

ParallelChain Mainnet Economics v1.0

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Abstract This paper describes the economics of the ParallelChain Mainnet, a distributed, quasi-permissioned smart contract platform on which the native cryptocurrency ParallelChain Token (XPLL) is transacted. The paper consists of three main parts: introduction, transaction fee, staking rewards as well as other ways to earn XPLLs, and finally, node operation. For technical information of the platform, please read the “ParallelChain Mainnet Technical Whitepaper”.

The information provided in this paper is subject to change.

1. Introduction

The ParallelChain Mainnet is a distributed, quasi-permissioned smart contract platform on which the native token XPLL is transacted. In its most direct usage, the token can be used to pay for transaction fees on the Mainnet. As a digital currency with a store of market value and utilities, XPLL plays a meaningful role and forms a key part of the network’s growth strategy.

1.1 Definitions

- **ParallelChain Mainnet**
A distributed, quasi-permissioned smart contract platform. Also referred to as “the Mainnet”, “the network”, “ParallelChain”.
- **ParallelChain Token (XPLL)**
The native token of ParallelChain.
- **ParallelBFT:**
The consensus protocol of the Mainnet.
- **Transaction Fee**
Sum of fees charged upon execution of a smart contract.
- **Node Operator(s)**
A functional node that verifies transactions and finalizes blocks on ParallelChain. Also referred to as “node(s)”, “validator(s)”.
- **Staker(s)**
Anyone that stakes tokens on ParallelChain.
- **Epoch**
An epoch in ParallelChain is 2-day.

2. Transaction Fee

Every transaction sent through ParallelChain is subject to a fee paid by the initiator. The network offers fair and stable transaction pricing, while the fee does vary depending on Network congestion, the fluctuation is rather small, thanks to the simple yet sophisticated ParallelBFT consensus model. The fast processing capability of ParallelChain means that users do not need to engage in a “fee war” for quicker confirmation.

The transaction fee for sending XPLL is:

$$a \times \text{size of transaction in bytes} + b$$

The value of a is determined and will be adjusted based on the resource it takes to process XPLL transactions, while b is a base fee set by ParallelChain. For non-XPLL transactions, this value would be different, depending on the complexity of code (typically, the more complex the code, the higher the value).

3. Staking Reward

Staking reward represents a consistent income for XPLL holders who stake their tokens in a stake pool, these pools are operated by network nodes. Each staking reward is based on the staker’s (i) staking size (i.e., the number of staked tokens), and (ii) commitment period. The larger the staking size and the longer the commitment period, the higher the reward will be. However, after 36 months, the interest rate will no longer rise.

Staking rewards are distributed and deposited directly into the staker’s address at the end of every epoch. The staking reward for each staker is defined by:

$$(1 + \text{interest rate}) \times \left(\frac{\text{personal staking size}}{\text{pool staking size}} \times \text{node reward} \right)$$

3.1 Staking & Withdrawal Fees

Node operators will charge the staker a one-time service fee for each staking and withdrawal instance. While node operators can define the pricing model of their own stake pools, the default service fee for staking/withdrawal is 0.5% of the staking/withdrawal amount.

By default, the fee will be taken from the transfer, for example, the service fee for staking 1,000 XPLLs is 1 XPLL, which means the staker has to put 1,001 XPLLs onto the staking contract for 1,000 XPLLs to be staked.

3.2 Termination

A staker has to pay a deposit of 10% of its staking size before staking commences, the deposit will be fully returned upon the end of the commitment period. The default penalty of early termination (definable by pool operators) is that all the staking rewards already distributed will be taken from the deposit.

4. Contributor Rewards

Contributor Rewards is an incentive program where you can earn XPLLs by reporting issues or proposing new ideas that contribute to the growth and continuous improvement of the ParallelChain ecosystem.

Reward decision is made by the ParallelChain team for each report/proposal individually. Make your proposal as detailed as possible to maximize your potential reward. Typically, the size of reward ranges from 1 to 10 XPLLs per report/proposal, we may decide to pay more for exceptionally clever ideas or severe issues.

For technical proposals or reporting bugs, please create an issue in the GitHub repository. For non-technical or XPLL-related topics, please write to xpll@parallelchain.io.

5. Node Operation

Node operators are key to keeping the network reliable, secure, and sustainable. They help to process transactions via ParallelBFT consensus and participate in voting on matters that concern the health of the ecosystem. XPLL holders that satisfy the conditions shown in the table below are eligible to run a node on ParallelChain.

	Minimum Stake	Cap	Length of Service (term-based)	Other Requirements
Governing Node (GN)	1,000,000 XPLLs	5	1 year ¹	KYC.
Alpha Node (AN)	500,000 XPLLs	25	6-month	KYC; Run a Beta Node for 3+ months.
Beta Node (BN)	100,000 XPLLs	70		/

Below are the technical requirements for running a node. You may be asked to install a software that will help us verify your machine is up to the required standard.

CPU: AMD Ryzen 9 5950X Zen3 16Cores/32Threads
RAM: 64GB
SSD Storage: 512GB
Surge Suppressor
Redundant Power Supply (rack-mounted, hot swappable)
Local area network: 100 Gb/s (Ethernet)

5.1 Node Upgrade

At its initial launch, the network will only have Governing Nodes and Beta Nodes. Beta Nodes can apply to become an Alpha Node after a three-month service. Node upgrade is granted based on the candidate's staking size, performance as a Beta Node, and upon completion of KYC. In the event the number of eligible candidates exceed the maximum membership of the node class, places will be offered to on the basis of staking size.

¹ A Governing Node may not exceed 3 consecutive years of service.

5.1.1 Node KYC

KYC deters bad actors from harming the network by bringing accountability into the ecosystem. KYC is performed using ParallelChain's built-in biometric system, the process is quick, simple, and only requires a mobile device with camera. A detailed set of instructions and privacy policies will be provided directly to the individual being KYCed.

5.2 Codes of Conducts

Sustaining the performance of the Mainnet does not rely on high-level optimization or hardware, but rather, the good conduct and diligent participation of node operators. In addition to having a KYC system which significantly reduces the risk of malicious action, penalties are established to further safeguard the network and ensure node performance. A node operator that misbehaves or goes offline over a specified period will have its staked tokens partially slashed (i.e., through burning).

5.3 Node Reward

Node operators will receive node rewards in XPLL at the end of every epoch. Node rewards are funded with the transaction fees collected from the network and the allocated subsidy (i.e., 10% of XPLL total token supply). The calculation of node reward is defined as:

$$\frac{\text{Amount of blocks produced by a node per epoch}}{\text{Total amount of blocks in an epoch}} \times (\text{Subsidy} + \text{Sum of transaction fees in an epoch})$$

5.3.1 Performance Bonus

The node that produces the highest amount of blocks within an epoch will receive an extra 10% of its node reward earning as performance bonus.

5.4 On-Chain Governance

ParallelChain will implement regular updates to improve its operation and grow the ecosystem. Node operators can vote on proposals of changes submitted on-chain (i.e., via code updates) and off-chain.

Each voting instance will have a unique group of voters composed of half the nodes from each class. For example, assuming the node system has reached the maximum size (i.e., 5 GNs, 25 ANs, 70 BNs), the composition of a voting group would be: 3 GNs, 13 ANs and 35 BNs.

The three node classes have varying voting power: a vote of an AN will carry five times the weight of a BN's vote; while a GN's vote will carry five times the weight of an AN's.