THESIS REVIEWER'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Offline Scheduling of the Safety-Critical Tasks Within Isolation Time Windows**
Author's name:	**Hornof David**
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Computer Science
Thesis reviewer:	Cláudio Maia
Reviewer's department:	Department of Computer Engineering of the Polytechnic School of Engineering of Porto, Portugal

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	extraordinarily challenging

How demanding was the assigned project?

In my opinion the project carried by the student is extraordinarily challenging as it requires cross-domain knowledge, including mathematics (used in ILP formulations), real-time and safety-critical systems (the domain in which the project fits), electrical and computer engineering (the project consists in the development of software tools to control physical properties of the hardware, i.e., temperature and energy).

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.

In my opinion the assignment is completely fulfilled. All the goals of the work have been achieved and even after completing the work the student put the effort to run more experiments (added in the appendix of the manuscript) to further validate the presented solutions.

Methodology	outstanding

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

The student followed a scientific methodology for the problem under study (i.e., thermal aware scheduling of safety critical workloads). The methodology consisted in formalizing the problem through a model, providing several possible solutions for it, and carrying experiments to validate the model and the proposed solutions. All of the steps are carefully justified throughout the manuscript.

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 is technically sound. The work employs state of the art approaches as a basis for the proposed solutions to solve the problem under study. The student fundaments and explains the choices made and the results obtained.

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 thesis is well-organized, well-presented, easy to read and follow. The text is extensive enough to understand the work carried out by the student. The notations are used properly.

Selection of sources, citation correctness	A - excellent.

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?

Sources are well-selected, and the contributions of the student are clearly distinguished from earlier work in the field. Bibliographic citations meet the standards.

Additional commentary and evaluation (optional)
Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.
The thesis is excellent, and I really enjoyed reading it. I believe that the work has impact in the field, and it can be published in a conference/workshop within the field of real-time/safety-critical systems. I didn't find any major weaknesses in the work, only small aspects that can improve the work even further (please see below). The solution is correctly validated and the model well-formalized.

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

Summarize your opinion on the thesis and explain your final grading. Pose questions that should be answered during the presentation and defense of the student's work.

The thesis is excellent, and I really enjoyed reading it. I believe that the work has impact in the field, and it can be published in a conference/workshop within the field of real-time/safety-critical systems. I didn't find any major weaknesses in the work, only small aspects that can improve the work even further (please see below). The solution is correctly validated and the model well-formalized.

The following aspects can be improved in the thesis:

- In Chapter 1, the relation between reliability and heat dissipation could be better justified;
- In Section 2.2, relation between periodic execution and safety could be better justified;
- In Section 2.3, Equation 2.1 states that the constant C depends on the hardware specification, but it does not mention what exactly it represents;
- Still in the same section, it is mentioned that the presented model in not entirely accurate, but this statement is not elaborated;
- In page 19, the student refers to Algorithm 1 from [8]. For completeness the method could be part of the appendix such that it would become easier for the reader to understand the differences between the changes the student presents and the original algorithm.

For discussion:
- In equation 4.7, why dividing by h if h is a constant? That is, the major frame length does not change over time.

Other notes:
- A few surveys concerning the time partitioned scheduling could be cited in section 3.2 (i.e., see Alan Burns and Rob Davis contributions).

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

Date: **17.6.2021**   Signature: