What is rabbit?

rabbit.engr.oregonstate.edu
PCIe Bus
2 E5-2630 Xeon Processors
16 Cores total
64 GB of memory
2 TB of disk
NVIDIA Titan Black
PCIe Bus
15 SMs
2880 CUDA cores
6 GB of memory
OpenCL support
CUDA support

rabbit lives in a rack in our server room in the Kelley Engineering Center:

rabbit 151% lscpu
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 32
On-line CPU(s) list: 0-31
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 63
Stepping: 2
CPU MHz: 2399.982
BogoMIPS: 4799.30
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 20480K
NUMA node0 CPU(s):
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30
NUMA node1 CPU(s):
1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31
**What is rabbit?**

![Diagram of rabbit computer setup](image)

**CPU**

**NVIDIA Titan Black**

**PCIe bus and riser**

**FanS**

**Getting to rabbit and setting up your account**

To login to **rabbit**:  
```
ssh rabbit.engr.oregonstate.edu -l yourengrusername
```

Put this in your **rabbit** account’s `.cshrc`:

```
setenv INTEL_LICENSE_FILE 28518@linlic.engr.oregonstate.edu
setenv ICCPATH /nfs/guille/a2/rh80apps/intel/studio.2013-sp1/composer_xe_2015/bin/
set path=( $path $ICCPATH )
source /nfs/guille/a2/rh80apps/intel/studio.2013-sp1/bin/iccvars.csh intel64
setenv CUDA_PATH /usr/local/apps/cuda/cuda-9.2
setenv LD_LIBRARY_PATH /cuda-nvml/lib64:$LD_LIBRARY_PATH
set path = ( $path $CUDA_PATH/bin )
```

Then activate these values like this:

```
source .cshrc
```

(These will be activated automatically the next time you login.)

Compiling and running C/C++ on **rabbit**

```
icpc -o try try.cpp -lm -openmp -align -qopt-report=3 -qopt-report-phase=vec
```

or

```
g++ -o try try.cpp -lm -fopenmp
```
The printinfo Program Output

Number of Platforms = 1
Platforms #0:
Name: NVIDIA CUDA
Vendor: NVIDIA Corporation
Version: OpenCL 1.1 CUDA 7.0.18
Profile: FULL_PROFILE
Device #0:
Type: CL_DEVICE_TYPE_GPU
Device Vendor ID: 0x10de (NVIDIA)
Device Maximum Compute Units: 15
Device Maximum Work Item Dimensions = 3
Device Maximum Work Item Sizes = 1024 x 1024 x 64
Device Maximum Work Group Size = 1024
Device Maximum Clock Frequency = 1071 MHz

Device Extensions:
- cl_khr_byte_addressable_store
- cl_khr_icd
- cl_khr_gl_sharing
- cl_nv_compiler_options
- cl_nv_device_attribute_query
- cl_nv_pragma_unroll
- cl_nv_copy_opts
- cl_khr_global_int32_base_atomics
- cl_khr_global_int32_extended_atomics
- cl_khr_local_int32_base_atomics
- cl_khr_local_int32_extended_atomics
- cl_khr_fp64

15 * 192 = 2880 CUDA cores!