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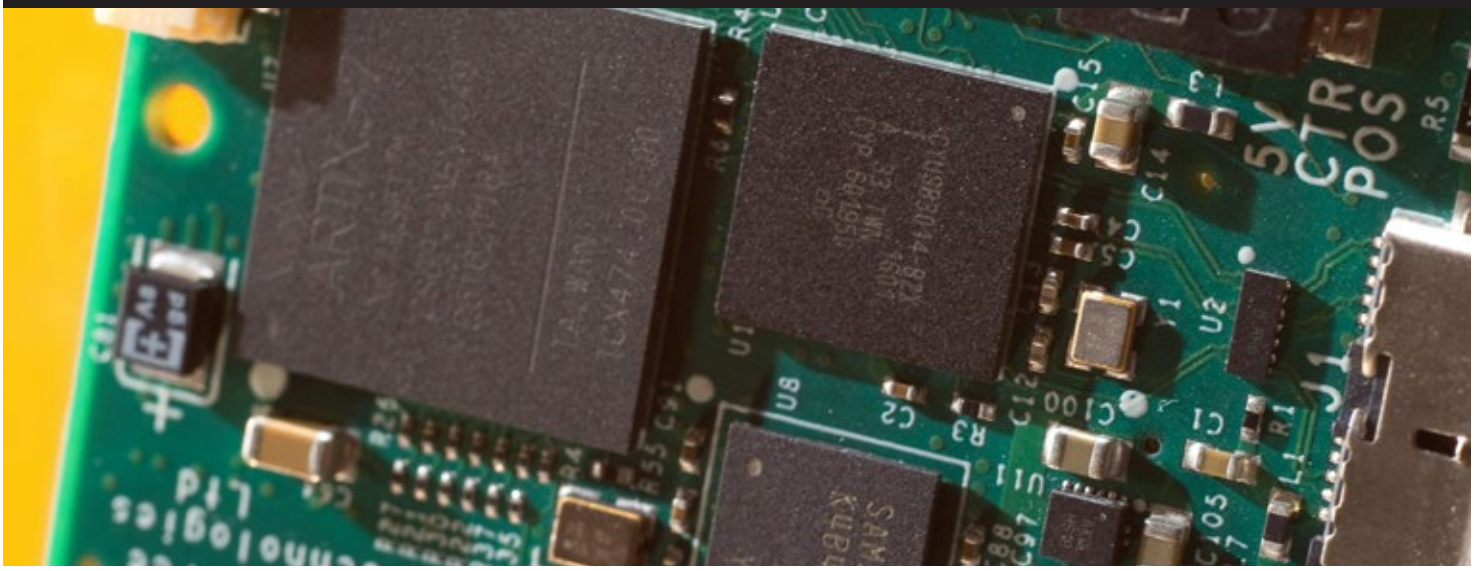
ZestSC3 Datasheet



ZestSC3: SuperSpeed USB FPGA Module

SuperSpeed USB 3.0 FPGA module, which delivers a data rate of 360MBytes/s, and a user programmable companion FPGA for connection to external devices.

The ZestSC3 is an easy to use FPGA module with a Xilinx Artix-7 user programmable FPGA and a SuperSpeed USB 3.0 interface. It provides a simple way to transfer large amounts of data quickly between a computer and the outside world. The USB 3.0 interface can sustain 360MBytes/sec data transfer in either direction opening up new, bandwidth hungry applications, such as high-resolution video in consumer, industrial or medical equipment, high-bandwidth data acquisition and control, test equipment and high throughput server applications.

With its compact form factor (40mm x 50mm), high level of integration and low external component requirements, the module is ideally suited to integration in embedded systems and OEM equipment. It features a user programmable Xilinx Artix-7 FPGA coupled with 512MBytes of high speed 1.6 GBbytes/sec DDR3 memory.

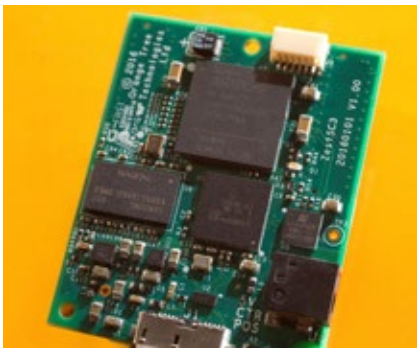
The FPGA can be programmed from on-board Flash, USB or JTAG. It can be used as a programmable interface to external devices, for high speed processing of streaming data, and for data acquisition and control.

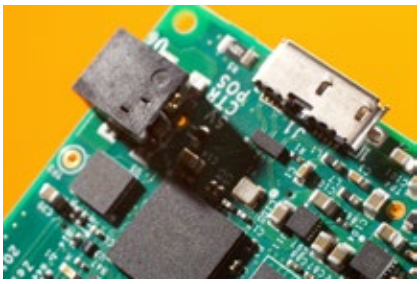
The ZestSC3 uses the Cypress FX3 USB controller chip and comes pre-loaded with optimised firmware to act as a communications bridge between the FPGA and host computer. The FX3 provides a flexible high speed streaming interface alongside additional low speed control and status interfaces.

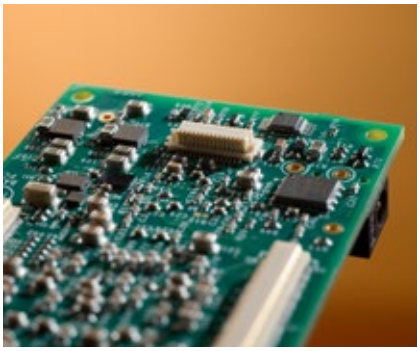
The module can be used stand-alone powered over USB. User FPGA and Flash can be programmed over USB without requiring additional programming cables or hardware. Requiring only a single 3.3V-5V power supply, it is simple to integrate into a larger system.

The large FPGA and high performance DDR3 SDRAM memory provide a powerful combination for data processing between the USB 3.0 interface and any external peripherals. ZestSC3 is supplied with a complete set of FPGA cores for its peripherals, a host library and example code to simplify development.

The ZestSC3 operates over the industrial temperature range of -40 to +85 deg C.







Orange Tree Technologies Ltd
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Features:

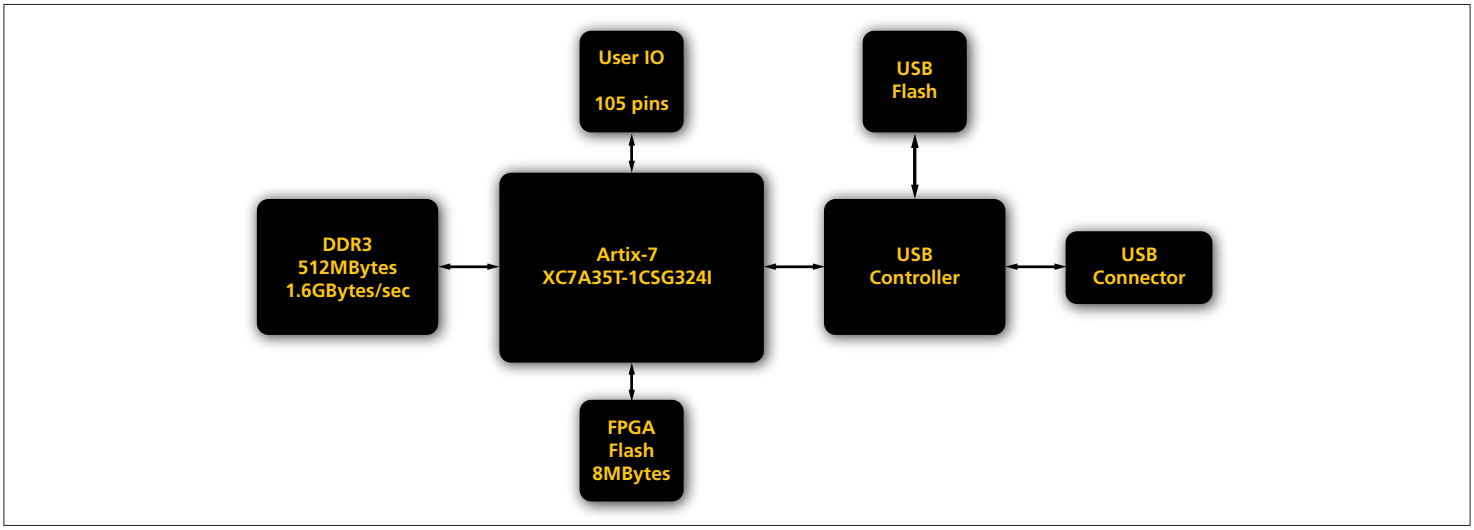
- 360MBytes/s sustained data rate in each direction over SuperSpeed USB
- Xilinx Artix-7 User FPGA and 512MBytes DDR3 memory at 1.6 GBytes/sec
- Single power supply and low external component count
- Integrated hardware to program the FPGA and flash over USB
- Complete set of interface FPGA cores, host libraries and example code

Benefits:

- Easy to use with no detailed USB knowledge required
- Virtually no FPGA resources used for talking to the host computer so most of FPGA available for data processing
- Easy integration into customer equipment
- Enables applications requiring very high speed data transfers

End Markets and Applications:

- Process Control
- Factory Automation
- Data Acquisition
- Storage
- Remote Monitoring and Control Systems
- Machine Vision and Imaging
- High Resolution Video



Technical Specification	
USB	Cypress FX3 SuperSpeed USB controller. Pre-programmed with firmware to bridge between USB and the User FPGA.
USB - User FPGA Interfaces	High speed parallel interface to User FPGA for data transfer. Low speed interface for access to control and status registers in the FPGA. Interrupt from FPGA to USB host.
User FPGA	Xilinx Artix-7 XC7A35T-1 Configurable from on-board User FPGA Flash, host computer via USB, or JTAG.
User FPGA Memory	512MBytes DDR3 400MHz 16 bits data bus, 1.6GBytes/sec bandwidth.
I/O Connectors	Two Hirose DF12 connectors for 105 User FPGA IO signals. One Hirose DF12 connector for User FPGA JTAG and power to the module.
User FPGA Flash	8MBytes for User FPGA configuration files and User FPGA application use.
User FPGA Clock	50MHz oscillator for generating clocks within User FPGA.
Power	Single 3.3V-5V supply to the board. On-board high efficiency power supplies generate all other required voltages. Board can be powered over USB subject to power requirements of FPGA design.
Physical	40 x 50 mm
Operating Conditions	Industrial temperature range -40 to +85 deg C
Evaluation	A breakout board is available to simplify evaluation of the module. The breakout board connects the User FPGA IO pins to four 0.1 inch connectors for easy connection to external devices.
Host Software	Windows and Linux software support for configuring and communicating with the User FPGA.
FPGA Support	Logic cores for all FPGA interfaces.
Examples	C, VHDL and Verilog source code for various examples.

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