The Scalable Asymmetric Lifecycle Engagement (SCALE) network is the preeminent U.S. program for semiconductor workforce development in the defense sector.

There is a global need for microelectronics that are safe, reliable, and trustworthy. However, the design and manufacturing of these microchips is challenged by a number of factors, including disruptions of the manufacturing chain as well as an urgent need for a rapid increase in the skilled microelectronics workforce.

Led by Purdue University and funded by the Department of Defense, SCALE facilitates a different approach to training highly-skilled U.S. microelectronics engineers, hardware designers, and manufacturing experts, and ensuring U.S. leadership in this area.

SPECIALIZED TRAINING IN MICROELECTRONICS
SCALE students gain expertise and hands-on experience with current and future technology demands, ensuring U.S. prowess in building the domestic semiconductor industrial base and the critical infrastructure and national defense applications it supports.

KEY TECHNOLOGY FOCUS AREAS
- Radiation-Hardening
- Heterogeneous Integration
- System-on-Chip
- Embedded Systems/AI
- Supply Chain Awareness

David Halbrooks tests advanced packaging techniques. (Purdue University/Charles Jischke)
UNPARALLELED TRAINING OPPORTUNITIES

U.S. undergraduate and graduate students enrolled in SCALE get mentoring, internship and research opportunities at leading companies, universities and federal research organizations that are part of the network, the preeminent program for semiconductor workforce development.

TAILORED CURRICULUM

SCALE provides curriculum to introduce microelectronics to students and to cover emerging topics such as radiation hardening, heterogeneous integration and system-on-chip.

JOB PLACEMENT

SCALE has built an extensive public-private-academic partnership to assist students and employers in finding suitable matches for specialists in each area of SCALE, ranging from internships for first-year undergraduates to Ph.D. job placements.

GOVERNMENT PARTNERS

- Aerospace Corporation
- Air Force Life Cycle Management Center (AFLCMC)
- Air Force Nuclear Weapons Command (AFNWC)
- Air Force Research Lab-Sensors Directorate (AFRL/RY)
- Air Force Research Lab-Space Vehicles Directorate (AFRL/RV)
- Defense Microelectronics Activity (DMEA)
- Department of Energy National Nuclear Security Administration (DOE/NNSA)
- Jet Propulsion Laboratory
- Missile Defense Agency (MDA)
- National Aeronautics and Space Administration (NASA)-Goddard
- Naval Research Laboratories
- Naval Surface Warfare Center (NSWC)-Crane
- Office of the Secretary of Defense for Research and Engineering-Trusted & Assured Microelectronics Program
- Sandia National Laboratories
- Space Force
- Space Systems Command (SSC)
- Strategic Systems Program (SSP)
- US Army Combat Capabilities Development Command (DEVCOM)-Chemical Biological Center
- White Sands Missile Range (SVAD)

INDUSTRY PARTNERS

- Boeing Corporation
- Cobham Advanced Electronic Solutions (CAES)
- Calumet Electronics
- Cornerstone OTA
- Draper Laboratories
- General Dynamics Mission Systems
- Innovative Scientific Solutions Inc. (ISSI)
- KBR-Centauri
- L3Harris Corporation
- Mercury Systems
- Milanowski & Assoc.
- Northrop Grumman Corporation
- Reliable Microsystems
- Renesas Electronics
- Science Systems and Applications Incorporated (SSAI)
- Taiwan Semiconductor Manufacturing Company (TSMC)
- Trusted Semiconductor Solutions