

# China Technology Sector

## Implications of TSMC and Largan results

Both TSMC/Largan guidance suggested sluggish demand for consumer tech will persist into 2Q22E due to recent Covid-19 impact in Shanghai/Kunshan, cost inflation and demand weakness. While TSMC raised 2022 sales outlook to exceed high 20% growth (vs prior mid-to-high 20%) on stronger HPC/ automotive demand, Largan expected high-end product demand in 2H22E will remain weak despite 8P/periscope product upgrade on track. Overall, we believe recent Covid-19 in China, rising inflation and macro weakness will prolong consumer demand recovery for smartphone/PC/tablet in 2Q22E, while rising semi content and digitalization in IoT/HPC/automotive will remain structural LT growth drivers. We remain conservative on Sunny Optical (2382 HK, HOLD), BYDE (285 HK, HOLD) and AAC Tech (2018 HK, HOLD) given high revenue exposure to smartphone/tablet and limited sales from automotive/HPC applications in near term.

- TSMC: Raised 2022 outlook on strong HPC/automotive offset by weak smartphone.** Key takeaways include: 1) 1Q22 beat due to strong GPM and HPC/auto (+26%/+26% QoQ); 2) 2Q22 upbeat revenue (+1.9% QoQ) driven by strong HPC/auto offsetting weak smartphone/ PC/ tablet; 3) 2022 sales outlook raised to exceed high 20% YoY growth (vs prior mid-to-high 20%). 4) N3 (3nm)/ N2 (2nm) on track for production in 2H22/ 2025 and N3 with sales contribution in 2023, 4) tight supply and high inventory to continue due to supply chain disruption and geopolitical tensions; 5) pricing to stay firm despite demand/macro concerns; 6) Equipment delay has limited impact on expansion in Arizona (5nm), Japan (16nm/28nm) and China (16nm/28nm).
- Largan: sluggish demand in 2Q22 and periscope/8P upgrade on track.** Key takeaways include: 1) 1Q22 revenue/GPM miss due to weaker product mix and earnings beat on FX gain; 2) 2Q22 weakness to persist with Apr/Mar sales decline vs Mar; 3) 2H22 upgrade in 8P/periscope on track but high-end demand remains lacklustre; 4) Mid/low-end product competition remains fierce; 5) VR products to launch in 2H22E with small volume; 6) Auto lens production on track and auto cam module with no order wins yet; 7) Supply chain uncertainties to continue due to Covid-19 in China and component mismatch in high-end products; 8) New plant production to start in 2H23E.
- Conservative on supply chain in 2Q22; Wait for demand recovery and auto/HPC-related sales ramp.** We maintain our conservative view on tech supply chain since 4Q21 given Covid-19 disruption, lack of upgrade and intense competition for most components. We recommend to stay on the sideline until demand recovery and meaningful sales contribution from new drivers such as AR/VR and auto/HPC business. Maintain HOLD on Sunny Optical, BYDE and AAC Tech, and BUY on Willsemi and Maxscend.

### Valuation Table

Name	Ticker	Rating	Mkt Cap (USD mn)	Price (LC)	TP (LC)	Up/Down -side	P/E (x) FY22E	P/E (x) FY23E	P/B (x) FY22E	ROE FY22E
AAC Tech	2018 HK	Hold	2,625	17.04	23.4	37%	14.2	11.9	0.8	5.6
BYDE	285 HK	Hold	4,326	15.06	18.0	19%	11.8	8.5	1.2	9.8
Sunny Optical	2382 HK	Hold	15,493	110.8	125.7	13%	21.2	17.8	4.3	20.4
Willsemi	603501 CH	Buy	23,934	173.9	292.0	68%	26.0	20.3	7.2	29.2
Maxscend	300782 CH	Buy	10,324	197.2	278.0	41%	24.6	19.1	7.8	34.6

Source: Bloomberg, CMBIGM estimates

**OUTPERFORM**  
(Maintain)

### China Technology Sector

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## Key takeaways of TSMC (2330 TT, NR) 1Q22 results:

### 1Q22 results:

- Revenue: TWD 491.1bn, +35.5% YoY/+12.1% QoQ, above high-end of guidance, supported by strong HPC & automotive-related demand
- GPM: 55.6%, +3.2ppts YoY/+2.9ppts QoQ, above high-end of guidance
- OPM: 45.6%, +4.1ppts YoY/+3.9ppts QoQ
- NPM: 41.3%, +2.7ppts YoY/+3.4ppts QoQ
- EPS: TWD 7.82, +45.1% YoY/+22.0% QoQ
- Shipment (Kpcs, 12"-equiv. Wafer): +12.5% YoY/+1.4% QoQ
- Days of receivable: 38 vs. 40 days in 4Q21; DOI: 88 vs. 88 days in 4Q21
- Free cash flow: TWD 110.04bn, decreased due to higher capex
- Capex: US\$ 9.38bn

### 1Q22 sales breakdown:

- Breakdown by technology:
  - 5nm: 20% of sales, vs 23% in 4Q
  - 7nm: 30% of sales, vs 27% in 4Q
  - 16nm and below: 50% of sales, vs 50% in 4Q
- Breakdown by platform:
  - Smartphone: 40% of sales, up 1% QoQ
  - High-performance computing (HPC): 41% of sales, up 26% QoQ
  - Internet of things (IoT): 8% of sales, up 5% QoQ
  - Automotive: 5% of sales, up 26% QoQ
  - Digital consumer electronics (DCE): 3% of sales, up 8% QoQ
  - Others: 3% of sales, up 12% QoQ

### 2Q22 and 2022 Guidance:

- 2Q Sales: US\$17.6-18.2bn, +1.9% QoQ at midpoint, exceed high end of prior guidance
- 2Q GPM: 56-58%; 2Q OPM: 45-47%
- 2022 Sales: Raise sales outlook to exceed high-end of range of mid-to-high 20% (prior guidance) in USD.
- 2022 Capex: US\$ 40-44bn (maintained)
- Long-term outlook: GPM at 53%+; ROE at 25%+

### 2022 Outlook:

- By segment:
  - HPC/Auto: grow faster than corp avg.; HPC as the largest contributor of growth,
  - IoT: similar to corp avg.
  - Smartphone: growth approaching corp avg.
- By technology:
  - N3 (3nm): on track for production in 2H22 with revenue contribution in 2023, driven by HPC and smartphone. N3: more tape-out in first year than N5/N7.
  - N3E: mass production one year after N3.
  - N2 (2nm): on track for production in 2025.
- **Demand:** Strong growth of HPC and automotive partially offset by smartphone seasonality
- **Inventory:** supply chain to maintain higher level of inventory for longer period of time, due to supply chain disruptions and geopolitical tensions
- **Capacity/Pricing:** tight capacity throughout 2022, and will not cut price even there is downturn
- **Expansion plan:** 5nm in Arizona, 16nm/28nm in Japan, 16nm/28nm in China
- **Advanced packaging:** US\$4.1bn in 2021; 2022 growth is similar to corp. avg.
- **Specialty chemicals and gas supplies:** limited impact from Ukraine crisis backed by multiple suppliers in different regions and certain level of inventory

**Figure 1: TSMC 1Q22 results review**

TSMC (2330 TT) TWD mn					Consensus	
	1Q21	1Q22	QoQ %	YoY %	1Q22E	Diff (%)
Revenue	362.41	491.08	12.1%	35.5%	472.59	3.9%
Gross profit	189.84	273.2	18.4%	43.9%	256.89	6.3%
Operating profit						
Net income	150.54	223.79	22.4%	48.7%	207.29	8.0%
EPS (TWD)	139.69	202.73	22.0%	45.1%	185.87	9.1%
	5.39	7.82	22.0%	45.1%	7.21	8.4%
Gross margin						
Operating margin	52.4%	55.6%	3.0ppts	3.2ppts	54.4%	1.3ppts
Net margin	41.5%	45.6%	3.9ppts	4.0ppts	43.9%	1.7ppts

Source: Bloomberg, Company data, CMBIGM

**Figure 2: TSMC 2Q22 and 2022 guidance**

TSMC (2330 TT) TWD mn	2Q22E			2022E		
	Guidance	Consensus	Diff (%)	Guidance	Consensus	Diff (%)
Revenue (USD bn)	17.6-18.2	16.8	6.6%	High 20% YoY	69.9	NA
Gross margin	56-58%	54.3%	2.7ppts	NA	54.4%	NA
Operating margin	45-47%	43.8%	2.2ppts	NA	44.0%	NA
D&A expense	NA	118.1	NA	NA	492.3	NA
Net margin	NA	41.1%	NA	NA	40.8%	NA

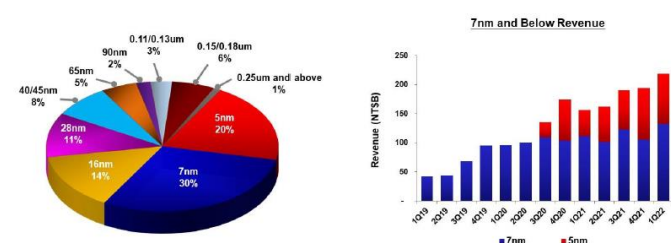
Source: Bloomberg, Company data, CMBIGM

**Figure 3: TSMC 1Q22 revenue breakdown**

TSMC (2330 TT) TWD mn	1Q21	2Q21	3Q21	4Q21	1Q22	2019	2020	2021
<b>Revenue by Technology</b>								
5nm	14%	18%	18%	23%	20%	0%	8%	19%
7nm	35%	31%	34%	27%	30%	27%	33%	31%
16nm and below	51%	51%	48%	50%	50%	73%	59%	50%
<b>Revenue by Platform</b>								
Smartphone	45%	42%	44%	44%	40%	49%	48%	44%
HPC	35%	39%	37%	37%	41%	30%	33%	37%
IoT	9%	8%	9%	9%	8%	8%	8%	8%
Automotive	4%	4%	4%	4%	5%	4%	3%	4%
DCE	4%	4%	3%	3%	3%	5%	4%	4%
Others	3%	3%	3%	3%	3%	4%	4%	3%
<b>Revenue by Region</b>								
North America	67%	58%	65%	66%	64%	60%	62%	65%
Asia Pacific	17%	10%	13%	12%	15%	17%	11%	14%
China	6%	21%	11%	12%	11%	11%	17%	10%
EMEA	6%	6%	6%	5%	5%	5%	5%	6%
Japan	4%	5%	5%	5%	5%	5%	5%	5%

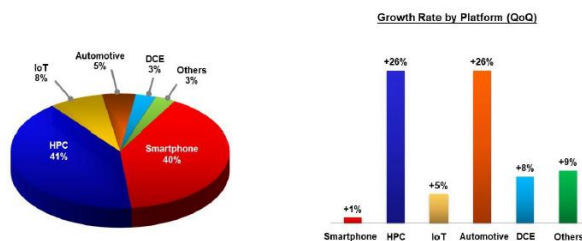
Source: Bloomberg, Company data, CMBIGM

**Figure 4: TSMC: revenue by technology**



Source: Company data, CMBIGM estimates

**Figure 5: TSMC: revenue by platform**



Source: Counterpoint, CMBIGM estimates

## Key takeaways of Largan (3008 TT, NR) 1Q22 results:

### 1Q21 results:

- Revenue: TWD 10133mn, down 14.3% YoY.
- GPM: 53.4%, down 11.4 pts YoY due to shipment decline and worse product mix.
- Operating profit: TWD 4010mn, down 36.8% YoY.
- Net income: TWD 5513mn, up 3.7% YoY. Non-operating income up 1666% YoY to TWD 2751mn mainly due to gain from foreign exchange.

### 1Q22 sales breakdown:

- 20MP+: 20-30% of sales, vs 20-30% in 4Q.
- 10MP: 50-60% of sales, vs 50-60% in 4Q.
- 8MP: 0-10% of sales, vs 0-10% in 4Q.
- 5MP and Below: 20-30% of sales, vs 20-30% in 4Q.

### 2022 Outlook:

- **Shipment:** 2Q outlook similar to 1Q; Apr/May sales down MoM vs Mar.
- **De-spec trend:** pressure remains for mid/low-end models, but Largan will not take part.
- **High-end smartphone:** sluggish outlook despite higher adoption of high-end cam.
- **Patents:** focus on high-end products to secure market share.
- **8P product:** shipment to accelerate in 2H22.
- **Periscope product:** spec upgrade in 2022 and expect volume ramp in 2023.
- **VR product:** product launch with small volume at the end of year.
- **Glass lens:** procure from external suppliers for periscope and hybrid lens products.
- **Supply chain:** covid-19 in China and component mismatch in high-end products.
- **New fab:** construction to complete in 1H23E and ramp in 2H23 provided smooth move-in of equipment.
- **VCM:** production currently run at full capacity.
- **Auto cam module:** No project win yet.

Figure 6: Largan 1Q22 results review

Largan (3008 TT) TWD mn					Consensus	
	1Q21	1Q22	QoQ %	YoY %	1Q22E	Diff (%)
Revenue	11,820	10,133	-22.4%	-14.3%	10,250	-1.1%
Gross profit	7,652	5,407	-25.8%	-29.3%	5,603	-3.5%
Operating profit	6,347	4,010	-32.9%	-36.8%	4,507	-11.0%
Net income	5,315	5,513	7.3%	3.7%	3,819	44.3%
EPS (TWD)	39.62	41.30	7.6%	4.2%	28.18	46.6%
Gross margin	64.7%	53.4%	-2.5 ppt	-11.4 ppt	54.7%	-1.3 ppt
Operating margin	53.7%	39.6%	-6.2 ppt	-14.1 ppt	44.0%	-4.4 ppt
Net margin	45.0%	54.4%	15.1 ppt	9.4 ppt	37.3%	17.1 ppt

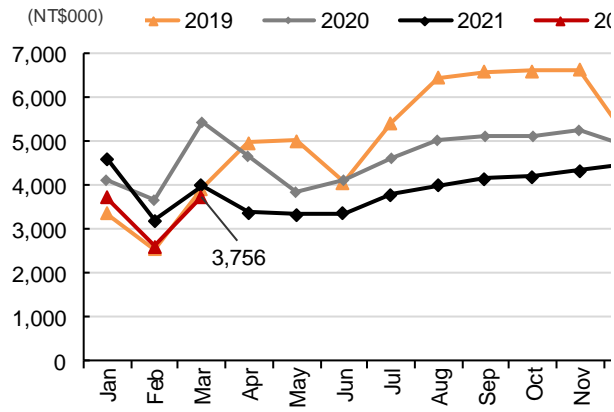
Source: Bloomberg, Company data, CMBIGM

Figure 7: Largan 1Q22 revenue breakdown

Largan (3008 TT) TWD mn	1Q21	2Q21	3Q21	4Q21	1Q22	2019	2020	2021
Shipment Breakdown								
20MP+		20-30%	10-20%	20-30%	20-30%	-	-	10-20%
10MP		50-60%	40-50%	50-60%	50-60%	-	-	50-60%
8MP and others		10-30%	30-50%	2%-40%	20-40%	-	-	20-40%
Revenue by Region								
China		-	-	-	-	67%	58%	44%
South Korea		-	-	-	-	12%	13%	20%
Vietnam		-	-	-	-	7%	11%	20%
Japan		-	-	-	-	13%	15%	10%
Others		-	-	-	-	2%	3%	5%

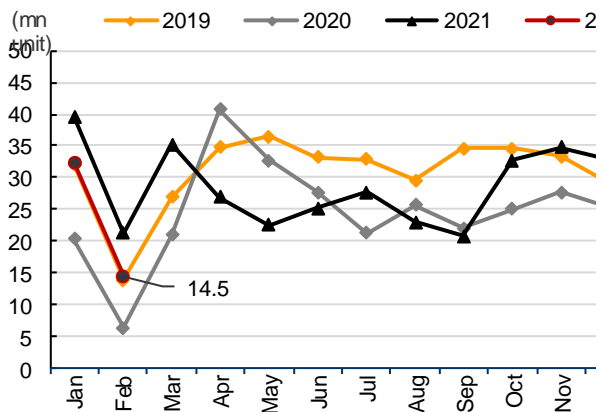
Source: Bloomberg, Company data, CMBIGM

**Figure 8: Largan: monthly sales**



Source: Company data, CMBIGM estimates

**Figure 9: China Smartphone monthly shipment**



Source: CAICT, CMBIGM estimates

Figure 10: Peers Comparison

Company	Ticker	Rating	Mkt Cap (US\$ mn)	Price (LC)	TP (LC)	Up/Down -side	P/E (x)		P/B (x)		ROE (%)	
							FY22E	FY23E	FY22E	FY23E	FY22E	FY23E
<b>Optics</b>												
Sunny Optical	2382 HK	Hold	15,493	110.80	125.7	13%	21.2	17.8	4.3	3.6	20.4	20.3
Q Tech	1478 HK	Buy	859	5.69	8.6	51%	7.1	8.5	1.1	1.0	15.8	11.4
Truly	732 HK	NR	906	2.16	NA	NA	4.8	3.9	0.6	0.5	12.1	13.7
Cowell	1415 HK	NR	771	7.25	NA	NA	10.4	7.7	1.8	1.5	20.3	23.2
Largan	3008 TT	NR	7,483	1625	NA	NA	11.6	11.9	1.4	1.3	12.6	11.7
Genius	3406 TT	NR	1,610	418	NA	NA	16.7	13.3	2.5	2.2	15.5	17.1
Primax	4915 TT	NR	869	55.60	NA	NA	9.4	8.5	1.6	1.3	16.5	16.3
O-Film	002456 CH	NR	3,201	6.26	NA	NA	20.4	18.6	2.0	1.9	4.1	5.1
Samsung Elec	009150 KS	NR	9,546	157000	NA	NA	9.9	8.8	1.5	1.3	16.6	16.1
LG Innotek	011070 KS	NR	7,678	398500	NA	NA	9.8	8.9	2.2	1.8	26.0	22.6
<b>Average</b>							<b>11.9</b>	<b>10.6</b>	<b>1.9</b>	<b>1.6</b>	<b>15.9</b>	<b>15.8</b>
<b>Acoustics/Haptics</b>												
AAC Tech	2018 HK	Hold	2,625	17.04	23.4	37%	14.2	11.9	0.8	0.8	5.6	6.5
Goertek	002241 CH	Buy	17,094	31.88	46.9	47%	19.2	15.2	3.4	2.8	18.2	19.3
Luxshare	002475 CH	Buy	32,489	29.22	*74.2	NA	19.7	15.6	4.6	3.6	24.9	24.8
Merry	2439 TT	NR	598	81	NA	NA	11.1	9.5	1.4	1.3	11.5	13.0
Knowles	KN US	NR	1,749	18.89	NA	NA	11.5	10.4	-	-	-	-
Nidec	6594 JP	NR	41,078	8707	NA	NA	35.8	28.8	4.3	3.8	12.3	13.7
<b>Average</b>							<b>17.4</b>	<b>14.0</b>	<b>2.4</b>	<b>2.1</b>	<b>12.8</b>	<b>13.5</b>
<b>EMS/OEM</b>												
BYDE	285 HK	Hold	4,326	15.06	18.0	19%	11.8	8.5	1.2	1.0	9.8	12.1
Luxshare	002475 CH	Buy	32,489	29.22	*74.2	NA	19.7	15.6	4.6	3.6	24.9	24.8
Hon Hai Precision	2317 TT	NR	49,021	103.00	NA	NA	9.8	8.7	0.9	0.9	10.0	10.3
Pegatron	4938 TT	NR	6,441	70.30	NA	NA	10.3	9.6	1.1	1.0	10.0	10.3
Wistron	3231 TT	NR	2,930	29.40	NA	NA	9.3	8.1	1.0	1.0	10.8	12.3
<b>Average</b>							<b>29.0</b>	<b>20.9</b>	<b>6.6</b>	<b>5.0</b>	<b>13.6</b>	<b>19.9</b>
<b>CIS</b>												
Willsemi	603501 CH	Buy	23,934	173.9	292.0	68%	26.0	20.3	7.2	5.5	29.2	28.4
GalaxyCore	688728 CH	Buy	8,126	20.7	28.5	38%	30.9	23.9	3.2	2.6	16.2	15.8
Sony	SONY US	NR	112,413	89.1	NA	NA	16.0	15.4	2.3	2.0	14.2	16.3
Samsung	005930 KS	NR	323,655	66600	NA	NA	9.4	8.3	1.4	1.2	14.8	14.9
STMicroelectronics	STM FP	NR	33,607	34.2	NA	NA	11.8	11.5	2.8	2.3	27.3	21.6
ON Semi	ON US	NR	23,134	53.3	NA	NA	12.7	11.9	4.1	3.4	33.5	27.6
<b>Average</b>							<b>17.8</b>	<b>15.2</b>	<b>3.5</b>	<b>2.8</b>	<b>22.5</b>	<b>20.8</b>
<b>RFFE</b>												
Maxscend	300782 CH	Buy	10,324	197.2	278.0	41%	24.6	19.1	7.8	5.7	34.6	32.0
Skyworks	SWKS US	NR	19,034	117.7	NA	NA	10.2	9.2	3.4	2.8	34.1	31.6
Qorvo	QRVO US	NR	12,294	113.4	NA	NA	9.3	8.7	2.6	2.3	28.6	26.0
Broadcom	AVGO US	NR	234,292	573.9	NA	NA	16.1	14.8	11.6	11.5	63.8	62.1
Qualcomm	QCOM US	NR	154,298	136.9	NA	NA	11.6	10.9	9.5	6.4	97.2	63.0
Murata	6981 JP	NR	40,953	7659.0	NA	NA	16.0	15.1	2.3	2.1	15.3	14.4
<b>Average</b>							<b>14.6</b>	<b>13.0</b>	<b>6.2</b>	<b>5.1</b>	<b>45.6</b>	<b>38.2</b>

Source: Bloomberg, CMBIGM estimates, \* TP under review



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