

# PAXG节点质押系统/流动性/dapp智能合约/详情

产品名称	PAXG节点质押系统/流动性/dapp智能合约/详情
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## 产品详情

通俗地说，可以把\*\*\*比作一种“账本”。传统账本由一方“集中记账”，这种新式“账本”【系统-176搭建-0206可电可微-5616】则可以在互联网上由多方参与、共享，各参与方都可以“记账”并备份，而每个备份就是一个“区块”。每个“区块”与下一个“区块”按时间顺序线性相连，其结构特征使记录无法被篡改和伪造。

\*\*\*（Blockchain）是由节点参与的分布式数据库系统，也可以将其理解为账簿系统(ledger)，其实就是用来记账，用来记录每一笔交易的，且能保证每一笔交易记录公开透明，不可篡改伪造。由于是去中心化的网络，在\*\*\*上的每一笔交易都需要“矿工”去“挖矿”来记下这笔帐，存储到链上去。

以太坊采用了Solidity作为智能合约语言，176开阀0206模式5616,Solidity是一门为实现智能合约而创建的gao.级编程语言，能在允许以太坊程序的节点上运行。该语言吸收了C++、JavaScript的一些特性，例如它是静态类型语言，支持继承库等。

```
//fetches and sorts the reserves for a pair
```

```
function getReserves(address factory,address tokenA,address tokenB)internal view returns(uint reserveA,uint reserveB){  
  
(address token0,)=sortTokens(tokenA,tokenB);
```

```
(uint reserve0,uint reserve1,)=IUniswapV2Pair(pairFor(factory,tokenA,tokenB)).getReserves();
```

```
(reserveA,reserveB)=tokenA==token0?(reserve0,reserve1):(reserve1,reserve0);
```

```
}
```

```
//given some amount of an asset and pair reserves,returns an equivalent amount of the other asset
```

```
function quote(uint amountA,uint reserveA,uint reserveB)internal pure returns(uint amountB){
```

```
require(amountA>0,'UniswapV2Library:INSUFFICIENT_AMOUNT');
```

```
require(reserveA>0&&reserveB>0,'UniswapV2Library:INSUFFICIENT_LIQUIDITY');
```

```
amountB=amountA.mul(reserveB)/reserveA;
```

```
}
```

```
//given an input amount of an asset and pair reserves,returns the maximum output amount of the other asset
```

```
function getAmountOut(uint amountIn,uint reserveIn,uint reserveOut)internal pure returns(uint amountOut){
```

```
require(amountIn>0,'UniswapV2Library:INSUFFICIENT_INPUT_AMOUNT');
```

```
require(reserveIn>0&&reserveOut>0,'UniswapV2Library:INSUFFICIENT_LIQUIDITY');
```

```
uint amountInWithFee=amountIn.mul(997);
```

```
uint numerator=amountInWithFee.mul(reserveOut);
```

```
uint denominator=reserveIn.mul(1000).add(amountInWithFee);
```

```
amountOut=numerator/denominator;
```

```
}
```

```
//given an output amount of an asset and pair reserves,returns a required input amount of the other asset
```

```
function getAmountIn(uint amountOut,uint reserveIn,uint reserveOut)internal pure returns(uint amountIn){
```

```
require(amountOut>0,'UniswapV2Library:INSUFFICIENT_OUTPUT_AMOUNT');
```

```
uint numerator=reserveIn.mul(amountOut).mul(1000);
```

```
uint denominator=reserveOut.sub(amountOut).mul(997);
```

```
amountIn=(numerator/denominator).add(1);
```

```
}
```

```
//performs chained getAmountOut calculations on any number of pairs
```

```
function getAmountsOut(address factory,uint amountIn,address[] memory path)internal view returns(uint[] memory amounts){
```

```
    require(path.length>=2,'UniswapV2Library:INVALID_PATH');
```

```
    amounts=new uint[](path.length);
```

```
    amounts[0]=amountIn;
```

```
    for(uint i;i<path.length-1;i++){
```

```
        (uint reserveIn,uint reserveOut)=getReserves(factory,path[i],path[i+1]);
```

```
        amounts[i+1]=getAmountOut(amounts[i],reserveIn,reserveOut);
```

```
    }
```

```
}
```

```
//performs chained getAmountIn calculations on any number of pairs
```

```
function getAmountsIn(address factory,uint amountOut,address[] memory path)internal view returns(uint[] memory amounts){
```

```
amounts=new uint[](path.length);
```

```
amounts[amounts.length-1]=amountOut;
```

```
for(uint i=path.length-1;i>0;i--){
```

```
(uint reserveIn,uint reserveOut)=getReserves(factory,path[i-1],path<i>);
```

```
amounts[i-1]=getAmountIn(amounts<i>,reserveIn,reserveOut);
```

```
}
```

```
}
```