

PiLC

What is the PiLC?

The PiLC (Raspberry **Pi** Logic **C**ontroller) module provides a flexible solution for various signal processing tasks emerging at synchrotron radiation experiments.

The basic components are an embedded PC, an FPGA chip and IO Cards interfaces for digital and analog signals.

The module has been designed to control FPGA operation from a widely-used, user-friendly platform (Debian).

During operation, the embedded PC loads the firmware, which has been developed for a specific application, into the FPGA, activates it and provides access to the FPGA registers. At Petra-III, the PiLC is integrated into the Tango (www.tango-controls.org) control system making its functionality available for remote clients.

It is possible to build in up to 16 different I/O Cards. For now there are Cards for:

- Digital I/O TTL or NIM
- ADC 16bit 1MBit/s
- DAC 16bit 1MBit/s
- PT sensors
- Potential-free relay contact
- Diff. ADC 18Bit
- Thermocouple sensors

To get the signals in or out the PiLC there are 16 Lemo connectors. Each Lemo connector has an RGB LED to display the status.

The PiLC has a touch display for visualization and control purposes.