SOLUTION ARCHITECTURE

CPU

GPU

Step 1:Start t=0

Step 2:Set k=0

$t = t + \Delta t$

Step 3-4:Compute Jacobian matrix

k=k+1

Step 5:Update the water flow rate

Step 6:k<kmax?

Step 7:t<tfinal?

end

Compute Jacobian matrix

Copy memory

Copy memory

Copy memory

Copy memory

Copy memory

Copy memory

$u+p_1$

$u+p_2$

$T(u+p_1)$

$u+p_3$

$T(u+p_2)$

$T(u+p_3)$

Solve PDEs to compute $T_{ave}(u+p_1)$

Solve PDEs to compute $T_{ave}(u+p_2)$

Solve PDEs to compute $T_{ave}(u+p_3)$