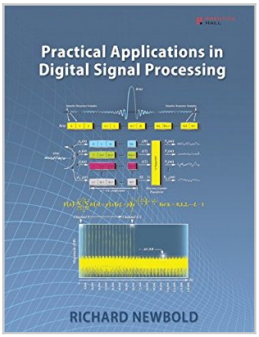

Practical Applications in Digital Signal Processing

By Richard Newbold

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The Only DSP Book 100% Focused on Step-by-Step Design and Implementation of Real Devices and Systems in Hardware and Software
Practical Applications in Digital Signal Processing is the first DSP title to address the area that even the excellent engineering textbooks of today tend to omit. This book fills a large portion of that omission by addressing circuits and system applications that most design engineers encounter in the modern signal processing industry.
This book includes original work in the areas of Digital Data Locked Loops (DLLs), Digital Automatic Gain Control (dAGC), and the design of fast elastic store memory used for synchronizing independently clocked asynchronous data bit streams. It also contains detailed design discussions on Cascaded Integrator Comb (CIC) filters, including the seldom-covered topic of bit pruning. Other topics not extensively covered in other modern textbooks, but detailed here, include analog and digital signal tuning, complex-to-real conversion, the design of digital channelizers, and the techniques of digital frequency synthesis. This book also contains an appendix devoted to the techniques of writing mixed-language CC++ Fortran programs. Finally, this book contains very extensive review material covering important engineering mathematical tools such as the Fourier series, the Fourier transform, the z transform, and complex variables.
Features of this book include
• Thorough coverage of the complex-to-real conversion of digital signals
• A complete tutorial on digital frequency synthesis
• Lengthy discussion of analog and digital tuning and signal translation
• Detailed coverage of the design of elastic store memory
• A comprehensive study of the design of digital data locked loops
• Complete coverage of the design of digital channelizers
• A detailed treatment on the design of digital automatic gain control
• Detailed techniques for the design of digital and multirate filters
• Extensive coverage of the CIC filter, including the topic of bit pruning
• An extensive review of complex variables
• An extensive review of the Fourier series, and continuous and discrete Fourier transforms
• An extensive review of the z transform

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Editorial Review

About the Author
Richard Newbold has been a digital hardware design engineer for more than thirty years. His designs have included special-purpose signal processing computers and systems, multirate filters, direct sequence spread spectrum processors, high-speed gallium arsenide ASIC design, wideband channelizers, fault-tolerant signal processors, adaptive beam forming, data lock loops, multirate PCM processing, adaptive filters, tuners, frequency synthesizers, digital automatic gain control, and much more. His practical design experience encompasses every topic covered in this text.

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