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[Bug Report] Incorrect exception type of PMP violation during address translation #605

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Phantom1003 commented on Jun 8

Type of issue: bug report**Impact:** unknown**Development Phase:** proposal**Other information**

Our co-simulation framework found that the exception type of address translation PMP violation is incorrect.

In the following test case, we let a non-leaf (level 2) PTE out of the PMP range.

Next, we will perform a store operation with a special virtual address, during translation processor will try to access the PTE that does not match any PMP.

boom throws a store page fault(0xf), while spike throws a store access fault(0x7).

```
[boom] 3 0x0000000080000364 (0x0105051b) x10 0x0000000040201010
[boom] 3 0x0000000080000368 (0x02a00593) x11 0x000000000000002a
[spike] core 0: 0x0000000080000364 (0x0105051b) addiw a0, a0, 16
[spike] core 0: 0x0000000080000368 (0x02a00593) li a1, 42
[boom] 3 0x0000000080000004 (0x34302f73) x30 0x0000000040201010
[spike] core 0: 0x000000008000036c (0x00b52023) sw a1, 0(a0)
[spike] core 0: exception trap_store_access_fault, epc 0x000000008000036c
[spike] core 0: tval 0x0000000040201010
[spike] core 0: 0x0000000080000004 (0x34302f73) csrr t5, mtval
[boom] 3 0x0000000080000008 (0x34202f73) x30 0x000000000000000f
[spike] core 0: 0x0000000080000008 (0x34202f73) csrr t5, mcause
[error] WDATA SIM 0000000000000007, DUT 000000000000000f
[error] check board clear 30 error
[CJ] 0 integer register Judge Failed
```

According to riscv-privileged specification:

If accessing pte violates a PMA or PMP check, raise an access-fault exception corresponding to the original access type.

Hence, boom should throw a store access fault.

Please tell us about your environment:

- version: ad64c54

[boom-1.zip](#)

 **@ProjectDimlight** helps reproduce the problem

cc to **@jerryz123**

Assignees

No one assigned

Labels

None yet

Projects

None yet

Milestone

No milestone

Development

No branches or pull requests

1 participant

