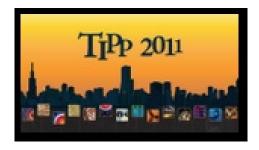
## TIPP 2011 - 2nd International Conference on Technology and Instrumentation in Particle Physics



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## Readout electronics for Hyper Suprime-Cam

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Hyper Suprime-Cam (HSC) is a 1 Giga pixel CCD camera for a wide-field galaxy survey at the Subaru 8-m telescope. It will be mounted on the prime focus of the Subaru telescope and is scheduled to receive its first light in 2011. The primary science goals include a measurement of the equation of state parameter of dark energy based on the weak lensing survey over ~2,000 square degrees. HSC has 1.5-degree-diameter field of view, 7 times larger than that of its predecessor Suprime-Cam. It consists of a large corrector lens system and a focal plane equipped with 116 pieces of 2k x 4k fully depleted CCDs. Combined with the superb image quality and large aperture of Subaru telescope, the survey using HSC can cover a cosmological volume and reach the limiting magnitude of at least one magnitude fainter than the other surveys conducted using 4-m class telescopes.

The readout electronics of HSC consist of two parts: one is the analog front-end electronics (FEE) and the other is the digital back-end Electronics (BEE). The FEE is placed in a vacuum dewar together with the CCDs, and processes the analog CCD signal into 16-bit digital data. The BEE is small and light enough to be integrated into the camera unit, and employs three links of Gigabit Ethernet to readout a 2.3-GByte single exposure within 10 seconds at fast readout operation.

We present the overview of HSC and describe its readout electronics including the detail of BEE.

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