BITCOIN BUYING GUIDE

ABSTRACT

Bitcoin uses peer-to-peer technology to operate with no central authority or banks; managing transactions and the issuing of bitcoins is carried out collectively by the network. Bitcoin is open-source; its design is public, decentralized, nobody owns or controls Bitcoin and everyone can take part.

This guide details on how to buy your 1st bitcoin its essentially bitcoin buying guide. *please note: RBI is yet to officially recognize the cryptocurrency and had cautioned users, holders and traders of Virtual currencies, including Bitcoins.*

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Contents

What is Blockchain ?

1. **Definition :** In simple terms,Blockchain is a continuously growing list of records, called blocks, which are linked and secured using cryptography.Each block contains typically a hash pointer as a link to a previous block, a timestamp and transaction data.
2. **Design :** By design, the blockchain is a decentralized technology.By allowing digital information to be distributed but not copied, blockchain technology was originally devised for the digital currency, Bitcoin, and now its finding other potential uses for the technology. Network of computing "nodes" make up the blockchain. Computer connected to the blockchain network using a client *(that performs the task of validating and relaying transactions)* gets a copy of the blockchain, which gets downloaded automatically upon joining the blockchain network.
3. **Robustness** : It has a built-in robustness,by storing blocks of information that are identical across its network, the blockchain cannot be controlled by anyone/any single entity and has no single point of failure.
4. **Transparent**: Self-auditing ecosystem, the network reconciles every transaction that happens in ten-minute intervals. Each group of these transactions is referred to as a "block".
5. **Use Cases :** Currently, finance offers the strongest use cases for the technology.For example : remittances, people use to buy things with Bitcoin, and store it along with other currencies.As of now,total market value of all Bitcoin is about $67,134,851,755 USD.1 BTC = $ 4,067.66 USD.In India, you can purchase Bitcoin from Zebpay exchange. Zebpay has Android and iPhone app which lets you link your bank account for quick transfers.Unocoin, another India-based exchange, lets you trade Bitcoins. They can help you buy, sell, store, use and accept bitcoin.*Please note : RBI is yet to officially recognize the cryptocurrency and had cautioned users, holders and traders of Virtual currencies , including Bitcoins.*

6. Enhanced Security: By storing data across its network, the blockchain eliminates the risks that come with data being held centrally. A “public key” is a users’ address on the blockchain. Bitcoins sent across the network gets recorded as belonging to that address. The “private key” is like a password that gives its owner access to their Bitcoin or other digital assets. Store your data on the blockchain and it is incorruptible.
7. Blockchain issues/limitations
    - Overcoming transaction delays, the verification process, and data limits will be crucial.
    - Government regulation status.
    - Due to shift to a decentralized network, this requires the buy-in of its users and operators.
    - While there are tremendous savings in transaction costs and time(due to decentralization) but there are high initial capital costs.

Introduction to Bitcoin

We know Bitcoin uses peer-to-peer technology to operate with no central authority or banks; managing transactions and the issuing of bitcoins is carried out collectively by the network. **Bitcoin** is open-source; its design is public, decentralized, nobody owns or controls Bitcoin and everyone can take part.

Image – bitcoin

Currently Bitcoin (BTC) market cap is about **US$96.7 billion.**May be this why,many people like to purchase some and put them to the side in the hopes that they will be worth more in the future.As with any market, nothing is for sure. Bitcoin is traded 24/7 and its price changes every second.

Advantages of Bitcoin

- Payment freedom – It is possible to send and receive bitcoins anywhere in the world at any time. No bank holidays. No borders. No bureaucracy. Bitcoin allows its users to be in full control of their money.
- Choose your own fees – There is no fee to receive bitcoins, and many wallets let you control how large a fee to pay when spending.
- Fewer risks for merchants – Bitcoin transactions are secure, irreversible, and do not contain customers' sensitive or personal information. This protects merchants from losses caused by fraud or fraudulent chargebacks, and there is no need for PCI compliance.
- Security and control – Bitcoin users are in full control of their transactions; it is impossible for merchants to force unwanted or unnoticed charges as can happen with other payment methods. Bitcoin payments can be made without personal information tied to the transaction. This offers strong protection against identity theft. Bitcoin users can also protect their money with backup and encryption.
- Transparent and neutral – All information concerning the Bitcoin money supply itself is readily available on the block chain for anybody to verify and use in real-time. No individual or organization can control or manipulate the Bitcoin protocol because it is cryptographically secure. This allows the core of Bitcoin to be trusted for being completely neutral, transparent and predictable.

Disadvantages of Bitcoin

- Degree of acceptance – Many people are still unaware of Bitcoin. Every day, more businesses accept bitcoins because they want the advantages of doing so, but the list remains small and still needs to grow in order to benefit from network effects.
- Volatility – The total value of bitcoins in circulation and the number of businesses using Bitcoin are still very small compared to what they could be.

Therefore, relatively small events, trades, or business activities can significantly affect the price.

- **Ongoing development** – Bitcoin software is still in beta with many incomplete features in active development. New tools, features, and services are being developed to make Bitcoin more secure and accessible to the masses.

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How to buy bitcoin

Step#1.Get to know your Bitcoin Exchange

Exchanges provide highly varying degrees of safety, security, privacy, and control over your funds and information. Here are listing of Bitcoin exchanges.

1. Coinsecure
   - Based out of India
   - Charges – 0.4% per buy
   - Options for NEFT, RTGS, IMPS and cash deposit.
   - Requires ID verification i.e., KYC to be done
   - Video tutorials available
2. ZebPay
   - Regulated company in India
   - Options to buy bitcoin with any Indian bank account via online banking or NEFT and RTGS.
   - Fees included in buy/sell prices
   - Requires ID verification
   - Offers additional services – Mobile topup, Data Card or DTH Bills etc.,

3. Unocoin
    - Regulated company in India
    - Options to buy bitcoin with any Indian bank account via online banking or NEFT and RTGS.
    - Backed by investors in the United States
    - Low 1% fee, reduced to 0.7% with sufficient trading volume
    - Requires ID verification
4. Coinmama
    - Works in almost all countries
    - Highest limits for buying bitcoins with a credit card
    - Charges an ~6% fee on each purchase.
5. LocalBitcoins
    - Escrow service which also helps to match bitcoin buyers and sellers.
    - Can be private, fast and easy
    - In-person trades require no personal information
    - Purchases of bitcoin can be made quickly via cash deposit
6. VirWox
    - Easiest and basically only way to purchase bitcoins with PayPal or Skrill
    - Charges around 10% in fees to buy with PayPal

Step#2.Buy/trade Bitcoins

Bitcoins are actually just secret digital codes. When you buy bitcoins, the seller is using a wallet to transfer the ownership of the coins to you. Once your purchase is complete, the codes are now owned by you and not the seller.You can even buy partial bitcoins,Each bitcoin is divisible to the 8th decimal place, meaning each bitcoin can be split into *100,000,000 pieces.* Each unit of bitcoin,

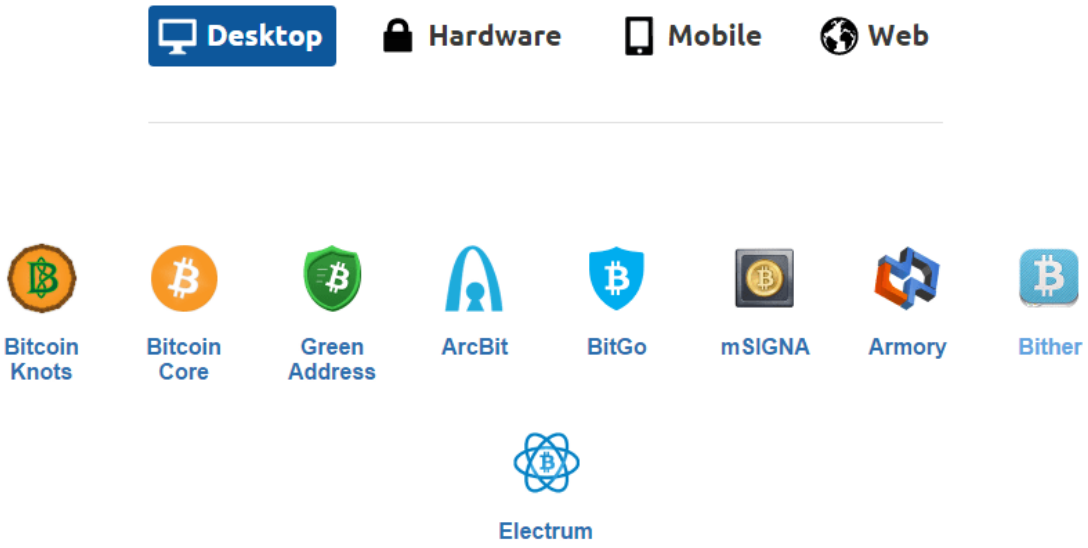
or *0.00000001 bitcoin, is called a satoshi.*Most exchanges let you buy as little as $5 worth of bitcoins at a time.

Long wait times are usually a problem with existing payment systems, not with Bitcoin itself.Bitcoin transactions only take about 10 minutes to confirm. Bank transfers in the U.S., for example, can take up to five days to complete.

There are many scams related to Bitcoin. Scammers target new Bitcoiners and less tech-savvy users.

Step#3.Secure your Bitcons using robust Bitcoin Wallet

A Bitcoin wallet is simply an app, website, or device that manages Bitcoin private keys for you.Without a wallet, you can't receive, store, or spend bitcoins.There are variety of wallets available for different platform.



How to Buy Bitcoin – Bitcoin wallet options

Hardware wallets are a good choice if you're serious about security and convenient, reliable Bitcoin storage.

1. Trezor is a hardware wallet providing a high level of security without sacrificing convenience. Unlike cold storage, Trezor is able to sign transactions while connected to an online device. That means spending bitcoins is secure even when using a compromised computer.
2. DigitalBitbox is a minimalist bitcoin hardware wallet packed with security and privacy.Its plug-and-play wallet and second-factor authenticator that combines the highest security of cold storage with the convenience of software wallets.
3. KeepKey is a hardware wallet that makes bitcoin security simple. When you entrust KeepKey with your money, every bitcoin transaction you make must be reviewed and approved via its OLED display and confirmation button.

Take note of points below

- Secure your wallet – Bitcoin can provide very high levels of security if used correctly.
- Price of a bitcoin can unpredictably increase or decrease over a short period of time due to its young economy, novel nature, and sometimes illiquid markets.
- Any transaction issued with Bitcoin cannot be reversed, they can only be refunded by the person receiving the funds.
- Some effort is required to protect your privacy with Bitcoin. All Bitcoin transactions are stored publicly and permanently on the network, which means anyone can see the balance and transactions of any Bitcoin address.
- Bitcoin is an experimental new currency that is in active development. Each improvement makes Bitcoin more appealing but also reveals new challenges as Bitcoin adoption grows.
- Bitcoin is not an official currency. That said, most jurisdictions still require you to pay income, sales, payroll, and capital gains taxes on anything that has value, including bitcoins.

Best Hardware Bitcoin Miners Comparison

With Bitcoin, miners use special software to solve math problems and are issued a certain number of bitcoins in exchange. This provides a smart way to issue the currency and also creates an incentive for more people to mine.

At first, Satoshi (inventor of Bitcoin) intended for Bitcoin to be mined on computer CPUs. However, Bitcoin miners discovered they could get more hashing power from graphic cards. Graphic cards were then surpassed by ASICs These ASIC machines mine at unprecedented speeds while consuming much less power than FPGA or GPU mining rigs.

Here are the TOP 3 Bitcoin Miners :

Mining Hardware	Hash Power	Power Efficiency	Operating Temperature	Price
AntMiner T9	12.5 TH/s	0.126J/GH	0°C to 40°C	Coming Soon
AntMiner S9	11.5TH/s, 12.5TH/s, 13TH/s, 13.5TH/s & 14TH/s, depending on batch.	0.098 J/GH	0°C to 40°C	~2320$
AvalonMiner 821	11 TH/s	0.109J / GH	-5°C to 30°C	Coming Soon

More detailed stats below:

	AntMiner T9	AntMiner S9	AvalonMiner 821	AvalonMiner 761	AvalonMiner 741	Antminer D3	AntMiner L3+
Hash Rate	12.5TH/s.	11.5TH/s, 12.5TH/s, 13TH/s, 13.5TH/s & 14TH/s, depending on batch.	11TH/s	8.8TH/s	7.3 TH/s (RTHS)	15 GH/s	504MH/s
Power Consumption	1576W +7%	1127W (11.5TH/s batch), 1225W (12.5TH/s batch), 1274W (13TH/s batch), 1323W	1200W, +0% ~ +20% @ 11TH/s, 25°C, 93% PSU Efficiency	1320W, +0% ~ +15% @ 8.8TH/s 25℃ at 220V	≈ 1150W, +0% ~ +15%	1200W	800W +10%

		(13.5TH/s batch), 1372W (14TH/s batch)					
Power Efficiency	0.126J/GH + 7%	0.098 J/GH +10% at the wall	0.109J / GigaHash Wall-Plug	0.15 Joules / GigaHash at the wall	0.16 Joules/GigaHash at the wall		1.6J/MH +10%
DC Voltage Input	11.60 ~ 13.00V	11.60 ~13.00V	12 ~ 12.6V	Max 12.53	Max 12.53		11.60 ~ 13.00V
Chip Type	BM1387	189x BM1387	104 x A3210 16nm ASIC	104 x A3212 16nm ASIC	88 x A3212 16nm ASIC		BM1485 ASIC chip

Chip quantity per unit	171 Chips						288 chips on four hashing boards, 72 chips on one hashing board
Chip Type	BM1387	189x BM1387	104 x A3210 16nm ASIC	104 x A3212 16nm ASIC	88 x A3212 16nm ASIC		BM1485 ASIC chip
Chip quantity per unit	171 Chips						288 chips on four hashing boards, 72 chips on one

							hashing board
Dimensions	350mm(L) x 135mm(W) x 158mm(H)	350mm(L) x 135mm(W) x 158mm(H)	430 mm x 215mm x 205mm	405 mm x 215 mm x 206 mm	400 mm x 210 mm x 220 mm	320*130*190mm	352mm (l) x 130mm (w) x 187.5mm (h)
Cooling	Two 12038 fans. Front fan: 6000RPM, rear fan: 4300RPM	2x 12038 fans; Front fan: 6000rpm, Rear fan: 4300rpm	1 x 12038 FAN, 6000RPM	Airform Cooling 1 rear fan 6000 RPM	Airform Cooling 1 rear fan 6000 RPM		

Operating Temperature	0°C to 40°C	0°C to 40°C	-5℃ ~ 30℃	-5C-40C	-5C-40C		0°C – 40°C
Network Connection	Ethernet	Ethernet	AUC3 + AUC3 I2C to AvalonMiner Controller	Through AUC3 + AUC3 I2c to AvalonMiner Controller	Through AUC3 + AUC3 I2c to AvalonMiner Controller		Ethernet

Key considerations for choosing Bitcoin mining hardware

- **Hash rate** – Hash Rate is the speed at which a compute is completing an operation in the Bitcoin code. A higher hash rate is better when mining as it increases your opportunity of finding the next block and receiving the reward.How many hashes per second can the Bitcoin miner make? More hashes cost more, which is why efficiency is crucial.
- **Efficiency** – You'll want to buy the most efficient bitcoin mining hardware possible. Since miners use a large amount of electricity, you want to buy one that converts the most amount of electricity into bitcoins.
- **Price** – How much does the bitcoin miner cost? Cheap mining hardware will mine less bitcoins, which is why efficiency and electricity usage are important. The fastest and more efficient mining hardware is going to cost more.

You can estimate Bitcoin mining and profitability based on mining hardware hash rate in GH/s along with the power wattage and your cost of electricity – dollars per kilowatt hour ($/kWh) on the profitability calculator here.

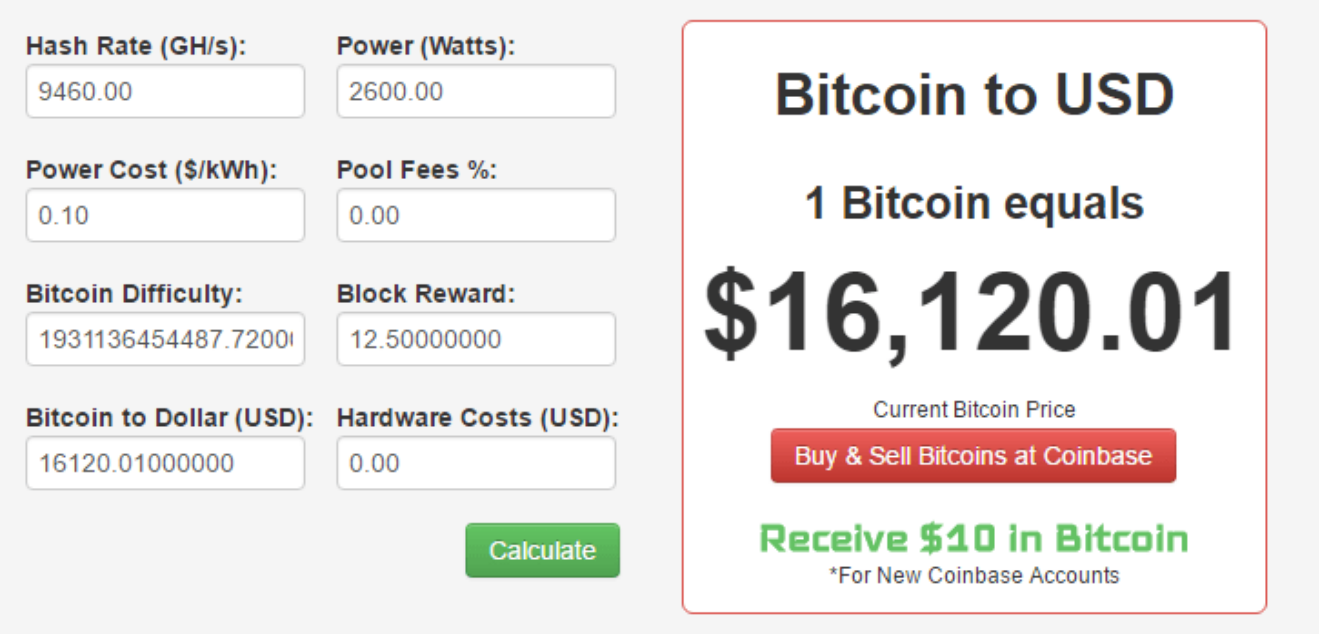


Image – Bitcoin mining and Profitability calculator

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Why ASIC Chipset

Application-specific integrated circuit (ASIC), is an *Integrated Circuit (IC) designed to process only a specific application.* Compared to programmable logic chips or standard ICs that are more versatile and can be used for a wide variety of different programs, an ASIC is specifically designed to do one thing and specific things. While it does this one thing much faster and more efficiently than standard multi-purpose processors, they lack the versatility of standard logic chips and, are more expensive to design and manufacture than their mass-market counterparts, especially, as most of them aren't really produced in very large numbers.

Specialized Bitcoin ASICs are specifically designed to solve Bitcoin blocks and have nominal requirements for other computer applications, which is why they can get the job done faster and more efficiently than standard logic chips. While the first-generation ASICs had Hash Rates of around 66GH/s (powerful enough to replace 30-odd GPUs), today's top Bitcoin mining ASIC chips are as powerful as about 212 of those first-gen ASICs, with Harsh Rates hovering around the 14,000GH/s mark.

Technically it's possible to mine bitcoins without dedicated mining hardware, yes there are USB Miners but it doesn't generate enough hashing power to mine profitably.