

Stackable Virtex FPGA Board For General Use

A new basic board to help you quickly test and implement your Virtex-based design.

by Dr. Stefan Schafroth, Hardware and Software Development Engineer, ErSt Electronic GmbH, stefan.schafroth@erst.ch

The EVALXCV-HQ240 board has been designed to provide all the necessary basic components needed in most Virtex-based designs. All I/Os are routed to header connectors where you connect your special purpose interfaces. By stacking several boards you can easily cope with the complexity of a design which exceeds the scope of a single FPGA.

To overcome the annoying task of supplying the board with several supply and reference voltages, we have also created a power module which does this for you. It can be attached directly to the FPGA board such that the two boards form a single unit.

Key Features

The heart of the board is a Virtex FPGA in an HQ-240 package (XCV800/600/400). Vital components for a basic system are placed around the FPGA. These include two crystal oscillators, three push buttons, DIP switches, and nine status LEDs. All configuration modes of the FPGA are supported. You can provide configuration data either by serial configuration PROMs (SCPs) sitting in onboard sockets or by connecting a Xilinx MultiLINX, XChecker™, or JTAG cable. A functional diagram detailing the

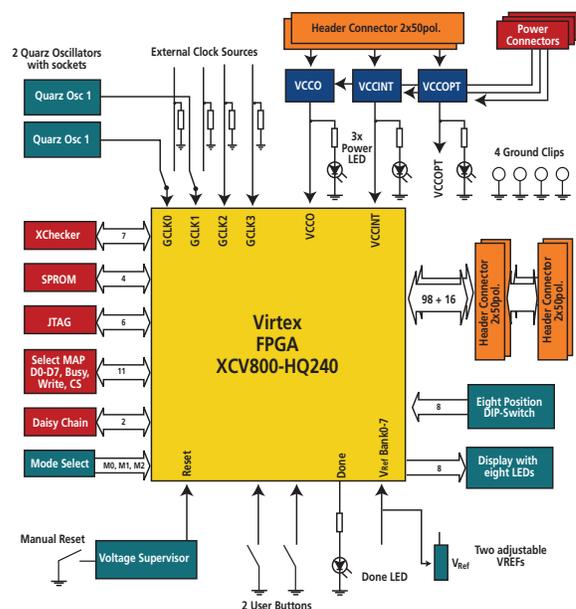


Figure 1- Functional Diagram of the FPGA Board Module

building blocks of the Virtex FPGA board is shown in figure 1.

The board is very well suited to:

- Evaluate the larger members of the Virtex FPGA family.
- Implement custom designs utilizing the full power of Virtex FPGAs.
- Quickly and easily expand the complexity of the system by stacking several boards.



Figure 2 - Top View of the FPGA Board

Figure 2 shows a top view of the board. On the right side you see the connectors used to supply configuration data, sockets for SCPs, crystal oscillators, and LEDs. The push buttons and DIP switches are placed on the left side. Header connectors for I/O signals run along the top and bottom side of the board.

Power Module

Although you can use the Virtex board standalone, we recommend that you use our PWR3 power module which has been designed to eliminate the burden of manually applying several low level supply voltages. It generates

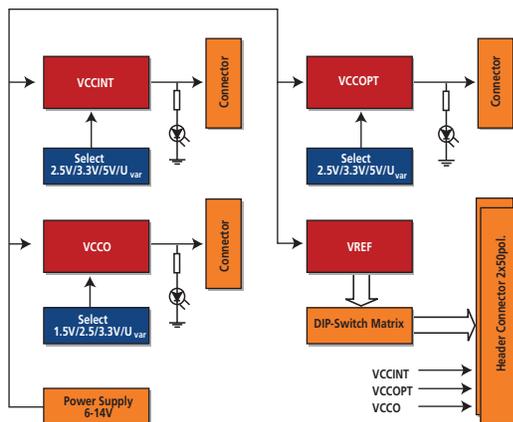


Figure 3 - Functional Diagram of the Power Module



Figure 4 - View of the Power Module with Attached FPGA Board

three regulated output voltages and eight reference voltages from a single unregulated power supply. Its output power is sufficient to satisfy the needs of several FPGA boards stacked together. A functional diagram is shown in figure 3. In figure 4 you see the power module attached to the bottom side of the Virtex board.

Conclusion

The EVALXCV-HQ240 gives you an ideal platform for evaluating, implementing, testing and extending Virtex FPGA based custom designs. You can also easily integrate the board into a larger system. The power module eliminates the need for several supply voltages and forms a compact unit with the FPGA board. 

For additional information on EVALXCV-HQ240 and PWR3 see: www.erst.ch, or contact us at info@erst.ch.