Cholesky decomposition or factorization is a decomposition of a Hermitian, positive-definite matrix (e.g. covariance matrix) into the product of a lower triangular matrix and its conjugate transpose. The reference design also solves $x$ in $Ax=b$, where $x$ and $b$ are column vector and $A$ is a square matrix, in addition to decomposing $A$ into $L$ and $L'$.

Modern Radar needs to handle jamming and clutter interferences. STAP and adaptive beamforming takes into account of these interferences and try to neutralize them and focus only on the target angle and speed. For examples, the adaptive coefficients, $h$, can be found by inverting the interferences covariance matrix, $S$, in

$$h = (k) (S^{-1})(t^*)$$

where $t$ is the steering vector and $k$ is a constant.

Due to high dynamic range of matrix processing, Floating point arithmetic is necessary to maintain stability. Multiple interleaving matrices are processed in parallel to increase throughput.