Abstract

In this paper a hardware implementation of a neural network NN using Field Programmable Gate Arrays (FPGA) is presented. A digital system architecture is designed to realize a feed forward multilayer neural network. The designed architecture is described using Very High Speed Integrated Circuits Hardware Description Language (VHDL) and implemented in an FPGA chip. The design is verified on an FPGA demo board Xilinx Spartan.

References

1. Philippe Dondon, v Julien Carvalho, Rémi Gardere, Paul Lahalle, Georgi Tsenov and Vale Mladenov "Implementation of a Feed-forward Artificial Neural Network in VHDL On FPGA " Neural Network Application in Electrical Engineering (NEURAI) IEEE CONFERENCE 27 NOV 2014
2. Ravikant G. Biradar, Abhishek Chatterje, Prabhakar Mishra, Koshy George*FPGA Implementation of a Multilayer Artificial Neural Network using System-onChipDesign
Implementation of Multilayer Feed Forward Neural Network using VHDL

3. Qiang Liu, Member, IEEE, Ming Gao, and Qijun Zhang, Fellow, IEEE “Knowledge-Based Neural Network Model for FPGA” IEEE Transaction On VeriLarge Scale Integration (VLSI) System 2015 IEEE Transaction p.p 1063-8210
4. Mr Prashant D. Deotale Prof. Lalit Dole “Design of FPGA Based General Purpose Neural Network ” ICICES2014
5. S.Hariprasath T.N.Prabakar “ FPGA Implementation of Multilayer Feed Forward Neural Network Architecture Using VHDL”

Index Terms

Computer Science Networks

Keywords

FPGA, VHDL, NN.