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# India Application-Specific Integrated Circuits (ASIC) Market - Strategic Insights and Forecasts (2026-2031)

https://marketpublishers.com/r/I4A749A07EB9EN.html
Date: March 2026
Pages: 82
Price: US$ 2,850.00 (Single User License)
ID: I4A749A07EB9EN

## Abstracts

The India Application-Specific Integrated Circuits (ASIC) Market is projected to grow from USD 1.4 billion in 2026 to USD 2.1 billion in 2031, at an 8.4% CAGR.

The Indian ASIC market is transitioning from a consumption-centric design hub to an emerging center for localized manufacturing, heavily influenced by state-sponsored incentives targeting self-reliance in electronics. India's semiconductor ecosystem has historically concentrated its core strength in design, with global firms maintaining significant engineering and R&D centers in the country. The government's strategic recognition of ASICs as foundational components for defense, telecommunications, and high-performance computing has catalyzed a suite of targeted policy programs aimed at reducing a substantial trade deficit in semiconductor products and mitigating vulnerability to global supply chain disruptions. The recent approval of domestic fabrication and Assembly, Testing, Marking and Packaging facilities marks a critical structural inflection, beginning the transition from a purely fabless model toward an integrated domestic supply chain that progressively supports indigenous ASIC design and deployment across the full value chain.

Market Drivers

The national push for indigenous electronics manufacturing through the Make in India and Atmanirbhar Bharat programs constitutes the primary demand catalyst, mandating or heavily favoring locally sourced components and creating a captive market for ASICs in domestic production lines. The Design Linked Incentive Scheme administered by MeitY provides direct financial incentives and design infrastructure support to domestic fabless companies and startups undertaking semiconductor design, materially lowering the historically prohibitive Non-Recurring Engineering costs associated with advanced

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ASIC development. The broader Semicon India Programme provides fiscal incentives covering 50% of project costs for establishing semiconductor fabs and ATMP units, directly stimulating domestic manufacturing capacity that in turn secures a localized supply base for Indian ASIC designers.

Accelerating digitization of core infrastructure drives a parallel demand vector for custom, energy-efficient silicon solutions. The rise of on-device AI for portable consumer electronics necessitates high-performance, power-constrained hardware, with ASIC Vector Engine RISC-V architectures under active investigation to balance computational power with efficiency constraints for AI and data-parallel applications. This design complexity compels system integrators to favor tailored ASICs over general-purpose processors. In September 2024, the central government approved Kaynes Semicon's proposal to establish an ATMP facility in Sanand, Gujarat, with an investment of approximately Rs 3,307 crore, representing the fifth semiconductor unit approved under the India Semiconductor Mission and adding critical post-fabrication capacity that shortens the domestic ASIC realization cycle.

Market Restraints

The historical absence of large-scale domestic fabrication and ATMP infrastructure is the foremost structural constraint, forcing Indian design houses to rely on global East Asian foundries for wafer manufacturing and exposing the domestic supply chain to geopolitical risk, long lead times, and the supply shocks demonstrated during the global chip shortage. While the February 2024 announcement of three new semiconductor units, including the Dholera Special Investment Region fabrication facility and OSAT units in Morigaon and Sanand, represents a foundational step, these facilities remain in development and will not provide meaningful domestic capacity relief within the near term of the forecast period.

Advanced node fabrication at 5nm and below is dominated by a handful of global foundries whose capacity constraints and capital-intensive Extreme Ultraviolet lithography infrastructure place sustained upward pricing pressure on Indian ASIC procurement. The silicon wafer supply chain remains almost entirely import-dependent, meaning raw material pricing for Indian ASIC designers is subject to global capacity utilization volatility. The defense and aerospace sector's particular requirement for supply chain trust intensifies the cost of continued offshore dependency, reinforcing the urgency of domestic fabrication development as a strategic imperative rather than merely an economic efficiency measure.

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## Technology and Segment Insights

By process technology, the market spans advanced nodes at 3nm and below through mature nodes at 22nm and above, with demand for leading-edge and advanced nodes concentrated in AI acceleration and cloud infrastructure applications. ASIC-based Compute Express Link memory solutions are an emerging application within the Data Centers and Cloud Computing segment, enabling high-speed, low-latency communication between host processors and external memory to address the urgent needs of memory-intensive HPC workloads. Mature nodes retain significant demand across industrial, automotive power management, and defense applications where long product lifecycle stability and established supply chain commitments take precedence over transistor density.

The Data Centers and Cloud Computing segment is the most acute near-term demand concentration point, driven by exponential growth in AI and HPC workloads for which general-purpose processors are demonstrably inefficient. The Automotive segment is a structurally important secondary growth driver, with ADAS and battery management system requirements for electric vehicles demanding highly integrated, functionally safe custom ASICs compliant with ISO 26262 standards. By product type, the market encompasses Full-Custom, Semi-Custom including standard cell-based and gate-array designs, and Programmable ASICs, with Full-Custom designs commanding the highest value in defense, aerospace, and high-performance computing applications requiring inherent tamper resistance and certified supply chain trust.

## Competitive and Strategic Outlook

The competitive structure is bifurcated between global semiconductor giants leveraging India as a primary design and engineering center and a nascent but strategically important group of indigenous fabless design companies. Intel maintains a significant engineering and design presence in India, with its Custom Foundry Services strategy targeting specialized silicon solutions for hyperscale cloud providers and communications companies globally, while Indian R&D centers contribute to global design-for-manufacturability and IP development. Broadcom's Indian operations contribute substantially to product definition and complex verification for its networking and infrastructure ASIC portfolio, with its application-specific standard products serving major OEMs across high-bandwidth network applications.

AMD, Qualcomm, NVIDIA, and Onsemi complete the competitive landscape across AI acceleration, mobile infrastructure, consumer electronics, and industrial ASIC segments

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respectively. The DLI Scheme's role in derisking indigenous design investment is progressively supporting the emergence of domestic fabless companies capable of competing for design wins in telecommunications, industrial IoT, and defense electronics, segments where government procurement preferences and data sovereignty requirements increasingly favor locally developed silicon.

Key Takeaways

The India ASIC market is positioned for robust growth through 2031, anchored by government-driven indigenous manufacturing imperatives, rapidly expanding AI and cloud infrastructure investment, automotive electrification, and a design ecosystem of global scale that is progressively acquiring domestic manufacturing backing. Continued offshore fabrication dependency and advanced node cost pressures remain meaningful near-term headwinds, but the Semicon India Programme, DLI Scheme, Dholera fab development, and multiple ATMP approvals collectively establish the structural foundation for a progressively self-sufficient and high-value ASIC market trajectory across the forecast period.

Key Benefits of this Report

Insightful Analysis: Gain detailed market insights across regions, customer segments, policies, socio-economic factors, consumer preferences, and industry verticals.

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- Competitive positioning, strategies, and market share evaluation
- Revenue growth and forecast assessment across segments and regions
- Company profiling including strategies, products, financials, and key developments

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