**PYNQ: Python productivity for Zynq**

PYNQ is an open-source framework that enables programmers who want to use embedded systems to exploit the capabilities of Xilinx Zynq SoCs. It allows users to exploit custom hardware in the programmable logic without having to use ASIC-style CAD tools. Instead the SoC is programmed in Python and the code is developed and tested directly on the embedded system. The programmable logic circuits are imported as hardware libraries and programmed through their APIs, in essentially the same way that software libraries are imported and programmed.

The framework combines four main elements: (1) the use of a high-level productivity language, Python in this case; (2) Python-callable hardware libraries based on FPGA overlays; (3) a web-based architecture incorporating the open-source Jupyter Notebook infrastructure served from Zynq's embedded processors; and (4) Jupyter Notebook's client-side, web apps. The result is a web-centric programming environment that enables software programmers to work at higher levels of design abstraction and to re-use both software and hardware libraries.

This tutorial will give a hands-on introduction to PYNQ framework using recently introduced PYNQ-Z2 board. It will feature the latest PYNQ release which includes an updated API, an optimized video pipeline, a simplified way of integrating new hardware and drivers into PYNQ, and developing, compiling, and deploying C-language code straight from the Jupyter notebook without opening Xilinx SDK tool.

**Attendees are expected to bring PYNQ-Z2 board and associated basic kit to conduct labs. The board and the associated basic kit can be purchased from Libertron. Attendees may contact** cho@libertron.com **to purchase the kit.**