

Other Application

Purpose

In this application, I have initially assigned a larger buffer and reading data randomly from an address that is not present in the RAM so it is being generated page faults every time.

What's Important

This is a very interesting case for generating page faults as and when you try to access a memory. Many page faults would get generated.

My Key Observation

I have used the rand function to access a random part of memory so it generates a minor page fault. This is a kind of allocate a large buffer than your RAM and then try to access a random part of it which is not present in the RAM.

Log of Page Faults

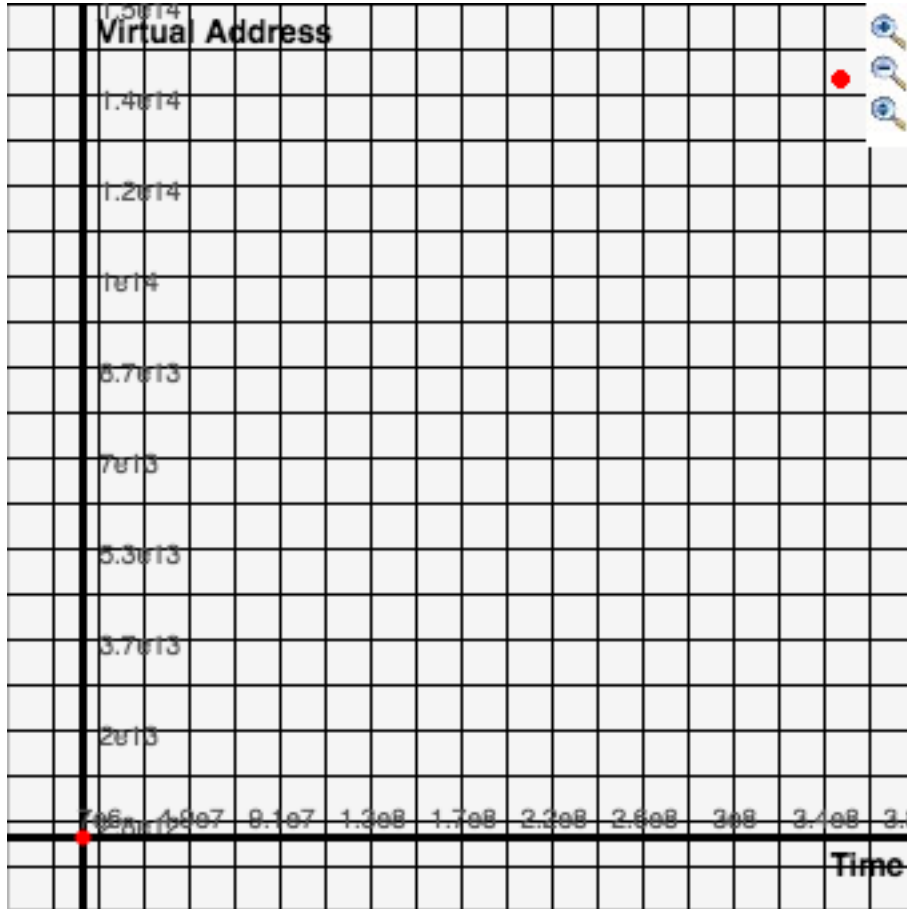
The following log gets printed by this application:

```
[22546.290368] Time (nsec) = 349144077 Address = 0x7fe987764010
[22546.290370] Time (nsec) = 349144077 Address = 0x7fe987765010
[22546.290373] Time (nsec) = 349144077 Address = 0x7fe987766010
[22546.290376] Time (nsec) = 349144077 Address = 0x7fe987767010
[22546.290379] Time (nsec) = 349144077 Address = 0x7fe987768010
[22546.290381] Time (nsec) = 349144077 Address = 0x7fe987769010
[22546.290384] Time (nsec) = 349144077 Address = 0x7fe98776a010
[22546.290386] Time (nsec) = 349144077 Address = 0x7fe98776b010
[22546.290389] Time (nsec) = 349144077 Address = 0x7fe98776c010
[22546.290392] Time (nsec) = 349144077 Address = 0x7fe98776d010
[22546.290394] Time (nsec) = 349144077 Address = 0x7fe98776e010
[22546.290397] Time (nsec) = 349144077 Address = 0x7fe98776f010
[22546.290400] Time (nsec) = 349144077 Address = 0x7fe987770010
[22546.290402] Time (nsec) = 349144077 Address = 0x7fe987771010
[22546.290405] Time (nsec) = 349144077 Address = 0x7fe987772010
[22546.290407] Time (nsec) = 349144077 Address = 0x7fe987773010
[22546.290410] Time (nsec) = 349144077 Address = 0x7fe987774010
[22546.290413] Time (nsec) = 349144077 Address = 0x7fe987775010
[22546.290416] Time (nsec) = 349144077 Address = 0x7fe987776010
[22546.290419] Time (nsec) = 349144077 Address = 0x7fe987777010
[22546.290421] Time (nsec) = 349144077 Address = 0x7fe987778010
```

[22546.290424] Time (nsec) = 349144077 Address = 0x7fe987779010
[22546.290426] Time (nsec) = 349144077 Address = 0x7fe98777a010
[22546.290429] Time (nsec) = 349144077 Address = 0x7fe98777b010
[22546.290432] Time (nsec) = 349144077 Address = 0x7fe98777c010
[22546.290434] Time (nsec) = 349144077 Address = 0x7fe98777d010
[22546.290437] Time (nsec) = 349144077 Address = 0x7fe98777e010
[22546.290439] Time (nsec) = 349144077 Address = 0x7fe98777f010
[22546.290442] Time (nsec) = 349144077 Address = 0x7fe987780010

[22546.290613] Time (nsec) = 349144077 Address = 0x7fe987737010
[22546.290617] Time (nsec) = 349144077 Address = 0x7fe987738010
[22546.290620] Time (nsec) = 349144077 Address = 0x7fe987739010
[22546.290625] Time (nsec) = 349144077 Address = 0x7fe98773a010
[22546.290628] Time (nsec) = 349144077 Address = 0x7fe98773b010
[22546.290631] Time (nsec) = 349144077 Address = 0x7fe98773c010
[22546.290634] Time (nsec) = 349144077 Address = 0x7fe98773d010
[22546.290637] Time (nsec) = 349144077 Address = 0x7fe98773e010
[22546.290639] Time (nsec) = 349144077 Address = 0x7fe98773f010
[22546.290642] Time (nsec) = 349144077 Address = 0x7fe987740010
[22546.290644] Time (nsec) = 349144077 Address = 0x7fe987741010
[22546.290647] Time (nsec) = 349144077 Address = 0x7fe987742010
[22546.290650] Time (nsec) = 349144077 Address = 0x7fe987743010
[22546.290653] Time (nsec) = 349144077 Address = 0x7fe987744010
[22546.290656] Time (nsec) = 349144077 Address = 0x7fe987745010
[22546.290660] Time (nsec) = 349144077 Address = 0x7fe987746010
[22546.290664] Time (nsec) = 349144077 Address = 0x7fe987747010
[22546.290668] Time (nsec) = 349144077 Address = 0x7fe987748010
[22546.290671] Time (nsec) = 349144077 Address = 0x7fe987749010
[22546.290675] Time (nsec) = 349144077 Address = 0x7fe98774a010
[22546.290687] Time (nsec) = 349144077 Address = 0x7fe98774b010
[22546.290690] Time (nsec) = 349144077 Address = 0x7fe98774c010
[22546.290692] Time (nsec) = 349144077 Address = 0x7fe98774d010
[22546.290695] Time (nsec) = 349144077 Address = 0x7fe98774e010
[22546.290701] Time (nsec) = 349144077 Address = 0x7fe98774f010
[22546.290704] Time (nsec) = 349144077 Address = 0x7fe987750010
[22546.290706] Time (nsec) = 349144077 Address = 0x7fe987751010
[22546.290709] Time (nsec) = 349144077 Address = 0x7fe987752010
[22546.290712] Time (nsec) = 349144077 Address = 0x7fe987753010
[22546.290714] Time (nsec) = 349144077 Address = 0x7fe987754010
[22546.290717] Time (nsec) = 349144077 Address = 0x7fe987755010
[22546.290720] Time (nsec) = 349144077 Address = 0x7fe987756010
[22546.290722] Time (nsec) = 349144077 Address = 0x7fe987757010
[22546.290725] Time (nsec) = 349144077 Address = 0x7fe987758010
[22546.290727] Time (nsec) = 349144077 Address = 0x7fe987759010

Scatter Plot:



The following values I used to draw the scatter graph.

X - Time

Y- Virtual Address (Hexadecimal converted to decimal)

Please see the red dots. Actually it looks one however there are many more in it. It spreads over the same location.

(0,0)

(349144077, 140640977039368)

(349144077, 140640977063952)

(349144077, 140640977072144)

(349144077, 140640977084432)

(349144077, 140640977100816)

(349144077, 140640977113104)

(349144077, 140640977125392)

(349144077, 140640977137680)

(349144077, 140640977154064)

(349144077, 140640976998416)

(349144077, 140640977010704)

(349144077, 140640976506888)

(349144077, 140640976527376)

(349144077, 140640976564240)

(349144077, 140640976592912)

