

HANA MICROELECTRONICS

THAILAND / ELECTRONIC COMPONENT

HANA TB

HOLD

UNCHANGED

1H25 has not recovered

- 1H25 order outlook has not recovered, especially for IC and SiC.
- HANA plans to move Si production line to China by 3Q25, while concerns about the risk of SiC impairment persist.
- Suggest re-entering when signs of order recovery are observed, which may occur in 3Q25.

TARGET PRICE	THB18.00
CLOSE	THB16.10
UP/DOWNSIDE	+11.8%
PRIOR TP	THB32.00
CHANGE IN TP	-43.8%
TP vs CONSENSUS	-41.2%

KEY STOCK DATA

YE Dec (THB m)	2024	2025E	2026E	2027E
Revenue	24,801	22,904	23,841	24,915
Net profit	(634)	1,075	1,239	1,353
EPS (THB)	(0.72)	1.21	1.40	1.53
vs Consensus (%)	-	(26.4)	(21.5)	(25.5)
EBITDA	2,631	2,919	3,181	3,385
Recurring net profit	911	1,075	1,239	1,353
Core EPS (THB)	1.03	1.21	1.40	1.53
Chg. In EPS est. (%)	nm	(35.8)	(36.6)	nm
EPS growth (%)	(54.7)	18.0	15.3	9.2
Core P/E (x)	15.6	13.3	11.5	10.5
Dividend yield (%)	4.6	4.5	5.2	5.7
EV/EBITDA (x)	1.7	1.3	1.2	1.0
Price/book (x)	0.5	0.5	0.5	0.5
Net debt/Equity (%)	(36.4)	(37.6)	(37.6)	(37.5)
ROE (%)	3.2	3.9	4.5	4.8

1H25 order outlook has not recovered yet

We have a negative view from the analyst meeting. Management guided that the 1H25 order outlook has not recovered, especially for IC, resulting in a very low utilization rate in the Ayutthaya factory at just 39%. The demand for Si & SiC also remains weak due to higher competition and lower selling prices, driven by the weakness in the automotive industry. Meanwhile, concerns about US tariffs remain, although HANA has factories in Lamphun and Cambodia as alternatives for Chinese customers looking to shift their production bases. However, customer orders are still recovering slowly.

The target for SiC is quite challenging

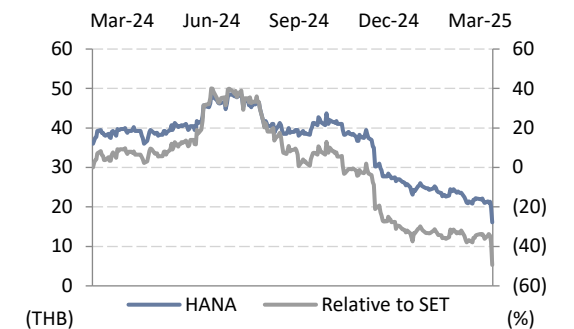
Management still aims for its SiC business to reach the EBITDA breakeven point by the end of 2025, but they mentioned that this is a challenging goal under the current situation, as they need revenue of USD35m-40m to break even (vs USD14m in 2024). However, HANA will increase its marketing efforts in India, Korea, and Turkey instead of the highly competitive Chinese market. In addition, the impairment of the Si business amounting to THB1.84b in 1Q25 and plans to move the production lines to China by 3Q25 should help reduce PMS' losses. We are awaiting a recovery in 3Q25.

Concerns about risk of SiC impairment persist

As for the remaining concerns about the SiC business in PMS, management mentioned that they cannot clearly identify whether there will be additional impairment risks in the future, as it mainly depends on the recovery situation. Currently, the net book value of PMS (SiC) is cTHB 2.7b. In addition, the FT1 project, a joint venture with PTT, has no progress yet, and the management team is monitoring the situation and reviewing the project further.

The re-entry period may be in 3Q25

We cut our 2025-27E core profit by 36-37%, forecasting a 2025 core profit of THB1.07b (+18% y-y), assuming that revenue will gradually recover in 2H25 and no further asset impairments will occur. We lower our TP to THB18 by reducing the target P/E to 15x (-1 SD) from 17x to reflect the slower-than-expected recovery. Although we expect that HANA has passed the low point in 2024, the recovery still needs to be closely monitored.



Share price performance	1 Month	3 Month	12 Month
Absolute (%)	(31.8)	(40.9)	(56.5)
Relative to country (%)	(25.5)	(29.9)	(50.5)
Mkt cap (USD m)	417		
3m avg. daily turnover (USD m)	6.8		
Free float (%)	58		
Major shareholder	OMAC and related companies (29%)		
12m high/low (THB)	49.75/15.90		
Issued shares (m)	885.36		

Sources: Bloomberg consensus; FSSIA estimates



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Investment thesis

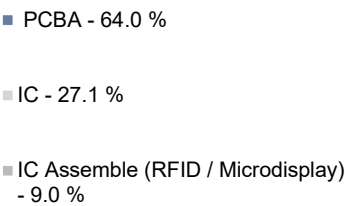
HANA is a leading EMS provider in Southeast Asia with over 45 years of experience. Since its inception in 1978, even though it is mainly a midstream producer, its strength has come from its diversification to several end products, such as telecommunications, computers, consumer products, automobiles, 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 2024, HANA generated revenue from PCBA (64% of total revenue), followed by IC (27%), RFID (7%), and SiC (2%).

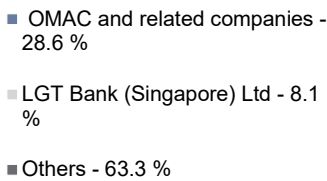
www.hanagroup.com

Principal activities (revenue, 2024)



Source: Hana Microelectronics

Major shareholders



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 and upside risks to our P/E-based TP include 1) a slower or faster-than-expected recovery in the global economy and purchasing power; 2) higher or lower-than-expected raw material costs; 3) baht strength or weakness; and 4) a higher minimum wage and labor shortages.

Event calendar

Date	Event
May 2025	1Q25 results announcement

Key assumptions

	2025E	2026E	2027E
USD total revenue (USD m)	694	722	755
SiC revenue (USD m)	10	13	15
FX rate (USD/THB)	33	33	33
THB revenue growth (%)	(7.6)	4.1	4.5
Gross margin (%)	10.0	10.5	10.7

Source: FSSIA estimates

Earnings sensitivity

- For every THB1/USD increase, we estimate 2025 net profit to fall by 6.8%, and vice versa, all else being equal.
- For every 0.5% increase in GPM, we estimate 2025 net profit to rise by 5.7%, and vice versa, all else being equal.
- For every 0.2% increase in SG&A, we estimate 2025 net profit to fall by 1.3%, and vice versa, all else being equal.
- For every 10% increase in labor cost, we estimate 2025 net profit to fall by 6.6%, and vice versa, all else being equal.

Source: FSSIA estimates

4Q24 turned to a loss due to huge impairment

HANA's 4Q24 earnings turned to a net loss of THB1.73b from a profit of THB406m in 3Q24 and THB125m in 4Q23. Excluding two major items: 1) an impairment of assets at the South Korea factory (PMS) worth THB1.84b, which included impairment of buildings and equipment for THB1.76b and intangible assets worth THB83m; and 2) an FX gain of THB105m, the core profit would only be THB11m (-82% q-q, -96% y-y).

Total revenue declined by 8.5% q-q and 10% y-y, the lowest in 15 quarters, with a decline in every factory (Thailand, US, Cambodia, and South Korea) except China, where both PCBA and IC have recovered. However, the China recovery could not offset the other factories.

The gross margin continued to decline to 5.3% from 6.2% in 3Q24, the lowest level since we have data back to 2007, driven by lower capacity utilization and an inventory write-down of cTHB199m. If this item is added back, the actual gross margin would be 8.8%, and the core profit would be THB210m (+243% q-q, -28% y-y).

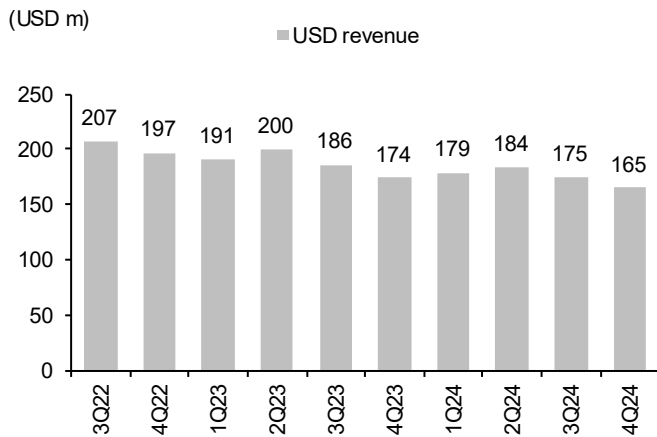
For the full-year 2024, the company turned to a loss of THB634m from a profit of THB1.76b in 2023. The core profit (excluding impairment) was THB911m (-55% y-y).

Although 2024 EPS was negative at THB0.72/shr, the impairment was an accounting item and does not affect cash flow. HANA announced a 2H24 DPS of THB0.5/shr, yielding 2.5%, making the total annual dividend THB0.75/shr, which is a payout ratio of 73% based on core profit (excluding asset impairment).

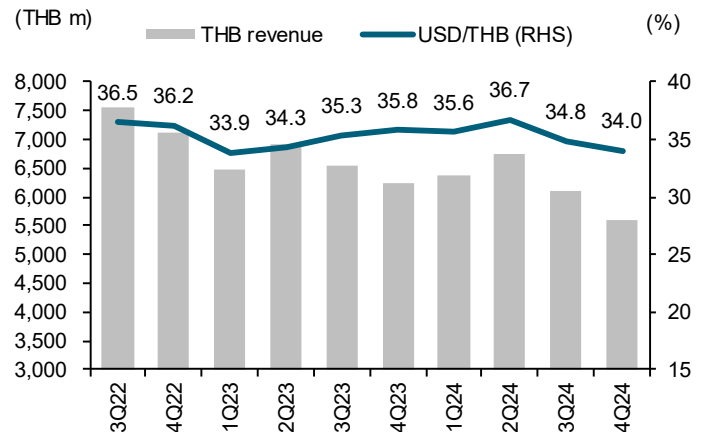
Exhibit 1: HANA – 4Q24 earnings results

	4Q23	1Q24	2Q24	3Q24	4Q24	----- Change -----		2023	2024	Change
	(THB m)	(THB m)	(THB m)	(THB m)	(THB m)	(q-q%)	(y-y%)	(THB m)	(THB m)	(y-y%)
Total revenue	6,221	6,371	6,752	6,100	5,579	(8.5)	(10.3)	26,152	24,801	(5.2)
Cost of sales	5,602	5,683	5,918	5,722	5,284	(7.6)	(5.7)	22,910	22,607	(1.3)
Gross profit	619	687	834	378	295	(22.1)	(52.4)	3,242	2,194	(32.3)
SG&A	408	415	419	425	432	1.7	5.9	1,631	1,691	3.7
Operating profit	211	272	415	(46)	(137)	nm	nm	1,611	503	(68.8)
Tax expense	20	27	31	16	13	(17.3)	(34.4)	85	86	0.8
Other gain (loss)	(166)	(39)	(111)	345	(1,740)	nm	nm	(249)	(1,545)	nm
Reported net profit	125	313	376	406	(1,729)	nm	nm	1,761	(634)	nm
Core profit	291	352	487	61	11	(82.4)	(96.3)	2,009	911	(54.7)
Key ratios (%)						(ppt)	(ppt)			
Gross margin	9.9	10.8	12.4	6.2	5.3	(0.9)	(4.7)	12.4	8.8	(3.5)
SG&A to sales	6.6	6.5	6.2	7.0	7.7	0.8	1.2	6.2	6.8	0.6
Operating margin	3.4	4.3	6.1	(0.8)	(2.5)	(1.7)	(5.8)	6.2	2.0	(4.1)
Net margin	2.0	4.9	5.6	6.7	(31.0)	(37.6)	(33.0)	6.7	(2.6)	(9.3)
Core margin	4.7	5.5	7.2	1.0	0.2	(0.8)	(4.5)	7.7	3.7	(4.0)
Operating statistics (THB m)										
PCBA - Lamphun	3,044	3,176	3,232	2,952	2,792	(5.4)	(8.3)	11,412	12,153	6.5
PCBA - Jiaxing	774	884	1,004	776	808	4.2	4.4	3,138	3,472	10.6
PCBA - Cambodia	54	61	70	79	38	(51.1)	(28.8)	523	248	(52.6)
IC - Ayuttaya	1,692	1,624	1,604	1,530	1,194	(21.9)	(29.4)	7,323	5,952	(18.7)
IC - Jiaxing	137	125	168	178	273	53.7	99.6	785	744	(5.2)
HMT - USA	407	411	504	458	364	(20.5)	(10.6)	1,569	1,736	10.6
IC - South Korea	113	90	170	128	108	(15.6)	(4.4)	523	496	(5.2)
Total IC revenue	2,349	2,249	2,445	2,294	1,940	(15.4)	(17.4)	7,845	8,989	(11.3)
Total PCBA revenue	3,872	4,121	4,306	3,806	3,639	(4.4)	(6.0)	12,086	11,029	7.1

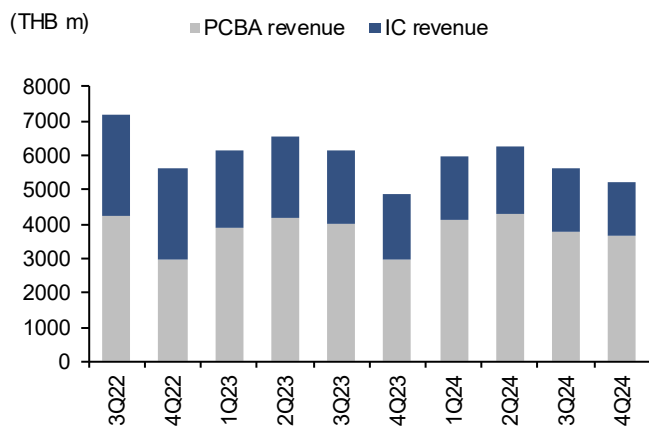
Sources: HANA, FSSIA's compilation

Exhibit 2: Quarterly USD revenue


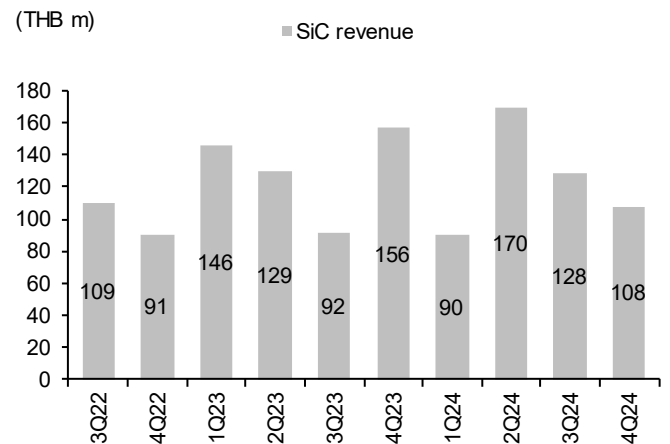
Sources: HANA, FSSIA's compilation

Exhibit 3: Quarterly THB revenue


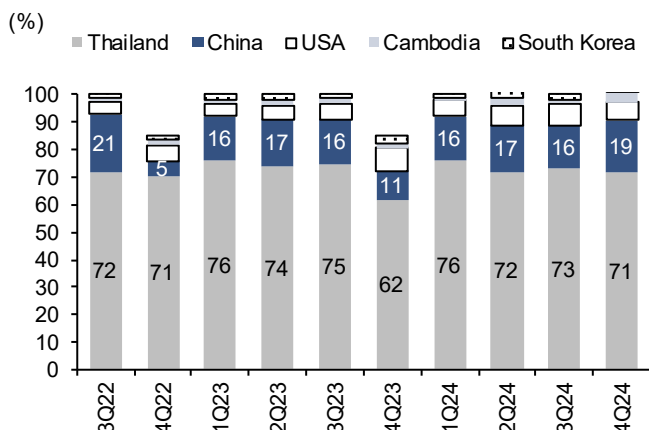
Sources: HANA, FSSIA's compilation

Exhibit 4: Quarterly revenue by product segment


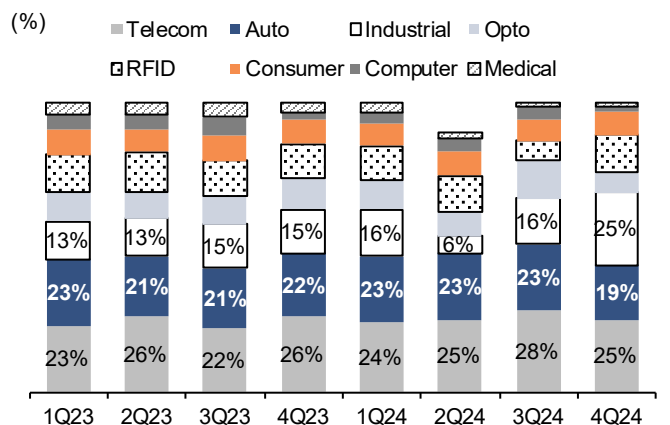
Sources: HANA, FSSIA's compilation

Exhibit 5: Quarterly SiC revenue


Sources: HANA, FSSIA's compilation

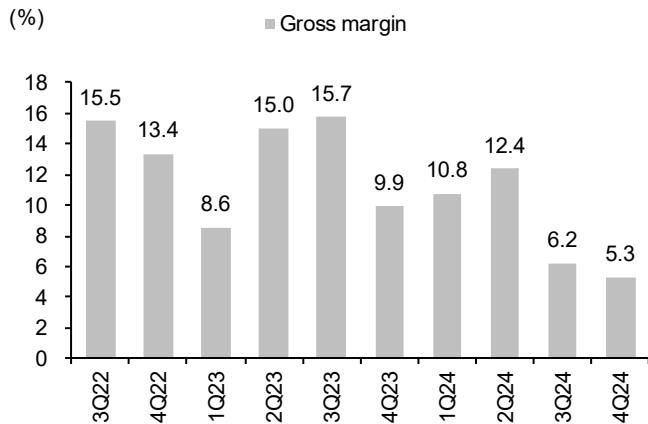
Exhibit 6: Quarterly revenue by location base


Sources: HANA, FSSIA's compilation

Exhibit 7: Quarterly revenue by end application


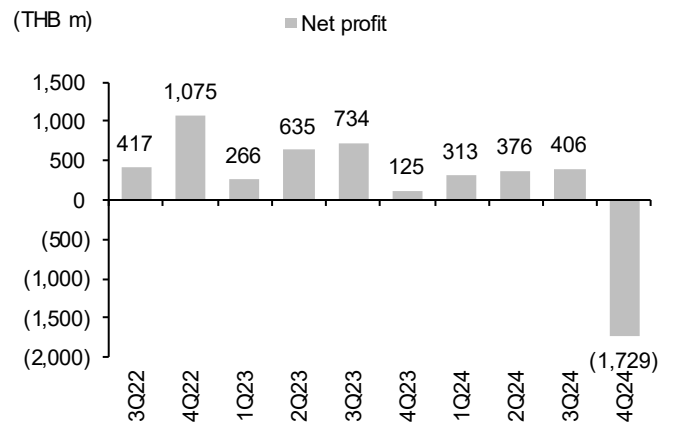
Sources: HANA, FSSIA's compilation

Exhibit 8: Quarterly gross margin



Sources: HANA, FSSIA's compilation

Exhibit 9: Quarterly net profit

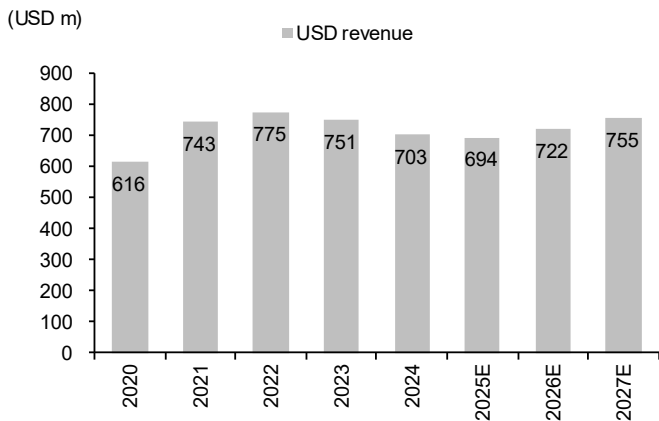


Sources: HANA, FSSIA's compilation

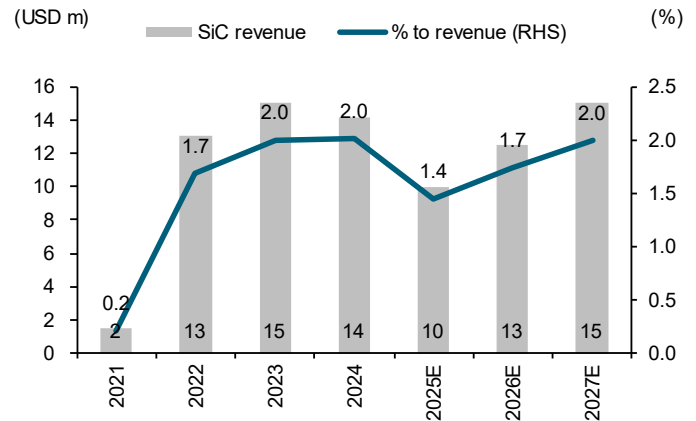
Exhibit 10: Changes in keys assumptions for HANA

	Current			Previous			Change		
	2025E (THB m)	2026E (THB m)	2027E (THB m)	2025E (THB m)	2026E (THB m)	2027E (THB m)	2025E (%)	2026E (%)	2027E (%)
Total sales value (THB m)	22,904	23,841	24,915	24,631	26,709	28,498	(7.0)	(10.7)	(12.6)
Costs	20,614	21,338	22,249	21,675	23,370	24,907	(4.9)	(8.7)	(10.7)
Gross profit	2,290	2,503	2,666	2,956	3,339	3,591	(22.5)	(25.0)	(25.8)
SG&A expense	1,592	1,657	1,732	1,601	1,736	1,852	(0.6)	(4.6)	(6.5)
Interest expense	69	62	52	95	87	79	(26.9)	(28.4)	(33.6)
Reported net profit	1,075	1,239	1,353	1,675	1,956	2,126	(35.8)	(36.6)	(36.4)
Core profit	1,075	1,239	1,353	1,675	1,956	2,126	(35.8)	(36.6)	(36.4)
EPS (THB/share)	1.21	1.40	1.53	1.89	2.21	2.40	(35.8)	(36.6)	(36.4)
Key ratios (%)									
Total revenue growth	(7.6)	4.1	4.5	(1.1)	8.4	6.7	(6.5)	(4.3)	(2.2)
Net profit growth	nm	15.3	9.2	23.5	16.7	8.7	nm	(1.5)	0.5
Core profit growth	18.0	15.3	9.2	45.4	16.7	8.7	(27.4)	(1.5)	0.5
Gross margin	10.0	10.5	10.7	12.0	12.5	12.6	(2.0)	(2.0)	(1.9)
SG&A to sales	7.0	7.0	7.0	6.5	6.5	6.5	0.5	0.5	0.5
Net margin	4.7	5.2	5.4	6.8	7.3	7.5	(2.1)	(2.1)	(2.0)
Core margin	4.7	5.2	5.4	6.8	7.3	7.5	(2.1)	(2.1)	(2.0)
Operating statistics									
Total revenue (USD m)	694	722	755	746	809	864	(7.0)	(10.7)	(12.6)
SiC revenue (USD m)	10	13	15	26	32	39	(61.4)	(61.4)	(61.4)
FX rate (THB/USD)	33.0	33.0	33.0	33.0	33.0	33.0	0.0	0.0	0.0

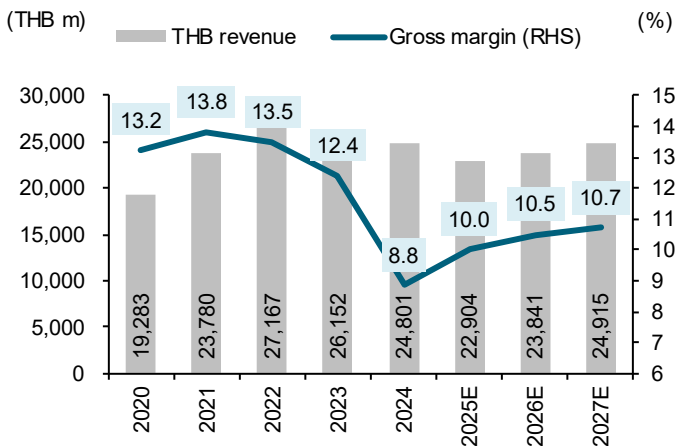
Source: FSSIA estimates

Exhibit 11: Yearly USD revenue


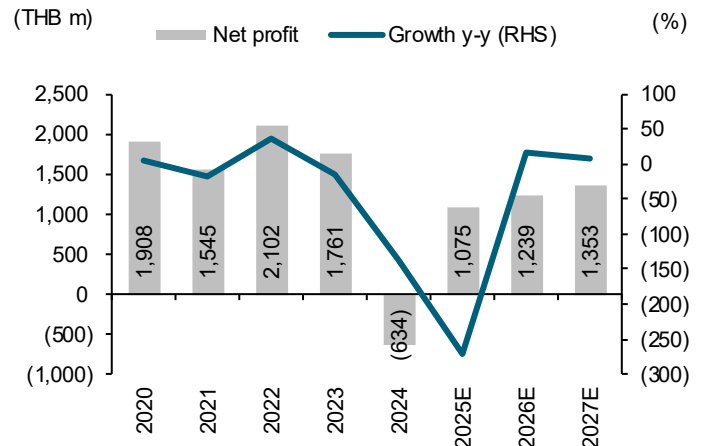
Sources: HANA; FSSIA estimates

Exhibit 12: Yearly SiC revenue


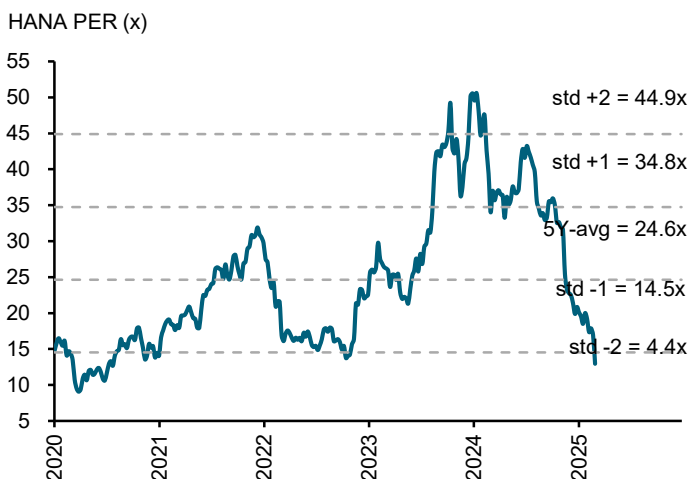
Sources: HANA; FSSIA estimates

Exhibit 13: Yearly THB revenue and gross margin


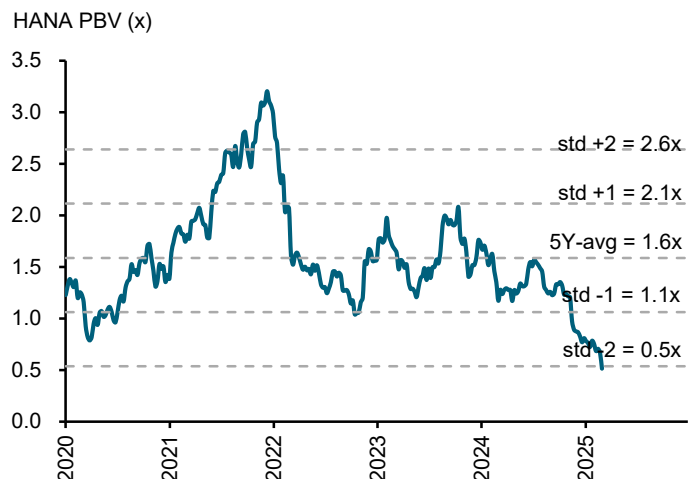
Sources: HANA; FSSIA estimates

Exhibit 14: Yearly net profit and growth


Sources: HANA; FSSIA estimates

Exhibit 15: Historical P/E band


Sources: Bloomberg, FSSIA estimates

Exhibit 16: Historical P/BV band


Sources: Bloomberg, FSSIA estimates

Financial Statements

Hana Microelectronics

Profit and Loss (THB m) Year Ending Dec	2023	2024	2025E	2026E	2027E
Revenue	26,152	24,801	22,904	23,841	24,915
Cost of goods sold	(22,910)	(22,607)	(20,614)	(21,338)	(22,249)
Gross profit	3,242	2,194	2,290	2,503	2,666
Other operating income	439	352	344	358	374
Operating costs	(1,631)	(1,691)	(1,592)	(1,657)	(1,732)
Operating EBITDA	3,752	2,631	2,919	3,181	3,385
Depreciation	(1,702)	(1,777)	(1,877)	(1,977)	(2,077)
Goodwill amortisation	0	0	0	0	0
Operating EBIT	2,050	855	1,042	1,204	1,308
Net financing costs	45	129	114	128	147
Associates	0	13	0	0	0
Recurring non-operating income	0	13	0	0	0
Non-recurring items	(249)	(1,545)	0	0	0
Profit before tax	1,846	(548)	1,156	1,332	1,455
Tax	(85)	(86)	(81)	(93)	(102)
Profit after tax	1,761	(634)	1,075	1,239	1,353
Minority interests	0	0	0	0	0
Preferred dividends	0	0	0	0	0
Other items	-	-	-	-	-
Reported net profit	1,761	(634)	1,075	1,239	1,353
Non-recurring items & goodwill (net)	249	1,545	0	0	0
Recurring net profit	2,009	911	1,075	1,239	1,353
Per share (THB)					
Recurring EPS *	2.27	1.03	1.21	1.40	1.53
Reported EPS	1.99	(0.72)	1.21	1.40	1.53
DPS	1.00	0.75	0.73	0.84	0.92
Diluted shares (used to calculate per share data)	885	885	885	885	885
Growth					
Revenue (%)	(3.7)	(5.2)	(7.6)	4.1	4.5
Operating EBITDA (%)	(7.5)	(29.9)	10.9	9.0	6.4
Operating EBIT (%)	(15.5)	(58.3)	21.9	15.5	8.6
Recurring EPS (%)	(23.8)	(54.7)	18.0	15.3	9.2
Reported EPS (%)	(23.9)	nm	nm	15.3	9.2
Operating performance					
Gross margin inc. depreciation (%)	12.4	8.8	10.0	10.5	10.7
Gross margin exc. depreciation (%)	18.9	16.0	18.2	18.8	19.0
Operating EBITDA margin (%)	14.3	10.6	12.7	13.3	13.6
Operating EBIT margin (%)	7.8	3.4	4.5	5.1	5.3
Net margin (%)	7.7	3.7	4.7	5.2	5.4
Effective tax rate (%)	4.6	-15.7	7.0	7.0	7.0
Dividend payout on recurring profit (%)	44.1	72.5	60.0	60.0	60.0
Interest cover (X)	(45.4)	(6.7)	(9.2)	(9.4)	(8.9)
Inventory days	158.6	140.8	132.4	124.6	124.2
Debtor days	70.9	71.1	68.2	63.7	63.6
Creditor days	65.0	56.2	57.0	54.2	54.0
Operating ROIC (%)	7.7	3.5	4.9	5.7	6.1
ROIC (%)	7.5	3.4	4.6	5.3	5.7
ROE (%)	7.6	3.2	3.9	4.5	4.8
ROA (%)	6.1	2.4	3.0	3.5	3.7

* Pre-exceptional, pre-goodwill and fully diluted

Revenue by Division (THB m)	2023	2024	2025E	2026E	2027E
PCBA	15,956	15,866	16,659	17,992	19,971
IC	8,235	6,709	3,907	3,325	2,141
IC Assemble (RFID / Microdisplay)	1,961	2,226	2,337	2,524	2,802

Sources: Hana Microelectronics; FSSIA estimates

Financial Statements

Hana Microelectronics

Cash Flow (THB m) Year Ending Dec	2023	2024	2025E	2026E	2027E
Recurring net profit	2,009	911	1,075	1,239	1,353
Depreciation	1,702	1,777	1,877	1,977	2,077
Associates & minorities	-	-	-	-	-
Other non-cash items	(241)	(1,554)	0	0	0
Change in working capital	(491)	2,215	727	(282)	(337)
Cash flow from operations	2,980	3,348	3,679	2,934	3,092
Capex - maintenance	-	-	-	-	-
Capex - new investment	(2,550)	(597)	(2,000)	(2,000)	(2,000)
Net acquisitions & disposals	-	-	-	-	-
Other investments (net)	162	(324)	(275)	(14)	(141)
Cash flow from investing	(2,389)	(921)	(2,275)	(2,014)	(2,141)
Dividends paid	(859)	(701)	(652)	(743)	(812)
Equity finance	4,588	0	0	0	0
Debt finance	1,280	(435)	224	(153)	(145)
Other financing cash flows	(342)	(633)	(259)	28	32
Cash flow from financing	4,667	(1,769)	(688)	(868)	(925)
Non-recurring cash flows	-	-	-	-	-
Other adjustments	0	1,195	0	0	0
Net other adjustments	0	1,195	0	0	0
Movement in cash	5,258	1,852	716	51	27
Free cash flow to firm (FCFF)	643.40	2,490.95	1,473.63	982.14	1,004.18
Free cash flow to equity (FCFE)	1,529.93	2,553.10	1,368.92	794.98	838.96
Per share (THB)					
FCFF per share	0.73	2.81	1.66	1.11	1.13
FCFE per share	1.73	2.88	1.55	0.90	0.95
Recurring cash flow per share	3.92	1.28	3.33	3.63	3.87
Balance Sheet (THB m) Year Ending Dec	2023	2024	2025E	2026E	2027E
Tangible fixed assets (gross)	29,984	30,403	32,403	34,403	36,403
Less: Accumulated depreciation	(18,283)	(21,076)	(22,952)	(24,929)	(27,006)
Tangible fixed assets (net)	11,701	9,328	9,451	9,474	9,398
Intangible fixed assets (net)	0	0	0	0	0
Long-term financial assets	72	528	700	700	700
Invest. in associates & subsidiaries	-	-	-	-	-
Cash & equivalents	8,893	10,745	11,461	11,513	11,540
A/C receivable	5,178	4,481	4,079	4,246	4,437
Inventories	8,969	7,096	6,495	6,723	7,010
Other current assets	119	98	115	119	125
Current assets	23,159	22,419	22,149	22,600	23,111
Other assets	373	241	344	358	498
Total assets	35,306	32,516	32,644	33,132	33,707
Common equity	29,147	27,078	27,576	28,071	28,613
Minorities etc.	0	0	0	0	0
Total shareholders' equity	29,147	27,078	27,576	28,071	28,613
Long term debt	204	336	306	276	246
Other long-term liabilities	921	1,004	687	715	747
Long-term liabilities	1,125	1,340	993	991	993
A/C payable	3,391	3,026	2,824	2,923	3,048
Short term debt	1,105	557	793	670	555
Other current liabilities	538	515	458	477	498
Current liabilities	5,034	4,098	4,075	4,070	4,101
Total liabilities and shareholders' equity	35,306	32,516	32,644	33,132	33,707
Net working capital	10,338	8,133	7,406	7,688	8,025
Invested capital	22,485	18,230	17,901	18,220	18,621
* Includes convertibles and preferred stock which is being treated as debt					
Per share (THB)					
Book value per share	32.92	30.58	31.15	31.71	32.32
Tangible book value per share	32.92	30.58	31.15	31.71	32.32
Financial strength					
Net debt/equity (%)	(26.0)	(36.4)	(37.6)	(37.6)	(37.5)
Net debt/total assets (%)	(21.5)	(30.3)	(31.7)	(31.9)	(31.9)
Current ratio (x)	4.6	5.5	5.4	5.6	5.6
CF interest cover (x)	(89.4)	(23.3)	(28.6)	(20.8)	(18.3)
Valuation	2023	2024	2025E	2026E	2027E
Recurring P/E (x) *	7.1	15.6	13.3	11.5	10.5
Recurring P/E @ target price (x) *	7.9	17.5	14.8	12.9	11.8
Reported P/E (x)	8.1	(22.5)	13.3	11.5	10.5
Dividend yield (%)	6.2	4.6	4.5	5.2	5.7
Price/book (x)	0.5	0.5	0.5	0.5	0.5
Price/tangible book (x)	0.5	0.5	0.5	0.5	0.5
EV/EBITDA (x) **	1.8	1.7	1.3	1.2	1.0
EV/EBITDA @ target price (x) **	2.2	2.3	1.9	1.7	1.5
EV/invested capital (x)	0.3	0.2	0.2	0.2	0.2
* 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 17: 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 18: ESG – peer comparison

	FSSIA ESG score	Domestic ratings						Global ratings						Bloomberg	
		DJSI	SET ESG	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 19: 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 20: 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.																			
SET ESG Ratings List (SETESG) by The Stock Exchange of Thailand (SET)	SET ESG 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 SETESG 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. SETESG Index is extended from the SET ESG Ratings 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 Sustainabilitys	The Sustainabilitys' 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
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B	1.429-2.856																				
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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

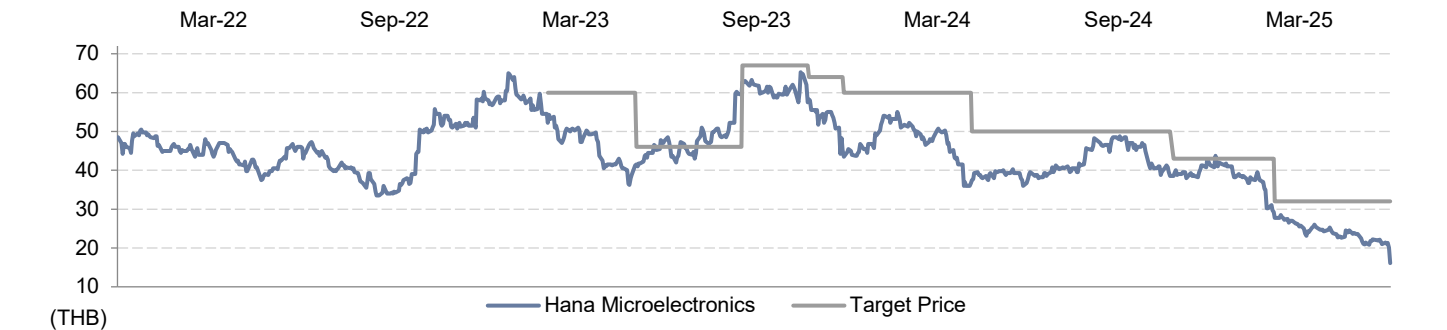
The individual(s) identified above certify(ies) that (i) all views expressed in this report accurately reflect the personal view of the analyst(s) with regard to any and all of the subject securities, companies or issuers mentioned in this report; and (ii) no part of the compensation of the analyst(s)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

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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	17-Oct-2023	BUY	64.00	23-Aug-2024	BUY	43.00
22-May-2023	BUY	46.00	16-Nov-2023	BUY	60.00	20-Nov-2024	HOLD	32.00
21-Aug-2023	BUY	67.00	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 16.10	HOLD	Downside and upside risks to our P/E-based TP include 1) a slower or faster-than-expected recovery in the global economy and purchasing power; 2) higher or lower-than-expected raw material costs; 3) baht strength or weakness; and 4) a 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 28-Feb-2025 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.