

Semi

Market outlook on optical transceivers

If we consider 2023 as a banner year for AI technology, 2024 is set to be another solid year for both infrastructure investments and downstream demand continue to thrive. We reaffirm our positive stance on optical transceiver players, specifically in light of their ongoing capacity expansion and production ramp-up of the high data rate optical modules, e.g., 400G/800G products. Among those players we favor Innolight (300308 CH, BUY) and TFC (300394 CH, NR), both of which have leveraged the AI wave effectively through 2023 and stayed on strong trajectory into 2024. **We maintain BUY on Innolight, with TP of RMB136.**

According to Bloomberg's consensus, CSP3 (comprising Amazon, Google, and Microsoft) along with Meta, are projected to ramp up their capex by 16.6%/7.6% YoY in 2024/2025E. Correspondingly, CSP3 & Meta's cloud revenue is projected to increase by 18.3%/18.9% YoY in 2024/2025E. This notable increase underscores the hyperscalers' commitment and confidence in the transformative potential of AI, aiming to optimize their operations and boost daily productivity.

The incorporation of AI into data centers has revolutionized the data transmission landscape, bringing several key benefits. These include enhanced performance, improved bandwidth utilization, high reliability, and a more seamless data flow, all accompanied by significantly low latency. Consequently, this shift has spurred a surge in demand for high data rate optical transceivers, driven by the need for faster server capabilities. **We project the hyperscalers to increase their spending on optical transceiver, from 1.6% in 2022 to 2.9% of their total capex in 2024.**

We advise investors to pay close attention to these hyperscalers' upcoming CY4Q23 results next week, which will shed light on their cloud segments' achievements and provide valuable insights into their anticipated capex plans.

Peers table

		Mkt Cap	Price	P/E (x)		ROE (%)		EPS (US\$)	
Company	Ticker	US\$(mn)	(LC)	FY24E	FY25E	FY24E	FY25E	FY24E	FY25E
Overseas optical transceiver beneficiaries									
BROADCOM	AVGO US	575,813	1253.87	26.3	21.9	70.5	71.4	46.84	56.27
MARVELL	MRVL US	60,515	72.28	46.3	34.6	6.5	7.2	1.51	2.02
FABRINET	FN US	7,616	207.28	25.1	21.8	18.6	18.9	8.35	9.62
COHERENT	COHR US	7,230	48.00	35.9	16.8	6.6	14.3	1.33	2.84
APPLIED OPTICS	AAOI US	706	16.59	39.6	17.4	-	-	0.41	0.94
LUMENTUM	LITE US	3,747	55.92	38.5	15.0	5.9	13.5	-2.02	0.18
Peers Avg.				35.3	21.2	21.6	25.1	9.4	12.0
Peers Median				37.2	19.6	6.6	14.3	1.4	2.4
Domestic optical transceiver beneficiaries									
INNOLIGHT	300308 CH	13,093	113.70	23.5	18.9	23.6	22.7	0.70	0.86
EOPOLINK	300502 CH	5,297	53.56	30.4	21.8	19.2	20.9	0.25	0.34
ACCELINK	002281 CH	2,895	25.68	29.1	25.4	10.0	10.4	0.13	0.14
SUZHOU TFC	300394 CH	5,263	96.53	32.3	23.9	29.6	31.2	0.41	0.56
CIG SHANGHAI	603083 CH	1,719	44.65	-	-	-	-	NA	NA
Peers Avg.				28.8	22.5	20.6	21.3	0.4	0.5
Peers Median				29.7	22.9	21.4	21.8	0.3	0.5

Source: Bloomberg, Company data; Note: Data as of 26 Jan

OUTPERFORM
(Maintain)

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Cloud capex on transceivers continues to grow

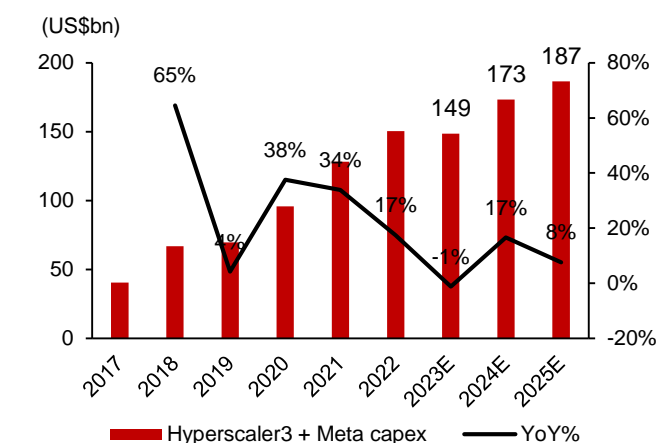
The capex of CSP3 & Meta has reached a historical high. Per Bloomberg, this figure is projected to increase by 16.6%/7.6% YoY in 2024/2025E, reflecting a wider and more optimistic outlook of investors on AI infrastructure investments in the near term.

Figure 1: Hyperscaler3 + Meta capex vs. revenue

(US\$bn)	2017	2018	2019	2020	2021	2022	2023E	2024E	2025E
Aggregated capex	41	67	70	96	128	150	149	173	187
...YoY		64.6%	4.3%	37.5%	33.9%	17.4%	-1.2%	16.6%	7.6%
Aggregated revenue	432	544	647	808	1,030	1,118	1,238	1,391	1,546
...YoY		26.0%	19.0%	24.8%	27.5%	8.5%	10.8%	12.4%	11.1%
...capex to revenue ratio	9.4%	12.3%	10.8%	11.9%	12.4%	13.5%	12.0%	12.5%	12.1%

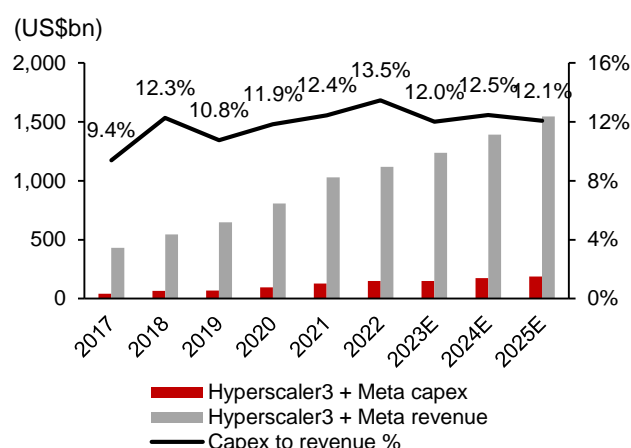
Source: Company data, Bloomberg, CMBIGM estimates

Figure 2: Hyperscaler3 + Meta capex to grow 17% YoY in 2024E



Source: Company data, Bloomberg, CMBIGM estimates

Figure 3: Hyperscaler3 + Meta capex to revenue ratio to maintain at 12%-12.5%



Source: Company data, Bloomberg, CMBIGM estimates

We observed that some investors are expressing concern about the sustainability of the currently high levels of capex, especially given that the capex to revenue ratio is notably high, hovering at around 12%-13%. However, considering that the CSP3 is showing an impressive growth rate of 18-19% in their cloud segments, it is noteworthy that companies such as Microsoft have indicated its capex is expected to be in-line with the pace of cloud revenue growth. This approach seems to corroborate mgmt. strategy and rationale for the capex increase.

Given the substantial impact of these companies' capex on the broader industry dynamics and investment momentum, we recommend investors pay special attention to the forthcoming earnings of CSP3 & Meta next week. The focus should be on their future projections for cloud revenue and capex guidelines, as these factors will be pivotal in understanding the industry's future direction.

Figure 4: Big 3's capex growth vs. cloud revenue growth (MSFT/AMZN/GOOG)

(US\$bn)	2017	2018	2019	2020	2021	2022	2023E	2024E	2025E
Aggregated capex	34	53	54	80	109	120	120	140	150
...YoY		56.0%	2.2%	48.3%	36.1%	10.1%	0.3%	16.6%	7.2%
Aggregated cloud revenue					161	208	246	291	347
...YoY						28.7%	18.7%	18.3%	18.9%
Aggregated revenue	391	488	577	722	912	1,001	1,104	1,240	1,376
...YoY		24.8%	18.1%	25.2%	26.4%	9.7%	10.3%	12.3%	11.0%

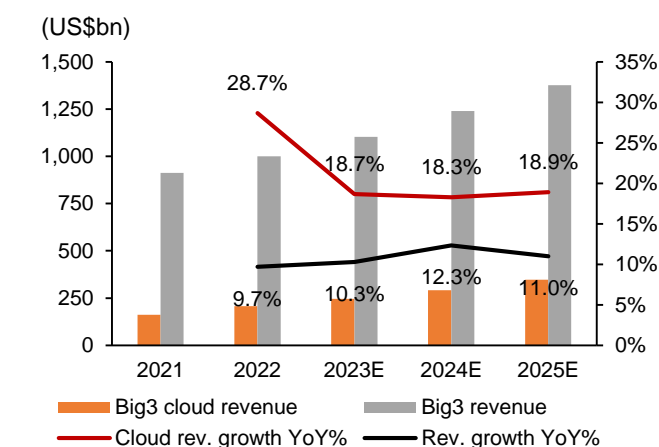
Source: Company data, Bloomberg, CMBIGM estimates

Based on our projections on CSP3 & Meta's AI investments, we believe there is still growth potential in 2024/2025E. By 2025, these companies are likely to spend 29% of their total capex on AI-related areas (vs. 19% in 2023), representing a CAGR of 36.5%.

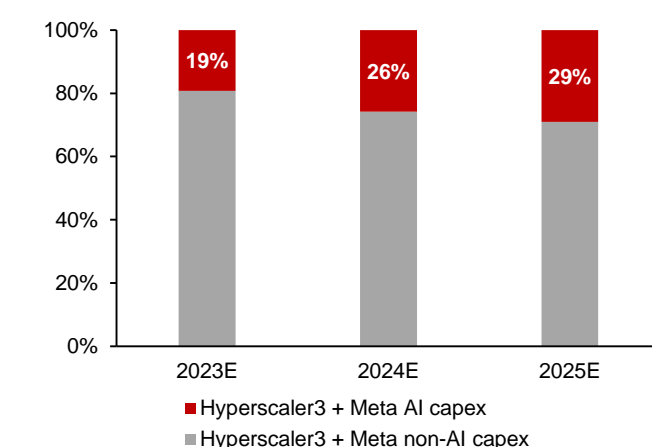
Figure 5: Hyperscaler3 + Meta's spending on AI

(US\$bn)	2017	2018	2019	2020	2021	2022	2023E	2024E	2025E
Aggregated AI capex							29	45	54
...YoY								56.9%	21.1%
...%							19%	26%	29%
Aggregated non-AI capex							120	129	132
...YoY							-20.2%	7.1%	2.9%
...%							81%	74%	71%
Total capex	41	67	70	96	128	150	149	173	187
...YoY		64.6%	4.3%	37.5%	33.9%	17.4%	-1.2%	16.6%	7.6%

Source: Company data, Bloomberg, CMBIGM estimates

Figure 6: Big 3's cloud revenue to grow at 18.3%/18.9% YoY in 2024/25E (vs. total revenue growth of 12.3%/11.0% YoY for the same period)

Source: Company data, Bloomberg, CMBIGM estimates

Figure 7: Hyperscaler3+Meta to spend more on AI

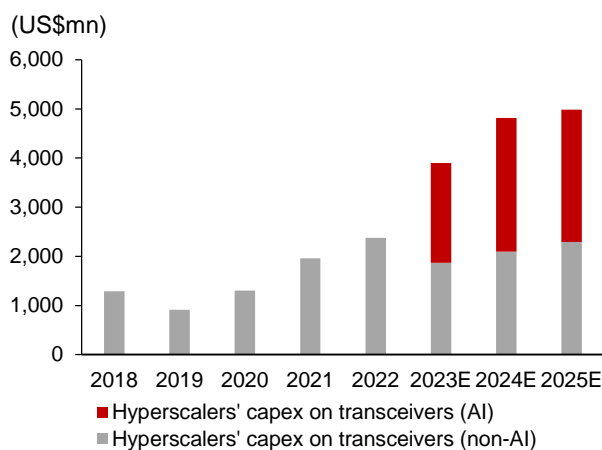
Source: Company data, Bloomberg, CMBIGM estimates

Transceivers manufacturers to benefit from growing networking demand of AI

As CSPs will intensify their investments in AI, gearing their capex towards AI development, networking suppliers, including optical transceiver manufacturers, stand to benefit for two main reasons: 1) AI computing facilitates an increased demand for networking products, and 2) demand for higher data rates, with products evolving from 400G to 800G and even 1.6T, which also leads to growth in average ASP.

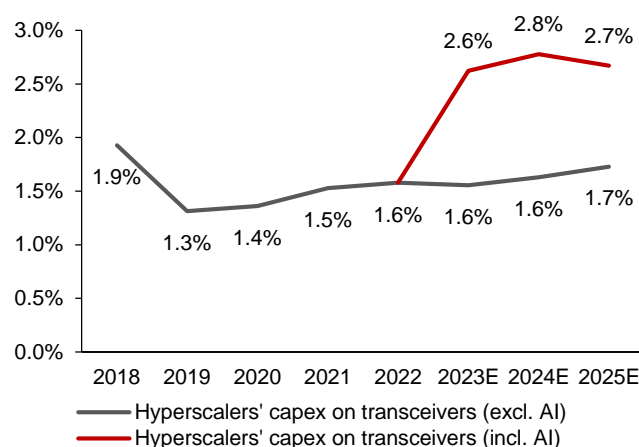
We forecast that the spending on transceivers as a proportion of total capex will rise from 1.6% to close to 3%. This shift signifies a vital change in resource allocation towards advanced networking tech, driven by the increasing demands of AI infrastructure.

Figure 8: Transceivers spending to grow on AI demand



Source: Lightcounting, CMBIGM

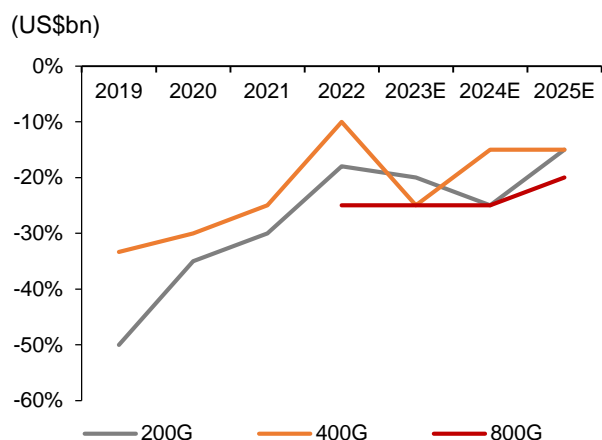
Figure 9: Transceivers spending to account for a higher portion of total cloud capex



Source: Lightcounting, CMBIGM

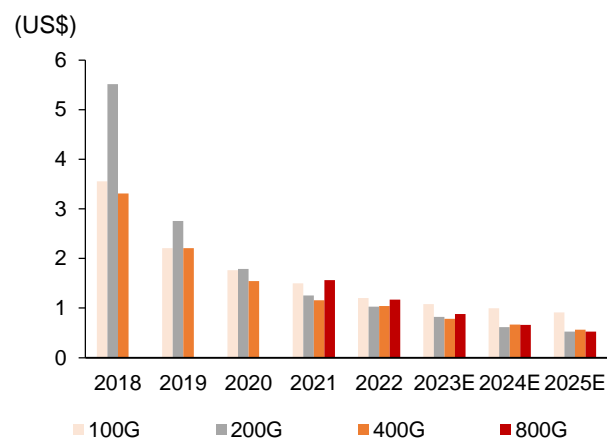
At the same time, we anticipate a rapid decline in the ASP of the same products (high teens to 30%). Cost per Gbps will also decline, thanks to technological advancement.

Figure 10: Transceivers ASP trend



Source: Lightcounting, CMBIGM

Figure 11: Transceivers cost per Gbps



Source: Lightcounting, CMBIGM

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