

# FPGA Computing Lab

## Introduction

- Field programmable gate array (FPGA) combines together the flexibility of a GPM (general purpose microprocessor) and optimized performance of an ASIC (application specific integrated circuit).
- FPGA offers a platform for quickly developing and emulating (hardware-level simulation) the functionality of sophisticated digital circuit.

## Scope of the Lab

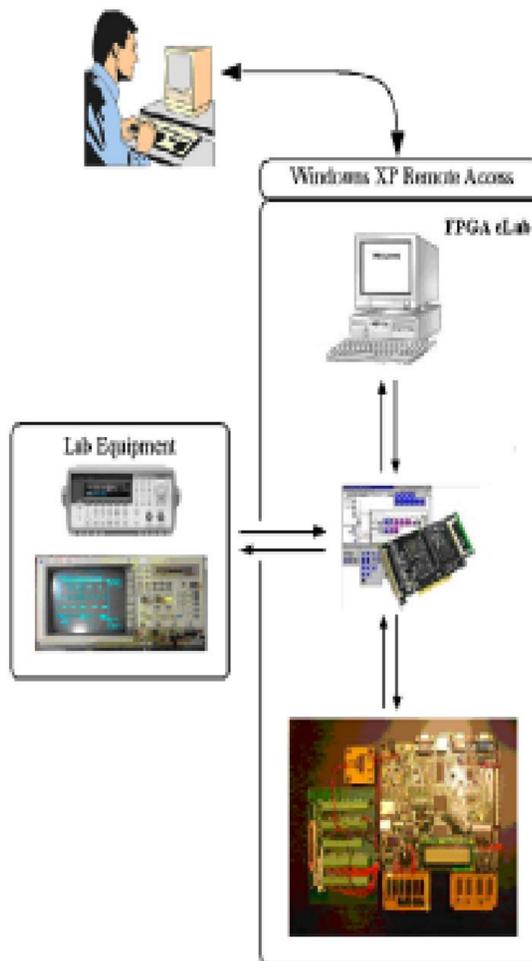
- In this Lab students will develop their skills by working on more challenging digital system design using Verilog hardware description language in an industry-standard design environment.
- Students will also implement real-world designs in FPGAs as well as test and optimize the FPGA-implemented systems

## Infrastructure



- Xilinx Vivado,vitis.
- System Generator
- Xilinx Vivado HLS

## Digital Design with FPGA



## List of experiments

- Verilog modeling style and synthesis results
- Implementation of simple combinational design in Xilinx ZED Board
- Design of A Counter Using the On Board Clock
- Design and implement a traffic light control circuit
- Design and implement a Parking lot occupancy counter
- FPGA System design Using IP Integrator
- Hardware Debugging using VIO
- Design of an ALU and hardware debugging using VIO
- Integrated logic analyzer (ILA) core for hardware debugging

## FPGA Application Areas

- Communication
- Image Processing
- Control Engineering
- Cryptography
- Nuero-Computing
- Bio-Computing
- Fuzzy Logic
- Robotics
- Prototyping

## Faculty Coordinator

Prof. Subhendu Kumar Sahoo.

## Other Faculty Users

Dr. Chetan Kumar Vududha.  
Dr. Amith kumar Panda.

## Research Scholars

Mr.Jagadeesh samala  
Ms.Sharvani Gadgil  
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## Technicians

Mr.N.V.V Satish kumar  
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