

# Xilinx introduces Zynq-7000 Extensible Processing Platform

ECN Europe

Embedded World 2011 - Xilinx unveiled the [Zynq-7000 family](#), the industry's first Extensible Processing Platform (EPP) developed to achieve the levels of processing and compute performance required in high-end embedded applications targeting markets such as video surveillance, automotive driver assistance, factory automation, and many others. Supported by an extensive ecosystem of tools and IP providers, the Zynq-7000 family tightly integrates a complete ARM Cortex-A9 MPCore processor-based system with 28nm, low-power programmable logic for system architects and embedded software developers to extend, customize, optimize, and differentiate their systems.

Each Zynq-7000 EPP device is built with an ARM dual-core Cortex-A9 MPCore processing system with NEON and Double Precision Floating Point engines that is fully integrated and hardwired, and includes L1 and L2 caches, memory controllers, and commonly used peripherals. The processing system boots at power-up and can run a variety of operating systems independent of the programmable logic. The processing system then configures the programmable logic on an as needed basis. With this approach, the software programming model is exactly the same as standard, fully featured ARM processor-based SoCs.

### Familiar Programming Environments

The Zynq-7000 family accelerates time to market by providing an open design environment that facilitates parallel development of software for the dual-core Cortex-A9 processor-based system and custom accelerators in the programmable logic. Software developers can leverage the Eclipse environment, Xilinx Platform Studio Software Development Kit (SDK), ARM Development Studio 5 (DS-5) and ARM RealView Development Suite (RVDS), or compilers, debuggers, and applications from leading vendors within the ARM Connected Community and Xilinx Alliance Program ecosystems, such as Lauterbach, Wind River, PetaLogix, The MathWorks, Mentor Graphics, Micrium, and MontaVista.

In parallel, the Zynq-7000 family's programmable fabric can be tailored to maximize system level performance and application specific requirements, leveraging Xilinx's award winning ISE Design Suite, which provides a comprehensive hardware development environment that includes development tools and AMBA4 AXI4 Plug-and-Play intellectual property (IP) and Bus Functional Models (BFM) to accelerate design and verification. Following Xilinx's acquisition of high level synthesis leader AutoESL Design Technologies, Inc., further tool enhancements are underway to provide C, C++ and SystemC synthesis optimized for the Zynq-7000 device architecture. Future releases will also enable a more seamless movement of key algorithms between the processors and the programmable logic of the Zynq-7000

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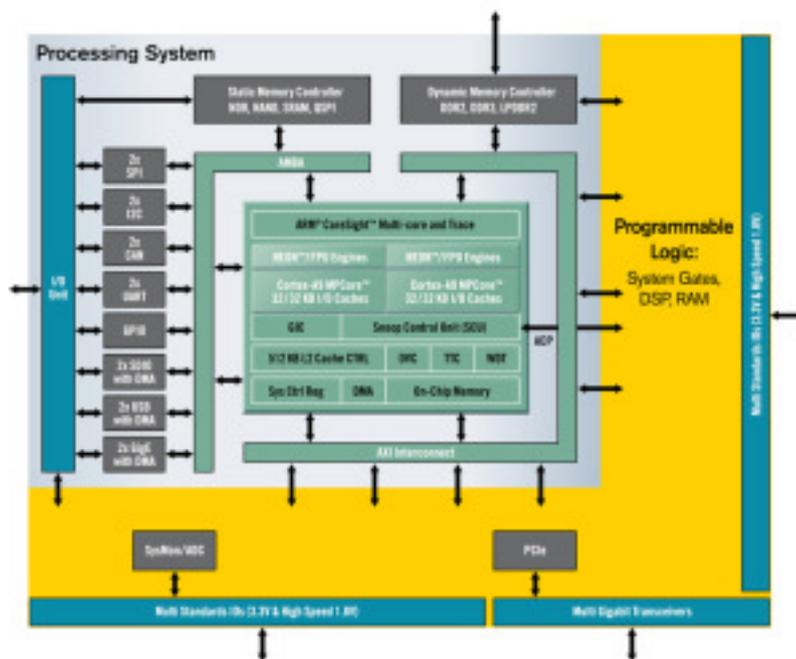
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family.

Over time, these solutions will be augmented by third-party vendors within the ARM Connected Community and Xilinx Alliance Program as part of Xilinx's Targeted Design Platform approach to provide an over-arching productive development environment that includes IP, reference designs, development kits, and other resources targeting specific applications and design disciplines.

## Unified Programmable Logic Architecture

The Zynq-7000 family's programmable logic is based on Xilinx's newest [7 series FPGA](#) [1] architecture to ensure 100% compatibility with respect to IP, tools and performance across all devices within the 28nm generation. The smallest Zynq-7000 devices, the Zynq-7010 and Zynq-7020 device, are based on the Artix-7 family which is optimized for low-cost and low power. The larger Zynq-7030 device and Zynq-7040 device are based on the Kintex-7 family and includes between four and twelve 10.3 Gbps transceiver channels and a PCI Express Gen2 block for high-speed off-chip connectivity. All 4 devices also include a new dual 12bit 1Msps ADC (Analog-to-Digital Converter) block.



[2]Picture: Xilinx

## Rapid Adoption Already Underway

“The Extensible Processing Platform provides high-performance processors paired with a high-bandwidth connection to programmable-logic fabric in a single chip, making it an ideal target for National Instruments’ graphical design environment, LabVIEW,” said Keith Odom R&D Fellow, National Instruments. “The low-latency and high throughput provided by this architecture enables innovation in a number of application areas, from industrial automation to communication systems to machine vision.”

Since April 2010, early access customers have been evaluating the Zynq-7000

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Extensible Processing Platform for its ability to support systems targeting end market applications that require multi-functionality and real-time responsiveness that go well beyond what traditional processing solutions are able to implement.

### **Pricing and Availability**

Customers can start evaluating the Zynq-7000 family today by joining the Early Access program. First silicon devices are scheduled for second half of 2011 with general engineering samples available in the first half of 2012. Designers can immediately use tools and development kits that support ARM to familiarize themselves with the Cortex-A9 MPCore architecture and begin porting code. Pricing varies and depends on volume and choice of device. Based on forward volume production pricing, the Zynq-7000 family will have an entry point of below \$15 in high volumes. Interested customers should contact their local Xilinx representative.

[SOURCE](#) [3]

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#### **Links:**

[1] <http://www.xilinx.com/7-series-fpgas.htm>

[2] <http://ecneurope.files.wordpress.com/2011/03/processing-system-large1.jpg>

[3] <http://ecneurope.wordpress.com/2011/03/09/xilinx-introduces-zynq-7000-extensible-processing-platform/>