xxhash

xxhash is a Go implementation of the 64-bit xxHash algorithm, XXH64. This is a high-quality hashing algorithm that is much faster than anything in the Go standard library.

This package provides a straightforward API:

```
func Sum64(b []byte) uint64
func Sum64String(s string) uint64
type Digest struct{ ... }
    func New() *Digest
```

The `Digest` type implements hash.Hash64. Its key methods are:

```
func (*Digest) Write([]byte) (int, error)
func (*Digest) WriteString(string) (int, error)
func (*Digest) Sum64() uint64
```

This implementation provides a fast pure-Go implementation and an even faster assembly implementation for amd64.

Compatibility

This package is in a module and the latest code is in version 2 of the module. You need a version of Go with at least "minimal module compatibility" to use github.com/cespare/xxhash/v2:

- 1.9.7+ for Go 1.9
- 1.10.3+ for Go 1.10
- Go 1.11 or later

I recommend using the latest release of Go.

Benchmarks

Here are some quick benchmarks comparing the pure-Go and assembly implementations of Sum64.

input size	purego	asm
5 B	979.66 MB/s	1291.17 MB/s
100 B	7475.26 MB/s	7973.40 MB/s
4 KB	17573.46 MB/s	17602.65 MB/s
10 MB	17131.46 MB/s	17142.16 MB/s

These numbers were generated on Ubuntu 18.04 with an Intel i7-8700K CPU using the following commands under Go 1.11.2:

```
$ go test -tags purego -benchtime 10s -bench '/xxhash,direct,bytes'
$ go test -benchtime 10s -bench '/xxhash,direct,bytes'
```

Projects using this package

- InfluxDB
- Prometheus
- VictoriaMetrics
- FreeCache
- FastCache