

# Baerchain Benchmark

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## Software Configuration

- Ubuntu 18.04.1 LTS
- Baerchain git tag : 1e41b35a

## Client Environments

- Hardware
  - Server\_1 : CPU Intel(R) Xeon(R) CPU Intel Xeon E7-8890 v3 MEM 32G SSD500Gx2
    - Number of machine : 1
  - Server\_2: CPU Intel(R) Xeon(R) CPU Intel Xeon E7-8890 v3 MEM 32G SSD 1000Gx2
    - Number of machine : 1
- Node daemon
  - 1 brcd instances per machine
- Wallet daemon
  - 1 cmdWallet instances per machine
  
- Baerchain accounts
  - 10000 address on wallet
  - privateKeys of all accounts are imported to cmdWallet instances
- General scenario of client transfer

- One transfer per one transaction
- 10,000 transfer description
  - Each machine runs test script 6 times
  - Then 60,000 transfer per machine
- Generate total 60,000 transfer using 1 server

## MEP Node Environment #1

### Benchmark description

- Scenario description
  - Single System
- Instance type hardware specification

Server\_1 : CPU : Intel (R) Xeon (R) CPU Intel Xeon E7-8890 v3  
 @2.50GHz, 18 cores, 32G RAM

### Observations

Instance type	# of machine	# of brcd	Total TPS	system usage
Server_1	1	3	4135	CPU 80%
Server_1	1	3	4657	CPU 78%
Server_1	1	3	4374	CPU 85%
Server_1	1	3	4662	CPU 84%
Server_1	1	3	4151	CPU 82%
Server_1	1	3	4425	CPU 83%

## MEP Node Environment #2

### Benchmark description

- Scenario description
  - Single System
- Instance type hardware specification
  - M Server\_1 : CPU : Intel (R) Xeon (R) CPU Intel Xeon E7-8890 v3  
 @2.50GHz, 18 cores, 32 RAM

# Observations

Instance type	# of machine	# of brcd	Total TPS	system usage
Server_2	1	3	4364	CPU 75%
Server_2	1	3	4288	CPU 77%
Server_2	1	3	4385	CPU 74%
Server_2	1	3	4689	CPU 73%
Server_2	1	3	4173	CPU 78%
Server_2	1	3	4479	CPU 79%

## Conclusions

To get maximum TPS performance using single-threaded brcd of 1e41b35a:

- Current average sustainable(not peak) TPS is approximately 4300 with seven brcd daemons on single machine.

To get maximum from cmdWallet:

- Transaction signing requires CPU power.
- Transaction boardcast requires network bandwidth.

## Appendix - Test scripts

- scripts : <https://github.com/BaerChain/cpp-lsac>
- usage  
./bbm.sh init  
./bbm.sh run\_test