EXPI

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XSM SIMULATOR USAGE SPECIFICATION

➤ Debugging

The XSM (eXperimental String Machine) Simulator is used to simulate the hardware and OS abstractions specified in the ExpOS Application Binary Interface.

Within your XSM directory, use the following command to run the simulator

```
./xsm [-l library.lib] -e <filename.xsm> [--debug]
```

(i) *Syntax* : -l library.lib
Semantics : This flag loads the library, library.lib to the machine memory. (The simulator specification does not allow any name other than library.lib for the library file.) The argument is optional and needs to be given only if the library is to be linked to page 0 and page 1 of the virtual address space

(ii) *Syntax* : -e <filename.xsm>
Semantics : This flag loads the executable file named as filename which is of the XEXE format . This argument is mandatory. The file is loaded into pages 4,5,6 and 7 in the virtual address space .

(iii) *Syntax* : --debug
Semantics : This flag sets the machine into DEBUG mode when it encounters a BRKP machine instruction. Any BRKP instruction in the program will be ignored by the machine if this flag is not set. Further details are given in the section below.

Debugging

The --debug flag is used to debug the running machine. When this flag is set and the machine encounters a breakpoint instruction, the machine enters the DEBUG mode. In this mode a prompt is displayed which allows the user to enter commands to inspect the state of the machine. The commands in DEBUG mode are :

(1) *Syntax* : step / s
Semantics : The execution proceeds by a single step.

(2) *Syntax* : continue / c
Semantics : The execution proceeds till the next breakpoint (BRKP) instruction.

(3) *Syntax* : reg / r
Semantics : Displays the contents of all the machine registers namely IP, SP, BP, PTBR, PTLR, EIP, EC, EPN, EMA, R0-R19 in that order.

(4) *Syntax* : reg / r <register_name>
Semantics : Displays the contents of the specified register.
Sample usage: r R5, reg SP

(5) *Syntax* : reg / r <register_name_1> <register_name_2>
Semantics : Displays the contents of the registers from <register_name_1> to lt;register_name_2> in the order specified in (3).