# Embedded Systems Hands-On 1: Design and Implementation of Hardware/Software Systems

## Task 2: Serial Wire Debugging of the Cortex-M0

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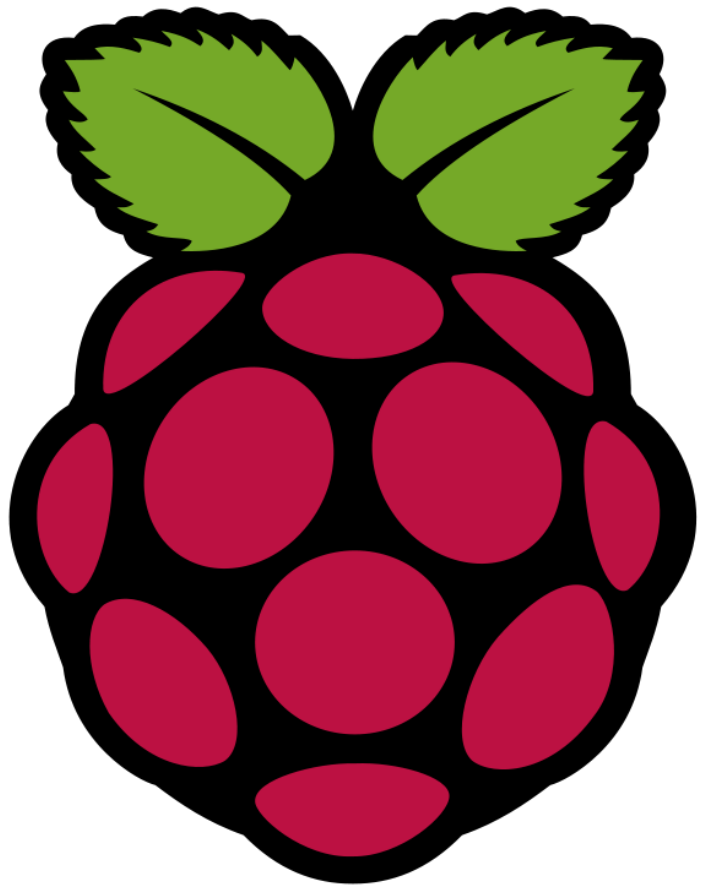

# Questions so far

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- Any problems with git(lab)?
- Any problems with Teamwork?
- Any questions regarding Task 1?
- Two weeks appropriate for Task 1?

# Task 2:
# Serial Wire Debugging of the Cortex-M0

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- Understanding and implementing SWD
- Connecting the Cortex-M0 via SWD with a GDB server on the Cortex-A53
- Remote debugging with Eclipse

# Serial Wire Debugging

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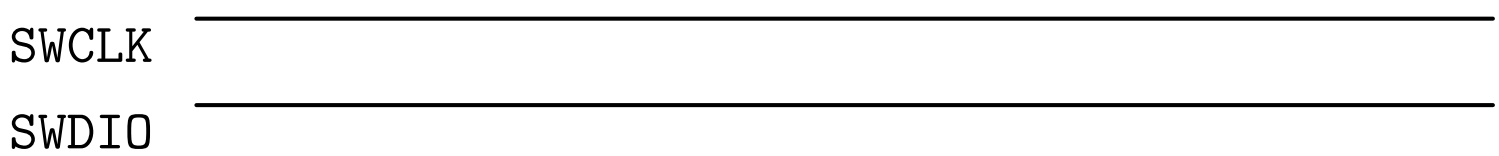
- Bus with master and slaves
- One wire for clock (`SWCLK`)
- One wire for data (`SWDIO`)
- However: bidirectional communication possible



# Serial Wire Debugging

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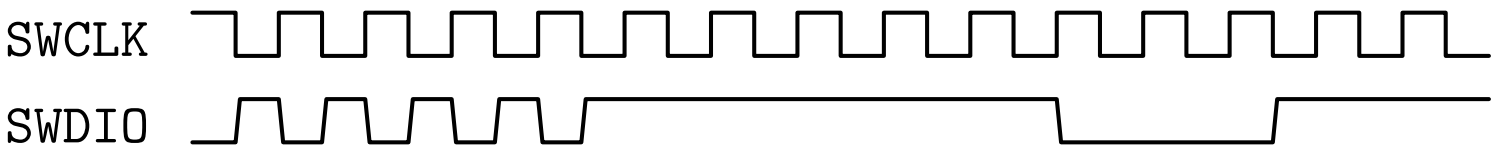
- Pull-up resistor $\rightarrow$ stuck at logic '1' when idle
- Master initiates transfer
- Protocol specifies, at which time the slave has to drive the data line
- See protocol definition for more information



# Task 2 - Subtasks

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1. SWD "by hand" (readout `IDCODE`)
2. GDB Server
3. Debugging IDE

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