Micro Bitcoin

A Peer-to-peer Microtransaction Payment Platform

www.microbitcoin.org

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Abstract

Micro Bitcoin (MBC) is a decentralized peer-to-peer (P2P) payment platform for the micro-economy. It is intended to be a means-of-payment coin, created (forked) from the Bitcoin (BTC) blockchain, and is designed to be used as a fast, flexible and acceptable method of payment which can be used between peers and between traditional businesses and their customers. Satoshi Nakamoto's original plan for creating Bitcoin was to provide a decentralized system of payments which was not under the control of any centralized fiat-rendering organization. However, Bitcoin has found limited application for micro-payments because of the problems of scalability, slow transaction times and high transaction costs. An effective blockchain-based payment solution has to be cheap to use and provide near-instant settlement of transactions for value to be delivered. This is where Micro Bitcoin comes in. The vision of the team behind Micro Bitcoin is to fulfill Nakamoto's original vision of creating a true Peer-to-Peer electronic-cash system for the micro-economy.

The forking process allows it to retain usage of a distributed ledger, while still providing the flexibility that is required to perform transactions at the micro-level without the hurdles of expensive fees and slow confirmations. We believe that Micro Bitcoin would be a beneficial complement to the Bitcoin blockchain and thus the cryptocurrency realm. It is not designed to replace Bitcoin, but to create a variation that can complement Bitcoin and rely on its strong foundation to support a specific purpose in the cryptocurrency community.

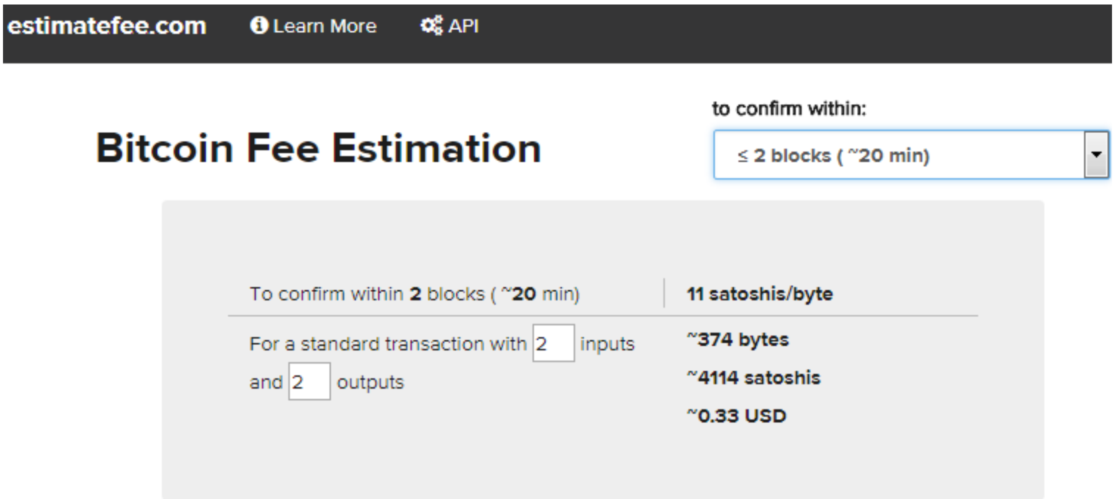
Keywords: Micro Bitcoin, MBC, peer-to-peer, open source, decentralized, "ASIC-resistant, micro-economy, microtransactions, micropayments.

Introduction

Bitcoin and other cryptocurrencies began to witness a surge in interest from early 2016, about two years after the collapse of the Mt.Gox exchanges caused investor panic in the market. 2017 saw the price of Bitcoin soar from around $800 to a peak at almost twenty thousand U.S. Dollars. This move led to a dramatic surge in Bitcoin purchases, Bitcoin trading activity as well as trading activity in other altcoins. This massive user growth by mostly retail investors also led to an increase in the number of transactions on the Bitcoin network. This led to a stretching of the capacity of the network to handle the rapidly rising volumes, leading to an increase in confirmation fees and slower transaction confirmations.

Bitcoin's payment network offers a high level of censorship resistance, which is dependent on the continued decentralization of the system. This is an expensive event, as the cost of full node operations tends to rise with increasing number of transactions on the network. As block space usage has spiked, so also has the cost of using up blocks for transaction confirmations. Users are now essentially in a bidding war to have their transactions prioritized for processing. This bidding war has driven up costs of processing transactions to levels where businesses operating at the level of the micro-economy will find it unprofitable to accept payments with Bitcoin.

To get a proper view of the situation, a popular online Bitcoin fee estimator shows that as at the time of writing this white paper, the cost of confirming a transaction within 2 blocks or less (equivalent to 20 minutes or less) was about 33 cents.

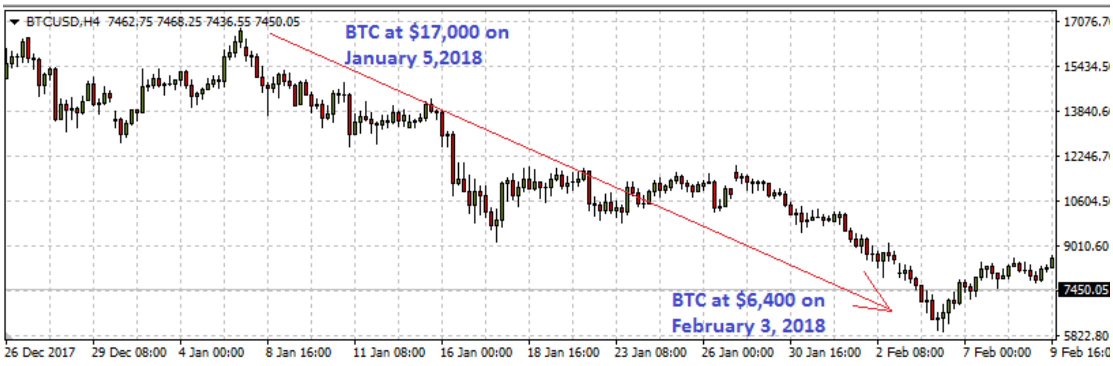


Bitcoin Fee Estimation

to confirm within: ≤ 2 blocks (~20 min)

To confirm within **2** blocks (~**20** min)	**11 satoshis/byte**
For a standard transaction with 2 inputs and 2 outputs	**~374 bytes** **~4114 satoshis** **~0.33 USD**

When compared with traditional payment methods, P2P micropayments done using Bitcoin at an average of 33 cents per transaction would be too expensive. Then there is also the problem of preservation of value. If a small business were to receive 2BTC worth of payments on April 1st 2018, would these retain their dollar value in a month given the price volatility in the Bitcoin market? This chart clearly shows that there is a severe depreciation risk involved.



BTC at $17,000 on January 5,2018

BTC at $6,400 on February 3, 2018

A number of solutions have been developed and are still undergoing development to combat these challenges. Some of the solutions include previous hardforks such as Bitcoin Cash and Bitcoin Gold, implementation of SegWit and the ongoing development of the Lightning Network. The Lightning Network was initially believed to be a workable solution to many of Bitcoin's shortcomings, but this initial optimism is now coming under intense scrutiny. There are many who believe that the Lightning Network would cut out the miners who maintain the network as well as compromise the element of anonymity that Bitcoin is known for. There are even fears that the routing structure of the Lightning Network renders it vulnerable to DoS and DDoS attacks.

Furthermore, the adoption of the Lightning Network would mean that an integral characteristic of Bitcoin would have to be sacrificed; the distributed ledger system. Distributed Ledger is one of Bitcoin's most important components, ensuring that trustless transactions can be confirmed by various parties using a consensus mechanism.

In the light of these challenges, we are proposing a new platform that makes transactions faster, cost-effective and easy to use for the micro-economy without sacrificing the essential elements of the parent Bitcoin network. Transacting parties on the network will, therefore, derive the benefits of a truly decentralized network without having to sacrifice the beneficial elements of Bitcoin. Our solution will instead, assist in the advancement and application of the technology and ecosystem in general.

An additional application of our solution is an incentive mechanism that will promote the incoming of pioneers and developers who will use their skills to drive the advancement of the technology. The incentivized mechanism will also promote adaptation of our solution by peers and in the real world micro-economy. It will also provide for a better store of value, and not be subject to the wild variations in price that Bitcoin has been subjected to over time. This is very important for holders of the token, who need to be sure that the value of their coins will not be suddenly halved or quartered in a few days of price volatility. This is presently a significant challenge for Bitcoin holders, who have had to endure repeated onslaughts from speculators who cause prices to move in wide ranges on a day-to-day basis.

Utility is a word that is being used quite often in the space, and we believe that an ecosystem of pioneers with ideas for the application of the technology and understanding of the benefits of a trustless system will help bridge the gap and pave the way. In order for such talent to excel, a technology that is easy to use out of the box, such as a plug-n-play kit, can be provided by a community of developers and incentivized if need be.

Ideas can be proposed and for such an event to be seen in motion that eventually leads to an end user also educating that such an ecosystem is in place, is priceless. We hope to help build such an ecosystem for a community that works together and towards a common goal, peer-to-peer payments.

Technical Specifications

Presented below are the proposed technical specifications that will be implemented for the initial phase of the hardfork. With progression and adaptation, we believe an open and talented community will continue to contribute toward the technological improvements of the platform.

1. Total Supply

The supply of Bitcoins is presently pegged at 21 million coins, out of which 80% have already been mined. Any crypto coin to be used as a supplement to transactions in the micro-economy must be able to guarantee a vastly increased supply of these coins. An increased total supply would lower the value of integers, also known as "Satoshi," as well as the cost of transaction fees. The Micro Bitcoin token, to be known as MBC, would see the creation and deployment of 210,000,000,000 coins, or 10,000 times the number of BTC that can ever be mined.

210,000,000,000 MBC

Increased ratio 1 BTC :10,000 MBC

Increasing the total supply of MBC by a ratio of 1:10,000 to that of Bitcoin will lead to transactions of lower values attracting lower fees. This is in keeping with the intended idea for lowering transaction costs of micropayments made using the platform.

2. Proof-of-Work

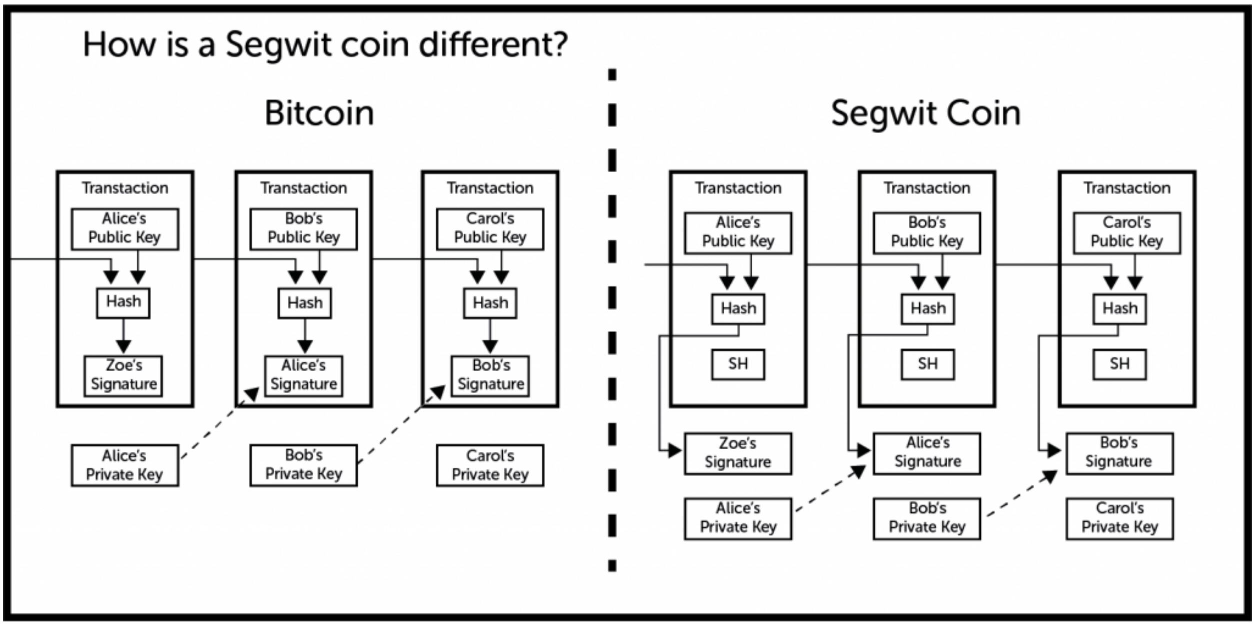
Issues regarding the current Bitcoin proof-of-work algorithm have been raised after significant improvements were made to mining equipment. These new mining equipment, commonly known as “ASIC Miners” (Application-Specific Integrated Circuits), became the latest generation of mining equipment and have supplanted the CPUs and GPUs that preceded them. Their incredible processing speeds and lower power consumption have made them the mainstay of the mining market, but their emergence has slowly led to a "centralized" mining structure. Due to the inequality of access to these ASIC miners, only those who could afford them and had the infrastructure to support their use could have access to these equipment. If you lived in a resource-deprived country where power cuts are the norm and not the exception, then the guys with the ASIC miners were already in an advantageous position.

Mining has to be kept decentralized so that it does not become skewed to suit those who had the muscle to afford ASIC mining equipment. This is why the "ASIC-resistant" mining equipment have been developed. Micro Bitcoin will implement the "ASIC-resistant" proof-of-work algorithm known as "Grøstl" that was developed by the team at Groestlcoin.

Full specifications related to mining will be listed on the official Micro Bitcoin Github repository. Link can be found via the official website.

3. Segregated Witness (SegWit)

Segwit is a protocol upgrade that has been designed to make Bitcoin more scalable without increasing the size of blocks. All Bitcoin input transactions require the sender to use the private keys to digitally sign off on the transaction. By segregating the signature block (which takes up the chunk of data size of each transaction), up to 60% reduction of the data size is achieved, reducing the transaction time and cutting transaction costs. Micro Bitcoin will fully implement SegWit.



Source: Peter Rizun

SegWit has proven to be a success in increasing the speed of transactions and Micro Bitcoin should continue with this advancement of the tech to provide the necessary transaction speeds for everyday usage and maximum speed of adoption in the micro-economy.

4. Block Size and Interval

To increase the number of transactions per second or "TPS," an increase in block size would supplement the many transactions happening on the network. Adoption of the SegWit protocol as mentioned previously will lead to a block size gain of four megabytes per block. More transactions can then be handled per block, at lower costs.

Furthermore, the interval between the creation of new blocks will be lowered to one minute to facilitate near-instant transaction confirmations for micropayments. So you can expect to walk into a pizza shop and pay for your pizza with MBC within the same time frame it would take to run your credit card on a PoS machine.

5. Block Reward

The ratio of the increase in total MBC supply in relation to existing BTC supply will be applied to block rewards. With Bitcoin transactions currently being done at 12.5 BTC per block (at an interval of ten minutes per block) we can formulate that:

$$(12.5 \text{ x } 10{,}000) / 10 = 12{,}500 \text{ MBC per block}$$

(BTC Reward x Ratio) / Block interval ratio = Micro Bitcoins per block

So miners would get more rewards of MBC in relation to BTC for each block mining cycle.

6. Replay Protection

Replay Protection is the generalized term used in describing techniques for prevention of replay attacks. Replay attacks are defined as fraudulent or malicious duplication or delay of validly transmitted data within the blockchain. If you have a main chain and a forked chain, it exposes the data transmitted on one chain to fraudulent duplication on the other chain. But replay protection makes such transactions only valid on the chain that the sender intended and renders invalid any malicious duplication of such data on another chain. In other words, data validly sent on chain X will not be valid on chain Y and vice versa. As this is an essential security measure, it’s a necessary implementation going forward.

In addition to implementing replay attack protection, Micro Bitcoin will use its own unique address formatting system as an added measure to secure transactions within its network.

Ecosystem

An excellent example of the use of Micro Bitcoin (MBC) in the micro-economy is when one can simply pay for a cup of coffee at his or her favorite coffee shop. Technology advancements have made customer experiences satisfactory by refining practices through the years. The same has to happen with new business models that are developed via the use of cryptocurrencies in real-world applications. There are many "Pioneers" with potentially great ideas but who lack the resources to develop simple payment solutions for their businesses.

One example many may relate to is how Steve Jobs was able to take Steve Wozniak's innovations and bridge the gap between us and personal computers [6]. The example shown helps to illustrate that there needs to be a team with various skills to have a working solution.

It is our intention to encourage open source development, creative ideas, user communities, utility and smart applications. Therefore, ours will be a community platform where fellow pioneers can access easy and ready-to-use technology and implement their ideas for people to have access to. It will also be a place where such ideas can be shared and built upon for the propagation of micropayments. This is the vision for Micro Bitcoin.

As further development is carried out, examples of use cases and applications will be written for others to be able to adapt in ways that best fit their environment.

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