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Mismatch in Dependency Between `henvcfg` and `menvcfg` in NEMU and XiangShan #681

Closed#689

youzi27 opened on Nov 25, 2024



Describe the bug

Hi there,

I noticed a mismatch in the behavior of the dependency between `henvcfg` and `menvcfg` in NEMU and XiangShan (XS).

Specifically:

- In NEMU: Bits 4 to 7 of `henvcfg` are aligned with `menvcfg`. Modifying `menvcfg` implicitly updates `henvcfg`.
- In XS: Bits 4 to 7 of `henvcfg` are independent of `menvcfg`. Modifying `menvcfg` does not affect `henvcfg`.

To Reproduce

Initial State: Both NEMU and XS initialize `menvcfg` to `0x80000000000000f0`.

After Modification: When `menvcfg` is modified to `0x0`:

In NEMU, `henvcfg` updates accordingly to reflect the change in `menvcfg`.

In XS, `henvcfg` remains unchanged, with bits 4 to 7 unaffected.

Error log or Screenshots

```
22] commit pc 00000008000102c inst 60a02873 wen 1 dst 16 data 80000000000000f0 idx 006 csrr a6, henvcfg
23] commit pc 000000080001030 inst 30a022f3 wen 1 dst 05 data 80000000000000f0 idx 007 csrr t0, menvcfg
24] commit pc 000000080001034 inst 30a01c73 wen 1 dst 24 data 80000000000000f0 idx 008 csrrw s8, menvcfg, zero
25] commit pc 000000080001038 inst 30a022f3 wen 1 dst 05 data 0000000000000000 idx 009 csrr t0, menvcfg
26] commit pc 00000008000103c inst 60a02773 wen 1 dst 14 data 00000000000000f0 idx 00a csrr a4, henvcfg <--
a4 different at pc = 0x008000103c, NEMU = 0x0000000000000000, XS = 0x00000000000000f0
```

Necessary information on versions

- ready-to-run's NEMU commit id: [OpenXiangShan/ready-ro-run@3575e65](#) (Date: Fri Nov 22 17:06:53 2024 +0800)
- XiangShan commit id: [OpenXiangShan/XiangShan@aecf601](#) (Date: Tue Nov 19 16:16:35 2024 +0800)



NewPaulWalker on Nov 26, 2024

Contributor



Thank you for your issue! Would you mind sharing your test case?



youzi27 on Nov 26, 2024

Author



Hi [@NewPaulWalker](#),

Thank you for your response.

The test case to reproduce the issue is: [testcase.zip](#)



NewPaulWalker on Nov 27, 2024

Contributor



Thank you for sharing your test. This is indeed a bug in NEMU: the **CBIE**, **CBCFE**, and **CBZE** fields of **henvcfg** should not depend on the values of these three fields in **menvcfg**.



[NewPaulWalker](#) linked a pull request that will close this issue [fix\(henvcfg\): fix read value for CSR henvcfg. #689](#) on Nov 27, 2024



[huxuan0307](#) closed this as [completed](#) in [#689](#) on Nov 27, 2024

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 [fix\(henvcfg\): fix read value for CSR henvcfg.](#)

OpenXiangShan/NEMU

 [v2025.12.r1](#)

Participants

