FPGA Prototyping Using Verilog

Introductory Session

Dated: 25th December, 2020

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Introduction to the Course

- FPGA Prototyping using Verilog HDL, so what is new…
- Comprehensive step by step guide to learning Verilog
- Best Practices to write readable, debug-able and ***hardware Synthesizable*** code
  - Verilog modules synthesizes digital hardware, so they should be learnt like that
- Interactive Sessions to enhance the learning experience
- Hands-on Coding and simulation examples
- Hardware testing and debugging techniques

Mode of Learning

- Online Interactive Sessions
- Sessions will be 2 to 3 hours longer
- 1 session per week either on Saturday or Sunday
- Total 6 to 7 sessions for the complete course
- Work Load Requirements for the students – approx. 5 to 6 hours per week
- WhatsApp group will be created to post updates
- Github repository will be used to exchange Documents and code
- Will try to record the sessions too for later reference

Requirements

- Access to a PC and good internet connection is mandatory for seamless learning experience
- Software Tools:
  - Text Editor – Sublime (preferred), Atom, Kate, Emacs etc
  - Modelsim Altera Edition – FREE (Link will be provided)
  - Quartus Prime Lite – FREE (Link will be provided)
  - Git Client (Preferred but not required)
  - Github Account (Preferred but not required)
  - AnyDesk, Team Viewer or any other remote client – For remote access of Hardware

Requirements (2)

- Book – FPGA Prototyping using Verilog Examples by Pong P. Chu.
  - PDF Ebook Will be committed into the git repository
- Hardware – Altera FPGA
  - Access will be provided through Remote Desktop for hands on practice
- Most Important...
  - Passion for hardware designing and programming

Target Audience

- More suitable for Electrical, Electronics, Telecom, CIS and CSIT Engineers
  - But course does not assume any particular engineering background
- Good knowledge of Digial Logic Design including Combinational and Sequential Circuits
  - What if someone does not have, then... Discuss!
- No programming experience is required, but having some knowledge of C or similar programming language would be great
- Most importantly, everyone who is eager to learn and has passion for hardware designing

Applications

- The applications of FPGAs include, but not limited to:
  - Aerospace
  - Military and Defense
  - AI and ML
  - Research and Development
  - Satellite Communication
  - Prototyping for Custom ASICs
- Also, similar skill sets are required for Custom ASIC Designing
- Verification Engineering – System Verilog

THANK YOU
Any Questions???