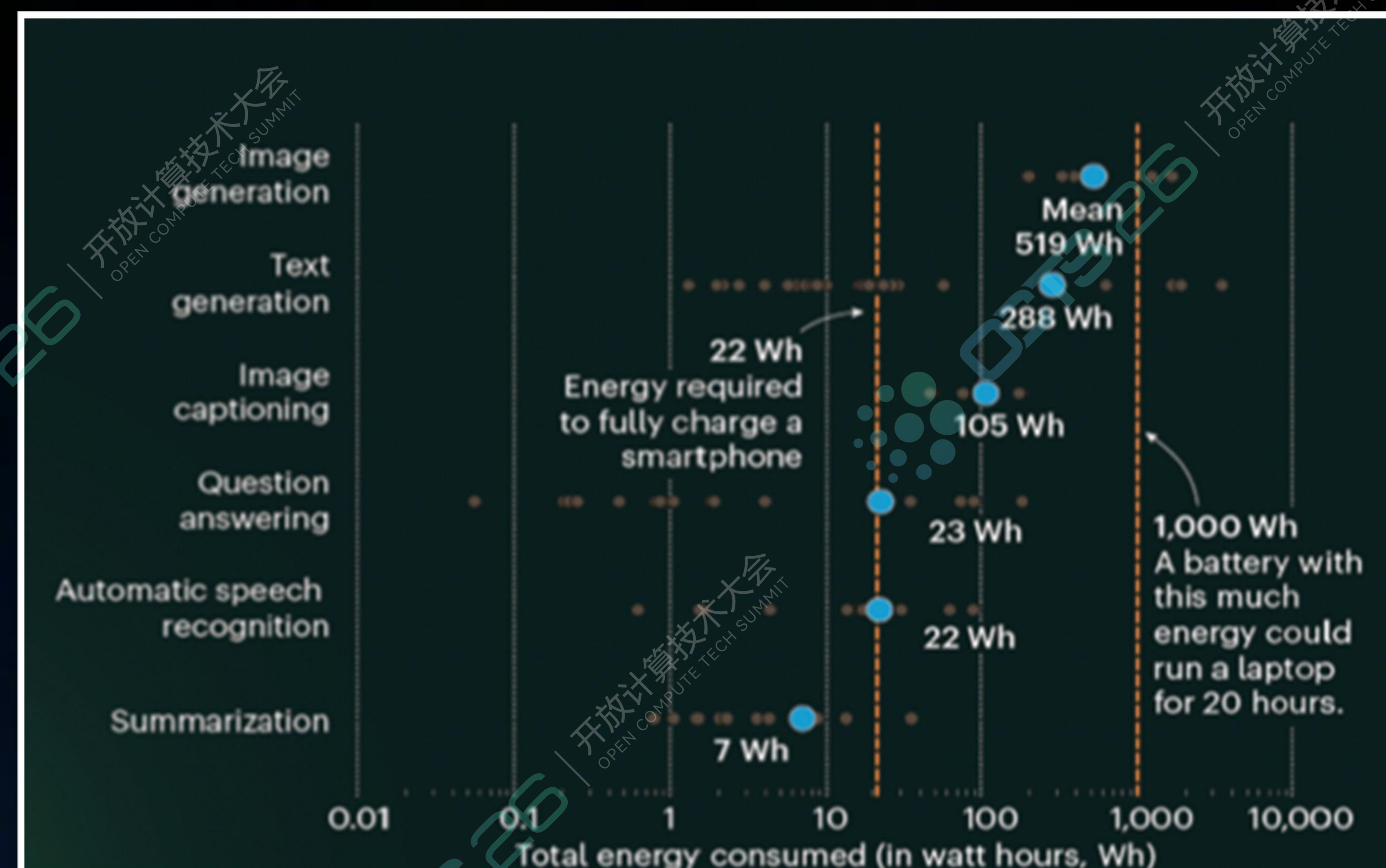
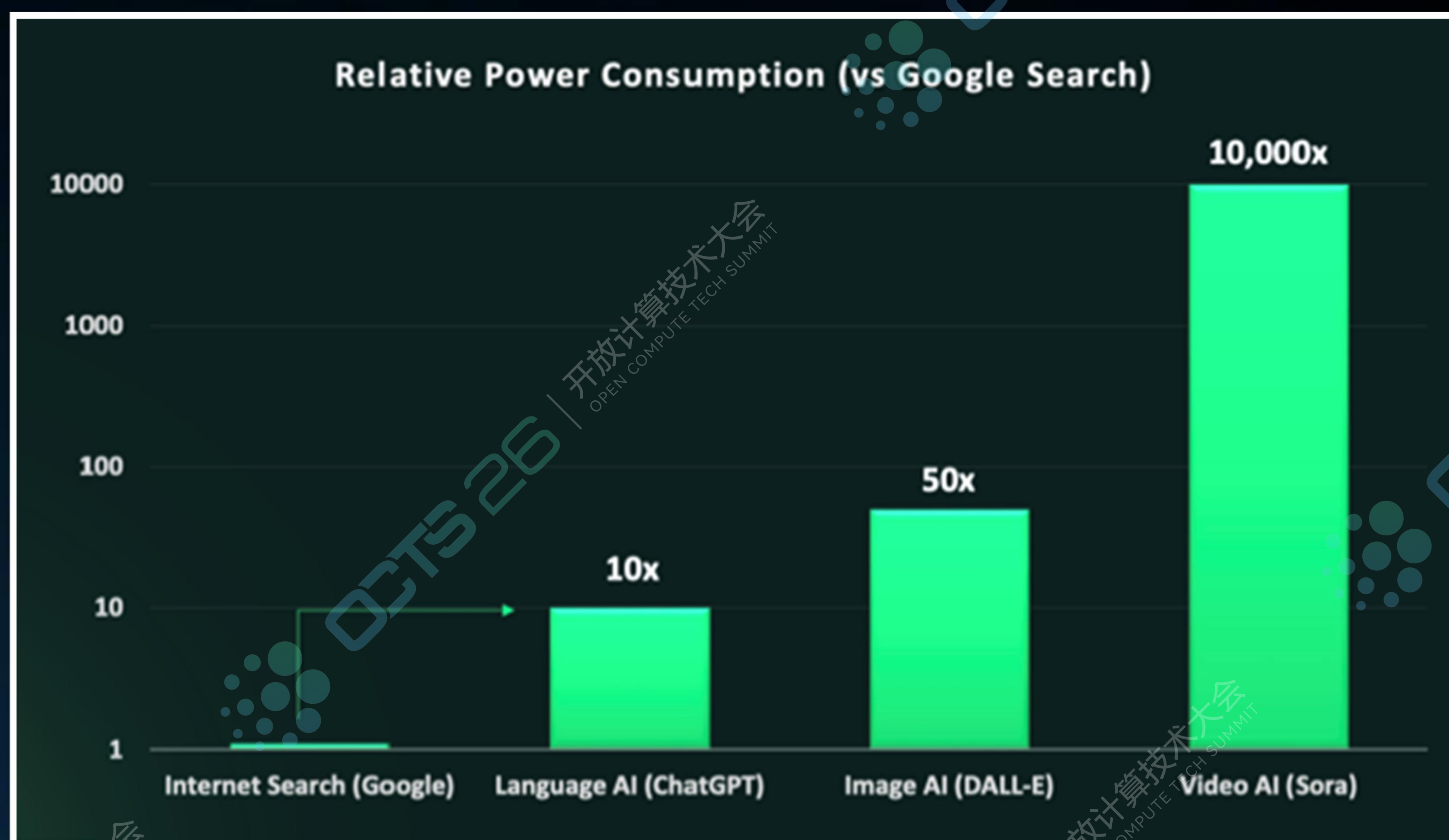


应对算力挑战： 新一代 Vcore 供电技术在HPC全场景的突破与实践

何加劲 | 晶丰明源 HPC 产品市场

AI Needs More Power



Company Overview

BPS (688368) specializes in the development and sales of power management and motor control ICs. Committed to independent innovation, our company offers a comprehensive product portfolio covering AC/DC power management ICs, high-performance computing (HPC) power management ICs, motor control and driver ICs, wireless charging protocol ICs, and LED lighting driver ICs. BPS products are widely used in home appliances, smartphones, personal computers, servers, AI accelerator cards, automotive electronics, industrial control systems, LED lighting, and other applications, delivering reliable and efficient power solutions across diverse industries.



CPS specializes in high-performance analog and mixed-signal ICs, with industry-leading expertise in wireless charging technologies.



LINKO specializes in motor control MCUs, with industry-leading expertise in motor control algorithms and system integration.

2008

Headquartered in Shanghai

20⁺

Global Customer Support

600⁺

Employees

7.5⁺ Billion

Chips Shipped Annually
-FY2025

800⁺

Patents Granted

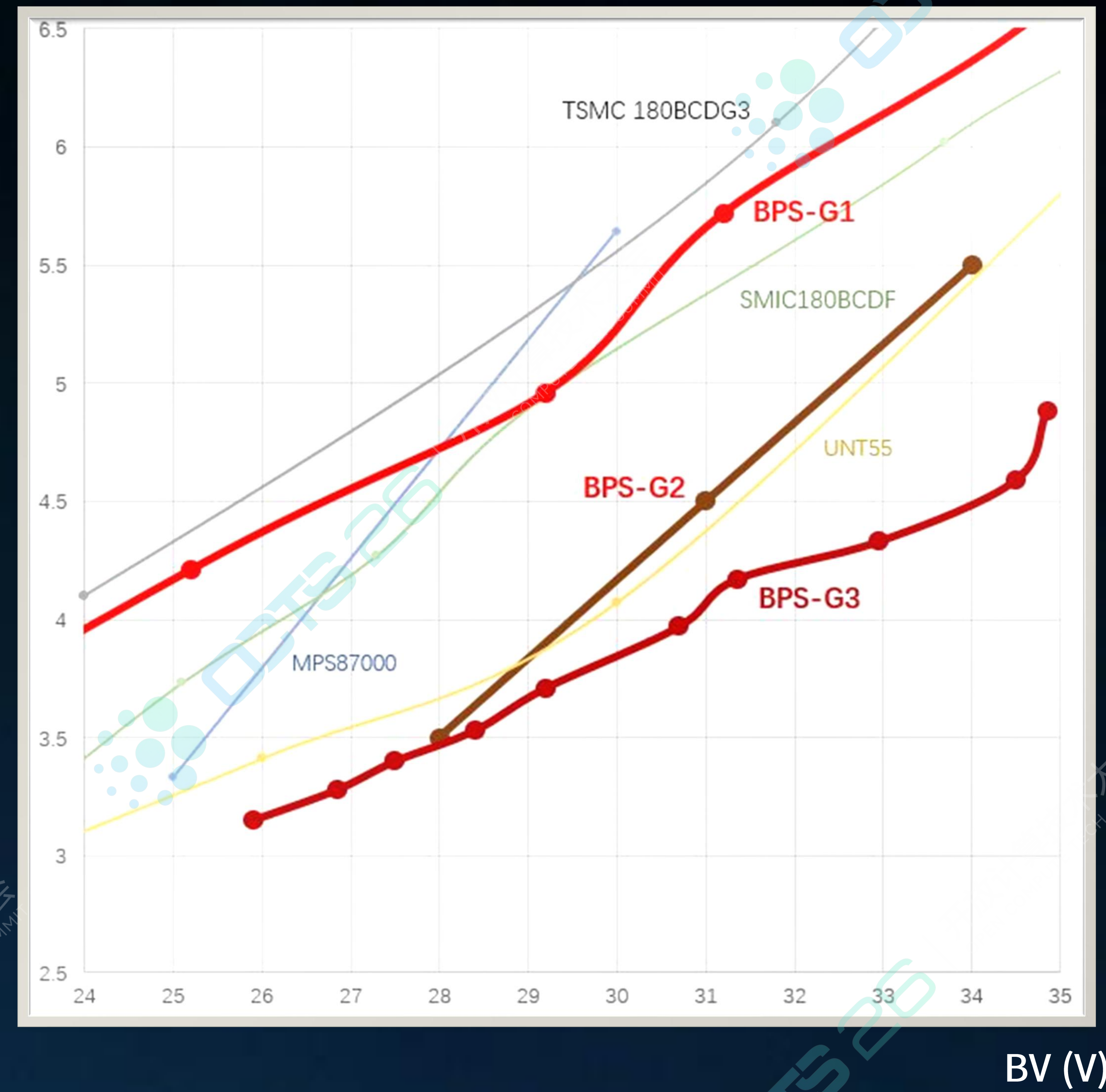


 **韩国-水原**
Suwon,
South Korea

 **美国-硅谷**
Silicon Valley,
United States

HPC-Advanced COT Process (24V-36V)

Rsp (mΩ*mm²)



Single Die BCD

- High Integration

2021

2026

G1

180nm

G3

150nm

Rsp30% (↓)

Co-Packed LDMOS

- High Performance
- Optimized Cost

2022

2027F

G2

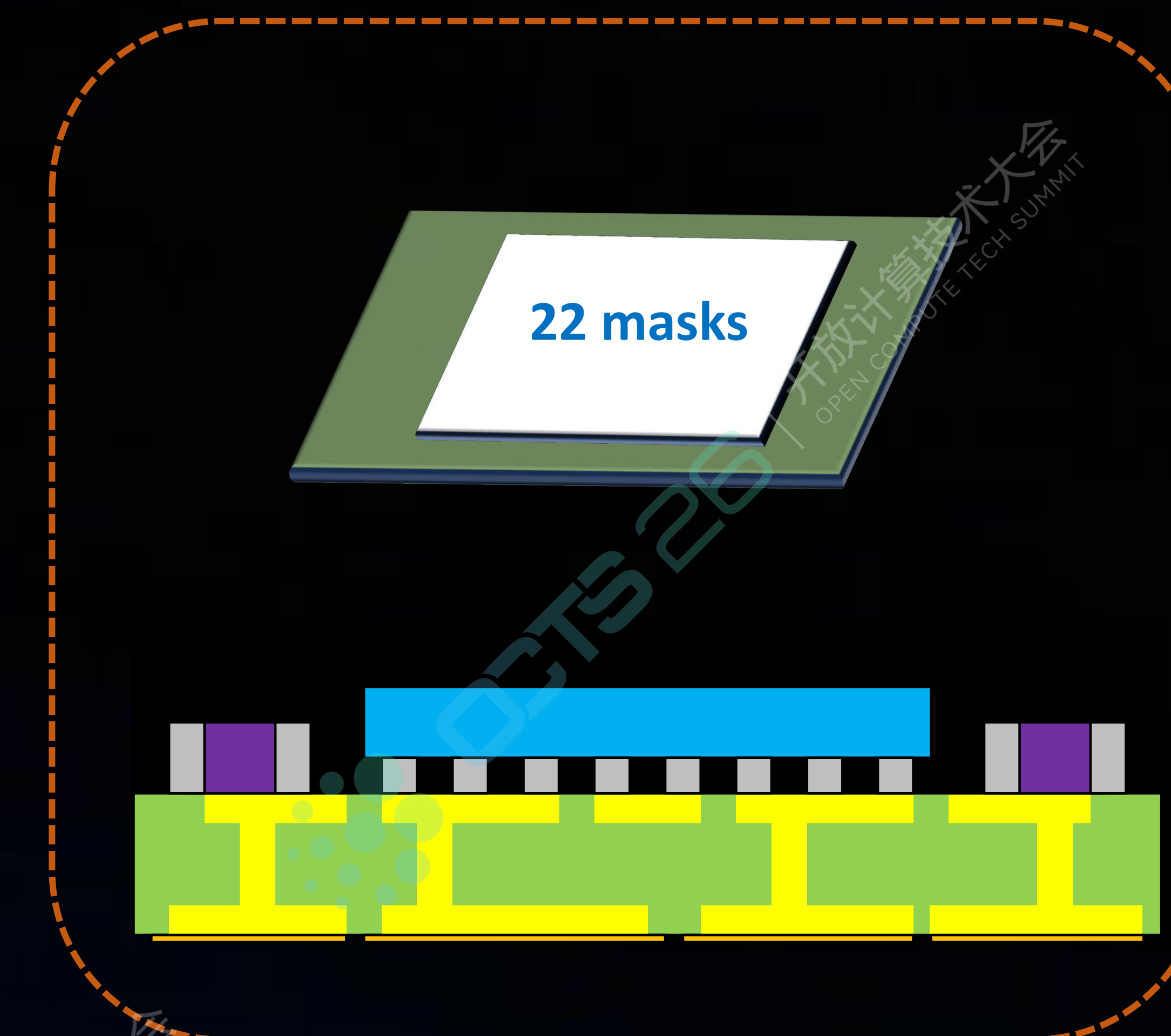
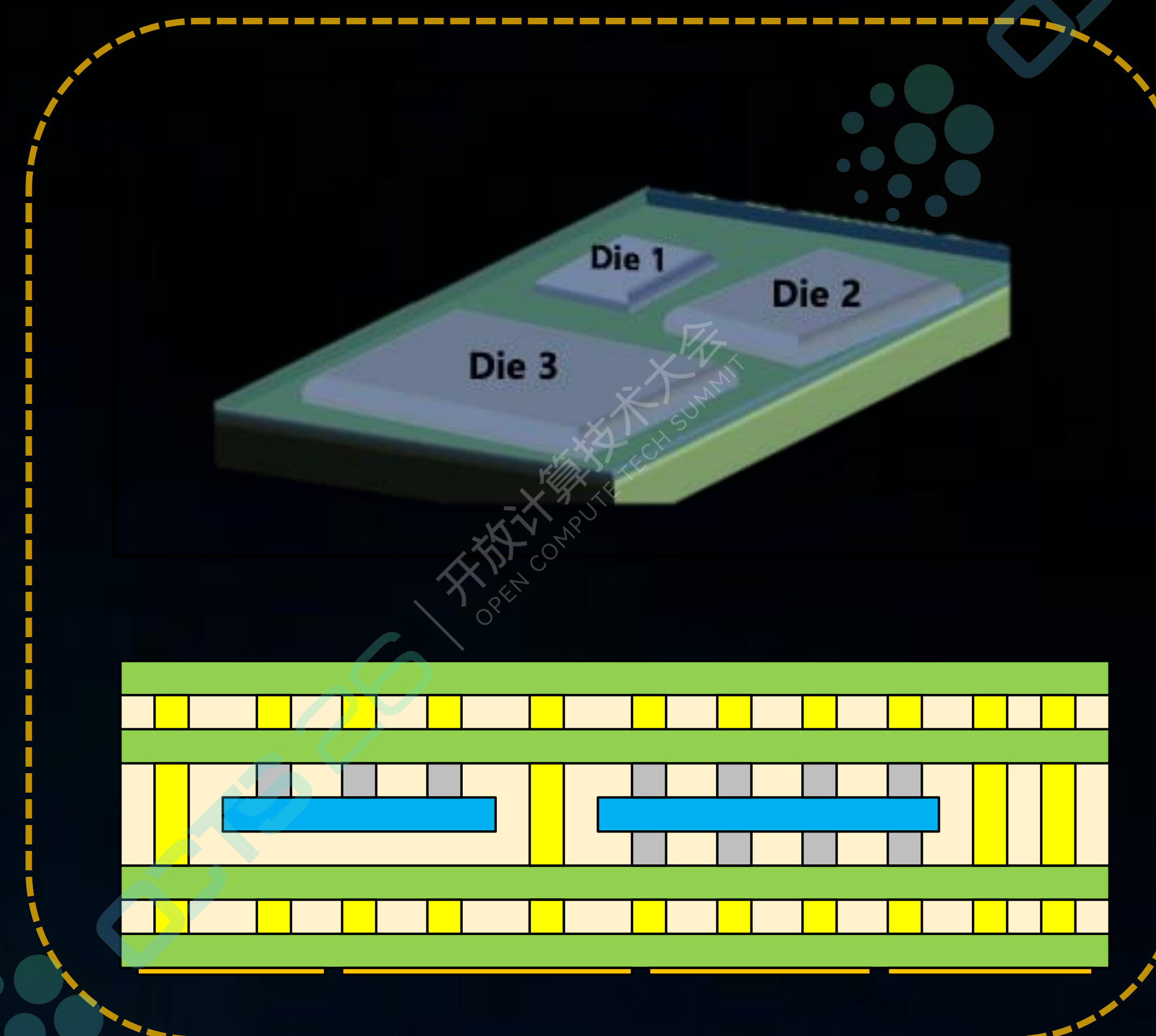
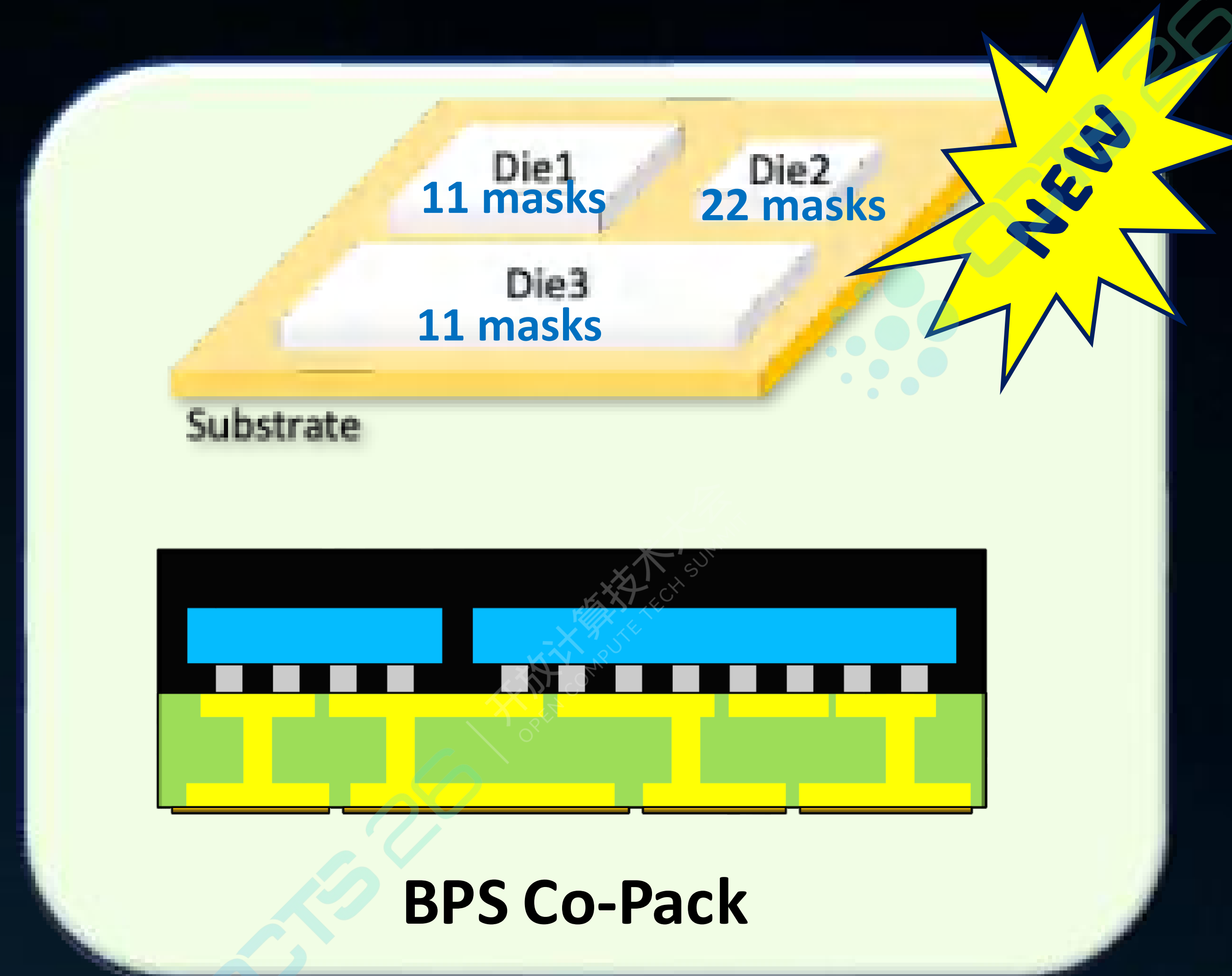
65nm

G4

55nm

Rsp20% (↓)

HPC – Package Innovation

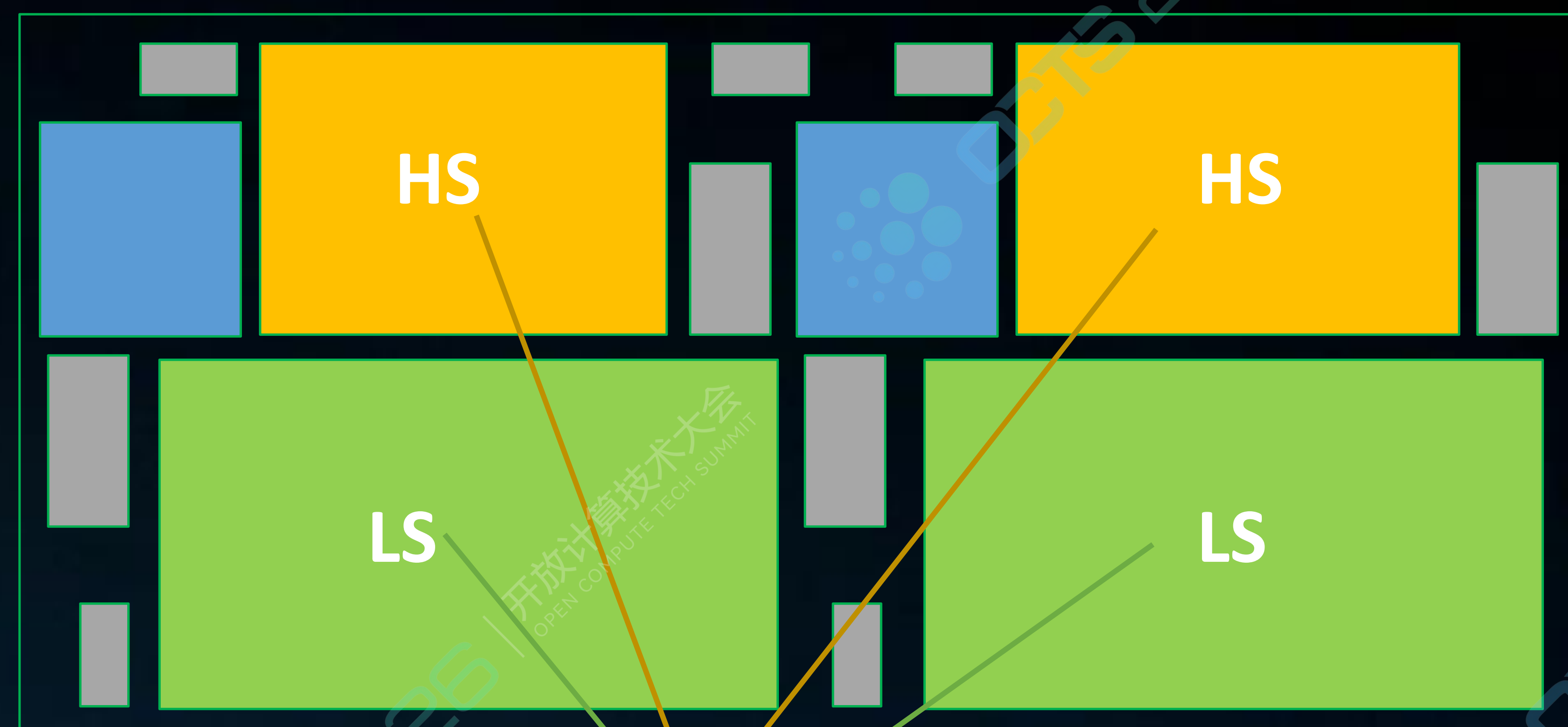


BPS DrMOS/SPS Co-Pack Solution Advantage:

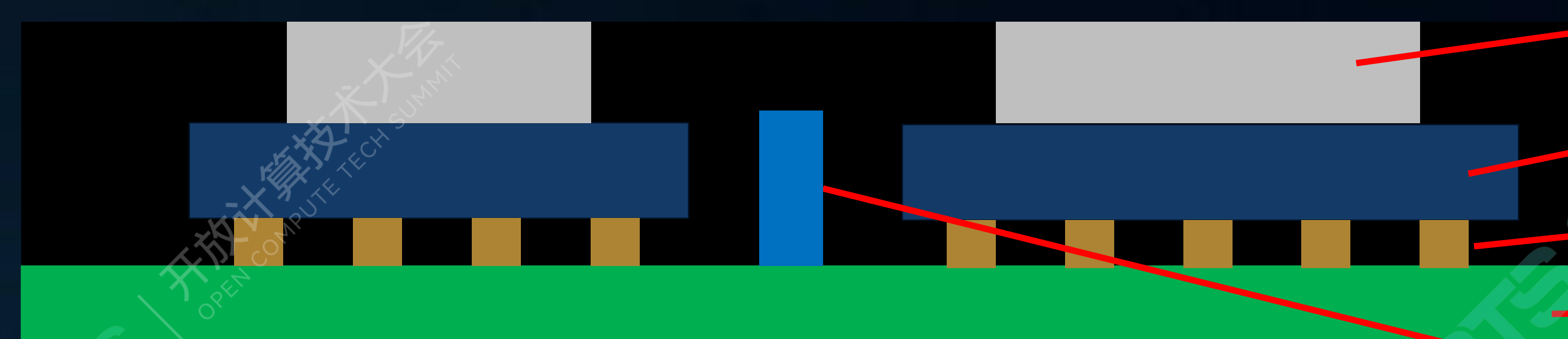
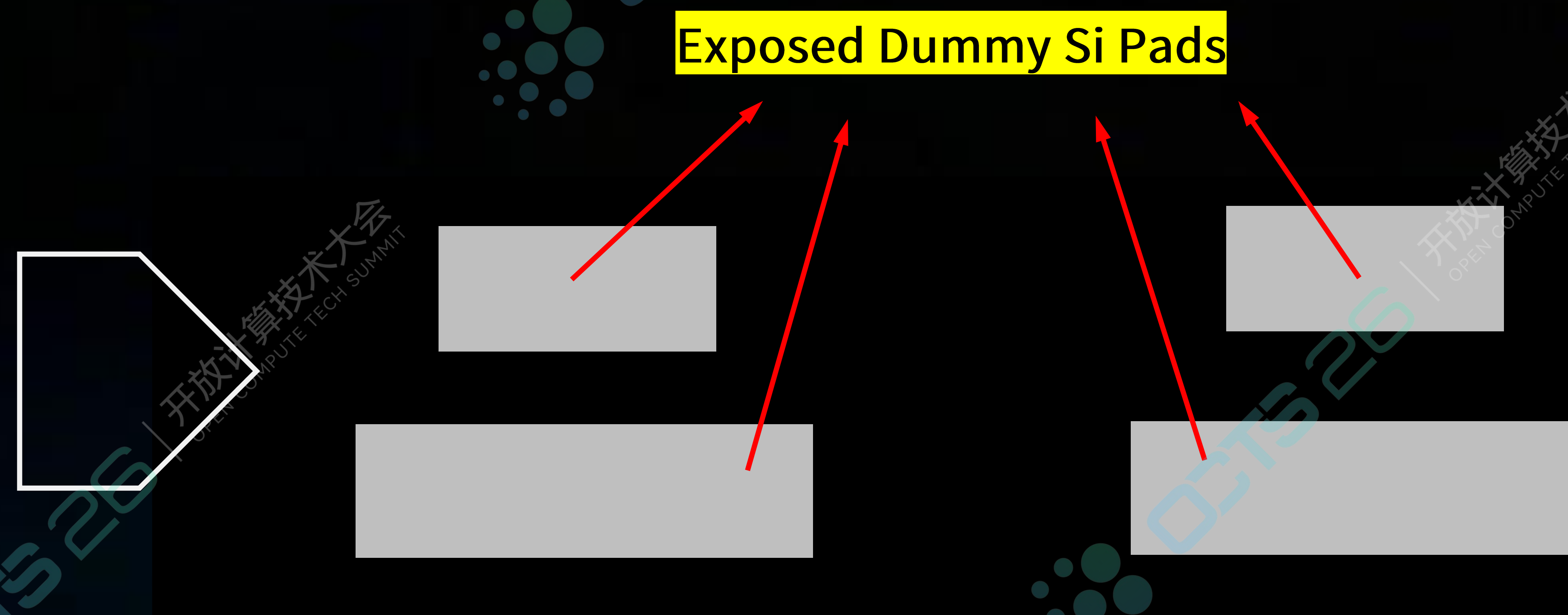
- Fewer Masks are required for Power FET which leads to lower cost.
- Single point power FET optimization leads to lower Rsp and better efficiency.
- Less assembly complexity and better high frequency performance than traditional co-pack solution.

items	BPS Co-Pack	IFX Co-Pack	MPX Single Die
FET Performance	Good	Good	Medium
Die Cost	Low	Medium	High
Assembly Cost	Low	High	Low
Total Cost	Low	High	High

Exposed Top Dummy Si Package



Possible Exposed Dummy Si Area



Side View. Possible Exposed Dummy Si Structure
Total thickness= ~ 1.0mm(Others: 1.15mm)

Exposed Dummy Si Pads

Power FET Die

Copper Pillar

LGA Substrate

Internal Caps

HPC-Digital Multiphase Controllers Technology

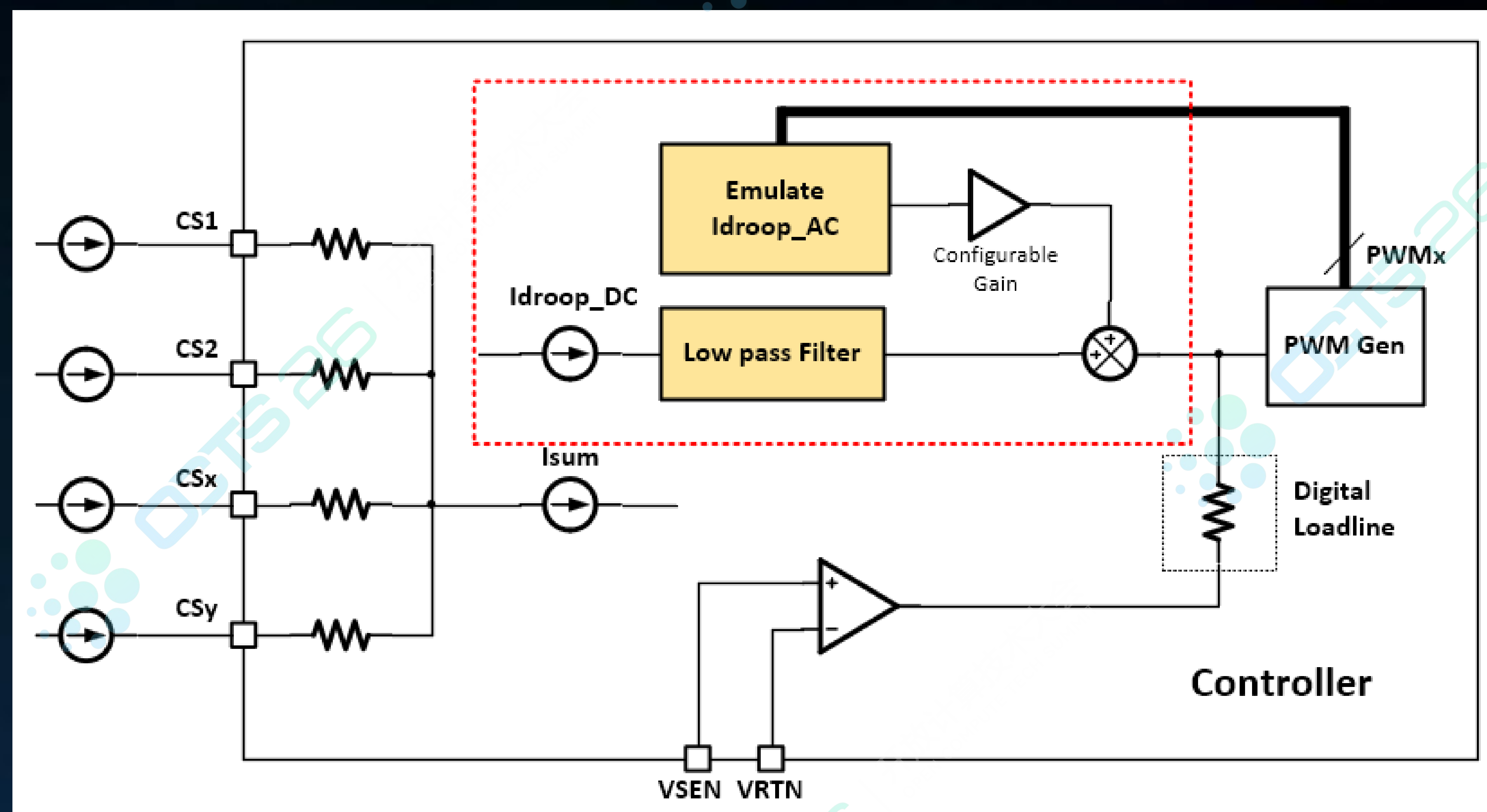
IP-based functional modules enable quick response to host processor evolution and faster time-to-market for new products.

- Digital COT Control, FPGA Pre-Silicon verification;
- 4-16 Phase, 1-4 Rail;
- SVI, PWM-VID, AVSBus etc multiple Protocol;

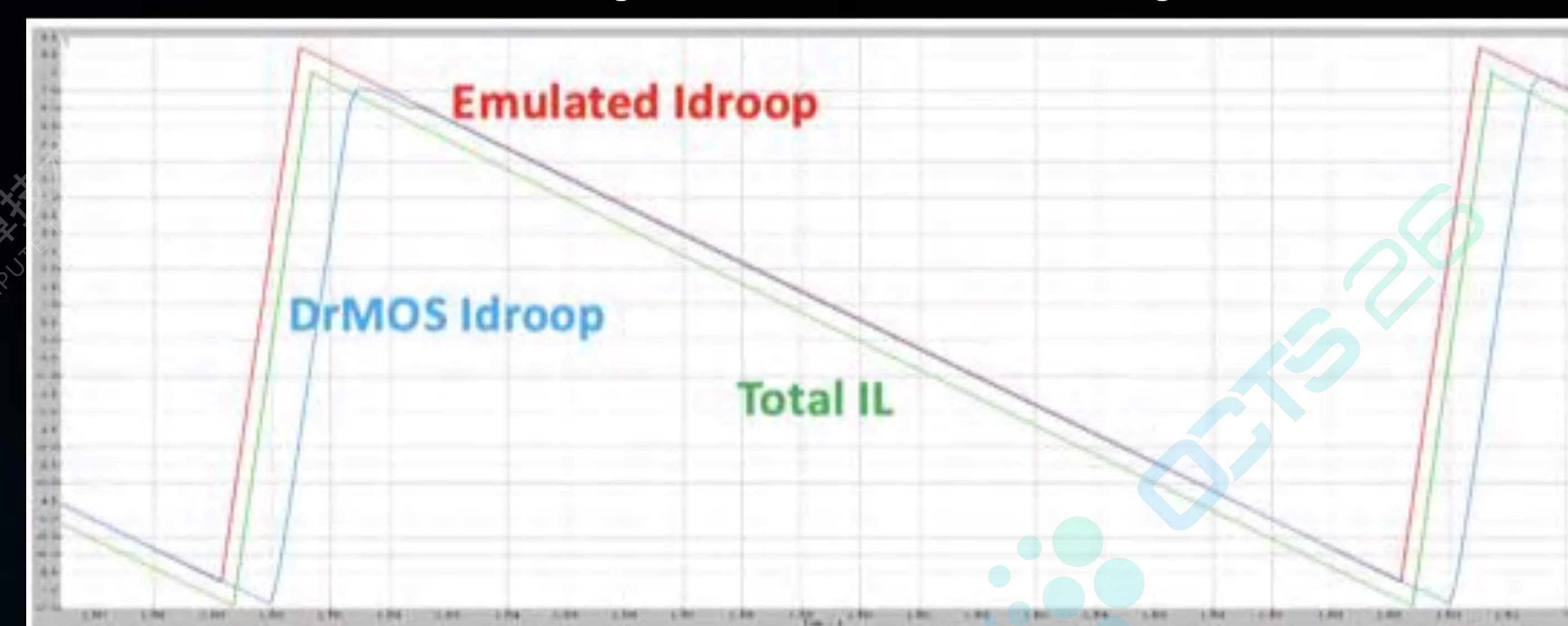


BPS Controller Emulated Droop Function

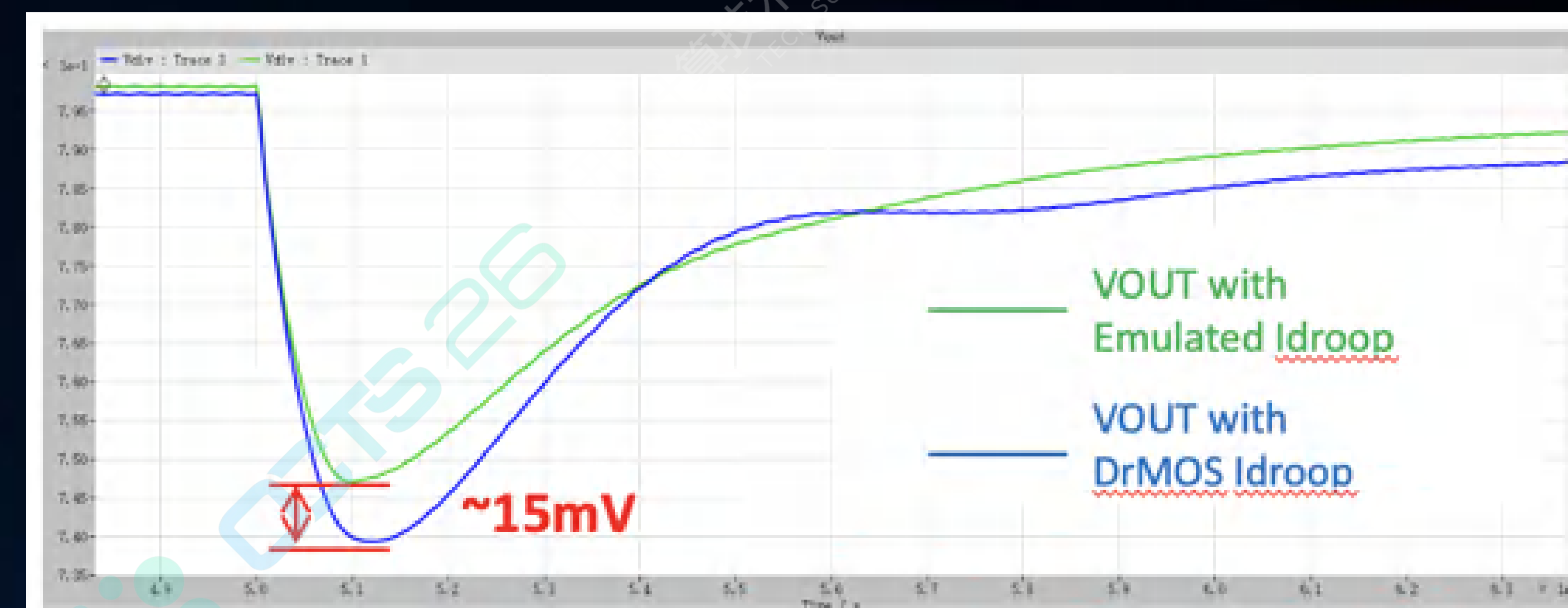
To decrease the delay, internal droop is emulated by PWMs.



Emulated Idroop vs. SPS Idroop



Benefits: Phase-leading current compensation reduces slope requirement, improving dynamic response speed.



BPS Future for HPC

✓ Power Module Evolution

SPS-in-Module ecosystem collaboration for highly reliable and efficient power delivery.

✓ Higher Integration

Integrate more passive components to maximize power density.

✓ Higher Efficiency

Leverage advanced BCD technologies for higher current capability in a smaller footprint.

✓ Better Thermal Performance

Advance packaging technologies to reduce parasitic impedance and improve thermal dissipation.

✓ System-Level Innovation

Evolve with next-generation computing platforms, from device optimization to system-level power management.

THANKS