

## I. IDENTIFICATION DATA

<b>Thesis name:</b>	<b>Memory safety analysis in Rust GCC</b>
<b>Author's name:</b>	<b>Jakub Dupak</b>
<b>Type of thesis :</b>	master
<b>Faculty/Institute:</b>	Faculty of Electrical Engineering (FEE)
<b>Department:</b>	Department of Measurement
<b>Thesis supervisor:</b>	Ing. Pavel Píša PhD.
<b>Supervisor's department:</b>	Department of Control Engineering

## II. EVALUATION OF INDIVIDUAL CRITERIA

<b>Assignment</b>	<b>extraordinarily challenging</b>
<i>Evaluation of thesis difficulty of assignment.</i>	
Adding an entirely new static analysis pass to a large codebase such as ours is extremely challenging. On top of this, borrow-checking is a complex subject which requires a lot of changes to our internal structures, such as writing a Control Flow Graph representation from scratch.	

<b>Satisfaction of assignment</b>	<b>fulfilled</b>
<i>Assess that handed thesis meets assignment. Present points of assignment that fell short or were extended. Try to assess importance, impact or cause of each shortcoming.</i>	
There were no shortcomings as Jakub managed to satisfy all the requirements of the project. No points of the assignment needed to be extended, as Jakub managed to hit all the necessary deadlines.	

<b>Activity and independence when creating final thesis</b>
<i>Assess that student had positive approach, time limits were met, conception was regularly consulted and was well prepared for consultations. Assess student's ability to work independently.</i>
Jakub was very independent and asked for help when necessary - he would expose the issues he had ran into with precise information which made helping him easier. We had weekly online meetings set up to discuss the progression of the project, which he all attended and during which he presented progress with clarity.

<b>Technical level</b>
<i>Assess level of thesis specialty, use of knowledge gained by study and by expert literature, use of sources and data gained by experience.</i>
Jakub showed great technical level and great adaptability to new concepts - his contributions to the compiler were excellent and his open source skills were very good.

<b>Formal and language level, scope of thesis</b>
<i>Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.</i>
Very good utilisation of technical language and notation during the writing of the thesis and during our technical conversations over the course of the project. The thesis is very well written and detailed.

<b>Selection of sources, citation correctness</b>
<i>Present your opinion to student's activity when obtaining and using study materials for thesis creation. Characterize selection of sources. Assess that student used all relevant sources. Verify</i>

*that all used elements are correctly distinguished from own results and thoughts. Assess that citation ethics has not been breached and that all bibliographic citations are complete and in accordance with citation convention and standards.*

Very good use of external sources, and good presentation of these sources within the thesis.

**Additional commentary and evaluation**

*Present your opinion to achieved primary goals of thesis, e.g. level of theoretical results, level and functionality of technical or software conception, publication performance, experimental dexterity etc.*

Jakub has done amazing work and was very independent throughout the project. The borrow-checking infrastructure he has put in place provides a very strong base for future work on the subject. Jakub has achieved a lot in a couple of months, with the biggest challenge being the writing an entirely new internal representation for the Rust GCC compiler from scratch. The speed at which this work was achieved is impressive, as working on an entirely new project within an extremely large codebase (more than 250 000 lines of C++ code) is very difficult.

**III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION  
SUGGESTION**

*Summarize thesis aspects that swayed your final evaluation.*

I evaluate handed thesis with classification grade

Date:

Signature: