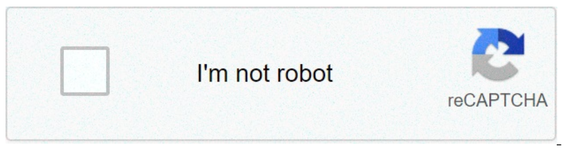

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How does bitcoin pool mining work

Cryptocurrency, particularly Bitcoin, has been a hot topic in recent years. Unlike standard bills and coin, cryptocurrencies are entirely digital and have no corresponding physical element. Money no longer belongs exclusively to large financial institutions and governments, but to the users themselves, who can earn or mine Bitcoin in various ways. It also works as an investment option, and a single coin has been worth as much as $19,000. Because this type of currency is so new, people everywhere are wondering how it works, how to get it, and whether or not it’s worth the investment. With cryptocurrency, there are no bills or metal coins. Bitcoins are blocks of data that act as currency. Beyond this difference, cryptocurrencies and other money are essentially the same. You can spend Bitcoin on items just as you would a dollar or other unit of currency. Very few businesses currently allow users to pay in Bitcoin, though this is changing. Users often rely on online Bitcoin trading sites and marketplaces to exchange goods and services for Bitcoin. D-Keine / Getty ImagesCryptocurrencies like Bitcoin rely on a new form of cryptography called a blockchain to both create new “coins” and verify existing transactions. The Bitcoin blockchain is a list of “blocks” that contain information about other blocks and various transactional data. When a user joins the Bitcoin network, they receive a copy of the blockchain that updates regularly. If two users’ blockchains differ, the system automatically prefers the longer one. Because the blockchain with more users will be longer, that one is the most trustworthy. This makes it extremely difficult for hackers or human error to mess with Bitcoin transactions.To take advantage of this rule, someone would need 51% of the machines on the network. As more people use Bitcoin, this becomes increasingly difficult. If there are 5 million people using Bitcoin, a hacker would need a network of 2.5 million machines to interfere with the system. matejmo / Getty Images Unlike conventional currencies, there isn’t a government authority that prints or creates Bitcoin. To earn Bitcoin, users called “miners” use machines to provide processing power to a massive peer-to-peer network. The network harnesses this power to run a complex algorithm called a “hash” to verify Bitcoin transactions. Whenever a computer “hashes” a block from the blockchain, it rewards that machine with Bitcoin. The transaction then becomes public information and is stored as a block on the blockchain. Remember, out of millions of miners, only one machine will verify the transaction and receive Bitcoin in return. Alextov / Getty Images Early on in Bitcoin’s life, users could mine for coins using a normal home computer. However, as the process caught on, mining became more difficult. To run smoothly, the Bitcoin system aims to produce a single block every 10 minutes. With more machines, mining becomes more efficient, so the system makes mining more difficult. This caused users to rely on several high-end graphics processing units (GPUs) in a machine to maximize effectiveness. However, due to Bitcoin mining’s rise in popularity, the prices of the most efficient GPUs have dramatically increased. Since the ultimate goal of mining Bitcoin is to earn money, this price increase demands a substantial initial investment. Users now prefer application-specific integrated circuits (ASICs), which are essentially specialized Bitcoin mining machines. Denes Farkas / Getty Images If purchasing the hardware seems like too steep an investment, there are some other options available. You could purchase a Bitcoin cloud mining contract. Some companies buy massive numbers of Bitcoin mining hardware and essentially “rent” them to users around the world. While this simplifies the process significantly, it’s also a greater risk. Not only do you not own or have access to the physical hardware, but many of these businesses have predatory contracts or business practices. Always thoroughly research a service before using it. Alextov / Getty Images To start mining or trading Bitcoin, you first need a way to store it. Generally, you have three options: mobile wallets, desktop wallets, and hardware wallets. Mobile Wallets Pros:Portable, install on your phone or tabletGreat for in-person Bitcoin tradesCan use QR codes for quick, efficient tradingMobile Wallets Cons:App marketplace may remove the app from the store, preventing future updatesLosing the device may lead to an inability to access fundsDesktop Wallets Pros:More in-depth options, more control over fundsSome come with hardware wallet supportDesktop Wallets Cons:Difficult to use QR codesSusceptible to malware/spyware targeting Bitcoin usersHardware Wallets Pros:Arguably the most secureCan store large amounts of BitcoinHardware Wallets Cons:Difficult to use on the go or while travelingDifficult to use QR codesLoss of device means complete loss of funds, must have a backup in place PeopleImages / Getty Images Once you have your hardware and wallet, you need to download a program to mine for Bitcoin. The most popular programs use a command-line interface, meaning that there is no visual interface to interact with. If that sounds confusing, there are a few options available that have a traditional interface. Research your options and determine what fits your needs. Many software choices come with tutorials or guides that walk you through how to use the program. South_agency / Getty Images By design, the more people mining for Bitcoin, the less likely any single machine will receive the Bitcoin reward. This has pushed out most single users or those with small mining farms in favor of those who can afford large-scale mining operations. To combat this, some users have created mining pools that combine their resources and eventually share the rewards between each user. Often, the share of the reward stems from how much you contributed to the effort. When choosing a mining pool, make sure to compare their pool size, cost, and overall reliability. eclipse_images / Getty ImagesThe question remains: is mining worth it? Mathematically speaking, probably not. Mining for Bitcoin is more of a profession than a hobby, and it’s become a matter of scale. A single high-end GPU costs around a thousand dollars. That's not accounting for the cost of cooling, electricity, and other necessary components. As of July 2020, a high-end GPU earns slightly over a dollar a day and will pay for itself in around 19 months. Comparatively, ASICs are cheaper and more efficient than GPUs, allowing them to profit more quickly.In theory, this allows for noticeable profit within a year. However, the chances of a single user out-mining large-scale mining farms are incredibly low. Additionally, Bitcoin's value is incredibly volatile, and its price could crash at any time, dramatically increasing the time it takes to turn a profit. And, unlike stocks, Bitcoin has significantly fewer methods to ensure market stability. Yozayo / Getty Images In a standard transaction, there are usually three elements: a debit card that connects to a bank account, the bank that verifies the transaction, and the store that receives the money from the transaction. Bitcoin essentially has the same three elements. You store Bitcoin data in a wallet. You send a transaction request to another Bitcoin user, the peer-to-peer Bitcoin system verifies the transaction, and the final user receives the Bitcoin. TommL / Getty Images Bitcoin miners are responsible for validating transactions and ensuring the security of the bitcoin network, and miners are rewarded with BTC for their efforts. However, if you want to make a profit mining bitcoin, you’ll need access to some specialised hardware.Let’s take a closer look at how you can mine bitcoin and where to start.Coin nameTicker symbolMining algorithmBitcoinBTCSHA-256 Disclaimer: This information should not be interpreted as an endorsement of cryptocurrency or any specific provider, service or offering. It is not a recommendation to trade. Cryptocurrencies are speculative, complex and involve significant risks – they are highly volatile and sensitive to secondary activity. Performance is unpredictable and past performance is no guarantee of future performance. Consider your own circumstances, and obtain your own advice, before relying on this information. You should also verify the nature of any product or service (including its legal status and relevant regulatory requirements) and consult the relevant Regulators' websites before making any decision. Finder, or the author, may have holdings in the cryptocurrencies discussed. What can I use to mine bitcoin? Cloud mining will almost never be profitable. This is because the “break-even point,” where you make as much money from cloud mining as you put into it, will keep moving backwards and you’ll typically never be able to reach it.The reason it moves back is because Bitcoin mining difficulty tends to rise over time, especially as Bitcoin prices do. This means the amount of Bitcoin you get from cloud mining will usually decrease over time, which pushes back the break-even point. Bitcoin mining difficulty will usually only drop if Bitcoin prices do, but if that happens then your Bitcoin is worth less, which also pushes back the break-even point.As such, even if a cloud mining contract looks like it will be profitable, you’re still more likely to lose more than you earn.In the rare cases where a cloud mining contract turns out to be profitable, it will have been more profitable to simply buy cryptocurrency instead of cloud mining.Where to buy cryptocurrencyThough it was once possible to mine bitcoin with your personal computer’s CPU or a high-speed graphics card, that’s no longer the case. With the advent of increasingly sophisticated mining hardware, specifically ASIC (application-specific integrated circuit) chips designed for the sole purpose of mining bitcoin, digging for digital gold via your desktop PC is a thing of the past.These days there are two main options for mining bitcoin:Cloud miningPersonal miningCloud miningTo make a profit mining bitcoin, you’ll need access to the best hardware built specifically for that purpose. However, this hardware doesn’t come cheap, so some users opt to use a bitcoin cloud mining service. These services, such as Genesis Mining and Hashflare, allow you to rent sophisticated mining hardware and have someone else do the hard work for you.The biggest advantage of cloud mining is that the initial outlay is much smaller than it is with personal mining. On the downside, the fact that you don’t physically control the hardware means there’s an increased level of risk, and there have been numerous examples of cloud mining scams over the years.With this in mind, it’s essential to do your research and choose a reputable provider.Personal miningThe specialised ASIC hardware needed to mine bitcoin is expensive to buy and run. This means you’ll need to be willing to make a significant investment, and also have access to cheap electricity and a fast network connection if you want to mine bitcoin at home.The first thing you’ll need to do is to purchase an ASIC miner. Prices vary depending on the device you choose and whether you buy new or used, but prices can range from $500 to upwards of $3,000. This will also need to be paired with the right bitcoin mining software.Rather than forging ahead on your own, which would make you highly unlikely to turn a profit, it’s recommended that you join a bitcoin mining pool. These mining collectives allow you to combine your resources with other miners and receive regular rewards based on how much mining power you contribute.You’ll need to pay a fee from your earnings to be part of the mining pool, and it’s also essential that you choose an established, reputable pool.How to start mining bitcoinThose are your two main options for mining bitcoin:Method 1: How to mine bitcoin with a cloud mining serviceChoose a mining company. If you want to lease mining has power and time, you’ll first need to compare cloud mining services. Compare the contracts they offer, the fees they charge and their overall reputation before making your decision.Select a mining package. Next, review the contracts on offer from your chosen mining company. How long is the contract? How much does it cost? What mining hardware will be used? Are the terms of the lease set in stone or can you customise a contract to meet your needs?Pick a mining pool. Once you’ve purchased a plan, most cloud mining services will require you to choose a mining pool. Compare a range of pools and choose one with a proven track record.Start mining. With these steps completed, cloud mining of bitcoin can begin. Your cloud mining account should start filling up with BTC in the coming weeks, so it’s a good idea to transfer your earnings into a secure bitcoin wallet of your own.Method 2: How to mine bitcoin at home with your own hardware or softwareUse a mining profitability calculator. Before going any further, use an online mining profitability calculator to work out the likelihood that you’ll be able to make bitcoin mining worth your while.Choose your mining hardware. Next, compare the features and cost of ASIC mining devices before choosing one you want to use. Keep in mind that you’ll most likely also need to buy a separate power supply unit to support the hardware.Join a mining pool. To have a better chance of turning a profit, it’s recommended that you pool your resources with other miners in a mining pool. Compare a variety of pools before selecting one that’s well established and reputable.Download mining software. There are several programs available designed for bitcoin mining. Some are command line programs while others offer a GUI for increased ease of use. It’s also worth pointing out that some mining pools will offer their own software.Start mining. Set up a secure wallet for storing your BTC and link it to your mining rig. Make sure you stay abreast of bitcoin price developments and mining difficulty adjustments to ensure that your mining setup remains profitable.If you want to dig for this digital gold, be aware that bitcoin mining is a complicated and costly process, and it’s no longer possible for hobby miners to compete with large mining pools and firms. However, with the right setup and approach, either by joining a pool or using a cloud mining service, it is still possible to make a profit.Start mining bitcoinFAQ Yes. The number of bitcoins generated per block halves every 210,000 blocks, which is roughly every 4 years. At time of writing (June 2018) the number of BTC awarded per block is 12.5, but this will halve in 2020. The amount of power consumed varies depending on the mining hardware you use. However, one study has shown that the average energy cost of mining in Australia is $9,913 per bitcoin mined. Yes, there are many other Proof of Work cryptocurrencies that can be mined, and most of them are more accessible to the average enthusiast than bitcoin.

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