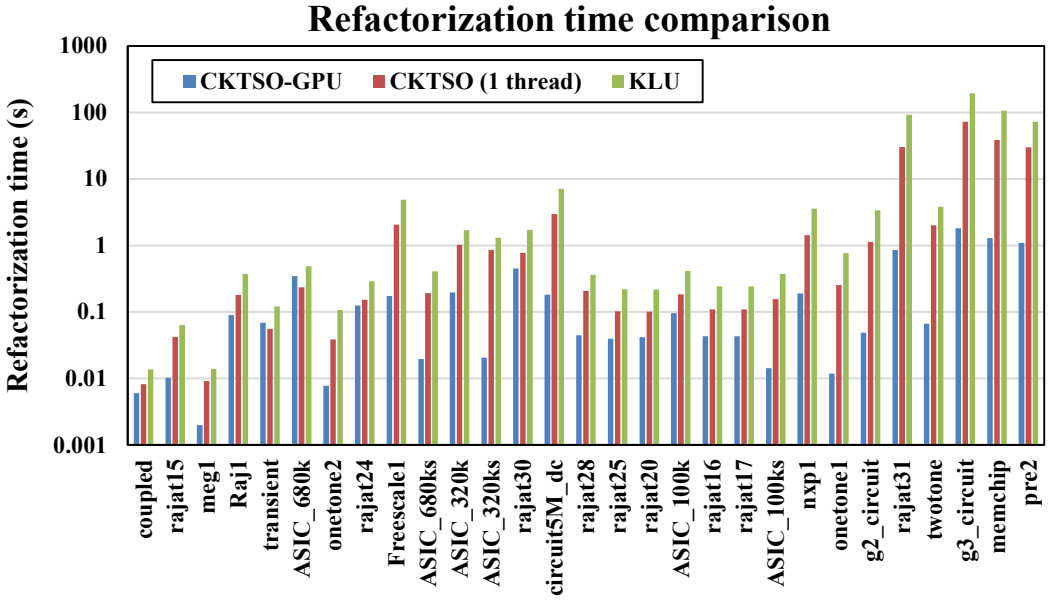
Results of CKTSO-GPU

CKTSO-GPU (version 20221207) is compared with CKTSO and KLU. The hardware and software configurations for testing CPU-based solvers are listed in the following table. KLU uses the ordering results of CKTSO.

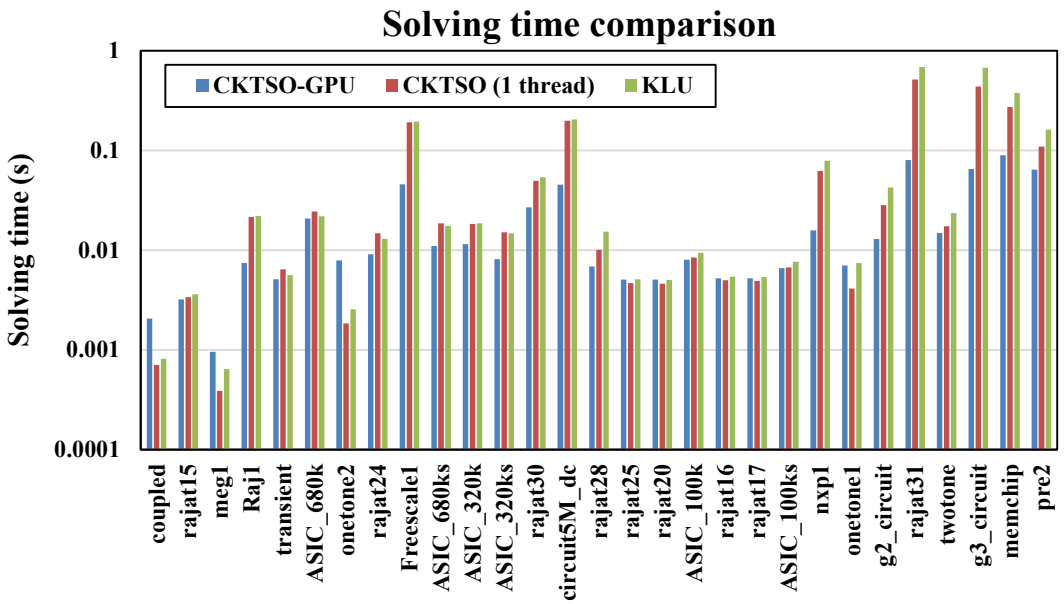
Operating system	CentOS 7.9.2009 x64
Compiler	gcc 4.8.5, nvcc 11.0
CPU	Intel Xeon Gold 6130 (16 cores, 2.1GHz)
GPU	NVIDIA GeForce RTX 3090 (24 GB)
Memory	256 GB
Benchmarks	29 circuit matrices with Flops/NZ(L+U)>50 from SuiteSparse Matrix Collection
Integer bitwidth	32 bits
Baselines	1) CKTSO version 20221123 2) KLU version 1.3.9 (uses ordering of CKTSO)

1. Re-factorization Performance



On arithmetic/geometric mean, CKTSO-GPU is 12.01X/6.11X faster than CKTSO (1 thread) and 28.80X/13.29X faster than KLU.

2. Solving Performance



On arithmetic/geometric mean, CKTSO-GPU is 1.98X/1.46X faster than CKTSO (1 thread) and 2.41X/1.72X faster than KLU.