

**Universiti Teknologi MARA**

**Parallel Computing via Message Passing:  
Comparison between Microsoft MPI and  
Klyng Framework**

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**Thesis submitted in fulfilment of the requirements for  
Bachelor of Computer Science (Hons.) Faculty of  
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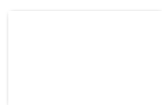
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## **SUPERVISOR'S APPROVAL**

### **PARALLEL COMPUTING VIA MESSAGE PASSING: COMPARISON BETWEEN MICROSOFT MPI AND KLYNG FRAMEWORK**

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This thesis was prepared under the direction of thesis supervisor, Mr. Ahmad Firdaus Bin Ahmad Fadzil. It was submitted to the Faculty of Computer and Mathematical Sciences and was accepted in partial fulfilment of the requirements for the degree of Bachelor of Computer Science (Hons).

Approved by:

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Ahmad Firdaus Bin Ahmad Fadzil

Project Supervisor

JULY 24, 2017

## **STUDENT'S DECLARATION**

I certify that this report and the project to which it refers is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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## ABSTRACT

Parallel Computing is an architecture that allow multiprocessing and multithreading to increase the speed of complex computation involving large data analysis by implementing concurrent programming. Due to the practice of traditional serial computing, parallel computing extend any possible programming language to provide a framework such as message passing to enable shared and distributed memory computing. Message passing is one of the most popular techniques to deploy such architectures. The emergence of MPI standard that outlined necessities library for a message passing to work, liven the hope of parallel community. Hence, several implementations of MPI such as Microsoft MPI rise to overcome the time consuming issues of serial computing. The unpopular and yet unrecognized JavaScript framework named Klyng that also implement MPI framework, is studied and discussed in this paper. Microsoft MPI that have been implemented widely is also deliberated and become the benchmark to compare the performance and ability of JavaScript to operate parallel computing via message passing.