PYNQ Tutorial Introduction

Goals

- **Introduction to the PYNQ project**
  - Pynq framework
  - PYNQ-Z1/Z2 board
  - Jupyter Notebook Interface
  - Overlays and Hardware designs
  - Designing overlays
- **Hands-on experience with Jupyter Notebook and the board**
- **Feedback**

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

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)

Agenda (continued)

Session 3

Pynq IOPs

***logictools* overlay**

Labs: **Using Wavedrom**

Using Boolean generator

Using Pattern generator

Using FSM generator (optional)

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

Closing remarks and feedback

Adaptable.
Intelligent.

XILINX