PYNQ Tutorial Introduction

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Goals

- **Introduction to the PYNQ project**
  - Pynq framework
  - PYNQ-Z2 board
  - Jupyter Notebook Interface
  - Overlays and Hardware designs
  - Designing overlays
- **Hands-on experience with Jupyter Notebook and the board**

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Agenda

Session 1

Introduction to the PYNQ project

Board setup

Labs: **Getting started with Jupyter Notebooks**

Getting started with IPython

Exploring the board

Programming on-board peripherals

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Agenda (continued)

Session 2

Introduction to overlays

Labs: **Peripherals: Grove Temp sensor**

Peripherals: Pmod OLED

Peripherals: Grove LED bar (optional)

Peripherals: Grove ALS sensor (optional)

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Agenda (continued)

Session 3

Pynq IOPs

***logictools* overlay**

Labs: **Using Wavedrom**

Using Boolean generator

Using Pattern generator

Using FSM generator

MicroBlaze programming

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Agenda (continued)

Session 4

Overlay design methodology

Labs: **Using PS GPIO, AXI GPIO**

MMIO with PL slaves

Memory allocation with Xlnk

Accessing DRAM from PL masters

Using DMA with AXI streams

Resizer example

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