
Subject: Memory controller test results (v6)
Posted by [Balbir Singh](#) on Sun, 19 Aug 2007 09:46:58 GMT
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Hi, Andrew,

Here are more test results for v6 of the memory controller posted at
<http://lkml.org/lkml/2007/8/17/69>

The tests were run under three different configurations

1. disabled - the memory controller was not compiled in
2. notmnted - the memory controller was compiled in, but the container filesystem was not mounted (one could view this configuration as a memory controller with no limits enforced)
3. limit400 - the memory controller was compiled in and the container running the tests was limited to 400 MB of memory usage.

Tests run

1. Imbench
2. ltp
3. vmmstress
4. aim9
5. memtest (succeeded)

Results posted

1. Imbench
2. ltp
3. vmmstress
4. aim9

Lmbench

L M B E N C H 2 . 0 S U M M A R Y

Basic system parameters

Host	OS Description	Mhz
------	----------------	-----

disabled	Linux 2.6.23-	x86_64-linux-gnu 1993
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limit400 Linux 2.6.23- x86_64-linux-gnu 1993
notmnted Linux 2.6.23- x86_64-linux-gnu 1993

Processor, Processes - times in microseconds - smaller is better

```
-----
Host      OS Mhz null null   open selct sig sig fork exec sh
          call I/O stat clos TCP inst hndl proc proc proc
-----
disabled Linux 2.6.23- 1993 0.08 0.27 2.74 3.96 16.0 0.23 1.55 128. 479. 5572
limit400 Linux 2.6.23- 1993 0.08 0.30 3.00 4.54 17.7 0.23 1.74 139. 537. 5825
notmnted Linux 2.6.23- 1993 0.08 0.27 2.78 4.23 16.0 0.23 1.57 129. 527. 5809
```

Context switching - times in microseconds - smaller is better

```
-----
Host      OS 2p/0K 2p/16K 2p/64K 8p/16K 8p/64K 16p/16K 16p/64K
          ctxsw ctxsw ctxsw ctxsw ctxsw ctxsw ctxsw
-----
disabled Linux 2.6.23- 3.380 4.5900 5.5200 5.4100 8.7800 5.68000 8.89000
limit400 Linux 2.6.23- 4.180 4.3400 5.1100 4.7900 7.7200 5.36000 8.18000
notmnted Linux 2.6.23- 4.100 3.3600 5.1100 5.0200 8.9200 5.08000 9.02000
```

Local Communication latencies in microseconds - smaller is better

```
-----
Host      OS 2p/0K Pipe AF   UDP RPC/ TCP RPC/ TCP
          ctxsw  UNIX   UDP   TCP conn
-----
disabled Linux 2.6.23- 3.380 11.8 18.6 20.0 23.2 23.3 26.8 34.5
limit400 Linux 2.6.23- 4.180 11.0 21.0 22.3 23.7 23.1 24.7 37.9
notmnted Linux 2.6.23- 4.100 11.1 18.7 18.4 22.7 22.8 26.4 41.0
```

File & VM system latencies in microseconds - smaller is better

```
-----
Host      OS 0K File 10K File Mmap Prot Page
          Create Delete Create Delete Latency Fault Fault
-----
disabled Linux 2.6.23- 18.4 14.9 228.2 73.2 2998.0 0.375 1.00000
limit400 Linux 2.6.23- 17.9 17.6 240.0 77.6 1874.0 0.496 2.00000
notmnted Linux 2.6.23- 18.9 18.0 188.6 74.9 3044.0 0.467 2.00000
```

Local Communication bandwidths in MB/s - bigger is better

```
-----
Host      OS Pipe AF TCP File Mmap Bcopy Bcopy Mem Mem
          UNIX reread reread (libc) (hand) read write
-----
disabled Linux 2.6.23- 740. 1210 816. 1276.0 2534.0 907.8 877.4 2152 1247.
limit400 Linux 2.6.23- 591. 1186 826. 1280.4 2457.4 1117.8 861.7 2634 1536.
notmnted Linux 2.6.23- 691. 1196 800. 1434.1 1761.6 854.2 827.9 1876 1258.
```

Memory latencies in nanoseconds - smaller is better
(WARNING - may not be correct, check graphs)

```
-----
Host      OS   Mhz  L1 $  L2 $   Main mem  Guesses
-----
disabled  Linux 2.6.23- 1993 1.506 6.0270  97.5
limit400  Linux 2.6.23- 1993 1.506 6.0280  97.5
notmnted  Linux 2.6.23- 1993 1.507 6.0280  97.5
```

LTP

Note, only ltp failures are posted (no new failures were seen due to the memory controller)

disabled

```
clone06  0 WARN : sprintf() failed
clone06  1 BROK : Unexpected signal 11 received.
fcntl27  1 BROK : Unexpected signal 11 received.
fcntl28  1 BROK : Unexpected signal 11 received.
kill05   0 INFO : WARNING: shared memory deletion failed.
mincore01 4 FAIL : call succeeded unexpectedly
setrlimit03 1 FAIL : call succeeded unexpectedly
swapon02  0 WARN : Failed swapon for file swapfile31 returned -96
swapon02  0 WARN : Failed to turn off swap files. system reboot after execution of LTP test
suite is recommended
swapon02  0 WARN : Failed to turn off swap files. system reboot after execution of LTP test
suite is recommended
swapon02  3 BROK : Cleanup failed, quitting the test
swapon02  4 BROK : Remaining cases broken
INFO: pan reported some tests FAIL
```

limit400

```
clone06  0 WARN : sprintf() failed
clone06  1 BROK : Unexpected signal 11 received.
fcntl27  1 BROK : Unexpected signal 11 received.
fcntl28  1 BROK : Unexpected signal 11 received.
kill05   0 INFO : WARNING: shared memory deletion failed.
mincore01 4 FAIL : call succeeded unexpectedly
setrlimit03 1 FAIL : call succeeded unexpectedly
swapon02  0 WARN : Failed swapon for file swapfile31 returned -96
swapon02  0 WARN : Failed to turn off swap files. system reboot after execution of LTP test
suite is recommended
```

swapon02 0 WARN : Failed to turn off swap files. system reboot after execution of LTP test suite is recommended
swapon02 3 BROK : Cleanup failed, quitting the test
swapon02 4 BROK : Remaining cases broken
INFO: pan reported some tests FAIL

notmnted

clone06 0 WARN : sprintf() failed
clone06 1 BROK : Unexpected signal 11 received.
fcntl27 1 BROK : Unexpected signal 11 received.
fcntl28 1 BROK : Unexpected signal 11 received.
kill05 0 INFO : WARNING: shared memory deletion failed.
mincore01 4 FAIL : call succeeded unexpectedly
setrlimit03 1 FAIL : call succeeded unexpectedly
swapon02 0 WARN : Failed swapon for file swapfile31 returned -96
swapon02 0 WARN : Failed to turn off swap files. system reboot after execution of LTP test suite is recommended
swapon02 0 WARN : Failed to turn off swap files. system reboot after execution of LTP test suite is recommended
swapon02 3 BROK : Cleanup failed, quitting the test
swapon02 4 BROK : Remaining cases broken
INFO: pan reported some tests FAIL

VMMSTRESS

The vmmstress function calls the following ltp tests: mmstress, mmap1.c, mmap2.c and mmap3.c.

disabled

vmmstress1

Test Start Time: Sat Aug 18 13:06:26 2007

Testcase	Result	Exit Value
mmstress	PASS	0
mmap1	PASS	0
mmap2	PASS	0
mmap3	PASS	0

Total Tests: 4

Total Failures: 0
Kernel Version: 2.6.23-rc2-mm2-autokern1
Machine Architecture: x86_64

vmmstress2

Test Start Time: Sat Aug 18 12:06:23 2007

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	PASS	0
mtest01	FAIL	14

Total Tests: 1
Total Failures: 1
Kernel Version: 2.6.23-rc2-mm2-autokern1
Machine Architecture: x86_64

notmnted

vmmstress1

Test Start Time: Sat Aug 18 03:05:16 2007

Testcase	Result	Exit Value
-----	-----	-----
mmstress	PASS	0
mmap1	PASS	0
mmap2	PASS	0
mmap3	PASS	0

Total Tests: 4

Total Failures: 0
Kernel Version: 2.6.23-rc2-mm2-autokern1
Machine Architecture: x86_64

vmmstress2

Test Start Time: Sat Aug 18 02:05:14 2007

[illegible]

[illegible]

[illegible]

[illegible]

```
mtest01      PASS      0
mtest01      PASS      0
mtest01      PASS      0
mtest01      FAIL      14
```

```
-----
Total Tests: 1
Total Failures: 1
Kernel Version: 2.6.23-rc2-mm2-autokern1
Machine Architecture: x86_64
```

AIM9

disabled

Starting time: Sat Aug 18 14:06:53 2007
Projected Run Time: 0:08:00
Projected finish: Sat Aug 18 14:14:53 2007

```
-----
Test    Test    Elapsed Iteration  Iteration    Operation
Number  Name      Time (sec)  Count  Rate (loops/sec)  Rate (ops/sec)
-----
  1 creat-clo      60.01   9150 152.47459   152474.59 File Creations and Closes/second
  2 page_test      60.00   6803 113.38333   192751.67 System Allocations &
Pages/second
  3 brk_test       60.01   8479 141.29312   2401983.00 System Memory
Allocations/second
  4 jmp_test       60.01  983432 16387.80203   16387802.03 Non-local gotos/second
  5 signal_test    60.01   27402 456.62390    456623.90 Signal Traps/second
  6 exec_test      60.02    2789 46.46784     232.34 Program Loads/second
  7 fork_test      60.03    2736 45.57721    4557.72 Task Creations/second
  8 link_test      60.05   45537 758.31807    47774.04 Link/Unlink Pairs/second
-----
```

Projected Completion time: Sat Aug 18 14:14:53 2007
Actual Completion time: Sat Aug 18 14:14:53 2007
Difference: 0:00:00

limit400

Starting time: Sat Aug 18 09:38:02 2007
 Projected Run Time: 0:08:00
 Projected finish: Sat Aug 18 09:46:02 2007

Test Number	Test Name	Elapsed Time (sec)	Iteration Count	Iteration Rate (loops/sec)	Operation Rate (ops/sec)
1	creat-clo	60.01	7878	131.27812	131278.12 File Creations and Closes/second
2	page_test	60.00	5411	90.18333	153311.67 System Allocations & Pages/second
3	brk_test	60.02	5098	84.93835	1443952.02 System Memory Allocations/second
4	jmp_test	60.00	983192	16386.53333	16386533.33 Non-local gotos/second
5	signal_test	60.01	28628	477.05382	477053.82 Signal Traps/second
6	exec_test	60.02	2628	43.78540	218.93 Program Loads/second
7	fork_test	60.01	2510	41.82636	4182.64 Task Creations/second
8	link_test	60.02	39902	664.81173	41883.14 Link/Unlink Pairs/second

Projected Completion time: Sat Aug 18 09:46:02 2007
 Actual Completion time: Sat Aug 18 09:46:02 2007
 Difference: 0:00:00

notmnted

Starting time: Sat Aug 18 04:06:05 2007
 Projected Run Time: 0:08:00
 Projected finish: Sat Aug 18 04:14:05 2007

Test Number	Test Name	Elapsed Time (sec)	Iteration Count	Iteration Rate (loops/sec)	Operation Rate (ops/sec)
1	creat-clo	60.02	9164	152.68244	152682.44 File Creations and Closes/second
2	page_test	60.01	5767	96.10065	163371.10 System Allocations & Pages/second
3	brk_test	60.01	6147	102.43293	1741359.77 System Memory Allocations/second
4	jmp_test	60.01	983397	16387.21880	16387218.80 Non-local gotos/second
5	signal_test	60.01	26970	449.42510	449425.10 Signal Traps/second
6	exec_test	60.02	2638	43.95202	219.76 Program Loads/second
7	fork_test	60.01	2575	42.90952	4290.95 Task Creations/second

8 link_test 60.01 49737 828.81186 52215.15 Link/Unlink Pairs/second

Projected Completion time: Sat Aug 18 04:14:05 2007

Actual Completion time: Sat Aug 18 04:14:05 2007

Difference: 0:00:00

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Warm Regards,
Balbir Singh
Linux Technology Center
IBM, ISTL

Containers mailing list
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<https://lists.linux-foundation.org/mailman/listinfo/containers>
