# Four Solutions to Accelerate FPGA Design

Stand Alone FPGA–Simple, Easily Portable to Other Hardware

- No run-time communication with the SBC's i.MX515

- 95% of programmable space available for user

- 64 bi-directional signals mapped from FPGA to headers

- Examples of I/O implementations provided

- Ideal way to write, develop and test firmware being developed to port to user's own hardware

Requires Xilinx ISE Design Software
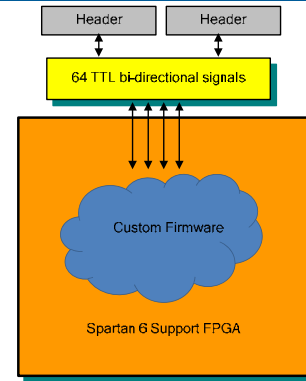
FPGA to i.MX515 Communicate via Memory Interface Bus

- Communication between FPGA and the SBC's i.MX515 processor through on-board memory interface (WEIM)

- Uses ISE Design Software tools from Xilinx for programming

- Implement IP cores from Xilinx or 3rd party, or write custom IP cores for adding DSP, video, SATA, motor control, COMM protocols such as Ethernet, etc.

- 64 bi-directional signals mapped from FPGA to headers

Requires Xilinx ISE Design Software
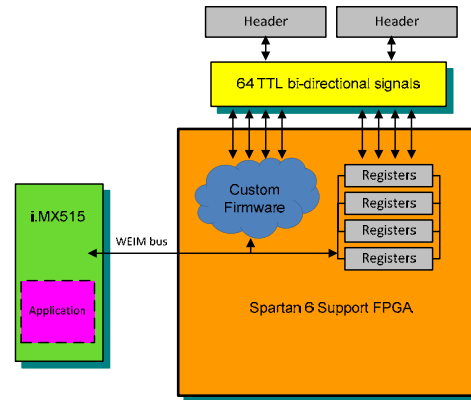
Xilinx's MicroBlaze Microcontroller Operates in FPGA Independent of SBC's i.MX515 for Distributed Control

- Intelligent microcontroller installs inside FPGA to off-load SBC's i.MX515 of control functions

- WEIM memory interface for SBC i.MX515 updates the FPGA

- 64 bi-directional signals mapped from FPGA to headers

Requires Xilinx EDK Design Software
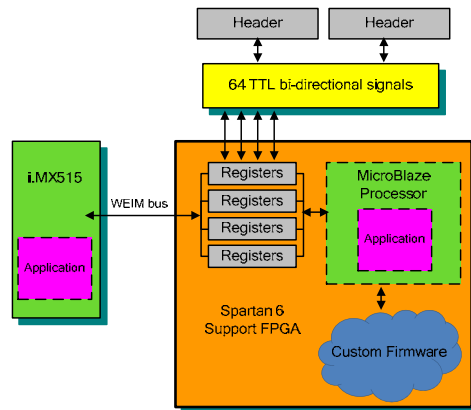
Memory Interface IRQ's Enable MicroBlaze Controller and IP Cores to Run Simultaneously

- IRQ interrupts available to enhance operation of **_BOTH_** an IP core and the MicroBlaze controller

- Full communication to SBC's i.MX515 via WEIM interface

- 64 bi-directional signals mapped from FPGA to headers

- Reduces need for expansion boards required to implement a complex system

Requires Xilinx EDK Design Software