



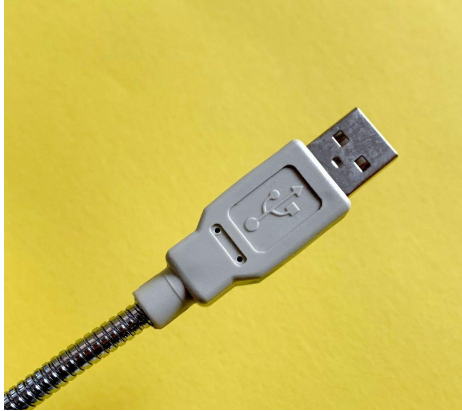
RISC-V is inevitable

Calista Redmond  
CEO RISC-V International

@Calista\_Redmond  
@risc\_v

March 2024

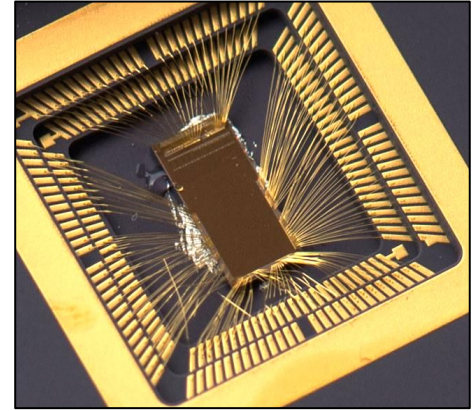
# Global standards are catalyst to accelerate technical innovation



Standards have been critical to technology innovation, adoption, and growth for decades



Standards create access to opportunities and spur growth for a wide range of stakeholders



RISC-V is a standards-defined Instruction Set Architecture developed by a global community

# The definition of open computing is RISC-V

RISC-V is the most prolific and open Instruction Set Architecture in history

## RISC-V is inevitable

Mission: RISC-V is the industry standard ISA across computing

- >10 Billion RISC-V cores already shipped
- Adoption moving rapidly across all domains
- Demand at every performance level (low to ludicrous)
- Shared investment driving ecosystem

## RISC-V enables the best processors

RISC-V enables profound innovation from low end to high end applications

- Inherent and sustainable performance and efficiency advantage
- Design flexibility and freedom
- Supported by massive community enabling the most efficient designs for full spectrum of applications
- Modern design for fewer instructions

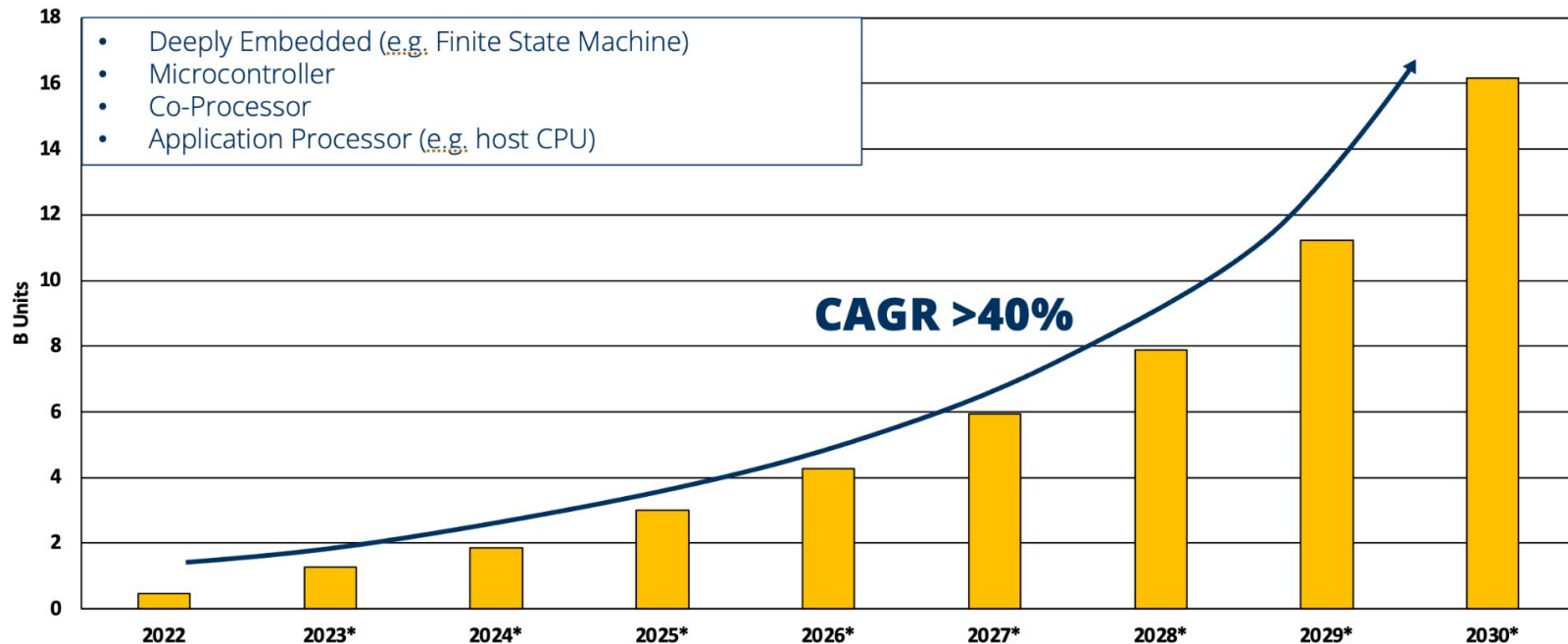
## RISC-V is rapidly building the strongest ecosystem

RISC-V instrumented with software top of mind

- Open standards enable software choice Applications keen to run on RISC-V.
- Toolchain and OS support required for Extension ratification
- Single hypervisor standard to simplify and unify application support
- Thousands of software developers
- Strategic investment by industry and geographies

# RISC-V will be in more than 16 billion SoCs by 2030

RISC-V expected to be included in billions of SoCs, enabling one or more of these functions:

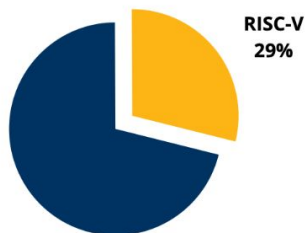


Source: The SHD Group, November, 2023

\*forecast

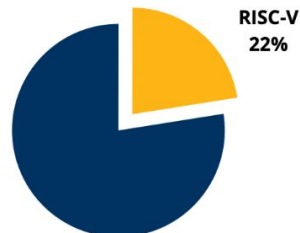
# Selected Market Share Projections for RISC-V in 2030

Wearables  
MCU



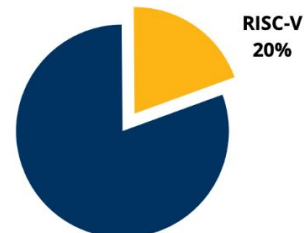
TAM: 2.6B units

Computing  
Notebooks



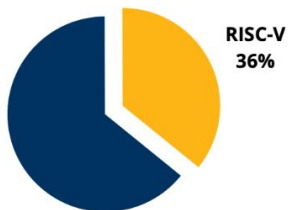
TAM: 2.7B units

Communications  
5G Infrastructure



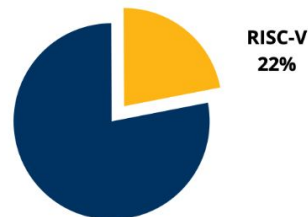
TAM: 1.8B units

Consumer  
AI Acceleration



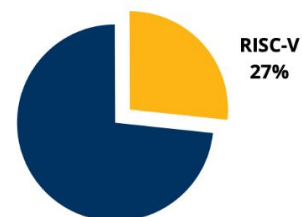
TAM: 6.4B units

Industrial  
Smart Grid



TAM: 670M units

Automotive  
AI Acceleration



TAM: 260M units

Based on projected SoC volumes

Source: The SHD Group, November, 2023



# New RISC-V processors



Codasip first commercial  
CHERI security implementation



RISC-V Tensor Unit for  
ultra-fast AI solutions



Performance P870 and  
Intelligence X390 for  
generative AI and ML



Data center CPU chiplet  
solution with I/O hub, DDR  
memory, PCIe, up to 192 cores



NA900 certified compliant ASIL D  
of ISO 26262 standard



TESIC RISC-V IP passes SERMA CC  
EAL5+ security tests



BA5x™ RISC-V processors for low  
power and EMSA5-FS for  
functional safety



Use of AI to design RISC-V CPU  
in under 5 hours

# Applications



Qualcomm RISC-V wearable platform with Google Wear OS



First generative AI RISC-V appliance



RISC-V tablet, portable Linux console, and cluster



Vega, the first RISC-V 10 gigabit Ethernet switch



First RISC-V IoT security Towngas Chip has sold over 1,000,000 units



Two self-developed RISC-V communications chips



Andes N25F for performance and low power in enterprise SSD controller, AndesCore™ RISC-V multicore vector processor



MTIA v1: Meta's first generation AI inference accelerator

# Developers



Android added RISC-V to list of supported CPU architectures



ASUS IoT Tinker V board based on AndesCore AX45MP



Industrial edge solutions including High Level Synthesis for C/C++, vector SDKs for AI/ML inferencing



debian

Debian GNU/Linux officially Supported on RISC-V architecture



BeagleV Ahead single board computer released



Terapines ZCC toolchain supports Andes RISC-V processors



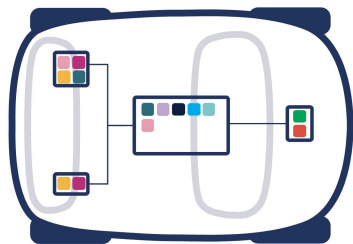
Imperas to Provide Simulation Model of Tenstorrent Ascalon RISC-V Core



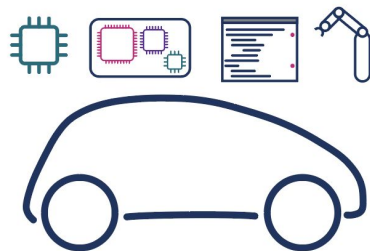
nanoCH32V003 is a 32-bit RISC-V core for \$1.50



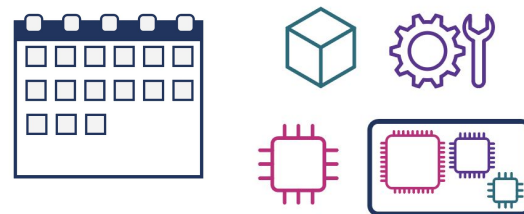
# Industry outlook: Automotive



RISC-V scales across every compute application in the vehicle



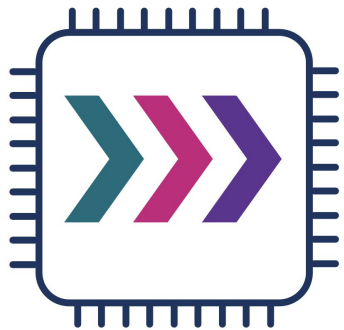
RISC-V enables the supply chain to work together while enabling innovation and differentiation



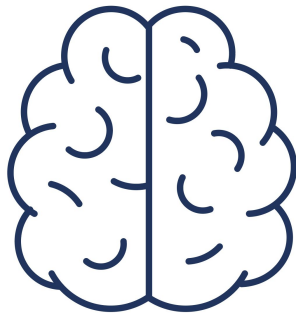
Ecosystem offers wide breadth of choice, as well as support and expertise required for auto

RISC-V will capture 27% of automotive AI acceleration by 2030

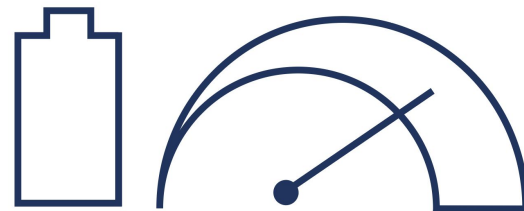
# Industry outlook: Datacenter & Cloud



RISC-V offers unique opportunity for accelerators



Custom computing for AI and other emerging workloads

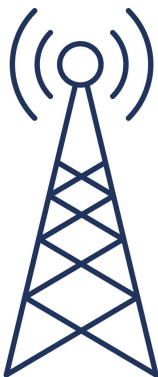


Achieve your performance and power targets

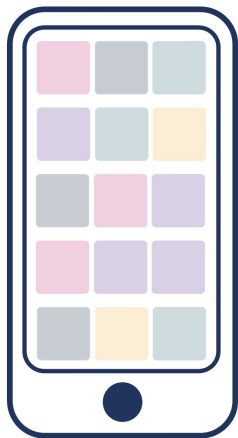
RISC-V CPU core market will grow 115% CAGR, capturing >14% of all CPU cores by 2025

Semico Research, December 2021

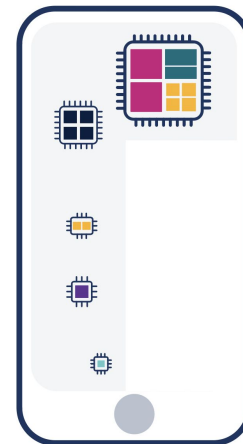
# Industry outlook: Telecom & Consumer Devices



Innovation across the industry, from handsets to infrastructure



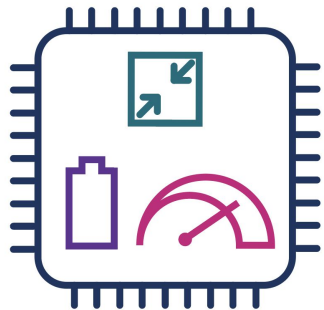
Android support



Diverse smartphone workloads, from central processing to connectivity to sensors

RISC-V will capture 20% of Communications 5G infrastructure by 2030

# Industry outlook: Internet of Things



Streamlined instruction set enables efficient and compact code for improved performance and energy efficiency



Strong fit for localized workloads such as machine learning, sensors, and security



Advanced custom processing for workloads like AI to run at the edge

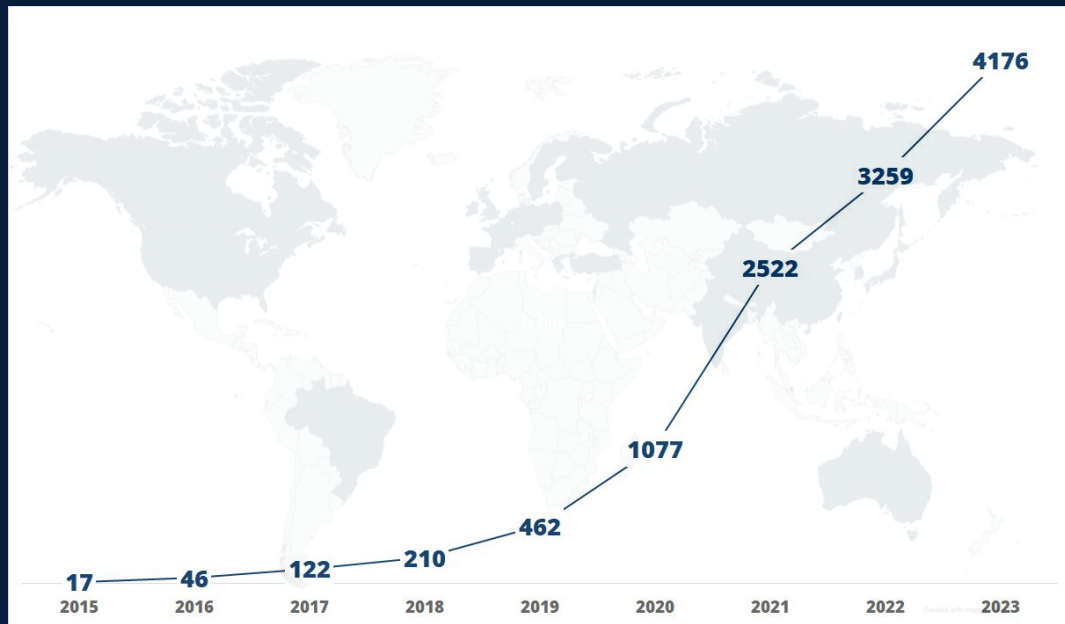
RISC-V will command 28% of the IoT market by 2025

Counterpoint Technology Market Research, September 2021

By 2028, the number of RISC-V processors shipping into IoT will approach 20 billion

Omdia Research, May 2023

# More than 4,100 RISC-V Members across 70 Countries



Dec 2023 update

**RISC-V membership up 28% in 2023**

## 121 Chip

SoC, IP, FPGA

## 4 Systems

ODM, OEM

## 3 I/O

Memory, network, storage

## 14 Industry

Cloud, mobile, HPC, ML, automotive

## 23 Services

Fab, design services

## 165 Research

Universities, Labs, other alliances

## 59 Software

Dev tools, firmware, OS

## 3k+ Individuals

RISC-V engineers and advocates

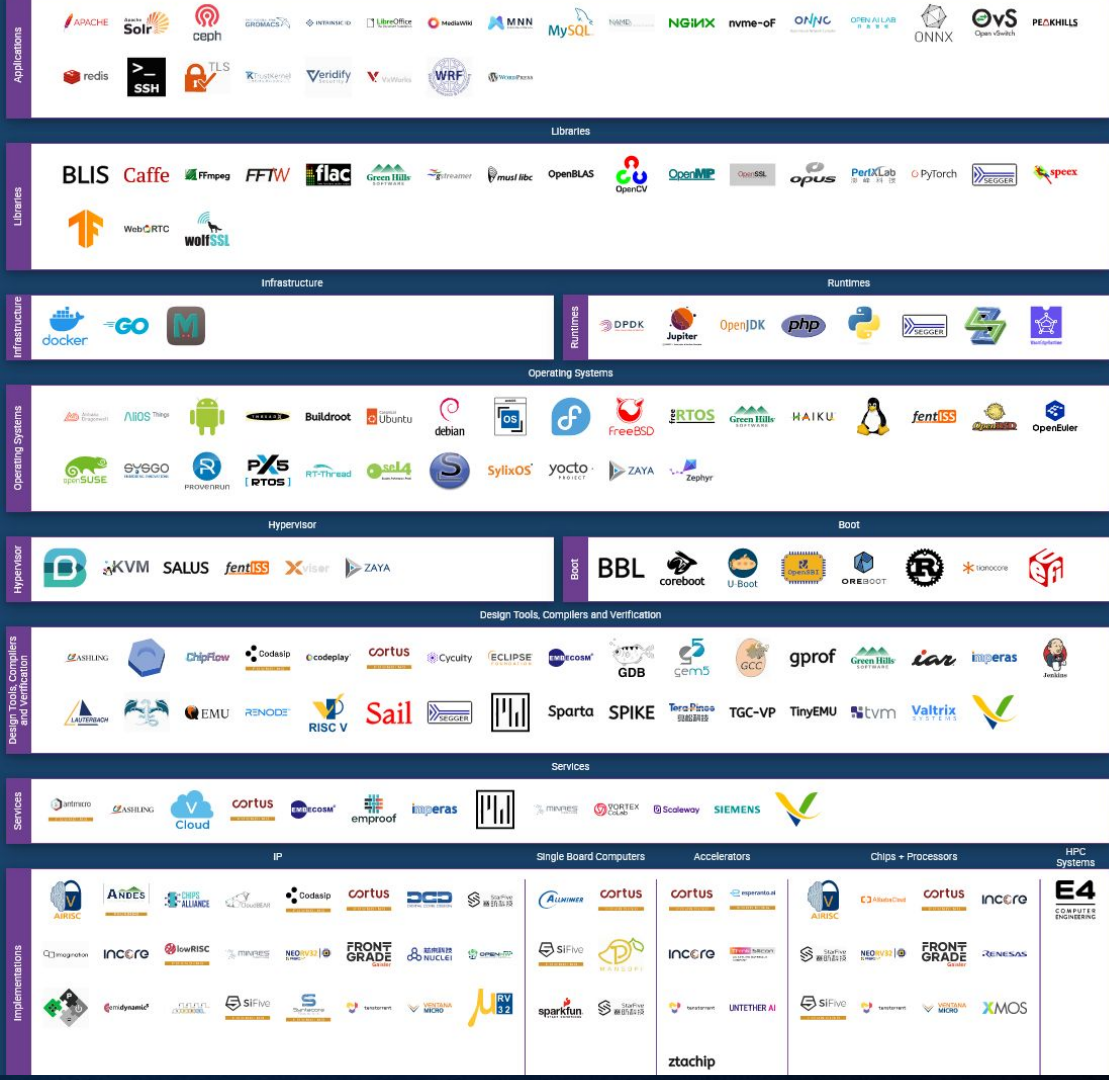


# Building the strongest ecosystem

Total market cap of \$5.5T  
Funding of \$8.5B

landscape.riscv.org

March 18, 2024



# Engage with RISC-V



Join RISC-V as a  
member  
[www.riscv.org](http://www.riscv.org)

## Elevate Industry Leadership

- Deepen expertise in Special Interest Groups
- Show technical and industry leadership
- Leverage Industry Market development
- Engage global reach of RISC-V marketing, media, and social channels

## Achieve Business ROI

- Reduce technical overhead and accelerate roadmap with global open standard
- Reduced strategic risk implicit in collective investment of global stakeholders
- Accelerate sales pipeline with RISC-V support across channels
- Showcase solutions on RISC-V Exchange and Ecosystem Landscape
- Qualify products as RISC-V Compatible™

## Build Strategic Network

- Cultivate partner, supply chain and customer strategic relationships
- Align and leverage global, local and industry networks, alliances, and events
- Amplify visibility online, and at events

## Gain Technical Advantage

- Gain insight and access to technical deliverables in motion
- Infuse your technical directions in specifications
- Accelerate technical knowledge working with domain experts, cultivate and retain talent
- Be part of local developer groups and industry developer networks

# RISC-V is Inevitable

This is the open era of computing.



[www.riscv.org](http://www.riscv.org)



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