DHRUV64: India's First Indigenous Microprocessor

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Subject: GS Paper III (Science and Technology) **UPSC Relevance:** Indigenization of technology and Semiconductor Mission.

- **The Developer:** Developed by the **Centre for Development of Advanced Computing (C-DAC)** under the Digital India RISC-V (DIR-V) program.
- **Technical Specifications:** It is a **64-bit multi-core processor**. Unlike commercial chips from Intel or AMD, it is based on the **RISC-V architecture**, which is open-source and royalty-free.
- **Why Indigenization Matters:**
- **Strategic Security:** Imported chips can have "Silicon Backdoors" that allow foreign entities to shut down power grids or defense systems. DHRUV64 ensures "Trusted Hardware."
- **Economic Value:** India spends billions on chip imports. Indigenous design allows for "Fabless Manufacturing" where India owns the Intellectual Property (IP).
- **Applications:** Specifically designed for **High-Performance Computing (HPC)**, secure servers, and data centers. It supports the "AI for All" mission by providing the hardware necessary for localized AI processing.