Fixing strange Debian Linux Squeeze system overloads and Apache Webserver crashes

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For quite some time, my home run server pre-installed with Debian Squeeze Linux has been crashing in a very strange circumstances inside **dmesg** kernel log and in **/var/log/messages** on times, when this crashes occur I see errors / warnings spitting not very helpful kernel debug messages like this:

Oct 16 11:32:28 pcfreak kernel: [66657.797930] Pid: 0, comm: swapper Not tainted 2.6.32-5-amd64 #1
Oct 16 11:32:28 pcfreak kernel: [66657.797931] Call Trace:
Oct 16 11:32:28 pcfreak kernel: [66657.797933] [] ? select_nohz_load_balancer+0x94/0x163
Oct 16 11:32:28 pcfreak kernel: [66657.797943] [] ? __report_bad_irq+0x30/0x7d
Oct 16 11:32:28 pcfreak kernel: [66657.797945] [] ? note_interrupt+0x105/0x16e
Oct 16 11:32:28 pcfreak kernel: [66657.797948] [] ? handle_fasteoi_irq+0x93/0xb5
Oct 16 11:32:28 pcfreak kernel: [66657.797952] [] ? handle_irq+0x17/0x1d
Oct 16 11:32:28 pcfreak kernel: [66657.797954] [] ? do_IRQ+0x57/0xb6
Oct 16 11:32:28 pcfreak kernel: [66657.797956] [] ? ret_from_intr+0x0/0x11
Oct 16 11:32:28 pcfreak kernel: [66657.797957] [] ? poll_idle+0x28/0x5b
Oct 16 11:32:28 pcfreak kernel: [66657.797963] [] ? poll_idle+0xa/0x5b
Oct 16 11:32:28 pcfreak kernel: [66657.797965] [] ? cpuidle_idle_call+0x94/0xee
Oct 16 11:32:28 pcfreak kernel: [66657.797968] [] ? cpu_idle+0xa2/0xda
Oct 16 11:32:28 pcfreak kernel: [66657.797971] [] ? early_idt_handler+0x0/0x71
Oct 16 11:32:28 pcfreak kernel: [66657.797974] [] ? start_kernel+0x3dc/0x3e8
Oct 16 11:32:28 pcfreak kernel: [66657.797976] [] ?x86_64_start_kernel+0xf9/0x106

and this:

Oct 16 15:53:14 pcfreak kernel: [82297.972509] apache2 invoked oom-killer: gfp_mask=0x200da, order=0, oom_adj=0
Oct 16 15:53:30 pcfreak kernel: [82297.972513] apache2 cpuset=/ mems_allowed=0
Oct 16 15:53:30 pcfreak kernel: [82297.972515] Pid: 8943, comm: apache2 Not tainted 2.6.32-5-amd64 #1
Oct 16 15:53:30 pcfreak kernel: [82297.972517] Call Trace:
Oct 16 15:53:30 pcfreak kernel: [82297.972523] [] ? oom_kill_process+0x7f/0x23f
Oct 16 15:53:30 pcfreak kernel: [82297.972527] [] ? timekeeping_get_ns+0xe/0x2e
Oct 16 15:53:30 pcfreak kernel: [82297.972529] [] ? __out_of_memory+0x12a/0x141
Oct 16 15:53:30 pcfreak kernel: [82297.972531] [] ? out_of_memory+0x140/0x172
Oct 16 15:53:30 pcfreak kernel: [82297.972534] [] ? __alloc_pages_nodemask+0x4ec/0x5fb
Oct 16 15:53:30 pcfreak kernel: [82297.972538] [] ? do_wp_page+0x386/0x707
Oct 16 15:53:30 pcfreak kernel: [82297.972541] [] ? autoremove_wake_function+0x9/0x2e
Oct 16 15:53:30 pcfreak kernel: [82297.972544] [] ? __wake_up_common+0x44/0x72
Oct 16 15:53:30 pcfreak kernel: [82297.972547] [] ? __wake_up+0x30/0x44
Oct 16 15:53:30 pcfreak kernel: [82297.972549] [] ? handle_mm_fault+0x704/0x80f

Oct 16 15:53:30 pcfreak kernel: [82297.972553] [] ? do_page_fault+0x2e0/0x2fc
Oct 16 15:53:30 pcfreak kernel: [82297.972556] [] ? page_fault+0x25/0x30

Oct 16 18:41:55 pcfreak kernel: [6582.554746] Mem-Info:
Oct 16 18:41:55 pcfreak kernel: [6582.554747] Node 0 DMA per-cpu:
Oct 16 18:41:55 pcfreak kernel: [6582.554751] CPU 0: hi: 0, btch: 1 usd: 0
Oct 16 18:41:55 pcfreak kernel: [6582.554753] CPU 1: hi: 0, btch: 1 usd: 0
Oct 16 18:41:55 pcfreak kernel: [6582.554755] Node 0 DMA32 per-cpu:
Oct 16 18:41:55 pcfreak kernel: [6582.554758] CPU 0: hi: 186, btch: 31 usd: 0
Oct 16 18:41:55 pcfreak kernel: [6582.554760] CPU 1: hi: 186, btch: 31 usd: 0
Oct 16 18:41:55 pcfreak kernel: [6582.554762] Node 0 Normal per-cpu:
Oct 16 18:41:55 pcfreak kernel: [6582.554765] CPU 0: hi: 186, btch: 31 usd: 5
Oct 16 18:41:55 pcfreak kernel: [6582.554767] CPU 1: hi: 186, btch: 31 usd: 0
Oct 16 18:41:55 pcfreak kernel: [6582.554773] active_anon:1580557 inactive_anon:308231 isolated_anon:9504
Oct 16 18:41:55 pcfreak kernel: [6582.554775] active_file:148 inactive_file:220 isolated_file:32
Oct 16 18:41:55 pcfreak kernel: [6582.554776] unevictable:0 dirty:5 writeback:494 unstable:0
Oct 16 18:41:55 pcfreak kernel: [6582.554777] free:12063 slab_reclaimable:4262 slab_unreclaimable:17553
Oct 16 18:41:55 pcfreak kernel: [6582.554778] mapped:148 shmem:43 pagetables:89423 bounce:0
Oct 16 18:41:55 pcfreak kernel: [6582.554781] Node 0 DMA free:15880kB min:20kB low:24kB high:28kB active_anon:0kB inactive_anon:0kB active_file:0kB inactive
_file:0kB unevictable:0kB isolated(anon):0kB isolated(file):0kB present:15328kB mlocked:0kB dirty:0kB writeback:0kB mapped:0kB shmem:0kB slab_reclaimable:0kB slab_unreclaimable:8kB kernel_stack:0kB pagetables:0kB unstable:0kB bounce:0kB writeback_tmp:0kB pages_scanned:0 all_unreclaimable? no
Oct 16 18:41:55 pcfreak kernel: [6582.554794] lowmem_reserve[]: 0 2947 7995 7995
Oct 16 18:41:55 pcfreak kernel: [6582.554798] Node 0 DMA32 free:24672kB min:4212kB low:5264kB high:6316kB active_anon:2153732kB inactive_anon:538456kB activ
e_file:32kB inactive_file:56kB unevictable:0kB isolated(anon):6912kB isolated(file):0kB present:3017744kB mlocked:0kB dirty:16kB writeback:336kB mapped:184kB shmem:168kB slab_reclaimable:4400kB slab_unreclaimable:21908kB kernel_stack:1816kB pagetables:131140kB unstable:0kB bounce:0kB writeback_tmp:0kB pages_scann
ed:42 all_unreclaimable? no
Oct 16 18:41:55 pcfreak kernel: [6582.554812] lowmem_reserve[]: 0 0 5048 5048
Oct 16 18:41:55 pcfreak kernel: [6582.554815] Node 0 Normal free:7700kB min:7216kB low:9020kB high:10824kB active_anon:4168496kB inactive_anon:694468kB acti
ve_file:560kB inactive_file:824kB unevictable:0kB isolated(anon):31104kB isolated(file):128kB present:5169180kB mlocked:0kB dirty:4kB writeback:1640kB mapped
:408kB shmem:4kB slab_reclaimable:12648kB slab_unreclaimable:48296kB kernel_stack:3488kB pagetables:226552kB unstable:0kB bounce:0kB writeback_tmp:0kB pages_
scanned:224 all_unreclaimable? no
Oct 16 18:41:55 pcfreak kernel: [6582.554829] lowmem_reserve[]: 0 0 0 0
Oct 16 18:41:55 pcfreak kernel: [6582.554832] Node 0 DMA: 2*4kB 2*8kB 3*16kB 4*32kB 3*64kB 3*128kB 1*256kB 1*512kB 2*1024kB 2*2048kB 2*4096kB = 15880kB

Oct 16 18:41:55 pcfreak kernel: [6582.554842] Node 0 DMA32: 114*4kB 73*8kB 273*16kB 256*32kB 85*64kB 10*128kB 1*256kB 0*512kB 0*1024kB 0*2048kB 1*4096kB = 2
4672kB
Oct 16 18:41:55 pcfreak kernel: [6582.554852] Node 0 Normal: 867*4kB 103*8kB 7*16kB 13*32kB 7*64kB 1*128kB 1*256kB 0*512kB 0*1024kB 1*2048kB 0*4096kB = 7700
kB
Oct 16 18:41:55 pcfreak kernel: [6582.554862] 89702 total pagecache pages
Oct 16 18:41:55 pcfreak kernel: [6582.554864] 89257 pages in swap cache
Oct 16 18:41:55 pcfreak kernel: [6582.554866] Swap cache stats: add 4155760, delete 4066503, find 618278/801429
Oct 16 18:41:55 pcfreak kernel: [6582.554868] Free swap = 0kB
Oct 16 18:41:55 pcfreak kernel: [6582.554870] Total swap = 5787636kB
Oct 16 18:41:55 pcfreak kernel: [6582.581389] 2096640 pages RAM
Oct 16 18:41:55 pcfreak kernel: [6582.581392] 60657 pages reserved
Oct 16 18:41:55 pcfreak kernel: [6582.581394] 330845 pages shared
Oct 16 18:41:55 pcfreak kernel: [6582.581397] 2012293 pages non-shared

It took, me long time of thinking and pondering what is causing this errors ....
I thought it is due to some failing RAM bank or some kind of conflict URL hardware inconpitability, I had some thoghts that it is possible Hard Disk is failing or have some bad blocks; However as I bought the machine brand new and besides that it is not assembled one PC but brand one *Lenovo ThinkEdge*, I've further thought and investigated if Apache is failing due to some problem with Apache modules. After reviewing all system installed modules, I've found **php5-suhosin**, was installed on the system (probably as a dependency package) to something else I previously installed ??
I don't have a very positive feedback on some other servers I configured with Apache, whether **php5-suhosin** was installed so decided to try removing it ....:

```
# dpkg -r php5-suhosin
.....
# dpkg --purge php5-suhosin
```

I've also lowered down a bit the *StartServers* and *MaxSpareServers* (mod_prefork_modules) section in */etc/apache2/apache2.conf*:

StartServers there was set to: *700* and *MaxSpareServers* to *150*, I've changed the values to read as so:

```
StartServers 500
MinSpareServers 100
MaxSpareServers 120
MaxClients 1000
MaxRequestsPerChild 10000
```

Just for info machine is with 8 Gigabytes of Memory and has 1x 2 cores CPU:

```
# free -m |grep -i 'mem:'
Mem: 7953 7871 81 0 91 753
```

```
# cat /proc/cpuinfo |grep -i proces -A 5
processor : 0
vendor_id : GenuineIntel
cpu family : 6
model : 42
model name : Intel(R) Pentium(R) CPU G630 @ 2.70GHz
stepping : 7
--
processor : 1
vendor_id : GenuineIntel
cpu family : 6
model : 42
model name : Intel(R) Pentium(R) CPU G630 @ 2.70GHz
stepping : 7
```

After that to make module already loaded in system memory by Apache main (parent) process, I restarted Apache as well:

```
# apache2ctl -k restart
```

Following that changes - Thanks God! ; I no longer experience the weird errors and Server overloads ;)