```
   _____
  \       \ _____  _____ ____
   \  ___  \\__    ___/\ ___\/  _____/\ ___\
    \ \   \  \|    |    \___ \   __)_  \___ \
     \ \___\  |    |    /____/       /  /____/
  ____\ \___  \____| /\____> ___| /\____> ___> __/____ >
      \/     \/      \/      \/      \/      \/
```

LTME (Long Term Mining Evolution)
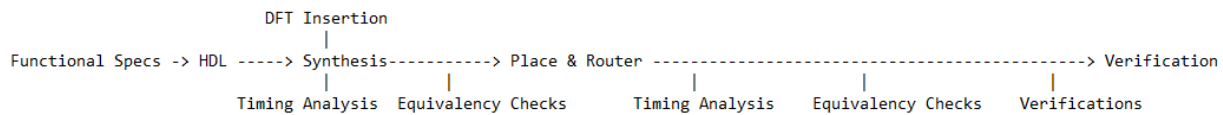hav0k, Renesis Developers

WHITEPAPER V1

BACKGROUND AND PHILOSPHY

Starting year 2017, the cryptocurrency mining sky rocketed and GPU availability and pricing became a serious problem for miners and gamers. Miners wanted to get their hands on any GPU they could get to get that little extra push in mining hash rate. Manufacturers took advantage of the situation and put very high price tags on graphic cards backing the price tags by extremely high demands. A RX 480 that would cost under 250 $ became a 700 $ card on retail stores and auctions. This created a serious rift between gamers and miners but manufactures like AMD and nVidia only made false promises to have special retail chains opened for gamers. Just when the miners thought they will finally be able to achieve profit from their mining gear investment, ASIC machines started to emerge from a very profiteering and greedy companies. It is fair and wise to assume that such companies don't just release ASIC machines without making full use of them and to mine plenty of coins for their own financial gains. After a number of coins that claimed to be ASIC resistant are mined, they start to sell their ASIC machines to consumers on a lower price tag thus making extra profit from sale of their machines. Rumors of ethereum ASIC miner started in early April of 2018 and the highly anticipated and promising equihash algorithm ASIC soon followed. This created a lot of frustration and anger within the GPU mining community and they started to switch over at more profitable coins.

Renesis group believes in good old mining rigs and gives a promise to have its Renesis-Hash ASIC resistant forever. Yes, that is a promise! The Renesis project will stay committed and steps ahead of ASIC manufacturers by selectively researching the ASIC hardware and their evolution by reverse engineering and studying ASIC designs and improving the Renesis hash complexity by triggering and adding more complex hash functions. GPUs can be used to mine any coin by porting the hashing algorithm to the mining software and the truth is that an ASIC can be used to mine any coin too but the benefit of a GPU over ASIC is that the mining software can be made faster without putting in heavy investment for research and development for an ASIC board. We understand how an algorithm gets ported on an ASIC machine and we know how to prevent that.
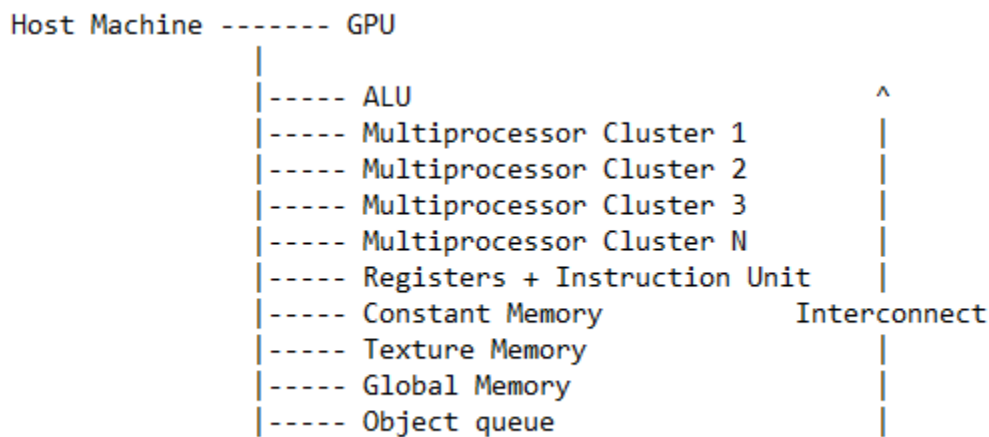
With the advent of FinFET technology implementation, GPU mining rigs can perform better on a multi hash algorithm thus making them a better choice for multi algorithm mining if a miner wishes to switch mining from one algorithm to another.

ASIC Logic

```
                      DFT Insertion
                           |
Functional Specs -> HDL -----> Synthesis-----------> Place & Router ------------------------------------------------> Verification
                           |             |                       |                  |                  |
                    Timing Analysis Equivalency Checks    Timing Analysis   Equivalency Checks   Verifications
```

It takes a tremendous effort to build special purpose ASIC boards to port a new hashing algorithm in a short period of time. However, long term mining and growing difficulty gives the ASIC manufacturers a chance to spend time and money in building machines to make double the profit.

GPU Logic

```
Host Machine ------- GPU
                 |
                 |----- ALU                               ^
                 |----- Multiprocessor Cluster 1          |
                 |----- Multiprocessor Cluster 2          |
                 |----- Multiprocessor Cluster 3          |
                 |----- Multiprocessor Cluster N          |
                 |----- Registers + Instruction Unit      |
                 |----- Constant Memory          Interconnect
                 |----- Texture Memory                    |
                 |----- Global Memory                     |
                 |----- Object queue                      |
```
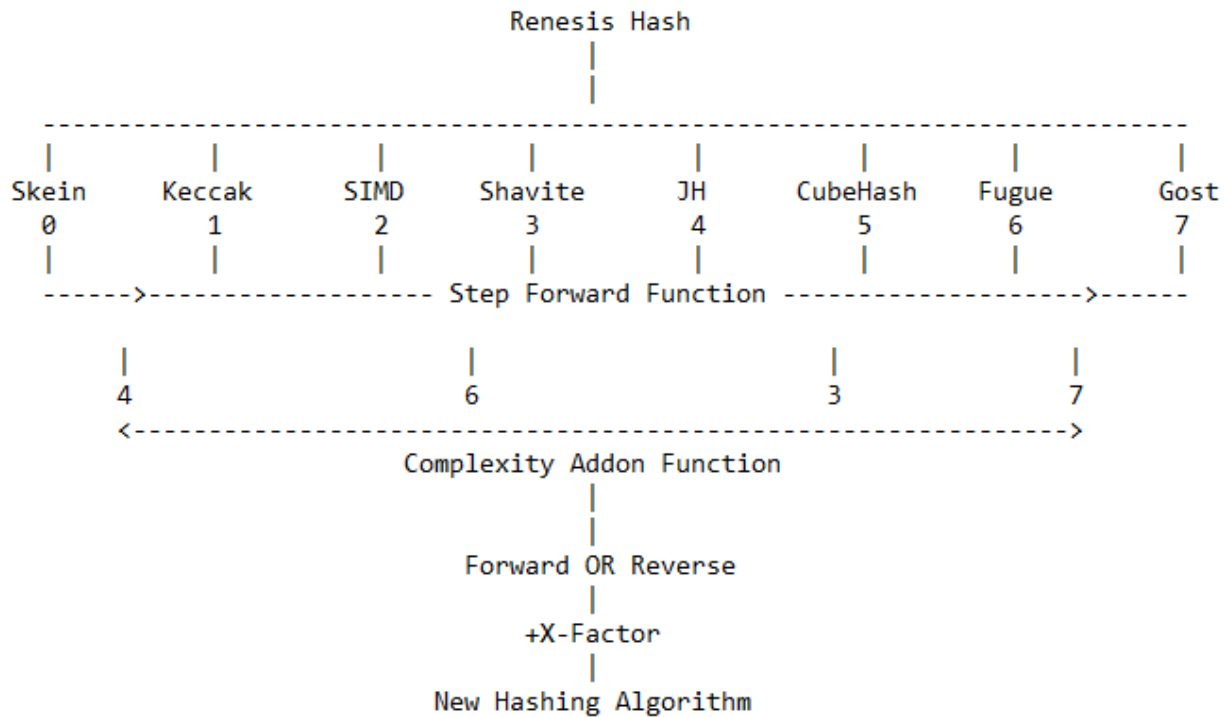
Clearly a GPU is general purpose device and can do a variety of operations. They are built to be solid work horses and can do scalar, vector and logical computations while still leaving a lot of headroom for more ALU based calculations. As the generations of GPUs proceed, the power efficiency and interconnect paths become shorter making them more sustainable investments.

RENESIS HASH

Renesis project has a new hash called Renesis. The Renesis hash uses step forward and loop function on eight different hashing algorithm styles making is complex and secure algorithm. It was possible to chain several more algorithms at the design phase but a decision was taken by the Renesis Group to leave room for future hash complexity or diversion of the step forward process when the hard fork requirement arises.

To increase the complexity and memory requirements for Renesis algorithm, more complex hashing functions and forward / reverse functions can be added to keep it truly ASIC resistant for life.

```
                              Renesis Hash
                                   |
                                   |
    ----------------------------------------------------------------------------
    |          |          |          |          |          |          |        |
  Skein     Keccak      SIMD     Shavite       JH      CubeHash    Fugue     Gost
    0          1          2          3          4          5          6        7
    |          |          |          |          |          |          |        |
    ------>------------------------- Step Forward Function -------------------->------

    |                        |                        |                        |
    4                        6                        3                        7
    <----------------------------------------------------------------------------->
                        Complexity Addon Function
                                   |
                                   |
                           Forward OR Reverse
                                   |
                                +X-Factor
                                   |
                           New Hashing Algorithm
```

LONG TERM MINING EVOLUTION

Renesis project has preplanned PoW blocks and reward structure at the time of launch. The block reward structure is designed to keep the miner interested to chase higher rewards after a halving stage. There is a certain percentage of premine created for Renesis Group and community developers in order for the group and community developers to have special interest and stay committed with the project. The first 100 blocks are premined and generated 35000000 RESS (Majority of 8% premine is for the Renesis Group to sustain the LTME and proceed with enhancements such as keeping Renesis ASIC resistant forever , 2% for bounties & 3rd party developers). Renesis Group has total of 7 core members and 4 sub-members. The core members count remains static while sub members will be pickup from the community to take over lead development and decision making position based on their level of involvement and dedication to the project.

Block Structure

Block 1 -→ 100 Premine. 8 % for Renesis Core and 2 % for community sub members

Block 100 → 5000, mining will generate 2,450,000 at 500 RESS each block

Block 5001 → 150000, mining will generate 116,000,000 at 800 RESS each block

Block 150001 → 300000, mining will generate 22,500,000 at 150 RESS each block

Block 300001 → 500000, mining will generate 60,000,000 at 300 RESS per block

Total supply of 235,950,000 RESS to be mined till here. Remaining 114,050,000 RESS to be moved on forward for next PoW block phase.
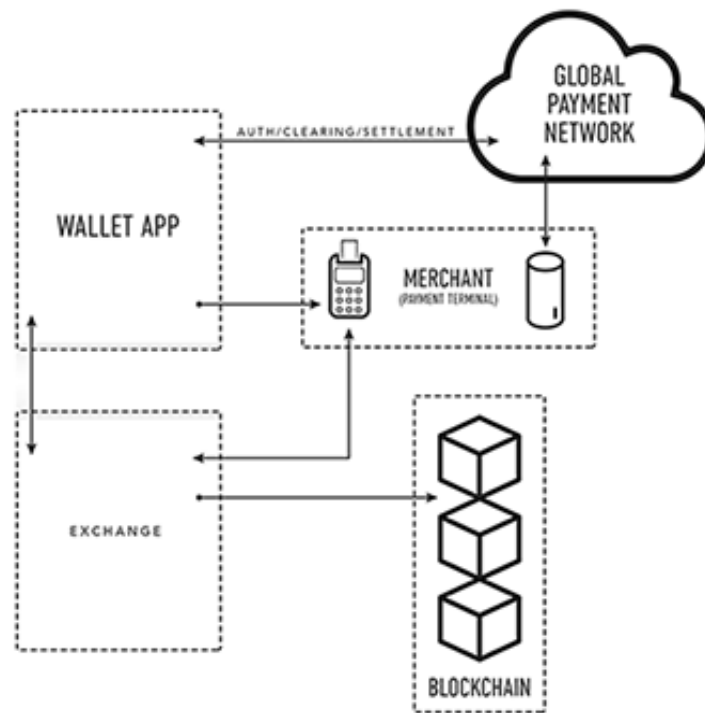
Block 500001 → 1000000, mining will generate 100,000,000 at 100 RESS per block

Reaming 114,050,000 RESS to be mined after this block phase.

Block → 1000001, Renesis will turn pure hybrid giving 200 RESS per block and 10% PoS reward per year. After left over PoW is completed, Renesis will remain 0 RESS per mining block and 10% PoS reward per year.

PRACTICAL APPLICATIONS & USE CASES

A project should be more than just a mineable cryptocurrency and a trade medium on a crypto exchange. It should have some real world use. Renesis Group members have more than 7 years of experience with developing relations with retail and trade industry. The group has visualized certain ideas like Renesis PoS pay solution while working to materialize easy payment solution for retail and merchants.

The Renesis Group premine can and will be used in collaboration with the community developers to make this happen and be applied worldwide not only on PoS terminals but online retail. At the time of conceptualization, the idea of having Masternodes will be implemented as per the project roadmap.

V2 whitepaper will include two planned real use cases after current phase is completed.

Credits

Ulan for bringing beer, Atai and the rest of the team for weekly meetings and laughs at Renesis office and havok for his hard work and coding spree.