广發証券(香港)經紀有限公司
GF SECURITIES (HONG KONG) BROKERAGE LIMITED

Overseas Technology

CPO/NPO Accelerates, Architectures and OE Forecast

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What's New?

On Aug 14, NVIDIA announced that Spectrum-X CPO switches for Scale-out have entered mass production, underpinning our forecasts of 15k/100k units in 2026E/2027E. On scale-up, we expect Rubin Ultra to adopt a 9-18-9 tray design, though the 0.75U height presents mechanical challenges that could trigger a shift back to 10-9-8. We now forecast OE shipments of Nvidia's platform at 6m/19m in 2027E/2028E, with total OE shipments (including other CSP platforms) reaching 11m/40m, respectively.

Comments

Nvidia's Scale-out CPO: Per NVIDIA's official announcement, Spectrum-X CPO switches have entered mass production. To support robust capacity ramp, TSMC has substantially expanded its CPO testing and inspection equipment footprint, notably adding Insertion 2/3 capacity. Additionally, key suppliers such as FAU, shuffle box, and system assembly have been progressing well. We maintain our forecast that Nvidia's Scale-out CPO switch shipments will reach 15k/100k units in 2026E/2027E.

Nvidia's Scale-up NPO: Per our *AI Platform Value Shift* report on *Aug 6*, NVL576-based Scale-up CPO/NPO systems are expected to begin adoption in 2H27E. According to Tencent News on Aug 12 on a third-party research report, the prevailing configuration for NVL576 Scale-up rack is likely to be a 9-18-9 tray design, with each switch tray housing 4 ASICs, each ASIC paired with 4 OEs. However, we expect the 18 NVSwitch trays to each feature a 0.75U height, creating mechanical challenges for certain component parts paired with the switch ASICs. Hence, we don't rule out the potential reversion to the alternative 10-9-8 structure, though the architecture remain undecided, due to higher switch ASICs units for cross-rack Scale-out. That said, we do not expect tray configuration changes to materially impact OE units. We now estimate OE shipments of Nvidia's platform at 6m/19m in 2027E/2028E.

Amazon's Scale-up NPO: We expect Trainium 4 to feature 3 configurations, two of which will likely adopt NPO. One design built on ALAB PCIe Gen7 and the other on UALink Switch chips. UALink-based 64-card systems are expected to become the mainstream form factors, while PCIe Gen7 may serve as the early-stage solution. We also expect Trainium 4 to adopt Nvidia's NVLink Fusion, which will likely deploy NPO, similar to the NVL576 design. In terms of OE, we expect 6.4T to be the primary specs. We forecast AWS will consume 5m/12m OE units for Trainium 4 in 2H27E/2028E.

Recommendations

- **Lumentum (LITE Buy) & Coherent (COHR Hold)** on CW laser demand upside.
- **Browave (3163 TT)** on meaningful contribution of CPO's shuffle box, expected with ~50% market share and a volume ramp in 4Q26E (10k+ per quarter), followed by an acceleration in 1H27E.
- **Semtech (SMTC Buy) & Marvell (MRVL Buy)** on TIA/Driver upside.
- **Tower Semiconductor (TSEM Buy)** on revenue exposure to NPO PIC.

Risks

1) AI demand slowdown, 2) supply constraint, 3) competition.

Figure 1: NPO OE Shipments Forecast (mn units)

	2027E	2028E
NPO OE for Scale-up		
Nvidia's 3.2T NPO	6	19
AWS' 6.4T NPO	5	12
Other CSPs' NPO		9
Total Scale-up NPO OE	**11**	**40**

Sources: Company data, GF Securities (Hong Kong) Brokerage.

Risks

1) AI demand slowdown, 2) supply constraint, 3) competition.

Rating definitions Benchmark: Hang Seng Index (Hong Kong)

Company ratings

Buy	Stock expected to outperform benchmark by more than 10%
Hold	Expected stock relative performance ranges between -10% and 10%
Underperform	Stock expected to underperform benchmark by more than 10%

Sector ratings

Positive	Sector expected to outperform benchmark by more than 10%
Neutral	Expected sector relative performance ranges between -10% and 10%
Cautious	Sector expected to underperform benchmark by more than 10%

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