```python
import os
os.environ["cuda_visible_devices"] = "0"


import numpy as np
import cupy as cp
import time

def random_matrix(dim):
    return np.random.rand(dim, dim)

def random_vector(dim):
    return np.random.rand(dim)

def numpy_dot(matrix, vector):
    return matrix.dot(vector)

def cupy_dot(matrix, vector):
    cp_matrix = cp.asarray(matrix)
    cp_vector = cp.asarray(vector)
    return cp_matrix.dot(cp_vector).get()

def compare_performance(dim):
    matrix = random_matrix(dim)
    vector = random_vector(dim)

    start = time.time()
    numpy_result = numpy_dot(matrix, vector)
    numpy_time = time.time() - start

    start = time.time()
    cupy_result = cupy_dot(matrix, vector)
    cupy_time = time.time() - start

    print("numpy (cpu) time: {:.6f} seconds".format(numpy_time))
    print("cupy (gpu) time: {:.6f} seconds".format(cupy_time))

    speedup = numpy_time / cupy_time
    print("gpu is {:.2f} times faster than cpu for dimension n = {}".format
      (speedup, dim))

print("test con n = 10000")
compare_performance(10000)

print("test con n = 20000")
compare_performance(20000)

print("test con n = 30000")
compare_performance(30000)

print("test con n = 40000")
compare_performance(40000)
```

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print("test con n = 50000")
compare_performance(50000)

print("test con n = 60000")
compare_performance(60000)

print("test con n = 70000")
compare_performance(70000)
```