

# SKIROC : A FRONT-END CHIP TO READ OUT THE IMAGING SILICON-TUNGSTEN CALORIMETER FOR ILC

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This abstract describes the new front end ASIC designed for the silicon tungsten electromagnetic calorimeter called SKIROC.

This new chip embeds the main features required for the ILC final detector.

## Summary

Integration and low-power consumption of the read-out ASIC for the International Linear Collider (ILC) 82-million-channel W-Si calorimeter must reach an unprecedented level as it will be embedded inside the detector. Uniformity and dynamic range performance has to reach the accuracy to achieve calorimetric measurement. A first step towards this goal has been a 10,000-channel physics prototype of 18\*18 cm which is currently in test beam in CERN.

A new version of a full integrated read out chip (SKIROC) has been designed to equip the technologic prototype to be built for 2009. Based on the running physics prototype ASIC (FLC\_PHY3), it embeds most of the required features expected for the final detector.

The dynamic range has been improved from 500 to 2000 MIP. An auto-trigger capability has been added allowing built-in zero suppress. The number of channel has been doubled reaching 36 to fit smaller silicon pads and the low-noise charge preamplifier now accepts both AC and DC coupled detectors. After an exhaustive description, the measurement results of that new front-end chip will be presented. The results on the technological R&D concurrently conducted on the ultra-thin PCB hosting both the front-end electronic and the silicon detectors will also be described.

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