



Electronic Product Development

# high-speed, high complexity EMBEDDED SOFTWARE

2016

## 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' Embedded Software designers have the experience, tools, and business savvy to select the most appropriate microcontroller or microprocessor and operating system, and then deliver concise, well-structured, well-documented code to you. We pride ourselves in delivering code that is easily followed, and easily supported by your team moving forward.

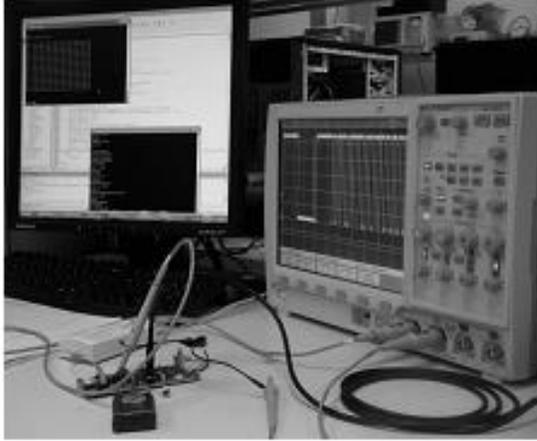
Our Software design team's skills are readily complemented by Fidus' Hardware, Wireless, PCB Layout, Signal Integrity, FPGA/DSP, and Mechanical design expertise.

## design Expertise

- ARM® Accredited Engineers
- 8/16-bit  $\mu$ Controllers: 8051, PIC, TI MSP430, Freescale CPU12/CPU12X, Atmel AVR8
- 32-bit  $\mu$ Processors: Xilinx® Zynq®, Freescale ColdFire/ColdFire+, Xilinx® MicroBlaze™, Marvell, Atmel AVR32, Freescale ARM, NXP, ST AR™, PowerPC, x86, IA-32/64, MIPS
- Boot-loaders and board support packages (BSPs)
- Device drivers for common hardware peripherals
- Integration of networking protocol stacks
- Software porting, Web Server, Ethernet, USB, PCIe, etc.
- Design and implementation of functional test GUIs
- Embedded operating systems including Linux (SMP and AMP), eCos, VxWorks, OSE, FreeRTOS, RTX, MQX, ThreadX,  $\mu$ C/OS,  $\mu$ C/OS-II
- Scripting: Tcl/Tk, Perl
- Graphics: embedded graphics libraries, LCD driver ICs

## tools for High-end development

- **System Development:** GNU C/C++, Keil  $\mu$ Vision, IAR Embedded Workbench, AVR Studio, Freescale/Metrowerks Code Warrior, MPLAB, Microsoft Visual Studio, Xilinx® EDK/SDK, and others
- **Test Environments:** Microsoft Visual Studio, LabVIEW, MATLAB/Simulink



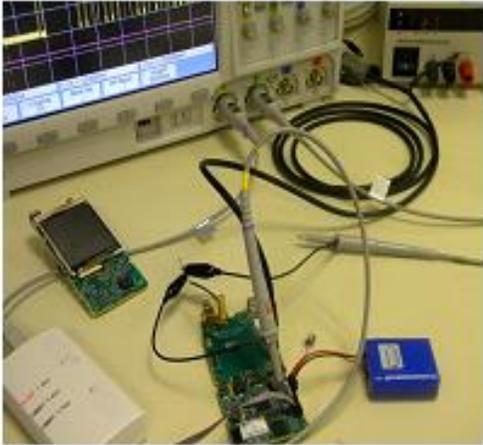
## Fidus - an excellent choice

At Fidus Systems, we understand the unique challenges faced by technology companies - too many projects and too few engineering resources. With top engineering talent, multiple design centers and on-site staffing options, Fidus provides highly responsive engineering teams that are an extension of your development team to successfully bring products to market faster.

Recognized as a trusted design partner, Fidus is dedicated to meeting customer expectations, and developing long-term relationships with clients built on integrity, quality and open communications.

Fidus is pleased to provide customers with full end-to-end development solutions or more selective targeted engagements.

Fidus has delivered more than 2000 projects for 300+ clients, from Tier-1 multinationals to SMEs to start-ups. Fidus is headquartered in Ottawa, Canada with local design centers in Kitchener-Waterloo and San Jose.



ALLIANCE PROGRAM  
PREMIER MEMBER

### 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.

## Locations

### Ottawa Design Center

#### and Headquarters

375 Terry Fox Dr.  
Ottawa, ON K2H 1E6 Canada  
Tel: +1(613) 595-0507  
Fax: +1(613) 595-1811

### Kitchener-Waterloo design center

180 King Street South, Suite 505  
Waterloo, ON N2J 1P8 Canada  
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### San Jose design center

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## Examples of our work

- Video capture and distribution system. Custom designed circuit cards, FPGA code, and Windows driver and application. Hosted and supervised by both an ARM® embedded system and a PC. Technologies: Xilinx® Virtex®-7, Xilinx® Vivado®, PCIe Gen3, MIPI, FMC, Image Sensor Pipeline (ISP), FMC, scaling, overlay, PIP, transceivers, GTX/GTH, gbps, Microsoft® Windows Embedded Compact 7 (CE), ARM®, drivers
- Bluetooth® accessory for a “Made for iPod. Works with iPhone and iPad” that included a Bluetooth wireless interface and an 8051 microcontroller. The firmware implemented all iPhone/iPod authentication requirements as well as the higher level accessory software that interacted with iPhone/iPod apps.  
Technologies: Bluetooth®, Apple authentication, Apple MFi program, 8051
- Migration from x86 to ARM®. Fidus ported an existing embedded software application from a legacy 8086-based platform to an ARM® microcontroller. The team brought up the new hardware platform, created all required board support, and ported the application software. The process included translating x86 assembler files into ANSI standard C.  
Technologies: x86, ARM®, assembler, C
- Spectrum analyzer Linux board support package. Fidus redesigned a spectrum analyzer including the Linux BSP to reflect numerous hardware changes. The updated Linux kernel image allowed all legacy user-space application software to remain independent of the underlying hardware platform.  
Technologies: Linux, BSP
- Xilinx® Zynq® AMP. Fidus designed a demonstration system, based on Zynq. This project involved designing a GUI that allows the user to execute AES, SHA2 and SHA3 algorithms. The algorithms were run on both bare metal as well as the FPGA fabric. This project demonstrated Fidus' software expertise with 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