Mining Crypto on the Pi

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Crypto Currency

• Worldwide - International exchange
• Internet - dedicated community sites
• Blockchain - transactional record
• Blocks - contain individual transactions
• header - block identifier
• Tokens - coin units (transaction amount)
• Proof of Work -Rewarding each new block (mining)
• Proof of Stake - Rewarding block confirmation
Crypto Coins

- Several thousand Coin offerings
- Value depends on Supply/Demand
  - influenced by many factors/features
- Value expressed in Fiat currency
  - [https://coinmarketcap.com/](https://coinmarketcap.com/)
- Coins can be exchanged easily
- Very low transaction cost
Proof of Work (Mining)

- CPU/GPU computes a hash (SHA-256)
- Pi will submit the hash (digest) for approval
- Submittal is verified
- If qualified as a new block header ...
- New block is created and owner Reward is inserted
- In a Pool the Pool software will distribute the Reward to Pool member’s wallets.
First attempts (2014)

- CGminer - [https://sourceforge.net/projects/cgminerdownload/](https://sourceforge.net/projects/cgminerdownload/)
- Windows 7 Tower PC
- 2 high end graphic cards
- 850 Watt Power Supply
- 450 Watts when mining
- produced 800 Khash (SHA-256 hash created)
- Required temperature monitoring
ASIC Mining (2014)

- Raspberry Pi model 2
- USB hub links miners and Pi
- BFG miner software
- 3 ASIC miners (Zoomhash 7 Mhash)
  Each miner contains 2 boards with 80 GPU
- Moved to basement (Noise issue)
  Cooling fans are high speed, high CFM
- Very profitable setup
ASIC Upgrade (2014)

- 2 - 27Mhash self contained miners (Zoomhash)
- Miner Configuration (each)
  - Raspberry Pi with Zoomhash mining software
  - 10 Boards with 80 GPU ASIC chips
  - 850Watt gold Power Supply
  - 450Watt when mining - ~27Mhash output
- Switched to Minera distro software on the Pi
  https://getminera.com/
Pi Software

- Minera
  [https://getminera.com/](https://getminera.com/)
- A complete Distro on an SSD card.
- Insert card and apply power.

- Minera is available to install on any Debian PC
  [https://github.com/getminera/minera](https://github.com/getminera/minera)
Pi Mining

- Raspberry Pi Connections:
  - Internet - send/receive digests (mining Pool)
    stratum+tcp: protocol
  - Web interface to your client (port 80)
    http: protocol
  - Miner - USB interface to ASIC mining equipment
  - Power - USB 5VDC power to the Pi
Start Mining

• Select a coin
• Download a wallet
• Signup with a mining pool
• Assign workers (individual ASIC miners)
• Select the stratum+tcp: port (pool coin share)
• Enter settings in Minera (or other software)
• Start the miner
Crypto Links

• Complete Coin Market Overview
  https://coinmarketcap.com/

• A Reputable Crypto Exchange
  https://www.coinbase.com

• Pi Mining Software
  https://getminera.com/

• Typical Mining Pool site
  https://prohashing.com/
More Crypto Links

• Crypto Currency News Site
  https://cointelegraph.com/

• Coin Profitability Ratings
  https://whattomine.com/

• Purchase products with Crypto Currency
  https://www.newegg.com/
  https://www.overstock.com/

• Smart Phone Hot Wallet
  https://wallet.mycelium.com/