TEST PLAN

VERIFICATION OF sumofN RTL IP

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Created on:

24th May 2021

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1. INTRODUCTION

1.1 Purpose

This test plan describes the testing approach and overall framework for the testing of the sumofN RTL IP. This document inroduces:

* Testing Strategy: The rules the test will be based on, including the givens of the project, description of the process to verify the IP and the environment required.
* Execution Strategy: Describes how the test will be performed and the process to identify defects.

1.2 IP Overview

For a predefined integer N, this IP take N 8-bit inputs and outputs the sum of those 8 inputs. i.e. it implements

The IP has 3 sets of interface.

1 . Configuration Interface:

# This is used to :

1. Set the value of N

2. Start the process for each set of N inputs

2. Input Data Interface:

This interface is used to provide the input data,

one byte/cycle

3. Output Data Interface:

This interface is used to return the result of the calculation.

2. TEST STRATEGY

2.1 Test Objectives

* The objective of the test is to verify that the functionality of sumofN RTL model works according to the given design specifications.
* The test will execute and verify the test scripts and identify the defects present.

2.2 Test Principles

* Testing processes will be well defined, yet flexible, with the ability to change as needed. 
* Testing activities will build upon previous stages to avoid redundancy or duplication of effort.
* Testing environment and data will emulate a production environment as much as possible.
* Testing will be a repeatable, quantifiable, and measurable activity.

2.2 Test Deliverables

|  |  |
| --- | --- |
| S.No | Deliverable name |
| 1 | Test Plan |
| 2 | Functional Test Cases + Test scripts |

3. SCOPE OF TESTING

The verification tests of the sumofN RTL IP will include a datapath test,

configuration test and an interrupt generation test.

4. FEATURES TO BE TESTED

4.1 Data path

* + Handshaking process for input and output ports
  + Provide input through PUT ports
  + Get output through GET ports

4.2 Control path

* + Set number of integers N using configure port
  + Start the computation by writing to appropriate register

4.3 Interrupt Generation

* + Generate interrupt when an exception is encountered.

5. TEST ENVIRONMENT

The testing phase requires the following software be available:

* Python >= version 3.6
* C compiler (Visual C compiler or GCC)
* Cocotb library (Downloaded and compiled through Pip)
* Icarus verilog
* Gtk-Wave
* Git
* A compatible OS (windows/Mac/Linux)
* Python IDE (VScode, PyCharm)
* Word editor & Spreadsheet Software (MS Office, Libreoffice)