QEMU support for Xtensa

- Git tree (view): http://jcmvbkbc.spb.ru/git/?p=dumb/qemu-xtensa.git;a=summary
- Git tree (clone): git:*jcmvbkbc.spb.ru/dumb/qemu-xtensa.git* / *http://jcmvbkbc.spb.ru/dumb/qemu-xtensa.git* * *Toolchain build scripts (view): http://jcmvbkbc.spb.ru/git/?p=dumb/xtensa-toolchain-build.git;a=summary* * *Toolchain build scripts (clone): git:*jcmvbkbc.spb.ru/dumb/xtensa-toolchain-build.git / http://jcmvbkbc.spb.ru/dumb/xtensa-toolchain-build.git

Things to do

- core/basic opcodes implementation;
  - [+] and/or/xor/neg/abs;
  - [+] shifts;
  - [+] add[x*]/sub[x*]/add.n/addi.n;
  - [+] call0, callx0, j, b*;
  - [+] l32*, s32*;
  - [+] accurate SR write semantics;
  - [-] boolean registers/commands;
- windowed registers;
  - [+] call*/callx*, retw, rotw, rfwo, rfwu;
  - [+] simple overflow algorithm that's triggered from ENTER;
  - [+] accurate overflow triggering;
- [+] loop option;
- [+] extended L32R option;
- [-] floating point;
- MMU;
  - [+] no-MMU mode;
  - [+] proper mem_idx usage;
  - [-] region protection (with/without translation);
  - [+] MMU mode;
- gdbserver;
  - [+] xml register map, read/write register;
  - [+] correct SR mapping;
  - [+] debug exception, single step mode;
  - [+] hw/sw breakpoints;
  - [-] gdbserver for different processor types;
- [-] debug option;
- exceptions;
  - [+] debug (only external);
  - [-] break;
  - [+] window overflow/underflow;
  - [+] user/kernel (invalid insn, privileged insn, alignment, division by 0,...);
  - [+] relocatable vectors;
  - [+] external interrupts;
  - [+] timer interrupts;
    - [-] correct opcode timings?;
    - [+] qemu timer to avoid busy looping in waiti;

- sample evaluation board;
  - [+] memory mapping, ELF loader;
  - [-] standard peripherals;
  - [+] dc232b;
- simulation quality;
  - [+] pass command line arguments to argc/argv SIMCALLs (DAN branch only);
  - [+] TB chaining;
- [+] external configuration (a-la xtensa overlay)?
- [-] automatic regression test suite;

Events

- 2011.04.20: C++ 'hello world' is working in qemu (stdio, stdlib, simcalls, windowed registers, loops, ext l32r) (:
- 2011.04.26: multithreaded ThreadX application is working in qemu (timer interrupts)
- 2011.04.30: preparation for qemu mainline submission started
- 2011.05.04: first RFC patchset sent to qemu-devel http://lists.nongnu.org/archive/html/qemu-devel/2011-05/msg00242.html
- 2011.05.18: first PATCH patchset sent to qemu-devel http://lists.nongnu.org/archive/html/qemu-devel/2011-05/msg01525.html
- 2011.06.19: linux boots, issues on userspace application startup
- 2011.06.22: successfull userspace app startup in linux
- 2011.06.29: xtensa linux session on qemu-xtensa is available at ssh -p 3022 xtensa@jcmvbkbc.spb.ru (passwd: xtensa)

qemu

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http://wiki.osll.ru/doku.php/etc:users:jcmvbkbc:qemu-target-xtensa?rev=1309305963

Last update: **2011/06/29 04:06**