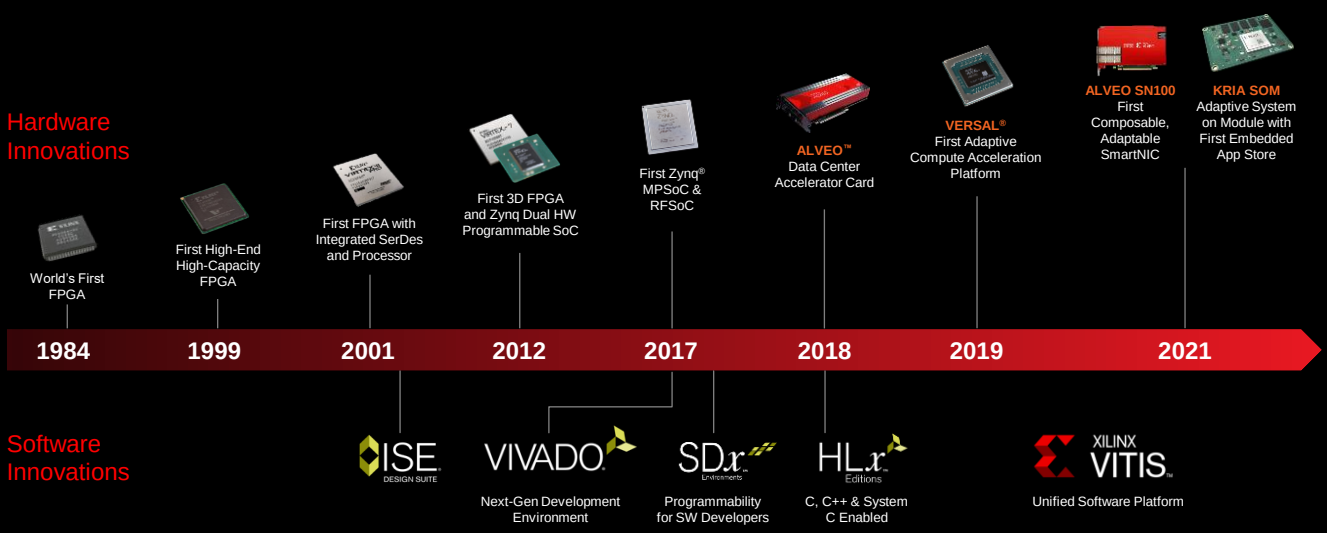
Xilinx Overview

Xilinx develops highly flexible and adaptive processing platforms that enable rapid innovation across a variety of technologies – from the cloud, to the edge, to intelligent end devices. Founded in 1984, Xilinx invented the field-programmable gate array (FPGA) and was the first fabless semiconductor company. In 2012, the company introduced the first product based on 3-D stacked silicon using silicon interposer technology. It made history with the first extendable system-on-chip (SoCs) by tightly integrating a processor system with programmable logic. More recently, in 2019, Xilinx introduced an adaptive computing technology that delivers breakthrough AI inference and signal processing performance. And its innovations in developer tools have fueled developers' ambitions for more than two decades.

For Xilinx, being a leader in adaptive computing is more than algorithms, artificial intelligence (AI), and machine learning. It means helping customers create scalable, differentiated and intelligent solutions that enable the adaptable, intelligent and connected world of the future.

A Track Record of Innovation



The Early Years (1984-1994)

When Xilinx designed and marketed the first field-programmable gate array, they spawned a new industry that would enable custom solutions for various markets. A decade later, in 1994, Xilinx released the Virtex® FPGA, a breakthrough in the architecture and performance of their original FPGA.

The Evolution of a FPGA

Fast forward to 2012, Xilinx introduced the first 28nm Zynq® device, a full SoC with support for application processors and a complete subsystem of caches, memory controller, peripherals, FPGA logic, DSP blocks, and SerDes blocks. The Zynq SoC brought Xilinx into the heart of systems instead of handling peripheral functions and bridging connectivity.

Modern Times Require Modern Platforms

The second-generation Zynq SoC (the heterogeneous MPSoC) arrived in 2017 and added new processing engines with the goal of enabling the right hardware engines for the right tasks, optimizing the processing requirements of complex systems. The platform was extended with high-speed direct RF data converters to support adaptive radio platforms designed to meet the evolving standards of wireless applications. In 2018, Xilinx announced the Alveo™ data center accelerator cards, which simplified the development and deployment of high-performance, adaptable FPGA acceleration in the data center.

That brings us to today with Versal, the first adaptive compute acceleration platform (ACAP). Not an FPGA or a Zynq SoC, the Versal® ACAP was built from the ground up as a heterogeneous, flexible platform that supports multiple domain-specific architectures (DSAs) and compute fabrics, including processor cores, programmable logic, and a coarse-grain array of AI engines. The advantage of an ACAP is its functionality as a multicore general-purpose SoC that includes additional hardware and software programmable engines for optimal power and performance trade-offs.

As its products evolved, Xilinx's offerings shifted from devices to platforms. After beginning with programmable logic chips in the early years, Xilinx shifted to embedded platforms for SoC developers and software stacks for application software developers. Today, its platforms serve developers and data scientists and offer multiple design-entry points and a wide range of deployment methods.