

New Virtex XSV Development Board

for Creating Intellectual Property

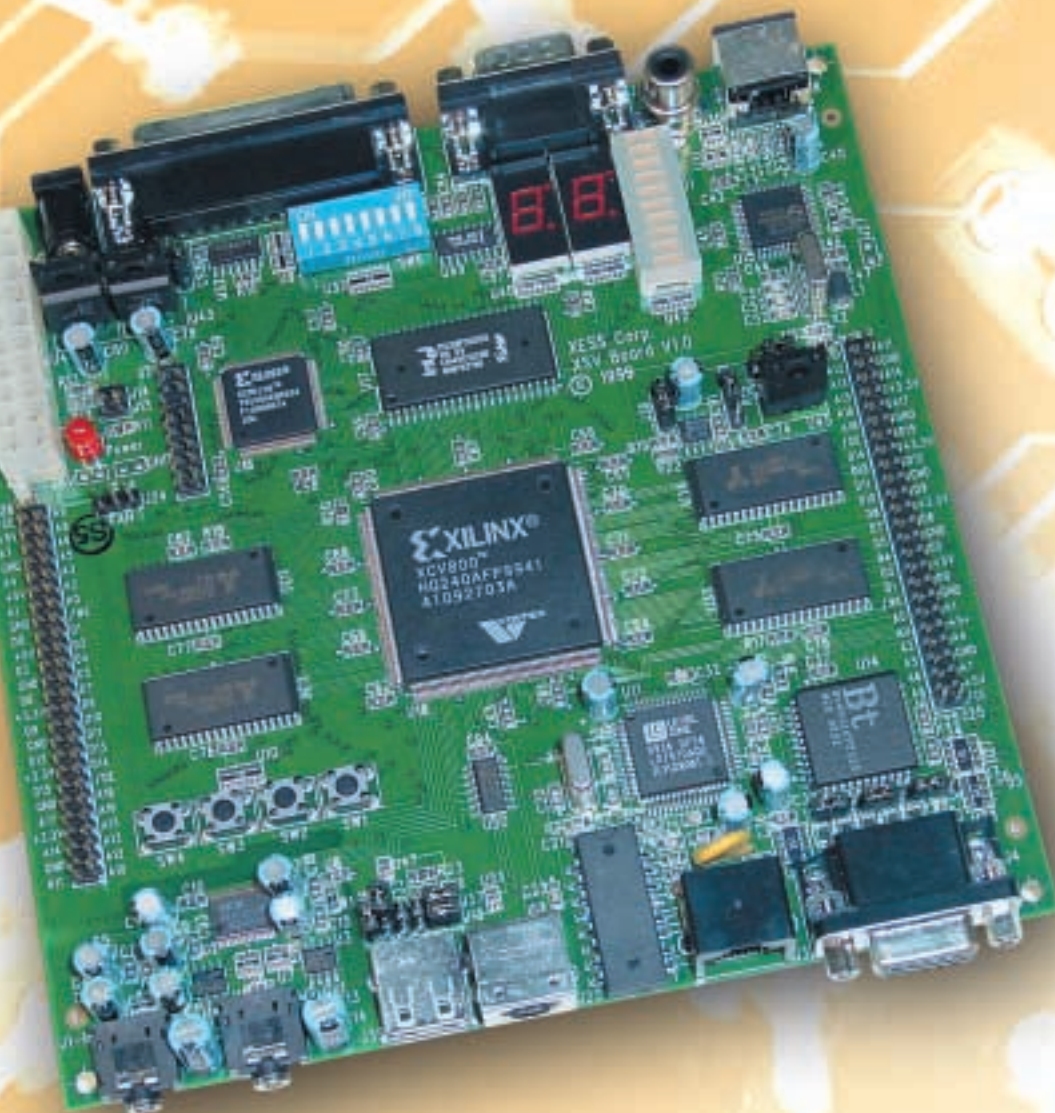
The XSV Board, designed for the SIP developer community, provides a flexible, low-cost platform that supports a large set of interesting applications.

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With the advent of large FPGAs such as the Xilinx Virtex series, the semiconductor intellectual property (SIP) market is poised for rapid expansion. Developers of open SIP serve a large segment of this market. With open SIP, the HDL source code and schematics for a functional core are made freely available and the developers generate revenue through service and support. But open SIP developers need an affordable, widely available platform for their cores to run on, just as the PC provided the platform for the growth of the open Linux OS. That's why we created the XSV Development Board

XSV Features

The XSV Development Board from XESS Corp., shown in Figure 1, is a general-purpose Virtex FPGA development platform with extensions for multimedia I/O and network connectivity. The XSV houses a single Virtex chip in a 240-pin PQFP package, ranging from the XCV50 (50 K gates) up to the XCV800 (800 K gates). The wide range of device sizes in the same low-cost package lets XESS tailor the price of the board to meet the price requirements of



open SIP developers and users. Therefore you can move from smaller to larger FPGAs on the XSV Board without the need to rearrange your pin assignments.

Video and Audio Capabilities

The XSV Board surrounds the Virtex chip with circuitry that supports many of today’s important applications. A video decoder chip digitizes NTSC, PAL, and SECAM formats with up to nine bits of resolution. The FPGA can process the digitized video and store it in one of two inde-

pendent banks of 512K x 16 SRAM, or it can send the video to a 24-bit RAMDAC for output on a VGA monitor. Video needs sound to go with it, so a 20-bit stereo codec lets the FPGA input and output two channels of audio.

Configuration

the FPGA. For even higher speeds, an Ethernet physical-level interface links the FPGA to a network at up to 100 Mbps. The FPGA can also communicate with external systems through two 50-pin I/O headers (38 general-purpose I/O, 12 power/ground).

A Xilinx XC95108 CPLD manages the configuration of the XSV Board. The CPLD accepts bitstreams via the parallel port and loads them into the FPGA. Or it

can program the bitstream information into a 16 Mb Flash RAM on the XSV Board. The Flash RAM stores multiple bitstreams that are selectable with a DIP switch. The CPLD configures the FPGA with the selected bitstream upon power-up.

which are loaded into the XSV Board with the GXLOAD utility from XESS. XESS also provides utilities to run self-test diagnostics and to set the frequency of the programmable oscillator on the XSV Board.

XSV Board users can get example designs and application notes at www.xess.com and can subscribe to an email list of users who provide assistance to one another.

Conclusion

Using the XSV Board, you can easily develop Intellectual Property for Xilinx FPGAs. This flexible, low-cost platform supports a variety of applications and helps you to quickly realize your designs. For developing IP, there is no faster or easier method.

For more information contact XESS online at: www.xess.com, or send e-mail to: fpga-info@xess.com

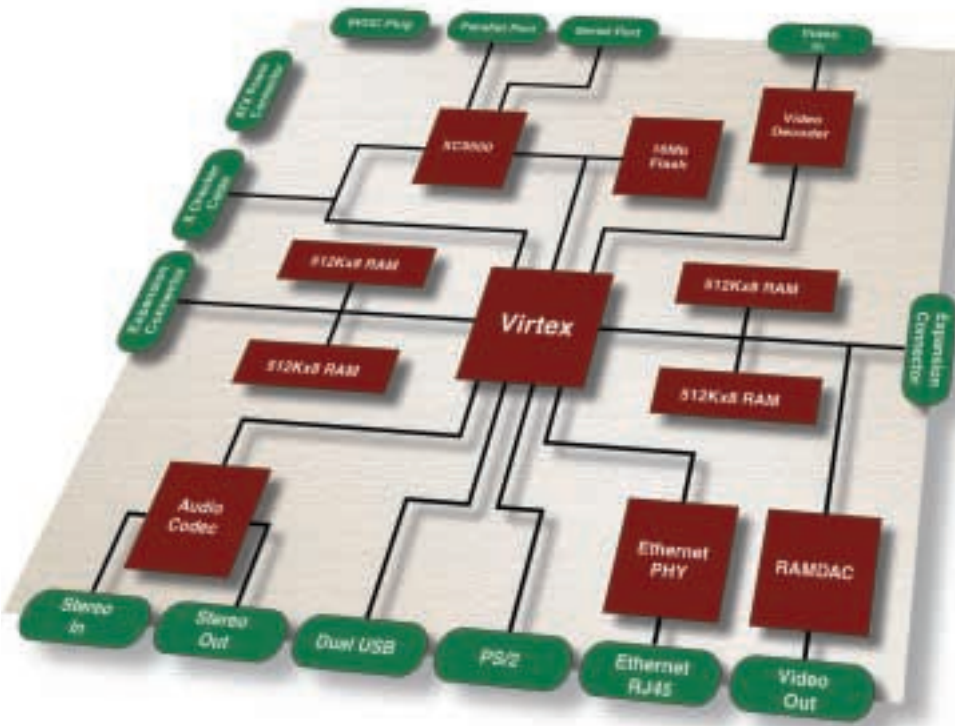


Figure 1 - XSV Development Board block diagram.

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Connectivity

To provide connectivity, the XSV Board has interfaces for the parallel, serial, and PS/2 keyboard/mouse ports common on PCs. There is also a USB port that connects a wide variety of devices to the XSV Board at up to 12 Mbps through a USB core in

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Using XSV

The XSV Board is attached to a PC with a commonly available 25-wire parallel port cable, and is powered with a standard PC-ATX power supply. The Xilinx Foundation Series or Alliance Series development software is used to generate Virtex bitstreams

About XESS

XESS Corporation is the leading provider of hybrid programmable logic/microcontroller development boards. Targeted at the educational market, XESS boards allow universities and students to build systems which combine elements of hardware and software and then quickly explore tradeoffs between the two. XESS sells its products directly to customers worldwide. Founded in 1990, XESS is privately held and is headquartered in Apex, NC.