

Multinational Report

> SEMICONDUCTOR CAPITAL SPENDING

COMPANIES DISCUSSED: AMAT, ASML, KLAC, LRCX, NVLS, TSM

EXECUTIVE SUMMARY

Fab Tool Orders Pick Up



Semiconductor fabrication (fab) equipment orders increased during July through September year to year as growing demand for semiconductor products and expectations of needed capacity buoyed optimism, especially in Asia. Orders are expected to increase during 4Q03 in all regions, with some orders pulled in from early 2004 plans. Overall, 2003 orders are expected to be higher than predicted in Off The Record Research LLC's June report. Utilization rates have continued to rise but appear to be leveling near saturation. The used equipment market in the United States and Europe still shows some strength, but equipment selection is becoming limited. In Asia, the focus continues to be on upgrades and acquisition of new equipment for advanced technology applications.

REPORT HIGHLIGHTS

INDUSTRY STATUS

· Third-quarter fab equipment orders rose low double digits year to year as chip-makers in the United States, Europe, Japan and South Korea responded to the need for additional capacity and new technologies. Orders in Taiwan decreased because of heavy spending early in the year.

COMPANY PERFORMANCE

· **Applied Materials Inc.** and **ASML Holding N.V.** continue to dominate the semiconductor equipment market, followed closely by **Lam Research Corp.**, **Novellus Systems Inc.** and **Tokyo Electron Ltd.** (TEL). Applied Materials gained in Japan against TEL on technical performance.

AREAS TO WATCH

· As South Korean chip manufacturers struggle to keep up with orders and focus on their chip market in Asia, Chinese fabs may become the beneficiary of potential outsourcing.

SOURCES & BACKGROUND

51 semiconductor manufacturers composed of 41 integrated device manufacturers (IDMs), 10 foundries

United States 23 sources; **Europe** 9 sources (6 in Germany and 1 each in France, the United Kingdom and the Netherlands); **China** 5 sources; **other Asia** 14 sources (5 each in Taiwan and Japan, 3 in South Korea and 1 in Malaysia)

Repeat Sources 48 sources (23 in the United States, 9 in Europe, 5 in China and 11 in other parts of Asia) from OTR's June report

Interviews First and second weeks of September

Averages Weighted according to each source's 2002 revenue, totaling in excess of \$106 billion

Background Sources include 21 of the top 25 IDMs and 3 of the top 5 foundries.



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RATING



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Asian IDMs Lead the CAPX Rush

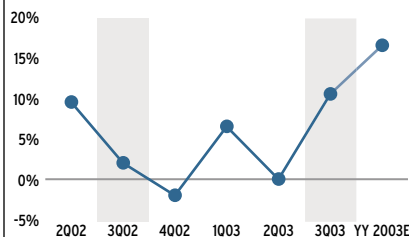
Asian IDMs led the way as chipmakers stepped up fab equipment orders during July through September year to year. Overall, semiconductor fab equipment orders increased an average 8% to 13% year to year, almost 10 percentage points higher than OTR's second-quarter findings. Quarter-to-quarter orders were up 1% to 6% on average, climbing at a higher rate than in OTR's June report.

All regions expect fourth-quarter orders to pick up and buck the typical year-end softness associated with completed budget cycles, vacations and plant shut-downs. Orders during the fourth quarter are expected to increase an average 18% to 23% quarter to quarter.

Overall, 2003 orders are expected to increase 14% to 19% compared with 2002, up compared with OTR's June report. South Korea pulled the average higher while Taiwan held it down.

2003 Orders Up

Q4 CAPX to Improve Dramatically (yy)



Source: Off The Record Research LLC

Time Series Analysis: Third-quarter fab equipment orders increased as a result of improving demand for semiconductor products. CAPX increased 10 points during the third quarter compared with the second and is forecast to improve substantially during the fourth quarter.

South Korean Orders Surge

South Korea reported the strongest order increases year to year, the result of one large IDM and one foundry that increased orders 100% year to year. The large order increases were implemented to build one fab and to increase 300 mm production capacity in another. These sources were uncertain 90 days ago whether these initiatives would move ahead, but rapidly increasing demand persuaded them to place orders during the third quarter. "We have been so busy ramping up our fab and still unable to meet product orders. Now, during the third and fourth quarters, we are ready to execute the next phase so that we can add capacity," a source said.

The trend is expected to continue into the fourth quarter and beyond. One South Korean chipmaker pulled a large project into the fourth quarter that originally was intended for the first quarter of 2004. The company has set aside a previously unbudgeted \$430 million to be spent on the project. Another source expects to order a large amount of equipment for a new 300 mm pilot fab.

United States

U.S. sources' third-quarter orders grew single digits on average, but many said spending was flat year to year. Still, repeat source comparisons showed increased spending patterns compared with OTR's June findings. Interviews revealed a return to cautious optimism that was lacking 90 days ago. "Things are coming to life now," a U.S. IDM source said. "The situation seems to be a little more optimistic than last quarter, with increased activity levels, more inquiries and better pricing. Based on that, we're just that much closer to pulling the trigger [on spending]." U.S. chipmakers expect fourth-quarter spending to be an average 4% to 9% higher than the third quarter, and 2003 orders are forecast to be up 1% to 6% compared with 2002.

Europe

European chipmakers said third-quarter orders increased 6% to 11% on average year to year. All European sources cited year-to-year order growth, but one large source pulled the quarter-to-quarter average down because of hard comparisons against heavy spending during the second quarter. Orders during the fourth quarter and 2003 are expected to increase high single digits quarter to quarter. A relieved U.K. source said, "At last I can speak about definitive improvement."

Taiwan

IDMs in Taiwan increased third-quarter orders significantly, but large foundries that spent heavily earlier in the year decreased orders, pulling the Taiwan year-to-year and quarter-to-quarter averages into negative territory. Foundry sources

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said overall equipment orders would not increase this year as indicated in previous public announcements. Several sources blamed considerably slower return on capital investments and low profit margins. "If you wonder about price pressure, just look at our flat ASPs [average selling price] the last couple of months," said a source. Expectations regarding increased spending on capital equipment did not materialize during the third quarter as chip orders waned and manufacturers concentrated on increasing utilization rates. "We don't have money to spend on equipment for [added] capacity now," said one source. "Our main task is to complete [our] orders and improve our production processes."

China In China, two of three foundries also reduced orders during the third quarter because the bulk of their spending took place during the first half of the year. Two IDMs said their third-quarter orders increased because they built out new 300 mm fab lines and implemented tool upgrades.

Japan Third-quarter orders in Japan increased single digits year to year, continuing the trend reported by OTR in June. Sources said growing demand for consumer electronics such as flat-panel TVs, DVDs, PCs and mobile handsets was the driver.

Electronics Strong in Japan

Widespread Product Demand

Almost all sources expect demand for semiconductors to increase during the first half of 2004. Many said demand already is on an upswing. Sources noted increasing demand for new products as well as consistent demand for established products. A large U.S. IDM source said, "We've seen a lot of positive indicators in various segments of our business."

Japanese sources reported increasing vitality in sales of new consumer electronics such as flat-panel TVs, DVDs and PCs. Japanese domestic demand for these products – as well as exports to the United States and China – are strong. A source said, "Not only is it time for a lot of households to buy new equipment, but the added attraction of digital capabilities – even at prices that are slightly elevated over older-generation TVs and videos – is very attractive, especially since consumer demand has been so weak for quite a long time."

Demand for semiconductors in Europe is on the upswing, with increases in the consumer, mobile communication and automotive sectors. A source said, "Overall, I see a positive market, which shows in the forecast. The downhill trend is over."

Demand Will Drive Orders

More than one-half of sources said the expected 2004 first-half demand increase likely will directly affect fab equipment orders, though some were uncertain how much because some still have unused capacity. One U.S. source said, "Our current capacity is good, but we'll probably be buying for technical considerations."

Almost two-thirds of sources expect to order equipment before the end of 2003, mostly for technology advancement and added capacity. "Our forecast is good, and we need to add capacity," said a U.S. source. Another large U.S. source said his company would embark on a "big investment cycle shortly," also citing future capacity needs.

Several IDMs said although business is improving, they would not be spending, while others plan to pursue used equipment first. Sources cited plans that included increased outsourcing, process development and technology transfer as their current focus. "We're continuing in the direction that says new technology

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“We’re continuing in the direction that says new technology will be outsourced.”

IDMs Lead in Utilization

will be outsourced. Our manufacturing line has a limit of 0.15-micron technology,” said one source.

Some U.S. sources’ optimism contained an element of caution. “We have some concerns as to whether the upturn will be sustained. We have increased business through the end of 2003, but so far only see moderate increases in early 2004,” said a U.S. IDM source. A source in Taiwan also expressed a concern. “Major industry players are all expanding their capacity now. This added capacity will all [materialize] during the second half of 2004, so we may face another oversupply crisis next year,” he said.

Utilization Approaching Saturation

Utilization rates showed a modest increase during the last 90 days based on repeat source comparisons. Rates are plateauing at virtually maximum levels. Although some sources still had capacity available, most are running close to the high end and are looking either to increase their capacity or advance their technology capabilities in the near future. Foundry utilization continues to run a few percentage points behind IDM utilization rates, but both are creeping into the 80% range on average. In Taiwan, IDM utilization is close to 100% and foundry utilization is running in the mid-80% range as chipmakers attempt to squeeze out as much production as possible before increasing spending on fab equipment. South Korean sources are running their fabs at full capacity. “Running them at full capacity is a must condition to keep them profitable,” said one.

Strategies for Growth Vary

As anticipation of an upswing in the semiconductor industry grows, IDMs are focusing on moving to new technology nodes, partnerships and joint ventures, as well as adding capacity and increasing outsourcing. U.S. IDMs are particularly focused on adding capacity and moving toward new technology nodes, with some expecting to accomplish the move by outsourcing to foundries in Taiwan and elsewhere. “We will move to the next node using [**Taiwan Semiconductor Manufacturing Co. Ltd.**]. We also will be building an assembly and test plant in China,” a U.S. IDM said. European and Asian chipmakers favor partnering and joint ventures. Chinese sources mentioned adding capacity and building new fabs to accommodate growth.

Modest Outsourcing Increases

U.S. IDMs continue to utilize foundries, mostly for advanced technology product manufacturing. Since OTR’s June report, outsourcing increased modestly, with most sources utilizing foundries in Taiwan. Outsourcing to foundries in South Korea, Singapore, Malaysia and the United States also was mentioned, but to a much lesser extent. The few who said outsourcing would increase cited the need for advanced technology as well as additional capacity.

Europe Looks for Partnerships

European companies are searching for joint ventures and partnering with companies in North America and Asia. Outsourcing to Asian foundries is on the rise for cost savings and technology transfer. One source said, “Asia will play an important role in the future, but instead of Taiwan, I see China in the lead.”

A South Korean IDM said it might consider outsourcing because of tariffs on South Korean-made chips by the United States and Europe. “The extra duty is driving us to look for other Asian markets for our chips. If our efforts to sell

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more chips to Asian countries pay off, the idea of outsourcing to [foundries] in Asian countries like Taiwan or China is feasible," said a South Korean source.

Applied Competes Less in Etch

"We have switched to Applied Materials as our main supplier, and we think we will keep it that way for two to three years."

Applied, Lam Strong in China

Chipmakers Evaluate Alternate Suppliers

Although most sources were reluctant to discuss the topic, a few may replace their incumbent vendors and currently are evaluating tools from alternate suppliers. U.S. sources most often cited sales and service as a key issue, while Asian sources talked about technical performance.

Applied Materials was mentioned the most often as likely to receive upcoming orders; however, several sources voiced dissatisfaction with the company. Some complained about its poor service, aggressive style and bureaucracy. However, others said if Applied Materials loses for one tool type, it may win with another within a single customer location. "Applied Materials has streamlined their product offering and is focusing on what they think they do best. They are losing market share because of it," said a U.S. source, indicating that Applied seemed to be competing less in the etch arena.

To boost revenue, suppliers increase prices of software and hardware upgrades. "We have seen equipment makers responding to used [equipment purchasing by chipmakers] by getting strict on equipment software, charging a lot of upgrade costs on used [equipment]. Lam is doing that," said a U.S. source. Another U.S. source reported similar tactics from **KLA-Tencor Corp.**, saying, "KLA has a corner on the metrology market. Applied Materials is trying to compete, but they don't come close. But KLA is difficult to deal with because they charge high premiums and they know they can get it."

Applied Materials Leads in Japan

In Japan, Applied Materials was mentioned most often as the supplier of choice, while TEL was one they chose to move away from. TEL orders have been canceled in favor of equipment offered by Applied Materials based on technical performance. "We have switched to Applied Materials as our main supplier, and we think we will keep it that way for two to three years," said a source in Japan. Other sources admitted they also had or would make a transition to Applied Materials, though TEL would still have a share of the budget.

Sources in South Korea said a major South Korean IDM changed to a multi-vendor strategy to leverage buying power. Applied Materials remained the main supplier of choice for etch and deposition, with TEL as a second vendor. A source also said, "If we buy 10 more units of equipment this year, three will be scanners where ASML might be a first vendor of our choice."

ASML has a strong hold on the lithography market in Taiwan. ASML's leading edge technology has helped to increase its lead over Nikon.

Applied Materials and Lam Research still are the most successful equipment vendors in China. Although sources do not have any current plans to change suppliers, one said, "All suppliers are running the risk of being replaced in general, but none will be replaced now because we have good working relationship with them."

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Suppliers Push Parts, Service

“We are trying to drive down costs, so we’re looking to reduce the scope of the [service] contracts and negotiate more realistic pricing as well as find alternate sources for parts.”

Parts, Service Positive and Negative

Some chipmakers said their incumbent equipment vendors are too entrenched within their companies to allow shifting to alternate suppliers. As suppliers jockey to increase revenue and IDMs continue to cut costs, the customer-supplier relationship is shifting. Equipment suppliers are refocusing their business models on service and spare part contracts – increasing the cost and overall scope – to keep their businesses afloat. IDMs are headed in the opposite direction to gain better control of their cost structure. A large U.S. IDM said, “We are trying to drive down costs, so we’re looking to reduce the scope of the [service] contracts and negotiate more realistic pricing as well as find alternate sources for parts.” Another U.S. source said, “We generally don’t want to do business with the suppliers who continually expand the scope of their contracts to increase revenue. We like to do business with the suppliers who try to reduce the amount of service required on the equipment.”

Few Yield Problems Reported

Only a few IDMs admitted to having yield issues. (Yield typically is a sensitive issue, and some sources were reluctant to discuss current yield conditions.) All sources who offered yield information cited some problems associated with the incorporation of advanced technologies. “For our 130 nm [nanometer] process, we continue to see yield improvements across all of our products. Our 90 nm processes are not yielding as well right now. We have problems with the low k dielectrics, but we are continuing to develop these processes,” said a source.

Used Tools Less Available, More Expensive

Most IDMs said their used equipment purchases would remain on par with the previous quarter, depending on tool availability and whether they typically purchase used equipment. Some U.S. and European sources expect to continue to pursue used equipment first – even increasing their spending on used tools – but the availability is questionable. Used equipment prices are beginning to rise and some equipment suppliers are increasing prices for refurbished equipment and upgrades. “We see this as a flat market,” said a large U.S. IDM. Another said, “We would like to increase our spending on used equipment, but the pool is drying up.”

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QUOTES

United States

"What we are doing is increasing capacity in our 200 mm fab. Also, we have just completed a major internal epi [epitaxial reactor] capacity increase that services the whole company. It keeps our costs down, and we don't have to worry about others running out of capacity. We also are busy doing calls to foundries to get capacity if we need it."

"The trend I'm seeing is the move toward China. That is the new frontier in semiconductor manufacturing. The labor will be extremely cheap and will drive prices down even further."

"Also, most likely we will replace Semitool [Inc.] due to their sales, service and build quality."

"All of our suppliers are at risk from a service standpoint and from a parts standpoint."

"Applied's account team has changed, and now we can't stand dealing with them. They're arrogant jerks."

"We've had a strained relationship with Lam in the past; they were a bunch of whiners, but we've heard really good things about their service organization."

"We have been pushing to improve our yields to avoid buying equipment."

"Prices on used are starting to creep up. There was a glut – a lot out there at good prices – but as things have heated up prices climb and availability has gone down a bit."

Europe

"Asia is an area of earthquakes, not only in a geological sense. Their movements always have an impact on the market. In Asia, you always have to have both feet on the ground, otherwise you are lost."

"The front-end business stays in Asia, Europe and the USA. Back-end is completely done again in Europe; there we can now cope with labor costs."

"Whether we increase our level of outsourcing depends pretty much on how much demand will pick up. We might go as far as 15%."

"We're seeing an increase in bookings; the market is becoming more stable. Business confidence has improved as well."

"We will increase spending this year – though not much. We'll invest in capacity, ramp up a few fabs."

Japan

"I think Applied Materials has gained against Tokyo Electron because the former invested in newer techniques while the latter relied too much on inside relationships."

"We measure demand for our semiconductors used in electronics products in China to equal demand in Japan as early as next year. In three years, China demand could be on a par with the United States. This is faster than what we predicted."

"I don't think the Japanese semiconductor industry has collapsed or was ever near that. It just learned that it has to run to keep up. I'm glad Japan didn't become too complacent."

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QUOTES

Taiwan

“ProMOS [Technologies Inc.] has developed a technology partnership with Elpida [Memory Inc.]. The company will expand its 12-inch fab's capacity, and there are tentative plans to build a new 12 fab.”

“Applied Materials has a very aggressive business strategy.”

“ProMOS will be increasing its relationship with Applied because of the favorable financing and other types of support it receives.”

South Korea

“A major IDM was ramping up its flash memory fab and still unable to meet its orders.”

“As long as we get approval from the banks for a financing program, we should be able to execute orders for a new 0.13-micron fab.”

“Being ahead of others with the newest equipment to build new fabs of highest reliability is a must condition to keep us profitable.”

China

“We normally adjust our fab equipment purchasing according to general factors, such as production ability, orders, market situation and new technologies.”

“There are no signs to show that we will have big purchases in the fourth quarter, but probably we will have some big orders to drive our purchasing investment.”

“If we have a new fab equipment requirement in the future, we will consider both existing vendors and new vendors.”

Malaysia

“Demand will definitely improve.”

“We are looking into purchasing new equipment by the end of the year to cater to the demand.”

“Our utilization rate is very high, but we have to work hard to keep it that way.”

> SEMICONDUCTOR CAPITAL SPENDING TALLY
1a. Do you expect demand for semiconductors to improve, deteriorate or remain the same during the first half of 2004?

	UNITED STATES	EUROPE	ASIA-PACIFIC	CHINA	TOTAL
Improve:	20	9	12	3	44
Same:	1	-	-	2	3
Don't know:	1	-	2	-	3
No response:	1	-	-	-	1

1b. Do you expect demand to directly affect your orders for fab equipment during the first half of 2004?

Yes:	11	6	10	2	29
No:	7	-	4	3	14
Don't know:	4	3	-	-	7
No response:	1	-	-	-	1

2. Do you expect to place any major fab equipment orders before the end of 2003?

Yes, capacity:	6	4	4	1	15
Yes, technology:	3	-	4	-	7
Yes, replacement:	1	-	1	-	2
Yes:	2	4	5	-	11
No:	6	1	-	4	11
No response:	1	-	-	-	1
Don't know:	4	-	-	-	4

3. Did your fab equipment CAPX increase, decrease or remain the same during July through September compared with the same period last year?

Up 100% or more:	1	-	3	-	4
Up 41%-50%:	-	-	-	1	1
Up 26%-30%:	1	-	-	-	1
Up 21%-25%:	2	-	-	-	2
Up 16%-20%:	-	-	-	2	2
Up 11%-15%:	-	-	2	-	2
Up 6%-10%:	1	4	3	-	8
Up 1%-5%:	-	5	1	-	6
Up:	5	-	-	-	5
Flat:	11	-	1	-	12
Down:	1	-	-	-	1
Down 11%-15%:	-	-	1	-	1
Down 16%-20%:	-	-	-	1	1
Down 31%-40%:	-	-	1	-	1
Down 100% or more:	-	-	-	1	1
No response:	1	-	-	-	1
Not applicable:	-	-	2	-	2
Weighted average:	Up 5%-10%	Up 6%-11%	Up 12%-17%	Up 2%-7%	Up 8%-13%

> SEMICONDUCTOR CAPITAL SPENDING TALLY
4. Did your fab equipment CAPX increase, decrease or remain the same during July through September compared with April through June?

	UNITED STATES	EUROPE	ASIA-PACIFIC	CHINA	TOTAL
Up 100% or more:	-	-	1	-	1
Up 61%-70%:	-	-	1	-	1
Up 41%-50%:	-	-	1	-	1
Up 31%-40%:	1	-	1	-	2
Up 16%-20%:	1	-	2	-	3
Up 11%-15%:	1	-	-	-	1
Up 6%-10%:	2	-	1	-	3
Up 1%-5%:	-	6	3	-	9
Up:	5	-	-	-	5
Flat:	9	2	2	3	16
Down:	2	-	-	-	2
Down 6%-10%:	-	-	-	1	1
Down 16%-20%:	-	1	-	-	1
Down 21%-25%:	1	-	-	-	1
Down 26%-30%:	-	-	1	-	1
Down 61%-70%:	-	-	1	-	1
Down 100% or more:	-	-	-	1	1
No response:	1	-	-	-	1
Weighted average:	Up 1%-6%	Down 7%-12%	Up 5%-10%	Down 10%-15%	Up 1%-6%

5. Do you expect your fab equipment CAPX to increase, decrease or remain the same during October through December compared with July through September?

Up 100% or more:	-	-	2	-	2
Up 21%-25%:	1	-	-	-	1
Up 16%-20%:	-	-	-	1	1
Up 11%-15%:	-	1	-	-	1
Up 6%-10%:	1	4	2	1	8
Up 1%-5%:	1	3	3	-	7
Up:	2	-	1	-	3
Flat:	10	1	5	3	19
Down:	2	-	-	-	2
Down 1%-5%:	1	-	-	-	1
Down 6%-10%:	1	-	1	-	2
Don't know:	3	-	-	-	3
No response:	1	-	-	-	1
Weighted average:	Up 4%-9%	Up 5%-10%	Up 31%-36%	Up 2%-7%	Up 18%-23%

> SEMICONDUCTOR CAPITAL SPENDING TALLY
6. Do you expect 2003 fab equipment CAPX to increase, decrease or remain the same compared with 2002?

	UNITED STATES	EUROPE	ASIA-PACIFIC	CHINA	TOTAL
Up 100% or more:	1	-	3	-	4
Up 81%-90%:	-	-	-	1	1
Up 61%-70%:	1	-	-	-	1
Up 41%-50%:	-	-	-	1	1
Up 26%-30%:	1	-	-	1	2
Up 21%-25%:	1	-	1	-	2
Up 16%-20%:	-	1	-	-	1
Up 11%-15%:	1	-	2	-	3
Up 6%-10%:	1	2	2	-	5
Up 1%-5%:	-	5	-	-	5
Up:	3	-	1	-	4
Flat:	6	1	1	-	8
Down:	4	-	-	-	4
Down 6%-10%:	1	-	-	1	2
Down 21%-25%:	2	-	-	-	2
Down 26%-30%:	-	-	1	-	1
Down 31%-40%:	-	-	1	-	1
Down 71%-80%:	-	-	-	1	1
No response:	1	-	-	-	1
Not applicable:	-	-	2	-	2
Weighted average:	Up 1%-6%	Up 8%-13%	Up 24%-29%	Up 15%-20%	Up 14%-19%

7. Do you expect your used equipment spending to increase, decrease or remain the same during October through December compared with July through September?

Increase:	6	9	-	2	17
Same:	11	-	-	3	14
Decrease:	-	-	7	-	7
Don't know:	2	-	-	-	2
No response:	1	-	-	-	1
Not applicable:	3	-	7	-	10

8a. (IDMs only) What is your current in-house utilization rate?

91%-100%:	3	-	5	-	8
81%-90%:	5	3	2	1	11
71%-80%:	6	2	-	-	8
61%-70%:	3	1	2	1	7
51%-60%:	2	1	1	-	4
41%-50%:	1	-	-	-	1
Increasing:	1	-	-	-	1
No response:	1	-	-	-	1
Not applicable:	1	2	4	3	10
Weighted average:	80%-85%	78%-83%	86%-91%	77%-82%	83%-88%

8b. (Foundries only) What is your current utilization rate?

91%-100%:	-	-	3	-	3
81%-90%:	-	-	1	-	1
71%-80%:	1	1	1	1	4
61%-70%:	-	1	-	1	2
41%-50%:	-	1	-	1	2
No response:	1	-	-	-	1
Not applicable:	21	6	9	2	38
Weighted average:	Not averaged	63%-68%	81%-86%	62%-67%	77%-82%

> SEMICONDUCTOR CAPITAL SPENDING TALLY
9. Are you experiencing any yield issues?

	UNITED STATES	EUROPE	ASIA-PACIFIC	CHINA	TOTAL
Yes:	3	-	1	2	6
Intermittently:	1	-	2	2	5
No:	19	6	8	1	34
Don't know:	-	3	2	-	5
No response:	-	-	1	-	1

10. (IDMs only) Currently, what percentage of your overall production is outsourced to foundries or other IDMs?*

31%-40%:	1	-	-	-	1
26%-30%:	2	-	-	-	2
16%-20%:	1	-	2	-	3
11%-15%:	2	2	2	-	6
6%-10%:	4	5	-	1	10
1%-5%:	7	1	1	-	9
0%:	5	-	8	1	14
Not applicable:	-	-	1	3	4
Don't know:	1	1	-	-	2
Weighted average:	10%-15%	7%-12%	4%-9%	4%-9%	6%-11%

* A comparison to the previous OTR report is not applicable.

11. Which regions and foundries do you expect to benefit from your outsourced production? (Some sources gave more than one answer.)

Taiwan:	17	1	3	-	21
China:	2	4	2	1	9
Singapore:	4	-	1	-	5
South Korea:	2	-	1	-	3
Malaysia:	1	-	1	-	2
United States:	1	-	-	-	1
No outsourcing:	3	-	4	1	8
Not applicable (foundry):	1	3	4	3	11
No response:	2	1	-	-	3

12. Is the amount you outsource likely to increase during the remainder of 2003? (Some sources gave more than one answer.)

Yes, for cost savings:	-	6	2	-	8
Yes, for capacity:	1	3	-	1	5
Yes, for technology advantage:	5	-	-	-	5
Yes, avoid building 300 mm fab:	-	-	1	-	1
Yes:	2	-	1	-	3
No change:	1	-	3	-	4
No outsourcing:	9	-	2	1	12
Don't know:	1	-	-	-	1
Not applicable:	4	-	5	3	12

13. What kinds of strategies do you expect to utilize to take advantage of the industry upswing? (Some sources gave more than one answer.)

Add capacity:	10	-	3	2	15
Partnering/joint venture:	5	5	5	-	15
Move to new tech node:	9	1	3	1	14
Increase outsourcing:	7	3	-	-	10
Copper/low k technology:	6	-	1	-	7
New fab:	3	-	2	2	7
Fab consolidation:	1	-	-	-	1
Other:	2	-	-	-	2
Don't know:	1	-	-	-	1

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14. Which of your incumbent suppliers are running the risk of being replaced at one of your locations? (Some sources gave more than one answer while others did not respond.)

	UNITED STATES	EUROPE	ASIA-PACIFIC	CHINA	TOTAL
Applied Materials:	4	-	-	-	4
Dianippon Screen (DNS):	2	-	-	-	2
Nikon:	1	-	1	-	2
TEL:	-	-	2	-	2
Novellus:	1	-	-	-	1
Canon Inc.:	-	-	1	-	1
Toshiba Corp.:	-	-	1	-	1
All suppliers:	1	-	-	-	1
Other:	1	-	-	-	1
None:	6	-	3	5	14
Don't know:	3	-	-	-	3
Not applicable:	-	7	5	-	12

15a. What type of tools do you expect to order by the end of the year? (Some sources gave more than one answer.)

Lithography:	6	1	8	-	15
Etch:	7	1	4	-	12
All areas:	2	8	-	-	10
Thin film:	5	-	4	-	9
Copper plating:	3	-	1	-	4
CMP:	3	-	-	-	3
Diffusion:	3	-	-	-	3
RTP:	1	-	2	-	3
Wet benches:	2	-	-	-	2
Metrology:	2	-	-	-	2
Track:	-	-	2	-	2
Implant:	1	-	-	-	1
Other:	1	-	-	2	3
None:	3	-	-	1	4
Don't know:	2	-	1	-	3
No response:	1	-	1	2	4
Not applicable:	1	-	-	-	1

15b. With which company do you expect to place your order? (Some sources gave more than one answer.)

Applied Materials:	5	3	9	-	17
ASML:	2	1	6	-	9
TEL:	3	-	4	-	7
Lam Research:	2	2	2	-	6
Novellus:	2	1	3	-	6
Canon:	1	1	3	-	5
Nikon:	-	1	3	-	4
Ultratech Inc.:	1	-	-	-	1
Mattson Technology Inc.:	-	-	1	-	1
SEZ Holding Ltd.:	-	-	1	-	1
Other:	1	1	-	1	3
No orders:	3	-	-	1	4
Don't know:	1	-	1	-	2
No response:	9	1	-	3	13

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15c. From which company do you choose not to buy? (Some sources gave more than one answer.)

	UNITED STATES	EUROPE	ASIA-PACIFIC	CHINA	TOTAL
TEL:	-	-	4	-	4
Applied Materials:	2	-	-	-	2
Novellus:	1	-	-	-	1
Semitool:	1	-	-	-	1
Canon:	-	-	1	-	1
Nikon:	-	-	1	-	1
Toshiba:	-	-	1	-	1
Other:	-	4	-	-	4
No orders:	2	-	-	1	3
Don't know:	4	-	1	-	5
No response:	12	5	6	4	27