

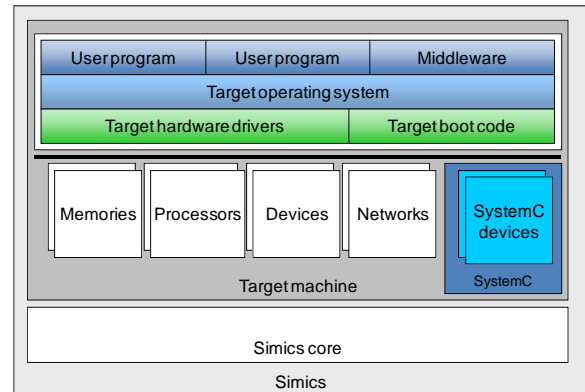
Simics SystemC Bridge



Overview

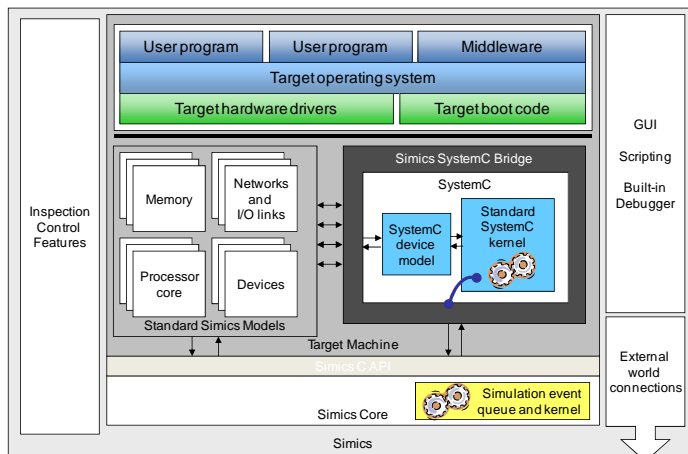
The Simics SystemC Bridge allows users to include unmodified SystemC device models into a Simics virtual platform setup. SystemC devices are used just like regular Simics devices to help create a complete virtual platform for a particular target system.

With the SystemC Bridge, virtual platforms can be built that mix existing Simics models, new Simics models, and SystemC device models. This saves time in virtual platform creation by reusing existing SystemC models, while leveraging the Simics library of devices and the high simulation speed of Simics. There is no need to change the SystemC device model code to work within Simics.



Details

SystemC is integrated into Simics by including a standard OSCI SystemC 2.2.0 kernel as a Simics module, along with the SystemC device models that will be used in the particular virtual platform.



The Simics SystemC bridge takes care of coordinating and synchronizing the activities of the SystemC kernel and the Simics kernel, and moving transactions between the SystemC subsystem and the rest of the Simics system. The bridge also maps non-memory-mapped communications such as interrupts and serial character streams between the Simics and the SystemC subsystems.

Note that SystemC devices can call the Simics kernel API directly to implement extra features specific to Simics.

The performance of the combined system depends on the nature of the integrated SystemC models. If they are fast functional TLM models, the impact on simulation speed is very small in general. This is thanks to the SystemC bridge working lazily towards to the Simics kernel. SystemC devices are only activated when they are accessed by the target software or are triggered by SystemC events to which they are sensitive, typically in order to handle timed behavior.

Benefits

- Use existing SystemC device models with Simics to quickly build complete virtual platforms.
- Mix models in SystemC, C, C++, Python, DML in a single environment.
- Test SystemC device models in complete system environments with multiple processors, boards, and network nodes running complete software stacks.
- Use Simics system-level features such as scripting, software debug, real-world and virtual network connections with your SystemC hardware models.
- Leverage Simics interconnect models for PCI, PCIe, RapidIO, Ethernet, Serial, I²C, and others with your SystemC models.

More information: http://www.virtutech.com/systemc_bridge.html