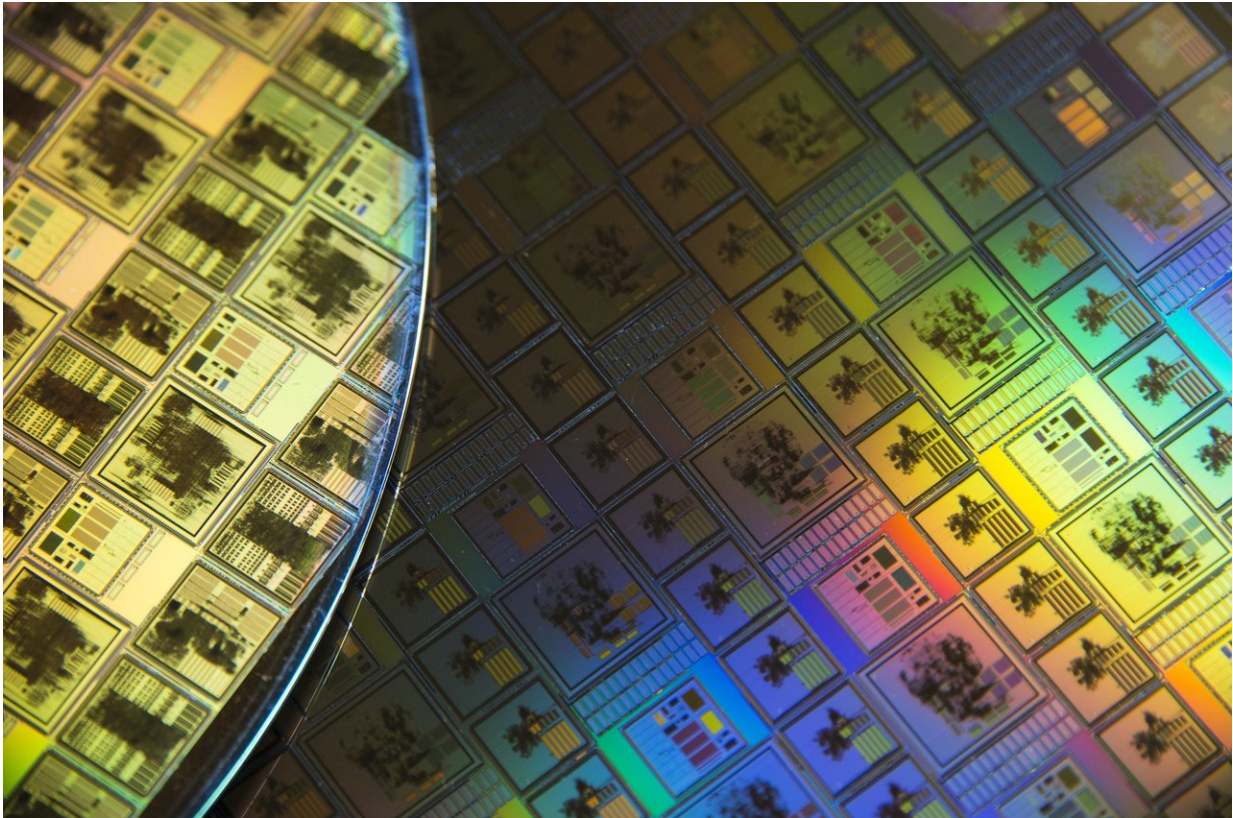


Image: Space chips etched in silicon

December 13 2018



Credit: ESA - Agustin Fernandez-Leon

Multiple integrated circuits destined to serve as the brains of Europe's future space missions are etched together onto single pieces of silicon.

These 20-cm diameter wafers each contain 35 replicas of five different space chips, each incorporating as many as 10 million transistors or basic

circuit switches.

Laid down within a microchip, these designs endow a [space mission](#) with the ability to perform various specialised tasks such as data handling, communications processing or attitude control.

To save money on the high cost of fabrication, various chips designed by different companies and destined for multiple ESA projects are crammed onto the same silicon wafers, etched into place at specialised semiconductor manufacturing plants.

Subjected to various testing procedures the chips on the wafer are chopped up and packaged for use, then mounted on printed circuit boards for connection with other microelectronic components aboard a satellite. Visitors to ESA's ESTEC technical centre can see some of these [silicon wafers](#) exhibited along the establishment's main corridor.

Since 2002, ESA's Microelectronics section has maintained a catalogue of '[building blocks](#)' for chip designs, known as intellectual property cores, available to European industry through ESA licence. For more information, check this recently updated overview of which ESA IP cores are available and how they can be requested and licenced.

Provided by European Space Agency

Citation: Image: Space chips etched in silicon (2018, December 13) retrieved 12 May 2024 from <https://phys.org/news/2018-12-image-space-chips-etched-silicon.html>

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