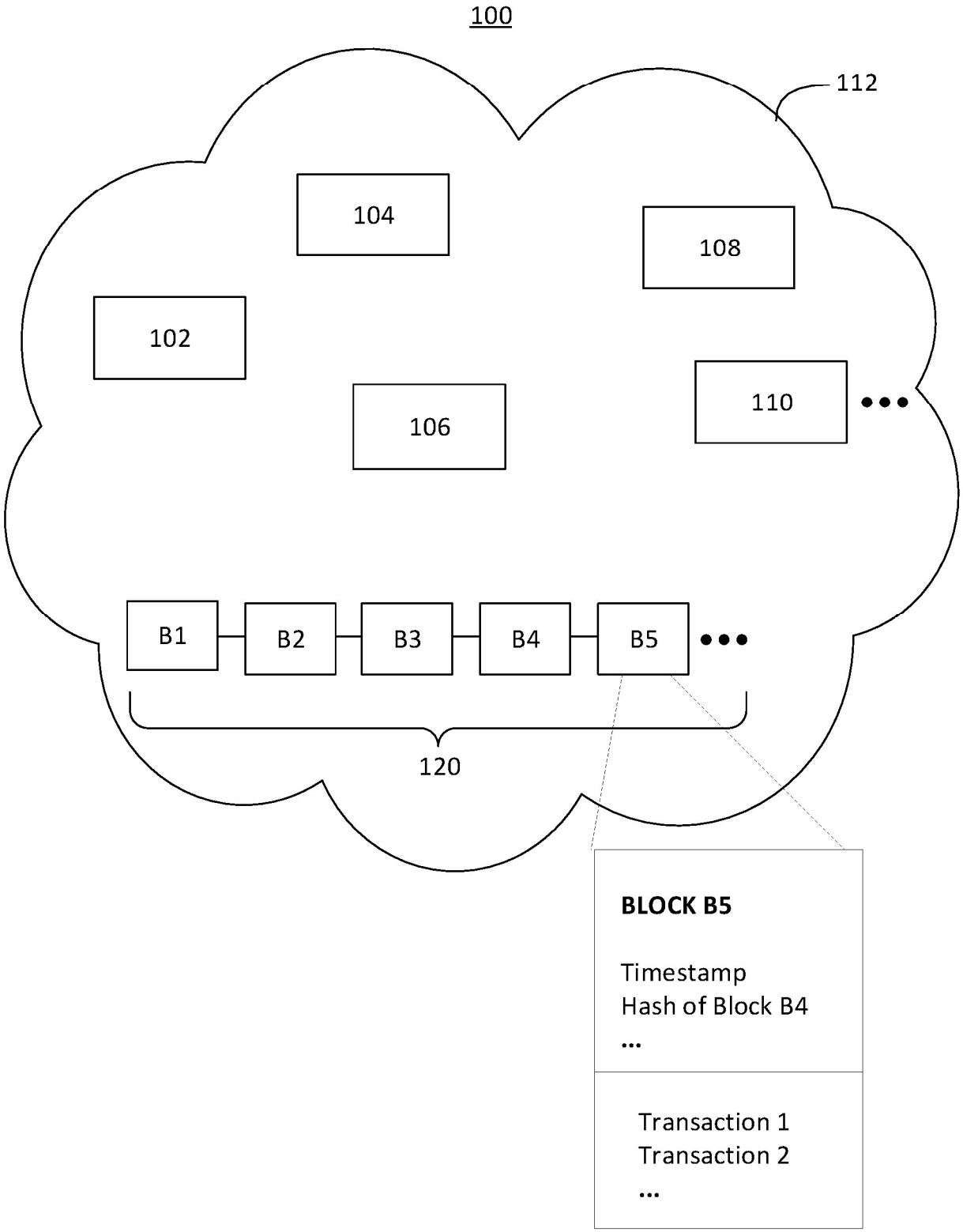

100
112
104
108
102
106
110
B1
B2
B3
B4
B5
120
BLOCK B5
Timestamp
Hash of Block B4
...
Transaction 1
Transaction 2
...

FIG. 1

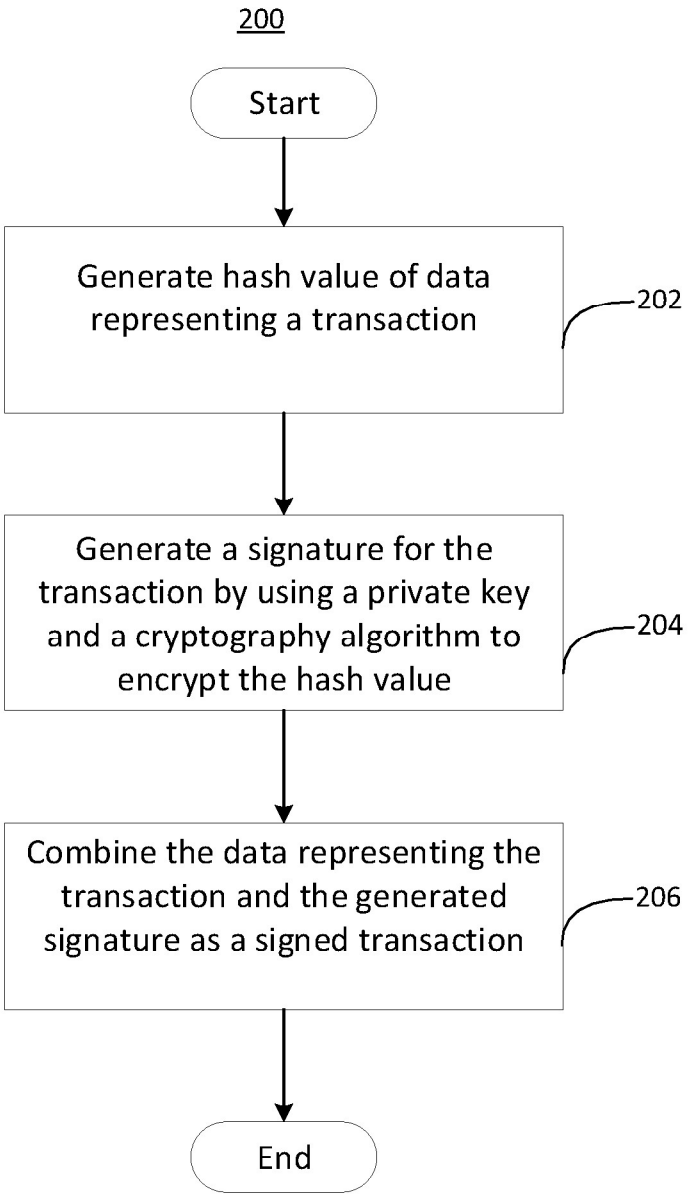

200
Start
Generate hash value of data representing a transaction
202
Generate a signature for the transaction by using a private key and a cryptography algorithm to encrypt the hash value
204
Combine the data representing the transaction and the generated signature as a signed transaction
206
End

FIG. 2

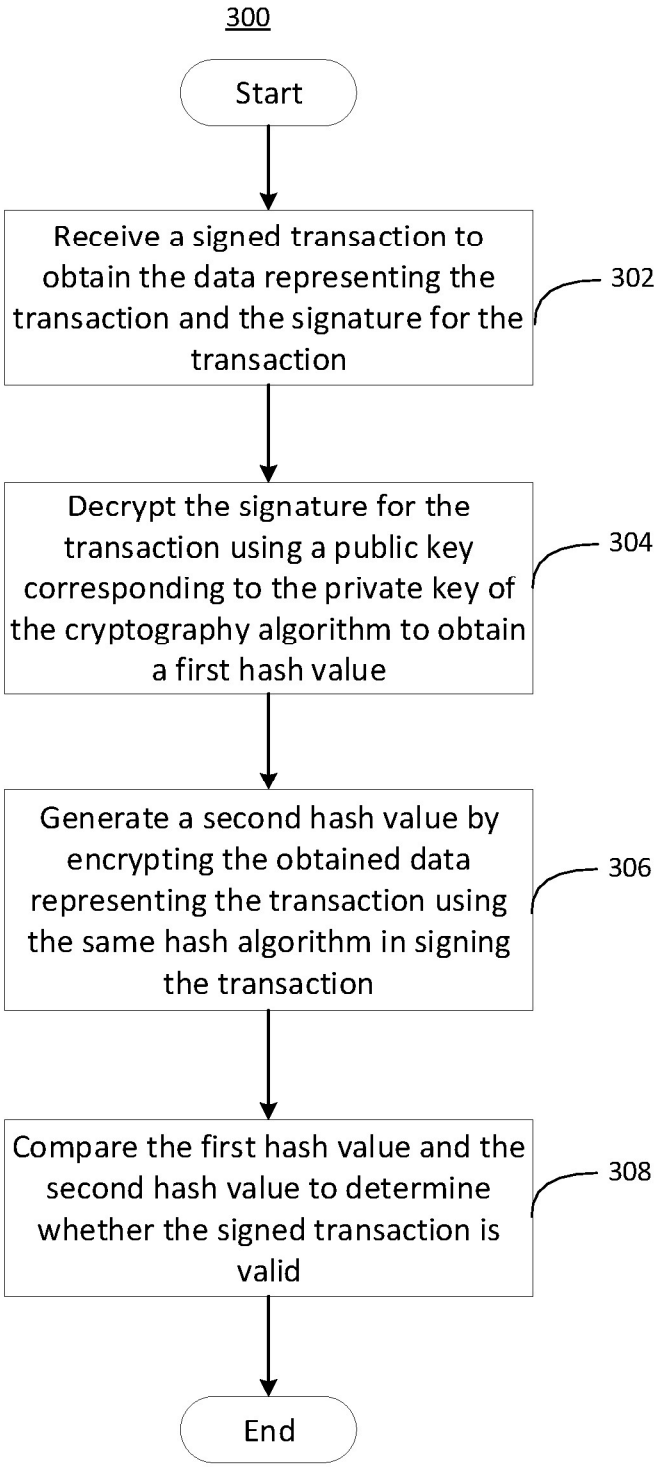

300
Start
Receive a signed transaction to obtain the data representing the transaction and the signature for the transaction
302
Decrypt the signature for the transaction using a public key corresponding to the private key of the cryptography algorithm to obtain a first hash value
304
Generate a second hash value by encrypting the obtained data representing the transaction using the same hash algorithm in signing the transaction
306
Compare the first hash value and the second hash value to determine whether the signed transaction is valid
308
End

FIG. 3

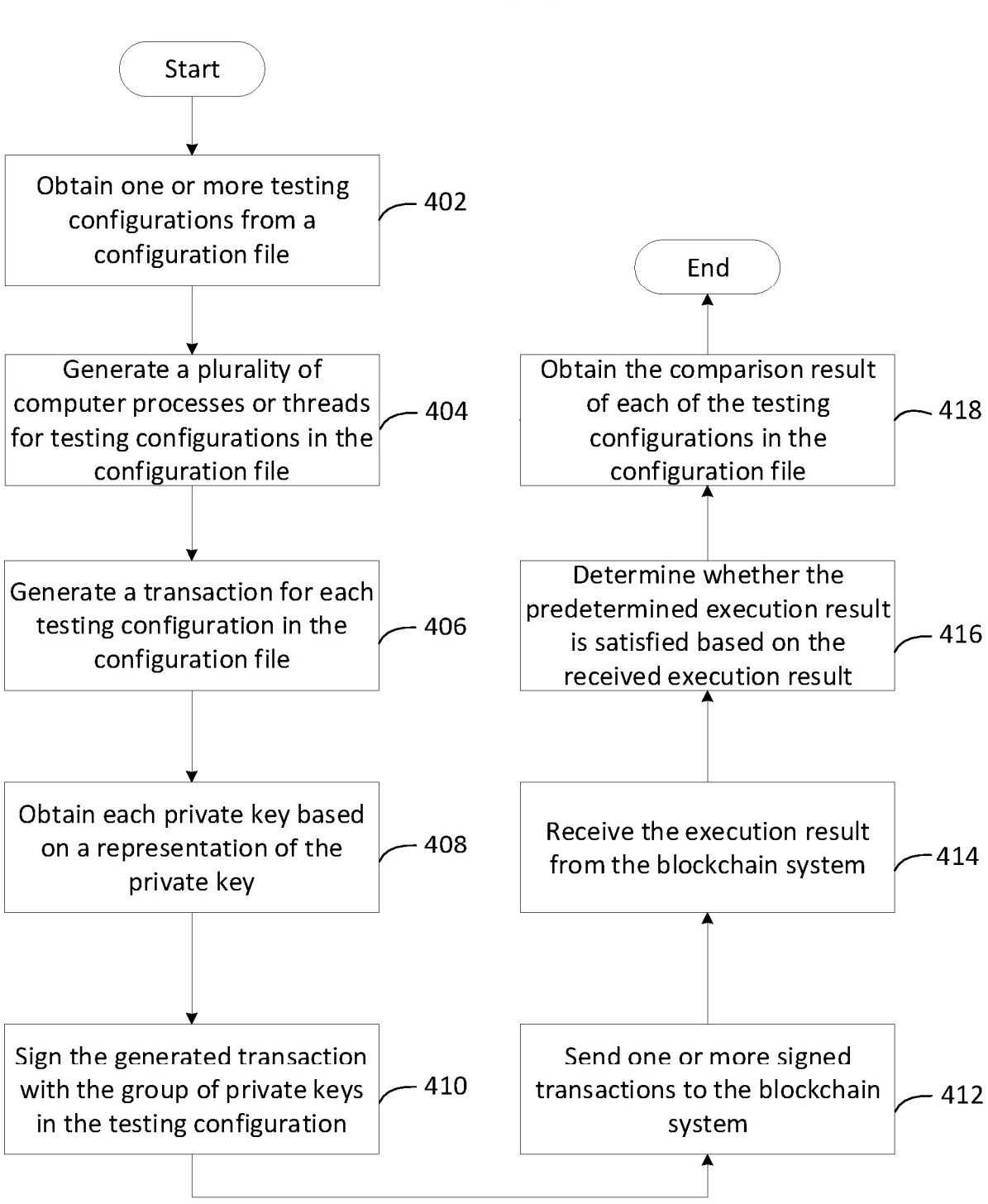

400
Start
Obtain one or more testing configurations from a configuration file
402
Generate a plurality of computer processes or threads for testing configurations in the configuration file
404
Generate a transaction for each testing configuration in the configuration file
406
Obtain each private key based on a representation of the private key
408
Sign the generated transaction with the group of private keys in the testing configuration
410
Send one or more signed transactions to the blockchain system
412
Receive the execution result from the blockchain system
414
Determine whether the predetermined execution result is satisfied based on the received execution result
416
Obtain the comparison result of each of the testing configurations in the configuration file
418
End

FIG. 4

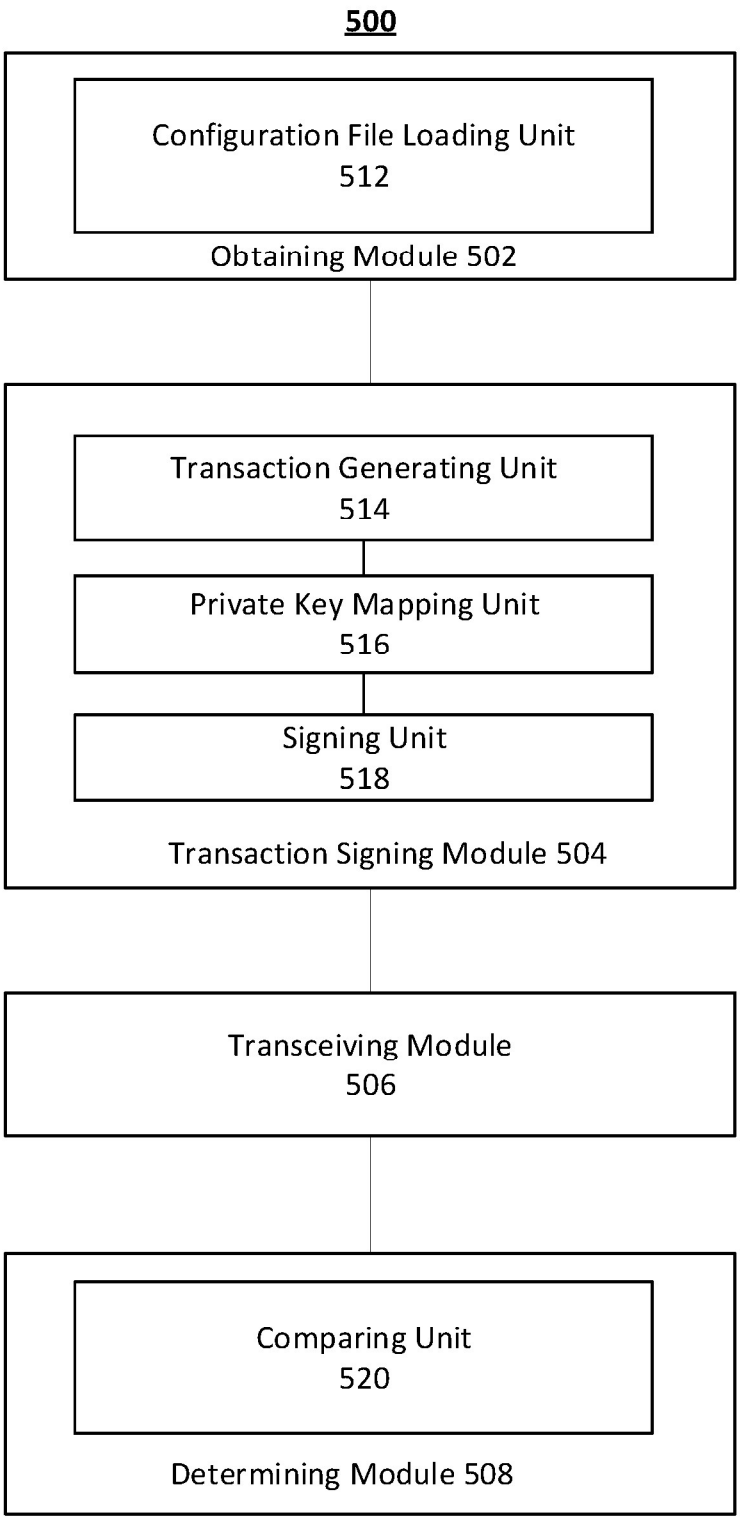

500
Configuration File Loading Unit
512
Obtaining Module 502
Transaction Generating Unit
514
Private Key Mapping Unit
516
Signing Unit
518
Transaction Signing Module 504
Transceiving Module
506
Comparing Unit
520
Determining Module 508

FIG. 5

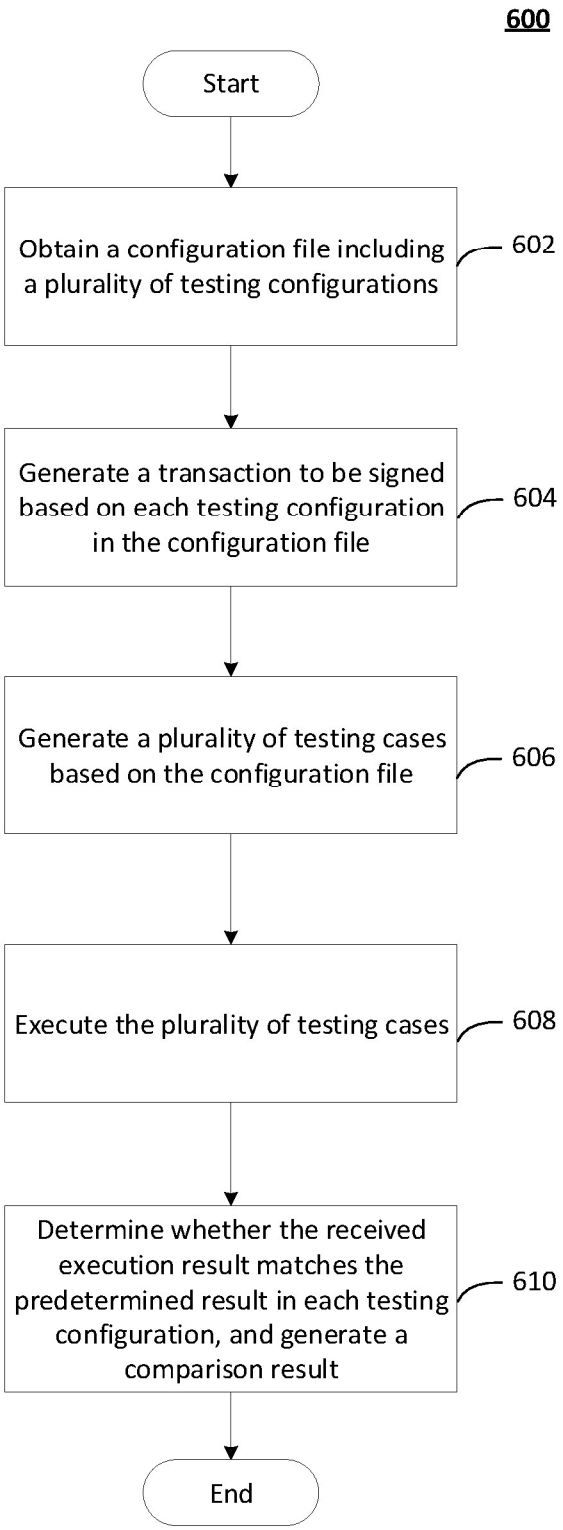

600
Start
Obtain a configuration file including a plurality of testing configurations
602
Generate a transaction to be signed based on each testing configuration in the configuration file
604
Generate a plurality of testing cases based on the configuration file
606
Execute the plurality of testing cases
608
Determine whether the received execution result matches the predetermined result in each testing configuration, and generate a comparison result
610
End

FIG. 6

700

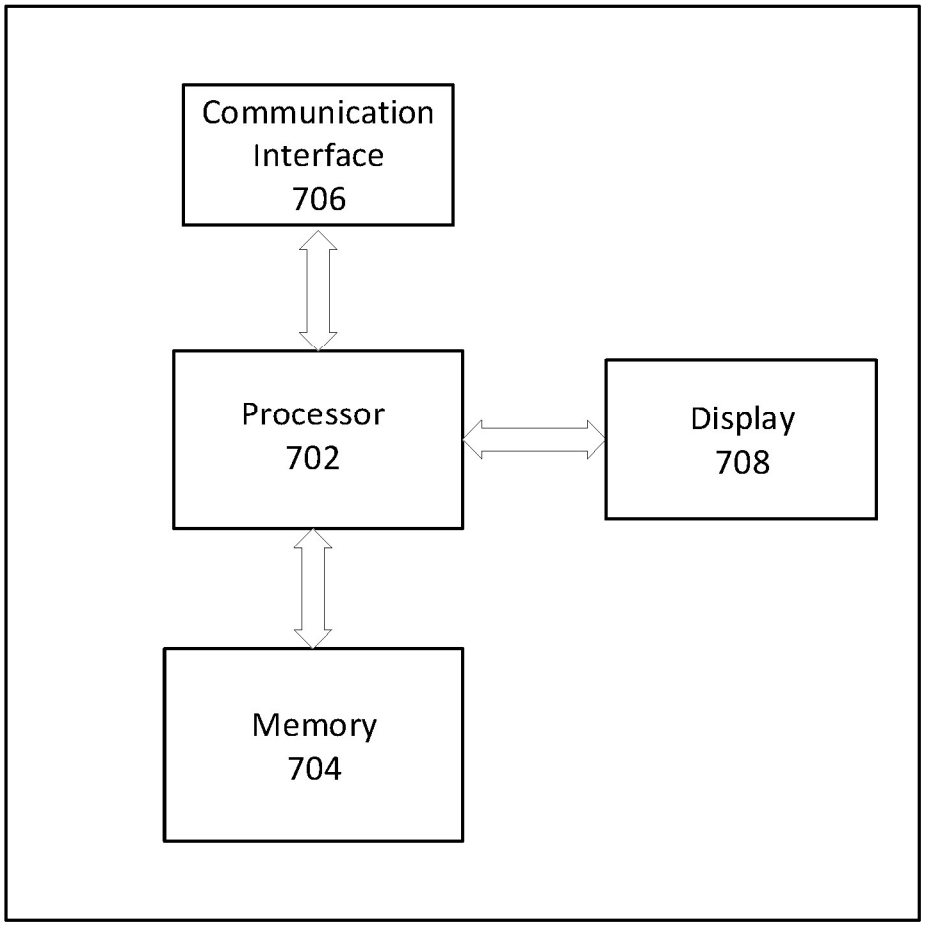

Communication Interface 706
Processor 702
Display 708
Memory 704

FIG. 7