

What is the PiLC

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

The basic components are an embedded PC, a 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

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

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