

A Compact Silicon Strip Detector Design with SoC-FPGA-based Readout Electronics

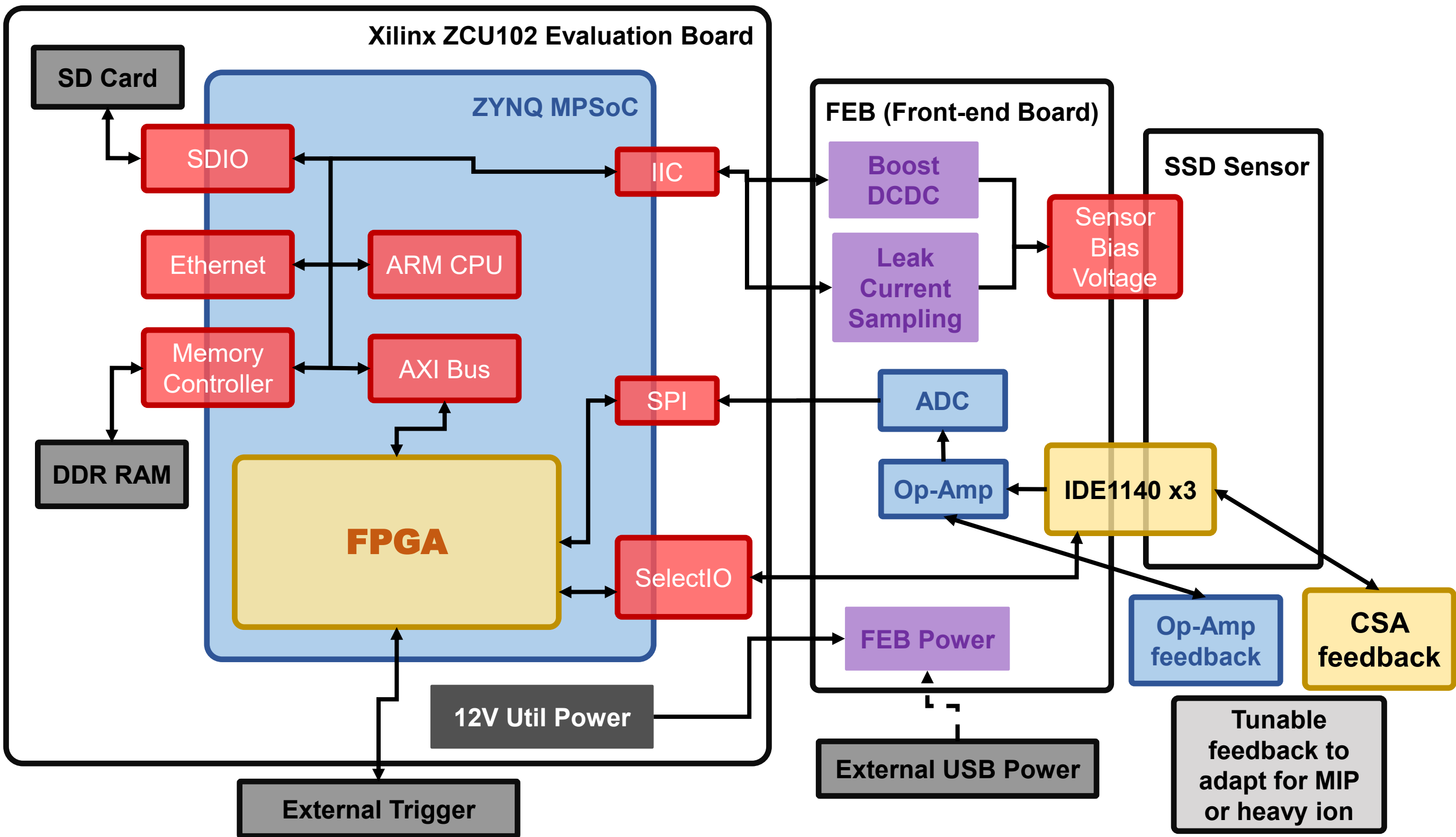
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Motivation

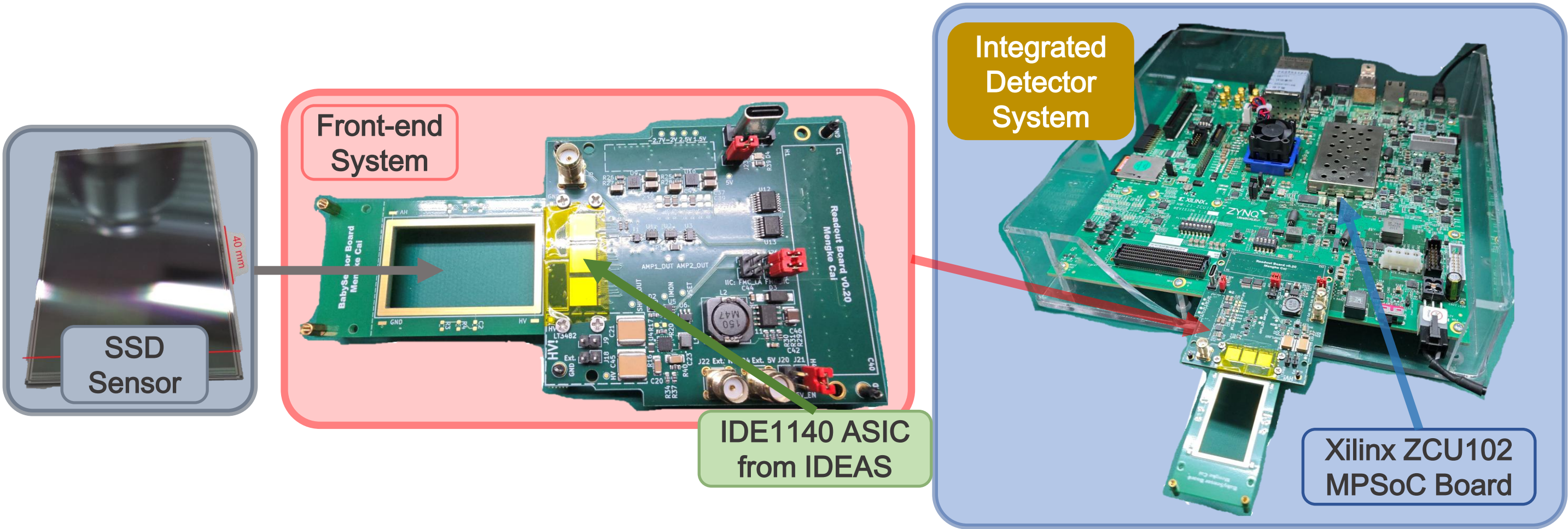
- A compact silicon strip sensor detector for cosmic ray and test beam telescope
- DAQ firmware and software hosted by ZCU102 with ZYNQ MPSoC (ARM + FPGA)
- Tunable response range of front-end design for PID from MIP to heavy ions

System Architecture

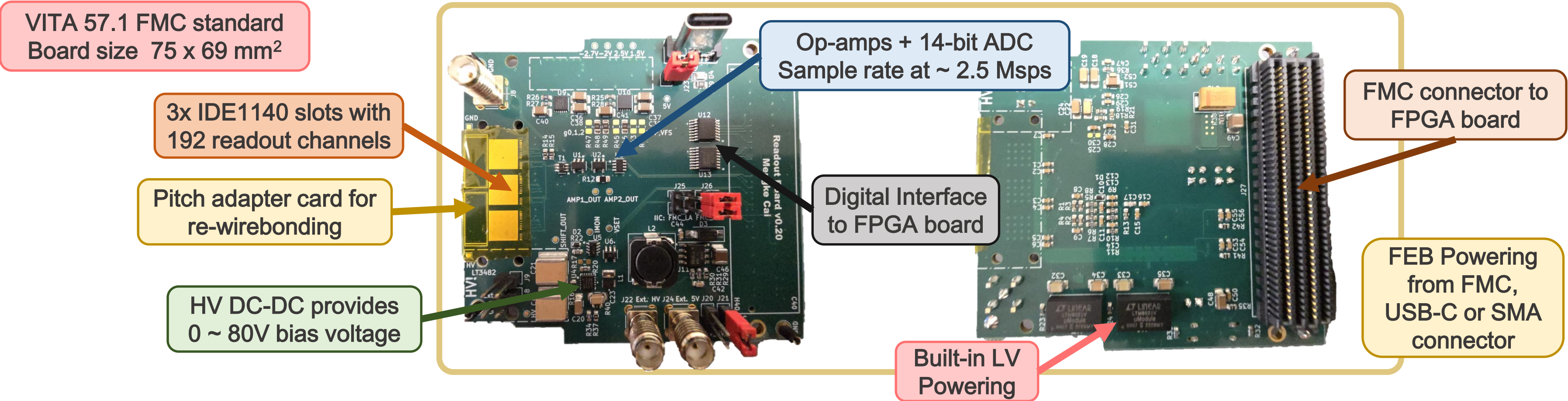
- A fully integrated system
- Tunable FEB configuration for MIP or heavy ion
- Require only one input power rail
- Built-in bias voltage for sensor in FEB



System Integration



Front-end Board Design



Future Upgrades

- FMC expander to connect multiple FEB to single FPGA board
- Readout self-triggering
- Explore other readout ASIC choice
- From ZCU102 to economic choice of SoCs / SoMs