

# EMBEDDED SOFTWARE DEVELOPMENT CAPABILITIES

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## Platforms

- Atmel AVR AVR32 SAM
- TI Hercules Cortex-R
- CCxxx RF series
- ST STM8 Cortex-A
- Cortex-M
- STM32 Cortex-M RF
- Microchip PIC8 PIC12-18
- PIC32 dsPIC
- SiLabs Cortex-M RF
- Renesas + Dialog Semi Radio
- Quectel BGx Raspberry PI
- Arduino Telit MEx
- RP2040
- AMD Xilinx Zynq
- Intel PFGAs
- Chinese low-cost:
  - GigaDevices Nuvoton
  - Holtek Hycontek

## Interfaces and Peripherals

- Ethernet USB
- Optical Eth UART
- RS485 RS232 CAN
- CAN-FD SPI SDIO
- I2C LVDS
- PCI/PCI-Express Parallel
- LCD MIPI Camera
- I2S PDM
- Sensors: RHT CO2
- PIR LightSpectrum
- IMU Accelerometers
- Reed Switch Ultra-sonic
- VOC

## Protocols

- TCP/IP UDP HTTP
- SNMP MQTT CoAP
- OPC-UA
- Modbus ASCII/RTU
- ModBus TCP CANOPen
- IsoBus / AgLib
- USB OTG/HID
- mass storage
- Embedded Filesystems
- Wireless: BLE+LR WiFi
- ZigBee MiWi Z-Wave
- SigFox 3G/4G LTEm
- NB-IoT NFC
- LoRa/LoRaWAN

## Toolchains

- GCC+Eclipse
- RTOS Tracealyzer
- SiLabs Simplicity Studio
- CLion TouchGFX
- Microchip Studio MPLAB
- GreenHills KEIL IAR
- STM Cube IDE CubeMX
- TI Code Composer Studio

## Programming Languages

- C (MISRA) C++
- Verilog, VHDL Assembler

## Design Tools

- Design Patterns UML
- Flowcharts Automotive
- JSF Block-Diagrams
- Functional Safety

## RTOSes

- Bare-metal(no OS) – super loop
- Amazon FreeRTOS
- Raspbian Micrium uC/OS
- Segger embOS
- Embedded Linux