



Electronic, Software & Product Design

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Profile

Chapel Design is an independent consultancy with practical experience of electronic, firmware and software design across a broad range of applications. Primarily working within the industrial, life sciences and communications industries, Chapel Design has a track record of delivering innovative solutions to challenging problems on time and to budget.

Objectives

- To build long term partnerships with our customers by providing engineering resources in a professional and cost effective way.
- To act with integrity at all times and to give full visibility of project costs and timescales.
- To keep up with technology and always be in a position to provide the most appropriate solutions to customer requirements.

Skills & Experience

The engineering staff at Chapel Design have a broad base of skills and experience acquired whilst working on varied projects encompassing a range of technologies, industries and markets:-

Industries & Applications

These are some of the most significant areas in which we have worked:-

- Mobile, Low Power Products
- Internet of Things, M2M
- Life Sciences
- Environmental Monitoring
- Automotive Telematics & Diagnostics
- GPS Tracking
- Wireless Communications
- Secure Payment Systems
- Communications
- Cryptography
- Production Test
- Building Services

Product Design

Complementing core skills of **Electronic** and **Software** design we have experience and expertise in most areas of the product design cycle. For those such as industrial and mechanical design where we do not have the specialist skills we have experience in selecting and managing third parties.

Here are the areas of project development we have direct experience and expertise in:-

- Concepts & New Technologies
- Feasibility; Technical & Commercial
- Requirements Capture
- System & Architecture Design
- Electronics Design
- Firmware & Software Design
- Design for Test & Manufacture
- Manufacturing; UK & Offshore
- Production Test Solutions
- Approvals & Compliance

Electronic Design

- High Speed Digital
- Analogue & Mixed Signal
- Circuit Simulation; PSpice, LTSpice
- FPGA, CPLD (Altera, Xilinx, Actel)
- VHDL Coding, Simulation, Timing Analysis
- Power Supplies
- Low Power Design
- Low Noise Systems
- Signal Processing & Conditioning
- Control Systems
- RF Development & Test
- EMC Design, Test & Debug

Microprocessor Systems

- ARM7, Cortex M3, M0
- Ti MSP430, Microchip PIC
- Renesas RL78, H8
- Atmel AVR ATmega
- Freescale QorIQ, PowerPC
- Memory & Data Storage

Power Supply & Battery Management

- Wireless Power Transfer; WPC Qi
- Switching & Linear Supplies
- High Efficiency, Low Noise
- Battery Charging & Management
- Custom Battery Solutions
- Very Low Power Systems

Radio Communications

- M2M, ISM Band
- Bluetooth; Classic, LE
- Zigbee, Low Power RF
- Wireless LAN
- GSM, GPRS, 3G
- Multi-radio System

GPS

- Assisted GPS (A-GPS)
- Antennas

Wired Communications

- USB, PCI Express, SerDes
- Ethernet; 100M, 1G
- I2C, SPI, CAN, LIN, DALI
- Automotive OBD2
- Optical
- RS422, RS485

EMC & Circuit Protection

- Circuit & PCB Design for EMC
- Automotive, Marine, Industrial

Signal Processing

- Instrumentation, Sensors
- Low Noise Design
- Conversion; ADC, DAC
- Digital & Analogue Filters

Audio & Amplifiers

- Codecs
- Wireless Voice Communications
- Amplifier Stability & Compensation

Motor Control

- Brushed & Brushless DC
- BLDC Field Oriented Control
- Speed & Torque Control

Software Design

- Real Time Embedded Software
- 8-32 Bit Micro, C & Assembler
- Embedded RTOS
- Communications
- Protocol Conversion
- Wireless Modems
- Signal Processing
- User Interfaces
- Video Systems
- Self Test & Calibration

Embedded Development Tools

- ARM Development Suite
- IAR Embedded Workbench
- Keil, GCC, ImageCraft
- MPLAB IDE

Application Software

- MS Visual Studio, C#, Visual Basic
- Windows, Linux, GNU
- Production Test
- Reporting & Analysis Tools

Product Approvals & Compliance

To be considered at all stages of development, approvals and compliance is a complex topic and something we have significant experience in:-

- Design, Test & Debug for EMC
- CE, R&TTE, FCC, UL, Safety
- Automotive VCA 'E' Marking
- Multi-Radio Co-existence
- Bluetooth Qualification
- Overseas Markets

Manufacturing & Test

Designing for manufacture and supporting the transition to production is a area in which we have considerable experience:-

- Design for Test (DFT)
- Design for Manufacture (DFM)
- Production Test Systems
- Production Support
- High & Low Volume, UK & Offshore
- Obsolescence Management