

## 252.eon, Cook command line

### Datasets profile vs. Reference Dataset

The following are the profiles for the 252.eon benchmark, cook command line. For more details about our profile development and dataset reduction methodology, refer to the paper by AJ KleinOsowski and David J. Lilja, "MinneSPEC: A New SPEC Benchmark Workload for Simulation-Based Computer Architecture Research", Computer Architecture Letters, Volume 1, June 2002. This paper is available in electronic form at <http://www.arctic.umn.edu/~lilja/minnespec/index.html>



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## Function level execution profile at optimization level O0

The following table contains function execution profiles and goodness-of-fit chi-squared statistic values for the train.cook, test.cook, lgred.cook, mdred.cook, and smred.cook datasets as compared to the full SPEC reference datasets. This data was gathered with the hiprof profiling utility. \*90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref.cook, Train.cook, Test.cook, Lgred.cook, MdRed.cook, and SmRed.cook columns are the percent of overall execution time spent in the stated function (in the Function column). Numbers in the Train.cook Chi, Test.cook Chi, LgRed.cook Chi, MdRed.cook Chi, and SmRed.cook Chi are the terms of the chi-squared statistic for the stated function (in the function column).

Function	Ref	Train	Train Chi	Test	Test Chi	LgRed	LgRed Chi	MdRed	MdRed Chi	SmRed	SmRed Chi
proc_at_0x12011ece8	8.00	8.10	0.00	8.00	0.00	7.80	0.01	7.60	0.02	7.30	0.06
ggSpectrum::Set(float)	6.40	6.50	0.00	7.10	0.08	6.40	0.00	7.90	0.35	6.80	0.02
proc_at_0x12011ed98	4.20	4.20	0.00	4.10	0.00	3.90	0.02	3.80	0.04	3.00	0.34
_OtsDivRem32	2.00	2.00	0.00	1.70	0.05	1.90	0.01	2.00	0.00	1.50	0.13
operator(constggSpectrum&, constggSpectrum&)	1.80	1.80	0.00	1.90	0.01	2.10	0.05	1.70	0.01	1.80	0.00
proc_at_0x12013a968	1.70	1.70	0.00	1.90	0.02	1.70	0.00	1.80	0.01	1.50	0.02
proc_at_0x12011ee28	1.70	1.60	0.01	1.80	0.01	1.60	0.01	1.70	0.00	1.70	0.00
mrSurfaceList::shadowHit	1.50	1.50	0.00	1.60	0.01	1.50	0.00	1.70	0.03	1.40	0.01
ggRayXZRectangleIntersect	1.50	1.60	0.01	2.10	0.24	1.40	0.01	1.50	0.00	0.60	0.54
ggSpectrum::operator=(constggSpectrum&)	1.40	1.50	0.01	0.80	0.26	1.80	0.11	1.30	0.01	0.50	0.58
proc_at_0x1201018c8	1.30	1.10	0.03	1.10	0.03	1.20	0.01	1.40	0.01	1.40	0.01
operator(constggHRigidBodyMatrix3&, constggPoint3&)	1.30	1.20	0.01	1.10	0.03	1.40	0.01	1.20	0.01	0.90	0.12
sqrt	1.30	1.30	0.00	1.10	0.03	1.40	0.01	1.40	0.01	1.80	0.19
mrMaterial::shadowHit	1.20	1.20	0.00	1.10	0.01	1.20	0.00	0.90	0.07	1.20	0.00
_OtsDivide64	1.10	1.00	0.01	1.00	0.01	1.20	0.01	1.00	0.01	0.80	0.08
proc_at_0x120101fc8	1.00	1.10	0.01	0.90	0.01	1.20	0.04	1.10	0.01	0.80	0.04
proc_at_0x120138730	1.00	1.10	0.01	0.80	0.04	0.90	0.01	1.00	0.00	0.50	0.25
proc_at_0x120101e28	1.00	1.10	0.01	1.00	0.00	1.00	0.00	1.20	0.04	1.00	0.00
proc_at_0x12016a70c	1.00	1.00	0.00	1.10	0.01	0.90	0.01	0.80	0.04	0.90	0.01
ggRayBoxIntersect	0.90	0.90	0.00	0.90	0.00	0.80	0.01	1.00	0.01	0.60	0.10
proc_at_0x12016acd0	0.90	0.90	0.00	0.70	0.04	0.80	0.01	0.80	0.01	0.60	0.10
mrInstance::shadowHit	0.90	0.90	0.00	0.90	0.00	0.80	0.01	0.80	0.01	0.60	0.10
mrCookPixelRenderer::directLight	0.80	0.90	0.01	0.70	0.01	0.90	0.01	0.70	0.01	0.50	0.11
proc_at_0x120101f78	0.80	0.80	0.00	0.80	0.00	0.80	0.00	0.90	0.01	0.70	0.01
proc_at_0x12016ab38	0.80	0.80	0.00	1.00	0.05	0.90	0.01	0.70	0.01	0.70	0.01
proc_at_0x12010184c	0.80	0.70	0.01	1.20	0.20	0.70	0.01	0.60	0.05	0.90	0.01
proc_at_0x120139688	0.80	0.70	0.01	1.10	0.11	0.70	0.01	0.60	0.05	0.80	0.00
operator(float, constggSpectrum&)	0.80	0.70	0.01	0.50	0.11	0.70	0.01	0.90	0.01	0.50	0.11
proc_at_0x12013a5e0	0.80	0.80	0.00	1.00	0.05	0.80	0.00	0.60	0.05	0.60	0.05
mrXZRectangle::shadowHit	0.70	0.60	0.01	0.40	0.13	0.80	0.01	0.80	0.01	0.70	0.00
mrCookPixelRenderer::cookRadiance	0.70	0.80	0.01	1.10	0.23	0.60	0.01	0.60	0.01	0.80	0.01
my_rand(void)	0.70	0.70	0.00	0.70	0.00	0.60	0.01	0.50	0.06	0.70	0.00
mrGrid::viewingHit	0.70	0.70	0.00	1.10	0.23	0.50	0.06	0.70	0.00	0.60	0.01
proc_at_0x12010db4c	0.70	0.70	0.00	0.70	0.00	0.70	0.00	0.70	0.00	0.80	0.01
proc_at_0x12010d64c	0.60	0.60	0.00	0.70	0.02	0.60	0.00	0.50	0.02	0.90	0.15
ggRayYZRectangleIntersect	0.60	0.70	0.02	0.80	0.07	0.70	0.02	0.80	0.07	1.30	0.82
ggSpectrum::operator+=(constggSpectrum&)	0.60	0.50	0.02	0.70	0.02	0.60	0.00	0.70	0.02	0.60	0.00
mrMaterial::viewingHit	0.60	0.70	0.02	0.70	0.02	0.60	0.00	0.50	0.02	0.50	0.02
proc_at_0x12016ac80	0.60	0.70	0.02	0.40	0.07	0.50	0.02	0.60	0.00	0.50	0.02
mrSurfaceList::viewingHit	0.60	0.70	0.02	0.60	0.00	0.70	0.02	0.90	0.15	1.10	0.42

proc_at_0x12016a5f8	0.60	0.60	0.00	0.70	0.02	0.50	0.02	0.70	0.02	0.30	0.15
proc_at_0x12013b090	0.60	0.60	0.00	0.60	0.00	0.50	0.02	0.50	0.02	0.50	0.02
proc_at_0x120101810	0.60	0.50	0.02	0.20	0.27	0.60	0.00	0.70	0.02	0.40	0.07
mrGrid::shadowHit	0.60	0.60	0.00	0.80	0.07	0.60	0.00	0.40	0.07	0.60	0.00
proc_at_0x12016b890	0.50	0.60	0.02	0.30	0.08	0.40	0.02	0.40	0.02	0.50	0.00
ggDiffuseVector	0.50	0.50	0.00	0.40	0.02	0.40	0.02	0.50	0.00	0.50	0.00
proc_at_0x12016b800	0.50	0.40	0.02	0.40	0.02	0.60	0.02	0.30	0.08	0.20	0.18
proc_at_0x120138bc8	0.50	0.40	0.02	0.30	0.08	0.40	0.02	0.40	0.02	0.50	0.00
proc_at_0x12016a7ec	0.50	0.40	0.02	0.60	0.02	0.60	0.02	0.50	0.00	0.80	0.18
proc_at_0x1201016d0	0.50	0.40	0.02	0.40	0.02	0.50	0.00	0.50	0.00	0.40	0.02
mrMaterial::boundingBox	0.50	0.50	0.00	0.30	0.08	0.30	0.08	0.50	0.00	0.30	0.08
proc_at_0x12010dbc8	0.50	0.40	0.02	0.40	0.02	0.40	0.02	0.50	0.00	0.50	0.00
proc_at_0x12010d6c8	0.50	0.50	0.00	0.50	0.00	0.40	0.02	0.40	0.02	0.50	0.00
proc_at_0x12013805c	0.40	0.40	0.00	0.40	0.00	0.40	0.00	0.40	0.00	0.20	0.10
proc_at_0x120138100	0.40	0.50	0.02	0.10	0.23	0.40	0.00	0.40	0.00	0.50	0.02
proc_at_0x12013a3c8	0.40	0.40	0.00	0.30	0.03	0.40	0.00	0.40	0.00	0.50	0.02
proc_at_0x12010db88	0.40	0.50	0.02	0.30	0.03	0.50	0.02	0.50	0.02	0.20	0.10
proc_at_0x120139648	0.40	0.40	0.00	0.40	0.00	0.40	0.00	0.30	0.03	0.40	0.00
proc_at_0x120101da8	0.40	0.40	0.00	0.50	0.02	0.40	0.00	0.40	0.00	0.30	0.03
proc_at_0x120138564	0.40	0.40	0.00	0.40	0.00	0.30	0.03	0.40	0.00	0.40	0.00
proc_at_0x12010d688	0.40	0.40	0.00	0.50	0.02	0.50	0.02	0.50	0.02	0.40	0.00
proc_at_0x12016a8a8	0.40	0.50	0.02	0.40	0.00	0.40	0.00	0.40	0.00	0.40	0.00
proc_at_0x120138b04	0.40	0.40	0.00	0.30	0.03	0.50	0.02	0.60	0.10	0.50	0.02
proc_at_0x12016af40	0.40	0.40	0.00	0.40	0.00	0.40	0.00	0.30	0.03	0.50	0.02
proc_at_0x12016a448	0.40	0.40	0.00	0.50	0.02	0.30	0.03	0.40	0.00	0.20	0.10
proc_at_0x120101888	0.40	0.40	0.00	0.40	0.00	0.50	0.02	0.30	0.03	0.50	0.02
proc_at_0x12013ad90	0.40	0.40	0.00	0.50	0.02	0.40	0.00	0.60	0.10	0.50	0.02
mrYZRectangle::viewingHit	0.40	0.50	0.02	0.20	0.10	0.40	0.00	0.30	0.03	0.60	0.10
proc_at_0x1201386b0	0.40	0.40	0.00	0.20	0.10	0.50	0.02	0.40	0.00	0.40	0.00
proc_at_0x120138450	0.40	0.40	0.00	0.30	0.03	0.40	0.00	0.30	0.03	0.10	0.23
proc_at_0x12016b708	0.40	0.40	0.00	0.40	0.00	0.30	0.03	0.50	0.02	0.70	0.23
proc_at_0x12010dafc	0.40	0.40	0.00	0.30	0.03	0.50	0.02	0.40	0.00	0.20	0.10
operator(constggHRigidBodyMatrix3&,&c onstggRay3&)	0.40	0.40	0.00	0.40	0.00	0.40	0.00	0.30	0.03	0.50	0.02
proc_at_0x120138670	0.40	0.40	0.00	0.50	0.02	0.40	0.00	0.40	0.00	0.50	0.02
proc_at_0x12016b840	0.40	0.40	0.00	0.10	0.23	0.40	0.00	0.40	0.00	0.60	0.10
mrInstance::selectVisiblePoint	0.40	0.40	0.00	0.40	0.00	0.40	0.00	0.30	0.03	0.30	0.03
proc_at_0x120101d68	0.40	0.40	0.00	0.10	0.23	0.50	0.02	0.40	0.00	0.30	0.03
proc_at_0x12013a7f4	0.40	0.40	0.00	0.40	0.00	0.50	0.02	0.30	0.03	0.30	0.03
proc_at_0x1201386f0	0.40	0.40	0.00	0.30	0.03	0.40	0.00	0.20	0.10	0.50	0.02
proc_at_0x120135aa8	0.40	0.40	0.00	0.00	0.40	0.30	0.03	0.40	0.00	0.20	0.10
proc_at_0x12016b02c	0.40	0.30	0.03	0.20	0.10	0.40	0.00	0.30	0.03	0.30	0.03
proc_at_0x12010d554	0.40	0.30	0.03	0.40	0.00	0.50	0.02	0.40	0.00	0.50	0.02
proc_at_0x12016aff0	0.40	0.30	0.03	0.30	0.03	0.30	0.03	0.40	0.00	0.20	0.10
proc_at_0x12016ad20	0.40	0.30	0.03	0.40	0.00	0.40	0.00	0.40	0.00	0.50	0.02
proc_at_0x12016a868	0.40	0.30	0.03	0.40	0.00	0.30	0.03	0.40	0.00	0.20	0.10
proc_at_0x120135afc	0.40	0.40	0.00	0.30	0.03	0.50	0.02	0.40	0.00	0.30	0.03
proc_at_0x120135de8	0.30	0.40	0.03	0.10	0.13	0.40	0.03	0.30	0.00	0.60	0.30
proc_at_0x120136ae0	0.30	0.30	0.00	0.10	0.13	0.40	0.03	0.30	0.00	0.20	0.03
proc_at_0x12016a828	0.30	0.40	0.03	0.20	0.03	0.30	0.00	0.40	0.03	0.20	0.03
proc_at_0x120101de8	0.30	0.30	0.00	0.30	0.00	0.30	0.00	0.20	0.03	0.10	0.13
proc_at_0x120136158	0.30	0.30	0.00	0.40	0.03	0.30	0.00	0.40	0.03	0.20	0.03
proc_at_0x1201385f0	0.30	0.30	0.00	0.10	0.13	0.30	0.00	0.20	0.03	0.40	0.03
proc_at_0x120138510	0.30	0.40	0.03	0.20	0.03	0.30	0.00	0.30	0.00	0.40	0.03
proc_at_0x12016a900	0.30	0.30	0.00	0.00	0.30	0.30	0.00	0.40	0.03	0.40	0.03
proc_at_0x12010daa8	0.30	0.30	0.00	0.30	0.00	0.20	0.03	0.40	0.03	0.50	0.13
mrXZRectangle::viewingHit	0.30	0.30	0.00	0.20	0.03	0.40	0.03	0.10	0.13	0.30	0.00

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proc_at_0x120138630	0.30	0.30	0.00	0.40	0.03	0.30	0.00	0.40	0.03	0.30	0.00
proc_at_0x12011ec90	0.30	0.30	0.00	0.20	0.03	0.30	0.00	0.20	0.03	0.60	0.30
proc_at_0x12013631c	0.30	0.20	0.03	0.20	0.03	0.30	0.00	0.20	0.03	0.50	0.13
proc_at_0x12016a57c	0.30	0.40	0.03	0.20	0.03	0.30	0.00	0.20	0.03	0.10	0.13
proc_at_0x12016ac2c	0.30	0.20	0.03	0.30	0.00	0.20	0.03	0.30	0.00	0.30	0.00
proc_at_0x1200dbea4	0.30	0.30	0.00	0.20	0.03	0.20	0.03	0.30	0.00	0.20	0.03
proc_at_0x12016b068	0.30	0.30	0.00	0.30	0.00	0.30	0.00	0.20	0.03	0.30	0.00
proc_at_0x12016a540	0.30	0.30	0.00	0.40	0.03	0.40	0.03	0.30	0.00	0.60	0.30
proc_at_0x12016a650	0.30	0.30	0.00	0.00	0.30	0.30	0.00	0.20	0.03	0.40	0.03
proc_at_0x12010d5a8	0.30	0.30	0.00	0.20	0.03	0.20	0.03	0.30	0.00	0.30	0.00
sin	0.30	0.20	0.03	0.40	0.03	0.30	0.00	0.30	0.00	0.20	0.03
proc_at_0x12016a49c	0.30	0.20	0.03	0.10	0.13	0.20	0.03	0.30	0.00	0.40	0.03
mrMaterial::selectVisiblePoint	0.30	0.30	0.00	0.40	0.03	0.30	0.00	0.30	0.00	0.20	0.03
proc_at_0x1201385b4	0.30	0.30	0.00	0.30	0.00	0.20	0.03	0.40	0.03	0.40	0.03
ggDiffuseMaterial::getInfo	0.30	0.30	0.00	0.40	0.03	0.30	0.00	0.20	0.03	0.20	0.03
mrInstance::boundingBox	0.20	0.30	0.05	0.30	0.05	0.30	0.05	0.20	0.00	0.10	0.05
mrDiffuseAreaXZRectangleLuminaire::shadowHit	0.20	0.20	0.00	0.40	0.20	0.30	0.05	0.20	0.00	0.10	0.05
proc_at_0x12016a408	0.20	0.30	0.05	0.50	0.45	0.30	0.05	0.20	0.00	0.40	0.20
proc_at_0x120138ab4	0.20	0.30	0.05	0.50	0.45	0.20	0.00	0.20	0.00	0.20	0.00
proc_at_0x1201366a0	0.20	0.30	0.05	0.20	0.00	0.30	0.05	0.30	0.05	0.30	0.05
proc_at_0x120135ba0	0.20	0.20	0.00	0.30	0.05	0.20	0.00	0.30	0.05	0.30	0.05
proc_at_0x12010de78	0.20	0.20	0.00	0.30	0.05	0.20	0.00	0.20	0.00	0.20	0.00
proc_at_0x120138e64	0.20	0.20	0.00	0.00	0.20	0.20	0.00	0.30	0.05	0.10	0.05
proc_at_0x1201359ac	0.20	0.20	0.00	0.30	0.05	0.30	0.05	0.20	0.00	0.50	0.45
proc_at_0x12016aa1c	0.20	0.20	0.00	0.40	0.20	0.30	0.05	0.20	0.00	0.20	0.00
proc_at_0x12016a6b8	0.20	0.20	0.00	0.10	0.05	0.20	0.00	0.20	0.00	0.50	0.45
cos	0.20	0.20	0.00	0.30	0.05	0.20	0.00	0.30	0.05	0.30	0.05
proc_at_0x1201384a8	0.20	0.30	0.05	0.10	0.05	0.20	0.00	0.30	0.05	0.30	0.05
proc_at_0x12016a5b8	0.20	0.30	0.05	0.30	0.05	0.20	0.00	0.20	0.00	0.20	0.00
proc_at_0x12010dcc8	0.20	0.20	0.00	0.40	0.20	0.20	0.00	0.30	0.05	0.00	0.20
proc_at_0x12013ac70	0.20	0.20	0.00	0.00	0.20	0.30	0.05	0.10	0.05	0.30	0.05
proc_at_0x12010d708	0.20	0.10	0.05	0.30	0.05	0.20	0.00	0.20	0.00	0.40	0.20
proc_at_0x120138788	0.20	0.20	0.00	0.00	0.20	0.10	0.05	0.20	0.00	0.20	0.00
proc_at_0x1201367f8	0.20	0.20	0.00	0.50	0.45	0.20	0.00	0.30	0.05	0.20	0.00
proc_at_0x12010ddd8	0.20	0.30	0.05	0.00	0.20	0.20	0.00	0.30	0.05	0.20	0.00
proc_at_0x12015ad18	0.20	0.20	0.00	0.40	0.20	0.10	0.05	0.20	0.00	0.20	0.00
proc_at_0x12015af28	0.20	0.20	0.00	0.10	0.05	0.20	0.00	0.20	0.00	0.20	0.00
proc_at_0x120135d28	0.20	0.20	0.00	0.50	0.45	0.20	0.00	0.10	0.05	0.50	0.45
proc_at_0x12016b168	0.20	0.20	0.00	0.00	0.20	0.20	0.00	0.30	0.05	0.20	0.00
proc_at_0x1201382f4	0.20	0.20	0.00	0.30	0.05	0.20	0.00	0.10	0.05	0.10	0.05
ggPinholeCamera::getRay	0.20	0.20	0.00	0.30	0.05	0.20	0.00	0.20	0.00	0.20	0.00
proc_at_0x12016a75c	0.20	0.10	0.05	0.30	0.05	0.20	0.00	0.10	0.05	0.00	0.20
proc_at_0x1201362cc	0.20	0.20	0.00	0.20	0.00	0.20	0.00	0.10	0.05	0.20	0.00
proc_at_0x12016a260	0.20	0.10	0.05	0.20	0.00	0.20	0.00	0.20	0.00	0.20	0.00
proc_at_0x120138410	0.20	0.10	0.05	0.40	0.20	0.20	0.00	0.10	0.05	0.30	0.05
proc_at_0x120138b54	0.20	0.20	0.00	0.20	0.00	0.10	0.05	0.10	0.05	0.20	0.00
proc_at_0x120138398	0.20	0.10	0.05	0.30	0.05	0.20	0.00	0.20	0.00	0.20	0.00
proc_at_0x12015adc4	0.20	0.20	0.00	0.10	0.05	0.20	0.00	0.20	0.00	0.20	0.00
ggRayXYRectangleIntersect	0.20	0.10	0.05	0.30	0.05	0.10	0.05	0.20	0.00	0.30	0.05
proc_at_0x120136358	0.20	0.20	0.00	0.40	0.20	0.20	0.00	0.10	0.05	0.10	0.05
proc_at_0x12010de28	0.20	0.20	0.00	0.10	0.05	0.10	0.05	0.10	0.05	0.20	0.00
proc_at_0x120136a88	0.20	0.20	0.00	0.10	0.05	0.20	0.00	0.30	0.05	0.20	0.00
mrCookPixelRenderer::samplePixel	0.10	0.20	0.10	0.10	0.00	0.10	0.00	0.20	0.10	0.20	0.10
proc_at_0x1200fe92c	0.10	0.20	0.10	0.00	0.10	0.10	0.00	0.10	0.00	0.10	0.00
mrBox::shadowHit	0.10	0.10	0.00	0.00	0.10	0.20	0.10	0.10	0.00	0.20	0.10
ggTrain<ggPoint2>::Append(ggPoint2)	0.10	0.20	0.10	0.30	0.40	0.20	0.10	0.20	0.10	0.30	0.40

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proc_at_0x1201022f8	0.10	0.10	0.00	0.00	0.10	0.20	0.10	0.20	0.10	0.20	0.10
proc_at_0x120138c18	0.10	0.20	0.10	0.00	0.10	0.10	0.00	0.20	0.10	0.10	0.00
proc_at_0x120136498	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.20	0.10
proc_at_0x1200fe574	0.10	0.10	0.00	0.10	0.00	0.20	0.10	0.20	0.10	0.30	0.40
proc_at_0x1201383d4	0.10	0.10	0.00	0.30	0.40	0.10	0.00	0.20	0.10	0.20	0.10
ggJitterSample2::Generate(void)	0.10	0.10	0.00	0.20	0.10	0.10	0.00	0.20	0.10	0.20	0.10
proc_at_0x1200e4218	0.10	0.20	0.10	0.60	2.50	0.20	0.10	0.20	0.10	0.10	0.00
proc_at_0x1201372fc	0.10	0.10	0.00	0.00	0.10	0.20	0.10	0.20	0.10	0.20	0.10
ggTrain<ggSpectrum>::Append(ggSpectrum)	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x1201367a8	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.00	0.10
proc_at_0x12015b240	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.30	0.40
proc_at_0x120102398	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x120136108	0.10	0.10	0.00	0.00	0.10	0.20	0.10	0.10	0.00	0.10	0.00
operator(constggHAffineMatrix3&	0.10	0.20	0.10	0.10	0.00	0.20	0.10	0.10	0.00	0.10	0.00
proc_at_0x120135b8	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
mrInstance::viewingHit	0.10	0.10	0.00	0.30	0.40	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x12016a2f8	0.10	0.10	0.00	0.40	0.90	0.10	0.00	0.20	0.10	0.00	0.10
mrYZRectangle::shadowHit	0.10	0.10	0.00	0.20	0.10	0.10	0.00	0.20	0.10	0.20	0.10
proc_at_0x120138d34	0.10	0.10	0.00	0.50	1.60	0.10	0.00	0.10	0.00	0.20	0.10
proc_at_0x120175330	0.10	0.10	0.00	0.30	0.40	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x1201752f0	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
mrDiffuseAreaXZRectangleLuminaire::selectVisiblePoint	0.10	0.10	0.00	0.00	0.10	0.20	0.10	0.10	0.00	0.20	0.10
proc_at_0x120109080	0.10	0.10	0.00	0.30	0.40	0.10	0.00	0.20	0.10	0.00	0.10
proc_at_0x120135a68	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.40	0.90
proc_at_0x120109040	0.10	0.10	0.00	0.20	0.10	0.20	0.10	0.10	0.00	0.00	0.10
proc_at_0x120109004	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x1200e4d88	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.00	0.10	0.10	0.00
proc_at_0x120102348	0.10	0.10	0.00	0.10	0.00	0.20	0.10	0.10	0.00	0.00	0.10
proc_at_0x120138ce0	0.10	0.10	0.00	0.20	0.10	0.10	0.00	0.10	0.00	0.00	0.10
ggDiffuseBRDF::averageValue(void)const	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x120135c5c	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.00	0.10
proc_at_0x120136a38	0.10	0.10	0.00	0.20	0.10	0.10	0.00	0.00	0.10	0.30	0.40
proc_at_0x12016ad98	0.10	0.10	0.00	0.00	0.10	0.00	0.10	0.10	0.00	0.20	0.10
proc_at_0x12010176c	0.10	0.10	0.00	0.40	0.90	0.10	0.00	0.00	0.10	0.00	0.10
proc_at_0x1201361c0	0.10	0.10	0.00	0.10	0.00	0.20	0.10	0.10	0.00	0.00	0.10
proc_at_0x120102468	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.20	0.10	0.00	0.10
proc_at_0x1201024b8	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.20	0.10
proc_at_0x120101bc8	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.00	0.10
proc_at_0x1200dbf68	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.20	0.10	0.20	0.10
proc_at_0x120101b8c	0.10	0.10	0.00	0.40	0.90	0.10	0.00	0.20	0.10	0.00	0.10
proc_at_0x1200e40d4	0.10	0.10	0.00	0.20	0.10	0.10	0.00	0.10	0.00	0.50	1.60
proc_at_0x120136228	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x12017e278	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.20	0.10
proc_at_0x120136408	0.10	0.10	0.00	0.20	0.10	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x1200fe5c8	0.10	0.10	0.00	0.20	0.10	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x1200fe898	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.20	0.10
mrXYRectangle::shadowHit	0.10	0.10	0.00	0.30	0.40	0.00	0.10	0.10	0.00	0.00	0.10
proc_at_0x120135920	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10
proc_at_0x1200fe9f8	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.00	0.10	0.10	0.00
proc_at_0x1201358d8	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.20	0.10
proc_at_0x12017efd4	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.00	0.10	0.10	0.00
ggDiffuseBRDF::value	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.00	0.10	0.00	0.10
proc_at_0x120135fec	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.00	0.10	0.00	0.10
proc_at_0x12013627c	0.10	0.10	0.00	0.20	0.10	0.10	0.00	0.00	0.10	0.10	0.00
proc_at_0x12017e12c	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.00	0.10	0.00	0.10

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proc_at_0x1200fe97c	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.00	0.10
proc_at_0x1201371f8	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x120137338	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x120135e78	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.00	0.10	0.30	0.40
mrBox::viewingHit	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.00	0.10	0.10	0.00
proc_at_0x120135ed0	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.00	0.10	0.10	0.00
proc_at_0x1201679c8	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x1200e47e0	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.00	0.10	0.10	0.00
mrXYRectangle::viewingHit	0.10	0.10	0.00	0.00	0.10	0.00	0.10	0.10	0.00	0.10	0.00
proc_at_0x120108f60	0.10	0.10	0.00	0.00	0.10	0.00	0.10	0.00	0.10	0.20	0.10
proc_at_0x1200e45a4	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.00	0.10
proc_at_0x12017e0d8	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x12017ed40	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.10	0.00
proc_at_0x1200fe858	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.00	0.10	0.10	0.00
proc_at_0x1201359fc	0.10	0.10	0.00	0.10	0.00	0.10	0.00	0.00	0.10	0.20	0.10
proc_at_0x1200e4830	0.10	0.00	0.10	0.00	0.10	0.10	0.00	0.00	0.10	0.00	0.10
proc_at_0x120135e38	0.10	0.10	0.00	0.00	0.10	0.00	0.10	0.10	0.00	0.00	0.10
proc_at_0x12016a3b8	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.00	0.10	0.00	0.10
proc_at_0x1200e4174	0.10	0.10	0.00	0.10	0.00	0.00	0.10	0.00	0.10	0.10	0.00
proc_at_0x12016ae48	0.10	0.10	0.00	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.10
proc_at_0x12013596c	0.10	0.10	0.00	0.10	0.00	0.00	0.10	0.00	0.10	0.30	0.40
Sum	90.80	90.90	2.34	89.70	24.47	90.50	4.23	89.30	7.32	88.00	20.50
	Ref	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
			Chi		Chi		Chi		Chi		Chi

90% Confidence level (228 entries) = 254.699

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## Function level execution profile at optimization level O1

The following table contains function execution profiles and goodness-of-fit chi-squared statistic values for the train.cook, test.cook, lgred.cook, mdred.cook, and smred.cook datasets as compared to the full SPEC reference datasets. This data was gathered with the hiprof profiling utility. \*90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref.cook, Train.cook, Test.cook, Lgred.cook, MdRed.cook, and SmRed.cook columns are the percent of overall execution time spent in the stated function (in the Function column). Numbers in the Train.cook Chi, Test.cook Chi, LgRed.cook Chi, MdRed.cook Chi, and SmRed.cook Chi are the terms of the chi-squared statistic for the stated function (in the function column).

Function	Ref	Train	Train Chi	Test	Test Chi	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
ggSpectrum::Set(float)	12.00	11.80	0.00	8.90	0.80	11.50	0.02	12.90	0.07	9.30	0.61
proc_at_0x1200ec668	8.50	9.00	0.03	10.90	0.68	8.60	0.00	8.20	0.01	12.10	1.52
proc_at_0x1200ec068	4.80	4.20	0.07	4.50	0.02	4.30	0.05	4.80	0.00	3.80	0.21
ggSpectrum::operator=(constggSpectrum&)	4.20	4.50	0.02	3.50	0.12	3.70	0.06	0.40	3.44	4.40	0.01
sqrt	3.30	3.30	0.00	3.00	0.03	3.50	0.01	3.00	0.03	1.10	1.47
mrSurfaceList::viewingHit	3.20	3.10	0.00	2.50	0.15	3.80	0.11	3.00	0.01	1.60	0.80
my_rand(void)	2.80	2.80	0.00	3.50	0.18	3.30	0.09	3.00	0.01	3.30	0.09
mrSurfaceList::shadowHit	2.60	2.30	0.03	4.50	1.39	3.10	0.10	2.30	0.03	2.70	0.00
ggRayXZRectangleIntersect	2.50	2.60	0.00	2.00	0.10	2.60	0.00	2.40	0.00	3.80	0.68
mrGrid::viewingHit	2.50	2.40	0.00	2.50	0.00	2.90	0.06	2.00	0.10	2.70	0.02
operator(constggHRigidBodyMatrix3&, constggRay3&)	2.50	2.70	0.02	2.00	0.10	2.70	0.02	2.30	0.02	3.30	0.26
mrInstance::shadowHit	2.10	2.10	0.00	3.00	0.39	2.20	0.00	2.60	0.12	1.60	0.12
mrCookPixelRenderer::directLight	2.10	2.50	0.08	1.50	0.17	1.70	0.08	2.70	0.17	1.10	0.48
mrMaterial::viewingHit	2.10	2.00	0.00	2.50	0.08	2.10	0.00	2.20	0.00	1.60	0.12
ggDiffuseMaterial::getInfo	1.90	2.00	0.01	1.50	0.08	1.50	0.08	1.40	0.13	2.20	0.05
mrXZRectangle::shadowHit	1.90	2.00	0.01	1.50	0.08	2.60	0.26	2.40	0.13	1.10	0.34
mrCookPixelRenderer::samplePixel	1.90	2.10	0.02	2.00	0.01	1.90	0.00	1.40	0.13	0.50	1.03
mrGrid::shadowHit	1.90	1.70	0.02	3.50	1.35	2.00	0.01	2.20	0.05	1.10	0.34
mrCookPixelRenderer::cookRadiance	1.80	1.60	0.02	0.50	0.94	1.40	0.09	0.80	0.56	0.50	0.94
ggRayBoxIntersect	1.80	1.70	0.01	1.50	0.05	1.90	0.01	1.90	0.01	1.10	0.27
operator(float, constggSpectrum&)	1.60	1.60	0.00	2.00	0.10	1.50	0.01	1.30	0.06	2.20	0.23
operator(constggHRigidBodyMatrix3&, constggPoint3&)	1.60	1.20	0.10	0.00	1.60	1.70	0.01	1.20	0.10	2.20	0.23
operator(constggHRigidBodyMatrix3&, constggVector3&)	1.40	1.70	0.06	1.00	0.11	1.50	0.01	1.10	0.06	0.00	1.40
mrYZRectangle::viewingHit	1.40	1.40	0.00	1.00	0.11	1.50	0.01	1.60	0.03	1.10	0.06
ggJitterSample2::Generate(void)	1.40	1.30	0.01	0.50	0.58	1.70	0.06	1.40	0.00	1.60	0.03
mrInstance::selectVisiblePoint	1.30	1.40	0.01	2.00	0.38	1.20	0.01	1.60	0.07	1.60	0.07
ggSpectrum::operator+=(constggSpectrum&)	1.20	1.10	0.01	1.00	0.03	0.90	0.07	1.60	0.13	0.50	0.41
mrXZRectangle::viewingHit	1.10	1.00	0.01	0.50	0.33	0.90	0.04	0.70	0.15	0.00	1.10
proc_at_0x1200ebe48	1.10	1.10	0.00	0.50	0.33	0.90	0.04	1.40	0.08	1.60	0.23
sin	1.00	1.00	0.00	1.50	0.25	0.90	0.01	1.00	0.00	1.10	0.01
mrMaterial::boundingBox	1.00	0.80	0.04	0.00	1.00	0.70	0.09	0.20	0.64	1.10	0.01
ggRayYZRectangleIntersect	0.90	0.80	0.01	1.00	0.01	0.70	0.04	0.80	0.01	1.60	0.54
cos	0.90	1.10	0.04	1.00	0.01	0.70	0.04	1.30	0.18	0.50	0.18
ggTrain<ggPoint2>::Append(ggPoint2)	0.90	0.80	0.01	1.00	0.01	0.70	0.04	1.00	0.01	1.10	0.04
ggDiffuseVector	0.90	1.10	0.04	0.50	0.18	1.10	0.04	1.00	0.01	0.00	0.90
ggPinholeCamera::getRay	0.80	0.90	0.01	0.50	0.11	1.10	0.11	0.80	0.00	1.10	0.11
mrDiffuseAreaXZRectangleLuminaire::shadowHit	0.80	0.80	0.00	1.50	0.61	0.60	0.05	1.20	0.20	0.00	0.80
mrBox::shadowHit	0.80	0.70	0.01	0.00	0.80	0.50	0.11	0.20	0.45	1.60	0.80
mrInstance::boundingBox	0.80	0.60	0.05	0.50	0.11	0.40	0.20	1.00	0.05	0.00	0.80

ggSpectrum::operator*=(constggSpectru m&)	4.20	4.50	0.02	3.50	0.12	3.70	0.06	0.40	3.44	4.40	0.01
ggTrain<ggSpectrum>::Append(ggSpect rum)	0.40	0.70	0.23	0.50	0.02	0.50	0.02	0.40	0.00	0.50	0.02
ggDiffuseBRDF::value	0.40	0.30	0.03	1.00	0.90	0.50	0.02	0.60	0.10	0.50	0.02
mrMaterial::selectVisiblePoint	0.40	0.50	0.02	0.00	0.40	0.40	0.00	0.10	0.23	0.50	0.02
mrYZRectangle::shadowHit	0.40	0.30	0.03	0.00	0.40	0.30	0.03	0.60	0.10	0.50	0.02
mrDiffuseAreaXZRectangleLuminaire::s electVisiblePoint	0.40	0.20	0.10	1.00	0.90	0.20	0.10	0.00	0.40	0.00	0.40
mrXYRectangle::viewingHit	0.40	0.30	0.03	0.00	0.40	0.30	0.03	0.70	0.23	0.00	0.40
operator(constggHAffineMatrix3&,cons tgPoint3&)	0.30	0.50	0.13	0.00	0.30	0.40	0.03	0.20	0.03	0.50	0.13
mrInstance::viewingHit	0.20	0.20	0.00	0.50	0.45	0.40	0.20	0.20	0.00	0.00	0.20
ggRayXYRectangleIntersect	0.20	0.20	0.00	0.50	0.45	0.30	0.05	0.10	0.05	0.00	0.20
mrXYRectangle::shadowHit	0.20	0.40	0.20	1.00	3.20	0.30	0.05	0.20	0.00	0.00	0.20
ggJitterSample1::Generate(void)	0.20	0.20	0.00	0.00	0.20	0.30	0.05	0.20	0.00	1.10	4.05
ggTrain<double>::Append(double)	0.20	0.20	0.00	0.00	0.20	0.20	0.00	0.20	0.00	1.10	4.05
ggAverage	0.20	0.10	0.05	1.00	3.20	0.20	0.00	0.10	0.05	0.00	0.20
mrBox::viewingHit	0.20	0.20	0.00	0.00	0.20	0.20	0.00	0.40	0.20	0.50	0.45
mrXZRectangle::boundingBox	0.20	0.20	0.00	0.00	0.20	0.00	0.20	0.10	0.05	0.00	0.20
mrXYRectangle::boundingBox	0.10	0.20	0.10	0.00	0.10	0.10	0.00	0.40	0.90	0.50	1.60
mrYZRectangle::boundingBox	0.10	0.10	0.00	0.00	0.10	0.20	0.10	0.00	0.10	0.00	0.10
mrBox::getParameters	0.10	0.20	0.10	0.00	0.10	0.00	0.10	0.10	0.00	0.00	0.10
Sum	96.10	96.30	1.80	90.30	25.21	95.00	2.99	87.30	13.12	87.90	29.68
	Ref	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
			Chi		Chi		Chi		Chi		Chi

90% Confidence level (58 entries) = 71.040



## Function level execution profile at optimization level O2

The following table contains function execution profiles and goodness-of-fit chi-squared statistic values for the train.cook, test.cook, lgred.cook, mdred.cook, and smred.cook datasets as compared to the full SPEC reference datasets. This data was gathered with the hiprof profiling utility. \*90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref.cook, Train.cook, Test.cook, Lgred.cook, MdRed.cook, and SmRed.cook columns are the percent of overall execution time spent in the stated function (in the Function column). Numbers in the Train.cook Chi, Test.cook Chi, LgRed.cook Chi, MdRed.cook Chi, and SmRed.cook Chi are the terms of the chi-squared statistic for the stated function (in the function column).

Function	Ref	Train	Train Chi	Test	Test Chi	LgRed	LgRed Chi	MdRed	MdRed Chi	SmRed	SmRed Chi
proc_at_0x1200ef0b8	7.20	7.00	0.01	10.10	1.17	7.90	0.07	7.60	0.02	7.30	0.00
mrSurfaceList::shadowHit	6.40	6.70	0.01	5.60	0.10	6.70	0.01	3.80	1.06	1.70	3.45
ggSpectrum::Set(float)	5.60	5.60	0.00	4.50	0.22	6.00	0.03	4.60	0.18	4.50	0.22
proc_at_0x1200eea58	4.60	4.60	0.00	5.10	0.05	4.10	0.05	4.60	0.00	3.90	0.11
mrMaterial::shadowHit	3.70	3.00	0.13	2.20	0.61	3.40	0.02	3.50	0.01	3.40	0.02
sqrt	3.60	3.50	0.00	5.10	0.63	3.60	0.00	5.00	0.54	3.90	0.02
mrSurfaceList::viewingHit	3.50	3.70	0.01	3.40	0.00	3.30	0.01	3.10	0.05	2.80	0.14
operator(constggSpectrum&,constggSpectrum&)	3.50	3.20	0.03	3.90	0.05	3.70	0.01	3.50	0.00	7.30	4.13
operator(constggHRigidBodyMatrix3&,constggRay3&)	3.00	3.00	0.00	1.10	1.20	3.10	0.00	3.00	0.00	2.20	0.21
mrGrid::viewingHit	2.90	2.50	0.06	2.20	0.17	3.10	0.01	2.50	0.06	1.10	1.12
my_rand(void)	2.80	3.20	0.06	1.10	1.03	2.70	0.00	3.20	0.06	2.80	0.00
mrGrid::shadowHit	2.60	2.20	0.06	4.50	1.39	2.40	0.02	3.20	0.14	3.40	0.25
ggRayXZRectangleIntersect	2.60	2.80	0.02	2.20	0.06	2.60	0.00	2.90	0.03	1.10	0.87
mrInstance::shadowHit	2.40	2.50	0.00	1.10	0.70	2.10	0.04	2.20	0.02	1.70	0.20
mrMaterial::viewingHit	2.40	2.70	0.04	3.40	0.42	2.20	0.02	3.20	0.27	1.10	0.70
mrCookPixelRenderer::directLight	2.40	2.50	0.00	2.80	0.07	1.90	0.10	2.70	0.04	1.10	0.70
mrXZRectangle::shadowHit	2.20	2.10	0.00	1.10	0.55	2.60	0.07	2.00	0.02	1.10	0.55
mrCookPixelRenderer::samplePixel	2.10	2.20	0.00	2.80	0.23	2.70	0.17	1.10	0.48	0.60	1.07
ggRayBoxIntersect	1.90	2.00	0.01	1.70	0.02	1.50	0.08	2.40	0.13	2.20	0.05
ggDiffuseMaterial::getInfo	1.90	1.70	0.02	1.10	0.34	2.00	0.01	2.20	0.05	4.50	3.56
operator(float,constggSpectrum&)	1.80	2.10	0.05	1.70	0.01	1.90	0.01	1.20	0.20	0.00	1.80
operator(constggHRigidBodyMatrix3&,constggPoint3&)	1.70	2.10	0.09	0.00	1.70	1.60	0.01	1.20	0.15	1.10	0.21
sincos	1.70	1.70	0.00	2.80	0.71	1.30	0.09	2.20	0.15	1.10	0.21
operator(constggHRigidBodyMatrix3&,constggVector3&)	1.70	1.60	0.01	1.70	0.00	1.50	0.02	1.00	0.29	4.50	4.61
mrCookPixelRenderer::cookRadiance	1.60	1.60	0.00	1.10	0.16	1.70	0.01	1.90	0.06	0.60	0.63
ggJitterSample2::Generate(void)	1.50	1.40	0.01	2.20	0.33	1.90	0.11	2.00	0.17	1.70	0.03
mrYZRectangle::viewingHit	1.40	1.80	0.11	2.20	0.46	1.70	0.06	0.90	0.18	0.60	0.46
mrXZRectangle::viewingHit	1.30	1.10	0.03	1.10	0.03	1.30	0.00	1.20	0.01	1.10	0.03
proc_at_0x1200ee838	1.10	1.00	0.01	1.10	0.00	1.30	0.04	1.00	0.01	1.70	0.33
mrInstance::selectVisiblePoint	1.00	1.00	0.00	1.10	0.01	1.10	0.01	1.60	0.36	0.60	0.16
ggRayYZRectangleIntersect	1.00	0.60	0.16	0.60	0.16	0.90	0.01	1.00	0.00	0.60	0.16
mrMaterial::boundingBox	1.00	0.90	0.01	2.20	1.44	0.80	0.04	0.90	0.01	2.20	1.44
ggTrain<ggPoint2>::Append(ggPoint2)	0.90	0.70	0.04	0.60	0.10	0.90	0.00	0.20	0.54	1.70	0.71
ggPinholeCamera::getRay	0.80	1.10	0.11	1.70	1.01	0.60	0.05	0.70	0.01	0.60	0.05
mrDiffuseAreaXZRectangleLuminaires::shadowHit	0.70	0.80	0.01	0.60	0.01	0.50	0.06	0.40	0.13	0.60	0.01

mrBox::shadowHit	0.70	0.90	0.06	0.00	0.70	0.80	0.01	1.20	0.36	1.10	0.23
mrInstance::boundingBox	0.60	0.50	0.02	0.60	0.00	0.60	0.00	0.60	0.00	1.10	0.42
mrMaterial::selectVisiblePoint	0.60	0.60	0.00	0.00	0.60	0.50	0.02	0.10	0.42	0.00	0.60
ggDiffuseVector	0.60	0.70	0.02	1.70	2.02	0.40	0.07	1.10	0.42	0.60	0.00
ggTrain<ggSpectrum>::Append(ggSpectrum)	0.60	0.50	0.02	0.00	0.60	0.30	0.15	0.60	0.00	1.10	0.42
mrBox::viewingHit	0.50	0.40	0.02	0.60	0.02	0.40	0.02	0.20	0.18	1.10	0.72
ggDiffuseBRDF::value	0.50	0.20	0.18	0.00	0.50	0.40	0.02	0.50	0.00	0.00	0.50
ggDiffuseBRDF::averageValue(void)	0.40	0.40	0.00	0.60	0.10	0.70	0.23	0.40	0.00	0.00	0.40
mrYZRectangle::shadowHit	0.40	0.30	0.03	0.60	0.10	0.70	0.23	0.90	0.63	0.60	0.10
mrInstance::viewingHit	0.30	0.40	0.03	0.00	0.30	0.20	0.03	0.00	0.30	0.00	0.30
mrDiffuseAreaXZRectangleLuminaire::selectVisiblePoint	0.30	0.30	0.00	0.00	0.30	0.20	0.03	0.10	0.13	0.60	0.30
mrXYRectangle::viewingHit	0.30	0.30	0.00	0.00	0.30	0.30	0.00	0.40	0.03	0.00	0.30
ggRayXYRectangleIntersect	0.30	0.30	0.00	0.00	0.30	0.30	0.00	0.20	0.03	0.00	0.30
ggJitterSample1::Generate(void)	0.20	0.20	0.00	1.70	11.25	0.20	0.00	0.10	0.05	0.00	0.20
ggTrain<double>::Append(double)	0.20	0.20	0.00	0.00	0.20	0.20	0.00	0.20	0.00	0.60	0.80
mrXYRectangle::shadowHit	0.20	0.30	0.05	0.00	0.20	0.30	0.05	0.10	0.05	0.00	0.20
mrXZRectangle::boundingBox	0.20	0.20	0.00	0.00	0.20	0.20	0.00	0.00	0.20	0.00	0.20
mrYZRectangle::boundingBox	0.10	0.20	0.10	0.00	0.10	0.10	0.00	0.20	0.10	0.60	2.50
mrXYRectangle::boundingBox	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.10	0.00	0.00	0.10
mrBox::getParameters	0.10	0.00	0.10	0.00	0.10	0.10	0.00	0.10	0.00	0.00	0.10
Sum	93.70	93.20	1.73	91.50	33.11	93.60	2.10	90.80	8.29	83.80	36.89
	Ref	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
			Chi		Chi		Chi		Chi		Chi

90% Confidence level (55 entries) = 67.673

## Function level execution profile at optimization level O3

The following table contains function execution profiles and goodness-of-fit chi-squared statistic values for the train.cook, test.cook, lgred.cook, mdred.cook, and smred.cook datasets as compared to the full SPEC reference datasets. This data was gathered with the hiprof profiling utility. \*90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref.cook, Train.cook, Test.cook, Lgred.cook, MdRed.cook, and SmRed.cook columns are the percent of overall execution time spent in the stated function (in the Function column). Numbers in the Train.cook Chi, Test.cook Chi, LgRed.cook Chi, MdRed.cook Chi, and SmRed.cook Chi are the terms of the chi-squared statistic for the stated function (in the function column).

Function	Ref	Train	Train Chi	Test	Test Chi	LgRed	LgRed Chi	MdRed	MdRed Chi	SmRed	SmRed Chi
proc_at_0x1200ef0b8	7.20	8.20	0.14	8.60	0.27	6.20	0.14	7.60	0.02	5.80	0.27
mrSurfaceList::shadowHit	6.50	6.10	0.02	5.90	0.06	6.20	0.01	5.20	0.26	5.80	0.08
ggSpectrum::Set(float)	5.60	6.00	0.03	5.90	0.02	6.50	0.14	6.40	0.11	6.30	0.09
proc_at_0x1200eea58	4.70	4.90	0.01	4.30	0.03	4.40	0.02	3.40	0.36	3.90	0.14
ggSpectrum::operator=(constggSpectrum&)	4.20	4.30	0.00	3.20	0.24	3.70	0.06	3.50	0.12	4.40	0.01
mrMaterial::shadowHit	3.80	3.20	0.09	3.70	0.00	3.30	0.07	4.60	0.17	0.50	2.87
sqrt	3.60	3.60	0.00	2.70	0.23	3.60	0.00	2.60	0.28	3.40	0.01
mrSurfaceList::viewingHit	3.50	3.20	0.03	3.70	0.01	3.40	0.00	3.30	0.01	2.40	0.35
operator(constggSpectrum&,constggSpectrum&)	3.40	3.50	0.00	3.70	0.03	3.20	0.01	3.50	0.00	2.90	0.07
operator(constggHRigidBodyMatrix3&,constggRay3&)	3.10	3.60	0.08	2.10	0.32	2.80	0.03	3.40	0.03	1.00	1.42
mrGrid::viewingHit	3.00	2.70	0.03	2.70	0.03	2.90	0.00	2.60	0.05	3.40	0.05
my_rand(void)	2.90	2.30	0.12	2.10	0.22	2.80	0.00	4.50	0.88	1.90	0.34
mrGrid::shadowHit	2.50	2.70	0.02	1.60	0.32	2.30	0.02	2.60	0.00	4.40	1.44
ggRayXZRectangleIntersect	2.50	2.50	0.00	0.50	1.60	2.60	0.00	3.00	0.10	4.90	2.30
mrMaterial::viewingHit	2.40	2.70	0.04	2.70	0.04	2.90	0.10	2.70	0.04	1.00	0.82
mrCookPixelRenderer::directLight	2.40	2.10	0.04	3.20	0.27	2.20	0.02	2.20	0.02	1.50	0.34
mrInstance::shadowHit	2.30	2.50	0.02	1.10	0.63	2.50	0.02	3.70	0.85	1.90	0.07
mrXZRectangle::shadowHit	2.20	2.00	0.02	1.60	0.16	2.00	0.02	2.20	0.00	1.00	0.65
mrCookPixelRenderer::samplePixel	2.10	2.00	0.00	2.70	0.17	1.90	0.02	2.60	0.12	1.90	0.02
operator(float,constggSpectrum&)	1.90	2.10	0.02	2.10	0.02	1.90	0.00	1.10	0.34	3.40	1.18
ggRayBoxIntersect	1.80	1.60	0.02	1.60	0.02	2.00	0.02	1.60	0.02	1.50	0.05
ggDiffuseMaterial::getInfo	1.80	1.60	0.02	2.10	0.05	1.80	0.00	1.60	0.02	1.90	0.01
sincos	1.70	1.70	0.00	1.10	0.21	1.40	0.05	2.00	0.05	1.90	0.02
operator(constggHRigidBodyMatrix3&,constggVector3&)	1.70	1.80	0.01	3.20	1.32	1.80	0.01	1.20	0.15	2.90	0.85
operator(constggHRigidBodyMatrix3&,constggPoint3&)	1.70	1.20	0.15	2.10	0.09	1.90	0.02	2.30	0.21	2.40	0.29
mrCookPixelRenderer::cookRadiance	1.60	1.40	0.03	1.10	0.16	1.90	0.06	0.90	0.31	1.50	0.01
ggJitterSample2::Generate(void)	1.60	2.00	0.10	0.00	1.60	2.00	0.10	1.40	0.03	1.00	0.23
mrYZRectangle::viewingHit	1.50	1.50	0.00	1.60	0.01	1.70	0.03	1.10	0.11	0.50	0.67
mrXZRectangle::viewingHit	1.20	0.90	0.07	0.50	0.41	1.00	0.03	1.10	0.01	1.50	0.08
proc_at_0x1200ee838	1.10	1.00	0.01	0.00	1.10	1.10	0.00	0.90	0.04	1.00	0.01
ggRayYZRectangleIntersect	1.10	1.00	0.01	0.00	1.10	1.20	0.01	0.80	0.08	1.00	0.01
mrInstance::selectVisiblePoint	1.00	1.00	0.00	0.50	0.25	0.80	0.04	0.80	0.04	2.40	1.96
ggTrain<ggPoint2>::Append(ggPoint2)	0.90	0.80	0.01	0.00	0.90	1.00	0.01	0.10	0.71	1.90	1.11
ggPinholeCamera::getRay	0.80	0.80	0.00	2.10	2.11	1.00	0.05	0.50	0.11	1.50	0.61
ggSpectrum::operator+=(constggSpectrum&)	0.80	0.90	0.01	1.10	0.11	0.00	0.80	0.80	0.00	1.50	0.61
mrDiffuseAreaXZRectangleLuminaire::shadowHit	0.70	0.70	0.00	2.10	2.80	0.60	0.01	0.70	0.00	1.50	0.91
mrBox::shadowHit	0.70	0.50	0.06	0.50	0.06	0.60	0.01	0.50	0.06	0.50	0.06
ggDiffuseVector	0.60	0.50	0.02	0.50	0.02	0.70	0.02	0.70	0.02	1.00	0.27

mrMaterial::selectVisiblePoint	0.60	0.60	0.00	1.10	0.42	0.70	0.02	0.80	0.07	0.00	0.60
mrInstance::boundingBox	0.60	0.50	0.02	1.60	1.67	0.50	0.02	0.50	0.02	1.90	2.82
operator(constggHAffineMatrix3&,constggPoint3&)	0.60	0.40	0.07	0.50	0.02	0.70	0.02	0.50	0.02	0.00	0.60
ggTrain<ggSpectrum>::Append(ggSpectrum)	0.60	0.50	0.02	0.50	0.02	0.60	0.00	0.70	0.02	1.00	0.27
mrBox::viewingHit	0.50	0.50	0.00	0.00	0.50	0.40	0.02	0.40	0.02	0.50	0.00
ggDiffuseBRDF::value	0.40	0.70	0.23	0.50	0.02	0.30	0.03	0.70	0.23	0.00	0.40
mrYZRectangle::shadowHit	0.40	0.40	0.00	1.10	1.23	0.30	0.03	0.10	0.23	0.50	0.02
mrInstance::viewingHit	0.30	0.30	0.00	0.00	0.30	0.20	0.03	0.70	0.53	1.00	1.63
mrDiffuseAreaXZRectangleLuminaire::selectVisiblePoint	0.30	0.30	0.00	0.00	0.30	0.40	0.03	0.30	0.00	0.00	0.30
mrXYRectangle::viewingHit	0.30	0.60	0.30	0.00	0.30	0.40	0.03	0.30	0.00	0.00	0.30
ggRayXYRectangleIntersect	0.30	0.20	0.03	0.00	0.30	0.20	0.03	0.30	0.00	0.00	0.30
mrXYRectangle::shadowHit	0.20	0.20	0.00	0.50	0.45	0.10	0.05	0.10	0.05	0.50	0.45
ggJitterSample1::Generate(void)	0.20	0.30	0.05	0.00	0.20	0.30	0.05	0.70	1.25	0.00	0.20
ggTrain<double>::Append(double)	0.20	0.30	0.05	0.00	0.20	0.20	0.00	0.30	0.05	0.50	0.45
mrXZRectangle::boundingBox	0.20	0.10	0.05	0.00	0.20	0.10	0.05	0.30	0.05	0.00	0.20
mrYZRectangle::boundingBox	0.10	0.20	0.10	0.50	1.60	0.40	0.90	0.10	0.00	0.00	0.10
mrXYRectangle::boundingBox	0.10	0.10	0.00	0.50	1.60	0.00	0.10	0.00	0.10	0.00	0.10
mrBox::getParameters	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.00	0.10	0.00	0.10
Sum	98.10	97.40	2.13	91.00	26.40	95.70	3.37	96.50	8.44	95.00	29.11
	Ref	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
			Chi		Chi		Chi		Chi		Chi

90% Confidence level (56 entries) = 68.796

## Function level execution profile at optimization level O4

The following table contains function execution profiles and goodness-of-fit chi-squared statistic values for the train.cook, test.cook, lgred.cook, mdred.cook, and smred.cook datasets as compared to the full SPEC reference datasets. This data was gathered with the hiprof profiling utility. \*90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref.cook, Train.cook, Test.cook, Lgred.cook, MdRed.cook, and SmRed.cook columns are the percent of overall execution time spent in the stated function (in the Function column). Numbers in the Train.cook Chi, Test.cook Chi, LgRed.cook Chi, MdRed.cook Chi, and SmRed.cook Chi are the terms of the chi-squared statistic for the stated function (in the function column).

Function	Ref	Train	Train Chi	Test	Test Chi	LgRed	LgRed Chi	MdRed	MdRed Chi	SmRed	SmRed Chi
ggRayXZRectangleIntersect	8.10	7.70	0.02	7.90	0.00	8.60	0.03	9.20	0.15	6.80	0.21
proc_at_0x1200f1c10	6.60	6.20	0.02	7.00	0.02	6.20	0.02	7.60	0.15	5.70	0.12
mrXZRectangle::shadowHit	5.90	5.70	0.01	6.10	0.01	5.40	0.04	6.60	0.08	3.40	1.06
proc_at_0x1200f14d0	5.70	5.80	0.00	6.10	0.03	5.40	0.02	6.00	0.02	8.50	1.38
ggSpectrum::operator=(constggSpectrum&)	4.20	4.00	0.01	2.80	0.47	0.20	3.81	4.60	0.04	5.10	0.19
ggSpectrum::Set(float)	4.20	3.80	0.04	2.30	0.86	3.70	0.06	3.50	0.12	3.40	0.15
operator(constggSpectrum&,constggSpec trum&)	3.50	3.70	0.01	3.70	0.01	3.50	0.00	2.60	0.23	2.30	0.41
mrSurfaceList::viewingHit	3.40	3.70	0.03	1.90	0.66	2.90	0.07	3.30	0.00	3.40	0.00
sqrt	3.20	3.10	0.00	4.20	0.31	2.90	0.03	3.20	0.00	3.40	0.01
my_rand(void)	2.80	3.00	0.01	3.30	0.09	3.00	0.01	2.60	0.01	1.70	0.43
mrMaterial::shadowHit	2.80	2.70	0.00	1.90	0.29	2.90	0.00	2.40	0.06	1.70	0.43
mrSurfaceList::shadowHit	2.40	2.80	0.07	2.30	0.00	1.70	0.20	1.80	0.15	3.40	0.42
operator(float,constggSpectrum&)	2.30	1.80	0.11	3.70	0.85	2.20	0.00	1.60	0.21	2.30	0.00
mrXZRectangle::viewingHit	2.30	2.30	0.00	1.90	0.07	2.50	0.02	2.40	0.00	4.00	1.26
mrInstance::shadowHit	2.20	2.30	0.00	2.30	0.00	2.00	0.02	1.90	0.04	1.10	0.55
mrGrid::viewingHit	2.20	2.30	0.00	2.30	0.00	2.00	0.02	2.60	0.07	1.10	0.55
mrCookPixelRenderer::directLight	2.10	2.40	0.04	1.90	0.02	2.10	0.00	1.60	0.12	4.00	1.72
mrCookPixelRenderer::samplePixel	2.00	2.30	0.04	0.90	0.61	2.40	0.08	1.80	0.02	1.70	0.05
operator(constggHRigidBodyMatrix3&,c onstggRay3&)	2.00	2.20	0.02	0.90	0.61	2.20	0.02	3.10	0.61	0.60	0.98
proc_at_0x1200f1280	2.00	1.80	0.02	1.40	0.18	1.30	0.25	1.00	0.50	3.40	0.98
mrMaterial::viewingHit	1.90	2.10	0.02	0.90	0.53	2.10	0.02	2.30	0.08	1.70	0.02
mrGrid::shadowHit	1.80	1.60	0.02	0.90	0.45	2.10	0.05	1.70	0.01	2.30	0.14
mrCookPixelRenderer::cookRadiance	1.80	1.80	0.00	0.90	0.45	2.50	0.27	1.90	0.01	4.00	2.69
ggRayBoxIntersect	1.70	1.60	0.01	3.70	2.35	1.30	0.09	1.80	0.01	2.30	0.21
ggDiffuseMaterial::getInfo	1.50	1.80	0.06	0.90	0.24	2.20	0.33	1.40	0.01	0.60	0.54
operator(constggHRigidBodyMatrix3&,c onstggPoint3&)	1.50	1.30	0.03	2.30	0.43	2.20	0.33	1.20	0.06	1.70	0.03
sincos	1.50	1.30	0.03	1.90	0.11	1.10	0.11	1.40	0.01	0.00	1.50
operator(constggHRigidBodyMatrix3&,c onstggVector3&)	1.50	1.30	0.03	1.40	0.01	1.50	0.00	1.10	0.11	1.10	0.11
mrYZRectangle::viewingHit	1.30	1.60	0.07	0.90	0.12	1.70	0.12	1.10	0.03	0.60	0.38
ggJitterSample2::Generate(void)	1.20	1.40	0.03	0.90	0.07	1.00	0.03	1.60	0.13	1.10	0.01
ggRayYZRectangleIntersect	1.10	1.10	0.00	2.30	1.31	1.60	0.23	0.90	0.04	1.70	0.33
mrInstance::selectVisiblePoint	1.10	1.10	0.00	1.40	0.08	0.80	0.08	1.10	0.00	1.10	0.00
ggPinholeCamera::getRay	1.10	1.10	0.00	0.00	1.10	1.00	0.01	1.80	0.45	0.60	0.23
ggTrain<ggSpectrum>::Append(ggSpectr um)	1.00	0.90	0.01	0.50	0.25	0.80	0.04	0.80	0.04	0.60	0.16
mrMaterial::boundingBox	1.00	0.80	0.04	0.50	0.25	1.00	0.00	0.70	0.09	0.00	1.00
mrInstance::boundingBox	0.90	1.00	0.01	0.50	0.18	0.90	0.00	0.70	0.04	1.10	0.04
ggTrain<ggPoint2>::Append(ggPoint2)	0.80	0.90	0.01	0.90	0.01	0.80	0.00	0.80	0.00	0.60	0.05
ggDiffuseVector	0.70	0.60	0.01	0.00	0.70	0.80	0.01	0.80	0.01	1.70	1.43

ggSpectrum::operator+=(constggSpectru m&)	0.60	0.70	0.02	0.50	0.02	1.00	0.27	0.50	0.02	0.00	0.60
mrBox::shadowHit	0.60	0.50	0.02	0.90	0.15	0.60	0.00	0.20	0.27	0.60	0.00
ggDiffuseBRDF::value	0.40	0.40	0.00	0.90	0.63	0.20	0.10	0.50	0.02	0.00	0.40
ggSpectrum::operator*=(constggSpectru m&)	4.20	4.00	0.01	2.80	0.47	0.20	3.81	4.60	0.04	5.10	0.19
mrMaterial::selectVisiblePoint	0.30	0.30	0.00	0.00	0.30	0.30	0.00	0.60	0.30	1.10	2.13
mrYZRectangle::shadowHit	0.30	0.40	0.03	1.40	4.03	0.40	0.03	0.70	0.53	0.00	0.30
mrXYRectangle::viewingHit	0.30	0.70	0.53	0.00	0.30	0.10	0.13	0.50	0.13	1.60	5.63
mrDiffuseAreaXZRectangleLuminaire::se lectVisiblePoint	0.30	0.50	0.13	1.40	4.03	0.00	0.30	0.80	0.83	0.00	0.30
operator(constggHAffineMatrix3&,const ggPoint3&)	0.30	0.10	0.13	0.00	0.30	0.20	0.03	0.20	0.03	0.00	0.30
mrInstance::viewingHit	0.30	0.00	0.30	0.00	0.30	0.20	0.03	0.10	0.13	0.00	0.30
mrXYRectangle::shadowHit	0.20	0.00	0.20	0.90	2.45	0.30	0.05	0.20	0.00	0.00	0.20
ggTrain<double>::Append(double)	0.20	0.30	0.05	0.00	0.20	0.20	0.00	0.30	0.05	0.00	0.20
ggJitterSample1::Generate(void)	0.20	0.20	0.00	0.50	0.45	0.30	0.05	0.30	0.05	0.00	0.20
mrBox::viewingHit	0.20	0.00	0.20	0.00	0.20	0.10	0.05	0.00	0.20	0.60	0.80
mrXZRectangle::boundingBox	0.20	0.10	0.05	0.50	0.45	0.10	0.05	0.10	0.05	0.00	0.20
ggAverage(constggTrain<ggSpectrum>& )	0.20	0.00	0.20	0.00	0.20	0.00	0.20	0.00	0.20	0.00	0.20
mrXYRectangle::boundingBox	0.10	0.10	0.00	0.50	1.60	0.10	0.00	0.10	0.00	0.00	0.10
mrYZRectangle::boundingBox	0.10	0.10	0.00	0.00	0.10	0.00	0.10	0.10	0.00	0.00	0.10
Sum	94.20	93.60	2.71	88.00	29.91	84.20	11.61	93.10	6.41	92.00	31.70
	Ref	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
			Chi		Chi		Chi		Chi		Chi

90% Confidence level (56 entries) = 68.796

**Instruction Mix profile at optimization level o0**

The following table contains instruction mix breakdown and goodness-of-fit chi-squared statistic values for the train.cook, test.cook, lgred.cook, mdred.cook, and smred.cook datasets, as compared to the full SPEC dataset. This data was gathered with the sim-profile simulator for the SimpleScalar suite. \*90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref.cook, Train.cook, Test.cook, LgRed.cook, MdRed.cook, and SmRed.cook columns are the percent of overall instructions of the stated instruction type (in the Inst Type column). Numbers in the Train.cook Chi, Test.cook Chi, LgRed.cook Chi, MdRed.cook Chi, and SmRed.cook Chi columns are the terms of the chi-squared statistic for the stated instruction type (in the Inst Type column).

252.eon

O0 Program

Inst Type	Ref Cook	Train Cook	Train Cook Chi	Test Cook	Test Cook Chi	LgRed Cook	LgRed Cook Chi	MdRed Cook	MdRed Cook Chi	SmRed Cook	SmRed Cook Chi
load	19.75	19.76	0.00	19.87	0.00	19.77	0.00	19.78	0.00	19.87	0.00
store unconditional branch	11.39	11.39	0.00	11.35	0.00	11.39	0.00	11.38	0.00	11.35	0.00
conditional branch	15.42	15.41	0.00	15.25	0.00	15.40	0.00	15.38	0.00	15.25	0.00
int computation	4.70	4.71	0.00	4.74	0.00	4.71	0.00	4.72	0.00	4.74	0.00
fp computation	43.32	43.32	0.00	43.21	0.00	43.31	0.00	43.31	0.00	43.21	0.00
trap	5.41	5.41	0.00	5.56	0.00	5.42	0.00	5.44	0.00	5.56	0.00
	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Sum	99.99	100.00	0.00	100.00	0.01	100.00	0.00	100.01	0.00	100.00	0.01
	Ref Cook	Train Cook	Train Cook Chi	Test Cook	Test Cook Chi	LgRed Cook	LgRed Cook Chi	MdRed Cook	MdRed Cook Chi	SmRed Cook	SmRed Cook Chi

90% Confidence level (7 entries) = 10.645

252.eon, Cook command line

**Instruction Mix profile at optimization level o1**

The following table contains instruction mix breakdown and goodness-of-fit chi-squared statistic values for the train.cook, test.cook, lgred.cook, mdred.cook, and smred.cook datasets, as compared to the full SPEC dataset. This data was gathered with the sim-profile simulator for the SimpleScalar suite. \*90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref.cook, Train.cook, Test.cook, LgRed.cook, MdRed.cook, and SmRed.cook columns are the percent of overall instructions of the stated instruction type (in the Inst Type column). Numbers in the Train.cook Chi, Test.cook Chi, LgRed.cook Chi, MdRed.cook Chi, and SmRed.cook Chi columns are the terms of the chi-squared statistic for the stated instruction type (in the Inst Type column).

252.eon

O1 Program

Inst Type	Ref Cook	Train Cook	Train Chi	Test Cook	Test Chi	LgRed Cook	LgRed Chi	MdRed Cook	MdRed Chi	SmRed Cook	SmRed Chi
load	29.18	29.17	0.00	29.05	0.00	29.16	0.00	29.13	0.00	29.05	0.00
store unconditional branch	15.93	15.92	0.00	15.68	0.00	15.90	0.00	15.87	0.00	15.68	0.00
conditional branch	3.53	3.53	0.00	3.52	0.00	3.53	0.00	3.53	0.00	3.52	0.00
int computation	7.97	7.97	0.00	7.97	0.00	7.98	0.00	7.98	0.00	7.97	0.00
fp computation	33.66	33.67	0.00	33.78	0.00	33.68	0.00	33.71	0.00	33.78	0.00
trap	9.73	9.73	0.00	9.97	0.01	9.75	0.00	9.77	0.00	9.97	0.01
	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.01	0.00	0.03	0.00
Sum	100.00	99.99	0.00	100.00	0.01	100.00	0.00	100.00	0.00	100.00	0.01
	Ref Cook	Train Cook	Train Chi	Test Cook	Test Chi	LgRed Cook	LgRed Chi	MdRed Cook	MdRed Chi	SmRed Cook	SmRed Chi

90% Confidence level (7 entries) = 10.645

252.eon, Cook command line



### Instruction Mix profile at optimization level o2

The following table contains instruction mix breakdown and goodness-of-fit chi-squared statistic values for the train.cook, test.cook, lgred.cook, mdred.cook, and smred.cook datasets, as compared to the full SPEC dataset. This data was gathered with the sim-profile simulator for the SimpleScalar suite. \*90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref.cook, Train.cook, Test.cook, LgRed.cook, MdRed.cook, and SmRed.cook columns are the percent of overall instructions of the stated instruction type (in the Inst Type column). Numbers in the Train.cook Chi, Test.cook Chi, LgRed.cook Chi, MdRed.cook Chi, and SmRed.cook Chi columns are the terms of the chi-squared statistic for the stated instruction type (in the Inst Type column).

252.eon

O2 Program

Inst Type	Ref Cook	Train Cook	Train Cook Chi	Test Cook	Test Cook Chi	LgRed Cook	LgRed Cook Chi	MdRed Cook	MdRed Cook Chi	SmRed Cook	SmRed Cook Chi
load	32.42	32.40	0.00	32.24	0.00	32.39	0.00	32.36	0.00	32.24	0.00
store unconditional branch	18.47	18.45	0.00	18.10	0.01	18.43	0.00	18.39	0.00	18.10	0.01
conditional branch	3.86	3.86	0.00	3.84	0.00	3.86	0.00	3.85	0.00	3.84	0.00
int computation	5.99	5.99	0.00	6.02	0.00	5.99	0.00	6.00	0.00	6.02	0.00
fp computation	28.21	28.23	0.00	28.45	0.00	28.25	0.00	28.29	0.00	28.45	0.00
trap	11.06	11.07	0.00	11.30	0.01	11.08	0.00	11.10	0.00	11.30	0.01
	0.00	0.00	0.00	0.04	0.00	0.01	0.00	0.01	0.00	0.04	0.00
Sum	100.01	100.00	0.00	99.99	0.02	100.01	0.00	100.00	0.00	99.99	0.02
	Ref Cook	Train Cook	Train Cook Chi	Test Cook	Test Cook Chi	LgRed Cook	LgRed Cook Chi	MdRed Cook	MdRed Cook Chi	SmRed Cook	SmRed Cook Chi

90% Confidence level (7 entries) = 10.645

252.eon, Cook command line

### Instruction Mix profile at optimization level o3

The following table contains instruction mix breakdown and goodness-of-fit chi-squared statistic values for the train.cook, test.cook, lgred.cook, mdred.cook, and smred.cook datasets, as compared to the full SPEC dataset. This data was gathered with the sim-profile simulator for the SimpleScalar suite. \*90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref.cook, Train.cook, Test.cook, LgRed.cook, MdRed.cook, and SmRed.cook columns are the percent of overall instructions of the stated instruction type (in the Inst Type column). Numbers in the Train.cook Chi, Test.cook Chi, LgRed.cook Chi, MdRed.cook Chi, and SmRed.cook Chi columns are the terms of the chi-squared statistic for the stated instruction type (in the Inst Type column).

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O3 Program

Inst Type	Ref Cook	Train Cook	Train Cook chi	Test Cook	Test Cook chi	LgRed Cook	LgRed Cook chi	MdRed Cook	MdRed Cook chi	SmRed Cook	SmRed Cook chi
load	32.42	32.40	0.00	32.24	0.00	32.39	0.00	32.36	0.00	32.24	0.00
store unconditional branch	18.47	18.45	0.00	18.10	0.01	18.43	0.00	18.39	0.00	18.10	0.01
conditional branch	3.86	3.86	0.00	3.84	0.00	3.86	0.00	3.85	0.00	3.84	0.00
int computation	5.99	5.99	0.00	6.02	0.00	5.99	0.00	6.00	0.00	6.02	0.00
fp computation	28.21	28.23	0.00	28.45	0.00	28.25	0.00	28.29	0.00	28.45	0.00
trap	11.06	11.07	0.00	11.30	0.01	11.08	0.00	11.10	0.00	11.30	0.01
	0.00	0.00	0.00	0.04	0.00	0.01	0.00	0.01	0.00	0.04	0.00
Sum	100.01	100.00	0.00	99.99	0.02	100.01	0.00	100.00	0.00	99.99	0.02
	Ref Cook	Train Cook	Train Cook Chi	Test Cook	Test Cook Chi	LgRed Cook	LgRed Cook Chi	MdRed Cook	MdRed Cook Chi	SmRed Cook	SmRed Cook Chi

90% Confidence level (7 entries) = 10.645

252.eon, Cook command line

### Instruction Mix profile at optimization level o4

The following table contains instruction mix breakdown and goodness-of-fit chi-squared statistic values for the train.cook, test.cook, lgred.cook, mdred.cook, and smred.cook datasets, as compared to the full SPEC dataset. This data was gathered with the sim-profile simulator for the SimpleScalar suite. \*90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref.cook, Train.cook, Test.cook, LgRed.cook, MdRed.cook, and SmRed.cook columns are the percent of overall instructions of the stated instruction type (in the Inst Type column). Numbers in the Train.cook Chi, Test.cook Chi, LgRed.cook Chi, MdRed.cook Chi, and SmRed.cook Chi columns are the terms of the chi-squared statistic for the stated instruction type (in the Inst type column).

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O4 Program

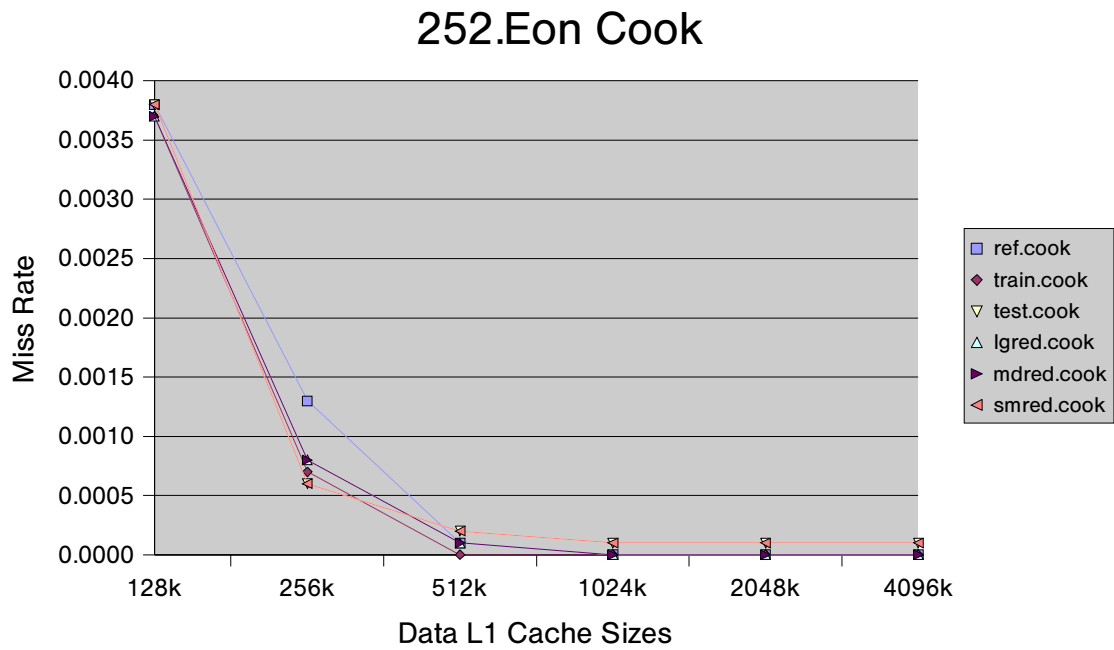
Inst Type	Ref Cook	Train Cook	Train Cook Chi	Test Cook	Test Cook Chi	LgRed Cook	LgRed Cook Chi	MdRed Cook	MdRed Cook Chi	SmRed Cook	SmRed Cook Chi
load	32.34	32.34	0.00	32.20	0.00	32.33	0.00	32.30	0.00	32.20	0.00
store unconditional branch	20.33	20.30	0.00	19.90	0.01	20.28	0.00	20.23	0.00	19.90	0.01
conditional branch	3.72	3.71	0.00	3.70	0.00	3.71	0.00	3.71	0.00	3.70	0.00
int computation	5.79	5.80	0.00	5.83	0.00	5.80	0.00	5.81	0.00	5.83	0.00
fp computation	27.38	27.40	0.00	27.63	0.00	27.42	0.00	27.46	0.00	27.63	0.00
trap	10.44	10.44	0.00	10.69	0.01	10.46	0.00	10.48	0.00	10.69	0.01
	0.00	0.00	0.00	0.04	0.00	0.01	0.00	0.01	0.00	0.04	0.00
Sum	100.00	99.99	0.00	99.99	0.02	100.01	0.00	100.00	0.00	99.99	0.02
	Ref Cook	Train Cook	Train Cook Chi	Test Cook	Test Cook Chi	LgRed Cook	LgRed Cook Chi	MdRed Cook	MdRed Cook Chi	SmRed Cook	SmRed Cook Chi

90% Confidence level (7 entries) = 10.645

252.eon, Cook command line

## Cache profile

The following chart shows level 1 data cache miss rates for the Ref.cook, Train.cook, Test.cook, LgRed.cook, MdRed.cook, and SmRed.cook datasets. This data was gathered with the sim-cache simulator from the SimpleScalar suite. Miss rate is stated as the ratio of level 1 misses to total level 1 accesses.



252.eon, Cook command line

### ***Instruction Counts for all Datasets***

The following table shows the instruction counts and estimated simulation time for the ref.cook, train.cook, test.cook, lgred.cook, mdred.cook, and smred.cook datasets. Instruction counts are from the simulated benchmark, compiled at optimization level O0 and run with each input dataset. Estimated simulation times are calculated using a 45,000 instructions per second factor. This factor was determined by observing the simulation rate of a simulator similar to sim-outorder, run on a machine similar to the SPEC 2000 reference machine (a 333 Mhz Sparc).

	<u>Ref</u>	<u>Train</u>	<u>Test</u>	<u>LgRed</u>	<u>MdRed</u>	<u>SmRed</u>
	<u>Cook</u>	<u>Cook</u>	<u>Cook</u>	<u>Cook</u>	<u>Cook</u>	<u>Cook</u>
Instruction Count (in millions)	273271	6100	310	2885	1342	310
Simulation Time (in hours)	1686.9	37.7	1.9	17.8	8.3	1.9