CW310 "Bergen Board" FPGA Target

NewAE Technology Inc.
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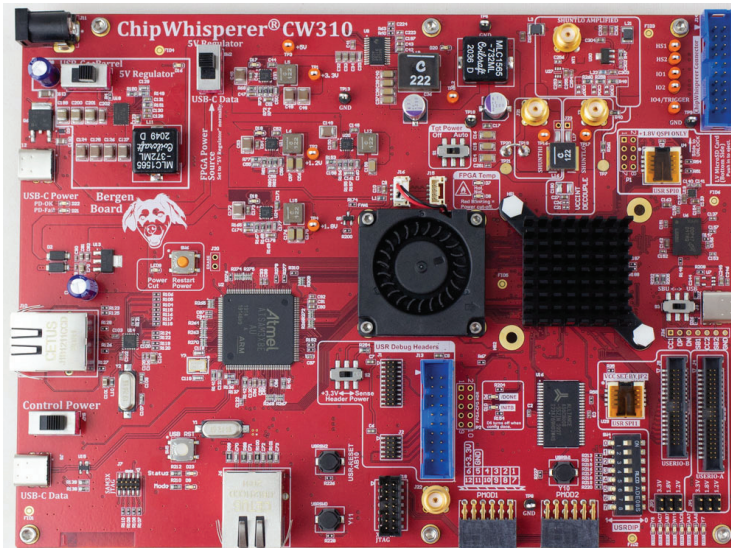
This CW310 Bergen Board is a Kintex K410T based FPGA target. The large FPGA can implement version of the OpenTitan project, along with large SoCs and other designs.

Includes SRAM and DDR3 memory, along with a monitor microcontroller used for loading the FPGA. Available with or without decoupling capacitors mounted to improve side-channel measurements.

Additional interfaces include a USB host PHY, an Ethernet MAC, standard JTAG pinouts, and LEDs and DIP switches.

The CW310 focuses on embedded security analysis of large FPGA designs. Included "Cross-Flow" fans allow you to cool the FPGA without a heatsink interfering with EM measurement or fault injection work. Hardware temperature monitoring ensures the FPGA is not damaged during extended tests without a heatsink mounted.

An on-board LNA provides better shunt measurement signals.

Product Highlights

Includes the following:
- NAE-CW310 Bergen Board
- AC-DC Power Adapter
- Cables & jumpers

See online documentation for more information on the CW310, including schematic and user manual.

Ordering Summary

NAE-CW310-K410T-NORM	CW310 with K410T, with decoupling capacitors mounted on VCC-INT rail.
NAE-CW310-K410T-SCA	CW310 with K410T, without decoupling capacitors mounted.

Product Links

Full Product Documentation	https://rtfm.newae.com/Targets/CW310%20Bergen%20Board/
Product Schematic & More	https://github.com/newaetech/cw310-bergen-board

Large SoC & Accelerator Ready

The NAE-CW310 is designed for large FPGA designs. The CW310 can implement many of the OpenTitan designs for example, and also can be used for your own soft-core processors or hardware accelerated cores. It includes typical required features such as a standard JTAG header, and both SRAM and DDR3 memory.

Custom Microcontroller Manager

The SAM3X microcontroller on the board is used to manage the FPGA. The open-source firmware can load a bitstream in approximately 30 seconds using serial configuration, with the bitstream sent over USB. In addition, this allows adjustments to VCC-INT supply, as well as monitoring of the core temperature using the sensor built into the FPGA target. If temperature exceeds a safe limit the power is automatically shut down.

Power Measurement Capable for SCA

All boards include a low noise amplifier (LNA). The "SCA" edition boards do not have the decoupling capacitors mounted on the VCC-INT rail. This tends to slightly limit the maximum speed designs can run in the FPGA. You can swap boards between "NORM" and "SCA" in the field by mounting or removing the decoupling capacitors.

Disclaimers