

# Construction of readout electronics system for CEPC ScECAL

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To acquire the feature of Higgs particle, construction of Circular Electron Positron Collider (CEPC) was proposed in recent years. Electromagnetic calorimeter based on scintillator and SiPM (ScECAL) is one of the options of the electromagnetic calorimeter system of CEPC. ScECAL Electronic prototype was constructed to verify the feasibility. Special readout electronics system was built to meet the demands of ScECAL prototype. The ScECAL prototype contains 32 layers of basic units which hold 6720 scintillators coupled with SiPM in total. To improve the performance of prototype, the readout electronics system was highly embedded in the prototype by using special design and difficult craft. The readout system also comes with a low power consumption which is about 8mW per channel and this is important in improving integration. There are 2 calibration system integrated in the prototype: electronic calibration system and light calibration system, which could calibrate the front-end electronics system and the condition of SiPM respectively. Besides, a temperature monitor and high voltage feedback strategy is adopted in the prototype because the gain of SiPM highly depends on temperature.

## Summary

The result of long-term cosmic ray proved that the readout system functions well and meets the demands of ScECAL prototype.

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