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Govt Launches 2 nm Semiconductor Chip in India

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Union Minister Ashwini Vaishnaw inaugurated a 2 nanometre semiconductor chip developed in partnership with Qualcomm in Bengaluru, marking a significant step in advanced chip design and India's role in the global semiconductor ecosystem.

Focus on Design, Ecosystem & Talent

The initiative prioritises:

Strengthening design capabilities and abilities of Indian companies and startups in semiconductor design,

Building a comprehensive semiconductor ecosystem including equipment and materials, and

Enhancing India's talent pool through industry-academia collaboration and upskilling.

India Semiconductor Mission (ISM) 2.0

The launch is linked to the next phase of the India Semiconductor Mission (ISM) 2.0, which shifts focus from assembly to design and testing capabilities, deepening domestic technological competitiveness.

Strategic Importance

This development strengthens India's position in deep tech innovation, aligns with Make in India goals, and supports emerging technologies including AI, IoT, 5G/6G, and edge computing.

Semiconductor Technology & Global Markets

Nanometre (nm) refers to the process node in semiconductor fabrication; smaller nodes usually mean more transistors per unit area, better performance, and lower power usage (e.g., 2 nm is more advanced than 5 nm or 7 nm).

Leading global semiconductor producers include TSMC (Taiwan), Samsung (South Korea), and Intel (USA), with India emerging as a design and innovation hub. (General semiconductor knowledge)

India Semiconductor Mission (ISM)

The India Semiconductor Mission was established to make India a global hub for semiconductor design and manufacturing. It includes incentives for chip fabrication, testing, and packaging units.

Under ISM 1.0, India focused on setting up fabrication and ATMP (Assembly, Testing, Marking, and Packaging) facilities. ISM 2.0 emphasises design autonomy and cutting-edge chip innovation.

Semiconductor Strategic Significance

Semiconductors are essential components in consumer electronics, defence systems, automobiles, telecom equipment, and industrial automation, making them critical for technological sovereignty.

Countries have introduced incentive schemes (e.g., USA's CHIPS Act; EU's semiconductor policies) to reduce dependence on a single region and strengthen supply chains.

Bengalur– India's Electronics & Tech Hub

Bengaluris a major hub for technology, chip design companies, and research institutions in India. The city hosts numerous R&D centres of global semiconductor firms and supports electronics system design and manufacturing (ESDM) activities.