rabbit.engr.oregonstate.edu

Oregon State University

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What is *rabbit*?

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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

What is *rabbit*?

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```
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
```

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What is *rabbit*?

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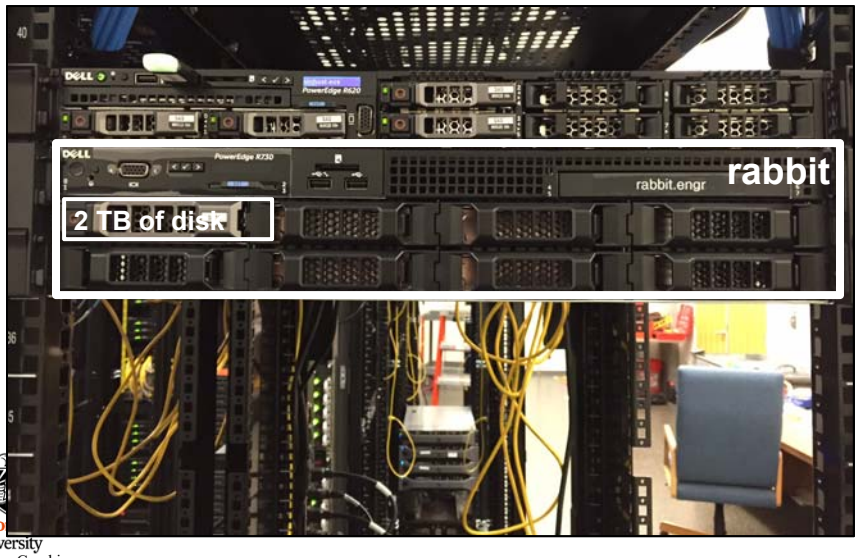
rabbit lives in a rack in our server room in the Kelley Engineering Center:



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What is *rabbit*?

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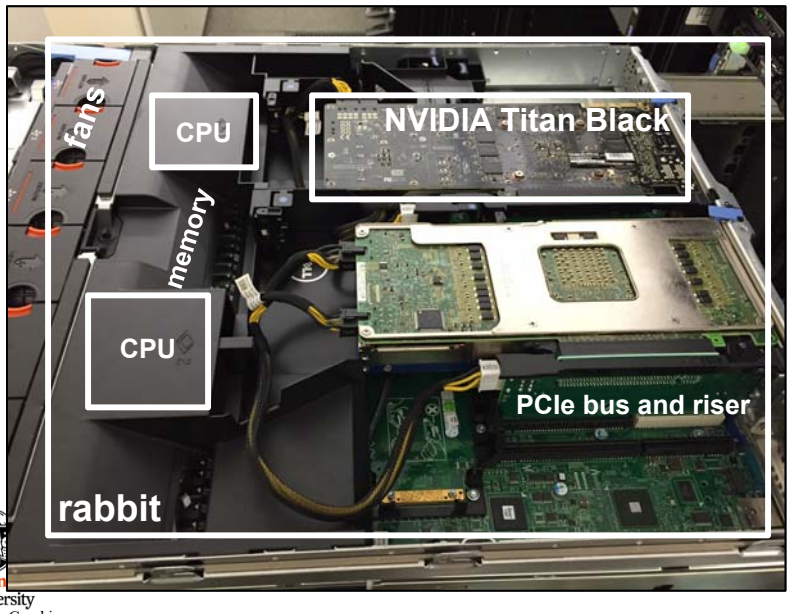

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What is *rabbit*?

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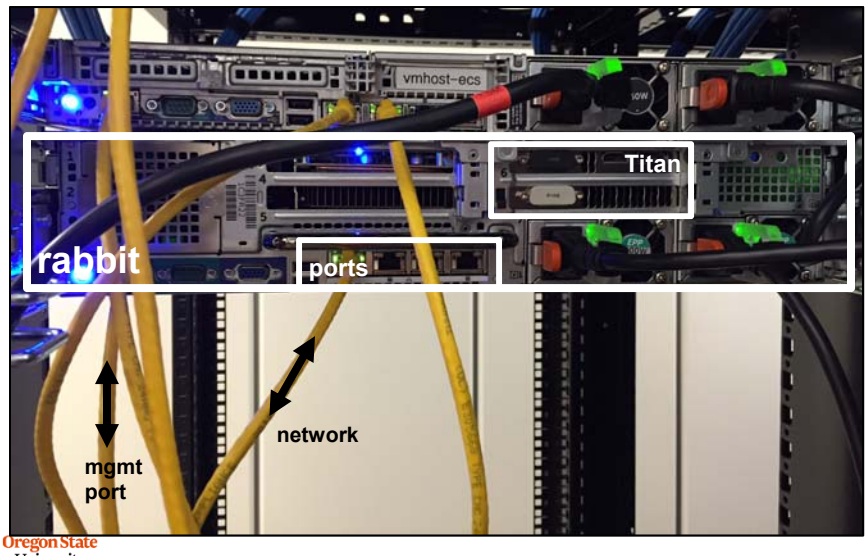

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Getting to *rabbit* and setting up your account

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Lowercase letter 'L'

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  $CUDA_PATH/lib64:$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.)

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

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

or

g++   -o  try  try.cpp  -lm -fopenmp
```

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Compiling for OpenCL

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```
printinfo:      printinfo.cpp
                icpc  -o  printinfo   printinfo.cpp   /usr/lib64/libOpenCL.so   -lm   -openmp
```

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Compiling for CUDA

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```
arrayMul:       arrayMul.cu
                nvcc  -o  arrayMul  arrayMul.cu
```

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The *printinfo* Program Output


```
Number of Platforms = 1
Platform #0:
        Name    = 'NVIDIA CUDA'
        Vendor  = 'NVIDIA Corporation'
        Version = 'OpenCL 1.1 CUDA 7.0.18'
        Profile = 'FULL_PROFILE'
        Device #0:
                Type = 0x0004 = 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!

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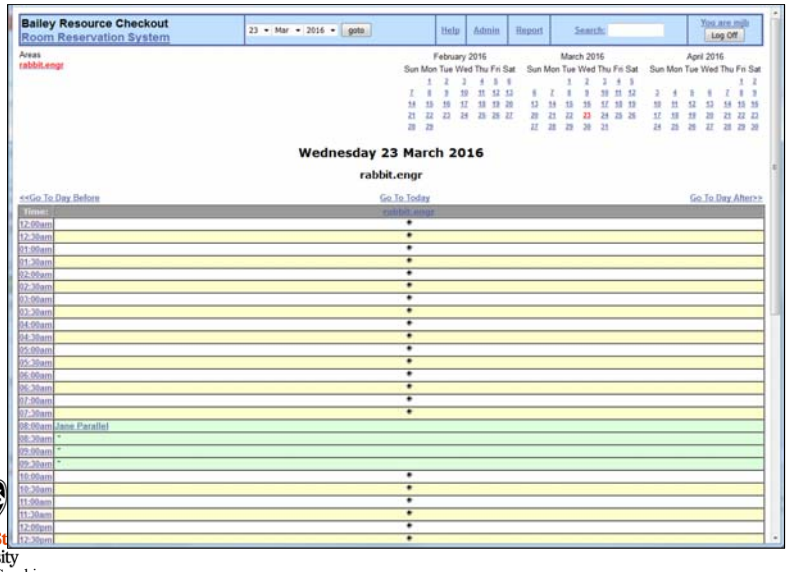
Reservation System – Please use It!!

https://secure.engr.oregonstate.edu/engr/resources/bailey



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