



CUDA Libraries

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GPU Technology Conference 2011

October 11-14 | San Jose, CA

The one event you can't afford to miss

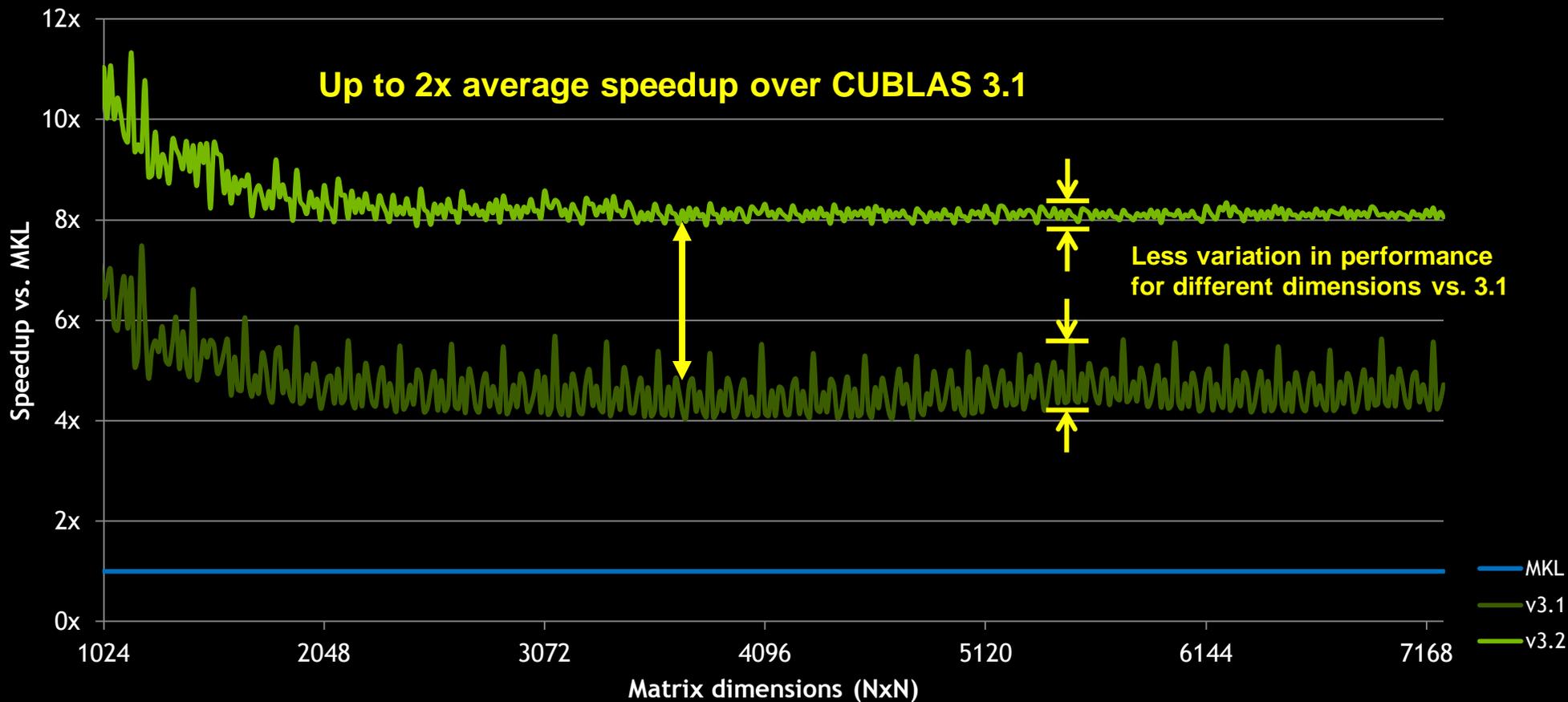
- Learn about leading-edge advances in GPU computing
- Explore the research as well as the commercial applications
- Discover advances in computational visualization
- Take a deep dive into parallel programming

Ways to participate

- Speak - share your work and gain exposure as a thought leader
- Register - learn from the experts and network with your peers
- Exhibit/Sponsor - promote your company as a key player in the GPU ecosystem



CUBLAS - Linear Algebra (1,2,3)



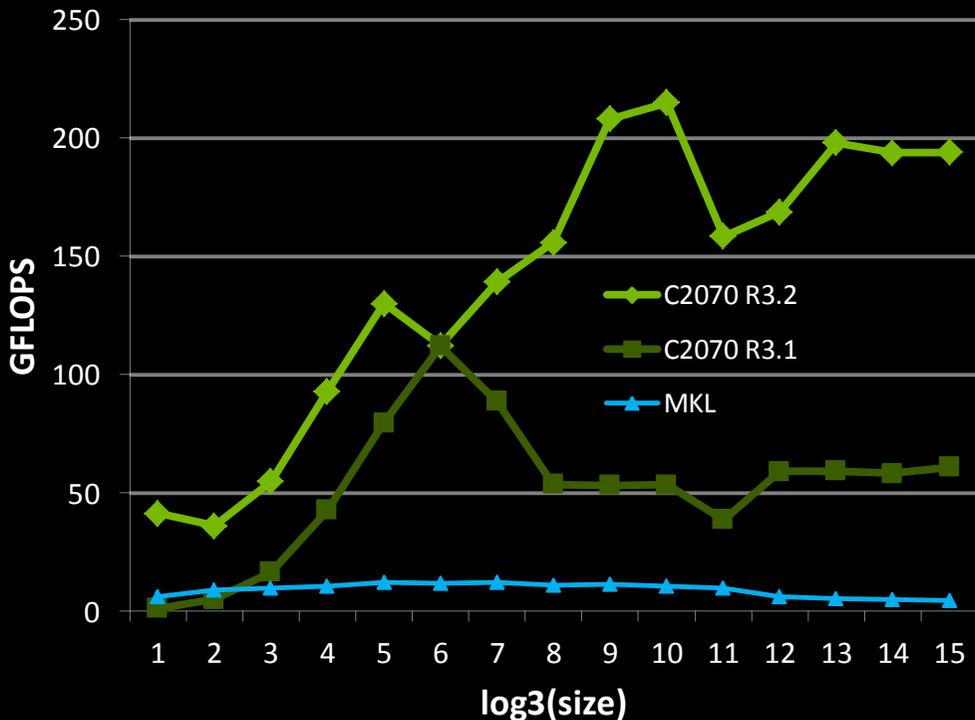
Average speedup of {S/D/C/Z}GEMM x {NN,NT,TN,TT}

CUFFT 3.2 & 3.1 on NVIDIA Tesla C2050 GPU

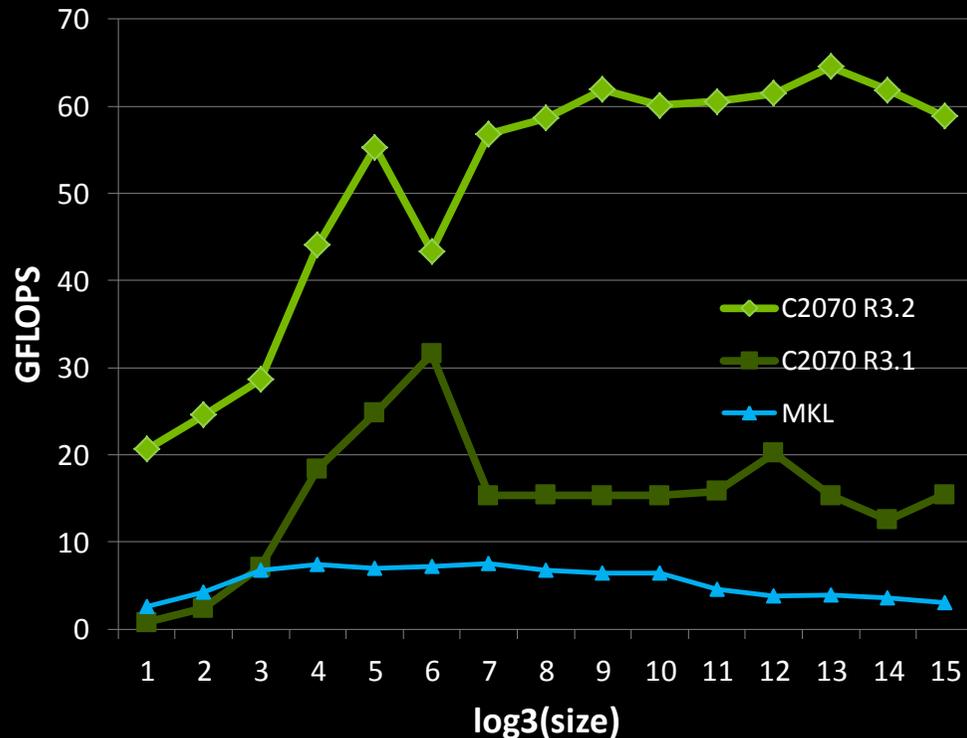
MKL 10.2.3.029 on Quad-Core Intel Core i7 (Nehalem)

CUFFT - Fast Fourier Transform (1D,2D,3D)

Radix-3 (SP, ECC off)



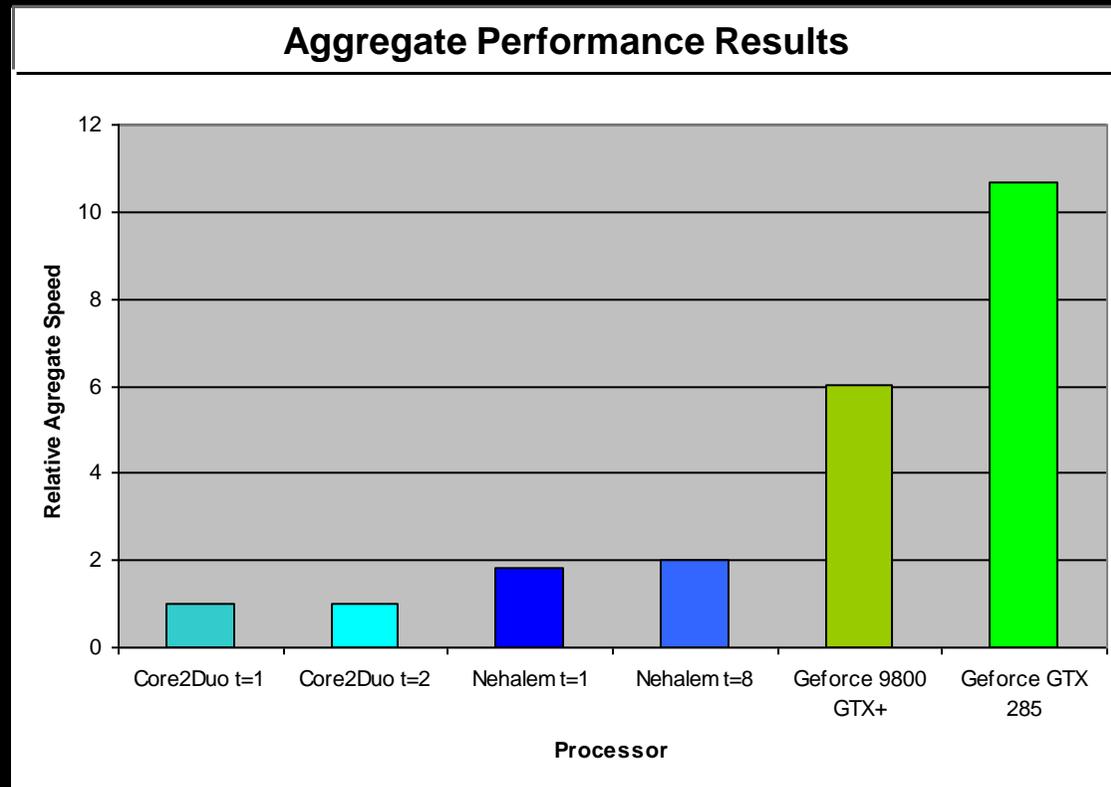
Radix-3 (DP, ECC off)



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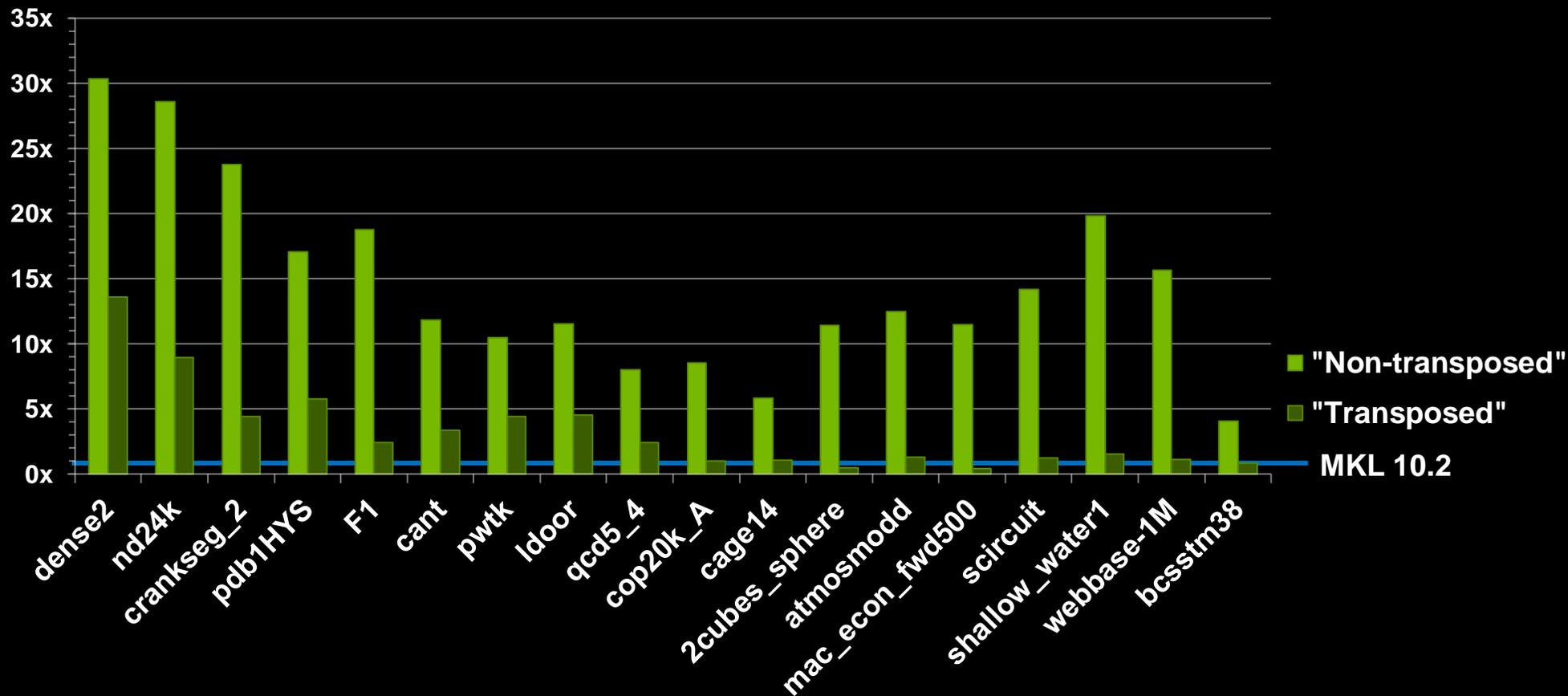
CUDA NPP - Image and Video Processing

- Similar to Intel IPP
- 6x - 10x average speedup vs. IPP
 - 2800 performance tests
- Core i7 (new) vs. GTX 285 (old)
- Now available with CUDA Toolkit



CUSPARSE: Sparse Matrix

Multiplication of a sparse matrix by multiple vectors

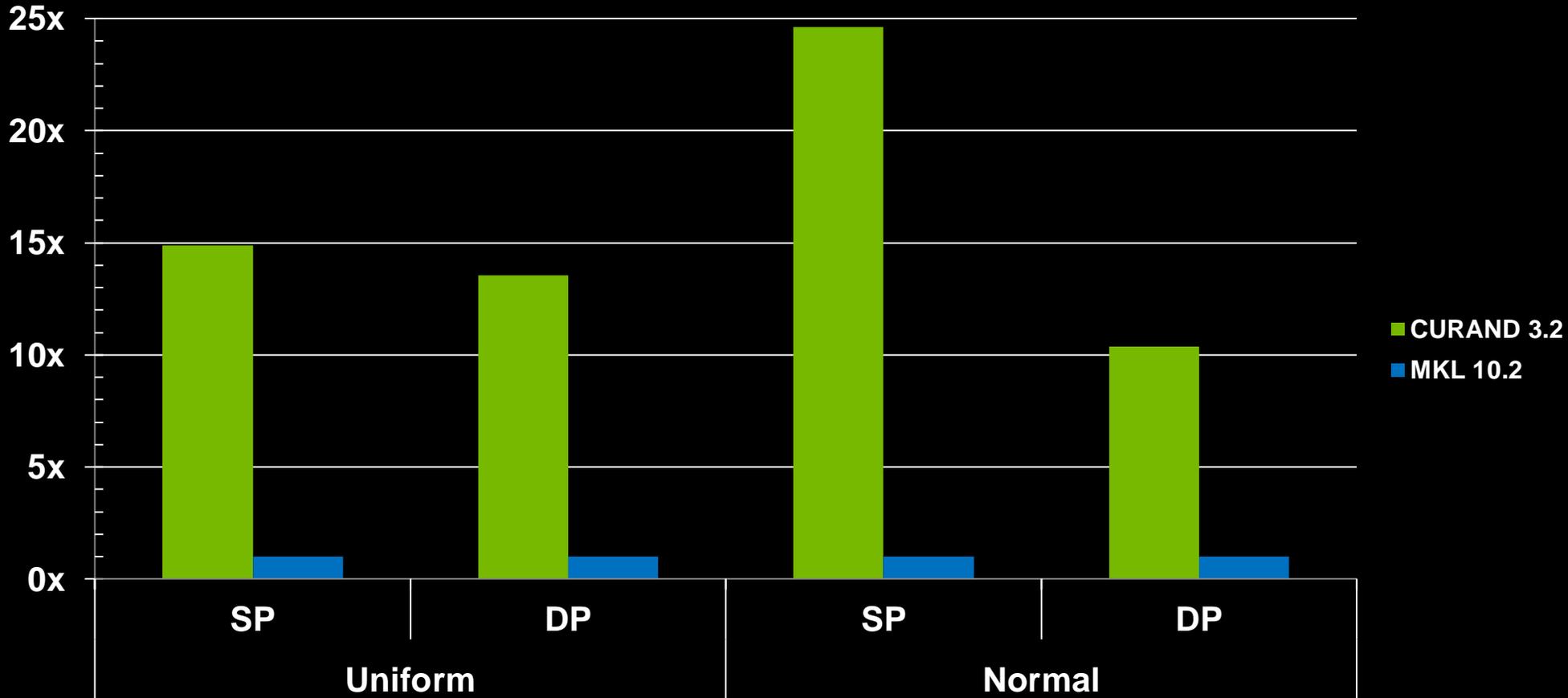


CUSPARSE 3.2 on NVIDIA Tesla C2050 GPU

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CURAND: Random Number Generation

Generating 100K Sobol' Samples

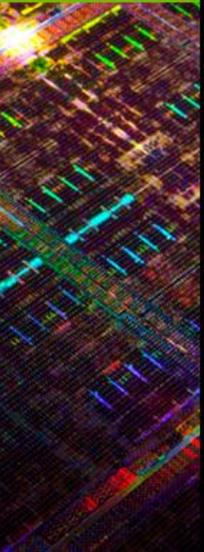


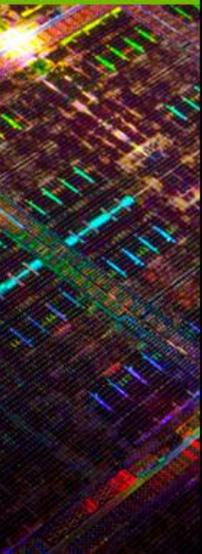
CURAND 3.2 on NVIDIA Tesla C2050 GPU

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3rd Party Math Libraries

- MAGMA -BLAS
- CULA Tools - BLAS
- IMSL- Fortran Numerical Library (BLAS and Statistics)
- VSIPPL - Vector Signal Image Processing

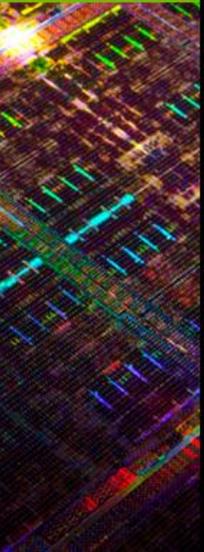




New in CUDA 4.0

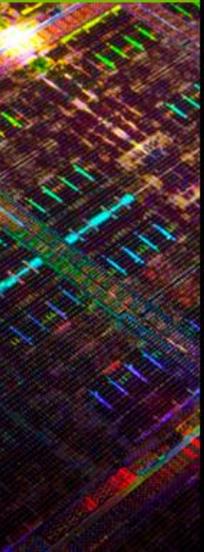
Thrust - C++ Templated Primitives

- Vectors
- Reordering
- Reductions
- Prefix-sums (scans)
- Sorting



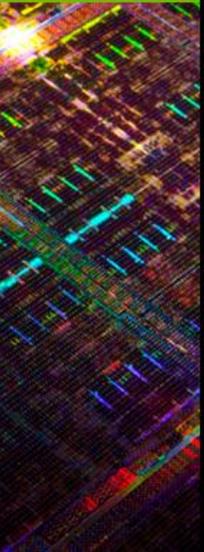
NVML - Management Library

- Everything that nvidia-smi does, without nvidia-smi
- Focused at system administration



CUPTI - Profiling Tools Interface

- Callback and Event APIs
- HW counters and device introspection
- Focused at tool builders



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