Comments

Question 1 (ARM instruction set)
About half the students took this question and the average performance was 11 out of 20 marks (with a span from 2 to 17 marks). This question was very similar used some years before and asks for facts and understanding design factors used in the ARM architecture (and related), which is mostly bookwork. In addition, there was one programming task that is related to the coursework in Project A. That task required some deeper thinking and the best students got only half of the possible 4 marks.

Question 2 (Programming the ARM architecture)
Most students tried this question and each individual question got at least once very high marks across the cohort. However the overall performance was about half the possible marks. This question assessed 1) knowledge and 2) programming skills and several students were good in one but struggled in the other. The question "Describe the steps that have to be carried out by a (simple) operating system running on an ARM core to swap between two tasks ..." was in many cases not well answered. First of all, the question asked what "you as a programmer / or the OS" has to do, it was not what the ARM does when it receives an IRQ. The question was intended to be easy for all students who did the context switching exercise before. So the expected answer was about where to store the context (stack is not a good idea!), how to get the state (through system mode), how to get the proper PC value for resuming a task, how to store/restore the status register (MRS & MSR). Then we have to do something that we know which task is to be executed next (any sensible answer would be accepted here), Deal with the interrupt, and so forth.

Question 3 (Thumb in low-power system design)
This question was mostly bookwork and was asking about knowledge and deeper understanding that should be available from working on Project B. This question was very similar to a question asked in previous years. However, the performance was rather low with on average only 42% of the possible marks. This was a bit surprising as pretty much all previous Mobile Systems exams included questions on this topic.

Question 4 (Memory management and cache)
Except for one student, all students tried this question and the average performance was 68.2% of the possible marks (with a span from 40% to 85%).