



Hashrate Futures - Launch Schedule

Trade the Bitcoin Complex[®]

- US Based & CFTC Regulated
- Bitcoin, Deci-Bitcoin, and Hashrate Margined Futures & Options



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Schedule

- **Launch Date.** May 24th
- **Sandbox Testing.** Available Now

Hashrate Contract Specs

- **Symbol:** HUP
- **CQG Symbol:** F.US.HUP
- **Cash-Settled**
- **1 petahash per second for 30 days**
- **35% maintenance margin***
- **Quotation: \$0.25 per petahash (\$7.50 per contract)**
- **Ex. Quotation Price:** \$100.00 PH/s (\$3,000 Notional Value)
- **Trading Hours:** 8:30am CT - 2:30pm CT Monday through Friday
- **6-month serial listing schedule**
- **\$10 per contract per side**
- Final Settlement price calculated using Luxor Hashprice Methodology

* Margin rates are subject to change



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Hashrate Futures - Contract Description

The Contract is a US Dollar-denominated, financially settled, future on Bitcoin Hashrate. The underlying asset is the Bitcoin Blockchain Hashrate calculated according to the Hashrate Methodology by BTNL. "Hashrate" refers to the total combined computational power that is being used to mine and process transactions on a proof-of-work blockchain, such as Bitcoin. "Hashrate Futures" include the expected value of one terahash per second of hashing power per day. Hashrate Futures quantify how much a miner can expect to earn from a specific quantity of hashrate. Hashrate is inherently denominated in bitcoin and prices are converted from Bitcoin to US Dollar denomination using a spot price implied from the BTNL Bitcoin US Dollar Futures (BUS) curve.



Hashrate Futures Settlement Price Methodology

The Hashrate Futures Settlement Price Methodology, described in the document herein, is calculated by Bitnomial Exchange, LLC (the “Exchange”) for the purpose of futures contract final settlement. Hashrate is inherently denominated in Bitcoin (BTC) and then converted to US Dollars (USD) using the spot price implied by the Exchange’s Bitcoin US Dollar Futures (BUS) curve.

Hashrate Futures price the expected value of one petahash per second of hashing power per day. The metric quantifies how much a miner can expect to earn, in USD, from a specific quantity of hashrate deployed to the Bitcoin network.

The Hashrate conversion from BTC to USD using the spot price derived from the BUS futures curve aims to provide a fair-value price determined by the market. Market participants can precisely manage Hashrate risk in USD or BTC at specific points along the forward curve with immediate and transparent access to the underlying BUS pricing market. It is important to note that this price is not anticipated to align precisely with any particular spot price or index as the BUS futures market expresses its own spot price without any external price references.

Hashrate is a function of three Bitcoin blockchain network parameters: network “difficulty”, block “subsidy” or “reward”, and network transaction fees. Spot Hashrate changes with every block mined and may be viewed as a continuously delivering commodity. As such, Hashrate Futures take this into account by using a floating price, whereby the Hashrate settlement price is an average of the blocks for the duration of the contract month. Hashrate futures settlement uses a 144-block moving average to account for transaction fee variance. Fees exceeding 500- standard deviation moves, which may be adjusted at the discretion of the Exchange, are excluded from the average fee calculation to limit impact of extremely erroneous or non-competitive fees. Non-public blockchain transactions are also excluded to prevent non-competitive fees impacting the average fee rate.



Hashrate Futures Settlement Price Methodology

1. The Luxor Bitcoin Hashrate Methodology defines Hashrate as:

$$HP_{btc} = \frac{SR_{btc} + \text{Avg}(TXF_{btc})}{D} \times \frac{1}{2^{32}} \times 10^{15} \times 86400 \times \frac{1}{10^8}$$

SR_{btc} : Block Subsidy Rate, in satoshis

TXF_{btc} : Transaction Fees, in satoshis for previous 144 blocks

$\frac{1}{2^{32}}$: probability of a hash producing a valid block

D : Network Difficulty, as a multiple of minimum difficulty

10^{15} : Hashes per petahash

86400 : Seconds per day

10^8 : Satoshis per bitcoin

2. To convert to a USD denominated price, the BTCUSD price is implied from the Exchange's BUS futures curve as follows:

$$B_s = F_p - \left(\frac{B_{Fp}}{B_{Ft}} \right) \times F_{Pt}$$

B_s : BTC/USD Conversion price

F_p : Pricing contract price

B_{Fp} : Back-Front month spread price

B_{Ft} : Time between front and back month contracts, in days

F_{Pt} : Time to front month expiration, in days

For this calculation, the Exchange has discretion to select the most liquid and most representative of fair value Front and Back month contracts and those legs may not necessarily be consecutive contract months. The Exchange computes each contract month's price according to the contract's settlement price rules.



Hashrate Futures Settlement Price Methodology

3. Combined, the resulting USD denominated Hashrate is defined as:

$$HP_{usd} = HP_{btc} \times B_s$$

4. The futures final settlement price is the average of all Hashrate prices for the duration of the contract month (4,320 Hashrate prices). This constitutes continuous delivery over the contract month, which is defined as the following:

$$HP_{fs} = \frac{\sum HP_{usd}}{4320}$$

5. An example calculation at block height 796,573 that occurred on 2023-06-30, is:

$$HP_{usd} = \$77.83 = \frac{625000000 + 21877200.54}{5.06462E + 13} \times \frac{1}{2^{32}} \times 10^{15} \times 86400 \times \frac{1}{10^8} \times (\$30,805 - \frac{\$525}{91} \times 89)$$

625000000 : Block Subsidy Rate, in satoshis

21877200.54 : Transaction Fees, in satoshis, averaged, for previous 144 blocks

$\frac{1}{2^{32}}$: probability of a hash producing a valid block

5.06462E + 13 : Network Difficulty, as a multiple of minimum difficulty

10^{15} : Hashes per petahash

86400 : Seconds per day

10^8 : Satoshis per bitcoin

\$30,805 : Pricing Contract Price

\$525 : Back - Front Month Spread Price

91 : Time between front and back month contracts, in days

89 : Time to front month expiration, in days





About Bitnomial Exchange

Bitnomial is a US-based, CFTC regulated futures & options exchange that launched in 2021. Bitnomial is the largest, physical BTC futures & options market in the US. Bitnomial uses a centralized clearing model that allows participants to trade with other market participants to have their trades guaranteed by a central counter-party, just like traditional commodities markets. Since counter-party risk is mitigated, market participants are confident in their ability to hedge and manage their physical BTC risk, while receiving capital efficiency on their balance sheet.

To begin trading, market participants must use a Futures Commission Merchant (“FCM”) as a broker. Sign-up & Register with one of the FCM’s below to get started.

Sign-Up & Register

- Bitnomial Clearing, LLC - Sign-Up @ <https://bitnomial.com/clearing/signin/>
- Marex Capital Markets Inc. - Contact Brooks Dudley @ bdudley@marex.com
- R.J. O’Brien & Associates, LLC - Contact Matt Heidkamp @ mheidkamp@rjobrien.com
- StoneX Financial Inc. - Contact Ryan Mitchell @ Ryan.Mitchell@stonex.com



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Contracts

- **Bitcoin Futures.** 1 BTC physically delivered
- **Deci Bitcoin Futures.** $\frac{1}{10}$ BTC physically delivered
- **Bitcoin Options.** 1 BTC Physically delivered options
- **Hashrate Futures.** 1 petahash per second for 30 days. Cash-settled.

Trading Platforms

- **Direct Market Access** via low-latency binary protocols
- **CQG**
- **Actant**

