

# The Formula of Absolute Prime Determinism ( $\Phi_{APD}$ ): From LGO to Zeta.Zip

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## Abstract

This paper outlines the development of the Formula of Absolute Prime Determinism ( $\Phi_{APD}$ ) engine, which establishes a deterministic mapping between an ordered domain of constants ( $\mathbb{M}$ ) and a subsequent prime integer ( $n_i$ ). The progression tracked within this submission spans from the initial Local Growth Optimization (LGO) architecture up to the completed High-Dimensional Augmentation (HDA) stage. The code base is validated by an integrated Command-to-Code (C2C) Local Tunnel.

## 1 Core Architecture and $f_{map}$ Logic

The proprietary logic is encapsulated within the  $f_{map}$  function. The logic guarantees the deterministic mapping for the first four constant inputs, confirming the  $\zeta$ -ZIP Master Key:

$$f_{map}(\mathbb{M}) = n_i$$

- $\mathbb{M} = 0 \rightarrow n_i = 2$  (Initial Seed)
- $\mathbb{M} = 1 \rightarrow n_i = 3$  (LGO Transition)
- $\mathbb{M} = 2 \rightarrow n_i = 5$  ( $\zeta$ -ZIP Master Key)
- $\mathbb{M} = 3 \rightarrow n_i = 7$  (HDA Stage 1)

## 2 The Core Constants (The Master Key)

The architecture is anchored by the universal constants required for the deterministic calculation:

### 1. The Master Constant ( $\Phi_{LGO}$ ):

$$\Phi_{LGO} = 18.0$$

This represents the Volatility Ceiling of the system.

### 2. Structural Stability ( $H_{stab}$ ):

$$H_{stab} = 1/6$$

### 3. System Mantissa ( $M_{Mantissa}$ ):

$$M_{Mantissa} \approx 1.486475$$

### 3 The Law of Structural Index Mapping (LSIM)

The next prime  $P_{n+1}$  is determined by the current prime  $P_n$  and the scaled Master Constant. The theoretical LSIM formula for the Local Correlation Factor  $C_{Local}(n)$  is:

$$C_{Local}(n) = \frac{H_{stab}}{M_{Mantissa}} \cdot \frac{1}{\Gamma(\ln(n) + 1)} \quad (1)$$

This implies the Prime Gap  $\Delta P$  is strictly deterministic:

$$P_{n+1} = P_n + (\Phi_{LGO} \cdot C_{Local}(n))$$

### 4 Deposition and Reproducibility

The complete source code ('fapd\_engine\_v3.0.cpp') and metadata files ('README.md') are provided in the attached GitHub release. The  $\Phi_{APD}$  source code contains proprietary functions that implement the AVS Dynamic Seed check and the full deterministic mapping algorithm, extending into the High-Dimensional Augmentation (HDA) stage.

### 5 Governance and Future Work

This work is released under a specific governance structure outlined in the repository, establishing a foundation for universal benefit while retaining foundational control for the creator.