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多线程编程(6)

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扫描关注
Linux阅码场



多线程编程(6)

多线程调试与优化

6.1 gdb与多线程

6.2 valgrind/callgrind与多线程

6.3 Intel vtune profiler

6.4 perf

6.5 top命令与多线程

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`gdb`

`thread apply all bt`
`set scheduler-locking on / off`
`Breakpoints on one thread`

Intel Vtune Profiler

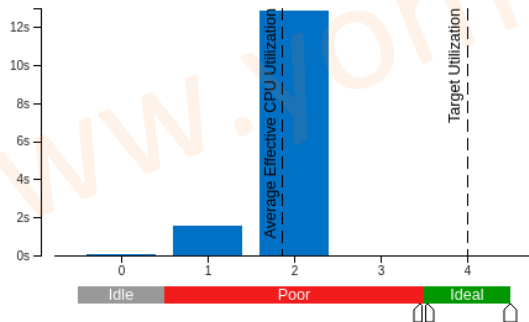
Elapsed Time^②: 14.481s

Paused Time^③: 0s

Effective CPU Utilization^②: 46.7% (1.870 out of 4 logical CPUs) 📄

Effective CPU Utilization Histogram

This histogram displays a percentage of the wall time the specific number of CPUs were running simultaneously. Spin and Overhead time adds to the Idle CPU utilization value.



Total Thread Count: 3 📄

Thread Oversubscription^②: 0s (0.0% of CPU Time)

Wait Time with poor CPU Utilization^②: 15.555s (100.0% of Wait Time)

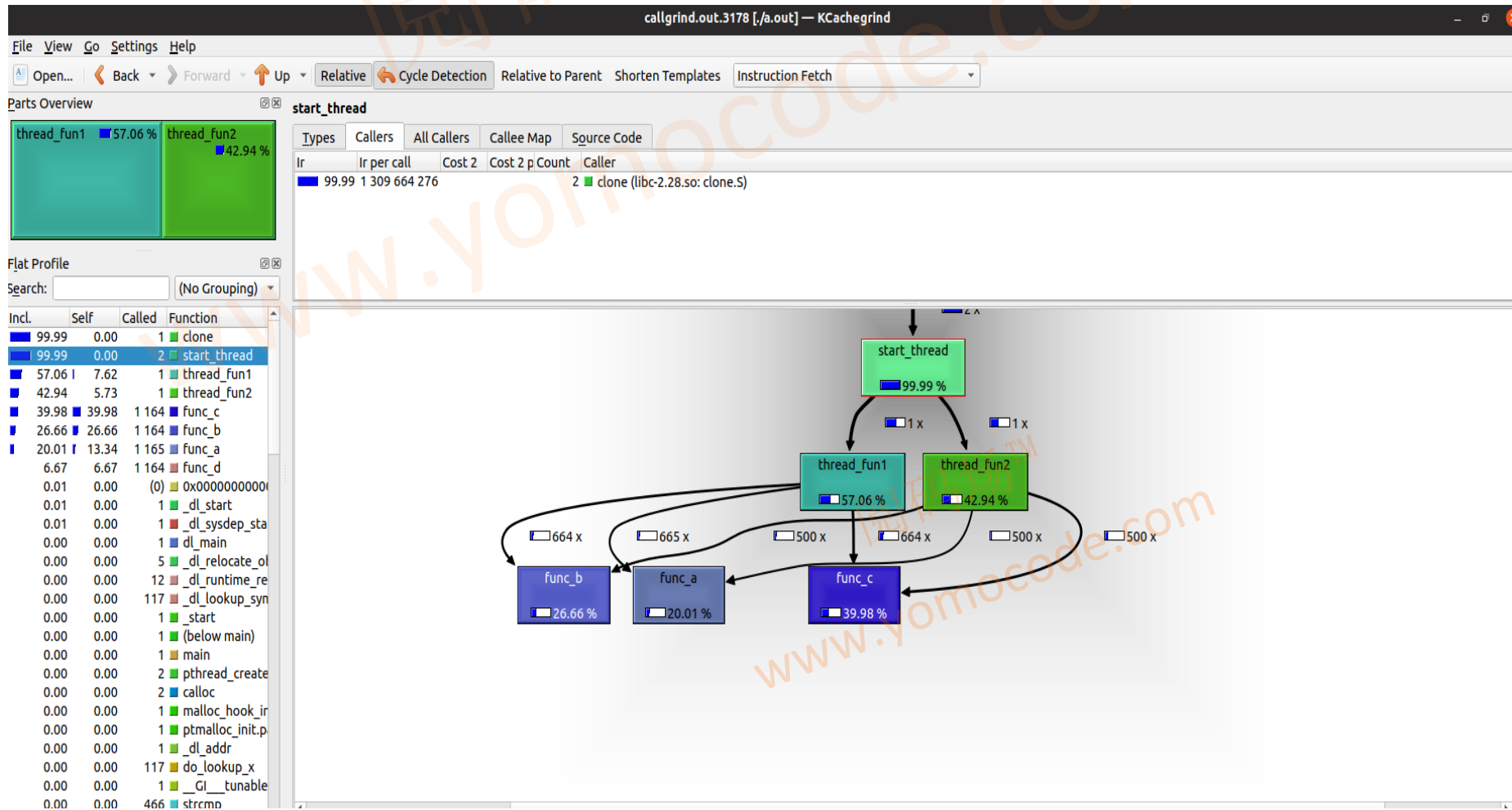
Top Waiting Objects

This section lists the objects that spent the most time waiting in your application. Objects can wait on specific calls, such as sleep() or I/O, or on contended synchronizations. A significant synchronization object reflects high contention for that object and, thus, reduced parallelism.

Sync Object	Wait Time with poor CPU Utilization ^② (% from Object Wait Time) ^③	Wait Count ^④
Thread 0x2acbb921	12.919s	100.0%
Spin Lock 0xea733a15	2.635s	100.0%
Thread 0xb0286e62	0.000s	100.0%

*N/A is applied to non-summable metrics.

callgrind



perf

- perf record -s 线程采集
- perf report -n -T

top/htop

top - 06:45:43 up 1:16, 1 user, load average: 1.17, 0.58, 0.36
Threads: 3 total, 2 running, 1 sleeping, 0 stopped, 0 zombie
%Cpu(s): 51.5 us, 1.2 sy, 0.0 ni, 47.0 id, 0.2 wa, 0.0 hi, 0.2 si, 0.0 st
MiB Mem : 2496.9 total, 403.5 free, 775.2 used, 1318.1 buff/cache
MiB Swap: 947.2 total, 946.7 free, 0.5 used. 1542.8 avail Mem

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND	nTH	P
5915	barry	20	0	18984	800	712	R	99.9	0.0	0:39.03	a.out	3	3
5916	barry	20	0	18984	800	712	R	99.9	0.0	0:38.98	a.out	3	0
5914	barry	20	0	18984	800	712	S	0.0	0.0	0:00.00	a.out	3	0

谢谢!

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