

## CoolRunner XPLA3 Development Kit Draws Only **60 $\mu$ A**

*The CoolRunner XPLA3 Development Kit, from Xilinx and Insight Electronics, is the perfect way to get started using the most efficient, low power CPLD on the market.*

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Xilinx and Insight Electronics have jointly developed a low power demonstration board that allows you to easily experiment with the new CoolRunner XPLA3 architecture, using In System Programming (ISP) to configure the device. With this board, and the free Xilinx PC-ISP3 Programmer software, you can immediately begin configuring a CoolRunner XPLA3 device with your custom design, directly from your PC. If you need a little help getting started, you can get the XPLA3 Demo Board User's Manual or the VHDL/Verilog tutorial from the Xilinx Application Note website.

The XPLA3 CoolRunner family (Figure 1) has the lowest power consumption of any CPLD family on the market. The entire CoolRunner XPLA3 Development Board, with its pre-programmed "CoolrunnEr" scrolling marquee pattern, draws only 60  $\mu$ A. Since the board contains other components that also draw current, such as the on-board low power oscillator and LCD, the CoolRunner CPLD actually draws less than 60  $\mu$ A. Because the CoolRunner product line requires so little power, it does not need a power



Figure 1 - The XPLA3 CoolRunner family.

down mode and is the only CPLD family delivering both high performance and ultra low power consumption.

### Key Features

The development board, shown in Figure 2, is designed to demonstrate the low power requirements and the advanced features of the CoolRunner architecture. The board uses the Xilinx XCR3256XL, a 256-macrocell device in a TQ144 package, which can be programmed via the JTAG ISP port using the provided Xilinx

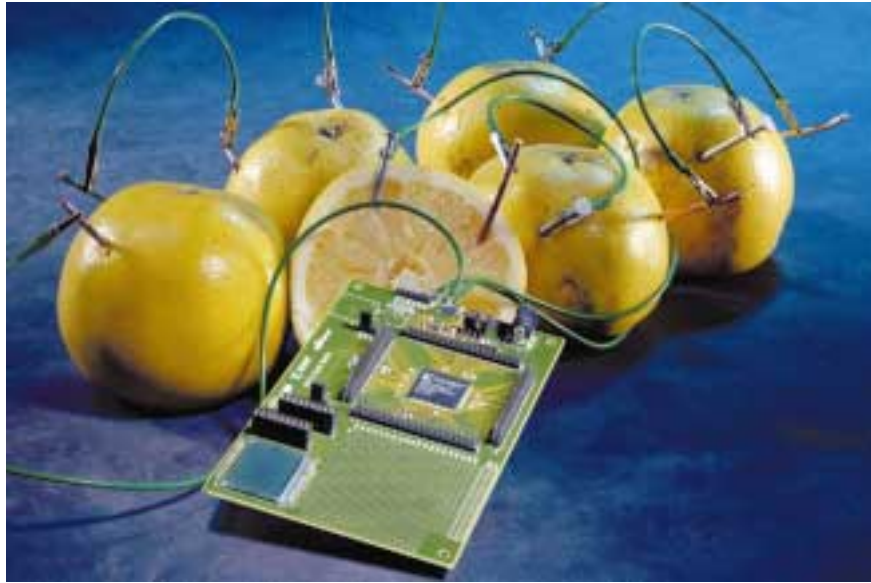


Figure 2 - The CoolRunner XPLA3 Development Kit uses only 60  $\mu$ a (powered here by six grapefruit).

Parallel Download Cable III; any JEDEC file that targets the XCR3256XL can be downloaded.

To power the board you can use either:

- A 3.3V user regulated input.
- A 10.0V maximum input, regulated to 3.3V using the on-board regulator.
- A 6.0V AC adapter input regulated to 3.3V using the on-board regulator. This AC adapter is included with the CoolRunner XPLA3 Development Kit.

Two clock sources are available to the CoolRunner CPLD:

- The on-board, low power 32.768 kHz oscillator.
- Any external clock source with an impedance of 50 ohms (to match the 50 ohm on-board trace impedance).

A prototyping area is also provided, and all device I/Os are available for your prototype either via the user access headers that surround the CoolRunner device or via the 20 through-hole connections routed to specific I/Os. The two-digit seven-segment LCD (shown in the lower left corner of the board in Figure 2) is connected to specific I/Os so you can quickly and

visually verify your design; it can be disconnected from the device if you choose. Control pins are also included so you can easily implement the Xilinx Watch Tutorial which is available for download from <http://www.xilinx.com/apps/epld.htm#tutorials>.

## Conclusion

You can quickly and easily become an XPLA3 CoolRunner guru by using the CoolRunner XPLA3 Development Kit; and it's available today from Insight Electronics.  $\Sigma$

Order the CoolRunner XPLA3 Development Kit from the Insight website at: <http://www.insight-electronics.com/xcellence/scalable/kit/>. The part number is DS-XPLA3-PAK and the price is \$95.00.

Download the free PC-ISP3 Programmer software from the Xilinx WebPACK website at <http://www.xilinx.com/products/software/webpowered.htm>.

Get the XPLA3 Demo Board User's Manual or the VHDL/Verilog tutorial from the Xilinx Application Note website at: <http://www.xilinx.com/apps/appsweb.htm>.

Visit the XPLA3 CoolRunner website, for the latest CoolRunner information, at: <http://www.xilinx.com/products/xpla3.htm>.