ProNoC

Interface Generator
User Manual

Interface Generator

The interface generator allows adding new interfaces to ProNoC. Interface is a port or a group of ports that are common in different components and are used for doing a specific task. The most common interfaces are the shared bus (wishbone bus) master/slave, clk and reset interfaces. Each individual interface has two types of *socket* and *plug* interfaces. Two components can be connected when one has the *socket* type of an interface and another one has the *plug* type of that interface. While it is optional to select any side of the connection as *socket* or *plug* interface, bellow are some differences between them that help to select appropriate type of interface:

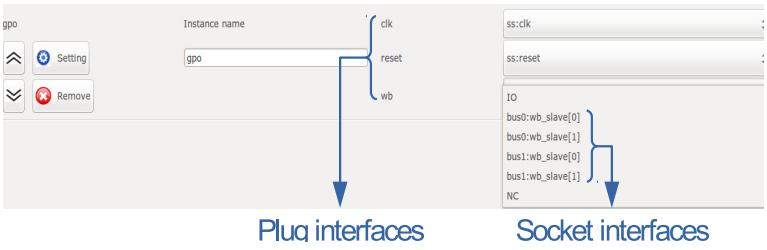

Figure 1: IP box snapshot.

1. In processing tile generator only the *plug* interfaces of an IP are shown in the IP box. While the user can select the connection interface from the list of all IPs having the *socket* type of that interface as shown in Figure 1.

2. The *socket* interfaces can be defined as single or multi connection. The multi connection is valid only when all *socket's* ports are output ports. As a result, it can be connected to multiple IPs having the *plug* interface. As an example the clk and reset *sockets* are defined as multi connection.

3. The number of a *socket* interface in an IP can be parameterizable. In this case each interface port is concatenated with its own type ports from all other interfaces. As a result the number of ports in multi interfaces is same as a single interface. As an example the interfaces of the wishbone bus and the interrupt controller are defined as *socket* with parameterizable number of interfaces.

Generate New Interface

In order to add new interface press the brows button and select the Verilog file containing a module with the desired interface. If there are multiple modules inside the file you can select the desired one from "*Select module*:" menu. To add ports to the interface press "*Import Ports*" button. It will open a pop-up window as shown in Figure 2 which you can select the ports.

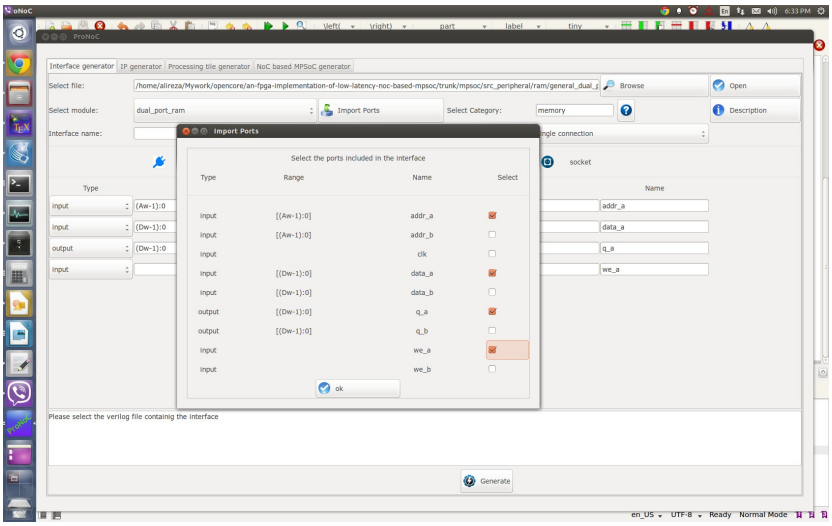

Figure 2: Interface generator snapshot.

Using *swap* button, you can define if the selected ports belong to the *socket* or *plug* type of an interface. You are only needed to define one type of an interface, the other type will be defined automatically. The width of each port can be a Verilog code parameter. Note that any Verilog module using this interface must define the interface ports using same parameter name.

The *socket* interfaces can be defined as single or multi connection. If a socket is defined as single connection support, by connecting a new IP to the socket, the last connected *plug* to that *socket* will be disconnected automatically.