



RISC-V Everywhere

Jack Kang 剛至堅

Senior Vice President, SiFive

jack@sifive.com



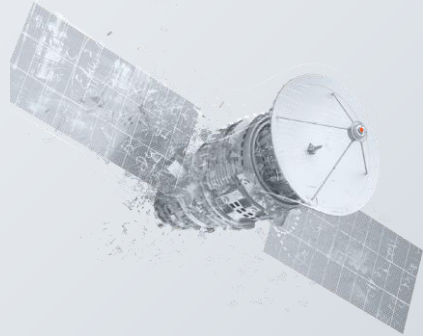
A small, light blue square located in the top left corner of the slide.

RISC-V is everywhere

Unprecedented **momentum** for RISC-V



SiFive RISC-V gets functional safety and cybersecurity certifications



RISC-V is going to space with NASA/HPSC



AI/RISC-V hardware & software convergence



Android 15 officially ported to RISC-V



SiFive 256-core P870-D to power datacenters

SiFive products are in the **field**



A wide range of control, real-time and application processor applications



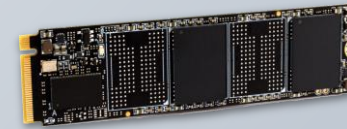
Embedded controller for
mobile SoC



Camera sensor



Optical Image
Stabilizer



SSD



FPGA platforms



Network Switch



Surveillance
Camera



WiFi/BT module



Laptop docking
station



Smart watch

SiFive is the **Trusted** Partner for RISC-V



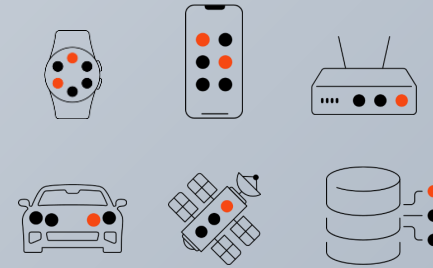
350+

design wins

2B+

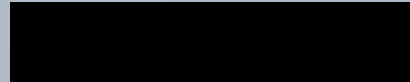
chips in the field


Most of Top 10 Semi manufacturers
Multiple Automotive OEM & Tier-1
Top Datacenter & Storage suppliers
Leading A&D Contractors
Many IoT and Embedded customers



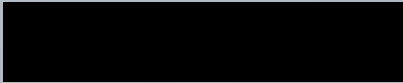
A solid black square.

Why is RISC-V being deployed everywhere?





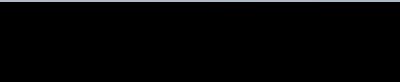
Innovation on RISC-V outpaces all legacy ISAs

- RISC-V Open standard drives ecosystem, competition and innovation.
 - RISC-V CPUs are being developed for every possible compute application, from sensors to supercomputers.
 - Growing investment in RISC-V MCU development, while development for legacy ISAs weakens.
- 



Freedom on RISC-V creates partnership and new business models

- RISC-V is an open standard not controlled by a single entity
- New partnerships and new business models—IP, System, Chiplet, Customer Solutions
- Continued product improvement due to competition



Shift to RISC-V for **performance** and **AI acceleration**



Consumer



Edge AI security camera

Computational photography

Mobile & Wearables

Smart TV

Infrastructure



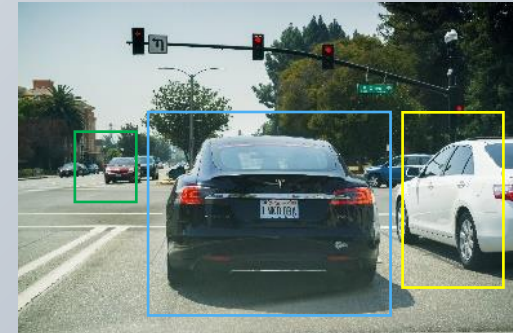
Generative AI

DPU

Storage, Networking

5G

Automotive



Standalone ADAS

Central Compute

IVI

RISC-V solves **modern** applications needs



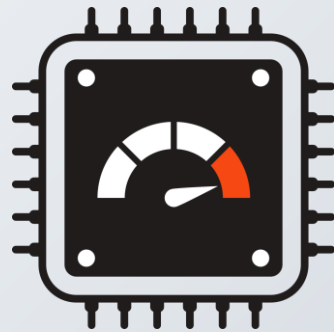
High performance compute



Large-scale high-performance
general-purpose CPU

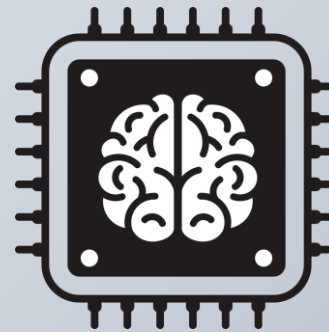
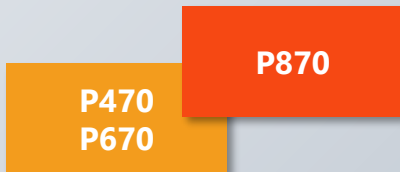
High-performance NPU

SiFive is empowering the new computing era

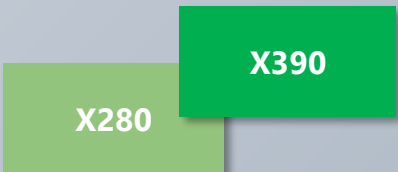
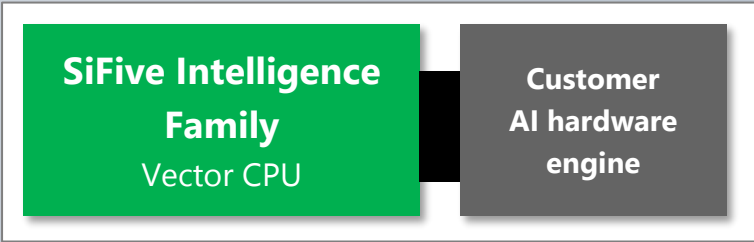


Large-scale high-performance
general-purpose CPU

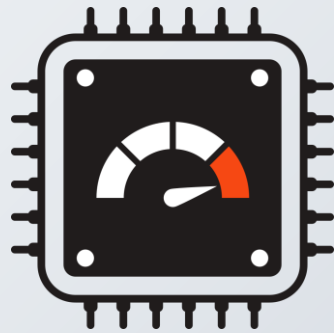
**SiFive
Performance Family**



High-performance NPU

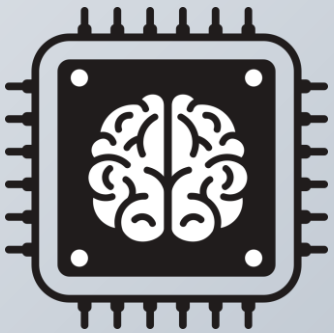


SiFive is empowering the **new computing era**

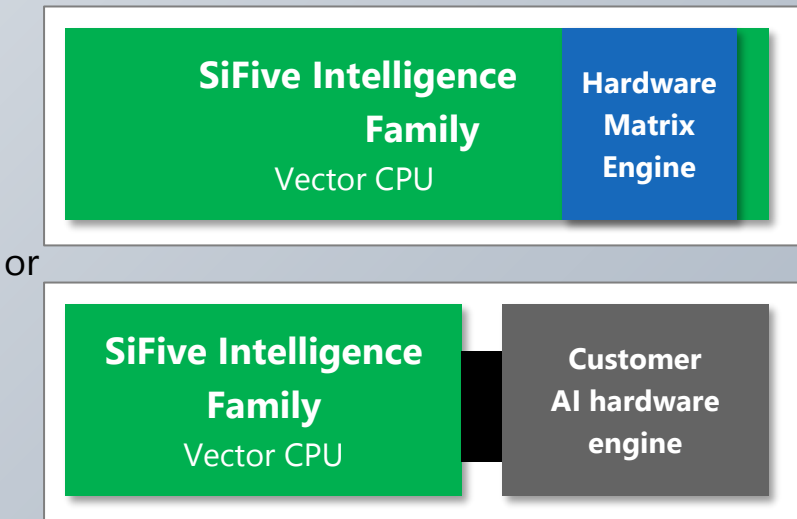


Large-scale high-performance
general-purpose CPU

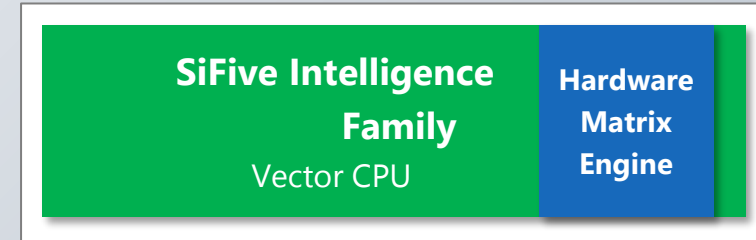
SiFive
Performance Family



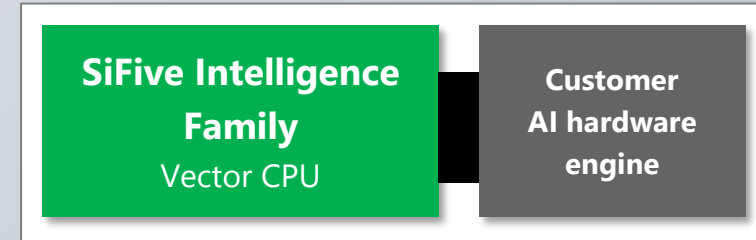
High-performance NPU



SiFive is empowering the **new computing era**



or

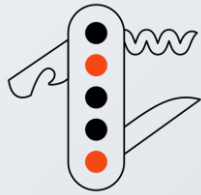


- All built on RISC-V
- RISC-V standard Tools
- RISC-V standard Software
- One programming ecosystem

SiFive is the **Gold** standard for RISC-V



Extensive CPU, AI and system IP portfolio with configuration options to tailor your own SoC



Broadest CPU, AI and System IP Portfolio

Multiple 32- and 64-bit embedded and application processor cores baselines

Vector CPU and Hardware AI engines

From 2-stage single-issue to 6-wide, OoO cores

Security & Advanced power management



Extensive configuration and integration options

CPU type, profile & options

On-chip memories selection

System, Peripheral, Front ports

Security options

Debug & trace options

Clock, design for test options



Best Software Support

Eclipse C/C++ IDE

Bare metal software development

RISC-V development tools

Embedded Linux development

Performance libraries

Simulation models

The Undisputed Leader in RISC-V Computing



Broadest portfolio of processors from embedded to high-performance computing

CPU Cores



SiFive Essential™

32 and 64-bit Processors

- Microcontrollers, IoT devices, real-time control, control plane processing
- Highly customizable to application specific requirements
- Mature, industry proven designs



SiFive Performance™

64-bit Application Processors

Consumer

- High performance RISC-V processor with best compute density and power efficiency
- Android ready

Infrastructure

- Highest performance, most advanced RISC-V processor
- Scale out, high performance, processing capabilities with vector compute, NoC and D2D

AI Cores



SiFive Intelligence™

Scalable 64-bit AI Processors

- Edge AI, Cloud, Training, Inference
- Very high performance and efficiency for AI workloads with vector processing
- Built on top of RISC-V Vectors, SiFive Intelligence Extensions and AI hardware accelerators

Functional Safety



SiFive Automotive™

32/64-bit Safety Processors

- Broadest range of RISC-V safety processors, from MCU to high performance SoC, with ASIL B and ASIL D options
- Multi-core/cluster, vectors, virtualization, and security features
- Strong automotive RISC-V ecosystem

A solid black square located in the top left corner of the slide.

Ecosystem is RISC-V's Growing Strength

RISC-V Software Ecosystem



The success of RISC-V is built on open standards

Open architecture driving exponential growth

Android on RISC-V is a first-class citizen

SiFive is the biggest contributor of RISC-V software tools and OS

RISE consortium accelerates software optimizations on RISC-V



Google

SAMSUNG

intel.

Qualcomm

NVIDIA

MEDIATEK

Red Hat

SiFive

Imagination

VENTANA

Rivos

ANDES
TECHNOLOGY

T-HEAD

RISC-V is the **fastest growing** software ecosystem



Commercial Solutions



Middleware, Libraries, Runtimes



Non-Linux



Android



Linux



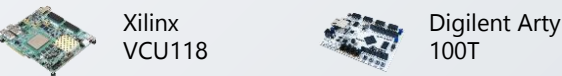
Foundational Software



Development Boards



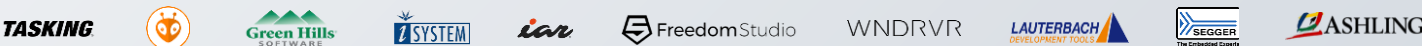
FPGA Emulation



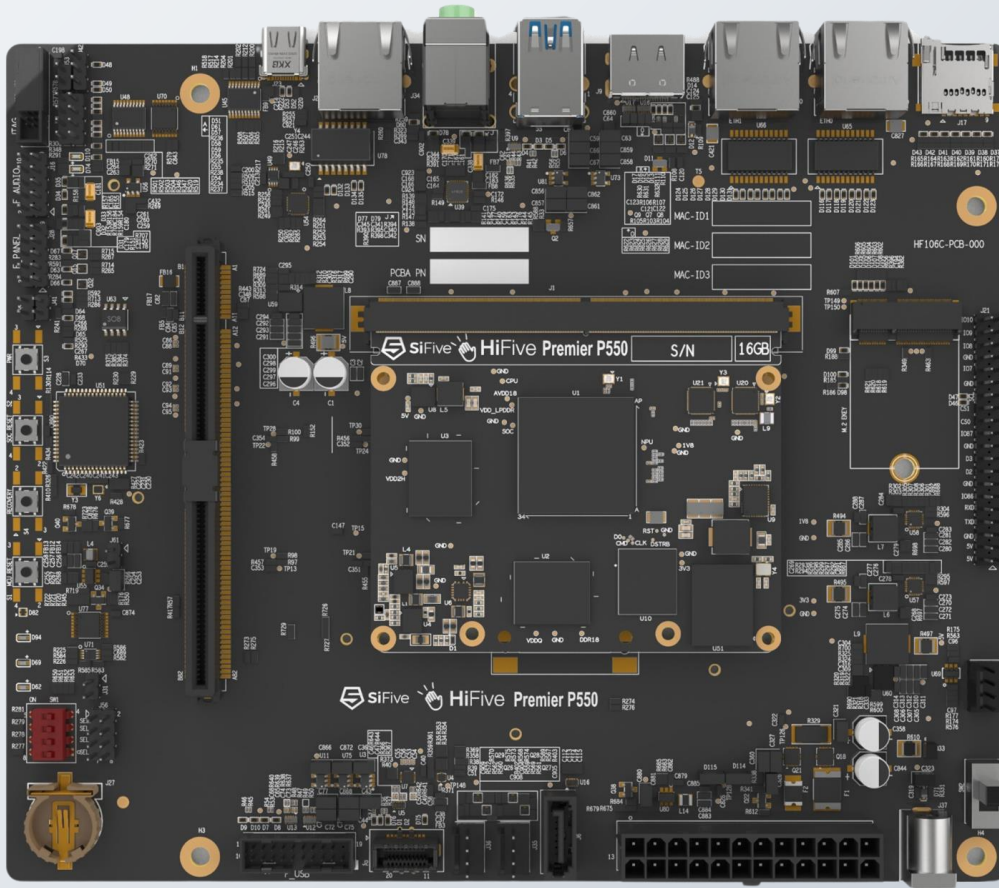
Simulation



IDE and Tools



SiFive HiFive Premier P550 sets a new standard



- ESWIN EIC7700X SoC:
 - Quad-core out-of-order SiFive P550 @1.4GHz
 - 4MB L3 cache, 16GB LPDDR5
 - Video encoder & decoder
 - NPU and 2D/3D GPU
- On-board 128GB eMMC
- PCI Express Gen3 x4 via a PCIe x16 slot
- SATA3 connector (6 Gb/s)
- Dual 10/100/1000 Ethernet
- 5x USB 3.2 Gen1
- New System-On-Module approach (SOM)
- Mini-DTX form factor (8" x 6.7" / 203mm x 170mm)
- Ubuntu to be fully supported
- Shipping expected in September 2024 from Arrow Electronics

A small white square located in the top left corner of the slide.

RISC-V is Everywhere

- Innovation
- Freedom
- Ecosystem



Empowering innovators

www.sifive.com