

(a) Single Threaded Server:

```
manan@DESKTOP-S69HDK5:~/cn_assignment$ /usr/lib/linux-tools/5.15.0-121-generic/perf
stat ./server_automated 0
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
```

Performance counter stats for './server_automated 0':

12.29 msec	task-clock:u	#	0.008 CPUs utilized
0	context-switches:u	#	0.000 /sec
0	cpu-migrations:u	#	0.000 /sec
67	page-faults:u	#	5.453 K/sec
2550270	cycles:u	#	0.208 GHz
573432	stalled-cycles-frontend:u	#	22.49% frontend cycles idle
236703	stalled-cycles-backend:u	#	9.28% backend cycles idle
1304970	instructions:u	#	0.51 insn per cycle
		#	0.44 stalled cycles per insn
277128	branches:u	#	22.556 M/sec
12553	branch-misses:u	#	4.53% of all branches

1.626802722 seconds time elapsed

0.000000000 seconds user

0.014450000 seconds sys

```

manan@DESKTOP-S69HDK5:~/cn_assignment$ /usr/lib/linux-tools/5.15.0-121-generic/perf stat ./server_automated 0
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
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top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent

Performance counter stats for './server_automated 0':

    12.29 msec task-clock:u          #    0.008 CPUs utilized
         0      context-switches:u   #    0.000 /sec
         0      cpu-migrations:u     #    0.000 /sec
         67     page-faults:u        #    5.453 K/sec
    2550270     cycles:u              #    0.208 GHz
    573432     stalled-cycles-frontend:u #    22.49% frontend cycles idle
    236703     stalled-cycles-backend:u #    9.28% backend cycles idle
    1304970     instructions:u        #    0.51 insn per cycle
                                      #    0.44 stalled cycles per insn
    277128     branches:u            #   22.556 M/sec
    12553      branch-misses:u       #    4.53% of all branches

    1.626802722 seconds time elapsed

    0.000000000 seconds user
    0.014450000 seconds sys

```

(b) Multi Threaded Server:

```

manan@DESKTOP-S69HDK5:~/cn_assignment$ /usr/lib/linux-tools/5.15.0-121-generic/perf
stat ./server_automated 1
Request recieved: get_top_processes
Request recieved: get_top_processes
top_cpu_processes sent
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent

```

Performance counter stats for './server_automated 1':

```

    10.20 msec task-clock:u          #    0.009 CPUs utilized
         0      context-switches:u   #    0.000 /sec
         0      cpu-migrations:u     #    0.000 /sec
        82     page-faults:u        #    8.036 K/sec
    2306397     cycles:u              #    0.226 GHz
    449060     stalled-cycles-frontend:u #   19.47% frontend cycles idle
    244769     stalled-cycles-backend:u #   10.61% backend cycles idle
    1300393     instructions:u        #    0.56 insn per cycle

```

```

# 0.35 stalled cycles per insn
275990 branches:u # 27.045 M/sec
12163 branch-misses:u # 4.41% of all branches

```

1.115101509 seconds time elapsed

0.000000000 seconds user

0.009650000 seconds sys

```

manan@DESKTOP-S69HDK5:~/cn_assignment$ /usr/lib/linux-tools/5.15.0-121-generic/perf stat ./server_automated 1
Request recieved: get_top_processes
Request recieved: get_top_processes
top_cpu_processes sent
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent

Performance counter stats for './server_automated 1':

    10.20 msec task-clock:u          #    0.009 CPUs utilized
         0      context-switches:u   #    0.000 /sec
         0      cpu-migrations:u     #    0.000 /sec
        82      page-faults:u        #    8.036 K/sec
 2306397      cycles:u               #    0.226 GHz
 449060      stalled-cycles-frontend:u # 19.47% frontend cycles idle
 244769      stalled-cycles-backend:u # 10.61% backend cycles idle
1300393      instructions:u         #    0.56 insn per cycle
          #    0.35 stalled cycles per insn
    275990      branches:u           #   27.045 M/sec
    12163      branch-misses:u      #    4.41% of all branches

    1.115101509 seconds time elapsed

    0.000000000 seconds user
    0.009650000 seconds sys

```

(c) Server with select:

```

manan@DESKTOP-S69HDK5:~/cn_assignment$ /usr/lib/linux-tools/5.15.0-121-generic/perf
stat ./server_select

```

Request recieved: get_top_processes

top_cpu_processes sent

Request recieved: get_top_processes

top_cpu_processes sent

Request recieved: get_top_processes

top_cpu_processes sent

Request recieved: get_top_processes

top_cpu_processes sent

Request recieved: get_top_processes

top_cpu_processes sent

read: Success

Host disconnected, ip 10.0.0.253, port 60046

^C

Performance counter stats for './server_select':

9.67 msec	task-clock:u	#	0.003 CPUs utilized
0	context-switches:u	#	0.000 /sec
0	cpu-migrations:u	#	0.000 /sec
58	page-faults:u	#	5.995 K/sec
2184785	cycles:u	#	0.226 GHz
409215	stalled-cycles-frontend:u	#	18.73% frontend cycles idle
258612	stalled-cycles-backend:u	#	11.84% backend cycles idle
1265252	instructions:u	#	0.58 insn per cycle
		#	0.32 stalled cycles per insn
268293	branches:u	#	27.731 M/sec
13177	branch-misses:u	#	4.91% of all branches

3.724360805 seconds time elapsed

0.007187000 seconds user

0.003113000 seconds sys

```
manan@DESKTOP-S69HDK5:~/cn_assignment$ /usr/lib/linux-tools/5.15.0-121-generic/perf stat ./server_select
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
Request recieved: get_top_processes
top_cpu_processes sent
read: Success
Host disconnected, ip 10.0.0.253, port 60046
^C
Performance counter stats for './server_select':

    9.67 msec task-clock:u          #    0.003 CPUs utilized
         0    context-switches:u    #    0.000 /sec
         0    cpu-migrations:u      #    0.000 /sec
        58    page-faults:u         #    5.995 K/sec
   2184785    cycles:u              #    0.226 GHz
    409215    stalled-cycles-frontend:u #   18.73% frontend cycles idle
    258612    stalled-cycles-backend:u #   11.84% backend cycles idle
   1265252    instructions:u        #    0.58  insn per cycle
                               #    0.32  stalled cycles per insn
    268293    branches:u            #   27.731 M/sec
     13177    branch-misses:u       #    4.91% of all branches

  3.724360805 seconds time elapsed

  0.007187000 seconds user
  0.003113000 seconds sys
```