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RISC-V Tech - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)

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Abstracts

The RISC-V Tech Market size is estimated at USD 0.92 billion in 2024, and is expected to reach USD 3.59 billion by 2029, growing at a CAGR of 31.20% during the forecast period (2024-2029).

Key Highlights

The RISC-V Tech market will witness high growth as the architecture provides the processor with simplified instructions to perform various tasks. Developers can create thousands of potential custom processors, reducing time to market. The standardization of IP processors also saves time in software development. The RISC-V architecture is easier to adapt to than traditional ISAs and allows a greater degree of flexibility. Furthermore, they are compatible with a wide variety of applications and thus contribute to market growth.

RISC-V growth is supported by a global community working to develop technical standards, encourage innovation, and foster a diverse ecosystem. The global community contributed to public IP to create a common set of extensions that can be used with the base ISA. None of the extensions are proprietary; they are all open-source and publicly available.

The Android ecosystem is moving quickly into the future with RISC-V. This shift was reinforced when Google announced official support for RISC-V in Android, aiming to use the architecture on par with the ARM chip. In 2024, Google plans to make a full-featured RISC-V emulator publicly available to allow users to test apps and games on different types of devices, including phones and tablets. Thus, with the growing production and sales of smartphones with better technologies, along with the surging incorporation of

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5G and 6G, the ROISC-V Tech market is expected to gain a wide share of traction globally.

Moreover, the market is also witnessing significant vendor activities such as new product development, mergers & acquisitions, and strategic partnerships, thereby driving the market. For instance, in March 2024, Tenstorrent announced a strategic partnership with MosChip Technologies on design for Tenstorrent's cutting-edge RISC-V solutions. Through this partnership, Tenstorrent will design the strongest RISC-V solution and aim to strengthen its position in the market.

Similarly, in June 2023, Bluespec Inc. announced the release of its new MCUX RISC-V processor that assists developers in implementing custom instructions and adding accelerators to FPGAs and ASICs. Bluespec's MCUX embedded processor is designed for applications that require a small processor to configure and control custom modules, I/O devices, sensors, actuators, and accelerators and to replace fixed hardware state machines that are programmable. This makes MCUX ideal for image processing, video decoding, audio decoding, and radar alarm applications, as well as many other use cases in edge systems, industrial automation, defense, IoT, and beyond.

Furthermore, the RISC-V architecture is used for high-performance applications such as HPC and mobile devices. PPA requirements are also high, requiring industry-leading design automation tools and methodologies, which can act as a challenge for the market.

RISC-V Tech Market Trends

The Automotive & Transportation Industry is Expected to Witness High Growth

Growing automotive production and the addition of advanced features are some of the major factors driving the demand for RSIC-V technology in the automotive sector. The RISC-V ecosystem is a source of technology and expertise that can support and enable any development in automotive computing. In automobiles, RISC-V technology enables the development of customized, highly specialized extensions and addresses key industry challenges such as power consumption, functional safety, and security in highly specialized automotive SoCs.

The demand for RISC-V in vehicles is increasing as it offers the perfect balance of processing, configurable at the core level, from simple, low-power sensors and actuators to zone controllers, domain controllers, and centralized high-performance

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computing in vehicles.

The automotive industry has shown interest in RISC-V for applications including advanced driver assistance systems, infotainment systems, and powertrain control. RISC-V's open-source code and customizable instruction set enable automakers to optimize their processors for specific needs such as real-time processing, safety-critical operations, and low power consumption.

With the trend of autonomous vehicles gaining prominence in recent years, the importance of vehicle safety becomes even more crucial as autonomous vehicles are anticipated to contain a large number of electronic/control units. Hence, further work in this area will create opportunities in the studied market. Moreover, Intel estimates that global car sales will reach approximately 101.4 million units by 2030, and autonomous cars are predicted to account for around 12% of car registrations by that year.

Furthermore, governments around the globe are taking measures to speed up the deployment of autonomous vehicles, which will fuel demand for ADAS. The UK Government recently announced the launch of automated lane-keeping system (ALKS) technology, which will help expedite the deployment of self-driving cars in the region. Designed for use in slow traffic, ALKS allows a vehicle to drive itself in a single lane while retaining the ability to return control to the driver when necessary.

Furthermore, the Indian government is also actively promoting the adoption of ADAS through various regulations and policies. Initiatives are expected to mandate certain ADAS features in new vehicles, reflecting global trends. This regulatory push is expected to accelerate the widespread adoption of RISC-V.

Asia-Pacific is Expected to Witness Significant Growth

The RISC-V Tech market in the region is expected to grow due to increasing sales of consumer electronics and automotive, government initiatives to promote electronics manufacturing and the presence of several companies and investments in other industries. Key players in the region's market include China, India, South Korea, and Japan, which have made significant strides in the semiconductor industry. The region commands substantial market share due to the widespread adoption of advanced electronic devices.

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According to the Indian Brand Equity Foundation (IBEF), India has aimed to achieve a target of USD 300 billion in electronics manufacturing and USD 120 billion in exports by 2025-26. Furthermore, the Union Budget 2023-24 has earmarked INR 16,549 crore (USD 2 billion) for the Ministry of Electronics and Information Technology, representing a substantial annual increase of approximately 40%. Numerous companies are consistently making significant investments in establishing manufacturing facilities, which will further support the market's growth.

Moreover, the government in the region is focusing on taking the initiative to increase the adoption of RISC-V technology, which will further support the market's growth. For instance, in November 2023, the government of India announced the flag of the Nationwide Roadshow on Digital India's RISC-V (DIR-V) Program. RISC-V (DIR-V) Program will offer opportunities to startups & entrepreneurs, and students to further catalyze the semiconductor ecosystem in India.

Similarly, in November 2023, the Chinese government announced its comprehensive plan to develop domestic chips around RISC-V. The government has funded RISC-V chip development efforts, and many universities and science labs are also focusing on chip development around RISC-V.

In addition, the Chinese Academy of Sciences (CAS) is also developing an advanced RISC-V chip called XiangShan-v3 in collaboration with top Chinese companies, including Alibaba, Tencent, and ZTE.

Furthermore, the expansion of data centers in the region will drive the market's growth. For instance, in March 2024, Colt Data Centre Services (Colt DCS) announced the expansion of its presence in Southern India with the acquisition of a new 10-acre plot in Chennai. It plans to deliver a hyperscale data center in the fast-growing digital hub of Ambattur, Chennai, by 2027.

RISC-V Tech Industry Overview

The RISC-V Tech market is characterized as a semi-consolidated market featuring prominent players like Lattice Semiconductor, Microchip Technology, Andes Technology Corporation, SiFive Inc., and Huawei Technologies Co. Ltd. These key players in the market are actively pursuing various strategies, including partnerships and acquisitions, to enhance their product portfolios and establish sustainable

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competitive advantages.

In April 2024, Imagination Technologies announced the introduction of a new RISC-V applications processor IP, the Imagination APXM-6200 CPU. The focus is on power density, commonly called the efficiency core. Target markets for the CPU include consumer and industrial devices, and eventually, an automotive version will also be included. The new processor is part of the Catapult CPU portfolio of IP processors.

In March 2024, Renesas announced the release of general-purpose 32-bit RISC-V-based microcontrollers (MCUs) built with an internally developed CPU core. The new R9A02G021 microcontroller family offers embedded system designers a clear path to creating a wide range of energy-efficient and cost-effective applications based on the open-source instruction set architecture ISA.

Additional Benefits:

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