Chip in another bendy silicon breakthrough

Real flexible computers

By Nick Farrell: Monday 19 December 2005, 06:03

BOFFINS at the University of Illinois at Urbana-Champaign (UIUC) have developed a new form of stretchable silicon which can be used to build computers onto flexible surfaces.

The big idea is that soon it will be possible to build bendable electronic devices on rubber substrates. This means that flexible computers and sensors could be built on artificial muscles or biological tissues and conformable skins for integrated robotic sensors.

The researchers have fabricated the devices on ultra-thin ribbons on a silicon wafer using procedures similar to those used in conventional electronics. Next, using special etching techniques they undercut them to 100 nanometers thick.

Rubber is stretched and placed on top of the ribbons. When this is peeled away the ribbons are lifted off the wafer and stuck to the rubber.

This causes the silicon ribbons and the rubber to buckle into a series of well-defined waves that resemble an accordion.

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