

# -grpool

Gogoroutine2KBJavaC++4mCPU4G1024Go4\*1024\*1024/2=200wGo

goroutineGCgoroutinegoroutine/grpoolgoroutine100Wgoroutine100Wgoroutinegrpoolgoroutine

goroutine/CPUgoroutinegoroutineGogoroutineGo

Go

510010000

## Pool

goroutinegoroutine

## Job

FuncJobWorkerFunc

```
type Func func(ctx context.Context)
```

## Worker

goroutineWorkerJobJob

import "github.com/gogf/gf/v2/os/grpool"

### Content Menu

- 
- - 
  -
- - [Pool](#)
  - [Job](#)
  - [Worker](#)
- 
- - [goroutine100](#)
  - [goroutine1000](#)
  - 
  - [goroutineAddWithRecover](#)
  - [grpoolgoroutine](#)

```

func Add(ctx context.Context, f Func) error
func AddWithRecover(ctx context.Context, userFunc Func, recoverFunc
RecoverFunc) error
func Jobs() int
func Size() int
func New(limit ...int) *Pool
    func (p *Pool) Add(ctx context.Context, f Func) error
    func (p *Pool) AddWithRecover(ctx context.Context, userFunc Func,
recoverFunc RecoverFunc) error
    func (p *Pool) Cap() int
    func (p *Pool) Close()
    func (p *Pool) IsClosed() bool
    func (p *Pool) Jobs() int
    func (p *Pool) Size() int

```

```

grpool.NewgoroutineLimitgoroutinegoroutineSize()goroutineJobs()
grpoolgoroutinegoroutinegrpool.Add func()/

```



grpool2

## goroutine100goroutine1000

```

package main

import (
    "context"
    "fmt"
    "github.com/gogf/gf/v2/os/gctx"
    "github.com/gogf/gf/v2/os/grpool"
    "github.com/gogf/gf/v2/os/gtimer"
    "time"
)

var (
    ctx = gctx.New()
)

func job(ctx context.Context) {
    time.Sleep(1*time.Second)
}

func main() {
    pool := grpool.New(100)
    for i := 0; i < 1000; i++ {
        pool.Add(ctx, job)
    }
    fmt.Println("worker:", pool.Size())
    fmt.Println(" jobs:", pool.Jobs())
    gtimer.SetInterval(ctx, time.Second, func(ctx context.Context) {
        fmt.Println("worker:", pool.Size())
        fmt.Println(" jobs:", pool.Jobs())
        fmt.Println()
    })

    select {}
}

```

```

sleep 1goroutinegtime.SetInterval1goroutine

```

```

package main

import (
    "context"
    "fmt"
    "github.com/gogf/gf/v2/os/gctx"
    "github.com/gogf/gf/v2/os/grpool"
    "sync"
)

var (
    ctx = gctx.New()
)

func main() {
    wg := sync.WaitGroup{}
    for i := 0; i < 10; i++ {
        wg.Add(1)
        grpool.Add(ctx, func(ctx context.Context) {
            fmt.Println(i)
            wg.Done()
        })
    }
    wg.Wait()
}

```

0-9

```

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10
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10

```

gogrpool(goroutinei)ii10 iii

**1)go**

```

package main

import (
    "fmt"
    "sync"
)

func main() {
    wg := sync.WaitGroup{}
    for i := 0; i < 10; i++ {
        wg.Add(1)
        go func(v int){
            fmt.Println(v)
            wg.Done()
        }(i)
    }
    wg.Wait()
}

```

```
0
9
3
4
5
6
7
8
1
2
```

2)

```
package main

import (
    "context"
    "fmt"
    "github.com/gogf/gf/v2/os/gctx"
    "github.com/gogf/gf/v2/os/grpool"
    "sync"
)

var (
    ctx = gctx.New()
)

func main() {
    wg := sync.WaitGroup{}
    for i := 0; i < 10; i++ {
        wg.Add(1)
        v := i
        grpool.Add(ctx, func(ctx context.Context) {
            fmt.Println(v)
            wg.Done()
        })
    }
    wg.Wait()
}
```

```
9
0
1
2
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6
7
8
```

grpoolfunc(ctx context.Context)ictxi

## goroutineAddWithRecover

AddWithRecoveruserFuncpanicRecovery FuncRecovery FuncuserFuncpanic

```

package main

import (
    "context"
    "fmt"
    "github.com/gogf/gf/v2/container/garray"
    "github.com/gogf/gf/v2/os/gctx"
    "github.com/gogf/gf/v2/os/grpool"
    "time"
)

var (
    ctx = gctx.New()
)

func main() {
    array := garray.NewArray(true)
    grpool.AddWithRecover(ctx, func(ctx context.Context) {
        array.Append(1)
        array.Append(2)
        panic(1)
    }, func(err error) {
        array.Append(1)
    })
    grpool.AddWithRecover(ctx, func(ctx context.Context) {
        panic(1)
        array.Append(1)
    })
    time.Sleep(500 * time.Millisecond)
    fmt.Print(array.Len())
}

```

## grpoolgoroutine

### 1)grpool

```

package main

import (
    "context"
    "fmt"
    "github.com/gogf/gf/v2/os/gctx"
    "github.com/gogf/gf/v2/os/grpool"
    "github.com/gogf/gf/v2/os/gtime"
    "sync"
    "time"
)

var (
    ctx = gctx.New()
)

func main() {
    start := gtime.TimestampMilli()
    wg := sync.WaitGroup{}
    for i := 0; i < 10000000; i++ {
        wg.Add(1)
        grpool.Add(ctx, func(ctx context.Context) {
            time.Sleep(time.Millisecond)
            wg.Done()
        })
    }
    wg.Wait()
    fmt.Println(grpool.Size())
    fmt.Println("time spent:", gtime.TimestampMilli() - start)
}

```

## 2)goroutine

```
package main

import (
    "fmt"
    "github.com/gogf/gf/v2/os/gtime"
    "sync"
    "time"
)

func main() {
    start := gtime.TimestampMilli()
    wg := sync.WaitGroup{}
    for i := 0; i < 10000000; i++ {
        wg.Add(1)
        go func() {
            time.Sleep(time.Millisecond)
            wg.Done()
        }()
    }
    wg.Wait()
    fmt.Println("time spent:", gtime.TimestampMilli() - start)
}
```

## 3)

3

```
grpool:
  goroutine count: 847313
  memory      spent: ~2.1 G
  time        spent: 37792 ms
```

```
goroutine:
  goroutine count: 1000W
  memory      spent: ~4.8 GB
  time        spent: 27085 ms
```

goroutineCPU