

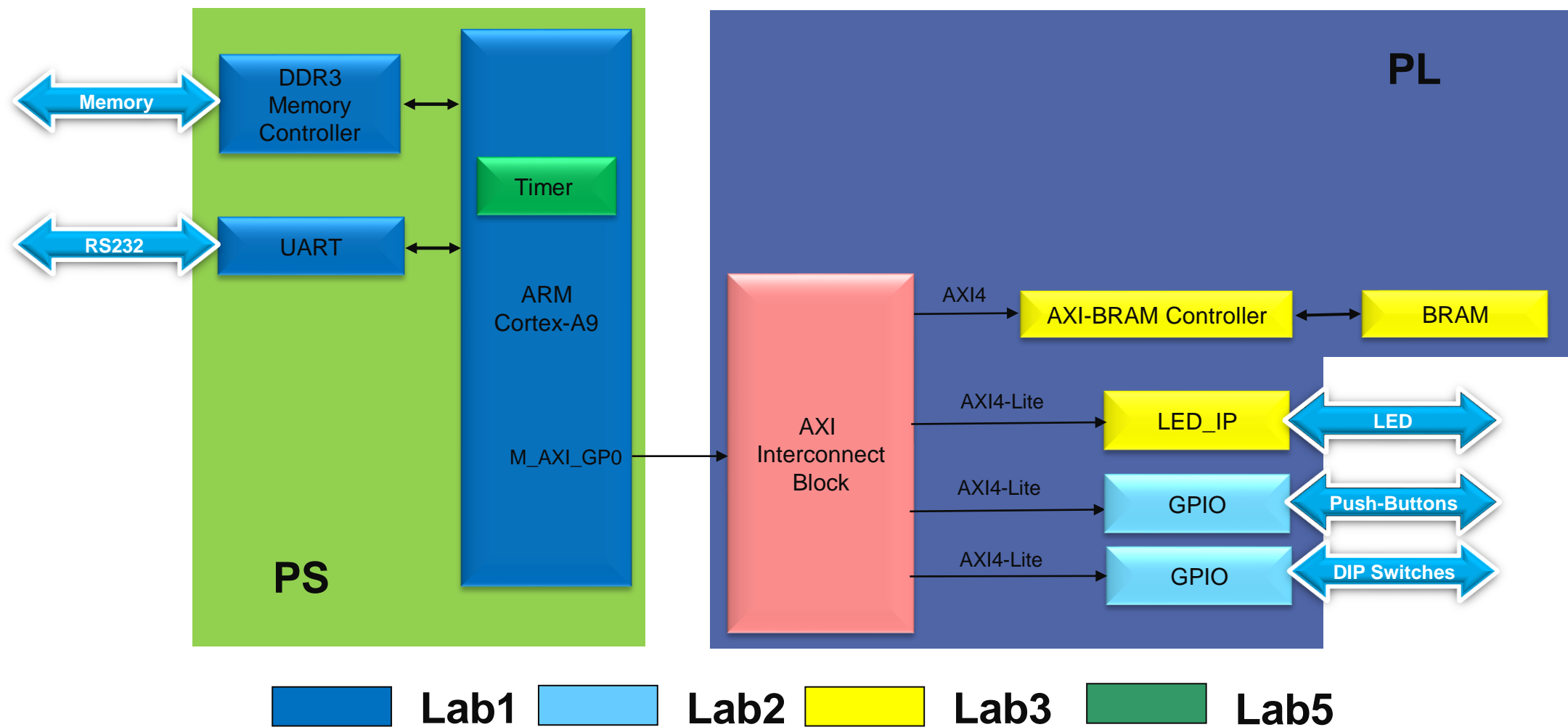


Lab1 Intro

Create a Processor System with Zynq

ARM Cortex-A9 based Embedded System Design

Lab1 through Lab5



Lab4 uses hardware built in Lab3

Introduction

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the title

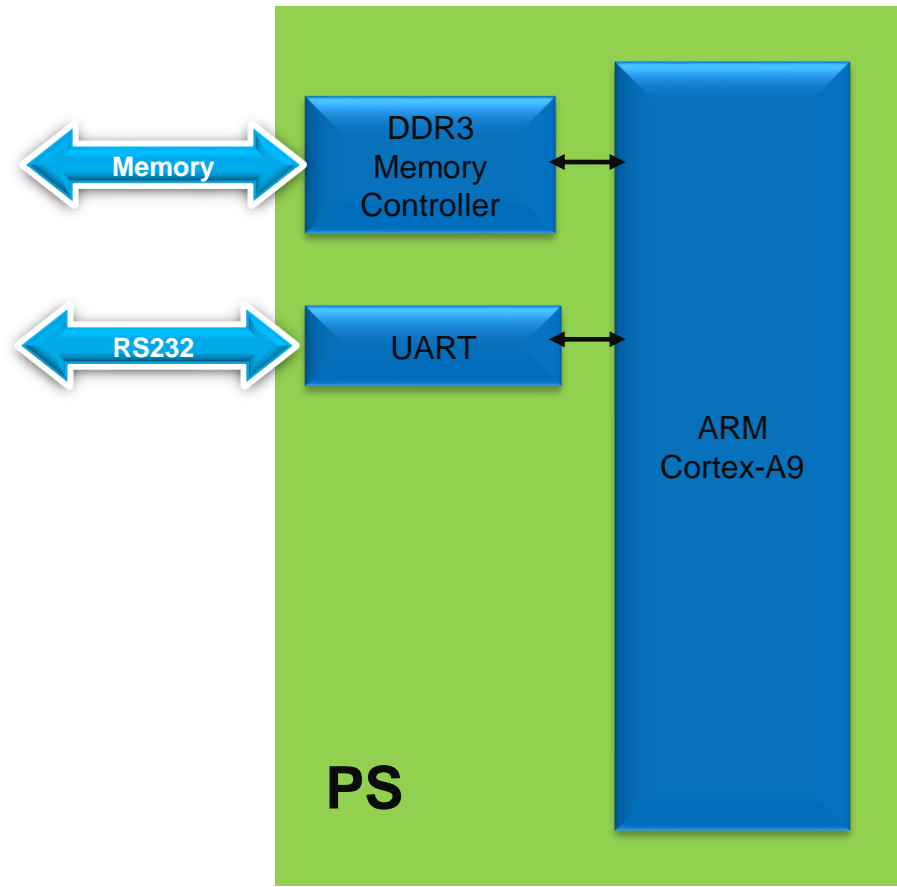
- ▶ This lab guides you through the process of using Vivado and IP Integrator to create a simple ARM Cortex-A9 based processor system
- ▶ Targeting the PYNQ-Z2 board
 - Very similar steps, differences pointed out in the instructions
 - Follow the instructions for the board you are using
- ▶ You will use Vivado to create the system and generate a software application from one of the standard project templates in Vitis IDE to verify the hardware functionality

Introduction

- ▶ This lab guides you through the process of using Vivado and IP Integrator to create a simple ARM Cortex-A9 based processor system targeting the PYNQ-Z2 board
- ▶ You will use Vivado to create the system and generate a software application from one of the standard project templates in Vitis IDE to verify the hardware functionality

ARM Cortex-A9 based Embedded System Design

Lab1: Use Vivado to Create a System



Procedure

- ▶ Create a project using Vivado
- ▶ Invoke IP Integrator from Vivado and build basic system
- ▶ Generate top-level HDL in Vivado and Export to Vitis
- ▶ Generate a simple memory test application in Vitis IDE
- ▶ Verify the functionality in hardware

Summary

- ▶ Vivado software allows creating or adding an embedded processor source and invoking IP Integrator.
- ▶ A block diagram, representing the hardware design, provides hardware system parameters information.
- ▶ After the system has been defined and configured, the hardware can be exported, and Vitis IDE can create the platform and system from hardware specification file (xsa).
- ▶ Software development is done in Vitis IDE which provides several application templates including memory tests.
- ▶ You verified the hardware operation by downloading the test application, executing on the processor, and observing the output in the serial terminal.



Thank You

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