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Spectral Transforms; 2.2 Fourier Series; 2.3 Bases for Systems of Boolean Functions; 2.3.1 Basis Functions; 2.3.2 Walsh Functions; 2.3.2.1 Ordering of Walsh Functions; 2.3.2.2 Properties of Walsh Functions; 2.3.2.3 Hardware Implementations of Walsh Functions; 2.3.3 Haar Functions; 2.3.3.1 Ordering of Haar Functions; 2.3.3.2 Properties of Haar Functions; 2.3.3.3 Hardware Implementation of Haar Functions; 2.3.3.4 Hardware Implementation of the Inverse Haar Transform
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2.7.4 Generalized Autocorrelation Functions2.8 Harmonic Analysis over an Arbitrary Finite Abelian Group; 2.8.1 Definition and Properties of the Fourier Transform on Finite Abelian Groups; 2.8.2 Construction of Group Characters; 2.8.3 Fourier-Galois Transforms; 2.9 Fourier Transform on Finite Non-Abelian Groups; 2.9.1 Representation of Finite Groups; 2.9.2 Fourier Transform on Finite Non-Abelian Groups; 3. CALCULATION OF SPECTRAL TRANSFORMS; 3.1 Calculation of Walsh Spectra; 3.1.1 Matrix Interpretation of the Fast Walsh Transform
3.1.2 Decision Diagram Methods for Calculation of Spectral Transforms3.1.3 Calculation of the Walsh Spectrum Through BDD; 3.2 Calculation of the Haar Spectrum; 3.2.1 FFT-Like Algorithms for the Haar Transform; 3.2.2 Matrix Interpretation of the Fast Haar Transform; 3.2.3 Calculation of the Haar Spectrum Through BDD; 3.3 Calculation of the Vilenkin-Chrestenson Spectrum; 3.3.1 Matrix Interpretation of the Fast Vilenkin-Chrestenson Transform; 3.3.2 Calculation of the Vilenkin-Chrestenson Transform Through Decision Diagrams; 3.4 Calculation of the Generalized Haar Spectrum
3.5 Calculation of Autocorrelation Functions

Sommario/riassunto

Spectral techniques facilitate the design and testingof today's increasingly complex digital devicesThere is heightened interest in spectral techniques for the design of digital devices dictated by ever increasing demands on technology that often cannot be met by classical approaches. Spectral methods provide a uniform and consistent theoretic environment for recent achievements in this area, which appear divergent in many other approaches. Spectral Logic and Its Applications for the Design of Digital Devices gives readers a foundation for further exploration of abstract harmon