

Supply Frustration Could Lead to Design Losses For Microchip

Companies: ADI, AMD, ARW, AVGO, GFS, GOOG/GOOGL, IFNNY, INTC, LSCC, MCHP, MSFT, MSI, NXPI, STM

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Research Question:

Is Microchip Technology at risk of losing market share because of contract terms, customer inventory issues, and increased competition from China?

Summary of Findings

- Some customers of [Microchip Technology Inc.](#) (MCHP) are frustrated enough with the company's [Preferred Supply Program](#) (PSP) and some aggressive pricing that they are considering switching vendors. Ultimately, though, Microchip's broad product portfolio, competitive technology, and the complexity of redesigning for a new supplier should keep most in the fold, according to 10 interviews with customers, competitors, and other industry specialists.
- One customer source said his company is seeking alternative [microcontroller unit](#) (MCU) vendors after an awful experience with Microchip's PSP. The program was a disaster, with delivery dates regularly getting delayed during times of greatest need and no possibility to cancel orders as demand waned, the source said.
- A second customer source agreed that the PSP provided no benefits. Microchip's decision to push through a massive price increase in the middle of a PSP agreement gave his company pause about using Microchip going forward and also prompted efforts to source parts on the open market.
- Three sources said they do not have any pending orders with Microchip because they are still working through inventory.
- One competitor source said his company has been converting Microchip customers, though he said the gains are more related to product quality and availability than Microchip's PSP.
- Still, sources believe Microchip remains well-positioned in the microcontroller market overall. Microchip has a wide range of products, a good network of channel partners, and a commitment to provide the necessary design tools and software to go along with its hardware. Further, switching vendors for key components like MCUs is a complex task that can take six months to a year.
- Multiple sources said Microchip is known for providing reliable but not top-of-the-line chips. A customer source raised concerns about Microchip's road map, suggesting the timing of its plans for adding certain features lagged that of some competitors.
- Microchip remains dominant in MCUs based on [8-bit architecture](#) but is more vulnerable in [32-bit designs](#), where competition is thick. However, shifting architectures is even more difficult for buyers than switching vendors and can take multiple years of software retooling.
- Sources do not see Chinese companies that are investing in MCU technology as a major threat to Microchip anytime soon.

Key Quotes

"As a PSP member, we didn't get any benefit but nonflexibility on supply. There was no specific supply plan when the market was tight, and [Microchip] overshipped excess inventory when the market was down. ... What we can do is source any possible replacement solutions in new designs."

"If Microchip continues to frustrate customers with quality and constraints with the PSP, I anticipate they will lose business, some of it to Asia but also to others. I think it's already happening. I've already seen some frustration. Still, it takes about six months to a year to design out and design in a different supplier."

"We had second thoughts about Microchip for a while because of their road map and because we wanted more lane counts. But as of the last month, because of our growth, we will need to manufacture more product with the Microchip device."

"We are part of Microchip's PSP. The program is supposed to give us priority on availability, but we need to forecast for the year, and we need to buy 100% of that forecast over the next year. In reality, it doesn't give us anything."

"There are a few companies in China that could make products similar to Microchip's, but their products cannot handle temperatures when they are deployed in the wild—for example, on a box on a telephone pole or a park. If they are deployed, they fail quickly."

"Microchip still has a very strong product portfolio, and that's going to carry them for years to come."

Microchip Technology Inc.

	Microchip's Quality and Market Position	Microchip's PSP	Microchip vs. Chinese Suppliers
Microchip Customers	↑	↓	→
Competitors	→	↓	↑
Industry Specialists	↑	NA	↑
Competitor Customers	NA	NA	→

Background

Microchip Technology, a leading manufacturer of microcontrollers, delivered [a strong performance](#) for its fiscal Q4 ending March 31. Revenue climbed 2.9% sequentially and 21.1% year over year to \$2.23 billion. The midpoint of Microchip's guidance for the current quarter suggests that revenue could rise an additional 2.5% sequentially and 16.5% year over year, though executives acknowledged that macroeconomic uncertainty had led to a bookings slowdown over the past two quarters.

The company's robust overall performance and outlook stands in contrast to many of its chip-making peers. Globally, semiconductor sales fell 8.7% sequentially in Q1 and 21.3% year over year. Texas Instruments Inc. (TXN), whose Q1 revenue declined 11% year over year, said [Q2 sales could plummet](#) as much as 20%. Q1 revenue for NXP Semiconductors N.V. (NXPI) were [down 6% sequentially](#), and the company said Q2 revenue could fall as much as 6% year over year.

Microchip has touted the [sustainability of its outperformance](#) by citing its strategic focus on growing and its less volatile end markets, such as aerospace and automotive; the specialized technology that its products are built on; and its total system solutions approach. Growth has been led by its family of mixed-signal MCUs, for which net sales set a record in the March quarter. Increasing demand for embedded control systems has vaulted mixed-signal microcontrollers into a \$27 billion segment of the semiconductor industry.

But another possible contributor to Microchip's strong outlook in the face of significant headwinds is the company's Preferred Supply Program (PSP). The program—launched in February 2021 during a time of pandemic-induced parts shortages—offers customers prioritized capacity if they place an order for 12 months of continuous backlog. Such orders, however, are noncancelable and nonreturnable. Microchip has been willing to delay some of those orders as customer end markets have stalled but has taken a hard line in refusing to allow cancellations. The program has helped Microchip's sales visibility but has left some on Wall Street wondering whether customers are now overstocked on its products because they have been forced to take inventory they don't currently need. Microchip's PSP backlog represents more than half of its total backlog.

The already intensely competitive market for microcontrollers could get even more difficult in the coming years. Some Chinese chip companies have [started investing heavily](#) in microcontrollers because of the capacity shortage of major global manufacturers as well as geopolitical tension and the threat of U.S. export controls. Many are focusing on the high-growth automotive sector.

Current Research

Blueshift Research assessed whether Microchip was at risk of losing market share. We employed our pattern mining approach to establish four independent silos, comprising 10 primary sources. Interviews were conducted July 10-25.

- 1) Microchip customers (4)
- 2) Competitors (1)
- 3) Industry specialists (4)
- 4) Competitor customers (1)

Next Steps

Blueshift Research will watch for signs that a meaningful number of customers are designing Microchip out of their products. We will also monitor developments with Chinese competitors and their efforts to take MCU share domestically.

Silos

1) Microchip Customers

Three sources in this silo who are part of Microchip's Preferred Supply Program heavily criticized the arrangement. The PSP did little to help with material planning during parts shortages because delivery dates were not fixed and were often delayed, one source said. When customer demand started to fall, he said, the inflexibility of noncancelable orders resulted in overstocking. A second source complained about the absence of price protection even for those with noncancelable orders as part of the PSP. Three sources said they are still working through Microchip inventory, at least partly because of the PSP. Two said the experience with PSP prompted them to start evaluating other MCU vendors and consider designing Microchip out of their electronics, a process that could take six to 12 months. A third said his company is sticking with Microchip for now, though it has sometimes turned to the open market for parts because of Microchip's pricing. A fourth source whose company is not part of the PSP and does not hold inventory said his company was pleased with its relationship with Microchip, and orders will continue to grow. All four sources offered positive comments about Microchip's product quality, the breadth of its portfolio, and the design support it offers. One expressed some concern with Microchip's road map for adding certain features but said the long development time involved in switching vendors had dissuaded his company from making a change. Two said Chinese vendors investing in MCU development are unlikely to threaten Microchip's market share, but a third said they could eventually offer some challenge at the low end of the market.

Key Silo Findings

Purchasing Trends

- 3 of 4 said they have not been buying Microchip products because they are still working through excess inventory.
 - o 3 are part of Microchip's Preferred Supply Program.
 - o 1 said his company has enough Microchip to stock to last through 2023; 1 said his company may need to place a new order in Q3; 1 said orders from Microchip will be flat to down over the next year.
- 1 said his company buys from Microchip as needed and does not hold inventory.
 - o His company's Microchip orders have been growing dramatically and should continue to do so, as his company's sales have expanded.
- 3 said Microchip offers high-quality products and a diverse set of models and features.
 - o 1 praised Microchip's engineering and design support.
- 1 said he is concerned about Microchip's road map and said other vendors, such as Broadcom Inc. (AVGO), have a better plan for adding features.
 - o However, redesigning for Broadcom would take a year, so the company is sticking with Microchip for now.

Pricing and Contract Terms

- 2 using Microchip's PSP said the program has not been beneficial.
 - o 1 said the PSP offered no specific supply plan or fixed delivery dates when the market was hot and resulted in excess inventory when demand fell.
 - o 1 said Microchip raised prices 60% at the beginning of 2023, even for those in the PSP.
- 2 said frustration with Microchip's rigid contract terms has caused them to start considering other vendors.
 - o 1 said redesigning with another vendor could take six to 12 months.
 - o 1 said he will switch suppliers in instances where a direct match for a Microchip product can be had; but where no such option exists, the time and cost to switch are considerable.
- 1 said the lack of price protection within Microchip's PSP resulted in his company's trying to source from the open market where possible.

Industry Trends

- 2 said they do not see Chinese vendors as major threats to Microchip.

Microchip Technology Inc.

- 1 said his company and other electronics manufacturers are looking to move away from Chinese suppliers where possible.
- 1 said Chinese vendors have historically been poor at building power supplies.
- 1 said Chinese companies can produce microcontrollers that might challenge Microchip at the low end of the market.
- 1 said his company is looking at some Taiwanese vendors as possible replacements for Microchip.
- 1 said global economic conditions are depressing demand for microcontrollers, outside of some automotive applications.
- 1 said he expects MCU prices to fall in the second half of 2023, with a chance to rebound to current levels in the second half of 2024.
- 1 said he expects shorter lead time and better availability of MCUs in the back half of 2023.

1) Business unit executive at an electronics manufacturing firm

Microchip's Preferred Supply Program has been frustrating and has led to this source's company evaluating other MCU vendors, including some in Taiwan. The program has provided no benefits and has resulted in excess inventory of MCUs that the company will be working through during the second half of this year. Global demand for MCUs is down because of macroeconomic issues, and prices are expected to decrease in the second half of 2023.

Purchasing Trends

- "For the second half of 2023, we are still consuming excess inventory, which was caused by joining [Microchip's] PSP program and its nonflexibility."
- "We expect to buy more [MCUs] in 2024, if demands ramp up from our end users."
- "Microchip offers a diverse set of MCU product models and features, so we can select proper models."
- "From a supply issue, we didn't think [Microchip's customer relations] worked."

"For the second half of 2023, we are still consuming excess inventory, which was caused by joining [Microchip's] PSP program and its nonflexibility."

Business unit executive at an electronics manufacturing firm

Pricing and Contract Terms

- "We are part of Microchip's PSP, but being part of the PSP doesn't give us any supply advantages and benefits."
- "Yes, [Microchip is taking a harder line on NCNR [noncancelable and nonreturnable] orders than other vendors]."
- "Before the implementation of PSP by Microchip in March 2021, our purchase order [PO] backlog was pushed out by Microchip even though we had been waiting 60-plus weeks. This is not fair in the order of supply. Then, for POs that joined the PSP, the delivery date has not been fixed, and the delivery date is constantly being delayed."
- "We were caught in a dilemma. We were unable to obtain a confirmed delivery date for our ordered parts and were unable to cancel the orders due to PSP at that time. When market supply and demand reversed, we received a large number of parts in a short period of time, resulting in excess inventory."
- "We did everything Microchip asked. As a PSP member, we didn't get any benefit but nonflexibility on supply. There was no specific supply plan when the market was tight, and [Microchip] overshipped excess inventory when the market was down."
- "This impacts our future materials planning and decisions across Microchip's product lines."
- "Because we can't get enhancement from Microchip, what we can do is source any possible replacement solutions in new designs."
- "We've started evaluating other MCU sources to compare quality, price, compatibility, and supply flexibility. No apple-to-apple comparison yet [with Microchip]."
- "We are looking for any alternatives outside of China. It may take six to 12 months for a new design."
- "Our customers prefer to de-risk from China supply. Taiwan companies may challenge the top MCU suppliers now."
- "We didn't evaluate China suppliers, but there are Taiwan vendors among those we are evaluating."

Industry Trends

- "Although some automotive applications require [new] MCU implementations, global economic [conditions are keeping overall demand down]."

- “We expect [MCU] prices to decrease in the second half 2023. If demands ramp up in the first half of 2024, MCU prices may rebound and balance in the second half.”
- “In 2023, [we expect] shorter lead times and better availability [of MCUs].”
- “In our field, niche markets [are driving MCU demand], specifically sustainable performance in hard environments or unstable power supply.”

2) Senior product manager in high-performance computing

The inflexibility of Microchip’s PSP, combined with prices skyrocketing by 60% despite the program agreement, has been frustrating. But moving to another vendor is unlikely because redesigning would be a year-long process. Further, Microchip’s technology is excellent and helping the source’s company grow. Inventory of Microchip products is still being worked through, but another order is likely next quarter. To counter Microchip’s high prices and long delivery lead times—which can run six months with the PSP as compared to one year for general orders—the company sometimes sources from the open market, sometimes at lower cost. Microchip is good at design support, engineering support, and does the best it can in customer support. Its product is good quality and innovative, but low-end Chinese microprocessors could be a threat.

Purchasing Trends

- “I believe we are expecting to place another order from Microchip soon. We are using up our inventory of Microchip’s chips. It looks like next quarter we will have to order more.”
- “Our inventory of Microchip products is OK. We use an interface and connectivity product from Microchip. We just use one product line.”
- “Microchip has good support from an engineering standpoint. We like the products technically. However, we are not happy with the timing of their road map and some of the features—compared to Broadcom, for example.”
- “We had second thoughts about Microchip for a while because of their road map and because we wanted more lane counts. But as of the last month, because of our growth, we will need to manufacture more product with the Microchip device.”
- “Although we are not happy with Microchip’s road map, we care more about the features they give us and what they have in terms of technology. We feel they are the best horse to stick with compared to other vendors.”
- “Redesigning for the Broadcom product would be a long, one-year process. Rewriting code is always a big concern because it’s a major software effort. You end up getting locked into an ecosystem going forward.”
- “Deliveries from Microchip have been OK.”
- “Microchip is very good [in terms of product quality]. I haven’t heard of any issues with their quality. Their unique product features were part of our success recently. For our application, they are ahead of Broadcom and other supplier startups getting into the market. Some of Broadcom’s features are not as good as Microchip’s.”
- “They are very good [at design support]. Our engineers like them a lot. They have good documentation and manuals for their product. Our engineers appreciate their technical publications.”
- “They are good and trying to support us, but we are not their main big customer. They do what they can, and I believe they lost some staffing, which affected support.”

“Although we are not happy with Microchip’s road map, we care more about the features they give us and what they have in terms of technology. We feel they are the best horse to stick with compared to other vendors.”

Senior product manager
in high-performance computing

Pricing and Contract Terms

- “We are part of Microchip’s PSP. The program is supposed to give us priority on availability, but we need to forecast for the year, and we need to buy 100% of that forecast over the next year. In reality, it doesn’t give us anything.”
- “Availability is about six months right now [with the program], while the general availability is about a year. However, they can still change the pricing in the middle of the contract. You are still affected by price increases if you have NCNR orders.”
- “Microchip raised prices by 60% about six months ago, and this gave us some pause. However, because of our current success using their product, we will have to work at renegotiating the price. I believe their reasoning for the increase was because of constrained supply, but maybe it was just an opportunistic move.”

- “Because of the absence of price protection in the PSP program, we sometimes buy from the open market. If we can get it somewhere else with a better availability and a reasonable price—better than Microchip’s—we do that.”
- “We have not yet purchased [from Microchip] with the price increase. We haven’t had a quote from Microchip in the six months since then.”
- “I’m unsure if we’ll renew the [preferred supply] program.”
- “We are happy with their technology but not the pricing.”

Industry Trends

- “I’m not aware of any availability issues or shortages, but I wouldn’t be surprised.”
- “China can definitely produce microcontrollers. In many cases, they are low-end products. Microchip could face a threat from them.”

3) CEO of a U.S.-based manufacturer of municipal crime camera equipment

Microchip has been a great vendor and supplies a product unavailable elsewhere. Orders will increase 40% to 50% annually, in line with the company’s growth. The company is not part of Microchip’s Preferred Supply Program. There have not been any delivery or inventory problems or surprising price increases. It is unlikely that Chinese suppliers could gain share in the security market because they face restrictions on security equipment coming into the United States. In addition, products out of China have proved to perform weakly in outdoor settings.

Purchasing Trends

- “We are growing by leaps and bounds. Our business has been growing around 40% to 50% a year in the last five years, sometimes even more. So our orders to our suppliers are also increasing dramatically every year, including to Microchip. Our orders with Microchip will increase for 2024 as well.”
- “We have had nothing but wonderful experiences with Microchip. We buy a completed product. We don’t use their individual chipsets in our products.”
- “Our device from Microchip, a switch, is a wonderful piece of equipment. There is nothing on the market like it, and the price point is really good.”
- “Their product is unequalled. Nobody in the market has anything like it.”
- “We love our Microchip sales rep.”
- “Microchip has bent over backward to help us. For one of our jobs, the engineers designed it badly it before they came to us, and Microchip bailed them out. It involved \$10,000 worth of gear.”
- “We use one of their switches, an outdoor switch, that came originally from Microsemi [Corp.]. It’s a managed switch, and the management is run on a microcontroller. The switch connects to cameras that have multiple microprocessors. Microchip manufactures chipsets, but now they actually manufacture devices that the chipsets go into.”
- “In terms of inventory, we typically order just in time both in manufacturing and in our deployments. We order what we need to deploy a project, plus a few spares based on failure rates. We have low inventories of anyone’s product. Microchip’s delivery time has been very good for us, and we haven’t needed to inventory their product.”

“Our device from Microchip, a switch, is a wonderful piece of equipment. There is nothing on the market like it, and the price point is really good.”

CEO of a U.S.-based manufacturer of municipal crime camera equipment

Pricing and Contract Terms

- “We are not part of the Preferred Supply Program. They have never asked us to join it.”
- “Other companies that we deal with have programs like [PSP], and they have approached us about them. They try to secure hard orders based on scheduled deliveries. For manufacturers like us, supply chain management to procure the products we need to make our products is an absolute nightmare. I sympathize with manufacturers who say if the supplier can guarantee their orders, they can take that to their bank. My bank will give me money to either manufacture onshore or preorder from overseas manufacturers and get ahead of people placing just monthly orders.”
- “It’s a smart strategy for people who don’t have manufacturing capacity in the U.S. to go out and do what they need to do. Programs like that will help make the U.S. a more independent manufacturing power.”
- “We are seeing normal price increases from Microchip. I don’t see them moving their prices dramatically. The same goes for next year. There aren’t shortages in their components. I don’t analyze the percentage increases unless I see them going over 3% or 4%. They haven’t sent off a red flag in our systems.”

Industry Trends

- “Our other suppliers include [Alphabet Inc.’s] Google [GOOG/GOOGL] for one of their chipsets. They have not yet offered us any kind of a preferred program. We also buy from Microsoft [Corp./MSFT], and we’ve never had supply chain issues with their products, and they have not asked us to do any kind of supply chain management for our orders.”
- “But then, we aren’t building hundreds of thousands of devices. A typical run for us is 100 units, two or three times a month. For gunshot detectors, we are going to set up over 1,000 a month.”
- “The Chinese are notoriously bad at building power supplies. I don’t think Chinese suppliers will start supplying our product instead of Microchip.”
- “Network connected devices additionally have a moratorium on their import for use in government systems because of the potential of China taking control of them or sniffing data from our networks. The use of Chinese products is prohibited. It’s a nice barrier favoring Microchip.”
- “There are a few companies in China that could make products similar to Microchip’s, but their products cannot handle temperatures when they are deployed in the wild—for example, on a box on a telephone pole or a park. If they are deployed, they fail quickly. The Chinese are not good with thermal management or building things that are hardened.”
- “I’m guessing the Chinese government will buy chipsets from the Chinese regardless. I’m also sure they try to reverse-engineer everything Microchip makes. But I haven’t yet seen engineering components from [the Chinese] for the end product.”

4) Strategic sourcing manager for a large semiconductor manufacturing company; repeat source

This source’s company, which buys small volumes of Microchip field-programmable gate arrays (FPGAs) and microcontrollers for systems evaluation, has excess inventory partly because of Microchip’s noncancelable order terms. The company looks to change suppliers for components that won’t require board design changes. For those Microchip products where no direct replacement is available, the company will stick with Microchip because of the effort and cost required to switch. Overall, purchasing of Microchip components will be flat to down over the next year.

Purchasing Trends

- “We buy FPGAs and microcontrollers [from Microchip], but we buy them mainly for use in our engineering systems evaluation. For example, we build a validation board, and if we’re building a system that we want to validate, we use FPGAs on a board to run some code and then emulate the eventual system or the eventual IC [integrated circuit]. For microcontrollers, we essentially use them for a small robotics facility for building our own test systems.”
- “So we buy [Microchip products] in very small quantities for specific internal uses—to evaluate other systems. The dollar value could be anywhere from \$10,000 to \$250,000 [of Microchip products per year].”
- “The components we buy from Microchip are in the standard digital ICs [category].”
- “We will be burning through inventory for the second half of this year. We will buy some products, for example, where we have moved away from the hard-to-get components to other suppliers that we want to [develop] relationships with.”
- “Our purchasing from Microchip specifically will likely be flat or even go down for our fiscal year, which starts now, July 1. [This is because] we have excess inventory, at least partly because of Microchip’s NCNR terms.”

“We have excess inventory, at least partly because of Microchip’s NCNR [noncancelable/nonrefundable] terms. ... Microchip’s [rigid contract terms] have resulted in us considering competing suppliers. Absolutely.”

Strategic sourcing manager
for a large semiconductor
manufacturing company

Pricing and Contract Terms

- “Yes, we have [been subject to Microchip’s NCNR terms], but it’s been across the board [with many suppliers]. I was just dealing this morning with our excessive inventory of ICs. We’ve been subjected to NCNR on orders we had placed before that we now have to resell back out [on the market].”
- “We have excess inventory of components in general, including a small volume of [Microchip products]. Some of our contract manufacturers we work with, we try to send them the list of [our excess inventory] and ask them what they want. So we sell it back out; that’s everything, including Microchip.”

- “Yes, Microchip’s [rigid contract terms] have resulted in us considering competing suppliers. Absolutely. And yes, we are switching suppliers for those components that are pin-to-pin-compatible—which means no changes need to be done to the board of the system, which makes switching suppliers easy.”
- “But for those parts that are not pin-to-pin-compatible, we would have to do a re-spin of the board where this chip, this IC, goes on; and then you have to go through a whole gamut of activity, including going to the end customer and requesting approval to redo a design because we have a new chip that’s not pin-to-pin-compatible.”
- “This means we’ve got to run some qualification activity. ... And [we have to tell the end customer] they may see a minor difference in performance on their end, even if it won’t affect their overall system. But then you get into such a complex set of activities to just get the new part on that it becomes a discussion about whether it’s worthwhile [to switch suppliers]. If the business is big enough, then certainly that can happen. If it’s small, then it’s another consideration.”
- “Once any one of these components gets designed into a system by a company, if there’s any requirement to change the component, it will trigger an extremely complex process, and the cost of that is so high. That’s always at top of mind with business units. Mostly, they’d rather go with what they have and maybe go with a different company for next-generation products.”
- “For [our Microchip business], I don’t think it’s going to go away, but I do think we’re going to have a second source, and that might be Texas Instruments.”
- “From my purview, [the contract terms with a supplier] completely depend on the relationship that we have [with the supplier]. If we have a long-standing relationship with a particular supplier, whether it’s STMicroelectronics [N.V./STM] or anyone else, and we deal with them in many different areas, we can [better negotiate terms] because we not only buy ICs from them but many other things. In that instance, we have leverage and try to work something out, whether it’s being able to cancel orders and/or buy something else. It’s a leverage thing and not clear-cut.”
- “[That’s compared to] our relationship with Microchip, for example, where we buy small volumes. When you have low-volume purchases, your leverage is lower.”
- “We always look elsewhere [for any components we need]. We can’t rely on one IC supplier. If Microchip can’t deliver, we’ll look at Texas Instruments. And likewise, if TI can’t deliver, we’ll look at STMicro or whoever has similar kinds of ICs.”

Industry Trends

- Did not discuss.

2) Competitors

Microchip risks losing market share because of a combination of rising prices, harsh treatment of customers, and a perception of offering lower-quality products in areas such as automotive and servers, said the one source in this silo. Microchip is a strong contender in consumer-focused products. This source’s company is stealing some Microchip customers because of quality and availability issues. Supply chain bottlenecks have eased, but tightness remains in some segments, particularly in older-generation MCUs. Because Microchip is a broad-based company, its supply chain problems are not hitting all customers equally. Microchip raised prices when availability was tight, prompting some customers to turn to competitors like NXP, even if it takes six to 12 months to design in a different vendor. It’s unlikely that Microchip will lose any business to Chinese suppliers, which are constrained from global growth because of geopolitical concerns.

Key Silo Findings

Purchasing Trends

- 1 of 1 said Microchip’s strength is in specialized technologies and its ability to put infrastructure around a targeted application.
- 1 said Microchip has had more success in the Internet of Things (IoT) and consumer products, while being hit-or-miss in the automotive sector.
 - Microchip has been trying to compete in automotive with products designed for consumer electronics, which are less durable and have higher failure rates.
- 1 said Microchip does not have as strong a reputation for high-quality products as competitors such as [Infineon Technologies AG](#) (IFNNY) and NXP.

Microchip Technology Inc.

Pricing and Contract Terms

- 1 said Microchip's pricing is generally middle of the pack, though it can be considered high for older technologies.
- 1 said his company is taking market share from Microchip.
 - o Customers are switching because of product quality and availability concerns.
 - o He has not heard of any customer frustration with Microchip's PSP. But if the company is not being fair to customers that are part of the program, that could push them to other vendors.

Industry Trends

- 1 said he does not anticipate Microchip losing share to Chinese competitors.
 - o Asian suppliers typically have lower-quality products and are also facing constraints stemming from geopolitical tensions.
- 1 said supply chain bottlenecks are easing, but tightness persists in certain segments, such as automotive and applications requiring older technologies.
- 1 said he expects further growth in the industry in 2024.

1) Senior executive with years of experience developing microcontrollers

Purchasing Trends

- "[Our company is] a Microchip competitor. I've used some of their chips in solutions and in demos. I consider Microchip as very broad. They are fairly good at putting infrastructure around a targeted application. They are good at specialized technologies but their quality is not as good as many, like [Motorola \[Solutions Inc./MSI\]](#), [the former] Freescale [Semiconductor], and NXP. Microchip did better in IoT and the consumer space. They did OK in automotive here and there, but not as well."
- "In general, Microchip's reputation is not as good for quality. Microchip is perceived to have lower quality than Infineon and NXP and more in line, or even lower quality, than [STMicroelectronics]."
- "This is evidenced by how much time and effort Microchip puts in to targeting automotive. They are using consumer products to compete in automotive. Sometimes customers are disappointed when they use them, with the failure rates. In a car, if there are 100 parts per million that fail, it's not a huge percentage. But it's huge in the industry, because they expect zero."
- "The quality issues are usually long-term reliability and quality, often for the automotive sector. This can happen to companies competing in automotive and also high-reliability areas like in applications for servers, where Microchip competes. It tends to happen less in consumer-focused products that get replaced every two to three years. For infrastructure that you expect to last five to 10 years or in a car that's expected to last 10 to 20 years, quality is important."

Pricing and Contract Terms

- "Microchip has typically had middle-of-the-road pricing, but they can be high with old technology."
- "The most competitive prices have been coming from Asia from lesser-known names. They are often also more consumer-oriented and not high-quality, especially in automotive."
- "We are seeing more customers coming to us from Microchip, but I don't know if it's specifically because of Microchip's PSP. I haven't heard that specifically. Lately, the ones who've been coming are because of quality issues and availability."
- "With the supply chain issues, if customers weren't treated right, they want to move over [to another vendor]. Even though the customer commits to [Microchip's PSP], they haven't found a way to show more fairness in their supply availability. That is going to push people away, especially if they're locked in."
- "Microchip is a broad-based supplier with lots of products in lots of areas. I imagine these issues will hit them more in certain specific areas or segments."
- "Added to that is the fact that Microchip is a little high on the cost because they believed they could get away with it, because of supply."

"With the supply chain issues, if customers weren't treated right, they want to move over [to another vendor]. Even though the customer commits to [Microchip's PSP], they haven't found a way to show more fairness in their supply availability. That is going to push people away, especially if they're locked in."

Senior executive with years of experience developing microcontrollers

- “If they weren’t providing the supply, which in certain areas they could not, I believe they will lose some business to others. In the consumer space, it could be to Asian competitors. It could be to [our company]. I think we’re going to be able to pick up their business. I think NXP could also pick up some of their business. Again, this is as much because of quality and better treatment of customers.”
- “[TSMC](#) [Taiwan Semiconductor Manufacturing Co. Ltd./TSM], for example, has gone to extremes to try to not starve any of their customers. They ended up having a harder time in some things. The point is that the customers needed to feel that so they didn’t feel they needed to go to [GlobalFoundries \[Inc./GFS\]](#) or other suppliers.”
- “In a similar way, whether it’s Microchip or [my company] or whoever, our customers need to feel like they are being given as much potential support and supply as possible, given the situation, and warned that lead times are very far out. They need to get their orders in.”
- “Unfortunately, many supply chains raised the price. The combination of raising the price, a lesser quality, and harsh terms around not providing the supply will chase customers away from Microchip and others. We are benefiting from this.”

Industry Trends

- “China’s investment in MCU technology is a concern for Microchip and other suppliers. This has been an ongoing concern for years. The Asian suppliers typically have lower quality. They are more used in white goods.”
- “Geopolitics have also raised concerns about [Huawei \[Technologies Co. Ltd.\]](#) and electronics. This puts constraints on whether, globally, people would choose a Chinese supplier in semiconductors. That slows the penetration of Chinese suppliers.”
- “It has been going on for decades. Now we’ve woken up to realize we shouldn’t have all semiconductors mostly supplied from Asia. There is more encouragement now to build fabs in the U.S. and in Europe.”
- “Microchip will lose business, but they will not lose it to Asia. Taiwan is different than China. Suppliers in China are lower-quality, and they are the biggest supplier to the China market but not to the U.S. and Europe and other places around the globe.”
- “If Microchip continues to frustrate customers with quality and constraints with the PSP, I anticipate they will lose business, some of it to Asia but also to others. I think it’s already happening. I’ve already seen some frustration. Still, it takes about six months to a year to design out and design in a different supplier.”
- “There was crazy growth in the last few years and crazy supply chain issues. It was challenging. Supply chain issues are now easing up. There is still growth, but it’s moderated and not as large as before.”
- “It’s easier now to get supply as well as samples.”
- “There’s a difference between supply for the automotive and consumer segments. There is also a difference between older technologies and more advanced technologies. More efforts have been put into the advanced technologies. The government is encouraging investments due to geopolitical situations.”
- “In the specialized technology nodes, where Microchip is focused, the older generations, there is still some tightness in the supply—28 nm [nanometer], 48 nm, etc. It’s not as tight as it was before with long wait times, and it is getting better. It’s the same situation with automotive, which is a special qualified technology. The combinations make it less available.”
- “I anticipate further growth in the industry in 2024.”
- “Inventory is lumpy. There is supply becoming available depending on the process technology nodes and specialized technologies.”
- “Supply chain issues are calming down but not in all the segments, especially not in areas where older-generation MCUs are needed. Also not in automotive. There is tightness in some areas, and those will continue to be tight.”

3) Industry Specialists

All four sources in this silo think Microchip is well-positioned to maintain its market share in microcontrollers. The company has good customer relationships and a strong network of partners. One said Microchip's technology is one of its key strengths, while three others said its products were more known for reliability than top-notch performance. Microchip is the dominant player for MCUs based on 8-bit architecture, with little real threat to its lead, but is just one of many in the 32-bit market, one source said. It is vulnerable to share losses to the extent customers switch to 32-bit controllers, but such a shift is a complex process. Microchip has trailed some competitors when it comes to rolling back the strict contract terms that sprouted during the pandemic. But market conditions are forcing all suppliers—including Microchip—to unwind them. Its contract terms are unlikely to lead to share losses in aerospace and defense, where noncancelable contracts are common. Two sources said they do not consider Chinese MCU suppliers to be a significant threat to Microchip, as the cost savings such competitors are likely to offer will not be worth the risk of swapping out such a key component.

Key Silo Findings

Purchasing Trends

- 4 of 4 said Microchip is in a good position in the microcontroller market.
 - o 1 said Microchip has a dominant hold on the market for 8-bit MCUs but is just one of many competitors in the 32-bit segment.
- 1 said Microchip's technology is a strength, but 3 others said its products are considered reliable but not top-of-the-line in terms of performance.
- 2 said Microchip has a comprehensive network of channel partners.
- 2 said Microchip has good relations with a loyal base of customers.
- 2 said Microchip's success partly stems from its commitment to providing more than just hardware, including design tools and software.
- 1 said the breadth of Microchip's product portfolio is one of its key strengths.

Pricing and Contract Terms

- 1 said Microchip has been slower than competitors to loosen its strict contract terms but is starting to do so.
 - o Some of those terms will stay in place for custom products but are going by the wayside for most others.
- 2 said Microchip is unlikely to lose customers over strict contract terms, especially in aerospace and defense, because parts are highly specialized, so noncancelable restrictions are reasonable.
- 1 said pricing for 32-bit MCUs is falling because of intense competition, but Microchip retains pricing power as the top supplier of 8-bit MCUs.
 - o Microchip could lose market share if customers shift to 32-bit architecture, but such a change involves a long and complex process of rewriting software.

Industry Trends

- 3 said Chinese suppliers are not a near-term threat to Microchip.
 - o 2 said a slightly lower price from Chinese vendors is not worth the risk involved with changing a key component.
- 2 said demand for MCUs will likely be flat to slightly down in the second half of 2023 compared with the first half.
 - o 1 said volume growth should begin to build again in 2024 because of an increasing number of designs using microcontrollers.
- 1 said already-high chip prices will be steady or climb even further within the aerospace and defense markets.
- 1 said the growth rate in MCU selling prices is leveling off but will not decline.

1) Engineering and channel strategy consultant

Microchip's hard line on contract terms is unlikely to dent its market share. Purchasing decisions are based above all on product quality, an area where Microchip excels. The company is also in a strong position because of its comprehensive network of channel partners and the strength of its direct customer relationships. Throughout the industry, suppliers like Microchip are starting to become more flexible on contract terms as business and inventory conditions normalize. Chinese competitors are unlikely to hurt Microchip, as the cost savings they may provide are vastly outweighed by the

risks that come with switching vendors for critical parts. One potential headwind for Microchip is if a competitor were to suddenly get bigger via acquisition.

Purchasing Trends

- “Microchip’s technology continues to be really strong, and that’s always the door-opener. Then there’s the relationship with their customers, which is also pretty good. Their channel partners are also very comprehensive around the globe, so they can service any customer needs anywhere.”
- “Microchip’s product quality is robust, which in this industry is crucial. Microchip, together with TI and other [leaders], their testing and manufacturing is world-class. You just have to have [that type of quality] in this industry or you don’t survive because there’s so much depending on the quality of these products.”
- “The [more salient] question is about how good [a manufacturer] is at incorporating other technologies to add value to their customers. Microcontrollers are almost a commodity; however, it’s all proprietary. Less than 5% are actually compatible—which is to say, you can’t buy the same microcontroller at two different companies. That doesn’t exist anymore. That world ended decades ago.”
- “So it comes down to how good is the relationship [between the manufacturer and the customer]. What is the customer confidence in your technology? Are you giving the customer the technology they need to differentiate yourself, which enables you to ask a higher ASP [average selling price] and maintain your good profit margins? Microchip has done really well in that area when it comes to microcontrollers.”
- “The industry—especially for the products that Microchip makes and Texas Instruments makes—is all proprietary. It’s all about how good your technology is to get your product designed in by engineering.”
- “The second [important factor in a company’s decision-making] when it comes to buying these parts is: How good is your relationship with your customer, to keep you in a good status?”
- “At the end of the day, engineers have to design a product, and if they have a specific part from a specific company that meets their design requirements, they’re going to design it in no matter what. Of course, there are situations where a company might say they’re not going to do business with this or that [manufacturer]. But at the end of the day, all of those [other issues] are secondary. When I hear industry analysts talk about [how pandemic-related contract allocations might play into market share trends], they need to understand that the crazy two years we had of shortages has largely subsided.”
- “There are still some lead time [issues], but [the strength of a manufacturer’s] technology rules everything else. Microchip still has a very strong product portfolio, and that’s going to carry them for years to come. Plus, they have their own factories, which is going to help them with supply chain issues.”
- “Of course, they have to be price-competitive. But price doesn’t rule everything, and delivery doesn’t rule everything in this industry. At the end of the day, Microchip’s portfolio is extremely strong.”
- “Regardless of distribution, allocation, and pricing issues, the decision [about which vendor to use] will come back to the technology and the engineering team building the design. [The engineering team] carries a significant weight in the decision.”
- “The design cycle is about two years on average, and if you design in the wrong part—a part that you can’t get down the line for whatever reason, if you missed something in the risk assessment—it’s going to end up costing you significant time to market.”
- “I’m in a consulting and advisory role to midsized companies [after working in a senior position at one of the biggest electronics distributors in North America]. The consulting I do is more on the engineering side and also the channel strategy side. Most of my clients are in the industrial [vertical] and also semiconductor companies.”

“Microchip’s technology continues to be really strong, and that’s always the door-opener. Then there’s the relationship with their customers, which is also pretty good. Their channel partners are also very comprehensive around the globe, so they can service any customer needs anywhere.”

Engineering and
channel strategy consultant

Pricing and Contract Terms

- “Microchip is starting to loosen up those extra-strict [contract terms that were implemented] over the pandemic. Microchip tends to lag in that way, in terms of taking restrictions back out. But they’re also very smart businesspeople, and they always stay abreast of the market and the competitive landscape to make sure they’re not at a major disadvantage. The more draconian contract terms are slowly going out of the industry, one company and one product after another.”

- “I know for a fact that [Microchip’s more draconian contract terms] have already loosened up in some areas, particularly where there are what’s called ‘standard products.’ [Microchip and competitors] are taking these stricter contract terms out because the risk is zero, and their supply chain is back to normal.”
- “There’s an overall shift in the industry post-pandemic, now that we’re coming out of the situation where the industry was capacity-constrained for two-plus years. Microchip [and others] came out with pretty strict contracts in response to the pandemic-related capacity constraints of the industry. They had no choice; they were under constraints from the foundries and could not afford cancellations. But now there’s an overall shift, and [these stricter contract terms] are ending.”
- “All of these extremely strict, pandemic-driven contracts and business practices [from Microchip, Texas Instruments, and others] are winding down. I know this directly from my customers as well as friends working in distribution roles.”
- “Microchip, TI, and others will continue to keep strict rules for some contracts and [bespoke] products. However, the competitiveness of the marketplace is going to prevent them from [continuing with the kinds of contracts we’ve seen during the pandemic allocation shortages]. So we’re going back from allocation contract models to normalish business models.”
- “Some form of these contracts will stay for specific parts—[with] custom-made parts, for example, you have no choice. If you’re a medical company, and your engineering team wants a custom-made product, you’re going to be fully liable for those products [as a customer]. And you’ll always have those contracts binding you, because if you don’t want to buy the parts, nobody else will buy them.”
- “But as far as standard, run-of-the-mill products, if you as a manufacturer want every customer to sign a [strict] contract, you’ll get to a point where it’s costing you more money to keep these contracts vs. letting normal manufacturing run its course.”
- “Many customers I deal with are no longer paying the extra fees—what I call draconian contracts—to secure products. For what we in the industry call ‘standard products,’ even though they are proprietary, the most draconian contract terms are starting to be removed.”

“Microchip [and others] came out with pretty strict contracts in response to the pandemic-related capacity constraints of the industry. They had no choice. ... But now there’s an overall shift, and [these stricter contract terms] are ending.”

Engineering and
channel strategy consultant

Industry Trends

- “Yes, there’s pressure from cheaper China and other regions. But if you are making devices, and you buy Microchip; and some Chinese manufacturer comes along and offers to save you 20 cents a unit, you won’t change to save money because the design cycle—typically two years, and longer if the FDA is involved—is significantly more than the cost of the cheaper part.”
- “So yes, there is competition from China, but it’s not going to wipe out Microchip’s business anytime soon. It’s a lot more complex of a decision by a company to switch from a Microchip microcontroller even to a company like TI, let alone a product from a manufacturer from China.”
- “Industry consolidation could be a blessing or not when it comes to Microchip. They’ve done several acquisitions, but for the most part, they do organic growth vs. acquisitions. If you look at some of [Microchip’s] competitors, they do more acquisitions. TI, for example, has done bigger acquisitions. The last acquisition Microchip did—which was [Microsemi](#), a big one—they had a really hard time absorbing that organization.”
- “What is Microchip’s strategy if there starts to be more acquisition going on in the industry? It’s been quieter the last few years because valuations are so high, but I think it’s going to [ramp up as valuations] level off. What is Microchip’s strategy here? What is their next technology merger/acquisition strategy? If something big happened in the industry, like when [Analog Devices \[Inc./ADI\] bought Maxim \[Integrated Products Inc.\]](#), it could put [Microchip] at a competitive disadvantage if, all of a sudden, one of their main competitors gets a lot bigger.”
- “Overall demand will continue to be strong for microcontrollers, just because of the extent and expansion of electronics in everyday life. However, for the second half of this year, it will be closer to flat compared with the first half of 2023 because there’s still lingering allocation from the first half related to the supply chain instability from the last few years.”
- “As the supply chain stabilizes, customers will tend to hold less inventory. But starting next year, because of the increase in the number of designs [that include microcontrollers], volumes will increase. We’ll start going back to growth on the unit volume.”
- “The industry is getting back to what I call normal business conditions, and the [growth rate in prices] is leveling off. The ASPs will not decline, though.”

Microchip Technology Inc.

- “Microchip will continue to do billions of dollars of business through the likes of Arrow [Electronics Inc./ARW], and also direct with customers. The post-pandemic correction will continue into the rest of this year and a little into next, but the [microcontroller] industry overall is very healthy.”

2) Former Microchip product manager

Microchip has a solid, durable hold on the market for MCUs that use 8-bit architecture. The biggest threat to its market share is customers shifting to a 32-bit architecture, which is more widely available and has more price competition. However, such a change is complex; rewriting software for new architecture can take several years. Microchip is known for reliable but not top-quality products. It has done well partly because the company has always understood the need to provide more than just chips, in addition including design support and software. Chinese suppliers present little threat in the near term.

Purchasing Trends

- “I do think Microchip can expect growth with MCUs. They’ve been growing in the past few decades because there are always more applications that can use microcontrollers.”
- “Microchip owns and controls their own fabrication plants for their products, which allows them to control their own costs and supply.”
- “The [most popular 8-bit architectures](#) still used today are available from Microchip—8051, AVR, PIC. ... Microchip has a niche in the microcontroller area.”
- “Microchip’s strength is their strong brand name. They have a loyal customer base. With the [2016] acquisition of Atmel [Corp.], they acquired a very valuable product line—[AVR, an 8-bit MCU](#) product line. That was one of the main reasons they purchased Atmel.”
- “Microchip is strong as a supplier with a strong network. They are not just selling a chip. They have investment in software because engineers write embedded firmware that goes into the MCUs. For customers, it’s a combination of buying MCUs and the software knowledge behind it. It’s a package.”
- “Microchip is good at this because they provide design tools and development tools. Microchip knew from the beginning that in this field, it wasn’t enough to provide chips. They needed to provide assistance to their customers through the development kit to help them use the chip.”
- “There’s awareness among competitors that Microchip isn’t top-of-the-line in terms of performance. But they are, in general, reliable products. Atmel was able to take market share from Microchip [before the acquisition] because of this. This happened over many years, and then Microchip acquired Atmel.”
- “Microchip also has a 32-bit MCU product line. Many competitors have that as well.”
- “Microchip is probably still the strongest company in the field for 8-bit MCUs. Much of [Microchip’s] revenue is there, and their expertise is focused on that.”
- “In the 32-bit MCU field, there are too many dispersed competitors. That’s because it comes from a licensed core from [SoftBank Group Corp.’s/9984.T] ARM.”
- “NXP is probably their biggest competitor.”
- “Microchip dominates the 8-bit market. Competition in the 32-bit field is much fiercer.”

“There’s awareness among competitors that Microchip isn’t top-of-the-line in terms of performance. But they are, in general, reliable products.”

Former Microchip product manager

Pricing and Contract Terms

- “Any inventory tightness you’re hearing about is likely to be in the 8-bit field. Microchip has a lock on the pricing there. They can lock in the customer because the 8-bit MCUs are proprietary. Once people have written the software, they have a big investment, and they can’t just change overnight to a different architecture. 32-bit MCUs are widely sourced.”
- “If a customer is already using Microchip MCUs, that customer can complain and balk [about pricing or contract terms], but there isn’t that much choice. Customers understand there isn’t much alternative to going along with Microchip’s terms other than switching to a different architecture. Within 8-bits, however, they don’t have much leverage. Rewriting code for new architecture can take as long as several years.”
- “Ultimately, they can walk away—reduce the amount of their purchases from Microchip as a form of protest, or they can switch architecture, but there are many pros and cons to that. Switching architectures is not a trivial task. That’s

why Microchip has had such a big market share for so long because they understand very well how the game is played.”

- “In order for a switch to happen, the customer decides—and I’ve heard of this happening—not to buy any more 8-bit microcontrollers from Microchip because they have locked in that customer too much as the sole source. They then switch their designs to 32-bit, which is widely sourced. Many companies license the same core from ARM with the 32-bit Cortex architecture, designing microcontrollers from there.”
- “Prices of 32-bit MCUs are coming down. Going to 32-bit architecture is a way for companies to free themselves from Microchip’s proprietary architecture.”
- “That market share then could go to any of the many competitors. There are maybe 10 suppliers of 32-bit MCUs, including NXP. This is a more likely way that Microchip can lose market share than to Chinese companies.”
- “The applications and end markets that drive MCU sales are also segmented. For 8-bit MCUs, these are often older designs and more cost-sensitive. They go in things like home appliances such as refrigerators, microwaves, industrial controls, and even cars. In automotive, the simpler parts are probably controlled by 8-bit MCUs, while the more complex parts are controlled by 32-bit MCUs.”

Industry Trends

- “I don’t know what architecture Chinese suppliers are basing their MCUs on. If it’s a new architecture, even if their MCUs are more efficient, someone still has to rewrite the software. The software is the lock that Microchip has.”
- “The Chinese suppliers are not an immediate concern, but there is a possibility that it could change longer term. I don’t believe anybody else is a second source for Microchip’s proprietary 8-bit architecture. I think Microchip has a fairly long-term lock on the market.”

3) Executive with a large Microchip software partner

In the aerospace and defense industries, Microchip is not losing customers over strict contract terms. Even outside of the pandemic or other tight supply chain conditions, such terms are common in an industry where parts are not interchangeable from one customer to the next. Volumes for Microchip products will likely be soft for the remainder of 2023 as customers burn through inventory. Pricing for aerospace and defense components will stay high, driven by demand from an increasing number of commercial space companies and government contracts.

Purchasing Trends

- “I’ve worked with Microchip as a customer, as a competitor, and [now] as a partner. ... In terms of how they are to work with, they’re pretty consistent, at least in the realms I deal with.”
- “I haven’t seen our joint customers backing off from working with Microchip, either because of their [contract] terms and conditions or any kind of limitations on how they sell.”
- “Generally, the people who are [buying from] Microchip are concerned with things like space or missiles and defense and [as customers] are willing to accept challenges [from manufacturers] to get products they need, because not everyone has them.”
- “I hear both sides [about the sales outlook for the second half of the year]. Some say [microcontroller volumes] will go up, and others say it will be flat.”
- “I believe people have been burning through inventory a little bit, so the question will be: Is it burned out, and now [sales] will go up? Or are we still going to see some level of softness? I think we’re on the point of the cycle where [inventories] are swinging back to normal, [but] I probably lean toward the side of the group that says the back half of this year is a little soft compared to previous years because people are still trying to get through their inventory.”
- “I’m not seeing [customers] change their mix of suppliers. [Microchip] has got a good range of everything, from 8-bit micros all the way up to ARM processors [16, 32, and 64 bits]. And now they’re working with [RISC-V](#), so it’s a pretty decent range of products that customers will want. Even if there is a shift [in product demand trends], they have microcontrollers that would generally meet a range of customers’ needs.”
- “What they don’t have are really high-performance microcontrollers; [Microchip Technology’s] micros are more midrange. Nowadays, that’s AMD [Advanced Micro Devices Inc.] and Intel [Corp./INTC], in the FPGA world. In the processor world, it’s companies like ARM and Intel.”

“I haven’t seen our joint customers backing off from working with Microchip, either because of their [contract] terms and conditions or any kind of limitations on how they sell.”

Executive with a large Microchip software partner

- “Microchip has higher-performance stuff, but it’s not at the level of, say, an Intel processor or a very high-end ARM.”
- “To me, Microchip is not the highest-performance [product] company in the world, but I see them as being very good at what they do. Their 8-bit applications, their microcontrollers, tend to be lower performance. [But] within that, the lower-performance stuff that focuses on aerospace and defense is the highly reliable stuff that you must have. Even their delivery is pretty good.”
- “If you look at 8-bit, lower-performance microcontrollers, the way they meet that market is through better support. If you’re going to program a processor, they always had better drivers, better development tools, and so on. So I think where they focus, they have good solutions, and they consider not just the piece of silicon but use the broader silicon plus software or support that people need.”

“Microchip is not the highest-performance [product] company in the world, but I see them as being very good at what they do.”

Executive with a large
Microchip software partner

Pricing and Contract Terms

- “I have a sense for pricing, but it’s very specific to what market you’re talking about. One of Microchip’s businesses is space. I was talking to a couple of [manufacturers in this market] just last week, and it seems like pricing for space devices is not going down. I’d say it’s steady to up. [Manufacturers] are still pulling in extremely high ASPs compared to other sections of the market. Microchip does a decent amount of that [space industry] business.”
- “The reason is that the space business is growing; there’s not only government demand but also commercial demand—companies like Blue Origin, SpaceX, and others, who are all getting in the mix of buying products. The Blue Origins and SpaceXes don’t tend to be buying the expensive stuff for space. But generally, the trend is that there’s more demand for space systems and devices, which is why prices aren’t going to go down anytime soon.”
- “If you’re producing devices for space, most of the [components] are high-end. And it’s a very specific device, where if somebody cancels, then [as a manufacturer] you’re with inventory that no one will buy because it’s very specific to that customer. So I think [noncancelable contracts] are just the nature of what [manufacturers] in this space do.”
- “I don’t see NCNR as a big deal personally, especially in this industry, but I don’t know exactly the situation [Microchip customers] are facing.”

Industry Trends

- “If you look at Microchip, they’ve got a range of competition. You’ve got [Intel’s] Altera and [AMD’s] Xilinx, and AMD for FPGAs. They’ve got a lot of battlefronts to think about.”
- “In the FPGA world, there’s a company called [Lattice Semiconductor \[Corp./LSCC\]](#), which has got a great team. If I were [Microchip], I’d be a little nervous about Lattice.”
- “On the microcontroller front, there’s really no one I can think of that can do what [Microchip] can do. That’s a pretty defensible space.”
- “In the components space, there are a lot of competitors in that world, so it’s an interesting challenge.”
- “If you look at where [Microchip] is growing their road map on the FPGA side, if they decide to get bigger and higher-performance, they’re going to start bumping into Xilinx, AMD, and Intel, which is a tough game to fight.”

4) Electrical engineering consultant and one-time Microchip engineer

Microchip has a solid portfolio with reliable products, though the company is not considered exceptionally innovative compared to some peers. MCU sales will be driven by the energy sector, automotive applications, lighting, and medical uses. Microchip’s products are sometimes expensive compared with the market, and buyers could shift to cheaper options, including those of Chinese manufacturers. Less-expensive products, however, come at the cost of less service and reliability. Further, components produced in China are often discontinued, forcing engineers to redesign their boards.

Purchasing Trends

- “Microchip has a solid product offering, but they’re not always the most price-competitive. They don’t have a lot of wild, new, exciting products, like what you find with Analog Devices [Inc./ADI], especially since they bought both Maxim and Linear Technology Corp. But [their products are] reliable.”
- “I think Microchip’s problem is primarily finding success with bundling some of their analog and power management and interface parts with some of their microcontrollers, which are really top-notch.”

Pricing and Contract Terms

- “No, not really. [Microchip is not taking a harder line than competitors on order cancellations and returns]. Microchip has flexibility on returns. When designing [a product] with your microcontroller, all of a sudden, there is cost pressure from management, so you have to return some of the inventory. [Companies like Microchip] can handle it, but it's expensive to keep it on the shelves. They want to get that inventory off their shelves, even if they're not going to make the same profit margin on it.”

Industry Trends

- “Some of the pandemic-related effects from 2020 that carried into 2021 are still somewhat active today. There are still a lot of shortages, and everybody is trying to catch up. The fabricators are working 24/7, and while things are improving, they haven't really caught up to where they were before the pandemic.”
- “The energy sector will increasingly drive MCU sales as we grow less dependent on fossil fuel in the energy sector [and] also the automotive sector. You're seeing a lot more hybrid and electric vehicles compared with 10 years ago, and that will continue.”
- “The lighting markets [will also drive demand]. No one uses incandescent or fluorescence. Everything has gone to LEDs. And the cheapest way to do it is to have cost-competitive electric drivers. Microcontrollers allow you to add a lot of features with dimming or changing colors, etc. There's also certainly commercial and residential lighting, which is a big market for a lot of microcontrollers. Medical equipment will also drive the sale of MCUs.”
- “I think Chinese firms are priced very aggressively. But what scares a lot of people in North America is sometimes the [Chinese manufacturers'] data sheets aren't exactly complete with application notes or tool sets, which allow engineers to understand the circuits and external components. Then they're unable to find the support they need.”
- “What North American customers do is get suckered in by low prices. Sometimes they find out that the support is just not as good as [suppliers like Microchip] because they don't have the tools or apps.”
- “Microchip keeps its portfolio around for quite a bit. A lot of the newer Asian-based [MCU manufacturers] don't have a long history yet. So you don't know how long they're going to keep a product like a microcontroller unit or even an analog or power management product.”
- “In China, if a product doesn't sell well in the first two to three years, it might be discontinued and become obsolete. If you're one of those customers that came in and decided to get hooked in by them, you might find in a couple of years that you have to redesign your board because you can no longer get that microcontroller anymore.”

“In China, if a product doesn't sell well in the first two to three years, it might be discontinued and become obsolete. If you're one of those customers that came in and decided to get hooked in by them, you might find in a couple of years that you have to redesign your board because you can no longer get that microcontroller anymore.”

Electrical engineering consultant
and one-time Microchip engineer

4) Competitor Customers

MCU purchase volumes are down as demand has fallen for power management integrated circuits, even in some automotive applications, said the one source in this silo, whose company buys MCUs from a Microchip competitor. MCU prices are decreasing as a result. Demand is unlikely to rebound this year. The company does not expect to change its mix of suppliers, given the long process required to make changes to components used in automotive products. Chinese suppliers are likely to increase pricing pressure in the next few years.

Key Silo Findings

Purchasing Trends

- 1 of 1 said MCU orders are down because of decreased demand for the company's end products.
- 1 said MCU pricing is down.
- 1 said he does not expect any shift in MCU suppliers.

Pricing and Contract Terms

- Did not discuss.

Industry Trends

- 1 said parts availability is getting close to normal.

- 1 said Chinese companies building micrometer-level foundries will result in pricing pressure in the next few years.

1) Senior product engineer at a global manufacturer of semiconductors products

Purchasing Trends

- “[MCU purchase volumes are] down quarter over quarter and down year over year.”
- “It’s not easy to change anything [in terms of component suppliers] on automotive applications. So my answer is no, we do not anticipate any change in our mix of MCU suppliers in 2023 or 2024.”
- “[MCU pricing is] definitely down as all foundries are suffering from low loading rate, plus end demands are also low.”

Pricing and Contract Terms

- Did not discuss.

Industry Trends

- “There’s no [availability concerns] like during the COVID-19 period. We expect availability and wait times will be back to normal very soon.”
- “I believe it will be automotive and corresponding verification criteria [driving MCU sales]. [These sectors] have to pay more attention and effort to ensure a thorough qualification process. [Manufacturers must qualify] MCU performance to ensure the MCUs work well in a car.”
- “Again, price is another concern all the time. This is especially true with an uncertain economy and [inflation].”
- “Chinese suppliers are working hard on construction of micrometer-level foundry. Just like in the LED industry, we will be squeezed by lots of price breakers from China in the coming three to five years.”

Additional research by Eva Cahen, Emily Carr, and Gretchen Salois.

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