



ABOUT

Semihalf is an embedded systems company with expertise in design and development of both software and hardware. Founded in 2005, headquartered in Kraków, Poland, continues to build upon technical excellence and innovation.

Our talented team has completed many successfully deployed commercial projects, working with very demanding customers including companies like DENX Software Engineering, Freescale Semiconductor, Google, Industrial Research Institute for Automation and Measurements, Juniper Networks, Marvell Technology Group and others.

Solutions and technologies developed by Semihalf can be found in a wide range of products, from simple commodities to heavy duty carrier-class network devices, industrial robotics and protecting national security.

Semihalf supports open source and our developers are quality and keen contributors to the FreeBSD, Linux and U-Boot projects, we mentor aspiring students and deliver university lectures on embedded systems.

PORTFOLIO HIGHLIGHTS

FreeBSD

- Semihalf is the leading provider of commercial FreeBSD support for embedded systems.
- We have ported the operating system to a number of high-performance contemporary architectures and platforms, including ARM, MIPS and POWER (PowerPC).
- Among our staff are active contributors and developers of the FreeBSD project.

Linux and U-Boot

- Numerous ports and adaptations of U-Boot and Linux kernel have been completed by Semihalf, for many flavours of architectures and platforms including ARM, ColdFire, POWER (PowerPC) and MIPS.
- We designed, developed and maintain the modern API for standalone applications in U-Boot and the next generation U-Boot images format, based on the Flattened Device Tree scheme.

SERVICES

Software

- Firmware and bootloaders (system bring-up, porting)
- Operating systems (porting, adaptations, extensions)
- Device drivers (development, hardening, instrumentation)
- Performance tuning and optimizations
- Applications development
- Board Support Packages
- Testing and diagnostic suites

Hardware

- New designs, feasibility studies
- Performance analysis, verification
- PCB design, schematics, device prototyping, manufacturing
- Full production life cycle

Trainings

- Firmware, bootloaders (U-Boot)
- Kernel internals, device drivers (FreeBSD, Linux, NetBSD)
- PCI, PCI-Express
- Architecture overview (ARM, PowerPC)
- Advanced UNIX programming

PRODUCTS

Software

- TDM/VoIP framework for FreeBSD
 - Compliant with Zaptel/DAHDI environment
- NAND Flash simulator
 - Full simulation of ONFI-compliant chips
 - Flexible configuration
 - Multi-level logging and statistics
 - Errors and bad block injection
 - Run-time snapshots dump and restore capability
- FreeBSD Board Support Packages
 - ARMv5
 - Marvell Orion (88F5281), Kirkwood (88F6281), Discovery Innovation (MV-78100)
 - Texas Instruments DaVinci (DM644X)
 - ARMv6
 - Marvell Armada (88F6781)
 - PowerPC PPC440/460
 - AMCC Canyonlands (PPC460EX)
 - AMCC Glacier (PPC460GT)
 - PowerPC PowerQUICC III
 - Freescale MPC8555CDS
 - Freescale MPC8572DS
 - PowerPC MPC512X
 - STx ADS5121 (Hellrosa)

Hardware

- HASE-1

HASE-1 is a compact, configurable and universal video analytics platform. Based on Texas Instruments DaVinci digital media system-on-chip, it is particularly well fit for video processing applications. The CPU is an ARM9 core, augmented with a C64x+ DSP unit.

- DB-1B

DB-1B complements and extends the main HASE-1 module and allows for rich and versatile multimedia connectivity options, covering analog video (PAL, NTSC, SECAM), digital video (DVI, FireWire, CameraLink) and stereo audio.

EXPERTISE

Software

- Firmware, bootloaders (CFE, EFI, Open Firmware, U-Boot)
- Operating systems (FreeBSD, Linux, NetBSD, QNX, VxWorks)
- Applications (multi-threaded, concurrent, distributed programming, TCP/IP networking, IPSEC, hardware-accelerated crypto, FPGA implementation of crypto)
- Computer architecture (ARM, MIPS, PowerPC)
- Advanced topics (cache architecture, multi-core designs, coherency protocols, SMP, AMP)

Hardware

- PCB (advanced designs with BGA, micro and buried vias)
- 8/16/32-bit microcontrollers
- System-on-chip devices
- Digital Signal Processors
- FPGA
- High-speed interconnect (DDR-I/II/III, Ethernet, PCI, PCI-Express, RapidIO, SATA, USB, custom serial and parallel)

Tools

- Abatron, Corelis, Lauterbach, Ronetix and others
- Logic analyzers, bus and network traffic and protocols analyzers, other helper equipment

TECHNOLOGY PARTNERS

Semihalf maintains good relationships with leading silicon vendors, we are up to date with roadmaps and keep up with current industry trends, so as to best support the customers. Our partnerships include:

- AMCC (Applied Micro)
- ARM Connected Community
- Freescale Alliance
- Marvell
- Texas Instruments 3rd Party