```
Last login: Wed Apr 13 21:21:11 on ttys000
1x-nat-vl932-172-30-211-109:~ lichaozhang$ cd Desktop/
PerfKitBenchmarker
1x-nat-vl932-172-30-211-109:PerfKitBenchmarker lichaozhang$ ./pkb.py
--project=practical-bot-127123 --benchmarks=coremark --
machine type=n1-highcpu-8
2016-04-13 21:27:11,938 042a4216 MainThread INFO
                                                     Verbose logging
to: /var/folders/fg/r7tm6d814zb g hgm0rndsz40000gn/T/
perfkitbenchmarker/run_042a4216/pkb.log
2016-04-13 21:27:11,939 042a4216 MainThread INFO
PerfKitBenchmarker version: unknown
2016-04-13 21:27:12,067 042a4216 MainThread INFO
                                                     Flag values:
--machine_type=n1-highcpu-8
--project=practical-bot-127123
--benchmarks=coremark
2016-04-13 21:27:12,099 042a4216 MainThread coremark(1/1) INFO
Provisioning resources for benchmark coremark
2016-04-13 21:27:12,102 042a4216 Thread-1 coremark(1/1) INFO
Running: gcloud compute networks create pkb-network-042a4216 --format
ison --quiet --project practical-bot-127123 --range 10.0.0.0/16
2016-04-13 21:27:51,236 042a4216 Thread-1 coremark(1/1) INFO
Running: gcloud compute networks describe pkb-network-042a4216 --
format json --quiet --project practical-bot-127123
2016-04-13 21:27:52,313 042a4216 Thread-1 coremark(1/1) INFO
Running: gcloud compute firewall-rules create default-
internal-042a4216 --format json --quiet --project practical-bot-127123
--allow tcp:1-65535,udp:1-65535,icmp --network pkb-network-042a4216 --
source-ranges 10.0.0.0/16
2016-04-13 21:28:09,865 042a4216 Thread-1 coremark(1/1) INFO
Running: gcloud compute firewall-rules describe default-
internal-042a4216 --format json --quiet --project practical-bot-127123
2016-04-13 21:28:10,915 042a4216 Thread-6 coremark(1/1) INFO
Running: gcloud compute firewall-rules create perfkit-
firewall-042a4216-22 --format json --quiet --project practical-
bot-127123 --allow tcp:22,udp:22 --network pkb-network-042a4216
2016-04-13 21:28:28,471 042a4216 Thread-6 coremark(1/1) INFO
Running: gcloud compute firewall-rules describe perfkit-
firewall-042a4216-22 --format json --quiet --project practical-
bot-127123
2016-04-13 21:28:29,490 042a4216 Thread-6 coremark(1/1) INFO
Running: gcloud compute instances create pkb-042a4216-0 --format json
--quiet --project practical-bot-127123 --zone us-central1-a --network
pkb-network-042a4216 --image ubuntu-14-04 --boot-disk-auto-delete --
boot-disk-size 10 --boot-disk-type pd-standard --machine-type n1-
highcpu-8 -- tags perfkitbenchmarker -- no-restart-on-failure --
metadata-from-file sshKeys=/var/folders/fg/
r7tm6d814zb_g_hqm0rndsz40000gn/T/perfkitbenchmarker/run_042a4216/key-
metadataHNOaRa --metadata owner=lichaozhang --maintenance-policy
2016-04-13 21:29:03,678 042a4216 Thread-6 coremark(1/1) INFO
```

```
Running: gcloud compute instances describe pkb-042a4216-0 --format
json --quiet --project practical-bot-127123 --zone us-central1-a
2016-04-13 21:29:04,741 042a4216 Thread-6 coremark(1/1) INFO
Running: gcloud compute instances describe pkb-042a4216-0 --format
json --quiet --project practical-bot-127123 --zone us-central1-a
2016-04-13 21:29:05,783 042a4216 Thread-6 coremark(1/1) INFO
                                                                 VM:
104.197.112.3
2016-04-13 21:29:05,783 042a4216 Thread-6 coremark(1/1) INFO
Waiting for boot completion.
2016-04-13 21:29:05,784 042a4216 Thread-6 coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb_g_hgm0rndsz40000gn/T/perfkitbenchmarker/run_042a4216/
perfkitbenchmarker keyfile hostname
2016-04-13 21:29:06,831 042a4216 Thread-6 coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb_g_hgm0rndsz40000gn/T/perfkitbenchmarker/run_042a4216/
perfkitbenchmarker_keyfile hostname
2016-04-13 21:29:07,644 042a4216 Thread-6 coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb g hgm0rndsz40000gn/T/perfkitbenchmarker/run 042a4216/
perfkitbenchmarker keyfile hostname
2016-04-13 21:29:08,550 042a4216 Thread-6 coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb g hgm0rndsz40000gn/T/perfkitbenchmarker/run 042a4216/
perfkitbenchmarker keyfile hostname
2016-04-13 21:29:09,579 042a4216 Thread-6 coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fq/
r7tm6d814zb_g_hgm0rndsz40000gn/T/perfkitbenchmarker/run_042a4216/
perfkitbenchmarker keyfile hostname
2016-04-13 21:29:10,593 042a4216 Thread-6 coremark(1/1) INFO
```

```
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb g hgm0rndsz40000gn/T/perfkitbenchmarker/run 042a4216/
perfkitbenchmarker keyfile hostname
2016-04-13 21:29:11,522 042a4216 Thread-6 coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fq/
r7tm6d814zb_g_hgm0rndsz40000gn/T/perfkitbenchmarker/run_042a4216/
perfkitbenchmarker keyfile hostname
2016-04-13 21:29:14,625 042a4216 Thread-6 coremark(1/1) INFO
Running: gcloud compute instances add-metadata pkb-042a4216-0 --format
json --quiet --project practical-bot-127123 --zone us-central1-a --
metadata
benchmark_uid=coremark0,benchmark=coremark,perfkit_uuid=58ba4e3b-8db1-
4117-909c-e93d561416a6
2016-04-13 21:29:27,805 042a4216 Thread-6 coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb g hgm0rndsz40000gn/T/perfkitbenchmarker/run 042a4216/
perfkitbenchmarker_keyfile mkdir -p /tmp/pkb
2016-04-13 21:29:28,489 042a4216 MainThread coremark(1/1) INFO
                                                                   ssh
to VMs in this benchmark by name with:
  ssh -F /var/folders/fg/r7tm6d814zb g hgm0rndsz40000gn/T/
perfkitbenchmarker/run 042a4216/ssh config <vm name>
  ssh -F /var/folders/fg/r7tm6d814zb g hgm0rndsz40000gn/T/
perfkitbenchmarker/run 042a4216/ssh config vm<index>
  ssh -F /var/folders/fg/r7tm6d814zb g hgm0rndsz40000gn/T/
perfkitbenchmarker/run_042a4216/ssh_config <group_name>-<index>
2016-04-13 21:29:28,490 042a4216 MainThread coremark(1/1) INFO
Preparing benchmark coremark
2016-04-13 21:29:28,491 042a4216 MainThread coremark(1/1) INFO
prepare Coremark on 104.197.112.3
2016-04-13 21:29:28,491 042a4216 MainThread coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fq/
r7tm6d814zb_g_hgm0rndsz40000gn/T/perfkitbenchmarker/run_042a4216/
perfkitbenchmarker keyfile sudo apt-get update
2016-04-13 21:29:34,364 042a4216 MainThread coremark(1/1) INFO
```

```
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb g hgm0rndsz40000gn/T/perfkitbenchmarker/run 042a4216/
perfkitbenchmarker keyfile sudo DEBIAN FRONTEND='noninteractive' /usr/
bin/apt-get -y install build-essential git libtool autoconf automake
2016-04-13 21:29:47,356 042a4216 MainThread coremark(1/1) INFO
Running: scp -P 22 -pr -2 -o UserKnownHostsFile=/dev/null -o
StrictHostKevChecking=no -o IdentitiesOnlv=ves -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb g hgm0rndsz40000gn/T/perfkitbenchmarker/run 042a4216/
perfkitbenchmarker_keyfile /Users/lichaozhang/Desktop/
PerfKitBenchmarker/perfkitbenchmarker/data/coremark v1.0.tgz
perfkit@104.197.112.3:
2016-04-13 21:29:48,656 042a4216 MainThread coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb_g_hgm0rndsz40000gn/T/perfkitbenchmarker/run_042a4216/
perfkitbenchmarker_keyfile tar xvfz coremark_v1.0.tgz
2016-04-13 21:29:49,357 042a4216 MainThread coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb g hgm0rndsz40000gn/T/perfkitbenchmarker/run_042a4216/
perfkitbenchmarker keyfile sed -i -e "s/LFLAGS END += -lrt/LFLAGS END
+= -lrt -lpthread/g" coremark v1.0/linux64/core portme.mak
2016-04-13 21:29:50,014 042a4216 MainThread coremark(1/1) INFO
Running benchmark coremark
2016-04-13 21:29:50,015 042a4216 MainThread coremark(1/1) INFO
Coremark running on 104.197.112.3
2016-04-13 21:29:50,016 042a4216 MainThread coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb_g_hgm0rndsz40000gn/T/perfkitbenchmarker/run_042a4216/
perfkitbenchmarker_keyfile cat /proc/cpuinfo | grep processor | wc -l
2016-04-13 21:29:50,691 042a4216 MainThread coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
```

```
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb_g_hgm0rndsz40000gn/T/perfkitbenchmarker/run 042a4216/
perfkitbenchmarker_keyfile cd coremark_v1.0;make PORT DIR=linux64
ITERATIONS=200000 XCFLAGS="-g -02 -DMULTITHREAD=8 -DUSE_PTHREAD -
DPERFORMANCE RUN=1"
2016-04-13 21:30:28,431 042a4216 MainThread coremark(1/1) INFO
Coremark Results:
2016-04-13 21:30:28,432 042a4216 MainThread coremark(1/1) INFO
Running: ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/
dev/null -o StrictHostKeyChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fg/
r7tm6d814zb_g_hgm0rndsz40000gn/T/perfkitbenchmarker/run_042a4216/
perfkitbenchmarker keyfile cat coremark v1.0/run1.log
2016-04-13 21:30:29,088 042a4216 MainThread coremark(1/1) INFO
ssh -A -p 22 perfkit@104.197.112.3 -2 -o UserKnownHostsFile=/dev/null
-o StrictHostKevChecking=no -o IdentitiesOnly=yes -o
PreferredAuthentications=publickey -o PasswordAuthentication=no -o
ConnectTimeout=5 -o GSSAPIAuthentication=no -o ServerAliveInterval=30
-o ServerAliveCountMax=10 -i /var/folders/fq/
r7tm6d814zb_g_hgm0rndsz40000gn/T/perfkitbenchmarker/run_042a4216/
perfkitbenchmarker_keyfile cat coremark_v1.0/run1.log. Got return code
STDOUT: 2K performance run parameters for coremark.
CoreMark Size
                : 666
                 : 18053
Total ticks
Total time (secs): 18.053000
Iterations/Sec : 88627.928876
Iterations
                 : 1600000
Compiler version: GCC4.8.4
                : -02 -q -02 -DMULTITHREAD=8 -DUSE PTHREAD -
Compiler flags
DPERFORMANCE RUN=1 -DPERFORMANCE RUN=1 -lrt -lpthread
Parallel PThreads: 8
Memory location : Please put data memory location here
                        (e.g. code in flash, data on heap etc)
seedcrc
                 : 0xe9f5
                 : 0xe714
[0]crclist
[1]crclist
                 : 0xe714
[2]crclist
                 : 0xe714
[3]crclist
                 : 0xe714
[4]crclist
                 : 0xe714
[5]crclist
                : 0xe714
[6]crclist
                : 0xe714
                : 0xe714
[7]crclist
[0]crcmatrix
              : 0x1fd7
: 0x1fd7
[1]crcmatrix
[2]crcmatrix : 0x1fd7
```

```
: 0x1fd7
[4]crcmatrix
               : 0x1fd7
[5]crcmatrix
               : 0x1fd7
[6]crcmatrix
               : 0x1fd7
               : 0x1fd7
[7]crcmatrix
[0]crcstate
               : 0x8e3a
[1]crcstate
               : 0x8e3a
[2]crcstate
               : 0x8e3a
[3]crcstate
               : 0x8e3a
[4]crcstate
               : 0x8e3a
[5] crcstate
               : 0x8e3a
[6]crcstate
               : 0x8e3a
[7]crcstate
               : 0x8e3a
[0]crcfinal
               : 0x4983
[1]crcfinal
               : 0x4983
[2]crcfinal
               : 0x4983
[3]crcfinal
               : 0x4983
[4]crcfinal
               : 0x4983
[5]crcfinal
                : 0x4983
[6]crcfinal
                : 0x4983
[7]crcfinal
                : 0x4983
Correct operation validated. See readme.txt for run and reporting
rules.
CoreMark 1.0: 88627.928876 / GCC4.8.4 -02 -q -02 -DMULTITHREAD=8 -
DUSE_PTHREAD -DPERFORMANCE_RUN=1 -DPERFORMANCE_RUN=1 -lrt -lpthread /
Heap / 8:PThreads
STDERR: Warning: Permanently added '104.197.112.3' (ECDSA) to the list
of known hosts.
2016-04-13 21:30:29,090 042a4216 MainThread coremark(1/1) INFO
Cleaning up benchmark coremark
2016-04-13 21:30:29.091 042a4216 MainThread coremark(1/1) INFO
Tearing down resources for benchmark coremark
2016-04-13 21:30:29,091 042a4216 Thread-32 coremark(1/1) INFO
Running: gcloud compute instances delete pkb-042a4216-0 --format json
--quiet --project practical-bot-127123 --zone us-central1-a
2016-04-13 21:31:03,390 042a4216 Thread-32 coremark(1/1) INFO
Running: gcloud compute instances describe pkb-042a4216-0 --format
json --quiet --project practical-bot-127123 --zone us-central1-a
2016-04-13 21:31:04,547 042a4216 MainThread coremark(1/1) INFO
Running: gcloud compute firewall-rules delete perfkit-
firewall-042a4216-22 --format json --quiet --project practical-
bot-127123
2016-04-13 21:31:32,402 042a4216 MainThread coremark(1/1) INFO
Running: gcloud compute firewall-rules describe perfkit-
firewall-042a4216-22 --format json --quiet --project practical-
```

2016-04-13 21:31:33,496 042a4216 MainThread coremark(1/1) INFO

Running: gcloud compute firewall-rules delete default-

[3]crcmatrix

bot-127123

```
internal-042a4216 --format json --quiet --project practical-bot-127123
2016-04-13 21:31:52,016 042a4216 MainThread coremark(1/1) INFO
Running: gcloud compute firewall-rules describe default-
internal-042a4216 -- format json -- quiet -- project practical-bot-127123
2016-04-13 21:31:53,484 042a4216 MainThread coremark(1/1) INFO
Running: gcloud compute networks delete pkb-network-042a4216 --format
json --quiet --project practical-bot-127123
2016-04-13 21:32:21,595 042a4216 MainThread coremark(1/1) INFO
Running: qcloud compute networks describe pkb-network-042a4216 --
format json --quiet --project practical-bot-127123
2016-04-13 21:32:22,886 042a4216 MainThread INFO
         -----PerfKitBenchmarker Complete
Results----
{'metadata': {'cloud': 'GCP',
              'image': 'ubuntu-14-04',
              'machine_type': 'n1-highcpu-8',
              'num cpus': 8,
              'perfkitbenchmarker_version': 'unknown',
              'preemptible': False,
              'vm_count': 1,
              'zone': 'us-central1-a'},
 'metric': 'Coremark Score',
 'official': False,
 'owner': 'lichaozhang',
 'product_name': 'PerfKitBenchmarker',
 'run_uri': '58ba4e3b-8db1-4117-909c-e93d561416a6',
 'sample uri': '36dbde6f-0442-4a6d-a3d7-cb1dbc8419d3',
 'test': 'coremark',
 'timestamp': 1460597429.089612,
 'unit': '',
 'value': 88627.928876}
{'metadata': {'cloud': 'GCP',
              'image': 'ubuntu-14-04',
              'machine_type': 'n1-highcpu-8',
              'perfkitbenchmarker_version': 'unknown',
              'preemptible': False,
              'vm_count': 1,
              'zone': 'us-central1-a'},
 'metric': 'End to End Runtime',
 'official': False.
 'owner': 'lichaozhang',
 'product name': 'PerfKitBenchmarker',
 'run uri': '58ba4e3b-8db1-4117-909c-e93d561416a6',
 'sample uri': '877c1e22-0ba5-4a75-a52a-e736d9bdbd6e',
 'test': 'coremark',
 'timestamp': 1460597542.880848,
 'unit': 'seconds',
 'value': 310.7810218334198}
```

-----PerfKitBenchmarker Results

Summarv-----

COREMARK:

num_cpus="8"
Coremark Score

88627.928876

End to End Runtime 310.781022 seconds

For all tests: cloud="GCP" image="ubuntu-14-04" machine_type="n1-highcpu-8" perfkitbenchmarker_version="unknown" preemptible="False" vm_count="1" zone="us-central1-a" 2016-04-13 21:32:22,887 042a4216 MainThread INFO Publishing 2 samples to /var/folders/fq/r7tm6d814zb_g_hgm0rndsz40000gn/T/perfkitbenchmarker/run_042a4216/perfkitbenchmarker_results.json 2016-04-13 21:32:22,888 042a4216 MainThread INFO Benchmark run statuses:

Name UID Status
----coremark coremark0 SUCCEEDED

Success rate: 100.00% (1/1)

2016-04-13 21:32:22,888 042a4216 MainThread INFO Complete logs can

be found at: /var/folders/fq/r7tm6d814zb_g_hgm0rndsz40000gn/T/

perfkitbenchmarker/run_042a4216/pkb.log

1x-nat-vl932-172-30-211-109:PerfKitBenchmarker lichaozhang\$