FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

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Industry News By Company

AMD, Nvidia, Intel: Things Aren't Looking Good for Semiconductors

The golden age of chip production appears to be fading, at least for now. The just-completed second-quarter-earnings season confirms that the semiconductor makers are in for a tough time.

AMD, Nvidi , and Intel , three of the biggest players in the sector, reported completely different performances. But even when the results were encouraging, as in the case of Advanced Micro Devices, they results came up far short of allaying investors' concerns.

Advanced Micro Devices delivered 70% year-over-year revenue growth, to $6.6 billion, even as sales of personal computers slowed sharply. The company has benefited from strong demand from data centers.

But Micron (MU) and Qualcomm (QCOM) also failed to send the message that the economic slowdown -- and possibly a looming recession -- will not significantly cut the sector's momentum.

The chipmakers were supposed to see at least a decade of strong sales. That outlook has changed considerably.

Global semiconductor revenue is now projected to grow 7.4% in 2022 to $639 billion. Year over year that percentage estimate is down from actual 2021 growth of 26.3%. And it's down from the forecast in the second quarter that for all of 2022, chip revenue would grow 13.6%.

AMD teams with Chinese juggernaut ECARX on in-vehicle computing

AMD has landed a major Chinese partner that plans to leverage the company's Ryzen processors and Radeon GPUs as part of a full-stack, in-vehicle computing platform for electric vehicles scheduled for rollout late next year.

The new strategic collaboration is with ECARX, described in an AMD press release as a global mobility tech company, but more significantly is backed by China-based automotive giant Zhejiang Geely Holding Group and has plans to go public in a massive SPAC merger announced a few months ago.

ECARX reportedly has ambitions to challenge China's Huawei in the vehicle computing business. It already has seen its technology deployed in 3.2 million cars across 12 brands. The company is crafting a digital cockpit that will be the first in-vehicle platform to use AMD Ryzen Embedded V2000 processors and AMD Radeon RX 6000 Series GPUs along with ECARX hardware and software, AMD and ECARX said in a statement.

Nordic Semiconductor Expands Low-Power Iot Range With First Wi-Fi Chip

Nordic Semiconductor has expanded its low-power IoT hardware portfolio to include Wi-Fi 6 connectivity. The Norwegian outfit has debuted its first Wi-Fi chip, the nRF7002, which it describes as a "companion IC (integrated circuit)' to go alongside its existing

products, in order to add Wi-Fi connectivity and Wi-Fi-based positioning via SSID 'sniffing' of local Wi-Fi hotspots.

The launch follows Nordic's acquisition of Ensigma, the Wi-Fi division of UK-based semiconductor and software design firm Imagination Technologies Group, with a decent line in Bluetooth Low Energy (BLE) equipment, also. The 2020 deal covered Ensigma's development operations, including most of its staff, tech assets, and intellectual property. Nordic Semiconductor said at the time the deal would expand its portfolio into the Wi-Fi arena.

Last year, Nordic Semiconductor established a 'global Wi-Fi hub' in India, with 40 R&D staff, a busy recruitment drive, it said, as it diversifies its IoT hardware portfolio following the Ensigma acquisition. The addition of Target Wake Time (TWT) and Wi-Fi Sensing has enabled Wi-Fi based IoT apps to take better advantage of lower-power consumption and sub-centimetre level positioning (RTLS) services.

Samsung Breaks Ground on New Semiconductor R&D Complex in Giheung

Samsung Electronics broke ground for a new semiconductor research and development complex in Giheung, Korea on Aug. 19, aiming to extend its leadership in state-of-the-art semiconductor technology.

The company plans to invest about 20 trillion won by 2028 for the complex in an area covering about 109,000 square meters within its Giheung campus. The new facility will lead advanced research on next-generation devices and processes for memory and system semiconductors, as well as development of innovative new technologies based on a long-term roadmap.

The groundbreaking ceremony was attended by Samsung Electronics vice chairman Lee Jae-yong, President and CEO Kyung Kye-hyun, president of the Memory Business Lee Jung-bae, president of the Foundry Business Choi Si-young, and president of the S.LSI Business Park Yong-in, along with more than 100 employees.

China's Semiconductor Breakthrough

Semiconductor Manufacturing International Corporation (SMIC), the largest chipmaker in China, has reportedly achieved a major breakthrough. TechInsight, a Canadian tech media outlet, revealed that SMIC had advanced its technology to a quasi-7-nanometer (nm) process, which might be a stepping stone for a true 7nm process. According to TechInsight, SMIC products made from the quasi-7nm process had been shipped for a year. Some media argued that the SMIC's advancement showed that the U.S. blockade was too little, too late, and out of date.

SMIC's most advanced chip process node successfully made in the past was 14nm, although it has always made strong attempts to move toward an advanced process node (below 10nm). However, due to SMIC's inclusion on the Entity List by the U.S. Bureau of Industry and Security in December 2020, which was designed to limit SMIC's ability to reach advanced technology nodes of 10 nanometers or below, it has been blocked from

obtaining the necessary Extreme Ultraviolet Lithography (EUV) machines from ASML of the Netherlands.

TSMC Gains Market Share In The Semiconductor Market

Taiwan Semiconductor Manufacturing Company Limited (TSMC) increased its share of global semiconductor chip production.

In 2021, TSMC produced 26% of global semiconductor production value, excluding memory, up from 24% the previous year.

As a foundry, the company manufactures semiconductors with its manufacturing processes for its customers, based on proprietary integrated circuit designs provided to it.

TSMC offers a wide range of wafer fabrication processes, including processes for making complementary metal oxide logic (CMOS), mixed-signal, radio frequency (RF), integrated memory, bipolar complementary metal oxide mixed-signal (BiCMOS, which uses CMOS transistors together with bipolar junction transistors) and others.

Its customers include many of the world's leading semiconductor companies, from fabless semiconductor companies and system companies to embedded device manufacturers, including Advanced Micro Devices, Broadcom Limited, Intel Corporation, MediaTek, NVIDIA Corporation, NXP Semiconductors, OmniVision Technology, Qualcomm and Renesas Electronics Corporation.

Industry News & Trends

Sony Camera Feature Hopes To Make Digital Images Immune To Secret Manipulation

Sony has announced a new camera feature that the electronics goliath claims will make digital images immune to secret manipulation and forgery.

Called in-camera signing mode, the functionality cryptographically signs every image an equipped camera captures. Any subsequent pixel modification or tampering with the image will result in a picture that no longer matches its digital signature, Sony said, which will make manipulation more easily detectable.

This, we reckon, has a chance of working as long as the signing process is secure and cannot be subverted, and that there is a way for folks to easily check whether the digital signature of the snap is still valid. And to be clear: it won't stop material being altered, it just flags up that data has (or has not) been changed, from the signature.

US Bans Export Of Tech Used In 3nm Chip Production On Security Grounds

The United States is formally banning the export of four technologies tied to semiconductor manufacturing, calling the protection of the items "vital to national security."

Announced Friday [PDF] by the US Commerce Department's Bureau of Industry and Security (BIS) and enacted today, the rule will ban the export of two ultra-wide bandgap semiconductor materials, as well as some types of electronic computer-aided design (ECAD) technology and pressure gain combustion (PGC) technology.

In particular, the BIS said that the semiconductor materials gallium oxide and diamond will be subject to renewed export controls because they can operate under more extreme temperature and voltage conditions. The Bureau said that capability makes the materials more useful in weapons.

ECAD software, which aids design for a wide range of circuits, comes in specialized forms that supports gate-all-around field effect transistors (GAAFETs), which are used to scale semiconductors to 3 nanometers and below.

Intel Hands Over Nearly 5,000 Patents In Deal With IP Management Outfit

Intel has entered into an agreement with IPValue Management Group that sees nearly 5,000 patents transferred to a newly formed company within the group that will seek to license them to third parties.

IPValue, which describes itself as an intellectual property manager, said that the new agreements extend existing licensing arrangements the company has with Intel and brings a further patent portfolio under its purview.

The patents have been transferred to Tahoe Research Limited, a newly formed company within the IPValue Management Group, and the portfolio is said to include patents relating to Intel inventions covering a broad range of areas such as "microprocessors, logic devices, computing systems, memory and storage, connectivity and communications, packaging, semiconductor architecture and design, and semiconductor manufacturing.

The Chip Shortage Leads To The Strangest Things

The global chip shortage has not made the life of the electronic design engineer an easy one, as products have been designed around whatever parts are available rather than the first choices. This has manifested itself in some unexpected ways, including as [CNX software] investigates, products whose multiple-choice bill of materials has led to mistakes being made in manufacture.

On the face of it, designing a PCB with two sets of footprints to accommodate more than one part choice is a clever move. But as Radxa found out with their Rock 3A single board computer, this could lead to a production mishap as some boards left the production line with a mix-and-match BoM in their USB PD circuitry which left them unable to operate from voltages above 5 V. The board has footprints for both an Injoinic and a WCH part, and the faulty boards appear to have the support components fitted for the other chip to the one on the board.

We'd join [CNX] in congratulating Radxa for coming clean, and we like that one of the options to fix it is to be sent the chip to fit yourself. We're left rather glad that it wasn't us on whose watch such a mistake occurred, as from experience we know these things can happen all too easily.

SK hynix DRAM Product Planning Spearheads the Memory Evolution in the Post-HBM3 Era

In their earlier EE Times article, Sungsoo Ryu and Sunghak Lee, Head of SK hynix DRAM Product Planning and Technical Leader of SK hynix IPM Planning, explained how HBM3 is helping to meet higher DRAM and memory demands. Teaming up for a second time, Ryu and Lee discuss how their teams fit into SK hynix's future plans.

Despite the ongoing debate over the validity of traditional principles, including Moore's Law and memory wall disparity, the general consensus in the semiconductor field is that the value proposition of the memory industry over the course of the years have been for the most part well-oriented to system-level requirements, helping to elevate system performance beyond existing performance caps. Backed by studies in advanced technologies and solutions, the memory industry has dug deeper into the realm of the unknown and worked towards back-to-back "world's first" and "world's best" innovations, bringing benefits to the IT sector as a whole.

East European News & Trends

Smart Tools For Smart House: Advanced Software For Proptech

Promis and Effective Technologies, two IT companies based in Nizhny Novgorod, in the mid-Volga area, have developed an advanced software system called DomExpert. From a single IT platform the product can control all smart devices, metering instruments and surveillance systems installed in a residential building.

In this project, smart instruments that gauge the consumption of thermal and electrical energy, water, etc., automatically send data out to a special software-hardware complex. Fully processed, the data is then forwarded to a local public utilities management center.

Apartments in a building equipped with the system have smart electrical sockets that can be de-energized remotely, and also HVAC systems that enable the owner to remotely control, for example, air temperature in his apartment before he comes home.

New Recyclable Polymers Based On Biomass May Soon Hit Market

A research team at the St. Petersburg State University (SPbSU) has used biomass treatment products to synthesize polymers.

The new polymers are easily recyclable, a property that would make them competitive when fine-tuned, fully studied, and commercialized.

At the heart of the new development are compounds that came from biomass, a renewable and very valuable source of feedstock for the chemical sector. The main component of such polymers are natural alcohols, for example, menthol derived from essential oils of mint, or borneol that comes from essential oils of the white fir.

New AI Enhances Diagnostics Accuracy

Researchers at Tomsk-based SibMed University (Siberian State Medical University) have developed new hybrid artificial intelligence (AI) technology to control multiple cyber-physical systems across medical disciplines.

At the core of the development are AI-driven systems to support physicians' decision-making process which are based on data and on knowledge.

As modern computing and communication devices are getting increasingly compact and affordable, the creation of an array of sensor- and actuator-enabled cyber-physical systems is no longer a future plan. Sensors and other slave gadgets help collect tons of data on processes that take place in physical and biological objects.

World Economic Round Up

The International Monetary Fund (IMF) lowered its growth forecast in August for the global economy to 3.2 percent this year, from its previous forecast of 3.6 percent in April, due to Russia's war in Ukraine that has exacerbated inflationary pressures and derailed the momentum of the recovery from the pandemic and the slowdown in China A regime shift has occurred, taking monetary policy into a new era as recessions are looming in the world's major economies. Global central banks have been raising interest rates at an "alarming pace" over the past few months heralding the the dawn of new regime in monetary policy and financial markets. At its meeting in July, the US Federal Open Market Committee (FOMC) raised the federal funds rate by 75 basis points to between 2.25 percent and 2.50 percent.

The latest economic news by country to include USA, Europe, UK, Japan, China, Asia Pacific and India can be found each month in our Semiconductor Monthly Report.

Industry Events 2022

Future Horizons Events

- Silicon Chip Industry Training Seminar – London – March 2023
- Industry Forecast Briefing, London – January 2023

To book your place on any of our events please contact us on:

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Industry Events

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MARK YOUR CALENDER FOR THE NEXT

SILICON CHIP INDUSTRY WORKSHOP
MONDAY March 2023
AND
INDUSTRY FORECAST BRIEFING
TUESDAY January 2023

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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