Lab 4 Writeup

Team6

Qian Chen (qianchen)

Yurui Zhou (yuruiz)

Siqi Wang (siqiw)

1. NO_HZ on means to omit scheduling tick from idle CPU. The point of scheduling tick is to let busy CPU switch around multiple tasks. If the CPU is idle, then there is no point doing that. This setting saves power.

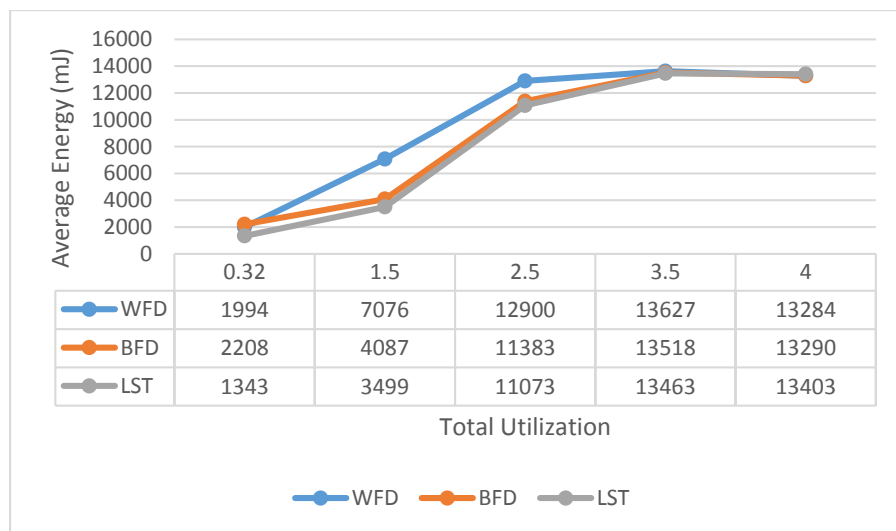2. The cpuidle subsystem. C-state.

3. Advantages: Wave locks make sure that the Android device doesn't go into deep sleep, because a given app needs to use your system resources.

Disadvantages: Wave locks may leads to large amount of resources consumption because of poor code.

4. No.

5. WFI (wait for interrupt), WFE (wait for event).

2.4.3 Comparison Experiment:

	0.32	1.5	2.5	3.5	4
WFD	1994	7076	12900	13627	13284
BFD	2208	4087	11383	13518	13290
LST	1343	3499	11073	13463	13403

Total Utilization

The difference between LST and WFD is that WFD opens a new CPU only when the current used CPUs cannot accommodate the new coming task. So, LST results in a balanced load that the load on each CPU is at the minimum. Since the processor frequency is constrained by the load allocated to the processor, LST will make the system frequency reach the minimum. So, for some low utilization tasksets, LST is more likely to use more CPUs than WFD and BFD; with a lower SysClock frequency in each CPU, LST will consume less energy than WFD and BFD for low utilization tasksets.