CLAIMS:

1. An apparatus comprising:

an elastomer substrate;

a plurality of meandering traces encapsulated in the elastomer substrate;

a plurality of bond pads encapsulated in the elastomer substrate, wherein bond pads of the plurality of bond pads are electrically coupled through a meandering trace of the plurality of meandering traces;

a material, different from the elastomer substrate, with an elastic modulus between an elastic modulus of the elastomer substrate and the elastic modulus of the meandering traces, between the meandering traces and the elastomer substrate, in direct physical contact with the meandering traces on vertical sides and top and bottom sides of the meandering traces, in direct physical contact with the elastomer substrate, forming an interface between the meandering traces and the elastomer substrate, and encapsulated by the elastomer substrate;

a bendable electronic die with a thickness of between about ten and three hundred microns encapsulated in the elastomer substrate; and

electrical bonds coupling the die to the bond pads.

2. The apparatus of claim 1, wherein the traces are less than 500 nanometers thick.

3. The apparatus of claim 1, wherein the elastomer includes Poly DiMethy Siloxane (PDMS) and the traces include copper.

4. The apparatus of claim 3, wherein the material includes polyimide.

5. The apparatus of claim 3, wherein the material includes at least one of polyethylterephthalate, polyethelenenaphtalate, and polyolephine.