

Kokkos mapping

Hierarchical parallelism

Kokkos	Cuda	HIP	SYCL
Instance of <code>Kokkos::TeamPolicy</code>	Grid	Grid, index range	ND-Range
Instance of <code>Kokkos::TeamPolicy</code> (one-dimensional only)	Block	Block, work group	Work-group
Instance of <code>Kokkos::TeamThreadRange</code>	Warp	Warp, wavefront	Sub-group
Instance of <code>Kokkos::TeamVectorRange</code> , <code>Kokkos::ThreadVectorRange</code>	Thread	Thread, work item	Work-item

Memory

Kokkos	Cuda	HIP	SYCL
<code>Kokkos::DefaultExecutionSpace::memory_space</code>	Global memory	Global memory	Global memory
<code>Kokkos::ScratchMemorySpace</code> (space level 0)	Shared memory	Shared memory	(Shared) local memory
<code>Kokkos::ScratchMemorySpace</code> (space level 1)	Global memory	Global memory	Global memory
<code>Kokkos::SharedHostPinnedSpace</code>	Pinned host memory	Pinned host memory	Unified shared memory (USM) of type host
<code>Kokkos::SharedSpace</code>	Unified virtual memory (UVM)	Unified memory	Unified shared memory (USM) of type shared

Execution

Kokkos	Cuda	HIP	SYCL
Instance of <code>Kokkos::DefaultExecutionSpace</code>	Stream	Stream	Queue

GPU terminology equivalences

Cuda on NVIDIA	HIP on AMD	SYCL/OpenCL on Intel	Notes
Streaming multiprocessor (SM)	Compute unit (CU)	Compute unit	
Streaming processor	Processing element	Processing element	
Warp	Wavefront, warp	Sub-group	
Thread	Work item	Work-item	
NVPTX	AMDIL	SPIR-V	Not strictly equivalent