Field-Programmable Integrated Circuits — Overview and Future Trends

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Abstract

Recent advances in device architectures and programming technology have resulted in a dramatic increase in the integration capacity of Field-Programmable Integrated Circuits (FPICs). FPICs with over 10,000 usable gates are currently available and it is expected that FPICs with 200,000 gates will become feasible before the end of the century. Such high integration FPICs are becoming viable alternatives to many gate array and standard cell implementations. Moreover, the ability to rapidly prototype large systems using FPICs is opening up new and exciting possibilities in product customization, emulation, and configurable hardware acceleration.

In this talk we present an overview of existing FPICs and discuss future directions in device architectures and applications to system level programmability.