XT Smart Chain Technical

Whitepaper

Table of contents

1. Introduction....3

2. XT Smart Chain Features....3

3. Concept....3

3.1 Consensus....3

3.2 Description....4

3.3 Punishment....4

3.4 Reward....5

3. 5 Creation Archives....5

1. Introduction

XT Smart Chain is a decentralized, energy-efficient public chain. It is compatible with smart contracts and supports high-performance transactions. The endogenous token of the XT smart chain is XT, which adopts the HPoS consensus mechanism, which has low transaction costs, Features such as low transaction latency and high transaction concurrency.

The mission of XT Smart Chain is not only a public chain, but also focuses on discovering and supporting high-potential developers and innovative projects. Relying on the world's largest trading ecosystem, XSC is committed to becoming the birthplace of innovative technologies and innovative businesses. , To build a complete ecological cycle of technology development, application promotion, and trading.

2. XT Smart Chain Features

- An open and decentralized network to maintain the security of the network and assets.
- Support EVM programmability and smart contract compatibility to reduce development or migration costs.
- Meta transaction function: fee reduction, effectively reducing the cost of developers and users on the chain.
- Support cross-chain asset transfer and optimize user experience.

3. Concept

3.1 Consensus

XSC adopts HPOS consensus mechanism of low transaction cost, low transaction delay, and high transaction concurrency, and supports up to 21 active validators. The administrator can designate any address to become a common validator, and the 21 validators with the largest

number of pledges the node is an active validator, responsible for the packaging of the block producing node. After each epoch, the pledge amount ranks among the top 21 validators, and it will become the active validator for the next epoch.

All active validators are sorted according to predefined rules and packed into blocks in turn. If a validator fails to pack blocks in time in its own round, n/2 (n is active) The number of validators) Active validators who have not participated in the block will randomly perform block generation. At least n/2+1 active validators are working normally to ensure the normal operation of the blockchain.

The difficulty value of the block is 2 when it is generated normally, and 1 when it is not generated in a predetermined order. When the blockchain forks, the blockchain selects the corresponding fork based on the cumulative maximum difficulty.

3.2 Description

- Validator

There is no limit in theory, anyone can become a validator, which can be set by the administrator (validatorV1Admin).

- Active validator

Currently the validator set responsible for packaging blocks, up to 21.

- epoch

The time interval in blocks. The current 1epoch = 200block. At the end of each period, the blockchain interacts with the system contract to update the active validator.

3.3 Punishment

Whenever it is found that the verifier has not packaged a block according to the predefined, the `Punish` contract will be automatically called at the end of the block, and the verifier will be counted. When the count reaches 24, all the verifier's income will be punished. When the count reaches 48, the validator will be removed from the list of active validators and

disqualified.

3.4 Reward

XT Smart Chain's mining rewards are only commissions. The distribution rules are as follows:

- **10%** to backups (10% is evenly distributed to ordinary validator nodes)
- **40%** validators share by vote (40% is distributed to active validator nodes in proportion to the pledge weight)
- **50%** validators share (50% is evenly distributed to active validator nodes)

For any account, you can pledge any number of coins to the validator, If you want to cancel the mortgage, you need to do the following:

1. Send unstaking transaction to validator management contract;

2. Wait for 86400 blocks and then send a withdrawal transfer to the validator management contract.

Each validator node can individually set the percentage of the current block reward to be distributed to users. Staking users get rewards based on the percentage. Ordinary validator nodes can also be distributed to staking users.

3. 5 Creation Archives

What is a Creation Document

The genesis File is a JSON file that defines the initial state of the blockchain. It can be regarded as the height of the `0` blockchain. The first block located in height, `1`, will refer to the creation World file as its parent file.

The state defined in the genesis file contains all necessary information, such as initial token allocation, creation time, default parameters, etc. Let's break down this information.

Description

- chainId

The unique identifier of the chain. The main net is 520, the test net is 530, and the network id of test-net should be different from main-net.

- period

Block time interval

- epoch

The time interval in blocks, the current 1epoch = 200block At the end of each period, the blockchain interacts with the system contract to update the active validator

- nonce

The random number is a cryptographically secure proof of mining workload, which undoubtedly proves that a certain amount of calculation has been spent in determining the value of this token.

- timestamp

Must be at least the parent's timestamp + BLOCK_PERIOD.

- extraData

The initial validator is set here

- gasLimit

A scalar value equal to the current full chain limit of Gas spending for each block. In our case, it is high to avoid being restricted by this threshold during the test. Note: This does not mean that we needn't pay attention to the gas consumption of our contract.

- difficulty

Scalar value corresponding to the difficulty level applied during the discovery of the random number of this block. The testnet recommends using 0x1

- coinbase

The address of the system used to collect block rewards

- alloc

Allows to define a list of pre-installed wallets.

Contract Name	Address
Genesis account	0x58b1E31682C95417be998b27db00731b54b7E5EC
validators contract address	0000000000000000000000000000000000000C000
punish contract address	0000000000000000000000000000000000000C001
proposal contract address	0000000000000000000000000000000000000C002

- number

The height of the block in the chain, where the creation height is block 0

- parentHash

The Keccak 256-bit hash value of the entire parentHash (including its nonce and mixhash). A pointer to the parent block, thereby effectively establishing the blockchain. In the case of the Genesis block, and only in this case, it is 0.