WHAT IS CLAIMED IS:

1. ~~1.~~ A phased array antenna system, comprising:

a beam forming network to convert between a plurality of element signals at a plurality of element signal ports and a beam signal at a common signal port, the beam forming network being located on one or more layers of a printed circuit board (PCB);

a first signal routing circuit to provide a control signal from a controller to the common signal port, wherein the beam forming network distributes the control signal to each of the plurality of element signal ports; and

a plurality of control circuits located on a first layer of the PCB, each control circuit having a first port coupled to a corresponding element signal port of the plurality of element signal ports and a second port coupled to a corresponding antenna element, the antenna elements corresponding to each of the control circuits being located on a second layer of the PCB, each of the plurality of control circuits comprising:

a second signal routing circuit coupled to the first port, the second signal routing circuit to establish an element signal path for a corresponding element signal of the plurality of element signals communicated between the first port and the second port, and to establish a control signal path for the control signal received via the first port, and

a first signal adjustment circuit along the element signal path and the control signal path, the first signal adjustment circuit to adjust the corresponding element signal based at least in part on the control signal.

~~2.~~

2. The phased array antenna system of ~~claim~~ 1, wherein the first signal routing circuit comprises:

a multiplexer that multiplexes the control signal and the beam signal to generate a composite multiplexed signal comprising the control signal and the beam signal.

3. ~~3.~~ The phased array antenna system of ~~claim~~ 2, wherein the control signal and the beam signal occupy non-overlapping frequency bands.

~~4.~~

4. The phased array antenna system of claim 2, wherein the composite multiplexed signal further comprises a power signal multiplexed with the control signal and the beam signal.

~~5.~~

5. The phased array antenna system of claim 4, wherein each control circuit of the plurality of control circuits comprises a decoupler to obtain the power signal for supplying power to each of the control circuits.

~~6. The phased array antenna system of any one of claims 1 through 5, wherein the first signal routing circuit further provides a power signal to the common signal port, wherein the beam forming network distributes the power signal to each of the plurality of element signal ports.~~

~~7. The phased array antenna system of claim 6, wherein the beam signal comprises a receive beam signal and the power signal is multiplexed with the receive beam signal.~~

~~8. The phased array antenna system of~~

6. The phased array antenna system of claim 2, wherein the beam forming network converts between the composite multiplexed signal and a plurality of individual multiplexed signals at the plurality of element signal ports.

~~9.~~

7. The phased array antenna system of claim ~~8~~6, wherein the second signal routing circuit of each of the plurality of control circuits demultiplexes one of the plurality of individual multiplexed signals to obtain the control signal and the corresponding element signal of the plurality of element signals.

~~10.~~

8. The phased array antenna system of ~~any one~~ claim 1, wherein the first signal routing circuit further provides a power signal to the common signal port, wherein the beam forming network distributes the power signal to each of ~~claims 1 through 9~~the plurality of element signal ports.

9. The phased array antenna system of claim 8, wherein the beam signal comprises a receive beam signal and the power signal is multiplexed with the receive beam signal.

10. The phased array antenna system of claim 1, wherein the second signal routing circuit comprises:

a multiplexer that multiplexes a respective control signal from the first port of the respective control circuit to the first signal adjustment circuit and a respective element signal from the second port of the respective control circuit to the first port of the respective control circuit.

~~11.~~

11. The phased array antenna system of ~~-~~ claim 10, wherein the beam forming network converts the control signal at the common signal port to a plurality of individual control signals at the plurality of element signal ports and from a plurality of individual multiplexed signals at the plurality of element signal ports to a composite multiplexed signal at the common signal port.

~~12.~~

12. The phased array antenna system of ~~–~~ claim 11, wherein the first signal routing circuit demultiplexes the composite multiplexed signal to obtain the beam signal.

~~13.~~

13. The phased array antenna system of ~~any one of claims~~ claim 1 ~~through 12~~, wherein the beam forming network comprises one or more combiner/dividers between the common signal port and the plurality of element signal ports, the one or more combiner/dividers being located on the one or more layers of the PCB.

~~14.~~

14. The phased array antenna system of ~~any one of claims~~ claim 1 ~~through 13~~, wherein the control signal comprises a plurality of adjustment values and corresponding address indicators, wherein each of the address indicators identifies an address of one of the control circuits of the plurality of control circuits for which the corresponding adjustment value of the control signal is intended.

~~15.~~

15. The phased array antenna system of ~~-~~ claim 14, wherein each of the plurality of control circuits identifies its respective address based at least in part on respective coupling of a plurality of address pins.

~~16.~~

16. The phased array antenna system of ~~-~~ claim 14, wherein each of the plurality of control circuits identifies its respective address based at least in part on one or more of a row voltage obtained by a row voltage divider, a column voltage obtained by a column voltage divider, or a combination thereof, each row voltage divider comprising a plurality of row voltage divider elements and each column voltage divider comprising a plurality of column voltage divider elements.

~~17.~~

17. The phased array antenna system of ~~-~~ claim 14, wherein adjacent control circuits of the plurality of control circuits have addresses, the addresses having a single different address bit value.

~~18.~~

18. The phased array antenna system of claim 14, wherein the address indicators comprise at least one error correction bit.

~~19.~~

19. The phased array antenna system of ~~any one of claims~~ claim 1 ~~through 18~~, wherein the first signal adjustment circuits of the plurality of control circuits apply respective first signal adjustments to respective element signals to obtain respective ones of a plurality of adjusted element signals.

~~20.~~

20. The phased array antenna system of claim 19, wherein the beam signal comprises a receive beam signal, and the beam forming network combines the plurality of adjusted element signals to obtain the receive beam signal.

~~21.~~

21. The phased array antenna system of claim 19, wherein the beam signal comprises a transmit beam signal, and the beam forming network divides the transmit beam signal to obtain the plurality of element signals, and wherein the respective adjusted element signals are transmitted by the corresponding antenna elements.

~~22.~~

22. The phased array antenna system of claim 19, wherein the first signal adjustment circuit comprises an amplifier to apply an amplitude adjustment, a phase shifter to apply a phase adjustment, or a combination thereof.

~~23.~~

23. The phased array antenna system of claim 19, wherein the controller determines a second signal adjustment and provides the second signal adjustment to the respective control circuit while the first signal adjustment circuit is operating according to the first signal adjustment, the second signal adjustment to be applied subsequent to the first signal adjustment.

~~24.~~

24. The phased array antenna system of claim 23, wherein the first signal adjustment and the second signal adjustment are associated with different frequency bands.

~~25.~~

25. The phased array antenna system of ~~any one of claims~~ claim 1 ~~through 24~~, wherein the first signal adjustment circuits of the plurality of control circuits comprise receive adjustment circuits to adjust ~~a~~respective receive element ~~signal~~signals received via the corresponding antenna element, and wherein each of the plurality of control circuits comprises a transmit signal adjustment circuit to adjust a transmit element signal to be transmitted via the corresponding antenna element.

~~26.~~

26. The phased array antenna system of claim 25, wherein each of the corresponding antenna elements comprises a first antenna element coupled with the receive element signal and a second antenna element coupled with the transmit element signal.

~~27.~~

27. The phased array antenna system of ~~any one of claims~~ claim 1 ~~through 26~~, wherein the antenna elements comprise patch antennas located on the second layer of the PCB.

28. ~~28.~~ The phased array antenna system of ~~any one of claims~~ claim 1 ~~through 27~~, wherein the first layer of the PCB and the second layer of the PCB are a same layer.