



DornerWorks – Embedded Design Specialists

DornerWorks design expertise helps you get your medical device to market quickly. Our proven experience in electronic hardware, embedded software, and custom logic design increases your product development capacity while maintaining the quality and traceability you need.

Founded in 2000, DornerWorks is a premier provider of electronic engineering services for the electronic medical device market. With over 70 electrical and software engineers on staff DornerWorks is capable of tackling the most demanding projects. Our specialties include:

-  ***Embedded Software Development***
-  ***Electronic Hardware Development***
-  ***FPGA / ASIC Custom Logic Engineering***
-  ***Requirements Definition***
-  ***Electronic System Architecture***
-  ***Verification and Validation***

Thank you for your interest. We look forward to hearing from you in the near future!

As part of our ongoing commitment to quality, we are aggressively pursuing ISO 13485 certification (expected Q2 2010)

For more information how our engineering services can help in your device development contact:

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or visit our website at: <http://medical.dornerworks.com>

DornerWorks Detailed Design Skills

Microprocessors

• z80, 180	• ARM	• Atmel AVR
• Intel 8051	• hc08, 11, 12	• DEC PDP-11
• Intel 8088	• Intel x86	• Microchip PIC
• MIPS	• Motorola 68xx	• PowerPC
• Xscale	• Rolm 1666B	• SH4
• SPARC	• ColdFire	• Philips NXP
• TI DM642	• TI MSP430	• Intel 8080
• TI C2000 Series DSP		
• TI C5000 Series DSP		
• TI C6000 Series DSP		
• Rabbit, Rabbit 2000, 3000		

Hardware

Analog:	EMI, Filters - Signal: IIR, FIR, LED Drivers, opto-isolators, RF Non-audio, Temperature Sensor (Thermocouple etc.), Thermo-electric coolers, antenna >= 1 GHz, antenna < 1 GHz, proximity - hall effect (non-motor), Filters - Power level, proximity - opto
Audio - Video	Amplification / Output Processing, Microphone / Input Processing, Video image sensors, Audio: Encoding, Audio: Decoding, RF audio, Encoding (mp3, ogg, flac, etc..), Decoding, BT.656 Video (TV), NTSC/PAL
Communications	1394, ARINC-429, Ethernet, I2C, SPI, JTAG, LVDS, MIL-STD-1553, PCI, RS-232/422/485, SCSI, USB, 802.11x, ISA, Cardbus, AFDX, IR, IrDA, RF, Bluetooth
Custom Logic	Actel, Altera, VHDL, Xilinx
Design Tools	Altera Quartus, Cadence Orcad, Eagle Layout, Mentor DxDesigner, Mentor PADS, ModelSIM, Pspice, Schematic Capture, Synopsys, Hyperlynx
Display I/O	LCD , Touch panel, VFD
Equipment & Tools	JTAG Debugger, Logic Analyzer, Oscilloscope, Reference Sensors, RF LNA, RF Power Meter, RF Signal Generator, Spectrum Analyzer
I/O	ADC, DAC
Memory	EEPROM, Flash, SDRAM, DDRAM
Modules	Rabbit - Analog, Rabbit - Ethernet
Motor Control	Brush DC, Brushless DC, Hall Effect, Permanent magnet AC motor (PMAC), Stepper, AC induction motor (ACIM)
Power Supplies	Linear <=500W LowVolt 1out, Linear <=500W LowVolt Multi, SMPS buck, SMPS flyback, SMPS <=500W LowVolt 1out, SMPS <=500W LowVolt Multi, SMPS >500W HiVolt, SMPS >500W LowVolt 1out, SMPS >500W LowVolt Multi, SMPS sepic, Linear >500W HiVolt, Linear >500W LowVolt, SMPS <=500W Hi Volt, SMPS boost, SMPS isolation, Linear <=500W HiVolt

Systems

• Manufacturability	• Verification and Validation	• Reliability
• Quality Assurance	• Requirements Management	• EMC
• ee-DFMEA	• Computer Forensics	• PFMEA

Software

Industrial Automation	AB PLC, AutoCad , Banner Vision Systems, DeviceBuses (DeviceNet, Eth I/P, etc), Drives, motors, servos, Fanuc Robotics, HMI Design, Industrial sensors (PE's, measurement, encoders, prox switches, temp, etc), Modicon PLC, Motoman Robotics, Panel Layout, SCADA, Epson Robotics, Cognex Vision Systems
Compiler - IDE	Code Warrior, CodeWright, Cosmic, Diab, Dynamic C, Eclipse, GNAT Programming Studio, GNU, IAR, Kiel, LabWindows/CVI, Rational APEX, Visual C/C++/C#, WR Tornado IDE
CMS	Dimensions, MS SourceSafe, RCS, Subversion, WindChill, Git
Data Processing	DSP: Filtering, DSP: Frequency Analysis, Video: Encoding, Video: Decoding
I/O Device Drivers	ARINC429, Camera, DDR SDRAM, DMA, LCD, LVDS, MIL-STD-1553, Motor control, Touchscreen, UART, serial, RF, AFDX, SD Card, IR, IrDA, ISA
Methodologies	Agile, Requirements-Based Test, Software Quality Assurance
Network / Comm Protocols	ARINC-429, ARINC-622 (FANS), ARINC-724B (ACARS), ARINC-745-2 (ADS), AS-Interface, 1394 / Firewire
OS	DOS, Linux (any distribution), LynxOS, Nucleus Plus, pSOS, QNX, Real-Time Linux, uCOS, Unix, VMS, Windows, WR AE653/PSC, WR VxWorks, IRMX, Windows CE, Windows XP Embedded
Languages	Ada, BASIC, C, C#, C++, FORTRAN, Haskell, HTML, Java, Javascript, Jovial, Lisp, Perl, PHP, PL/1, Python, Ruby, Scheme, shell scripts, TCL, Visual Basic, Prolog, Pascal
Technologies	ActiveX, ASP, Code Generation, COM / DCOM, MPEG, H.264/AVC, SQL, UML
Tools	Boot loader (generic bootloaders) , DOORS, Ethereal/Wireshark, LabVIEW, LabWindows/CVI, Matlab, NI Test Stand, PVCS, Rational ClearCase, Rational Req. Pro, Rational Rose, Simulink, TeamTrack, TeX / LaTeX, CANoe, Quark

Standards

• ISO 13485		
• IEC 62304		
• 21 CFR § 820.30 Design Control:		
• ISO 14971		
• MIL-STD-461E	• MIL-STD-810F	• MIL-STD-973
• IEC 60601-1	• IEC-6100	• NFPA 70
• 2167A	• CMMi	•
• CE Mark	• MIL-STD-461E	• General CUL
• DO-254	• ISO 13485	• 62304
• AS 9100	• ISO 9001	• DO-160E
• FCC design and verification under 47 CFR Part 15 (Class A/B)		
• Telecom Best Practices		
• FAA/RTCA DO-178B		



DornerWorks Engineering – Where Software and Hardware Design Meet

Visit us online: <http://medical.dornerworks.com>