



# Supervisor's statement of a final thesis

**Student:** Bc. Tomáš Beneš  
**Supervisor:** Ing. Matěj Bartík  
**Thesis title:** High throughput FPGA implementation of LZ4 algorithm  
**Branch of the study:** Design and Programming of Embedded Systems

**Date:** 20. 5. 2019

<i>Evaluation criterion:</i>	<i>The evaluation scale: 1 to 4.</i>
<b>1. Fulfilment of the assignment</b>	<i>1 = assignment fulfilled, <b>2 = assignment fulfilled with minor objections,</b> 3 = assignment fulfilled with major objections, 4 = assignment not fulfilled</i>
<i>Criteria description:</i> Assess whether the submitted FT defines the objectives sufficiently and in line with the assignment; whether the objectives are formulated correctly and fulfilled sufficiently. In the comment, specify the points of the assignment that have not been met, assess the severity, impact, and, if appropriate, also the cause of the deficiencies. If the assignment differs substantially from the standards for the FT or if the student has developed the FT beyond the assignment, describe the way it got reflected on the quality of the assignment's fulfilment and the way it affected your final evaluation.	
<i>Comments:</i> The assignment aimed towards 10 Gbps throughput however the complexness of the solved problem was really high and prevented to reach a higher throughput than 8.5 Gbps. The decompression block has not been implemented yet due to lack of time.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
<b>2. Main written part</b>	<i>70 (C)</i>
<i>Criteria description:</i> Evaluate whether the extent of the FT is adequate to its content and scope: are all the parts of the FT contentful and necessary? Next, consider whether the submitted FT is actually correct – are there factual errors or inaccuracies? Evaluate the logical structure of the FT, the thematic flow between chapters and whether the text is comprehensible to the reader. Assess whether the formal notations in the FT are used correctly. Assess the typographic and language aspects of the FT, follow the Dean's Directive No. 26/2017, Art. 3. Evaluate whether the relevant sources are properly used, quoted and cited. Verify that all quotes are properly distinguished from the results achieved in the FT, thus, that the citation ethics has not been violated and that the citations are complete and in accordance with citation practices and standards. Finally, evaluate whether the software and other copyrighted works have been used in accordance with their license terms.	
<i>Comments:</i> The thesis text is quite hard to read it (a lot of typos such as compress ration - ratio) and seems to be a little chaotic and unbalanced. I missed a detailed analysis of other available compression IPs and scientific papers (especially related to LZ4). The presented solution was compared to the Xilinx compression IP only.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
<b>3. Non-written part, attachments</b>	<i>75 (C)</i>
<i>Criteria description:</i> Depending on the nature of the FT, comment on the non-written part of the thesis. For example: SW work – the overall quality of the program. Is the technology used (from the development to deployment) suitable and adequate? HW – functional sample. Evaluate the technology and tools used. Research and experimental work – repeatability of the experiment.	
<i>Comments:</i> I don't understand why graphs are using linear scale for the x axis rather than logarithmic.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
<b>4. Evaluation of results, publication outputs and awards</b>	<i>100 (A)</i>
<i>Criteria description:</i> Depending on the nature of the thesis, estimate whether the thesis results could be deployed in practice; alternatively, evaluate whether the results of the FT extend the already published/known results or whether they bring in completely new findings.	
<i>Comments:</i> Several papers have been published already.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 1 to 5.</i>

**5. Activity and self-reliance of the student**

5a:  
1 = excellent activity,  
**2 = very good activity,**  
3 = average activity,  
4 = weaker, but still sufficient activity,  
5 = insufficient activity  
5b:  
**1 = excellent self-reliance,**  
2 = very good self-reliance,  
3 = average self-reliance,  
4 = weaker, but still sufficient self-reliance,  
5 = insufficient self-reliance.

*Criteria description:*

From your experience with the course of the work on the thesis and its outcome, review the student's activity while working on the thesis, his/her punctuality when meeting the deadlines and whether he/she consulted you as he/she went along and also, whether he/she was well prepared for these consultations (5a). Assess the student's ability to develop independent creative work (5b).

*Comments:*

I would appreciate more consultations to be made regarding the final look of the thesis.

*Evaluation criterion:*

*The evaluation scale: 0 to 100 points (grade A to F).*

**6. The overall evaluation**

75 (C)

*Criteria description:*

Summarize which of the aspects of the FT affected your grading process the most. The overall grade does not need to be an arithmetic mean (or other value) calculated from the evaluation in the previous criteria. Generally, a well-fulfilled assignment is assessed by grade A.

*Comments:*

The LZ4 compression block has been implemented and evaluated in hardware successfully. The lower grade than A was caused by the quality of thesis text and the absence of the decompression block.

Signature of the supervisor: