

# Hardware – Optical transceivers

## Investors expect spectacular results in the AI infrastructure arms race

- **The current market expectation of 800G transceivers shipment to reach 12mn in 2024 seems too optimistic.** Optical transceiver manufacturers are in the spotlight this year. As key beneficiaries of Generative AI enthusiasm, Innolight/Eoptolink grew 354.6%/200.2% YTD. Admittedly, the surging demand for **Nvidia** (Not Rated) GPU will bring increasing orders for 800G transceivers in 2023/24. However, under our latest analytical framework, **we estimate the shipment of 800G transceivers will be 4.2mn next year, significantly below the market's bullish estimate of 12mn.**
- **We are cautious about the sustainability of this high demand in medium to long term, considering 1) high-base of hyperscalers' capex, 2) moderating cloud business sales growth, and 3) possible bumpy launch of LLM based service/product and participating in the AI arms race could be unaffordable for smaller cloud companies.** In the near term, we expect demand for 800G optical transceivers to remain very strong, given the current generative AI enthusiasm and industry's FOMO (Fear of Missing Out) sentiment. Addressing supply chain bottlenecks and accelerated availability of CoWoS capacity may bring supply in line with demand earlier than anticipated. However, it is prudent to scrutinize the sustainability of the elevated demand over the medium to long term. Based on our analysis, 4.2mn transceivers translates to US\$82bn Nvidia's H100 sales. Assuming MSFT/GOOG/AMZN/META (not rated) will acquire 50% of them, that will translate to US\$41bn extra capex. Hyperscalers' capex already grew at 38%/32%/19% YoY during 2020-22 and is estimated to decrease slightly by 3% this year. US\$41bn procurement is close to 27% of 2022 capex. Meanwhile, Microsoft Azure/Google Cloud/AWS's revenue growth declined to 28%/26%/12% in 2Q23. It is in doubt if those Cloud companies could maintain the current level of investment. Furthermore, the high interest rate environment will also weigh on other smaller cloud companies' capex plans.
- **Our coverage:** Innolight is expected to benefit from the ongoing AI infrastructure arms race, and we expect Innolight's top line growth to grow 12% and 36% in 2023/24E respectively. However, we think market expectations are filled and have been priced in. **We adjusted Innolight's TP to RMB104 (35x 2025E P/E) and downgrade to HOLD.** Its share price has rallied by 354.6% YTD, we expect the share price will trade in current range as investors are waiting for Nvidia 2Q23 earnings release on 23 Aug. **Next catalyst** could be Hyperscalers 3Q/4Q23 earnings release, when they guide for 2024 capex. **Potential upside** includes effective execution by the management team and strong top and bottom-line performance, validating the company's pursuit of further growth.

### Earnings Summary

(YE 31 Dec)	FY21A	FY22A	FY23E	FY24E	FY25E
Revenue (RMB mn)	7,695	9,642	10,799	14,703	16,776
YoY growth (%)	9.2	25.3	12.0	36.1	14.1
Gross Margin (%)	25.6	29.3	29.6	29.8	29.9
Net profit (RMB mn)	877	1,224	1,459	2,047	2,386
YoY growth (%)	1.3	39.6	19.2	40.3	16.6
EPS (Reported) (RMB)	1.21	1.54	1.82	2.56	2.98
P/E (x)	100.8	79.2	67.0	47.7	40.9
ROE (%)	7.6	10.2	11.0	13.5	13.7
Net gearing (%)	Net cash	Net cash	Net cash	Net cash	Net cash

Source: Company data, Bloomberg, CMBIGM estimates

### MARKET PERFORM (Down)

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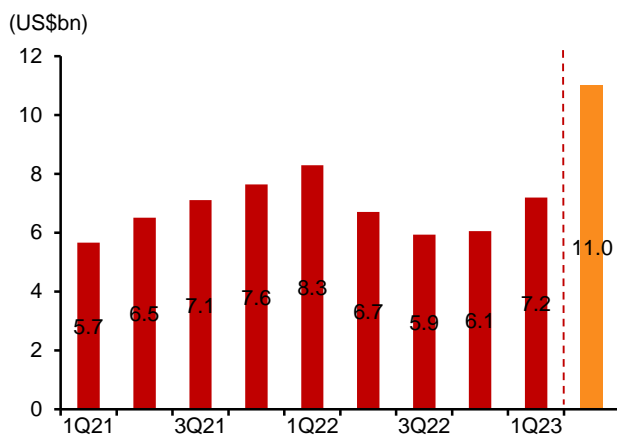
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## In the near term, 800G transceivers demand will be strong

We expect demand for 800G optical transceivers to remain very strong in the near term, considering 1) current generative AI enthusiasm and Cloud companies will make hefty investments in the early stage to gain competitiveness in this AI arms race (demand); 2) supply is tight and Cloud Companies are likely to overbook to secure their orders (supply).

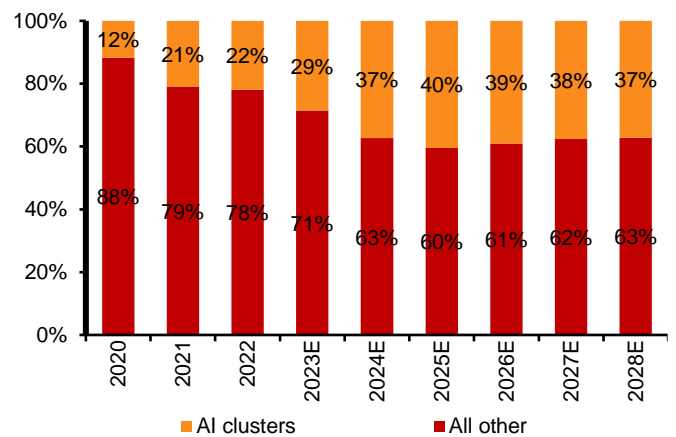
The supply chain is confirming this momentum. Nvidia guided more than 50% revenue growth for 2Q23, which is largely driven by datacenter revenue. Nvidia's stock jumped by almost 25% on the news. TSMC (Not Rated) also confirmed that AI demand is very strong at the moment. Their capacity, especially the CoWoS, is very tight and hard to fulfill 100% of the customers' needs.

**Figure 1: Nvidia guided 2Q23's revenue will grow to US\$11bn**



Source: Company info, CMBIGM estimates

**Figure 2: Ethernet transceivers sales by application: AI clusters to account for c.40% share**



Source: Lightcounting, CMBIGM estimates

Despite strong AI demand, H100 chips are in shortage. This means the shipment of 800G transceivers in 2023 will largely depend on the supply side, i.e., the capacity of TSMC's CoWoS platform. On 21 Jun, TrendForce projected TSMC's monthly CoWoS capacity will hit 12k by the end of 2023. **Based on our analytical framework, we estimate 1.8mn/4.2mn 800G transceivers will be shipped in 2023/24E, given the supply chain constraints.**

## When looking into longer horizon, investors should ask will the demand be sustainable?

For 2024, TrendForce expects TSMC's monthly CoWoS capacity to grow 30-40%. However, in the latest TSMC's earnings call (20 Jul), the Company said they will increase their capacity "as quickly as possible... and expect these tightening will be released in next year, probably toward the end of next year." In terms of the CoWoS capacity expansion, the Company answered that "probably 2x of the capacity will be added." **If 2x of the capacity is added by the end of next year**, that will be close to 36k wafers per month. In this bull case scenario, **we estimate the total H100 GPU production will be roughly 4.6mn**, assuming 50% share of the advanced chips are for Nvidia.

**This number appears ambitious.** On the one hand, the GPU production could encounter other supply chain constraints, such as transceiver chips shortage, delay in ramping up 800G transceivers' production, etc. On the other hand, **TSMC also mentioned that "the short-term fancy about the AI demand definitely cannot extrapolate for the long term."** They cannot predict if the sudden demand will continue or flat out next year. They think capex will increase in the long term, once the cloud service providers see growing generative AI service revenue. **Therefore, we took a relatively conservative approach by doubling the CoWoS capacity in 2024 and estimated 3.3mn H100 GPU production.**

**Whether the bull case or our base scenario is more realistic, we look into the end market demand for some evidence.** The current AI arms race will boost demand at the moment is a sure thing. But will the demand be sustainable in the mid to long term?

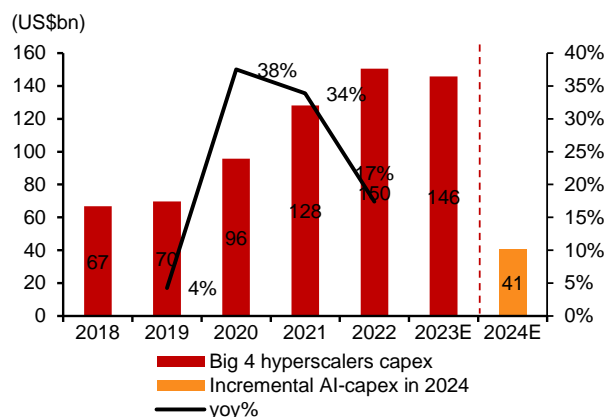
In the bull case and our base case scenarios, Nvidia's H100 shipment will be 4.6mn and 3.3mn, respectively, representing US\$114.8bn and US\$81.5bn in sales. Such sales will be the cost of other companies' operations or CapEx. Assuming MSFT/GOOG/AMZN/META will acquire 50% of them, that will translate to US\$57.4bn and US\$40.8bn extra capex. The big 4 hyperscalers' capex already grew at 38%/32%/19% YoY during 2020-22. **The US\$57bn (bull case) and US\$41bn (our base case) incremental AI demand will account for 38% and 27% of the total capex of the big 4, if assuming similar capex level as 2022.**

**Figure 3: AI-related capex to account for 27% of 2022 total capex under base case scenario**

2024	Bull case	Base case
H100 GPU shipment (mn)	4.6	3.3
ASP (US\$)	25,000	25,000
<b>Total H100 sales (US\$mn)</b>	<b>114,750</b>	<b>81,563</b>
Assume 50% purchased by Hyperscalers	50%	50%
<b>Hyperscalers incremental capex (US\$bn)</b>	<b>57</b>	<b>41</b>
vs. Big 4 hyperscalers capex in 2022 (US\$bn)	150	150
<b>Incremental AI-capex in 2024 as a % of 2022</b>	<b>38%</b>	<b>27%</b>

Source: Company filings, TrendForce, Digitimes, Bloomberg, CMBIGM estimates

**Figure 4: Est. incremental AI-capex in 2024 to account for 27% of 2022's total capex**

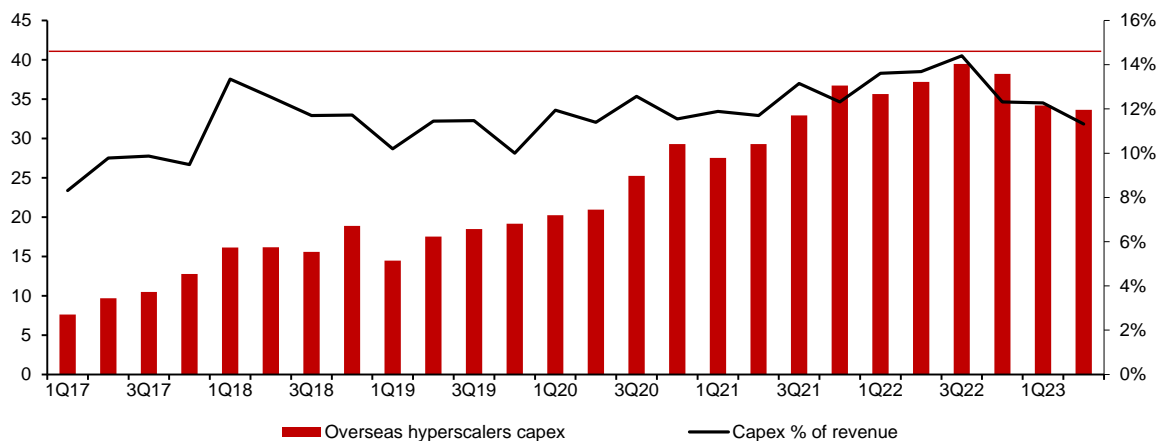


Source: Company filings, TrendForce, Digitimes, Bloomberg, CMBIGM estimates

**38% seems too aggressive for the big 4 hyperscalers to add as new AI CapEx.** There may be arguments that the Cloud companies will increase capex significantly again in this AI arms race. Of course, the hyperscalers will shift their investment focuses to AI-related area. Companies like Meta and AWS are making substantial capacity preparations to handle the potential rapid scaling of AI-powered features despite declining overall capex from previous forecasts. Amazon explicitly emphasized increased datacenter and hardware spending in the early stages of AI/Cloud businesses to fulfill long-term demand monetization. Google has also revealed its plan on deploying more 800G transceivers as it is expecting elevated infrastructure investment in 2H23 and throughout 2024 primarily to support AI opportunities. Microsoft guided sequential increase in capex, covering data centers, physical infrastructure, CPUs, GPUs, and networking equipment, driven by both overall commercial cloud demand and the need to support AI workloads. However, **based on historical hyperscalers' capex to revenue ratio, the cap is close to 15%. How much higher could it go?**

**Figure 5: Overseas hyperscalers (MSFT/GOOG/AZMN/META) capex to revenue ratio**

(US\$bn)



Source: Company data, CMBIGM estimates

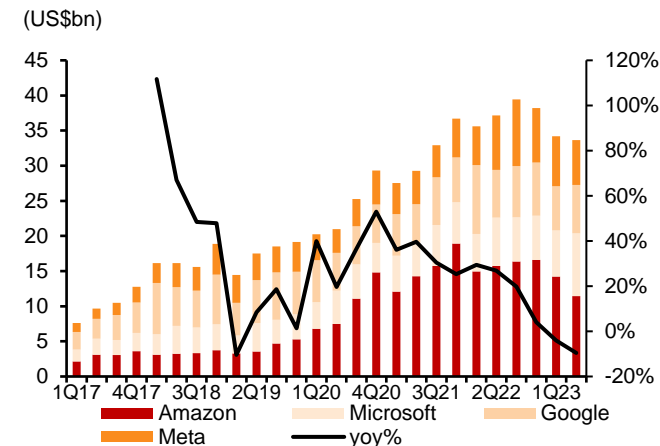
According to the latest earnings calls, we estimate 2023 big 4 hyperscalers' capex to decrease slightly. Microsoft is the only company that may have higher capex growth this year. The Company illustrated how they think of the capex going forward: "111 billion Commercial Cloud business growing at... 22% YoY. And then... capex growth which is around the same number, 23%, 24%. So, in some sense, it's sort of replacement capital plus some new capital that is going to drive new growth."

**Figure 6: Overseas hyperscalers' cloud business outlook and capex forecast for 2023**

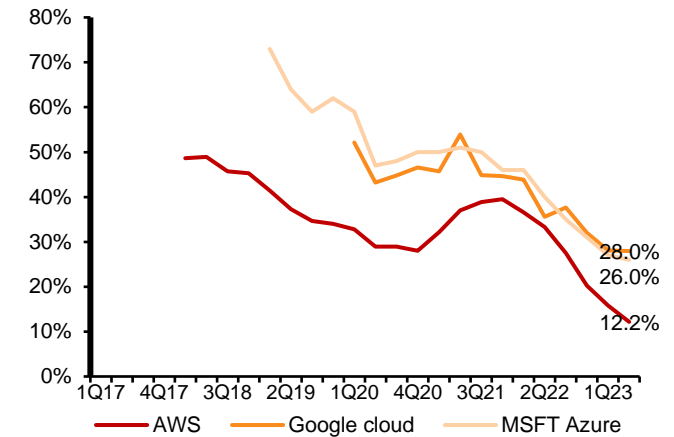
Hyperscalers' comments/forecasts			
	Cloud business outlook	Opex comments	Capex comments
Amazon	<b>AWS:</b> sales up 12% YoY to US\$22.1bn in 2Q23... very bullish on the growth of AWS over the next several years.	Continue cost optimization. ...shift in the balance of cost optimizations to actually new workloads and new migrations will continue over time... to grow double digits on an \$88 billion revenue run rate business.	... expect capital investments to be slightly more than \$50 billion in 2023 (vs. \$59 billion in 2022)... expect fulfillment and transportation capex to be down yoy, partially offset by increased infrastructure capex to support growth of our AWS business, including additional investments related to generative AI and large language model efforts.  <b>...how much generative AI may impact the capital expense spend, included in that number is a pretty significant amount of capital expense in the AWS business for large language models and for generative AI... we have quite a bit of demand right now.</b>
Google	<b>Google Cloud:</b> sales up 28% YoY to US\$8b in Q2 and saw strong growth across regions and industries, but consumption growth moderated as customers optimized spending. Google's leading platform for AI models won over 70% of Gen AI unicorns as customers.	"Regarding expenses, we are actively <b>re-engineering our cost structure with focus on reducing headcount growth and relocating talent from within to fuel growth priorities.</b> "	The largest component of Q2's capex was for servers, which included a meaningful increase in our investments in AI compute. Sequential Capex in Q2 was lower than expected because <b>"1) moderated office facility construction and 2) data center project delays... we expect elevated infrastructure investment in 2H23 and 2024 to primarily support AI opportunities across Alphabet with GPUs, TPUs, and expanded data centers."</b>
Microsoft	Sales of Microsoft Cloud surpassed US\$110b in annual revenue, up 27% with <b>Azure accounting for &gt;50% of total revenue for the first time...</b> gross margin was 72%... and is expected to decrease 1pct YoY due to accounting estimate change.	Company-wide headcount remained flat by end of June compared to previous year. "Opex growth will remain low as we prioritize spend, maintaining flat YoY operating margins."	"We will increase investment in cloud infrastructure with Capex rising sequentially QoQ throughout 2024."  The acceleration in Capex covers <b>data centers, physical infrastructure, CPUs, GPUs, and networking equipment, driven by both overall commercial cloud demand the need to support AI workloads.</b>
Meta	Q2 revenue up 11% YoY to US\$32b... and expect Q3 revenue to be in the range of US\$32-34.5b (mid-point up 20.0% yoy or 3.9% qoq)	Total exp. in Q2 was US\$22.6b, up 10% YoY. Total headcount in Q2 down 7% QoQ and is expected to continue trending downwards in Q3. "We expect total exp. in 23FY to be in the range of US\$88-91b (up from prior estimate of US\$86-90b).	Capex is expected to reach US\$27-30b in 2023 (down from prior estimate of US\$30-33b) due to both cost-savings (particularly on non-AI servers) and project delays. <b>Total Capex in 2024 is expected to grow on data centers and AI-related investments.</b>

Source: Company info, Bloomberg and CMBIGM estimates

This means **the Cloud companies will adjust their capital investments considering their revenue growth**. Turning to Cloud business growths, **the hyperscalers are experiencing a slowdown in revenue growth**. Microsoft Azure/Google Cloud/AWS's revenue growth declined to 28%/26%/12% in 2Q23. Can the downstream applications drive such demand? Will the launch of LLM based service/products bring sufficient cash flow to support ongoing capex at this level?

**Figure 7: Hyperscalers' capex peaked in 2022**


Source: LightCounting, CMBIGM estimates

**Figure 8: Hyperscalers cloud revenue growth**


Source: Company data, CMBIGM estimates

**In the absence of new applications that can attract enough users and generate sufficient cash flow, Cloud companies might reconsider the scale of their investments.** Even if they continue to invest, the potential for additional CapEx could be limited given the significant growth in hyperscalers' CapEx in recent years.

**As for smaller Cloud companies, they are not the major players to make large scale Cloud investments,** given their weaker financial strength and cash positions. Furthermore, the current high interest rate environment will also weigh on other smaller cloud companies' capex plans. They may find the AI arms race unaffordable to participate.

**In summary, in mid- to long-term, investors should ask whether the high demand is sustainable? The demand looks good now but there may be overbooking risk.** Therefore, we think **our base case scenario is a more realistic estimate.**

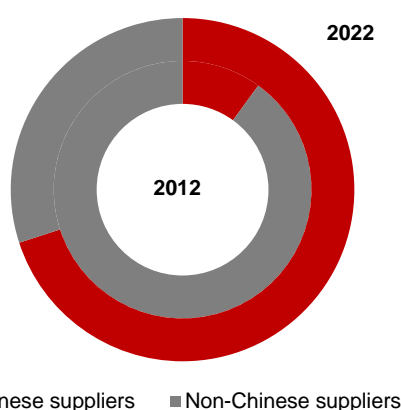


## Updated view on Innolights (300308CH)

### Downgrade to HOLD; TP adjusted to RMB104

Innolight is expected to be one of the key beneficiaries in the AI infrastructure arms race, given 1) its leading position in the transceiver's market, 2) it is one of the few that can produce 800G transceivers and 3) good overseas clients relationships. We expect Innolight's top line growth will grow 12% and 36% in 2023/24E, based on our base case analysis. We adjusted our 2023E and 2024E's revenue/NP forecasts by 5%/13% and 31%/42%, as we factor in the incremental 800G transceiver sales driven by generative AI arms race. However, our projections are still well below consensus estimates (30%+) for 2024E, as we remain cautious on the sustainability of the demand, considering the growth of hyperscalers' capex and the overbooking risks.

**Figure 9: Chinese vendors are leading the Ethernet transceiver market**



Source: Lightcounting, CMBIGM estimates

**Figure 10: Top 10 transceiver suppliers (2010/2016/2018/2021)**

2010	2016		2018	2021
Finisar	Finisar	1	Finisar	II-VI & Innolight (tie)
Opnext	Hisense	2	Innolight	Hisense
Sumitomo	Accelink	3	Hisense	Huawei (HiSilicon)
Avago	Acacia	4	Accelink	Cisco(Acacia)
Source Photonics	FOIT(Avago)	5	FOIT(Avago)	Hisense
Fujitsu	Oclaro	6	Lumentum/Oclaro	Broadcom (Avago)
JDSU	Innolight	7	Acacia	Eoptolink
Emcore	Sumitomo	8	Intel	Accelink
WTD	Lumentum	9	AOi	Molex
NeoPhotonics	Source Photonics	10	Sumitomo	Intel

Source: Lightcounting, CMBIGM estimates

Currently, the AI theme drives the momentum and investors raised their valuation again. **We applied 5-year historical average P/E multiple of 35x and adjusted our TP to RMB104. Downgrade to HOLD.**

Its share price has rallied by 354.6% YTD, we expect the share price will trade in current range as investors are waiting for Nvidia 2Q23 earnings release on 23 Aug. Nvidia is expected to share their outlook on actual generative AI demand and how it may serve as a catalyst for relevant stocks in the sector. **Next catalyst** could be Hyperscalers 3Q/4Q23 earnings release, when they guide for 2024 capex. Close attention needs to be paid to AI development and supply chain guidance.

Potential upsides include: 1) higher-than-expected 800G shipment; 2) greater-than-expected Cloud capex plans; and 3) higher-than-expected hyperscalers' CapEx outlook for 2024. Share price could march higher if the management team executes well and delivers both top and bottom results that confirm the company indeed is following new growth trajectories.

Potential risks include: 1) lower-than-expected 800G shipment; 2) lower-than-expected Nvidia's 2H23's guidance on GPU shipments/orders; 3) lower-than-expected hyperscalers' CapEx outlook for 2024 and 4) new technology which may disrupt current competitive landscape.



**Figure 11: Company financials**

RMB mn	FY20	FY21E	1Q22	2Q22	3Q22	4Q22	FY22	1Q23	FY23E	FY24E	FY25E
<b>Revenue</b>	<b>7,050</b>	<b>7,695</b>	<b>2,089</b>	<b>2,142</b>	<b>2,634</b>	<b>2,777</b>	<b>9,642</b>	<b>1,837</b>	<b>10,799</b>	<b>14,703</b>	<b>16,776</b>
...YoY	48.2%	9.2%	42%	17%	30%	17%	25.3%	-12%	12.0%	36.1%	14.1%
Cost of sales	5,257	5,727	1,540	1,558	1,851	1,867	6,816	1,294	7,606	10,316	11,764
<b>Gross profit</b>	<b>1,793</b>	<b>1,968</b>	<b>549</b>	<b>584</b>	<b>783</b>	<b>910</b>	<b>2,826</b>	<b>543</b>	<b>3,193</b>	<b>4,388</b>	<b>5,012</b>
...YoY	39.0%	9.8%	49%	34%	58%	36%	43.6%	-1%	13.0%	37.4%	14.2%
GPM (%)	25.4%	25.6%	26%	27%	30%	33%	29.3%	30%	29.6%	29.8%	29.9%
SG&A	477	507	155	127	167	148	598	113	641	853	960
...% of rev	6.8%	6.6%	7%	6%	6%	5%	6.2%	6%	5.9%	5.8%	5.7%
R&D	506	541	154	195	212	206	767	156	919	1,237	1,394
...% of rev	7.2%	7.0%	7%	9%	8%	7%	8.0%	9%	8.5%	8.4%	8.3%
<b>Operating profit</b>	<b>990</b>	<b>963</b>	<b>233</b>	<b>292</b>	<b>410</b>	<b>393</b>	<b>1,327</b>	<b>270</b>	<b>1,580</b>	<b>2,222</b>	<b>2,588</b>
...YoY	71.7%	-2.7%	57.3%	30.6%	69.8%	12.2%	37.9%	15.8%	19.0%	40.6%	16.5%
OPM (%)	14.0%	12.5%	11%	14%	16%	14%	13.8%	15%	14.6%	15.1%	15.4%
<b>Net profit</b>	<b>865</b>	<b>877</b>	<b>217</b>	<b>275</b>	<b>360</b>	<b>371</b>	<b>1,224</b>	<b>250</b>	<b>1,459</b>	<b>2,047</b>	<b>2,386</b>
...YoY	68.6%	1.3%	63.4%	32.4%	64.2%	17.2%	39.6%	15.0%	19.2%	40.3%	16.6%
NPM (%)	12.3%	11.4%	10.4%	12.8%	13.7%	13.4%	12.7%	13.6%	13.5%	13.9%	14.2%

Source: Company data, CMBIGM estimates

**Figure 12: Earnings revision**

RMB mn	New			Old			Diff (%)		
	FY23E	FY24E	FY25E	FY23E	FY24E	FY25E	FY23E	FY24E	FY25E
Revenue	10,799	14,703	16,776	10,243	11,184	na	5%	31%	na
Gross Profit	3,193	4,388	5,012	2,870	3,133	na	11%	40%	na
Operating Profit	1,580	2,222	2,588	1,399	1,571	na	13%	41%	na
Net profit	1,459	2,047	2,386	1,284	1,443	na	14%	42%	na
EPS (RMB)	1.82	2.56	2.98	1.61	1.80	na	13%	42%	na
Gross Margin	29.6%	29.8%	29.9%	28.0%	28.0%	na	1.5 ppt	1.8 ppt	na
Operating Margin	14.6%	15.1%	15.4%	13.7%	14.0%	na	1 ppt	1.1 ppt	na
Net Margin	13.5%	13.9%	14.2%	12.5%	12.9%	na	1 ppt	1 ppt	na

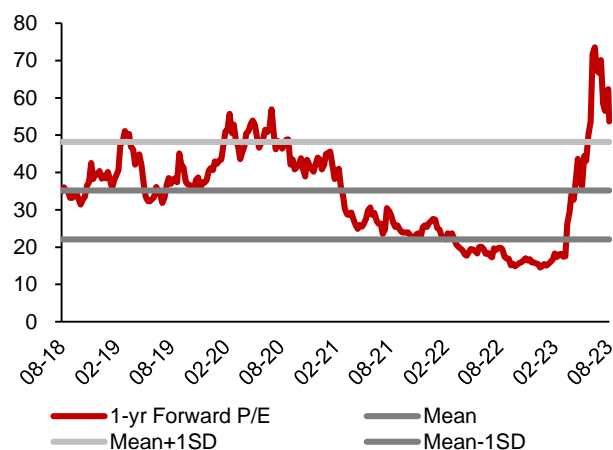
Source: Company data, CMBIGM estimates

**Figure 13: CMBIGM estimates vs consensus**

RMB mn	CMBIGM			Consensus			Diff (%)		
	FY23E	FY24E	FY25E	FY23E	FY24E	FY25E	FY23E	FY24E	FY25E
Revenue	10,799	14,703	16,776	11,829	21,478	27,189	-9%	-32%	-38%
Gross Profit	3,193	4,388	5,012	3,549	6,556	8,438	-10%	-33%	-41%
Operating Profit	1,580	2,222	2,588	1,835	3,724	4,846	-14%	-40%	-47%
Net profit	1,459	2,047	2,386	1,635	3,201	4,269	-11%	-36%	-44%
EPS (RMB)	1.82	2.56	2.98	2.03	3.80	5.19	-10%	-33%	-43%
Gross Margin	29.6%	29.8%	29.9%	30.0%	30.5%	31.0%	-0.4 ppt	-0.7 ppt	-1.2 ppt
Operating Margin	14.6%	15.1%	15.4%	15.5%	17.3%	17.8%	-0.9 ppt	-2.2 ppt	-2.4 ppt
Net Margin	13.5%	13.9%	14.2%	13.8%	14.9%	15.7%	-0.3 ppt	-1 ppt	-1.5 ppt

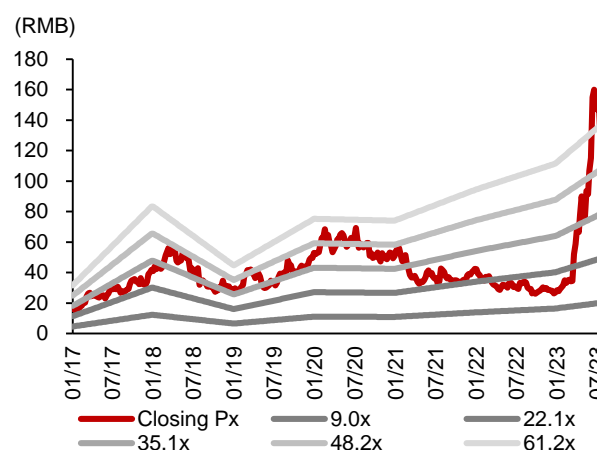
Source: Company data, CMBIGM estimates

Figure 14: 5-year forward P/E band



Source: Company data, Bloomberg, CMBIGM estimates

Figure 15: 5-year forward P/E chart



Source: Company data, Bloomberg, CMBIGM estimates

Figure 16: Innolight's peers table

Company	Ticker	Mkt Cap US\$(mn)	Price (LC)	P/E (x)		ROE (%)	
				FY23E	FY24E	FY23E	FY24E
<b>Innolight</b>	<b>300308 CH</b>	<b>13,313</b>	<b>121.98</b>	<b>67.0</b>	<b>47.7</b>	<b>11.0</b>	<b>13.5</b>
Accelink Tech	002281 CH	3,207	29.27	32.5	26.9	10.3	11.2
Eoptolink Tech	300502 CH	4,907	50.65	33.5	23.8	17.4	19.9
HG Genuine	000988 CH	4,683	33.34	28.1	22.9	12.6	13.8
Tianfu Communication	300394 CH	5,196	94.56	70.8	50.4	18.0	21.4
Yuanjie Semiconductor	688498 CH	2,175	185.50	93.1	68.5	6.3	7.8
AFR	300620 CH	1,540	46.07	55.5	38.3	7.7	10.0
<b>Chinese Peers Avg</b>				<b>52.2</b>	<b>38.5</b>	<b>12.0</b>	<b>14.0</b>
<b>Chinese Peers Median</b>				<b>44.5</b>	<b>32.6</b>	<b>11.4</b>	<b>12.5</b>
Nvidia	NVDA US	1,009,119	408.55	<b>125.2</b>	<b>51.7</b>	<b>29.7</b>	<b>56.9</b>
Lumentum	LITE US	3,403	49.53	<b>11.0</b>	<b>15.6</b>	<b>18.0</b>	<b>16.1</b>
Broadcom	AVGO US	342,430	829.76	19.7	18.2	75.2	77.7
Coherent	COHR US	6,297	45.18	15.3	18.6	9.8	6.7
Applied Optoelectronics	AAOI US	398	12.39	-	30.7	-	-
<b>Overseas Peers Avg.</b>				<b>42.8</b>	<b>27.0</b>	<b>33.2</b>	<b>39.4</b>
<b>Overseas Peers Median</b>				<b>17.5</b>	<b>18.6</b>	<b>23.8</b>	<b>36.5</b>

Source: Bloomberg, CMBIGM estimates

## Financial Summary

INCOME STATEMENT	2020A	2021A	2022A	2023E	2024E	2025E
YE 31 Dec (RMB mn)						
Revenue	7,050	7,695	9,642	10,177	13,133	15,110
Cost of goods sold	(5,257)	(5,727)	(6,816)	(7,077)	(9,036)	(10,315)
Gross profit	1,793	1,968	2,826	3,100	4,097	4,795
Operating expenses	(803)	(1,005)	(1,499)	(1,429)	(1,824)	(2,062)
Selling expense	(107)	(73)	(91)	(105)	(129)	(152)
Admin expense	(370)	(434)	(507)	(452)	(584)	(672)
Sales tax	(22)	(21)	(63)	(60)	(82)	(92)
R&D expense	(506)	(541)	(767)	(823)	(1,049)	(1,192)
Others	202	64	(71)	12	21	46
Operating profit	990	963	1,327	1,671	2,273	2,733
Other income	0	1	28	4	22	15
Other expense	(3)	(4)	(4)	(2)	(4)	(4)
Pre-tax profit	987	960	1,352	1,673	2,291	2,745
Income tax	(111)	(73)	(118)	(147)	(202)	(242)
After tax profit	876	886	1,234	1,525	2,089	2,503
Minority interest	11	10	10	57	78	93
Net profit	865	877	1,224	1,469	2,011	2,410
Adjusted net profit	764	728	1,037	1,414	1,942	2,340

BALANCE SHEET	2020A	2021A	2022A	2023E	2024E	2025E
YE 31 Dec (RMB mn)						
Current assets	7,982	10,022	9,587	10,609	13,220	14,201
Cash & equivalents	1,879	3,489	3,828	4,690	4,581	6,563
Restricted cash	31	25	22	24	23	23
Account receivables	1,990	2,534	1,677	2,081	2,939	2,777
Inventories	3,774	3,799	3,888	3,614	5,430	4,562
Prepayment	40	72	64	78	105	120
Contract assets	264	100	82	88	105	114
Contract obtaining costs	3	2	26	34	37	42
Non-current assets	5,634	6,543	6,970	7,413	8,176	9,028
PP&E	2,726	3,152	3,217	3,526	4,040	4,659
Right-of-use assets	0	21	11	5	6	7
Deferred income tax	38	46	48	55	64	70
Investment in JVs & assos	0	0	0	0	0	0
Intangibles	360	382	322	262	205	149
Goodwill	1,915	1,980	1,949	1,917	1,886	1,854
Financial assets at FVTPL	481	721	960	1,056	1,160	1,271
Other non-current assets	114	242	463	591	815	1,018
Total assets	13,616	16,565	16,557	18,022	21,395	23,230
Current liabilities	3,772	3,166	3,264	2,688	3,974	3,113
Short-term borrowings	1,041	794	385	396	627	332
Account payables	2,070	1,515	1,560	1,922	2,854	2,272
Tax payable	35	68	93	85	111	115
Other current liabilities	69	101	37	58	58	69
Contract liabilities	378	522	910	14	18	22
Accrued expenses	179	166	279	213	307	304
Non-current liabilities	1,850	1,796	1,224	1,911	2,080	2,595
Long-term borrowings	1,430	1,262	696	1,364	1,414	1,880
Bond payables	29	0	0	0	0	0
Obligations under finance leases	0	9	2	3	4	4
Deferred income	154	277	264	273	332	356
Other non-current liabilities	238	248	261	272	330	354
Total liabilities	5,622	4,962	4,488	4,600	6,054	5,708
Share capital	713	800	801	801	801	801
Capital surplus	5,058	7,792	7,150	7,150	7,150	7,150
Retained earnings	2,090	2,861	3,893	5,174	7,005	9,095
Other reserves	28	36	102	171	248	330
Total shareholders equity	7,889	11,489	11,945	13,295	15,204	17,376
Minority interest	104	114	124	127	137	146
Total equity and liabilities	13,616	16,565	16,557	18,022	21,395	23,230

CASH FLOW	2020A	2021A	2022A	2023E	2024E	2025E
<b>YE 31 Dec (RMB mn)</b>						
<b>Operating</b>						
Profit before taxation	987	960	1,352	1,603	2,256	2,626
Depreciation & amortization	340	436	493	513	547	663
Tax paid	(111)	(73)	(118)	(141)	(199)	(231)
Change in working capital	(1,166)	(569)	286	131	(1,824)	284
Others	(29)	59	437	17	275	192
<b>Net cash from operations</b>	<b>22</b>	<b>813</b>	<b>2,449</b>	<b>2,122</b>	<b>1,055</b>	<b>3,534</b>
<b>Investing</b>						
Capital expenditure	(956)	(840)	(792)	(1,013)	(1,380)	(1,574)
Acquisition of subsidiaries/ investments	239	163	(1,063)	(5)	(3)	(0)
Net proceeds from disposal of short-term investments	8	(542)	302	31	31	31
Others	(164)	0	0	(1)	1	(0)
<b>Net cash from investing</b>	<b>(873)</b>	<b>(1,219)</b>	<b>(1,553)</b>	<b>(988)</b>	<b>(1,351)</b>	<b>(1,543)</b>
<b>Financing</b>						
Dividend paid	(121)	(168)	(233)	(247)	(278)	(365)
Net borrowings	0	41	60	0	0	0
Proceeds from share issues	1,421	(259)	(699)	(209)	280	172
Share repurchases	0	2,665	33	0	0	0
Others	0	(15)	(802)	120	120	120
<b>Net cash from financing</b>	<b>1,300</b>	<b>2,264</b>	<b>(1,641)</b>	<b>(335)</b>	<b>122</b>	<b>(72)</b>
<b>Net change in cash</b>						
Cash at the beginning of the year	1,236	1,648	3,489	2,809	3,671	3,562
Exchange difference	(37)	(17)	64	64	64	64
Others	449	1,859	(745)	799	(174)	1,918
<b>Cash at the end of the year</b>	<b>1,648</b>	<b>3,489</b>	<b>2,809</b>	<b>3,671</b>	<b>3,562</b>	<b>5,544</b>

Source: Company data, CMBIGM estimates. Note: The calculation of net cash includes financial assets.

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