



Lab4 Intro

Writing Basic Software Application

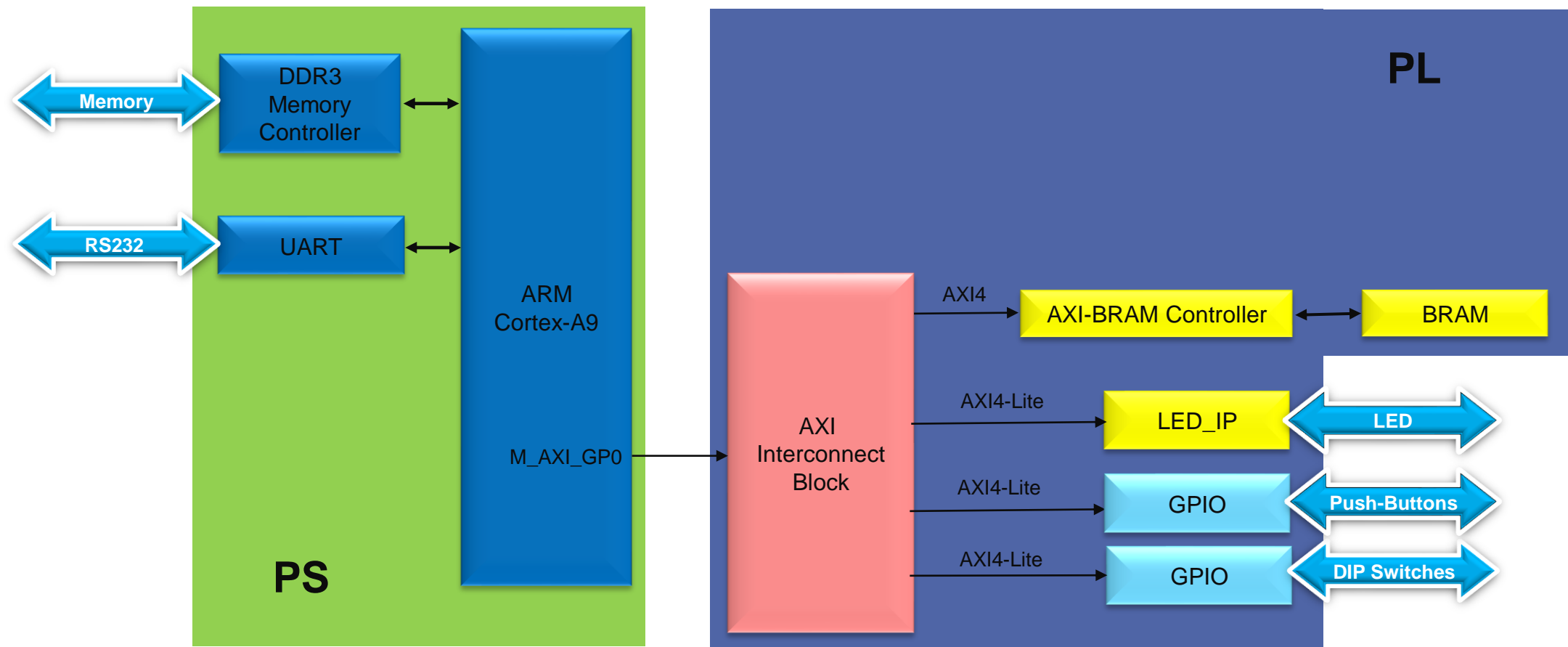
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Introduction

- ▶ This lab guides you through the process of writing a basic software application. You will add AXI BRAM controller and a BRAM memory.
- ▶ Then you will create a software project in Vitis IDE and develop a software that will monitor dip switches and write to the LED_IP device to which LEDs are connected.
- ▶ You will also modify a linker script file and view its effect on the section location.
- ▶ Finally, you will download the bit file and verify the functionality

ARM Cortex-A9 based Embedded System Design

Lab4: Add BRAM and develop software



Procedure

- ▶ Open project in Vivado
- ▶ Add an internal BRAM
- ▶ Generate bitstream and invoke Vitis IDE
- ▶ Create a software project
- ▶ Analyze assembled object files
- ▶ Verify the design in hardware

Summary

- ▶ Use Vitis IDE to define, develop, and integrate the software components of the embedded system.
- ▶ You can define a device driver interface for each of the peripherals and the processor.
- ▶ Vitis imports an xml file and lets you update the settings so you can develop the software side of the processor system.
- ▶ You can then develop and compile peripheral-specific functional software and generate the executable file from the compiled object codes and libraries. If needed, you can also use a linker script to target various segments in various memories.



Thank You

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