Operation - Compute Hydro Solution at step n+1 ➤ Stop Setup-dependent useHydro? Yes Aux Task: prepareBuffers Run in CPU and GPU **Fusable** Aux Task: setOpGlobalParams Run in CPU and GPU Yes Iteration-dependent skipGcFill? No MPI Grid DM + Supertask **DM**: Run in CPU fillGuardcells UNK: Start/End in CPU Work Task: All leaves, cleanDensityData Zeropoint all levels Run where data needed @ end No Setup-dependent Convert? Yes Work Task: All leaves, **Fusable** conserveToPrimitive Zeropoint all levels Run where data needed @ end Work Task: All leaves, cleanEnergyData Zeropoint all levels Run where data needed @ end Work Task: All leaves, eosOnGuardcells Zeropoint all levels Run where data needed @ end computeFluxes **Work Task:** Zeropoint UNK fI[XYZ] soundSpeed Kernel - DENS (in) - DENS (out) - [XYZ]MOM (out) - PRES (in) All leaves, - ENER (out) - ENER (in) all levels Stencil - GAMC (in) yFlux xFlux zFlux Kernels - VEL[XYZ] (in) Allocate: auxC tile Op-Global Data: dtd[XYZ] arrays Setup-/Runtime-dependent tiling? **Implied** Fusable* No updateSolution **Work Task:** Stencil UNK fI[XYZ] ComputeSolution Kernel - DENS (inout) - DENS (in) All leaves, - [XYZ]MOM (in) - ENER (inout) all levels - VEL[XYZ] (inout) - ENER (in) Zeropoint cleanEnergyData Kernel **Work Task:** All leaves, eosOnInteriors Zeropoint all levels Might as well bring back to CPU

freeBuffers

Aux Task:

Run in CPU and GPU

^{*} If barrier not included or if using data packet with CC1 & CC2 (i.e. Uin & Uout not aliased)