* MWG: This refers to the number of workgroups in the M (row) dimension.
* NWG: This refers to the number of workgroups in the N (column) dimension.
* KWG: This refers to the number of workgroups in the K (inner) dimension.
* MDIMC: This refers to the size of the M dimension in each workgroup for loading data from global memory.
* NDIMC: This refers to the size of the N dimension in each workgroup for loading data from global memory.
* MDIMA: This refers to the size of the M dimension in each workgroup for loading data into local memory.
* NDIMB: This refers to the size of the N dimension in each workgroup for loading data into local memory.
* KWI: This refers to the number of iterations of the K loop that can be unrolled.
* VWM: This refers to the vector width (number of elements per vector) for loading data from global memory in the M dimension.
* VWN: This refers to the vector width for loading data from global memory in the N dimension.
* STRM: This refers to the stride (offset) between elements in global memory in the M dimension.
* STRN: This refers to the stride between elements in global memory in the N dimension.
* SA: This refers to the size of the local memory buffer used for loading data from global memory.
* SB: This refers to the size of the local memory buffer used for loading data from global memory.
* Run1, run2, run3, run4: These are likely to be the execution times for the matrix multiplication operation in milliseconds for four independent runs using the same parameters. These can be used to measure the performance of different parameter settings.

Overall, these terms provide specific values and configurations for optimizing the matrix multiplication operation on a GPU. By adjusting these parameters, it is possible to improve the performance of the operation for a given hardware and workload.

The information provided appears to be related to optimizing a 2D matrix multiplication operation on a GPU using OpenCL or similar technologies. Here is an explanation of the terms:

Per-matrix 2D tiling at workgroup level: This refers to dividing the input matrices into smaller sub-matrices (tiles) and processing them in parallel on a GPU. The numbers (16, 32, 64, 128) represent different tile sizes.

Inner dimension of 2D tiling at workgroup level: This refers to the size of the tiles in the two dimensions that are being multiplied together. The numbers (16, 32) represent different tile sizes.

Local workgroup size: This refers to the number of threads in a workgroup. The numbers (8, 16, 32) represent different workgroup sizes.

Local memory shape: This refers to the shape of the local memory buffer that each workgroup uses to cache data from global memory. The numbers (8, 16, 32) represent different buffer sizes.

Kernel loop unrolling factor: This refers to unrolling (expanding) the inner loop of the matrix multiplication operation to reduce loop overhead and improve performance. The numbers (2, 8) represent different unrolling factors.

Per-matrix vector widths for loading and storing: This refers to using vector operations to load and store data from memory, which can improve performance. The numbers (1, 2, 4, 8) represent different vector widths.

Enable stride for accessing off-chip memory within a single thread: This refers to allowing threads to access memory in a non-contiguous pattern to improve data locality. The numbers (0, 1) represent whether this optimization is enabled or not.

Per-matrix manual caching of the 2D workgroup tile: This refers to caching the data from global memory into local memory manually, which can improve performance. The numbers (10, 1) represent different caching strategies.

Performance times in milliseconds: These are the measured execution times for the matrix multiplication operation in milliseconds for four independent runs using the same parameters. The range between 13.25 and 3397.08 indicates a large variation in performance depending on the specific parameter values used.

Overall, the information provided indicates that the performance of the matrix multiplication operation can be optimized by carefully selecting the tile size, workgroup size, buffer size, loop unrolling factor, vector widths, and caching strategy, as well as enabling optimizations such as non-contiguous memory access.

Mwg,nwg , KWG,MDIMC,NDIMC,MDIMA,NDIMB,KWI,VVM,VWN,STRM,STRN,SA,SB,Run1,run2,run3,run 4 Explain the full forms in context of last mentioned description

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Overall, these terms provide specific values and configurations for optimizing the matrix multiplication operation on a GPU. By adjusting these parameters, it is possible to improve the performance of the operation for a given hardware and workload.