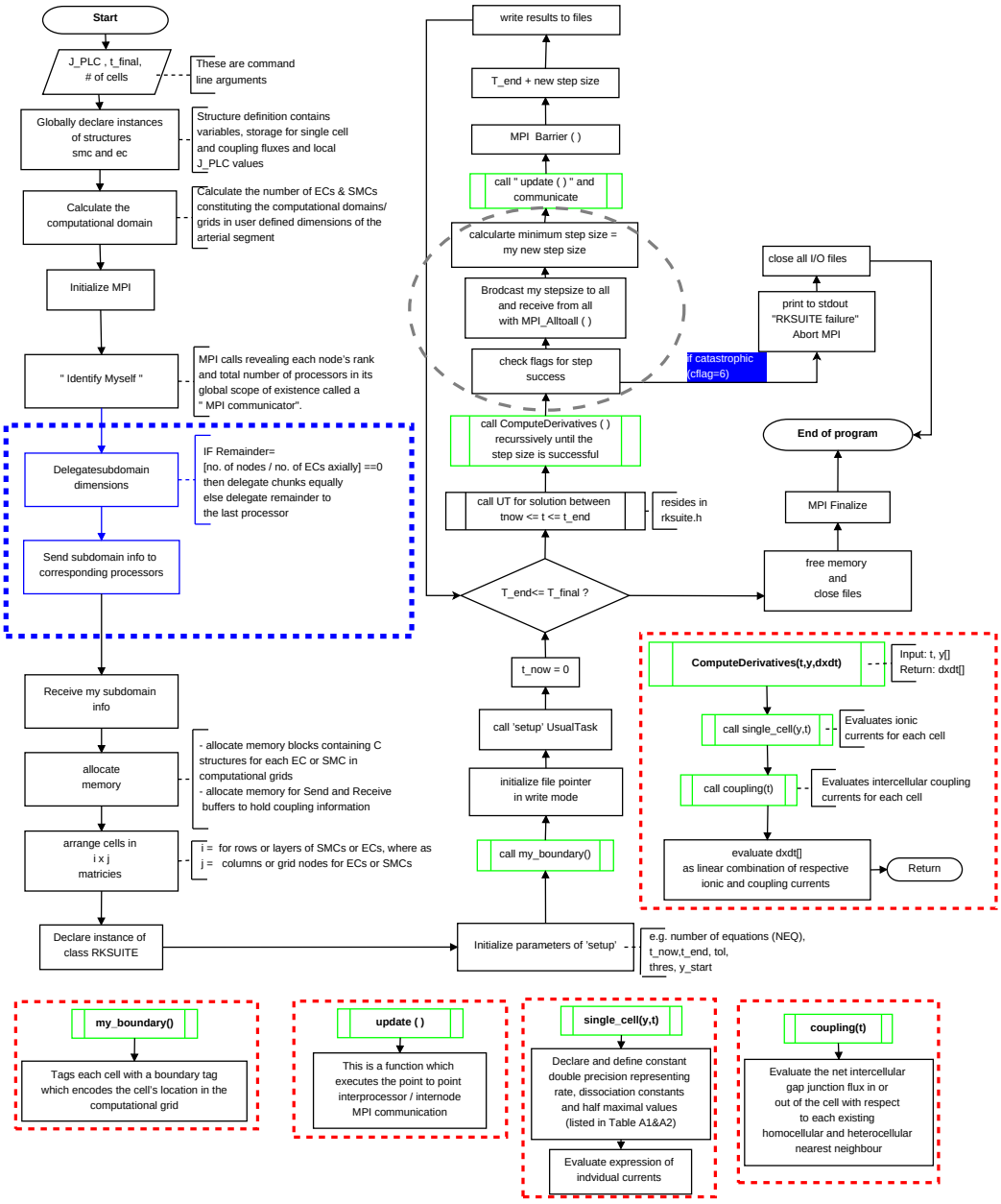

Figure 6.9: Flowchart shows the C code for every BG/L node. All work in boxes bounded by black solid lines is executed by all the processors, where as work in blue box (dashed line) is to be carried out by the *master node* exclusively. The boxes in green are function that are further highlighted in red boxes bounded by dashed lines. The grey circle specifies the time synchronizations of the nodes existing in the global instance of the communicator "MPI_COMM_WORLD". After receiving the subdomain information, each node creates its own sets of unitary structures encoding either an EC or SMC. Each node than initiates a local C++ object instance of RKSUITE to solve its computational subdomain. Upon successful completion of the step, every nodes communicates to all the nodes, the step size for the next step reported by its local RKSUITE instance. The minimum step size of all the nodes is then taken as the new step size by all the nodes.

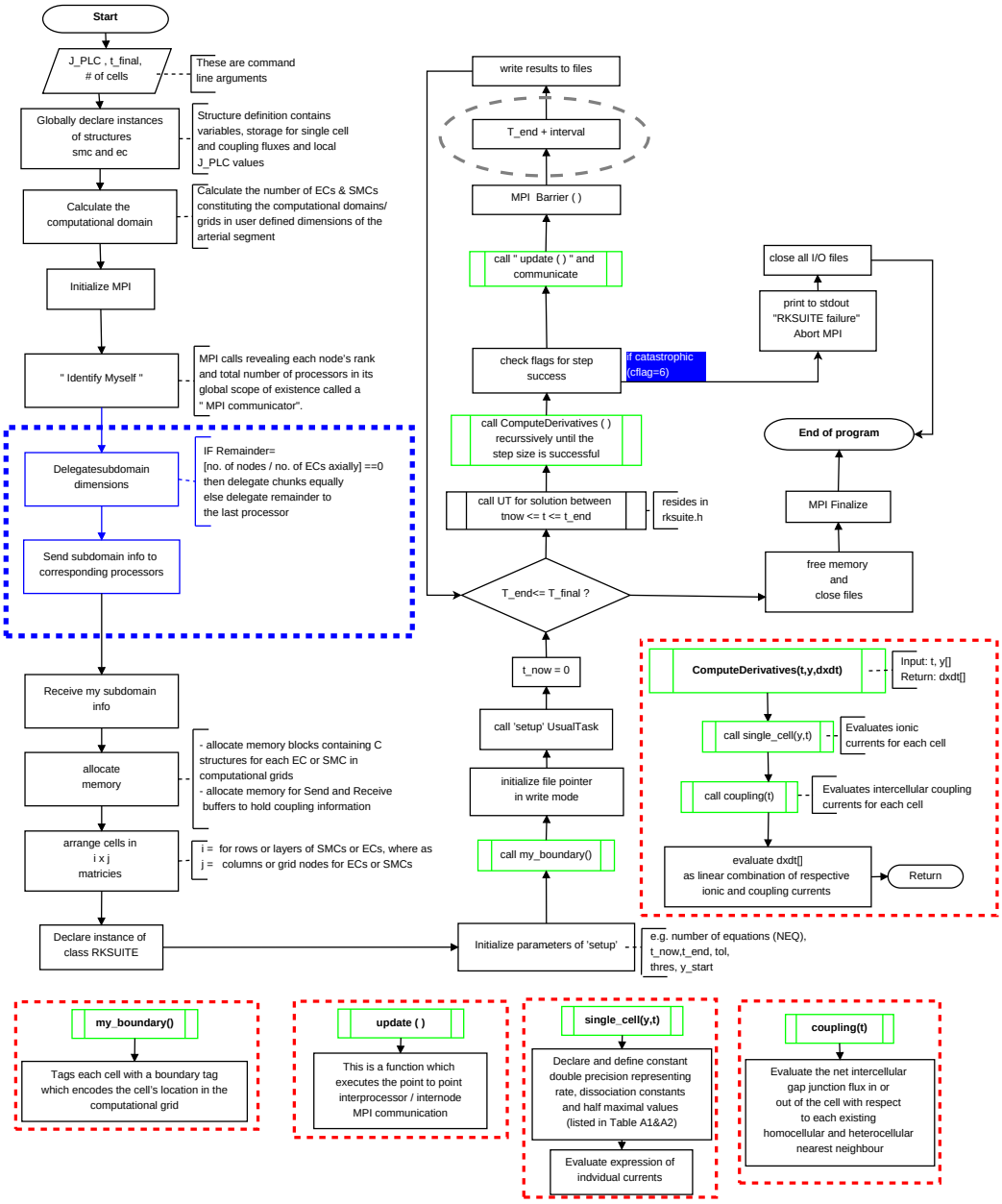

Figure 6.10: Comparing with the flowchart in Figure 6.10, the box encircled in grey is the ammendment where INTERVAL= $1e^{-2}$ is a constant increment made to the T_end, during which RKSUITE on each node can select the next step size adaptively within this interval.