

Calculating Power

For this exercise, it is important that you have already compiled a core – either *pearl*, or *pearl_is3*, and a working and partitioned program *add*. We will use a simple example to get started.

- Login to one of the servers mentioned in the startup guide.
- Change directory to `~/hive/examples/add/pearl` and add the following to the Makefile
SIMULATION_ARGS = -verbose

```
-bash-3.00$ cd ~/hive/examples/add/pearl/
-bash-3.00$ pwd
/home/pd/pd0901/hive/examples/add/pearl
-bash-3.00$ vi Makefile
```

- Compile the program by using the following command (`gmake crun sched`). You will see the output as follows

```
-bash-3.00$ gmake crun sched
....
....
....
/home/akash/hive/hive/examples/add/pearl_power/sched Succeeded
```

- We will now do the following
 1. Copy the `pearl.apex` file to local folder.
 2. Unzip the `listing.gz` file that is produced in `sched` folder.
 3. Ensure that the `normalized_values` file is also in the local folder (get from the website).
 4. Run the `power_estimation.pl` script

```
-bash-3.00$ pwd
/home/pd/pd0901/hive/examples/add/pearl
-bash-3.00$ cp ~/hive/examples/cores/pearl/Linux.pearl/pearl.apex .
-bash-3.00$ gzip -d sched/listing.gz
-bash-3.00$ ll sched
total 192
-rwxr-xr-x 1 akash aioics 44380 Nov  6 04:14 add
-rw-r--r-- 1 akash aioics   424 Nov  6 04:13 add.hive.add.sched.d
-rw-r--r-- 1 akash aioics 44760 Nov  6 04:14 add.hive.add.sched.o
-rw-r--r-- 1 akash aioics  1201 Nov  6 04:14 add.map.h
-rw-r--r-- 1 akash aioics  1013 Nov  6 04:14 add.statistics.txt
-rwxr-xr-x 1 akash aioics 54422 Nov  6 04:14 host
-rw-r--r-- 1 akash aioics  1177 Nov  6 04:14 host.d
-rw-r--r-- 1 akash aioics  7164 Nov  6 04:14 host.o
-rw-r--r-- 1 akash aioics  5697 Nov  6 04:14 listing
-rw-r--r-- 1 akash aioics   576 Nov  6 04:14 profile_pearl.txt
-rw-r--r-- 1 akash aioics  3166 Nov  6 04:14 statistics.txt
-rw-r--r-- 1 akash aioics    63 Nov  6 04:14 Summary
-bash-3.00$ ll
-rw-r--r-- 1 akash aioics   178 Nov  4 10:39 add_c.c
-rw-r--r-- 1 akash aioics    87 Nov  4 10:39 add_c.h
-rw-r--r-- 1 akash aioics   231 Nov  4 10:39 add.hive.c
-rw-r--r-- 1 akash aioics   160 Nov  4 10:39 add.hive.h
drwxr-xr-x 2 akash aioics  4096 Nov  6 04:13 crun
drwxr-xr-x 3 akash aioics  4096 Nov  6 04:13 hivecc_intermediates
-rw-r--r-- 1 akash aioics  1119 Nov  4 10:39 host.c
drwxr-xr-x 3 akash aioics  4096 Nov  6 04:14 html
-rw-r--r-- 1 akash aioics   356 Nov  4 10:40 Makefile
```

```
-rw-r--r--  2 akash aioics   4032 Nov  4 10:32 normalized_values
-rw-r--r--  2 akash aioics 165679 Oct 21 04:02 pearl.apex
drwxr-xr-x  2 akash aioics   4096 Nov  6 04:23 sched
-bash-3.00$ $HIVEBIN/pw_estimation.pl -f normalized_values -s pearl.apex -t
sched/listing
.....
.....
.....
VLIW areas
    Issue Slot : 19818
    Register File : 14923
Core IO areas
    Fifo and External Master Interface: 4562
    Program memory : 728971
    Data Memory : 751608

Total logic area: 39305
Total memory area : 1480580

Total number of cycles : 23

DUT_Total_Power: 8.249E-02

All the power values are expressed in mW/MHz and the areas in um2

-bash-3.00$
```