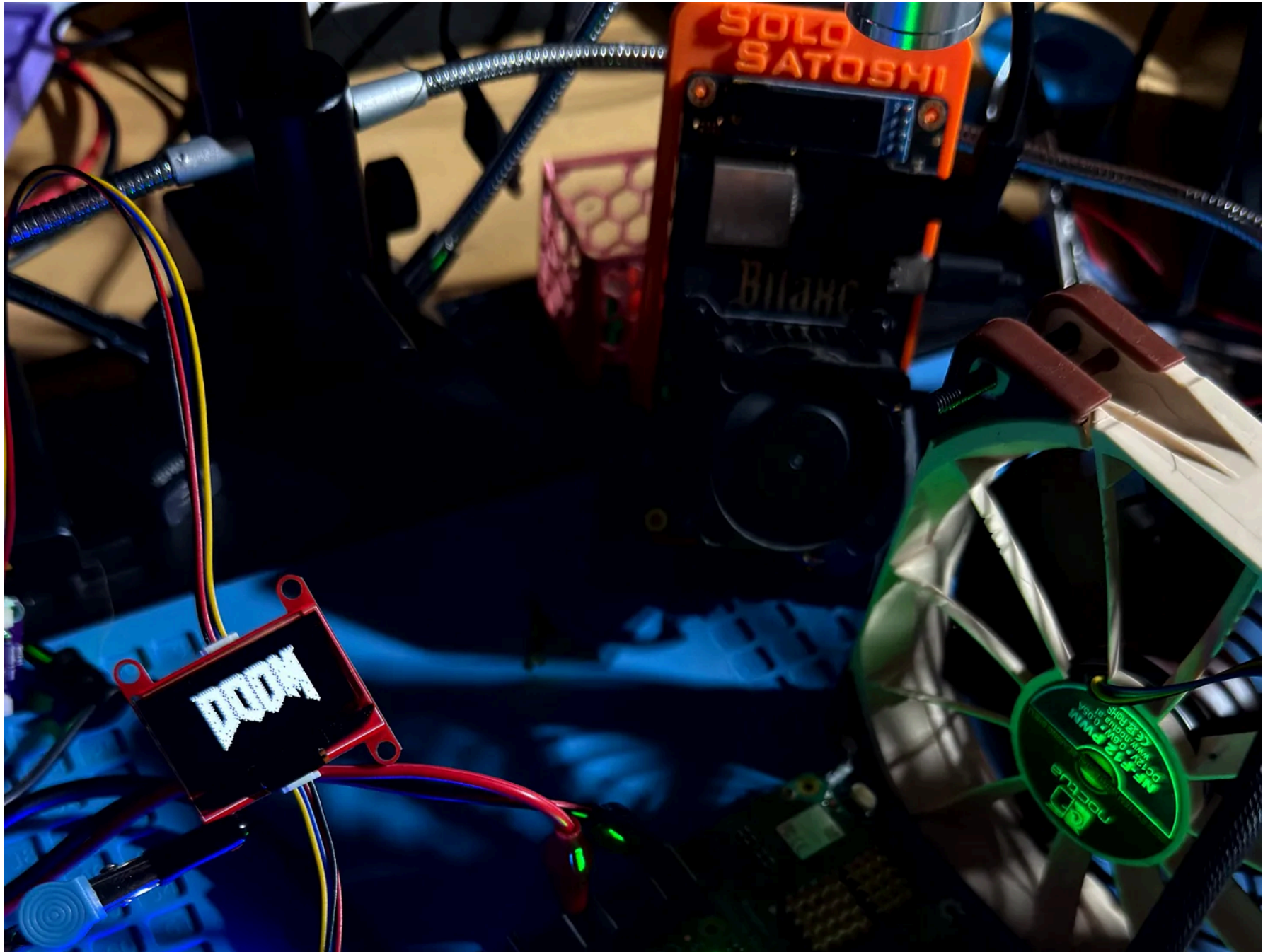
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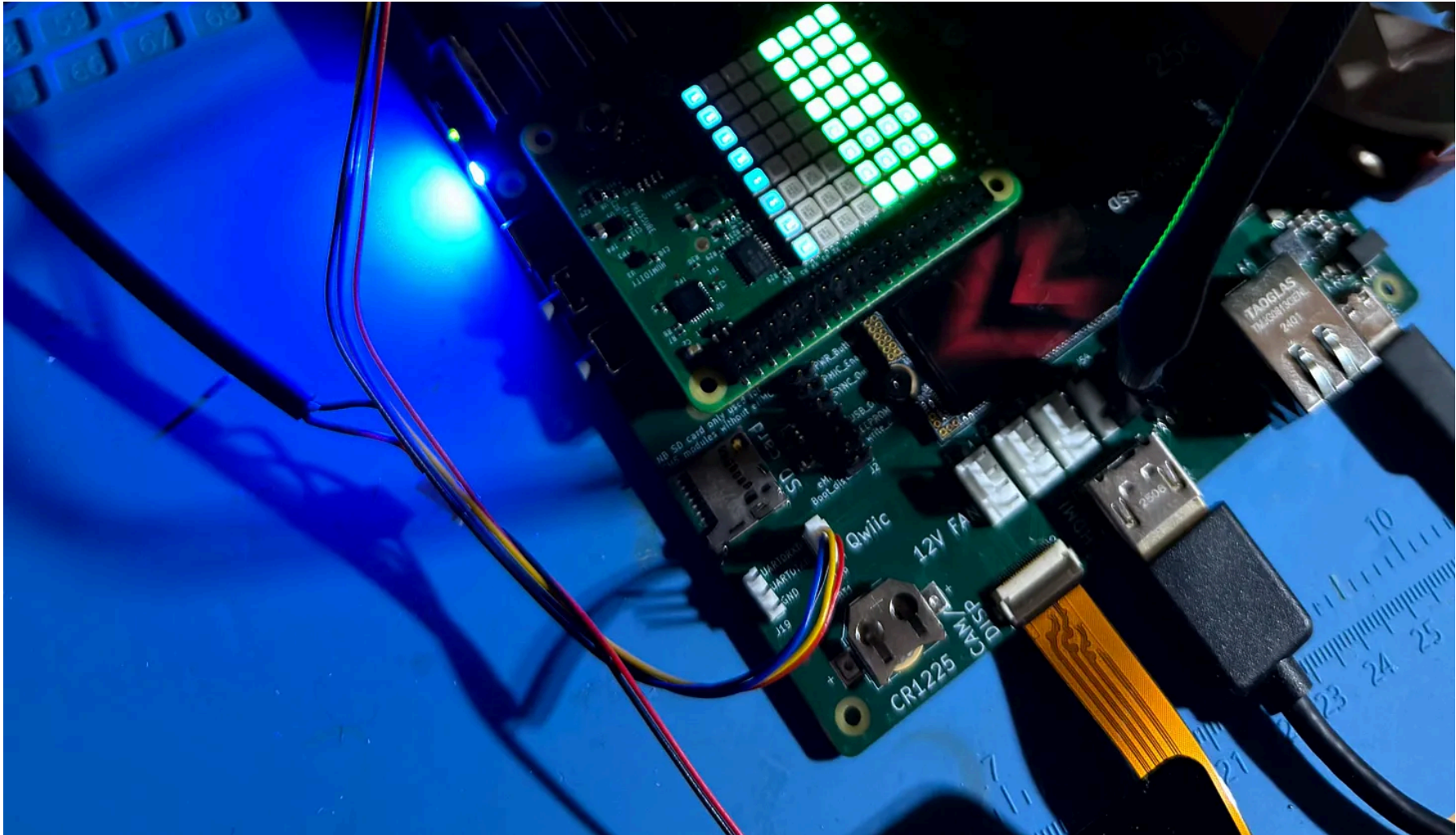
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**Visual: Bitaxe open-source miner (the hashboard used in the LibreDOOMAx build)**





## 4. Firmware, PSU, & Stratum V2 Momentum

- **LuxOS Update:** New “ignore PSU link” option—huge for custom PSU mods (120V hacks discussed in detail).

- **WhatsMiners:** Rapid progress toward open firmware; hardware hacks like trick boards become unnecessary.
- **Stratum V2:** BlitzPool's solo pool + non-custodial PPLNS roadmap. Vision for a node-native, open block-template app that could unlock true decentralized mining.

**Community Shoutouts:** - OpenSats' [Open Hardware Impact Report](#) highlighting Bitaxe, BitShoka/BitSoka Nini, and the 256 Foundation.

- New features on [hardestblocks.org](#) and the growing [dash.256f.org](#) roster.
- Wild builds: BitForge Nano, hashrate-heated filament dryers.

## Key Takeaways for Tech Enthusiasts

- **Open hardware wins:** LibreBoard + Mujina turns expensive ASICs into customizable, Wi-Fi, touchscreen, heating, *and* gaming devices.
- **Rapid iteration:** AI CAD + community testing = prototypes in days.

- **Practical Freedom:** Waste heat reuse, no dev fees, decentralized pools—Bitcoin mining as a true home freedom tech.

Catch the [full episode](#) on your favorite pod app (Fountain, Apple, Podverse, etc.) or watch the live replay. The 256 crew heads to Bitcoin 2026 in Vegas next week for panels on open hardware and human rights.

**Stay mining, stay hacking.**

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*Generated from Episode 113 show notes & community context. All projects 100% open source —fork, build, improve.*

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