Claims

1. An apparatus, comprising:

a first circuit board having a first side surface, a second side surface opposite the first side surface, a first end surface and a second end surface opposite the first end surface, the first side surface and the second side surface each being different than both the first end surface and the second end surface, the first circuit board defining a width between the first side surface and the second side surface, the first circuit board defining a length between the first end surface and the second end surface;

a first connector mounted to the circuit board such that an exterior surface of the first connector is substantially aligned with one of the first side surface and the second side surface of the first circuit board; and

a second connector mounted to the circuit board such that an exterior surface of the second connector is substantially aligned with one of the first end surface and the second end surface of the first circuit board,

the first connector including at least one first conductor configured to engage a second conductor on a third connector coupled to a second circuit board, the second connector including at least one third conductor configured to engage a fourth conductor on a fourth connector coupled to a third circuit board.

2. The apparatus of claim 1, wherein the first connector includes a first mounting portion configured to be received within a first opening from a plurality of openings defined in a mounting board and a second mounting portion configured to be received within a second opening from the plurality of openings defined in the mounting board, the second connector includes a first mounting portion configured to be received within a third opening from the plurality of openings defined in the mounting board and a second mounting portion configured to be received within a fourth opening from the plurality of openings defined in the mounting board.

3. The apparatus of claim 1, further comprising:

a mounting board having a first side defining a plurality of openings and a second side including a plurality of projections,

the first connector and the second connector each configured to be removably coupled to the first side of the mounting board~~,~~

the second side of the mounting board configured to be removably coupled to at least one block having a projection and being from an interlocking block system.

4. The apparatus of claim 1, wherein the first connector has a first height and includes a first mounting portion and a second mounting portion each configured to be received within a different opening defined in a mounting board, the apparatus further comprising:

a first adapter configured to be coupled to a bottom surface of the first mounting portion; and

a second adapter configured to be coupled to a bottom surface of the second mounting portion,

the first connector having a second height when the first adapter and the second adapter are coupled to the first connector, the second height being greater than the first height.

5. The apparatus of claim 1, wherein the second connector includes a first mounting portion and a second mounting portion, the apparatus further comprising:

the second circuit board,

the third connector mounted to the second circuit board such that an exterior surface of the third connector is substantially aligned with an end surface of the second circuit board, the third connector of the second circuit board including a first mounting portion and a second mounting portion,

the first mounting portion of the second connector configured to be received within a first opening from a plurality of openings defined in a mounting board and the second mounting portion of the second electrical connector configured to be received within a second opening from the plurality of openings to removably couple the first circuit board to the mounting board,

the first mounting portion of the third connector mounted to the second circuit board configured to be received within the first opening and the second mounting portion of the third connector mounted to the second circuit board configured to be received within the second opening, to removably couple the second circuit board to the mounting board.

6. The apparatus of claim 1, wherein the at least one first conductor of the first connector has an engagement portion configured to engage the second conductor on the third connector of the second circuit board, and has a coupling portion monolithically formed with the engagement portion.

7. An apparatus, comprising:

a first circuit board having a length, a first exterior side surface along the length and a second exterior side surface along the length on an opposite side of the first circuit board;

a first connector including an exterior side surface and an exterior end surface different than the exterior side surface of the first connector, the first connector mounted to the first circuit board such that one of the first exterior side surface and the second exterior side surface of the first circuit board is substantially aligned in a same plane with the exterior side surface of the first connector, the first connector having a first conductor, a portion of the first conductor extending from the exterior end surface of the first connector;

a second circuit board having a length, a first exterior side surface along the length and a second exterior side surface along the length on an opposite side of the second circuit board; and

a second connector having an exterior side surface and an exterior end surface different than the exterior side surface of the second connector, the second connector mounted to the second circuit board such that one of the first exterior side surface and the second exterior side surface of the second circuit board is substantially aligned in a same plane with the exterior side surface of the second connector, the second connector having a second conductor, a portion of the second conductor extending from the exterior end surface of the second connector and configured to engage the first conductor on the first connector.

8. The apparatus of claim 7, wherein the exterior end surface of the first connector and the exterior end surface of the second connector each include a first elongate portion extending in a vertical direction and a second elongate portion extending in a horizontal direction, the first elongate portion of the first connector configured to contact the first elongate portion of the second connector, the second elongate portion of the first connector configured to contact the second elongate portion of the second connector when the first connector is coupled to the second connector.

9. The apparatus of claim 7, further comprising:

a mounting board having a first side defining a plurality of openings and a second side including a plurality of projections,

the first connector and the second connector each configured to be removably coupled to the first side of the mounting board,

the second side of the mounting board configured to be removably coupled to at least one block having a projection and being from an interlocking block system.

10. The apparatus of claim 7, wherein the first connector includes a first mounting portion configured to be received within a first opening from a plurality of openings defined in a mounting board and a second mounting portion configured to be received within a second opening from the plurality of openings defined in the mounting board to removably couple the first circuit board to the mounting board,

the second connector includes a first mounting portion configured to be received within the first opening in the mounting board and a second mounting portion configured to be received within the second opening in the mounting board to removably couple the second circuit board to the mounting board.

11. The apparatus of claim 7, wherein the first connector has a first height and includes a first mounting portion and a second mounting portion each configured to be received within a different opening defined in a mounting board, the apparatus further comprising:

a first adapter configured to be coupled to a bottom surface of the first mounting portion; and

a second adapter configured to be coupled to a bottom surface of the second mounting portion,

the first connector having a second height when the first adapter and the second adapter are coupled to the first connector, the second height being greater than the first height.

12. The apparatus of claim 7, wherein:

the first connector includes a first mounting portion configured to be received within a first opening defined in a support member and a second mounting portion configured to be received within a second opening defined in the support member,

the second connector includes a first mounting portion configured to be received within the first opening of the support member and a second mounting portion configured to be received within the second opening of the support member, the support member configured to maintain the first connector coupled to the second connector.

13. An apparatus, comprising:

a first circuit board having a first end surface and a second end surface, a first side surface and a second side surface, each of the first side surface and the second side surface being different than both the first end surface and the second end surface, the first circuit board having a length defined between the first end surface and the second end surface and a width defined between the first side surface and the second side surface;

a first connector having a first housing, the first housing fixedly mounted to the circuit board adjacent the first end surface of the first circuit board; and

a second connector having a second housing separate from the first housing, the second housing fixedly mounted to the first circuit board adjacent the second end surface of the first circuit board,

the first connector including at least one first conductor, a portion of the at least one first conductor extending outwardly from an exterior surface of the first housing and configured to contact a second conductor on a third connector coupled to a second circuit board,

the first connector includes a first mounting portion configured to couple the first connector to a mounting board and a second mounting portion configured to couple the first connector to the mounting board, the second connector includes a first mounting portion configured to couple the second connector to the mounting board and a second mounting portion configured to couple the second connector to the mounting board.

14. The apparatus of claim 13, wherein the second connector includes a third conductor configured to engage a fourth conductor on a fourth connector coupled to a third circuit board.

15. The apparatus of claim 1, wherein:

the first connector is fixedly mounted to the first circuit board; and

the second connector is fixedly mounted to the first circuit board.

16. The apparatus of claim 1, wherein the first circuit board has a top surface and a bottom surface, each of the top surface and the bottom surface being different than both the first side surface and the second side surface and both the first end surface and the second end surface.

17. The apparatus of claim 1, wherein the first connector is mounted directly to the first circuit board, and the second connector is mounted directly to the first circuit board.

18. An apparatus, comprising:

a circuit board having a top surface and a bottom surface opposite the top surface, a first end surface and a second end surface opposite the first end surface, the top surface and the bottom surface each being different than and excluding each of the first end surface and the second end surface;

a first connector having a first housing, a first mounting portion and a second mounting portion, the first housing fixedly mounted to the circuit board adjacent the first end surface of the circuit board such that the first mounting portion and the second mounting portion each extend below the bottom surface of the circuit board, the first mounting portion and the second mounting portion each configured to be coupled to a mounting board; and

a second connector having a second housing, a third mounting portion and a fourth mounting portion, the second housing fixedly mounted to the circuit board adjacent the second end surface of the circuit board such that the third mounting portion and the fourth mounting portion each extend below the bottom surface of the circuit board, the third mounting portion and the fourth mounting portion each configured to be coupled to the mounting board.

19. The apparatus of claim 18, further comprising:

at least one electrical component disposed on a top surface of the first circuit board and between the first connector and the second connector such that the electrical component is visibly and physically accessible to a user.

20. The apparatus of claim 18, wherein the first mounting portion and the second mounting portion of the first connector complimentarily mate with a first portion of the mounting board and a second portion of the mounting board, respectively, the third mounting portion and the

fourth mounting portion of the second connector complimentarily mate with a third portion of the mounting board and a fourth portion of the mounting board, respectively.

21. The apparatus of claim 18, wherein the first circuit board has a first side surface and a second side surface, each of the first side surface and the second side surface being different than both the first end surface and the second end surface,

the first mounting portion of the first connector is disposed at a first corner of the first circuit board between the first side surface and the first end surface of the first circuit board, the second mounting portion disposed at a second corner of the first circuit board between the second side surface and the first end surface of the first circuit board,

the third mounting portion disposed at a third corner of the first circuit board between the first side surface and the second end surface of the first circuit board, and the fourth mounting portion disposed at a fourth corner of the first circuit board between the second side surface and the second end surface of the first circuit board.

22. The apparatus of claim 18, wherein the first circuit board has a first side surface and a second side surface, each of the first side surface and the second side surface being different than both the first end surface and the second end surface,

the first circuit board has a first cut-out portion at a first corner between the first side surface and the first end surface of the first circuit board, a second cut-out portion at a second corner between the second side surface and the first end surface of the first circuit board, a third cut-out portion at a third corner between the first side surface and the second end surface of the first circuit board, and a fourth cut-out portion at a fourth corner between the second side surface and the second end surface of the first circuit board,

the first mounting portion disposed at least partially within the first cut-out portion, the second mounting portion disposed at least partially within the second cut-out portion, the third mounting portion disposed at least partially within the third cut-out portion, and the fourth mounting portion disposed at least partially within the fourth cut-out portion.

23. An apparatus, comprising:

a first circuit board having a first end surface and a second end surface, a first side surface and a second side surface, each of the first side surface and the second side surface being different than both the first end surface and the second end surface;

a first connector having a first housing mounted to the first circuit board adjacent the first end surface of the first circuit board; and

a second connector having a second housing separate from the first housing, the second housing mounted to the first circuit board adjacent the second end surface of the first circuit board,

the first connector including at least one first conductor, a portion of the at least one first conductor extending from an exterior surface of the first housing and configured to contact a second conductor on a third connector mounted to a second circuit board,

the first connector includes a first mounting portion configured to removably couple the first connector to a mounting board and a second mounting portion configured to removably couple the first connector to the mounting board, the second connector includes a first mounting portion configured to removably couple the second connector to the mounting board and a second mounting portion configured to removably couple the second connector to the mounting board,

the first mounting portion and the second mounting portion of the first connector each configured to removably couple the first connector to the mounting board such that the first connector spans across three mounting sections of the mounting board with the first mounting portion engaged with a first mounting section of the mounting board, the second mounting portion engaged with a second mounting section of the mounting board, and a third mounting section of the mounting board being disposed between the first mounting section and the second mounting section and not contacting the first connector.

24. The apparatus of claim 23, wherein the first mounting portion and the second mounting portion of the first connector complimentarily mate with a first portion of the mounting board and a second portion of the mounting board, respectively, the first mounting portion and the second mounting portion of the second connector complimentarily mate with a third portion of the mounting board and a fourth portion of the mounting board, respectively.

25. The apparatus of claim 23, wherein the first housing is fixedly mounted to the first circuit board and the second housing is fixedly mounted to the first circuit board.

26. The apparatus of claim 23, wherein the first mounting portion of the first connector is disposed at a first corner of the first circuit board between the first side surface and the first end surface of the first circuit board, and the second mounting portion of the first connector is disposed at a second corner of the first circuit board between the second side surface and the first end surface of the first circuit board,

the first mounting portion of the second connector is disposed at a third corner of the first circuit board between the first side surface and the second end surface of the first circuit board, and the second mounting portion of the second connector is disposed at a fourth corner of the first circuit board between the second side surface and the second end surface of the first circuit board.

27. The apparatus of claim 23, wherein the first circuit board defines a first cut-out portion at the first corner, a second cut-out portion at the second corner, a third cut-out portion at the third corner, and a fourth cut-out portion at the fourth corner,

the first mounting portion of the first connector disposed at least partially within the first cut-out portion, the second mounting portion of the first connector disposed at least partially within the second cut-out portion, the first mounting portion of the second connector disposed at least partially within the third cut-out portion, and the second mounting portion of the second connector disposed at least partially within the fourth cut-out portion.

28. The apparatus of claim 23, wherein the first mounting portion and the second mounting portion of the second connector are each configured to removably couple the second connector to the mounting board such that the second connector spans across three mounting sections of the mounting board different than the three mounting sections of the mounting board to which the first connector spans.

29. An apparatus, comprising:

a first circuit board having a first end surface and a second end surface, a first side surface and a second side surface, each of the first side surface and the second side surface being

different than both the first end surface and the second end surface, the first circuit board having a length defined between the first end surface and the second end surface and a width defined between the first side surface and the second side surface;

a first connector having a first housing mounted to the first circuit board adjacent the first end surface of the first circuit board; and

a second connector having a second housing separate from the first housing, the second housing mounted to the first circuit board adjacent the second end surface of the first circuit board,

the first connector including at least one first conductor, a portion of the at least one first conductor extending from an exterior of the first housing and configured to engage a second conductor on a third connector coupled to a second circuit board,

the first connector including a first mounting portion disposed at a first corner of the first circuit board between the first side surface and the first end surface of the first circuit board, and a second mounting portion disposed at a second corner of the first circuit board between the second side surface and the first end surface of the first circuit board, the first mounting portion and the second mounting portion each configured to couple the first connector to a mounting board,

the second connector including a third mounting portion disposed at a third corner of the first circuit board between the first side surface and the second end surface of the first circuit board, and a fourth mounting portion disposed at a fourth corner of the first circuit board between the second side surface and the second end surface of the first circuit board, the third mounting portion and the fourth mounting portion each configured to couple the first connector to the mounting board.

30. The apparatus of claim 29, wherein the first circuit board defines a first cut-out portion at the first corner, a second cut-out portion at the second corner, a third cut-out portion at the third corner, and a fourth cut-out portion at the fourth corner,

the first mounting portion disposed at least partially within the first cut-out portion, the second mounting portion disposed at least partially within the second cut-out portion, the third mounting portion disposed at least partially within the third cut-out portion, and the fourth mounting portion disposed at least partially within the fourth cut-out portion.

31. The apparatus of claim 29, wherein the first mounting portion and second mounting portion of the first connector are configured to removably couple the first connector to the mounting board such that the first connector spans across three mounting sections of the mounting board,

the third mounting portion and fourth mounting portion of the second connector are configured to removably couple the second connector to the mounting board such that the second connector spans across three mounting sections of the mounting board different than the three mounting sections of the mounting board to which the first connector spans.

32. The apparatus of claim 29, wherein the first mounting portion and the second mounting portion of the first connector complimentarily mate with a first portion of the mounting board and a second portion of the mounting board, respectively, the third mounting portion and the fourth mounting portion of the second connector complimentarily mate with a third portion of the mounting board and a fourth portion of the mounting board, respectively.

33. The apparatus of claim 7, wherein:

the first connector is fixedly mounted to the first circuit board; and

the second connector is fixedly mounted to the second circuit board.