



Linux Kernel and Device Driver Development Training

Overview :

This 5 days training is intended for developers who want to learn how to write or improve Linux Kernel Drivers for Embedded Linux platforms and Linux in general.

In a 50 to 60% lab-time approach, the participants get a real hands-on experience and they learn how to avoid classical pitfalls. The training goes deep into the kernel architecture, the main APIs, the integration of device drivers with other parts of the kernel and with userspace applications. During the training, all attendees get direct feed-back in an interactive manner, and at the end of the training they are ready to work on Linux device driver development projects.

During the training, all attendees also receive a specific ARM development board which they can take with them after the training.

Knowledge prerequisites :

Good IT background

Several years of experience with C programming.

Embedded Linux training from Mind (see www.mind.be for more details).

Method :

Course/Workshop, classical educations with practical exercises.

Course Flow :

Day 1:

- Introduction to the Linux kernel
- Coding standards
- Kernel source code structure
- Kernel user interface
- Kernel compiling
- Kernel configuration, cross- compiling and booting on NFS

Day 2:

- Linux kernel modules
- Module dependencies
- Kernel Memory management
- I/O memory and ports registration
- read/write barriers
- Read/Write device drivers
- Character drivers

Day 3:

- Processes, scheduling, sleeping
- interrupt handling
- top/bottom halves implementation
- Locking: mutexes, semaphores, spinlocks
- lock validator
- Driver debugging techniques

Day 4:

- Interface with userspace through /sys
- mmap
- DMA API
- PCI driver API
- serial drivers

Day 5:

- Porting the Linux kernel
- Power management
- Working with the community
- Managing kernel sources with git

Courseware :

Course materials provided, complemented with a HW development board (currently: BeagleBone Black 1Ghz ARM Cortex-A8 based board with a 7 inch touchscreen and expansion board).

Course Dates & Location :

Please contact us for available dates and locations.

Price :

2.950,- € + VAT per attendee (including Course materials, HW development board and lunches during the 5 days).