Guidance to run PyTorch ResNet50 model on Intel PVC GPUs

Log in to ACES cluster and run the commands below.

$cd $SCRATCH

$mkdir pvc-benchmarks

$cd pvc-benchmarks

$git clone https://github.com/IntelAI/models.git

$module purge

$ml GCCcore/11.2.0 Python/3.9.6

$python3 -m venv rn50-pt-training-trial

$source rn50-pt-training-trial/bin/activate

$pip install torch==2.1.0.post0 torchvision==0.16.0.post0 torchaudio==2.1.0.post0 intel_extension_for_pytorch==2.1.20+xpu oneccl-bind-pt==2.1.200 deepspeed==0.14.0 --extra-index-url https://pytorch-extension.intel.com/release-whl-aitools/

$cd models/models_v2/pytorch/resnet50v1_5/training/gpu/

$./setup.sh

$deactivate

create a slurm job file pt_multi_py_env.slurm and copy and paste the content below to it.

$sbatch pt_multi_py_env.slurm

```
#!/bin/bash
##NECESSARY JOB SPECIFICATIONS

#SBATCH --job-name=pt_benchmark_py_env
#SBATCH --time=02:00:00
#SBATCH --ntasks=4
##SBATCH --cpus-per-task=8
#SBATCH --nodes=1
#SBATCH --mem=100G
#SBATCH --output=pt_pvc_benchmark.%j
#SBATCH --gres=gpu:pvc:4
#SBATCH --partition=pvc
##SBATCH --reservation=training
#SBATCH --nodelist=ac026
#SBATCH --exclusive

echo $SLURM_JOB_ID
hostname
sinfo -N -p pvc -o "%8n %10f %G"

date

# load all the necessary modules
module purge
ml GCCcore/11.2.0 Python/3.9.6

# activate the python virtal env and oneapi
cd /scratch/user/$USER/pvc-benchmarks/
source rn50-pt-training-trial/bin/activate
source /sw/hprc/sw/oneAPI/2024.1/setvars.sh

cd models/models_v2/pytorch/resnet50v1_5/training/gpu/
#./setup.sh

# set up the environment variables
export MULTI_TILE=True
export PLATFORM=Max
export BATCH_SIZE=256
export DATASET_DIR=/scratch/data/pytorch-computer-vision-datasets/imagenet-raw-dataset/
export PRECISION=BF16
export NUM_ITERATIONS=20000
export
OUTPUT_DIR=/scratch/user/$USER/pvc-benchmarks/models/models_v2/pytorch/resnet50v1_5/training/gpu/outputs/
export CCL_TOPO_FABRIC_VERTEX_CONNECTION_CHECK=0

#cd pytorch/intel-ai-models/models/image_recognition/pytorch/resnet50v1_5/training/gpu
#./pt_resnet50_training_run.sh

bash run_model.sh

date
```