

CLIL Pre-reading: Before reading the text, try to write a definition of the following terms:

1. Simulator
2. Pipeline stalls
3. Floating point units
4. Latency

05 CPU

05.04 Cycle-accurate simulation of DLX pipeline with WinDLX

A. Introduction

CLIL While-reading: Read part A and write a definition of *WinDLX*

WinDLX is a simulator of the pipeline of DLX that runs **on top of** MS Windows. A program written in the DLX assembly can be loaded into main memory and executed clock cycle per clock cycle. A cycle-accurate execution trace is provided showing, at every clock cycle, the usage of all pipeline stages. In particular, pipeline stalls and aborted instructions are clearly shown in the trace.

The DLX architecture can be **configured** by choosing the number of floating point units available and their latency. **In addition**, data forwarding can be **enabled** and **disabled**.

The simulator does not support delayed branches.

B. Software distribution

CLIL While-reading: Read part B and list all the items included in the standard software distribution

The standard software distribution, <http://cs.uns.edu.ar/~jechaiz/arquitectura/windlx/windlx.html>, includes:

- windlx.exe, the executable of the simulator
- windlx.hlp, the help
- wdlxtut.doc, a quick tutorial
- readme.txt, a readme file
- fact.s, gcm.s, input.s, prim.s, a few example programs

The DLX instructions and **directives** are provided in the windlx.hlp. In alternative, they can be found at <http://cs.uns.edu.ar/~jechaiz/arquitectura/windlx/DLXinst.html>.

The copy of all files of the software distribution is provided within the platform, among the resources associated with the Lab 2 lecture.

CLIL After reading: After reading the whole lecture, write a definition of *cycle-accurate simulation of DLX pipeline with WinDLX*

CLIL After reading – Lexis:

to configure = to adjust something or change the controls on a computer or other device so that it can be used in a particular way
 to enable = to make something possible
 to disable = to stop something such as (part of) a machine or system from working
 directive = an official instruction

CLIL After reading - Conjunctions and adverbs in the text:

on top of = in addition to something
 in addition = as well / moreover / furthermore