2 Organization of the Lecture

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Lehrstuhl für Informatik 4
Systemsoftware

Friedrich-Alexander-Universität
Erlangen-Nürnberg

Summer Term 2024

http://sys.cs.fau.de/lehre/ss24
Content and topics

- Basic concepts of system-level programming
- Introduction to the programming language C
  - differences compared to Python/Java
  - modular concept
  - pointers and pointer arithmetic
- "Bare-metal" software development directly on hardware (ATmega $\mu$C)
  - mapping of storage ↔ language constructs
  - interrupts & concurrency
- Software development on operating system (Linux)
  - operating system as a runtime environment for programs
  - abstractions and services of an operating system
Lecture

- 36 sections
  - slides on the web server syc.cs.fau.de
  - dates: see semester overview
  - → requirement for successful handling of the exercises

- Questions on the lecture
  - ideally ask immediately
  - in following lecture

- Q&A at the end of the term

**Lecture does not replace the tutorials and hands-on exercises!**
Exercises

- Tutorial and hands-on exercise
  - Tutorial (Tafelübung)
    - distribution of and additional information for the programming assignments
    - joined development of an outline for the solution
    - discussion of the solution the week after
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  - Hands-on exercise (Rechnerübung)
    - independent programming
    - working with development tools
    - support from an exercise supervisor
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    - working with development tools
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- Appointments: choice of 8 + 1 groups
  - registration via Waffel from Thursday 04/18/2024, 6pm (refer to website)
  - separate group only for SLP

Valid login for the Linux-CIP required for participation in exercises!
WARNING!
There will be no tutorials & exercises during the winter term for students who failed the exam.

WARNING!
Programming Assignments

- Practically apply lecture contents
  - eight programming assignments
  - including assignments in groups
- Solutions must be submitted in the SPiC-IDE
  - your solution is validated with the help of scripts
  - we correct the assignments give points and provide feedback
  - a solution will be presented by a student in one of the following tutorials
    requires attendance!

Participation in the programming assignments is NOT mandatory; however you can earn up to 10% extra points for the exam!

Plagiarising will lead to losing ALL extra points. Nonetheless, the participation in the assignments is highly recommended!
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Passing Rate of the Exam (SPiC)

By activity of the participants in the programming assignments.

<table>
<thead>
<tr>
<th>Course</th>
<th>Passing Rate</th>
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<tbody>
<tr>
<td>ST23</td>
<td>48% (with Ø 3,4)</td>
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<tr>
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<td>83% (with Ø 2,3)</td>
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<td>ST22</td>
<td>33% (with Ø 3,5)</td>
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<td>69% (with Ø 2,7)</td>
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<td>ST21</td>
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<td>ST19</td>
<td>51% (with Ø 3,2)</td>
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<tr>
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<td>84% (with Ø 2,5)</td>
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Legend:
- Red: submitted none or less than half of the assignments
- Blue: submitted at least half of the assignments
Exercise Platform: the SPiCboard

- ATmega328-µC
- USB port
- 8 LEDs
- 2 7-segment elements
- 2 buttons
- 1 potentiometer
- 1 photo sensor
  "optional:"
- OLED display

- can be borrowed during hands-on exercises
- better option: → solder one by yourself!
- alternatively: development in simulator, which is integrated into the IDE
The FSI EEI, FSI ME and the FabLab offer a “soldering night” for the participants of the SLP lecture.

- participation is not mandatory
- you can gain (first) soldering experience while building your own SPiCboard
- there will be likely 4 appointments (in KW 18/19)

Registration via Waffel **necessary**, since the participation is limited: from Thursday 04/18/2024 at 6 PM (refer to website)

Participation is free of charge for SLP students (materials are funded from tuition fees)

**The date you choose to register is binding!**
Exam and Final Grade

- Exam (written test)
  - date: expected in early august
  - length: 90 min (SLP)
  - contents: questions on the lecture + programming exercise

- Exam grade $\mapsto$ final grade
  - (Usually) 50% of the exam’s maximum possible points (EP) are necessary to pass.
  - Only if you passed, your grade can be improved by your bonus points from the programming exercises.
    - minimum: 20% of possible bonus points (BP)
    - bonus points get divided in equal parts to match the interval [50%;80%] of possible BP
    - having 80%-100% of possible BP $\mapsto$ +10% of the maximum EP
<table>
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<tr>
<th>CW</th>
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Details: [http://sys.cs.fau.de/lehre/ss24](http://sys.cs.fau.de/lehre/ss24)
Contributing Individuals, LS Informatik 4

Lecturer

Volkmar Sieh
Jürgen Kleinöder
Peter Wägemann

Organization of the tutorial and exercises

Maximilian Ott
Tutorial mentors

Jannik Hausladen
If there are Questions or Problems

- Take a look at the lecture or tutorial slides
- Consult the FAQ on our website
- Hands-on exercise
- Only if you still have no answer or in special cases, write an email to
  → all tutorial advisors i4spic@lists.cs.fau.de (content-related)
  → all academic staff (of this lecture) i4spic-orga@lists.cs.fau.de (organisational questions)