Preface

The foundation of this book is based on my very exciting time at Philips Research Laboratories and later at NXP Research. After 14 years of research on Sigma Delta Converters and other IP blocks, I have learned that IC design and in particular the design of Sigma Delta Converters is not only a very interesting and multi-dimensional research topic, but is also a religion interpreted differently by each and every individual. In the book, I have tried to include my work, view and experience in the field of Sigma Delta Converters to give the reader a head-start in the design of this intriguing type of analog to digital converter.

The book rests on the experience of designing, and coaching others to design tens of different Sigma Delta Converters for numerous applications, like instrumentation, hearing aids, mobile phones, battery management, car radio, etc. In this book the application area of Sigma Delta Converters is limited to cellular and connectivity terminals, to limit the scope.

I partitioned the book systematically, by looking at what exactly determines the quality of a system. The found so-called quality indicators (Algorithmic accuracy, Robustness, Emission, Flexibility and Efficiency) are used as a framework throughout the book. The book shows all different aspects in the design of Sigma Delta Converters: system level specification and design, IP architecture, circuit implementation and layout are all subjects of this book. Also the verification of theory and silicon implementations by measurements is included. The book assumes some background on receiver architectures, Sigma Delta Converter theory, and IC design.

I very much hope you enjoy reading the book, and while reading, please do not forget: Analog design is beautiful, digital design is just a time discrete and quantized portion of it.

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