THESIS REVIEWER'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**CAN Bus Latency Test Automation for Continuous Testing and Evaluation**
Author's name:	**Pavel Hronek**
Type of thesis :	bachelor
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Control Engineering
Thesis reviewer:	Ing. Oliver Hartkopp, PhD
Reviewer's department:	R&D Vehicle Security, Volkswagen AG

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	**extraordinarily challenging**

How demanding was the assigned project?

The project required a holistic understanding of technical details about Linux, the CAN Bus and embedded computing hardware as well as requirement and process engineering for latency tests and finally Web presentation and data management. This broad knowledge focusing all ISO-Layers is remarkable.

Fulfilment of assignment	**fulfilled**

How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.

Creating test setups to perform reproducible testing and measurement tasks that can also be integrated in an existing QA-farm is a challenging task itself. Additionally the author took a deep dive into the Web Presentation to compare and evaluate the generated measurements and built a Linux Kernel driver to configure a project specific crossbar switch via a user friendly device interface.

Methodology	**outstanding**

Comment on the correctness of the approach and/or the solution methods.

Besides creating the test automation setup to perform automated latency tests the author not only implemented a system to bootstrap such system in a reproducible way but the entire idea of how to run precise measurements has been worked out excellently. With the network based file system and log file access the DUT can perform required load scenarios with a minimized impact from house-keeping requirements of that DUT.

Technical level	**A - excellent.**

Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?

The thesis covers the setup of a real-time measurement which has proven its usability and correctness through the measurement results and their representation. The author clearly pointed out the technical requirements and constrains which have been taken into account to build the system and its surrounding artifacts. The reasons that led to technical decisions were made clear.

Formal and language level, scope of thesis	**A - excellent.**

Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?

The scope of the thesis and the required preconditions and environments have been presented and documented in a good readable manner. The thesis is quite compact in comparison to the effort and the outcome of the project.

Selection of sources, citation correctness	B - very good.
Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?	
The thesis is an academic work based on the valuable test efforts that have been conducted in the CTU/FEL department. The compact description could have been improved by some more figures describing the different CAN frame flows in the referenced test scenarios. Also the reason and need for the IRQ-threading and prioritization setting could have been made more transparent and referenced. But overall the provided information and references are very good and enable the interested reader to either get a comprehensive overview and insights into technical details.	

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

"This could have been two bachelor thesis'". The author proves his skills on many layers of hardware/software engineering and is looking over the edge when e.g. building up a Linux Kernel driver just to simplify the handling of the special crossbar hardware setup. The entire topic of creating an automation environment to run reproducible latency measurements inside the OSADL QA-farm and a visualization of the created results is completely fulfilled. The work and the resulting artefacts (source code and thesis) are provided in a way that follow-up projects could easily start on this basis.

For the presentation and defense of this thesis I would be happy to see some more figures that depict the measurements CAN frame flows e.g. for the ESP32 idea which is very different to the common measurement concept as well as a picture that shows an overview over the already existing and the new created project components. Although this information can be retrieved from the thesis this would help the reader to understand the context and connections at first sight.

The grade that I award for the thesis is **A - excellent.**

Date: **8.6.2023**   Signature: