

# **Mining Crypto on the Pi**

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# Crypto Currency

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- 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

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- Several thousand Coin offerings
- Value depends on Supply/Demand
  - influenced by many factors/features
- Value expressed in Fiat currency
  - <https://coinmarketcap.com/>
- Coins can be exchanged easily
- Very low transaction cost

# Proof of Work (Mining)

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- 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)

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- CGminer -  
<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)

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- 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

3" PIPELIFE

PORT 1  
PORT 2

7000





# ASIC Upgrade (2014)

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- 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

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- Minera  
<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>

# Pi Mining

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- 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

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- 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

Minera ID yjuntendaytg

● Online

cpuminer

Coinbase

Get Free BTC Worth \$10

Just sign up  
Get 100\$ in BTC  
And you will receive  
your 10\$ bonus

🔄 Go to the dashboard page 46s

🏠 Dashboard ▾

📊 Widgets

💻 Local miner

☁️ Local Pools

📈 Charts

📄 Log

📁 Donation

📈 Charts

⚙️ Settings &lt;

💻 Miner &lt;

🔧 System &lt;

## Mining Dashboard

📄 raw stats &gt; ⚙️ Settings

29.95Mh/s

Pool Hashrate

History ↻

0.00% / 0.00%

Error/Rejected rates

Details ↻

48 secs

Last Share

Miner details ↻

86.00°F

System temperature

It's cool here ↻

Alive

stratum+tcp://prohashing.com:3333

Pools details ↻

0d 1h 16m 17s

Miner uptime

Started on Sun, 08 Dec 2019 02:39:34 GMT

## 📈 Mining profitability



Hashrate

MH/s ▾

Day ▾

₿ Earnings column calculation data: 11.75Mh/s Day

📄 Coin	🕒 Difficulty	🏆 Reward	📊 Blocks	🏠 Hash Rate	⇄ Exchange Rate	₿ Earnings	₿ BTC / Unit	📄 Coins / Unit	🏠 Algorithm
LTC	5609324.18	12.50	1749638	195.22Th/s	₿ 0.00607024	₿ 0.00000320	₿ 0.00000027	0.00004483	SCRIPT
BTC	12876842089682.00	12.50	607167	111822.47Ph/s	7411.33 \$ (6673.87 €)	₿ 0.00000000	₿ 0.00000002	0.00000002	SHA256

Exchange rates taken by Poloniex are updated every 10 minutes

Everything else are (almost) in real time. Profit formula is:  $(time / (difficulty * 2^{32}) / hashrate) * reward$ 

[BC.Game](#)  
Free Spin to get 0.5BTC  
[i.bc.game](#)

# Crypto Links

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- 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

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- 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/>