

Low Power, High Speed Serial Link Transceiver Design for IoT Applications

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The era of Internet of things (IoT) and Big data, needs the significant amount of data to be generated and transmitted through different hardware and software protocols. These require various methods for their listing, storage, and transmission. IoT creates an enormous amount of information from multiple connected devices. Since this data is increasing day by day, devices connected with IoT-based network required some standard protocol to work together with data handling, so the data can be utilized with any of the network protocols.

IoT protocol uses various communication methods between connected devices, which play a significant role in Wireline and Wireless communication. For transfer of information between devices and network fast data transmission rate is required. The Internet bandwidth requirement also boosted up to match with IoT systems need. As IoT does not need any human to human communication, the large number of real-time applications can use this emerging field. It works on the machine to machine communication, which are deployed over the large area with numerous data sensing devices.

The growth rate in cellular networks is also making a milestone for working together with IoT and Big data. In mobile networks, LTE-A is the latest standard, which meets the present social requirement as well as international standard.

As demands for high speed data transmission increases in LTE, IoT and Big Data. To achieve that speed we can choose parallel communication or serial link communication. Serial Link transceivers have the advantage of Bandwidth, which makes it a most promising solution. Serial Link also has application in SATA, PCI Express, HDMI, and USB3.0.

At Nanoscale Device, VLSI circuits & system design lab, IIT Indore we are working on Serial Link transceiver design. The main design focus is on the Phase locked loops, equalization of data and different coding schemes for SerDes Transceivers.