Computer Architecture
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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 16-bit 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 and Assembly:

For this section we will be using the file "lab1.as":

1. To compile the assembly code the command "./p3as-linux lab1.as" needs to 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"

3. Examine the code;