

*BEST-IN-CLASS PERFORMANCE-PER-WATT WITH TRANSCEIVERS
FOR COST-SENSITIVE MARKETS*

New Performance and Bandwidth Standards for Power-Limited, Cost-Sensitive Markets

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 over a broad density range. Without sacrificing performance, developers must be able to extend use models for greater processing bandwidth, 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 best-in-class transceivers and signal processing capabilities for high bandwidth applications. Built on the 28nm HPL process, these devices deliver best in class performance-per-watt. Together with the MicroBlaze™ soft processor, Artix-7 FPGAs are ideal 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.

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: Artix-7 FPGAs

- 50% lower power vs. previous generation
- Best-in-class performance-per-watt
- Over 200DMIPs of processing power, plus drag n' drop peripherals with MicroBlaze soft processor
- Small footprint and packaging
- Part of the broadest All Programmable Cost-Optimized Portfolio

Key Capability Overview

New Levels of Performance

- 6.6Gb/s transceivers enabling 211Gb/s peak bandwidth (full duplex)
- Single and double differential I/O standards with speeds of up to 1.25Gb/s
- 740 DSP48E1 slices with up to 930 GMACs of signal processing
- 1,066Mb/s DDR3 memory, including SODIMMs support
- 200+ DMIPs MicroBlaze processor in Microcontroller, Real Time Processor, or Application Processor configuration
- Integrated memory interface for streamlined access

Twice the Capacity, Half the Power, Comparable Cost

- 50% lower total power compared to previous generation
- Sub-watt performance ranging from 13K–2,000K logic cells
- 2X logic, 2.5X block RAM, 5.7X more DSP slices than Spartan®-6 FPGAs
- Lowest-power Industrial speed grade offering (-1LI)

Low Risk, Rapid Ramp-Up

- Production proven 28nm process, architecture, and quality
- Integrated IP blocks to reduce development time and risk
- Integrated wizards for rapid development of built-in blocks
- Bare metal, freeRTOS, and Linux support for MicroBlaze processor with drag n' drop peripherals
- Development kits with IP and reference designs for quick design starts

Smallest Package

- Low-cost, wire-bond, chip-scale BGA packaging
- Available in a 10x10mm package for maximum system integration
- Package migration across the family

Best-in-Class Performance and Bandwidth for Cost-Sensitive Markets

Artix-7 devices deliver the industry's most optimized transceivers, highest performance, and lowest power. This family is the perfect fit for cost-sensitive applications that need high-end features. The Artix-7 family is the industry's cost-optimized performance leader in nearly every category of performance, including logic, signal processing, embedded memory, LVDS I/O, memory interfaces, and in particular, transceivers.

The [MicroBlaze](#) CPU is a highly configurable 32-bit RISC processor optimized for Xilinx FPGAs. For fast deployment, presets are available for Microcontroller, Real-Time Processor, and Application Processor use cases. Start with a preset, then further customize specific processor features to meet the specific needs of your application. Then expand your MicroBlaze processor system using drag n' drop IP from a catalog of driver-enabled peripherals such as PWMs, UARTs, serial interfaces, etc. The MicroBlaze processor, drag n' drop peripherals, [Vivado HLx Design Suite WebPACK edition](#), and [Eclipse-based Software Development Kit](#) are all available at no cost from Xilinx.

As part of the 7 series, Artix-7 FPGAs also offer other system integration capabilities such as integrated, advanced Analog 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.

Part of the Broadest Portfolio

The Artix-7 family is part of the broadest All Programmable Cost-Optimized Portfolio—delivering the best value for a given application. The portfolio also includes Spartan-6 and Spartan-7 FPGAs, which deliver I/O optimization, and Zynq®-7000 All Programmable SoCs, which deliver system integration and optimization for applications.

Corporate Headquarters

Xilinx, Inc.
2100 All Programmable Drive
San Jose, CA 95124
USA
Tel: 408-559-7778
www.xilinx.com

Europe

Xilinx Europe
One Logic Drive
Citywest Business Campus
Saggart, County Dublin
Ireland
Tel: +353-1-464-0311
www.xilinx.com

Japan

Xilinx K.K.
Art Village Osaki Central Tower 4F
1-2-2 Osaki, Shinagawa-ku
Tokyo 141-0032 Japan
Tel: +81-3-6744-7777
japan.xilinx.com

Asia Pacific Pte. Ltd.

Xilinx, Asia Pacific
5 Changi Business Park
Singapore 486040
Tel: +65-6407-3000
www.xilinx.com

India

Meenakshi Tech Park
Block A, B, C, 8th & 13th floors,
Meenakshi Tech Park, Survey No. 39
Gachibowli(V), Seri Lingampally (M),
Hyderabad -500 084
Tel: +91-40-6721-4747
www.xilinx.com



Artix-7 FPGA AC701 Evaluation Kit



Artix-7 50T FPGA Evaluation Kit



Artix-7 35T Arty FPGA Evaluation Kit



Nexys4 Artix-7 FPGA Board



Inrevium ACDC Artix-7 FPGA Evaluation Kit

Getting Started with Evaluation Kits

To get started with the Artix-7 family, Xilinx offers both the Artix-7 FPGA AC701 and Artix-7 50T FPGA Evaluation Kits, enabling quick prototyping for cost-sensitive applications. These include all the basic components of hardware, design tools, IP, and pre-verified reference designs. Visit www.xilinx.com/boards-and-kits to learn more about Xilinx and partner development boards.

Take the NEXT STEP

Visit www.xilinx.com to learn more about Artix-7 FPGAs. Download Vivado® design tools: 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 the Artix-7 FPGA's low-power, cost-optimized transceivers, please visit: www.xilinx.com/artix7



© Copyright 2015-2018 Xilinx, Inc. Xilinx, the Xilinx logo, Artix, ISE, Kintex, Spartan, Virtex, Vivado, Zynq, and other designated brands included herein are trademarks of Xilinx in the United States and other countries. All other trademarks are the property of their respective owners. Printed in the U.S.A. PN 2460 WW022018