

I. Personal and study details

Student's name: **Charvát Jan**

Personal ID number: **478159**

Faculty / Institute: **Faculty of Electrical Engineering**

Department / Institute: **Department of Measurement**

Study program: **Open Informatics**

Branch of study: **Internet things**

II. Bachelor's thesis details

Bachelor's thesis title in English:

Model of CAN FD Communication Controller for QEMU Emulator

Bachelor's thesis title in Czech:

Model kontroléru CAN FD v emulátoru QEMU

Guidelines:

Implement CAN FD controller, and bus emulation for QEMU. Base emulate device on open-source CTU CAN FD core model.

Tasks of the project:

1. Study the implementation of CAN bus emulation for QEMU and CTU CAN FD IP core target CPU interface.
2. Extend pyXact_generator to convert IPXACT register file to QEMU QOM C object description.
3. Update QEMU CAN support to allow an exchange of CAN FD frames.
4. Implement model of CTU CAN FD IP core for QEMU.
5. Document the work and offer it as patch series to QEMU project.

Bibliography / sources:

[1] QEMU CAN bus emulation support documentation (included in QEMU sources).

<https://git.qemu.org/?p=qemu.git;a=blob;f=docs/can.txt>

[2] CTU CAN FD Core Component Documentation.

http://canbus.pages.fel.cvut.cz/ctucanfd_ip_core/Progdokum.pdf

[3] Piša, P.; Yang, J.; Sojka, M.: QEMU CAN Controller Emulation with Connection to a Host System CAN Bus In: Proceedings of the 17th Real Time Linux Workshop. Schopfloch: Open Source Automation Development Lab, 2015, pp. 41-46, <http://cmp.felk.cvut.cz/~pisa/can/doc/rtws-17-pisa-qemu-can.pdf>

Name and workplace of bachelor's thesis supervisor:

Ing. Pavel Piša, Ph.D., Department of Control Engineering, FEE

Name and workplace of second bachelor's thesis supervisor or consultant:

Date of bachelor's thesis assignment: **07.01.2020**

Deadline for bachelor thesis submission: **22.05.2020**

Assignment valid until:

by the end of summer semester 2020/2021

Ing. Pavel Piša, Ph.D.
Supervisor's signature

Head of department's signature

prof. Mgr. Petr Páta, Ph.D.
Dean's signature

III. Assignment receipt

The student acknowledges that the bachelor's thesis is an individual work. The student must produce his thesis without the assistance of others, with the exception of provided consultations. Within the bachelor's thesis, the author must state the names of consultants and include a list of references.

Date of assignment receipt

Student's signature