

Fortran Compilers on Linux - Performance Comparison

Absoft's Pro Fortran v11.0 auto-parallelizing and vectorizing compilers have been independently verified as performance leaders on 64-bit Linux systems for both AMD and Intel single & multi-core systems.

The charts below reprint the Polyhedron Fortran Benchmark results as calculated and published by Polyhedron Ltd. UK in 2010. The benchmarks compare time in seconds required by leading Fortran compilers to run each of 16 different benchmark programs. Lower numbers are faster.

AMD 5200 x64_Linux	Absoft 11	g95 0.91	GFortran 4.3.1	Intel 11.1.056	Lahey 8.1	Nag 5.1	PGI 9.0-4
AC	9.2	17.48	13.28	10.6	13.94	21.51	12.11
AERMOD	23.32	39.8	32.41	20.95	23.81	37.86	22.73
AIR	12.48	19.24	13.41	11.77	50.14	12.7	12.62
CAPACITA	55.13	92.87	84.79	73.27	101.04	83.84	52.44
CHANNEL	15.07	23.5	12.58	15.49	16.22	13.4	13.88
DODUC	34.43	43.59	41.05	30.29	38.58	43.88	31.88
FATIGUE	5.14	36.79	9.27	8.5	10.32	17.54	6.75
GAS_DYN	6.03	19	10.24	6.13	7.68	12.65	7.71
INDUCT	27.75	36.96	41.75	36.03	42.88	34.45	32.22
LINPK	23.24	27.17	25.46	25.59	25.37	21.52	23.33
MDBX	16.9	23.49	18.98	17.59	17.29	18.65	18.17
NF	23.06	44.53	29.96	23.96	35.75	24.21	24.08
PROTEIN	44.75	59.6	49.87	40.94	70.81	48.29	48.84
RNFLOW	27.7	44.57	31.33	33.5	35.16	36.93	36.08
TEST_FPU	16.93	29.47	19.71	16.79	18.81	18.45	18.05
TFFT	7.07	7.47	7.49	7.52	7.32	7.2	7.67
Geometric Mean	17.65	30.45	22.14	19.11	24.7	23.55	19.18

Numbers are times in seconds - Lower numbers are faster!

Intel Core i7 x64_Linux	Absoft 11	g95 0.92	GFortran 4.3.2	Intel 11.1.038	Lahey 8.1	PGI 9.0-4	Sun 8.4
AC	6.15	13.96	9.65	10.05	11.05	10.54	34.16
AERMOD	17.49	37.92	30.73	15.04	15.93	16.42	16.89
AIR	5.6	9.03	6.19	3.93	4.39	5.86	4.32
CAPACITA	28.91	41.33	33.63	29.9	32.61	32.83	36.68
CHANNEL	2.99	11.12	1.86	2.19	2.89	2.45	1.92
DODUC	25.21	30.66	27.92	21.07	25.44	25.13	21.85
FATIGUE	4.32	24.88	7.57	6.64	8.13	6.2	5.73
GAS_DYN	3.21	15.81	5.28	2.85	4.48	3.98	9.54
INDUCT	31.53	34.9	28.62	27.82	22.46	28.51	31.96
LINPK	8.26	9.52	8.79	8.85	8.74	8.46	7.69
MDBX	13.23	13.03	11.79	11.87	11.6	12.88	11.74
NF	11.79	24.29	14.46	10.48	16.02	11.53	12.68
PROTEIN	31.61	42.03	35.45	30.74	48.48	37.27	35.72
RNFLOW	20.05	40.84	21.35	23.27	22.46	25.19	20.51
TEST_FPU	8.18	15.2	7.66	6.61	8.33	6.45	8.99
TFFT	2.17	2.5	2.29	2.2	2.16	2.24	2.21
Geometric Mean	9.89	18.46	11.32	9.57	11.03	10.58	11.63

Absoft Pro Fortran v11.0 products are available for Windows, Linux & Mac

Green cells are performance figures within 10% of fastest, Red cells are more than 150% of fastest.

OS/Hardware: Linux Open SuSE 10.2 / AMD X2 5600 (2.8 GHz); CentOS 5.3 / Intel Core i7 920 (2.66 GHz)

Times: Each time represents an average of at least 10 runs; one option set per vendor - no performance tuning for individual programs

All compilers generated 64-bit executables except Lahey

Tests and results provided by Polyhedron Ltd. 2010.

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