

Multirate Signal Processing for Communication Systems

By Fredric J. Harris

Download now

Read Online

Multirate Signal Processing for Communication Systems By Fredric J. Harris

Multirate Signal Processing for Communication Systems: Current Practice and Next Generation Techniques fredric j harris Multirate signal processing can reduce costs and improve performance in applications ranging from laboratory instruments to cable modems, wireless systems, and consumer entertainment products. This book offers the first systematic, clear, and intuitive introduction to multirate signal processing for working engineers and system designers. The author uses extensive examples and figures to illuminate a wide range of multirate techniques, from basic resampling to leading-edge cascade and multiple-stage filter structures. Along the way, he draws on extensive research and consulting experience to introduce processing itricksi shown to maximize performance and efficiency.Coverage includes: *Effective sampling and resampling in time and frequency domains *Relationships between IIR Filter specifications and filter length (taps) *Window design and equal-ripple (Remez) design techniques *Square-Root Nyquist and Half Band Filters, including new design enhancements *Polyphase IIR Filters: up-sampling, down-sampling, and cascade up-down sampling *Polyphase interpolators and filters that perform arbitrary sample rate change *Dyadic Half Band Filters, including quadrature mirror and IIR Filters *Polyphase Channelizers, including M-path modulators, demodulator channel banks, simultaneous interpolation, and channel bank formation *Comprehensive coverage of recursive all-pass filtersoa topic never before covered in this detail *Comparisons with traditional DSP design techniques *Extensive applications coverage throughout

Download Multirate Signal Processing for Communication Syst ...pdf

Read Online Multirate Signal Processing for Communication Sy ...pdf

Multirate Signal Processing for Communication Systems

By Fredric J. Harris

Multirate Signal Processing for Communication Systems By Fredric J. Harris

Multirate Signal Processing for Communication Systems: Current Practice and Next Generation Techniques fredric j harris Multirate signal processing can reduce costs and improve performance in applications ranging from laboratory instruments to cable modems, wireless systems, and consumer entertainment products. This book offers the first systematic, clear, and intuitive introduction to multirate signal processing for working engineers and system designers. The author uses extensive examples and figures to illuminate a wide range of multirate techniques, from basic resampling to leading-edge cascade and multiple-stage filter structures. Along the way, he draws on extensive research and consulting experience to introduce processing itricksi shown to maximize performance and efficiency.Coverage includes: *Effective sampling and resampling in time and frequency domains *Relationships between IIR Filter specifications and filter length (taps) *Window design and equal-ripple (Remez) design techniques *Square-Root Nyquist and Half Band Filters, including new design enhancements *Polyphase IIR Filters: up-sampling, down-sampling, and cascade up-down sampling *Polyphase interpolators and filters that perform arbitrary sample rate change *Dyadic Half Band Filters, including quadrature mirror and IIR Filters *Polyphase Channelizers, including M-path modulators, demodulator channel banks, simultaneous interpolation, and channel bank formation *Comprehensive coverage of recursive all-pass filtersoa topic never before covered in this detail *Comparisons with traditional DSP design techniques *Extensive applications coverage throughout

Multirate Signal Processing for Communication Systems By Fredric J. Harris Bibliography

- Sales Rank: #490606 in Books
- Published on: 2004-05-24
- Original language: English
- Dimensions: 9.20" h x 1.10" w x 7.20" l, 1.89 pounds
- Binding: Paperback
- 496 pages

Download Multirate Signal Processing for Communication Syst ...pdf

Read Online Multirate Signal Processing for Communication Sy ...pdf

Preface

D igitalsignal processing (DSP) has become a core body of material in undergraduateelectrical engineering programs. Several threads branch from this core toenable related disciplines, such as communication systems, source coding,multimedia entertainment, radar, sonar, medical and laboratory instruments, andothers. *Multirate signal processing* isone of these major threads. Multirate signal processing is the body of materialthat deals with concepts, algorithms, and architectures that embed sample ratechanges at one or more sites in the signal flow path.

There are two reasons to include multirate signal processing in thesolution of a particular signal-processing task. The first is reduction in costof the implementation. The second is enhanced performance of theimplementation. We might also include a third, personal incentive, which is,that it is fun to apply clever concepts to solve problems. We can hardlycomplete a multirate DSP design without a smile and the accompanying thought,,ÄúBoy, this is neat!,Äù

Traditional concepts developed in the DSP world are the same asthose developed in the analog-processing world. In both domains we learn anduse concepts such as convolution, Fourier transforms, transfer functions, polesand zeros, and others. When required to distinguish the two approaches we usethe qualifier ,Äúdiscrete,Äù when discussing the DSP version of thesefundamental concepts. The reason the two approaches are so similar is that theyboth emphasize *linear time invariant* (LTI) systems for which the toolsof analysis and synthesis are well developed.

Multirate signal processing brings to the designer an importanttool not available to the traditional DSP designer, who to the first orderapplies DSP techniques to emulate analog systems. We note that the interfacebetween the two versions of the world, continuous and discrete, is the samplingprocess. In the traditional DSP perspective, the sample rate is selected tosatisfy the Nyquist criterion but is otherwise incidental to the problem. Inmultirate signal processing, sele...

Users Review

From reader reviews:

Pamela Guarino:

The book untitled Multirate Signal Processing for Communication Systems contain a lot of information on the item. The writer explains the woman idea with easy means. The language is very clear to see all the people, so do certainly

not worry, you can easy to read it. The book was written by famous author. The author will bring you in the new period of time of literary works. It is easy to read this book because you can read more your smart phone, or program, so you can read the book in anywhere and anytime. In a situation you wish to purchase the e-book, you can open up their official web-site in addition to order it. Have a nice learn.

Melvin Wilhelm:

Beside that Multirate Signal Processing for Communication Systems in your phone, it can give you a way to get nearer to the new knowledge or facts. The information and the knowledge you may got here is fresh through the oven so don't always be worry if you feel like an outdated people live in narrow town. It is good thing to have Multirate Signal Processing for Communication Systems because this book offers to your account readable information. Do you sometimes have book but you do not get what it's facts concerning. Oh come on, that will not happen if you have this within your hand. The Enjoyable blend here cannot be questionable, just like treasuring beautiful island. Use you still want to miss this? Find this book and read it from now!

Scott Duran:

A lot of e-book has printed but it differs. You can get it by online on social media. You can choose the very best book for you, science, comedy, novel, or whatever simply by searching from it. It is named of book Multirate Signal Processing for Communication Systems. You can include your knowledge by it. Without making the printed book, it may add your knowledge and make an individual happier to read. It is most important that, you must aware about book. It can bring you from one destination to other place.

Angela Latham:

A number of people said that they feel uninterested when they reading a guide. They are directly felt it when they get a half parts of the book. You can choose the book Multirate Signal Processing for Communication Systems to make your current reading is interesting. Your personal skill of reading talent is developing when you just like reading. Try to choose basic book to make you enjoy to see it and mingle the sensation about book and reading especially. It is to be first opinion for you to like to wide open a book and go through it. Beside that the book Multirate Signal Processing for Communication Systems can to be your brand-new friend when you're really feel alone and confuse in doing what must you're doing of these time.

Download and Read Online Multirate Signal Processing for Communication Systems By Fredric J. Harris #A9WLKU6COPF

Read Multirate Signal Processing for Communication Systems By Fredric J. Harris for online ebook

Multirate Signal Processing for Communication Systems By Fredric J. Harris Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Multirate Signal Processing for Communication Systems By Fredric J. Harris books to read online.

Online Multirate Signal Processing for Communication Systems By Fredric J. Harris ebook PDF download

Multirate Signal Processing for Communication Systems By Fredric J. Harris Doc

Multirate Signal Processing for Communication Systems By Fredric J. Harris Mobipocket

Multirate Signal Processing for Communication Systems By Fredric J. Harris EPub