



Application of FPGA-Based Sensor Systems

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Message from the Guest Editor

Dear Colleagues,

The development of intelligent sensor technology with the capacity for integrated processing intelligence is crucial for a variety of reasons. It enables immediate digitization of sensor-detected information, avoiding losses or alterations during transmission, and facilitates rapid data analysis and real-time response. This proximity between the sensor and intelligence optimizes systems, reducing latency and communication overhead. The use of programmable parallel processing units such as field-programmable gate arrays (FPGAs) provides the capability of executing operations in parallel, allowing for increased speed and channel capacity. Furthermore, the reprogrammability offered by FPGA solutions makes these sensors more flexible and quicker to design than fully integrated solutions. Moreover, through processing time-mode techniques, it is sometimes possible to completely eliminate the fragile, sensitive, and often poorly integrable read-out electronics that separates the sensor from the FPGA, resulting in a more compact and cost-effective system.





sensors



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Message from the Editor-in-Chief

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