Instituto Tecnológico de Costa Rica
Computer Engineering Academic Area

Proyecto de Diseño en Ingeniería en Computadores

Project Plan

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February 13, 2018

1 Name of the project

Design of Application Specific Instruction Set Processors (ASIPs) for Approximate Computing

2 Name of the institution

Chair for Embedded System (CES), Kalrsruhe Instituteof Technology (KIT), Germany, and Laboratorio Sistemas Embebidos y Electrónica Digital (SEED-Lab) del Instituto Tecnológico de Costa Rica

3 Confidentiality requirements

Due to the academic nature of the project, there are no confidentiality requirements, however, there will not be published results during the development of the project but until the end of the work.

4 Problem description

Diseñar ASIPs aproximados para un conjunto de aplicaciones tolerantes a errores.

Design Compiler and Prime Time, Synopsys

ModelSim, Mentor Graphics

ISE, Xilinx + tarjeta Virtex-IV/V

ASIPMeister

CoSy compiler

5 Objectives

5.1 General objectives

To explore the design of Application-Specific Instruction Set Processors (ASIP) to be used in error tolerant applications.

5.2 Specific objectives

The project has the following specific objectives:

1. To select 3 error tolerant applications to be evaluated.
2. To develop at least 3 instances of approximated hardware for tolerant error sections for each of the selected applications.
3. To develop ASIPs configurations using specific approximated instruction.
4. To evaluate, with the use of approximated instructions, a set of applications in terms of execution time, area and power consumption vs the error achieved for the approximated ASIP.

6 Personas involucradas en el proyecto

7 Descripción de la solución

8 Entregables y criterios de aceptación

Los entregables esperados son los siguientes:

Nombre	Descripción	Criterios de aceptación
Requerimiento 1.1	Instancias de hardware aproximado	[criterio]
Requerimiento 2.1	Configuración de ASIPs aproximados	[criterio]
Requerimiento 3.1	Datos de tiempo de ejecución, área y potencia	[criterio]
Requerimiento 4.1	Comparación y análisis de los resultados obtenidos	[criterio]

9 Análisis de riesgos

Riesgo	Probabilidad de ocurrencia	Impacto (horas)	Exposición a riesgo (horas)
Riesgo X	0.5	8	4

10 Actividades y presupuesto de esfuerzo

11 Cronograma

References