Expected Outcams.

The expected benefits of the research program will accrue for consumers, firms, scientists and other students through an improved understanding of the operations occurred in core and performance of CPU processes modeling. Areas of research main emphasis are the influence of micro- and macro- operations fusion in CPU core on the entire system efficiency, and model analysis of compiling concepts that affect improvement in processing speed and other quality attributes. The result model emphasizes understanding the ways of executing instructions in microprocessor, analysis of its performance, and assessment of operations fusion intended to influence that performance. An important organizing principle and end goal of this work is to provide relevant visible model, which simulates code compiling and gives information about the consequences of each micro- or macro- operation fusion.

The result product of the research will mostly be useful for students of technical Universities. It provides detailed information about CPU core processes and allows to trace the way of executing assembler instructions and commands from the beginning to the end. This innovative idea of modeling and analyzing of operations in microprocessor will also have impact on other scientific researches. Scientists can use the result program to emulate CPU core processes and find ways to improve its efficiency.

Abstract.

Abstract— This proposal, prepared mostly for scientific researches and students of  Technical Universities, will describe the processes of micro- and macro- fusion in CPU core and assess its impact on the performance of different computer systems. Working on program modeling of operation fusion, we define concepts of microprocessing technologies, its usage in AMD and Intel architectures, and its influence on processing rate. Users of result program have an opportunity to trace fusions of macro- and micro- operations with using application programming interface.

Keywords—micro-operation, macro-operation, fusion, CPU core, microprocessor

Introduction.

Background.