Manufacturers hope to speed up the process of making smaller, faster chips that use tiny metal droplets instead of prongs. Studying how liquid falls in zero gravity may provide the key to mass production, and quicker computers.

Research on water splats

Researchers study water splats, like those shown above, to understand how they might be used to create smaller, faster chips. The idea is to use the splatting of water droplets to create tiny metal droplets that can be used to create connections on chip surfaces.

Gathering data

Chui Melvin, a researcher from the University of Illinois at Chicago, checks equipment aboard a NASA airplane that can simulate zero gravity. The airplane will make multiple passes over the Earth's surface, allowing the researchers to collect data on how water splats behave in different conditions.

In zero gravity

Researchers hope data from a water droplet striking a surface in zero gravity, right, will help build better solder bumps, above, on high-speed chips. The goal is to create more efficient and faster computer components.

Chips and zero gravity

Because solder bumps are too small to test successfully in a laboratory (they are only 30 to 60 microns across), researchers are studying water drops, which are 1,000 times larger. Aboard NASA's KC-135, an aircraft that simulates zero gravity when diving, the researchers film water drops as they float down and splatter. Such experiments are helping to find new ways to control solder bumps during manufacturing.

Microfab Technologies

UNIVERSITY OF ILLINOIS AT CHICAGO

Chui Melvin, left, and Yi-Ming, researchers from the University of Illinois at Chicago, check equipment aboard a NASA airplane that can simulate zero gravity.