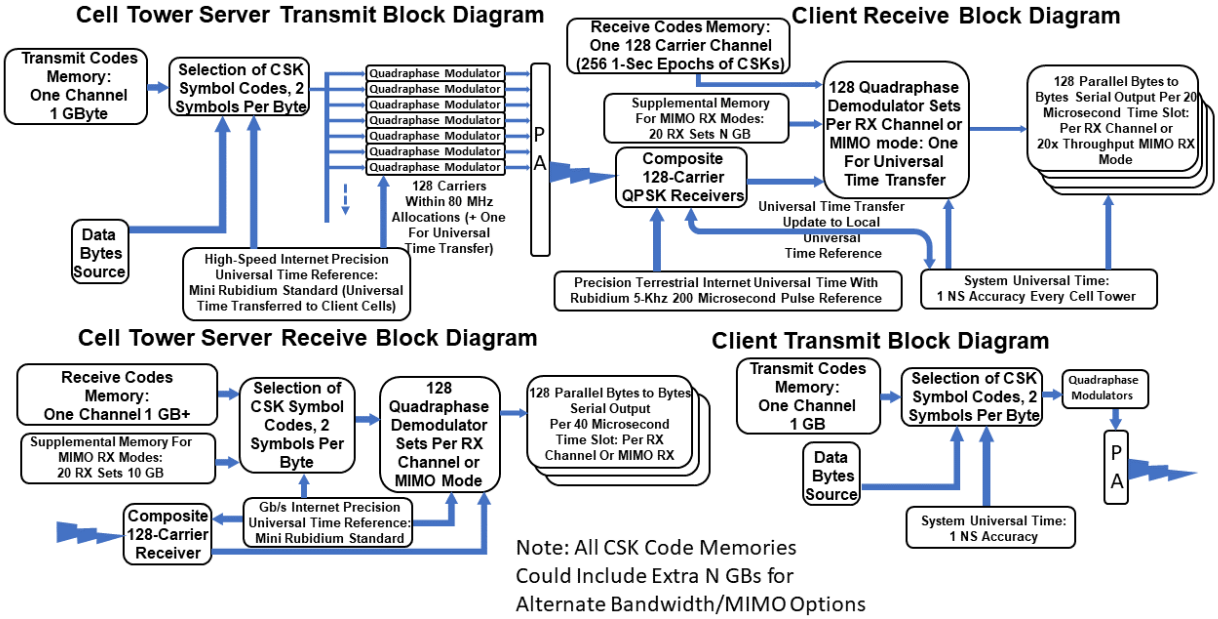
Sample CSK Code Transmit and Receive Hardware Embodiment

An example of a Neff CSK Code-based communications system is provided in the figure to show Neff CSK Codes' versatility and capacity. The block diagram is not part of this patent, but is provided as a practical application of the CSK code wireless exchange systems. The figure shows an example of a Server Cell

A Hardware Embodiment Example of Transmit and Receive Network System Using Memory Sourced Neff CSK Codes



Tower Transmitter and Receiver, and a Client Cell Phone (or standalone transmit/receive unit) with hardware elements of a Neff CSK Code based network system. A Server Cell Tower transmitter block diagram is shown at top left communicating to a Client Cell Phone user receiver at the top right area. The receive side of the Client Cell Phone user is a single channel receive unit with the option for receiving 20X multiple-input and multiple-output (MIMO) code-division multiple access (CDMA) mode. Neff CSK orthogonal symbol code pairs are included in each of 128 or 253 closely packed RF carriers. The minimum modular memory sizes are shown including a 1 Gbps CSK receive and 2 to 4+ Gbps (MIMO CSK receive codes). Additional memory options are possible dependent on network needs. The Server Cell Tower system suggested is assumed interfaced to a high-speed Internet used to establish 0.5 ns accuracies of Universal Time at all Server nodes. This accuracy can be time-transferred to all Client Cell Phone nodes and maintained to maintain precision 0.5-nanosecond accuracy receive and transmit time of day for all active cell phone users. A separate transmit memory is shown for both the Server Side and the Client Side of this example where users can join and exit a large terrestrial network at 1-second epoch transition points. The processing memory structure in these papers contains 250 sets of CSK memory based codes where any of 16 CSK orthogonal symbols can be used for transmit and receive operations. Note that all Client cell receive variations include 51.2 Mbps to 4+ Gbps on a single 100 MHz allocation MIMO receive channel. All CSK symbols transmitted are orthogonal in the common Cell receive channel. A Half-CSK-Code Length symbol is included in the detection option to achieve a 2+ Gbps network throughput to a cell phone MIMO receiver.

Primary CSK Codes Advantages

- CSK Codes are consistent with current Gigahertz-speed processors and Terabyte memories
- High throughput efficiencies of 4+ Gbps are possible using 100 MHz bandwidth allocations