

Benchmarking Tests on VMs

Qiulan Huang

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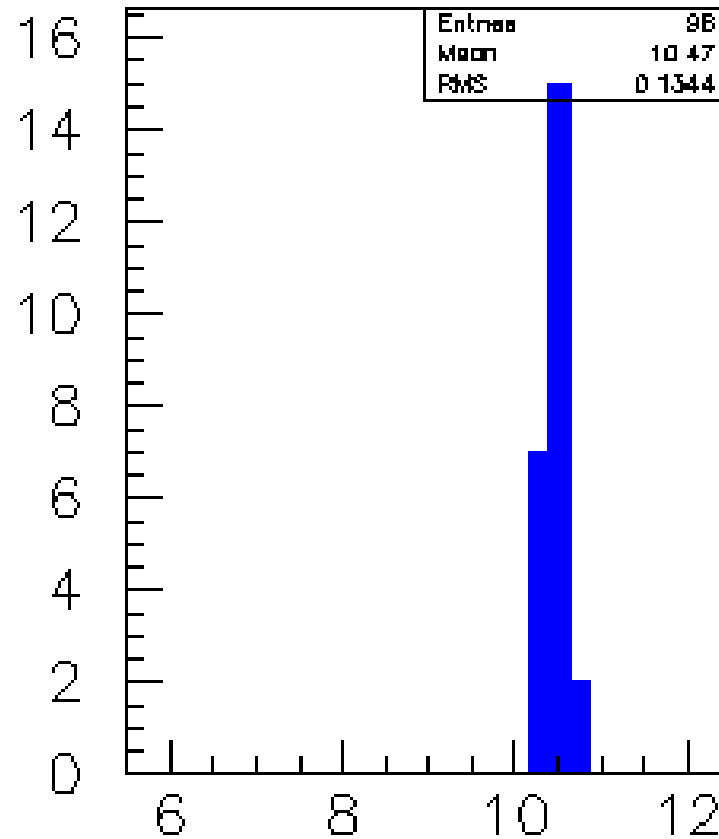
Benchmarking

- ▶ CPU benchmarks: HEPSPEC06
- ▶ I/O benchmarks: IOZONE
- ▶ Network benchmarks: IPERF

- ▶ ~7% CPU performance improved with optimization of KVMs
 - `modprobe kvm-intel enable_ept=0`
- ▶ A bit optimistic 😊
- ▶ Still needs to further investigation and tuning

CPU benchmarks(1)

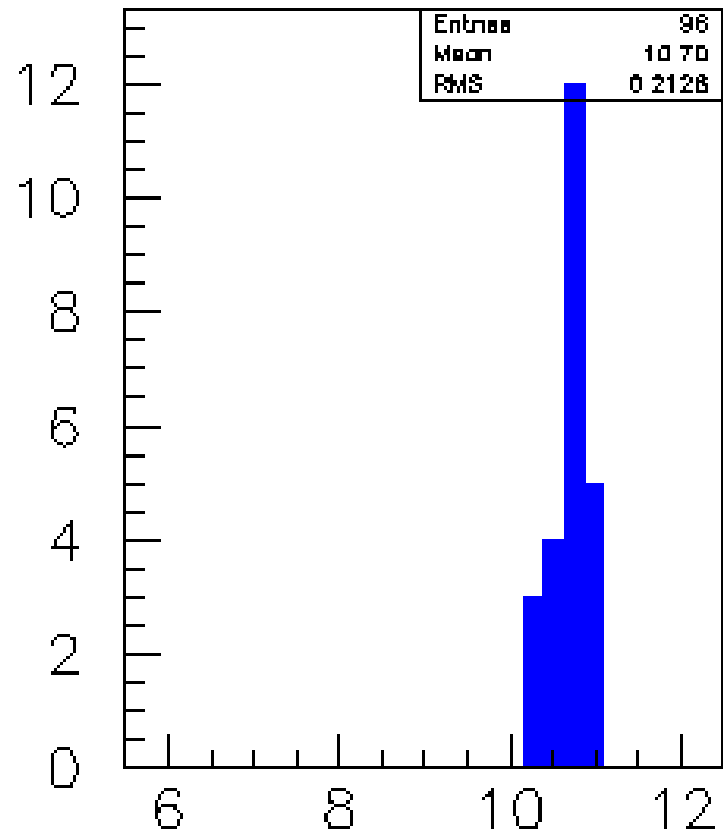
- ▶ Unpinned CPU without disable ept



UnPinned without ept

CPU benchmarks(1)

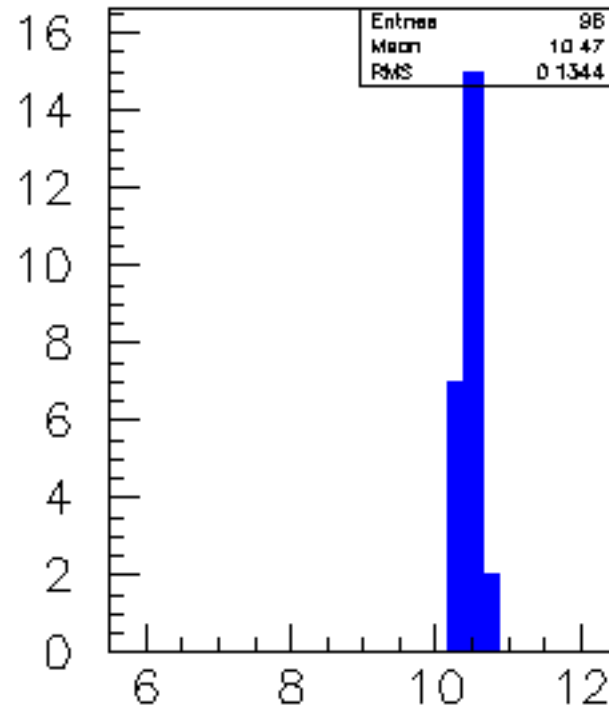
- ▶ Pinned CPU without disable ept



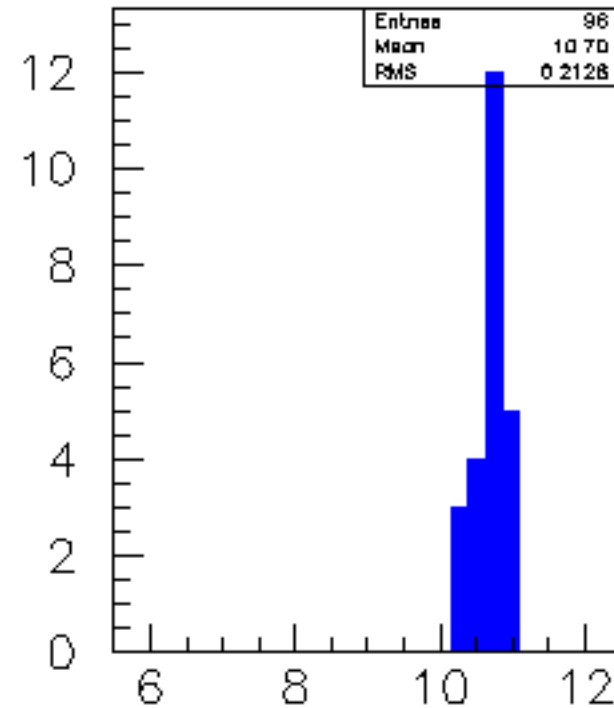
Pinned without ept

Comparison(1)

- ▶ Comparison between Pinned and UnPinned without disable ept option
- ▶ Better performance under Pinned



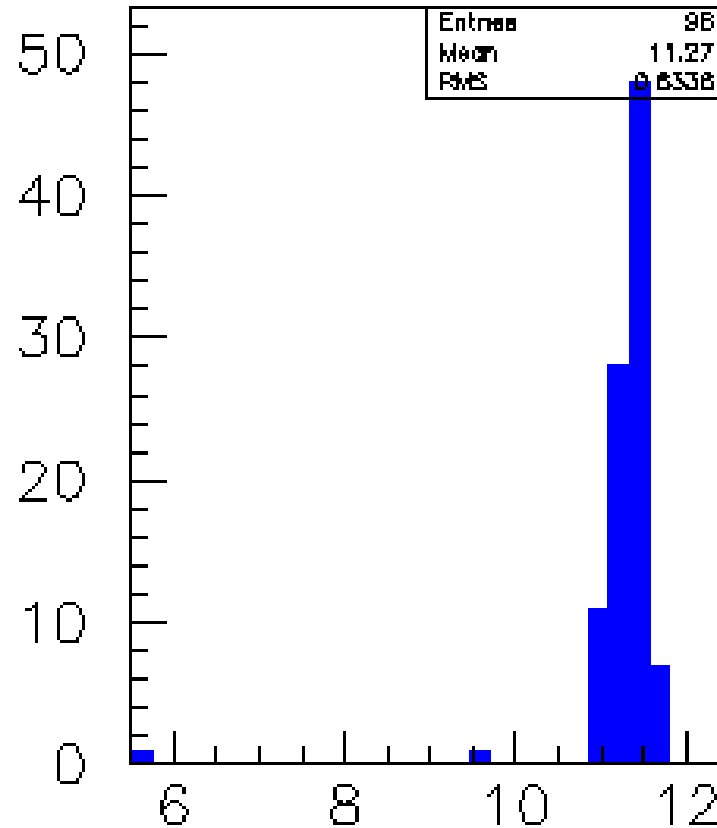
UnPinned without ept



Pinned without ept

CPU benchmarks(2)

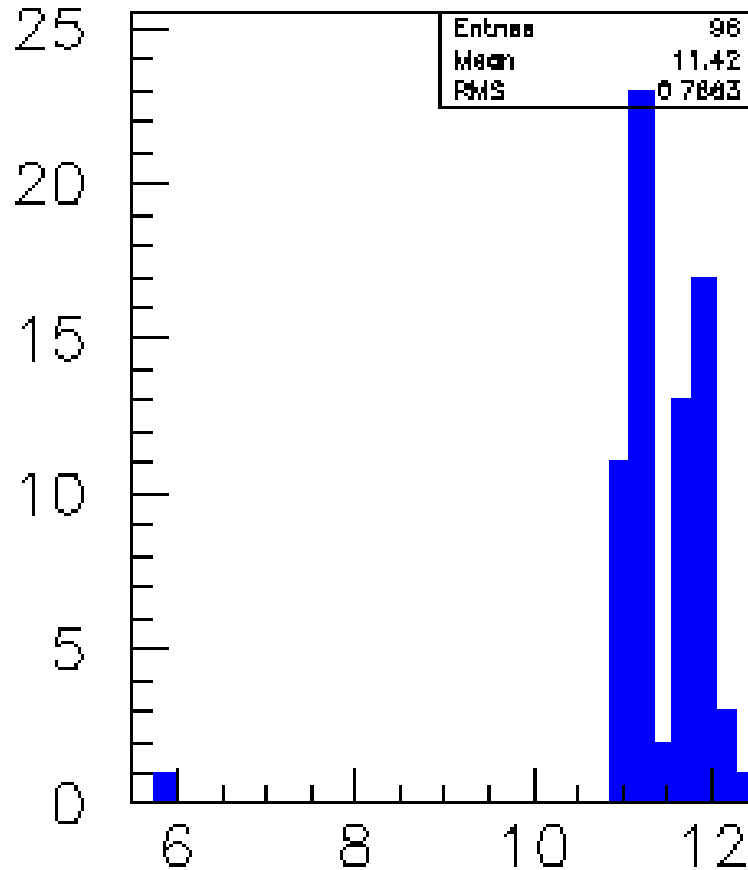
- ▶ Unpinned CPU with disable ept



UnPinned with disable ept

CPU benchmarks(2)

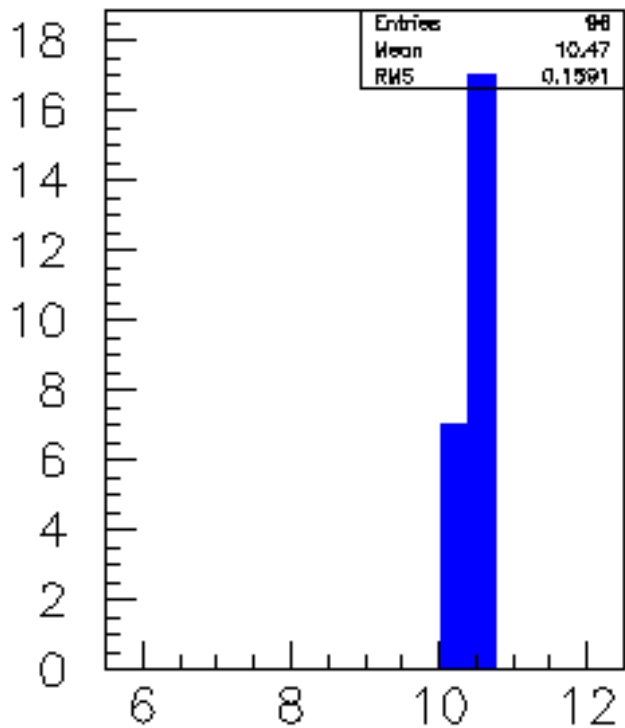
- ▶ Pinned CPU with disable ept



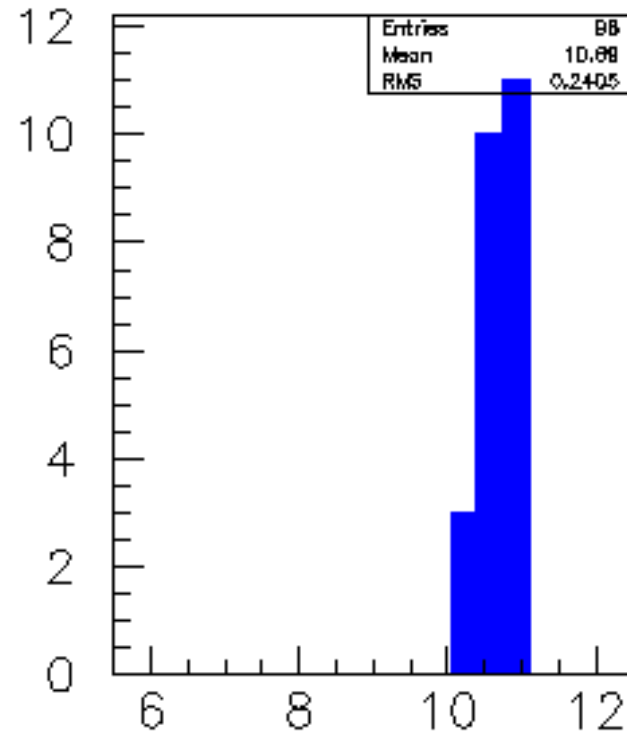
Pinned with disable ept

Comparison(2)

- ▶ Comparison between Pinned and UnPinned with disable ept option
- ▶ Better performance with Pinned

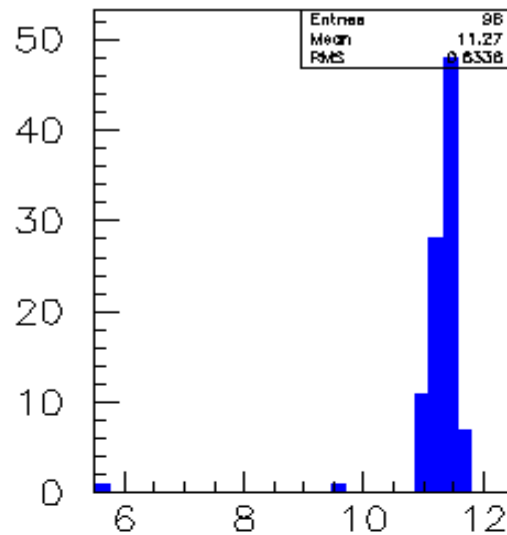


UnPinned without ept

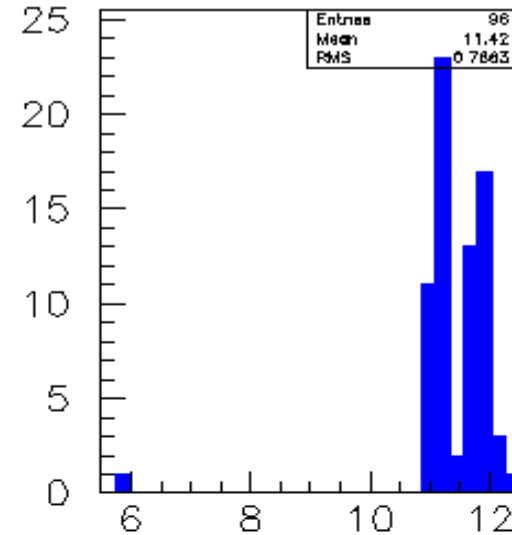


Pinned without ept

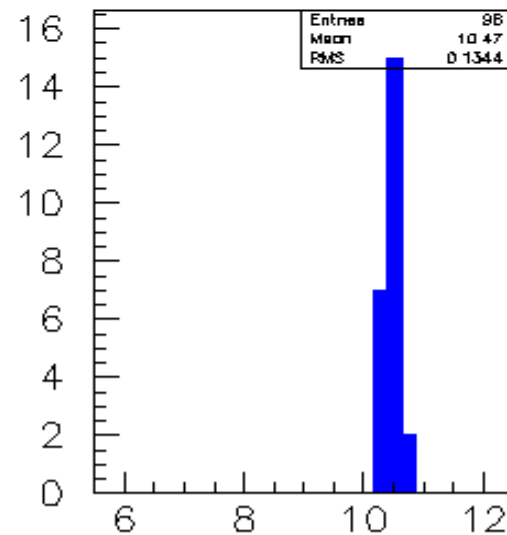
Comparison(3)



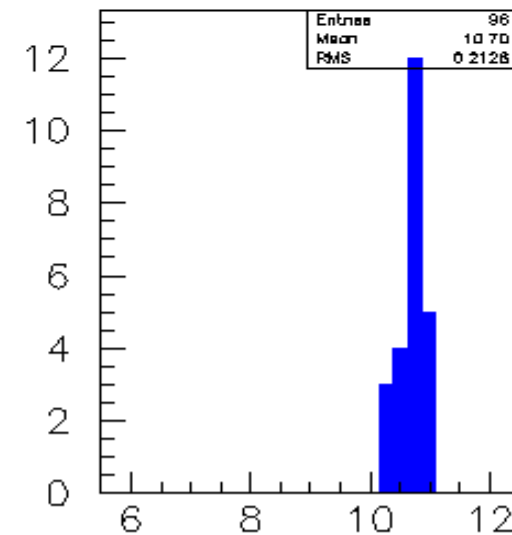
UnPinned with disable ept



Pinned with disable ept



UnPinned without ept



Pinned without ept

Summary

- ▶ Better performance with Pinning than Unpinning
- ▶ CPU performance improved 6%~8% by optimizing KVMs with disable ept option
- ▶ With the Pinning and optimization of the KVMs the CPU performance penalty is about 3%

Question?