Submission Details:

Name: Smitha Venkatesh Student ID: 011825177

Git Commit ID:

commit df8ba95c572a187ed2aa7403e97a7a7f58c01f00

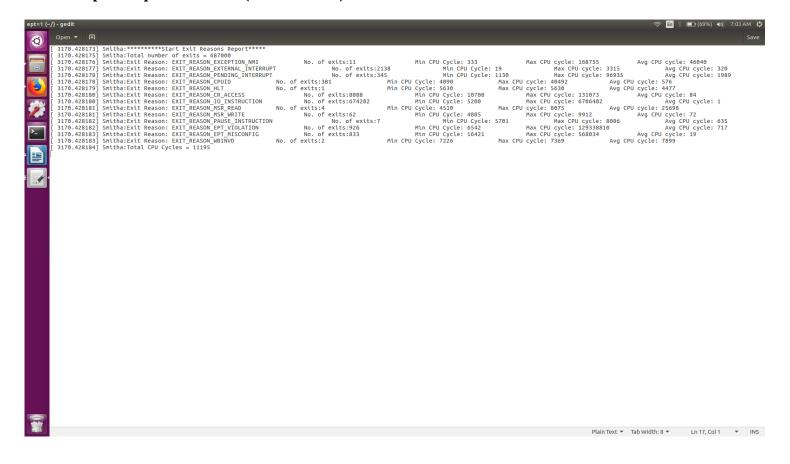
2)Note whether or not you used a larger count of exits between outputs (1000 or 2000 exits vs the suggested 500)

Answer:

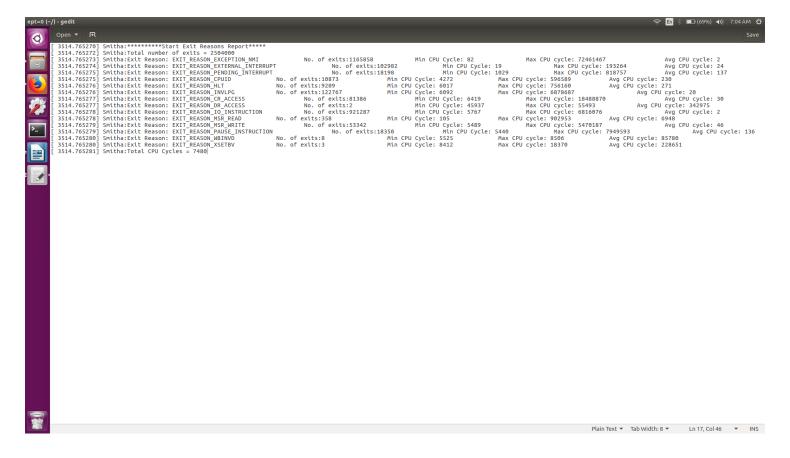
I am displaying the statistics information for every 1000 total exits

3) Include a sample of your print output from dmesg from "with ept" and "without ept".

Sample Output with EPT (with EPT = 1):



Sample Output without EPT (EPT = 0):



4) What did you learn from the count of exits? Was the count what you expected? If not, why not?

Answer

The total count of exits show how frequently there is a switch between guest VM and the Hypervisor.

Most of the VM exits happen due to EXIT_REASON_IO_INSTRUCTION which has maximum number of exits and exits like EXIT_REASON_MSR_READ, EXIT_REASON_MSR_WRITE, EXIT_REASON_HLT, EXIT_REASON_EXCEPTION_NMI are comparitively less but still a considerable amount and these counts are expected to be higher in number.

The guest VM cannot execute these because it may change all the contents of memory which it is not supposed to access. So whenever these instructions are encountered, VM exit occurs and the Hypervisor handles it.

Also when nested page table is disabled (with ept =0) the number of exits increases as shadow paging creates more exits and the overhead is more.

5) What changed between two runs (ept vs no-ept)? Answer:

With EPT enabled:

No. of exits are less when EPT is enabled

With EPT disabled (ept = 0):

No. of exits are greater when EPT is disabled.