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The Next Chip Factory Could Be 400 km Above Earth

Startups are sending wafers into orbit, Musk is building a chip plant meant for space data centres, and a cheap old solar cell is making a comeback. Space is turning into an industrial supply chain.

By **Manasee Kurlekar** | September 28, 2026



Semiconductor manufacturing has a dust problem. Chip plants need sealed clean rooms to keep out microscopic contaminants that ruin wafers, and those rooms are among the most expensive things humans build. Space doesn't have dust. That simple fact is driving one of the most ambitious bets in industrial technology.

The fab that flies

Besxar is a Washington, DC-based startup founded by former OpenAI staffer Ashley Pilipiszyn. It wants to make the key precursors for advanced semiconductors using the vacuum of space. Pilipiszyn argues that even after paying launch and return costs, orbit can produce better wafers for a fraction of the price.

The company has signed a deal with SpaceX to fly 24 of its reusable manufacturing payloads on 12 Falcon 9 launches. Its "Fabships" ride on the rocket's first-stage booster, run a process in space and come back down. The choice of vehicle is deliberate: the Falcon 9 booster made 163 round trips to space last year, more than any other vehicle.

The first results are in. In July, two of Besxar's canisters flew on a Falcon 9 booster and were recovered intact after it landed. One canister's flight data system malfunctioned, but the company says the flown wafer samples showed less contamination than samples produced on Earth.

Besxar has raised nearly \$14 million and plans two more years of testing, with the eventual goal of flying larger fabs on SpaceX's Starship.

It's not only one startup

Besxar has competitors. United Semiconductors and Space Forge are working on similar approaches. Space Forge has switched on its furnace in orbit at 1,000°C and produced plasma, another step toward making high-performance semiconductors there. NASA is also researching in-space chipmaking under the CHIPS Act and its In Space Production Applications programme.

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