

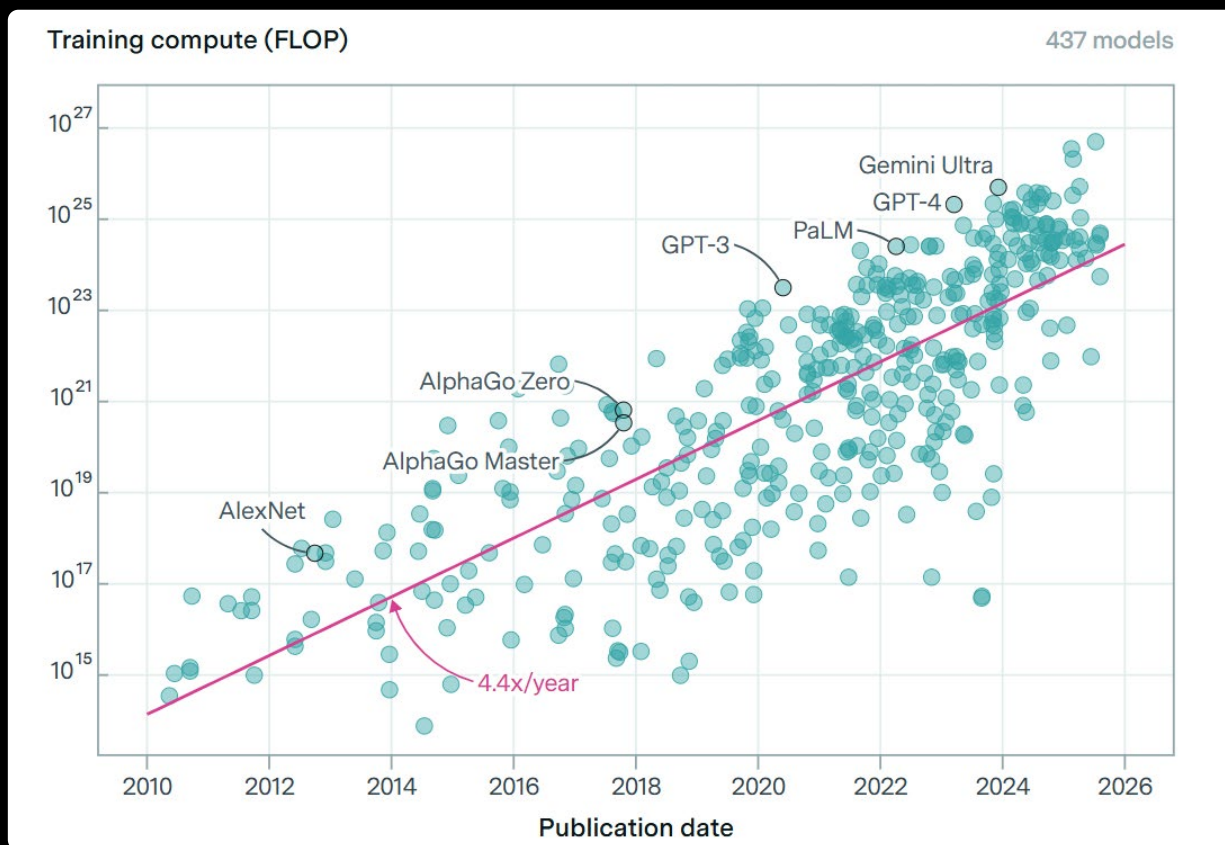


Comb lasers for connectivity of AI clusters

Maxim Karpov, Co-CEO

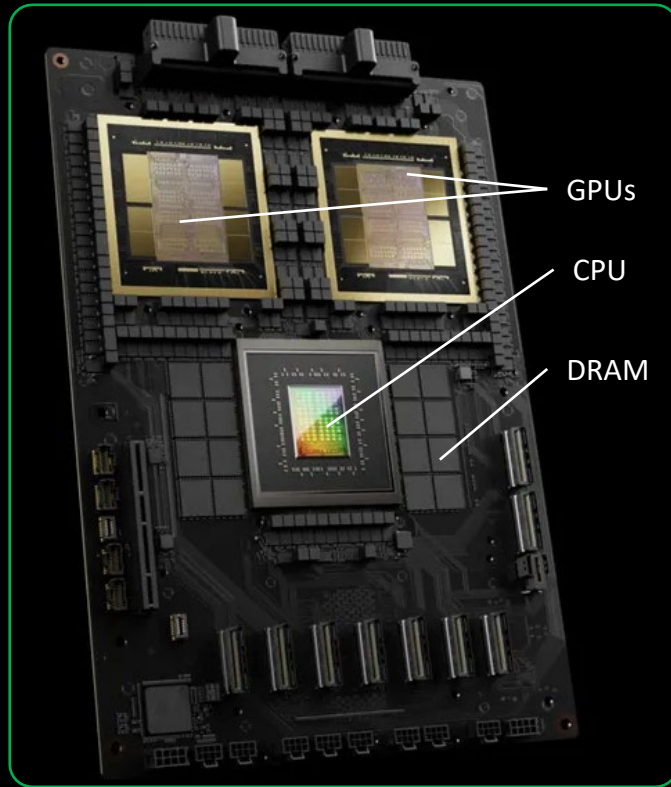
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Need for compute



- x2 every 6 months
- x4 Energy consumptions by 2030
- Interconnects – biggest bottleneck

AI workhorses



GB200



- 36 GPUs and 18 switches
- Total GPU-GPU bandwidth - **1040 Tbps**
- All these connections use **copper**

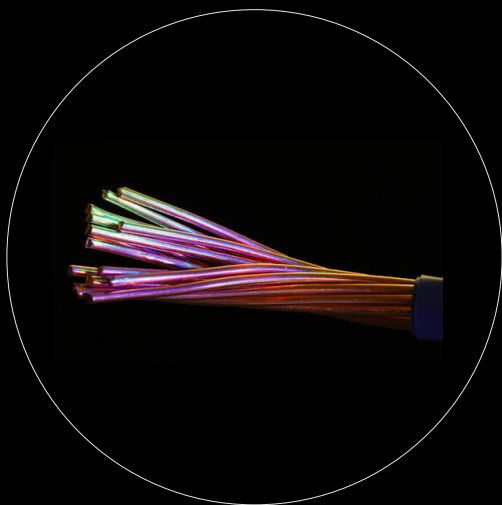


Total traffic **1400 Tbps**

NVIDIA's **Blackwell** computing rack

Optical interconnects

Copper

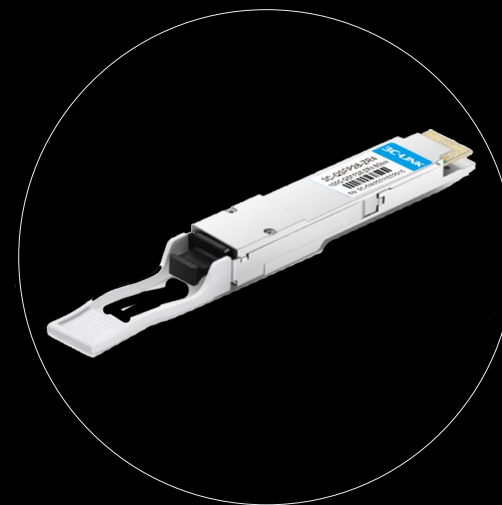


- Low cost of 5c/gbps
- Can't meet bandwidth and reach requirements



NVIDIA's **Blackwell** computing rack

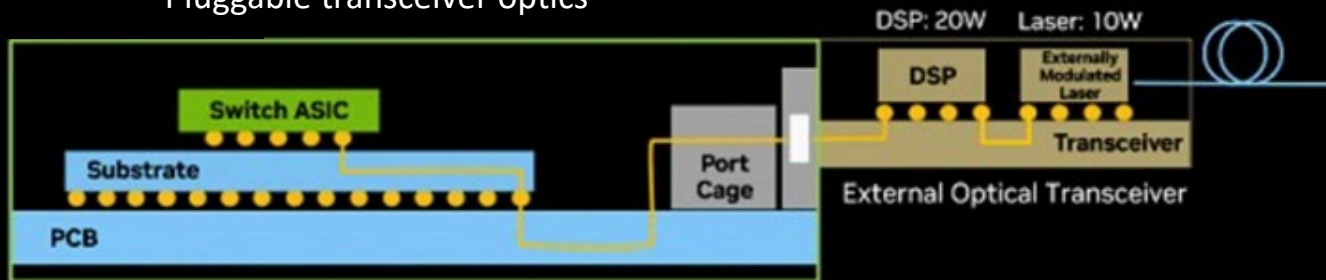
Optical transceivers



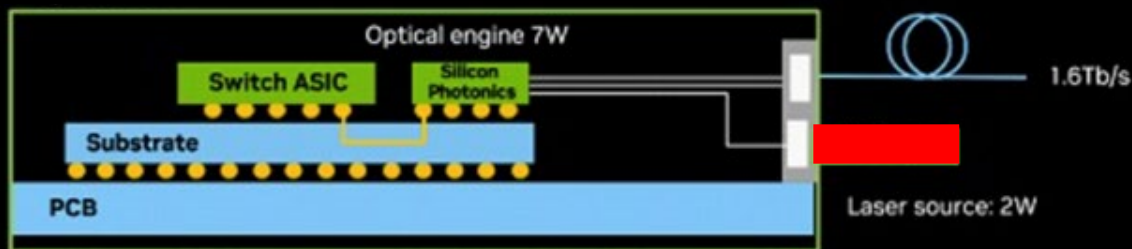
- High cost of 50c/gbps
- Can meet bandwidth and reach requirements, **but still energy inefficient**

Co-packaged optics (CPO)

Pluggable transceiver optics

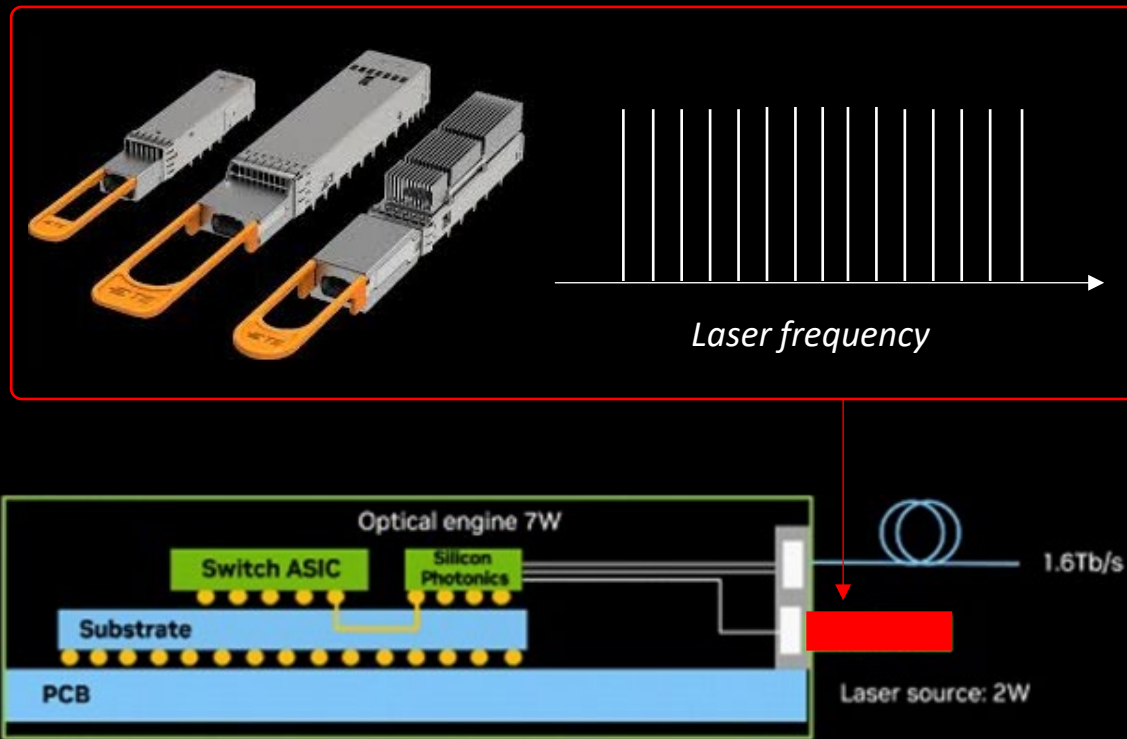


Co-packaged optics



- Bring Tx/Rx close to the ASIC
- Use external laser sources (ELSFP)
- Use multiple wavelengths
- Use lower modulation speeds and IMDD

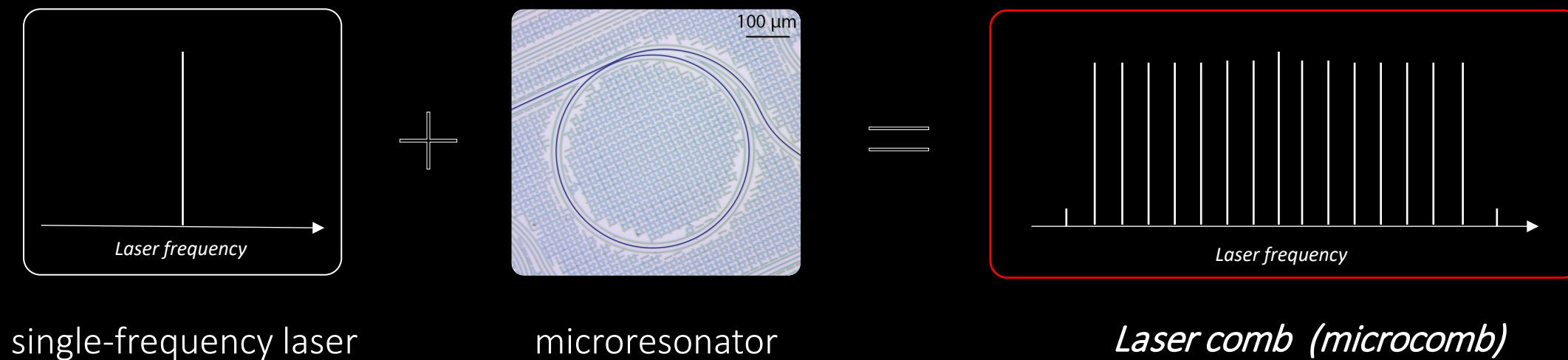
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Laser comb technology

Enlighthra's combs are based on the light conversion in a laser-driven nonlinear optical microresonators



Enlighthra's comb lasers



Shipping since 2023

>10'000h total operation time

Validated with TIER-1 customers and partners

NOKIA  **NTT** *and others...*

Enlighthra's comb modules



External laser sources for AI clusters

- 8 comb laser engines
- 8 and 16 wavelengths each
- 100 or 200 GHz spacing
- +10 dBm/line

Demo devices available today

The team



- Established 2022
- Team of 25 and growing



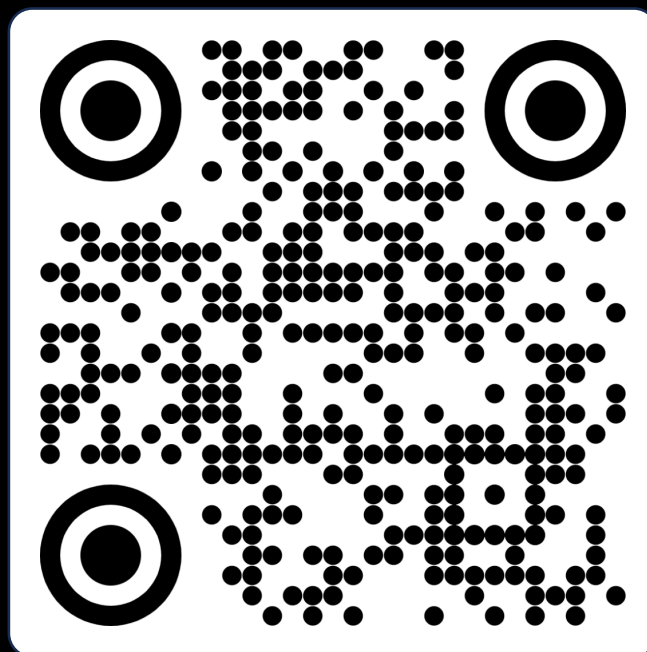
- State-of-the art photonics and partnerships



- Supported and backed by



Contact us!



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Partners

Customers

Join the Team