

*******DRAFT*******

Single Value Decomposition SVD using thread

Ultibo bare metal

07/01/20

*******DRAFT*******

```
devel@mypi3-20:~ $ export PATH=/home/devel/ultibo/core/fpc/bin:$PATH
devel@mypi3-20:~ $ cd Ultibo_Projects/th_svd/RPi3
devel@mypi3-20:~/Ultibo_Projects/th_svd/RPi3 $ ./buildlib.sh
Compiling example ultibo_th_svd
devel@mypi3-20:~/Ultibo_Projects/th_svd/RPi3 $ fpc -vi -B -Tultibo -Parm -CpARMV7A -
WpRPi3B @/home/devel/ultibo/core/fpc/bin/RPi3.CFG -O4 svd_FS_RPi3.lpr
Free Pascal Compiler version 3.1.1 [2020/06/17] for arm
Copyright (c) 1993-2015 by Florian Klaempfl and others
Target OS: Ultibo
Compiling svd_FS_RPi3.lpr
Compiling uTFTP.pas
Assembling utftp
svd_FS_RPi3.lpr(40,2) Note: Local variable "MyPLoggingDevice" not used
svd_FS_RPi3.lpr(42,2) Note: Local variable "Handle1" not used
svd_FS_RPi3.lpr(43,2) Note: Local variable "Handle3" not used
svd_FS_RPi3.lpr(45,2) Note: Local variable "Window" not used
Assembling svd_fs_rpi3
Linking svd_FS_RPi3
687 lines compiled, 1.9 sec, 2878204 bytes code, 94520 bytes data
4 note(s) issued
devel@mypi3-20:~/Ultibo_Projects/th_svd/RPi3 $ tftp 192.168.1.69 < cmdstftp
tftp> tftp> Sent 2942416 bytes in 6.0 seconds
tftp> devel@mypi3-20:~/Ultibo_Projects/th_svd/RPi3 $ ./getsvdresults.sh
retrieve svd results
tftp> tftp> Error code 5: 56075
Received 2048 bytes in 5.0 seconds
tftp> Error code 5: 59590
Received 2048 bytes in 5.1 seconds
tftp> Error code 5: 58020
Received 2048 bytes in 5.0 seconds
tftp> tftp> Error code 5: 58395
Received 1048576 bytes in 8.1 seconds
tftp> Error code 5: 34075
Received 1048576 bytes in 8.5 seconds
tftp> Error code 5: 49860
Received 1048576 bytes in 8.3 seconds
tftp> tftp> done
```

Ultibo Core (Release: Rootroot Version: 2.0.745 Date: 23 September 2019)

22:27:24

TFTP Demo.

In main red.pgm Sred.bin rcred.bin 0 0

In main grn.pgm Sgrn.bin rgrn.bin 0 0

In main blu.pgm Sblu.bin rblu.bin 0 0

name: Allen

age: 20

0x0

1st thread processing th_id[0] 0x306a0b4

In mysd input file: red.pgm

In mysd first output: Sred.bin

In mysd second output: rcred.bin

In mysd status: 0

In mysd num_bytes_rd: 0

ncols=512 nrow=512

In mysd 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 0xc02c2a88 ppa 0xc02c2288

pv = 0xc00c1a78 ppv = 0xc00c1278

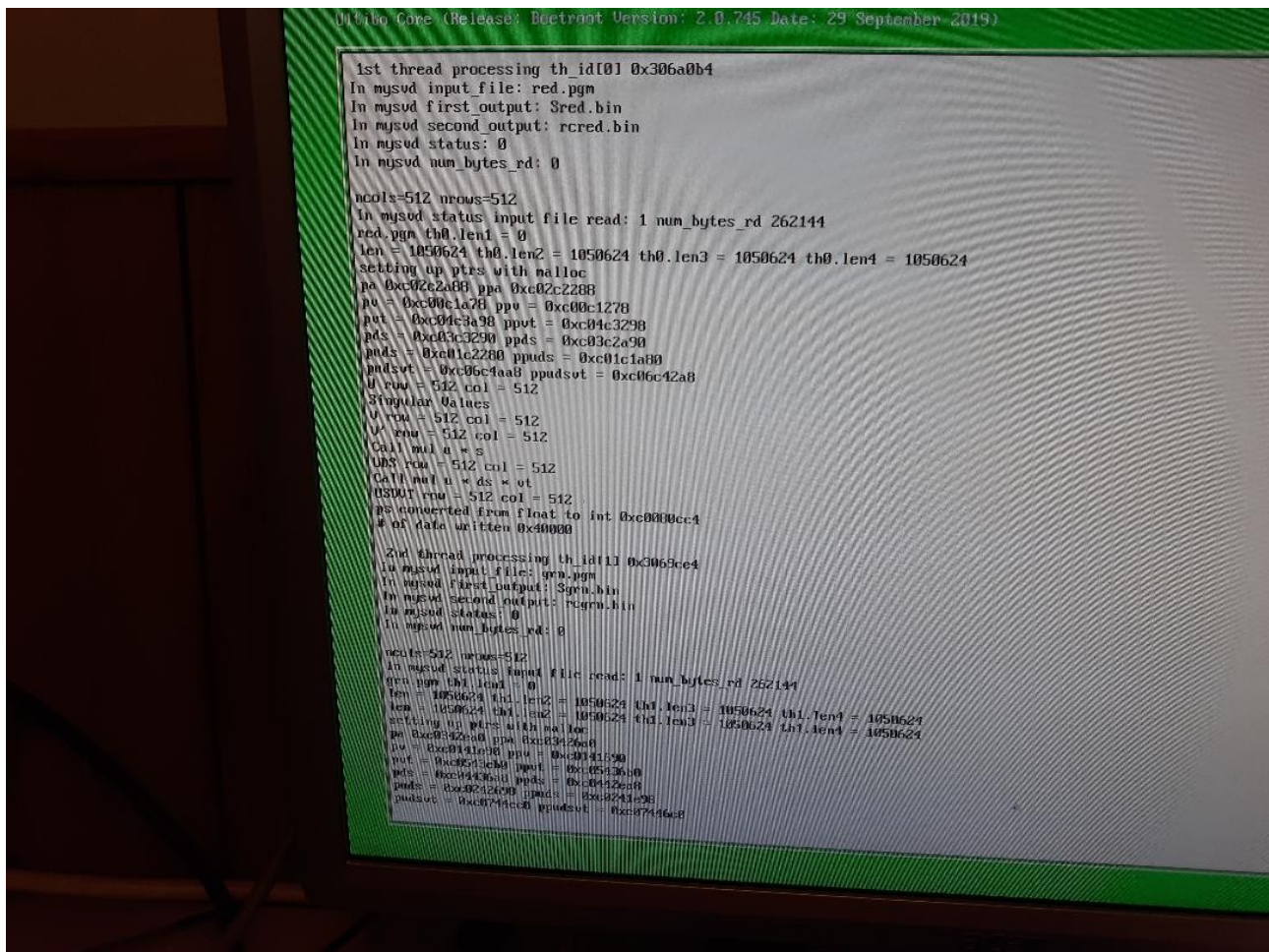
pvt = 0xc04c3a98 ppvt = 0xc04c3298

pds = 0xc03c3290 ppds = 0xc03c2a90

puds = 0xc01c2280 ppuds = 0xc01c1a80

pudsvt = 0xc06c4aa8 ppudsvt = 0xc06c42a8

2nd thread



3rd and transfer

Ultibo Core (Release: Beetroot Version: 2.0.745 Date: 29 September 2019)

```
In mysd input_file: blu.pgm
In mysd first_output: 3blu.bin
In mysd second_output: rcblu.bin
In mysd status: 0
In mysd num_bytes_rd: 0

ncols=512 nrow=512
In mysd 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 0xc0543eb0 ppa 0xc05436b0
pv = 0xc02022b0 ppv = 0xc0201ab0
pvt = 0xc0744ec0 ppvt = 0xc07446c0
pds = 0xc06446b0 ppds = 0xc0643eb0
puds = 0xc0302ab0 ppuds = 0xc03022b0
pudsvt = 0xc0945ed0 ppudsvt = 0xc09456d0
U row = 512 col = 512
Singular Values
U row = 512 col = 512
U' row = 512 col = 512
Call mul u * s
UBS row = 512 col = 512
Call mul u * ds * vt
USDUV row = 512 col = 512
ps converted from float to int 0xc000cc4
# 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
ZZ:32:39
Local Address 192.168.1.69
TFTP Ready.
ZZ:32:39
Transfer for Sred.bin started.
Transfer for Sred.bin complete.
Transfer for Sgrn.bin started.
Transfer for Sgrn.bin complete.
Transfer for 3blu.bin started.
Transfer for 3blu.bin complete.
Transfer for rcred.bin started.
Transfer for rcred.bin complete.
Transfer for rcgrn.bin started.
Transfer for rcgrn.bin complete.
Transfer for rcbu.bin started.
Transfer for rcbu.bin complete.
```