CLAIMS

1. A method, comprising:

bonding target micro-LEDs to a backplane, the target micro-LEDs are bonded to the backplane via a carrier substrate, the carrier substrate has target micro-LEDs and surplus micro-LEDs between the target micro-LEDs;

disposing an adhesive material, the adhesive material is disposed between the target micro-LEDs, the surplus micro-LEDs, and underside surface of the carrier substrate;

vaporizing a bond between the carrier substrate and the target micro-LEDs; and

removing the carrier substrate with the surplus micro-LEDs.

2. The method of claim 1, further comprising removing the adhesive material before removing the carrier substrate, wherein the adhesive material is disposed between micro-LED isolation structures of the target micro-LEDs and at least one backplane electrode of adjacent target micro-LEDs.

3. The method of claim 1, further comprising removing the adhesive material after removing the carrier substrate, wherein the adhesive material is disposed between micro-LED isolation structures of the target micro-LEDs and at least one backplane electrode of adjacent target micro-LEDs.

4. The method of claim 1, further comprising removing the adhesive material after removing the carrier substrate, wherein the adhesive material is disposed over a micro-LED isolation material, the micro-LED isolation material disposed over the backplane and between the target micro-LEDs and at least one backplane electrode of adjacent target micro-LEDs.

5. The method of claim 1, further comprising removing the adhesive material before removing the carrier substrate, wherein the adhesive material is disposed over a micro-LED isolation material, the micro-LED isolation material disposed over the backplane and between the target micro-LEDs and at least one backplane electrode of adjacent target micro-LEDs.

6. A method, comprising:

bonding micro-LEDs to a backplane, the micro-LEDs are bonded to the backplane via a carrier substrate;

disposing an adhesive material between the micro-LEDs and the carrier substrate;

vaporizing a bond between the carrier substrate and emitting surfaces of the micro-LEDs; and

removing the carrier substrate.

7. The method of claim 6, wherein the bonding of the micro-LEDs to the backplane comprising a melting process that forms an alloy between backplane electrodes and micro-LED electrodes.

8. The method of claim 6, further comprising disposing micro-LED isolation structures on the backplane prior to the bonding of the micro-LEDs to the backplane.

9. The method of claim 8, wherein the carrier substrate comprises the micro-LEDs aligned with backplane electrodes of the backplane during the bonding, and the carrier substrate further comprises surplus micro-LEDs aligned with the micro-LED isolation structures during the bonding of the micro-LEDs to the backplane.

10. The method of claim 6, wherein the adhesive material is disposed in a vacuum environment, and the adhesive material flows into gaps between the micro-LEDS and gaps between the carrier substrate and the backplane.

11. The method of claim 6, wherein the vaporizing includes directing laser light toward the carrier substrate, and the method further comprises removing the adhesive material from the backplane.

12. The method of claim 6, further comprising, after the removing the carrier substrate:

disposing subpixel isolation (SI) structures such that the micro-LEDs are aligned between the SI structures; and

disposing color conversion material in wells between the SI structures.

13. The method of claim 12, further comprising:

disposing a substrate such that the SI structures and the micro-LEDs are between the substrate and the backplane.

14. The method of claim 13, wherein the substrate includes coupled thereto:

isolation matrix structures aligned with the SI structures; and

color filters aligned with the micro-LEDs and the color conversion material.

15. The method of claim 14, further comprising an isolation substrate coupled to the isolation matrix structures and the color filters, wherein the isolation substrate is disposed between the isolation matrix structures and the color filters on a first side, and the SI structures and the color conversion material on a second side.

16. The method of claim 15, further comprising disposing a transparent material in gaps between the backplane and the substrate.

17. The method of claim 16, wherein the transparent material is disposed in gaps between and around the micro-LEDs and the SI structures.

18. A method, comprising:

bonding micro-LEDs to a backplane, the micro-LEDs are bonded to the backplane via a carrier substrate;

removing the carrier substrate;

disposing subpixel isolation (SI) structures such that the micro-LEDs are aligned between the SI structures; and

disposing color conversion material in wells between the SI structures.

19. The method of claim 18, further comprising, prior to the removing of the carrier substrate:

disposing an adhesive material between the micro-LEDs and the carrier substrate; and

breaking a bond between the carrier substrate and emitting surfaces of the micro-LEDs.

20. The method of claim 18, wherein the method further comprises disposing a substrate such that the SI structures and the micro-LEDs are between the substrate and the backplane, and the substrate includes coupled thereto:

isolation matrix structures aligned with the SI structures;

color filters aligned with the micro-LEDs and the color conversion material; and

an isolation substrate coupled to the isolation matrix structures and the color filters, wherein the isolation substrate is disposed between the isolation matrix structures and the color filters on a first side, and the SI structures and the color conversion material on a second side.