

Report

TLB Replacement Policy

- LRU

- sys_config.txt

```
TLB Replacement Policy: LRU
Page Replacement Policy: FIFO
Frame Allocation Policy: GLOBAL
Number of Processes: 2
Number of Virtual Page: 128
Number of Physical Frame: 64
```

- analysis.txt

```
Process A, Effective Access Time = 164.758
Process A, Page Fault rate = 0.723
Process B, Effective Access Time = 163.709
Process B, Page Fault rate = 0.665
```

- RANDOM

- sys_config.txt

```
TLB Replacement Policy: RANDOM
Page Replacement Policy: FIFO
Frame Allocation Policy: GLOBAL
Number of Processes: 2
Number of Virtual Page: 128
Number of Physical Frame: 64
```

- analysis.txt

```
Process A, Effective Access Time = 165.200
Process A, Page Fault rate = 0.723
Process B, Effective Access Time = 163.333
Process B, Page Fault rate = 0.665
```

- 若範例input來看，LRU和RANDOM並沒有造成太大的差距，稍微可以看出使用RANDOM的時候Process A的TLB miss比較多，Process B的TLB miss比較少，因為TLB miss 但Page hit的時候會多一次查詢時

間，但不會增加Page Fault

- 造成這個結果可能是因為input file並沒有很規律的重複reference相同的page
- 如果process 會reference特定幾個frame的話，LRU的效果會比reference好
- 而random的好處則是不管在哪種情況下TLB miss應該都會差不多

Page Replacement Policy

- FIFO

- sys_config.txt

```
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```
Process A, Effective Access Time = 164.758
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```

- CLOCK

- sys_config.txt

```
TLB Replacement Policy: LRU
Page Replacement Policy: CLOCK
Frame Allocation Policy: GLOBAL
Number of Processes: 2
Number of Virtual Page: 128
Number of Physical Frame: 64
```

- analysis.txt

```
Process A, Effective Access Time = 164.758
Process A, Page Fault rate = 0.723
Process B, Effective Access Time = 163.709
Process B, Page Fault rate = 0.665
```

- 兩者看起來並沒有差異，因此我準備了LOCAL的來做比對
- FIFO
 - sys_config.txt

```
TLB Replacement Policy: LRU
Page Replacement Policy: FIFO
Frame Allocation Policy: LOCAL
Number of Processes: 2
Number of Virtual Page: 128
Number of Physical Frame: 64
```

- analysis.txt

```
Process A, Effective Access Time = 164.980
Process A, Page Fault rate = 0.774
Process B, Effective Access Time = 163.144
Process B, Page Fault rate = 0.700
```

- CLOCK
 - sys_config.txt

```
TLB Replacement Policy: LRU
Page Replacement Policy: CLOCK
Frame Allocation Policy: LOCAL
Number of Processes: 2
Number of Virtual Page: 128
Number of Physical Frame: 64
```

- analysis.txt

```
Process A, Effective Access Time = 164.980
Process A, Page Fault rate = 0.774
Process B, Effective Access Time = 163.522
Process B, Page Fault rate = 0.694
```

- 使用clock 的話有機會使Page fault rate在local的時候變小，如果頻繁接觸某幾個page的話，clock policy可以保留頻繁接觸的frame但fifo不行

Frame Allocation Policy

- GLOBAL

- sys_config.txt

```
TLB Replacement Policy: LRU
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Number of Processes: 2
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```

- analysis.txt

```
Process A, Effective Access Time = 164.758
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Process B, Page Fault rate = 0.665
```

- LOCAL

- sys_config.txt

```
TLB Replacement Policy: LRU
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- analysis.txt

```
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Process B, Page Fault rate = 0.700
```

- page fault的話global會有比local還要好的效果，因為global能夠根據當下process執行的狀況來分配適當的page，找到process比較夠用的page數量
- 但effective access rate受到TLB的影響比較多，所以影響沒有那麼大
- 另外,綜合frame policy和page policy，在範例測資中相同TLBpolicy下，frame policy對Page fault rate的影響會比page policy大