Congratulations to the Winners of the 2022 3D InCites Awards! – March 1, 2022

It is my honor to announce the winners of the 2022 3D InCites Awards. With 51 nominees in 11 categories, we had more participation than ever, and the competition was fierce! Thank you to this year's platinum sponsors, ASE Group, EV Group and KLA; our gold sponsors, Evatec and YES, and our silver sponsors, CyberOptics and Veeco. A big thanks also to those of you who supported your preferred nominees through the online ballot. I'd especially like to thank all our judges, who volunteered their time to review the nominees and deliver their votes. It was not an easy task with so many qualified companies participating!

Phil Garrou, Beth Keser, Steffen Kröhnert, and Michelle Bourke judged the technology awards. We tallied their results together with the online ballot results to come up with the results. Both the Sustainability Award and Award for DEI are selected by a panel of judges only.

So without further ado, I give you the winners of the 2022 3D InCites Awards:

Sustainability Award Winner: EMD Electronics
For the second consecutive year, Dean Freeman and Julia Goldstein served as judges for the Sustainability Award, joined by Jennifer Yuen, Senior Director of Global Corporate Communications at ASE Group, our 2021 Sustainability Award Winner. The judges applied the criteria they set for evaluating each organization that includes efforts to reduce greenhouse gas (GHG) emissions, energy use, water use, and waste to landfill.

This year's nominees for the 3D InCites Sustainability Award included Edwards, SEMI, imec, and EMD Eletronics, the Electronics business of Merck KGaA, Darmstadt, Germany. All these organizations are committed to fostering best practices in promoting sustainable semiconductor manufacturing. However, of all the companies submitted, EMD Electronics had well-stated goals and activities targeted at improving their sustainability footprint. In the area of renewables, reduction of Scope 1, 2, 3 emissions, power and water conservation, and waste, the committee determined that EMD's activities and goals for all these areas were ahead of the other nominees. EMD Electronics has also taken other actions in introducing new chemistries to the semiconductor and packaging industry that will reduce GHG emissions in the future.

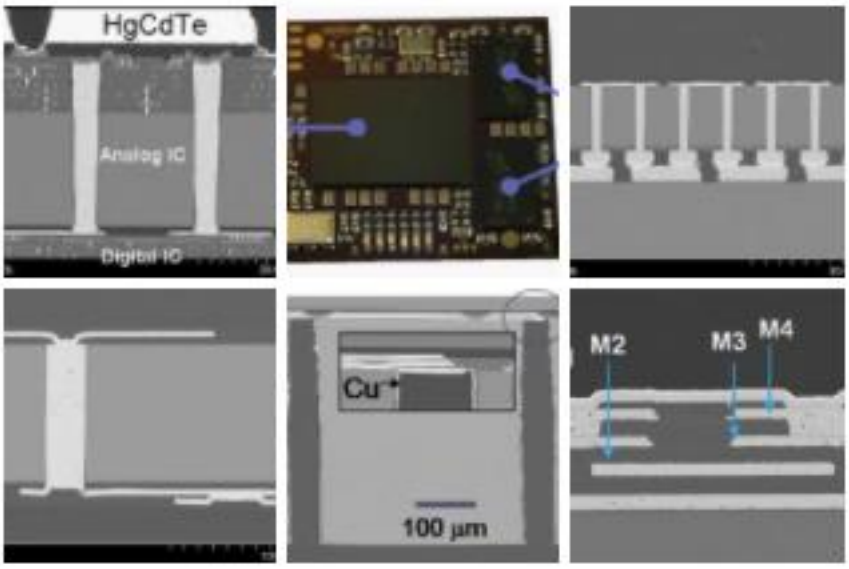
SemiSister Award for DEI: AMD

Last year's judges for the SemiSisters Award for DEI, Margaret Kindling, SEMI Foundation; and Joanne Itow, SEMICO Research were joined by Antoinette Hamilton, Global Head of Inclusion & Diversity at Lam Research, to select this year's DEI Award Winner. The group based its decision on the company's efforts in the areas of diversity, equity, inclusion, access, and leadership. Additionally, do they adhere to the environmental, social, and governance (ESG) criteria that socially conscious investors use in their screening process? Bonus points were given to organizations with a purpose-driven mindset, that is instilled in their employees to support the community.

This year's nominees were AMD, Brewer Science, Deca, and Energetiq. The judges were impressed with all the nominees, and report having a difficult time coming to a decision. However, when it came down to looking at which company does the best job at demonstrating the importance of DEI to their overall mission, AMD rose to the top. Every year since 2019, the company was selected for the Bloomberg Gender-Equality Index (GEI). AMD is one of 418 companies included for its commitment to gender reporting transparency and the advancement of women in the workplace.

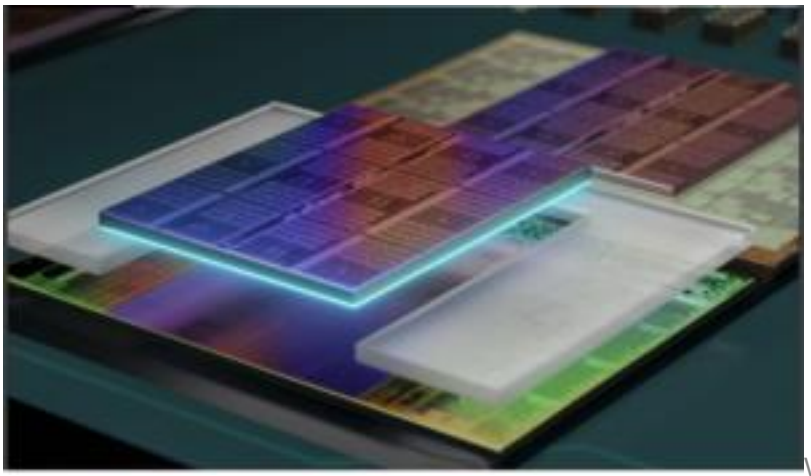
Winners of the 2022 3D InCites Technology Awards by Category

Device Manufacturer of the Year: Micross AIT
Runner-up: StratEdge



In a final vote of 3-2, Micross AIT pulled into the lead because of its broad range of 3D process capabilities and successful demonstrations of 3D-integrated IC stacks for IR focal plane arrays and silicon interposer for embedded computing modules. Micross AIT has been conducting research and development in 3D integration since 1999, building on decades of experience in the development of advanced microfabrication and packaging technologies.

Device Technology of the Year: AMD
Runner-Up: Sony

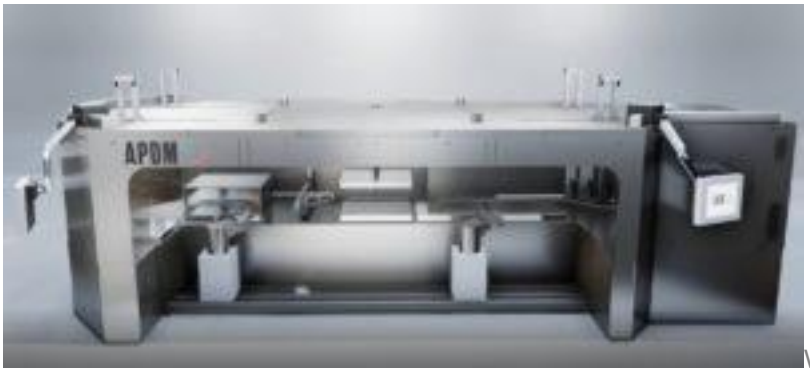


With chiplets taking the industry by a storm, it's no wonder AMD swept this category thanks to its recently released 3rd generation EPYC processor that implements AMD 3D V-Cache. V-Cache is reportedly the first true 3D chiplet stacking architecture using the industry's first copper-to-copper hybrid bonds plus a through-silicon vias (TSVs) approach that provides up to 200 times the interconnect density versus 2D chiplets and approximately 15 times the density versus traditional 3D stacking solutions using solder bumps.

Engineer of the Year: Dr. Sangki Hong, NHanced Semiconductors
Runner-Up: Dick Otte, QP Technologies

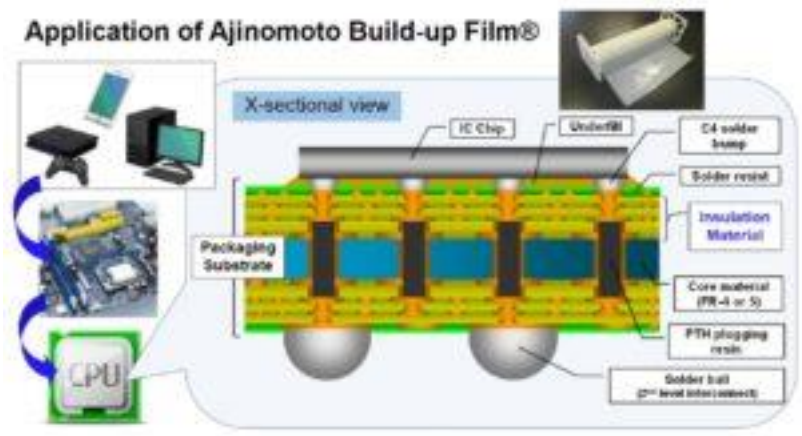
The judges overruled the online vote in a 4-1 split between Dr. Sangki Hong and QP Technologies' Dick Otte. Dr. Hong spent most of his long career developing 3D ICs and other advanced packaging. His adventure in 3D began in 2001 with the development of copper diffusion wafer bonding at Tezzaron in Singapore. He pioneered the technology, ran the fab, trained other engineers, and created patented techniques for alignment and bonding. When NHanced was spun out from Tezzaron in 2017, Dr. Hong took over responsibilities for the fab in North Carolina. Dr. Hong has developed more than 100 process flows for 3D integration, enabling Advanced Packaging to move beyond prototyping into full production.

Equipment Supplier of the Year: ERS electronic GmbH
Runner-Up: Veeco



With 10 nominees and five judges (one being the online vote), it's quite an accomplishment that ERS stood out from the pack to win the Equipment Supplier of the Year category. It was their continued innovation that did it. Since 2007, ERS has supported fan-out technologies with an ever-broadening portfolio of automatic, semi-automatic, and manual machines. Its flagship machine, the Automatic Debond Machine (ADM330), is the go-to thermal debond solution in the industry and is continuously being improved. In 2021, ERS launched the APDM650 for panels up to 650 x 650 mm, paving the way for high volume manufacturing of large-area FOPLP.

Materials Supplier of the Year: Ajinomoto Fine-Techno Corporation
Runner-Up: Atotech



Another 3-2 split put Ajinomoto Fine-Techno Co., Inc. (AFT) in the lead to win this year's Material Supplier of the year category. AFT is a subsidiary of Ajinomoto Group responsible for the fine chemicals division. The judges noted that AFT's build-up film (ABF) set essential standards for new high-density advanced packaging substrates. AFT has been at the forefront lately, because of its role in the value chains for electronics, automotive, and a

variety of other products. Beyond ABF, AFT has expanded its material portfolio to include molding, photo dielectric, magnetic, and optoelectronics.

The Herb Reiter Design Tool Award: Cadence
Runner-Up: Deca

Cadence captured the attention of the judges with its Integrity 3D-IC platform, to win this year's Herb Reiter Design Tool Award. Targeted for designers creating tomorrow's multi-chiplet designs, this new platform is reportedly the industry's first comprehensive, high-capacity 3D-IC platform that provides system planning, chip and package 3D implementation and integrated electrothermal, static timing analysis (STA) and physical verification flows in a single cockpit, enabling faster high-quality 3D design closure.

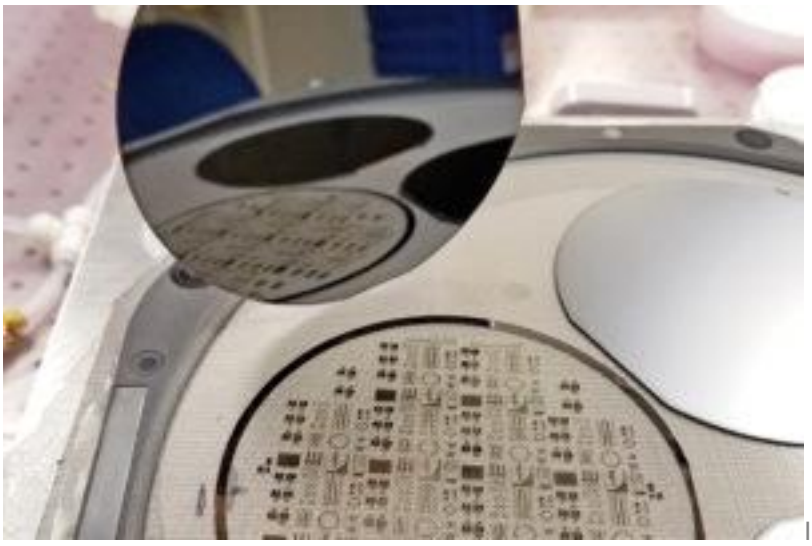
Process of the Year: Adaptive Patterning – Deca Technologies
Runner Up: SPTS Mosaic™ Plasma Dicing

A packed field of nominees pushed this decision to the online vote. But as one judge noted, Deca has further developed its Adaptive Patterning to reach the next level, which is a very complex interconnect process enabling next generation advanced packaging with FO-W/PLP. In the past year, Adaptive Patterning has been implemented, proven, and ramped into high volume production for 600mm FO-PLP. This major accomplishment attests to the power of AP to overcome the challenging die-shift problem of large formats.

Research Institute of the Year: Fraunhofer IZM: Panel Level Packaging Consortium 2.0
Runner-up: imec

This seems to be the year the judges applaud all efforts in fan-out panel-level packaging (FOPLP). In 2020, Fraunhofer IZM launched its second consortium on panel-level packaging with 17 industry partners to investigate the physical limits of FOPLP. This includes topics like warpage and die shift, adaptive patterning, ultra-fine-line wiring down to 2µm L/S with a potential move to 1µm. New equipment for PLP has been installed and the project benefits from several major investments made by the German Government, allowing Fraunhofer IZM to establish a unique PLP infrastructure for current and future research topics.

Startup of the Year: Mosaic Microsystems
Runner-up: Anemoi Software



In a 4-1 decision, Mosaic Microsystems took this year's Start-up of the Year Award. That means for the second year in a row, the Start-up of the Year Award goes to a company founded and led by women! As our mural theme states this year, we are taking strides in DEI.
Founded in 2016 to provide thin glass interposers for microelectronic, photonic, RF/mmWave, MEMs, and sensor technologies, Mosaic has grown to a technical team of nine, with experienced leadership from successful serial entrepreneur and CEO, Christine Whitman. Mosaic's thin glass wafers with precision through-glass vias (TGVs) range from thin TGV glass wafers to those with void-free copper via-fill and RDL. The Mosaic team works closely with customers to provide unique solutions for advanced packaging.

Help Us Celebrate in Person!

If you're attending the IMAPS Device Packaging Conference in Fountain Hills, AZ, next week, we hope you'll join us in celebrating these fine companies as we present the awards in person! The brief ceremony takes place at 10:00 am, Tuesday, March 8, just after the Keynote talks and before the coffee break. Please stick around and give these folks a round of applause.

We'll also be sharing photos from the event on this year's Winner's Circle page, and featuring the winners in a podcast episode on the 3D InCites Podcast.

https://www.3dincites.com/2022/03/congratulations-to-the-winners-of-the-2022-3d-incites-awards/