Tools for Measuring System and Application Performance

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- **GlancePlus**
  - Introduction
  - Glance Motif
  - Glance Character Mode
  - Glance Command-line
- **Xverbosegc**
- **HPjmeter and –Xeprof**
- **Other Tools**
- **gdb**

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GlancePlus Character Mode
/opt/perf/bin/glance

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Glance Character Mode

- CPU utilization
  - System time and user time
- System call rates
  - sched_yield, read, write
- Memory regions
  - Java Heap and C Heap
  - Page sizes used for each region allocated (mmap)
  - Sizes of thread stacks

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Glance Character Mode

- Network activity rates
- Thread activity
  - Thread ID is “lwp_id” shown in Java stack trace and HPjmeter
  - Sort by CPU usage to see busiest threads
- Files
  - Total number of files open
  - Socket activity on each socket!
- System
  - System table usage

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Tools for Measuring Performance

Glance Character Mode Invocation

- /opt/perf/bin/glance
- Starts a character mode version in window
- Commands typed directly in window
  - Command summary: **?**
  - Can use function keys to navigate
- Powerful printing interface
  - Ideal for collecting snapshots of the state of
    - Machine
    - Operating System
    - Process

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Glance Character Mode
? – List All Commands

h - Online Help	q - exit (or e)	A - Application List
g - Process List	d - Disk Report	P - PRM Group List
a - CPU By Processor	i - IO By File System	Y - Global System Calls
c - CPU Report	u - IO By Disk	F - Process Open Files
m - Memory Report	v - IO By Logical Volume	M - Process Memory Regions
t - System Tables	N - NFS Global Activity	R - Process Resources
w - Swap Space	n - NFS By System	W - Process Wait States
B - Global Waits	I - Network By Interface	L - Process System Calls
Z - Global Threads	D - DCE Global	
G - Process Threads	K - DCE Process List	
I - Thread Resource	T - Trans Tracker	y - Renice Process
J - Thread Wait	H - Alarm History	s - Select Process

S - Select Disk/NFS/Appl/Trans/Thread

GlancePlus Control Key Menu

? - Commands Menu	b - Page Backward (or -)	< - Display Previous Screen
! - Invoke Shell	f - Page Forward (or +,space)	> - Display Next Logical Scr
h - Online Help	q - exit (or e)	z - Reset Statistics to Zero
p - Print Toggle	r - Refresh Screen (or ^L)	<cr>- Update Current Screen
j - Adjust Interval	o - Threshold Screen Options	

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Glance Character Mode Commands for Java: Machine

g	Process List
a	CPU By Processor
c	CPU Report
m	Memory Report
t	System Tables
w	Swap Space

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Glance Character Mode Commands for Java: Process

s	Select Process
F	Open Files
M	Memory Regions
R	Resources
W	Wait States
L	System Calls
G	Threads
S	Select Thread

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Glance Character Mode Commands for Java: Environment

f	Page Forward (or +,space)
b	Page Backward (or -)
<	Display Previous Screen
j	Adjust Interval
q	exit (or e)
p	**Print** – single page or continuous – to file or printer

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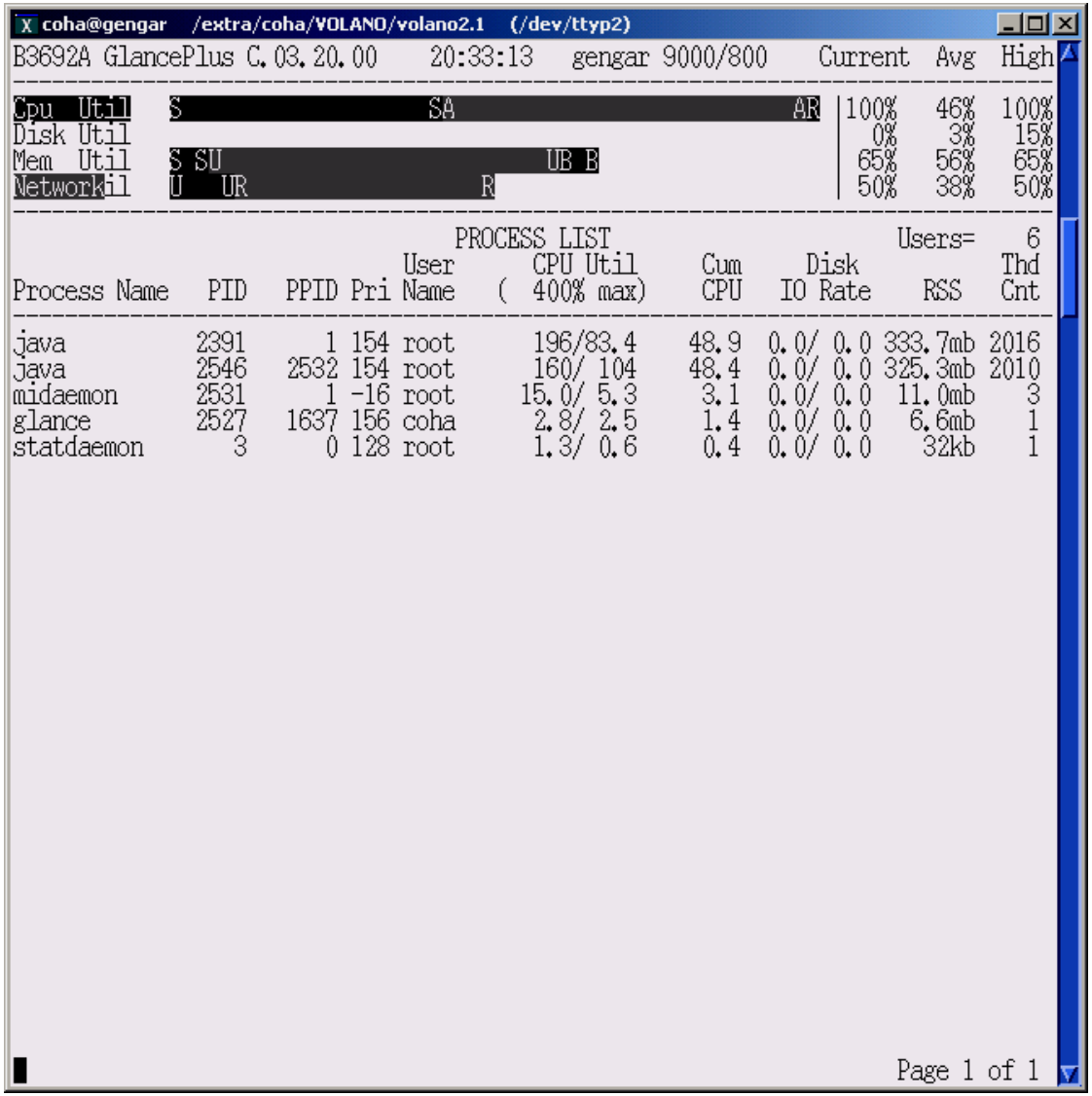
Glance Character Mode
g – Process List



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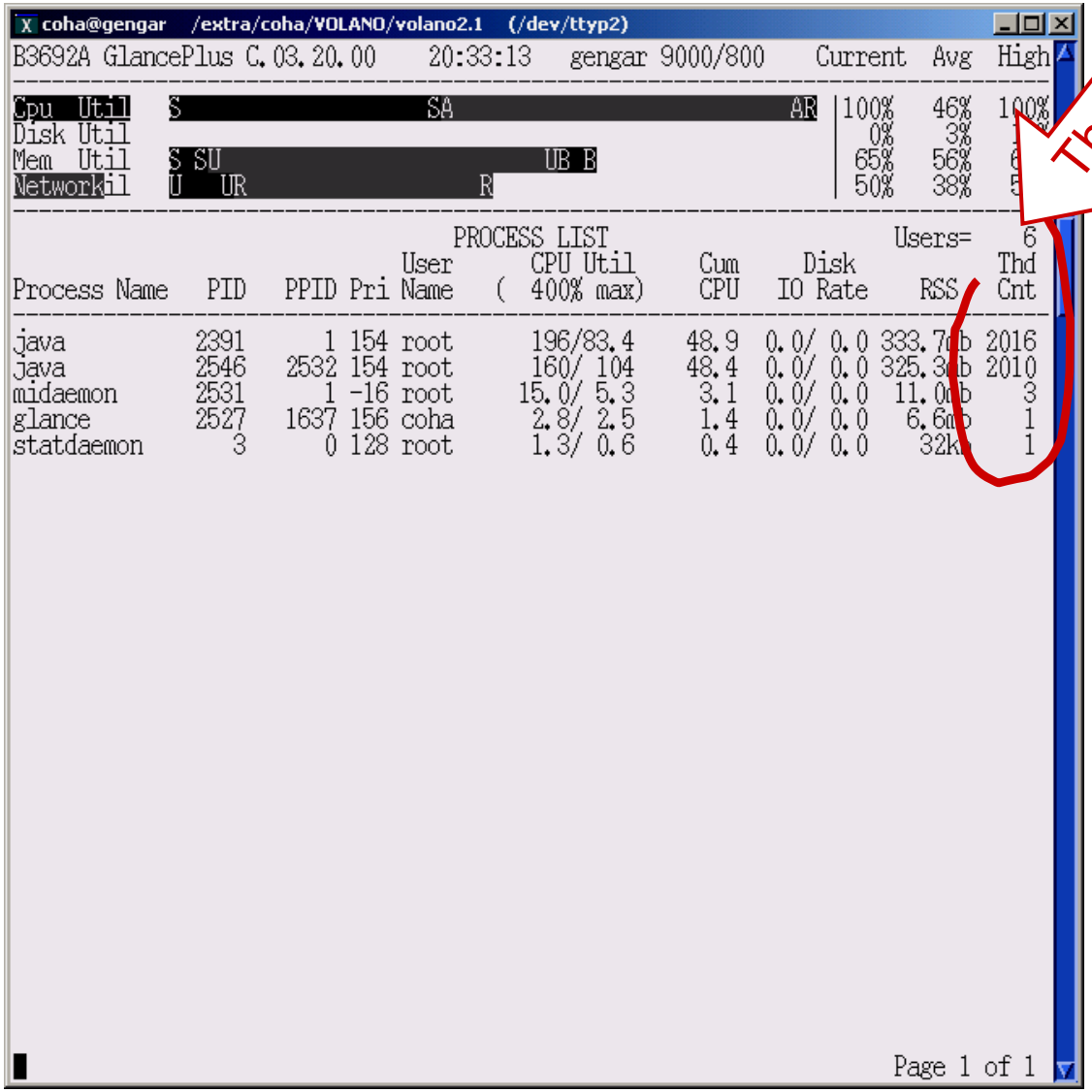
Glance Character Mode
g – Process List



Thread Count

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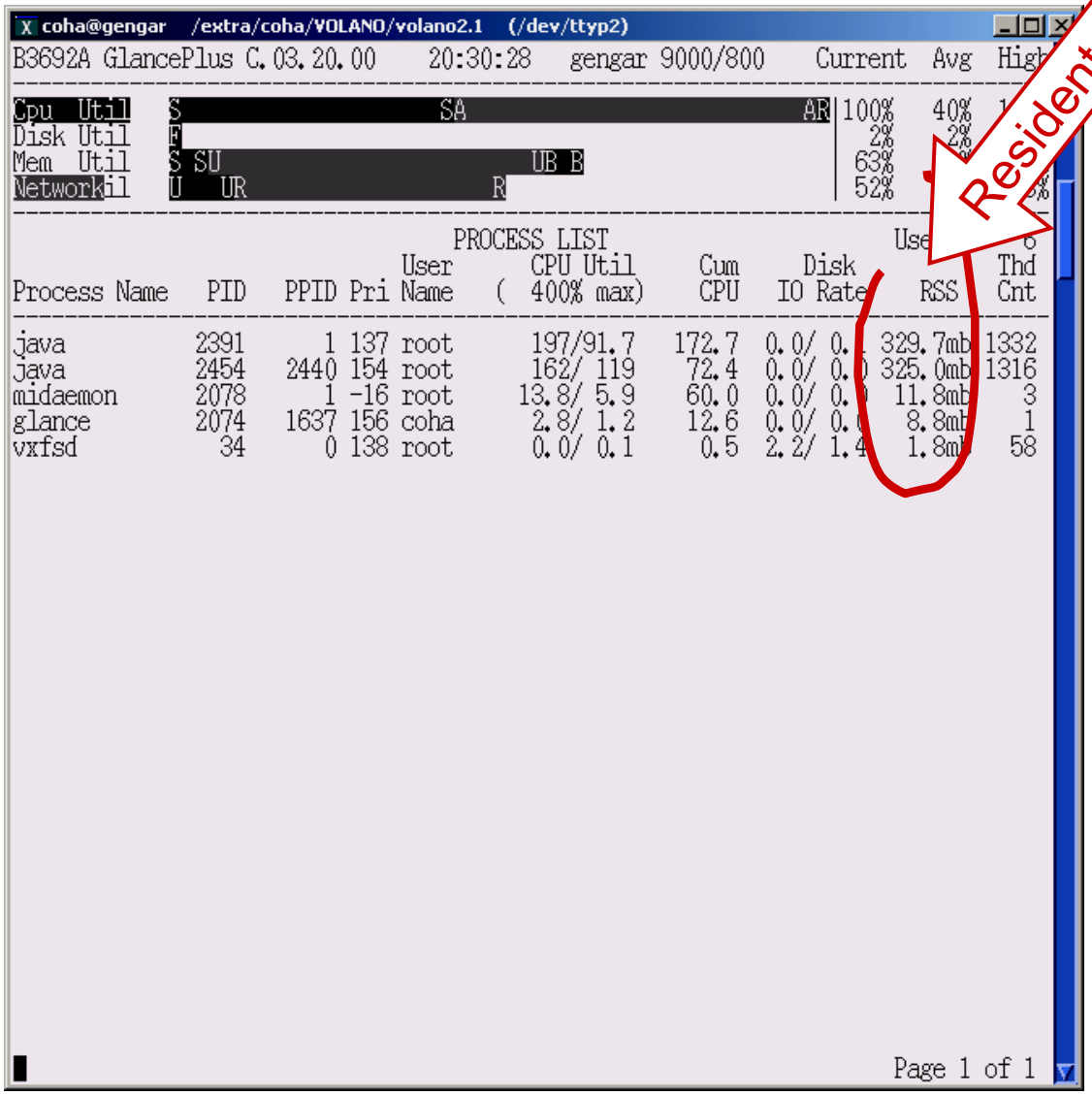
Glance Character Mode
g – Process List



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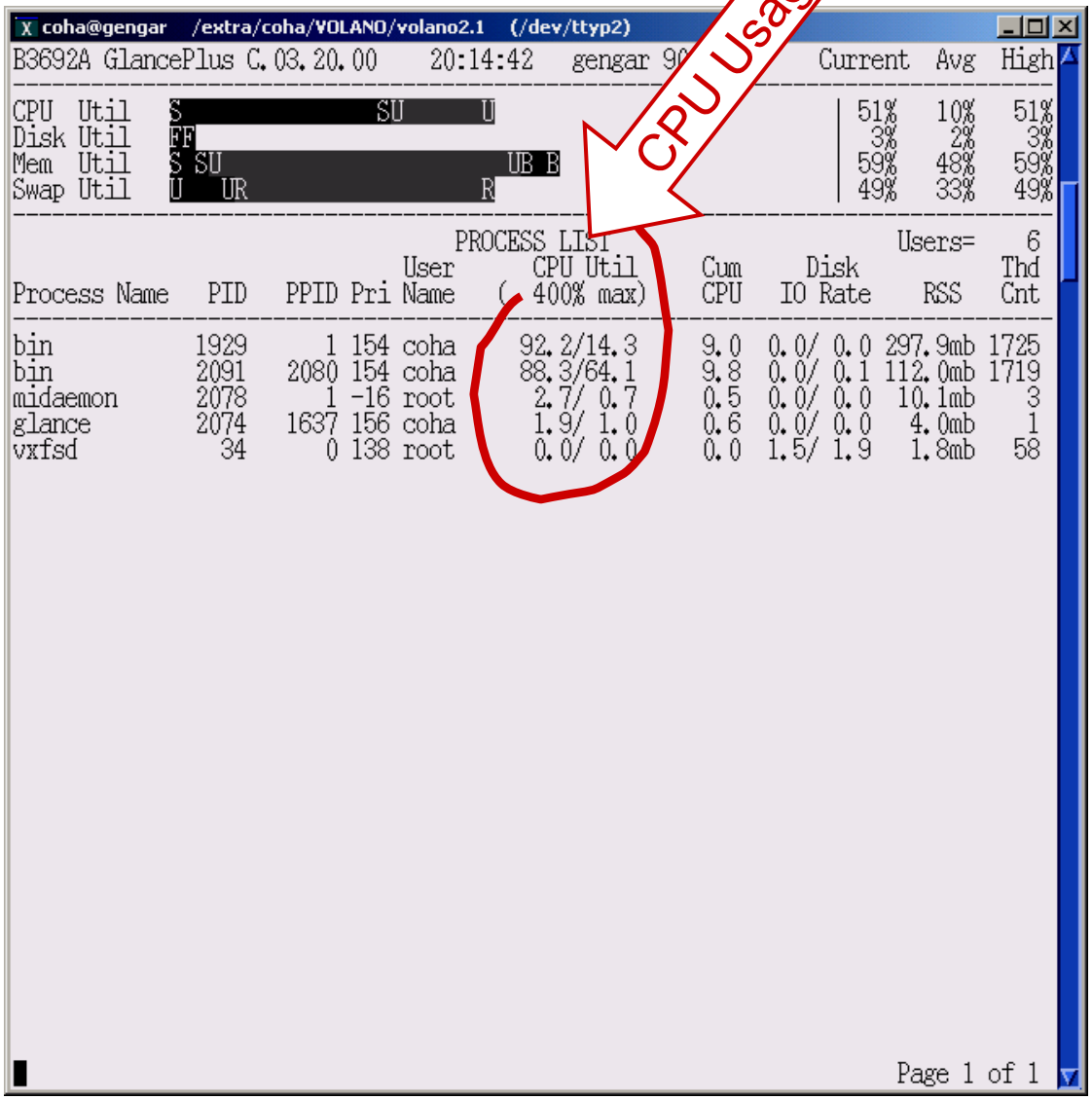
Glance Character Mode
g – Process List



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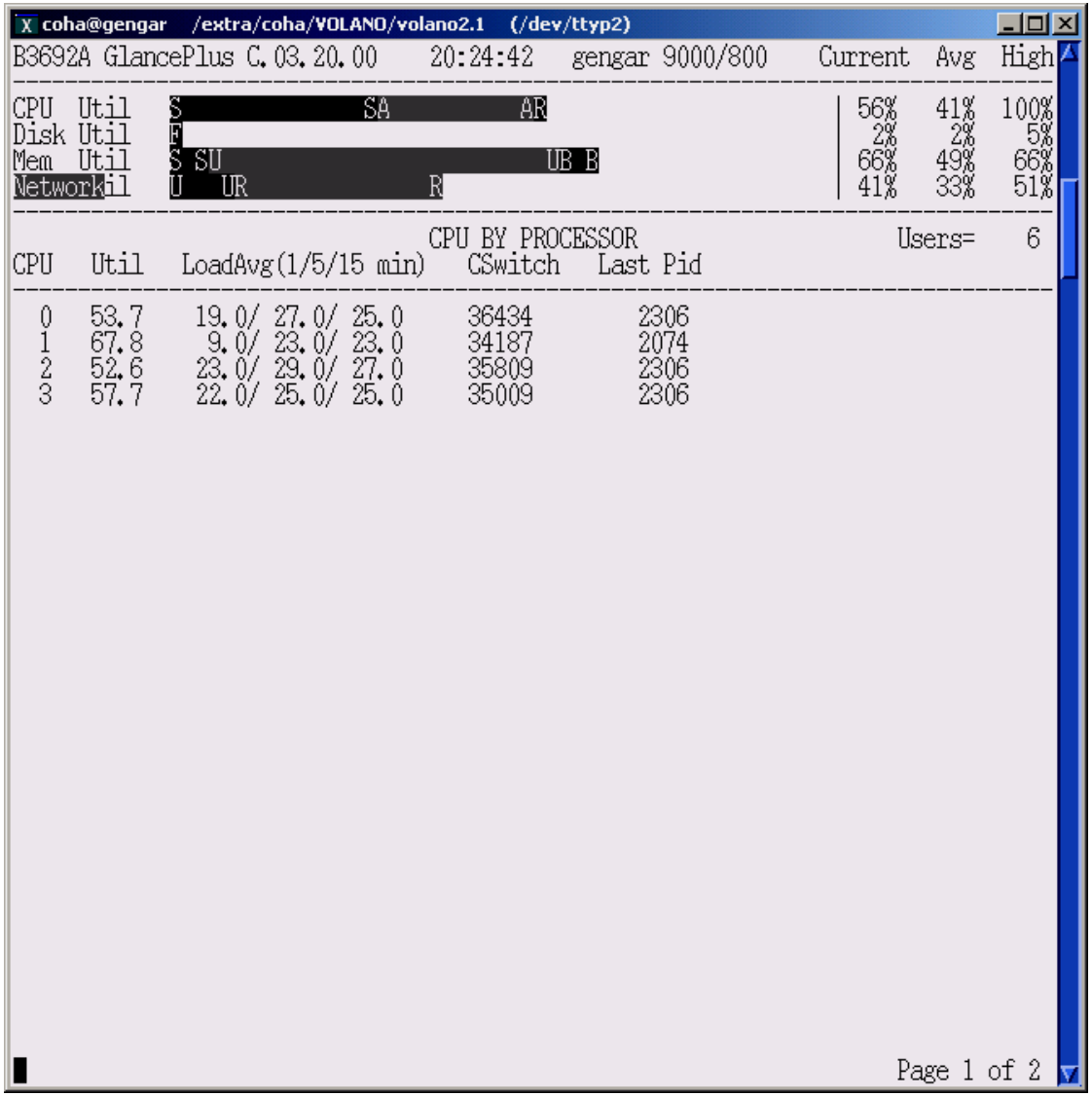
Glance Character Mode
a – CPU By Processor



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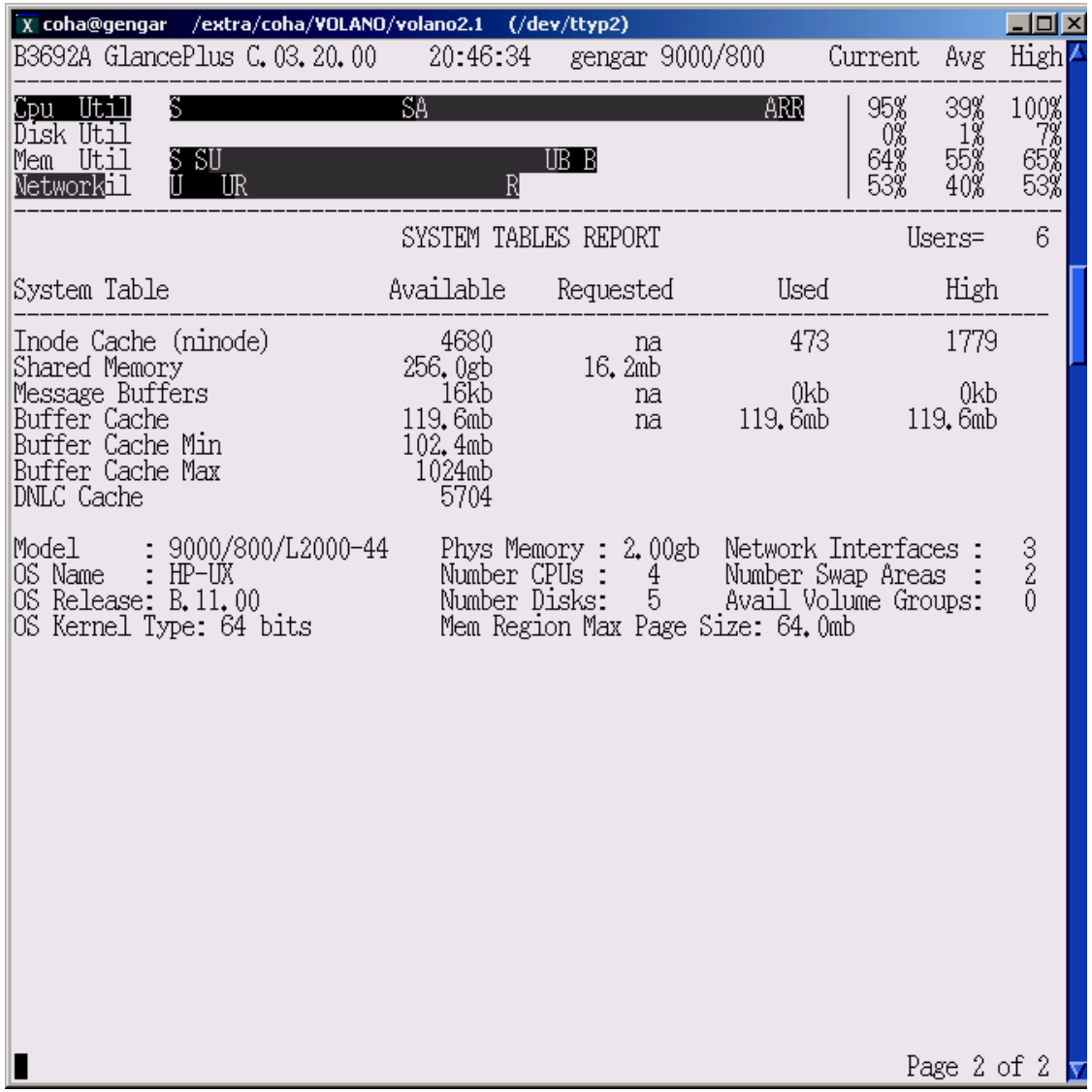
Glance Character Mode
t – System Tables (1)



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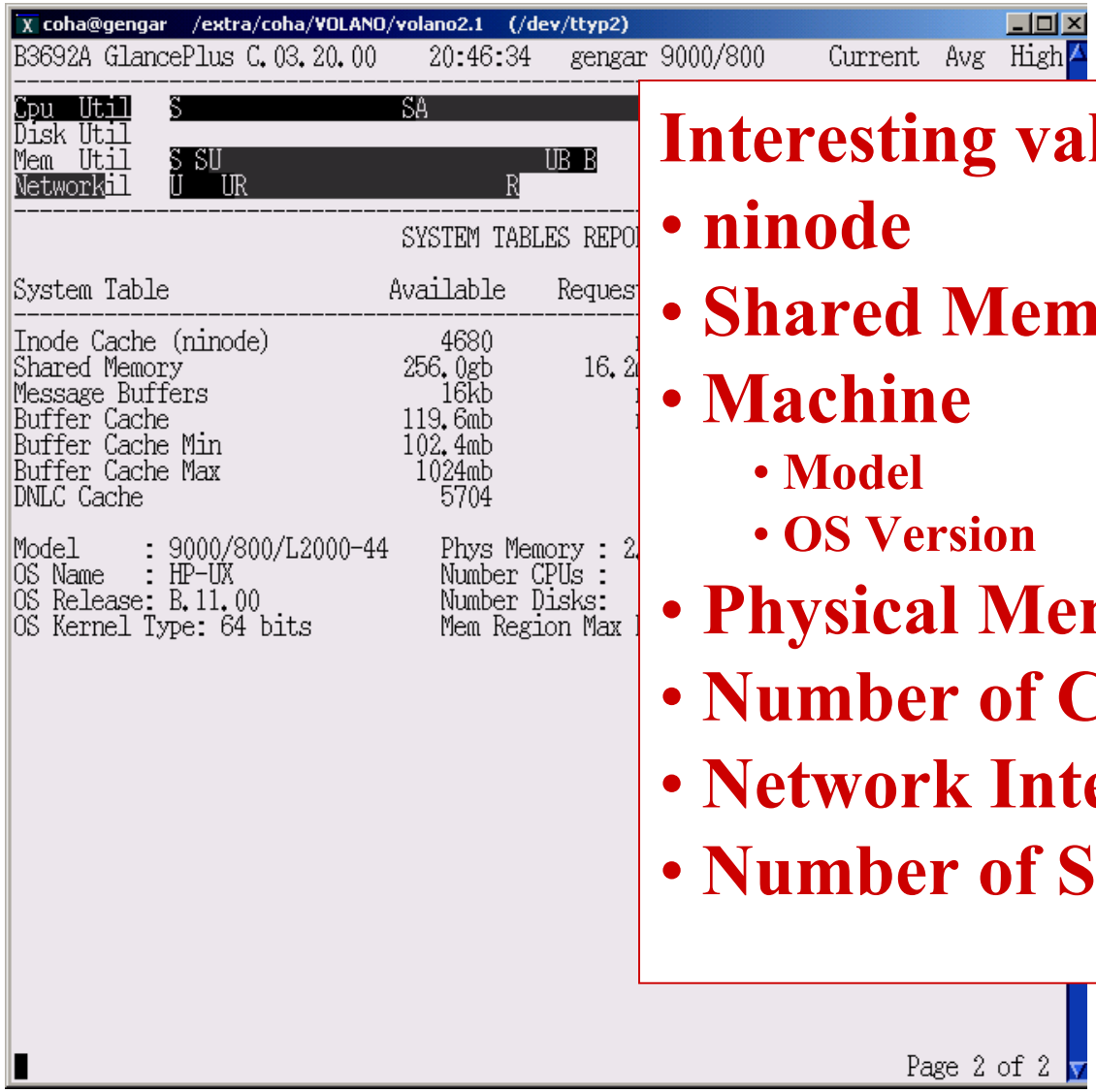
Glance Character Mode
t – System Tables (1)



Interesting values:

- **ninode**
- **Shared Memory**
- **Machine**
  - **Model**
  - **OS Version**
- **Physical Memory**
- **Number of CPUs**
- **Network Interfaces**
- **Number of Swap Areas**

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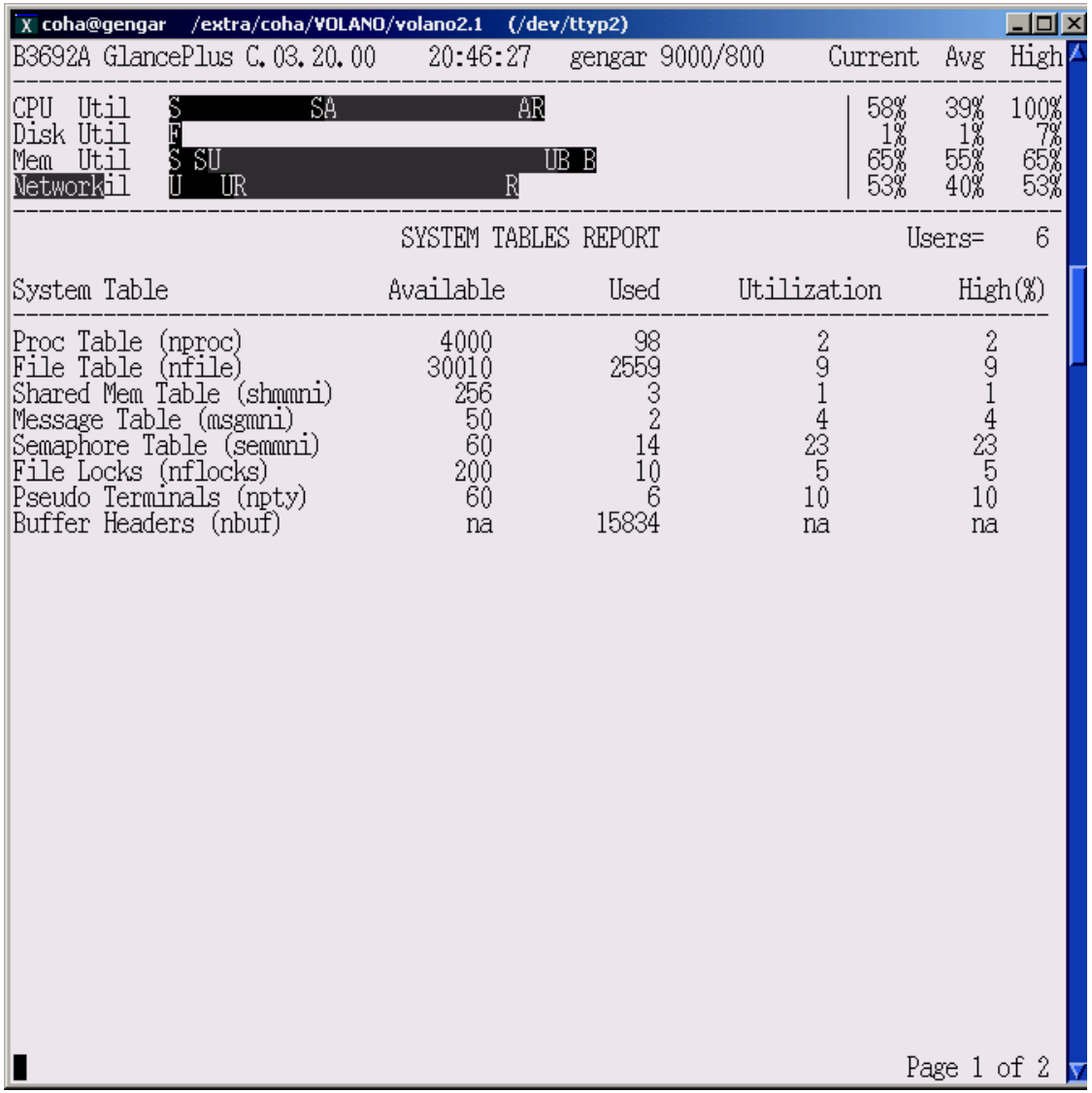
Glance Character Mode
t – System Tables (2)



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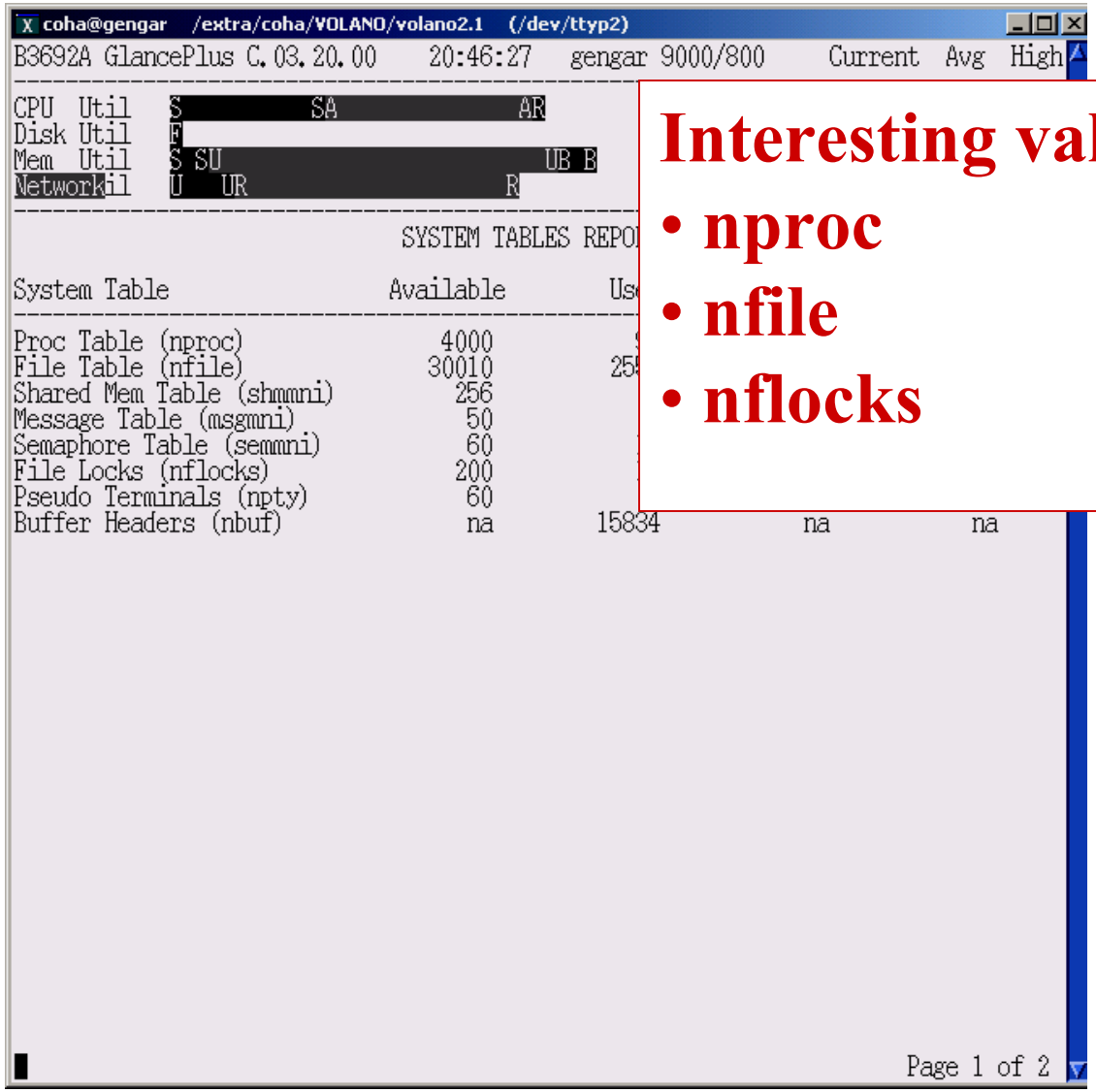
Glance Character Mode
t – System Tables (2)



Interesting values:

- **nproc**
- **nfile**
- **nflocks**

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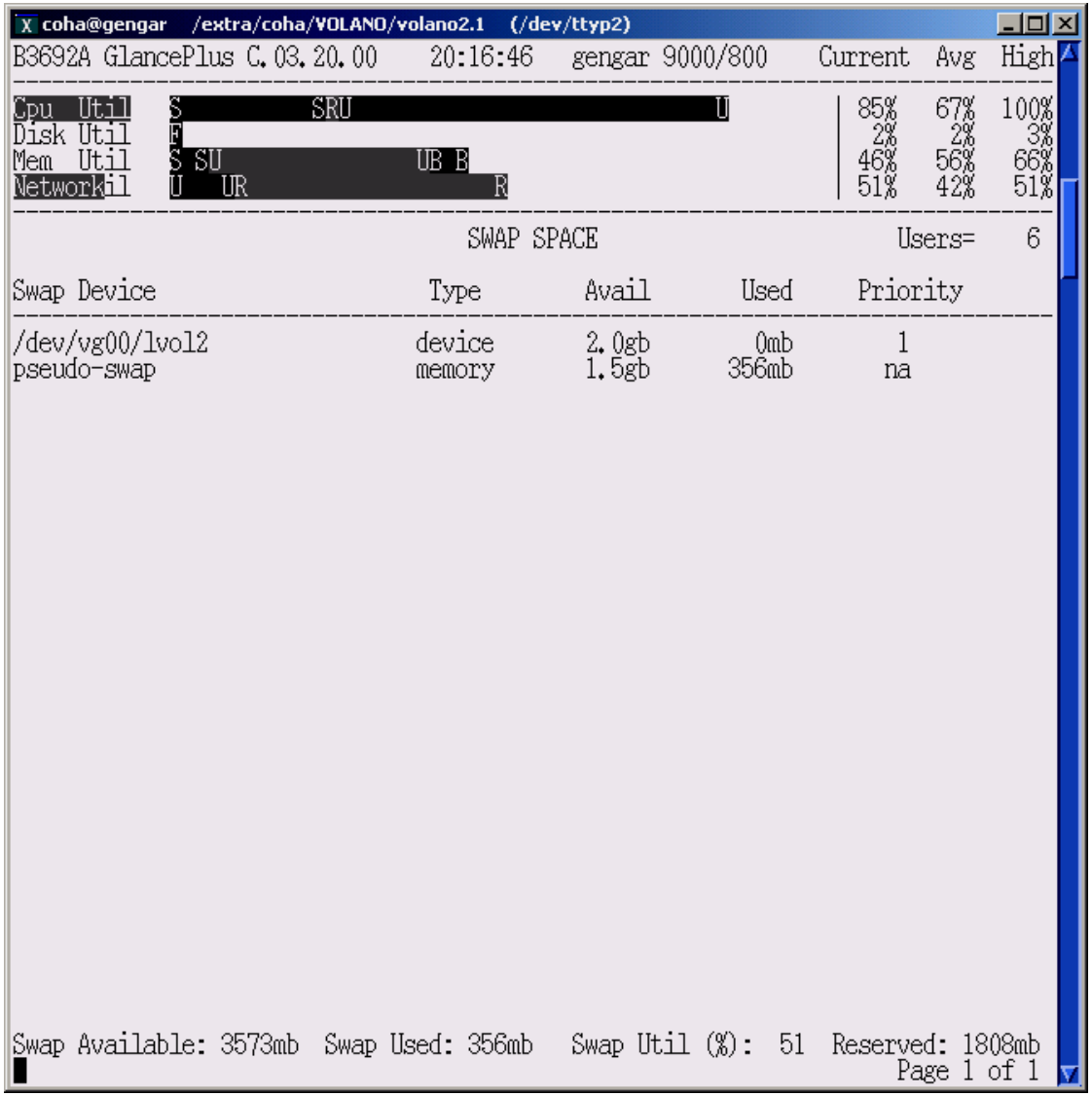
Glance Character Mode
w – Swap Space



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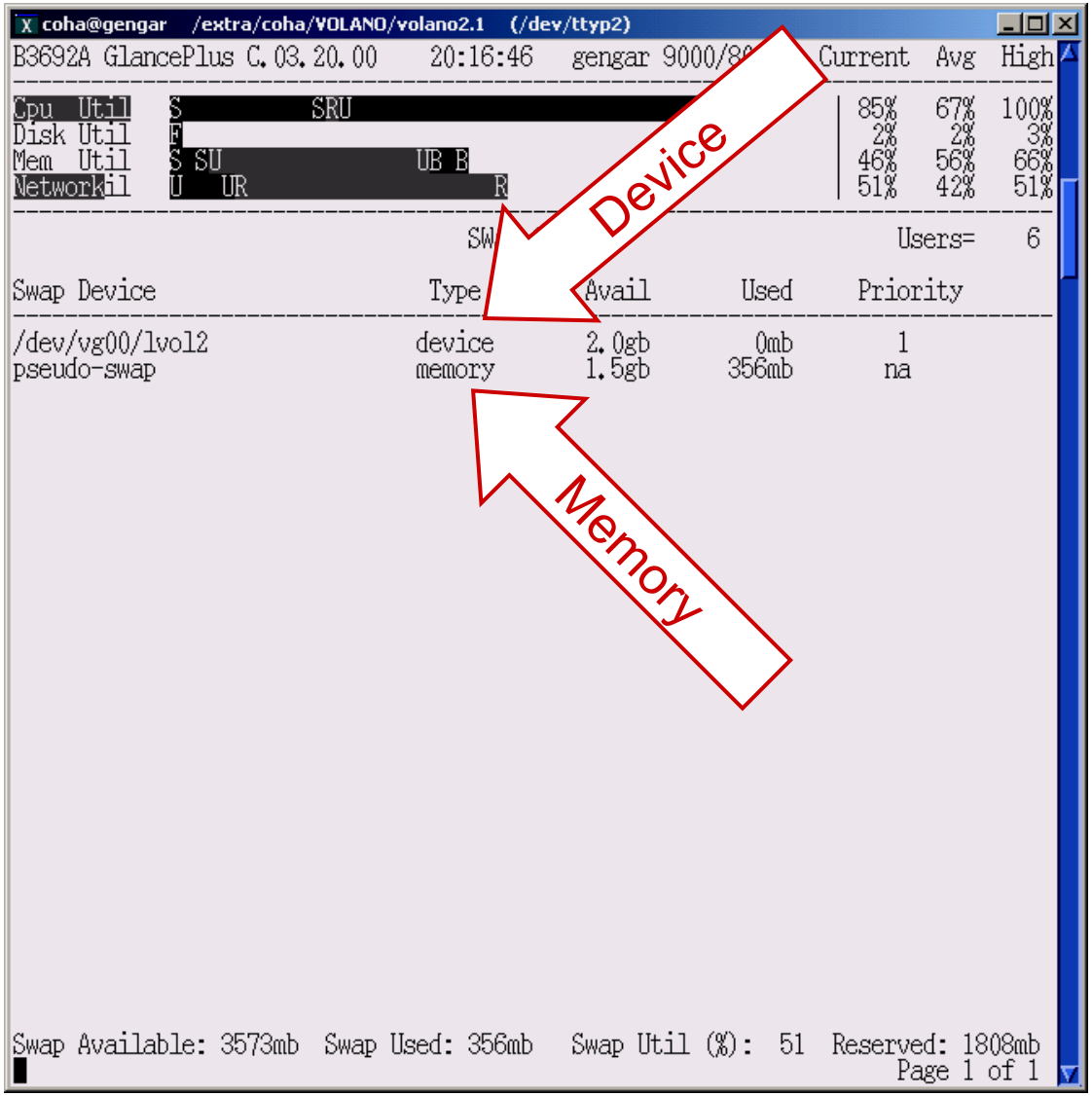
Glance Character Mode
w – Swap Space



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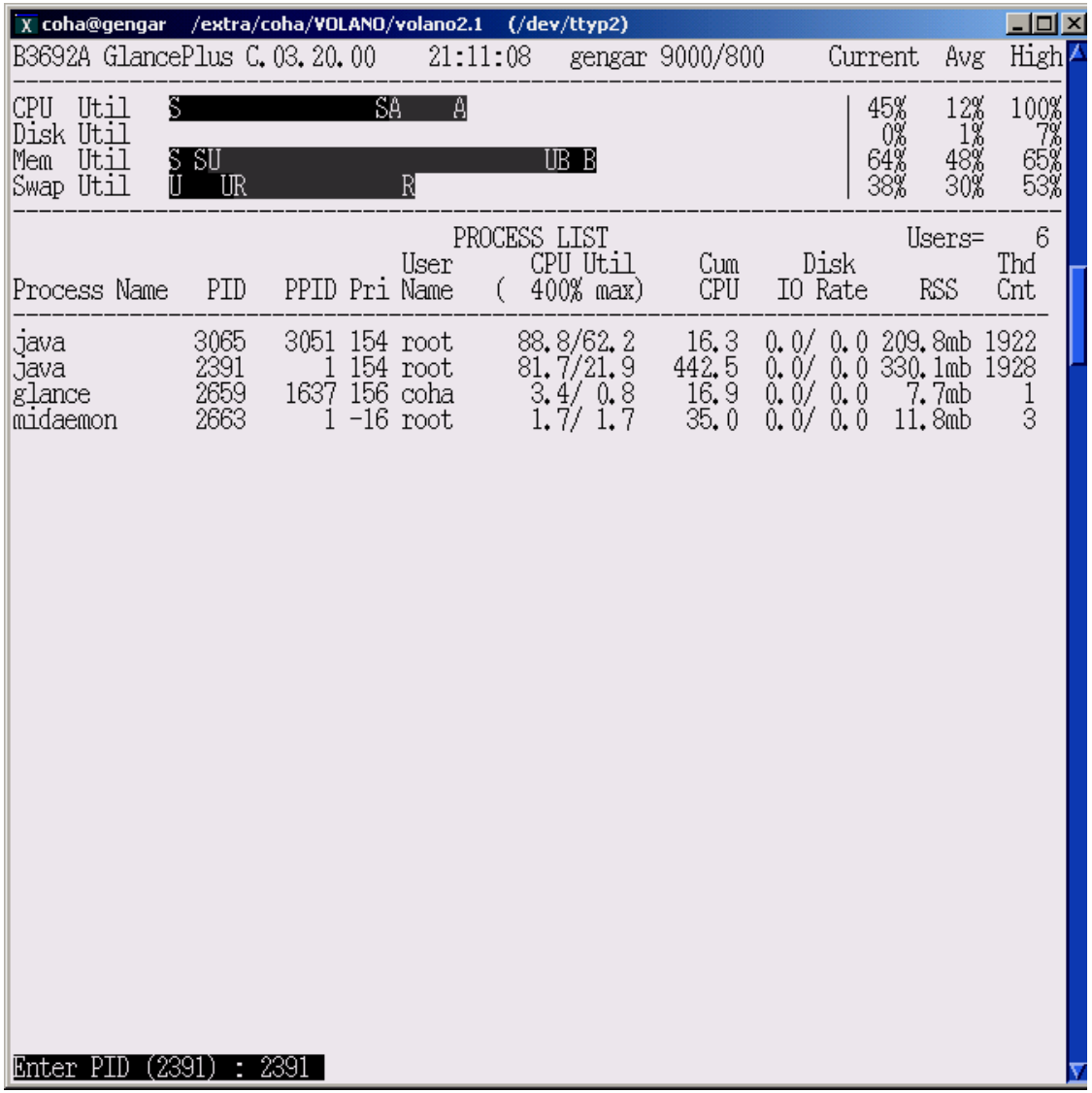
Glance Character Mode
s – Select Process



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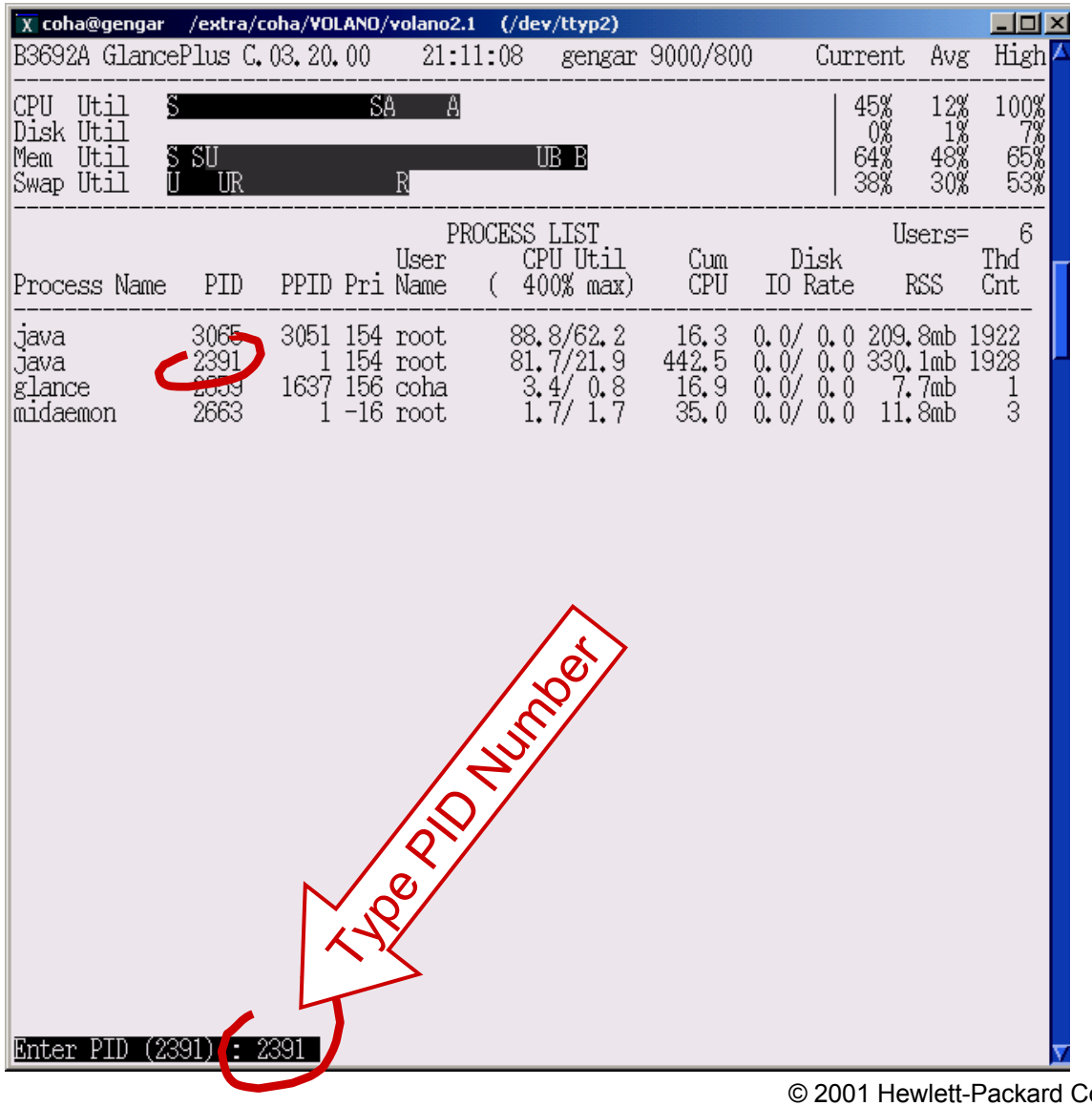
Tools for Measuring Performance

Glance Character Mode
s – Select Process



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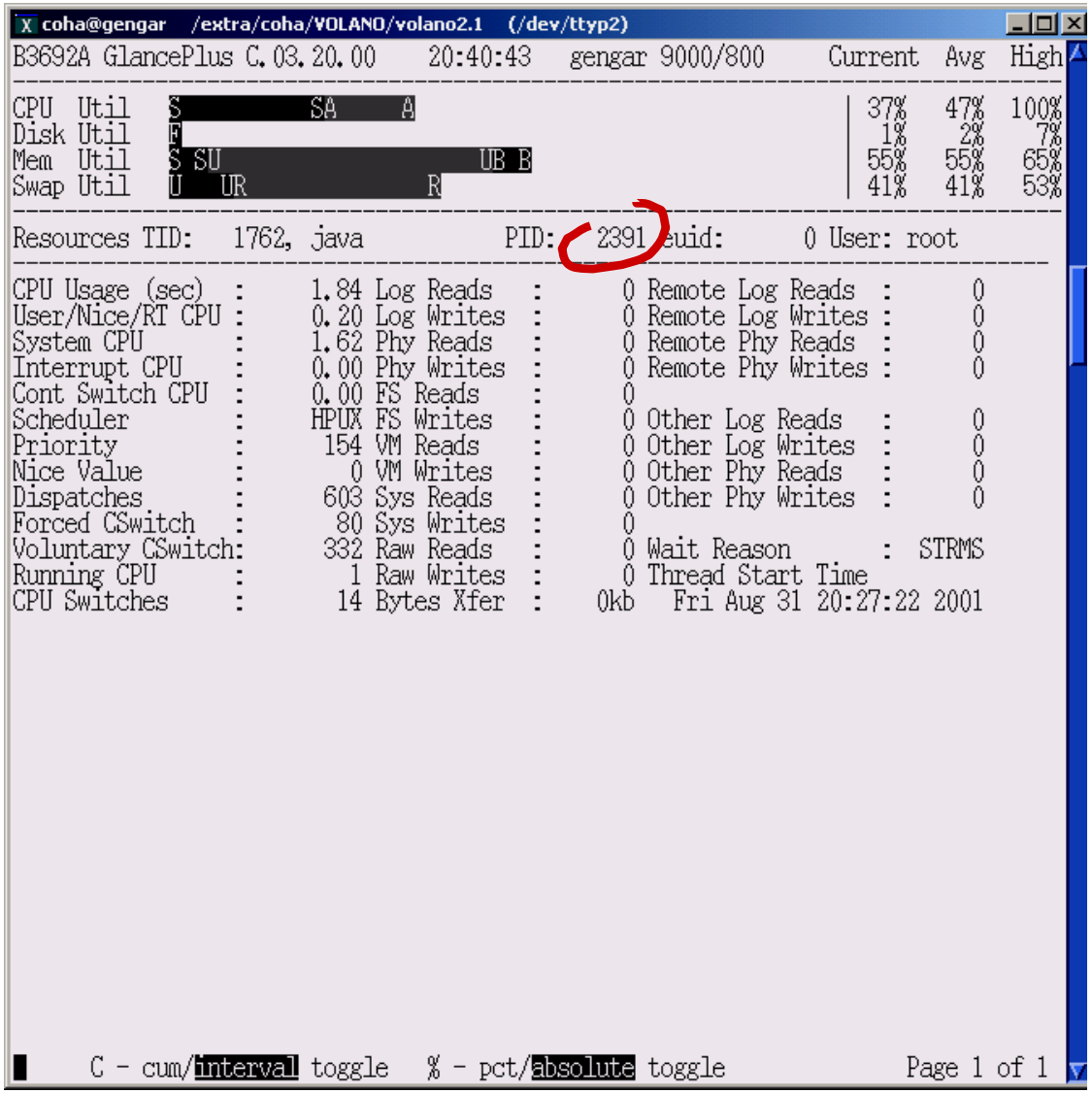
Glance Character Mode Displays Process Resources



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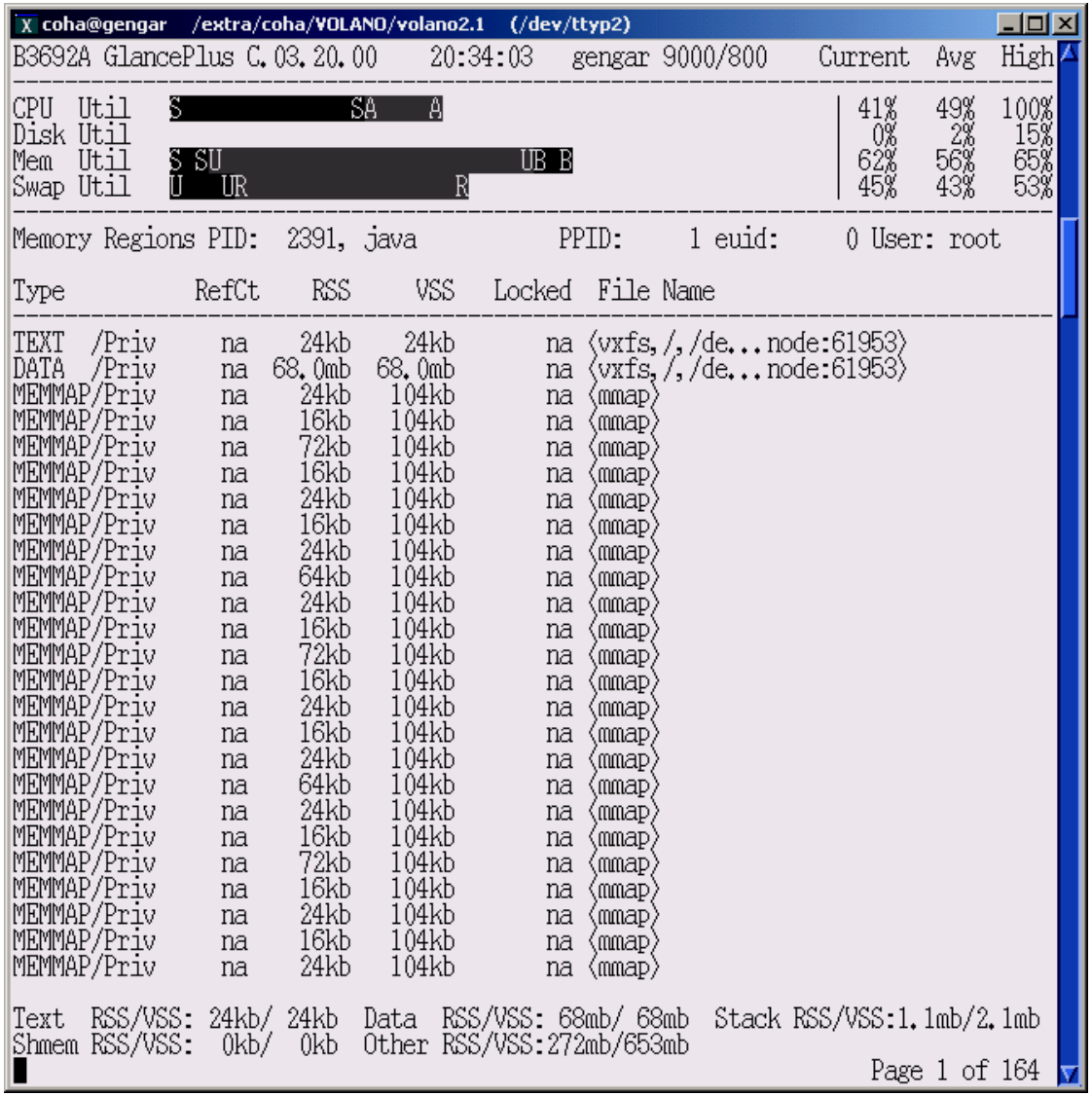
Glance Character Mode
M – Process Memory Regions



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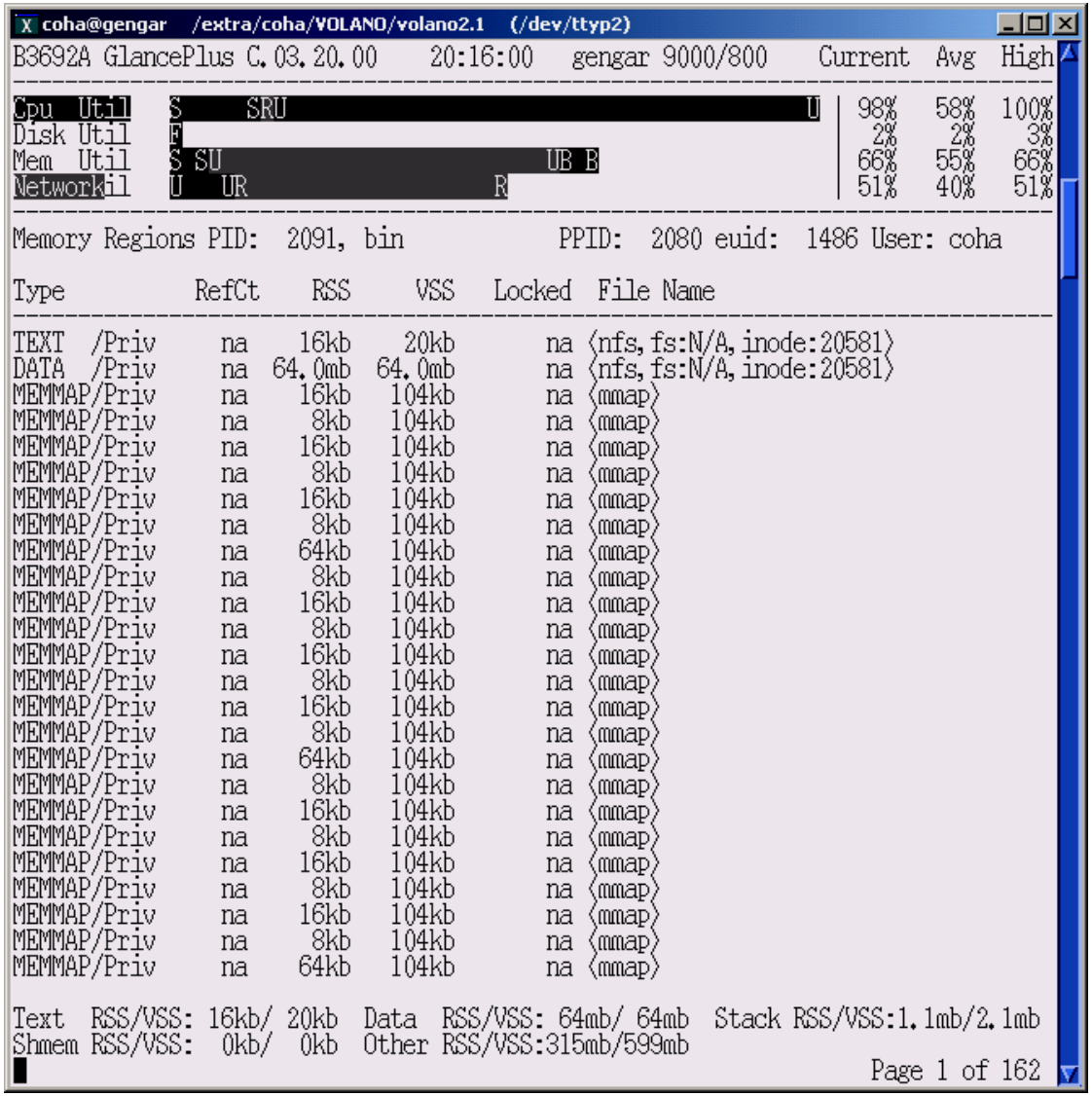
Glance Character Mode
M – Process Memory Regions



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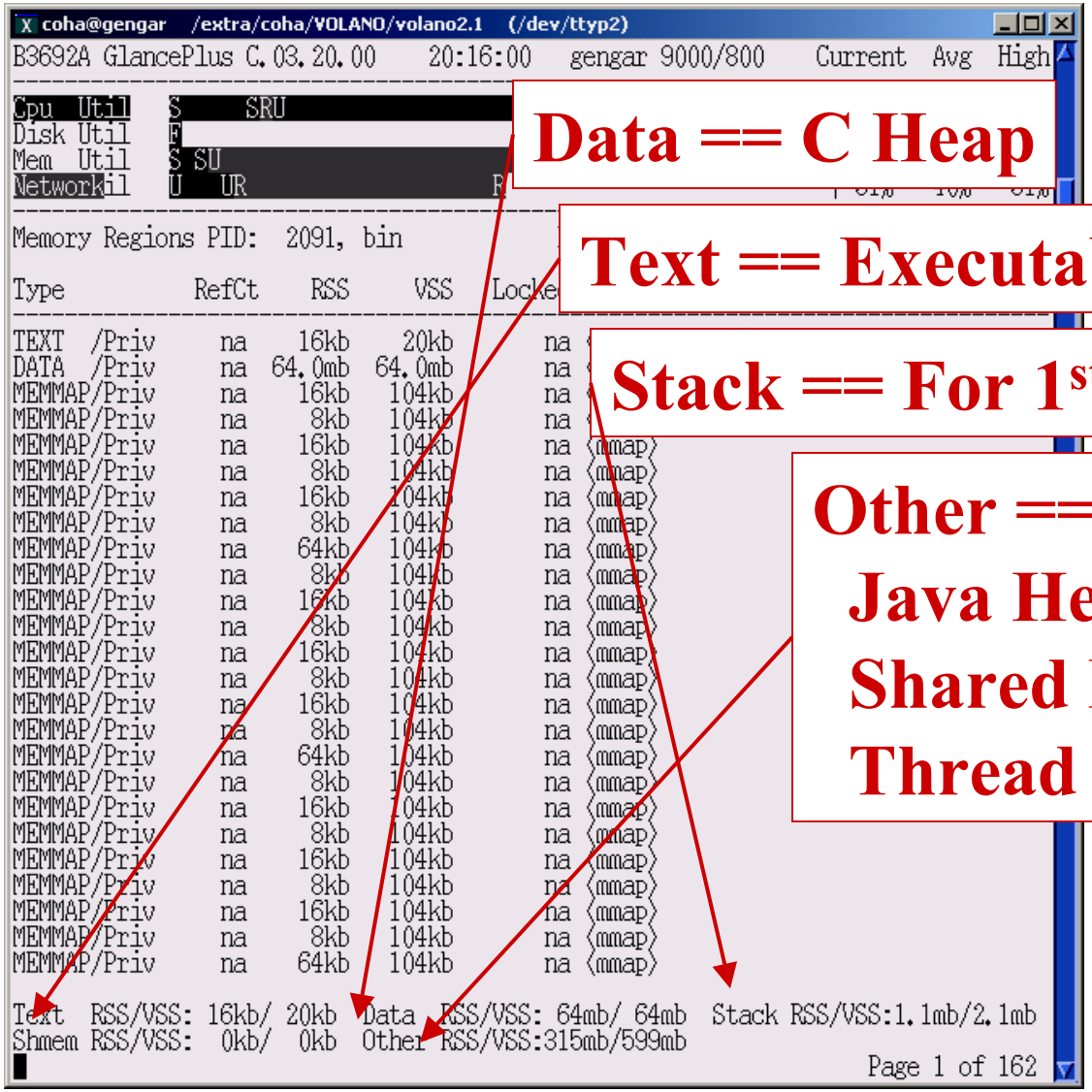
Glance Character Mode
M – Process Memory Regions



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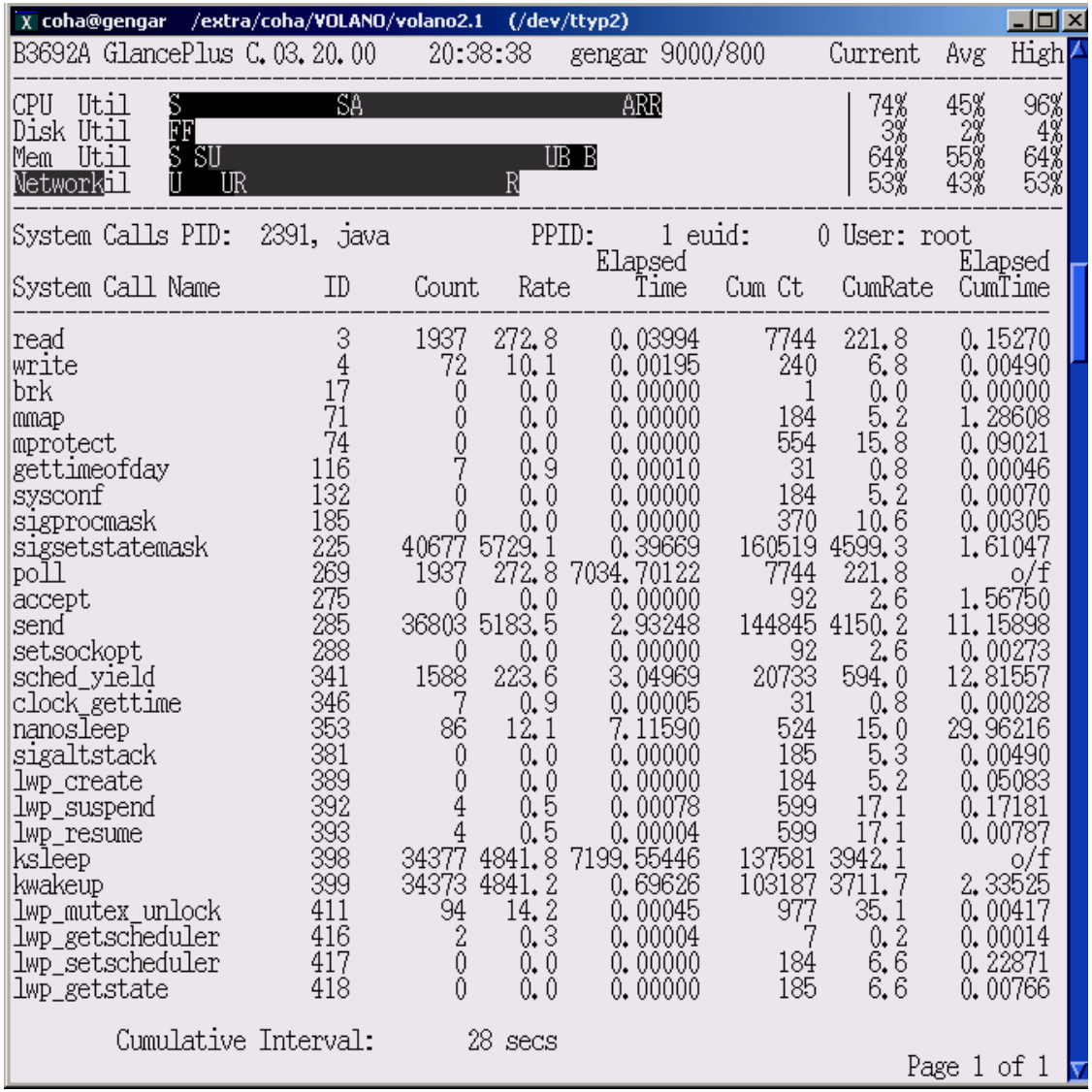
Glance Character Mode
L – Process System Calls



```
coha@gengar  /extra/coha/VOLANO/volano2.1  (/dev/ttyp2)
B3692A GlancePlus C.03.20.00    20:38:38   gengar 9000/800      Current  Avg  High
------------------------------------------------------------------------------
CPU  Util   S              SA                          ARR      |  74%   45%  96%
Disk Util   FF                                                  |   3%    2%   4%
Mem  Util   S SU                                 UB B           |  64%   55%  64%
Networkil   U   UR                             R                |  53%   43%  53%
------------------------------------------------------------------------------
System Calls PID:  2391, java          PPID:     1 euid:     0 User: root
                                                 Elapsed                    Elapsed
System Call Name        ID     Count    Rate      Time   Cum Ct  CumRate   CumTime
------------------------------------------------------------------------------
read                     3      1937  272.8    0.03994     7744   221.8   0.15270
write                    4        72   10.1    0.00195      240     6.8   0.00490
brk                     17         0    0.0    0.00000        1     0.0   0.00000
mmap                    71         0    0.0    0.00000      184     5.2   1.28608
mprotect                74         0    0.0    0.00000      554    15.8   0.09021
gettimeofday           116         7    0.9    0.00010       31     0.8   0.00046
sysconf                132         0    0.0    0.00000      184     5.2   0.00070
sigprocmask            185         0    0.0    0.00000      370    10.6   0.00305
sigsetstatemask        225     40677 5729.1    0.39669   160519  4599.3   1.61047
poll                   269      1937  272.8 7034.70122     7744   221.8       o/f
accept                 275         0    0.0    0.00000       92     2.6   1.56750
send                   285     36803 5183.5    2.93248   144845  4150.2  11.15898
setsockopt             288         0    0.0    0.00000       92     2.6   0.00273
sched_yield            341      1588  223.6    3.04969    20733   594.0  12.81557
clock_gettime          346         7    0.9    0.00005       31     0.8   0.00028
nanosleep              353        86   12.1    7.11590      524    15.0  29.96216
sigaltstack            381         0    0.0    0.00000      185     5.3   0.00490
lwp_create             389         0    0.0    0.00000      184     5.2   0.05083
lwp_suspend            392         4    0.5    0.00078      599    17.1   0.17181
lwp_resume             393         4    0.5    0.00004      599    17.1   0.00787
ksleep                 398     34377 4841.8 7199.55446   137581  3942.1       o/f
kwakeup                399     34373 4841.2    0.69626   103187  3711.7   2.33525
lwp_mutex_unlock       411        94   14.2    0.00045      977    35.1   0.00417
lwp_getscheduler       416         2    0.3    0.00004        7     0.2   0.00014
lwp_setscheduler       417         0    0.0    0.00000      184     6.6   0.22871
lwp_getstate           418         0    0.0    0.00000      185     6.6   0.00766

        Cumulative Interval:      28 secs
                                                                Page 1 of 1
```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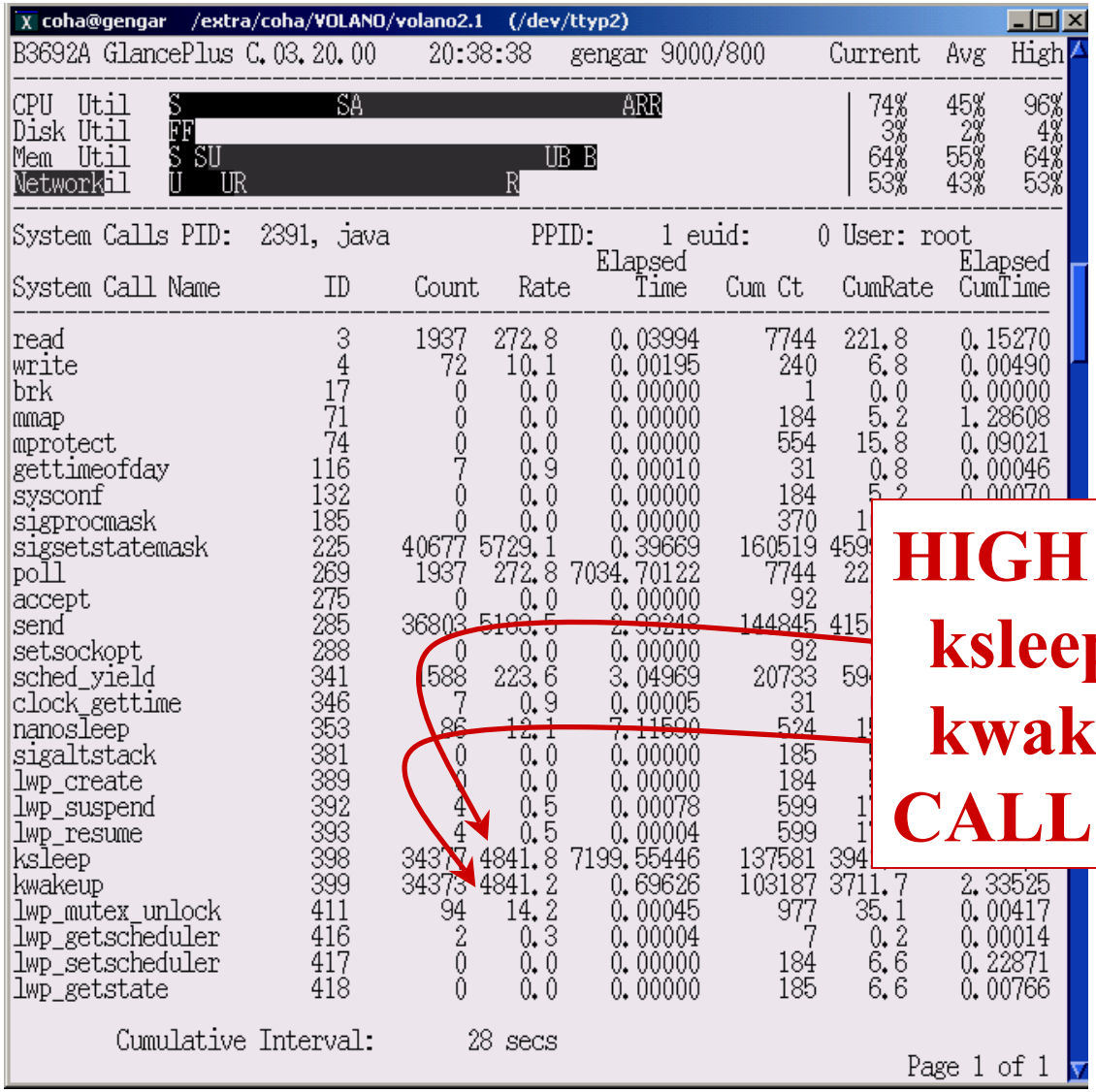
Glance Character Mode
L – Process System Calls



HIGH
ksleep()
kwakeup()
CALL RATES

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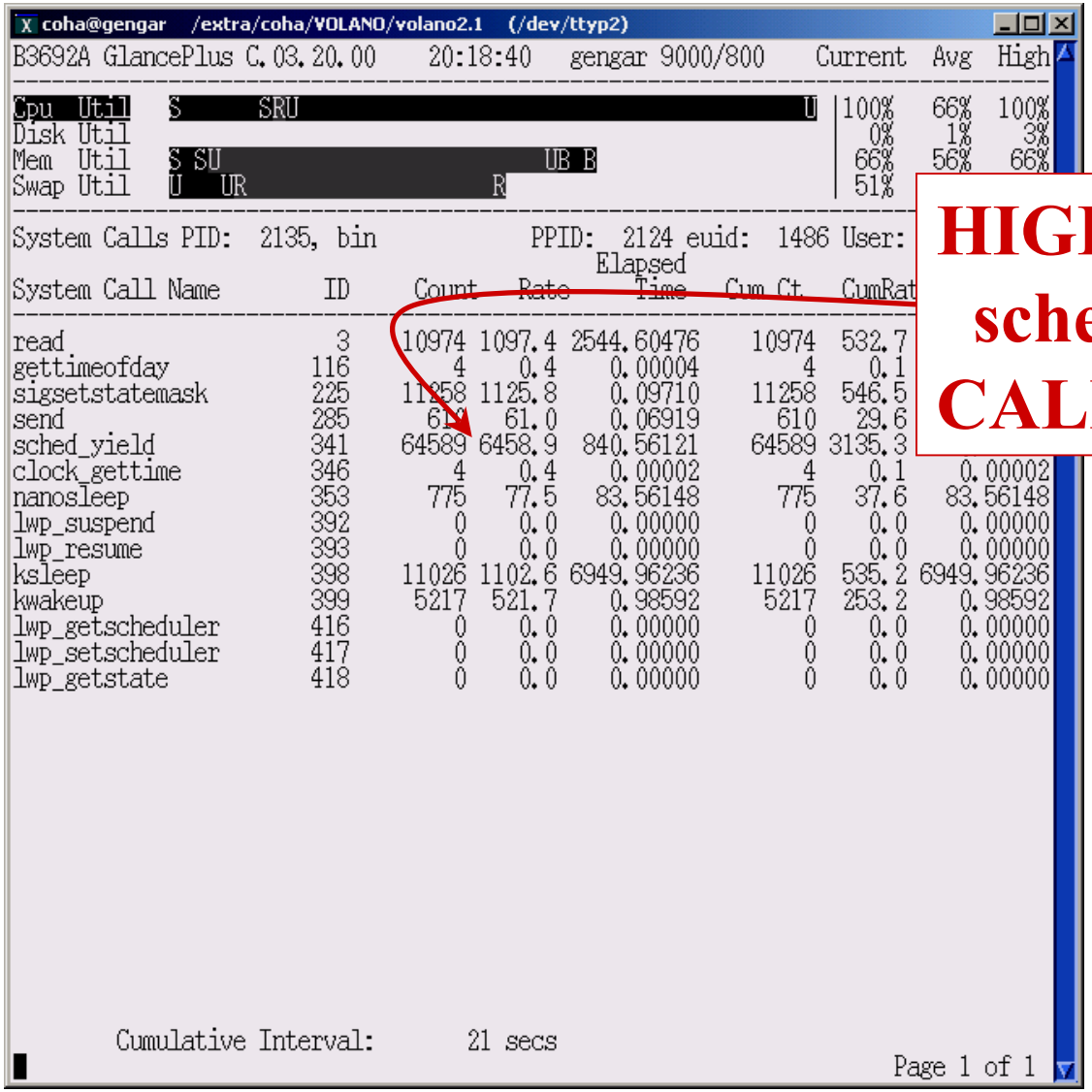
Glance Character Mode
L – Process System Calls



HIGH sched_yield() CALL RATE

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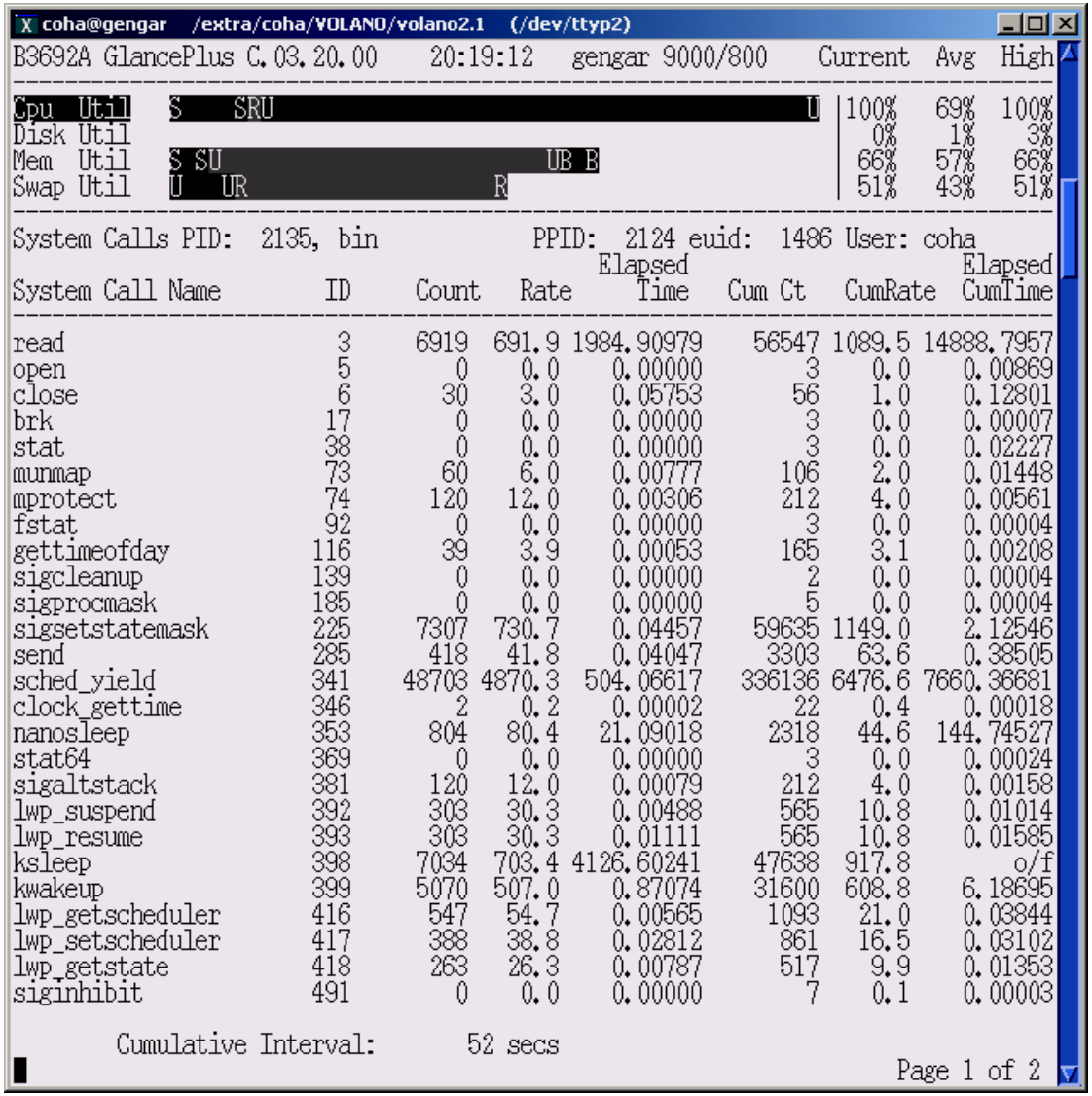
Glance Character Mode
L – Process System Calls



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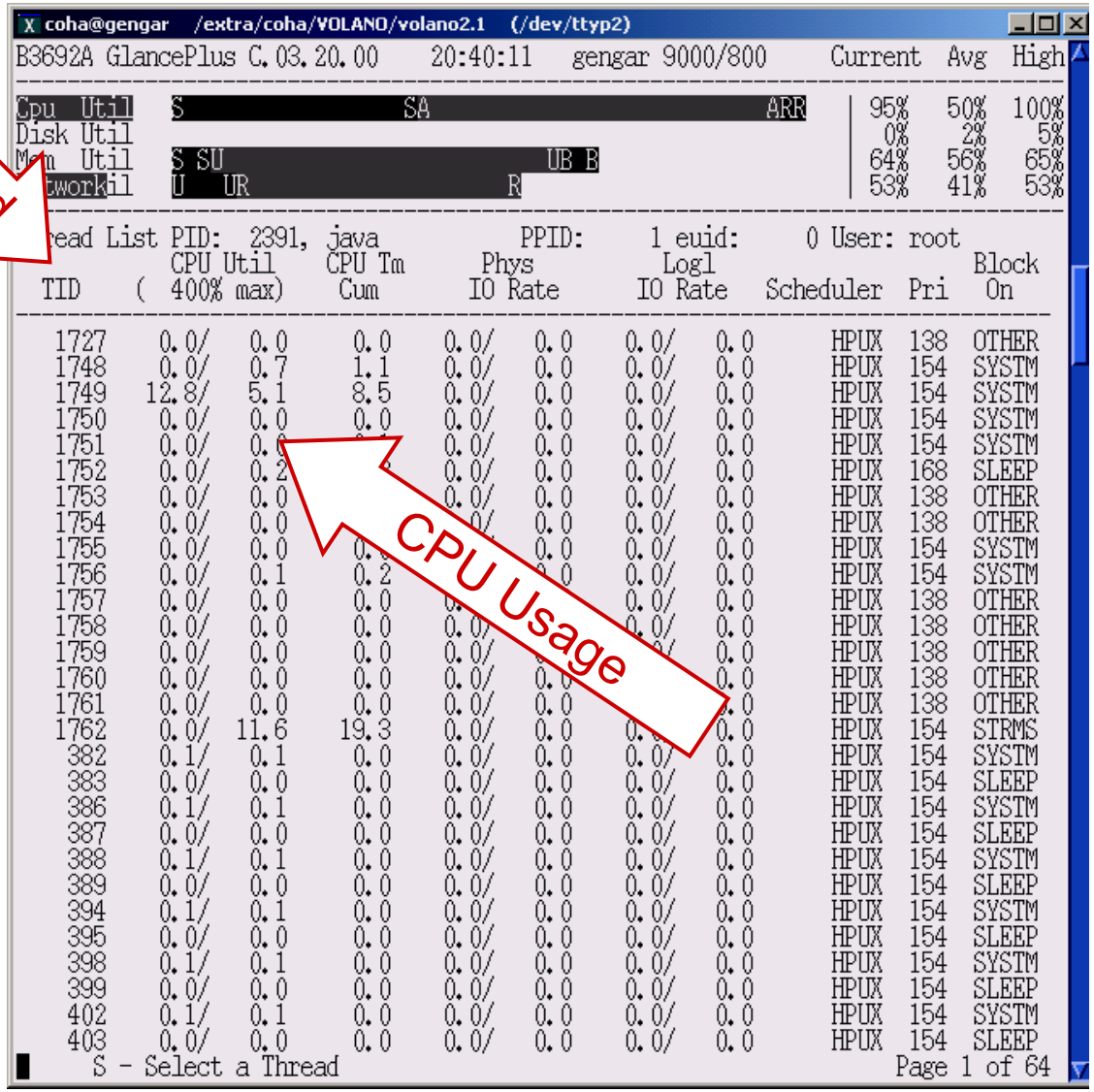
Glance Character Mode
G – Process Threads



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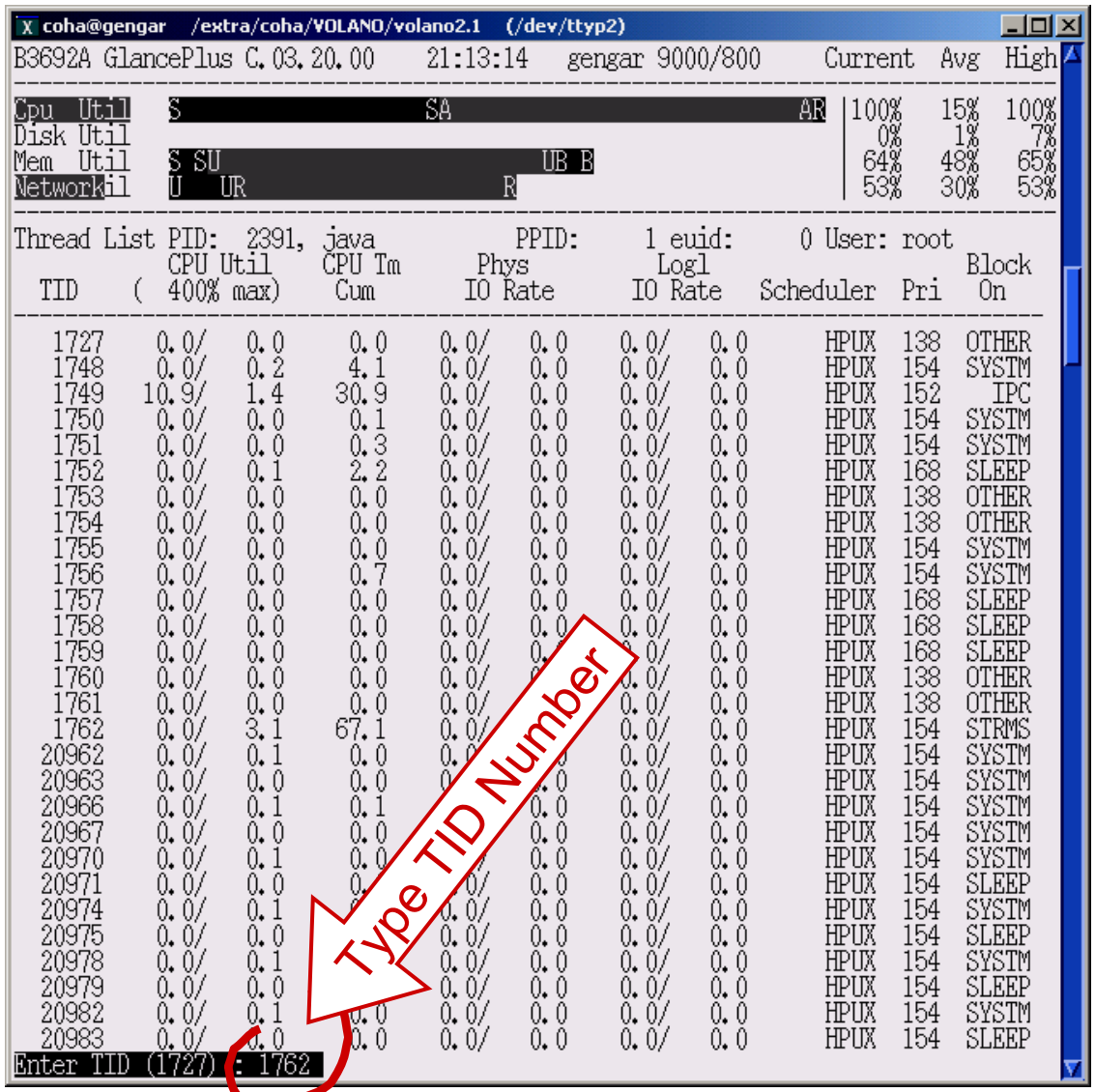
Glance Character Mode
S – Select Thread



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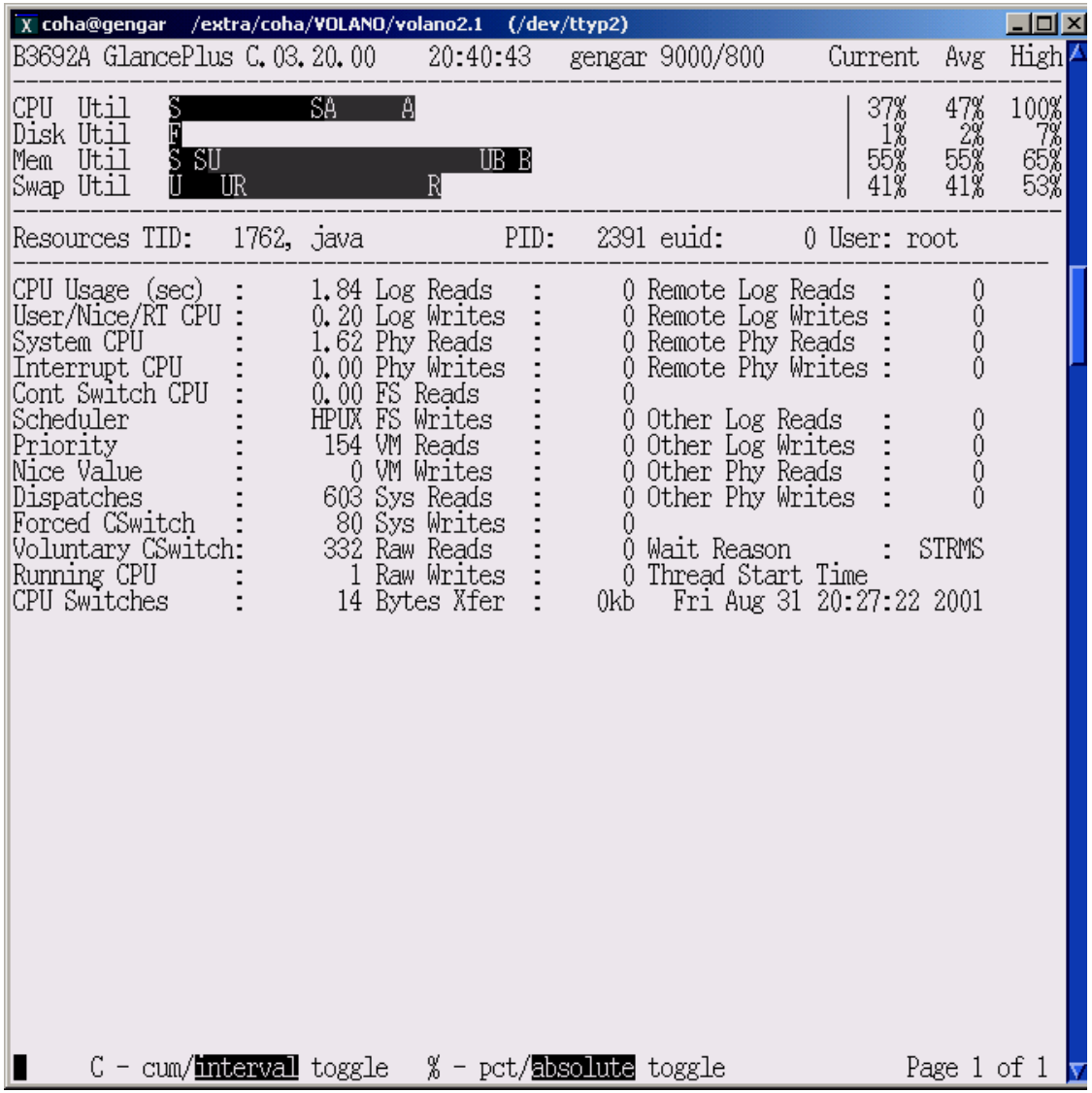
Glance Character Mode Thread Resources



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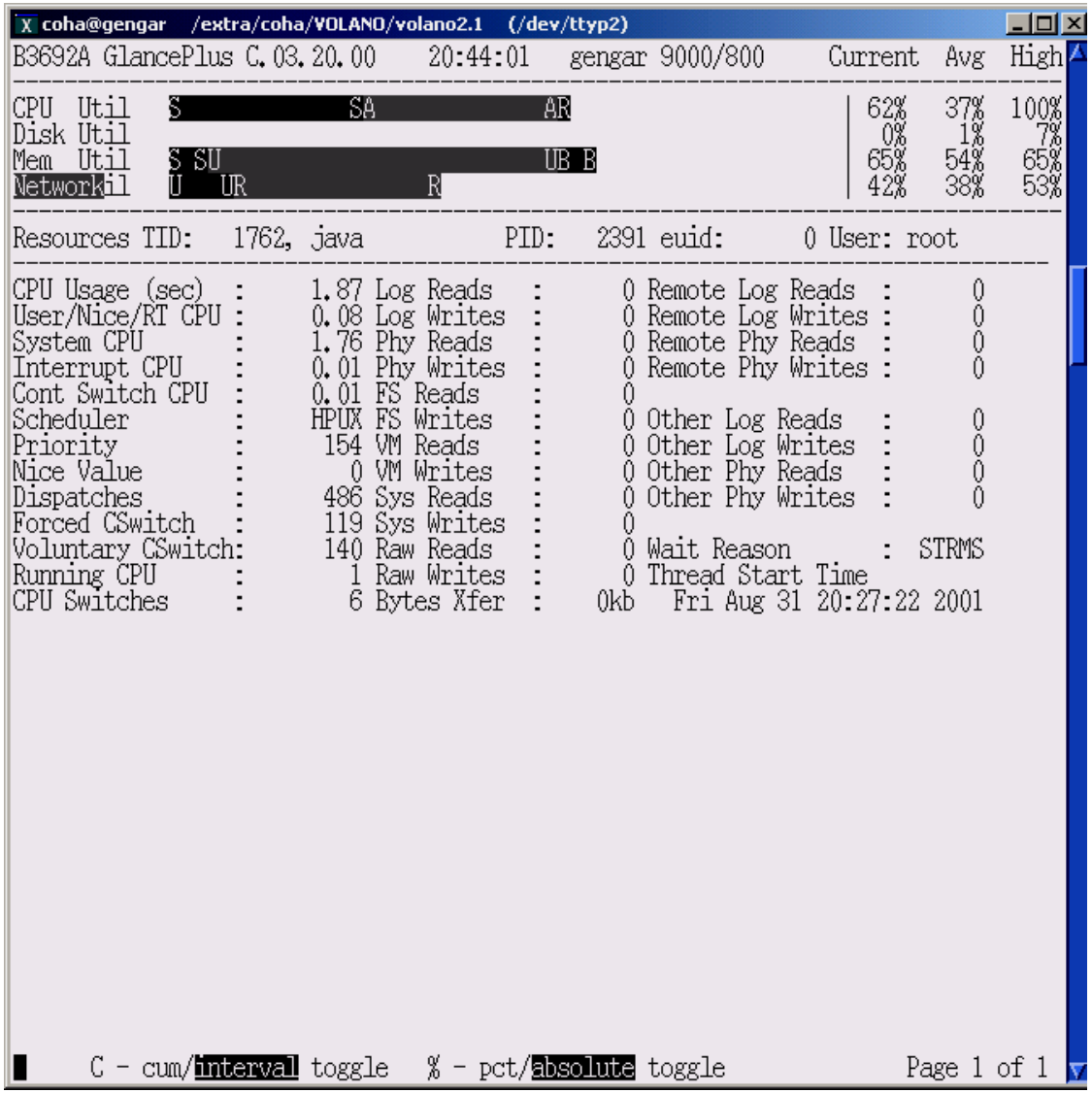
Glance Character Mode Thread Resources



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Tools for Measuring Performance

Glance Character Mode Summary

- Ideal tool for:
  - Low bandwidth connections
  - Printing information for remote problem diagnosis
    - Important machine configuration information
    - Important OS configuration information
    - OS resource usage
    - Process list and resource consumption summary
  - Analysis of individual thread behavior

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