

Workshop on Embedded and Reconfigurable Computing for Control and Signal Processing

Special training program by Xilinx
Sponsored by Virtual Labs (MHRD)

Name: Dr/Mr/Ms _____

Designation: _____

Organization: _____

Address: _____

Pin code: _____ Phone: _____

Mobile: _____

E-Mail: _____

Fee payment Details: _____

Draft No: _____ Dated: _____

Amount: _____

Drawn on (Bank) : _____

Signature of the Candidate

Important Dates:

Last date of registration: **Dec 31, 2013**

Duration of program: **Jan 6 – 10, 2014**

Limited seats available

Workshop on

Embedded and Reconfigurable Computing for Control and Signal Processing

Advanced Technology Development Center
IIT Kharagpur

The Advanced Technology Development Center (ATDC), Indian Institute of Technology Kharagpur, established in July 1998, is an inter disciplinary research center carrying out investigations in emerging areas from multiple disciplines. These include the Advanced VLSI Design Laboratory, MEMS Design Laboratory, Micro-Electronics Laboratory, Kalpana Chawla Space Technology Cell, Centre for Theoretical Studies, Microfluidics Laboratory, P K Sinha Centre for Bio-Energy, Centre for Railway Research, etc.

The major areas of faculty expertise of the department include Biomedical Signal Processing, Communication Systems, Computer Networks, Digital Signal Processing, Image Processing & Computer Vision, Instrumentation, Radar Signal Processing, Speech Signal Processing, VLSI Systems, VLSI CAD, MEMS and High Performance Computing, Embedded System Design, Embedded Control Systems, etc.

Pre-requisites

- B.Tech/ BE degree (EE, ECE, EIE, CS, IT)
- Basic course in Signal Processing, Control Systems, Digital electronics and Microcontrollers

Course Objective

- Introduction to real time control and signal processing applications
- Use of state-of-the-art FPGA platforms

Course Content

January 6, 2014

Morning Session: Real time signal processing

Afternoon Session: Demonstration on Real-time Signal Processing, Speech Processing, Biomedical Signal Processing, Virtual labs experiments on embedded system

January 7, 2014

Morning Session: Embedded Control System design

Afternoon Session: Demonstration on Hardware-in-Loop simulation, Virtual labs experiments on Signals and Networks

January 8, 2014

Morning Session: Image Processing

Afternoon Session: Demonstration on Vision Experiments

January 9- 10, 2014: Workshop by Xilinx

Workshop on Embedded and Reconfigurable Computing for Control and Signal Processing

&

Xilinx Embedded Design flow
using Zynq and Vivado Design
suite

Organized by

Advanced Technology Develop-
ment Centre IIT KHARAGPUR

in association with

Xilinx & CoreEL Technologies

(Jan 6 - 10, 2014)



Conveners:

Alok Kanti Deb, Dept. of EE.

Aurobinda Routray, Dept. of EE.

Address of Correspondence

Alok Kanti Deb

Advanced Technology Development Center
Indian Institute of Technology Kharagpur
Kharagpur - 721302, West Bengal

Email: atdcws2014@gmail.com

Online Registration link: <http://goo.gl/a08jmc>

Phone: 03222-282227, +91-9476333547,
+91-9433581233, +91-9475144649

Workshop on Xilinx Embedded Design flow using Zynq and Vivado Design suite

After the completion of this training program the participants will be able to:

- Rapidly architect an embedded system targeting the ARM processor of Zynq located on ZedBoard using Vivado and IP Integrator
- Extend the hardware system with Xilinx provided peripherals
- Create a custom peripheral and add it to the system
- Write a software application to access peripherals



Course Highlight

The training program delivers the following key concepts to the participants:

- Introduction to Vivado Tool flow
- Concepts of Embedded Design using Xilinx FPGA's
- Implementing SoC solutions using Soft and hard IP's from Xilinx
- Designing SoC based applications using ARM Cortex-A9 core in Zynq FPGA
- Developing software applications for ARM Cortex-A9 process core target and testing using Software Development Kit (SDK)

Pre-requisites

- Digital logic and FPGA design experience
- Basic experience with Xilinx Vivado design software suite
- Basic understanding of C programming
- Basic microprocessor experience

CoreEL Technologies

CoreEL Technologies is a technology company with business spread across design services & product development, distribution and training. Head Quartered in Bangalore, India, CoreEL is a leading provider of VLSI & Embedded System design services and Intellectual Property.

Its service offerings include Distribution of Silicon solution, EDA tools, COTS products, Engineering Services (Turn Key Systems Design, Turn Key FPGA Design and High Speed PCB Design), Education and Manufacturing.

About CoreEL University Program :

The mission of the University Program from CoreEL is to provide Eco-System support to Indian Academia in Engineering Higher Education in the field of VLSI and Embedded Systems, thereby enabling the delivery of quality education. We achieve this by providing state of the art products from Xilinx, Mentor Graphics and Wind River to Universities, Multi-year application engineering support on these products, Faculty and Students Training providing Industry Specific inputs to update the curriculum, helping Universities set-up Centers of Excellence in the VLSI and Embedded Sys-

Course Content

January 9, 2014

Morning Session:

- Introduction to Embedded System Design using Zynq

Lab 1: Simple Hardware Design

- Create a Vivado project and use IP Integrator to develop a basic embedded system for a target board.
- Zynq Architecture
- Extending the Embedded System into Programmable Logic

Afternoon Session:

Lab 2: Adding Peripherals in Programmable Logic

- Extend the hardware system by adding AXI peripherals from the IP catalog.
- Adding Your Own IP Peripheral

Lab 3: Creating and Adding Your Own Custom IP

- Use the Manage IP feature of Vivado to create a custom IP and extend the system with the custom peripheral.

January 10, 2014

Morning Session:

- Software Development Environment

Lab 4: Writing Basic Software Applications

- Write a basic C application to access the peripherals.

Afternoon Session:

- Software Development and Debugging

Lab 5: Software Debugging Using SDK

- Use API to drive CPU's timer. Perform software debugging using SDK.



Resource persons

Dr. Parimal Patel, Xilinx University Program

Mrs. Sadiya Arsad, National Manager,

Mr. Samik Basu, Zonal Manager,

Mr. Mayur Deshmukh, Application Engineer,

CoreEL Technologies India Pvt. Ltd

Target Participants

Faculty members, Research Scholars from academic institutes and engineers from industry.

Registration Fee

Industry participants : Rs. 10000/-

Academic/ Faculties : Rs. 3000/-

Research scholars : Rs. 2000/-

Registration fee includes registration kit, lunch, accommodation and refreshments

Payment mode

The Registration form in the prescribed format, along with non-refundable DD drawn in favor of "DEAN CEP, IIT KHARAGPUR", payable at KHARAGPUR, to be sent to the mentioned contact address provided below on or before Jan 1, 2014.