CLAIMS

1. A light-emitting diode (LED) lighting strip assembly, comprising:

a first LED board that includes:

a first printed circuit board (PCB) substrate with a first side and a second side opposite the first side of the first PCB substrate,

a plurality of LEDs located on the first side of the first PCB substrate, wherein each LED emits light away from the first side of the first LED board,

an end portion, and

a plurality of compressible electrically conductive members that each extend outward from the second side of the first PCB substrate and are compressible along an axis perpendicular to the second side of the first PCB substrate;

a second LED board that includes:

a second PCB substrate with a first side and a second side opposite the first side of the second PCB substrate,

a plurality of LEDs located on the first side of the second PCB substrate, wherein each LED emits light away from the first side of the second LED board,

an end portion, and

a plurality of compressible electrically conductive members that each extend outward from the second side of the second PCB substrate and are compressible along an axis perpendicular to the second side of the second PCB substrate; and

an interconnect board that includes a third PCB substrate having a first region and a second region, the third PCB substrate including:

a plurality of first electrically conductive pads located on a first side of the third PCB substrate and within the first region of the third PCB substrate, and

a plurality of second electrically conductive pads located on the first side of the third PCB substrate and within the second region of the third PCB substrate, wherein each first electrically conductive pad is electrically connected with at least one of the second electrically conductive pads by an electrically conductive trace of the interconnect board,

wherein:

the end portion of the first LED board is proximate to the end portion of the second LED board,

the first side of the third PCB substrate faces the second side of the first LED board and the second side of the second LED board,

each compressible electrically conductive member of the first LED board is in electrically conductive contact with a corresponding one of the first electrically conductive pads,

each compressible electrically conductive member of the second LED board is in electrically conductive contact with a corresponding one of the plurality of second electrically conductive pads, and

a height of the LED lighting strip assembly is, when each compressible electrically conductive member of the first LED board is in electrically conductive contact with the corresponding one of the first electrically conductive pads and each compressible electrically conductive member of the second LED board is in electrically conductive contact with the corresponding one of the second electrically conductive pads, substantially equal to about a sum of:

a thickness of the third PCB substrate of the interconnect board, and

the greater of the height of the first LED board and the height of the second LED board.

2. The LED lighting strip assembly of claim 1, wherein the compressible electrically conductive members are pogo pins, and each electrically conductive pad of the plurality of first electrically conductive pads and the plurality of second electrically conductive pads is at least larger in area than a cross-sectional area of a plunger of a corresponding pogo pin in the plane of the second side of the LED board in which the pogo pin is mounted.

3. The LED lighting strip assembly of claim 1, wherein each of the compressible electrically conductive members extends at least 0.9 mm from the second side of either the first LED board or the second LED board.

4. The LED lighting strip assembly of claim 1, further comprising:

at least one first hole located in the first region of the third PCB substrate of the interconnect board,

at least one second hole located in the second region of the third PCB substrate of the interconnect board,

at least one hole located in the first LED board and aligned with the at least one hole located in the first region of the third PCB substrate of the interconnect board; and

at least one hole located in the second LED board and aligned with the at least one hole located in the second region of the third PCB substrate of the interconnect board.

5. The LED lighting strip assembly of claim 1, wherein the height of the LED lighting strip assembly is less than 5.5 mm.

6. The LED lighting strip assembly of claim 1, wherein each compressible electrically conductive member is a spring-loaded pin.

7. The LED lighting strip assembly of claim 1, wherein a width of the end portion of the first LED board and a width of the end portion of the second LED board are both less than 12 mm.

8. The LED lighting strip assembly of claim 1, wherein the LEDs in each plurality of LEDs are spaced less than or equal to 12 mm apart center-to-center.

9. A printed circuit board (PCB) interconnect assembly, comprising:

a first board that includes:

a first PCB substrate with a first side and a second side opposite the first side of the first PCB substrate, and

a plurality of compressible electrically conductive members that each extend outward from the second side of the first PCB substrate and are compressible along an axis perpendicular to the second side of the first PCB substrate;

a second board that includes:

a second PCB substrate with a first side and a second side opposite the first side of the second PCB substrate and are compressible along an axis perpendicular to the second side of the PCB substrate, and

a plurality of compressible electrically conductive members that each extend outward from the second side of the second PCB substrate, wherein each compressible electrically conductive member has an outer surface on a side of the compressible electrically conductive member facing away from the first side of the second board; and

an interconnect board that includes a third PCB substrate having a first region and a second region, the third PCB substrate including:

a plurality of first electrically conductive pads located on a first side of the third PCB substrate and within the first region of the third PCB substrate, and

a plurality of second electrically conductive pads located on the first side of the third PCB substrate and within the second region of the third PCB substrate, wherein each first electrically conductive pad is electrically connected with at least

one of the second electrically conductive pads by an electrically conductive trace of the interconnect board,

wherein:

each compressible electrically conductive member of the first board is in electrically conductive contact with a corresponding one of the first electrically conductive pads,

each compressible electrically conductive member of the second board is in electrically conductive contact with a corresponding one of the plurality of second electrically conductive pads, and

a height of the PCB interconnect assembly is, when each compressible electrically conductive member of the first board is in electrically conductive contact with the corresponding one of the first electrically conductive pads and each compressible electrically conductive member of the second board is in electrically conductive contact with the corresponding one of the second electrically conductive pads, substantially equal to about a sum of:

a thickness of the third PCB substrate of the interconnect board, and

the greater of the height of the first LED board and the height of the second LED board.

10. The PCB interconnect assembly of claim 9, wherein the compressible electrically conductive members are pogo pins, and each electrically conductive pad of the plurality of first electrically conductive pads and the plurality of second electrically conductive pads is at least larger in area than a cross-sectional area of a plunger of a corresponding pogo pin in the plane of the second side of the board in which the pogo pin is mounted.

11. The PCB interconnect assembly of claim 9, wherein each of the compressible electrically conductive members extend at least 0.9 mm from the second side of either the first board or the second board.

12. The PCB interconnect assembly of claim 9, further comprising:

at least one first hole located in the first region of the third PCB substrate of the interconnect board,

at least one second hole located in the second region of the third PCB substrate of the interconnect board,

at least one hole located in the first board and aligned with the at least one hole located in the first region of the third PCB substrate of the interconnect board; and

at least one hole located in the second board and aligned with the at least one hole located in the second region of the third PCB substrate of the interconnect board.

13. The PCB interconnect assembly of claim 9, wherein the height of the PCB interconnect assembly is less than 5.5 mm.

14. The PCB interconnect assembly of claim 9, wherein each compressible electrically conductive member is a spring-loaded pin.

15. The PCB interconnect assembly of claim 9, wherein a width of the first board and a width of the second board are both less than 12 mm.

16. A method of assembling an LED lighting strip assembly, comprising:

placing an interconnect board having a first printed circuit board (PCB) substrate onto a supporting structure, wherein:

the first PCB substrate has a first electrically conductive pad located on a first side of the first PCB substrate within a first region of the first PCB substrate

and a second electrically conductive pad located on the first side of the first PCB substrate within a second region of the first PCB substrate, and

the first electrically conductive pad is electrically connected with the second electrically conductive pad by an electrically conductive trace of the interconnect board;

placing a first LED board having a second PCB substrate with one or more LEDs located on a first side thereof such that a second side of the second PCB substrate opposite the first side of the second PCB substrate is proximate to the first side of the first PCB substrate of the interconnect board and such that a first compressible electrically conductive member extending outward from the second side of the first LED board is in electrically conductive contact with the first electrically conductive pad, wherein the first compressible electrically conductive member is compressible along an axis perpendicular to the second side of the second PCB substrate;

placing a second LED board having a third PCB substrate with one or more LEDs located on a first side thereof such that a second side of the third PCB substrate opposite the first side of the third PCB substrate is proximate to the first side of the first PCB substrate and such that a second compressible electrically conductive member extending outward from the second side of the second LED board is in electrically conductive contact with the second electrically conductive pad, wherein the second compressible electrically conductive member is compressible along an axis perpendicular to the second side of the third PCB substrate; and

applying one or more compressive forces to the first LED board and the second LED board to mechanically couple the first LED board and the second LED board to at least one of the interconnect board or a support structure.

17. The method of claim 16, wherein the first compressible electrically conductive member and second compressible electrically conductive member are pogo pins, and each electrically conductive pad of the first electrically conductive pad and the second electrically conductive pad are at least larger in area than a cross-sectional area of a plunger of a corresponding pogo pin in the plane of the second side of the LED board in which the pogo pin is mounted.

18. The method of claim 16, wherein the first compressible electrically conductive member and the second compressible electrically conductive member extend at least 0.9 mm from the second side of either the first LED board or the second LED board.

19. The method of claim 16, wherein the one or more LEDs of the first LED board and the one or more LEDs of the second LED board are spaced less than or equal to 12 mm apart center-to-center.

20. The method of claim 16, wherein a height of the LED lighting strip assembly is, when the first compressible electrically conductive member of the first LED board is in electrically conductive contact with the first electrically conductive pad and the second compressible electrically conductive member of the second LED board is in electrically conductive contact with the second electrically conductive pad, substantially equal to about a sum of:

a thickness of the first PCB substrate of the interconnect board, and

the greater of the height of the first LED board and the height of the second LED board.