

Practical Exercise #4

Data design and performance models

1. Write a two-dimensional contiguous memory allocator for the lower-left triangular matrix.
2. Write a two-dimensional allocator in C that layouts memory similarly to Fortran.
3. Create a macro for an array of structures of arrays (AoSoA) for the RGB color model from Section 4.1.
4. Modify the code for the cell-centric full-matrix data structure to avoid the conditional branch and evaluate its performance.
5. How would the AVX-512 vector processing unit change the ECM model for a stream triad?