CLAIMS

1. A device, comprising:

an interposer having a first quantum chip and a second quantum chip;

an electrical conductor comprising at least one of a pogo pin or a land grid array; and

a readout resonator of the first quantum chip routed to an inner portion of the interposer, wherein the inner portion is located between the first quantum chip and the second quantum chip, and the readout resonator is coupled to a printed circuit board by the electrical conductor.

2. The device of claim 1, further comprising:

at least two connection buses coupling the first quantum chip and the second quantum chip, the at least two connection buses located on the inner portion, wherein the readout resonator is located between the at least two connection buses.

3. The device of claim 2, wherein the electrical conductor is skew to the at least two connection buses.

4. The device of claim 3, wherein the printed circuit board is substantially parallel to the interposer and opposes a front side of the interposer.

5. The device of claim 3, further comprising a second electrical conductor, wherein the second electrical conductor is a through-silicon via, and wherein the printed circuit board is substantially parallel to the interposer and opposes a back side of the interposer.

6. The device of claim 2, further comprising:

a second readout resonator of the first quantum chip routed to a peripheral portion of the interposer, the peripheral portion circumscribing the first quantum chip and the second quantum chip.

7. An apparatus, comprising:

a substrate having a plurality of qubit chips; and

one or more resonators coupled to qubits on the plurality of qubit chips, the one or more resonators routed to one or more inner regions of the substrate such that a routed path between the qubits on the plurality of qubit chips and the one or more inner regions positioned between one or more pairs of adjacent chips of the plurality of qubit chips is unobstructed.

8. The apparatus of claim 7, wherein the one or more pairs of adjacent chips of the plurality of qubit chips are coupled together via buses positioned on the one or more inner regions, wherein the one or more resonators are positioned between the buses.

9. The apparatus of claim 8, wherein the one or more resonators are coupled to a printed circuit board via one or more conductors that are skew to the buses.

10. The apparatus of claim 9, wherein the one or more conductors comprise at least one of pogo pins, land grid arrays, or through-silicon vias.

11. An interposer, comprising:

quantum chips; and

quantum input/output ports routed between adjacent pairs of the quantum chips, wherein the quantum input/output ports are located on a peripheral portion of the interposer.

12. The interposer of claim 11, further comprising:

cross-chip lines coupling the adjacent pairs of the quantum chips, the cross-chip lines located between the adjacent pairs of the quantum chips, wherein the quantum input/output ports are located between the cross-chip lines.

13. The interposer of claim 12, wherein a printed circuit board is coupled to the quantum input/output ports by pins that are skew to the cross-chip lines.