

Chip Index (CHIPX)

Eight top US stocks in one token. Always redeemable for the real stock inside.

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Executive summary

Chip Index (CHIPX) is an index token on Base backed 1:1 by an equal-weight basket of eight Coinbase tokenized stocks: NVDA, MSTR, GOOGL, AMZN, AAPL, META, TSLA and MSFT. Anyone can mint CHIPX with USDC, ETH or the stocks themselves, and anyone can redeem CHIPX for their exact share of the stocks inside, at any time. The stock is held by an immutable smart contract, not by a team or custodian. Redeeming for stock cannot be paused by anyone.

CHIPX is built by Chipworks, the team behind the Based Nouns stock-earning platform at getchipped.xyz. Fees from CHIPX feed the Chipworks stock pot and buy and burn \$CHIP.

Key fact	Detail
Token	CHIPX, an ERC-20 on Base
Backing	8 Coinbase B20 tokenized stocks, 12.5% each
Launch price	\$10 per CHIPX
Mint	USDC, ETH or the stocks themselves; 24/7; no minimum
Redeem	For the stocks at any time, or for USDC or ETH
Fees	0.5% to mint, 0.5% to redeem, 1% per year management
Where fees go	50% to the Chipworks stock pot, 50% buys and burns \$CHIP
Vault	Immutable: no proxy, no upgrade key
Governance	Chipworks 2-of-3 Safe; any change that could cost holders waits 48 hours

Key fact	Detail
Supply cap	50,000 CHIPX (\$500,000 at launch price), raised through the timelock as demand grows

The problem

Tokenized US stocks are now live on Base, but owning a diversified position still means buying, tracking and rebalancing many separate tokens. Each purchase is a separate swap, balances drift as prices move, and most holders never rebalance.

Existing index products on Base solve part of this, but they typically let only approved institutions mint and redeem at net asset value. Everyone else trades on the secondary market and trusts that the price stays close to the assets behind it.

Other "stock" tokens in crypto pay holders out of trading taxes. Their yield depends on volume, and when trading slows, both the yield and the price fall. They are not backed by any underlying asset.

The solution

CHIPX is one token that holds the stocks themselves.

- **Real backing.** Every CHIPX is a claim on a fixed share of the stocks in the vault. If nobody trades it for months, it still holds the actual value of the stocks inside it.
- **Open mint and redeem.** No approval, no broker, no minimum. CHIPX is divisible, so you can mint a fraction of one token: a \$5 mint works.
- **24/7.** Cash mints and redeems work nights and weekends. Minting and redeeming directly with the stocks involve no swaps and no price feeds, so they work at any hour.
- **Total self-custody.** CHIPX sits in your own wallet. Neither Chipworks nor anyone else can freeze your CHIPX, take it from you or shut you out of redeeming it for the stock inside. You own the asset.
- **Hands-off diversification.** The basket rebalances back to equal weight automatically.
- **Composable.** CHIPX is a standard, freely transferable ERC-20 that can be held, traded, lent or used in other protocols.

Why equal weight

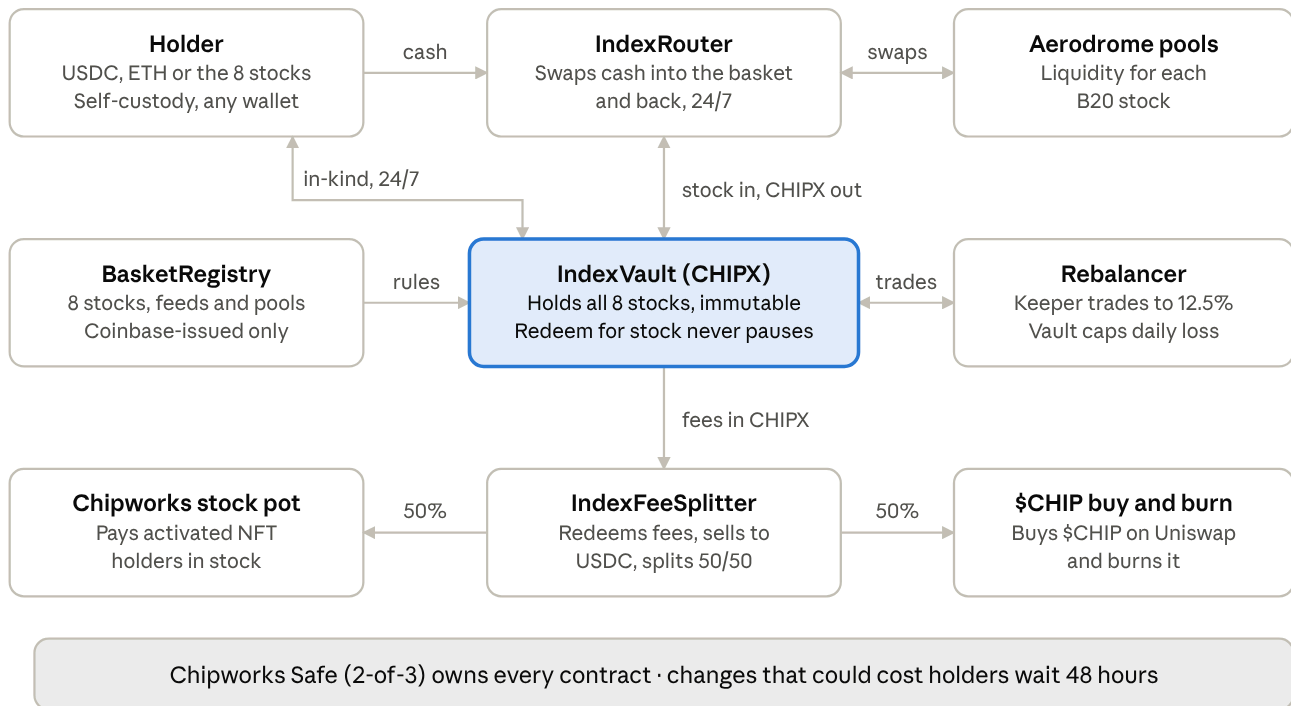
CHIPX holds each stock at 12.5% rather than weighting by company size. A market-cap index would put most of the basket in its two or three largest companies; equal weight gives every holding the same say, so no single stock dominates. It is also simple to verify: anyone can read the vault's balances and see whether the basket is on target. Regular rebalancing back to 12.5% trims winners and adds to laggards in a disciplined way.

How CHIPX compares

	CHIPX	Institutional index tokens	Buying the 8 stocks yourself
Who can mint and redeem at net value	Anyone	Approved participants only	Not applicable
What backs it	The stocks, held onchain in the vault	Fund shares held offchain	The stocks, in your wallet
Diversification	8 stocks in one token	Depends on the fund	8 separate tokens
Rebalancing	Automatic	Fund-managed	Manual
Self-custody	Yes	Varies	Yes
Effort	One transaction	One trade on the secondary market	Eight swaps, plus your own rebalancing

System architecture

Holder stock stays in one immutable vault



CHIPX system · 5 contracts, mint, redeem and fee flows

Five contracts make up the system. The IndexVault is the CHIPX token and holds every stock; it cannot be upgraded. The other four are helpers: the registry defines what the vault may hold, the router turns cash into stock and back, the rebalancer keeps weights on target within limits the vault enforces, and the fee splitter turns fees into Chipworks rewards and \$CHIP burns. None of the helpers can take stock out of the vault.

How CHIPX works

The basket

Stock	Target weight
NVDA (NVIDIA)	12.5%
MSTR (Strategy)	12.5%
GOOGL (Alphabet)	12.5%

Stock	Target weight
AMZN (Amazon)	12.5%
AAPL (Apple)	12.5%
META (Meta Platforms)	12.5%
TSLA (Tesla)	12.5%
MSFT (Microsoft)	12.5%

All eight are Coinbase-issued B20 tokenized stocks on Base, each backed 1:1 by shares held by a regulated custodian. Dividends and stock splits are reflected through each token's multiplier, so CHIPX holders receive them automatically through the value of the basket.

New stocks can be added through a 48-hour public timelock. The contract only accepts a stock that is a genuine B20 token registered with Coinbase's onchain token registry, with a matching Chainlink price feed and an existing liquidity pool. A counterfeit token with a copied ticker is rejected onchain.

Monthly basket review

Coinbase keeps adding tokenized stocks, and the right eight today may not be the right eight next year. Every 30 days, Chipworks reviews the basket against the full list of eligible stocks and decides whether any holding should be replaced. The review weighs:

- **Eligibility.** Only Coinbase-issued stocks with a Chainlink price feed on Base and a working liquidity pool can enter the basket.
- **Liquidity.** Pool depth and trading volume, so mints, redeems and rebalances fill close to fair value.
- **Size and quality.** Company size, financial strength and long-term outlook.
- **Performance and fit.** Sustained performance, and whether a holding still fits a basket of leading US companies.
- **Concentration.** Avoiding too much overlap in one sector or one theme.

Most months the answer will be no change; replacing a stock has a real trading cost, and the bar for a swap is high. When a change is made, it is announced and queued onchain, where it waits 48 hours in public view before it can take effect. Holders who disagree can

redeem before it lands. The outgoing stock is then sold down and the new one bought in by the rebalancer, within the vault's daily trading limits, so a swap is spread out rather than done in one large trade.

Minting

There are three ways to mint:

1. **With USDC.** The router buys all eight stocks in one transaction and mints CHIPX for the stock delivered.
2. **With ETH.** The same, starting from ETH.
3. **With the stocks.** Deposit the eight stocks in the basket's current ratio and receive CHIPX directly, with no swaps.

The number of CHIPX minted depends only on the stock actually delivered to the vault, never on an oracle price. Mint calculations round in favor of existing holders. A mint at a bad price can only cost the person minting, never anyone already holding CHIPX.

CHIPX launched at \$10 per token, seeded by the Chipworks multisig.

Redeeming

1. **For the stocks.** Burn CHIPX and receive your share of every stock the vault holds. This path needs no price, no market and no oracle, and no person or contract can pause it.
2. **For USDC or ETH.** The router sells your share of the stocks and pays you in one transaction.

If a stock cannot be delivered, for example because Coinbase has paused it, you receive the other stocks immediately plus a credit for the undeliverable one, claimable once it can move again.

Market hours and pricing

The stocks trade onchain 24/7, and so does CHIPX. Price feeds for US stocks update only while US markets are open, so the router adjusts its protection:

	US market open	US market closed
Cash mint and redeem	Available	Available
Price protection per stock	Within 1% of the live Chainlink price	Your own minimum, plus a 10% band around the last market price

	US market open	US market closed
Rebalancing	Allowed	Paused until fresh prices
Mint and redeem with stocks	Available	Available

Rebalancing

When any stock drifts more than 3 percentage points from 12.5%, or every 30 days, an automated keeper trades the basket back toward equal weight. Every trade carries a minimum output derived from Chainlink prices, and no trade may push a stock past its target. The vault itself enforces daily limits on how much can be traded and how much value can be lost to trading, so these limits hold even if the rebalancer were replaced or compromised.

Fees

Fee	Rate
Mint	0.5%
Redeem	0.5%
Management	1% per year

Fees are taken in CHIPX. The management fee accrues continuously as newly minted CHIPX rather than by selling stock. All fee rates have hard caps written into the contracts, and any increase must wait through the 48-hour public timelock.

Where fees go

Collected fees are redeemed for stock, sold to USDC, and split:

- **50% to the Chipworks stock pot**, which pays tokenized stock to holders of activated ("chipped") Based Nouns, DarkNOUNs, Lil Based Nouns and Chipleets NFTs. All four collections can be activated for rewards at www.getchipped.xyz.
- **50% buys \$CHIP and burns it**, permanently reducing supply.

As CHIPX grows, both the stock paid to activated NFT holders and the \$CHIP burn grow with it.

Economics

Cost to a holder

The full cost of holding CHIPX for one year, for a \$1,000 position minted and later redeemed:

Item	Cost
Mint fee (0.5%)	\$5
Management fee (1% per year)	about \$10
Redeem fee (0.5%)	about \$5
Total, one-year round trip	about \$20 (2%)

The longer a holder stays, the more the one-time mint and redeem fees are spread out: over three years the yearly cost falls to about 1.3%. Swap costs on cash mints and redemptions come on top; in testing on live Base pools they ranged from about 0.1% to 0.6% per stock. Minting and redeeming with the stocks themselves avoid swap costs entirely.

Fee revenue as CHIPX grows

Illustrative only. Assumes the 1% management fee on average assets, plus mints and redemptions each equal to the vault's size once per year at 0.5%.

Vault size	Management fees per year	Mint and redeem fees per year	Total	To the stock pot	To \$CHIP burn
\$500,000	\$5,000	\$5,000	\$10,000	\$5,000	\$5,000
\$1,000,000	\$10,000	\$10,000	\$20,000	\$10,000	\$10,000
\$10,000,000	\$100,000	\$100,000	\$200,000	\$100,000	\$100,000

The flywheel

CHIPX connects to the rest of Chipworks in one loop:

1. More CHIPX minted means more fees.
2. Half the fees pay tokenized stock to activated Based Nouns, DarkNOUNs, Lil Based Nouns and Chipleets, making those NFTs more valuable to hold and activate.
3. The other half buys \$CHIP on the open market and burns it, reducing supply with every mint and redeem.
4. Activated NFT holders can choose CHIPX as one of their rewards, adding steady demand for CHIPX.

Rebalancing cost

The rebalancer only trades the amount by which a stock is overweight, and only when it drifts more than 3 points from target or 30 days have passed. The vault caps any trading loss at 0.10% of its value per day, whatever the rebalancer does.

Security model

Immutable vault. The IndexVault, which holds every stock, has no proxy and no upgrade key. Nobody can change its code, including the team.

Redeem can never be paused. There is no switch for it. As long as Coinbase delivers its own tokens, CHIPX turns back into them.

Multisig ownership. Every contract is owned by the Chipworks 2-of-3 Safe. The Safe has no function that moves stock out of the vault.

48-hour timelock. Anything that could cost holders money waits 48 hours in public view: raising a fee, changing the basket, adding a keeper, replacing the router, rebalancer or fee splitter. Changes that only make things stricter, such as pausing new mints or lowering a limit, are instant. Holders who disagree with a queued change can redeem before it takes effect.

Bounded automation. The keeper that runs rebalancing and \$CHIP buys is limited by onchain rules and daily caps. At the launch cap, the worst-case loss from a stolen keeper key is on the order of \$50 per day, and the Safe can remove a keeper instantly.

Accounting against real balances. Every mint, redeem, claim and rebalance first checks the vault's actual stock balances. If Coinbase ever seizes stock from the vault, the loss is shared pro-rata across all holders and credits, and no one can redeem against stale numbers.

Supply cap. CHIPX launched with a cap of 5,000 tokens and is being raised to 50,000 CHIPX (\$500,000 at launch price) through the 48-hour timelock. Future increases follow the same public path as demand grows, so minting can continue without interruption.

Review and testing. The contracts went through multiple rounds of independent review, with every finding and its resolution documented in the public repository. The test suite includes unit, invariant and fuzz tests plus tests on a copy of live Base using the real stock tokens, price feeds and pools. Read the source and review notes yourself.

Verified source. Every contract is verified on Basescan, so the code anyone reads is the code that runs.

Admin powers

Every power over the system, who holds it, and how fast it can act:

Power	Who	Speed	Limit
Pause new mints or cash paths	Safe	Instant	Redeem for stock cannot be paused
Remove a keeper	Safe	Instant	None needed
Lower the redeem or management fee, a cap or a limit	Safe	Instant	None needed
Change the mint fee	Safe	48 hours	At most 1%
Raise the redeem or management fee	Safe	48 hours	Redeem at most 2%, management at most 5% per year
Change the basket	Safe	48 hours	Coinbase-registered B20 stocks with a trusted Chainlink feed and a live pool only
Raise the supply cap	Safe	48 hours	None
Add a keeper, or replace the Rebalancer or fee splitter	Safe	48 hours	The vault's daily trading caps still apply
Change price-feed or pool settings	Safe	48 hours	Within fixed ranges

Power	Who	Speed	Limit
Raise \$CHIP buy limits	Safe	48 hours	At most \$500 per buy and \$2,000 per day
Move stock out of the vault	Nobody	Not possible	No such function exists
Upgrade the vault	Nobody	Not possible	No proxy, no upgrade key

A queued change expires if it is not executed within 14 days, and every pending change is listed onchain so anyone can watch the queue.

The keeper that rebalances is held to 0.75% maximum slippage per trade (hard limit 1%), trading of no more than 15% of the vault's value per day, and trading losses of no more than 0.10% of the vault's value per day.

Review history

The contracts went through repeated rounds of review before launch. Every finding and its resolution is recorded in the public repository.

Round	Finding	Resolution
Internal review	A compromised keeper could trade the same stocks back and forth to leak value	Fixed: anti-churn rules plus vault-enforced daily caps
Review 1	Rebalance swaps had no minimum output at the exchange	Fixed: Chainlink-based minimum on every swap
Review 1	Credits were not written down after an issuer seizure; a stock could be removed while still owed	Fixed: pro-rata write-down; removal blocked while owed
Review 2	Basket authenticity relied on an offchain check	Fixed: onchain Coinbase registration check
Review 3	No critical or high-severity issues	None needed
Final review	Mints and redeems could use stale balances after a seizure	Fixed: every action reconciles against actual balances first

The final contracts carry more than 200 automated tests, including invariant and fuzz tests and tests on a copy of live Base using the real stock tokens, price feeds and pools.

Risks

- **Issuer control.** Coinbase, as issuer of the underlying stocks, can pause transfers, blocklist addresses and seize tokens. If the vault were blocklisted, all eight stocks inside it would be frozen. The contracts handle these events as fairly as possible but cannot prevent them.
- **Market risk.** CHIPX tracks the actual value of the eight stocks inside it, less fees. When the stocks fall, CHIPX falls with them.
- **Concentration.** The basket holds eight large US companies, several in technology, and one (MSTR) whose value tracks Bitcoin closely.
- **Execution price.** Cash mints and redeems trade through deep, growing onchain pools for each stock. Very large trades or sudden market moves can still fill slightly away from the reference price; every trade is protected by a minimum you set. Minting and redeeming directly with the stocks involve no pool at all.
- **Oracle risk.** Price feeds can be stale or wrong. The vault never uses prices to decide how many CHIPX are minted or redeemed; prices are used only for fee tiers, rebalancing limits and cash-path protection.
- **Smart contract risk.** Review and testing reduce but cannot remove the risk of undiscovered bugs. The launch cap limits exposure while the system proves itself.
- **Platform risk.** The stocks are native B20 tokens built into Base. Future Base network upgrades could change how they behave.

What happens if

Scenario	What holders experience
Coinbase pauses one stock	New mints pause. Redeemers get the other stocks immediately plus a credit for the paused one, claimable once it moves again.
Coinbase blocklists the vault	All eight stocks are frozen in place. Redeems record credits, payable if the block is lifted.

Scenario	What holders experience
Coinbase seizes stock from the vault	The loss is shared pro-rata by every holder and every credit. Nobody can redeem against the old, higher balance.
Prices freeze overnight or on weekends	Cash mints and redeems continue, protected by the user's minimum and a 10% band. Rebalancing waits. Mint fees use the base rate.
A price feed stops updating for more than 7 days	Cash mints and redeems for that period are refused. Minting and redeeming with the stocks keep working.
Base's sequencer goes down	Cash paths pause until an hour after it recovers.
The keeper key is stolen	Losses are capped by the vault's daily limits, on the order of \$50 per day at the launch cap. The Safe can remove the keeper instantly.
A Safe key is compromised	Any change that could cost holders must wait 48 hours in public view, giving holders time to redeem.
Chipworks disappears	The contracts keep running. Anyone can redeem CHIPX for the stocks inside, forever.

Contracts

All contracts are on Base mainnet (chain 8453) and owned by the Chipworks Safe `0xe1096B727499a3f70FaD8bc0267F5e69d01373C7`.

Contract	Address
IndexVault (CHIPX token)	<code>0x8d6bbB52171499bC9e01954B8F9A74697848E9a2</code>
IndexRouter	<code>0xffAA57A3bAcF1C2E672c36eAf0dD778bf9267903</code>
BasketRegistry	<code>0x653B2cC8eC8E576B0C2bFc30D100A4A6f3CC004e</code>
Rebalancer	<code>0xd62D1b241162609a7383c4610cc18548Ee7235C1</code>

Contract	Address
IndexFeeSplitter	0x791f923648DbCFf01AD6Aa29CfD7fe1667eDBeD6

Roadmap

1. **Launch.** Multisig seed, public mint and redeem at getchipped.xyz, launch cap of 5,000 CHIPX.
2. **Chipworks integration.** CHIPX becomes an earn choice for activated NFT holders, and CHIPX replaces \$CHIP in the alternative payout option.
3. **Liquidity.** A CHIPX trading pool on Base for instant buys and sells.
4. **Growth.** Raise the cap as demand grows, and add tickers as Coinbase lists more tokenized stocks with price feeds.
5. **DeFi.** Borrow against CHIPX through a Morpho market.

Team

CHIPX is built by Chipworks, led by Goya (goya.base.eth), founder of BASED DAO, one of the first DAOs on Base, and creator of the CC0 Based Nouns collection. Goya has built full-time in Web3 since 2018, after a career in lending and financial services. Chipworks also runs the getchipped.xyz platform, where activated NFTs earn tokenized stock. All CHIPX contracts are owned by the same 2-of-3 Safe that owns every Chipworks contract.

Technical appendix

Notation

S is the total supply of CHIPX. $H(i)$ is the vault's holding of stock i . $P(i)$ is the Chainlink total-return price of stock i .

Mint

To mint s CHIPX, a minter deposits, for every stock i :

$$\text{deposit}(i) = \text{ceil}(H(i) \times s / S)$$

Rounding up means existing holders are never diluted by rounding. No price is used. A cash mint has the router buy the stocks first, then mint the largest s the purchased stock covers; anything unspent is refunded in the same transaction. The mint fee is taken from the minted CHIPX.

Redeem

To redeem s CHIPX, after the 0.5% redeem fee, the holder receives for every stock i :

$$\text{payout}(i) = \text{floor}(H(i) \times s / S)$$

Rounding down protects the holders who remain. No price is used.

Net asset value

$$\text{NAV per CHIPX} = \sum (H(i) \times P(i)) / S$$

NAV is used only to choose a mint's fee tier, to bound rebalancing trades and to protect cash paths. It never decides how many CHIPX are minted or redeemed.

Management fee

The 1% yearly fee accrues continuously, by second, as newly minted CHIPX sent to the fee splitter. Fees are accrued at the old rate before any rate change takes effect.

Rebalancing

A rebalance is allowed when any stock's weight differs from 12.5% by more than 3 percentage points, or 30 days after the last one. Each trade must reduce total drift, may not push a stock past its target, and must return at least the Chainlink value minus 0.75%. The vault separately enforces its daily caps on trading volume and loss.

Price checks

Every price read requires a positive answer, a timestamp that is not in the future and is within its allowed age, and a live Base sequencer with a one-hour grace period after any outage.

Source

All five contracts are verified on Basescan and Sourcify at the addresses listed under Contracts. The review notes and full test suite are published with the source.

Disclosures

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