

# HANA MICROELECTRONICS

THAILAND / ELECTRONIC COMPONENT

# HANA TB

## BUY

UNCHANGED

## Consumer and EV would help support growth

- In the short run, we expect the 4Q23 core profit to weaken in line with seasonality and a slow recovery in China.
- In the big picture, purchase orders for Consumer and Automotive should improve in 2024. It would benefit HANA, which earns revenue from various product groups.
- Maintain BUY call on a profit recovery in 2024 and inexpensive valuations.

TARGET PRICE	THB60.00
CLOSE	THB51.25
UP/DOWNSIDE	+17.1%
PRIOR TP	THB60.00
CHANGE IN TP	UNCHANGED
TP vs CONSENSUS	+7.5%

## KEY STOCK DATA

YE Dec (THB m)	2022	2023E	2024E	2025E
Revenue	27,167	26,089	26,895	29,931
Net profit	2,102	2,171	2,322	2,658
EPS (THB)	2.61	2.45	2.62	3.00
vs Consensus (%)	-	(9.9)	(12.6)	(13.2)
EBITDA	4,054	4,114	4,332	4,773
Recurring net profit	2,398	2,254	2,322	2,658
Core EPS (THB)	2.98	2.55	2.62	3.00
Chg. In EPS est. (%)	-	-	-	-
EPS growth (%)	5.4	(14.6)	3.0	14.5
Core P/E (x)	17.2	20.1	19.5	17.1
Dividend yield (%)	2.0	1.9	2.3	2.6
EV/EBITDA (x)	9.3	10.2	9.7	8.9
Price/book (x)	1.7	1.8	1.7	1.7
Net debt/Equity (%)	(14.1)	(12.8)	(12.0)	(11.0)
ROE (%)	10.2	9.2	8.9	9.8

## Semiconductor sales should resume double-digit growth in 2024

The November global semiconductor sales resumed growth of 2.9% m-m and 5.3% y-y, the first y-y increase in 15 months. According to SIA, its 2024 sales should grow by 13.1% y-y after a decrease of 9.4% y-y in 2023. In this regard, we expect a recovery in Consumer Electronics and 2024 global smartphone sales growth to resume for the first time in three years at 4% y-y to 1.17b units due to the demand for new upgraded models that better support AI. Also, Gartner had anticipated that 2024 revenue from AI Semiconductor would jump by 25.6% y-y. Also, the growth should double in 2027 due to the rising demand for advanced chips.

## EV sales should support SiC to hit its breakeven by 2H24

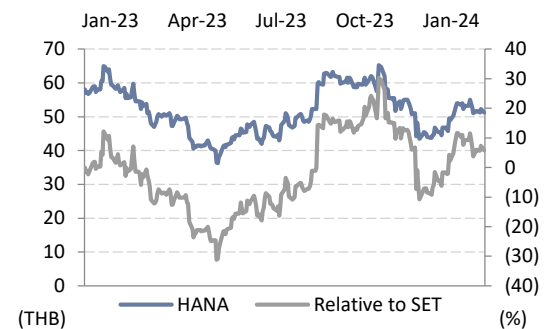
Although the 2024 global auto sales growth could be modest at just 2-3% y-y, it would be attributable to a decline in ICE cars, while global EV sales growth should be high at 25-30% y-y due to continuously rising demand. It should help support higher demand for high-quality semiconductors, such as SiC. It would, in turn, benefit HANA, which is expanding its SiC MOSFET capacity and marketing it to new customers. In particular, 2024-25 SiC sales should jump by 140% y-y and 87.5% y-y, respectively. It would raise the SiC mix to 10% of 2025 revenue from 2% in 2023. Also, HANA should see an EBITDA breakeven by 2H24.

## Expect a profit recovery in 1H24

In the short run, we expect the 4Q23 core profit to weaken to THB545m (-19% q-q, flat y-y) due to seasonality and a slow recovery in the purchase orders from China. However, the earnings should recover in 1H24 and accelerate in 3Q24 after increased Consumer demand and higher growth of SiC. We maintain our 2023-24E profit of THB2.17b (+3.3% y-y) and THB2.32b (+7% y-y), respectively.

## Maintain BUY call on resumed growth and less demanding valuations

We retain our TP of THB60 (PE 23x). Although the 2024 profit should record a single-digit growth rate on conservative assumptions, we believe the operating performance has seen its trough. Also, the electronics industry has recovered in the Consumer and Automotive segments, while HANA is increasing its EV revenue mix. HANA has less demanding valuations than its peers. It is trading at 2024-25 PE of c20x and c17x, respectively, while KCE and DELTA are trading at 2024 PE of 23x and 49x, respectively. Therefore, we reaffirm our BUY rating on HANA.



Share price performance	1 Month	3 Month	12 Month
Absolute (%)	4.6	(20.8)	(12.4)
Relative to country (%)	3.4	(18.4)	4.7
Mkt cap (USD m)	1,298		
3m avg. daily turnover (USD m)	23.6		
Free float (%)	58		
Major shareholder	OMAC and related companies (32%)		
12m high/low (THB)	66.25/36.00		
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 a long experience of over 45 years. Since its inception in 1978, although it is mainly a midstream producer, it has strength in its diversification to several end products, such as telecommunications, computers, consumer products, automobiles, radio frequency identification (RFID), and medical products. Also, it has manufacturing bases in several countries while constantly developing new products, i.e., SiC, to catch up with industrial customer demands, particularly in EVs.

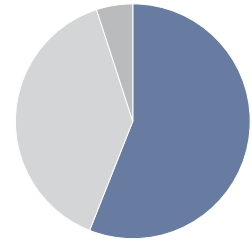
### Company profile

HANA is one of South East Asia’s leading independent electronics manufacturing service providers. The company produces PCBA, IC, assembles and tests micro-displays, and RFID. The company’s headquarters are in Bangkok and there are six manufacturing facilities in Thailand, China, the USA, Cambodia, and South Korea. In 2022, Its revenue contribution came mainly from PCBA (56% of total revenue), followed by IC (38%), RFID (5%), and SiC (1%).

[www.hanagroup.com](http://www.hanagroup.com)

### Principal activities (revenue, 2022)

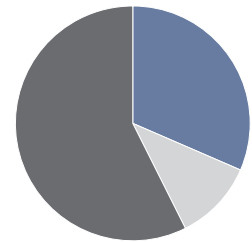
- PCBA - 56.0 %
- IC - 39.0 %
- IC Assemble (RFID / Microdisplay) - 5.0 %



Source: Hana Microelectronics

### Major shareholders

- OMAC and related companies - 31.5 %
- LGT Bank (Singapore) Ltd - 11.1 %
- Others - 57.4 %



Source: Hana Microelectronics

### Catalysts

Potential catalysts for HANA’s earnings growth in 2023 are 1) a stronger global economy and a consumption recovery; 2) a decline 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 consumption recovery; 2) a potential rise in raw material costs; and 3) a stronger-than-expected THB against USD.

### Event calendar

Date	Event
February 2024	4Q23 results announcement
March 2024	4Q23 analyst meeting

### Key assumptions

	2023E	2024E	2025E
USD total revenue (USD m)	756	815	907
SiC revenue (USD m)	20	48	90
FX rate (USD/THB)	35	33	33
THB revenue growth (%)	(4.0)	3.1	11.3
Gross margin (%)	13.4	13.4	13.7

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 labour cost, we estimate 2024 net profit to fall by 6.6%, and vice versa, all else being equal.

Source: FSSIA estimates

## Exhibit 1: HANA - 4Q23 earnings preview

	4Q22	1Q23	2Q23	3Q23	4Q23E	Change		2022	2023E	Change
	(THB m)	(THB m)	(THB m)	(THB m)	(THB m)	(q-q%)	(y-y%)	(THB m)	(THB m)	(y-y%)
Total revenue	7,125	6,466	6,910	6,555	6,326	(3.5)	(11.2)	27,167	26,089	(4.0)
Cost of sales	6,171	5,913	5,871	5,523	5,440	(1.5)	(11.8)	23,506	22,593	(3.9)
Gross profit	954	553	1,039	1,031	886	(14.1)	(7.1)	3,661	3,496	(4.5)
SG&A	505	382	392	449	437	(2.8)	(13.6)	1,695	1,644	(3.0)
Operating profit	449	171	646	582	449	(22.8)	0.1	1,966	1,852	(5.8)
Interest expense	5.9	1.8	8.0	17.4	12.0	(30.9)	104.1	13	26	106.3
Tax expense	31	12	33	21	29	35.7	(8.7)	107	96	(10.3)
Reported net profit	1,075	266	635	734	545	(25.7)	(49.3)	2,102	2,171	3.3
Core profit	553	295	749	674	545	(19.1)	(1.4)	2,254	2,322	3.0
<b>Key Ratios (%)</b>						<b>(ppt)</b>	<b>(ppt)</b>			<b>(ppt)</b>
Gross margin	13.4	8.6	15.0	15.7	14.0	(1.7)	0.6	13.5	13.4	(0.1)
SG&A to sales	7.1	5.9	5.7	6.9	6.9	0.0	(0.2)	6.2	6.3	0.1
Operating margin	6.3	2.7	9.4	8.9	7.1	(1.8)	0.8	7.2	7.1	(0.1)
Net margin	15.1	4.1	9.2	11.2	8.6	(2.6)	(6.5)	7.7	8.3	0.6
Core margin	7.8	4.6	10.8	10.3	8.6	(1.7)	0.9	8.3	8.9	0.6

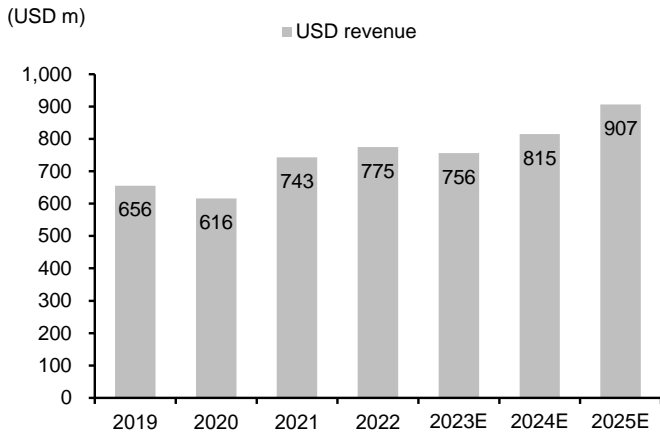
Sources: HANA; FSSIA estimates

## Exhibit 2: Key assumptions for HANA

	Current			Growth		
	2023E	2024E	2025E	2023E	2024E	2025E
	(THB m)	(THB m)	(THB m)	(%)	(%)	(%)
Total sale value (THB m)	26,089	26,895	29,931	(4.0)	3.1	11.3
Costs	22,593	23,280	25,836	(3.9)	3.0	11.0
Gross profit	3,496	3,615	4,095	(4.5)	3.4	13.3
SG&A expense	1,644	1,694	1,886	(3.0)	3.1	11.3
Interest expense	26	19	15	106.3	(27.5)	(19.3)
Reported net profit	2,171	2,322	2,658	3.3	6.9	14.5
Core profit	2,254	2,322	2,658	(6.0)	3.0	14.5
EPS (THB/share)	2.45	2.62	3.00	(6.1)	6.9	14.5
<b>Key ratios (%)</b>						
Gross margin	13.4	13.4	13.7	(0.1)	0.0	0.2
SG&A to sales	6.3	6.3	6.3	0.1	0.0	0.0
Net margin	8.3	8.6	8.9	0.6	0.3	0.2
Core margin	8.6	8.6	8.9	(0.2)	(0.0)	0.2
<b>Operating statistics</b>						
Total revenue (USD m)	756	815	907	(2.4)	7.8	11.3
SiC revenue (USD m)	20	48	90	53.8	140.0	87.5
FX rate (THB/USD)	34.5	33.0	33.0	(1.7)	(4.3)	0.0

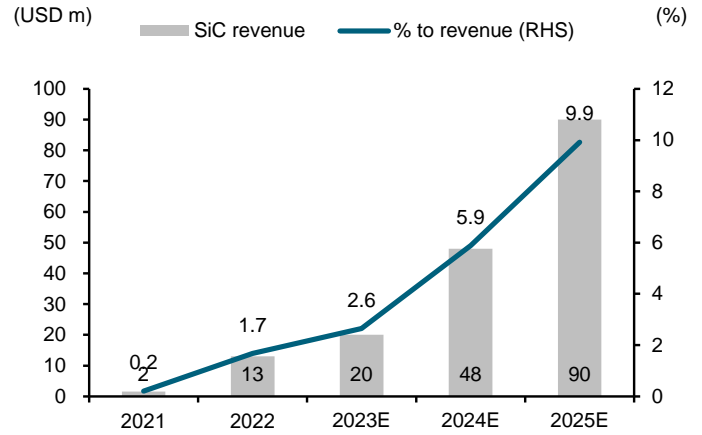
Source: FSSIA estimates

**Exhibit 3: USD revenue**



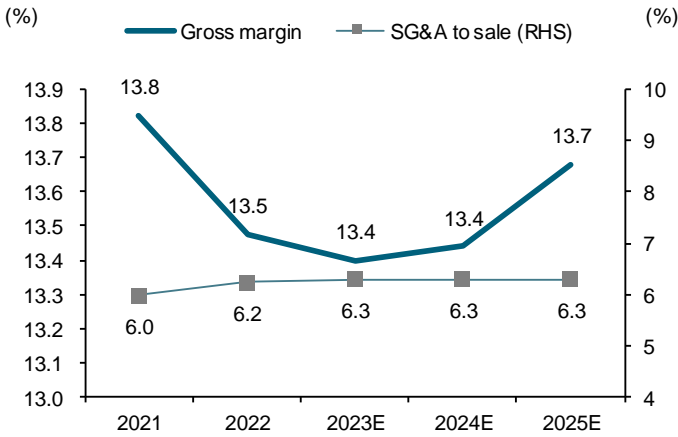
Sources: HANA; FSSIA estimates

**Exhibit 4: SiC revenue**



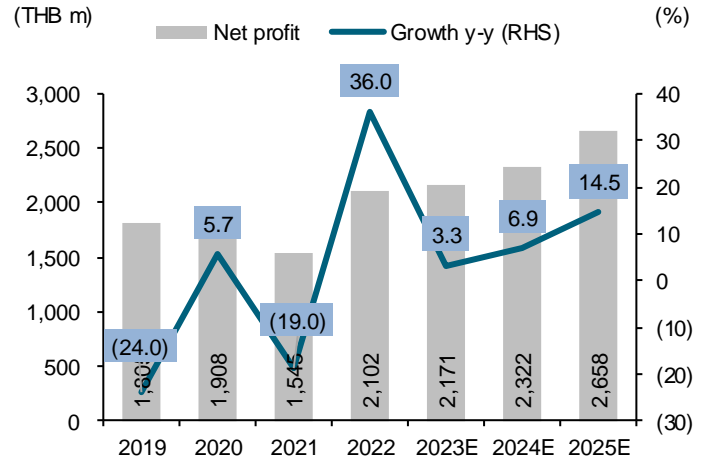
Sources: HANA; FSSIA estimates

**Exhibit 5: Gross margin and SG&A t sales**



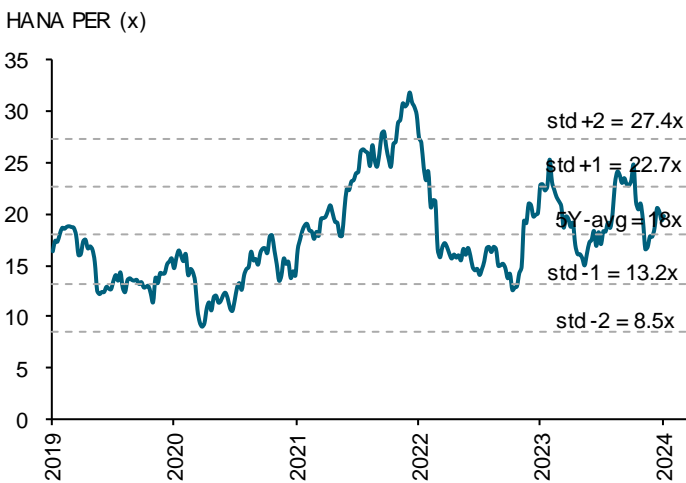
Sources: HANA; FSSIA estimates

**Exhibit 6: Net profit and growth**



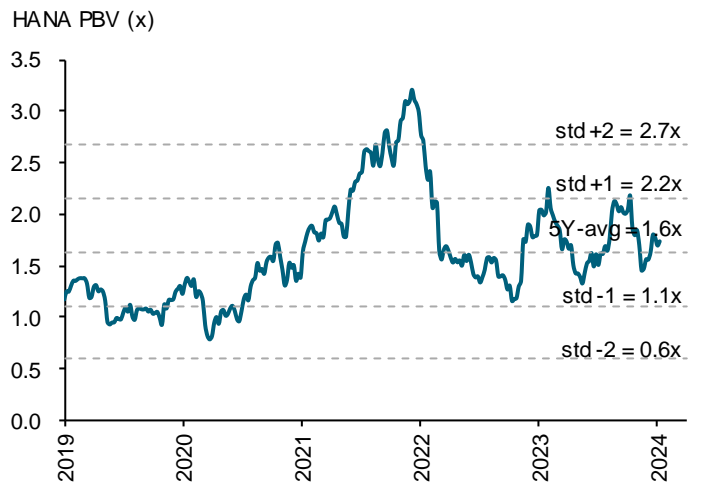
Sources: HANA; FSSIA estimates

**Exhibit 7: Historical P/E band**



Sources: Bloomberg, FSSIA's compilation

**Exhibit 8: Historical P/BV band**



Sources: Bloomberg, FSSIA's compilation

## Financial Statements

Hana Microelectronics

Profit and Loss (THB m) Year Ending Dec	2021	2022	2023E	2024E	2025E
Revenue	23,780	27,167	26,089	26,895	29,931
Cost of goods sold	(20,493)	(23,506)	(22,593)	(23,280)	(25,836)
<b>Gross profit</b>	<b>3,287</b>	<b>3,661</b>	<b>3,496</b>	<b>3,615</b>	<b>4,095</b>
Other operating income	357	458	457	457	509
Operating costs	(1,423)	(1,695)	(1,644)	(1,694)	(1,886)
<b>Operating EBITDA</b>	<b>3,522</b>	<b>4,054</b>	<b>4,114</b>	<b>4,332</b>	<b>4,773</b>
Depreciation	(1,301)	(1,630)	(1,805)	(1,955)	(2,055)
Goodwill amortisation	0	0	0	0	0
<b>Operating EBIT</b>	<b>2,221</b>	<b>2,425</b>	<b>2,309</b>	<b>2,378</b>	<b>2,718</b>
Net financing costs	106	81	42	54	66
Associates	0	0	0	0	0
Recurring non-operating income	0	0	0	0	0
Non-recurring items	(729)	(296)	(83)	0	0
<b>Profit before tax</b>	<b>1,598</b>	<b>2,209</b>	<b>2,268</b>	<b>2,431</b>	<b>2,783</b>
Tax	(53)	(107)	(96)	(109)	(125)
<b>Profit after tax</b>	<b>1,545</b>	<b>2,102</b>	<b>2,171</b>	<b>2,322</b>	<b>2,658</b>
Minority interests	0	0	0	0	0
Preferred dividends	0	0	0	0	0
Other items	-	-	-	-	-
<b>Reported net profit</b>	<b>1,545</b>	<b>2,102</b>	<b>2,171</b>	<b>2,322</b>	<b>2,658</b>
<b>Non-recurring items &amp; goodwill (net)</b>	<b>729</b>	<b>296</b>	<b>83</b>	<b>0</b>	<b>0</b>
<b>Recurring net profit</b>	<b>2,274</b>	<b>2,398</b>	<b>2,254</b>	<b>2,322</b>	<b>2,658</b>
<b>Per share (THB)</b>					
Recurring EPS *	2.83	2.98	2.55	2.62	3.00
Reported EPS	1.92	2.61	2.45	2.62	3.00
DPS	2.00	1.00	0.98	1.18	1.35
Diluted shares (used to calculate per share data)	805	805	885	885	885
<b>Growth</b>					
Revenue (%)	23.3	14.2	(4.0)	3.1	11.3
Operating EBITDA (%)	21.4	15.1	1.5	5.3	10.2
Operating EBIT (%)	28.6	9.2	(4.8)	3.0	14.3
Recurring EPS (%)	26.5	5.4	(14.6)	3.0	14.5
Reported EPS (%)	(19.0)	36.0	(6.1)	6.9	14.5
<b>Operating performance</b>					
Gross margin inc. depreciation (%)	13.8	13.5	13.4	13.4	13.7
Gross margin exc. depreciation (%)	19.3	19.5	20.3	20.7	20.5
Operating EBITDA margin (%)	14.8	14.9	15.8	16.1	15.9
Operating EBIT margin (%)	9.3	8.9	8.9	8.8	9.1
Net margin (%)	9.6	8.8	8.6	8.6	8.9
Effective tax rate (%)	3.3	4.9	4.2	4.5	4.5
Dividend payout on recurring profit (%)	70.8	33.6	38.5	45.0	45.0
Interest cover (X)	(20.9)	(29.9)	(55.4)	(44.1)	(41.4)
Inventory days	108.0	136.1	153.7	139.8	134.2
Debtor days	61.5	64.0	67.3	64.0	61.7
Creditor days	55.7	64.0	63.7	53.8	51.6
Operating ROIC (%)	12.1	10.2	8.7	8.5	9.2
ROIC (%)	11.6	9.9	8.5	8.3	9.0
ROE (%)	10.2	10.2	9.2	8.9	9.8
ROA (%)	8.3	8.1	7.5	7.6	8.3
* Pre-exceptional, pre-goodwill and fully diluted					
<b>Revenue by Division (THB m)</b>					
PCBA	13,425	15,214	15,791	16,107	16,912
IC	9,394	10,595	8,899	9,361	11,520
IC Assemble (RFID / Microdisplay)	961	1,358	1,399	1,427	1,498

Sources: Hana Microelectronics; FSSIA estimates

## Financial Statements

### Hana Microelectronics

Cash Flow (THB m) Year Ending Dec	2021	2022	2023E	2024E	2025E
Recurring net profit	2,274	2,398	2,254	2,322	2,658
Depreciation	1,301	1,630	1,805	1,955	2,055
Associates & minorities	-	-	-	-	-
Other non-cash items	(455)	24	(16)	0	0
Change in working capital	(2,566)	(2,626)	582	(282)	(1,055)
<b>Cash flow from operations</b>	<b>554</b>	<b>1,426</b>	<b>4,625</b>	<b>3,995</b>	<b>3,658</b>
Capex - maintenance	-	-	-	-	-
Capex - new investment	(4,026)	(2,821)	(3,500)	(3,000)	(2,000)
Net acquisitions & disposals	-	-	-	-	-
Other investments (net)	(99)	14	13	(16)	12
<b>Cash flow from investing</b>	<b>(4,124)</b>	<b>(2,807)</b>	<b>(3,487)</b>	<b>(3,016)</b>	<b>(1,988)</b>
Dividends paid	(1,382)	(1,191)	(890)	(1,045)	(1,196)
Equity finance	0	0	80	0	0
Debt finance	(5)	(2)	0	0	0
Other financing cash flows	1,289	209	(469)	8	(641)
<b>Cash flow from financing</b>	<b>(98)</b>	<b>(984)</b>	<b>(1,279)</b>	<b>(1,037)</b>	<b>(1,837)</b>
Non-recurring cash flows	-	-	-	-	-
Other adjustments	0	0	0	0	0
<b>Net other adjustments</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Movement in cash</b>	<b>(3,668)</b>	<b>(2,365)</b>	<b>(141)</b>	<b>(58)</b>	<b>(168)</b>
Free cash flow to firm (FCFF)	(3,562.70)	(1,368.15)	1,163.72	997.32	1,684.33
Free cash flow to equity (FCFE)	(2,285.87)	(1,174.20)	668.50	986.68	1,028.49

#### Per share (THB)

FCFF per share	(4.02)	(1.55)	1.31	1.13	1.90
FCFE per share	(2.58)	(1.33)	0.76	1.11	1.16
Recurring cash flow per share	3.88	5.03	4.57	4.83	5.32

Balance Sheet (THB m) Year Ending Dec	2021	2022	2023E	2024E	2025E
Tangible fixed assets (gross)	26,004	28,300	31,800	34,800	36,800
Less: Accumulated depreciation	(16,342)	(17,446)	(19,251)	(21,206)	(23,261)
<b>Tangible fixed assets (net)</b>	<b>9,663</b>	<b>10,853</b>	<b>12,549</b>	<b>13,594</b>	<b>13,539</b>
<b>Intangible fixed assets (net)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Long-term financial assets	72	72	72	72	0
Invest. in associates & subsidiaries	-	-	-	-	-
Cash & equivalents	5,999	3,634	3,493	3,435	3,267
A/C receivable	4,553	4,981	4,646	4,790	5,330
Inventories	6,857	9,457	8,047	8,292	9,202
Other current assets	162	171	130	134	150
<b>Current assets</b>	<b>17,570</b>	<b>18,243</b>	<b>16,316</b>	<b>16,651</b>	<b>17,949</b>
Other assets	548	534	522	538	599
<b>Total assets</b>	<b>27,853</b>	<b>29,703</b>	<b>29,459</b>	<b>30,855</b>	<b>32,087</b>
Common equity	23,058	23,862	25,332	26,609	27,400
Minorities etc.	0	0	0	0	0
<b>Total shareholders' equity</b>	<b>23,058</b>	<b>23,862</b>	<b>25,332</b>	<b>26,609</b>	<b>27,400</b>
Long term debt	3	0	0	0	0
Other long-term liabilities	763	813	261	269	299
<b>Long-term liabilities</b>	<b>766</b>	<b>814</b>	<b>261</b>	<b>269</b>	<b>299</b>
A/C payable	3,506	4,161	3,095	3,189	3,539
Short term debt	8	274	250	250	250
Other current liabilities	515	593	522	538	599
<b>Current liabilities</b>	<b>4,029</b>	<b>5,027</b>	<b>3,867</b>	<b>3,977</b>	<b>4,388</b>
<b>Total liabilities and shareholders' equity</b>	<b>27,853</b>	<b>29,703</b>	<b>29,459</b>	<b>30,855</b>	<b>32,087</b>
Net working capital	7,550	9,856	9,207	9,489	10,544
Invested capital	17,833	21,316	22,349	23,693	24,682

\* Includes convertibles and preferred stock which is being treated as debt

#### Per share (THB)

Book value per share	28.65	29.65	28.61	30.05	30.95
Tangible book value per share	28.65	29.65	28.61	30.05	30.95

#### Financial strength

Net debt/equity (%)	(26.0)	(14.1)	(12.8)	(12.0)	(11.0)
Net debt/total assets (%)	(21.5)	(11.3)	(11.0)	(10.3)	(9.4)
Current ratio (x)	4.4	3.6	4.2	4.2	4.1
CF interest cover (x)	(15.3)	(19.3)	(99.0)	(72.9)	(45.1)

Valuation	2021	2022	2023E	2024E	2025E
<b>Recurring P/E (x) *</b>	<b>18.1</b>	<b>17.2</b>	<b>20.1</b>	<b>19.5</b>	<b>17.1</b>
<b>Recurring P/E @ target price (x) *</b>	<b>21.2</b>	<b>20.1</b>	<b>23.6</b>	<b>22.9</b>	<b>20.0</b>
Reported P/E (x)	26.7	19.6	20.9	19.5	17.1
Dividend yield (%)	3.9	2.0	1.9	2.3	2.6
Price/book (x)	1.8	1.7	1.8	1.7	1.7
Price/tangible book (x)	1.8	1.7	1.8	1.7	1.7
EV/EBITDA (x) **	10.0	9.3	10.2	9.7	8.9
EV/EBITDA @ target price (x) **	12.0	11.1	12.1	11.5	10.5
EV/invested capital (x)	2.0	1.8	1.9	1.8	1.7

\* 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 9: 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.
★★★	<b>&gt;39-59</b>	<b>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.</b>
★★	>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 10: 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](http://SETTRADE.com); FSSIA's compilation

## Exhibit 11: ESG score by Bloomberg

FY ending Dec 31	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
<b>ESG financial materiality scores - ESG score</b>	<b>0.91</b>	<b>0.98</b>	<b>0.99</b>	<b>1.39</b>	<b>1.61</b>	<b>1.81</b>	<b>—</b>
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	—
<b>ESG disclosure score</b>	<b>25.98</b>	<b>25.98</b>	<b>25.98</b>	<b>30.50</b>	<b>36.02</b>	<b>36.02</b>	<b>—</b>
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	—
<b>Environmental</b>							
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 12: ESG score by Bloomberg (cont.)**

<b>FY ending Dec 31</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
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	—	—	—	—	—	—	—
<b>Social</b>							
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
<b>Governance</b>							
<b>Board size</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>8</b>
<b>No. of independent directors (ID)</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>4</b>
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
<b>No. of executives / company managers</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>6</b>
No. of female executives	1	1	1	1	1	1	1
Executive share ownership guidelines	No	No	No	No	No	No	No
<b>Size of audit committee</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>4</b>
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
<b>Size of compensation committee</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
No. of ID on compensation committee	—	—	—	—	—	—	—
No. of compensation committee meetings	—	—	—	—	—	—	—
Compensation meeting attendance %	—	—	—	—	—	—	—
<b>Size of nomination committee</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>4</b>
No. of nomination committee meetings	3	2	3	3	2	3	3
Nomination meeting attendance %	100	100	100	100	100	100	100
<b>Sustainability governance</b>							
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 ( <a href="#">DJSI</a> ) 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 ( <a href="#">THSI</a> ) by The Stock Exchange of Thailand ( <a href="#">SET</a> )	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 <b>THSI inclusion</b> , 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. <b>SETTHSI Index</b> 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.										
<b>CG Score</b> 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%).										
<b>AGM level</b> 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&amp;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.										
<b>Thai CAC</b> 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.										
<a href="#">Morningstar Sustainability</a>	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 &amp; 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 border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>NEGL</th> <th>Low</th> <th>Medium</th> <th>High</th> <th>Severe</th> </tr> </thead> <tbody> <tr> <td>0-10</td> <td>10-20</td> <td>20-30</td> <td>30-40</td> <td>40+</td> </tr> </tbody> </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+								
<a href="#">ESG Book</a>	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.										
<a href="#">MSCI</a>	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 border="0" style="margin-left: 20px;"> <tr> <td style="vertical-align: top;"> <b>AAA</b> 8.571-10.000  <b>AA</b> 7.143-8.570  <b>A</b> 5.714-7.142  <b>BBB</b> 4.286-5.713  <b>BB</b> 2.857-4.285  <b>B</b> 1.429-2.856  <b>CCC</b> 0.000-1.428                 </td> <td style="vertical-align: top; padding-left: 10px;"> <b>Leader:</b> leading its industry in managing the most significant ESG risks and opportunities   <b>Average:</b> a mixed or unexceptional track record of managing the most significant ESG risks and opportunities relative to industry peers   <b>Laggard:</b> lagging its industry based on its high exposure and failure to manage significant ESG risks                 </td> </tr> </table>	<b>AAA</b> 8.571-10.000 <b>AA</b> 7.143-8.570 <b>A</b> 5.714-7.142 <b>BBB</b> 4.286-5.713 <b>BB</b> 2.857-4.285 <b>B</b> 1.429-2.856 <b>CCC</b> 0.000-1.428	<b>Leader:</b> leading its industry in managing the most significant ESG risks and opportunities  <b>Average:</b> a mixed or unexceptional track record of managing the most significant ESG risks and opportunities relative to industry peers  <b>Laggard:</b> lagging its industry based on its high exposure and failure to manage significant ESG risks									
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<a href="#">Moody's ESG solutions</a>	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.											
<a href="#">Refinitiv ESG rating</a>	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; &gt;25 to 50 = satisfactory; &gt;50 to 75 = good; and &gt;75 to 100 = excellent.)</i>											
<a href="#">S&amp;P Global</a>	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.											
<b>Bloomberg</b>	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

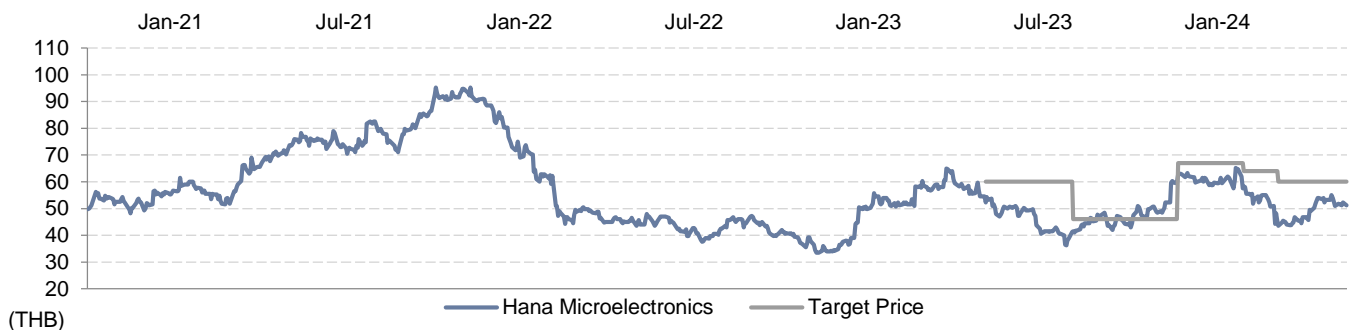
The individual(s) identified above certify(ies) that (i) all views expressed in this report accurately reflect the personal view of the analyst(s) with regard to any and all of the subject securities, companies or issuers mentioned in this report; and (ii) no part of the compensation of the analyst(s) 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	21-Aug-2023	BUY	67.00	16-Nov-2023	BUY	60.00
22-May-2023	BUY	46.00	17-Oct-2023	BUY	64.00			

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 51.25	BUY	Downside risks to our P/E-based TP include 1) a slower-than-expected consumption recovery; 2) a potential rise in raw material costs; and 3) a stronger-than-expected THB against USD.

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 15-Jan-2024 unless otherwise stated.

## RECOMMENDATION STRUCTURE

### Stock ratings

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