MAPT

MICROELECTRONICS AND ADVANCED PACKAGING TECHNOLOGIES ROADMAP

The Microelectronics and Advanced Packaging Technologies industry is projected to grow to $1T by the end of the decade. This multidisciplinary field will transform the design and manufacture of microchips. A seismic shift in microelectronics and advanced packaging is imperative to address the pressing needs of the future. Progress will build upon breakthroughs in advanced packaging, 3D heterogeneous integration, electronic design automation, nanoscale manufacturing, and energy-efficient computing.

Critical to this success is a **community consensus** on the research needs and future technologies that will drive this growth. This need drove the organization of the Microelectronics and Advanced Packaging Technologies (MAPT) Roadmap, funded by NIST, and led by SRC. This roadmap serves as a compelling guide for the community to set the course and align all contributors, from pathfinding to scaling, to make this happen. This work will spur much-needed advances in applications such as autonomous vehicles, energy-efficient artificial intelligence, and bioelectronic medicine, as well as address the workforce crisis. A wealth of skilled and degreed professionals are needed to accomplish these goals.

The geometric limits of transistor scaling will require assembling separately manufactured components, called chiplets, to create advanced Systems in Package. Advanced packaging technologies, monolithic 3D integration, and heterogeneous integration are the key enablers of the next microelectronics revolution. In addition, the MAPT Roadmap is the first of its kind that comprehensively addresses fundamental and practical limits of information and communication technology sustainability, including energy use, environmental stewardship, and the next generation of the semiconductor workforce.

MAPT INNOVATION

Sustainability

Energy Efficiency

Workforce Development

Foundational Microelectronics

Manufacturing Ecosystem

Packaging is the New King!

Learn More at https://srcmapt.org/

Semiconductor Research Corporation

How'd we get here?
Learn more: 2030 Decadal Plan for Semiconductors + Heterogeneous Integration Roadmap