```
import tensorflow as tf
import timeit
dir(timeit)
# returns whether TensorFlow was built with CUDA (GPU) support
tf.test.is_built_with_cuda()
# returns a list of available physical GPUs
tf.config.list_physical_devices("GPU")
# returns the names of physical GPUs
tf.test.gpu_device_name()
# initialize random matrices on CPU and GPU
with tf.device("/CPU:0"):
    cpu_m1 = tf.random.normal(shape=[10000, 1000])
    cpu_m2 = tf.random.normal(shape=[1000, 5000])
    print(cpu_m1.device, "\n", cpu_m2.device, "\n"*2)

with tf.device("/GPU:0"):
    gpu_m1 = tf.random.normal([10000, 1000])
    gpu_m2 = tf.random.normal([1000, 5000])
    print(gpu_m1.device, "\n", gpu_m2.device)
# perform matrix multiplication test
def cpu_test():
    with tf.device("/CPU:0"):
        res = tf.matmul(cpu_m1, cpu_m2)
    return res

def gpu_test():
    with tf.device("/GPU:0"):
        res = tf.matmul(gpu_m1, gpu_m2)
    return res

if __name__ == "__main__":
    cpu_time = timeit.timeit(cpu_test, number=50)
    gpu_time = timeit.timeit(gpu_test, number=50)
    print(f"CPU run time: {cpu_time}\nGPU run time: {gpu_time}")


     /job:localhost/replica:0/task:0/device:CPU:0
      /job:localhost/replica:0/task:0/device:CPU:0


     /job:localhost/replica:0/task:0/device:CPU:0
      /job:localhost/replica:0/task:0/device:CPU:0
     CPU run time: 87.59757815399999
     GPU run time: 83.49879870199999
```

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