

# Programming of Embedded Hardware

**Important:** The lab course will start on monday, April the 18th

This practical is addressed to students who have successfully finished their Vordiplom. In this course, students will have the opportunity of getting familiar with the chair's field of research through practical experience.

In the context of this practical, modules for velocity measurement and/or ultrasonic measurement are to be developed having a connection to a CAN-bus for our model vehicle. These modules are to be implemented on different hardware platforms. Planned hardware platforms include an ATmega16 of ATMEL (8bit RISC Prozessor) and a CoolRunnerII of XILINX (CPLD). A corresponding driver-unit kit will serve for the connection to the CAN-bus. Extensive development environments are available for free for both cases (microcontroller and CPLD). (AVR Studio 4 from ATMEL and ISE 6.3i from XILINX) Furthermore, we will provide 12 development-boards (6x MegaAVR-Dev and 6x XILINX CPLD Design Kit) for this practical course.

It is intended to implement the modules in groups consisting of two people on both the CPLD as well as on the microcontroller. In order to give you an easier start into these two fields, we will arrange a two-day-introduction before the actual practical starts. This will take place during the last week of the semester holidays (April 7th & April 8th from 8am - 12:30am each).

The participation in this course requires basic knowledge of the programming language C. Knowledge in the fields of microcontrollers and CPLDs is not a must, however you have to be willing to attend the introduction course including getting familiar with the topic.

The CPLDs will most probably be programmed in VHDL. Precognition of this language is advantageous but no must. Additionally, the practical will take place in line with an experiment where the effects of different hardware platforms on the software design will have to be analyzed. The attendance of this very experiment is no prerequisite for the attendance of the practical course as such.

## Dates

- introduction course: April 7th & April 8th 2005 from 8am - 12:30pm each in Room 2010 (attendance is a must)
- weekly schedules: Mon 4pm - 7pm (4 SWS) Room 2010
- Capacity: 24 students
- (six of the groups - consisting of two people each - start with microcontrollers, six of the remaining groups with CPLDs)
- Language: German (knowledge of the english language is however indispensable for reading the documentations)

## Tutors

- Dr.-Ing. Falk Salewski
- Dr.rer.nat. Dirk Wilking

- [Campus](#)

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