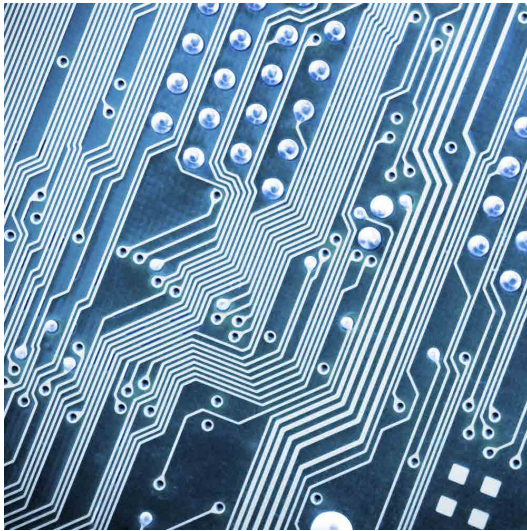# teoresi
med tech

HARDWARE DESIGN

Technologies and architectures

Leading Advanced Medical Solutions

Microcontrollers

The preferred approach in most applications is to use one or more microcontrollers as the main architectural element.

This choice makes our hardware solutions extremely flexible, upgradeable, and

scalable. Our consolidated expertise allows us to manage all microcontrollers on the market, from small 8-bit 8-pin, up to powerful Cortex-A.

Our main developments are based on:

Cortex-M microcontrollers

- NXP Kinetis Cortex-M
- Microchip SAM
- ST STM32
- TI SimpleLink

Application Processors Cortex-A

- NXP i.MX Application Processors based on ARM® Cores

8 and 16 bit microcontrollers

- Microchip PIC1X MCU
- Microchip PIC2X MCU
- Microchip dsPIC3X DSC
- Microchip AVR

Data Communication

MediCon Ingegneria offers solutions of proven reliability and performance, designed to integrate data communication capabilities into electronic devices and embedded electronic boards.

In the wireless field, we have great expertise in low-power technologies, increasingly strategic in most mobile applications.

We also design antennas optimized for each individual application.

Wireless Connectivity

- 2.4 GHz IEEE 802.15.4
- Bluetooth Low Energy (BLE)
- Sub-1 GHz
- LoRa
- NB-IoT / LTE-M
- Wi-Fi
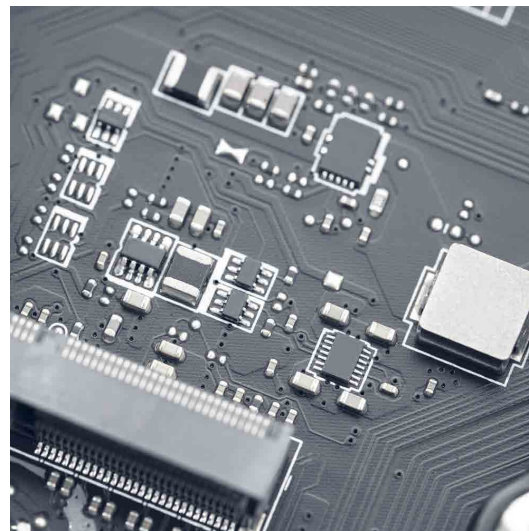
Wired connectivity

- CAN
- RS232/485
- Ethernet
- USB

Security

- Hardware asymmetric sign, verify, key agreement
- Hardware symmetric algorithms
- Hardware Turnkey PRF/HKDF calculation for TLS 1.2 & 1.3
- Hardware high-quality Random Number Generator (RNG)
- Secure, hardware-based, key storage for keys, certificates or data

Hardware high-endurance monotonic counters
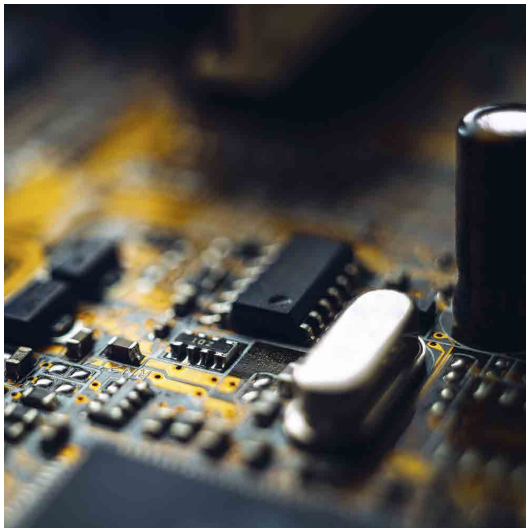
Sensors and actuators

Around the digital core of our architectures, strong analog design skills allow us to develop hardware optimized to meet system interface requirements.

 The strengths of our approach include:

- tecnology scouting of transducers
- design of low-noise analog amplifier stages for inputs.
- selection and configuration of ADCs
- design of linear and switching for power outputs

Equipment

Our laboratory includes the following main equipment

Oscilloscopes

- TEKTRONIX DRT TDS2014
- TEKTRONIX THS720A
- TEKTRONIX DPO3034
- PicoScope 2205
- PicoScope 5444B

Function generators

- TTI waveform generator
- TG315 TTI waveform
- generator TG5011
- PicoScope 5444B

Multimeters

- FLUKE Digital multimeter 179
- FLUKE Digital multimeter 287

Transducers

- FLUKE Temperature probe 80T
- Delta Ohm Temperature
- Pressure transducer HD2304.0
- Delta Ohm Pressure probe TP704-2BAI
- Delta Ohm sicram module PP471
- LTL Electronic centesimal gauge
- Testo Termoigrometer 608-H1
- Chauvin Arnoux Current Probe E3N

Debugger

- IAR Systems I-jetSub-1
- Microchip ICD3
- Microchip ICD4
- Microcip REAL ICE
- Segger J-Link Freescale CodeWarrior
- USBTAP
- Renesas E8a

Protocol analyzers

- TRIDONIC PC interface for DALI systems 24138923
- Kvaser CAN analyzer CG150
- Picoscope 2205
- PicoScope 5444B

Benchtop Power Supplies

- RND Power supply 320-KD3005D
- LYTRON Power supply NG-2500

Leakage current testing tools

- BENDER Tester Unimet 810ST

Variable transformers

- Carroll & Meynell
- Variac CMV 3E-1
-

Soldering stations

- JBC CD2BB
- JBC CD2E