COMTRADE
DIGITAL SERVICES

Embedded Systems

The Minimum Viable Synergy of Software and Hardware

One of the earliest embedded systems, the Apollo Guidance Computer, was at the time considered the most risky part of the complex Moon-bound machinery. In today's deeply digitized world, embedded systems are seen as our safest devices.

Modern embedded systems power our most sensitive equipment – vital signs monitors, avionics guidance, anti-lock braking systems in vehicles, home security kits.

This is why the development of secure, efficient and cost-effective embedded solutions requires the developers to:

- Possess detailed knowledge of the devices in question
- Demonstrate required expertise with a documented track record
- Possess appropriate certificates and licenses
- In case a revision of the product is needed, be prepared to assemble a competent team quickly.

The best teams at Comtrade Digital Services have spent years carefully designing the process, meticulously implementing the architecture, and extensively testing scenarios that can occur in extreme conditions.

Our experience is comprehensive. As a result, we are the trusted partner for the development of embedded systems software for all of our clients.

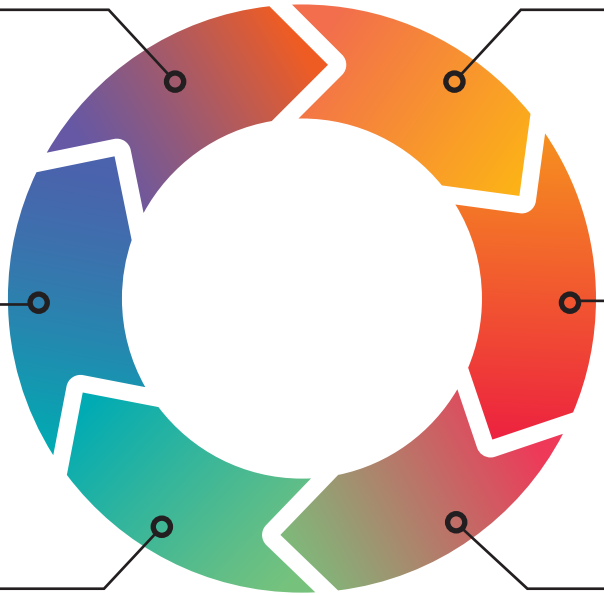
01

We develop high and low-level firmware applications and perform needed work on the protocol layer.

Holistic Services

Our embedded systems development offering also incorporates our thorough knowledge and understanding of embedded hardware platforms.

We cover every step of the software life cycle:



Support

Requirements engineering

Project management

Architecture and design

Automated testing and troubleshooting

Development –

device drivers, devices, complete integrated applications

02

We develop products, wholly or in part, and/or build complete solutions

03

We evaluate suitability of various components, test new platforms and produce feasibility studies.

04

We develop board support packages and execute platform migrations.

05

We provide support for system integration and take over non-core activities as needed.

06

We can manage the whole certficiation process for our clients.

Your Benefits

Key players, in several industries, have trusted us to develop embedded systems. Moreover, our software engineering expertise and processes were built through close collaboration with key technology leaders.

In-Depth Knowledge

You can rely on our detailed knowledge of the devices in question. It spans from what they do, what parts they consist of, through how they operate, to what regulatory and other constraints may exist.

Expertise

Our documented track record in the field speaks for itself. We demonstrate more than the required expertise in communication protocols, hardware, applications, operating systems and automatic testing.

Certification

You can be confident of our process. It is backed by pertinent certificates and the licenses we possess. We rely on quality management:

From ISO 9001 & ISO 27001 certifications to specific industry guidelines, such as MISRA, ISO 61508 & SIL.

Flexibility & Agility

We are always ready to respond to any change as needed, throughout the entire project. Our reliance on agile methodology is well documented and has earned praise from our clients and partners alike.

Speed

Rest assured we are ready to assemble a competent team from the outset, as well as further down the road, in case your product needs revisions.

Our Areas of Expertise

Communication Protocols

Connecting your device to IoT world with and without wires. **HIGH-LEVEL** (Ethernet, USB, MOST, Bluetooth, VoIP, POTC1a,TCP/IP, CCP, D-PDU, KWP, ZigBee, Wi-Fi) and **LOW-LEVEL** (RS485, RS232, I2C, SPI, LIN, I2S, 1-Wire, AC97, CAN, K-Line) protocols.

Hardware

MICROCONTROLLERS

ARM: Cortex M4/M3/R4/A8, ARM11, ARM9, ARM 7;
Freescale: Power PC, Kinetis, Coldfire, Qorivva, HCS12
Texas Instruments: Sitara, Hercules, C64x+ DSP, DaVinci
STMicroelectronics: STM32Fxx
Atmel: AU32UC3xx, ATMEGA
Microchip: PIC16, PIC18 families
Cypress: PSOC5
Renesas: RX62N Silicon Labs: Ember

FPGA

Xilinx: Spartan3, Spartan6, Zynq

Applications

Our software applications run the gamut of critical functions across key industries in Automotive, Energy, Functional safety, Industrial, Medical, Measurement technology, Mobile and more.

Operational Systems

OS: Embedded Linux, Android, iOS, Windows CE
Schedulers (low level): uC/OS2, FreeRTOS, MQX, Keil RTX

Automatic Testing

Embedded devices under test. CI & CD environment. Qt, Jenkins & Google Test frameworks. Programming languages like C++, C, C# and Python. SCPI parser.

Our References

We have serviced companies in Germany, Austria, and Switzerland, as well as organizations in France, Ireland, and Sweden.

Creating value through partnership

Comtrade Digital Services provides strategic software engineering services and solutions. For over 25 years, we have enabled companies from various industries to innovate faster and reinvent their business models digitally, by using agile development methodologies, innovative technology and our business acumen.

We ensure global delivery and implementationin the fields of artificial intelligence, digital banking, embedded systems, energy, logistics, mobility & travel and quality assurance & testing.

€300M
in revenues

1.5 K+
employees worldwide

900+
satisfied customers

25+
years of development work

18
offices worldwide

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