Claims

What is claimed:

1. A semiconductor device, comprising:

a first semiconductor die;

a modular interconnect structure including a conductive via disposed laterally adjacent to the first semiconductor die;

an encapsulant deposited between the first semiconductor die and the modular interconnect structure;

a conductive layer formed over the first semiconductor die and modular interconnect structure; and

a second semiconductor die disposed over the conductive layer, wherein the second semiconductor die includes a microelectromechanical system.

2. The semiconductor device of claim 1, further including an interconnect structure formed over the modular interconnect structure opposite the conductive layer.

3. The semiconductor device of claim 1, wherein an active area of the first semiconductor die remains devoid of the conductive layer.

4. The semiconductor device of claim 1, wherein the first semiconductor die includes a microelectromechanical system.

5. The semiconductor device of claim 1, further including an interposer disposed between the first semiconductor die and the second semiconductor.

6. The semiconductor device of claim 1, wherein the second semiconductor die is disposed with an active surface oriented toward the first semiconductor die.

7. A semiconductor device, comprising:

a first semiconductor die;

a modular interconnect structure disposed laterally adjacent to the first semiconductor die;

a first interconnect structure including a conductive layer and an insulating layer formed over the first semiconductor die and modular interconnect structure with an active region of the first semiconductor die devoid of the first interconnect structure; and

a second semiconductor die disposed over the first semiconductor die, wherein the second semiconductor die includes a microelectromechanical system.

8. The semiconductor device of claim 7, wherein the second semiconductor die is mounted to the first interconnect structure by a bump.

9. The semiconductor device of claim 7, wherein the second semiconductor die is covered by a rigid lid comprising a sacrificial base material selected from the group consisting of silicon, polymer, beryllium oxide, glass, copper, aluminum, ferrite, carbonyl iron, stainless steel, nickel, silver, low carbon steel, silicon-iron steel, and conductive resin.

10. The semiconductor device of claim 7, further including an encapsulant deposited between the first semiconductor die and modular interconnect structure.

11. The semiconductor device of claim 7, wherein the second semiconductor die is disposed with an active surface oriented toward the first semiconductor die.

12. The semiconductor device of claim 7, further including an interposer disposed over the first semiconductor die, the second semiconductor die disposed over the interposer.