Machine guns and bullets

Luigi Carro

Universidade Federal do Rio Grande do Sul, Brazil

Abstract. In the era of data-centric applications we discuss the impact of only improving CPU or GPU performance, and search for ways to transform data closer to where it is stored in the memory hierarchy, from SSDs to DRAMs to caches. Several different solutions to this challenge are discussed in this talk, with an in depth analysis of the designs opportunities concerning Processing In Memory to general purpose computing.

Biography

Luigi Carro was born in Porto Alegre, Brazil, in 1962. He received the Electrical Engineering and the MSc degrees from Universidade Federal do Rio Grande do Sul (UFRGS), Brazil, in 1985 and 1989, respectively. From 1989 to 1991 he worked at ST-Microelectronics, Agrate, Italy, in the R&D group. In 1996 he received the Dr. degree in the area of Computer Science from Universidade Federal do Rio Grande do Sul (UFRGS), Brazil. He is presently a full professor at the Applied Informatics Department at the Informatics Institute of UFRGS, in charge of Computer Architecture and Organization courses at the undergraduate levels. He is also a member of the Graduation Program in Computer Science at UFRGS, where he is co-responsible for courses on Embedded Systems, Digital signal Processing, and VLSI Design. His primary research interests include embedded systems design, validation, automation and test, fault tolerance for future technologies and rapid system prototyping. He has advised more than 20 graduate students, and has published more than 150 technical papers on those topics. He has authored the book Digital systems Design and Prototyping (2001-in Portuguese) and is the co-author of Fault-Tolerance Techniques for SRAM-based FPGAs (2006-Springer), Dynamic Reconfigurable Architectures and Transparent optimization Techniques (2010-Springer) and Adaptive Systems (Springer 2012). In 2007 he received the prize FAPERGS - Researcher of the year in Computer Science.