ICER

TICKET HIGHLIGHTS

Using htop to Monitor Jobs
By Nanye Long, iCER Research Consultant

We encourage users to monitor their jobs running on HPCC, especially on our development nodes. This will help prevent over-utilization.

htop is a tool for interactive and real time process monitoring. Compared with top, it provides better visualization and more functionalities. Two features of htop are:

1. You can scroll vertically and horizontally using arrows, PageUp, PageDown, Home and End on your keyboard. Therefore, you can see all the processes running on the system, along with their full commands.
2. You can kill your processes without entering PIDs.

htop 2.0.2 has been installed on HPCC; to use it, run:

```
module load powertools
```

We recommend that you put this command line in your `~/.bashrc` file to save you typing the next time you log in.

After typing htop, the following screen will pop up:

```
  1  [||||                          8.6%]     8  [|||||||||||||||||||||||||||||||||||100.0%]   15 [||||||||||||||||        42.9%]   22 [                         0.0%]
  2  [|||                           4.5%]     9  [|||||||||||||||||||||||||||||||||||100.0%]   16 [|||||||||||||||||||||||||||||||||100.0%]   23 [                         0.0%]
  3  [||||                          5.3%]    10  [                                    0.0%]   17 [|||||||||||||          30.4%]   24 [                         0.0%]
  4  [||||||                       14.7%]    11  [|||||                              12.2%]   18 [||                      1.6%]   25 [                         0.0%]
  5  [||||||                       10.2%]    12  [                                    0.0%]   19 [|||||||||||||          31.2%]   26 [                         0.0%]
  6  [|||||||||||||||              32.1%]    13  [                                    0.0%]   20 [|                       0.4%]   27 [                         0.0%]
  7  [||                            2.0%]    14  [|||                                 4.4%]   21 [                        0.0%]   28 [|||||||||||||||||||||||||||||||||100.0%]
 Mem[||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||  56.6G/126G]    Tasks: 548, 884 thr; 8 running
 Swp[                                                                            0K/0K]    Load average: 9.93 8.56 8.68
                                                                                           Uptime: 34 days, 02:49:48

  PID USER      PRI  NI  VIRT   RES   SHR S CPU% MEM%  TIME+   Command
26083           20   0  66SM  208M 21100 R 100.  0.2  2:46.00 ./psolv.x
26084           20   0 1236M  780M 21468 R 100.  0.6  2:46.05 ./psolv.x
26085           20   0 1124M  668M 21540 R 100.  0.5  2:46.16 ./psolv.x
26086           20   0  699M  241M 21016 R 100.  0.2  2:46.07 ./psolv.x
 5732           20   0  6348   792   392 R 99.6  0.0  1:27.70 gzip
25206           20   0  212M 40812  4704 D  1.2  0.0  0:00.64 /mnt/research/quantgen/tools/R/3.2.4-revised/lib64/R/bin/exec/R
25209           39  19  117M  5136   836 D 12.2  0.0 13:12.83 cp -r /mnt/research/andrechek_lab/alisonchip/ .
23064           39  19 2110M 1731M  4884 S  4.1  1.3  2:31.79 python /mnt/home/dunan/Job/2016/201605_align_noisy_long-reads/20170828_Ecoli_test/BloomGroupHit/GroupHit
 5730           20   0  113M  1124   924 S  4.5  0.0  0:04.12 tar -czf sn124sn112_043e35b7.75x-1.tgz sn124sn112_043e35b7.75x-1
26954           20   0  112M  4004  1276 R  2.0  0.0  0:00.31 htop
23683           20   0  146M 12492  3808 D  0.0  0.0  0:00.39 /opt/software/ClusterStudio/2016.3/bin/ifort -lgomp -o flash4 Burn.o Burn_computeAbarZbar.o Burn_computeD
 4534           20   0  508M  208M  1284 S  0.4  0.2  6h06:41 /usr/sbin/gmond
 4489           20   0  508M  208M  1284 S  0.8  0.2  9h34:36 /usr/sbin/gmond
 5888           39  19 2402M  123M   328 S  0.1 10:30.99 /opt/software/MATLAB/R2014a/bin/glnxa64/MATLAB -dmlworker -nodisplay -r distcomp_evaluate_filetask
22248           20   0  850M  2196  1144 S  0.4  0.0  0:16.84 /usr/sbin/nscd
    1           20   0 25556   668   328 S  0.0  0.0  1:01.69 /sbin/init
  524           20   0  116M  4792  3700 S  0.0  0.0  0:00.00 sshd: oshea [priv]
  528           20   0  116M  2008   896 S  0.0  0.0  0:00.03 sshd: oshea@pts/158
  529           20   0  105M  2116  1560 S  0.0  0.0  0:00.02 -bash
  595           20   0  109M   328     4 S  0.0  0.0  0:00.00 /bin/csh -f /opt/software/Gaussian/g09/gv/gview
  599           20   0  382M   98M  2596 S  0.0  0.1  0:05.13 /opt/software/Gaussian/g09/gv/gview.exe
  600           20   0  382M   98M  2596 S  0.0  0.1  0:05.20 /opt/software/Gaussian/g09/gv/gview.exe
```

ICER

TICKET HIGHLIGHTS

At the top, there are 28 progress bars showing CPU load for the 28 cores on our dev-intel16. Below CPU usage, you will see the memory and swap progress bars. Next to them, there are three numbers listed for "**load average**", representing the average load over the last one minute, the last five minutes, and the last fifteen minutes. For node dev-intel16 for example, anything under 28 is fine. Otherwise, over-utilization occurs.

Notes:

> Type q to quit.

> To show processes of a given user: `htop –u USERID`

> To kill a process, select/highlight the corresponding line, and press k. Confirm "15 SIGTERM" as the signal to send by pressing Enter.

> To kill multiple processes, first use Space key to tag them (you should see color change after tagging a process). Then apply kill (k) to the tagged ones. Type U to untag all tags.

> Finally, pressing ? will lead you to a very informative help page where you can learn more tips of htop.