QuarkChain Miner Handbook

1 Introduction

In order to meet the requirements of miners, QuarkChain supports mining with both GPU and CPU. GPU supports mining with NVIDIA graphics card and AMD graphics card. QuarkChain has released the one-button mining function so that miners can join the mainnet mining without maintaining a cluster. The GPU return is about 1 to 5 times higher than that of ETH and the amount of return is related to the amount of token staked. Miners can choose the proper shards freely according to their hash power and the amount of token they hold. CPU mining adopts the Qkchash algorithm, which is proposed by QuarkChain and resistant to ASIC. It is supported by two chains and each chain generates an average of 28,080 QKC every day. Mining on the root chain is under development and is expected to launch at the end of September and the return is 2 times higher than the return of all shards. The return is considerable and you are welcome to join!

For more information about the mining return calculator, please visit: http://calc.quarkchain.io/

2 What is PoSW?

Briefly speaking PoSW mining is: Tell the miners about your QKC wallet address you saved which meets the quantity requirements of mining, ask the miners to use it as a mining address, and then return the mining benefits to the miners regularly to mine.

3 How to operate?

First swap your ERC 20 QKC to mainnet token and then choose a shard (use calc.quarkchain.io to choose). Then put the mainnet token to the selected shard address and then use our one-button mining function.

3.1 Where does the mainnet token come from?

3.1.1   Buy ERC20 or mainnet token from exchanges. If you already had ERC20, you can swap ERC20 to mainnet token on exchanges. Currently Gate.io and Piexgo support both the QKC ERC20 and mainnet QKC assets deposit and withdrawal and the details are: [QuarkChain Token Swap Progress Summary](#). If the QKC amount is over 500,000, we can do the token swap for you individually. (Please join our Telegram group and contact the administrator.)

3.1.2   Find some holders in the group and enjoy the mining return together.

Matching group for miners and QKC holders: https://t.me/QuarkChain_PoSW_Mining

3.1.3   Withdraw operation and put the mainnet tokens to the shard address.

The MetaMask web wallet: http://mainnet.quarkchain.io/wallet

qPocket download: https://www.qpocket.io/

Tutorials for mainnet token swap on qPocket: [QuarkChain Token Swap Progress Summary](#).

3.2 How much is the mining return and how to choose shards?

3.2.1   How to Calculate Mining Return: http://calc.quarkchain.io/

3.2.2   Mainnet hash power monitoring: http://mainnet.quarkchain.io/stats

3.2.3   One-button QuarkChain Mining Setup Release: QuarkChain's PoSW Mining Return Is About 5 Times Higher Than That of ETH. More details: https://medium.com/quarkchain-official/one-button-quarkchain-mining-setup-release-quarkchains-posw-mining-return-is-about-5-times-173418a124bd

3.2.4   Root Chain PoSW Mining:

https://quarkchain.io/wp-content/uploads/2020/01/QuarkChain_Root_Chain_PoSW_Stake_Mining_Tutorial.pdf

Chain	Shard	Consensus	Hash Algorithms	One Allowance	Maximum Stake	Diff with Staking (G)	Expected Return (vs. ETH)*
Root Chain	Shard 0	Proof of Guardian (PoSW in Future)	Ethash	TBD	TBD	TBD	TBD
Chain 0	Shard 0	PoW	Ethash	0	0	250.284	0.991x
Chain 1	Shard 0	PoSW	Ethash	20000 QKC	5.12M	111.698	2.201x
Chain 2	Shard 0	PoSW	Ethash	40000 QKC	10.24M	112.973	2.177x
Chain 3	Shard 0	PoSW	Ethash	80000 QKC	20.48M	72.533	3.374x
Chain 4	Shard 0	PoSW	Ethash	160000 QKC	40.96M	65.295	3.742x
Chain 5	Shard 0	PoSW	Ethash	320000 QKC	81.92M	74.125	3.302x
Chain 6	Shard 0	PoSW	Qkchash	40000 QKC	10.24M	TBD	TBD
Chain 7	Shard 0	PoSW	Qkchash	160000 QKC	40.96M	TBD	TBD

3.3 How to mine?

One-button quick GPU and CPU mining instruction without maintaining a cluster (testnet version)

    3.3.1   GPU mining binary release for Windows and Ubuntu (Nvidia and AMD GPU):
https://github.com/QuarkChain/ethminer/releases/tag/one_button_ethminer1.0

    3.3.2   CPU mining binary release for Windows:
https://github.com/QuarkChain/Qkchash_CPU_Miner/releases

    3.3.3   CPU mining docker (Windows, Ubuntu, and MacOS):
https://github.com/QuarkChain/pyquarkchain/wiki/One-Buttion-CPU-Mining-Docker

3.4 How to check the mining return of PoSW?

Go to the "explorer" to check the mining state of PoSW. Once you enter your 24 bytes mining address and you will see the result of PoSW Mined Blocks.

3.4.1 If PoSW enabled:

Account

Address:	0x7DeB90eF2097D8A9e423516e199b9D95EB2b4D97000
Chain:	1
Shard:	0
Tokens in shard:	20,294,281.485637 QKC
Tokens in network:	152,004,488.78180105 QKC
Transactions:	1
Mined Blocks:	7 / 256 (used / PoSW allowed in recent 256 blocks)

Here are some examples:

PoSW Mined Blocks:
46 / 50 (used / allowed in recent 256 blocks)

The denominator 50 represents that of the recent 256 blocks, you can enjoy 50 blocks PoSW benefit with the tokens you stake.

The numerator 46 represents that of the recent 256 blocks, the number of blocks mined by your hash power.

1) When the denominator is greater than the numerator, it means that your hash power is not enough and you can increase your hash power until you can enjoy the 50 PoSW benefit.
2) When the denominator is less than the numerator, it means that your staking is not enough and you can add QKC in order not to waste the hash power.

Official reminder: Adjust your hash power and the amount of QKC staked. Make the denominator slightly greater than the numerator, in other words, make the tokens you stake slightly more than what is needed. Thus, it can resist the fluctuation of the hash power in the market.

3.4.2 If PoSW not enabled:

Account

Address:	0x2725710Ee5E512Fde3a95DC18B3
Chain:	0
Shard:	0
Tokens in shard:	373.789862566000095232 QKC
Tokens in network:	373.789862566000095232 QKC
Transactions:	201
Mined Blocks:	66 (in recent 256 blocks)

4 Additional Information

4.1 Maintain a full cluster by yourself (Security guaranteed and mining efficiency)

    4.1.1   Use the official Docker tutorial:

- https://github.com/QuarkChain/pyquarkchain/releases
- https://github.com/QuarkChain/pyquarkchain/wiki/Start-Clusters-on-the-QuarkChain

    4.1.2   Open Port 38291 in Private Network Setting (Optional if the cluster runs in a private network):

    https://github.com/QuarkChain/pyquarkchain/wiki/Private-Network-Setting%2C-Port-Forwarding

    4.1.3   Set JSON_RPC_HOST 38391 for your GPU mining machines in the file pyquarkchain/mainnet/singularity/cluster_config_template.json (Optional if the cluster and GPU mining runs in different machines)

4.2 Search the history amount of mined blocks: http://mainnet.quarkchain.io/leaderboard.

4.3 You can search the amount of QKC by mining through web wallet and qPocket. The average time to mine a block on a shard is 10 seconds and each shard can get an average of 3.25 QKC mining return per block. The produce interval of blocks on the root chain is 60 seconds and each root block can get an average of 312 QKC mining return.

5 Q&A

1. Q: Does one-button QuarkChain mining support claymore core?
A: One-button QuarkChain mining is based on ethminer and it does not support claymore.

2. Q: Does the node of one-button QuarkChain mining have any pool fee?
A: One-button QuarkChain mining aims to attract miners to join QuarkChain network to mine so that there is not any pool fee.