Sophisticated and Reliable Firmware Development

Enabling Complex Operations for Real-Time Systems

Powersoft19 Embedded Firmware Development Services

Powersoft19 is a turnkey solution provider offering design and development services for hardware, firmware, and software of high-tech embedded systems. Our firmware team has expertise in a wide range of development platforms catering to different OS and RTOS environments. This expertise combined with our hardware design services enable us to provide a complete, synchronized, and integrated solution. Our clientele consists of prestigious organizations from various industries across the globe and our knowledge spans over 25 years of experience.

Industries Served

- Rail automation
- Industrial automation
- Mining and material handling
- Internet of things (IoT)
- Consumer electronics
- Energy and smart grid
- Healthcare
- Home and office automation
- Automotive

Why *Powersoft19*?

- Expert team with more than 20 years of experience and competence in diverse industries
- Comprehensive services including systems engineering, firmware, hardware, system integration, and quality assurance
- Independent quality assurance department that offers end-to-end QA services
- Quick time-to-market with Agile development
- Cross-functional teams providing in-depth and multilayered insights and solutions
- Mature work processes compliant with global quality standards

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Embedded Firmware Expertise

Middleware

- Audio and video codecs, video streaming, video data processing
- Embedded GUI (Graphical User Interface) subsystems
- FM-RDS, navigation, GSM/GPRS, Bluetooth profiles, WLAN supplicant
- Fieldbus protocol stacks like CANopen, J1939, DeviceNet, Profibus, Profinet etc.
- Embedded filesystem libraries
- Network stacks implementing protocols like: ICMP, IPv4 & IPv6, BOOTP, DHCP, TFTP, POP3, SMTP, SNMP,
- Telnet, HTTP, FTP, NAT, NFS, SOCKS, SSH, iSCSI, SMB, CIFS, RTP, RTCP
- Management protocol: SNMP V1, V2c, AgentX

BSP and Firmware

- Boot loader porting and hardening
- Boot-time reduction
- OS/RTOS porting
- File system integration
- Minimum Kernel/OSAL support
- Hardware abstraction layer
- Device driver development
- FPGA/CPLD based digital logic designs and IP cores
- Power and memory footprint optimizations
- Firmware development for wireless

Technology Stack

Programming Languages

Assembly, C, C++, Python, Verilog, VHDL

Source Code Analysis Tools

LDRA, PCLint, SQMLint, CppCheck, Source monitor

Source Code Management

Source management using SVN, GIT, Clearcase and CMSynergy, Code review using reviewboard/GERRIT, Build system using Hudson, ANT, GNU make

OS and RTOS

AMX, SCIOPTA, Salvo, freeRTOS, ThreadX

Compilers and Toolchains

CodeWarrior, IAR, Keil, Renesas HEW, Code composer studio, Quartus, ISE

Microcontrollers/Processors/SoCs

Renesas, MSP, Atmel (AVR series), PIC, Energy-Micro, Coldfire, ST microelectronics, Freescale, x86, ARM (Cortex M0-M4, Cortex A8, Cortex A15)

Bus

I2C, I2S, HDMI, LIN, CAN, MOST, J1850

Peripheral Connectivity

Ethernet, USB 1.1, USB 2.0, USB OTG, SPI, SDIO, RS232

Memory

CF, NAND/NOR flash, SATA, SD, MMC, eMMC, DDR, LP-DDR, EEPROM

Audio and Video

SPDIF, I2S, HDMI, VGA, CVBS, S-Video, MIPI, SDI, PPI, Mini, WDM, FB

Wireless

GPS, Zigbee, Bluetooth, GSM, GPRS, CDMA, 802.11a/b/g

Misc.

Camera, Compass, Accelerometer, Magnetometer, Biometric, Buzzer, RTC, LCD, Graphics Controller, Touch Screen

FPGAs

Xilinx, Altera

PLCs

Allen Bradley, Siemens