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Boffins build flexible chips

Stretchy silicon on the way

Written by Iain Thomson
vnunet.com, 28 Mar 2008

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Scientists have managed to build silicon circuits that can be bent, twisted and even stretched, according to a paper published in **Science** magazine.

> We have developed a simple approach to high performance, stretchable and foldable integrated circuits
> **University of Illinois**

The chips use silicon which is folded like a concertina and surrounded by rubbery material that allows the entire device to flex.

The end result could be built into clothes, small monitoring devices and even implanted into human bodies.

"We have developed a simple approach to high performance, stretchable and foldable integrated circuits," said the team from the University of Illinois.

"The systems integrate inorganic electronic materials, including aligned arrays of nano-ribbons of single crystalline silicon, with ultra-thin plastic and 'elastomeric' substrates."

The designs combine multilayer neutral mechanical plane layouts and "wavy" structural configurations in silicon complementary logic gates, ring oscillators and differential amplifiers.

Although silicon is a highly brittle substance the folds in the design, and the flexible substrate, make it easy to bend the chip to fit around uneven surfaces like medical probes or bone structures.

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