How to compile kaldi & kaldi-dgx in NSCC

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qsub -I -q dgx -l walltime=2:00:00 -P 12001458

common:

/usr/bin/gcc 编译kaldi最大的问题就是GCC的问题，因为在两个平台，gcc的版本是不一样的。在dgx上是Ubuntu系统，对应默认的gcc是7.4.0，但是在normal平台，默认的gcc是4.4.7，这个版本是没办法编译kaldi的，也没有C++11。
因此：建议gcc不要在bashrc中指定，在编译和使用的时候导入环境变量。编译CPU版本的kaldi建议用平台上的4.9.3gcc。编译dgx版本的，使用默认的/usr/bin/gcc即可。

haihuaxu@dgx4105:~$ gcc --version
gcc (Ubuntu 7.4.0-1ubuntu1~18.04.1) 7.4.0
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This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

[haihuaxu@ntu03 tools]$ gcc --version
gcc (GCC) 4.4.7 20120313 (Red Hat 4.4.7-23)
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

tools:

- change Makefile
  don't execute "check_required_programs"

----------kaldi-dgx----------

First:

Recommend compile kaldi-dgx through command lines
`

GCC:

/usr/bin/gcc use **which gcc** command check it

.bashrc:

- **MKL**:
  export PATH="/home/app/intel/mkl/bin:$PATH"
  export LD_LIBRARY_PATH=/home/app/intel/mkl/lib/intel64:$LD_LIBRARY_PATH
  export CPATH=/home/app/intel/mkl/include:$CPATH
- don't need define cuda path in bashrc (use path-dgx.sh)

cuda:

- just defined in path-dgx.sh

path-dgx.sh:
CUDAROOT=/usr/local/cuda-9.0
export PATH=$CUDAROOT/bin:$PATH
export LD_LIBRARY_PATH=$CUDAROOT/lib64:$LD_LIBRARY_PATH
export CUDA_HOME=$CUDAROOT
export CUDA_PATH=$CUDAROOT

tools/:

Reference: kaldi/tools/INSTALL

src/:

Reference: kaldi/src/INSTALL

- **configure:**
  - ./configure --shared --mkl-root=/home/app/intel/mkl --use-cuda \
    --cudatk-dir=/home/app/cuda92
    (just cuda92, don't use others)
- **make depend -j 20**
  - if you don't follow the previous step, maybe it will wrong in this step. (such as can not find some head file or LD library)
- **make -j x 20**
  - reference: INSTALL

Finally:

- Maybe you can use follow scripts segment to submit your jobs on different platforms. Because some basic scripts will execute ". path.sh" by default in kaldi on different OS.

```
is_dgx=true
if $is_dgx; then
  cp ./path-dgx.sh ./path.sh
else
  cp ./path-cpu.sh ./path.sh
fi
```

----------kaldi----------

GCC:

#!/bin/bash
module load gcc/4.9.3
module load python/2.7.12

src:

./configure --shared --mkl-root=/home/app/intel/mkl