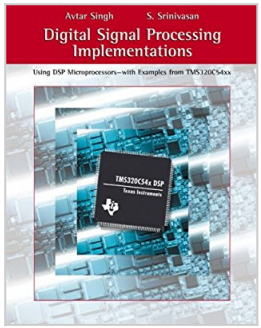

Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX)

By Avtar Singh, S. Srinivasan

Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) By Avtar Singh, S. Srinivasan

Bridging the gap between Digital Signal Processing theory and design, this implementation-oriented textbook is based on the authors' extensive experience in teaching graduate and undergraduate courses on the subject. The objective of the book is to help students understand the architecture, programming, and interfacing of commercially available programmable DSP devices, and to effectively use them in system implementations. Throughout the book, the authors utilize a popular family of DSP devices, viz., TMS320C54xx from Texas Instruments. In the end, students will be comfortable in using both hardware and software for designing with the programmable DSP devices.

Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX)

By Avtar Singh, S. Srinivasan

Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) By Avtar Singh, S. Srinivasan

Bridging the gap between Digital Signal Processing theory and design, this implementation-oriented textbook is based on the authors' extensive experience in teaching graduate and undergraduate courses on the subject. The objective of the book is to help students understand the architecture, programming, and interfacing of commercially available programmable DSP devices, and to effectively use them in system implementations. Throughout the book, the authors utilize a popular family of DSP devices, viz., TMS320C54xx from Texas Instruments. In the end, students will be comfortable in using both hardware and software for designing with the programmable DSP devices.

Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) By Avtar Singh, S. Srinivasan Bibliography

- Sales Rank: #4278925 in Books
- Brand: Brand: Cengage Learning
- Published on: 2003-10-17
- Original language: English
- Number of items: 1
- Dimensions: 9.76" h x .95" w x 7.34" l, 1.81 pounds
- Binding: Hardcover
- 346 pages

Editorial Review

Review

1. INTRODUCTION. A Digital Signal Processing System. Programmable Digital Signal Processors. Major Features of Programmable Digital Signal Processors. The Scope of the Book. 2. INTRODUCTION TO DIGITAL SIGNAL PROCESSING. Introduction. A Digital Signal Processing System. The Sampling Process. Discrete Time Sequences. Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT). Linear Time Invariant Systems. Digital Filters. Decimation and Interpolation. Analysis and Design Tool for DSP Systems?MATLAB. Digital Signal Processing using MATLAM. Summary. 3. COMPUTATIONAL ACCURACY IN DSP IMPLEMENTATIONS. Introduction. Number-Formats for Representation of Signals and Coefficients in DSP Structures. Dynamic Range and Precision. Sources of Errors in a DSP Implementation. A/D Conversion Errors. DSP Computational Errors. D/A Conversion Errors. Summary. 4. ARCHITECTURES FOR PROGRAMMABLE DIGITAL SIGNAL PROCESSING DEVICES. Introduction. Basic Architectural Features. Computational Building Blocks. Bus Architecture and Memory. Data Addressing Capabilities. Address Generation Unit. Programmability and Program Execution. Speed Issues. Features for External Interfacing. Summary. 5. PROGRAMMABLE DIGITAL SIGNAL PROCESSORS. Introduction. Commercial Digital Signal Processing Devices. The Architecture of TMS320C54xx Digital Signal Processors. Addressing Modes of the TMS320C54xx Processors. Memory Spaces of TMS320C54xx Processors. Program Control. TMS320C54xx Instructions and Programming. On-Chip Peripherals. Interrupts. Pipeline Operation of the TMS320C54xx Processors. Summary. 6. DEVELOPMENT TOOLS FOR DIGITAL SIGNAL PROCESSING IMPLEMENTATIONS. Introduction. The DSP Development Tools. The DSP System Design Kit (DSK). Software for Development. The Assembler and the Assembly Source File. The Linker and Memory Allocation. The C Compiler. The Code Composer Studio. DSP Software Development Example. Summary. 7. IMPLEMENTATIONS OF BASIC DSP ALGORITHMS. Introduction. The Q-notation. FIR Filters. IIR Filters. Interpolation Filters. Decimation Filters. PID Controller. Adaptive Filters. 2-D Signal Processing. Summary. 8. IMPLEMENTATION OF FFT ALGORITHMS. Introduction. An FFT Algorithm for DFT Computation. A Butterfly Computation. Overflow and Scaling. Bit-Reversed Index Generation. An 8-point FFT Implementation of TMS320C54xx. Computation of Signal Spectrum. Summary. 9. INTERFACING MEMORY AND PARALLEL I/O PERIPHERALS TO PROGRAMMABLE DSP DEVICES. Introduction. Memory Space Organization of the TMS320C54xx Devices. Memory and I/O Signals of the TMS320C54xx Devices. Memory Interface. Parallel I/O. Programmed I/O. Interrupts and I/O. Direct Memory Access (DMA). Summary. 10. INTERFACING SERIAL CONVERTERS TO A PROGRAMMABLE DSP DEVICE. Introduction. Synchronous Serial Interface between the DSP and an AIC. A Multi-channel Buffered Serial Port (McBSP). The McBSP Programming. A CODEC Interface Circuit. CODEC Programming. A CODEC-DSP Interface Example. Summary. 11. APPLICATIONS OF PROGRAMMABLE DSP DEVICES. Introduction. A DSP System. DSP Based Biotelemetry System. A Speech Processing System. An Image Processing System. A Position Control System for a Hard Disk Drive. DSP Based Power Meter. Summary. Appendix: Architectural Details of TMS320VC5416 Digital Signal Processor.

About the Author

Avtar Singh is Professor of Electrical Engineering at San Jose State University. Earlier he taught at the City University of New York and the County College of Morris. Before coming to San Jose State University, he was with industry. He has worked for National semiconductor, Anderson Jacobson, and Vivix Corporation, all in the silicon-valley. At San Jose State, Dr. Singh is involved in teaching and research in the areas of DSP implementation, biomedical instrumentation, and programmable devices and processors. He has published a

number of articles in his areas of interest. He has also co-authored nine textbooks on Microprocessors.

S. Srinivasan is currently a Professor in the Electrical Engineering Department at the Indian Institute of Technology. In 1998-1999, he was a Visiting Professor at California State University, where he worked as Associate Professor from 1986-1990. His teaching areas include Digital Circuits and Systems, Computer Architecture, and VLSI Design. His research areas are Architectures and Applications of Digital Signal Processors, Image Processing Implementations, Video Compression, and ASIC Design. Dr. Srinivasan's awards and fellowships include the Siemens Prize for Academic Proficiency (1970), DAAD Fellowship (1977 ¿78), Alexander von Humboldt Fellowship (1983, not utilized), and the Best Design Entry award in the Design Contest held as part of the 13th International Conference on VLSI Design (2000).

Users Review

From reader reviews:

James Vazquez:

The book Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) gives you the sense of being enjoy for your spare time. You may use to make your capable far more increase. Book can being your best friend when you getting anxiety or having big problem with your subject. If you can make examining a book Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) to be your habit, you can get more advantages, like add your current capable, increase your knowledge about many or all subjects. You are able to know everything if you like start and read a publication Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX). Kinds of book are several. It means that, science e-book or encyclopedia or others. So , how do you think about this reserve?

Hilton Rogers:

Here thing why this particular Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) are different and trustworthy to be yours. First of all looking at a book is good but it really depends in the content from it which is the content is as delightful as food or not. Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) giving you information deeper as different ways, you can find any publication out there but there is no reserve that similar with Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX). It gives you thrill examining journey, its open up your eyes about the thing in which happened in the world which is perhaps can be happened around you. You can easily bring everywhere like in playground, café, or even in your method home by train. If you are having difficulties in bringing the published book maybe the form of Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) in e-book can be your choice.

Helen Leavitt:

Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) can be one of your starter books that are good idea. Many of us recommend that straight away because this publication has good vocabulary that could increase your knowledge in language, easy to understand, bit entertaining but delivering the information. The author giving his/her effort to set every word

into delight arrangement in writing Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) nevertheless doesn't forget the main level, giving the reader the hottest in addition to based confirm resource data that maybe you can be one among it. This great information could drawn you into brand-new stage of crucial contemplating.

Michael Medellin:

What is your hobby? Have you heard this question when you got scholars? We believe that that query was given by teacher to the students. Many kinds of hobby, Everyone has different hobby. And you also know that little person including reading or as examining become their hobby. You need to understand that reading is very important in addition to book as to be the thing. Book is important thing to provide you knowledge, except your current teacher or lecturer. You will find good news or update in relation to something by book. A substantial number of sorts of books that can you go onto be your object. One of them is actually Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX).

Read Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) By Avtar Singh, S. Srinivasan for online ebook

Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) By Avtar Singh, S. Srinivasan 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 Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) By Avtar Singh, S. Srinivasan books to read online.

Online Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) By Avtar Singh, S. Srinivasan ebook PDF download

Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) By Avtar Singh, S. Srinivasan Doc

Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) By Avtar Singh, S. Srinivasan Mobipocket

Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) By Avtar Singh, S. Srinivasan EPub

ROTJMLYZ5DH: Digital Signal Processing Implementations: Using DSP Microprocessors (with examples from TMS320C54XX) By Avtar Singh, S. Srinivasan