Japan Technology: Semiconductor Capital Equipment: Micron technology webinar read-across: Benefits for TEL/Disco/Ebara/Kokusai

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Late at night on October 21 (JST), memory major Micron Technology (covered by US Semiconductors analyst Jim Schneider) held a technology and product webinar, providing updates on its technology roadmaps for both DRAM and NAND. Below, we briefly summarize the key points and the implications for Japanese SPE makers.

As the updates relate to technology roadmaps, the actual timing of mass production will still depend largely on future demand trends. Nevertheless, we view the expanding application of hybrid bonding and the move toward higher layer counts in NAND as having overall positive implications for **Tokyo Electron (Buy)**, **Disco (Buy)**, **Ebara (Buy)**, and **Kokusai Electric (Neutral)**.

DRAM: Parallel development of scaling and stacking (3D-DRAM) technologies

Micron has already entered mass production for its 1-gamma node using EUV lithography, and management plans to drive further scaling through the adoption of hybrid bonding and high-NA EUV lithography. In parallel, development is ongoing on 3D-DRAM, which stacks memory cells vertically. Micron indicated that it no longer intends to pursue development of $4F^2$ DRAM technology, which vertically stacks transistors to reduce area, from the perspective of manufacturing process complexity and cost. It will instead scale $6F^2$ in the interim.

HBM: Advancing technologies in pursuit of higher bandwidth and lower power consumption

Various developments are underway for HBM, aimed at further increasing bandwidth and reducing power consumption per token. In addition to the current standard HBM architecture, development is progressing on custom HBM, Vertical HBM (vertically stacking HBM dies), and VEIM (Vertical Edge Inference Memory). The company indicated that because all of these architectures require highly sophisticated advanced packaging technologies, it believes technologies such as hybrid bonding and temperature control will become indispensable.

NAND: Transition from current G9 to 400+ layer G11

Following on from generation 9 NAND (276 layers of memory cells), which is currently in mass production, Micron plans to develop its generation 11. G11 will feature more than 400 memory cell layers and utilize hybrid bonding technology for

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wafer connection, with the company aiming for mass production in 2H CY27. To enable AI-class NAND, development is also underway for SLC (Single Level Cell) based solutions as well as NAND architectures that utilize TSV (Through Silicon Via) technology with a logic base die, enabling a high-capacity tier close to the accelerator.

Implications for Japanese SPE makers

Historically, the mass-production application of hybrid bonding for connecting wafers has been limited to CMOS image sensors and certain 3D-NAND manufactures (such as Kioxia). However, as applications expand across DRAM and a broader range of NAND makers going forward, we believe this will very likely expand business opportunities for **Tokyo Electron's bonders, Disco's (high-clean specification) dicers and grinders,** and **Ebara's CMP systems**.

In addition, we think the move toward higher layer counts in NAND will substantially benefit **Kokusai Electric**, by driving an increase in the number of processes utilizing batch ALD as well as generational shifts in equipment. It should also benefit **Tokyo Electron**, by expanding the TAM for its cryo-etching equipment. Moreover, an expansion in demand for SLC-based NAND would mean that the number of wafers required per bit would increase several times over compared with TLC or QLC (Lam Research noted that a 1% shift toward SLC in NAND bit demand would require an additional 2% in wafer capacity), which we believe would have positive implications for NAND equipment demand.

Exhibit 1: Target prices, valuation methodologies, and risks for mentioned stocks

Company Name (rating)	Ticker	12-m TP (¥)	Methodology	Risks
DISCO (Buy)	6146.T	105,000	Based on the global SPE sector average EV/EBITDA multiple of 18X and our FY3/28E estimates. We then apply a sector-relative premium of 50%.	(-) slowdown or share loss in AI-related demand (-) slowdown in China demand or tightening of export controls (-) rapid yen appreciation against the USD
Ebara (Buy)	6361.T	7,900	Based on the correlation between P/B and our FY12/27E ROE estimates.	(-) Semiconductor capex enters a downcycle (-) Increasing competitiveness of Chinese CMP system makers (-) Slow adoption of new technology in semiconductor devices (-) Decline in crude oil/LNG prices, oil refining/petrochemical margins
Kokusai Electric (Neutral)	6525.T	10,500	Based on the global SPE sector average EV/EBITDA multiple of 18X and our FY3/28E estimates.	(+/-) Changes in investment at key customers (+/-) Additional changes in export controls (+/-) Changes in the competitive landscape due to strategic changes at competitors
Tokyo Electron (Buy)	8035.T	18,000	Based on the global SPE sector average EV/EBITDA multiple of 18X and our FY3/28E estimates. We then apply a sector-relative premium of 30%.	(-) prolonged inventory adjustment phase in the semiconductor industry (-) further strengthening of export restrictions (-) depressed valuation multiple amid upward pressure on interest rates and other factors

Source: Goldman Sachs Global Investment Research

Disclosure Appendix

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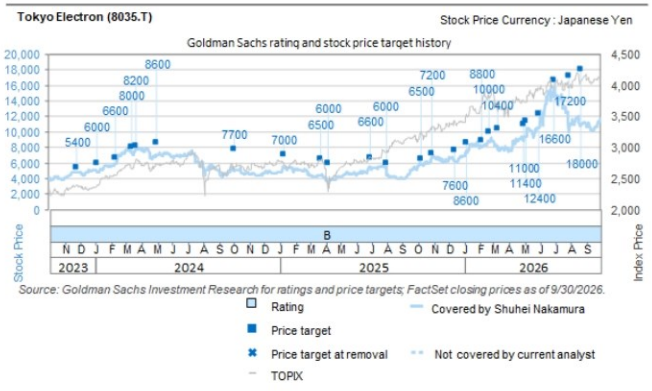
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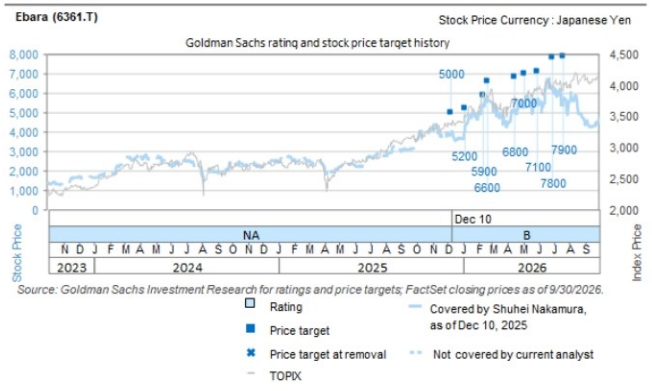
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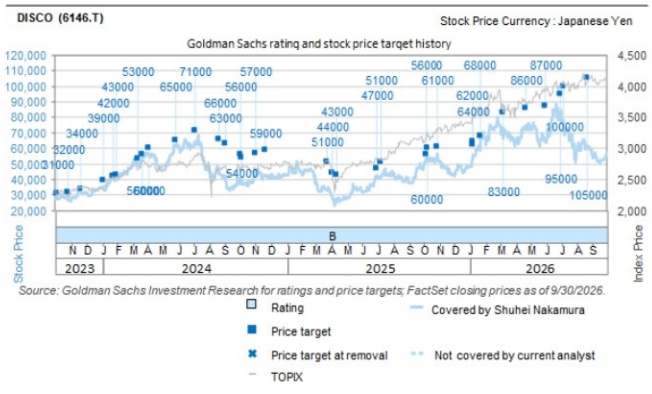
Price target and rating history chart(s)



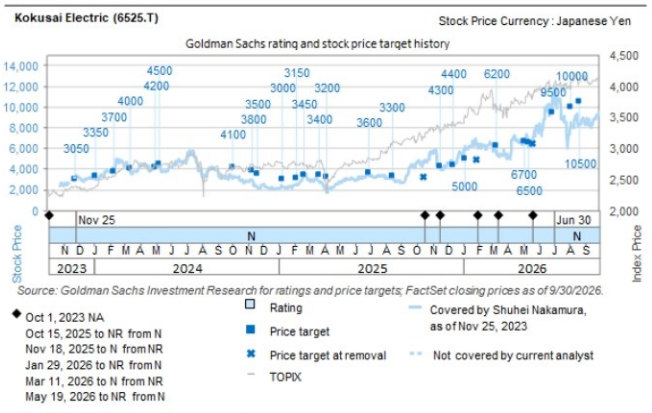
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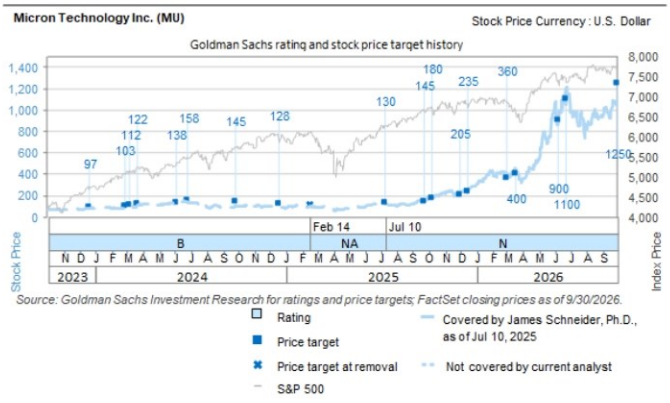
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Target price history table(s)

DISCO (6146.T)

Date of report	Target price (¥)	Closing price (¥)
23-Aug-26	105,000	61,360
06-Jul-26	100,000	78,000
30-Jun-26	95,000	81,260
31-May-26	87,000	65,090
22-Apr-26	86,000	74,830
09-Mar-26	83,000	66,500
21-Jan-26	68,000	58,570
08-Jan-26	64,000	55,590
06-Jan-26	62,000	54,200
29-Oct-25	61,000	56,390
08-Oct-25	60,000	52,140
06-Oct-25	56,000	54,000
09-Jul-25	51,000	41,290
30-Jun-25	47,000	42,630
13-Apr-25	43,000	27,470
04-Apr-25	44,000	27,635
24-Mar-25	51,000	33,060
21-Nov-24	59,000	42,380
01-Nov-24	57,000	42,810
04-Oct-24	54,000	39,710
02-Oct-24	56,000	37,410
02-Sep-24	63,000	41,350
22-Aug-24	66,000	43,560
04-Jul-24	71,000	64,580
27-May-24	65,000	61,790
04-Apr-24	60,000	56,750
21-Mar-24	56,000	52,960
13-Mar-24	53,000	50,000
31-Jan-24	43,000	40,380
24-Jan-24	42,000	40,730
04-Jan-24	39,000	33,630
21-Nov-23	34,000	32,030
26-Oct-23	32,000	26,960

Tokyo Electron (8035.T)

Date of report	Target price (¥)	Closing price (¥)
23-Aug-26	90,000	10,858
30-Jul-26	86,000	10,448
30-Jun-26	83,000	15,430
31-May-26	62,000	10,484
04-May-26	57,000	9,490
30-Apr-26	55,000	8,878
09-Mar-26	52,000	7,784
21-Feb-26	50,000	8,792
06-Feb-26	44,000	8,206
06-Jan-26	43,000	7,470
15-Dec-25	38,000	6,228
31-Oct-25	36,000	6,836
08-Oct-25	32,500	5,851
31-Jul-25	30,000	5,466
30-Jun-25	33,000	5,536
07-Apr-25	30,000	3,412
24-Mar-25	32,500	4,438
10-Jan-25	35,000	5,405
02-Oct-24	38,500	5,016
02-May-24	43,000	7,002
21-Mar-24	41,000	7,868
13-Mar-24	40,000	7,478
09-Feb-24	33,000	5,951
04-Jan-24	30,000	4,801
25-Nov-23	27,000	4,801

Ebara (6361.T)

Date of report	Target price (¥)	Closing price (¥)
22-Jul-26	7,900	5,593
30-Jun-26	7,800	6,256
31-May-26	7,100	5,683
04-May-26	7,000	5,242

Kokusai Electric (6525.T)

Date of report	Target price (¥)	Closing price (¥)
23-Aug-26	10,500	8,321
06-Aug-26	10,000	8,224
30-Jun-26	9,500	10,855
13-May-26	6,500	6,170

Ebara (6361.T)

Date of report	Target price (¥)	Closing price (¥)
15-Apr-26	6,800	5,004
21-Feb-26	6,600	5,638
13-Feb-26	5,900	5,303
06-Jan-26	5,200	4,050
10-Dec-25	5,000	3,942

Kokusai Electric (6525.T)

Date of report	Target price (¥)	Closing price (¥)
04-May-26	6,700	6,500
11-Mar-26	6,200	5,768
06-Jan-26	5,000	5,812
15-Dec-25	4,400	4,516
18-Nov-25	4,300	4,033
15-Aug-25	3,300	3,066
30-Jun-25	3,600	3,467
07-Apr-25	3,200	1,790
24-Mar-25	3,400	2,803
21-Feb-25	3,450	3,629
07-Feb-25	3,150	2,518
10-Jan-25	3,000	2,242
21-Nov-24	3,500	2,195
11-Nov-24	3,800	2,953
02-Oct-24	4,100	3,130
10-May-24	4,500	4,275
02-May-24	4,200	4,105
13-Mar-24	4,000	3,770
09-Feb-24	3,700	4,100
04-Jan-24	3,350	2,983
25-Nov-23	3,050	3,220

Micron Technology Inc. (MU)

Date of report	Target price ($)	Closing price ($)
01-Oct-26	1,250.00	1,097.39
25-Jun-26	1,100.00	1,213.56
08-Jun-26	900.00	949.28
19-Mar-26	400.00	444.27
02-Mar-26	360.00	412.67
18-Dec-25	235.00	248.55
03-Dec-25	205.00	234.16
08-Oct-25	180.00	196.54
23-Sep-25	145.00	166.41
10-Jul-25	130.00	123.11
19-Dec-24	128.00	87.09
26-Sep-24	145.00	109.88
27-Jun-24	158.00	132.23
04-Jun-24	138.00	126.64
21-Mar-24	122.00	109.85
07-Mar-24	112.00	98.98
26-Feb-24	103.00	89.46
21-Dec-23	97.00	85.48

Price targets shown in table(s) are unadjusted for corporate actions.

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