**********Draft**********

32 bit vs 64 bit

07/21/20

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32bit O/S 32 bit application
real 1m21.215s
user 1m21.067s
sys 0m0.120s
-rwxr-xr-x 1 devel devel 39304 Jun 18 16:58 master

64bit O/S 32 bit application
real 1m25.409s
user 1m25.312s
sys 0m0.081s

64bit O/S 64 bit application
real 1m29.992s
user 1m29.874s
sys 0m0.080s
-rwxr-xr-x 1 devel devel 49088 Jul 21 06:36 master

The storage media provides improvement of micro sd

32bit O/S 32 bit application USB ssd
real 1m8.582s
user 1m8.249s
sys 0m0.130s

The master application creates 3 threads which reads a pgm image file and computes a **singular value decomposition** (**SVD**).

Then the SVD values are used to reconstruct the image an writes the rcred.bin, rcgrn.bin and rcblue.bin in a floating point format.

In main red.pgm Sred.bin rcred.bin 0 0
In main grn.pgm Sgrn.bin rcgrn.bin 0 0
In main blu.pgm Sblu.bin rcblu.bin 0 0
name: Allen
age: 20
0x0

1st thread processing th_id[0] 0xb6d09460
In mysvd input_file: red.pgm
In mysvd first_output: Sred.bin
In mysvd second_output: rcred.bin
In mysvd status: 0
In mysvd num_bytes_rd: 0

ncols=512 nrows=512
In mysvd status input file read: 1 num_bytes_rd 262144
red.pgm th0.len1 = 0
len = 1050624 th0.len2 = 1050624 th0.len3 = 1050624 th0.len4 = 1050624

```
setting up ptrs with malloc
pa 0xb603a808 ppa 0xb603a008
pv = 0xb623c808 ppv = 0xb623c008
pvt = 0xb5e38808 ppvt = 0xb5e38008
pds = 0xb5f39808 ppds = 0xb5f39008
puds = 0xb613b808 ppuds = 0xb613b008
pudsvt = 0xb5c36808 ppudsvt = 0xb5c36008
U row = 512 col = 512
Singular Values
V row = 512 col = 512
V' row = 512 col = 512
Call mul u * s
UDS row = 512 col = 512
Call mul u * ds * vt
USDVT row = 512 col = 512
ps converted from float to int 0xb64005b8
# of data written 0x40000

 2nd thread processing th_id[1] 0xb6d09460
In mysvd input_file: grn.pgm
In mysvd first_output: Sgrn.bin
In mysvd second_output: rcgrn.bin
In mysvd status: 0
In mysvd num_bytes_rd: 0

ncols=512 nrows=512
In mysvd status input file read: 1 num_bytes_rd 262144
grn.pgm th1.len1 = 0
len = 1050624 th1.len2 = 1050624 th1.len3 = 1050624 th1.len4 = 1050624
len = 1050624 th1.len2 = 1050624 th1.len3 = 1050624 th1.len4 = 1050624
setting up ptrs with malloc
pa 0xb5efd808 ppa 0xb5efd008
pv = 0xb60ff808 ppv = 0xb60ff008
pvt = 0xb5cfb808 ppvt = 0xb5cfb008
pds = 0xb5dfc808 ppds = 0xb5dfc008
puds = 0xb5ffe808 ppuds = 0xb5ffe008
pudsvt = 0xb5af9808 ppudsvt = 0xb5af9008
U row = 512 col = 512
Singular Values
V row = 512 col = 512
V' row = 512 col = 512
Call mul u * s
UDS row = 512 col = 512
Call mul u * ds * vt
USDVT row = 512 col = 512
ps converted from float to int 0xb64c05d0
# of data written 0x40000

 3rd thread processing th_id[2] 0xb6d09460
In mysvd input_file: blu.pgm
In mysvd first_output: Sblu.bin
In mysvd second_output: rcblu.bin
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```
In mysvd status: 0
In mysvd num_bytes_rd: 0

ncols=512 nrows=512
In mysvd status input file read: 1 num_bytes_rd 262144
blu.pgm th2.len1 = 0
len = 1050624 th2.len2 = 1050624 th2.len3 = 1050624 th2.len4 = 1050624
len = 1050624 th2.len2 = 1050624 th2.len3 = 1050624 th2.len4 = 1050624
setting up ptrs with malloc
pa 0xb5bfa808 ppa 0xb5bfa008
pv = 0xb5eff808 ppv = 0xb5eff008
pvt = 0xb59f8808 ppvt = 0xb59f8008
pds = 0xb5af9808 ppds = 0xb5af9008
puds = 0xb5cfb808 ppuds = 0xb5cfb008
pudsvt = 0xb57f6808 ppudsvt = 0xb57f6008
U row = 512 col = 512
Singular Values
V row = 512 col = 512
V' row = 512 col = 512
Call mul u * s
UDS row = 512 col = 512
Call mul u * ds * vt
USDVT row = 512 col = 512
ps converted from float to int 0xb64c05d0
# of data written 0x40000
all threads joined
In main status 4 num_bytes_rd 262144
In main status 4 num_bytes_rd 262144
In main status 4 num_bytes_rd 262144

real    2m7.119s
user    2m6.529s
sys     0m0.240s
```