Cryptocurrency mining

crypto251.0 Cryptocurrency and the Smileycoin

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Mining, hashes and the cryptography puzzle

Bitcoin mining uses the hashcash proof of work function; the hashcash algorithm requires the following parameters: a service string, a nonce, and a counter.
See for example Example: Bitcoin `http://bit.ly/2PXIpYR`.
and Example: Litecoin `http://bit.ly/2oCpdTZ`.
(more later)

Mining from a wallet

Desktop mining is not reasonable for Bitcoin, Litecoin or other heavily mined coins.
It is, however, quite feasible for SmileyCoin (in 2019).
Most coins have gone through phases where mining is initially done using a computer's CPU, then a graphics card followed by specialised hardware.
In-between, mining pools are typically set up, where miners cooperate on mining a coin and share block rewards and transaction fees.
Mining outside mining pools is called **solo mining**.
SmileyCoin is typically still mined by individual computers (in 2019).

GPU mining

Screen displays on desktop computers are handled by graphics chips with considerable computing power.
Graphics cards are dedicated cards, inserted into the computer, to handle complex graphics.
These graphics cards are much more powerful for mining than is the typical central processing units (CPU) of a computer.
Generic software is freely available to mine arbitrary coins using such graphics cards.

Mining using specialised hardware (ASIC mining)

SmileyCoin can be mined using e.g. the `bfgminer` with a scrypt ASIC.

Mining using a small ASIC

This is for the Futurebit Moonlander 2

Which hashes and how

The mining algorithm

The **sha256d** mining algorithm

Mining, energy and other uses

As seen elsewhere in this document, mining Bitcoin requires a tremendous amount of computing power.

This generates heat which is commonly dissipated using fans or other methods.

Preferred locations include cool countries where it is easier to get rid of the heat.

A few use cases have taken the excess heat and used it for heating houses or other facilities.

Farmers in Iceland have used cryptocurrency miners to heat their facilities

`https://www.visir.is/g/2018181029655`

`https://www.wired.co.uk/article/bitcoin-mining-iceland-crypto`

If the facilities needed to be heated in the first place, then adding a suite of ASICs may mean that there is no variable cost associated with the mining operation.

More recent international developments

`https://news.bitcoin.com/ukraine-hotmine-smart-bitcoin-miner/`

`https://hotmine.io/en`

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