

PCB sector

Taiwan PCB market share & valuations to rise on China+1

Overweight · Maintained

Key message

1. China+1 has brought the first wave of investment of US\$4.8bn to Southeast Asia (SEA), with Taiwanese manufacturers set to start mass production in 2H24.
2. PCB output in SEA will register a 2023-28F CAGR of 12.8%, with Thailand becoming a new production hub.
3. Taiwan's 2028F PCB market share by output value will be 38%, driven by networking and server applications under China+1, widening its lead in the market.

Event

Supply chain diversification of production to Southeast Asia (SEA), a business strategy known as China+1, is becoming a trend amid the Sino-US trade war and geopolitical risk. We forecast the China weighting of global PCB production will decline to less than 51% by 2028, with Taiwan manufacturers to increase market share by 2.0ppts to 38%, providing a solid competitive lead, which will boost business growth and share valuation upside.

Impact

China+1 has led to investment of US\$4.8bn in SEA, with Taiwan manufacturers to start mass production in 2H24. Of investment under the China+1 trend, 72% has been in Thailand, with 16% in Vietnam, and 12% in Malaysia. Seventeen of the world's top 40 PCB manufacturers have recently announced they will build factories or increase production capacity in SEA. Taiwanese makers have invested a total of US\$1.9bn in the region, and are slated to begin mass production in 2H24.

PCB output value to register 2023-28F CAGR of 12.8%, with Thailand becoming a new production hub. Prismark estimates that SEA PCB output value was US\$4.98bn in 2023, and will grow to US\$8.97bn by 2028. Its weighting will rise from 7% to 9.9%, closely behind South Korea, while output value in Thailand will grow from US\$2.07bn in 2023 to US\$3.98bn in 2028, for global market share of 4.4%. The three largest PCB production regions globally in 2028 are expected to be China, with a weighting of 51%, followed by Taiwan at 14%, and South Korea at 10%.

Networking & servers are primary applications under China+1, with Taiwan widening its lead. We believe the latest wave of PCB production moving to SEA will be for multilayer boards and HDI, with satellites, networking, servers, and automotive electronics being major end applications initially, in order to reduce production in China. With 77% being made in China, networking products are the top priority for production site diversification, versus automotive electronics, of which 50% are made in China. In 2023, the world's top 40 PCB firms combined produced around US\$53.4bn worth of PCBs. Of the 40, 12 were Taiwan companies, with output of US\$19.5bn, ranking first with market share of 36%. We forecast Taiwan firms will increase market share to 38% by 2028 on the start of mass production in 2H24.

Stocks for Action

We are positive on production site diversification to SEA, and expect Taiwan PCB makers to increase their market share. Our top picks are Elite Material (2383 TT, NT\$xx, OP), Unimicron Technology (3037 TT, NT\$, OP), Compeq Manufacturing (2313 TT, NT\$, OP), and Gold Circuit Electronics (2368 TT, NT\$, NR). We initiate coverage of ITEQ (6213 TT, NT\$59.1, OP), an upstream copper clad laminate (CCL) maker, and Tripod Technology (3044 TT, NT\$19.3, OP), a PCB maker. All of the above-mentioned companies will benefit from PCB production capacity expansion in SEA.

Risks

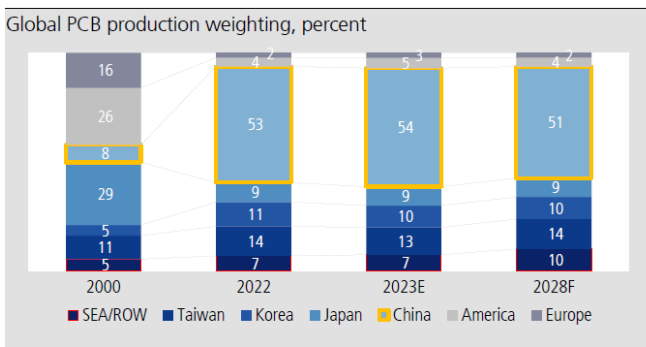
Pricing pressure from oversupply; end demand is weaker than expected.

First wave of investment of US\$4.8bn in SEA under China+1, with Taiwan makers to start mass production in 2H24

Due to lower labor costs, global PCB production has been relocating from Japan, North America, and Europe to China since 2000. China’s production weighting soared from around 8% in 2000 to 54% in 2023 as a result. Taiwan ranked second with a weighting of 13% (Figure 1). Ninety percent of global PCBs were produced in Asia last year.

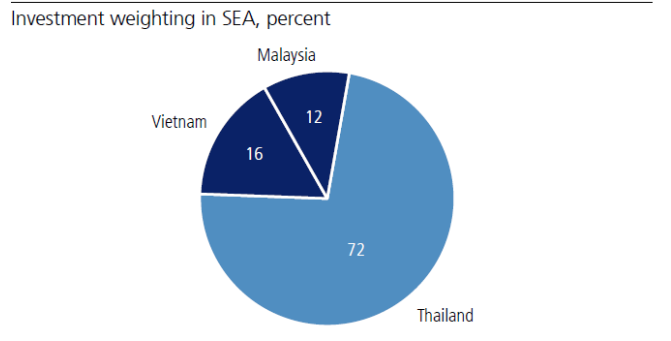
The Sino-US trade war and geopolitical risk have led to production site diversification since 2018, known as China+1, which resulted in the first wave of PCB investment of US\$4.8bn in SEA (Figure 3). Thailand, Vietnam, and Malaysia have attracted a respective 72%, 16%, and 12% of the investment (Figure 2). Excluding some Japanese and South Korean manufacturers that have already established plants in SEA, 17 of the world’s top 40 PCB makers plan to establish plants or expand production capacity in SEA, with mass production to start in 2H24 at the earliest.

Figure 1: Geographic migration of PCB production



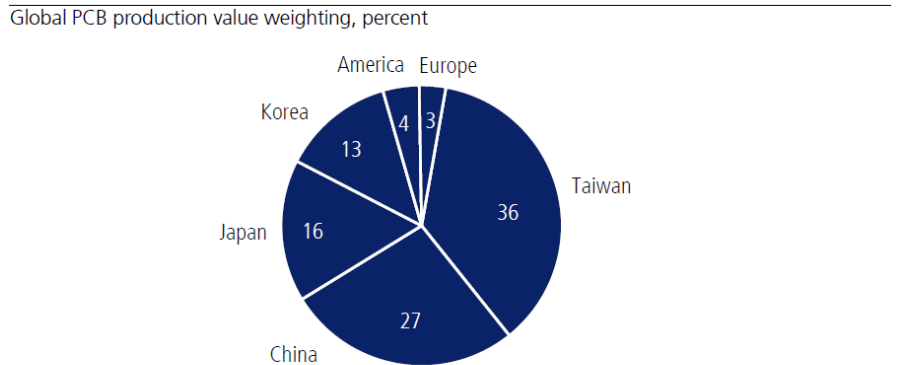
Source: Prismark; KGI Research

Figure 2: Thailand accounted for 72% of the first wave of investment of US\$4.8bn in SEA



Source: Prismark; KGI Research

Figure 3: Top 40 global PCB makers’ output value was US\$53.5bn in 2023, with Taiwan ranking first with 36%



Source: Prismark; KGI Research

SEA PCB output to register 2023-28F CAGR of 12.8%, with Thailand the investment focus

Prismark forecasts SEA PCB output was US\$4.92bn in 2023, and will grow to US\$8.97bn by 2028, accounting for 10% of the global total, while Thailand’s output will rise from US\$2.07bn to US\$3.98bn during the period, for share of 4.4% (Figures 1 and 5). Prismark believes that by 2028, the PCB production weighting of China will drop 3ppts to 51%, while those of Taiwan, South Korea, and SEA will be a respective 14%, 10%, and 10% (Figure 1).


Currently, PCB investment in Thailand is focused in Bangkok and the Eastern Economic Corridor (EEC), in eight regions, including Ayutthaya, Pathum Thani, Prachin Buri, and

Samut Sakhon, with surrounding areas having attracted over 60% of Thailand's automobile and electronics makers (Figure 6).

Figure 4: Projected PCB output distribution in SEA by country

US\$m	2022	2023	2028F	2023(%)	2028F (%)	2023-28F CAGR (%)	Comments
Thailand	2,307	2,073	3,977	42	44	13.9	ML, HDI Server, Communication
Vietnam	1,758	1,562	2,762	32	31	12.1	FPC, HDI, Substrate Consumer, Smartphone
Malaysia	408	401	1,028	8	11	20.7	Substrate Memory & CPU
Singapore	227	252	338	5	4	6.0	ML Networking and HPC
India	230	202	305	4	3	8.6	Commodity, ML
Others	551	428	556	9	6	5.4	
Total	5,481	4,918	8,966	100	100	12.8	

Source: Prismark; KGI Research

Figure 5: Thailand investment distribution by region


Ayutthaya (A)		Pathum Thani (B)		Bangkok/Samut Prakan (E)		Chachoengsao (F)	
Existing Shops	New Investment	Existing Shops	New Investment	Existing Shops	New Investment	Existing Shops	New Investment
Fujikura	WUS (Kunshan)	Fujikura		KCE	Compeq	Autech	Unimicron
Nippon	Aoshikang	Elec & Eltek		Amallion Enterprise			Shengyi Electronics
Mektron/Mektec	Huizhou CEE	Chin Poon/Draco		Sagami Shoko			Shengyi Tech
KCE	KCE	Gravitech Thai					
APCB	Techwise						
Canon Hi-Tech	Kingboard						
Elec & Eltek/Pacific	ITEQ						
Insulating Material	Welgao						
Panasonic	Kunshan Dongwei						
Prachin Buri (C)		Samut Sakhon (D)		Chon Buri (G)		Rayong (H)	
Existing Shops	New Investment	Existing Shops	New Investment	Existing Shops	New Investment	Existing Shops	New Investment
Fujikura	Zhen Ding	Apex	Apex	Kyoden	TUC	MGC	Shenzhen Jove
CMK	CMK	Shye Feng Enterprise			Taiflex		Shanghai YKC
	Starteam	Circuit Industries (CI)			Dongshan Precision		Huazheng New Material
	Kinwong						MGC
	Global						Sihui Fuji
	Dymanic						
	Founder PCB						
	Delton						
	Huiho						
	Gold Circuit						
	Changzhou Aohong						

Source: Prismark, company data; KGI Research

Figure 6: Investment in SEA by country & industry segment

US\$b	CCL/FCCL	PCB	Equipment / material	Total	Weighting (%)
Taiwan	492	1,355	40	1,887	39.5
China	355	1,955	22.5	2,333	48.8
Others	-	563	-	563	11.8
Total	847	3,873	63	4,783	100.0

Source: Starlink; KGI Research

Figure 7: Investments in SEA by country

US\$b	Taiwan	China	Others	Total	Weighting (%)
Thailand	1,266	2,032	183	3,481	72.2
Vietnam	275	301	200	776	16.1
Malaysia	387		180	567	11.8
Total	1,928	2,333	563	4,824	100.0

Source: Starlink; KGI Research

Twenty-two Taiwanese firms have invested US\$1.9bn, and are set to start mass production in 2H24

Our research shows that of US\$1.9bn in investment in SEA by Taiwan PCB-related firms, US\$490mn was for CCL, US\$1.36bn was for PCB, and US\$40mn was for equipment/others. Elite Material will set up plants in Malaysia. ITEQ/Taiwan Union will establish facilities in Thailand. PCB makers, except Tripod/Taiwan PCB, will build factories in Vietnam. Global Brands/Ichia will construct plants in Malaysia. However all of these firms will build plants in Thailand. Nan Ya PCB (8046 TT, NT\$198.5, N) and Kinsus (3189 TT, NT\$92.3, N) have not announced investment plans as of yet. The earliest mass production will begin in 2H24.

Twenty-four Chinese companies have announced investment of US\$2.3bn in SEA, covering CCL, PCB, and equipment/others, with respective investment of US\$360mn, US\$1.96bn, and US\$22.5mn, with Thailand accounting for 87%. Victory Giant (CN) will invest in Vietnam, while all other firms will invest mainly in Thailand. Most are in the initial investment planning stage, with no clear timeline for mass production (Figures 6 to 9)

Figure 8: Twenty-two Taiwan PCB-related companies have invested US\$1.7bn in SEA

Company	Ticker	Industry	Global ranking	Investment (US\$mn)	Investment country	Production data	Products and notes
EMC	2383 TT	CCL	-	285	Malaysia	1Q25	Phase 1 monthly 600k sq.ft
Zhen Ding	4958 TT	FPCB/PCB	1	250	Thailand	1H25	Phase 1 RPCB/HDI, focus on servers, automotive, and optical communication
Tripod	3044 TT	PCB	7	250	Vietnam	2025	Servers and automotive
Global brands	6191 TT	PCB	-	41	Malaysia	3Q24	SMT and PCB
Compeq	2313 TT	PCB	6	188	Thailand	4Q24	Phase 1 monthly 300k sq.ft, satellite
Gold Circuit	2368 TT	PCB	23	157	Thailand	2Q25	Servers and networking
Chin Poon	2355 TT	PCB	38	119	Thailand	2025	Consumer, charging stations, and automotive
Unimicron	3037 TT	PCB	2	110	Thailand	1H25	Gaming and modules
TUC	6274 TT	CCL	-	100	Thailand	1Q25	Phase 1 monthly 300k sq.ft
ITEQ	6213 TT	CCL	-	72	Thailand	2H24	Phase 1 monthly 300k sq.ft
Unitech	2367 TT	PCB	-	70	Thailand	4Q25	Phase 1
Dynamic	3715 TT	PCB	40	60	Thailand	4Q24	Phase 1 monthly 600k sq.ft, high layer count, and HDI
Elitegroup Computer	2331 TT	PCB	-	48	Thailand	2025	Main boards, graphics cards, networking, and automotive
Taiflex	8039 TT	FCCL	-	35	Thailand	2Q24	
Complex Micro Interconnect	6835 TT	FPCB	-	32	Thailand	2025	
Ichia	2402 TT	FPCB	-	20	Malaysia	TBD	Automotive
Topoint	8021 TT	PCB drill	-	17	Thailand	2Q24	
TSMT	6278 TT	PCBA	-	15	Vietnam	2Q24	Eight lines for SMT
TPT	8213 TT	PCB	36	10	Vietnam	2024	Phase 1 monthly 300k sq.ft, PC and automotive
Machvision	3563 TT	PCB equipment	-	3	Thailand	2Q24	
Syntek automation	6438 TT	PCB equipment	-	5	Thailand	TBD	
First Hi-tec	5439 TT	PCB	-	TBD	Thailand	TBD	Phase 1 monthly 100k sq.ft, EV and networking
Total				1,887			

Source: Company data; KGI Research

Figure 9: Twenty-four Chinese companies will invest US\$2.3bn in SEA

Company	Ticker	Industry	Global ranking	Investment (US\$mn)	Investment country	Production data	Products and notes
Victory Giant	300476 CH	PCB	20	260	Vietnam	2H25	Servers
WUS Printed Circuit	002463 CH	PCB	15	180	Thailand	4Q24	
Shengyi Tech	600183 CH	CCL	-	195	Thailand	TBD	
Shennan Circuits	002916 CH	PCB	8	180	Thailand	TBD	
Delton	001389 CH	PCB	-	180	Thailand	1Q25	Servers and networking
Aoshikang	002913 CH	PCB	37	174	Thailand	3Q24	120k sq.ft for automotive, NB, and networking
Founder Technology	600601 CH	PCB	-	135	Thailand	1H25	
Kinwong	603228 CH	PCB	10	100	Thailand	TBD	Automotive, communication, and networking
Shengyi Electronics	688183 CH	PCB	-	100	Thailand	2H25	
Nanya New Material	688519 CH	CCL	-	100	Thailand	TBD	
Ellington	603328 CH	PCB	-	100	Thailand	TBD	
Changzhou Aohong	605058 CH	PCB	-	85	Thailand	2026	
Huizhou CEE	002579 CH	PCB	-	80	Thailand	2025	
Shenzhen Jove	300814 CH	PCB	-	75	Thailand	2H24	
Sihui Fuji	300852 CH	PCB	-	70	Thailand	2025	
Mankun Technology	301132 CH	PCB	-	70	Thailand	TBD	
Wazam	603186 CH	CCL	-	60	Thailand	TBD	
Dongshan Precision	002384 CH	FPCB	3	50	Thailand	2025	
Allfavor Tech	300964 CH	PCB	-	45	Thailand	TBD	
Coppercell Tech	603386 CH	PCB	-	41	Vietnam	TBD	
Welgao	301251 CH	PCB	-	30	Thailand	2Q24	Automotive and secondary power sources
CFMEE	688630 CH	PCB equipment	-	14	Thailand	TBD	
Dongwei	688700 CH	PCB equipment	-	9	Thailand	TBD	
Kingboard	0148 HK	CCL	-	-	Thailand	2024	CCL monthly 400k sheets, PCB monthly 200k sq.ft
Total				2,333			

Source: Company data; KGI Research

Figure 10: Non-China/Taiwan companies will invest US\$560mn in SEA

Company	Ticker	Industry	Global ranking	Investment (US\$m)	Investment country	Production data	Products and notes
CMK	6958 JP	PCB	34	177	Thailand	3Q24	Phase1
KCE	KCE BK	PCB	-	6	Thailand	2024	
Meiko	6787 JP	PCB	18	200	Vietnam	2025	
TTM	TTMI US	PCB	5	180	Malaysia	2025	
Total				563			

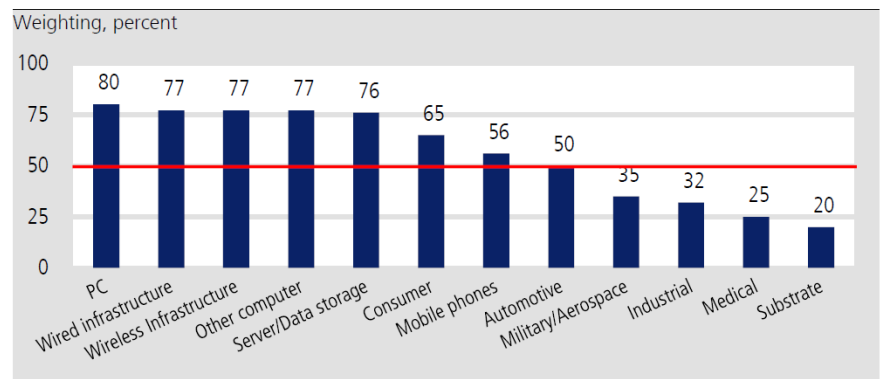
Source: Company data; KGI Research

Networking & satellites are main product applications under China+1, which will boost Taiwan PCB market share to 38% by 2028F

In 2023, global PCB output was around US\$69.5bn, down 15% YoY. Recovering steadily, PCB output is expected to register a CAGR of 5.4% in 2023-28. A new PCB ecosystem has begun to take shape in Thailand due to de-risk, automotive electronics business opportunities, and the Thai government's investment stimulus policy.

We believe the latest wave of investment in SEA will be focused on multilayer board and HDI, with satellites, networking, servers, and automotive electronics being the main end applications initially, in order to reduce production in China. Output of networking products (server, data storage, and wired/wireless infrastructure) is around US\$17.2bn at present, with around 77% made in China (Figure 12), and is expected to post a CAGR of 7-8% in 2023-28. Assuming the China weighting is lowered to 50%, a medium- to long-term goal, over US\$4.6bn worth of such products will be manufactured in SEA. Taiwan makers, with 40-42% share of the networking PCB market, will benefit most as their new plants in Thailand are expected to start mass production first.

In 2023, output of the world's top 40 PCB makers was around US\$53.4bn. Among them, 12 were Taiwan makers, producing US\$19.5bn of PCBs and ranking first with market share of 36%. We forecast their market share will rise to 38% by 2028 as mass production is set to start in 2H24. We are positive on Taiwan firms as we expect their market share to expand along with production site relocation to SEA. Our top picks are Elite Material, Unimicron Technology, Compeq Manufacturing, and Gold Circuit Electronics. We initiate coverage of ITEQ, an upstream copper clad laminate (CCL) maker, and Tripod Technology, a PCB maker.

Figure 11: Application weighting of PCB production in China


Source: Prismark; KGI Research

Figure 12: Overview of Taiwan PCB suppliers' product mixes

Weighting (%)	Company	Ticker	Server	Networking	Automotive	Satellite	Smartphone	PC/NB	DRAM/ memory	Consumer	Optoelectronics	Medical	Military/ Industrial	Others	Total	
Server	Gold Circuit	2368	64	17				14							5	100
	Tripod	3044	22		27		9	6	19	2	9				7	100
	Elite Material	2383	34	16	12		20	16							2	100
	Taiwan Union Tech	6274	84					8							8	100
	ITEQ	6213	60		19		6	15								100
	Unimicron	3037	26		6		14	55								100
Automotive	Chin-Poon	2355		10	80					3				6	1	100
	Dynamic	3715	4		69			3	7	2	15					100
	Unitech PCB	2367			42	10	4	26		8					10	100
Smartphone	Compeq Mfg.	2313		2		9	43	20		26						100
	Zhen Ding Tech	4958	2		2		72	24								100
	TPT	8213			14			30			48				8	100

Source: Company data; KGI Research

Figure 13: Peer comparison – Valuations

Sector	Company	Ticker	Rating	Mkt Cap (US\$mn)	Price (NT\$)	EPS (NT\$)			PE (x)			PB (x)			ROE (%)			YIELD (%)		
						2023	2024F	2025F	2023	2024F	2025F	2023	2024F	2025F	2023	2024F	2025F	2023	2024F	2025F
Copper foil	Co-tech	8358 TT	NR	519	67.80	2.11	4.08	5.32	32.1	16.6	12.7	2.9	N.A.	N.A.	8.8	N.A.	N.A.	3.9	N.A.	N.A.
Fiberglass cloth/yarn	Fulltech	1815 TT	NR	378	27.40	(1.44)	N.A.	N.A.	N.M.	N.A.	N.A.	1.9	N.A.	N.A.	(9.3)	N.A.	N.A.	0.5	N.A.	N.A.
	Elite Material	2383 TT	OP	4,724	451.00	16.35	27.41	31.55	27.6	16.5	14.3	5.8	5.1	4.5	22.5	33.0	33.6	2.2	3.8	4.4
	ITEQ	6213 TT	OP	1,221	113.00	1.86	5.14	7.60	58.5	21.2	14.3	2.0	1.9	1.7	3.4	9.3	12.6	1.4	2.8	4.1
CCL	Taiwan Union Tech	6274 TT	NR	1,375	167.50	3.05	9.79	12.76	54.9	17.1	13.1	3.9	3.5	2.9	7.0	20.9	23.5	2.2	3.9	5.1
	Ventec	6672 TT	NR	185	83.90	6.08	N.A.	N.A.	13.8	N.A.	N.A.	1.9	N.A.	N.A.	13.7	N.A.	N.A.	3.9	N.A.	N.A.
	Asia Electronic Material	4939 TT	NR	66	21.55	0.37	N.A.	N.A.	58.2	N.A.	N.A.	1.4	N.A.	N.A.	2.4	N.A.	N.A.	2.3	N.A.	N.A.
Flexible substrate	Taiflex	8039 TT	NR	376	57.70	2.02	4.08	N.A.	28.6	14.1	N.A.	1.5	1.5	N.A.	5.3	11.3	N.A.	1.9	N.A.	N.A.
	Topoint Tech	8021 TT	NR	139	31.85	(0.25)	N.A.	N.A.	N.M.	N.A.	N.A.	1.0	N.A.	N.A.	(0.8)	N.A.	N.A.	2.6	N.A.	N.A.
Micro drill bit	Compeq Mfg.	2313 TT	OP	2,752	73.50	3.50	5.81	7.70	21.0	12.7	9.5	2.2	2.0	1.8	10.7	16.8	19.9	2.0	3.2	4.2
	Wus Printed Circuit	2316 TT	NR	305	49.10	4.61	N.A.	N.A.	10.7	N.A.	N.A.	1.0	N.A.	N.A.	9.9	N.A.	N.A.	1.1	N.A.	N.A.
	Chin-Poon	2355 TT	NR	574	47.25	1.92	2.84	3.43	24.6	16.6	13.8	1.2	N.A.	N.A.	4.8	7.3	8.0	3.0	3.8	4.2
	Unitech PCB	2367 TT	NR	734	35.85	(0.51)	2.57	3.50	N.M.	14.0	10.2	2.4	2.0	1.7	(3.4)	16.7	16.6	N.A.	N.A.	N.A.
	Gold Circuit	2368 TT	OP	2,877	191.00	6.99	12.79	17.21	27.3	14.9	11.1	6.2	5.1	4.0	23.2	37.5	40.6	1.8	3.1	4.2
	Tripod	3044 TT	OP	3,472	215.50	11.53	15.57	18.26	18.6	13.7	11.7	2.6	2.2	1.8	14.1	17.2	17.0	3.5	4.7	5.6
	Apex	4927 TT	NR	222	38.20	(4.20)	N.A.	N.A.	N.M.	N.A.	N.A.	1.1	N.A.	N.A.	(10.7)	N.A.	N.A.	N.A.	N.A.	N.A.
PCB	First Hi-tec	5439 TT	NR	285	99.70	5.07	N.A.	N.A.	19.7	N.A.	N.A.	3.7	N.A.	N.A.	19.4	N.A.	N.A.	4.2	N.A.	N.A.
	HannStar Board	5469 TT	NR	899	55.50	5.07	N.A.	N.A.	10.9	N.A.	N.A.	1.0	N.A.	N.A.	9.2	N.A.	N.A.	2.9	N.A.	N.A.
	Dynamic	3715 TT	NR	526	62.40	3.61	4.72	5.55	17.3	13.2	11.2	2.6	2.3	2.0	15.7	17.5	17.7	2.3	3.4	4.0
	Allied Circuit	8155 TT	NR	231	147.00	4.08	N.A.	N.A.	36.0	N.A.	N.A.	3.5	N.A.	N.A.	9.3	N.A.	N.A.	2.4	N.A.	N.A.
	TPT	8213 TT	NR	330	39.10	4.03	3.60	4.11	9.7	10.9	9.5	0.7	N.A.	N.A.	7.4	5.2	6.7	2.5	N.A.	N.A.
	Zhen Ding Tech	4958 TT	N	3,873	130.00	6.55	8.49	10.60	19.8	15.3	12.3	1.3	1.2	1.2	6.4	8.2	9.8	2.5	3.3	4.1
	Career	6153 TT	NR	376	20.90	(6.04)	N.A.	N.A.	N.M.	N.A.	N.A.	0.9	N.A.	N.A.	(24.6)	N.A.	N.A.	N.A.	N.A.	N.A.
FPCB	Flexium	6269 TT	N	870	86.90	6.94	8.23	N.A.	12.5	10.6	N.A.	1.1	1.0	N.A.	8.7	9.6	N.A.	4.0	4.6	N.A.
	Unimicron	3037 TT	OP	8,897	190.00	7.88	9.45	16.48	24.1	20.1	11.5	3.2	2.9	2.5	13.6	15.1	23.4	1.6	2.0	3.5
	Kinsus	3189 TT	N	1,295	92.90	0.10	5.22	9.57	886.0	17.8	9.7	1.2	1.2	1.1	0.1	6.8	11.8	1.1	2.7	4.8
IC carrier	NanYa PCB	8046 TT	N	3,959	196.50	9.00	6.40	13.06	21.8	30.7	15.0	2.7	2.9	2.9	11.4	9.0	19.1	2.8	1.9	4.0
	New Era	4909 TT	NR	297	93.90	0.42	N.A.	N.A.	223.6	N.A.	N.A.	3.7	N.A.	N.A.	1.6	N.A.	N.A.	0.6	N.A.	N.A.
High-frequency microwave communication substrate	Machvision	3563 TT	NR	537	395.00	8.21	N.A.	N.A.	48.1	N.A.	N.A.	4.5	N.A.	N.A.	10.6	N.A.	N.A.	2.8	N.A.	N.A.
Equipment	Symtek	6438 TT	NR	265	115.00	8.89	N.A.	N.A.	12.9	N.A.	N.A.	2.1	N.A.	N.A.	16.8	N.A.	N.A.	4.2	N.A.	N.A.

Source: Bloomberg; KGI Research

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