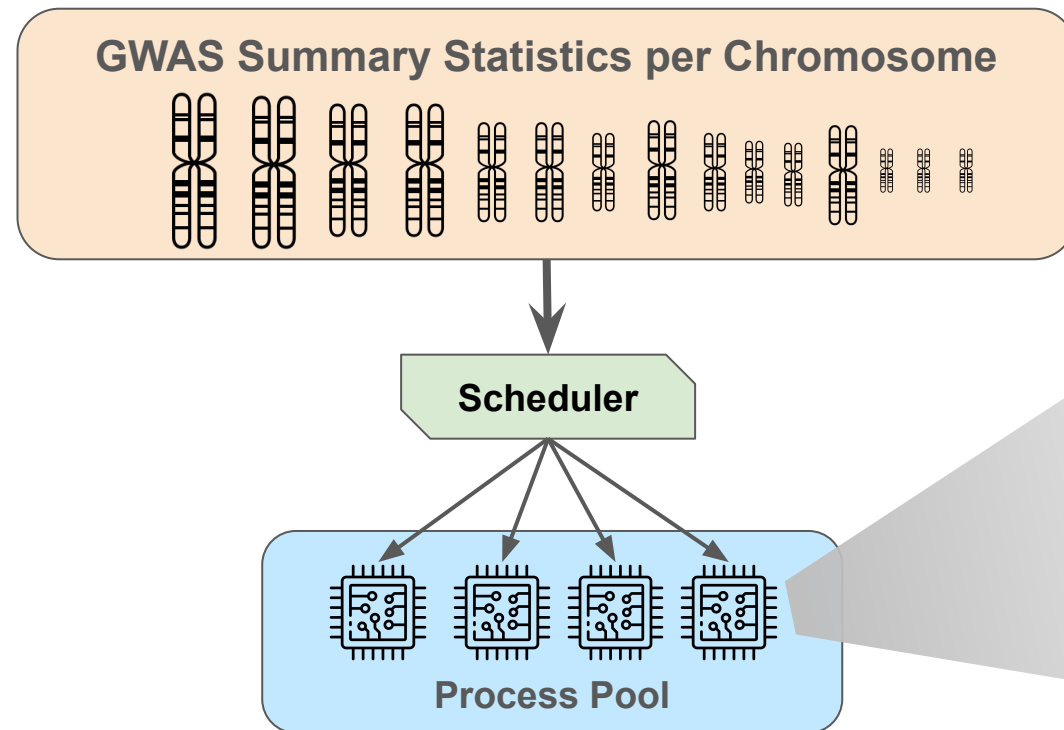


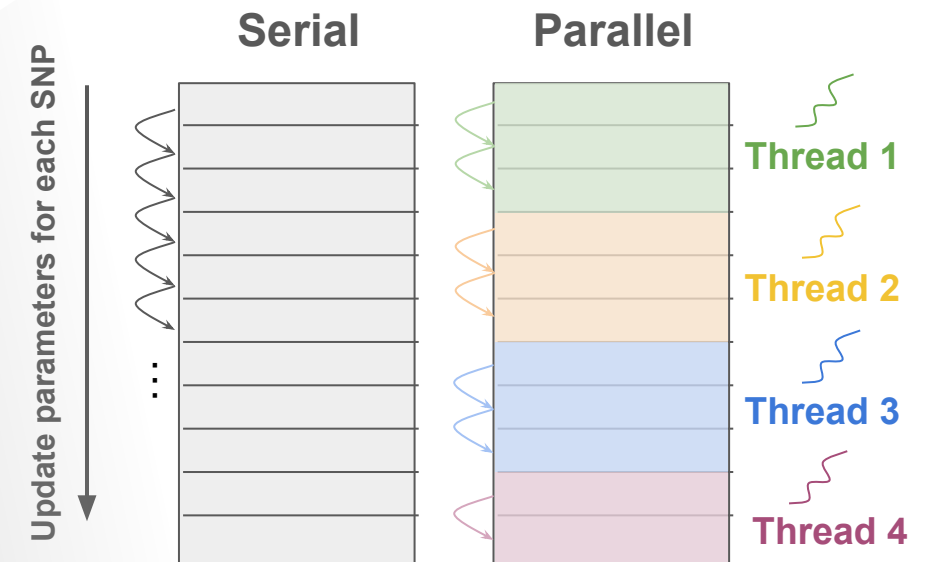
(1) Multithreading and Parallel Processing

Parallel Processing **across** Chromosomes



Parallel Coordinate Ascent

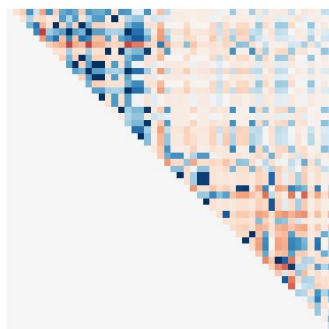
Parallelism **within** Chromosomes
with **OpenMP** Threads



(2) Memory-efficient Implementations

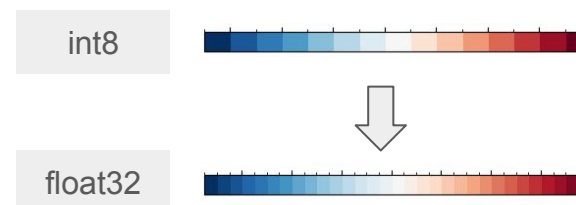
Triangular LD Mode

Performs **Coordinate Ascent** with access to **only upper-triangular** portion of LD matrix.



Dequantize-on-the-fly (DQF)

Keep LD matrix in **memory-efficient integer data types** and **dequantize only relevant entries** when needed.



Single precision parameters

Represent model parameters as **float32**, which **reduces memory usage** and **speeds up computations by 2X**.

