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WP213 (v1.1) July 21, 2004

Comparing and Contrasting FPGA and Microprocessor System Design and Development

By: Karen Parnell, Roger Bryner

Programmable Logic Devices offer a cost effective alternative to custom microprocessors due to their generic nature with the added benefits of short time-to-market, no NRE costs, off-the-shelf availability, ability to control inventory in peak and trough times, and ability to reduce total cost of ownership over the lifetime of an end product.

Microprocessor obsolescence is a major concern for many companies. Programmable logic can provide a viable solution to this problem. By using soft core microprocessors embedded within a programmable logic device, not only can you own the processor core for use in any future devices and platforms, but the design can be both flexible and scalable to suit different platforms.

This paper compares and contrasts FPGA and microprocessor system design and development flows with the aim of helping the designer and definer of state-of-the-art electronics systems to make a considered and well-informed architecture decision. The first part of the paper introduces Xilinx and PLDs to people new to programmable logic. Next, the paper describes the benefits PLDs can bring to total cost management, technical advantages of PLDs, and microprocessor design flows and methodologies. The paper then discusses future trends, the use of soft core microprocessors, and how these can be used to mitigate against processor obsolescence.

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Comparing And Contrasting Fpga And Microprocessor System

Marcelo Lubaszewski,Vladimir Castro Alves

Comparing And Contrasting Fpga And Microprocessor System:

Rapid System Prototyping with FPGAs R. C. Cofer,Benjamin F. Harding,2011-03-31 The push to move products to market as quickly and cheaply as possible is fiercer than ever and accordingly engineers are always looking for new ways to provide their companies with the edge over the competition Field Programmable Gate Arrays FPGAs which are faster denser and more cost effective than traditional programmable logic devices PLDs are quickly becoming one of the most widespread tools that embedded engineers can utilize in order to gain that needed edge FPGAs are especially popular for prototyping designs due to their superior speed and efficiency This book hones in on that rapid prototyping aspect of FPGA use showing designers exactly how they can cut time off production cycles and save their companies money drained by costly mistakes via prototyping designs with FPGAs first Reading it will take a designer with a basic knowledge of implementing FPGAs to the next level of FPGA use because unlike broad beginner books on FPGAs this book presents the required design skills in a focused practical example oriented manner In the trenches expert authors assure the most applicable advice to practicing engineers Dual focus on successfully making critical decisions and avoiding common pitfalls appeals to engineers pressured for speed and perfection Hardware and software are both covered in order to address the growing trend toward cross pollination of engineering expertise Annual Meeting of the North American Fuzzy Information Processing Society--NAFIPS. North American Fuzzy Information Processing Society. Annual Meeting,2005 *Advanced Computer and Communication Engineering Technology* Hamzah Asyrani Sulaiman,Mohd Azlishah Othman,Mohd Fairuz Iskandar Othman,Yahaya Abd Rahim,Naim Che Pee,2015-12-28 This book covers diverse aspects of advanced computer and communication engineering focusing specifically on industrial and manufacturing theory and applications of electronics communications computing and information technology Experts in research industry and academia present the latest developments in technology describe applications involving cutting edge communication and computer systems and explore likely future trends In addition a wealth of new algorithms that assist in solving computer and communication engineering problems are presented The book is based on presentations given at ICOCOE 2015 the 2nd International Conference on Communication and Computer Engineering It will appeal to a wide range of professionals in the field including telecommunication engineers computer engineers and scientists researchers academics and students *ASEAN Engineering Journal* ,2011 **Pattern Recognition in Bioinformatics** Jagath C.- Rajapakse,Bertil Schmidt,Gwenn Volkert,2007-09-19 This book constitutes the refereed proceedings of the International Workshop on Pattern Recognition in Bioinformatics PRIB 2007 held in Singapore in October 2007 The 38 revised full papers presented were carefully reviewed and selected from 125 submissions The papers discuss the applications of pattern recognition methods in the field of bioinformatics to solve problems in life sciences Advanced Intelligent Computational Technologies and Decision Support Systems Barna Iantovics,Roumen Kountchev,2013-08-04 This book offers a state of the art collection covering themes related

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