

Performance Counters

There are several kinds of performance counters. There are two kinds of performance counters currently supported by LIBMSR: fixed and programmable. The fixed performance counters always count a single event, there is one for instructions retired, unhalted core cycles, and unhalted reference cycles.


Fixed Counters

1. Call `enable_fixed_counters()`
2. Use the dump functions to print the data, or use the storage function to access the raw MSR data.




Programmable Counters

These counters are programmable, meaning you can indicate what performance event you want them to count. To find this information see Intel Architectures Software Developer Manual sections 18 and 19.

1. Set the event for a counter with either `set_pmc_ctrl` (single thread) or `set_all_pmc_ctrl` (all threads). Note that you must figure out the correct flags (once again see the documentation).
2. call `enable_pmc` to have settings go into effect
3. use a dump function to print results out or a storage function if you need raw data

```
 // Count all branch instructions retired (0xC4) for all rings and enable the counter (0x67) on pmc1 and pmc2
set_all_pmc_ctrl(0x0, 0x67, 0x0, 0xC4, 1);
set_all_pmc_ctrl(0x0, 0x67, 0x0, 0xC4, 2);
enable_pmc();
dump_pmc_readable();
```

Related articles

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