13TF155 An FPGA-based System for Real-time Monitoring of Voltage Harmonics

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In this study, a real-time monitoring system for the purpose of monitoring 3-phase voltage harmonics instantaneously has been prepared by using Field Programmable Gate Arrays (FPGA). In the monitoring system that has been achieved, 3-phase voltage signals are transferred with a devised signal input card to an FPGA device. The harmonic values of the voltage signals belonging to each phase are obtained instantaneously with the 128 floating-point format FFT algorithm embedded in an FPGA. The obtained harmonic values are transferred onto a computer medium with the communication protocol RS232 that is created in the FPGA device. A software has been created for the purpose of visual monitoring of both the graphical interface program that has been done on computer and the harmonic data belonging to these signals.
Keywords: FPGA, Harmonic, FFT, Harmonic Monitoring System

14AS004 Using an IEEE1149.1 Test Bus for Fault Diagnosis of Analog Parts of Electronic Embedded Systems

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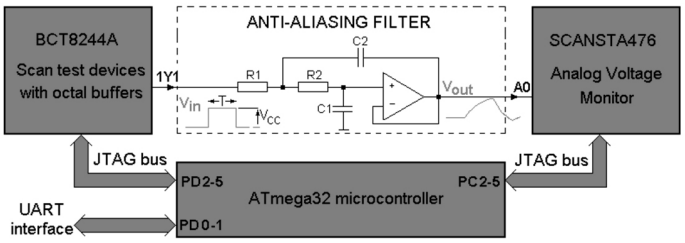
The new solution of a BIST called the JTAG BIST for self-testing of analog parts of electronic embedded systems is presented in the paper. The JTAG BIST consists of the BCT8244A and SCANSTA476 integrated circuits of Texas Instruments controlled via the IEEE 1149.1 bus. The BCT8244A is a scan test device with octal buffers, and the SCANSTA476 is a 12-bit ADC with 8 analog input channels. A self-testing approach is based on the fault diagnosis method in which we stimulate the tested analog part by a single square pulse using the BCT8244A and we sample the time response of the analog part two times with the SCANSTA476. The measurement results are used for a fault detection and also a single soft fault localization of the analog part.



Block scheme of a JTAG BIST for self-testing of analog parts of mixed-signal electronic systems