**Report on Page Fault occurred on compute Intensive program.**

For the compute intensive operation, I have tried to do simple matrix calculation which is accessing the memory. Here row dimension should be in the rage of column otherwise the segmentation fault would generate.

Page fault could occur as I am trying to access entry in an array using column format. If we do matrix calculation, then page fault would occur more fast.

Here’s the page fault that is occurred after trying to do compute intensive program.

[484381.374518] Page Fault : Process ID = 30398 Address = 563de8db3e40 Time = 470845315

[484381.374548] Page Fault : Process ID = 30398 Address = 563de8daf930 Time = 470845315

[484381.374558] Page Fault : Process ID = 30398 Address = 7f910d2a68a0 Time = 470845315

[484381.374580] Page Fault : Process ID = 30398 Address = 563de8dca358 Time = 470845315

[484381.374618] Page Fault : Process ID = 30398 Address = 563de8dcb358 Time = 470845315

[484381.375124] Page Fault : Process ID = 30398 Address = 7ffd88dff13c Time = 470845315

[484381.375129] Page Fault : Process ID = 30398 Address = 7ffd88dfeff8 Time = 470845315

[484381.375133] Page Fault : Process ID = 30398 Address = 7ffd88dfaa18 Time = 470845315

[484381.375136] Page Fault : Process ID = 30398 Address = 7f910db08044 Time = 470845315

[484381.375139] Page Fault : Process ID = 30398 Address = 7ffd88dfb000 Time = 470845315

[484381.375142] Page Fault : Process ID = 30398 Address = 7ffd88dfc000 Time = 470845315

[484381.375181] Page Fault : Process ID = 30398 Address = 563de8dbff60 Time = 470845315

[484381.375185] Page Fault : Process ID = 30398 Address = 7f910dd3b9d8 Time = 470845315

[484381.375192] Page Fault : Process ID = 30398 Address = 7f910b8a7140 Time = 470845315

[484381.375198] Page Fault : Process ID = 30398 Address = 7f910dd3c0a0 Time = 470845315

[484381.375201] Page Fault : Process ID = 30398 Address = 7f910dd283dc Time = 470845315

[484381.375203] Page Fault : Process ID = 30398 Address = 7f910dd292cc Time = 470845315

[484381.375205] Page Fault : Process ID = 30398 Address = 7f910dd263dc Time = 470845315

[484381.375208] Page Fault : Process ID = 30398 Address = 563de8db074c Time = 470845315

[484381.375211] Page Fault : Process ID = 30398 Address = 563de8db172c Time = 470845315

[484381.375414] Page Fault : Process ID = 30398 Address = 7f910ca944d0 Time = 470845315

[484381.375419] Page Fault : Process ID = 30398 Address = 7f910c3402e0 Time = 470845315

[484381.375422] Page Fault : Process ID = 30398 Address = 7f910c136180 Time = 470845315

[484381.375425] Page Fault : Process ID = 30398 Address = 7f910bf28340 Time = 470845315

[484381.375428] Page Fault : Process ID = 30398 Address = 7f910bd22808 Time = 470845315

[484381.375433] Page Fault : Process ID = 30398 Address = 7f910bd0a180 Time = 470845315

[484381.375437] Page Fault : Process ID = 30398 Address = 7f910ca410a0 Time = 470845315

[484381.375440] Page Fault : Process ID = 30398 Address = 7f910ceb8134 Time = 470845315

[484381.375443] Page Fault : Process ID = 30398 Address = 7f910b699780 Time = 470845315

[484381.375446] Page Fault : Process ID = 30398 Address = 7f910b488b50 Time = 470845315

[484381.375452] Page Fault : Process ID = 30398 Address = 7f910b45a280 Time = 470845315

[484381.375455] Page Fault : Process ID = 30398 Address = 7f910c839300 Time = 470845315

**Scatter Plot:**

Many page fault occurs within same time frame.

x-axis -> time in nanosec

y-axis -> virtual address

virtual address which is in hex is converted into decimal.

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| 470845315 | 9.48239E+13 |
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| 470845315 | 1.40727E+14 |
| 470845315 | 1.40261E+14 |
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**Report on IO Intensive compute.**

I have tried to read the chuck of data from one file and write It on another. I have tried to iterate this process over 1500 times. However, the page fault is very less as compared to the matrix calculation output.

Here’s the page fault that is occurred after trying to do compute intensive program

[495520.268388] Page Fault : Process ID = 20044 Address = 55e69633aad8 Time = 451853768

[495520.268409] Page Fault : Process ID = 20044 Address = 55e69633bae8 Time = 451853768

[495521.007627] Page Fault : Process ID = 20044 Address = 7f7680c609d0 Time = 187858886

**Scatter Plot:**

x-axis -> time in nanosec

y-axis -> virtual address

virtual address which is in hex is converted into decimal.

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