

DPDK-Graph Install Guide

1 Install DPDK

Refer to MLNX_DPDK_Quick_Start_Guide_v2 1_1 1.PDF

or <http://www.dpdk.org>

2 A Demo

2.1 Machines:

ceMaster:

Machine1: 192.168.2.84(192.168.3.84)

Workers:

Machine2: 192.168.2.76 (192.168.3.76)

Machine3: 192.168.2.77 (192.168.3.77)

Machine4: 192.168.2.78 (192.168.3.78)

Note that the IP “192.168.2.84” indicates that Machine1 is run on the 40Gbps InfiniteBand network, and the IP “192.168.3.84” indicates that Machine1 is run on the 1Gbps Ethernet.

2 Source code is deployed on Machine1

3 Compile the CE-Graph on Machine1

```
# cd /dpdk-graph/preprocessing; make
```

```
# cd /dpdk-graph/exec; make
```

```
#cd /dpdk-graph/exec/src; make
```

4 Modify configuration files on Machine1

```
# vi /dpdk-graph/exec/conf/hosts.slave
```

```
192.168.2.76
192.168.2.77
192.168.2.78
```

```
# vi /dpdk-graph/preprocessing/conf/CE_Graph.local.cnf
```

```
# CE_Graph configuration.
# Commandline parameters override values in the configuration file.
# execthreads=2
loadthreads = 4
niothreads = 2

# Good for 8gigs
#membudget_mb = 3000

# Good for 4 gigs
membudget_mb = 800

machines = 2
IP3=192.168.2.76
IP4=192.168.2.77

# I/O settings
#preload.max_megabytes = 300
io.blocksize = 1048576

# Comma-delimited list of metrics output reporters.
# Can be "console", "file" or "html"
metrics.reporter = console,file,html
metrics.reporter.filename = graphchi_metrics.txt
metrics.reporter.htmlfile = graphchi_metrics.html
```

5 distribute CE-Graph to Workers

```
#scp -r /dpdk-graph root@Machine2:/
#scp -r /dpdk-graph root@Machine3:/
#scp -r /dpdk-graph root@Machine4:/
```

6 The dataset LiveJournal is deployed on Machine4: /cegraph/preprocessing/

Note that the dataset LiveJournal can be obtained from the website:

<http://snap.stanford.edu/data/>

7 Compile opendp & netdp_cmd

```
cd /dpdk-graph/dpdk-odp-master/opendp
```

```
make
```

```
cd /dpdk-graph/dpdk-odp-master/netdp_cmd
```

8 Run opendp

```
cd /dpdk-graph/dpdk-odp-master/opendp/build
```

```
./opendp -c 0x1 -n 1 -- -p 0x1 --config="(0,0,0)"
```

9 Configure DPDK IP Address on Each machine

```
cd /dpdk-graph/dpdk-odp-master/netdp_cmd/build
```

```
./netdp_cmd
```

Delete the default ip address

Add a new ip address

10 Preprocessing (Constructing subgraphs)

Machine2 and Machine3 run sharder_basic with sub mode:

```
#cd /dpdk-graph/preprocessing
#bin/sharder_basic
```

```
[root@de77 preprocessing]# bin/sharder_basic
Please enter value for command-line argument [mode]
  (Options are: 'main' mode or 'sub' mode)
sub
Please enter value for command-line argument [edgedatatype]
  (Options are: int, uint, short, float, char, double, boolean, long, float-float,
int
DEBUG:   sharder.hpp(submode:3851): Run as submode , waiting for data...
DEBUG:   sharder.hpp(submode:3852): EdgeType:int
█
```

Machine4 run sharder_basic with main mode:

```
#cd /dpdk-graph/preprocessing
#bin/sharder_basic
```

```
[root@de78 preprocessing]# bin/sharder_basic
Please enter value for command-line argument [mode]
  (Options are: 'main' mode or 'sub' mode)
main
Please enter value for command-line argument [file]
  (Options are: [path to the input graph])
/cegraph/preprocessing/LiveJournal
Please enter value for command-line argument [edgedatatype]
  (Options are: int, uint, short, float, char, double, boolean, long
int
Please enter value for command-line argument [nshards]
  (Options are: Number of shards to create, or 'auto')
3
Please enter value for command-line argument [opti_mode]
  (Options are: Average --- 1 , Original --- 2 , Patition --- 3)
1
```

11 Run the pagerank (or SSSP) On the 40Gbps InfiniteBand

Machine2, Machine3 and Machine4 run pagerank (or SSSP) :

```
# cd /dpdk-graph/exec
#bin/example_apps/sssp file /dpdk-graph/preprocessing/LiveJournal nshards 3
```

Machine1 run ceMaster:

```
#cd /dpdk-graph/exec
#bin/ceMaster file /dpdk-graph/preprocessing/LiveJournal nshards 3 niters 10
```

