

Marvell® 5nm Custom ASIC

Overview

Marvell 5nm ASIC offers a comprehensive semiconductor solution for wired, wireless, storage and datacenter applications. Marvell 5nm ASICs not only offers a significant scale in power and area, it adds enhanced capabilities to leverage Marvell's significant investment in cutting edge SOC and networking IP. This combination of performance, power and area improvement enhanced by next-level-up IP synergy can help chip designers stay ahead of system-level demands driven by evolving network, data center and 5G solutions.

Future-Ready IP

Marvell ASIC 5nm IP portfolio features the full range of arm™ cores, leading-edge high-speed SERDES, and embedded SRAMs. Cutting edge 64-bit arm™ cores enable designers to optimize their chips for performance in the most demanding communications applications. In addition to turnkey SoC capability Marvell ASIC can leverage our extensive array of custom processors for server and infra-structure applications. Marvell ASIC also has significant experience with implementation and optimization of advanced signal processing and machine learning cores.

Optimized 112Gbps and 56Gbps SERDES designs extend the Marvell HSS roadmap in 5nm. Marvell -SERDES cores provide outstanding jitter performance and equalization over a wide range of interface standards. Marvell ASIC also delivers proven advanced packaging capability supporting the latest memory technologies including HBM2E and HBM3.

5nm Marvell ASICs leverage customized high performance SRAM IP to enable customers to scale up their on chip performance without sacrificing area and power. High performance dense single port, two port, multiport and TCAM capabilities allow customers to build area efficient solutions without having to partition to multiple frequency domains.

Marvell ASIC not only provides our customers with leading edge interconnect and on chip memory IP, our highly skilled design services team can integrate components from across the Marvell 5nm portfolio. This capability allows our customers to leverage Marvell's unique and proven SOC and networking IP in their designs via on chip or on package integration.

Highlights

- Industry-leading 112G SerDes for next generation systems
- Cross Marvell collaboration to leverage integrated SOC and networking capabilities
- Fully integrated Adaptive Voltage Scaling (AVS) ASIC flow
- Comprehensive portfolio of advanced packaging solutions, including MCM, chiplets, multiple HBM integration technologies

Key Features

Features		Benefits
Cross Portfolio Collaboration	SOC	<ul style="list-style-type: none"> • Leverage Marvell's unique SOC IP across platforms to provide significant system level benefit
	Networking	<ul style="list-style-type: none"> • Leverage proven networking solutions to enhance
arm™ Partnership	Turnkey SOC	<ul style="list-style-type: none"> • Optimized SOC tuned to customer requirements - from the most advanced 64bit cores available to low power microcontroller solutions
	Custom Processor	<ul style="list-style-type: none"> • Ability to leverage Marvell optimized custom processors with flexible integration schemes
Power Optimized	Integrated AVS	<ul style="list-style-type: none"> • Significant power benefit, integrated throughout the flow
	Low Voltage	<ul style="list-style-type: none"> • Significant reduction in active power for DSP and compute
	Vt Optimization	<ul style="list-style-type: none"> • Reduced leakage power
SERDES Leadership	Long Reach	<ul style="list-style-type: none"> • Power-performance optimized 112G, 56G solutions
	Chiplet Solutions	<ul style="list-style-type: none"> • Industry's highest bandwidth density solution for chiplet integration
Memory Solutions	Dense SRAM	<ul style="list-style-type: none"> • Highest bandwidth and capacity dense memory solutions optimized to packet buffer and machine learning applications
	Multiport	<ul style="list-style-type: none"> • Custom, high performance multiport solutions for shared memory
	Dense two port	<ul style="list-style-type: none"> • Performance optimized dense two port solutions
	Embedded TCAM	<ul style="list-style-type: none"> • High performance, low power TCAM solutions for demanding networking applications
Advanced Packaging	Multi Chip Module	<ul style="list-style-type: none"> • Chiplet and CSP integration, industry's most complex advanced packages in production today
	2.5D/Fanout	<ul style="list-style-type: none"> • Proven HBM integration capability for massive scale or cost optimized integration



To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

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