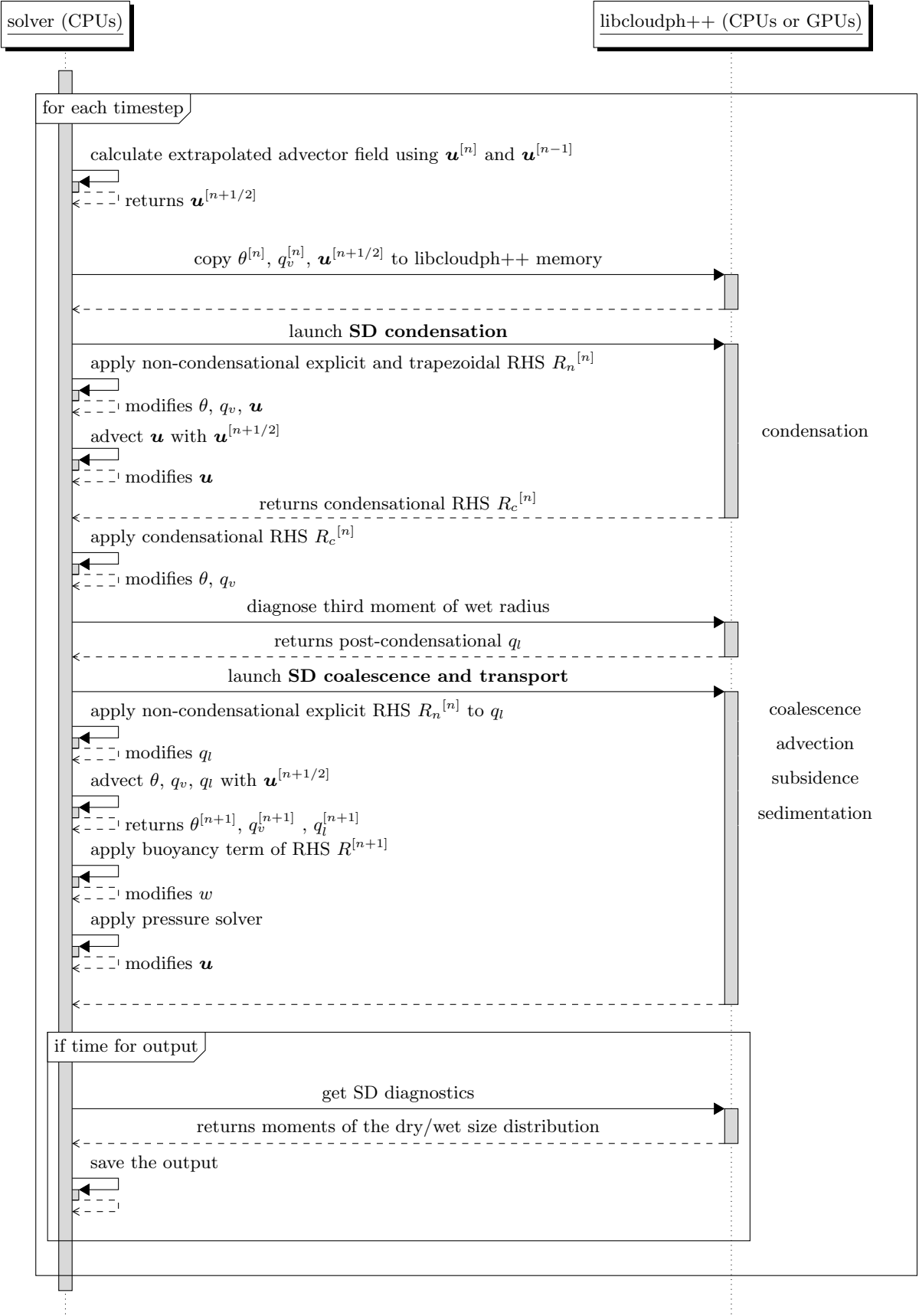
solver (CPUs)
libcloudph++ (CPUs or GPUs)
for each timestep
calculate extrapolated advector field using $\boldsymbol{u}^{[n]}$ and $\boldsymbol{u}^{[n-1]}$
returns $\boldsymbol{u}^{[n+1/2]}$
copy $\theta^{[n]}$, $q_v^{[n]}$, $\boldsymbol{u}^{[n+1/2]}$ to libcloudph++ memory
launch **SD condensation**
apply non-condensational explicit and trapezoidal RHS ${R_n}^{[n]}$
modifies θ, q_v, $\boldsymbol{u}$
advect $\boldsymbol{u}$ with $\boldsymbol{u}^{[n+1/2]}$
modifies $\boldsymbol{u}$
returns condensational RHS ${R_c}^{[n]}$
condensation
apply condensational RHS ${R_c}^{[n]}$
modifies θ, q_v
diagnose third moment of wet radius
returns post-condensational q_l
launch **SD coalescence and transport**
apply non-condensational explicit RHS ${R_n}^{[n]}$ to q_l
modifies q_l
advect θ, q_v, q_l with $\boldsymbol{u}^{[n+1/2]}$
returns $\theta^{[n+1]}$, $q_v^{[n+1]}$, $q_l^{[n+1]}$
apply buoyancy term of RHS $R^{[n+1]}$
modifies w
apply pressure solver
modifies $\boldsymbol{u}$
coalescence
advection
subsidence
sedimentation
if time for output
get SD diagnostics
returns moments of the dry/wet size distribution
save the output