

Week In Review: Manufacturing, Test – September 10, 2021

Intel's foundry fab; UMC's packaging deal; Lam expands; top OSATs.
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Chipmakers, OEMs

Intel plans to [establish foundry capacity](#) at its fab in Ireland. The company has also launched the so-called Intel Foundry Services Accelerator to help automotive chip designers transition from mature to advanced nodes. The company is setting up a new design team and offering both custom and industry-standard intellectual property (IP) to support the needs of automotive customers. As reported, Intel [re-entered the foundry business](#), but has yet to elaborate on its overall strategy.

UMC and chip-packaging specialist **Chipbond** have approved the proposal of a [share exchange resolution](#). Under the plan, UMC and its subsidiary **Fortune Venture Capital** will jointly hold approximately a 9.09% stake in Chipbond. Chipbond will hold approximately 0.62% of the equity in UMC.

The move bolsters UMC's strategic efforts with Chipbond. UMC doesn't develop IC packages, but rather it works with OSATs for these services. UMC provides foundry services for a plethora of products, including display driver ICs. Chipbond's operations mainly focus on panel-driver IC packaging, assembly and testing. Chipbond has also expanded its packaging scope to compound semiconductors. UMC and Chipbond will work together in these market segments to develop new opportunities.

"By combining technical expertise of both parties and integrating upstream and downstream resources, we can provide customers with advanced process technology solutions and a more comprehensive service," said SC Chien, president of UMC.

X-FAB is now able to support volume heterogeneous integration via Micro-Transfer Printing (MTP), thanks [to a licensing agreement](#) with **X-Celeprint**. This will mean that a diverse range of semiconductor technologies may be combined together, each being optimized for particular functional requirements. These will include SOI, GaN, GaAs and InP, as well as MEMS.

Weebit Nano, a developer of ReRAM technology, and **SkyWater Technology** have [announced a foundry alliance](#). SkyWater will bring Weebit's ReRAM technology to volume production. SkyWater has licensed the technology for use with customer designs. In addition, SkyWater is accepting design submissions for its [90nm readout integrated circuit \(S90ROIC\)](#) multi-project wafer (MPW) program. The program enables quick and low-cost prototyping for various applications, such as aerospace/defense, Lidar and others. It includes support for ITAR designs.

Taiwan's **MediaTek** plans to [hire 2,000 workers](#) by the end of this year, according to a report from the **Taipei Times**. MediaTek's second quarter sales were up 16.3% sequentially and up 85.9% year-over-year. The increase was mainly due to the continuous momentum from 5G smartphones and IoT devices.

Rohm and Chinese automotive manufacturer **Geely** have [entered into a strategic partnership](#). Geely is adopting Rohm's silicon carbide (SiC) power devices. With SiC, Geely is working to extend the cruising range of its electric vehicles, while reducing battery costs and shortening the charge times.

Canon has [signed a deal](#) to acquire **Redlen Technologies**, a developer of cadmium zinc telluride (CZT) semiconductor detector modules that are used in diagnostic imaging systems, security inspection systems and other devices. With the acquisition of Redlen, Canon will obtain advanced technology used in CZT semiconductor detector modules, which play a role in the development of next-generation photon-counting CT systems.

Toyota is [reducing its production forecast](#). “Regarding the full-year production forecast for the fiscal year ending March 31, 2022, we are adjusting the expected volume to 9 million units due to the impact of the production cut, down from the 9.3 million units forecast. Although the outlook for November and beyond is unclear, current demand remains very strong. As a result, the production plan for November and beyond assumes that the previous plan will be maintained,” according to the car maker. “Key reasons for the production adjustment include a decline in operations at several local suppliers due to the prolonged spread of COVID-19 in Southeast Asia and the impact of tighter semiconductor supplies.”

Facebook has introduced Ray-Ban Stories, [a line of smart glasses](#) that gives customers a way to capture photos and video, listen to music, and take phone calls. Built in partnership with Facebook and **EssilorLuxottica**, Ray-Ban Stories start at \$299.

Fab tools

Lam Research has [announced the expansion](#) of its manufacturing footprint in Oregon with a new 45,000-square-foot facility in the city of Sherwood. The facility will open in December of 2021.

The new site will supply chipmakers with critical fab tools. Lam expects its new facility to create approximately 300 new jobs. Available positions include assemblers, test technicians, engineering technicians, and material handlers. The new facility is Lam’s fifth manufacturing site in the United States. Lam is also ramping up a production site in Malaysia.

In addition, Lam is also helping to broaden the pool of trained workers via its internship program with **Portland Community College**. This partnership provides students in the Microelectronics Technology program with the opportunity to gain industry experience over an 18-month period while applying the information they learn in the classroom. Lam’s goal is to hire these students after they earn their Associate Degree and complete their internship.

“We are building the manufacturing workforce of the future—from our comprehensive training program and next-generation manufacturing techniques, to our agile and collaborative work environment,” said Tim Archer, president and CEO of Lam Research.

Applied Materials has rolled out a [line of equipment](#) to enable silicon carbide (SiC) chipmakers transition from 150mm to 200mm wafer production. The new 200mm equipment includes a chemical-mechanical-polishing (CMP) system and an ion implanter.

Applied has also [announced a joint development](#) agreement with **EV Group** to develop co-optimized solutions for wafer-to-wafer bonding. This builds upon a recent joint development agreement between Applied and **Besi** to develop a complete equipment solution for die-based hybrid bonding. “Also, last year, AMAT bought **Tango Systems**, which enables panel-level packaging (on 600mm x 600mm substrates) by doing PVD (physical vapor deposition) for denser connections,” said Krish Sankar, an analyst from **Cowen**, in a research note. “AMAT’s packaging revenues were ~\$500 million in FY2020; we expect it to exceed \$800 million this year (about 60% of \$1.4 billion SAM, in a \$2 billion wafer-level packaging TAM).”

Bruker is collaborating with researchers from Europe as [part of the PANACEA project](#). The aim of the project is to build a trans-national network of multi-disciplinary chemists in need of instrumentation and technical expertise in solid-state nuclear magnetic resonance (NMR). This will enable the development of modern chemistry methods that rely on the analysis of complex solid substrates in cross-discipline research areas from polymers to pharmaceutical formulations and medical implants.

Packaging

TrendForce has [released its OSAT rankings](#) in terms of sales for the second quarter. **ASE** remained in first place, followed by **Amkor**, **JCET**, **SPIL** and **PTI**. "In light of the ongoing global chip shortage and the growing production capacities of foundries/IDMs in the upstream semiconductor supply chain, OSAT companies gradually increased their CapEx and expanded their fabs and equipment in order to meet the persistently growing client demand," according to the research firm. "However, the OSAT industry still faces an uncertain future in 2H21 due to the Delta variant's global surge and the health crisis taking place in Southeast Asia, home to a significant number of OSAT facilities."

Market research

Worldwide [server market revenue](#) declined 2.5% year over year to \$23.6 billion during the second quarter of 2021, according to **IDC**. Server shipments surpassed 3.2 million during the quarter, an increase of just 0.1% over the previous year.

IC Insights recently released its compilation of [third-quarter sales growth expectations](#) for the top-25 semiconductor suppliers. "For the third quarter of this year (ending in September), sales growth outlooks for the top-25 suppliers range from 16th-ranked **Sony's** 34% increase at the high end, to Intel's 3% decline on the low end," according to IC Insights.

Global [semiconductor equipment billings](#) surged 48% year-over-year to a record high of \$24.9 billion in the second quarter of 2021, a 5% increase from the prior quarter, according to **SEMI**.

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