

Preliminary Design of Multi Channels High Precision Measurement Electronics System for CJPL

Wednesday 27 August 2025 18:00 (2 hours)

Multi Channels 24-Bit/2 MSps high precision electronics system is designed for demand of CJPL to measure the analog signals such as high voltage, particle accelerator magnet current. Based on the dual FMC carrier board of WRX602, we present the preliminary design of 4-Channel 24-Bit/2 MSps FMC. The state-of-the-art 24-Bit SAR ADC of AD4630-24 from ADI is used and a cascade front signal conditioner with programmable instrumentation amplifier and differential ADC driver is deployed for best noise and distortion with relaxed drive requirement for signal source. On-board LT6655 voltage reference to AD4630-24 and drive the REFIN pin through an R-C filter to reduce low frequency noise and external reference with the best voltage reference nowadays ADR1001 can be used for comparison. The preliminary result of 100-dB SNR can be reached and more details will be reported in this paper.

Collaboration you are representing

Authors: LIANG, Bo (Tsinghua University); XUE, Tao (Tsinghua University); YANG, Haoyan (Tsinghua University); WEI, Liangjun (Tsinghua University); CUI, Na (Tsinghua University); CHEN, Xiantao (Tsinghua University); LI, Jianmin (Tsinghua University); LIU, Yinong (Tsinghua University)

Presenter: LIANG, Bo (Tsinghua University)

Session Classification: Poster session

Track Classification: Underground Laboratories – Technology