Yardeni Research

MORNING BRIEFING
November 4, 2021

Semis & Quantum Computers

Check out the accompanying chart collection.

(1) Semiconductor shortage may last another year. (2) ON Semiconductors' Q3 beat keeps its rally going. (3) NXP says semi content in autos keeps growing. (4) Tech giants dive into semiconductor design. (5) Analysts still see semiconductor earnings growing, albeit more slowly, next year. (6) China says its new quantum computer is better than ours. (7) Introducing semiconductor qubits. (8) Quantum computers being used for good and evil. (9) Toyota using quantum computers to develop solid-state batteries. (10) Bad actors harvesting data today to quantum-hack tomorrow. (11) Quantum startups merging with SPACs.

Information Technology: Semi Shortage Continues. The scramble for semiconductors continues even as semi manufacturers are operating full tilt and sales are hitting record levels. Worldwide, Q3 semiconductor sales rose 27.6% y/y and 7.4% q/q, the Semiconductor Industry Association *reports*. Results were broad based geographically, with Q3 sales rising 33.5% y/y in the Americas, 32.4% in Europe, 25.4% in Asia Pacific, and 24.5% in Japan (*Fig. 1*). Once expected to improve by year-end, semiconductor inventories are now expected to remain tight throughout next year and perhaps even into 2023.

Let's take a look at some recent developments to see where the market now stands:

(1) *CEOs see tightness continuing.* Earnings reports this week from ON Semiconductor and NXP Semiconductors indicate that the market remains strong and that semiconductor investors can still be pleasantly surprised.

ON Semiconductor's Q4 revenue jumped 32% y/y to $1.7 billion, and its non-GAAP earnings per share soared to $0.87, up from $0.27 a year earlier and $0.13 better than analysts expected. The shares have gained 18.9% since the news hit the wires on Monday before the markets opened and have climbed 74.6% ytd. The company, which specializes in auto and industrial chips, told investors the good times would continue, with Q4 revenue forecast to climb 20.0%-26.9%, a range that also was above analysts' expectations.

ON Semiconductor has been reshuffling its business lines, buying semi businesses with higher margins and growth rates and selling those with lower margins and slower growth.

Higher revenue and the portfolio changes helped boost the Q3 non-GAAP operating margin to 24.5%, up from 12% a year ago and 19.6% in Q2. CEO Hassane El-Khoury noted that higher costs have not dragged down margins because the company has been able to pass higher costs on to its customers.

“Looking forward, we expect demand to remain robust and outpace supply through most of 2022,” said CEO El-Khoury in the company’s November 1 *conference call*. He does not believe chip inventory is building up at customers’ locations or in the inventory chain. “[I]f we don’t ship, the cars don’t ship. That’s a 1 to 1 correlation that I can personally validate given all my conversations with my peers at our customers.” He’s also confident in demand because some customers have been willing to co-fund ON capacity expansions, in a new model for doing business.

NXP Semiconductors, which generates roughly half of its revenue from the auto sector, reported Q3 revenue growth of 26.2% y/y and operating earnings growth of 63.7% y/y. For the current quarter, NXP forecasts revenue that grows 17%-23% y/y, as it anticipates demand once again outstripping available supply. Strong demand has left the company with 85 days of inventory, down three days q/q and below its long-term target of 95 days.

“[W]e think the automotive supply demand equation will continue to be out of balance through 2022. … [O]ur Tier 1 partners explicitly demand that more supply and inventory will be needed in the extended supply chain, which we believe cannot be broadly achieved before 2023,” said NXP CEO Kurt Sievers during the November 2 earnings *conference call*.

Semiconductor sales have increased as more auto manufacturers have prioritized the production of their high-end vehicles, which use “upwards of twice the semiconductor content from NXP and others.” In addition, EVs and hybrids have doubled from 8% of global auto production in 2019 to about 20% this year, and the average semiconductor content in an electric vehicle is about twice the amount used in a car with an internal combustion engine. As a result, industrywide semiconductor content per vehicle has increased at 10% per year over the last three years, Sievers explained.

The company is seeing longer-term orders and non-cancelable/non-returnable orders, which run through 2022 and give the company greater visibility into their future business, said Sievers. NXP shares are up 2.8% this week through Tuesday’s close and 29.9% ytd (compared with up 0.6% and 23.3% for the S&P 500).

(2) *Watching customers become competitors.* One notable change in the semiconductor

industry is the growing number of giant tech customers that are designing their own semiconductors, though continuing to outsource the chip manufacturing process. Apple, Amazon, Tesla, and Baidu all are designing their own chips and dropping historical suppliers.

“Increasingly, these companies want custom-made chips fitting their applications’ specific requirements rather than use the same generic chips as their competitors,” Syed Alam, global semiconductor lead at *Accenture*, said in a September 6 CNBC *article*. “This gives them more control over the integration of software and hardware while differentiating them from their competition.”

Google’s new Pixel smartphone contains a processor developed in house that was specifically designed for artificial intelligence (AI) uses. It replaced Qualcomm’s Snapdragon processor that had been used since the Pixel smartphone was launched in 2016. Google also reportedly is developing chips for its Chromebook laptops.

Almost all of Apple’s Mac computers now use in-house designed processors instead of Intel chips, as Apple historically had used. Apple’s chips allow its Macs to generate less heat, run more quietly, and enjoy longer battery lives relative to Intel’s chips, according to a October 29 *review* by the *WSJ*. Apple’s chips also have improved the computer’s performance, graphics, and memory. Now some investors are concerned that Apple might replace the Qualcomm processor in its iPhones with an Apple-designed chip.

Amazon is developing chips for use in its cloud service’s server networks. If successful, it would reduce the company’s use of Broadcom chips, the CNBC article reported. Tesla is working on a chip that would “train artificial intelligence networks in data centers,” and Baidu has launched an AI chip that could be used in autonomous driving.

The next question is how long the supply disruptions in semiconductor manufacturing would need to continue before these tech giants, with billions sitting on their balance sheets, consider manufacturing their own chips as well.

(3) *Analysts remain chipper.* The strength in the market for semiconductors continues to bolster the industry’s stocks. The S&P 500 Semiconductors industry stock price index has climbed 31.3% ytd through Tuesday’s close, and the S&P 500 Semiconductor Equipment stock price index has gained 40.6%, outstripping the S&P 500’s 23.3% return (*Fig. 2* and *Fig. 3*).

Both industries have forward earnings (i.e., based on the time-weighted average of analysts' consensus estimates for this year and next) that suggest analysts believe their moonshot trajectories will be continuing. For the S&P 500 Semiconductors industry, analysts' forecasts imply revenue growth of 20.2% this year and 8.4% in 2022 and earnings growth of 32.5% this year and another 9.7% next year (*Fig. 4* and *Fig. 5*). The strength in the Semiconductor Equipment industry is expected to be even greater, with revenue rising 34.0% this year and 16.6% in 2022 and earnings jumping 57.8% in 2021 and 21.7% in 2022 (*Fig. 6* and *Fig. 7*).

Both industries have forward P/Es (i.e., based on forward earnings) that are at or near the highs of the past decade: The Semiconductors industry has a 20.8 forward P/E, and the Semiconductor Equipment industry has a 17.9 forward P/E (*Fig. 8* and *Fig. 9*).

Disruptive Technologies: Quantum Computing Leaps Ahead. China's scientists are having a good month. They announced a quantum computer that, if it operates as advertised, trumps US efforts to date. Quantum computers continue to evolve, as do the chips used by these computers and the software being developed to harness their power. Private investors have long made investments in the area, but now two quantum companies have done reverse mergers with SPACs (special purpose acquisition companies) and are trading in the public markets.

Let's take a look at recent signs that this novel tech area is maturing:

(1) *Quantum competition heating up.* Chinese physicists have built two quantum computers that they say out-muscle any built in the US. The Zuchongzhi 2 is a 66-qubit programable superconducting quantum computer that's "10 million times faster than the world's fastest supercomputer" and can run a calculation one million times more complex than Google's 55-qubit Sycamore, which launched two years ago, an October 26 *South China Morning Post* (*SCMP*) *article* reported. Chinese scientists also built a quantum computer based on light, the Jiuzhang 2, which they say "can calculate in one millisecond a task that would take the world's fastest conventional computer 30 trillion years."

Like other quantum computers, these machines need to operate at very low temperatures in controlled environments and are prone to errors. The Chinese scientists aim to "achieve quantum error correction" in four to five years.

Instead of trying to increase the number of qubits a computer has, scientists at the University of Copenhagen have developed advanced semiconductor qubits, or "spin qubits."

For the physicists in our audience: “Broadly speaking, they consist of electron spins trapped in semiconducting nanostructures called quantum dots, such that individual spin states can be controlled and entangled with each other,” one of the scientists explained in an October 31 *SciTechDaily* *article*. The upshot is they make quantum computers less error prone and more powerful.

(2) *Quantum computers solving problems.* In theory, quantum computers will be used to improve our lives; but as is often the case, reality will be much more complex. While quantum computers may be used in the future to predict stock prices, calculate gene mutations, and discover new materials, they also undoubtedly will be used to steal data protected using current encryption methods and by the military.

First, let’s focus on the positive. Toyota Motor partnered last month with QunaSys, a quantum computing software company, to help find new materials that can be used in solid-state batteries. Employing a quantum computer, the company will use density-functional theory to model the electronic structures of different materials faster than would be possible using a conventional computer, a November 2 Tech Wire Asia *article* explained. Zapata Computing and the University of Hull in the UK are using quantum computing tools to look for molecules in outer space that could signal signs of life. And Italian scientists are using quantum computers to analyze polymer chains.

Now to the dark side. Quantum technology is being used by military forces hoping to gain an advantage over their enemies. “China’s military is using quantum technology for ultra-secure communication lines, radar that can detect stealth aircraft, and navigation devices for nuclear submarines,” the *SCMP* reported. At home, IBM and Raytheon Technologies are collaborating to jointly develop advanced AI, cryptographic, and quantum solutions for the aerospace, defense, and intelligence industries and the federal government, an October 11 *press release* announced.

Quantum computers will also pose a threat to today’s encryption, which secures everything from defense and infrastructure information to our banking accounts. “Bad actors” are supposedly stealing or harvesting encrypted data today with plans to decrypt the information after quantum computing matures and makes unlocking the information possible.

“With the escalation in computing power enabled by quantum technology, the question is not if, but when potentially devastating breaches will occur,” a November 2 *article* in *Professional Security Magazine* opined. The article recommends companies today keep

their data in separate batches so that it all can't be accessed at once if security is breached. Regularly changing encryption keys, which would limit the amount of time any intruder might gain access to protected data, is also suggested.

(3) *Quantum companies going public.* A number of young quantum computing companies have been able to, or plan to, tap the public markets via mergers with special purpose acquisition corporations (SPACs). IonQ, which makes and sells space on its quantum computers, went public on September 30 by merging with a SPAC. After initially stumbling, its shares have rallied almost 50% since the merger.

IonQ's 22-qubit quantum computer is accessed through the cloud and used by customers like Fidelity and Goldman Sachs. "Fidelity is using IonQ's hardware to create algorithms that can crunch historical data to determine the likelihood of a borrower defaulting on a loan, while Goldman Sachs uses it to determine how the movement of one company's stock price is affected by changes in another company's price," an October 2 Axios *article* reported. The company plans to use its new funding to develop a 64-qubit computer by the end of 2023.

Rigetti Computing, which is building an 80-qubit computer, announced in October that it too plans to go public early next year via a SPAC merger, an October 6 *FT article* reported. The company claims it will build a 1,000-qubit computer in 2024 and another using 4,000 qubits in 2026. In 10 years, the company predicts it will have built a machine "with more computing power than all of today's cloud computing systems combined." Rigetti plans to merge with Supernova Partners, a SPAC that's co-chaired by Alexander Klabin, a hedge fund investor, and Spencer Rascoff, former CEO of Zillow.

"The funding includes a $100 million equity investment from investment groups that include T Rowe Price, Bessemer Venture Partners and Franklin Templeton. Other investors include In-Q-Tel, the CIA's venture capital arm, and Plantir, the data analytics company that has done extensive work for the national security establishment," the article states.

Calendars

US: Thurs: Nonfarm Productivity & Unit Labor Costs -3.0%/7.0%, Trade Balance -$74.1b, Initial & Continuous Jobless Claims 275k/2.118m, OPEC Meeting. **Fri:** Payroll Employment Total, Private, and Manufacturing 450k/400k/27l, Unemployment Rate 4.7%, Average

Hourly Earnings 0.4%m/m/4.9%y/y, Average Weekly Hours 34.8, Consumer Credit $15.9b, Baker-Hughes Rig Count. (Bloomberg estimates)

Global: Thurs: Eurozone, Germany, and France C-PMIs 54.3/52.0/54.7, Eurozone, Germany, France, Italy, and Spain NM-PMIs 54.7/52.4/56.6/54.5/55.8, Germany Factory Orders 2.0%, Japan Household Spending 2.8%m/m/-3.9%y/y, BOE Interest Rate Decision 0.10%, BOE Inflation Report, RBA Monetary Policy Statement, Lagarde, Mauderer, Bailey, Cunliffe, Beermann. **Fri:** Eurozone Retail Sales 0.3%m/m/1.5%y/y, Germany Industrial Production 1.0%, French Industrial Production 0.4%, Spain Industrial Production 1.5%, Guindos, Panetta, Wuermeling. (Bloomberg estimates)

Strategy Indicators

Stock Market Sentiment Indicators (*link*): The Bull/Bear Ratio (BBR) climbed for the second week this week to 2.24 after falling from 1.85 to 1.81 two weeks ago. Bullish sentiment increased for the fourth week this week by 13.6 points (to 54.0% from 40.4%), with 5.1ppts occurring this week; the 40.4% reading four weeks ago was the lowest percentage since early April 2020. Meanwhile, the correction count fell for the fourth week by 15.2ppts (to 21.9% from 37.1%), with 5.4ppts taking place this week; the 37.1% percentage four weeks ago was the highest since March 2020. Bearish sentiment is climbing slowly from 22.1% to 24.1% the past five weeks—the most bears since May 2020. The AAII Ratio fell to 57.5% last week after increasing the prior two weeks from 40.9% to 62.8%—the highest since the end of June. Bullish sentiment fell from 46.9% to 39.8% last week, while bearish sentiment rose from 27.8% to 29.4%.

S&P 500 Earnings, Revenues, Valuation & Margins (*link*): The S&P 500's forward profit margin remained steady last week at a record high of 13.2%. Since the end of April, it has exceeded its prior record high of 12.4% in September 2018. It's now up 2.9ppts from 10.3% during April 2020, which was the lowest level since August 2013. Forward revenues and earnings per share both rose w/w. They've both been making new record highs since the beginning of March and for the first time since February 2020. Since the Q2-2021 earnings season came in way better than expected, analysts have been playing catch-up with their lowball estimates from the Covid-19 shutdown period. Prior to this catch-up period, consensus S&P 500 forecasts had been falling at rates paralleling the declines during the 2008-09 financial crisis. Forward revenues growth rose 0.1ppt w/w to 8.1%, up from a 10-month low of 7.9% in early October. That's down from a record high of 9.6% growth at the

end of May and should continue to move lower due to base effects. Still, that's up from 0.2% forward revenues growth during April 2020, which was the lowest reading since June 2009. Forward earnings growth dropped 0.6ppt to a 14-month low of 12.2%, and should also continue to move lower due to base effects. That's down from its 23.9% reading at the end of April, which was its highest since June 2010 and up substantially from its record low of -5.6% at the end of April 2020. On a positive note, analysts have been raising their forecasts this year for 2021 and 2022 revenues and earnings growth and the profit margin. They expect revenues to rise 15.3% in 2021 (up 0.2ppt w/w) and 7.0% (up 0.1ppt w/w) in 2022 compared to the 2.1% decline reported in 2020. They expect earnings gains of 48.7% in 2021 (up 1.1ppt w/w) and 8.1% in 2022 (down 0.7ppt w/w) compared to a 13.4% decline in 2020. Analysts expect the profit margin to rise 3.0ppts y/y in 2021 to 13.1% (up 0.1ppt w/w) from 10.1% in 2020 and to improve 0.1ppt y/y to 13.2% in 2022 (unchanged w/w). The S&P 500's weekly reading of its forward P/E rose 0.1pt w/w to 21.2 and is up from a 17-month low of 20.4 in mid-October. That compares to 23.1 in early September 2020, which was the highest level since July 2000 and up from a 77-month low of 14.0 in March 2020. The S&P 500 weekly price-to-sales ratio was steady w/w at 2.80, up from a four-month low of 2.69 several weeks earlier. That compares to a record high of 2.81 at the beginning of September and a 49-month low of 1.65 in March 2020.

S&P 500 Sectors Earnings, Revenues, Valuation & Margins (*link*): Last week saw consensus forward revenues rise for eight of 11 S&P 500 sectors and forward earnings rise for seven. Communication Services and Industrials had both measures decline w/w. Seven sectors are at or near record highs in their forward revenues, earnings, and profit margin: Communication Services, Consumer Discretionary, Consumer Staples, Health Care, Industrials, Information Technology, and Materials. Energy still has all measures below record highs. Financials, Real Estate, and Utilities have forward earnings at or near record highs, but their forward revenues and margins are lagging. Only three sectors posted a higher profit margin y/y in 2020: Consumer Staples, Tech, and Utilities. For 2021, a y/y improvement is expected for all but Utilities. Five sectors are expected to see margins decline y/y in 2022: Communication Services, Financials, Health Care, Materials, and Real Estate. The forward profit margin was at record highs during 2018 for 8/11 sectors, all but Energy, Health Care, and Real Estate. Currently, three sectors are at record highs. Here's how they rank based on their current forward profit margin forecasts along with their record highs: Information Technology (24.7%, down from its 24.9% record high in mid-September), Financials (19.1, down from its 19.8 record high in early August), Communication Services (16.8, down from its 17.0 record high in early October), Real Estate (16.3, down from its 19.2 record high in mid-2016), Utilities (14.5, down from its 14.8 record high in early May), Materials (13.4, record high this week), S&P 500 (13.2, new record high this week), Health

Care (11.1, down from its record high of 11.2 in April 2018), Industrials (10.1, down from its record high of 10.5% in mid-December), Consumer Staples (7.6, down from its 7.7 record high in early June), Consumer Discretionary (8.0, down from its 8.3 record high in mid-2018), and Energy (8.7 [10-year high], down from a record high 11.2 in mid-2007).

S&P 500 Sectors Forward Revenues and Earnings Recovery from Covid-19 Trough (*link*): The S&P 500's forward revenues and earnings as well as its implied forward profit margin bottomed at cyclical lows on May 28, 2020 after 14 weeks of Covid-19-related declines. Forward revenues and earnings have risen 19.4% and 54.1%, respectively, since then to new record highs. The forward profit margin has risen 3.1ppts to 13.2%, exceeding its prior record high of 12.4% in late 2018. During the latest week, six of the 11 sectors posted gains or remained steady at new highs in either their forward revenues, earnings, or profit margin. Here's how the S&P 500 and its 11 sectors rank by their changes in forward revenues and forward earnings since May 28, 2020: Energy (forward revenues up 31.3%, forward earnings up 1,897.6%), Materials (29.5, 97.1), Information Technology (26.6, 43.6), Industrials (23.8, 69.9), Communication Services (23.1, 54.9), S&P 500 (19.4, 54.1), Financials (18.5, 68.2), Health Care (15.1, 27.2), Consumer Discretionary (14.4, 96.5), Consumer Staples (11.7, 18.8), Real Estate (10.7, 27.1), and Utilities (0.6, 5.5).

S&P 500 Q3 Earnings Season Monitor (*link*): With nearly 75% of S&P 500 companies finished reporting revenues and earnings for Q3-2021, revenues have beaten the consensus forecast by a well-above-trend 2.8%, and earnings have exceeded estimates by 11.2%. At the same point during the Q2 season, revenues were a higher 4.5% above forecast and earnings beat by a greater 16.7%. For the 362 companies that have reported Q3 earnings through mid-day Wednesday, the aggregate y/y revenue and earnings growth rates and the percentage of companies reporting a positive revenue and earnings surprise have slowed considerably from their Q2 measures. The Q3 reporters collectively have a y/y revenue gain of 18.6% and an earnings gain of 43.6%. That compares to y/y growth of 28.1% for revenues and 121.9% for earnings at the same point during Q2. Nearly 81% of the Q3 reporters so far has reported a positive earnings surprise, and 76% has beaten revenues forecasts. Fewer companies have reported positive y/y earnings growth in Q3 (83%) than positive y/y revenue growth (90). These figures will continue to change as more Q3-2021 results are reported in the coming weeks. With the US economy largely re-opened compared to a year earlier, the y/y growth rates have slowed considerably in Q3 compared to Q2. The revenue and earnings surprises are moderating as well due to missed deliveries and higher costs.

US Economic Indicators

ADP Employment (*link*): “The labor market showed renewed momentum last month, with a jump from the third quarter average of 385,000 monthly jobs added, marking nearly 5 million job gains this year,” said Nela Richardson, chief economist, ADP. “Service sector providers led the increase and the goods sector gains were broad based, reporting the strongest reading of the year. Large companies fueled the strong recovery in October, marking the second straight month of impressive growth.” Private payroll employment rose 571,000 in October, up from September’s downwardly revised 523,000 (from 568,000) and August’s 310,000 (340,000). Services providers remain the engine of employment growth, adding 458,000 jobs in October, accelerating steadily from August’s 273,000, and the fastest since June. Goods-producing companies added a 13-month high of 113,000 jobs—more than double the average monthly gain posted during the eight months through August. Year to date, total payrolls are up 4.87 million, with service-providing and goods-producing climbing 4.29 million and 576,000, respectively, over the comparable period. Here’s a tally of industry performances from strongest to weakest year to date, since bottoming last April, and where they stand relative to last February’s levels: leisure & hospitality (+2.0 million, +5.6 million, -2.1 million), trade transportation & utilities (+645,000, +2.3 million, -836,000), health care & social assistance (+551,000, +1.8 million, -323,000), professional & technical services (+278,000, +505,000, -28,000), administrative & support services (+275,000, +881,000, -667,000), other services (+266,000, +995,000, -280,000), manufacturing (+262,000, +978,000, -324,000), construction (+261,000, +993,000 & +40,000), education (+146,000, +338,000, -111,000), financial activities (+103,000, +210,000, -55,000), natural resources & mining (+53,000, 35,000, -17,000), information services (+31,000, -2,000, -265,000), and management of companies & enterprises (+16,000, -5,000, -87,000). Here’s the same exercise by company size: large (+2.0 million, +5.8 million, -3.5 million), medium (+1.5 million, +4.0 million, -951,000), and small (+1.3 million, +4.8 million, -604,000).

US Non-Manufacturing PMIs (*link*): The US service sector expanded at a record pace in October, according to ISM, while IHS Markit’s gauge saw growth pick up after the Delta variant caused a slowing in activity the prior few months. ISM’s NM-PMI (to 66.7 from 61.9) jumped an impressive 4.8 points last month, with both the orders (to 69.7 from 63.5) and production (69.8 from 62.3) components soaring to new highs. The supplier deliveries (to 75.7 from 68.8) measure remained around recent highs, reflecting the difficulties suppliers continue to experience due to the Covid-19 impact. Meanwhile, the employment (to 51.6 from 53.0) gauge showed a slowing in hirings. In the meantime, price pressures remained intense, climbing from 75.0 in August to 82.5 in October—heading back toward its all-time high of 85.0 during June 2005. Switching to the HIS Markit NM-PMI measure, it climbed to

58.7 in October after slowing steadily from 70.4 in May to 54.9 by September. October's reading showed growth was sharp overall and the fastest since July—and faster than the series average. The report notes that companies saw demand from new and existing customers boost sales, likely reflecting the return to offices for some customers. That being said, labor shortages and unstable supply chains continue to weigh on the sector, pushing business confidence down to an eight-month low. The rate of cost inflation eased for the eighth month, though remained faster than any increase recorded before March 2021. In response to higher costs, companies boosted their selling prices at a record rate.

Manufacturing Orders & Shipments (*link*): Factory orders in September advanced for the 16th time since bottoming last April, climbing to its highest level since July 2014. Billings advanced 0.2% in September and 42.6% during the 17 months through September, while factory shipments increased 0.6% and 34.4% over the comparable periods—to a new record high. Motor vehicle orders are up from recent lows, but are down the past two months. Excluding transportation, orders rose for the 16th month since bottoming last April, up 0.7%m/m and 29.7% over the period to a new high. Both core capital goods orders and shipments continued to set new record highs yet again in September. Nondefense capital goods orders ex aircraft (a proxy for future business investment) has increased every month but one since bottoming last April, climbing 0.8% in September and 29.9% over the 17-month period. Core capital goods shipments (used in calculating GDP) has also climbed every month but one since last April's bottom, by 1.4% in September and 27.8% over the period. Meanwhile, machinery (1.2%) orders continued to contribute to growth, with industrial machinery orders jumping 7.2% to yet another record high. Also moving higher were orders for primary (0.7) and fabricated (0.7) metals. A global chip shortage was likely responsible for declines in orders for transportation equipment (-2.3), electrical equipment, appliances & components (-0.6), and computers & electronic products (-0.2).

Contact us by *email* or call 480-664-1333.

Ed Yardeni, President & Chief Investment Strategist, 516-972-7683
Debbie Johnson, Chief Economist, 480-664-1333
Joe Abbott, Chief Quantitative Strategist, 732-497-5306
Melissa Tagg, Director of Research Projects & Operations, 516-782-9967
Mali Quintana, Senior Economist, 480-664-1333
Jackie Doherty, Contributing Editor, 917-328-6848
Valerie de la Rue, Director of Institutional Sales, 516-277-2432
Mary Fanslau, Manager of Client Services, 480-664-1333
Sandy Cohan, Senior Editor, 570-228-9102