US Semiconductors and Semi Equipment

March 2023 Semis Bus Trip - Key Takes

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Backlog still provides some cushion, but evidence of weakening demand apparent

As part of Spring investor bus trip, we hosted investor meetings with INTC, MU, LRCX, AMAT, KLAC, SWKS, STX, MCHP, ON, and STM. While a few companies are showing signs of optimism around China demand recovery, the underlying tone was one of ongoing demand deterioration - especially in data center which has clearly worsened over the past 4-6 weeks. PC and smartphone are still mixed but no longer getting worse. Companies with big backlogs still sound okay, but lead times and orders are coming down nearly across the board. On the SPE side, we continue to see signs of very weak orders but the tone from AMAT and KLAC remains solid - in part driven by excess backlog that will ship off through this year (but create tougher comps for '24). Overall, we walked away feeling that semis are a better place to be than semicaps, generative AI and SiC are far and away the two most topical debates for investors, and memory (DRAM) is being overlooked in terms of how strong this next cycle will likely be.

Company Highlights

Intel (INTC) - While the overall macro backdrop remains challenging and INTC is still not committing to any snap back in the PC client segment, the company states that the process roadmap remains on track (we would note that "5 nodes is 4yrs" is really more like two traditional process jumps (fka 7nm for EUV and 5nm with GAA) in 2yrs – very doable). Further, INTC is reiterating that the roadmap is based on internal product requirements and not dependent on success of gaining external customers for IFS and/or closing the TSEM deal. While not endorsing any gross margin or revenue beyond March, its commentary on puts/takes (under-utilization, cost savings, depreciation changes, higher die and assembly costs for Sapphire Rapids and Meteor Lake) supports gross margin getting back to at least high 40%s once revs get back to ~$15B/Q (we think Dec Q). Capex has been adjusted slightly down this year due to lower capacity requirements, but INTC expects 2024 net capex back to mid 30%s and is further committing to 3rd party offsets being up again next year. This would support INTC gross capex being up ~25-30% Y/Y in C2024.

Micron Technology (MU) - MU's new revenue commentary is very consistent w/where we took estimates over this past weekend. PC/mobile inventory digestion remains on track to normalize by mid-year but cloud demand remains very weak. Pricing outlook for FQ3:23 (May) has worsened such that MU now believes product GM will be negative (implying ASP down low double digits in May for both DRAM and NAND (we think)) even as bits continue to grow. MU was clear with us that this is more of a pricing issue than a volume issue which we read to imply that competitors (likely Samsung, we think) have begun to capitulate on pricing to move bits off their BS and MU is being forced to match pricing to maintain share. While MU is not committing to the magnitude of inventory writedown, we came away from the meeting feeling that ~$1-1.5B of what we estimate to be close to ~$10B of inventory will be written down – resulting in a hit to TBV of ~$1/share. MU also noted for the first time that some of the cloud inventory digestion was in hindsight driven by these customers wanting to in good faith stay within committed LTA ranges in C2H:22 which ended up, at the margin, driving them to take some more product than they really needed ahead of demand weakening. This is to us good news/bad news as it implies the LTAs – while still not financially binding – might actually mean something going forward. Lastly, MU backed the view that generative AI is a significant long term demand driver for DRAM in particular and none of this is all upside to its demand forecast.

Lam Research (LRCX) - Management is reiterating its WFE view for 2023 even post AMAT's report. LRCX will carry more deferred revenue going forward than in prior cycles in part because of broader requirements for pre-payments from lagging edge process node customers in particular. LRCX feels that WFE share decline this year (~200bps by our math) is being driven entirely by spending mix with three idiosyncratic drivers helping in addition to a more normalized memory/foundry mix: 1) significant increase in dep/etch intensity (LRCX top share for patterning module), 2) once WFE starts to come back, films (AMAT/LRCX/Tokyo Electron) will capture a heavy portion of the mix to fill in around the significant increase in litho/EUV tool installed base this year, and 3) share gains at (we think) INTC with WFE share (we think) at Intel 4/3 nearly commensurate w/ LRCX's global share.

Applied Materials (AMAT) - The company is reiterating a theme of more stability to its business despite a historically significant decline in memory WFE and longer-term growth in the industry as a whole. Backlog churn remains high, but memory weakness has been offset by strength in ICAPS (applications on process nodes >=10nm) with demand for WFE at these nodes likely to hold up next year despite investor concerns around inventory in some of these end markets. The company continues to cite 4 key business areas where backlog remains much higher than normal (including metal dep/ PVD and implant) and is reiterating that this should normalize over the next 2-4Qs. This is part of our estimate that AMAT has ~$5B of excess semi systems backlog above typically normal levels, which, when combined with ASML's deferred, points to as much as ~$15-20B in WFE that customers actually wanted in 2022 but has pushed into this year in terms of revenue recognition - all of which creates tough comps for C2024 WFE (not by any means an AMAT-specific issue).

KLA Corporation (KLAC) - Performance obligations (essentially backlog) of ~$12.5B remain much higher than normal with ~50% of this for delivery beyond 6mos. This portion beyond 6mos is particularly skewed to technology versus capacity which gives KLAC confidence that, unlike prior cycles, this is at less risk of pushout/cancellation. We continue to see risk though as orders across most of the SPE universe are in significant decline, but management is taking a different view and sees orders stabilizing at these levels having already come down (we estimate) ~60-65% from CQ2:22 peak. Based on management's view, performance obligations would remain roughly at this level throughout the rest of the year which would then set up C2024 to be another good year based on backlog alone. Management agrees that mix has been a tailwind for WFE share, but also cites idiosyncratic drivers including optical and reticle inspection attach to EUV and push from indigenous China to continue improving yields (albeit more lagging edge process nodes given export restrictions).

Skyworks Solutions (SWKS) - Management struck a generally positive tone citing some recent improvement – albeit gradual – in China smartphone sell-through. SWKS Android sales (China, Samsung, Google) should approach normalized levels of ~$275-300MM/Q by 2H:23 – suggesting a marked improvement from what we estimate was ~$75MM in Dec and ~$100MM in March from these customers. Confidence around its blended AAPL content growing in line w/historic trend of ~10% +/- for this Fall launch remains high. Management continues to highlight additional content opportunities for mid/high band PAD using BAW content at all customers. WiFi 6e/7 remains a tailwind as well.

Seagate Technology (STX) - Management is maintaining its view that nearline EBs in CQ1 are up as some improvement in US cloud is offsetting ongoing weakness and seasonality in VIA. The trajectory of improvement, however, seems to us slower w/ ongoing improvement in CQ2 keyed to China getting better which STX has yet to really see. HAMR samples are shipping this Q with qualifications in early CQ2 – a bit ahead of plan – which will ultimately improve customer TCO (cost + capacity) and benefit STX margins. The degree of margin benefit will become more apparent deeper into the full volume ramp. STX still has little interest in the NAND business beyond its currently small SSD business using 3rd party NAND. STX has not applied for CHIPS Act grants, but could theoretically qualify if it chooses to apply. Gross margins should improve to higher levels than prior cycle at equivalent revenue due to HAMR mix and cost cutting.

Microchip Technology (MCHP) - Even as lead times are compressing toward a more normal ~6mos in 2H:23, management continues to sound a positive tone as customers continue to broadly push for visibility and confidence in supply. Growth premium continues to be fueled by MCU share gains and content aggregation as MCHP really starts to leverage the breadth of its product portfolio.

Onsemi (ON) - The company continues to emit a very positive tone, particularly around its ability to ramp SiC production - a major investor debate based on our discussions. Barring a significant macro correction, ON is suggesting 2024 should be another solid growth year with core autos up again, industrial up, growth in SiC (which we think could be in the range of ~$350-400MM Y/Y) and margin leverage from favorable mix shift and elimination of divestiture headwinds.

Meeting Notes

INTC

David Zinsner - EVP, Chief Financial Officer

Market/Strategy

IFS Strategy & Tower Semi

- The process and cost roadmap are all based on internal requirements
- The external customers would ultimately help the economics for the model
- Tower Semi - if the deal does not close, it does not change the roadmap for IFS. Tower Semi would be a nice optionality to have because they have stood up legacy PDKs to elongate the useful life of INTC's 16nm capacity
- Less than ~10% of INTC's total costs are for IFS

Process technology

- The process roadmap is not as challenging as 5 nodes in 4yrs might seem because mgmt pointed out that INTC 4/3 are really very similar from a technical standpoint (7nm based) and 20a/18a are very similar too - so really not that different than prior 2yr cadence between fundamental process transitions
- Sapphire Rapids will help slow down the rate of share decline as it ramps but there will be still a gap
- Sierra Forest and Granite Rapids next year - silicon parity w/ AMD - to start to gain back share

Customer feedback on 18a

- Process is on track (backside power is the key thing for this - TSMC added this to their roadmap for 2nm) - some customers like it and some don't love what they see as much
- Key is that customers need the PDKs
- INTC has a graduated gate which is optimized for HPC so this would generally be the target group versus the low power customers
- Of the 7 potential customers with whom they are engaged with, the realistic best case is to be a secondary source for these customers given the geopolitical environment

Core count

- Core count is growing very quickly - this is currently a disadvantage for INTC but thus starts to shift/reverse with Sierra Forest and Granite Rapids
- NVDA is taking a big margin premium so there is a lot of pricing headroom for INTC to capture as GPU and CPU roadmaps catch up over time
- INTC core to core is significantly better than AMD but the issue is core count
- Core count is growing nicely in hyperscale but you are not seeing it in terms of the size of the CPU TAM because AMD gave away too much pricing per core - AMD is not charging enough per core (essentially providing a discount on a per core basis) - something that INTC will start to charge for and reset the market higher when INTC really starts to ramp core count with Sierra Forest and Granite Rapids as INTC accesses leading edge process first from TSMC and then internally

Backside power

- It is hard to do - you have to take more risk mitigation, they have a version of GAA w/o backside power

DCAI & China

- Not giving exposure to China in DCAI but INTC is definitely more exposed to China in data center than AMD
- INTC over-exposed to both cloud and enterprise in China

Financials

GM

- GM was ~45% at ~$15B/Q in mid 2022 - this included 200 bps of underutilization so you can tack the $1B COGS on top of this and then you get some benefit from depreciation change. So should likely be back to low 50%s at ~$15B/Q this next upturn
- But designs of products are getting more expensive so there could be some cost headwinds versus that period last year
- Also during that period, the fabs were over-loaded given what's happened to PC inventory - so the GM at that time was a bit overstated

Capex

- Reiterate low 30%s net capex for CY23. For 2024, goal is to get back to mid 30%s net capex
- 3rd party offsets will be up in CY24 Y/Y vs. CY23
- The adjustments to this year were mostly just slightly adjusting capacity adds lower this year due to market conditions

CHIPS Act announcement around profit sharing w/ govt

- It was also news to INTC; In terms of the hurdle rate, perhaps INTC can use TSMC margins as a benchmark, but this is still being worked out
- INTC is also noting that the tax credits (ITC) are likely a bigger and more consistent pool of subsidies than the grants given the cost of a fab
- INTC will provide much more transparency on the breakdown of external financing sources in filings going forward as the pool of subsidies/ITC/etc. become larger over time

MBLY ownership

- INTC ownership in MBLY can come down to ~80% without much tax implications and the idea would be to monetize this stock price appreciation of MBLY from current 94% stake - INTC actually would have sold more during the IPO if the market was better

MU

Sumit Sadana - EVP and Chief Business Officer

Market/Strategy

End markets

- Cloud was the last end market to start to see the inventory correction amid weakening demand trends
- Cloud customers were under pressure from suppliers to not deviate from LTAs last year and this drove them to buy more than they needed in 2H last year
- PC/mobile had been seeing slowdown for some time and the slowdown in cloud was more surprising

A100/Generative AI

- 25% of memory is HBM (most expensive, many multiples of $/GB versus DDR4/DDR5)
- 75% of memory is DDR4/DDR5
- Generative AI will really benefit general memory as much as HBM - AI systems are very heavy on memory

Competitors

- MU actions tend to precede competitors' and that was the case this cycle
- DRAM supply/production needs to shrink this year - MU is on track for this
- Competitors will need to protect their DRAM franchises - this is particularly the case for Samsung because oversupply in DRAM is just making AAPL relatively stronger

Cloud customers behavior

- Part of why it takes long time for the cloud customers inventory levels to normalize is because they typically take advantage of favorable pricing
- However, there are clear practical limits of buying too much memory ahead of pricing increase in the future. Platforms/architectures/etc. need to be upgraded across the board before a new DRAM architecture comes out (DDR5 vs. DDR4).
- Also a lot of constraints across supply chain for the cloud customers to buy too much when pricing is favorable
- It's also possible that there won't be enough supply by MU and others too if the cloud customers order too much
- Cloud customers broadly do not think that these current favorable prices are sustainable
- MU is not willing to sign up for more customer commitments for volume at these prices

Manufacturing

- Taiwan and Japan for leading edge and Manassas/VA for lagging edge
- Taiwan much bigger than Japan
- China/Taiwan is an industry issue, not just for MU's leading edge facility in Taiwan

CXL

- Pooling of DRAM behind a CXL architecture is very hard
- So customers are using CXL to expand memory usage
- CXL is still very positive for demand inflection for memory

- PC/mobile might not grow content as much as data center in terms of memory content; the demand mix will shift to data center

SRAM vs. DRAM

- SRAM really costly so hard to displace DRAM
- DRAM also provides a much better cost reduction than SRAM does

Financials

Inventory/writedown

- Will impact both GAAP and non GAAP - MU will not non-GAAP this out
- Was triggered by expectation that FQ3 product GM is negative (e.g. total GM -8-10%) so they are taking the writedown in FQ2
- Hypothetically if MU has ~ $10B product inventory and you think pooled pricing is 10% below cost, you would write down $1B
- Currently, MU has ~$7 of inventory/share so the writedown could conceivably be around 10% of this number - that's the range of impact on TBV
- Called out pricing being worse but did not call out bits in the announcement - much more of a pricing issue than bits - MU still thinks bits will grow approximately consistently with expectation 3 months ago
- Pricing is worse than expected primarily due to competitors' actions - MU does not want to lose share, so less to do with MU capitulating on pricing and more to do with actions from competitors
- MU sees its inventory peaking over the next few months and should start to come down fairly dramatically

FQ3 outlook

- Not committing to FQ3 GM being up - still going through the magnitude of the writedown

LRCX

Douglas Bettinger - EVP, Chief Financial Officer

Market/Strategy

WFE

- Memory is the large part of the 20% decline in WFE with NAND worse than DRAM
- Still think mid-$70Bs this year even after having heard AMAT - AMAT had lead times that had blown out more than LRCX (PVD) and this is still cushioning AMAT to some degree
- LRCX may decide to hold higher levels of inventory going forward and may also consider more dual sourcing, though nothing has been decided
- WFE share loss this year (~11% share) is all about WFE mix levered to foundry/logic
- Memory as a % of total WFE is at 25 year low
- DDR5 and high-NA adoption is good for LRCX
- 2nm wallet share should be better than 3nm for LRCX
- LRCX should benefit as spending shifts from litho to dep/etch
- More incremental WFE off the bottom should be film based to fill around the litho tools that have not been pushed out
- 2024 WFE - hard to see memory decline - could be some foundry downside as LRCX may have slightly overinvested in leading edge - but net/net, no comment on 2024 direction as it is too early to say

Financials

FCF

- 2023 will be a good year for FCF
- Inventories will glide down through the year
- LRCX returned ~120% of FCF in C2022 - management got aggressive when the stock began to decline - plan going forward is to be a bit more ratable - still have $5B left on authorization

Margins/costs

- GM improvement - incentive comp this year (and likely going forward) has a more specific GM bar
- China GM - generally more profitable in China vs. rest of world

Deferred revenue

- Bottoming ~2x above where it bottomed in the past - LRCX caught up on deferred faster than originally expected in part due to an increase in demand from lagging edge and from a number of China foundries that LRCX does not have a lot of experience supplying - so LRCX is requiring more pre-pays

AMAT

Brice Hill - SVP, Chief Financial Officer

Market/Strategy

ICAPS

- Defined as >=10nm
- Growth is accelerating this year and was strong enough in FQ1 that orders offset weakness in memory
- No more used lagging edge equipment left so these customers need to buy new tools
  - China is a piece of it but demand is broad based
- AMAT tests how real the ICAPS demand is - capacity utilization at these nodes and for these applications remains high - drivers include electrification, energy, and sensors, and AMAT buys chips at these process geometries and sees supply in many of these fabs as still being tight
- WFE intensity for this segment used to be LSD but now close to what leading edge logic used to be (which we take as ~10-12%) - so this is modesty dilutive to total WFE but not significantly
- Sustainability in ICAPS?
  - The rate of growth could slow from what they are seeing this year, but the WFE from this segment is sustainable
- Why won't ICAPS follow the same trajectory of inventory adjustment?
  - Capacity utilization at these nodes is still high
  - A few customers have talked publicly about tax incentives which would tend to support WFE
  - There may be some effect that dollar inventories overstate unit inventory in these end markets

Centura Sculpta

- Another use case could be if a customer is having yield issues on multi-patterning
- High NA helps on pitch but does not help in the other dimensions and this is where Sculpta comes in
- AMAT sees this as complementary to high NA EUV
  - Some of the technology for this new tool came from the implant business - it is not really etch, it is using ribbon beams. It is also not specific to EUV - you have all of the patterned layers, does not matter what litho you used to create the pattern, so not tied to EUV

Backside power

- Using both sides of the wafer - you get compaction without using lithography - you can increase transistor density by 30% w/o using litho
- You will do Demeter layers on the front and put some on the back but if you want the 30% savings you will have to net spend more on WFE

WFE

- Unlike in the past where AMAT would point out that the trailing 2yr sum of WFE would be up since 2012, it is not providing such statements not because it is not bullish on the industry, but in large part because there is so much backlog and shipments that still have not caught up to demand and it is hard to say exactly where WFE will actually come in this year
  - This creates a lot of big fluctuations in WFE share (for example ASML + AMAT

look likely to outperform this year and they are nearly half of WFE)

Financials

SSG backlog

- Management reiterated comments from the earnings call that there was actually quite a bit of churn within backlog
  - In memory there were a lot of cancellations but ICAPS orders were strong enough to offset these cancellations
- 4 business units are shipping to dates where customers actually wanted the tools last year
- This "excess" should be worked down over the next 2-4 Qs

KLAC

Bren Higgins - EVP, Chief Financial Officer

Market/Strategy

WFE

- Process control systems - WFE could potentially be a little better and driver would be lagging edge China investment but still feel good about range provided
- EPC expected to be down 10-15% this year and service still up MSD-HSD
- WFE share - Posted strong gains in 2022 and share should be strong this year again
- Idiosyncratic drivers beyond mix for share gains
- Feel good about WFE share mid-/high-7% range
- KLAC does well (vs peers) in a down WFE year
- Needle movers to maintain share
  - EUV adoption is driving gains in optical/reticle inspection
  - Opportunities to improve process control intensity
- Tools related to new capacity is subject to push put

China

- Still have good business in China, but it will be down Y/Y
- Mostly legacy investment in China
- China impact for KLAC is less than peers
- Not a lot of business happening on restricted nodes
- China still getting off the ground and foundry yields, all things equal, are lower there so that will continue to benefit KLAC

Financials

Gross margin

- GM - on the way up should see the same sort of leverage seen in the past
- There are some cost pressures
- Mix plays the biggest part in GM
- ~200bps of headwinds versus pre-COVID, some of which they can pass on and get back, others will be potentially more permanent and another factor will be time as KLAC added a lot of manufacturing capacity during COVID and will take time to rationalize the new space
- Committed to 63%+ GM% at $14B revenue (currently ~61% at ~$10B revenue in F2023 per UBSe)

Performance obligations

- What is getting pushed out is capacity-centric stuff
- There are other tools where KLAC does not have enough
- Proactive cancellations
  - KLAC is doing some of this because performance obligations are now a disclosed liability
    - KLAC is not able to actively bring down backlog as aggressively as a chip company can do in order to force a customer's hand on new orders
  - Another factor is that ~50% of performance obligations are for delivery beyond 6mos and more heavily skewed to technology which makes it more

strategic in nature

- Ultimately, this could make this cycle different than prior cycles in that big backlog doesn't necessarily get cancelled or pushed out during a downturn

Revenue sustainability

- KLAC does not see high likelihood of broad cancellations but acknowledges that in cases where tools relate to new capacity, this is potentially subject to push out - orders have come down, but there is still a desire to "be in line" such that new orders should remain strong enough to keep performance obligations roughly at this level through the rest of the year - all of this should provide some backstop for revenue

SWKS

Kris Sennesael - SVP, Chief Financial Officer

Market/Strategy

Android

- China has been weak due to macro - pushed the breaks in China
- Inventory still needs to be cleared
- Close to zero revenue in China - started to bounce back- will take a couple of quarters to return to normalized levels
- China peaked at $200MM/Q - that was an "overdrive" situation
  - Normalized is ~$100-150MM/Q
- Google (Pixel) peaked at $150MM/Q
  - Normalized is ~$75MM/Q
  - SWKS has more $ content in the Pixel vs iPhone
- Samsung peaked at $150MM/Q
  - Normalized is $75-$100M/Q
- So normalized total Android is ~$275-300MM/Q vs ~$50MM today
- SWKS is selective in China - not targeting mid/low-end platforms
- Samsung was close to zero in Dec Q and will see improvements, but more of a 2H23 story
- Mobile phone sales in China starting to improve

Content growth

- Vast majority of BAW going into mobile - some in WiFi 6e and 7 - but more content opportunity in pushing into mid/high band PAD
- Even with AAPL, WiFi is just a few $ of the >$10 but the content growth opportunity with AAPL will be both WiFi and RF (general push to make smaller, reduce latency, reduce power consumption)
- Even in 5G there will still be ongoing content increases with each release of 5G
- SWKS continues to feel very good about AAPL content gains, though we believe the decisions were a bit more delayed this year than prior years
- We believe there are ~10 SWKS sockets in premium tier iPhone - while not confirming any share gains/loss, SKWS suggested that it often can gain/lose a few of these sockets in any given year but the net effect is that dollar content tends to grow ~10%/year and this Fall should be no different

Financials

Balance sheet

- Cash - want to keep $750MM-$1B - would also like to keep some for potential M&A for BM
- $500MM of notes come due in May/June - will pay off with cash - rest will be returned via share repo

FCF/capital allocation

- Capex - used to run HSD% of revenue - has been LDD in recent years due to BAW build-out (which is now $2B/yr run-rate for products with a BAW filter)
- Going to bring capex down to MSD-HSD longer-term as they shift from adding BAW capacity to optimizing their capacity with very little capex
- SLAB has been a very good deal, business continues to hit quarterly records - want to continue diversifying and build broad markets which SWKS thinks has mid-teens CAGR that can be accelerated organically

STX

Gianluca Romano - EVP, Chief Financial Officer

Market/Strategy

HAMR

- Shipping samples this quarter - slightly ahead of expectations (qualified in early June)
- 30 TB today, soon 36T and then 40TB
- Pricing - depends on yield - until STX gets to mass production they are not sure on pricing - will ultimately become a GM tailwind but needs to get to mass production
- SMR - the customer has to make changes on their side but HAMR looks like CMR to the customer
- SMR starts at 33-34TB
- Customers will not commit to single source model - dual source at least
- HAMR is not about gaining share (STX has enough share) - more about cost and GM
- Customers will not wait until WDC can provide HAMR drives in the meantime though
- Customers care about TCO - which relates to cost and capacity
- First cloud, but enterprise will want HAMR too
- In a few years, everything above 20TB will likely be HAMR

NAND

- STX does sell a small amount of SSD with a partner - adds to FCF - but does not really want to be in the NAND business

Pricing

- Pricing discipline coming out of this cycle - pricing has been better than in prior downturns

CHIPS Act

- Have not applied but could theoretically apply because STX has wafer fabs

Competition

- Not seeing competition from China
- HDD is very complicated - a lot of components that go into HDD
- HAMR not easy to replicate and STX has patents

Financials

Margins

- No reason for HAMR ramp to be dilutive to margins
- Opex for this CY - $300-330MM/Q range
- Labor cost is low - variable comp is gone for now
- GM ramp - should be a better curve out of this downturn given cost cutting actions and HAMR mix

FCF / capital allocation

- Impact on FCF from HAMR ramp - capex unlikely to increase as HAMR ramps in next several quarters

- Working capital - not much room to bring down inventories
- Dividend - not big dividend dollars but the yield is good based on the share price - no reason to suspend dividend
- Dec Q was a low point but still generated FCF

MCHP

Eric Bjornholt - SVP, Chief Financial Officer

Market/Strategy

Supply chain

- Lead times back to ~26 weeks in 2H23, down from >52 weeks - improving lead times is good for customers
- This is bringing down orders

Fabrication

- 300mm fab - gained comfort that foundry partners will invest enough capital to expand capacity
- MCHP is dependent on 15-20 foundries

Financials

PSP/backlog/orders

- Have had a high volume of requests for order cancellations / push-outs
- Trying to accommodate push-outs by helping different customers who need components (unsupported backlog)
- Fully expect that as lead times come down, fewer customers will choose to participate in PSP
- PSP still >50% of total backlog right now
- MCHP is still a small % of customers' BOM, so it is still worth for customers to participate in PSP program
- PSP only guarantees units, not price
- China ~22% of revs on sell in basis, but only about half of this on consumption basis

Inventory

- Getting materials and equipment has been a challenge, so WIP and finished goods have built up
- Input costs have risen so carrying costs of inventories on B/S are higher, which inflates inventory dollars on the B/S

Cost inflation

- Labor costs - still a lot of pressure for direct labor
- Inflationary costs on the low end are still very significant and the two biggest cost inputs are depreciation/equipment and labor

Margins

- Pricing increase - only one factor of GM improvement
- Peak-to-trough 300bps decline typical - do not think MCHP will see that this downcycle
- Quarterly variable comp is material - at the highest level recently

Seasonality

- June/Sept typically strongest quarters (Sept up)
- Dec is typically weakest quarter
- March is somewhere in between June/Sept and Dec

Capital allocation

- Target is to return 100% of FCF to shareholder by 2025

Capex intensity

- 3-6% capital intensity should be sustainable - this FY, slightly above 6%, and next FY still relatively high but not >6%

ON

Parag Agarwal - VP of Corporate Development (M&A), Finance, Investor Relations

Market/Strategy

SiC

- $1B revenue on track for 2023
- Do not believe SiC technology will get commoditized
- IGBT is still not commoditized after many years
- Multi-decade runway for SiC
- Power and analog are hard to do - no standard libraries, no tools
- Risk for SiC wafer supply - ON would not be disclosing customers and pipeline if they did not have enough supply
- Customer concentration - pipeline is diversified enough that any one customer will not make or break the SiC business
- LTSAs - 2023-2025 ~$4.5B for SiC (in aggregate), but SiC LTSAs extend beyond 2025
- SiC capped by supply - CY23 sold out, CY24 quite full, have some room for CY25

Autos

- Beyond SiC, see significant growth in other parts of Autos business
- ADAS content will continue to increase
- Power content for IGBT will also grow

Utilization

- Tuning utilization to demand right now - will not hit the wall even in downcycle
- Divested 4 fabs, which helps
- Optimal utilization is 80-85% - running below this at ~70% range now

China

- China SiC - they have been trying for ~30 years but high voltage and high current competencies are not advanced, so takes a long time to catch up to where ON already is
- Even Chinese OEMs like NIO are using ON
- Commoditization of wafers by China - ON does not care where wafers are sourced
- ON wants cheapest wafers possible as long as the supply chain is reliable
- China is 40-50% on sell in bases but only mid-teens on consumption basis

IGBT

- IGBT revenue - ON does not disclose but they are #2 in this market
- ON is $50 content for IGBT in ICE versus $750 for EVs

Financials

Pricing

- Prices have been brought in line with market
- Going forward, do not foresee any major pricing action
- Any input cost inflation will be passed on to customers

Margins

- GM will trough in Q2 and remain flat for rest of the year - headwinds will continue in the near-term
- 100-200 bps SiC ramp headwind
- '24 tailwinds - SiC 100-200 bps headwind going away, ~40-70bps E Fishkill, advantage from ~$160MM of fixed cost savings (fab divestiture), and mix advantage (exiting low-margin revenues)
- GM LT range of 48-50% - ON feels very comfortable about that
- Potential for this LT target to increase at May Analyst Day given all the tailwinds

CY2024 outlook

- Exiting ~$400MM of revs in CY23 via divestitures
- Visibility into 2024 is limited - will be a bigger challenge than CY23
- Should see solid growth in SiC if macro is okay - other parts should grow too
- Industrial should grow in CY24
- If macro is hanging in, +5% rev growth in CY24 by the Street is conservative

Valuation Method and Risk Statement

Risk factors include but are not limited to macroeconomic factors such as a downturn in the economy, a disruption of international trade, technological disruption due to new inventions, or business model innovation whereby structural changes in the industry alter the future course of unit sales, ASPs, and revenues.

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Buy	FSR is > 6% above the MRA.	55%	24%
Neutral	FSR is between -6% and 6% of the MRA.	36%	21%
Sell	FSR is > 6% below the MRA.	9%	18%
Short-Term Rating	**Definition**	**Coverage[3]**	**IB Services[4]**
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 31 December 2022.
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2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.
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Company Name	Reuters	12-month rating	Price	Price date
Applied Materials Inc[16,20]	AMAT.O	Neutral (CBE)	US$118.45	02 Mar 2023
Intel Corp.[16,6,7]	INTC.O	Neutral	US$26.20	02 Mar 2023
KLA Corporation[16]	KLAC.O	Neutral	US$378.31	02 Mar 2023
LAM Research Corp[16]	LRCX.O	Buy	US$489.98	02 Mar 2023
Microchip Technology Inc[16]	MCHP.O	Buy	US$81.05	02 Mar 2023
Micron Technology Inc[16]	MU.O	Buy	US$56.43	02 Mar 2023
Onsemi[16,20]	ON.O	Neutral (CBE)	US$76.75	02 Mar 2023
STMicroelectronics[5,16]	STM.PA	Neutral	€44.23	02 Mar 2023
Seagate Technology Holdings PLC[16,7]	STX.O	Neutral	US$64.86	02 Mar 2023
Skyworks Solutions Inc[16]	SWKS.O	Neutral	US$111.79	02 Mar 2023

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