

HANA MICROELECTRONICS

THAILAND / ELECTRONIC COMPONENT

HANA TB

BUY
UNCHANGED

The recovery may shift to 2025

- Management guided orders for 3Q24 to be relatively stable q-q due to sluggish demand, particularly in China.
- The FT1 VJ will operate Thailand's first wafer fabrication plant.
- We cut our 2024E profit and TP to THB43.

TARGET PRICE	THB43.00
CLOSE	THB38.50
UP/DOWNSIDE	+11.7%
PRIOR TP	THB50.00
CHANGE IN TP	-14.0%
TP vs CONSENSUS	-9.6%

2H24 revenue may recover slower than expected

We have a negative view from the analyst meetings. Management guided orders for 3Q24 to be relatively stable q-q, particularly with stagnating Auto and Industrial demand and China remaining sluggish. However, the Smartphone and AI PC segments are expected to pick up in 2H24 due to increased demand for AI-related products. We expect the 3Q24 gross margin to weaken q-q due to baht appreciation.

SiC is recovering but slowly

The revenue for SiC would continue to recover in 2H24. However, growth may be slower than our previous estimate due mainly to lower selling prices brought on by a tepid recovery in Auto demand, especially in the Chinese market. However, the lower selling prices may be offset by a decline in raw material costs. Management believes lower SiC prices might allow other sectors outside of Automotive to access SiC more easily. HANA is signing a marketing agreement with China Auto Group to target the SiC EV market in China, with more significant developments expected by mid-2025.

FT1 is for the future

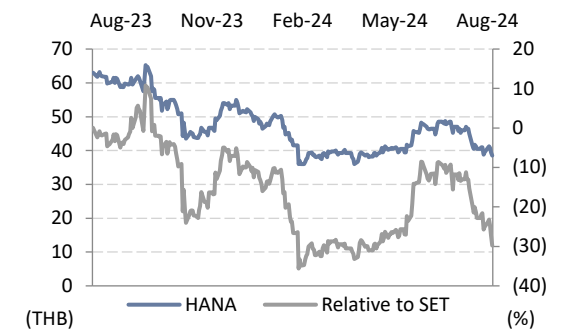
Management revealed its business plan for the FT1 joint venture, where HANA holds 49% and PTT holds a 51% stake. The venture would operate Thailand's first wafer fabrication plant. The first phase would produce a semiconductor foundry for SiC at the Lamphun facility, with PMS (HANA's South Korean factory) providing technology transfer and being its initial customer. However, development is expected to be slow as the company plans to send employees for training in South Korea for the first two years. Operations might begin as early as mid-2027. The investment value has not been finalized yet, but HANA indicated that additional capital is not currently needed due to sufficient cash in the business.

Cut our 2024E profit and target price

We expect the 3Q24 core profit (excluding a refund from Credit Suisse's fund) to decline q-q and y-y due to a high gross margin base in 3Q23. We anticipate a profit recovery in 1H25 as overall demand improves, particularly from the Chinese market and SiC. However, we have reduced our 2024E core profit by 22% to THB1.7b (-14.5% y-y) and lowered our TP to THB43 (from THB50), based on a PE of 22x. We maintain our BUY rating because we see limited downside and expect a recovery in 2025.

KEY STOCK DATA

YE Dec (THB m)	2023	2024E	2025E	2026E
Revenue	26,152	26,047	27,555	29,376
Net profit	1,761	1,717	2,086	2,376
EPS (THB)	1.99	1.94	2.36	2.68
vs Consensus (%)	-	(13.2)	(9.9)	(10.7)
EBITDA	3,752	3,597	4,129	4,520
Recurring net profit	2,009	1,717	2,086	2,376
Core EPS (THB)	2.27	1.94	2.36	2.68
Chg. In EPS est. (%)	-	(21.6)	(14.5)	(12.2)
EPS growth (%)	(23.8)	(14.5)	21.5	13.9
Core P/E (x)	17.0	19.9	16.3	14.3
Dividend yield (%)	2.6	2.3	2.8	4.2
EV/EBITDA (x)	7.1	7.5	6.4	5.7
Price/book (x)	1.2	1.1	1.1	1.1
Net debt/Equity (%)	(26.0)	(24.0)	(25.1)	(25.4)
ROE (%)	7.6	5.8	6.8	7.5



Share price performance	1 Month	3 Month	12 Month
Absolute (%)	(15.8)	(5.5)	(38.6)
Relative to country (%)	(19.2)	(4.6)	(29.9)
Mkt cap (USD m)	996		
3m avg. daily turnover (USD m)	13.2		
Free float (%)	58		
Major shareholder	OMAC and related companies (29%)		
12m high/low (THB)	66.25/35.25		
Issued shares (m)	885.36		

Sources: Bloomberg consensus; FSSIA estimates



Sureeporn Teewasuwet

Fundamental Investment Analyst on Securities; License no. 040694
sureeporn.t@fssia.com, +66 2646 9972

Investment thesis

HANA is a leading EMS provider in Southeast Asia with over 45 years of experience. Since its inception in 1978, even though it is mainly a midstream producer, its strength has come from its diversification to several end products, such as telecommunications, computers, consumer products, automobiles, radio frequency identification (RFID), and medical products. It also has manufacturing bases in several countries, while constantly developing new products, i.e., SiC, to catch up with industrial customer demands, particularly in EVs.

Company profile

HANA provides integrated electronic manufacturing services (EMS), including IC PCBA, RFID, and LCOS. It has seven manufacturing bases in Thailand, China, the U.S., Cambodia, and South Korea, with a total production area of 1.7m SQF and over 10,000 employees worldwide. At the end of 2023, HANA generated revenue from PCBA (61% of total revenue), followed by IC (31%), RFID (6%), and SiC (2%).

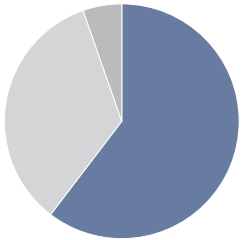
www.hanagroup.com

Principal activities (revenue, 2023)

■ PCBA - 60.4 %

■ IC - 34.3 %

■ IC Assemble (RFID / Microdisplay) - 5.3 %



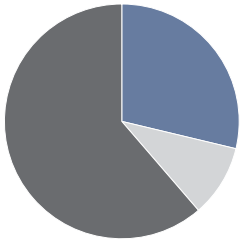
Source: Hana Microelectronics

Major shareholders

■ OMAC and related companies - 28.7 %

■ LGT Bank (Singapore) Ltd - 9.9 %

■ Others - 61.3 %



Source: Hana Microelectronics

Catalysts

Potential catalysts for HANA’s earnings growth in 2024 are 1) a recovery in the global economy and purchasing power, especially in China; 2) a decrease in raw material costs; and 3) a faster-than-expected capacity expansion.

Risks to our call

Downside risks to our P/E-based TP include 1) a slower-than-expected recovery in the global economy and purchasing power, 2) higher-than-expected raw material costs, 3) Baht strength, and 4) higher minimum wage and labor shortages.

Event calendar

Date	Event
November 2024	3Q24 results announcement

Key assumptions

	2024E	2025E	2026E
USD total revenue (USD m)	738	810	864
SiC revenue (USD m)	20	40	70
FX rate (USD/THB)	35	34	34
THB revenue growth (%)	(0.4)	5.8	6.6
Gross margin (%)	11.6	12.7	13.2

Source: FSSIA estimates

Earnings sensitivity

- For every THB1/USD increase, we estimate 2024 net profit to fall by 6.8%, and vice versa, all else being equal.
- For every 0.5% increase in GPM, we estimate 2024 net profit to rise by 5.7%, and vice versa, all else being equal.
- For every 0.2% increase in SG&A, we estimate 2024 net profit to fall by 1.3%, and vice versa, all else being equal.
- For every 10% increase in labor cost, we estimate 2024 net profit to fall by 6.6%, and vice versa, all else being equal.

Source: FSSIA estimates

2

FINANSIA

23 AUGUST 2024

Exhibit 1: Changes in key assumptions for HANA

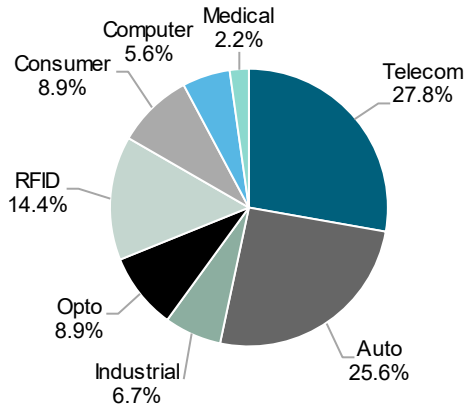
	Current			Previous			Change		
	2024E (THB m)	2025E (THB m)	2026E (THB m)	2024E (THB m)	2025E (THB m)	2026E (THB m)	2024E (%)	2025E (%)	2026E (%)
Total sale value (THB m)	26,047	27,555	29,376	26,260	28,108	29,998	(0.8)	(2.0)	(2.1)
Costs	23,026	24,056	25,499	22,846	24,341	25,888	0.8	(1.2)	(1.5)
Gross profit	3,021	3,500	3,878	3,414	3,766	4,110	(11.5)	(7.1)	(5.6)
SG&A expense	1,641	1,736	1,851	1,654	1,771	1,890	(0.8)	(2.0)	(2.1)
Interest expense	101	95	87	19	15	15	440.1	529.1	480.0
Reported net profit	1,866	2,086	2,376	2,189	2,442	2,707	(14.7)	(14.5)	(12.2)
Core profit	1,717	2,086	2,376	2,189	2,442	2,707	(21.6)	(14.5)	(12.2)
EPS (THB/share)	2.11	2.36	2.68	2.47	2.76	3.06	(14.7)	(14.5)	(12.2)
Key ratios (%)									
Total revenue growth	(0.4)	5.8	6.6	0.4	7.0	6.7	(0.8)	(1.2)	(0.1)
Net profit growth	6.0	11.8	13.9	24.3	11.5	10.9	(18.3)	0.3	3.0
Core profit growth	(14.5)	21.5	13.9	8.9	11.5	10.9	(23.5)	10.0	3.0
Gross margin	11.6	12.7	13.2	13.0	13.4	13.7	(1.4)	(0.7)	(0.5)
SG&A to sales	6.3	6.3	6.3	6.3	6.3	6.3	0.0	0.0	0.0
Net margin	7.2	7.6	8.1	8.3	8.7	9.0	(1.2)	(1.1)	(0.9)
Core margin	6.6	7.6	8.1	8.3	8.7	9.0	(1.7)	(1.1)	(0.9)
Operating statistics									
Total revenue (USD m)	738	810	864	796	852	909	(7.3)	(4.8)	(5.0)
SiC revenue (USD m)	20	40	70	35	65	98	(42.9)	(38.5)	(28.6)
FX rate (THB/USD)	35.3	34.0	34.0	33.0	33.0	33.0	7.0	3.0	3.0

Sources: FSSIA estimates

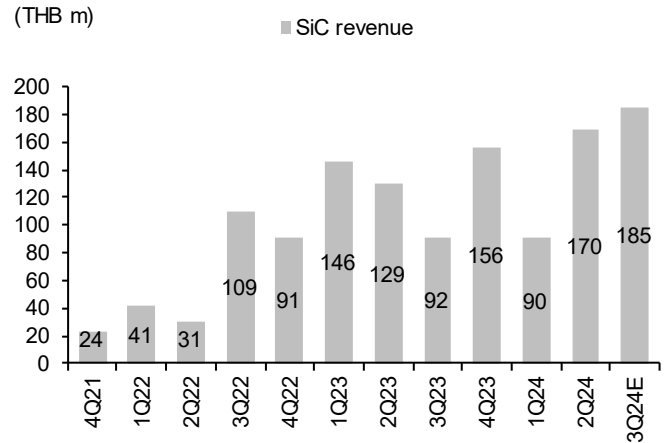
Exhibit 2: HANA – 3Q24 earnings preview

	3Q23 (THB m)	4Q23 (THB m)	1Q24 (THB m)	2Q24 (THB m)	3Q24E (THB m)	Change		2023 (THB m)	2024E (THB m)	Change
						(q-q%)	(y-y%)			(y-y%)
Total revenue	6,555	6,221	6,371	6,752	6,887	2.0	5.1	26,152	26,047	(0.4)
Cost of sales	5,523	5,602	5,683	5,918	6,081	2.8	10.1	22,910	23,026	0.5
Gross profit	1,031	619	687	834	806	(3.4)	(21.9)	3,242	3,021	(6.8)
SG&A	449	408	415	419	427	1.8	(4.9)	1,631	1,641	0.6
Operating profit	582	211	272	415	379	(8.7)	(34.9)	1,611	1,381	(14.3)
Interest expense	17.4	24.7	23.9	25.9	26.0	0.6	49.8	52	101	94.9
Tax expense	21	20	27	31	55	77.0	158.7	85	110	28.2
Reported net profit	734	125	313	376	727	93.2	(0.9)	1,761	1,866	6.0
Core profit	674	291	352	487	428	(12.1)	(36.5)	2,009	1,717	(14.5)
Key Ratios (%)						(ppt)	(ppt)			
Gross margin	15.7	9.9	10.8	12.4	11.7	(0.7)	(4.0)	12.4	11.6	(0.8)
SG&A to sales	6.9	6.6	6.5	6.2	6.2	(0.0)	(0.7)	6.2	6.3	0.1
Operating margin	8.9	3.4	4.3	6.1	5.5	(0.6)	(3.4)	6.2	5.3	(0.9)
Net margin	11.2	2.0	4.9	5.6	10.6	5.0	(0.6)	6.7	7.2	0.4
Core margin	10.3	4.7	5.5	7.2	6.2	(1.0)	(4.1)	7.7	6.6	(1.1)

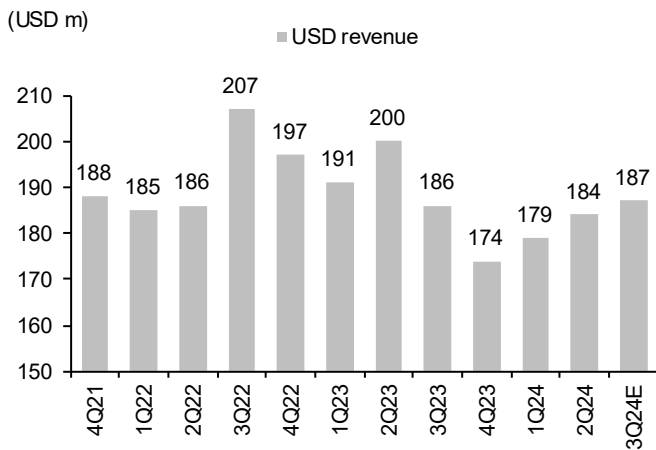
Sources: HANA, FSSIA estimates

Exhibit 3: 2Q24 revenue breakdown by product segment


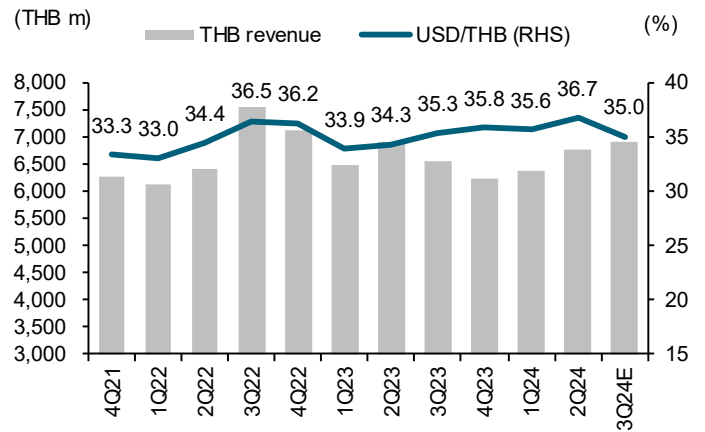
Sources: HANA, FSSIA's compilation

Exhibit 4: Quarterly SiC revenue


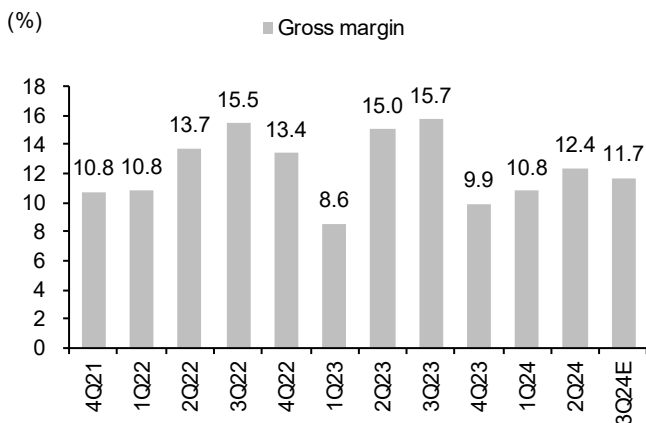
Sources: HANA, FSSIA estimates

Exhibit 5: Quarterly USD revenue


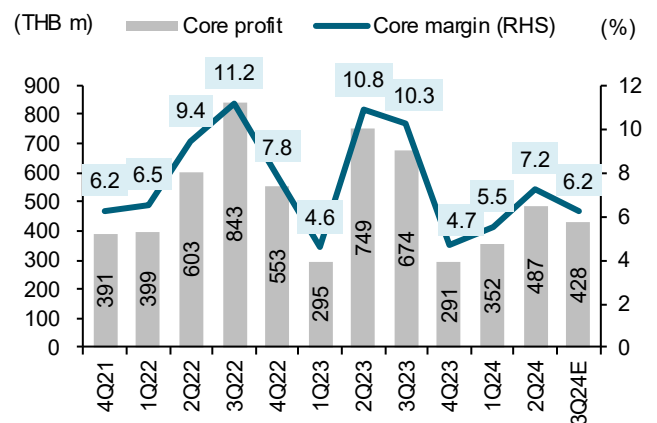
Sources: HANA, FSSIA's estimates

Exhibit 6: Quarterly THB revenue


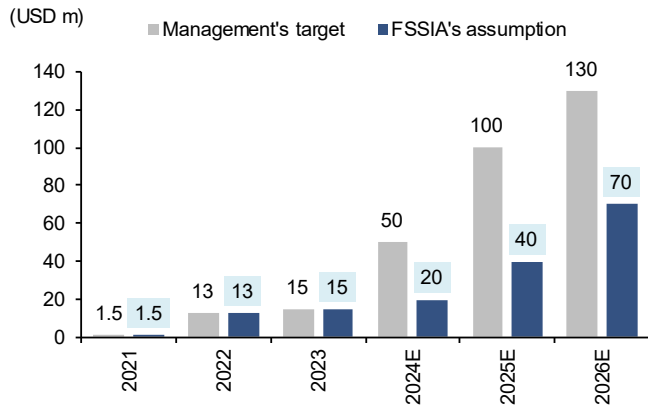
Sources: HANA, FSSIA's estimates

Exhibit 7: Quarterly gross margin


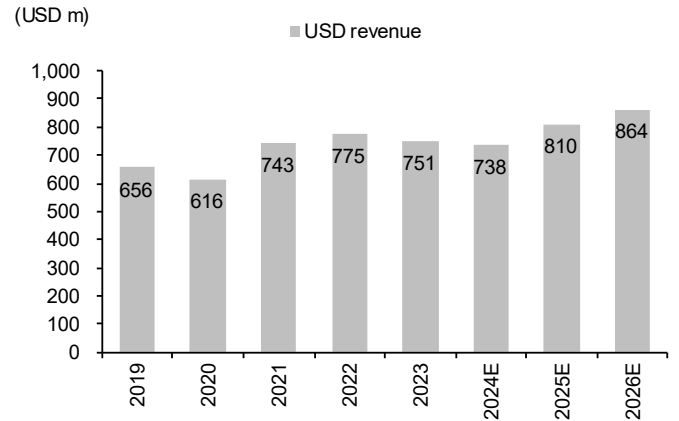
Sources: HANA, FSSIA's estimates

Exhibit 8: Quarterly core profit and core margin


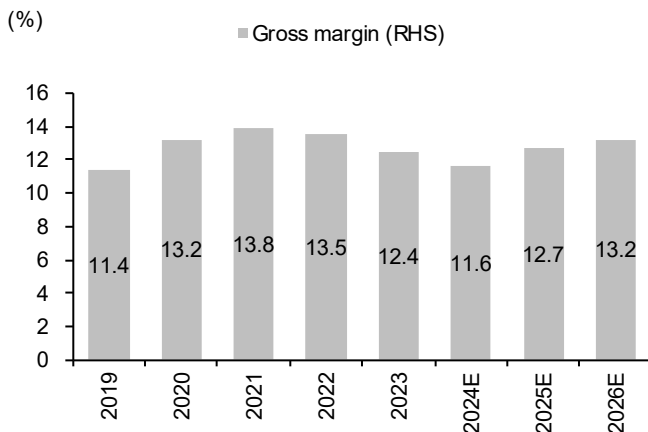
Sources: HANA, FSSIA's estimates

Exhibit 9: SiC revenue target

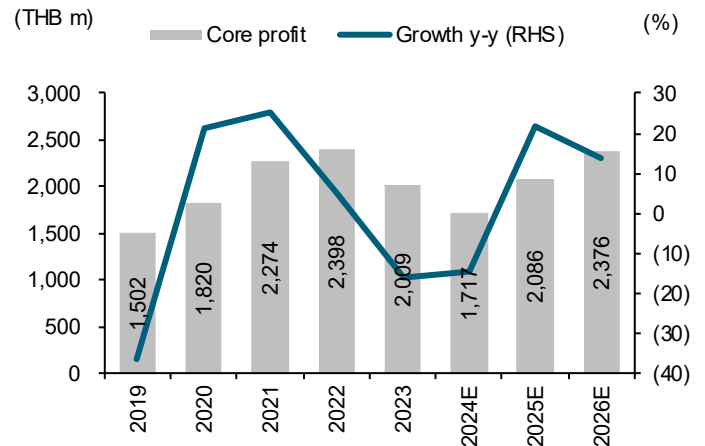
Sources: HANA, FSSIA estimates

Exhibit 10: Yearly USD revenue

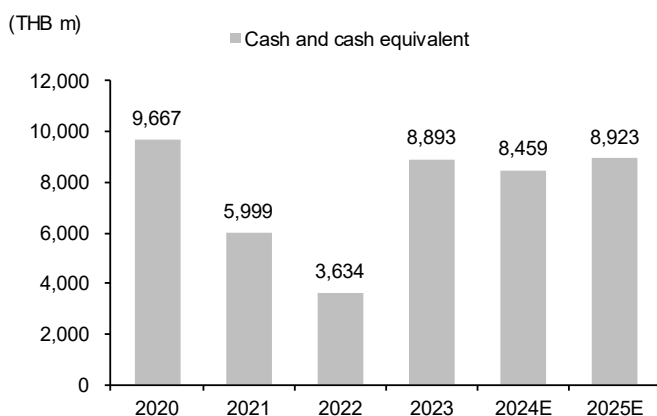
Sources: HANA, FSSIA estimates

Exhibit 11: Yearly gross margin

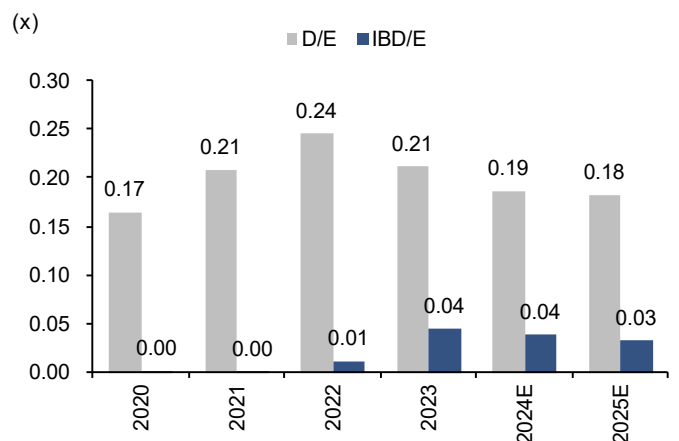
Sources: HANA, FSSIA estimates

Exhibit 12: Yearly core profit and growth

Sources: HANA, FSSIA estimates

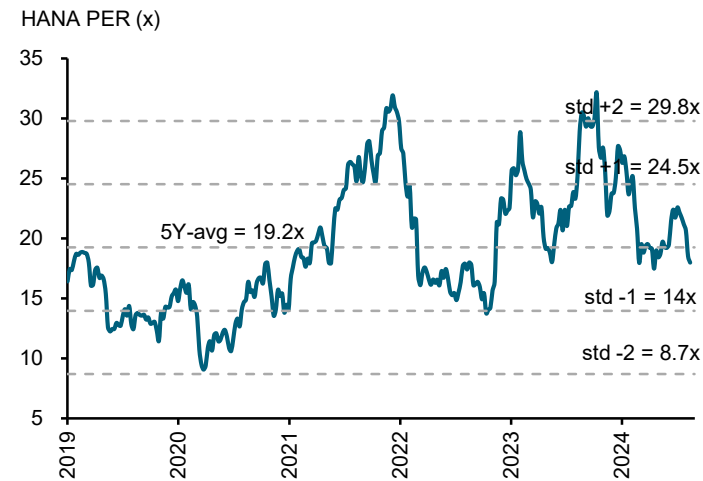
Exhibit 13: Yearly cash and cash equivalent

Sources: HANA, FSSIA estimates

Exhibit 14: Yearly D/E and IBD/E ratio

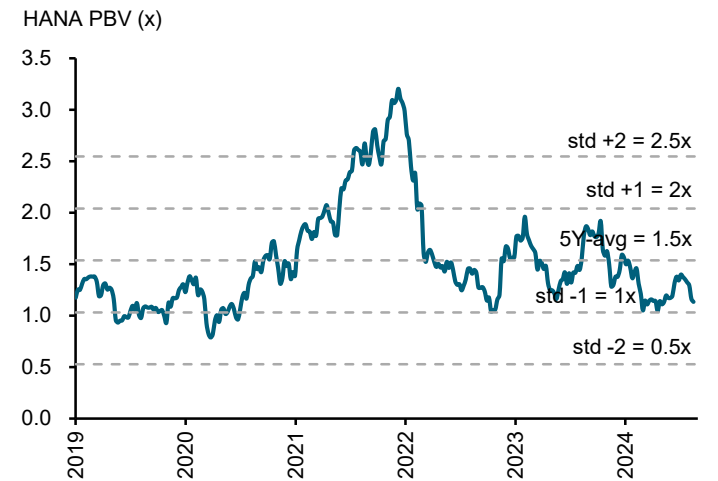
Sources: HANA, FSSIA estimates

Exhibit 15: Historical P/E band



Sources: Bloomberg, FSSIA estimates

Exhibit 16: Historical P/BV band



Sources: Bloomberg, FSSIA estimates

Exhibit 17: Peer comparisons as of 22 Aug 2024

Company	BBG	Rec	Share price			Market Cap	PE		ROE		PBV		EV/EBITDA	
			Current	Target	Upside		24E	25E	24E	25E	24E	25E	24E	25E
			(LCY)	(LCY)	(%)		(USD m)	(x)	(x)	(%)	(%)	(x)	(x)	(x)
Thailand														
Delta Electronics (Thailand)*	DELTA TB	HOLD	103.00	110.00	7	37,403	63.6	47.1	27.9	32.3	16.7	14.0	49.3	38.1
KCE Electronics*	KCE TB	BUY	38.25	46.00	20	1,316	22.0	19.4	14.7	16.1	3.2	3.1	13.1	11.9
Hana Microelectronics*	HANA TB	BUY	39.50	43.00	9	1,018	20.4	16.8	5.8	6.8	1.2	1.1	7.7	6.6
SVI	SVI TB	n/a	8.20	n/a	n/a	526	12.8	12.7	19.4	16.4	2.3	2.0	10.1	10.2
Cal-Comp Electronics	CCET TB	n/a	3.58	n/a	n/a	1,089	15.6	13.8	8.9	9.9	1.4	1.4	n/a	n/a
Stars Microelectronics	SMT TB	n/a	1.49	n/a	n/a	36	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Thailand average						41,389	26.9	21.9	15.4	16.3	4.9	4.3	20.0	16.7
Regional														
Taiwan Semiconductor	2330 TT	n/a	951.00	n/a	n/a	766,212	22.5	17.7	27.6	28.5	5.8	4.7	12.5	10.0
STMicroelectronics	STMPA FP	n/a	27.92	n/a	n/a	28,305	18.5	13.4	9.0	11.9	1.6	1.4	7.5	5.8
ROHM	6963 JP	n/a	1,757.50	n/a	n/a	5,013	14.2	32.7	5.1	2.0	0.7	0.7	6.7	7.6
Infineon	IFX GR	n/a	31.64	n/a	n/a	45,976	17.2	14.8	12.4	13.9	2.3	2.0	10.0	8.3
Mitsubishi Electric	6503 JP	n/a	2,347.50	n/a	n/a	33,825	18.4	15.5	8.1	8.2	1.4	1.2	8.5	7.6
On Semiconductor	ON US	n/a	73.37	n/a	n/a	31,428	18.3	15.3	19.6	20.1	3.4	2.9	12.4	10.6
SMIC	688981 CH	n/a	46.54	n/a	n/a	25,532	88.0	66.9	2.8	3.5	2.5	2.4	11.8	9.8
Regional average						936,292	28.2	25.2	12.1	12.6	2.5	2.2	9.9	8.5
Overall average						977,681	27.6	23.8	13.4	14.1	3.5	3.1	13.6	11.5

Sources: Bloomberg; *FSSIA estimates

Financial Statements

Hana Microelectronics

Profit and Loss (THB m) Year Ending Dec	2022	2023	2024E	2025E	2026E
Revenue	27,167	26,152	26,047	27,555	29,376
Cost of goods sold	(23,506)	(22,910)	(23,026)	(24,056)	(25,499)
Gross profit	3,661	3,242	3,021	3,500	3,878
Other operating income	458	439	365	413	441
Operating costs	(1,695)	(1,631)	(1,641)	(1,736)	(1,851)
Operating EBITDA	4,054	3,752	3,597	4,129	4,520
Depreciation	(1,630)	(1,702)	(1,852)	(1,952)	(2,052)
Goodwill amortisation	0	0	0	0	0
Operating EBIT	2,425	2,050	1,745	2,177	2,468
Net financing costs	81	45	81	43	60
Associates	0	0	0	0	0
Recurring non-operating income	0	0	0	0	0
Non-recurring items	(296)	(249)	0	0	0
Profit before tax	2,209	1,846	1,826	2,220	2,527
Tax	(107)	(85)	(110)	(133)	(152)
Profit after tax	2,102	1,761	1,717	2,086	2,376
Minority interests	0	0	0	0	0
Preferred dividends	0	0	0	0	0
Other items	-	-	-	-	-
Reported net profit	2,102	1,761	1,717	2,086	2,376
Non-recurring items & goodwill (net)	296	249	0	0	0
Recurring net profit	2,398	2,009	1,717	2,086	2,376
Per share (THB)					
Recurring EPS *	2.98	2.27	1.94	2.36	2.68
Reported EPS	2.61	1.99	1.94	2.36	2.68
DPS	1.00	1.00	0.87	1.06	1.61
Diluted shares (used to calculate per share data)	805	885	885	885	885
Growth					
Revenue (%)	14.2	(3.7)	(0.4)	5.8	6.6
Operating EBITDA (%)	15.1	(7.5)	(4.1)	14.8	9.5
Operating EBIT (%)	9.2	(15.5)	(14.9)	24.7	13.4
Recurring EPS (%)	5.4	(23.8)	(14.5)	21.5	13.9
Reported EPS (%)	36.0	(23.9)	(2.5)	21.5	13.9
Operating performance					
Gross margin inc. depreciation (%)	13.5	12.4	11.6	12.7	13.2
Gross margin exc. depreciation (%)	19.5	18.9	18.7	19.8	20.2
Operating EBITDA margin (%)	14.9	14.3	13.8	15.0	15.4
Operating EBIT margin (%)	8.9	7.8	6.7	7.9	8.4
Net margin (%)	8.8	7.7	6.6	7.6	8.1
Effective tax rate (%)	4.9	4.6	6.0	6.0	6.0
Dividend payout on recurring profit (%)	33.6	44.1	45.0	45.0	60.0
Interest cover (X)	(29.9)	(45.4)	(21.5)	(50.9)	(41.2)
Inventory days	136.1	158.6	153.4	149.1	147.9
Debtor days	64.0	70.9	71.3	68.1	67.8
Creditor days	64.0	65.0	56.4	53.3	52.8
Operating ROIC (%)	10.2	7.7	6.2	7.4	8.2
ROIC (%)	9.9	7.5	6.1	7.3	8.1
ROE (%)	10.2	7.6	5.8	6.8	7.5
ROA (%)	8.1	6.1	4.7	5.7	6.2

* Pre-exceptional, pre-goodwill and fully diluted

Revenue by Division (THB m)	2022	2023	2024E	2025E	2026E
PCBA	14,147	15,791	16,107	16,912	18,265
IC	10,595	8,962	8,513	9,145	9,493
IC Assemble (RFID / Microdisplay)	2,425	1,399	1,427	1,498	1,618

Sources: Hana Microelectronics; FSSIA estimates

Financial Statements

Hana Microelectronics

Cash Flow (THB m) Year Ending Dec	2022	2023	2024E	2025E	2026E
Recurring net profit	2,398	2,009	1,717	2,086	2,376
Depreciation	1,630	1,702	1,852	1,952	2,052
Associates & minorities	-	-	-	-	-
Other non-cash items	24	(241)	0	0	0
Change in working capital	(2,626)	(491)	56	(521)	(678)
Cash flow from operations	1,426	2,980	3,625	3,518	3,750
Capex - maintenance	-	-	-	-	-
Capex - new investment	(2,821)	(2,550)	(3,000)	(2,000)	(2,000)
Net acquisitions & disposals	-	-	-	-	-
Other investments (net)	14	162	(18)	(23)	(27)
Cash flow from investing	(2,807)	(2,389)	(3,018)	(2,023)	(2,027)
Dividends paid	(1,191)	(859)	(773)	(939)	(1,426)
Equity finance	0	4,588	0	0	0
Debt finance	(2)	1,280	(152)	(138)	(142)
Other financing cash flows	209	(342)	(198)	45	55
Cash flow from financing	(984)	4,667	(1,123)	(1,032)	(1,513)
Non-recurring cash flows	-	-	-	-	-
Other adjustments	0	0	0	0	0
Net other adjustments	0	0	0	0	0
Movement in cash	(2,365)	5,258	(516)	464	210
Free cash flow to firm (FCFF)	(1,368.15)	643.40	708.32	1,590.58	1,810.08
Free cash flow to equity (FCFE)	(1,174.20)	1,529.93	256.97	1,402.82	1,635.71
Per share (THB)					
FCFF per share	(1.55)	0.73	0.80	1.80	2.04
FCFE per share	(1.33)	1.73	0.29	1.58	1.85
Recurring cash flow per share	5.03	3.92	4.03	4.56	5.00
Balance Sheet (THB m) Year Ending Dec					
Tangible fixed assets (gross)	28,300	29,984	32,984	34,984	36,984
Less: Accumulated depreciation	(17,446)	(18,283)	(20,135)	(22,087)	(24,139)
Tangible fixed assets (net)	10,853	11,701	12,849	12,897	12,845
Intangible fixed assets (net)	0	0	0	0	0
Long-term financial assets	72	72	72	72	72
Invest. in associates & subsidiaries	-	-	-	-	-
Cash & equivalents	3,634	8,893	8,377	8,841	9,051
A/C receivable	4,981	5,178	4,995	5,285	5,634
Inventories	9,457	8,969	8,832	9,227	9,780
Other current assets	171	119	130	138	147
Current assets	18,243	23,159	22,334	23,490	24,612
Other assets	534	373	391	413	441
Total assets	29,703	35,306	35,646	36,872	37,970
Common equity	23,862	29,147	30,032	31,179	32,130
Minorities etc.	0	0	0	0	0
Total shareholders' equity	23,862	29,147	30,032	31,179	32,130
Long term debt	0	204	250	227	208
Other long-term liabilities	813	921	781	827	881
Long-term liabilities	814	1,125	1,031	1,054	1,089
A/C payable	4,161	3,391	3,154	3,295	3,493
Short term debt	274	1,105	908	793	670
Other current liabilities	593	538	521	551	588
Current liabilities	5,027	5,034	4,583	4,639	4,750
Total liabilities and shareholders' equity	29,703	35,306	35,646	36,872	37,970
Net working capital	9,856	10,338	10,282	10,803	11,481
Invested capital	21,316	22,485	23,594	24,185	24,838
* Includes convertibles and preferred stock which is being treated as debt					
Per share (THB)					
Book value per share	29.65	32.92	33.92	35.22	36.29
Tangible book value per share	29.65	32.92	33.92	35.22	36.29
Financial strength					
Net debt/equity (%)	(14.1)	(26.0)	(24.0)	(25.1)	(25.4)
Net debt/total assets (%)	(11.3)	(21.5)	(20.3)	(21.2)	(21.5)
Current ratio (x)	3.6	4.6	4.9	5.1	5.2
CF interest cover (x)	(19.3)	(89.4)	(39.0)	(78.5)	(59.7)
Valuation					
Recurring P/E (x) *	12.9	17.0	19.9	16.3	14.3
Recurring P/E @ target price (x) *	14.4	18.9	22.2	18.2	16.0
Reported P/E (x)	14.7	19.4	19.9	16.3	14.3
Dividend yield (%)	2.6	2.6	2.3	2.8	4.2
Price/book (x)	1.3	1.2	1.1	1.1	1.1
Price/tangible book (x)	1.3	1.2	1.1	1.1	1.1
EV/EBITDA (x) **	6.8	7.1	7.5	6.4	5.7
EV/EBITDA @ target price (x) **	7.7	8.1	8.6	7.3	6.6
EV/invested capital (x)	1.3	1.2	1.1	1.1	1.0
* Pre-exceptional, pre-goodwill and fully diluted ** EBITDA includes associate income and recurring non-operating income					

Sources: Hana Microelectronics; FSSIA estimates

Hana Microelectronics PCL (HANA TB)

FSSIA ESG rating


56.35 /100

Exhibit 18: FSSIA ESG score implication

Rating	Score	Implication
★★★★★	>79-100	Leading its industry peers in managing the most significant ESG risks which not only better cost efficiency but also lead to higher profitability.
★★★★★	>59-79	A mixed track record of managing the most significant ESG risks and opportunities relative to industry peers.
★★★	>39-59	Relevant ESG materiality matrix has been constructively addressed, well-managed and incorporated into day-to-day operations, in which targets and achievements are evaluated annually.
★★	>19-39	Relevant ESG materiality matrix has been identified with key management in charge for progress to be followed up on and to provide intensive disclosure. Most targets are conventional and achievable.
★	1-19	The company has adopted the United Nations Sustainable Development Goals (UN SDGs), established sustainability management guidelines and fully complies with regulations or ESG suggested guidance from related organizations such as the SET and SEC.

Sources: FSSIA estimates

Exhibit 19: ESG – peer comparison

	FSSIA ESG score	Domestic ratings						Global ratings						Bloomberg	
		DJSI	SET THSI	THSI	CG score	AGM level	Thai CAC	Morningstar ESG risk	ESG Book	MSCI	Moody's	Refinitiv	S&P Global	ESG score	Disclosure score
SET100	69.20	5.34	4.40	4.40	4.76	4.65	3.84	Medium	51.76	BBB	20.87	58.72	63.91	3.72	28.17
Coverage	67.12	5.11	4.15	4.17	4.83	4.71	3.53	Medium	52.04	BB	16.97	56.85	62.09	3.40	31.94
DELTA	87.59	Y	Y	Y	5.00	5.00	Certified	Low	68.81	AA	--	91.19	74.00	4.15	--
HANA	56.35	--	Y	Y	5.00	5.00	Certified	Negligible	56.93	BBB	--	44.01	31.00	1.81	--
KCE	45.77	--	--	--	5.00	5.00	Certified	Medium	52.70	--	--	61.53	16.00	2.16	52.98

Sources: [SETTRADE.com](https://www.settrade.com); FSSIA's compilation

Exhibit 20: ESG score by Bloomberg

FY ending Dec 31	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
ESG financial materiality scores - ESG score	0.91	0.98	0.99	1.39	1.61	1.81	—
BESG environmental pillar score	0.00	0.00	0.00	0.00	0.00	0.00	—
BESG social pillar score	0.37	0.37	0.37	1.14	1.63	1.66	—
BESG governance pillar score	3.51	3.89	3.96	3.95	3.95	4.88	—
ESG disclosure score	25.98	25.98	25.98	30.50	36.02	36.02	—
Environmental disclosure score	1.66	1.66	1.66	7.13	22.92	22.92	—
Social disclosure score	15.90	15.90	15.90	24.00	24.79	24.79	—
Governance disclosure score	60.26	60.26	60.26	60.26	60.26	60.26	—
Environmental							
Emissions reduction initiatives	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Climate change policy	No	No	No	Yes	Yes	Yes	Yes
Climate change opportunities discussed	No	No	No	Yes	Yes	Yes	Yes
Risks of climate change discussed	No	No	No	No	No	No	No
GHG scope 1	—	—	—	—	1	1	1
GHG scope 2 location-based	—	—	—	26	26	23	23
GHG Scope 3	—	—	—	—	—	—	—
Carbon per unit of production	—	—	—	—	—	—	—
Biodiversity policy	No	No	No	No	No	No	No
Energy efficiency policy	No	No	No	No	No	No	Yes
Total energy consumption	—	—	—	—	—	—	—
Renewable energy use	—	—	—	—	—	—	—
Electricity used	—	—	—	—	—	—	—
Fuel used - natural gas	—	—	—	—	—	—	—

Sources: Bloomberg; FSSIA's compilation

Exhibit 21: ESG score by Bloomberg (cont.)

FY ending Dec 31	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Fuel used - crude oil/diesel	No	No	No	No	No	No	No
Waste reduction policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hazardous waste	—	—	—	—	—	—	—
Total waste	—	—	—	—	—	—	—
Waste recycled	—	—	—	—	—	—	—
Waste sent to landfills	—	—	—	—	—	—	—
Environmental supply chain management	No	No	No	No	Yes	Yes	Yes
Water policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Water consumption	—	—	—	—	—	—	—
Social							
Human rights policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Policy against child labor	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quality assurance and recall policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Consumer data protection policy	No	No	No	No	No	No	No
Equal opportunity policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gender pay gap breakout	No	No	No	No	No	No	No
Pct women in workforce	—	—	—	73	73	72	—
Pct disabled in workforce	—	—	—	1	1	1	—
Business ethics policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Anti-bribery ethics policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Health and safety policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lost time incident rate - employees	—	—	—	0	0	0	—
Total recordable incident rate - employees	—	—	—	—	—	—	—
Training policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fair remuneration policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of employees – CSR	4,038	3,947	3,969	3,957	3,742	3,636	3,324
Employee turnover pct	—	—	—	—	—	—	—
Total hours spent by firm - employee training	199,881	165,774	182,574	197,850	179,616	207,252	150,148
Social supply chain management	No	No	No	No	Yes	Yes	Yes
Governance							
Board size	6	6	6	6	6	6	8
No. of independent directors (ID)	3	3	3	3	3	3	4
No. of women on board	1	1	1	1	1	1	2
No. of non-executive directors on board	3	3	3	3	3	3	4
Company conducts board evaluations	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of board meetings for the year	7	7	7	7	7	7	6
Board meeting attendance pct	100	100	100	100	100	100	100
Board duration (years)	—	—	—	—	—	—	—
Director share ownership guidelines	No	No	No	No	No	No	No
Age of the youngest director	56	53	54	55	56	57	58
Age of the oldest director	82	72	73	73	74	75	65
No. of executives / company managers	5	5	5	5	5	5	6
No. of female executives	1	1	1	1	1	1	1
Executive share ownership guidelines	No	No	No	No	No	No	No
Size of audit committee	3	3	3	3	3	3	4
No. of ID on audit committee	3	3	3	3	3	3	4
Audit committee meetings	4	4	4	4	4	4	4
Audit meeting attendance %	100	100	100	100	100	100	100
Size of compensation committee	0	0	0	0	0	0	0
No. of ID on compensation committee	—	—	—	—	—	—	—
No. of compensation committee meetings	—	—	—	—	—	—	—
Compensation meeting attendance %	—	—	—	—	—	—	—
Size of nomination committee	3	3	3	3	3	3	4
No. of nomination committee meetings	3	2	3	3	2	3	3
Nomination meeting attendance %	100	100	100	100	100	100	100
Sustainability governance							
Verification type	No	No	No	No	No	No	No

Sources: Bloomberg; FSSIA's compilation

Disclaimer for ESG scoring

ESG score	Methodology	Rating																				
The Dow Jones Sustainability Indices (DJSI) By S&P Global	The DJSI World applies a transparent, rules-based component selection process based on the companies' Total Sustainability Scores resulting from the annual S&P Global Corporate Sustainability Assessment (CSA). Only the top-ranked companies within each industry are selected for inclusion.	Be a member and invited to the annual S&P Global Corporate Sustainability Assessment (CSA) for DJSI. Companies with an S&P Global ESG Score of less than 45% of the S&P Global ESG Score of the highest scoring company are disqualified. The constituents of the DJSI indices are selected from the Eligible Universe.																				
Sustainability Investment List (THSI) by The Stock Exchange of Thailand (SET)	THSI quantifies responsibility in Environmental and Social issues by managing business with transparency in Governance, updated annually. Candidates must pass the preemptive criteria, with two crucial conditions: 1) no irregular trading of the board members and executives; and 2) free float of >150 shareholders, and combined holding must be >15% of paid-up capital. Some key disqualifying criteria include: 1) CG score of below 70%; 2) independent directors and free float violation; 3) executives' wrongdoing related to CG, social & environmental impacts; 4) equity in negative territory; and 5) earnings in red for > 3 years in the last 5 years.	To be eligible for THSI inclusion , verified data must be scored at a minimum of 50% for each indicator, unless the company is a part of DJSI during the assessment year. The scoring will be fairly weighted against the nature of the relevant industry and materiality. SETTHSI Index is extended from the THSI companies whose 1) market capitalization > THB5b (~USD150b); 2) free float >20%; and 3) liquidity >0.5% of paid-up capital for at least 9 out of 12 months. The SETTHSI Index is a market capitalisation-weighted index, cap 5% quarterly weight at maximum, and no cap for number of stocks.																				
CG Score by Thai Institute of Directors Association (Thai IOD)	An indicator of CG strength in sustainable development, measured annually by the Thai IOD, with support from the Stock Exchange of Thailand (SET). The results are from the perspective of a third party, not an evaluation of operations.	Scores are rated in six categories: 5 for Excellent (90-100), 4 for Very Good (80-89), 3 for Good (70-79), 2 for Fair (60-69), 1 for Pass (60-69), and not rated for scores below 50. Weightings include: 1) the rights; 2) and equitable treatment of shareholders (weight 25% combined); 3) the role of stakeholders (25%); 4) disclosure & transparency (15%); and 5) board responsibilities (35%).																				
AGM level By Thai Investors Association (TIA) with support from the SEC	It quantifies the extent to which shareholders' rights and equitable treatment are incorporated into business operations and information is transparent and sufficiently disclosed. All form important elements of two out of five the CG components to be evaluated annually. The assessment criteria cover AGM procedures before the meeting (45%), at the meeting date (45%), and after the meeting (10%). <i>(The first assesses 1) advance circulation of sufficient information for voting; and 2) facilitating how voting rights can be exercised. The second assesses 1) the ease of attending meetings; 2) transparency and verifiability; and 3) openness for Q&A. The third involves the meeting minutes that should contain discussion issues, resolutions and voting results.)</i>	The scores are classified into four categories: 5 for Excellent (100), 4 for Very Good (90-99), 3 for Fair (80-89), and not rated for scores below 79.																				
Thai CAC By Thai Private Sector Collective Action Against Corruption (CAC)	The core elements of the Checklist include corruption risk assessment, establishment of key controls, and the monitoring and developing of policies. The Certification is good for three years. <i>(Companies deciding to become a CAC certified member start by submitting a Declaration of Intent to kick off an 18-month deadline to submit the CAC Checklist for Certification, including risk assessment, in place of policy and control, training of managers and employees, establishment of whistleblowing channels, and communication of policies to all stakeholders.)</i>	The document will be reviewed by a committee of nine professionals. A passed Checklist will move for granting certification by the CAC Council approvals whose members are twelve highly respected individuals in professionalism and ethical achievements.																				
Morningstar Sustainability	The Sustainability's ESG risk rating provides an overall company score based on an assessment of how much of a company's exposure to ESG risk is unmanaged. <i>Sources to be reviewed include corporate publications and regulatory filings, news and other media, NGO reports/websites, multi-sector information, company feedback, ESG controversies, issuer feedback on draft ESG reports, and quality & peer reviews.</i>	A company's ESG risk rating score is the sum of unmanaged risk. The more risk is unmanaged, the higher ESG risk is scored. <table><tr><th>NEGL</th><th>Low</th><th>Medium</th><th>High</th><th>Severe</th></tr><tr><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40+</td></tr></table>	NEGL	Low	Medium	High	Severe	0-10	10-20	20-30	30-40	40+										
NEGL	Low	Medium	High	Severe																		
0-10	10-20	20-30	30-40	40+																		
ESG Book	The ESG score identifies sustainable companies that are better positioned to outperform over the long term. The methodology considers the principle of financial materiality including information that significantly helps explain future risk-adjusted performance. Materiality is applied by over-weighting features with higher materiality and rebalancing these weights on a rolling quarterly basis.	The total ESG score is calculated as a weighted sum of the features scores using materiality-based weights. The score is scaled between 0 and 100 with higher scores indicating better performance.																				
MSCI	MSCI ESG ratings aim to measure a company's management of financially relevant ESG risks and opportunities. It uses a rules-based methodology to identify industry leaders and laggards according to their exposure to ESG risks and how well they manage those risks relative to peers. <table><tr><td>AAA</td><td>8.571-10.000</td><td rowspan="3">Leader:</td><td rowspan="3">leading its industry in managing the most significant ESG risks and opportunities</td></tr><tr><td>AA</td><td>7.143-8.570</td></tr><tr><td>A</td><td>5.714-7.142</td></tr><tr><td>BBB</td><td>4.286-5.713</td><td rowspan="3">Average:</td><td rowspan="3">a mixed or unexceptional track record of managing the most significant ESG risks and opportunities relative to industry peers</td></tr><tr><td>BB</td><td>2.857-4.285</td></tr><tr><td>B</td><td>1.429-2.856</td></tr><tr><td>CCC</td><td>0.000-1.428</td><td>Laggard:</td><td>lagging its industry based on its high exposure and failure to manage significant ESG risks</td></tr></table>		AAA	8.571-10.000	Leader:	leading its industry in managing the most significant ESG risks and opportunities	AA	7.143-8.570	A	5.714-7.142	BBB	4.286-5.713	Average:	a mixed or unexceptional track record of managing the most significant ESG risks and opportunities relative to industry peers	BB	2.857-4.285	B	1.429-2.856	CCC	0.000-1.428	Laggard:	lagging its industry based on its high exposure and failure to manage significant ESG risks
AAA	8.571-10.000	Leader:	leading its industry in managing the most significant ESG risks and opportunities																			
AA	7.143-8.570																					
A	5.714-7.142																					
BBB	4.286-5.713	Average:	a mixed or unexceptional track record of managing the most significant ESG risks and opportunities relative to industry peers																			
BB	2.857-4.285																					
B	1.429-2.856																					
CCC	0.000-1.428	Laggard:	lagging its industry based on its high exposure and failure to manage significant ESG risks																			
Moody's ESG solutions	Moody's assesses the degree to which companies take into account ESG objectives in the definition and implementation of their strategy policies. It believes that a company integrating ESG factors into its business model and relatively outperforming its peers is better positioned to mitigate risks and create sustainable value for shareholders over the medium to long term.																					
Refinitiv ESG rating	Designed to transparently and objectively measure a company's relative ESG performance, commitment and effectiveness across 10 main themes, based on publicly available and auditable data. The score ranges from 0 to 100 on relative ESG performance and insufficient degree of transparency in reporting material ESG data publicly. <i>(Score ratings are 0 to 25 = poor; >25 to 50 = satisfactory; >50 to 75 = good; and >75 to 100 = excellent.)</i>																					
S&P Global	The S&P Global ESG Score is a relative score measuring a company's performance on and management of ESG risks, opportunities, and impacts compared to its peers within the same industry classification. The score ranges from 0 to 100.																					
Bloomberg	ESG Score	Bloomberg score evaluating the company's aggregated Environmental, Social and Governance (ESG) performance. The score is based on Bloomberg's view of ESG financial materiality. The score is a weighted generalized mean (power mean) of Pillar Scores, where the weights are determined by the pillar priority ranking. Values range from 0 to 10; 10 is the best.																				
Bloomberg	ESG Disclosure Score	Disclosure of a company's ESG used for Bloomberg ESG score. The score ranges from 0 for none to 100 for disclosure of every data point, measuring the amount of ESG data reported publicly, and not the performance on any data point.																				

[Rating](#) regarding the sustainable development of Thai listed companies, both on the SET and MAI, are publicly available on the website of the Securities and Exchange Commission of Thailand (SEC). Currently, ratings available are 1) "**CG Score**"; 2) "**AGM Level**"; 3) "**Thai CAC**"; and 4) **THSI**. The ratings are updated on an annual basis. FSSIA does not confirm nor certify the accuracy of such ratings.

Source: FSSIA's compilation

GENERAL DISCLAIMER

ANALYST(S) CERTIFICATION

Sureeporn Teewasuwet FSS International Investment Advisory Securities Co., Ltd

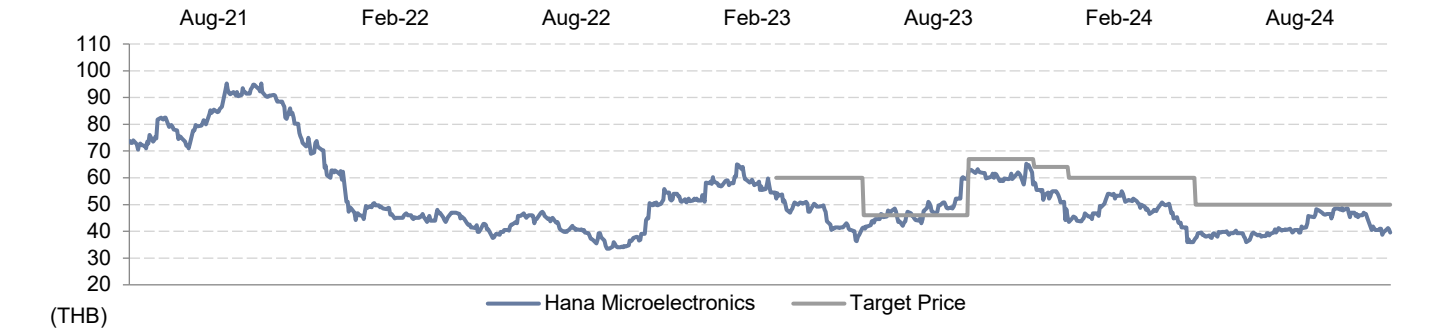
The individual(s) identified above certify(ies) that (i) all views expressed in this report accurately reflect the personal view of the analyst(s) with regard to any and all of the subject securities, companies or issuers mentioned in this report; and (ii) no part of the compensation of the analyst(s) was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed herein.

This report has been prepared by FSS International Investment Advisory Securities Company Limited (FSSIA). The information herein has been obtained from sources believed to be reliable and accurate; however FSSIA makes no representation as to the accuracy and completeness of such information. Information and opinions expressed herein are subject to change without notice. FSSIA has no intention to solicit investors to buy or sell any security in this report. In addition, FSSIA does not guarantee returns nor price of the securities described in the report nor accept any liability for any loss or damage of any kind arising out of the use of such information or opinions in this report. Investors should study this report carefully in making investment decisions. All rights are reserved.

This report may not be reproduced, distributed or published by any person in any manner for any purpose without permission of FSSIA. Investment in securities has risks. Investors are advised to consider carefully before making investment decisions.

History of change in investment rating and/or target price

Hana Microelectronics (HANA TB)



Date	Rating	Target price	Date	Rating	Target price	Date	Rating	Target price
07-Mar-2023	HOLD	60.00	21-Aug-2023	BUY	67.00	16-Nov-2023	BUY	60.00
22-May-2023	BUY	46.00	17-Oct-2023	BUY	64.00	05-Mar-2024	BUY	50.00

Sureeporn Teewasuwet started covering this stock from 07-Mar-2023

Price and TP are in local currency

Source: FSSIA estimates

Company	Ticker	Price	Rating	Valuation & Risks
Hana Microelectronics	HANA TB	THB 38.50	BUY	Downside risks to our P/E-based TP include 1) a slower-than-expected recovery in the global economy and purchasing power, 2) higher-than-expected raw material costs, 3) Baht strength, and 4) higher minimum wage and labor shortages.

Source: FSSIA estimates

Additional Disclosures

Target price history, stock price charts, valuation and risk details, and equity rating histories applicable to each company rated in this report is available in our most recently published reports. You can contact the analyst named on the front of this note or your representative at Finansia Syrus Securities Public Company Limited.

All share prices are as at market close on 23-Aug-2024 unless otherwise stated.

RECOMMENDATION STRUCTURE

Stock ratings

Stock ratings are based on absolute upside or downside, which we define as $(\text{target price}^* - \text{current price}) / \text{current price}$.

BUY (B). The upside is 10% or more.

HOLD (H). The upside or downside is less than 10%.

REDUCE (R). The downside is 10% or more.

Unless otherwise specified, these recommendations are set with a 12-month horizon. Thus, it is possible that future price volatility may cause a temporary mismatch between upside/downside for a stock based on market price and the formal recommendation.

* In most cases, the target price will equal the analyst's assessment of the current fair value of the stock. However, if the analyst doesn't think the market will reassess the stock over the specified time horizon due to a lack of events or catalysts, then the target price may differ from fair value. In most cases, therefore, our recommendation is an assessment of the mismatch between current market price and our assessment of current fair value.

Industry Recommendations

Overweight. The analyst expects the fundamental conditions of the sector to be positive over the next 12 months.

Neutral. The analyst expects the fundamental conditions of the sector to be maintained over the next 12 months.

Underweight. The analyst expects the fundamental conditions of the sector to be negative over the next 12 months.

Country (Strategy) Recommendations

Overweight (O). Over the next 12 months, the analyst expects the market to score positively on two or more of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.

Neutral (N). Over the next 12 months, the analyst expects the market to score positively on one of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.

Underweight (U). Over the next 12 months, the analyst does not expect the market to score positively on any of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.