HIPRT: A Ray Tracing Framework in HIP (Supplementary Document)

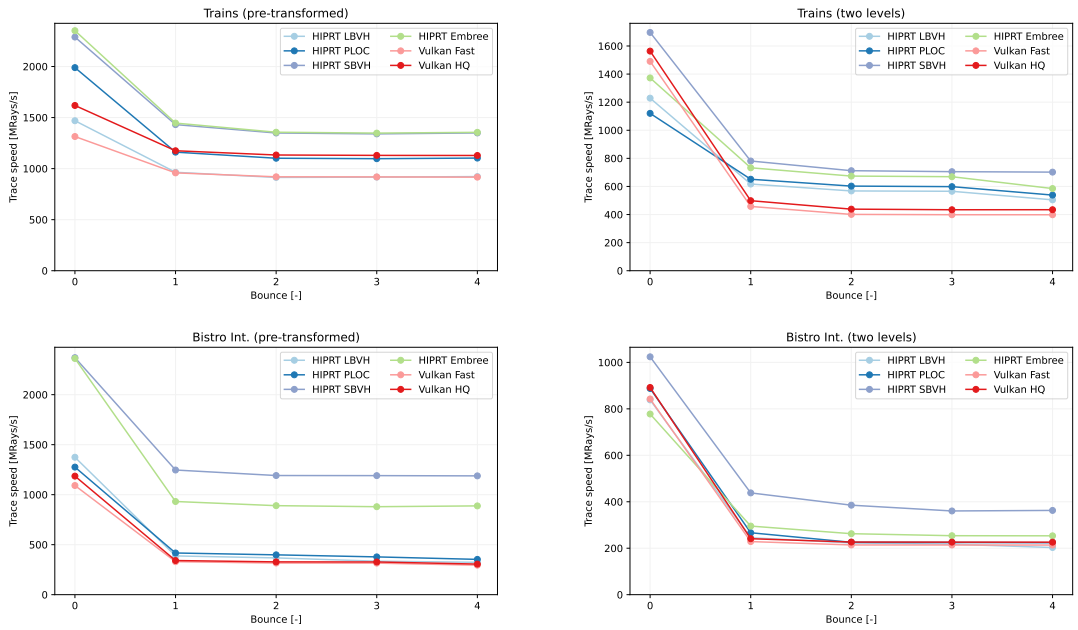
DANIEL MEISTER, Advanced Micro Devices, Inc., Japan
PARITOSH KULKARNI, Advanced Micro Devices, Inc., Canada
AARYAMAN VASISHTA, Advanced Micro Devices, Inc., Japan
TAKAHIRO HARADA, Advanced Micro Devices, Inc., USA

1 ADDITIONAL RESULTS

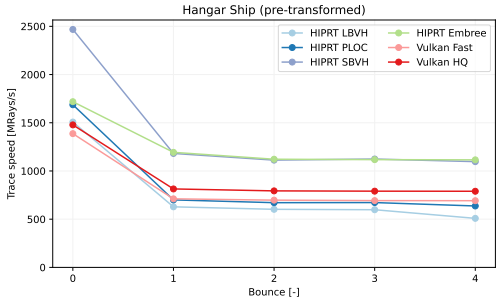
In this document, we provides additional results that did not fit into the main paper.

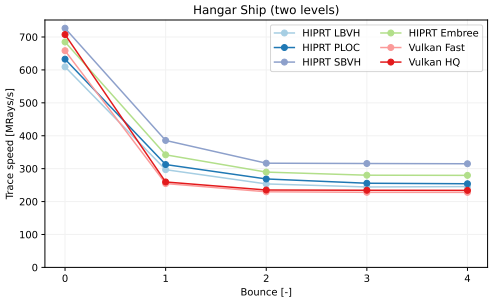
1.1 Trace speed

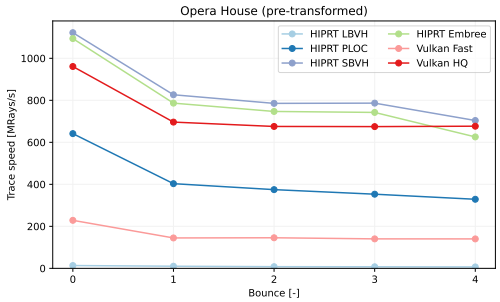
Ray tracing performance of individual bounces for all scenes. The 0-th bounce corresponds to primary rays and the other bounces to secondary rays.

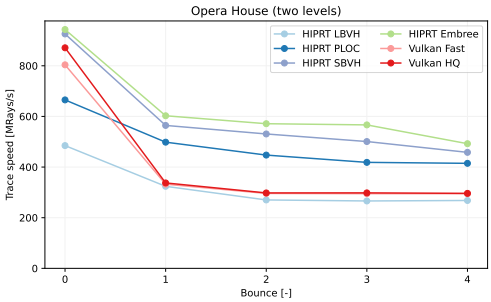


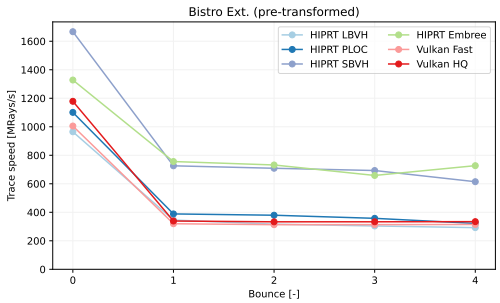
Authors' addresses: Daniel Meister, Advanced Micro Devices, Inc., Japan, daniel.meister@amd.com; Paritosh Kulkarni, Advanced Micro Devices, Inc., Canada, paritosh.kulkarni@amd.com; Aaryaman Vasishta, Advanced Micro Devices, Inc., Japan, aaryaman.vasishta@amd.com; Takahiro Harada, Advanced Micro Devices, Inc., USA, takahiro.harada@amd.com.

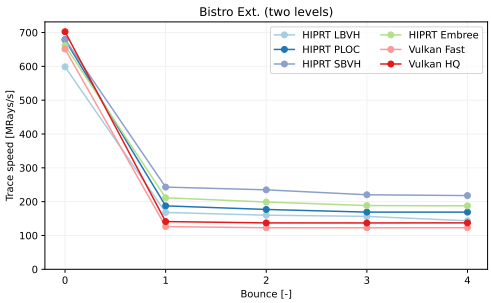

Hangar Ship (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
HIPRT Embree
Vulkan Fast
Vulkan HQ
Trace speed [MRays/s]
Bounce [-]

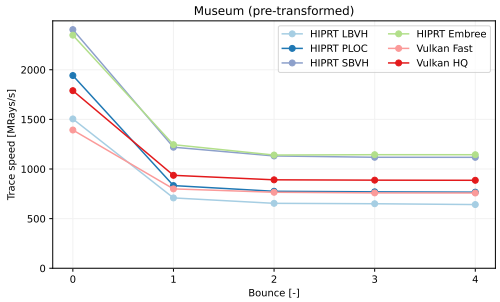

Hangar Ship (two levels)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
HIPRT Embree
Vulkan Fast
Vulkan HQ
Trace speed [MRays/s]
Bounce [-]

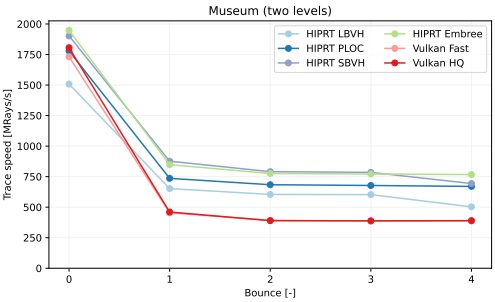

Opera House (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
HIPRT Embree
Vulkan Fast
Vulkan HQ
Trace speed [MRays/s]
Bounce [-]

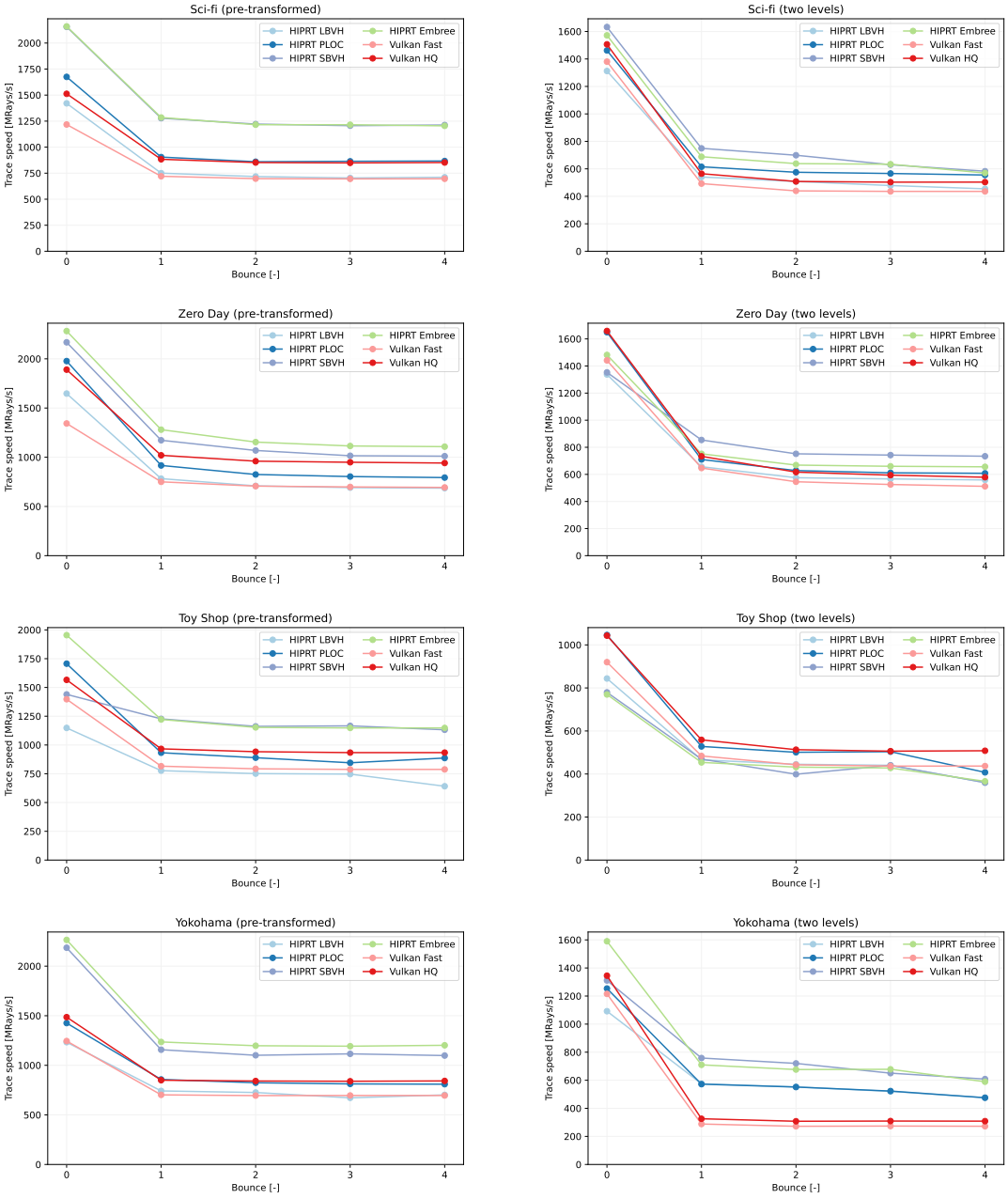

Opera House (two levels)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
HIPRT Embree
Vulkan Fast
Vulkan HQ
Trace speed [MRays/s]
Bounce [-]


Bistro Ext. (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
HIPRT Embree
Vulkan Fast
Vulkan HQ
Trace speed [MRays/s]
Bounce [-]


Bistro Ext. (two levels)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
HIPRT Embree
Vulkan Fast
Vulkan HQ
Trace speed [MRays/s]
Bounce [-]

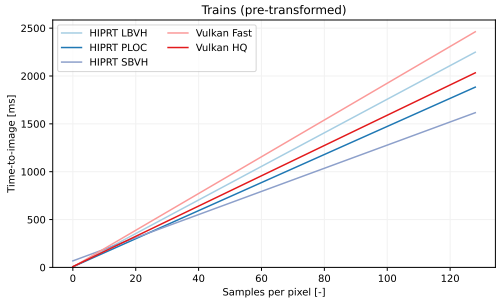

Museum (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
HIPRT Embree
Vulkan Fast
Vulkan HQ
Trace speed [MRays/s]
Bounce [-]

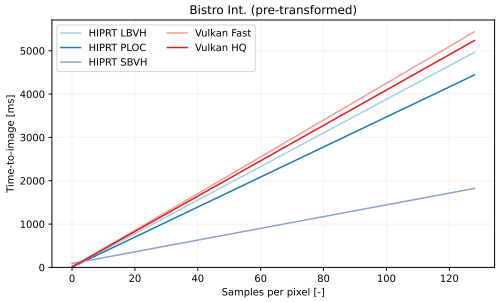

Museum (two levels)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
HIPRT Embree
Vulkan Fast
Vulkan HQ
Trace speed [MRays/s]
Bounce [-]

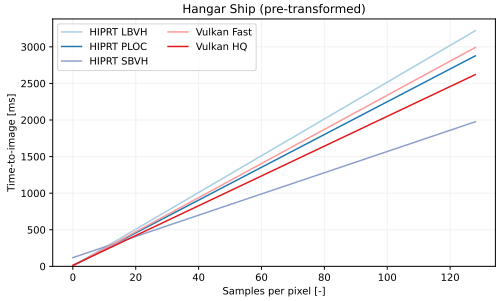


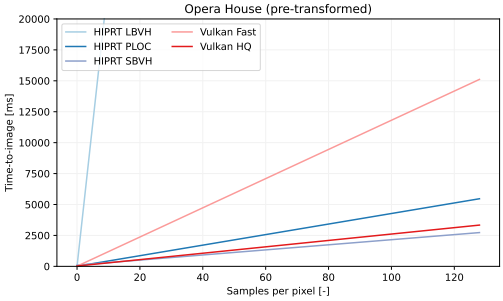
1.2 Time-to-Image

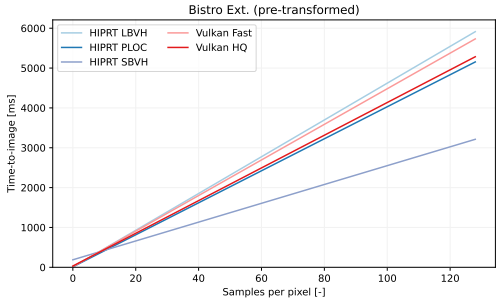
Time-to-image of different samples counts for all scenes. The offset in the origin corresponds to the build time.

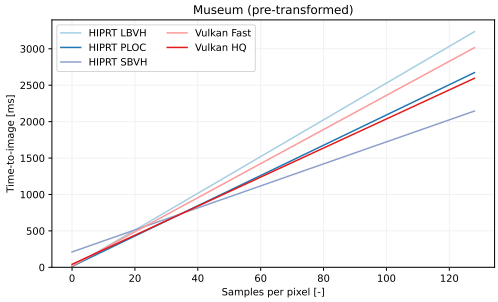

Trains (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
Vulkan Fast
Vulkan HQ
Time-to-image [ms]
Samples per pixel [-]

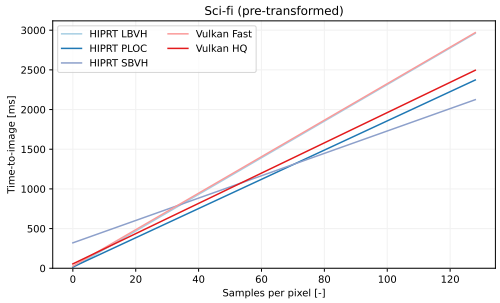

Bistro Int. (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
Vulkan Fast
Vulkan HQ
Time-to-image [ms]
Samples per pixel [-]

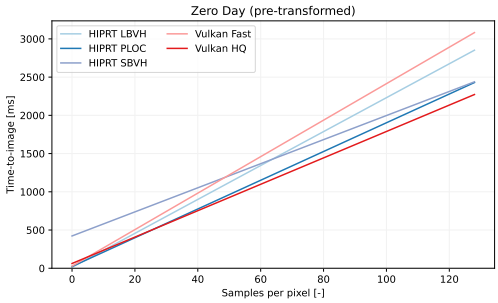

Hangar Ship (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
Vulkan Fast
Vulkan HQ
Time-to-image [ms]
Samples per pixel [-]

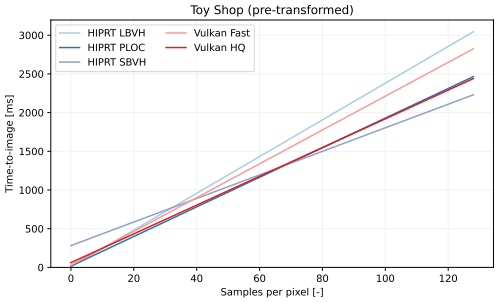

Opera House (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
Vulkan Fast
Vulkan HQ
Time-to-image [ms]
Samples per pixel [-]

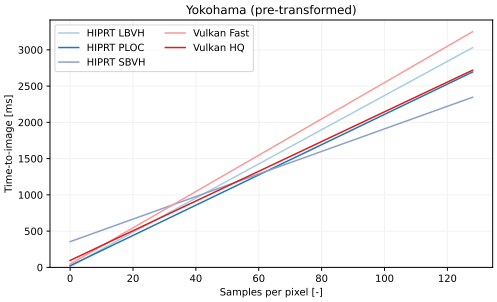

Bistro Ext. (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
Vulkan Fast
Vulkan HQ
Time-to-image [ms]
Samples per pixel [-]


Museum (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
Vulkan Fast
Vulkan HQ
Time-to-image [ms]
Samples per pixel [-]


Sci-fi (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
Vulkan Fast
Vulkan HQ
Time-to-image [ms]
Samples per pixel [-]


Zero Day (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
Vulkan Fast
Vulkan HQ
Time-to-image [ms]
Samples per pixel [-]


Toy Shop (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
Vulkan Fast
Vulkan HQ
Time-to-image [ms]
Samples per pixel [-]
0
500
1000
1500
2000
2500
3000
0
20
40
60
80
100
120


Yokohama (pre-transformed)
HIPRT LBVH
HIPRT PLOC
HIPRT SBVH
Vulkan Fast
Vulkan HQ
Time-to-image [ms]
Samples per pixel [-]
0
500
1000
1500
2000
2500
3000
0
20
40
60
80
100
120