

Baolab creates nanoscale MEMS inside the CMOS wafer

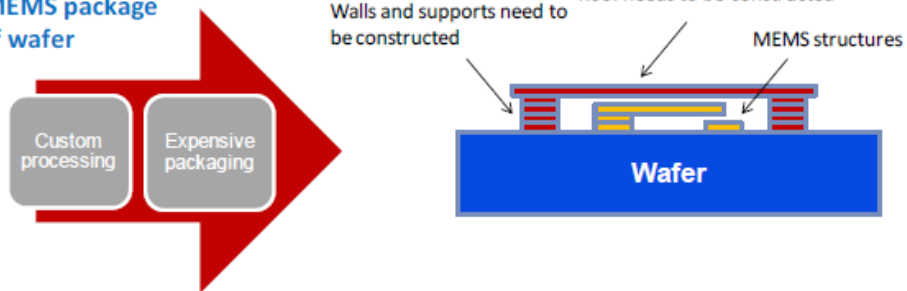
Uses standard CMOS technologies and lines to slash MEMS costs by up to two thirds

Barcelona, Spain – 8 March 2010. Baolab Microsystems has announced a new technology to construct nanoscale MEMS (Micro Electro Mechanical Systems) within the structure of the actual CMOS wafer itself using standard, high volume CMOS lines, which is much easier and quicker with fewer process steps than existing MEMS fabrication techniques that build the MEMS on the surface of the wafer. This significantly reduces the costs of a MEMS by up to two thirds and even more if several different MEMS are created together on the same chip.

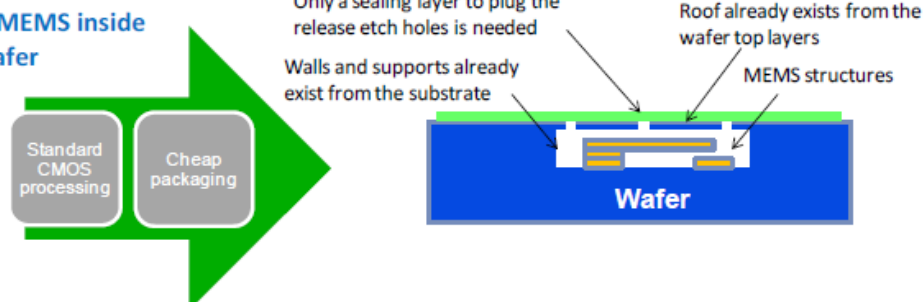
The Baolab **NanoEMS**[™] technology uses the existing metal layers in a CMOS wafer to form the MEMS structure using standard mask techniques. The Inter Metal Dielectric (IMD) is then etched away through the pad openings in the passivation layer using vHF (vapour HF). The etching uses equipment that is already available for volume production and takes less than an hour, which is insignificant compared to the overall production time. The holes are then sealed and the chip packaged as required. As only standard CMOS processes are used, **NanoEMS** MEMS can be directly integrated with active circuitry as required.

“We have solved the challenge of building MEMS in a completely different way,” explained Dave Doyle, Baolab’s CEO. “Existing MEMS technologies are slow, expensive and require specialist equipment. They have to be either built on top of the wafer at a post production stage or into a recess in the wafer. By contrast, our new **NanoEMS** technology enables MEMS to be built using standard CMOS technologies during the normal flow of the CMOS lines.”

Typical MEMS package on top of wafer



Baolab's MEMS inside CMOS wafer



Baolab has successfully created MEMS devices using standard 0.18um 8" volume CMOS wafers with four or more metal layers, and has achieved minimum feature sizes down to 200 nanometres. This is an order of magnitude smaller than is currently possible with conventional MEMS devices, bringing the new **NanoEMS** MEMS into the realm of nanostructures, with the additional benefits of smaller sizes, lower power consumption and faster devices.

Baolab will be making a range of discrete MEMS including RF switches, electronic compasses and accelerometers, along with solutions that combine several functions in one chip. The prototype stage has already proved the **NanoEMS** technology and evaluation samples will be available later this year. These are aimed at handset designers and manufacturers, and Power Amplifier and RF Front End Module markets.

For further information on Baolab Microsystems, please go to www.baolab.com

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