

High-Speed USB FPGA Mini-Module

The aes220 is a fully autonomous High-Speed USB FPGA Mini-Module requiring only a 5V power supply or USB connection to function.

The module includes all the memory required to keep its configuration over power cycles making it ideal for uses away from a host computer.

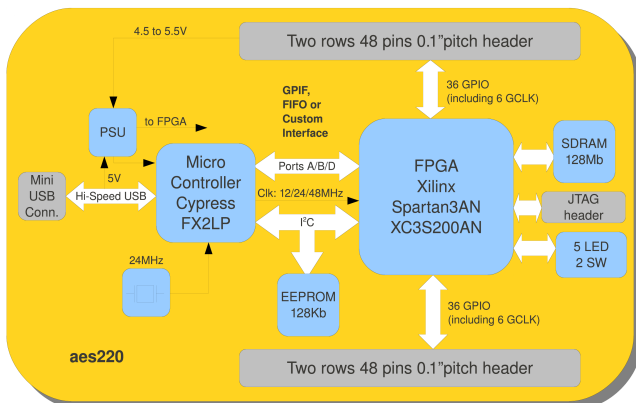
Being fully programmable via its USB port no external tool is required to program or use the module.

The USB communication is handled by the Cypress FX2LP micro-controller which can be programmed for custom applications. Typical USB communication firmware (API) is provided avoiding the need to learn about USB protocol or programming the micro-controller.

The Spartan3AN FPGA device contains 4Mb of SPI Flash memory giving storage for up to two different configurations or one configuration and significant user data space. Among other features it also includes four Digital Frequency Synthesizers (allowing a running frequency of up to 334MHz) and 288Kb of RAM.

Attached to the FPGA are a 128Mb 100Mhz SDRAM device, 5 LED and two user switches.

Two standard two row 48 pins 0.1" pitch through hole headers on each side of the module provide easy connection to the external world. The connectors are divided into six banks for convenience. Each bank contains twelve GPIO two of which are GCLK plus two ground pins, one 3.3V pin and one 5V pin. This ensures an easy way to add daughter boards to the module.



System

- High-Speed USB (480Mb/s) FPGA Mini-Module
- Includes USB micro-controller, FPGA, memories and power supplies.
- Only requires a single 5V power input, via USB or externally provided

Features

- Cypress EZ-USB FX2LP™ micro-controller (CY7C68013A)
- 16KB EEPROM for micro-controller program
- 24MHz crystal oscillator
- Xilinx Spartan3AN (XC3S200AN or XC3S400AN) FPGA
- 4Mb SPI FLASH memory
- 288Kb RAM
- 4 Digital Clock Managers (each including a Digital Frequency Synthesizer)
- 128Mb 100Mhz SDRAM
- 1.2V, 1.8V and 2x3.3V on-board buck and LDO regulators
- 72 general purpose 3 state pins
- of which 12 GCLK inputs
- I²C bus interface pins (SDA/SCL)
- 5 user LED
- 2 user switches
- JTAG 14 pin connector footprint
- Powered from USB port or external 5V supply
- Small size at 43x61mm

Tools

- Programmable using Open-source or third party tools
- Simple yet powerful API provided to communicate with the FPGA over the USB link
- Windows and Linux platforms
- No programmer required (programmed through USB port)