Open Source ASIC Miners: A Blessing For Home BTC Mining?

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The recent release of the JaBIT Solo Miner (Bitaxe V2.2) makes home mining accessible for almost any hobbyist. Going forward, FOSS/Libre Bitcoin mining hardware and software could bring small-scale Bitcoin mining to the masses by putting an ASIC in every home!

Can JaBit become the Raspberry Pi of Home Bitcoin Mining?

Last week a Bitcointalk.org user named developeralgo posted about the release of the first ever fully open source ASIC (Application Specific Integrated Circuit) miner for Bitcoin and other SHA-256-based cryptocurrencies. The miner is called the JaBIT Solo Miner (Bitaxe V2.2), it's remarkably tiny (a little larger than a credit card), and gives a hashrate of up to 400 GH/s.

The JaBit miner can be purchased pre-assembled or the parts and components can be sourced locally or online and the miner can be assembled DIY, at home. The total cost is in the ballpark of around $200 dollars. A cool feature of the JaBit is that it runs silently, which is a huge advantage for home miners, with limited space for mining.

The JaBit miner can mine any SHA-256 coin such as Bitcoin (BTC), BitcoinCash (BCH), Acoin (ACOIN), Curecoin (CURE), Joulecoin (XJO), Unbreakable (UNB), Peercoin (PPC), Mark (DEM),

Terracoin (TRC), BitcoinSV (BSV), Litecoin Cash (LCC), NameCoin (NMC), Digitbyte (DGB), and more.

Perhaps the most important quality of the JaBit miner is that it makes mining Bitcoin accessible for home miners, once again. A huge barrier to entry for home miners is the high cost of contemporary industrial ASIC miners, along with high-priced residential electricity costs. Another barrier is the problem of sound and heat that the miners produce, which must be dampened or vented, especially in smaller dwellings, like an apartment.

We have seen other kinds of FOSS/Libre hardware like the Raspberry Pi single board computer, develop a huge following and be in high demand from Bitcoiners looking for a cheap accessible way to run their own non-mining nodes, at home. Examples of this are projects like RaspiBlitz, Umbrel, or MyNode.

Along with Raspberry PI, other popular FOSS/Libre single board computers have been used for home non-mining nodes as well, like the Odroid, and Beagle board, although Raspberry Pi seems to be by far the most popular among Bitcoiners. The JaBit (Bitaxe V2.2) could become the "Go To" FOSS hardware favourite for Bitcoiners who would like to contribute to network security, while earning KYC-free Satoshis, by mining at home.

This could be the catalyst for the beginning of a massive home mining resurgence for Bitcoin!

One Computer One Vote, An ASIC in Every Home

When the Bitcoin blockchain was launched by Satoshi in 2009, early Bitcoiners were able to mine Bitcoin with standard retail computer equipment, there was no need for specialised hardware. Leveraging the first multi-core CPUs, early Bitcoiners were able to mine on their home PC or laptop and earn 50 BTC per block found.

This is because in the Bitcoin whitepaper, Satoshi describes his vision for Proof of Work and Bitcoin's on-chain governance by writing "Proof-of-work is essentially one-CPU-one-vote." In the early days of the Bitcoin network, this was definitely true, but as the Bitcoin network grew and technological advancements were made, mining was to undergo major changes.

In 2010, just a year after Bitcoin's launch, GPU mining code was released which allowed Bitcoiners to increase their hashing power by employing GPUs or graphics cards, often used for PC gaming. GPU mining allowed Bitcoin miners to mine more efficiently, allowing them to find more blocks and earn more BTC. It also greatly increased the network's hashrate, and overall security and resilience to attack.

2010 also witnessed two other major mining advancements.

First, we witnessed the first ever Bitcoin mining pool, Bitcoin.cz, which later became Slush Pool, since it was created by Marek "Slush" Palatinus. Mining pools allowed many different miners to combine their hash power behind a single node to find more blocks and split the rewarded BTC. Mining pools birthed the modern Bitcoin mining "industry".

Second, we saw the release of BraiinsOS. Braiins is autotuning mining firmware for ASIC miners, which increases hash rate and can improve a miner's efficiency by as much as 25 percent. When Braiins was first released ASICs for mining had not been created, but the modern version of Braiins is catered towards ASIC mining.

In 2011, the first FGPAs were employed for Bitcoin mining, and as they are more power-efficient than GPUs, this marked the decline of GPU-based Bitcoin mining. FPGAs for Bitcoin mining mark the beginning of the transition from mining being primarily an activity for hobbyists, to the end of hobby mining for most home miners. They simply couldn't compete anymore.

In 2012, Bitcoin miners began to consider ASICs as a new technology for mining, although the first commercial ASIC miner wouldn't arrive until 2013, in the form of the legendary Antminer S1, from Bitmain. The Antminer would forever alter the landscape for Bitcoin mining. The first Antminer provided miners with a hash rate of 180 GH/s.

With the introduction of the Antminer S1, Bitcoin mining became an industrial-scale undertaking and we have the creation of the first mining "farms". The amount of resources required to enter the mining space on a competitive level became mostly out of reach for small scale miners. This development pretty much ended the one computer one vote dynamic in Bitcoin, for all intents and purposes.

Can the JaBIT Solo Miner (Bitaxe V2.2) Bring Back Home Mining?

While industrial mining certainly provides the overwhelming majority of the Bitcoin network's present hash rate, there has been a niche community of home Bitcoin miners who have managed to hold on. Many of these miners barely break even and do it more for ideological reasons, although some still manage to squeeze out a profit.

Among the home mining community, the most popular hardware seems to be older ASIC miners like Bitmain's Antminer S9, which can be acquired relatively cheaply on the secondhand market.

S9s are popular with hobbyists interested in using Bitcoin mining for home heating or home water heating, and other projects utilising the wasted heat energy, while earning some BTC in the

process. The drawback with industrial miners in the home is always the same, it's tough dealing with the excess heat and sound created by the machine.

This is where the JaBit (Bitaxe V2.2) comes in. The JaBit is a very compact and quiet home Bitcoin miner that can solve some of these issues for home miners while reducing the barrier to entry by making it cheaper and more accessible to purchase or build your own ASIC miners locally from locally available hardware. The JaBit still produces heat, which must be dealt with but it is much more manageable.

The JaBit makes it much more realistic for a hobbyist to set up one or more miners at home and become a full-fledged mining node network participant. This is extremely important because it restores Satoshi's original design for mining by reinstating the one computer one vote principle laid out in Bitcoin's whitepaper.

Another huge benefit from a thriving home mining scene which could emerge from the community embracing the JaBit as a Raspberry Pi-like piece of home-mining hardware is the checks and balances it provides for Bitcoin's mining game theory. One of the oldest and oft-repeated talking points for Bitcoin fudsters is the ever threatening spectre of "mining centralisation".

Over the years, Bitcoin critics have claimed that Bitcoin mining is centralised under just a few large Bitcoin mining pools which control a huge majority of the network's hash power. While the miners themselves can freely switch pools if one begins to become too large, the criticism still remains. More recently, with the advent of publicly-traded mining companies like Riot and Marathon, fears that regulators will require miners to censor transactions under the guise of "compliance", still persist.

With a FOSS/Libre hardware alternative like the JaBit in millions of homes around the world, it could provide a completely decentralised home miner bulwark to corporates who may come under pressure from regulators. Even if every major publicly traded mining company had to comply with demands for censorship, there would still be millions of home miners who could and would happily mine a "censored" transaction and benefit from the additional fees for doing so.

In such a scenario, the JaBit could serve as the Bitcoin community's informal insurance policy towards possible attacks on the mining industry and ensure the network remains decentralised and censorship resistant.

We could truly witness the Bitcoin cliche of an ASIC miner in every home in the future, play out in the years to come.