

These are benchmarks collected from the community used to measure the effects of changes to the Go core (compiler, runtime, garbage collector, and libraries). They should have the following properties:

- they matter; someone cares, perhaps in a dollars-and-cents way, that they run well
- they are go-gettable and don't require customized steps for building the benchmark
- they run under `go test -bench ...`
- they run relatively quickly, ideally a single “run” takes less than a second (there should perhaps be a separate set of longer-running benchmarks)
- their timings are not gratuitously noisy
- they run cleanly in a restricted environment, such as a Docker or rkt container
- they're not gratuitously redundant with other benchmarks already in the list; we don't need ten microbenchmarks of Go transcendental functions

These benchmarks change over time, and that is okay. Their intended use is for performance testing of proposed changes; is the geometric mean better, were any benchmarks made substantially worse?

Information for each benchmark includes (or should include):

- a short name for the benchmark
- the path to `go get` the benchmark
- a regexp for the benchmark suite excluding individual benchmarks that might be noisy, long-running, or redundant
- (ideally) a contact person for questions about the benchmarks

short name	notes	go get path	benchmark regexp	contact
ajstarks_deck_generate		github.com/ajstarks/deck_generate	BenchmarkDeckGenerate	Arc
benhoyt_goawk		github.com/benhoyt/goawk	BenchmarkGoawk	Winterp
bindata		github.com/kevinburke/bindata	BenchmarkBindata	
capnproto2		zombiezen.com/go/capnproto2	BenchmarkCapnProto2	MovementBetweenSegments\ Growth_MultiSegment
cespare_mph		github.com/cespare/mph	BenchmarkMPH	Build
cespare_xxhash		github.com/cespare/xxhash	BenchmarkXXHash	Hashes/xxhash-string,n=10_MB
ericlagergren_decimal		github.com/ericlagergren/decimal	BenchmarkDecimal	Arithmetic
ethereum_bitutil		github.com/ethereum/bitutil	BenchmarkBitutil	BaseTest2KB\ FastTest2KB\ Encoding4KBVerySparse
ethereum_core		github.com/ethereum/core	BenchmarkCore	ChainAddofall_10k
ethereum_corevm		github.com/ethereum/corevm	BenchmarkCoreVM	OpDirect
ethereum_ecies		github.com/ethereum/ecies	BenchmarkECIES	ChaCha20KeyDerivation
ethereum_ethash		github.com/ethereum/ethash	BenchmarkEthash	Hashimoto/oblique/sus/ethash
ethereum_sha3		github.com/ethereum/sha3	BenchmarkSHA3	2048\ 256\ 512\ 1024\ 2048\ 4096\ 8192\ 16384\ 32768\ 65536\ 131072\ 262144\ 524288\ 1048576\ 2097152\ 4194304\ 8388608\ 16777216\ 33554432\ 67108864\ 134217728\ 268435456\ 536870912\ 1073741824\ 2147483648\ 4294967296\ 8589934592\ 17179869184\ 34359738368\ 68719476736\ 137438953472\ 274877906944\ 549755813888\ 1099511627776\ 2199023255552\ 4398046511104\ 8796093022208\ 17592186044416\ 35184372088832\ 70368744177664\ 140737488355328\ 281474976710656\ 562949953421312\ 1125899906842624\ 2251799813685248\ 4503599627370496\ 9007199254740992\ 18014398509481984\ 36028797018963968\ 72057594037927936\ 144115188075855872\ 288230376151711744\ 576460752303423488\ 1152921504606846976\ 2305843009213693952\ 4611686018427387904\ 9223372036854775808\ 18446744073709551616\ 36893488147419103232\ 73786976294838206464\ 147573952589676412928\ 295147905179352825856\ 590295810358705651712\ 1180591620717411303424\ 2361183241434822606848\ 4722366482869645213696\ 9444732965739290427392\ 18889465931478580854784\ 37778931862957161709568\ 75557863725914323419136\ 151115727451828646838272\ 302231454903657293676544\ 604462909807314587353088\ 1208925819614629174706176\ 2417851639229258349412352\ 4835703278458516698824704\ 9671406556917033397649408\ 19342813113834066795298816\ 38685626227668133590597632\ 77371252455336267181195264\ 154742504910672534362390528\ 309485009821345068724781056\ 618970019642690137449562112\ 1237940039285380274899124224\ 2475880078570760549798248448\ 4951760157141521099596496896\ 9903520314283042199192993792\ 19807040628566084398385987584\ 39614081257132168796771975168\ 79228162514264337593543950336\ 158456325028528675187087900672\ 316912650057057350374175801344\ 633825300114114700748351602688\ 1267650600228229401496703205376\ 2535301200456458802993406410752\ 5070602400912917605986812821504\ 10141204801825835211973625643008\ 20282409603651670423947251286016\ 40564819207303340847894502572032\ 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5928554968950589205686834432442159702229741660095996769400140571020673024\ 11857109937901178411373668864884319404459483320191993538800281142041346048\ 23714219875802356822747337729768638808918966640383987077600562284082692096\ 47428439751604713645494675459537277617837933280767974155201124568165384192\ 94856879503209427290989350919074555235675866561535948310402249136330768384\ 189713759006418854581978701838149110471351733123071896621004498272661536768\ 379427518012837709163957403676298220

short name	notes	go get path	benchmark regexp	contact
gonum_lapack_native		gonum.org/v1/gonum/lapack/gonum	BenchmarkCirculant10	
gonum_mat		gonum.org/v1/gonum/mat	Benchmark(MulWorkspaceDense1000Hundredth\ ScaleVec10000)	
gonum_path		gonum.org/v1/gonum/path	BenchmarkPathUndirectedmallWorld_10_2_2_2_Heur\ Dominant	
gonum_topo		gonum.org/v1/gonum/topo	BenchmarkTopoAnSCCGnp_1000_half\ TarjanSCCGnp_10_tenth	
gonum_traverse		gonum.org/v1/gonum/traverse	BenchmarkWalkBreadthFirstGnp_(10\ 1000)_tenth	
gtank_blake2s		github.com/gtank/blake2s	BenchmarkHash8K	
gtank_ed25519		github.com/gtank/ed25519	Benchmark(IsOnCurve\ ScalarMult)	
hugo_helpers		github.com/gohugoio/hugo_helpers	Benchmark(HelperHTML\ ReaderContains)	
hugo_hugolib		github.com/gohugoio/hugo	BenchmarkPage	
hugo_hugolib_sitebuilding		github.com/gohugoio/hugo/sitebuilding	BenchmarkShugBuilding/YAML,num_pages=10,num_tags=10,tag	
k8s_api		k8s.io/kubernetes	BenchmarkAPIEntireCngdecFromInternalProtobuf	
k8s_schedulercache		k8s.io/kubernetes	BenchmarkSchedulerNodeCachePods	
minio		github.com/minio/minio	BenchmarkGetObject5MbFS	
nelsam_gxui_interval		github.com/nelsam/gxui	BenchmarkInterval	
pilosa_bitmaps	benchmark in roaring/ subdi-rec-tory	github.com/pilosam/pilosa	BenchmarkBitmap_IntersectQuilCount	
semver		github.com/Masterminds/semver	BenchmarkValidateVersionTildeFail	
spexs2		github.com/egonspex/spexs2	BenchmarkAPIv2/10Benchmark/	
uber_zap		go.uber.org/zap	BenchmarkAddingFields/(Zap.Sugar\ ^([ais]))	
uuid		github.com/satori/go.uuid	BenchmarkNewV5\ MarshalToString)	

There is a benchmark runner that automates downloading, building, and running these benchmarks under various (user-defined) configurations. Benchmarking noise on Linux can be somewhat reduced with perflock.

A few have been proposed but have so far failed to make the cut (for fetch, build, or noise problems):

short name	notes	go get path	benchmark regexp	contact
eolian_dsp		buddin.us/eolian	Benchmarkdspmark	
ethereum_whisperv5		github.com/ethereum/whisper	BenchmarkWhisper/whisperv5	
kanzi		github.com/flangul/kanzi	Benchmarkkanzi/go/src/kanzi/benchmark	