

Spartan®-6 FPGA Industrial Video Processing Kit FAQ

General Questions:

Q: What is the Spartan-6 FPGA Industrial Video Processing Kit?

A: The Spartan-6 FPGA Industrial Video Processing Kit is a comprehensive design tool for rapid prototyping and development of leading edge industrial imaging applications. The kit comes with two daughter cards that support inputs of live camera or DVI data for easy image and video processing, as well as Xilinx ISE Development Suite: System Edition (device-locked for Spartan-6 LX150T FPGAs). The complete kit with hardware, software and reference files enables OEMs and engineers to produce more reliable designs with shorter design cycles and fewer resources.

Q: Who makes the Spartan-6 FPGA Industrial Video Processing Kit?

A: The Spartan-6 FPGA Industrial Video Processing Kit is manufactured and distributed worldwide by Avnet Electronics.

Q: When is the Spartan-6 FPGA Industrial Video Processing Kit available?

A: The Spartan-6 FPGA Industrial Video Processing Kit is open for order entry on March 2nd, 2010 from the Avnet [website](#). General availability will begin April 2010.

Q: Who is the kit designed for?

A: The Spartan-6 FPGA Industrial Video Processing Kit is designed for industrial OEM hardware designers, advanced R&D algorithm developers, and software developers looking to use FPGAs for industrial video applications. Additionally, this kit is useful for any customer using or evaluating the Spartan-6 family of FPGAs.

Q: What are the key features of the Spartan-6 FPGA Industrial Video Processing Kit?

A: Key features of the Industrial Video Processing Kit (Avnet Part# AES-S6Spartan-6 FPGA Industrial Video Processing Kit-LX150T-G) include:

- *Avnet Spartan-6 LX150T Development Board (Avnet Part#: AES-S6DEV-LX150T-G)*
 - *Equipped with Xilinx Spartan-6 LX150T FPGA (-3 speed grade)*
 - *Two FMC LPC expansion slots*
- *Omnivision OV9715 720P Image Sensor*
 - *High resolution video*
 - *1280 x 800 @ 30 frames/sec*
 - *640 x 400 @ 60 frames/sec*

- *Zero degree microlens shift: extreme wide angle field of view*
- *Low light performance: 3300 mB/(lux-sec)*
- *Image sensor mounting assembly (including flexible arm, ribbon cable, bracket)*
- *Two Daughter Cards*
 - *FMC IMAGEOV LPC Daughter Card*
 - *Dual image sensor inputs (parallel) with DVI/HDMI output*
 - *I2C bus for image sensor control*
 - *General purpose user I/O*
 - *FMC DVI HPC Daughter Card*
 - *DVI/HDMI input and output connectors*
 - *General purpose user I/O*
 - *1-Lane DisplayPort™*
 - *4-Lane DisplayPort when connected to a baseboard with HPC FMC connector*
- *Software and Tools*
 - *Xilinx ISE® Design Suite: System Edition DVD (Full License, device-locked for Spartan-6 LX150T FPGAs)*
- *Product Documentation*
- *Cables and Power Supply*
- *Downloadable Reference Designs/Demos*

Q: What are the hardware board specifications?

A: Spartan-6 LX 150T development base board equipped with

- *Xilinx Spartan-6 FPGA Part#: XC6SLX150T-3FGG676*
- *Serial GTP Interfaces*
 - *PCIe® x1 and x4 HW Support*
 - *SFP Connector*
 - *SATA Connector*
 - *2x general purpose GTP ports via FMC*
 - *GTP clock input via SMA connectors*
- *Dual LPC FMC Slots*
- *Memory*
 - *128 MB DDR3 SDRAM*
 - *32 MB Parallel Flash*
- *SD Card Slot*
- *10/100/1G Ethernet PHY*
- *USB 2.0 PHY*
- *USB to RS-232 Serial Bridge*

- *LCD Panel Interface (ALI)*
- *DB9 RS-232 port*
- *General Purpose User IO*
 - *LEDs*
 - *Push buttons*
 - *DIP switches*
- *RoHS-compliant*

A: Two Daughter Cards equipped with:

- *FMC IMAGEOV LPC Daughter Card*
 - *Dual image sensor inputs (parallel) with DVI/HDMI output*
 - *I2C bus for image sensor control*
 - *General purpose user I/O*
 - *RoHS-compliant*
- *FMC DVI HPC Daughter Card*
 - *DVI/HDMI input and output connectors*
 - *General purpose user I/O*
 - *1-Lane DisplayPort™*
 - *4-Lane DisplayPort when connected to a baseboard with HPC FMC connector*
 - *RoHS-compliant*

Q: What are the software tools specifications?

- *ISE Design Suite: System Edition (device-locked for the Spartan-6 LX150T FPGA)*
 - *ISE Foundation Software*
 - *Project Navigator – Easy to use graphical interface that provides project hierarchy and the design process, as well as a context-sensitive HDL Editor*
 - *PlanAhead™ Design Analysis Tool – For streamlined design processes between synthesis and place-and-route as well as providing intuitive IO planning*
 - *SmartGuide™ - Industry's fastest incremental implement runtimes*
 - *SmartXplorer Technology – Optimal designs with multiple implementation runs*
 - *ISE Simulator – Integrated RTL simulation environment*
 - *ChipScope™ Pro and ChipScope Pro Serial IO Toolkit –On-chip design verification for logic and serial connectivity analysis and measurement.*
 - *Platform Studio*
 - *Software Development Kit (SDK) – Easy to use software development environment*
 - *Microblaze™ Soft Processor Core*
 - *Embedded Development Kit (EDK)*

- *System Generator for DSP*

Q: What are the documentation & accessories specifications?

Documentation:

- *Welcome Letter – Introduction to kit and components*
- *Getting Started Guide – Complete instructions enabling you to evaluate and modify designs included in your evaluation kit*
- *Hardware User Guides – Detailed guides providing information about the hardware included in your kit*
- *Reference Designs Guide – Instructions for using the included reference designs and design examples included in your kit.*

Cables and Power Supply:

- *Xilinx Platform Cable USB-II JTAG programming cable*
- *12V@5A power supply (including US/UK/Europe AC cords)*
- *USB-A to USB-B cable*
- *2 HDMI-DVI cables*
- *Ethernet cable*

Q: What is the price for the Spartan-6 FPGA Industrial Video Processing Kit?

A: The Spartan-6 FPGA Industrial Video Processing Kit complete with hardware, daughter card, and tools is priced at \$2,695 retail price. Note that the Xilinx ISE Design Suite: System Edition and other reference design files included in the kit come at no charge. Registration required. No volume discounts are available.

Q: Are there any special promotions associated with the Spartan-6 FPGA Industrial Video Processing Kit?

A: There are no price promotions planned at this time.

Q: What silicon version of the Spartan-6 LX150T FPGA is currently installed on the Spartan-6 FPGA Industrial Video Processing Kit? Production or ES?

A: Initial kits will ship with early silicon (ES) designated devices. Production grade silicon will ship with the kit once the XC6SLX150T is released to production (please confirm availability with your local authorized Xilinx sales representative or distributor).

Q: What speed grade of Spartan-6 LX150T FPGA is on the board?

A: Kits will ship with -3C speed/temp grade devices.

Q: What are the configuration options for the Spartan-6 FPGA Industrial Video Processing Kit?

A: The Spartan-6 FPGA Industrial Video Processing Kit can be configured either via JTAG or Xilinx Platform Flash.

Q: The Spartan-6 FPGA Industrial Video Processing Kit ships with device-locked ISE software. Can I use the software for other Xilinx devices?

A: The ISE Design Suite: System Edition software is device-locked to the Spartan-6 LX150T, and is included as a full feature software package targeted only to the Spartan-6 LX150T. It will place and route and generate bitstreams for this device only.

Q: What software do I need to run these reference designs and where do I get it?

A: You need ISE Design Suite: System Edition. A full, device-locked version is included with the kit to load and run any Spartan-6 LX150T FPGA development.

A: To run the reference design you will need to download the reference designs from the Avnet website at <http://www.em.avnet.com/spartan6video>

Q: Where do I get more information?

A: Please check back to the Spartan-6 FPGA Industrial Video Processing Kit product page found at www.xilinx.com/S6IVK

Questions Related to the Spartan-6 LX150T Base Board:

Q: What is the size of the on-board DDR3?

A: The base board contains 128MB DDR3 SDRAM (Micron MT41J64M16 DDR3) device

Q: What connector does this FMC use on the baseboard?

A: Two low pin count (LPC) connectors are used on the Spartan-6 FPGA Industrial Video Processing Kit base board, based on FMC Specification Vita 57.

Questions Related to the FMC daughter cards:

Q: Why are there two parallel camera headers?

A: There are applications that require the ability to input data from two separate camera sources, and this daughter card allows for an easy to use interface supporting this functionality.

Q: Can I use this same card for other devices?

A: Yes. This daughter card uses a standard header that can be used for any parallel data output device. This assumes all the appropriate requirements are met with respect to signal quality and timing.

Questions Related to IP:

Q: Does the kit include IP cores?

A: Yes. The kit includes the following IP cores:

Multiport Memory Controller: Standard Xilinx soft memory controller that provides multiple configurable ports and arbitration.

Video Frame Buffer Controller(VFBC): The VFBC is used to extend the functionality of the MPMC to include 2-D access

MicroBlaze™ soft processor: A main system processor capable of controlling the system, managing memory, running an operating system and application stacks for any design.

All other protocol IP cores: All of the listed cores are provided free of charge with the purchase of the Spartan-6 FPGA Industrial Video Processing Kit and included ISE Design Suite: System Editions tools. For information on all other cores, please contact your local sales representative.