Firmware for uTCA-based LLRF System

Wojciech Jałmużna

Agenda

- **Support for many new peripherals**

- Latency (due to distributed system)

- Controller bandwidth

- Communication bandwidth

- Resource usage

Firmware requirements

- Support for many new peripherals

- **Latency**

- Controller bandwidth

- Communication bandwidth

- Resource usage

Firmware requirements

- Support for many new peripherals

- Latency

- **Controller bandwidth**
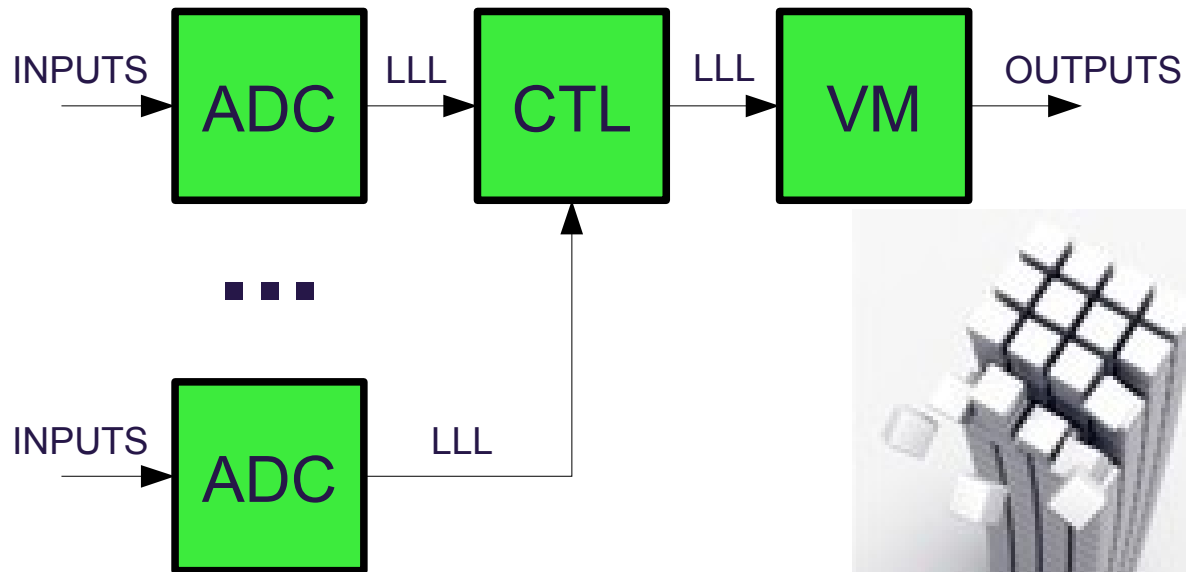
- **Communication bandwidth**

- Resource usage

- Support for many new peripherals

- Latency

- Controller bandwidth

- Communication bandwidth

- **Resource usage**

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Firmware structure

- Good structure planning needed (extension possible)

- Current firmware structure is a little bit overloaded

INPUTS → **ADC** → LLL → **CTL** → LLL → **VM** → OUTPUTS

. . .

INPUTS → **ADC** → LLL
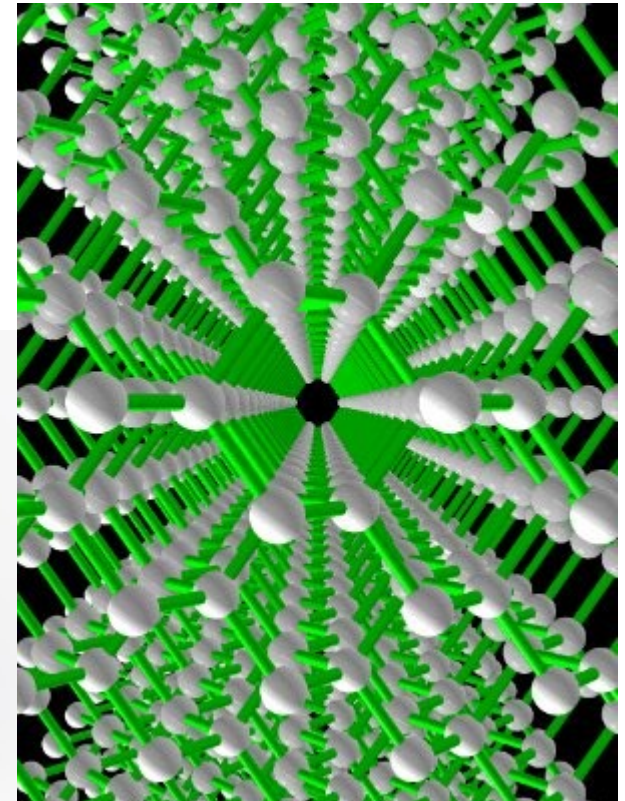
LLL – Low Latency Links based
on current implementation at FLASH

Progress report (SIS8300)
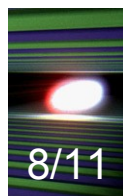
- PCIe bridge completed (can also be used for other boards)

- Memory interface functional

- Timing configuration done

- First application responsible for sampling already tested

Progress report (uTCA controller)

- Unfortunately, I have received the board few days ago, the items which are already completed are visible

  inside the box.

Time-schedule

- Hopefully in 1 week the SIS8300 firmware will be ready.

- Basic firmware for uTCA controller requires 3-4 weeks at least

- LLRF firmware for uTCA system (version for uTCA demo) requires at least 2 months

Thank you for Your attention