kSPARC : the SPARC architecture emulation project

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1 Introduction

Learning an assembly language might be tidious for a lot of people, as most of the time, it is impossible to see the actual effect of a simple code on memory, registers and so on.

Plus, nowadays, assembly language have become really complex and have a number of instructions that are rather complicated to understand.

For these reasons, I decided to create this easy to use set of tools that will allow you to programm in a comprehensive assembly language and execute it on an emulator that will show you everything you need to know : registers, memory, and so on.

2 The different tools

2.1 The assembler : `kasm`

`kasm` is an assembler program. It takes a .kasm file written in assembly language and transforms it into a .kbin binary file that can be executed by the emulator.

The kasm assembly language is not really complicated (for such a type of language) and summary of the opcodes what they do is available later in this document.

2.2 A disassembler : `kdisasm`

`kdisasm` is a disassembler program; it reads an hexadecimal value from user input and convert it into one or several lines of code.

2.3 The emulator : `ksparc`

This emulator is a virtual device made of a SPARC engine, a memory device, some registers and an ALU. It must be launched with a binary file as parameter, which it will load from address 0x00000000 in the memory.

The emulator disassemble the code and put it in the middle frame. It has various tools and commands that are summarized at the bottom of the window.

3 How to build the tool set ?

Quite easy ! From this directory :

```
cd src
make all
```

Every binary is available in the (base directory)/bin/ directory.

4 List of the instructions and opcodes available

Opcode	Parameters	Description