how we Help

Do you want to: Increase your revenue? Reduce your costs? Increase your speed and flexibility? Focus on your core competency?

We all do. So consider Fidus for electronic product development and consulting services.

Fidus has extensive experience in designing with low-cost CPLDs up to the largest FPGAs in the world. Being a Xilinx Premier Design Services member means that we are trained and adept at selecting and implementing the most advanced Xilinx devices and tool flows.

Our FPGA design team’s skills are readily complemented by Fidus’ Hardware, Wireless, PCB Layout, Signal Integrity, Embedded Software, and Mechanical design expertise.

design Expertise

- **Turnkey**: FPGA design, validation, and documentation solutions
- **Device selection**: Identifying the best device to get the job done
- **Device retarget**: Helping you migrate from one FPGA to another
- **Languages**: Verilog®, VHDL, SystemVerilog, SDSL
- **Xilinx® advanced tool flows**: Partial Reconfiguration, HLS, IDF, AMP, SDSoC
- **ASIC-to-FPGA Conversion**: Replacing low-volume or discontinued ASICs with low cost FPGAs
- **ASIC prototyping in FPGAs**: De-risking ASIC developments by first implementing the design in one or multiple FPGAs
- **Multi-Gigabit Serial Links**: From FPGA coding to signal integrity to board layout
- **Memory Interfaces**: DDR3/4, SRAM, EMI, etc.
- **Communication Protocols**: TCP/IP, Ethernet, SONET/SDH, ATM, etc.
- **Digital Signal Processing (DSP)**: Software Defined Radio (SDR), filters, echo-cancellation, 802.11 a/b/g wireless LAN, etc.
- **Video**: DVI/HDMI, image enhancement, scaling, overlay, PIP, soft-core processor engine with DDR3/DMA interfaces, etc.
- **Experience with**: Xilinx (Artix®, Kintex®, Virtex®, UltraScale, Zynq®, Spartan®, CoolRunner™), Ultera and other programmable logic families

tools for High-end development

- Xilinx (Vivado®, ISE®)
- Embedded: Xilinx (ARM®, PowerPC, MicroBlaze™, Linux on MicroBlaze™, PicoBlaze™, Zynq®, bare metal, EDK/SDK)
- Simulation/Code Coverage: Questa®, ModelSim® SE, NC-Sim
- Synthesis: Synplify Pro®, Synopsys Design Compiler®
- Lab tools: Programming pods, Vivado® Logic Analyzer, ChipScope™
bringing you Xilinx premier

As Xilinx Premier, Fidus receives exclusive training, certification, and early-access to tools, IP, and new silicon. By invitation, Fidus was the inaugural Xilinx Premier Design Services member in North America. So what does this mean? It means that when you hire Fidus, you know that Fidus is on the forefront of Xilinx’s roadmap, experienced in the most advanced tool flows, and is top of mind within the Xilinx support network.

Examples of our work

- Video capture and distribution system. Multiple custom designed circuit cards and FPGA code.
  Technologies: Xilinx® Virtex®-7, Xilinx® Vivado®, PCIe Gen3, MIPI, FMC, Image Sensor Pipeline (ISP), FMC, scaling, overlay, transceivers, GTX, Microsoft® Windows Embedded Compact 7 (CE)

- Demonstration using a Xilinx® ML605, an Avnet® HDMI FMC card, and a Panasonic® 1080p60 camera. Live video is scaled, and overlayed onto four simultaneous, independent DDR3-resident video playbacks. Building on this, we also decided to smoothly move the live video around the screen, rebounding as it nears the edge of the display; all at full high definition 1080p60 rates.
  Technologies: Xilinx® Virtex®-6, Xilinx® Vivado®, Xilinx® Kintex®-7, Xilinx® MicroBlaze®, ML605, KC705, HD, 1080p60, DDR3, SODIMM, I²C, HDMI, DVI

- VME solution that adds SDR capabilities to an airborne search and rescue radar system. The center-piece of the system is a custom FPGA-based software defined radio DSP engine. The DSP algorithms were designed in MATLAB® and then moved into VHDL.
  Technologies: AIs, SDR (software defined radio), Xilinx® FPGA, PowerPC®, hardcore, VHF, AGC, programmed attenuators, power amplifier, VME, VITA, DO-160E, ITU M1371, NMEA0813

- We are skilled at ASIC prototyping in FPGAs. Our experience includes using the Xilinx® 2000T or multiple smaller FPGAs.
  Technologies: Xilinx® Virtex®-7, Virtex-II PRO, SDRAM, PCIe, PMC, Ethernet, USB, ASIC simulation, JTAG, I²C, SPI, MICTOR

- Xilinx® Zynq® with Xilinx advanced tool flows. This project involved designing a GUI that executed AES, SHA2 and SHA3 algorithms. The algorithms were run on both bare metal, as well as the FPGA fabric. This project demonstrated Fidus’ expertise with Zynq® Asymmetric Multi Processing (CPU0: Linux, CPU1: Bare Metal), High-Level Synthesis, Isolation Design Flow, and Partial Reconfiguration.
  Technologies: Xilinx® Zynq®, Avnet® Zedboard, AMP, HLS, IDF, PR

- Our FPGA, SI, and layout expertise with Xilinx® high-speed transceivers makes us a one-stop shop for high-speed serial!
  Technologies: Xilinx® GTX/GTH/GTZ

- HDCP Core Development – Designed, tested, and integrated, Xilinx-targeted HDCP IP
  Technologies: HDCP 1.3 for DisplayPort: HDCP encryption/decryption for SST, HDCP 1.4 for HDMI: HDCP encryption/decryption for HDMI 1.4b

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