Spartan-6 FPGA SP601 Evaluation Kit FAQ

June 24, 2009

Getting Started

1. Where can I purchase a kit?

A: You can purchase your SP601 kit online at:

http://www.xilinx.com/onlinestore/s6_boards.htm

or contact your local Xilinx Distributor or Representative at:
http://www.xilinx.com/company/sales/ww_disti.htm

2. When will I get my kit?

A: The SP601 Kits can be ordered now. Lead-times will vary based on inventory and availability. Please view online at http://www.xilinx.com/onlinestore/s6_boards.htm or contact your local Xilinx distributor at http://www.xilinx.com/company/sales/ww_disti.htm The software is available for you to download immediately upon purchasing the kit. You will be sent an email with instructions to help you to register and generate a software license when you place your order. See FAQ answer to "How do I register and install my software?" below for instructions.

3. How much do they cost?

A: The Spartan-6 FPGA SP601 Evaluation Kit costs $295 US.

General Kit Questions

4. What is included in the Spartan-6 FPGA SP601 Evaluation Kit

A: This kit includes the following Items:

- **SP601 Base Board** including the XC6SLX16-CS324 FPGA
- **Welcome letter**
- **FPGA Design Software** – A DVD of Xilinx ISE® WebPACK™ Design Suite: WebPACK is included in the kit. (See **Software Related Questions** below.)
- **Reference Designs** – (soon to be available online on product page)
    - Base Reference Design - demonstrates board functionality and provides a reference design and tutorial demonstrating how to download, modify and customize a design.
    - Hard Memory Controller Design - demonstrates how to connect and design with the Hard Memory Controller in the Spatysan-6 FPGA
    - MultiBoot Configuration Design - demonstrates how to implement the multiboot functionality and how to configure with one design and then automatically configure with another
- **Documentation**
    - Hardware Setup Guide – Step by Step guide for connecting cables, setting switches and jumpers, and powering on for the first time.
    - Getting Started Guide – Step by Step guide to running the diagnostic demo, running the Base Reference Design, and installing the software.

- Hardware User Guide – Detailed description of the SP601 Board features, jumper settings, options and pin location tables.
- Reference Design User Guide – Step by Step guide on understanding, implementing, modifying and customizing the SP601 Reference Designs.
- Board Design Files – Schematics/Gerbers/BOM

- **Cables & Power Supply**
  - 5-volt Universal Power Adapter
  - 2 USB A/MiniB Cables (for download & debug)
  - Ethernet Cable

SP601 Board Questions

5. What speed grade Spartan™-6 LX16 is on the board?

A: The board comes populated with a -2CES speed grade Spartan-6 XC6SLX16 CS324-2CES FPGA.

6. Can I upgrade to a larger or faster device?

A: Yes, you can but to do so voids the Xilinx warranty and support for the board will not be provided. In general, the CS324 footprint allows upgrading the on-board FPGA to the LX25, but is not designed to support the LX45T.

7. What is your return policy for boards and software?

A: To return a board or cable purchased through normal distribution channels, contact the authorized distributor who originally sold you the product. For more information please visit the following site:

http://www.xilinx.com/products/quality/rma.htm

8. Why are there 2 USB connectors on the SP601 board?

A: The USB port labeled USB/JTAG is specifically used for downloading a configuration bitstream and programming the FLASH. This port can be used as a debug port using JTAG and ChipScope, but cannot be used as a standard USB device port.

The other USB port (labeled USB UART) is a USB-to-UART bridge that can be used as a serial communication channel.

9. What expansion ports are available on the SP601 board?

A: The SP601 has 2 expansion ports. One is the FPGA Mezzanine Card (FMC) connector (see below). The other expansion port provides 8 I/Os configured as two rows of VCC, GND and 4 I/Os. This port has gained an ecosystem following and a number of small daughter cards called Peripheral Modules (PMods) can be found at: http://www.digilentinc.com/Products/Catalog.cfm?NavPath=2,401&Cat=9

10. What is the FMC expansion connector and what can I connect to it?

A: FPGA Mezzanine Card (FMC) is an expansion card interface format developed by a consortium of companies ranging from FPGA vendors to end users to provide a standard mezzanine card form factor, connectors and modular interface to an FPGA located on a base board, also called a carrier card. Decoupling the I/O interfaces from the FPGA in this manner simplifies the design of the I/O interfacing modules while maximizing carrier card reuse.

11. How do I get a copy of the FMC specification?

A: FPGA Mezzanine Card (FMC) is a VITA specification and is available on VITA's website at: https://www.vita.com/online-store.html.

Software Related Questions

12. What is ISE Design Suite WebPACK?

A: ISE WebPACK design software is the industry's only FREE, fully featured front-to-back FPGA design solution for Linux, Windows XP, and Windows Vista. ISE WebPACK is the ideal downloadable solution for FPGA and CPLD design offering HDL synthesis and simulation, implementation, device fitting, and JTAG programming. ISE WebPACK delivers a complete, front-to-back design flow providing instant access to the ISE features and functionality at no cost. Xilinx has created a solution that allows convenient productivity by providing a design solution that is always up to date with error-free downloading and single file installation. Download it now: http://www.xilinx.com/tools/webpack.htm

13. How do I register and install my software?

A: When you order the Spartan-6 FPGA SP601 Evaluation kit, you will be sent an email with instructions to help you download and entitle the ISE WebPACK software. You can also follow the instructions found here: http://www.xilinx.com/tools/webpack.htm

If you log in with the Email address that was included in the purchase order, then you will already have an account created for you. If not, then you will need to register a new account.

This evaluation kit comes with "entitlement" to a seat of the ISE Design Suite: WebPACK software and all associated updates for a one-year period, or as specified in your purchase order, if different.

Please visit the Xilinx software registration and entitlement site: http://www.xilinx.com/getproduct

Generate a License: Select the "Create New License" tab. Select the check box of the software you want to license and install. Select the check box for the "ISE Design Suite: WebPACK Edition, Node Locked".

Note: Laptop users may want to select your Hard Disk ID or Wireless Ethernet card HostID. If you are going to select an Ethernet adaptor, it is best to select your wireless card. If you select your Docking Station HostID, you will only be licensed when you are docked. Also, many direct RJ45 Ethernet connections on Laptop computers are powered down when not plugged into the network, so if you are not connected with a cable, you may also find that you are not licensed.

After you have selected a HostID, click the "Generate Node Locked License" button. This will generate your license in the "Manage Licenses" tab as well as email you a copy of the license. You will use this license later as part of the software installation process. For more information on installing and licensing the Xilinx software please read the Install User Guide located at: http://www.xilinx.com/support/documentation/sw_manuals/xilinx11/irn.pdf

Installing the Software: Select the "Download Software" tab. You have the option to run a Web Install client, or Download the ISE WebPACK image. If you are on a fast network, we recommend downloading the ***Individual Files ISE WebPACK*** image. If not, the web Install Client is a good option. In both cases, you will want to select the ISE WebPACK and follow these steps:

1) Download Web Install Client or Full DVD Image
2) Extract Contents of Archive
3) Run xsetup.exe

14. What software do I need to run these reference designs and where do I get it?

A: You need ISE WebPACK, which is available for download at: http://www.xilinx.com/tools/webpack.htm

15. What other software would be helpful? Why?

A: While ISE WebPACK will support all the features of the SP601 board, there are some additional software tools that may be helpful. These are found in the ISE Logic, Embedded, DSP or System Editions. For more information see: http://www.xilinx.com/tools/designtools.htm

- ChipScope Pro™ - an FPGA debug and verification tool. Using the ChipScope Core Generator or Core Inserter, you put ChipScope-specific logic into your design, called a ChipScope core. Then, you can connect to ChipScope cores later using the ChipScope Analyzer software to debug or validate your design.
- The AccelDSP™ Synthesis Tool - a product that allows you to transform a MATLAB® floating-point design into a hardware module that can be implemented in a Xilinx FPGA. The AccelDSP Synthesis Tool features an easy-to-use Graphical User Interface that controls an integrated environment with other design tools such as MATLAB, Xilinx ISE tools, and other industry-standard HDL simulators and logic synthesizers.
- System Generator - a DSP design tool from Xilinx that enables the use of The Mathworks™ model-based design environment Simulink for FPGA design. Designs are captured in the DSP friendly Simulink modeling environment using a Xilinx-specific block set. All of the downstream FPGA implementation steps including synthesis and place-and-route are automatically performed to generate an FPGA programming file.
- PlanAhead – a design and analysis software product used to design large FPGA devices. The core technology includes a hierarchical floorplanning tool that can partition the physical design into smaller, more manageable pieces, thus reducing the time to understand, design, verify, and implement the FGPA.

Getting More Information

16. Where do I get more information?

A: Please check back to the SP601 product page found http://www.xilinx.com/sp601