

253.perlbnk, ref.makerand

Datasets profile vs. Reference Dataset

The following are the profiles for the 253.perlbnk, ref.makerand benchmark. 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>



[http:// www.arctic.umn.edu](http://www.arctic.umn.edu)

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.diffmail, train.perfect, train.scrabbl, test, large (LgRed), medium (MdRed), and small (SmRed) reduced datasets as compared to the full SPEC reference datasets. Note: the large reduced (LgRed) dataset is the same as the ref.makerand dataset for this benchmark. This data was gathered with the gprof profiling utility. *90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref, Train.Diffmail, Train.Perfect, Train.Scrabbl, Test, LgRed, MdRed, and SmRed columns are the percent of overall execution time spent in the stated function (in the Function column). Numbers in the Train.Diffmail Chi, Train.Perfect Chi, Train.Scrabbl Chi, Test Chi, LgRed Chi, MdRed Chi, and SmRed Chi are the terms of the chi-squared statistic for the stated function (in the function column).

Function	Ref	Train	Train	Train	Train	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail		Chi	Perfect	Chi	Scrabbl	Chi		Chi		Chi		Chi		Chi
internal_mcount	42.16	31.54	2.68	38.70	0.28	42.08	0.00	15.38	17.01	43.14	0.02	43.82	0.07	36.08	0.88
Perl_runops_standard	7.06	3.11	2.21	3.71	1.59	4.94	0.64	0.00	7.06	7.24	0.00	9.07	0.57	6.19	0.11
Perl_pp_rand	5.19	0.05	5.09		5.19		5.19		5.19	5.38	0.01	4.95	0.01	2.06	1.89
Perl_pp_modulo	4.19		4.19	0.10	3.99		4.19		4.19	3.90	0.02	3.06	0.30	5.15	0.22
Perl_pp_padsv	4.08	2.12	0.94	0.09	3.90		4.08	0.00	4.08	3.84	0.01	3.77	0.02	3.09	0.24
Perl_sv_setsv	3.31	2.46	0.22	2.66	0.13	3.64	0.03	0.00	3.31	2.96	0.04	3.06	0.02	2.06	0.47
Perl_pp_next	3.09	0.00	3.09		3.09	1.08	1.31		3.09	3.46	0.04	2.83	0.02	4.12	0.34
Perl_pp_nextstate	3.04	1.10	1.24	1.00	1.37	1.19	1.13	0.00	3.04	3.18	0.01	2.94	0.00	5.67	2.28
Perl_sv_2nv	2.87	0.52	1.92	0.43	2.07	0.14	2.60	0.00	2.87	2.25	0.13	2.36	0.09	3.09	0.02
_mcount	2.54	2.05	0.09	2.09	0.08	2.13	0.07		2.54	2.25	0.03	2.47	0.00	2.06	0.09
Perl_sv_dec	2.48	0.01	2.46		2.48		2.48		2.48	2.41	0.00	2.71	0.02	1.55	0.35
Perl_pp_and	2.43	0.60	1.38	0.26	1.94	1.27	0.55	0.00	2.43	1.81	0.16	1.53	0.33	4.64	2.01
.rem	2.43	0.03	2.37	0.01	2.41		2.43		2.43	2.96	0.12	2.24	0.01	2.58	0.01
Perl_pp_const	2.04	0.46	1.22	0.90	0.64	1.12	0.41	0.00	2.04	1.87	0.01	2.00	0.00	1.03	0.50
Perl_pp_predec	1.99	0.00	1.99		1.99		1.99		1.99	1.59	0.08	1.18	0.33	1.03	0.46
Perl_pp_gt	1.93	0.02	1.89	0.07	1.79		1.93		1.93	1.65	0.04	1.53	0.08	2.06	0.01
Perl_pp_sassign	1.60	0.87	0.33	0.28	1.09	0.44	0.84	0.00	1.60	1.92	0.06	1.77	0.02	3.09	1.39
Perl_pp_gvsv	1.38	0.41	0.68	1.42	0.00	2.35	0.68	0.00	1.38	1.59	0.03	1.18	0.03	1.55	0.02
Perl_sv_setiv	1.27	0.27	0.79	0.34	0.68	0.00	1.27	0.00	1.27	0.88	0.12	1.41	0.02	1.55	0.06
doptoptoop	1.21	0.00	1.21		1.21	0.76	0.17		1.21	1.54	0.09	0.82	0.13	2.06	0.60
Perl_sv_setnv	0.99	0.12	0.76	0.31	0.47		0.99	0.00	0.99	0.88	0.01	1.06	0.00	0.52	0.22
cast_uv	0.94	0.03	0.88	0.03	0.88	0.31	0.42		0.94	0.82	0.02	1.30	0.14	0.52	0.19
Perl_pp_srand	0.66	0.05	0.56		0.66		0.66		0.66	0.60	0.01	1.41	0.85	6.19	46.33
.urem	0.39	0.00	0.39	0.01	0.37		0.39		0.39	0.49	0.03	0.24	0.06	0.00	0.39
Perl_sv_setuv	0.28	0.00	0.28	0.01	0.26	0.00	0.28	0.00	0.28	0.49	0.16	0.24	0.01	0.00	0.28
_read	0.28	0.04	0.21	0.00	0.28	0.00	0.28	0.00	0.28	0.44	0.09	0.71	0.66	1.03	2.01
__arint_set_n	0.06	0.00	0.06	0.05	0.00	0.00	0.06	0.00	0.06	0.00	0.06	0.00	0.06	0.00	0.06
__open	0.06	0.00	0.06	0.00	0.06	0.00	0.06	0.00	0.06	0.00	0.06	0.00	0.06	0.00	0.06
LY2	0.06		0.06		0.06		0.06		0.06		0.06		0.06		0.06
Sum	100.01	45.86	39.26	52.47	38.97	61.45	35.19	15.38	74.86	99.54	1.53	99.66	3.98	98.97	61.54
	Ref	Train	Train	Train	Train	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail		Chi	Perfect	Chi	Scrabbl	Chi		Chi		Chi		Chi		Chi

90% confidence level (29 entries) = 37.916

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.diffmail, train.perfect, train.scrabbl, test, large (LgRed), medium (MdRed), and small (SmRed) reduced datasets as compared to the full SPEC reference datasets. Note: the large reduced (LgRed) dataset is the same as the ref.makerand dataset for this benchmark. This data was gathered with the gprof profiling utility. *90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref, Train.Diffmail, Train.Perfect, Train.Scrabbl, Test, LgRed, MdRed, and SmRed columns are the percent of overall execution time spent in the stated function (in the Function column). Numbers in the Train.Diffmail Chi, Train.Perfect Chi, Train.Scrabbl Chi, Test Chi, LgRed Chi, MdRed Chi, and SmRed Chi are the terms of the chi-squared statistic for the stated function (in the function column).

Function	Ref	Train	Train	Train	Train	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail		Chi	Perfect	Chi	Scrabbl	Chi		Chi		Chi		Chi		Chi
internal_mcount	52.95	40.85	2.77	47.15	0.64	50.74	0.09	21.43	18.76	52.97	0.00	53.95	0.02	58.97	0.68
Perl_runops_standard	6.46	2.56	2.35	2.92	1.94	3.54	1.32	0.00	6.46	7.04	0.05	6.14	0.02	3.21	1.64
Perl_pp_modulo	4.10		4.10	0.09	3.92		4.10		4.10	2.80	0.41	2.63	0.53	4.49	0.04
Perl_pp_rand	4.03	0.03	3.97		4.03		4.03		4.03	4.37	0.03	4.68	0.10	1.28	1.88
Perl_pp_nextstate	3.20	1.30	1.13	1.22	1.23	1.37	1.05	0.00	3.20	3.28	0.00	2.63	0.10	1.28	1.15
Perl_pp_padsv	3.20	2.12	0.36	0.15	2.91		3.20	0.00	3.20	2.94	0.02	1.32	1.10	1.92	0.51
.rem	2.64	0.06	2.52	0.03	2.58		2.64		2.64	1.91	0.20	1.75	0.30	1.28	0.70
_mcount	2.50	2.81	0.04	2.99	0.10	3.46	0.37		2.50	1.91	0.14	2.05	0.08	1.28	0.60
Perl_pp_and	2.15	0.49	1.28	0.22	1.73	0.97	0.65	0.00	2.15	1.85	0.04	2.63	0.11	1.28	0.35
Perl_pp_gt	2.02	0.03	1.96	0.08	1.86		2.02		2.02	1.16	0.37	0.88	0.64	1.92	0.00
Perl_sv_setnv	1.95	0.08	1.79	0.27	1.45		1.95	0.00	1.95	1.91	0.00	1.75	0.02	1.28	0.23
Perl_pp_const	1.74	0.58	0.77	1.08	0.25	1.16	0.19	0.00	1.74	2.46	0.30	3.65	2.10	1.92	0.02
Perl_sv_dec	1.46	0.00	1.46		1.46		1.46		1.46	1.03	0.13	1.46	0.00	1.28	0.02
Perl_sv_setsv	1.18	2.32	1.10	2.02	0.60	2.64	1.81	0.00	1.18	2.87	2.42	2.63	1.78	1.28	0.01
Perl_pp_predec	1.18	0.00	1.18		1.18		1.18		1.18	1.16	0.00	1.02	0.02	0.64	0.25
.urem	1.11	0.01	1.09	0.00	1.11		1.11		1.11	0.75	0.12	1.32	0.04	0.64	0.20
Perl_pp_next	1.11	0.00	1.11		1.11	0.57	0.26		1.11	1.30	0.03	1.75	0.37	0.64	0.20
Perl_sv_2nv	1.04	0.42	0.37	0.41	0.38	0.12	0.81	0.00	1.04	0.82	0.05	0.44	0.35	1.28	0.06
Perl_pp_gvsv	0.97	0.40	0.33	1.66	0.49	2.48	2.35	0.00	0.97	0.96	0.00	1.17	0.04	1.28	0.10
Perl_sv_setiv	0.97	0.39	0.35	0.40	0.33	0.00	0.97	0.00	0.97	1.44	0.23	1.32	0.13	1.28	0.10
cast_uv	0.97	0.05	0.87	0.02	0.93	0.37	0.37		0.97	0.96	0.00	0.73	0.06	0.00	0.97
Perl_pp_sassign	0.83	0.62	0.05	0.24	0.42	0.37	0.25	0.00	0.83	2.12	2.00	0.88	0.00	1.92	1.43
doptoptoop	0.63	0.01	0.61		0.63	0.26	0.22		0.63	0.89	0.11	1.17	0.46	1.28	0.67
Perl_sv_setuv	0.56	0.00	0.56	0.02	0.52	0.00	0.56	0.00	0.56	0.27	0.15	0.29	0.13	0.00	0.56
_read	0.28	0.05	0.19	0.00	0.28	0.00	0.28	0.00	0.28	0.27	0.00	0.58	0.32	2.56	18.57
Perl_pp_srand	0.21	0.03	0.15		0.21		0.21		0.21	0.41	0.19	0.88	2.14	3.85	63.09
memcpy	0.07	0.06	0.00	0.03	0.02	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07
Perl_sv_2pv	0.07	0.03	0.02	0.30	0.76		0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07
econvert	0.07	0.01	0.05	0.15	0.09		0.07		0.07	0.00	0.07	0.00	0.07	0.00	0.07
Perl_pp_print	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.15	0.09	0.00	0.07
Perl_pp_unstack	0.07	0.09	0.01	0.06	0.00	0.47	2.29	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07
__open	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07
_private_close	0.07	0.01	0.05	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07
_brk_unlocked	0.07	0.08	0.00	0.01	0.05		0.07	7.14	714.07		0.07	0.15	0.09		0.07
Sum	100.00	55.49	32.76	61.52	33.42	68.52	36.23	28.57	779.81	99.85	7.55	100.00	11.56	98.04	94.58
	Ref	Train	Train	Train	Train	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail		Chi	Perfect	Chi	Scrabbl	Chi		Chi		Chi		Chi		Chi

90% confidence level (34 entries) = 43.745

253.perlbnk, ref.makerand

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.diffmail, train.perfect, train.scrabbl, test, large (LgRed), medium (MdRed), and small (SmRed) reduced datasets as compared to the full SPEC reference datasets. Note: the large reduced (LgRed) dataset is the same as the ref.makerand dataset for this benchmark. This data was gathered with the gprof profiling utility. *90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref, Train.Diffmail, Train.Perfect, Train.Scrabbl, Test, LgRed, MdRed, and SmRed columns are the percent of overall execution time spent in the stated function (in the Function column). Numbers in the Train.Diffmail Chi, Train.Perfect Chi, Train.Scrabbl Chi, Test Chi, LgRed Chi, MdRed Chi, and SmRed Chi are the terms of the chi-squared statistic for the stated function (in the function column).

Function	Ref	Train	Train	Train	Train	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail	Chi	Perfect	Chi	Scrabbl	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi
internal_mcount	52.06	41.53	2.13	47.58	0.39	49.76	0.10	25.00	14.07	88.33	25.27	51.98	0.00	53.12	0.02
Perl_runops_stand	6.13	2.81	1.80	2.84	1.77	3.71	0.96	0.00	6.13	1.40	3.65	6.23	0.00	5.62	0.04
Perl_pp_rand	4.93	0.04	4.85		4.93		4.93		4.93	1.82	1.96	5.67	0.11	0.62	3.77
Perl_pp_modulo	3.93		3.93	0.12	3.69		3.93		3.93	1.26	1.81	3.82	0.00	4.38	0.05
.rem	3.86	0.04	3.78	0.02	3.82		3.86		3.86	0.37	3.16	2.97	0.21	2.50	0.48
Perl_pp_nextstate	2.80	1.10	1.03	0.98	1.18	1.15	0.97	0.00	2.80	0.79	1.44	2.12	0.17	3.75	0.32
_mcount	2.53	2.56	0.00	2.85	0.04	3.18	0.17		2.53	0.62	1.44	2.27	0.03	1.88	0.17
Perl_sv_setsv	2.26	2.29	0.00	2.42	0.01	3.13	0.33	0.00	2.26	0.34	1.63	3.12	0.33	2.50	0.03
Perl_sv_setiv	2.20	0.30	1.64	0.40	1.47	0.00	2.20	0.00	2.20	0.41	1.46	1.84	0.06	0.00	2.20
Perl_pp_padsv	2.13	1.69	0.09	0.07	1.99		2.13	0.00	2.13	0.50	1.25	2.55	0.08	1.25	0.36
Perl_pp_and	1.80	0.64	0.75	0.20	1.42	0.99	0.36	0.00	1.80	0.48	0.97	1.70	0.01	2.50	0.27
Perl_sv_2nv	1.80	0.50	0.94	0.39	1.10	0.14	1.53	0.00	1.80	0.36	1.15	1.84	0.00	2.50	0.27
Perl_pp_gt	1.73	0.03	1.67	0.08	1.57		1.73		1.73	0.31	1.17	0.99	0.32	0.00	1.73
Perl_pp_next	1.46	0.00	1.46		1.46	0.50	0.63		1.46	0.19	1.10	1.13	0.07	2.50	0.74
Perl_pp_gvsv	1.33	0.31	0.78	1.30	0.00	2.39	0.84	0.00	1.33	0.26	0.86	0.71	0.29	0.00	1.33
Perl_sv_setnv	1.33	0.11	1.12	0.24	0.89		1.33	0.00	1.33	0.34	0.74	1.42	0.01	0.62	0.38
.urem	1.13	0.02	1.09	0.02	1.09		1.13		1.13	0.16	0.83	1.27	0.02	1.25	0.01
Perl_pp_const	1.07	0.84	0.05	1.08	0.00	1.13	0.00	0.00	1.07	0.72	0.11	1.13	0.00	4.38	10.24
Perl_pp_sassign	1.07	0.74	0.10	0.18	0.74	0.45	0.36	0.00	1.07	0.17	0.76	1.13	0.00	0.00	1.07
Perl_pp_predec	0.87	0.02	0.83		0.87		0.87		0.87	0.33	0.34	0.99	0.02	0.62	0.07
Perl_sv_dec	0.67	0.02	0.63		0.67		0.67		0.67	0.11	0.47	1.27	0.54	0.00	0.67
dopoptoloop	0.67	0.01	0.65		0.67	0.26	0.25		0.67	0.19	0.34	0.42	0.09	1.25	0.50
cast_uv	0.60	0.03	0.54	0.01	0.58	0.33	0.12		0.60	0.22	0.24	1.56	1.54	1.88	2.73
Perl_sv_setuv	0.47	0.00	0.47	0.00	0.47	0.00	0.47	0.00	0.47	0.09	0.31	0.28	0.08	0.00	0.47
Perl_pp_srand	0.40	0.03	0.34		0.40		0.40		0.40	0.08	0.26	0.71	0.24	3.75	28.06
_read	0.27	0.05	0.18	0.00	0.27	0.00	0.27	0.00	0.27	0.06	0.16	0.71	0.72	2.50	18.42
.umul	0.07	0.05	0.01	0.16	0.12	0.04	0.01	0.00	0.07	0.02	0.04	0.00	0.07	0.00	0.07
Perl_sv_catpvn	0.07	0.08	0.00	0.35	1.12	0.24	0.41	0.00	0.07	0.00	0.07	0.00	0.07	0.62	4.32
__arint_set_n	0.07	0.00	0.07	0.07	0.00	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07
_doprnt	0.07	0.02	0.04	0.42	1.75	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07
econvert	0.07	0.00	0.07	0.04	0.01		0.07		0.07	0.00	0.07	0.00	0.07	0.00	0.07
__double_to_digits	0.07	0.00	0.07	0.05	0.01	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07
Perl_pp_print	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07
ioctl	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07	0.00	0.07
Sum	100.06	55.86	31.25	61.87	34.65	67.40	31.40	25.00	62.07	99.93	53.40	99.83	5.48	99.99	79.22
	Ref	Train	Train	Train	Train	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail	Chi	Perfect	Chi	Scrabbl	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi

90% confidence level (34 entries) = 43.745

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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.diffmail, train.perfect, train.scrabbl, test, large (LgRed), medium (MdRed), and small (SmRed) reduced datasets as compared to the full SPEC reference datasets. Note: the large reduced (LgRed) dataset is the same as the ref.makerand dataset for this benchmark. This data was gathered with the gprof profiling utility. *90% Conf = Critical value of the chi-squared statistic at the 90 percent confidence level. Numbers in the Ref, Train.Diffmail, Train.Perfect, Train.Scrabbl, Test, LgRed, MdRed, and SmRed columns are the percent of overall execution time spent in the stated function (in the Function column). Numbers in the Train.Diffmail Chi, Train.Perfect Chi, Train.Scrabbl Chi, Test Chi, LgRed Chi, MdRed Chi, and SmRed Chi are the terms of the chi-squared statistic for the stated function (in the function column).

Function	Ref	Train	Train	Train	Train	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail	Chi	Perfect	Chi	Scrabbl	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi
internal_mcount	57.46	40.50	5.01	47.64	1.68	43.87	3.21	8.33	42.01	55.46	0.07	57.77	0.00	50.99	0.73
Perl_runops_standard	6.42	2.58	2.30	2.77	2.08	7.13	0.08	0.00	6.42	5.99	0.03	6.03	0.02	5.96	0.03
Perl_pp_rand	3.64	0.02	3.60		3.64		3.64		3.64	5.21	0.68	3.17	0.06	4.64	0.27
Perl_pp_modulo	3.14		3.14	0.05	3.04		3.14		3.14	3.24	0.00	2.71	0.06	3.97	0.22
Perl_pp_padsv	2.86	1.90	0.32	0.11	2.64		2.86	0.00	2.86	2.89	0.00	2.11	0.20	1.32	0.83
.rem	2.64	0.02	2.60	0.03	2.58		2.64		2.64	2.54	0.00	1.81	0.26	1.32	0.66
Perl_pp_nextstate	2.50	1.10	0.78	0.93	0.99	1.53	0.38	8.33	13.60	2.96	0.08	2.41	0.00	1.99	0.10
Perl_pp_const	2.43	0.57	1.42	0.86	1.01	1.16	0.66	0.00	2.43	2.11	0.04	2.11	0.04	1.99	0.08
Perl_sv_setsv	2.28	2.51	0.02	2.53	0.03	2.58	0.04	0.00	2.28	2.11	0.01	2.26	0.00	0.66	1.15
Perl_pp_and	1.86	0.60	0.85	0.17	1.54	1.48	0.08	0.00	1.86	2.11	0.03	2.56	0.26	1.99	0.01
_mcount	1.71	2.75	0.63	2.72	0.60	2.31	0.21		1.71	1.90	0.02	2.71	0.58	3.97	2.99
Perl_pp_next	1.64	0.00	1.64		1.64	0.31	1.08		1.64	0.78	0.45	1.06	0.21	1.99	0.07
Perl_sv_setiv	1.21	0.28	0.71	0.30	0.68	0.00	1.21	0.00	1.21	1.06	0.02	0.75	0.17	0.00	1.21
Perl_sv_2nv	1.21	0.33	0.64	0.38	0.57	0.11	1.00	0.00	1.21	1.13	0.01	0.60	0.31	1.32	0.01
Perl_pp_sassign	1.07	0.67	0.15	0.32	0.53	0.40	0.42	0.00	1.07	1.13	0.00	0.75	0.10	1.32	0.06
Perl_sv_setnv	1.07	0.20	0.71	0.32	0.53		1.07	0.00	1.07	1.41	0.11	1.36	0.08	3.97	7.86
Perl_sv_dec	1.00	0.02	0.96		1.00		1.00		1.00	0.99	0.00	1.81	0.66	0.66	0.12
Perl_pp_gvsv	0.93	0.46	0.24	1.49	0.34	8.58	62.93	8.33	58.88	1.06	0.02	1.36	0.20	2.65	3.18
.urem	0.86	0.01	0.84	0.03	0.80		0.86		0.86	0.78	0.01	1.06	0.05	1.32	0.25
Perl_pp_gt	0.86	0.03	0.80	0.03	0.80		0.86		0.86	1.34	0.27	1.21	0.14	0.00	0.86
Perl_pp_predec	0.86	0.00	0.86		0.86		0.86		0.86	0.85	0.00	0.60	0.08	0.66	0.05
dopoptoloop	0.64	0.00	0.64		0.64	0.26	0.23		0.64	0.70	0.01	1.06	0.28	0.00	0.64
cast_uv	0.57	0.02	0.53	0.02	0.53	0.28	0.15		0.57	0.85	0.14	0.45	0.03	0.66	0.01
Perl_pp_srand	0.43	0.03	0.37		0.43		0.43		0.43	0.35	0.01	0.90	0.51	3.31	19.29
_libc_read	0.29	0.04	0.22	0.00	0.29	0.00	0.29	0.00	0.29	0.28	0.00	0.60	0.33	2.65	19.21
Perl_sv_setuv	0.21	0.01	0.19	0.03	0.15	0.00	0.21	0.00	0.21	0.42	0.21	0.60	0.72	0.00	0.21
_doprnt	0.07	0.00	0.07	0.34	1.04	0.00	0.07	0.00	0.07	0.07	0.00	0.00	0.07	0.00	0.07
econvert	0.07	0.00	0.07	0.07	0.00		0.07		0.07	0.00	0.07	0.00	0.07	0.00	0.07
Perl_yyparse	0.07	0.04	0.01	0.01	0.05	0.00	0.07	0.00	0.07	0.07	0.00	0.00	0.07	0.00	0.07
Sum	100.00	54.69	30.33	61.15	30.70	70.00	89.74	24.99	153.59	99.79	2.30	99.82	5.56	99.31	60.31
	Ref	Train	Train	Train	Train	Train	Train	Test	Test	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail	Chi	Perfect	Chi	Scrabbl	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi

90% confidence level (29 entries) = 37.916

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.diffmail, train.perfect, train.scrabbl, large (LgRed), medium (MdRed), and small (SmRed) reduced datasets, as compared to the full SPEC reference dataset. Note: the large reduced (LgRed) dataset is the same as the ref.makerand dataset for this benchmark. 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, Train.Diffmail, Train.Perfect, Train.Scrabbl, LgRed, MdRed, and SmRed columns are the percent of overall instructions of the stated instruction type (in the Inst Type column). Numbers in the Train.Diffmail Chi, Train.Perfect Chi, Train.Scrabbl Chi, LgRed Chi, MdRed Chi, and SmRed Chi columns are the terms of the chi-squared statistic for the stated instruction type (in the Inst Type column). Note: Test dataset profile is not available due to an unimplemented system call.

253.perlbnk

O0 Program

Inst Type	Ref	Train	Train	Train	Train	Train	Train	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail		Chi	Perfect	Chi	Scrabbl	Chi		Chi		Chi		Chi
load	35.91	30.13	0.93	32.34	0.35	33.37	0.18	35.91	0.00	35.90	0.00	35.81	0.00
store	13.81	15.66	0.25	15.66	0.25	15.67	0.25	13.81	0.00	13.83	0.00	13.94	0.00
unconditional													
branch	7.99	8.27	0.01	7.57	0.02	8.50	0.03	7.99	0.00	7.95	0.00	7.72	0.01
conditional													
branch	9.36	10.60	0.16	9.31	0.00	9.30	0.00	9.36	0.00	9.31	0.00	8.96	0.02
int computation	31.69	35.18	0.38	35.01	0.35	33.02	0.06	31.69	0.00	31.80	0.00	32.46	0.02
fp computation	1.23	0.16	0.93	0.11	1.02	0.14	0.97	1.23	0.00	1.21	0.00	1.11	0.01
trap	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	99.99	100.00	2.67	100.00	1.99	100.00	1.48	99.99	0.00	100.00	0.00	100.00	0.06
	Ref	Train	Train	Train	Train	Train	Train	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail		Chi	Perfect	Chi	Scrabbl	Chi		Chi		Chi		Chi

90% confidence level (7 entries) = 10.645

253.perlbnk, ref.makerand

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.diffmail, train.perfect, train.scrabbl, large (LgRed), medium (MdRed), and small (SmRed) reduced datasets, as compared to the full SPEC reference dataset. Note: the large reduced (LgRed) dataset is the same as the ref.makerand dataset for this benchmark. 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, Train.Diffmail, Train.Perfect, Train.Scrabbl, LgRed, MdRed, and SmRed columns are the percent of overall instructions of the stated instruction type (in the Inst Type column). Numbers in the Train.Diffmail Chi, Train.Perfect Chi, Train.Scrabbl Chi, LgRed Chi, MdRed Chi, and SmRed Chi columns are the terms of the chi-squared statistic for the stated instruction type (in the Inst Type column). Note: Test dataset profile is not available due to an unimplemented system call.

253.perlbnk

O1 Program

Inst Type	Ref	Train	Train	Train	Train	Train	Train	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail	Chi	Perfect	Chi	Scrabbl	Chi		Chi	Chi		Chi		Chi
load	34.53	28.26	1.14	29.41	0.76	31.11	0.34	34.53	0.00	34.41	0.00	33.61	0.02
store	13.61	15.32	0.21	15.56	0.28	15.46	0.25	13.61	0.00	13.61	0.00	13.65	0.00
unconditional branch	6.66	5.75	0.12	6.35	0.01	6.77	0.00	6.66	0.00	6.62	0.00	6.36	0.01
conditional branch	12.11	13.91	0.27	11.90	0.00	12.00	0.00	12.11	0.00	12.12	0.00	12.21	0.00
int computation	31.29	36.55	0.88	36.63	0.91	34.45	0.32	31.29	0.00	31.44	0.00	32.44	0.04
fp computation	1.81	0.21	1.41	0.15	1.52	0.22	1.40	1.81	0.00	1.80	0.00	1.72	0.00
trap	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	100.01	100.00	4.04	100.00	3.49	100.01	2.31	100.01	0.00	100.00	0.00	99.99	0.09
	Ref	Train	Train	Train	Train	Train	Train	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail	Chi	Perfect	Chi	Scrabbl	Chi		Chi	Chi		Chi		Chi

90% confidence level (7 entries) = 10.645

253.perlbnk, ref.makerand

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.diffmail, train.perfect, train.scrabbl, large (LgRed), medium (MdRed), and small (SmRed) reduced datasets, as compared to the full SPEC reference dataset. Note: the large reduced (LgRed) dataset is the same as the ref.makerand dataset for this benchmark. 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, Train.Diffmail, Train.Perfect, Train.Scrabbl, LgRed, MdRed, and SmRed columns are the percent of overall instructions of the stated instruction type (in the Inst Type column). Numbers in the Train.Diffmail Chi, Train.Perfect Chi, Train.Scrabbl Chi, LgRed Chi, MdRed Chi, and SmRed Chi columns are the terms of the chi-squared statistic for the stated instruction type (in the Inst Type column). Note: Test dataset profile is not available due to an unimplemented system call.

253.perlbnk

O2 Program

Inst Type	Ref	Train	Train	Train	Train	Train	Train	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail	Chi	Perfect	Chi	Scrabbl	Chi		Chi		Chi		Chi	
load	34.11	28.04	1.08	29.06	0.75	30.62	0.36	34.11	0.00	34.02	0.00	33.41	0.01
store	13.85	15.42	0.18	15.72	0.25	15.67	0.24	13.85	0.00	13.87	0.00	13.98	0.00
unconditional branch	6.54	5.73	0.10	6.31	0.01	6.75	0.01	6.54	0.00	6.50	0.00	6.28	0.01
conditional branch	12.24	13.96	0.24	12.00	0.00	12.10	0.00	12.24	0.00	12.26	0.00	12.41	0.00
int computation	31.54	36.64	0.82	36.77	0.87	34.68	0.31	31.54	0.00	31.63	0.00	32.26	0.02
fp computation	1.73	0.21	1.34	0.14	1.46	0.19	1.37	1.73	0.00	1.72	0.00	1.66	0.00
trap	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	100.01	100.00	3.76	100.00	3.34	100.01	2.29	100.01	0.00	100.00	0.00	100.00	0.05
	Ref	Train	Train	Train	Train	Train	Train	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail	Chi	Perfect	Chi	Scrabbl	Chi		Chi		Chi		Chi	

90% confidence level (7 entries) = 10.645

253.perlbnk, ref.makerand

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.diffmail, train.perfect, train.scrabbl, large (LgRed), medium (MdRed), and small (SmRed) reduced datasets, as compared to the full SPEC reference dataset. Note: the large reduced (LgRed) dataset is the same as the ref.makerand dataset for this benchmark. 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, Train.Diffmail, Train.Perfect, Train.Scrabbl, LgRed, MdRed, and SmRed columns are the percent of overall instructions of the stated instruction type (in the Inst Type column). Numbers in the Train.Diffmail Chi, Train.Perfect Chi, Train.Scrabbl Chi, LgRed Chi, MdRed Chi, and SmRed Chi columns are the terms of the chi-squared statistic for the stated instruction type (in the Inst Type column). Note: Test dataset profile is not available due to an unimplemented system call.

253.perlbnk

O3 Program

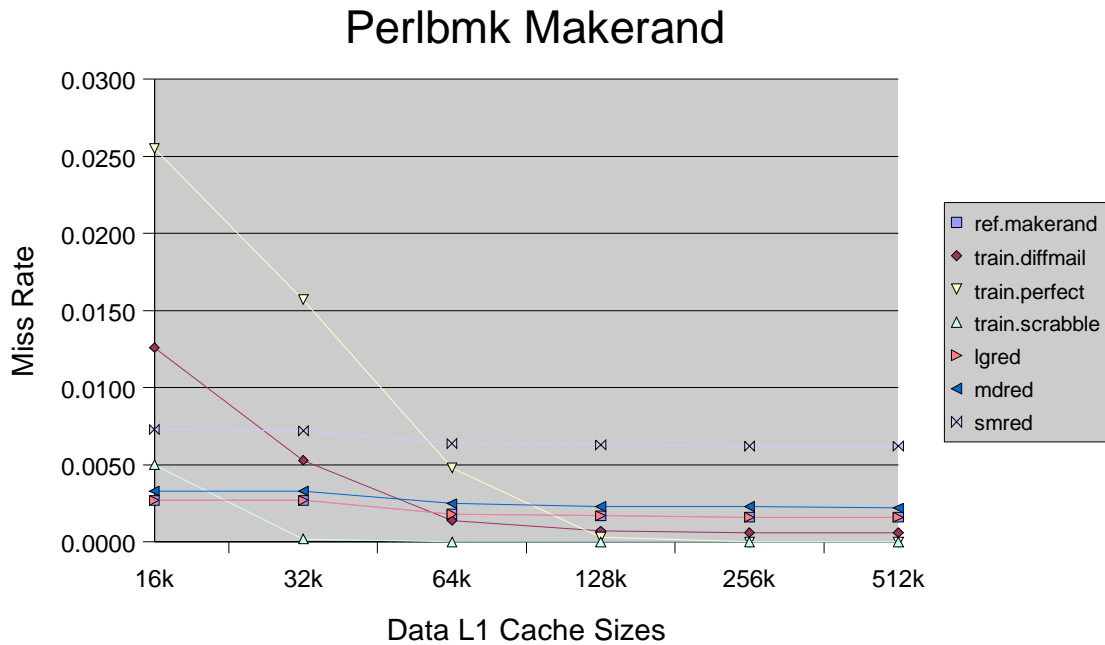
Inst Type	Ref	Train	Train	Train	Train	Train	Train	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail	Chi	Perfect	Chi	Scrabbl	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi
load	34.11	28.08	1.07	29.17	0.72	30.77	0.33	34.11	0.00	34.02	0.00	33.41	0.01
store	13.85	15.43	0.18	15.73	0.26	15.69	0.24	13.85	0.00	13.87	0.00	13.98	0.00
unconditional branch	6.54	5.62	0.13	6.08	0.03	6.41	0.00	6.54	0.00	6.50	0.00	6.28	0.01
conditional branch	12.24	14.01	0.26	12.09	0.00	12.21	0.00	12.24	0.00	12.26	0.00	12.41	0.00
int computation	31.54	36.65	0.83	36.78	0.87	34.73	0.32	31.54	0.00	31.63	0.00	32.26	0.02
fp computation	1.73	0.21	1.34	0.15	1.44	0.19	1.37	1.73	0.00	1.72	0.00	1.66	0.00
trap	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	100.01	100.00	3.80	100.00	3.32	100.00	2.27	100.01	0.00	100.00	0.00	100.00	0.05
	Ref	Train	Train	Train	Train	Train	Train	LgRed	LgRed	MdRed	MdRed	SmRed	SmRed
	Diffmail	Chi	Perfect	Chi	Scrabbl	Chi	Chi	Chi	Chi	Chi	Chi	Chi	Chi

90% confidence level (7 entries) = 10.645

253.perlbnk, ref.makerand

Cache profile

The following chart shows level 1 data cache miss rates for the ref.makerand, train.diffmail, train.perfect, train.scrabbl, LgRed, MdRed, and SmRed datasets. Note: the lgred dataset is the same as the ref.makerand dataset for this benchmark. 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. Note: Test dataset profile is not available due to an unimplemented system call.



Instruction Counts for all Datasets

The following table shows the instruction counts and estimated simulation time for the ref.makerand (Ref), train.diffmail, train.perfect, train.scrabbl, large (LgRed), medium(MdRed), and small (SmRed) reduced datasets. Note: the lgred dataset is the same as the ref.makerand dataset for this benchmark. 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). Note: Test dataset profile is not available due to an unimplemented system call.

	<u>Ref</u>	<u>Train.</u>	<u>Train.</u>	<u>Train.</u>	<u>LgRed</u>	<u>MdRed</u>	<u>SmRed</u>
	<u>makerand</u>	<u>diffmail</u>	<u>perfect</u>	<u>scrabbl</u>			
Instruction Count (in millions)	1852	38974	19177	27980	1852	870	204
Simulation Time (in hours)	11.4	240.6	118.4	112.7	11.4	5.4	1.3