

Digital part of SiPM Integrated Read Out Chip ASIC for ILC hadronic calorimeter

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SPIROC (SiPM Integrated Read Out Chip) is the Very Front End ASIC that reads ILC hadronic calorimeter SiPM. It integrates a very complex digital part which performs many functions and manages Acquisition, A/D Conversion and data Read-out.

The Acquisition module manages Switched Capacitor Array in which charge and time are stored. This is done by an asynchronous module to meet time requirements. This part manages 36 channels with a depth of 16 for each.

The conversion step permits to convert analogue data into digital data by driving an integrated Wilkinson ADC. Data are stored into an integrated 4K bytes memory.

The read out step handles the communication between chips and sendout of data. ASIC are daisy chained to minimize lines between boards.

Primary author: Mr DULUCQ, FREDERIC (Laboratoire de l'Accélérateur Linéaire)

Co-authors: Mr DE LA TAILLE, Christophe (Laboratoire de l'Accélérateur Linéaire); Mrs MARTIN CHASSARD, Gisele (Laboratoire de l'Accélérateur Linéaire); Mr FLEURY, Julien (Laboratoire de l'Accélérateur Linéaire); Mr RAUX, Ludovic (Laboratoire de l'Accélérateur Linéaire); Mr BOUCHEL, Michel (Laboratoire de l'Accélérateur Linéaire)

Presenter: Mr DULUCQ, FREDERIC (Laboratoire de l'Accélérateur Linéaire)

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