



Computer Architecture

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Laboratory 1

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Objectives:

Introduction to

- P3 processor;
- P3 programming language:
 - data transfer instructions;
 - address modes;
- P3 simulator:
 - Execution of the environment;
 - Testing the program;

P3 Processor:

The P3 processor was developed at the University of Lisbon - Instituto Superior Técnico for the students of the “Computer Architecture” course. The P3 is a RISC processor containing 8 generic registers, allows for the normal set of arithmetic, logic and control instructions. The processor also has several mechanism for processing inputs (*e.g.*: reading from the keyboard) and outputs (*e.g.* printing to a screen). It also features an interruption processing mechanism as well as a microprogramming component. All of the informations regarding the processor can be found on the manual that is provided for the laboratories.

P3 Simulator:

For this section we will be using the file “lab1_part1.as”:

1. To compile the assembly code the command “./p3as-linux lab1.as” needs to be executed on the terminal;
2. To run the simulator the command “java -jar p3sim.jar” needs to be executed on the terminal;
 - (a) To load the compiled binary file choose “Ficheiro -> Carrega Programa”;
 - (b) Before you execute the program load the I/O window by choosing “Ver -> Janela de Texto ”;
 - (c) Execute the program by pressing the button “Corre”