Implementing *iξk* Multipliers Using Virtex-4 FPGAs

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Abstract

This paper describes and compares the implementation of different *iξk* floating point multipliers on the Virtex-4 FPGA platform. VHDL code for the multiplier was developed to implement the multiplier using XILINX ISE design suite version 14.1. Different values of *i* and *k* have been used to simulate the multipliers and results for each value of *i* and *k* have been tabulated. The results include execution time for calculating the resulting exponent and the resulting mantissa in the final product. Simulation waveforms have also been reported in this paper, and suggestions for future work have been included at the end.

Keywords
Floating Point Multipliers, Virtex 4, VHDL.

Biography

Abdurrahman Mubeen Ali is currently enrolled for an M.S. degree in Electrical Engineering at the National University of Computer and Emerging Sciences, Lahore, Pakistan. He completed his B.S. from the same university in 2010. He has worked with Technosoft Inc as a software engineer. Currently he is an iOS engineer at Zameen.com.

Abdul Rauf is a Research Officer at the National University of Computer and Emerging Sciences, Lahore, Pakistan. He completed his B.S. in Electrical Engineering in 2014. He is also the Assistant Editor of FAST-NU Research Journal.

Dr. Anjum Ali completed his Ph.D. degree in August 1988 from the University of Alabama, Huntsville, Alabama, U.S.A. He has been teaching Electrical and Computer Engineering subjects since March 1978. His first teaching appointment, as a lecturer of Electrical Engineering, was at the University of Engineering and Technology (UET), Lahore, Pakistan, after winning gold medals in each of the last three years of his undergraduate engineering education.

His teaching experience includes twelve years at Mercer University, Macon, Georgia, USA, and about nine years at three different universities in Saudi Arabia. He has also worked, as an associate professor, at the Lahore University of Management Sciences (LUMS), Lahore, Pakistan, from 1996 to 1998. He served as the chairman of the Electronics Engineering and Instrumentation Department at the Hail Community College (now University of Hail), Hail, Saudi Arabia, from February 2000 to June 2002. During his stay there, he developed a four year degree program in Electrical Engineering for the University of Hail.

Dr. Anjum Ali returned to Pakistan in July 2002, and joined Al-Khawarizmi Institute of Computer Science (KICS) at the University of Engineering and Technology, Lahore, as a professor in December 2002. During his stay at KICS, he initiated many research and development projects and won research grants. He has been a professor of Electrical Engineering at the National University of Computer and Emerging Sciences, (FAST-NU), Lahore, since May 2005.

Dr. Anjum Ali has taught many EE, CE and CS courses and supervised numerous graduate as well as undergraduate students during his 40 years of teaching career. He has over 30 conference and journal publications. He is also the founding editor of the FAST-NU Research Journal. His areas of current research interest include embedded control systems and computer architecture.