



TECHNISCHE
UNIVERSITÄT
WIEN

Digital Integrated Circuits

Introduction to Exercises

384.086, Winter Term 2018

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- My name is Christian Krieg
- Please call me „Christian”
- I hope its ok for you if I call you in personal form („Du”)
- Active research in
 - Hardware security
 - Hardware design understanding
 - Open-source design automation
- Participation is always welcome!

- Please try to solve problems on your own, or discussing them with colleagues
- If there still are problems, drop me a mail
- When dropping e-mails please include „DIS” in the subject line. Otherwise, your mail could get lost!
- Besides the guided labs, make appointments via E-Mail at least two days in advance

- 4 VELS tasks:
 - E-Mail-based submission system
 - You have to solve simple examples
 - Simulation-based verification
 - 12.5 points each

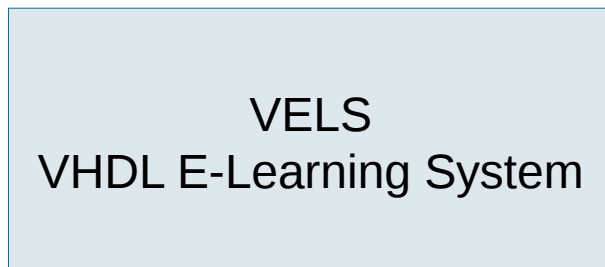
- 2 Lab tasks
 - Five slots for (optional) practice
 - Six slots for submitting your task
 - We synthesize a design and bring it to hardware
 - 25 points each

Wednesdays and Thursdays, 13:00—16:00

| November | | | | | | | | December | | | | | | | January | | | | | | |
|--|---|----|----|----|------------|----|----|----------|---|----------|----|----|----|---|------------|----|----|----|----|----|----|
| Task 1 | | | | | | | | | | Task 2 | | | | | | | | | | | |
| Practice | | | | | Submission | | | | | Practice | | | | | Submission | | | | | | |
| 7 | 8 | 14 | 15 | 21 | 22 | 28 | 29 | 5 | 6 | 12 | 13 | 19 | 20 | 9 | 10 | 16 | 17 | 23 | 24 | 30 | 31 |
| Deadline VELS tasks: December 2 | | | | | | | | | | | | | | | | | | | | | |

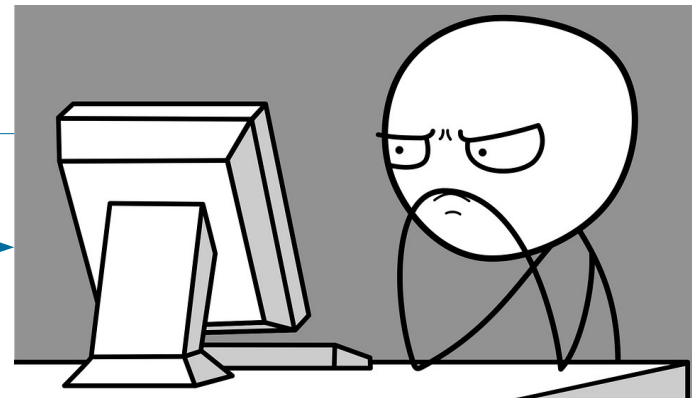
■ Steps to register:

- Register course in TISS. Wait until end of registration.
- Then, use your student E-Mail address
- To register to VELS, send an E-Mail to **vhdl-dis+e384@tuwien.ac.at**
- Any subject line is fine



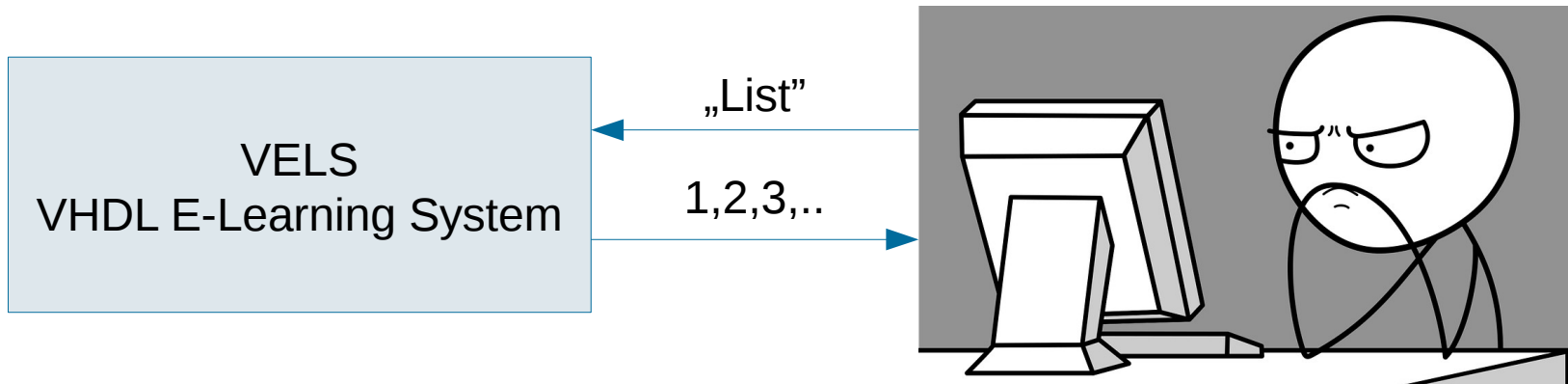
Hi!

Welcome!



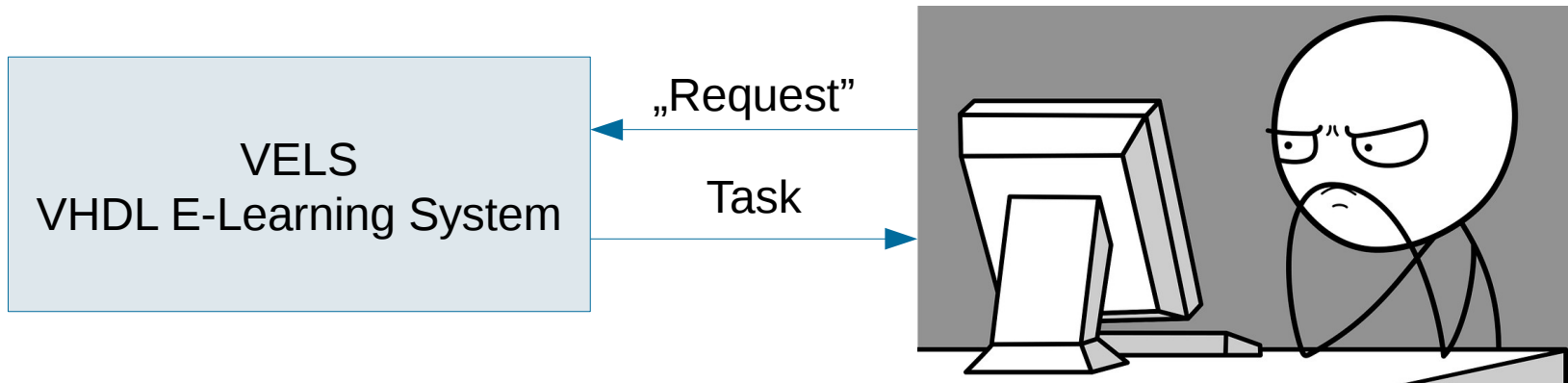
Graphics by Martin Mosbeck

- Get a list of available tasks
 - Send an E-Mail with subject „List” to **vhdl-dis+e384@tuwien.ac.at**
 - As a reply, you get a list with all tasks



Graphics by Martin Mosbeck

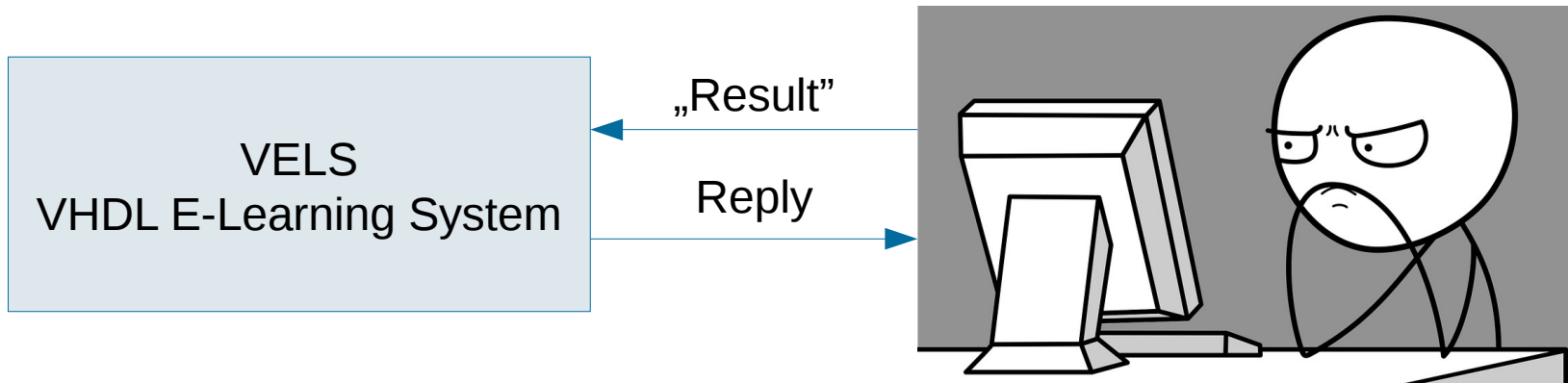
- Get a task description
 - Send an E-Mail with subject „Request Task <n>” to **vhdl-dis+e384@tuwien.ac.at**
 - <n> is the task's number you would like to request
 - You get a PDF, and VHDL skeleton files



Graphics by Martin Mosbeck

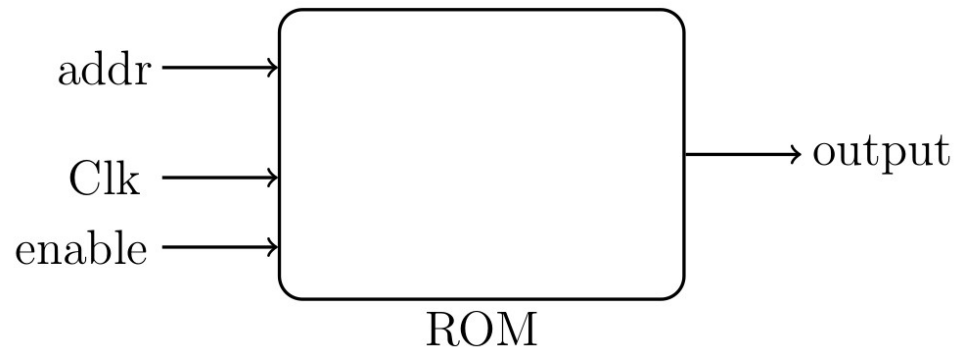
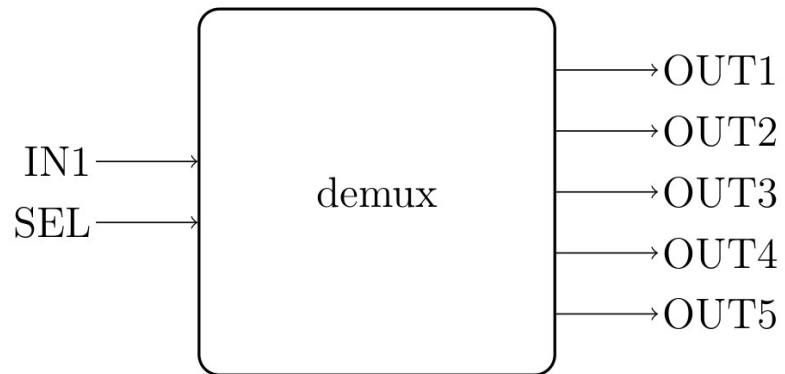
■ Submit a result

- Send an E-Mail with subject „Result Task <n>” to **vhdl-dis+e384@tuwien.ac.at**
- <n> is the task's number you would like to submit
- As an attachment, add the behavior file (*_beh.vhd1)

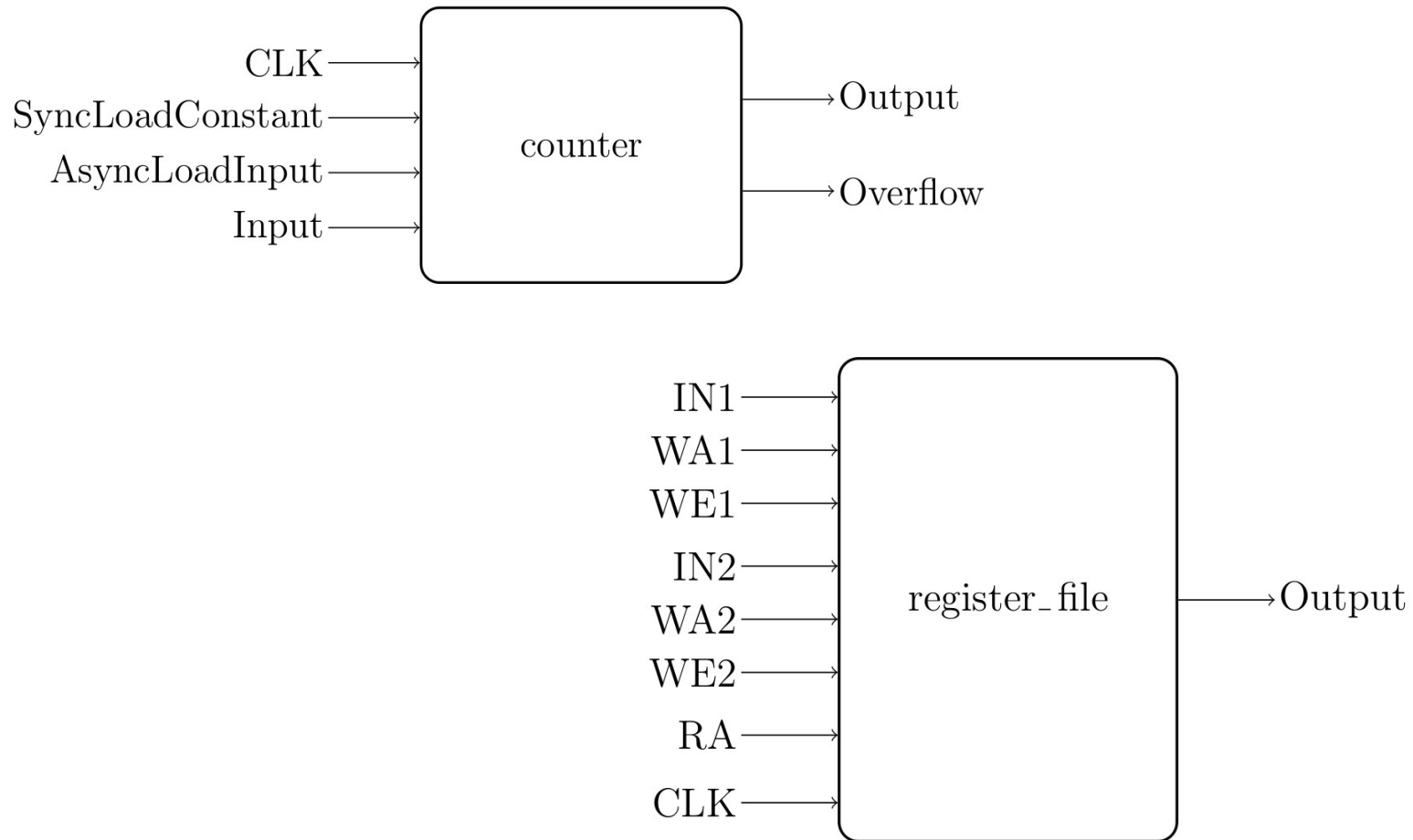


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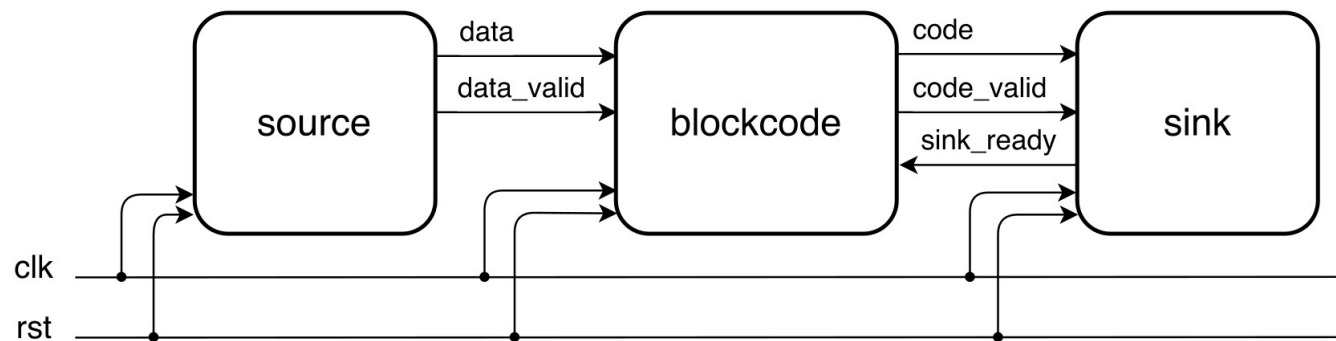
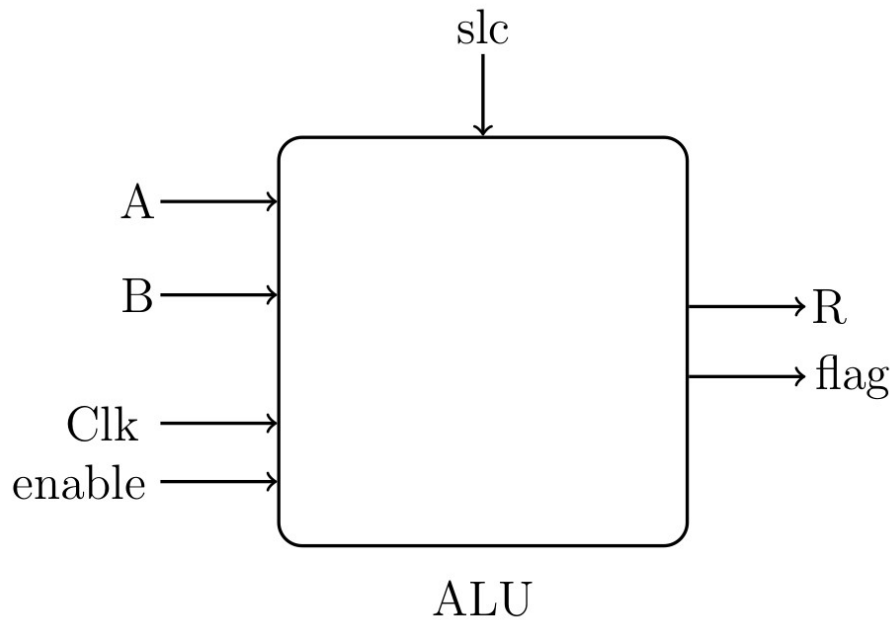
VELS task 1: Demux/ROM



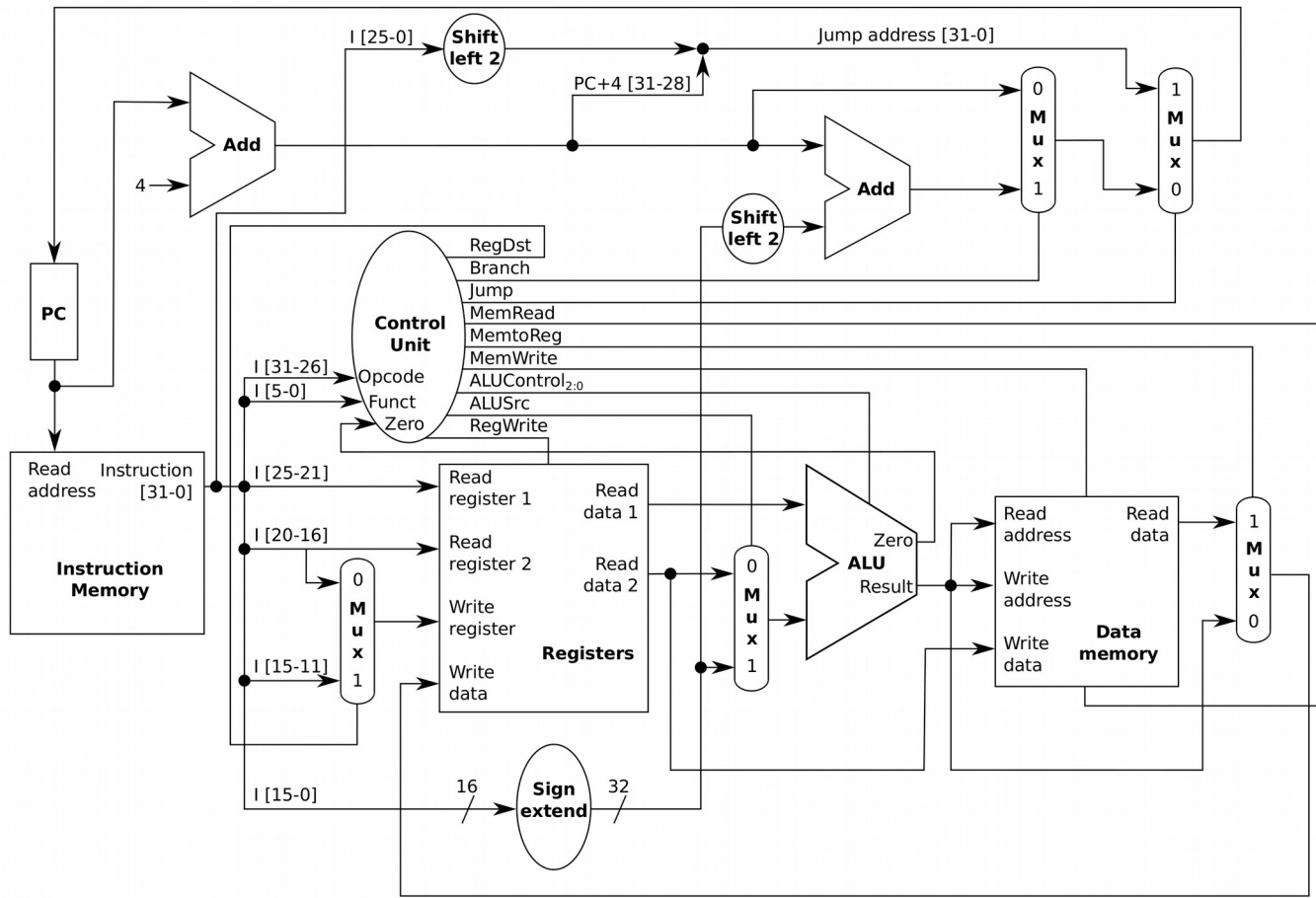
VELS task 2: counter / register file



VELS task 3: ALU / block code



VELS task 4: single/multi cycle control unit



Thank you!