Chip-to-Chip Switched-Beam Antenna Array With Integrated Feed Network

Title: Chip-to-Chip Switched Beam Antenna Array with Integrated Feed Network

Invention: This technology allows for a network array of chips to communicate with each other wirelessly. A unique tunable antenna system that is built into each chip allows energy to be guided in order to “talk” to corresponding chips using millimeter waves (mmW).

Background: With the emergence of the Internet of Things (IoT), the demand for high performance computing systems is continually growing. Currently, copper interconnects inside of chips have become sophisticated interconnects comprised of switches, chip and wires. When network-on-chip (NoC) is implemented on a large scale, problems such like power dissipation, interconnect delays and clock synchronization are much more likely to occur. Recently, conventional chipset manufacturers have begun the race to 5G wireless networks. With the promise to increase data speeds and lower latency, investors have begun to heavily invest in wireless chipsets. The technology presented here reduces the latency issues that occur from wired chip-to-chip communications and is a practical alternative to using wired connections entirely.

Applications:

- Internet of Things (IoT)
- Cell phones
- Defense/military
- Chipsets

Advantages:

- Non-wired
- Provides 360° beam scanning at 60GHz
- Improves performance
- Reduces off-system interference

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- Reduces power dissipation/delays

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