Burn-GPL-Jupyter

AI burn-in test dedicated solution: used to test the stability of CPU and GPU for AI computing. When the case is closed, system abnormality can be detected within 1 hour. The source of system abnormality may be CPU instability, CPU fan damage, GPU instability, GPU fan damage, memory instability, some CPU models need to reduce the memory operating frequency when the memory is full, motherboard instability, hard disk Instability, poor heat dissipation of the chassis, damage to the operating system, computer virus, etc., need to be eliminated one by one.

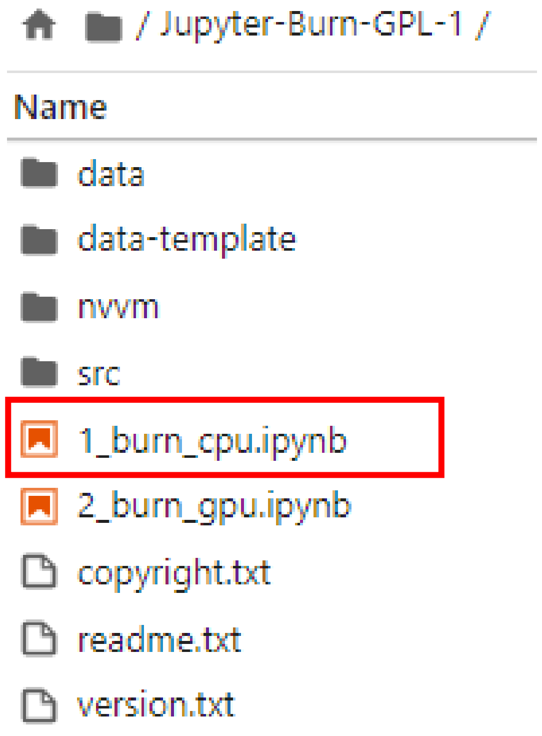
Version 20230223

Applications

- CPU and GPU stability test for AI computing.

1_burn_cpu.ipynb

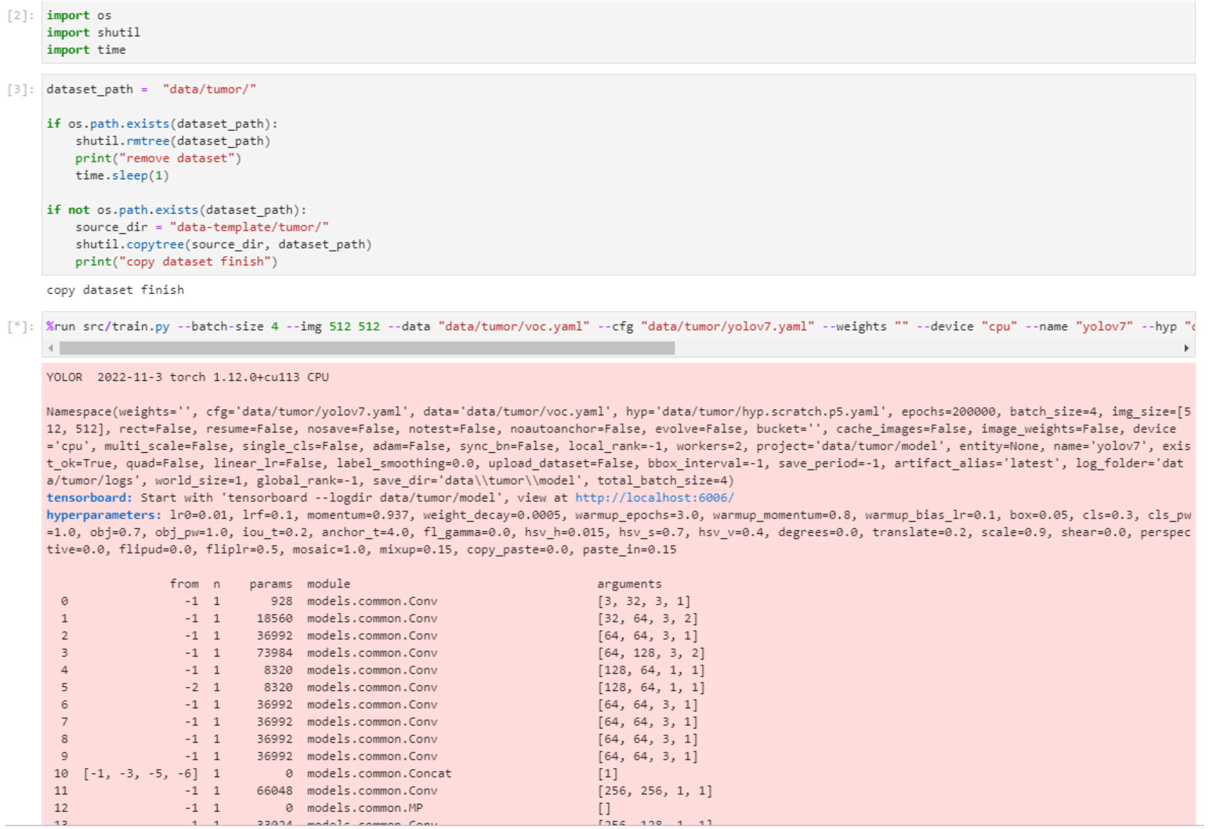
After running, the data folder will be recreated, and the YOLOv7 program will be used to perform the burn-in test.



/ Jupyter-Burn-GPL-1 /

Name

data
data-template
nvvm
src
1_burn_cpu.ipynb
2_burn_gpu.ipynb
copyright.txt
readme.txt
version.txt



[2]:
```
import os
import shutil
import time
```

[3]:
```
dataset_path =  "data/tumor/"

if os.path.exists(dataset_path):
    shutil.rmtree(dataset_path)
    print("remove dataset")
    time.sleep(1)

if not os.path.exists(dataset_path):
    source_dir = "data-template/tumor/"
    shutil.copytree(source_dir, dataset_path)
    print("copy dataset finish")
```

```
copy dataset finish
```

[*]:
```
%run src/train.py --batch-size 4 --img 512 512 --data "data/tumor/voc.yaml" --cfg "data/tumor/yolov7.yaml" --weights "" --device "cpu" --name "yolov7" --hyp "c
```

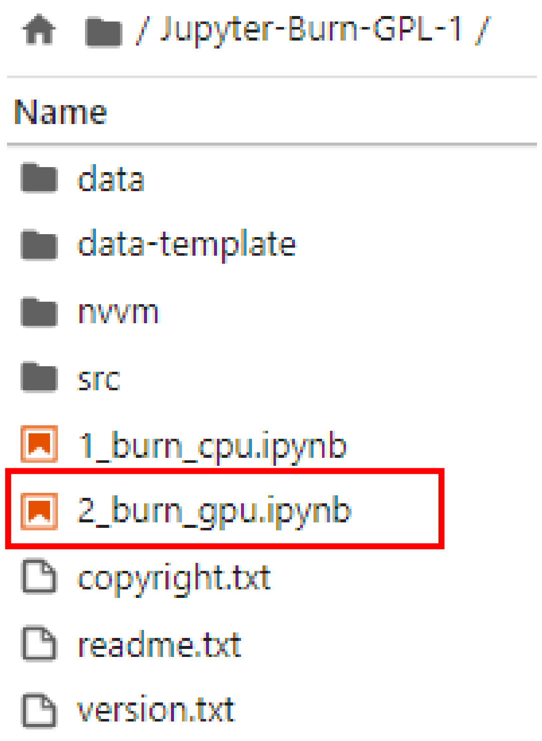
```
YOLOR  2022-11-3 torch 1.12.0+cu113 CPU

Namespace(weights='', cfg='data/tumor/yolov7.yaml', data='data/tumor/voc.yaml', hyp='data/tumor/hyp.scratch.p5.yaml', epochs=200000, batch_size=4, img_size=[5
12, 512], rect=False, resume=False, nosave=False, notest=False, noautoanchor=False, evolve=False, bucket='', cache_images=False, image_weights=False, device
='cpu', multi_scale=False, single_cls=False, adam=False, sync_bn=False, local_rank=-1, workers=2, project='data/tumor/model', entity=None, name='yolov7', exis
t_ok=True, quad=False, linear_lr=False, label_smoothing=0.0, upload_dataset=False, bbox_interval=-1, save_period=-1, artifact_alias='latest', log_folder='dat
a/tumor/logs', world_size=1, global_rank=-1, save_dir='data\\tumor\\model', total_batch_size=4)
tensorboard: Start with 'tensorboard --logdir data/tumor/model', view at http://localhost:6006/
hyperparameters: lr0=0.01, lrf=0.1, momentum=0.937, weight_decay=0.0005, warmup_epochs=3.0, warmup_momentum=0.8, warmup_bias_lr=0.1, box=0.05, cls=0.3, cls_pw
=1.0, obj=0.7, obj_pw=1.0, iou_t=0.2, anchor_t=4.0, fl_gamma=0.0, hsv_h=0.015, hsv_s=0.7, hsv_v=0.4, degrees=0.0, translate=0.2, scale=0.9, shear=0.0, perspec
tive=0.0, flipud=0.0, fliplr=0.5, mosaic=1.0, mixup=0.15, copy_paste=0.0, paste_in=0.15

                 from  n    params  module                                  arguments
  0                -1  1       928  models.common.Conv                      [3, 32, 3, 1]
  1                -1  1     18560  models.common.Conv                      [32, 64, 3, 2]
  2                -1  1     36992  models.common.Conv                      [64, 64, 3, 1]
  3                -1  1     73984  models.common.Conv                      [64, 128, 3, 2]
  4                -1  1      8320  models.common.Conv                      [128, 64, 1, 1]
  5                -2  1      8320  models.common.Conv                      [128, 64, 1, 1]
  6                -1  1     36992  models.common.Conv                      [64, 64, 3, 1]
  7                -1  1     36992  models.common.Conv                      [64, 64, 3, 1]
  8                -1  1     36992  models.common.Conv                      [64, 64, 3, 1]
  9                -1  1     36992  models.common.Conv                      [64, 64, 3, 1]
 10  [-1, -3, -5, -6]  1         0  models.common.Concat                    [1]
 11                -1  1     66048  models.common.Conv                      [256, 256, 1, 1]
 12                -1  1         0  models.common.MP                        []
 13                -1  1     33024  models.common.Conv                      [256, 128, 1, 1]
```

2_burn_gpu.ipynb

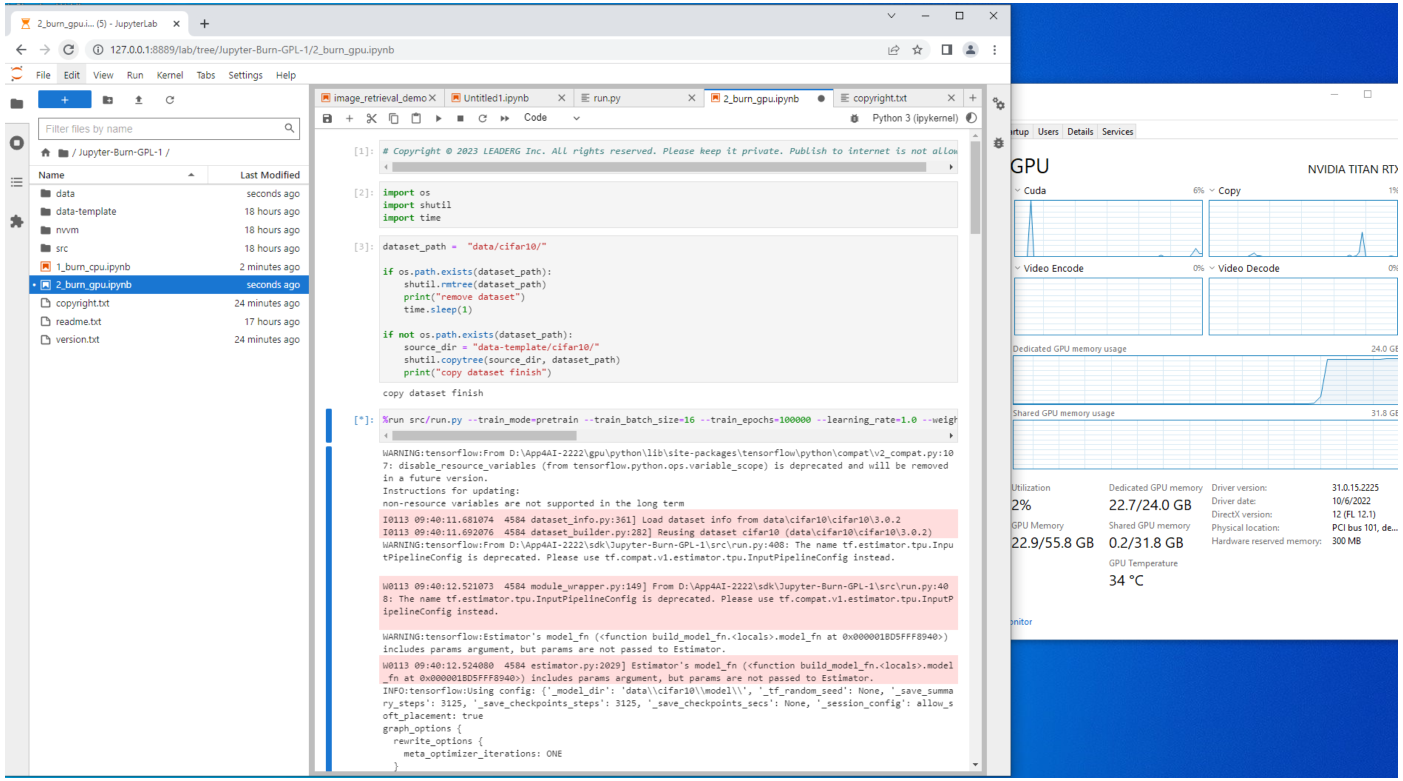
After running, the data folder will be recreated, and the simclr program will be used to perform the burn-in test.



/ Jupyter-Burn-GPL-1 /

Name

- data
- data-template
- nvvm
- src
- 1_burn_cpu.ipynb
- 2_burn_gpu.ipynb
- copyright.txt
- readme.txt
- version.txt



2_burn_gpu.i... (5) - JupyterLab

127.0.0.1:8889/lab/tree/Jupyter-Burn-GPL-1/2_burn_gpu.ipynb

/ Jupyter-Burn-GPL-1 /

Name	Last Modified
data	seconds ago
data-template	18 hours ago
nvvm	18 hours ago
src	18 hours ago
1_burn_cpu.ipynb	2 minutes ago
2_burn_gpu.ipynb	seconds ago
copyright.txt	24 minutes ago
readme.txt	17 hours ago
version.txt	24 minutes ago

```
[1]: # Copyright © 2023 LEADERG Inc. All rights reserved. Please keep it private. Publish to internet is not allow

[2]: import os
     import shutil
     import time

[3]: dataset_path =  "data/cifar10/"

     if os.path.exists(dataset_path):
         shutil.rmtree(dataset_path)
         print("remove dataset")
         time.sleep(1)

     if not os.path.exists(dataset_path):
         source_dir = "data-template/cifar10/"
         shutil.copytree(source_dir, dataset_path)
         print("copy dataset finish")

     copy dataset finish

[*]: %run src/run.py --train_mode=pretrain --train_batch_size=16 --train_epochs=100000 --learning_rate=1.0 --weigh
```

```
WARNING:tensorflow:From D:\App4AI-2222\gpu\python\lib\site-packages\tensorflow\python\compat\v2_compat.py:10
7: disable_resource_variables (from tensorflow.python.ops.variable_scope) is deprecated and will be removed
in a future version.
Instructions for updating:
non-resource variables are not supported in the long term
I0113 09:40:11.681074  4584 dataset_info.py:361] Load dataset info from data\cifar10\cifar10\3.0.2
I0113 09:40:11.692076  4584 dataset_builder.py:282] Reusing dataset cifar10 (data\cifar10\cifar10\3.0.2)
WARNING:tensorflow:From D:\App4AI-2222\sdk\Jupyter-Burn-GPL-1\src\run.py:408: The name tf.estimator.tpu.Inpu
tPipelineConfig is deprecated. Please use tf.compat.v1.estimator.tpu.InputPipelineConfig instead.

W0113 09:40:12.521073  4584 module_wrapper.py:149] From D:\App4AI-2222\sdk\Jupyter-Burn-GPL-1\src\run.py:40
8: The name tf.estimator.tpu.InputPipelineConfig is deprecated. Please use tf.compat.v1.estimator.tpu.InputP
ipelineConfig instead.

WARNING:tensorflow:Estimator's model_fn (<function build_model_fn.<locals>.model_fn at 0x000001BD5FFF8940>)
includes params argument, but params are not passed to Estimator.
W0113 09:40:12.524080  4584 estimator.py:2029] Estimator's model_fn (<function build_model_fn.<locals>.model
_fn at 0x000001BD5FFF8940>) includes params argument, but params are not passed to Estimator.
INFO:tensorflow:Using config: {'_model_dir': 'data\\cifar10\\model\\', '_tf_random_seed': None, '_save_summa
ry_steps': 3125, '_save_checkpoints_steps': 3125, '_save_checkpoints_secs': None, '_session_config': allow_s
oft_placement: true
graph_options {
  rewrite_options {
    meta_optimizer_iterations: ONE
  }
```

Utilization: 2%
Dedicated GPU memory: 22.7/24.0 GB
GPU Memory: 22.9/55.8 GB
Shared GPU memory: 0.2/31.8 GB
GPU Temperature: 34 °C
Driver version: 31.0.15.2225
Driver date: 10/6/2022
DirectX version: 12 (FL 12.1)
Physical location: PCI bus 101, de...
Hardware reserved memory: 300 MB

Reference

- Please refer to the readme.txt in the SDK folder.
- LEADERG AppForAI: https://www.leaderg.com/appforai-windows