CLAIMS

1. A satellite subsystem PCB comprising

a first planar surface;

a second planar surface opposite the first planar surface;

at least a first pair of connectors on the first planar surface, each connector capable of electrically connecting a PC104 form factor PCB to the subsystem PCB; and

a further pair of connectors on the second planar surface, each connector capable of electrically connecting one PC104 form factor PCB to the subsystem PCB;

wherein the first pair of connectors are positioned on the first planar surface for allowing respective PC104 form factor PCBs to be spatially arranged in a side-by-side configuration when electrically connected to the subsystem PCB; and

wherein the further pair of connectors are positioned on the second planar surface for allowing respective PC104 form factor PCBs to be spatially arranged in a side-by-side configuration when electrically connected to the subsystem PCB.

2. The satellite subsystem PCB according to claim 1, wherein the connectors are positioned to allow respective planar surfaces of the PC104 form factor PCBs to be substantially parallel with the first and second planar surfaces of the satellite subsystem PCB.

3. The satellite subsystem PCB according to claim 1 or 2, wherein the pair of connectors are orientated in a substantially identical manner, for allowing respective PC104 form factor PCBs to be orientated on the subsystem PCB in a substantially identical manner, relative to the subsystem PCB, when electrically connected to the subsystem PCB.

4. The satellite subsystem PCB according to any one of claims 1 to 3, further comprising one or more system connectors for electrically connecting to a main satellite system.

5. The satellite subsystem PCB according to claim 4,

wherein the one or more system connectors are positioned at a first edge of the satellite subsystem PCB for allowing the satellite subsystem PCB to be installed on the main satellite system, such that the planar surface of the satellite subsystem PCB is substantially perpendicular to a backplane PCB of the main satellite system.

6. The satellite subsystem PCB according to claim 4 or 5,

wherein each of the one or more system connectors comprises a plurality of pins for transmission of power and/or signals.

7. The satellite subsystem PCB according to claim 6,

wherein one portion of the plurality of pins is configured for transmission of power and another portion of the plurality of pins is configured for transmission of signals.

8. The satellite subsystem PCB according to claim 5 or 6, wherein the satellite subsystem PCB comprises a first system connector configured for transmission of power; and a second system connector configured for transmission of signals.

9. The satellite subsystem PCB according to any one of claims 1 to 8, further comprising additional connectors on the first planar surface and the second planar surface,

wherein the additional connectors are positioned for receiving a customized PCB on each of the first and second planar surfaces,

wherein the customized PCB is based on a different form factor from the PC104 form factor.

10. The satellite subsystem PCB according to any one of claims 5 to 9,

further comprising one or more external connectors positioned at a second edge of the satellite subsystem PCB,

wherein the one or more external connectors are configured for connecting to respective one or more external modules.

11. The satellite subsystem PCB of claim 10, wherein the external modules consist of

one or more sensors selected from the group consisting of sun sensors, star tracker, fiber optic gyroscope, and magnetometer;

one or more actuators selected from the group consisting of reaction wheels, magnetic torquers and thrusters; and

one or more non-CubeSat based products selected from the group consisting of battery pack, high resolution camera, high gain antenna and remote sensing instrument.

12. The satellite subsystem PCB according to any one of claims 1 to 11, further comprising one or more mounting holes for physically securing the PC104 form factor PCB onto the subsystem PCB.

13. A method for configuring a satellite subsystem PCB, the method comprising

fabricating a PCB having a first planar surface and a second planar surface opposite the first planar surface;

fabricating at least a first pair of connectors on the first planar surface, each connector capable of electrically connecting a PC104 form factor PCB to the subsystem PCB; and

fabricating a further pair of connectors on the second planar surface, each connector capable of electrically connecting one PC104 form factor PCB to the subsystem PCB;

wherein the first pair of connectors on the first planar surface are fabricated in respective positions for allowing respective PC104 form factor PCBs to be spatially arranged in a side-by-side configuration when electrically connected to the subsystem PCB; and

wherein the further pair of connectors are fabricated in respective positions on the second planar surface for allowing respective PC104 form factor PCBs to be spatially arranged in a side-by-side configuration when electrically connected to the subsystem PCB.

14. A satellite system comprising,

one or more subsystem PCBs as claimed in any one of claims 1 to 12;

a backplane PCB for implementing a satellite bus interface between the one or more subsystem PCBs, said backplane PCB comprising

a planar surface;

a plurality of slots provided on the planar surface of the backplane PCB, each slot for allowing a subsystem PCB to be installed thereon;

wherein each of the one or more subsystems is installed with their respective planes being substantially perpendicular to the planar surface of the backplane PCB.

15. The satellite system according to claim 14, wherein the satellite bus interface comprises a main line and a redundant line.

16. The satellite system according to claim 14 or 15, wherein the backplane PCB is expandable to scale the form factor of the satellite system.

17. The satellite system according to any one of claims 14 to 16, wherein the satellite bus interface consists of one or more bus standards selected from the group consisting of CAN, I2C, SPI, SpaceWire, LVDS, RS-422, RS-232 and RS-485.

18. A method for configuring a satellite system, comprising

providing a backplane PCB, said backplane PCB comprising

a planar surface;

a plurality of slots provided on the planar surface of the backplane PCB, each slot for allowing a subsystem PCB to be installed thereon;

installing one or more satellite subsystem PCBs as claimed in any one of claims 1 to 12 to the backplane PCB via the plurality of slots;

wherein the backplane PCB is configured to implement a satellite bus interface between the subsystem PCBs installed thereon; and each of the one or more subsystems is positioned with its respective plane being substantially perpendicular to the planar surface of the backplane PCB.