

3PCBvsTCB

September 9, 2025

[]:

All processes are being tracked by OS using a table like data structure, Process table:, Each entry in that table is process control block (PCB)

1 PCB

ds

stack pointer ==> current instruction

pc==> next instruction frame pointer ==> metadata

state running/waiting

id

memory mgmt memory allocated to the pricess , memory limits

io io devices allocated

registers

cpu scheduling information priorities in scheduling queue list of open file

2 TCB

in thread context switch,

CPU's cache state is preserved. memory address space preserved

the following are not preserved

Program counter,

registers

stack

. When a processes is running and it's time slice expires, the current value of process specific registers would be stored in the PCB and the process would be swapped out. When the process is scheduled to be run, the register values is read from the PCB and written to the CPU registers. This is the main purpose of the registers in the PCB.

3 Threads have own

- Local variables
- Stack
- Program counter
- Register state

4 Shared

- Heap memory
- Code
- Global variables
- Static variables
- File descriptors
- Locks