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Test of Gigabit Transceiver ASIC with 34-AWG twin-axial cable for the ATLAS ITk Pixel detector

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The Gigabit Transceiver (GBCR) is one of the ASICs designed for the ATLAS Inner Tracker (ITk) upgrade project. It recovers the high-frequency loss of the data in the transmission cable that brings signals from the pixel readout chip. There are 4 receiver channels, each operating at 5.12 Gbps, and a transmitter channel operating at 2.56 Gbps. The first prototype has been designed and tested with the 5-meter 34-AWG twin-axial cable. We find that the tests yield favorable results. The second prototype is under development with a change of the number of receiver channels and operating frequency. We will report on the prototype, existing tests, and future plans.

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