BEST-IN-CLASS PERFORMANCE AND LOWEST-POWER FPGAS FOR COST-SENSITIVE MARKETS

XILINX ARTIX-7 FPGAS: A NEW PERFORMANCE STANDARD FOR POWER-LIMITED, COST-SENSITIVE MARKETS

The Challenge: The Need to Reduce Power & Cost

- Reducing power for greater portability
- Delivering highest performance while reducing cost
- Providing advanced functionality in a small form factor

The Solution: Xilinx Artix-7 FPGAs

- 50% power reduction versus previous generation
- Highest system performance per-watt per-dollar
- Lowest-cost device with Virtex®-class functionality
- Small footprint for compactness
- Scalable optimized architecture for rapid design migration

Sub-Watt Performance for 100,000 Logic Cells

The digital revolution has changed expectations for novice and savvy FPGA designers alike. Competing in cost-sensitive markets such as aerospace and defense, communications infrastructure, medical, industrial, and consumer electronics calls for a strong portfolio of high-performance features. Without sacrificing performance, developers must be able to scale their applications and extend use models for greater portability and application reach while keeping power -- a critical resource -- to a minimum.

The Xilinx® Artix™-7 family of FPGAs has redefined cost-sensitive solutions by cutting power consumption in half from the previous generation while providing advanced functionality for edge applications. Designers can leverage twice the logic for the same power budget. The newest generation of 7 series devices are built on advanced 28nm process technology to produce the lowest-cost, lowest power FPGA for products like portable medical equipment, military radios, and compact wireless infrastructure. Artix-7 FPGAs meet the needs of size, weight, power and cost (SWaP-C) sensitive markets like avionics and communications.

Best-in-Class Performance for Cost-Sensitive Markets

Artix-7 FPGAs redefine low-cost alternatives, with twice the performance and logic capacity of the Xilinx Spartan®-6 FPGAs. Flexible built-in interfaces, high-speed digital signal processors (DSP) slices and transceivers, and DDR3 memory interfaces enable a new class of high-throughput, low-cost applications.

As part of the 7 series, Artix-7 FPGAs also offer many high-end features such as integrated, advanced Agile Mixed Signal (AMS) technology. Whether implementing a simple analog-to-digital converter or replacing more costly system-on-a-chip (SoC) functions, analog is the next level of integration that is efficiently accomplished with the independent dual 12-bit, 1MSPS, 17-channel analog-to-digital converters in Artix-7 FPGAs.

A Low-Risk Accelerated Path to Production

Artix-7 FPGAs offer an exceptionally low-risk path with the power of programmability. Applications previously limited to ASICs, ASSPs, and less-powerful FPGAs can benefit from a proven high-performance architecture and Xilinx industry expertise. Leveraging the 7 series scalable optimized architecture, Artix-7 designs can be easily migrated to other families within the series. With the industry's fastest ramp up, Xilinx puts designers on an accelerated path to market for highly differentiated cost-sensitive solutions.

XILINX
ALL PROGRAMMABLE™

Key Capability Overview

Twice the Capacity, Half the Power

- 50% lower total power compared to previous generation
- Sub-watt performance in 100,000 logic cells
- 2x logic, 2.5x BRAM, 5.7x DSP more slices than Spartan-6 FPGAs

New Levels of Performance

- 6.6 Gb/s transceivers enabling 211 Gb/s peak bandwidth (full duplex)
- Single and double differential I/O standards with speeds of up to 1.25 Gb/s
- 1,040 DSP48E1 slices with up to 1,306 GMACs of signal processing
- 1,066 Mb/s DDR3 memory including SODIMMs support
- Integrated memory interface for streamlined access to video and data

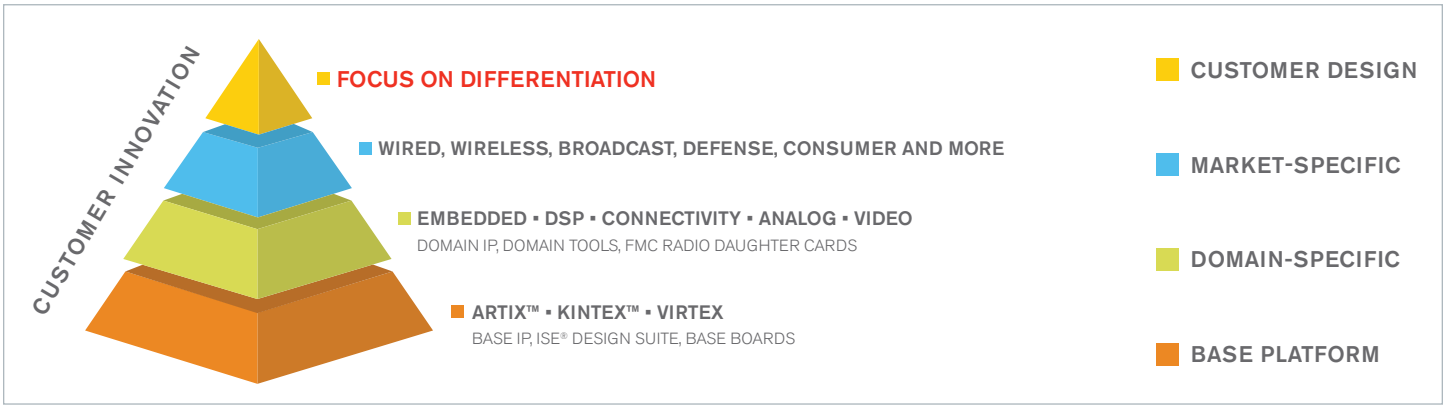
Smallest Package

- Low-cost, wire-bond, chip-scale BGA packaging
- Over 100,000 logic cells in a 15 x 15 mm package for maximum system integration

Low Risk, Rapid Ramp-Up

- Proven 28nm process, architecture, and quality
- New hard IP blocks to reduce development time and risk
- Integrated wizards for rapid development of built-in blocks
- Development kits with IP and reference designs for quick design starts

FOCUS ON DIFFERENTIATION

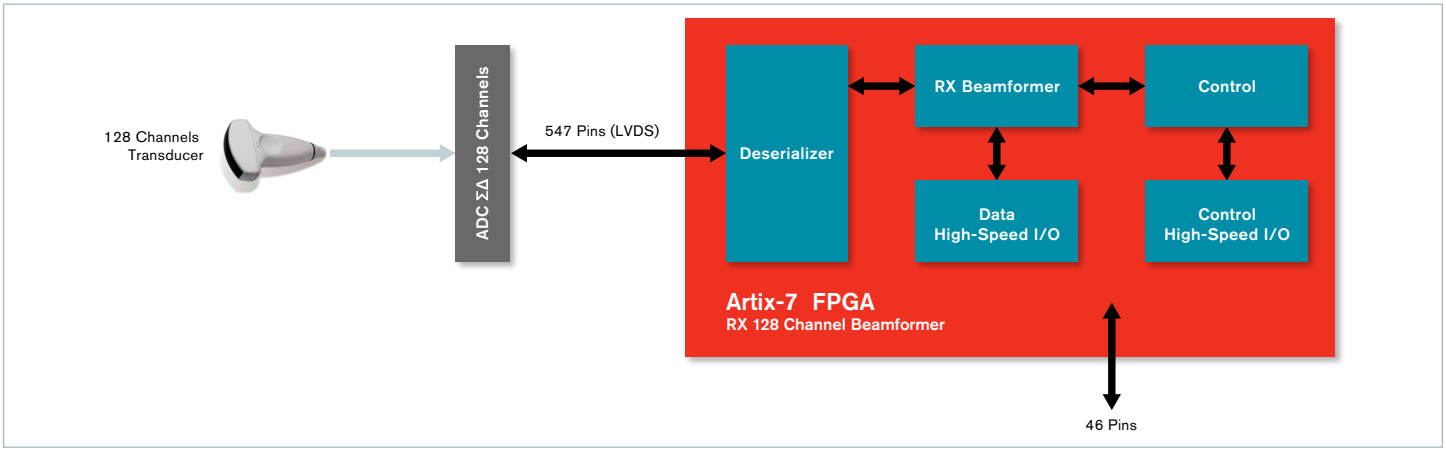


Maximizing Productivity with Targeted Design Platforms

Xilinx Targeted Design Platforms are the industry's most comprehensive development kits, complete with boards, tools, IP cores, reference designs and FPGA Mezzanine Card (FMC) support. The kits enable designers to begin application development immediately and boost productivity while accelerating access to advanced functionality with pre-verified reference designs. Combined with a full-featured evaluation board and Xilinx tools, the reference designs also facilitate the integration of solutions from an ecosystem of readily available third-party add-on hardware and IP.

Enabling Next-Generation Systems

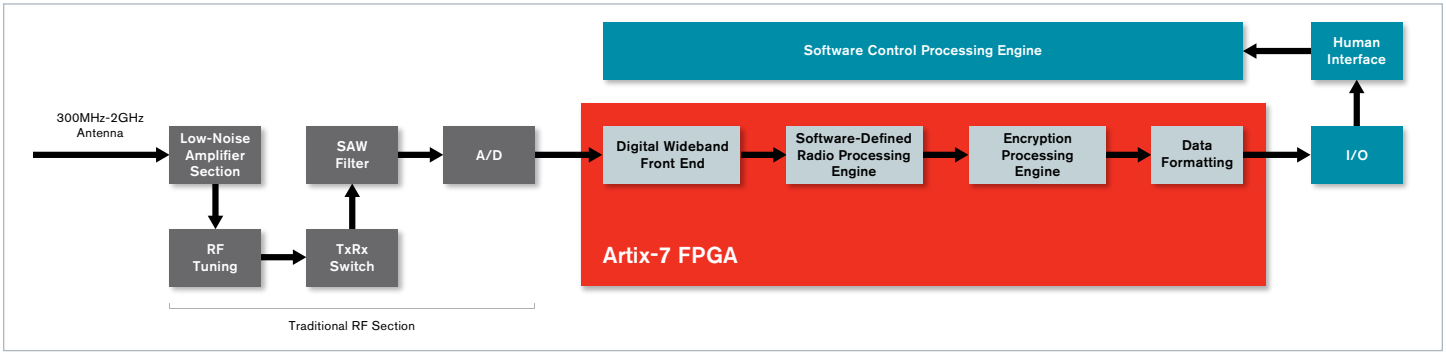
MEDICAL: PORTABLE ULTRASOUND



Designers can deploy a fully programmable 128-channel portable ultrasound implementation that scales up to 196 or 256 channels for high-end cart solutions or down to 64 or 32 channels for hand-held form factors.

- Lowest-power single chip implementation of 128-channel portable ultrasound at 35% lower cost, and 57% smaller form factor compared to previous generation FPGAs
- Up to 1,306 GMACs of DSP processing for high quality image rendering
- Built-in support for PCIe x4 Gen2 enables high-bandwidth interface to host system
- Small form factor for laptop- and tablet-sized devices
- 6.6 Gb/s to interface to support next generation JEDEC JESD204B analog interface

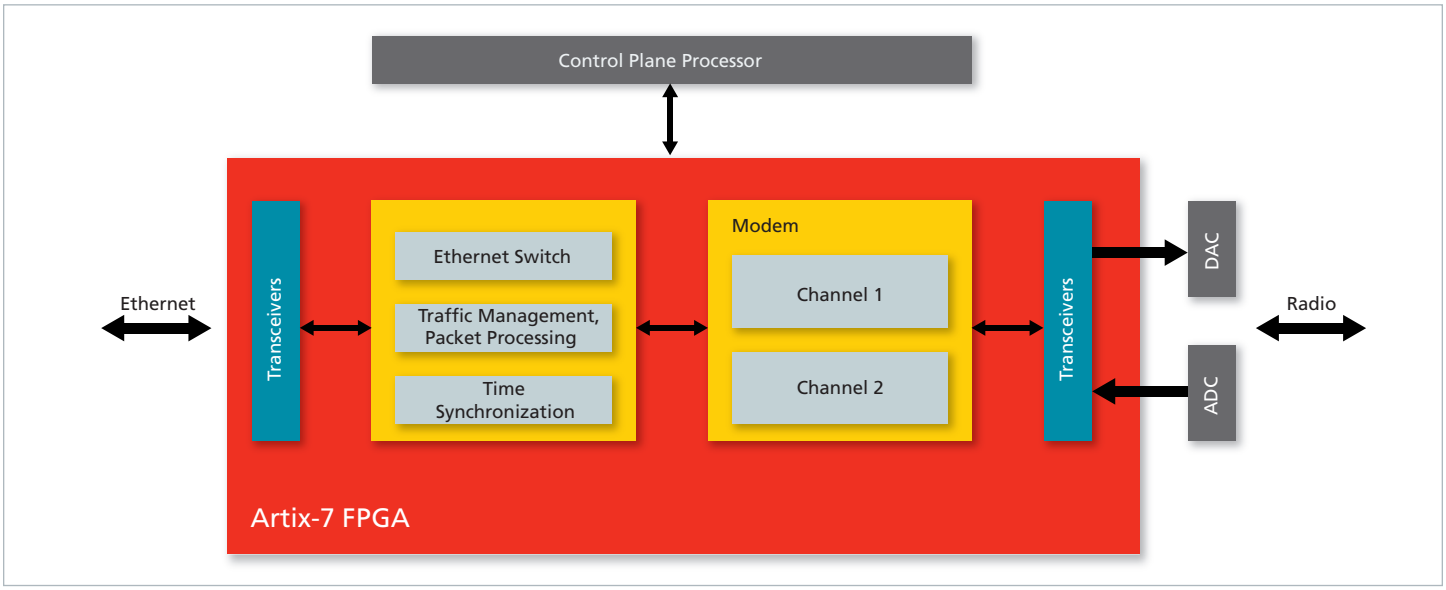
AEROSPACE & DEFENSE: SECURE SOFTWARE-DEFINED RADIO



The Artix-7 FPGA delivers the industry's most integrated Type-1 single-chip cryptography (SCC) solution for superior, secure SWaP-C results. Extensive DSP resources allow for waveform processing capacity to integrate both modem and cryptographic engine on a single chip.

- High parallel and serial I/O performance with 1.25 Gb/s LVDS and PCIe x4 Gen2
- 1,066 Mbps DDR3 memory interfaces enables video data buffers using commodity memories
- Up to 1,306 GMACS for baseband signal pre-processing and RF signal improvements
- System integration in a 19x19 mm package for battery-powered hand-held radios

WIRELESS: MICROWAVE MOBILE BACKHAUL UNIT



Artix-7 FPGAs offer the system integration and signal processing capabilities needed to extend network coverage via mobile backhaul units. These devices offer the right mix of logic density, IP, and DSP resources to integrate backhaul solutions comprised of packet processing, traffic management, timing and synchronization blocks as well dual high-speed radio channel.

- Up to 1,306 GMACS (symmetric filters) of signal processing for wireless modem
- Up to 1,066 Mbps DDR3 memory interfaces enables data buffers using commodity memories
- Up to 16 transceivers running at 6.6 Gb/s to interface to both Ethernet and RF links using JEDEC JESD204B connectivity to data converters
- System-ready packet processing and traffic management IP for rapid product development

Take the NEXT STEP

Download ISE® and Vivado™ design tools: **www.xilinx.com/ise** or **www.xilinx.com/vivado**

For more information, contact your local sales office.

For more product details or to watch the latest videos on topics such as low power approaches, please visit: **www.xilinx.com/artix7**

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