



World Fastest & Most Power Efficient RISC-V

Dr. Andy Huang
Ambassador
RISC-V International



RISC-V International 2015 - 2023

- 3,100 RISC-V members across 70 countries
- Instruction Set Architecture (ISA)
 - Volume 1 2019
 - Volume 2 2021
- International Conferences & Summit
 - Europe June 5-9 in Barcelona
 - Asia August 23-25 in Beijing
 - America November 7-9 in Santa Clara
- RISC-V Ecosystem Landscape
 - 170+ different components
- Worldwide Applications
 - Auto, Data Center, IoT, Smart Device, Wearable, etc.



Premier Members

Alibaba Cloud

ANDES
TECHNOLOGY

ISIC
北京开源芯片研究院
BEIJING OPEN SOURCE CHIP RESEARCH INSTITUTE

成为资本 CHENGWEI CAPITAL

Google

中国科学院
开源实验室
CHINESE ACADEMY OF SCIENCES
OPEN SOURCE LAB

HUAWEI

ICT

Imagination

ISCAS

intel

印度电子与信息技术部
Ministry of Electronics & Information Technology
Government of India

Qualcomm

RIOS

Rivos

ZTE

SEAGATE

SiFive

希姆计算
STREAM COMPUTING

Syntacore

Tencent
腾讯

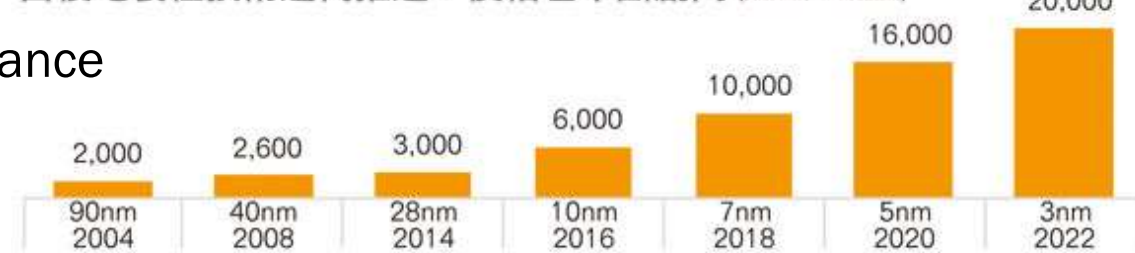
VENTANA
MICRO



Speed / Power / Cost Challenges & Trade-off

- High Speed is King
 - High Speed does not necessarily provides High Performance (CoreMark®)
- Low Power is Sustainable
 - High Speed Consumes Power, Generates Heat, which Limits Speed
- Mature Process with Efficient Manufacturing Cost
 - 4nm IC provides Highest Speed/Density but Costs 4x More
- RISC-V Delivers
 - World's Fastest & Highest Performance
 - World's Most Sustainable Power
 - World's Most Efficient Cost

台積電製程技術逐代推進，價格也不斷創高 (美元/片12吋晶圓)

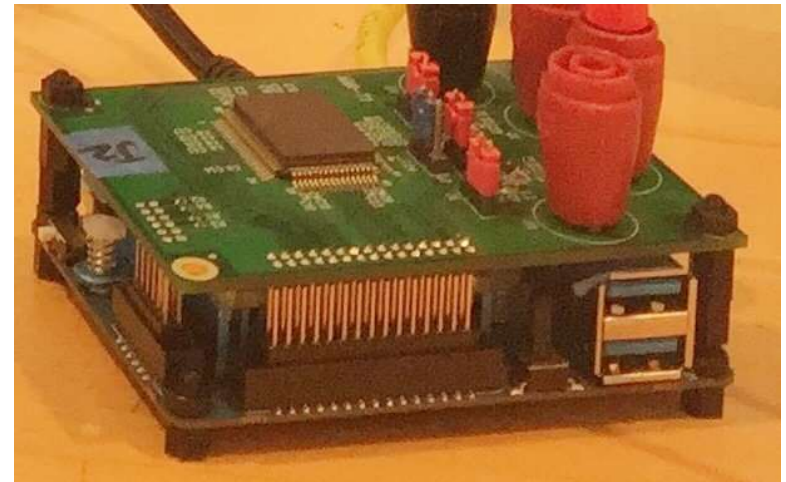


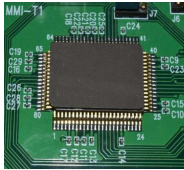
資料來源：DIGITIMES整理，2022/11



Best Speed/Performance & Efficient Power/Cost

- High Speed and Performance
 - Achieves High Speed of 5+ GHz, and
 - High Performance of 13,000+ CoreMark®
- Sustainable Power (Performance / Power)
 - Low Power of 500mW @ 5 GHz / Core, or
 - Achieves 250,000 CoreMark® / Watt
 - 10mW @ 1 GHz With 2,500 CoreMark®
- Efficient Manufacturing Cost
 - Designed and Manufactured with 16nm FinFET
 - 4 nm Process are 4X More Expensive





RISC-V Everywhere

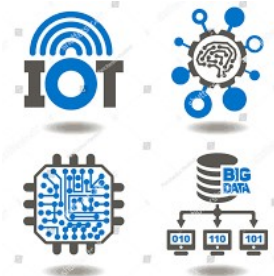
RISC-V International

- 3,100 RISC-V members across 70 countries
- Instruction Set Architecture (ISA) V2 in 2021
- Multiple International Conference & Summit
- Wide RISC-V Ecosystem with 170 component



RISC-V Delivers

- World's Fastest & Highest Performance
 - 5+ GHz Core with 13,000+ CoreMark®
- World's Most Sustainable Power
 - 500mW @ 5 GHz/Core, or 250,000 CoreMark®/Watt
- World's Most Efficient Cost
 - 16nm FinFET, 4x cheaper than 4nm



Worldwide Applications

- Auto, Data Center, IoT, Smart Device, Wearable, etc.

