

Abstract

Technology is going beyond expectations and is making people greedier in terms of quantity and quality of service. The Very-large-scale integration (VLSI) chip is driving the next level of innovation. That is, creating integrated circuits by combining thousands of transistor-based circuits into a single chip.

Arithmetic IP cores are a common component in every system. IP cores in the electronic design industry had a profound impact on the design of SoCs and ASICs. It is needed for various digital and analog applications. IP cores are used as building blocks within ASIC chip designs or FPGA logic designs. Also standard cell libraries are required by almost all Computer Aided Design (CAD) tools for chip design.

The high cost of IP cores, non-availability of free standard cell libraries or cores, evolution of plug-and-play architecture, i.e, a general purpose architecture which could be customized by modules (soft cores) as per the functionality needed, are some of forces acting behind this framework. It is very essential to develop free IP cores which is inturn needed for a variety of applications. The free availability of HDL compilers and layout tools eases this process.

The main objective of the project is to develop IP Cores, both Soft cores and Hard cores for integer and floating point arithmetic operations and to provide the core as a part of standard cell library under GPL (GNU Public License).

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