SystemVerilog Tools in Python

Michał Czyż
PG ETI UE CHIP

The Other Dude
His Company / University

September 11, 2018

Contents

Abstract

Documentation for SystemVerilog Tools project available at:

`https:www.github.com/emcezet/sv-tools`

1 Introduction

The goal of project is to develop parsing engine for a subsystem of SystemVerilog (SV) Hardware Description Language (HDL) and provide following utility:

- module generation from user-defined templates,
- module instantiation from user file,
- top level file generation from user files,
- simple testbench file generation.

Both named port and interface style are accepted.

2 Acceptable constructs in SystemVerilog.

2.1 Formal syntax.

Formal syntax descriptions use Backus-Naur Form (BNF). This notation was also used in Annex A of [1]. Revised and limit list of supported constructs is provided in this section. Please note, that a specific coding style is expected from users. Curly brackets '{' and '}' denote one or more occurence and square '[' ']' denote optional.

⟨*source_text*⟩ ::= [timeunits_declaration] {description}

⟨*description*⟩ ::= ⟨*module_declaration*⟩
| ⟨*interface_declaration*⟩

⟨*module_declaration*⟩ ::= ⟨*module_nonansi_header*⟩ [timeunits_declaration] module_item ⟨*endmodule*⟩ [: ⟨*module_identifier*⟩]
| ⟨*module_ansi_header*⟩ [timeunits_declaration] non_port_module_item ⟨*endmodule*⟩ [: module_identifier]

⟨*module_nonansi_header*⟩ ::= attribute_instance ⟨*module_keyword*⟩ [lifetime] ⟨*module_identifier*⟩ package_import_declaration [parameter_port_list] ⟨*list_of_ports*⟩ ';'

⟨*module_ansi_header*⟩ ::= attribute_instance ⟨*module_keyword*⟩ [lifetime] ⟨*module_identifier*⟩ package_import_declaration [parameter_port_list] [list_of_port_declarations] ;

⟨*interface_declaration*⟩ ::= ⟨⟩

3 Usage.

All scripts support -h and –help parameters for usage help.

References

[1] 8299595,IEEE Std 1800-2017 (Revision of IEEE Std 1800-2012),IEEE Standard for SystemVerilog–Unified Hardware Design, Specification, and Verification Language, 2018,Feb

[2] placeholder