Claims

What is claimed:

1. A method of making a semiconductor device, comprising:

providing a first semiconductor wafer including a plurality of first semiconductor die;

singulating the first semiconductor wafer to separate the first semiconductor die;

providing a first carrier, wherein a size of the first carrier is independent of a size of the first semiconductor die and a size of the first semiconductor wafer; and

disposing the first semiconductor die over the first carrier, wherein the first semiconductor die are spaced 300 micrometers (μm) apart from each other or less;

processing the first semiconductor die on the first carrier using a piece of equipment;

providing a second semiconductor wafer including a plurality of second semiconductor die, wherein a size of the second semiconductor die is different from the size of the first semiconductor die;

singulating the second semiconductor wafer to separate the second semiconductor die;

providing a second carrier, wherein a size of the second carrier is substantially equal to the size of the first carrier;

disposing the second semiconductor die over the second carrier, wherein the second semiconductor die are spaced 300 μm apart from each other or less; and

processing the second semiconductor die on the second carrier using the piece of equipment.

2. The method of claim 1, further including:

providing a third semiconductor wafer including a plurality of third semiconductor die, wherein a size of the third semiconductor wafer is substantially equal to the size of the first semiconductor wafer;

singulating the second semiconductor wafer to separate the plurality of second semiconductor die, wherein a size of the third semiconductor die is substantially equal to the size of the first semiconductor die; and

disposing one of the plurality of third semiconductor die over the first carrier with the first semiconductor die, wherein the third semiconductor die is within 300 μm of the first semiconductor die.

3. The method of claim 1, further including depositing an encapsulant over the first semiconductor die and first carrier to form a reconstituted panel.

4. The method of claim 3, further including backgrinding the reconstituted panel to remove a portion of the encapsulant and expose the first semiconductor die.

5. The method of claim 4, further including depositing an insulating layer over the reconstituted panel after backgrinding the reconstituted panel.

6. The method of claim 3, further including singulating the reconstituted panel through the encapsulant, wherein singulating the reconstituted panel fully removes the encapsulant between two adjacent first semiconductor die.

7. The method of claim 1, wherein each semiconductor die disposed on the first carrier includes a first size, and each semiconductor die disposed on the second carrier includes a second size.

8. A method of making a semiconductor device, comprising:

providing a first semiconductor wafer including a plurality of first semiconductor die;

singulating the first semiconductor wafer to separate first semiconductor die;

providing a first carrier, wherein a size of the first carrier is independent of a size of the first semiconductor die and a size of the first semiconductor wafer;

disposing the first semiconductor die over the first carrier;

providing a second semiconductor wafer including a plurality of second semiconductor die, wherein a size of the second semiconductor die is different from the size of the first semiconductor die;

singulating the second semiconductor wafer to separate the second semiconductor die;

providing a second carrier, wherein a size of the second carrier is substantially equal to the size of the first carrier; and

disposing the second semiconductor die over the second carrier.

9. The method of claim 8, further including depositing an encapsulant over the first semiconductor die and first carrier to form a reconstituted panel.

10. The method of claim 9, further including forming an interconnect structure over the first semiconductor die, wherein an inter-die area of the reconstituted panel remains devoid of the interconnect structure.

11. The method of claim 10, further including depositing an insulating layer over the reconstituted panel opposite the interconnect structure.

12. The method of claim 10, further including singulating the reconstituted panel through the inter-die area.

13. The method of claim 12, wherein singulating the reconstituted panel completely removes the encapsulant between two adjacent first semiconductor die.