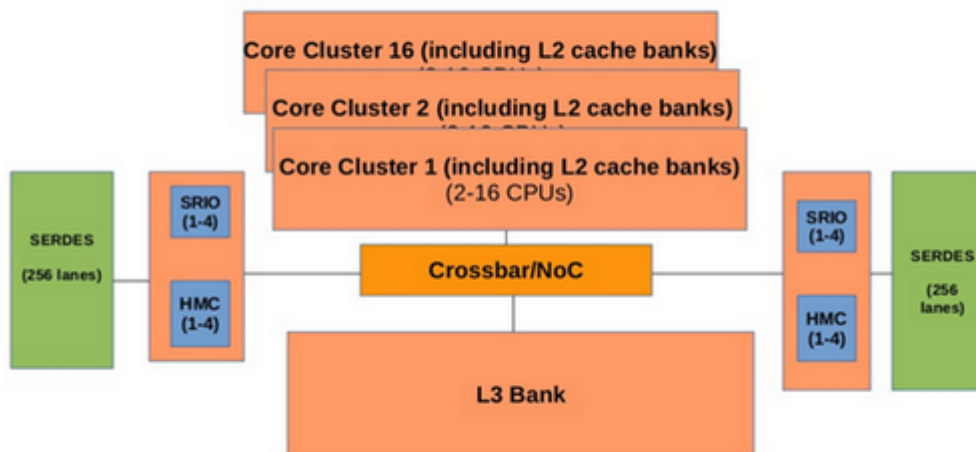


IIT Madras Develops India'S 1st Indigenous Microprocessor (Important) (Download PDF)

(December 7, 2018)

Researchers from Indian Institute of Technology Madras (IIT Madras) have designed India's 1st indigenous microprocessor called 'Shakti'. It is aimed at developing industrial-grade microprocessors & other components of microprocessor ecosystem.

Shakti-S Architecture



Imagr of Microprocessor

- It will help to reduce dependency on imported microchips & risk of cyber-attacks.
- Microprocessors are brain of all computing & electronic devices & are used to operate larger high-speed systems & supercomputers.

Shakti Microprocessor

- It was designed, developed, & booted by IIT Madras w/microchip fabricated in ISRO's Semi-Conductor Laboratory at Chandigarh.
- It is developed under project partly funded by Ministry of Electronics and Information Technology (MeitY), as part of 2-decade-old efforts to develop indigenous microprocessors.
- Its design originates from open source instruction set architecture (ISA), set of basic instructions called RISC V, which makes it customisable to any device.
- ISA is programming or machine language & provides commands to processor instructing it on functions to be executed.

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- RISC-V is open, free ISA which enables new era of processor innovation thru open standard collaboration. It delivers new level of free, extensible software & hardware freedom on architecture.

Significance of Shakti Microprocessor

- It will reduce dependency on imported microchips especially in communication & defence sectors & thus eliminate risk of cyber-attacks.
- It can be used in mobile computing, wireless & networking systems.
- It may provide power to mobile phones, smart meters & surveillance cameras.

Parashakti

- IIT M researchers are now conducting research on 'Parashakti', advanced microprocessor for supercomputers.
- It will be super scaler processor that will be ready by December 2018.
- It will have its applications in desktops & 32 such interconnected microprocessors may be used in supercomputers.

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