

```

void cholesky_factorization(const int ts, const int nt, double* A[nt][nt])
{
    #pragma omp parallel
    #pragma omp single
    for (int k = 0; k < nt; k++) {

        // Diagonal Block factorization
        #pragma omp task depend(inout:A[k][k])
        dpotrf(&L, &ts, A[k][k], &ts, &INFO);

        // Triangular systems
        for (int i = k + 1; i < nt; i++) {
            #pragma omp task depend(in:A[k][k]) depend(inout: A[k][i])
            dtrsm(&RI, &LO, &TR, &NU, &ts, &ts, &DONE, A[k][k], &ts, A[k][i], &ts);
        }

        // Update trailing matrix
        for (int i = k + 1; i < nt; i++) {
            for (int j = k + 1; j < i; j++) {
                #pragma omp task depend(in:A[k][i],A[k][j]) depend(inout:A[j][i]))
                dgemm(&NT, &TR, &ts, &ts, &ts, &DMONE, A[k][i],
                    &ts, A[k][j], &ts, &DONE, A[j][i], &ts);
            }
            #pragma omp task depend(in:A[k][i]) depend(inout:A[i][i]))
            dsyrk(&LO, &NT, &ts, &ts, &DMONE, A[k][i], &ts, &DONE, A[i][i], &ts);
        }
    }
}

```