



## Spartan-6 and Virtex-6 FPGA Embedded Kit FAQ

February 5, 2009

### Getting Started

#### 1. *Where can I purchase an Embedded kit?*

A: You can purchase your Spartan-6 and Virtex-6 FPGA Embedded kits online at:

Spartan-6 FPGA Embedded Kit: [www.xilinx.com/s6embkit](http://www.xilinx.com/s6embkit)

Virtex-6 FPGA Embedded Kit: [www.xilinx.com/v6embkit](http://www.xilinx.com/v6embkit)

Or you can contact your local Xilinx Distributor or Representative at:

[http://www.xilinx.com/company/sales/ww\\_disti.htm](http://www.xilinx.com/company/sales/ww_disti.htm)

#### Kit Details

#### *Virtex-6 FPGA Embedded Kit*

#### *Spartan-6 FPGA Embedded Kit*

Kit Details	<i>Virtex-6 FPGA Embedded Kit</i>	<i>Spartan-6 FPGA Embedded Kit</i>
Kit Part Number	DK-V6-EMBD-G DK-V6-EMBD-G-J (Japan)	DK-S6-EMBD-G DK-S6-EMBD-G-J (Japan)
	<del>DK-V6-EMBD-G-XP1</del>	<del>DK-S6-EMBD-G-XP1</del>
	DK-V6-EMBD-G-J-XP1 (Japan)	DK-S6-EMBD-G-J-XP1 (Japan)

#### 3. *When will I get my kit?*

A: The kits are available right now. The lead times are posted on the kit ordering pages.

Note that the ISE Design Suite Embedded Edition included in tools will be 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.

The documentation and reference designs for the Spartan-6 and Virtex-6 Embedded kits are available online right now for downloading here:

[www.xilinx.com/products/boards/s6embd/reference\\_designs.htm](http://www.xilinx.com/products/boards/s6embd/reference_designs.htm)

[www.xilinx.com/products/boards/v6embd/reference\\_designs.htm](http://www.xilinx.com/products/boards/v6embd/reference_designs.htm)

## General Kit Questions

### 4. What are included in the Embedded Kits?

A: This kit includes the following Items:

<b>Key Features</b>	<b>Virtex-6 FPGA Embedded Kit</b> <i>DK-V6-EMBD-G</i> <i>DK-V6-EMBD-G-J</i>	<b>Spartan-6 FPGA Embedded Kit</b> <i>DK-S6-EMBD-G</i> <i>DK-S6-EMBD-G-J</i>
<b>Silicon</b>	XC6VLX240T-FF1156-1CES	XC6SLX45T-FG484C-3CES
<b>Base Board</b>	ML605	SP605
<b>Tools</b>	<ul style="list-style-type: none"> <li>• ISE Design Suite (IDS) Embedded Edition - Device locked to V6LX240T</li> <li>• IDS 11.1 &amp; 11.4 update DVDs</li> </ul>	<ul style="list-style-type: none"> <li>• ISE Design Suite: Embedded Edition - Device locked to S6LX45T</li> <li>• IDS 11.1 &amp; 11.4 update DVDs</li> </ul>
<b>Targeted Reference Design</b>	MicroBlaze Processor Sub-System (PSS)	MicroBlaze Processor Sub-System (PSS)
<b>Demo Designs on SystemACE Compact Flash</b>	<ul style="list-style-type: none"> <li>• MicroBlaze PSS demo with Webserver and Video DSP pipeline</li> <li>• Linux webserver demo</li> </ul>	<ul style="list-style-type: none"> <li>• MicroBlaze PSS demo with Webserver and Video DSP pipeline</li> <li>• Linux webserver demo</li> </ul>
<b>Physical Media (USB Stick) with designs and documentation</b>	✓	✓
<b>Printed Documents</b>	<ul style="list-style-type: none"> <li>• Hardware Setup Guide</li> <li>• Getting Started Guide</li> </ul>	<ul style="list-style-type: none"> <li>• Hardware Setup Guide</li> <li>• Getting Started Guide</li> </ul>
<b>Tutorials and additional documentation</b>	<ul style="list-style-type: none"> <li>• Hardware Tutorial</li> <li>• Software Tutorial</li> <li>• MicroBlaze PSS Datasheet</li> </ul>	<ul style="list-style-type: none"> <li>• Hardware Tutorial</li> <li>• Software Tutorial</li> <li>• MicroBlaze PSS Datasheet</li> </ul>
<b>FPGA Programming Cable &amp; Power Supply</b>	✓	✓
<b>I/O, DATA Cables</b>	1 Ethernet cable 2 USB cables (for JTAG download/debug and UART communication) 1 DVI-VGA adapter	1 Ethernet cable 2 USB cables (for JTAG download/debug and UART communication) 1 DVI-VGA adapter

**5. What expansion ports are available on the SP605 and ML605 boards?**

A: The SP605 and ML605 boards include two FPGA Mezzanine Connector (FMC) expansion slots. More information about the FMC standard and daughter cards from Xilinx and partners can be found here: [http://www.xilinx.com/products/boards\\_kits/fmc.htm](http://www.xilinx.com/products/boards_kits/fmc.htm).

**6. What is the Targeted Reference Design included with the Embedded Kits?**

A: MicroBlaze Processor Sub-System (PSS) is the Targeted Reference Design provided with the Spartan-6 and Virtex-6 Embedded Kits that jumpstarts both hardware and software development. The MicroBlaze PSS is pre-configured and validated on the board so that software developers can start evaluating their application software right away without any The MicroBlaze PSS design includes the most commonly used embedded IP including:

- 32-bit MicroBlaze Soft Processor with Memory Management Unit and Instruction/Data caches
  - Running at 100Mhz
- Tri-Mode Ethernet MAC (TEMAC)
- Multi-Port Memory Controller (MPMC)
  - Supporting DDR3 memory interface at 800Mbps
- On-Chip Block RAM , Parallel and Serial (SPI) NOR Flash memory controllers
- Serial Interface IP – UART 16550, I2C, SPI
- Basic Embedded IP – Interrupt Controller, Timers, GPIO
- Infrastructure IP – Bus infrastructure, Clock and Reset management IP
- JTAG Debug IP – MicroBlaze Debug Module (MDM ), ChipScope Logic and Bus Analyzers

This combination of IP was carefully chosen to run industry leading Oses like Linux and Micrium uC/OS-II with TCP/IP networking and also to serve as a starting point for further software development.

**7. Can I use the MicroBlaze PSS design without purchasing the Embedded kits?**

A: Yes. You can download the MicroBlaze PSS design from the Spartan-6 and Virtex-6 kit documentation pages below and use it with either the Spartan-6 FPGA Evaluation or Connectivity Kits.

MicroBlaze PSS design for Spartan-6 FPGA Embedded kit

[www.xilinx.com/products/boards/s6embd/reference\\_designs.htm](http://www.xilinx.com/products/boards/s6embd/reference_designs.htm)

MicroBlaze PSS design for Virtex-6 FPGA Embedded kit

[www.xilinx.com/products/boards/v6embd/reference\\_designs.htm](http://www.xilinx.com/products/boards/v6embd/reference_designs.htm)

**8. How do I upgrade my Spartan-6/Virtex-6 FPGA Evaluation Kit (SP605) or Connectivity Kit to the Spartan-6/Virtex-6 FPGA Embedded Kit-?**

A: By following the steps below, you can upgrade your Evaluation or Connectivity kit to an Embedded Kit for Spartan-6 or Virtex-6.

**Step 1:** Download the Zip file with Embedded Targeted Reference Design (MicroBlaze PSS), Embedded Kit documentation (Tutorials), Compact Flash System ACE demo files from the following web page:

[www.xilinx.com/products/boards/s6embd/reference\\_designs.htm](http://www.xilinx.com/products/boards/s6embd/reference_designs.htm)

[www.xilinx.com/products/boards/v6embd/reference\\_designs.htm](http://www.xilinx.com/products/boards/v6embd/reference_designs.htm)

**Step 2:** Copy the Embedded kit demo image from the “CompactFlash\_Demo\_Image” directory in the Zip file above into your Compact Flash drive.

**Step 3:** Download and Install the Embedded Development Kit (EDK) tools from the following page if you have already not done so

[http://license.xilinx.com/getLicense?group=esd\\_oms&tab=DownloadSoftware](http://license.xilinx.com/getLicense?group=esd_oms&tab=DownloadSoftware)

**Step 4:** Purchase a license to the Embedded Development Kit (EDK) tools from the following page if you have already not done so

[www.xilinx.com/onlinestore/design\\_resources.htm](http://www.xilinx.com/onlinestore/design_resources.htm)

## **Software Related Questions**

### **9. What is the ISE Design Suite (IDS) Embedded Edition, Device Locked to S6LX45T (or V6LX240T)?**

A: IDS Embedded Edition, device locked to S6LX45T (or V6LX240T) design software is the fully featured FPGA design solution for Linux, Windows XP, and Windows Vista. This is a full featured tool suite, but it will only generate a bit stream for the Spartan-6 LX45T (or Virtex-6 V6LX240T) device.

**ISE Design Suite Embedded Edition** includes:

- Embedded Development Kit (EDK)
  - Xilinx Platform Studio (XPS)
  - Software Development Kit (SDK)
- ISE Design Suite Logic Edition (Device-locked to S6LX45T or V6LX240T)
  - ISE Foundation with ISE Simulator (ISim)
  - PlanAhead Design and Analysis Tool
  - ChipScope Pro and Serial I/O Toolkit
  -

To target other Xilinx devices, you will need to buy a full IDS Logic Edition License.

### **10. How do I register and install my software?**

A: When you order a Xilinx Embedded Kit, you will be sent an email with instructions to help you download and entitle the ISE Design Suite software. You can also follow the instructions found here: <http://www.xilinx.com/support/download/index.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.

These development kits comes with “entitlement” to a seat of the IDS Embedded, S6LX45T (or V6LX240T) Device Locked Edition 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>

### **11. Are there additional Tools, OS/RTOS/Middleware supported by Partners?**

A: Yes. The following partners provide embedded software (OS/RTOS/Middleware) solutions for the Spartan-6 and Virtex-6 Embedded kits:

- PetaLogix provides a MicroBlaze Linux development suite (PetaLinux SDK) customized for the MicroBlaze PSS reference design. For more information visit - <http://petalogix.com/products/petalinux>

- Micrium provides Industry-leading uC/OS-II RTOS and uC/TCP-IP stack for Xilinx Embedded kits. For more information visit – <http://www.micrium.com/xilinx>
- Treck provides a high performance TCP/IP stack and a wide range of networking middleware with support for Xilinx Embedded kits. For more information, visit <http://www.treck.com>.

## **Getting More Information**

### ***12. Where do I get more information?***

A: Please visit the Embedded Processing page at <http://www.xilinx.com/embedded>