

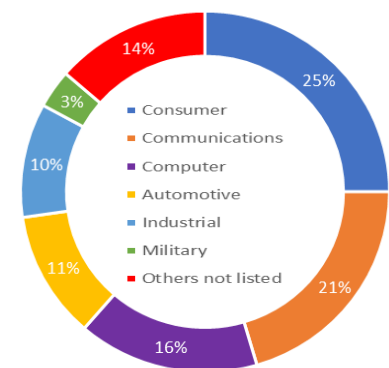
## Catalyzing the RISC-V Ecosystem

Feb. 7, 2022 — With millions of cores shipped to date, RISC-V has quickly solidified its position as the leading open-source instruction set architecture (ISA). RISC-V is still in its infancy, but the ISA is gaining momentum across a range of markets and applications because of its open and free architecture, and potential for scalability, extensibility and customization.

Open architectures are a relatively new addition to the semiconductor intellectual property (IP) landscape. This approach allows users to customize and adapt processor cores to their own specific applications and provide the opportunity for unique differentiation. As the leading open-source ISA standard, RISC-V is positioned to accelerate adoption in high-growth market segments and emerging economies focused on building indigenous processors. Semico Research has estimated that demand will continue to grow at a rapid pace, with the market consuming more than 60 billion RISC-V CPU cores by 2025.

To help strengthen the ecosystem and catalyze continued adoption of RISC-V, Intel Foundry Services is working with leading IP partners to optimize IP for IFS process and packaging technologies. The goal is to ensure that RISC-V runs best on IFS silicon, creating a frictionless experience to accelerate customer time to market.

IFS is partnering with IP providers Andes Technology, Esperanto Technologies, SiFive and Ventana Micro Systems to demonstrate best-in-class performance, power and area (PPA) on IFS' portfolio of leading-edge technologies. Together, they will make CPU cores, chiplets and fully packaged products available to customers in a range of key market segments.



End markets targeted with RISC-V designs (Semico Research)

## RISC-V Ecosystem Partners

[Andes Technology](#) provides leading vector solutions targeted at the high-performance accelerator market, including artificial intelligence and machine learning in applications such as data center, data processing for 5G networks, and intelligent IoT applications on the edge. Andes' 45-series vector processor offers a wide range of vector length from 128 to 1024 bits running over 2 GHz. Andes' complete AndeStar™ V5 RISC-V CPU IP line from the 25-series, 27-series and 45-series are available for IFS customers with hardware evaluation kits and software solutions for easy evaluation and integration.

[Esperanto Technologies](#) builds chips, boards and systems that utilize thousands of AI-optimized RISC-V cores to accelerate machine-learning workloads. Designed to meet the demanding performance per watt requirements of large-scale data center customers, Esperanto's existing inference chip is a general-purpose parallel processing solution with over a thousand RISC-V vector/tensor cores that excel on ML models such as recommendation, one of the most important types of AI workloads. Esperanto designs its own RISC-V processor cores and on-chip memory system with low-power design techniques and an architecture modified specifically to run thousands of parallel threads with exceptional energy efficiency. Esperanto's architecture is designed to easily scale to new technology nodes and service a wide range of applications from the edge to the cloud. Esperanto will be able to assemble many different configurations of chiplets, each with over a thousand RISC-V cores, using IFS' portfolio of IP, packaging and end-to-end silicon manufacturing and supply chain leadership.

[SiFive](#) is the leading provider of RISC-V IP, offering a broad portfolio of CPUs spanning from high-performance application processors to area-optimized, low-power embedded 64- and 32-bit microcontrollers to vector processors, all with extensible instruction set capability. With Intel's "Horse Creek" SoC powered by the SiFive Performance™ P550 processor, SiFive and Intel have collaborated to build a scalable compute platform and development system board, which will be used as the basis for software enablement starting in 2022's second quarter. SiFive is making its portfolio of cores available on IFS technologies and ready for integration into customer platforms, offering an end-to-end high-performance RISC-V SoC platform.

[Ventana Micro Systems](#) is the high-performance RISC-V leader offering data center-class CPUs competitive with the best-in-class CPU cores and leveraging RISC-V's extensible instruction set capability. Ventana offers modular, scalable chiplet-based solutions that enable significant reduction in development time and cost compared to the prevailing IP model. Ventana will offer a scalable, highly customizable compute platform that combines its high-performance multi-core chiplets with an IO Hub manufactured by IFS, and leverages IFS' portfolio of connectivity IP, packaging and supply chain leadership. The platform will support the full range of high-performance applications including: data center, AI/ML accelerators, IPU/DPU, Networking, Storage, Security, Automotive and 5G/edge. Additionally, Ventana will offer its data center-class cores as IP on IFS' cutting edge manufacturing process for integration into customer platforms.

**Forward-Looking Statements:** Statements in this fact sheet that refer to future plans and expectations, including with respect to Intel's planned investments and Intel's strategy, are forward-looking statements that involve a number of risks and uncertainties. Statements that refer to or are based on estimates, forecasts, projections, uncertain events or assumptions also identify forward-looking statements. Such statements are based on management's expectations as of the date of this fact sheet and involve many risks and uncertainties. Important factors that could cause actual results to differ materially are set forth in Intel's SEC filings, which are available at [www.intc.com](http://www.intc.com). Intel does not undertake, and expressly disclaims any duty, to update any statement made in this fact sheet, whether as a result of new information, new developments or otherwise, except to the extent that disclosure may be required by law.

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