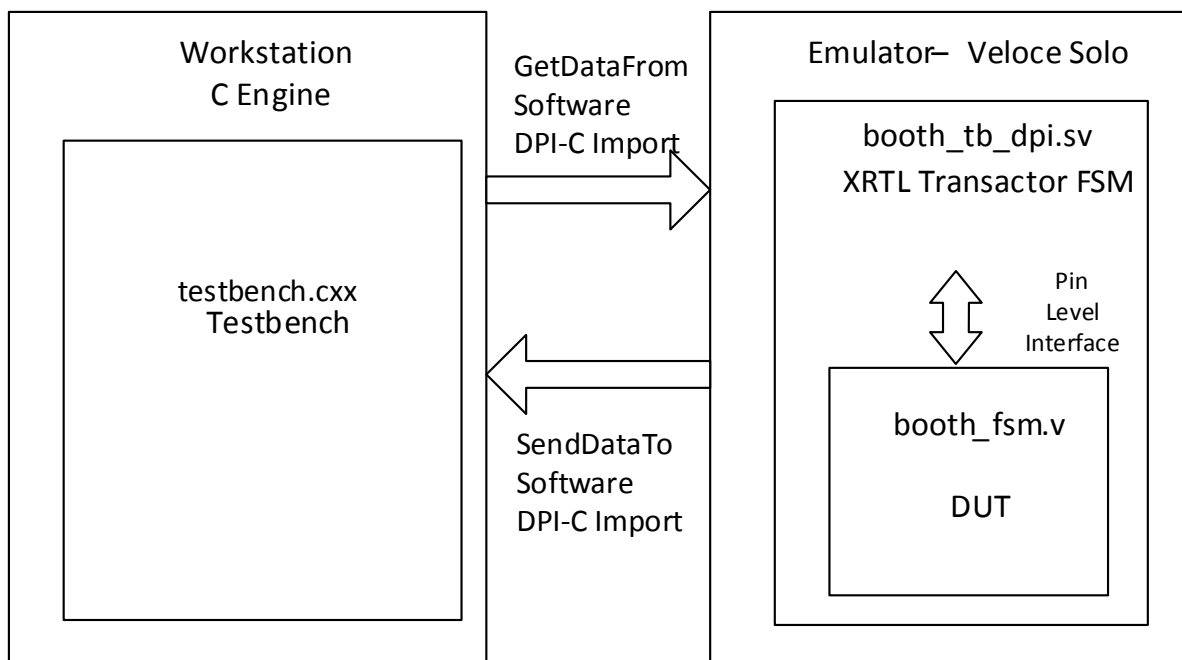# DPI – Direct Programming Interface

- Based on Programming Language Interface (PLI) support in SystemVerilog. Supports C, C++, SystemC HVL. DPI-C is for C/C++.
- PLI is an added phase in SV events
- Allows to invoke calls to functions in different language
- Imported DPI Function – HDL calls HVL function
- Exported DPI Function – HVL calls HDL function
- DPI Call does not advance HDL time. Simulation time is frozen until call is returned.
- Prior to SV, C/C++ test benches were preferred. C/C++ testbenches are close to a C driver.
- Could use any standard library to generate desired stimulus – e.g. math.h
- Function call based model provides simulation acceleration with moderate function calls
- Too many function calls – In Circuit Emulation (ICE) like speeds
- Hence not suitable for streaming data

Imported and Exported Tasks

Imported C tasks – The tasks that are in C and are imported/called by HDL transactor.

Exported C tasks – The tasks/functions that are in HDL transactor and are exported to/called by C side.

This example uses a C program testbench.cxx to generate test cases. The checking is also done in the c program. The C functions are imported into the HDL. They use pointers to transfer data.

The HDL transactor calls functions in C code to obtain testcases and to send result.