



**1 DIVISION BY DIGIT RECURRENCE SEVERAL DIVISION ...**

Digital Arithmetic { Ercegovac/Lang 2003 5 { Division SCHEMES COMPARED 19 r2 Scheme Radix-2 with carry-save residual r4 Scheme Radix-4 with  $a = 2$  and carry-save residual r8 Scheme Radix-8 with  $a = 7$  and carry-save residual r16over Scheme Radix-16 with two overlapped radix-4 stages

**DIGITAL ARITHMETIC**

2 DIGITAL ARITHMETIC incoming carry can be used for subtraction of 2's comple-ment numbers as mentioned previously, or to build larger addersfromsmalleronesTheresultwillbeann-bitinteger s  $\frac{1}{4}s$  n out1s n 2 s 0, and an outgoing carry c That is, the inputs and outputs satisfy  $a\oplus b\oplus c = 1/42ncout \oplus s$  For  $n = 1$ , this reduces to  $a \oplus b$

**16 Bit Digital Adders**

[2] MD Ercegovac and T Lang, "Digital Arithmetic" San Francisco: Morgan Kaufmann, 2004 [3] Using the reverse-carry approach for double datapath floating-point addition JD Bruguera and T Lang In Proceedings of the 15th IEEE Symposium on Computer Arithmetic, pages 203-10 [4] A low power approach to floating point adder design

**Computer Arithmetic Design**

Computer Arithmetic 1, Dept of EE, Fu Jen Catholic University, Taiwan Textbook •Textbook Behrooz Parhami, "Computer Arithmetic Algorithms and Hardware Designs," Oxford University Press •Reference books: Ercegovac and Lang, "Digital Arithmetic," MKP Stine, "Digital Computer Arithmetic datapath Design Using Verilog HDL," CAP

**Introduction to Digital Systems - University of California ...**

Introduction to Digital Systems 0 Acknowledgments Many thanks to Prof Bernhard Boser and National Instruments for funding this project in the Summer of 2007 Ferenc Kovac has been (and will continue to be) an excellent mentor Winthrop Williams designed the strain gauge lab (a paradigm of the KISS - Keep it Simple Stupid - philosophy)

**Introduction to Digital System Design**

RTL Hardware Design by P Chu Chapter 1 8 How to implement a digital system • No two applications are identical and every one needs certain amount of customization

**Digital Computer Arithmetic Datapath Design Using ...**

2 DIGITAL COMPUTER ARITHMETIC DATAPATH DESIGN provides an excellent procedure for modeling circuits aimed at VLSI imple-mentations using place and route programs However, it also allows engineers to optimize the logical circuits and VLSI layouts to maximize speed and mini-mize area of the VLSI chip Therefore, knowing Verilog makes design of VLSI

**ELCT 501: Digital System Design - GUC**

ELCT 501: Digital System Design Lecture 10: Digital Arithmetic Dr Mohamed Abd El Ghany, Department of Electronics and Electrical Engineering Milos D Ercegovac and Tomas Lang, "Digital Arithmetic", Morgan Kaufmann Publishers, an imprint of Elsevier Science, 2004

**INTRODUCTION TO DIGITAL SYSTEMS - CAS**

26 Binary Arithmetic 16 27 Addition of Signed Numbers 17 28 Binary-Coded Decimal Representation 19 29 BCD Addition 20 Problems 21 3 Boolean Algebra and Logic 24 31 Objectives 24 Introduction to Digital Systems: Modeling, Synthesis, and Simulation Using VHDL, First Edition

**A. Conventional number system. - CS**

