

# Insight Electronics Offers Two Virtex-II Development Boards

Supporting either an XC2V40 or an XC2V1000 Virtex-II FPGA, these development kits allow designers to experiment with or implement many of the new features and technologies found on-chip only in Xilinx Platform FPGAs.

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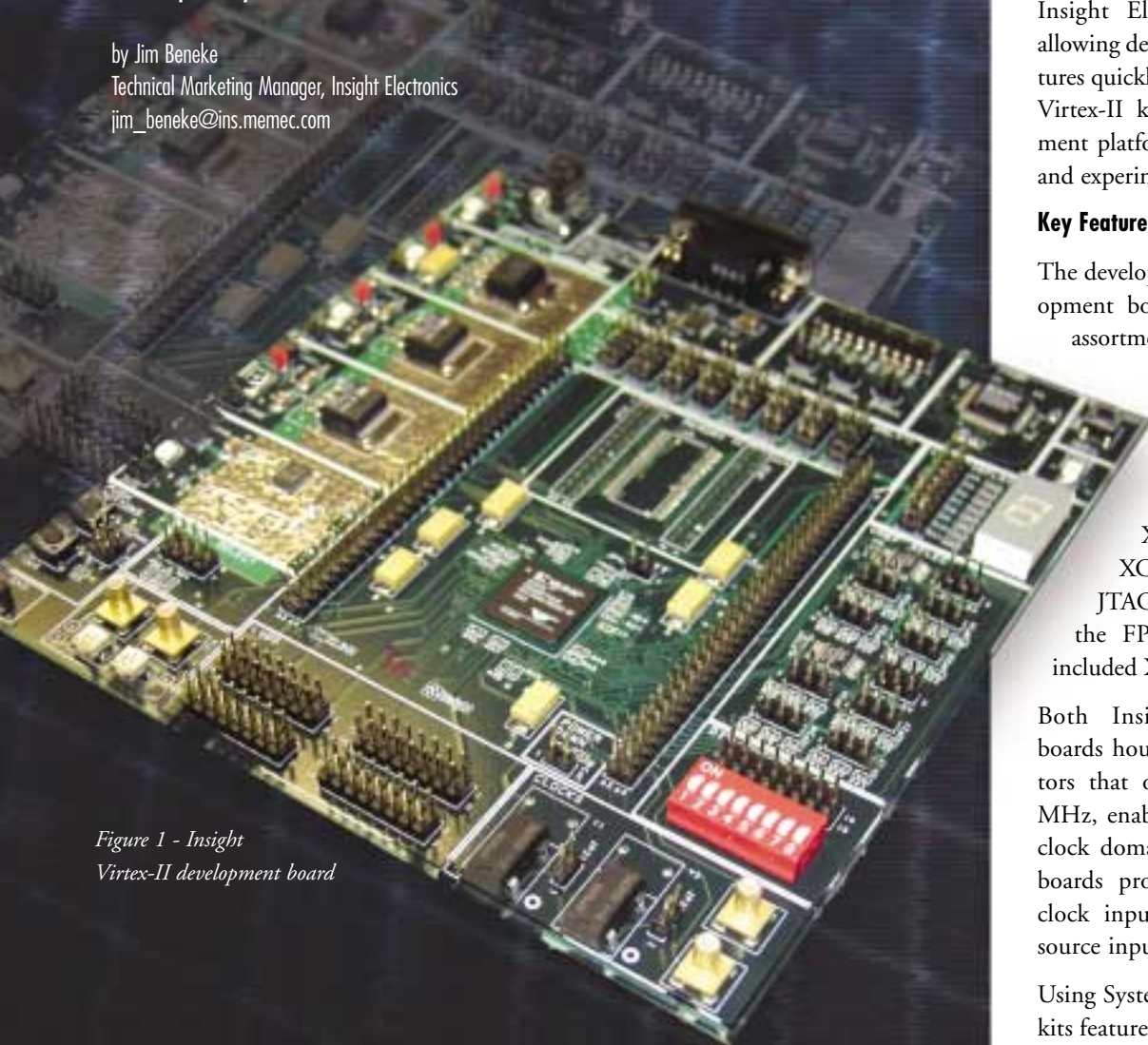


Figure 1 - Insight Virtex-II development board

The new Virtex<sup>®</sup>-II family from Xilinx integrates many advanced system-level features into a configurable, single-chip FPGA. The Virtex-II architecture incorporates pre-engineered, on-chip system elements such as DCMs (digital clock managers), flexible system interfaces with SystemIO technology, and signal integrity control using XCITE (Xilinx Controlled Impedance TEchnology).

With any technology advancement like the Virtex-II architecture, design engineers often need to verify aspects of new functions. Designers need tools to shorten the learning curve, whether they are proving a new idea, testing an interface to an existing circuit or device, validating a soft IP core, or just gaining a better understanding of how to use the technology.

The new Virtex-II development kits from Insight Electronics address this need, allowing designers to test new Virtex-II features quickly, easily, and inexpensively. The Virtex-II kits provide the ideal development platform for general purpose testing and experimentation (see Figures 1 and 2).

## Key Features

The development kits offer low-cost development board solutions and provide an assortment of useful features for the Virtex-II designer. Based on the 256-ball, fine-pitch ball grid array (FG256) package, boards are available with either 40,000-gate XC2V40 or one-million gate XC2V1000 Virtex-II devices. The JTAG port can be used to configure the FPGA directly or to load the included XC1800 series ISP PROM.

Both Insight Virtex-II development boards house two on-board clock oscillators that operate at 100 MHz and 24 MHz, enabling users to include multiple clock domains within their designs. The boards provide two additional external clock inputs, for a total of four clock source inputs.

Using SystemIO technology, the Virtex-II kits feature user-selectable bank and refer-

ence voltage jumpers that support many emerging IO standards. The VBANK jumper settings allow the user to configure each bank of I/O pins on the boards to operate in 1.5V, 1.8V, 2.5V, or 3.3V modes. Six user-selectable VREF settings enable the user to input a threshold voltage, as required by some input standards on certain user I/O pins.

Also among the Insight Virtex-II development boards' numerous advantages are the high precision, one-percent, 50-Ohm VRN and VPN resistors contained on five of the eight I/O banks. These resistors support the Virtex-II architecture's XCITE DCI (digitally controlled impedance) capabilities. A sixth bank (Bank 0) contains two potentiometers for the VRN and VPN inputs, giving it a 24-524 Ohm range. The flexibility of these settings and configurations gives designers multiple options for exploring the breakthrough technologies of Virtex-II Platform FPGAs.

The Insight Virtex-II development boards demonstrate high-performance LVDS (low voltage differential signaling) through a LVDS port. Four dedicated receive data pairs, four transmit data pairs, and the respective transmit and receive clocks are available for prototyping high-speed, differential interfaces. The LVDS receive port includes parallel termination; the transmit port does not include or require this feature.

For designers who want to explore high-speed, DDR (double data rate) DRAM, the XC2V1000 version of the development board includes a 16M x 16 DDR memory from Toshiba. Due to I/O limitations, the XC2V40 version of the kit does not offer this feature.

Both kits include general-purpose test and prototype circuits, which most designs need. User DIP and push-button switches, a seven-segment LED display, an RS-232 serial port, and user I/O connectors are all available. In an effort to maximize I/O utilization, all of these circuits can be con-

offers, the Virtex-II kits accelerate your design effort by providing the features you need to complete your design. The boards come with several reference designs for testing the LVDS port, using the RS-232 port, implementing an interface to the DDR memory, and much more. All of these designs are downloadable via Insight's Reference Design Center ([www.insight-electronics.com/solutions/reference/xilinx/](http://www.insight-electronics.com/solutions/reference/xilinx/)), a Web-based resource available to development kit owners.

Insight also offers a special WebPACK kit version that includes the XC2V40-based Virtex-II board and power supply, a WebPACK CD, and a JTAG programming cable. The WebPACK CD™ contains the necessary implementation tools to take users all the way from VHDL or Verilog design entry and synthesis to design implementation and device programming.

Insight's worldwide field applications engineers provide technical support, can teach you how to use

the demonstration boards and development tools, and they can recommend application solutions.

## Conclusion

Insight Electronics has introduced two Virtex-II development kits that help developers test and prototype the many new features of the Virtex-II architecture. The low cost boards come with reference designs, documentation, and optional Xilinx software bundles. The 40,000-gate XC2V40 development board is available for \$295; the one-million gate XC2V1000 development board is available for \$695. For more information, see [www.insight-electronics.com/solutions/kits/xilinx/](http://www.insight-electronics.com/solutions/kits/xilinx/).

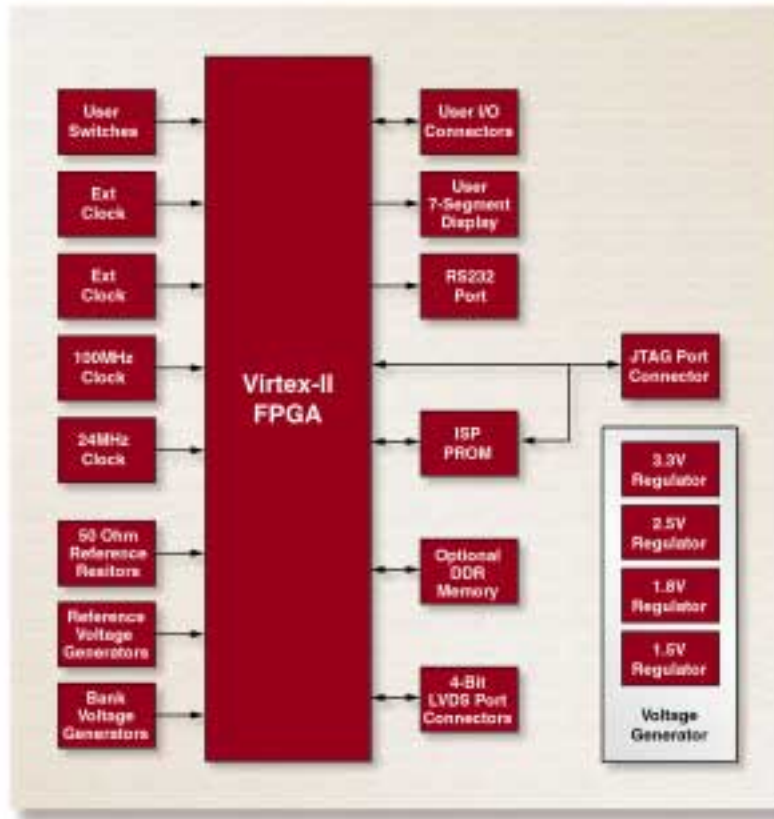


Figure 2 - Virtex-II development board block diagram

nected or disconnected from the I/O pins through header jumpers. This gives designers the freedom to choose how they want to implement I/O pins and not waste valuable resources on unused, dedicated circuits.

Finally, in an effort to provide development platforms that are truly easy to use, all power supply sources are included onboard. Voltage references for 5V, 3.3V, 2.5V, 1.8V, and 1.5V are all derived from the 5 VDC input. A 110 VAC to 5 VDC adapter is even included to get you up and running as soon as you open the box.

## A Complete Solution

Like many other demonstration boards and development kits that Insight Electronics