Simulation has become one of the most timeconsuming tasks in Electronic System Level design, required both on design and verification phases. As the complexity of modelled systems increases, so do the need for adequate use of available computational resources in multiprocessor computers or clusters. SystemC simulator models are
designed to use only one core, even if the hardware is multi-core. In
this paper, we analyse 20 platforms, designed in SystemC, varying from
1 to 16 cores with 4 different processor models (ISAs), and evaluated
the SystemC kernel overhead for a set of 12 programs running over those platforms, totaling 240 configurations. We split the execution time into the simulation components and found out that the major contributor to the simulation is the SystemC kernel, consuming around
50% of the total simulator execution time. This finding opens space for new research focusing on improving SystemC Kernel performance.