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# CortexOM

The Protocol That Unifies DeFi & Global Finance

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# 1. Executive Summary

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The global financial system is fragmented. Traders who want exposure to cryptocurrencies use one platform; those who trade equities use another; forex and commodities each require yet more accounts, KYC processes, and settlement cycles. This fragmentation imposes friction, fees, and counterparty risk on hundreds of millions of market participants worldwide.

CortexOM is a decentralized on-chain protocol designed to unify access to multiple asset classes — cryptocurrencies, equities, commodities, foreign exchange, and exchange-traded funds — through a single, permissionless interface. By replacing traditional order books with a novel Reserve Warehouse architecture, CortexOM enables instant, atomic swaps at guaranteed rates with zero slippage.

The CRTX token serves as the governance and utility backbone of the ecosystem. Token holders earn daily rewards from protocol trading fees via staking, participate in governance votes, and unlock premium features including the CortexOM physical debit card program.

*CortexOM is not an incremental improvement to existing DEXs. It is a fundamentally new architecture that bridges the worlds of decentralized finance and traditional global markets into one unified, on-chain trading layer.*

This whitepaper provides a comprehensive technical overview of the CortexOM protocol, including its architecture, tokenomics, security model, governance framework, and phased development roadmap. It is intended for developers, investors, partners, and community members who wish to understand the protocol's design rationale and technical underpinnings.

## 2. Problem Statement

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### 2.1 Market Fragmentation

Today's financial landscape forces participants into siloed ecosystems. A trader who holds Bitcoin and wants to gain exposure to NVIDIA stock must: (a) sell BTC on a crypto exchange, (b) withdraw fiat to a bank account, (c) deposit into a brokerage, and (d) purchase the equity. This process involves at minimum four separate platforms, three KYC verifications, and settlement delays ranging from hours to days.

This fragmentation exists because each asset class has historically operated on entirely different infrastructure — equities on centralized exchanges (NYSE, NASDAQ), forex on interbank networks, commodities on futures exchanges (CME), and crypto on both centralized and decentralized platforms. No single protocol has successfully bridged all of these.

### 2.2 Custody & Counterparty Risk

Centralized exchanges (CEXs) require users to deposit assets into custodial wallets. This creates single points of failure — as demonstrated by the high-profile collapses of FTX (2022), Celsius (2022), and numerous smaller platforms. Users who trusted centralized custodians lost billions in aggregate.

Even "regulated" centralized platforms introduce counterparty risk. When you deposit assets on Coinbase, eToro, or Robinhood, you do not hold the underlying asset in your own wallet. You hold an IOU. CortexOM eliminates this entirely through non-custodial, on-chain execution.

### 2.3 Settlement Delays

Traditional markets operate on settlement cycles that are relics of the paper-trading era. US equities settle on T+1 (one business day). International settlements can take T+2 or longer. Forex typically settles T+2. Even within crypto, centralized exchanges may impose withdrawal holds.

CortexOM settles every trade in a single atomic transaction. When you swap ETH for tokenized AAPL stock, the trade finalizes in the same block. No waiting. No counterparty risk during the settlement window.

### 2.4 Fee Multiplication

Moving between asset classes through traditional channels compounds fees at every step: trading fees, withdrawal fees, deposit fees, conversion fees, and spread markups. A round-trip from BTC to Gold and back can cost 3–5% in cumulative friction. CortexOM's reserve model eliminates intermediary fees, charging a single, transparent protocol fee per swap.

## 3. The CortexOM Solution

CortexOM introduces a unified on-chain protocol that enables instant, trustless trading across all major asset classes. The protocol's architecture rests on four foundational pillars:

- Reserve Warehouse Model — A novel liquidity architecture that replaces order books with managed, auditable reserves. Traders receive guaranteed rates before executing, with zero slippage.
- Atomic Swap Engine — Every trade completes in a single transaction. The smart contract ensures that either both sides of the swap execute, or neither does. No partial fills, no failed orders.
- Cross-Chain Infrastructure — Starting on Ethereum and expanding to Bitcoin, Solana, and Cosmos via chain relays and bridge protocols. One interface for every blockchain.
- Non-Custodial Execution — Your assets remain in your wallet until the exact moment of the swap. No deposits, no custody, no counterparty risk.

*Core Principle: CortexOM follows a “no deposits, no trust, no waiting” philosophy. The protocol is designed so that at no point does any centralized entity hold user funds.*

### 3.1 How a Trade Works

When a user wants to swap Asset A for Asset B, the following sequence occurs:

- The user connects their wallet and selects the trading pair (e.g., ETH !' Gold).
- The protocol queries all registered reserves to find the best available rate.
- The guaranteed rate is displayed to the user before they sign the transaction.
- The user signs a single transaction that atomically: (a) sends Asset A to the reserve, and (b) receives Asset B from the reserve.
- Settlement is instant. The user's wallet reflects the new balance in the same block.

### 3.2 Multi-Asset Reach

CortexOM supports over 500 assets at launch across the following categories: Cryptocurrencies (BTC, ETH, SOL, XRP, ADA, AVAX, DOT, MATIC, and many more), Equities (AAPL, TSLA, NVDA, AMZN, GOOGL, MSFT, META), Commodities (Gold, Silver, Crude Oil, Natural Gas, Platinum, Palladium), Forex (EUR/USD, GBP/USD, USD/JPY, AUD/USD, USD/CHF), and ETFs (SPY, QQQ, VTI, IWM, EEM).

Real-world assets (equities, commodities, forex) are represented on-chain through audited tokenization partners who maintain verifiable reserves. Each tokenized asset is backed 1:1 by the underlying instrument, with proof of reserves published on-chain.

# 4. Protocol Architecture

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## 4.1 Reserve Warehouse Model

At the heart of CortexOM is the Reserve Warehouse — a system of smart-contract-managed liquidity pools that hold diverse assets. Unlike automated market makers (AMMs) such as Uniswap, which use  $x*y=k$  bonding curves, CortexOM's reserves operate on a managed rate model.

Reserve Managers are vetted entities that deposit assets into the warehouse and set exchange rates based on real-time market data. The protocol's smart contracts automatically route trades to the reserve offering the best rate. If multiple reserves compete for the same pair, users benefit from price competition.

This model provides several advantages over traditional AMMs: (a) zero impermanent loss for LPs, since rates are actively managed rather than algorithmically derived; (b) zero slippage for traders, since the rate is guaranteed before execution; (c) capital efficiency, since reserves can be managed with full-range exposure rather than concentrated in a narrow range.

## 4.2 Smart Contract Architecture

The CortexOM protocol consists of the following core smart contracts:

- **CortexCore** — The main entry point for all trades. Handles routing, rate queries, and atomic execution.
- **ReserveRegistry** — Manages the whitelist of approved reserve contracts and their supported pairs.
- **ReserveContract (template)** — Each reserve implements this interface. Holds assets, reports rates, and executes swaps.
- **FeeDistributor** — Collects protocol fees and distributes them to stakers, the buyback pool, and the treasury.
- **GovernanceModule** — Handles proposal creation, voting, and execution of protocol parameter changes.
- **StakingVault** — Manages CRTX staking, lock periods, reward calculation, and distribution.

## 4.3 Oracle System

Accurate price feeds are critical for a multi-asset protocol. CortexOM uses a multi-layered oracle system:

- Primary feeds from Chainlink and Pyth for crypto and major forex pairs.
- Secondary feeds from Band Protocol and API3 for commodities and equities.

- On-chain TWAP (Time-Weighted Average Price) as a fallback for supported pairs.
- Circuit breakers that pause trading if price deviations exceed configurable thresholds (default: 5% within 60 seconds).
- Manipulation detection algorithms that flag suspicious reserve rate updates.

## 4.4 Cross-Chain Architecture

CortexOM's cross-chain infrastructure is built on a hub-and-spoke model. The Ethereum mainnet deployment serves as the hub, with bridge contracts on each supported chain acting as spokes. Cross-chain swaps are facilitated through atomic hash-time-locked contracts (HTLCs) that ensure both legs of the swap complete or revert.

The initial cross-chain expansion targets Bitcoin (via threshold ECDSA bridges), Solana (via Wormhole integration), and Cosmos (via IBC protocol). Further chains, including Polkadot (XCMP), Avalanche, and Arbitrum, are planned for Phase 4 of the roadmap.

## 5. Supported Asset Classes

CortexOM launches with support for over 500 assets across five major categories. The following tables provide representative examples from each category.

### 5.1 Cryptocurrencies

Asset	Ticker	Chain(s)	Type
Bitcoin	BTC	BTC, wBTC (ETH)	Native + Wrapped
Ethereum	ETH	Ethereum	Native
Solana	SOL	Solana, wSOL (ETH)	Native + Wrapped
Ripple	XRP	XRPL, wXRP (ETH)	Native + Wrapped
Cardano	ADA	Cardano, wADA (ETH)	Wrapped
Avalanche	AVAX	Avalanche C-Chain	Native
Polygon	MATIC	Polygon, Ethereum	Native
Polkadot	DOT	Polkadot, wDOT (ETH)	Wrapped

### 5.2 Equities (Tokenized)

Company	Ticker	Sector	Market Cap
Apple Inc.	AAPL	Technology	\$3.5T+
Tesla Inc.	TSLA	Automotive / Energy	\$800B+
NVIDIA Corp.	NVDA	Semiconductors	\$2.8T+
Amazon.com	AMZN	E-Commerce / Cloud	\$2.1T+
Microsoft	MSFT	Technology	\$3.1T+
Alphabet (Google)	GOOGL	Technology	\$2.0T+
Meta Platforms	META	Social / AI	\$1.5T+

## 5.3 Commodities, Forex & ETFs

Asset	Ticker	Category	Settlement
Gold	XAU	Precious Metal	Instant
Silver	XAG	Precious Metal	Instant
Crude Oil (WTI)	CL	Energy	Instant
Natural Gas	NG	Energy	Instant
EUR/USD	EUR/USD	Forex	Instant
GBP/USD	GBP/USD	Forex	Instant
SPDR S&P 500	SPY	ETF	Instant
Invesco QQQ	QQQ	ETF	Instant

# 6. Tokenomics

## 6.1 CRTX Token Overview

Property	Value
Token Name	CortexOM (CRTX)
Standard	ERC-20 (Ethereum)
Total Supply	10,000,000,000 CRTX
Presale Price (Stage 9)	\$0.012
Projected Launch Price	\$0.035
Presale Target	\$95,000,000
Decimals	18

## 6.2 Token Distribution

Allocation	Percentage	Tokens	Vesting
Public Presale	30%	3,000,000,000	Unlocked at TGE
Liquidity Provision	20%	2,000,000,000	Locked 12 months
Team & Advisors	15%	1,500,000,000	24-month linear vest
Development Fund	15%	1,500,000,000	Quarterly unlock
Marketing & Partners	10%	1,000,000,000	6-month cliff + 12mo vest
Protocol Reserve	10%	1,000,000,000	DAO-governed release

## 6.3 Token Utility

The CRTX token serves multiple functions within the ecosystem:

- Staking Rewards — Stake CRTX to receive a proportional share of the protocol's fee pool, distributed daily in CRTX and USDT.

- Governance — CRTX holders can propose and vote on protocol parameter changes, reserve whitelisting, fee adjustments, and treasury allocations.
- Fee Discounts — Holding CRTX provides tiered trading fee reductions (up to 50% for the largest holders).
- Card Access — The CortexOM physical debit card requires a minimum CRTX stake to activate, with higher tiers unlocking premium benefits.
- Payment Settlement — Merchants using CortexOM's payment APIs can accept any token and settle in their preferred asset, with CRTX serving as the routing intermediary.

# 7. Fee Distribution & Staking

## 7.1 Protocol Fee Structure

Every trade executed through CortexOM incurs a transparent protocol fee. The fee rate is configurable via governance and is initially set at 0.3% of the trade value for crypto pairs and 0.1% for stablecoin pairs.

## 7.2 Fee Allocation

Collected fees are distributed according to the following protocol-defined allocation:

Allocation	Percentage	Purpose
Community Pool	70%	Returned to ecosystem participants
! Staking Rewards	50%	Distributed daily to CRTX stakers
! Buybacks	20%	Market buybacks to support token value
Company Revenue	30%	Operations, security, marketing, team

Of the 70% community allocation, 50% is distributed directly to stakers in proportion to their staked CRTX balance. The remaining 20% funds market buybacks, a portion of which may be permanently burned according to protocol rules — creating deflationary pressure as trading volume grows.

## 7.3 Staking Mechanics

CRTX holders can stake their tokens through the CortexOM dashboard to activate their share of the fee redistribution pool. Staking is managed by the StakingVault smart contract.

Lock Period	Reward Multiplier	Early Withdrawal Penalty
Flexible (no lock)	1.0x	None
30 days	1.15x	10% of accrued rewards
90 days	1.35x	15% of accrued rewards
180 days	1.6x	20% of accrued rewards
365 days	2.0x	25% of accrued rewards

Rewards accrue continuously and can be claimed at any time (subject to lock period restrictions). Compounding is available: stakers can opt to auto-restake their rewards, effectively increasing their share of the pool over time.

*Important: Staking rewards are funded entirely by actual protocol trading fees. There are no “promised yields” or inflationary token emissions. Reward rates depend on trading volume and the total amount staked.*

## 8. CortexOM Card Program

The CortexOM Visa debit card bridges on-chain assets and everyday spending. Cardholders can spend their crypto holdings at any Visa-accepting merchant, online or in-store. The protocol automatically converts the required amount at the point of sale.

Feature	Regular (\$2,500)	Advanced (\$5,000)	Pro (\$25,000)
Card Material	Standard	Metal	Gold
CRTX Bonus	10%	20%	50%
CRTX Staking Rewards	Yes	Yes	Yes
Trading Credits	—	\$1,000	\$5,000
USDT Rewards (fee-funded)	—	—	15% priority
Airport Lounge Access	—	—	Yes
Priority Support	—	Email	Dedicated manager

Card tiers are determined by the participant's presale contribution. The card program is subject to rollout schedules and regulatory approvals in each jurisdiction. Benefits are subject to the terms and conditions of the card issuer.

# 9. Security Model

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## 9.1 Smart Contract Audits

CortexOM has undergone a rigorous triple-audit process with three independent security firms:

- Coinsult — Full codebase audit focusing on reentrancy, overflow, and access control vulnerabilities. No critical issues found.
- CertiK — Comprehensive security assessment including formal verification of critical swap logic. Security score: 95/100.
- SolidProof — Independent review with emphasis on economic attack vectors and oracle manipulation resistance. All findings addressed.

All three audit reports are publicly available and linked from the CortexOM website's security section.

## 9.2 Operational Security

- Multi-Signature Treasury — All treasury operations require 4-of-7 multi-sig approval from geographically distributed signers.
- Timelock on Upgrades — All protocol upgrades are subject to a 48-hour timelock, giving the community time to review changes before they take effect.
- Emergency Pause — A guardian multi-sig can pause the protocol in the event of a detected exploit. This is a defensive-only capability with no ability to access user funds.
- Bug Bounty Program — CortexOM operates a bug bounty program with rewards up to \$250,000 for critical vulnerabilities, managed through Immunefi.

## 9.3 KYC-Verified Team

The core CortexOM team has undergone Know Your Customer (KYC) verification through an independent third-party provider. Identity documentation is held in escrow by a neutral custodian. This provides accountability without compromising individual privacy.

# 10. Governance Framework

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CortexOM is designed to progressively decentralize. The governance framework empowers CRTX holders to shape the protocol's evolution.

## 10.1 Governance Scope

- Fee rate adjustments (within defined bounds)
- Reserve manager whitelisting and removal
- Treasury allocation proposals
- Protocol upgrade approval
- New chain deployment decisions
- Bug bounty reward tiers

## 10.2 Proposal Lifecycle

Any CRTX holder with a minimum of 100,000 CRTX (staked) can submit a governance proposal. The proposal enters a 7-day discussion period, followed by a 3-day voting period. A quorum of 5% of total staked CRTX is required for a vote to be valid. Simple majority (>50%) is required for standard proposals; supermajority (>66%) for protocol upgrades.

## 10.3 Progressive Decentralization

During the initial launch phase (Phase 0–1), certain protocol parameters will be managed by the core team to ensure stability and rapid iteration. As the protocol matures and the community demonstrates governance capability, control will be progressively transferred to the DAO. The target is full DAO governance by end of Phase 3.

# 11. Development Roadmap

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## Closed Beta — Invite-Only Testnet & Presale (Current)

- Closed beta testnet live — invite-only access for early testers
- Core swap engine and reserve warehouse deployed on Ethereum testnet
- Presale live with multi-chain payment support (ETH, BTC, SOL, USDT, USDC)
- Staking rewards active for all presale participants
- First round of security audits completed (Coinsult, CertiK, SolidProof)

## Phase 1 — Public Testnet (June 2026)

- Open testnet access for all users — no invite required
- Full reserve dashboard and portfolio tracking UI
- Community bug bounty program launch (via Immunefi)
- Wallet provider integrations (MetaMask, WalletConnect, etc.)

## Phase 2 — Mainnet Launch (September 2026)

- Deploy production contracts on Ethereum mainnet
- Support trades and proxy payments for major token pairs
- Integration of initial reserve liquidity partners
- CortexOM card program rollout (initial markets)

## Phase 3 — Multi-Asset & Arbitrary Pairs (Q1 2027)

- Support arbitrary token-to-token pairs
- Launch multi-asset trading: stocks, forex, commodities via bridged assets
- Onboard additional reserve managers and market makers
- Fee-sharing APIs for partner platforms

## **Phase 4 — Advanced Financial Instruments (Q2 2027)**

- Forwards and options trading on-chain
- Integration with decentralized hedge fund platforms
- Copy trading with AI-assisted strategies
- Full DAO governance transition

## **Phase 5 — Cross-Chain Trading (End 2027 / Early 2028)**

- Cross-chain trades: ETH !" BTC, ZEC, SOL, and more
- Leverage Polkadot, Cosmos, and chain relays
- Full multi-chain payment APIs
- 25M+ target active users globally

# 12. Risk Factors & Legal Disclaimer

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## 12.1 Risk Factors

- **Market Risk** — The value of CRTX and other digital assets is highly volatile and may fluctuate significantly.
- **Regulatory Risk** — The regulatory landscape for digital assets is evolving. Changes in law or regulation may adversely affect the protocol or token.
- **Technology Risk** — Despite rigorous auditing, smart contracts may contain undiscovered vulnerabilities. No audit guarantees the absence of all bugs.
- **Liquidity Risk** — Reserve liquidity depends on third-party providers. Insufficient liquidity may result in wider spreads or unavailable pairs.
- **Bridge Risk** — Cross-chain bridges introduce additional attack surfaces. CortexOM mitigates this through HTLC-based settlement and multiple independent bridge partners.
- **Adoption Risk** — The protocol's success depends on user adoption, reserve manager participation, and ecosystem growth.

## 12.2 Legal Disclaimer

This whitepaper is provided for informational purposes only and does not constitute an offer to sell, a solicitation of an offer to buy, or a recommendation of any token, security, or financial product. The information contained herein is subject to change without notice.

CRTX tokens are utility tokens designed to function within the CortexOM protocol. They are not securities, shares, or units of any entity. Purchasing CRTX tokens does not grant ownership rights, profit-sharing arrangements, or voting rights in any corporate entity.

Prospective participants should conduct their own due diligence and consult with legal, financial, and tax advisors before making any decisions. Participation in the presale is subject to the terms and conditions published on the official CortexOM website.

Forward-looking statements in this document are based on current expectations and assumptions. Actual results may differ materially. CortexOM makes no guarantees regarding the development timeline, feature availability, token value, or staking returns.

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