

作业 1 报告

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1 Time

三天（总时长大约 8 小时）（不包含查资料时间）

2 Screenshots

2.1 Checkpoint 1

```
[sched 0,7] sched: switch to scheduler pid(7)
[sched 0,-1] scheduler: switch to proc pid(8)
[INFO 0,8] worker: thread 8: count 71000, sleeping
[sched 0,8] sched: switch to scheduler pid(8)
[sched 0,-1] scheduler: switch to proc pid(9)
[INFO 0,8] worker: thread 9: count 72000, sleeping
[sched 0,9] sched: switch to scheduler pid(9)
[sched 0,-1] scheduler: switch to proc pid(2)
[INFO 0,2] worker: thread 2: count 73000, sleeping
[sched 0,2] sched: switch to scheduler pid(2)
[sched 0,-1] scheduler: switch to proc pid(3)
[INFO 0,3] worker: thread 3: count 74000, sleeping
[sched 0,3] sched: switch to scheduler pid(3)
[sched 0,-1] scheduler: switch to proc pid(4)
[INFO 0,4] worker: thread 4: count 75000, sleeping
[sched 0,4] sched: switch to scheduler pid(4)
[sched 0,-1] scheduler: switch to proc pid(5)
[INFO 0,5] worker: thread 5: count 76000, sleeping
[sched 0,5] sched: switch to scheduler pid(5)
[sched 0,-1] scheduler: switch to proc pid(6)
[INFO 0,6] worker: thread 6: count 77000, sleeping
[sched 0,6] sched: switch to scheduler pid(6)
[sched 0,-1] scheduler: switch to proc pid(7)
[INFO 0,7] worker: thread 7: count 78000, sleeping
[sched 0,7] sched: switch to scheduler pid(7)
[sched 0,-1] scheduler: switch to proc pid(8)
[INFO 0,8] worker: thread 8: count 79000, sleeping
[sched 0,8] sched: switch to scheduler pid(8)
[sched 0,-1] scheduler: switch to proc pid(9)
[INFO 0,9] worker: thread 9: count 80000, sleeping
[sched 0,9] sched: switch to scheduler pid(9)
[sched 0,-1] scheduler: switch to proc pid(2)
[WARN 0,2] worker: thread 2: exiting
[sched 0,2] sched: switch to scheduler pid(2)
[sched 0,-1] scheduler: switch to proc pid(3)
[ERROR 0,3] kernel_trap: kerneltrap: not from supervisor mode
[ERROR 0,3] kernel_trap: ===== Kernel Panic =====
sstatus : 0x8000000200006020
- SUM:0, SFP:U, SFI:E:1, SIE: 0
scause : 0x00000000000000220
- Interrupt:0, Code:2
sepc : 0x000000008020192c
stval : 0x00000000100024f3
sip : 0x0000000000000000
- Pending: Software:0, Timer:0, External:0
sie : 0x00000000000000220
- Enabled: Software:0, Timer:1, External:1
satp : 0x0000000000000000
kernel trapFrame at 0x000000008023ce60
ra: 0x0000000080202310 sp: 0x000000008023ce60 gp: 0x0000000000000000 tp: 0x0000000000000000
t0: 0x0000000000000000 t1: 0x000000008023cf48 t2: 0x0000000000000100 s0: 0x000000008023cf80
s1: 0x0000000000000000 a0: 0x00000000000001f4 a1: 0x000000000000000a a2: 0x0000000000000005
s2: 0x00000000004c4b40 s4: 0x00000000b2df673 a5: 0x0000000080202310 a6: 0x0000000000000007
s7: 0x0000000080205cf8 s2: 0x0000000000000000 s3: 0x00000000000003e8 s4: 0x0000000000000003
s5: 0x0000000080205b20 s6: 0x00000000802054a0 s7: 0x00000000802062f0 s8: 0x0000000000000000
s9: 0x000000008023d998 s10: 0x0000000000000000 s11: 0x0000000000000000 t3: 0x0000000000000010
t4: 0x00000000800177e6 t5: 0x0000000080046ef0 t6: 0x0000000000000027
[PANIC 0,3] cs/trap.c:84: kernel panic
```

图 1: Checkpoint 1

2.2 Checkpoint 2

```
[sched 0,8] sched: switch to scheduler pid(8)
[sched 0,-1] scheduler: switch to proc pid(9)
[INFO 0,9] worker: thread 9: count 72000, sleeping
[sched 0,9] sched: switch to scheduler pid(9)
[sched 0,-1] scheduler: switch to proc pid(2)
[INFO 0,2] worker: thread 2: count 73000, sleeping
[sched 0,2] sched: switch to scheduler pid(2)
[sched 0,-1] scheduler: switch to proc pid(3)
[INFO 0,3] worker: thread 3: count 74000, sleeping
[sched 0,3] sched: switch to scheduler pid(3)
[sched 0,-1] scheduler: switch to proc pid(4)
[INFO 0,4] worker: thread 4: count 75000, sleeping
[sched 0,4] sched: switch to scheduler pid(4)
[sched 0,-1] scheduler: switch to proc pid(5)
[INFO 0,5] worker: thread 5: count 76000, sleeping
[sched 0,5] sched: switch to scheduler pid(5)
[sched 0,-1] scheduler: switch to proc pid(6)
[INFO 0,6] worker: thread 6: count 77000, sleeping
[sched 0,6] sched: switch to scheduler pid(6)
[sched 0,-1] scheduler: switch to proc pid(7)
[INFO 0,7] worker: thread 7: count 78000, sleeping
[sched 0,7] sched: switch to scheduler pid(7)
[sched 0,-1] scheduler: switch to proc pid(8)
[INFO 0,8] worker: thread 8: count 79000, sleeping
[sched 0,8] sched: switch to scheduler pid(8)
[sched 0,-1] scheduler: switch to proc pid(9)
[INFO 0,9] worker: thread 9: count 80000, sleeping
[sched 0,9] sched: switch to scheduler pid(9)
[sched 0,-1] scheduler: switch to proc pid(2)
[WARN 0,2] worker: thread 2: exiting
[sched 0,2] sched: switch to scheduler pid(2)
[sched 0,-1] scheduler: switch to proc pid(3)
[WARN 0,3] worker: thread 3: exiting
[sched 0,3] sched: switch to scheduler pid(3)
[sched 0,-1] scheduler: switch to proc pid(4)
[WARN 0,4] worker: thread 4: exiting
[sched 0,4] sched: switch to scheduler pid(4)
[sched 0,-1] scheduler: switch to proc pid(5)
[WARN 0,5] worker: thread 5: exiting
[sched 0,5] sched: switch to scheduler pid(5)
[sched 0,-1] scheduler: switch to proc pid(6)
[WARN 0,6] worker: thread 6: exiting
[sched 0,6] sched: switch to scheduler pid(6)
[sched 0,-1] scheduler: switch to proc pid(7)
[WARN 0,7] worker: thread 7: exiting
[sched 0,7] sched: switch to scheduler pid(7)
[sched 0,-1] scheduler: switch to proc pid(8)
[WARN 0,8] worker: thread 8: exiting
[sched 0,8] sched: switch to scheduler pid(8)
[sched 0,-1] scheduler: switch to proc pid(9)
[WARN 0,9] worker: thread 9: exiting
[sched 0,9] sched: switch to scheduler pid(9)
[sched 0,-1] scheduler: switch to proc pid(1)
[INFO 0,1] init: thread 2 exited with code 22, expected 22
[INFO 0,1] init: thread 3 exited with code 23, expected 23
[INFO 0,1] init: thread 4 exited with code 24, expected 24
[INFO 0,1] init: thread 5 exited with code 25, expected 25
[INFO 0,1] init: thread 6 exited with code 26, expected 26
[INFO 0,1] init: thread 7 exited with code 27, expected 27
[INFO 0,1] init: thread 8 exited with code 28, expected 28
[INFO 0,1] init: thread 9 exited with code 29, expected 29
[INFO 0,1] init: all threads exited, count 80000

[INFO 0,1] init: init ends!
[PANIC 0,1] os/proc.c:225: init process exited
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图 2: Checkpoint 2

2.3 Checkpoint 3

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[INFO 0,16] worker: thread 16: count 122000, sleeping
[INFO 0,15] worker: thread 15: count 123000, sleeping
[INFO 1,12] worker: thread 12: count 124000, sleeping
[INFO 3,11] worker: thread 11: count 125000, sleeping
[INFO 0,6] worker: thread 6: count 126000, sleeping
[INFO 2,14] worker: thread 14: count 127000, sleeping
[INFO 2,4] worker: thread 4: count 128000, sleeping
[INFO 0,8] worker: thread 8: count 129000, sleeping
[INFO 0,5] worker: thread 5: count 130000, sleeping
[INFO 3,3] worker: thread 3: count 131000, sleeping
[INFO 0,13] worker: thread 13: count 132000, sleeping
[INFO 2,9] worker: thread 9: count 133000, sleeping
[INFO 0,7] worker: thread 7: count 134000, sleeping
[INFO 2,2] worker: thread 2: count 135000, sleeping
[INFO 1,16] worker: thread 16: count 137000, sleeping
[INFO 3,10] worker: thread 10: count 136000, sleeping
[INFO 1,15] worker: thread 15: count 138000, sleeping
[INFO 0,12] worker: thread 12: count 139000, sleeping
[INFO 2,11] worker: thread 11: count 140000, sleeping
[INFO 2,6] worker: thread 6: count 141000, sleeping
[WARN 0,4] worker: thread 4: exiting
[INFO 1,14] worker: thread 14: count 142000, sleeping
[WARN 1,8] worker: thread 8: exiting
[WARN 0,5] worker: thread 5: exiting
[WARN 2,3] worker: thread 3: exiting
[WARN 3,13] worker: thread 13: exiting
[WARN 1,16] worker: thread 16: exiting
[WARN 2,9] worker: thread 9: exiting
[INFO 1,7] worker: thread 7: count 143000, sleeping
[WARN 1,15] worker: thread 15: exiting
[INFO 0,2] worker: thread 2: count 144000, sleeping
[WARN 3,12] worker: thread 12: exiting
[WARN 0,10] worker: thread 10: exiting
[WARN 3,6] worker: thread 6: exiting
[WARN 2,11] worker: thread 11: exiting
[WARN 2,14] worker: thread 14: exiting
[WARN 1,7] worker: thread 7: exiting
[INFO 0,2] worker: thread 2: count 145000, sleeping
[WARN 0,2] worker: thread 2: exiting
[INFO 3,1] init: thread 2 exited with code 22, expected 22
[INFO 3,1] init: thread 3 exited with code 23, expected 23
[INFO 3,1] init: thread 4 exited with code 24, expected 24
[INFO 3,1] init: thread 5 exited with code 25, expected 25
[INFO 3,1] init: thread 6 exited with code 26, expected 26
[INFO 3,1] init: thread 7 exited with code 27, expected 27
[INFO 3,1] init: thread 8 exited with code 28, expected 28
[INFO 3,1] init: thread 9 exited with code 29, expected 29
[INFO 3,1] init: thread 10 exited with code 30, expected 30
[INFO 3,1] init: thread 11 exited with code 31, expected 31
[INFO 3,1] init: thread 12 exited with code 32, expected 32
[INFO 3,1] init: thread 13 exited with code 33, expected 33
[INFO 3,1] init: thread 14 exited with code 34, expected 34
[INFO 3,1] init: thread 15 exited with code 35, expected 35
[INFO 3,1] init: thread 16 exited with code 36, expected 36
[INFO 3,1] init: all threads exited, count 145042
[INFO 3,1] init: init ends!
[PANIC 3,1] os/proc.c:225: init process exited
[PANIC 1,-1] os/trap.c:47: other CPU has panicked
[PANIC 0,-1] os/trap.c:47: other CPU has panicked
[PANIC 2,-1] os/trap.c:47: other CPU has panicked

```

图 3: Checkpoint 3