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For Immediate Release

Record attendance shows the growing importance of advanced packaging. . .

Panel at 2024 IEEE Electronic Components and Technology Conference (ECTC) Explores the Impact of Industry-Government Co-Investments in Advanced Packaging Around the World

DENVER, CO (May 31, 2024) – Governments around the world are pursuing a growing number of coinvestment programs with the microelectronics packaging and semiconductor industries, in order to build and expand infrastructure in their own jurisdictions. In a special session at the <u>2024 IEEE Electronic</u> <u>Components and Technology Conference (ECTC)</u>, representatives from Canada, the European Union, India, Korea and the U.S. described the differing goals, frameworks, challenges and achievements of their efforts to increase advanced packaging technology and infrastructure development.

Interest in advanced packaging is surging, because without new packaging approaches it is unlikely the electronics industry will be able to achieve the performance gains and energy savings needed to support fast-growing, demanding applications like artificial intelligence (AI), high-performance computing, wireless and high-speed communications, and quantum computing,

The annual ECTC conference is the world's leading forum for advancements in microelectronics packaging and component science and technology. The growing momentum for advanced packaging solutions can be seen in the attendance figures for the 74th annual ECTC, held here from May 28-31. Registered attendance at ECTC 2024 hit an all-time high of more than 2,000, up from 1616 in 2023, and higher than the previous record of 1,738 in 2018.

"Governments are striving to find ways to build their own semiconductor ecosystems in order to gain access to leading-edge technologies, to secure their supply chains, and to open up educational and employment opportunities for their populations," said Przemyslaw Gromala, co-Chair of the ECTC special session, *Exploring the Impact of Industry-Government Co-Investments for the Advanced Electronics Sector in North America, Asia and Europe*, along with fellow co-Chair Erik Jung.

"The introduction of the CHIPS and Science Act in the United States has been inspiring similar programs elsewhere. The speakers in our lively special session detailed their programs and co-investments, and also discussed the prospects of global collaborations and partnerships between national semiconductor and microelectronic packaging centers and industry leaders. They also outlined mechanisms for knowledge exchange, joint research initiatives, and mutually beneficial outcomes," he said.

Highlights from the panelists:

<u>Canada</u>

<u>CMC Microsystems</u> is a non-profit founded in 1984 as a Canada-wide collaboration between 69 universities/colleges. It connects 10,000 academic participants with 1,200 companies to design, build and test advanced prototypes. At ECTC, David Lynch, CMC's Vice President of Technology, discussed <u>FABrIC</u>, a proposed 5-year \$200M-plus project to be led by CMC and 14 other founding organizations to accelerate the development of made-in-Canada microchip manufacturing processes, Internet of Things (IoT)-based products and services, and quantum technologies.

FABrIC would build on Canada's strengths in compound semiconductors, micromechanical systems (MEMS), photonics and superconductors. It would work with subject matter experts in these technologies to commercialize products, and would create and share IP resources to help build a national semiconductor ecosystem, including relevant packaging approaches.

<u>Europe</u>

The <u>European Chips Act</u>, passed in July, 2023 and funded by the European Union, member states and the private sector, has enabled significant investments in first-of-a-kind fabs in Europe, but it hasn't focused specifically on packaging. At ECTC 2024, Elisabeth Steimetz, Office Director of the European Association on Smart Systems Integration, known as <u>EPoSS</u>, gave an outline of the major activities taking place and under consideration in Europe. One is the evolving <u>Pack4EU</u> initiative, whose objective is to create a pan-European network for advanced packaging, and a roadmap to boost packaging in Europe.

EPoSS is an international non-profit organized under German law that leads the development and integration of intelligent and green smart-systems technologies and solutions for a sustainable society. It comprises major industrial companies and research organizations from more than 20 European Member States, with the goal of developing a vision and setting up a strategic research agenda to coordinate their activities in these areas.

<u>India</u>

At ECTC 2024, <u>Rao Tummala</u>, Advisor to the Government of India, described the semiconductor industry landscape in India and the tremendous potential for industry development there, in the context of the large size and growth of India's economy; the many partnership opportunities among academia, industry and government; India's skilled, highly educated and large technical workforce; the potential for collaboration with academic experts globally, who are from India and elsewhere; and the <u>India Semiconductor Mission</u> (ISM) a government-led strategic initiative to bolster India's semiconductor ecosystem.

He said the strategic R&D focus in India is to develop integrated semiconductors and systems packaging to serve large, fast-growing markets.

<u>Korea</u>

Korea's Chips Act, passed in March, 2023, provides significant tax breaks and deductions for investments in Korea's semiconductor industry. Kwang-Seong Choi, from Korea's <u>Electronics and</u> <u>Telecommunications Research Institute</u>, described a <u>packaging initiative</u> that will concentrate on

technology segments where South Korean companies have demonstrated prowess, such as 2.5D packagebased high-bandwidth memory (HBM) optimization, 10-40 µm bonding, and hybrid bonding.

United States

In the U.S., the <u>CHIPS for America Act</u> which passed in 2022 authorized \$39 billion to attract large-scale investments in facilities, equipment and manufacturing capacity for advanced technologies such as leading-edge logic and memory, and for advanced packaging as well. It also authorized \$11 billion in R&D programs that would, among other things, lead to more advanced semiconductor assembly, packaging and test capabilities.

Among these are the <u>National Advanced Packaging Manufacturing Program</u>, to develop innovations that will help realize the ambitious goals for U.S. technology leadership in advanced packaging for the American semiconductor industry.

At ECTC 2024, Eric Lin, R&D Director in the CHIPS for America Research and Development Program, described these programs in the context of the international landscape for advanced packaging. He outlined U.S. R&D goals and detailed the tremendous engagement the U.S. has with international partners in Asia, Europe and the Americas to help advanced its strategic goals.

Looking Forward

Przemyslaw Gromala, co-Chair of the ECTC special session, said, "The worldwide semiconductor and packaging landscape is complex and dynamic. Our attendees had a unique opportunity to hear the differing perspectives of existing and up-and-coming participants in the worldwide advanced packaging industry, what their goals are, and the different ways in which they plan to meet them."

Further information about ECTC 2024

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The IEEE's <u>Electronics Packaging Society</u> (EPS) sponsors the ECTC conference. EPS is the leading international forum for scientists and engineers engaged in research, design and development of revolutionary advances in microsystems packaging and manufacturing. Its areas of interest encompass all aspects of packaging and integration of electrical, electronic, optoelectronic, biological, micromechanical and sensing components.