

COLLABORATION OPPORTUNITY

The SPIROC Chip (Dedicated very front-end electronics for SiPM read-out)

Références

IN2P3: *jimmssnn* (rempli par le gestionnaire au siège)
Others: *autres références, numéros de brevets, présentations, etc...*

Description

SPIROC is a dedicated very front-end electronics for an ILC prototype hadronic calorimeter with SiPM readout. It has been developed to match the requirements of large dynamic range, low noise, low consumption, high precision and large number of readout channels needed. SPIROC is an auto-triggered, dual gain, 36-channel ASIC which allows to measure on each channel the charge from one photoelectron to 2000 and the time with a 100ps accurate TDC. An analogue memory array with a depth of 16 for each is used to store the time information and the charge measurement. A 12-bit Wilkinson ADC has been embedded to digitize the analogue memory contents (time and charge on 2 gains). The data are then stored in a 4kbytes RAM. A high-level state machine has been integrated to manage all these features automatically and control the data transfer data to the DAQ.

Technology and/or Application Domain(s)

SiPM detectors

Keywords :

Hadronic calorimeter, readout chip, SiPM, time measurement, power pulsing.

Offering: Licensing / Collaboration :

Collaboration, chips, support

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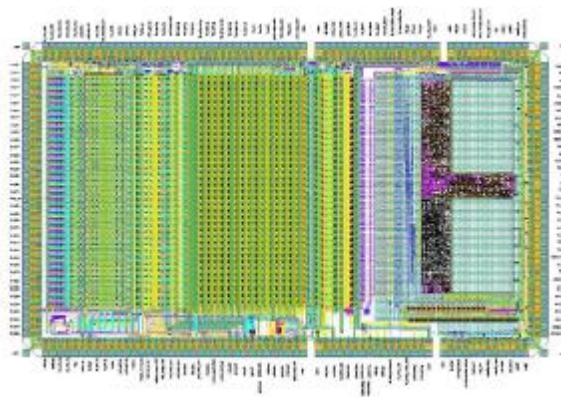


Figure 1: SPIROC layout

State of development / Innovative aspects and main advantages

System on chip, complete readout, ultra low power chip, integrated TDC

Fields of application / Potential commercial applications

All applications with SiPM detectors: HEP physics, astrophysics, nuclear physics, and also medical imaging, vulcanology, archeology, etc.

Other applicants

None

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