Why do we have to buy Nvidia RTX 3080 for crypto-mining?

Cryptocurrency is "digital" money. Money is in paper form, whereas cryptocurrency is an encrypted code that we would generate by crypto-mining. No entity controls this digital currency; government, banks, or any big private organizations do not authorize these currencies. They are available on the internet, and we could mine them just like the miners' mine gold. There are more than 5000 cryptocurrencies, but Bitcoin and Ethereum are the most famous ones[1]. To mine the digital currencies, we would need fast computers, and the most important component of a PC for mining is the Graphics Processing Unit(GPU). Why would we crypto-mine? We all want to be rich, and crypto-mining can earn us some big bucks. Solving each blockchain would make us money, and I would soon demonstrate that with a simple calculation. Let us dive into this digital currency world and earn that fat cash with just some simple investments. We would need a simple PC with two GPUs as a starter. We would see why the following 'rig' (a customized PC to do crypto mining) specification is the best within a budget purchase.

Specification:- two Nvidia RTX 3080(GPU), Asus B250 Mining Expert(motherboard), Intel Core i5-6500(CPU), RAM, HardDrive, Power Supply Unit (PSU), Aluminum Open Air Mining Stackable and PCI-e Riser.

We have to understand the concept of hash-rate for crypto-mining. It is the verification of one block in a blockchain. A hash secures each block. A hash is like a fingerprint, unique for each block. We can think of a block as a receipt, and since the transaction of cryptocurrency is decentralized, it is verified by miners. For each verification, they receive money. The more quickly we solve the hashes, the more money we can make. Hash-rate is measured in hashes per second (h/s).[2],[3]. I would elaborate more on cryptomining; it is solving the algorithms of encryption that is decoding the cryptocurrency. The cryptominers are solving equations related to each block in a blockchain to verify the blocks. A standard GPU, for example, a Radeon HD 5970, clocked processing speeds of executing thirty-two thousand 32-bit instructions per clock, which was 800 times more than the speed of a CPU that executed only four 32-bit instructions per clock. GPUs are also equipped with Arithmetic Logic Units (ALU), responsible for mathematical computations in a PC. Thus it is of paramount importance to build a GPU based rig to cryptomine more efficiently.[4]

Bitcoin is the most famous cryptocurrency, and websites such as Expedia, Overstock and Xbox accept Bitcoin for transactions. It uses peer to peer(P2P) for any transactions, and no third party is involved while making any purchases with Bitcoins. This allows businesses to avoid the extra charges they face while doing bank transactions. Mining Bitcoin can reward you with a couple of Bitcoins too, all you have to do is solve some complex equations. You can become a millionaire overnight by mining some Bitcoins and selling them. One Bitcoin is now roughly 60000CAD, and imagine decoding ten bitcoins; you would be worth 600k in a couple of minutes. Since Bitcoin is a resource like gold, there are only 21 million Bitcoins. Ethereum is another cryptocurrency, which is more secure than Bitcoins because of the advanced technology it uses. The usage of smart contracts and dApps render it more secure. Ethereum transaction is also very fast; it takes just a few seconds. There is more traffic in Bitcoin servers than Ethereum, making it wiser to mine Ethereum as you could easily earn one with fewer costs.[5],[6]

The main expense is the electricity costs associated with unearthing a cryptocurrency as it is a variable cost. For the specification mentioned above, you would need two PSU,350W—2*350W=700W. Each PSU powers one GPU. We would be powering the GPUs 24hours to maximize our earning potential. So, 700W*24=16,800Wh per day. BC Hydro's residential electricity rate is $0.0930 per kWh. Doing the calculations:

16,800/1000=16.8kWh. 16.8kWh*.093CAD/kWh=1.5624CAD
1.5624CAD*30days=46.87CAD per month.

But what is our return on investment(ROI)? For our system,

- Per day we can generate 0.00579348347557395 ETH with our system[7]

    - 0.00580*1,740 CAD=10.092CAD
    - Profit per day—(10.092-1.562)CAD=8.53CAD
    - Profit per month- 255CAD
    - Profit per year - 3060CAD.

GPU	Nvidia RTX 3080	2*1100CAD=2200CAD	TOTAL
Motherboard	Asus B250 Mining Expert	500CAD	
CPU	Intel Core i5-6500	235CAD	
RAM	N/A	200CAD	
HardDrive	N/A	150CAD	
Power Supply Unit (PSU)	N/A	2*100=200CAD	
Rackmount Frame For 6 GPUs	Aluminum Open Air Mining Stackable Frame	535CAD	
PCI-e Riser	N/A	2*10CAD=20CAD	
			=4040CAD

We can get back our purchase cost of the rig within less than 1.5 years. We are also noticing the exponential growth of Ethereum and thus the spike in price. The price of our variable costs will not significantly increase, but surely-assuming no interventions from external factors-we will just perceive the rise in the price of the cryptocurrency. In the future, our ROI would be grandeur.

Profit per year from using one GPU= 1080CAD.

Profit per year from using two GPUs= 3060CAD.

Profit per year from using ten GPUs= 10,800CAD.

We perceive that the more GPUs we install in our system, the more profit we generate. If you have the resources, then just keep on generating the money.

The minimum number of GPUs we could use is 1, and though there are no limits to how many GPUs, we have to consider the costs and space if we opt for a large number of GPUs. 80 GPUs could certainly be installed in a home. To validate my point, I would share the video of Simon Byrne's crypto-mining rig, which used 78 GPUs and it is 6.5ft high[6]. You will have a profit of 86,400CAD per year with 80 Nvidia RTX 3080 GPUs.

Let us consider some of the worst-case scenarios to be pessimistically optimistic. If the price of Ether falls below 1000, assuming it is now 999CAD, we would still have a profit of 1523CAD. The problem arises when the price drops below 270CAD of 1 Ethereum. In that case, we would be going negative. We do not have to worry about that as the stats show the increasing price trends of Ethereum[8].

Building a rig with two GPUs is the best-case scenario based on our situation because we just only have to pay 1.562CAD for electricity. Compared to our revenue which is 10.092CAD per day, it will not affect us much to pay 1.562CAD for electricity.

In sum, cryptocurrency is a digital currency, which we have to mine on the internet. Cryptomining is efficient with a rig that has powerful GPUs. The more GPUs we use, the more profit we generate. Bitcoin and Ethereum are the two most famous cryptocurrencies. We perceived the notion of mining Ethereum and the variable cost linked with mining is electricity. The hurdles of building a rig are the cost of cooling the GPUs, building the actual PC, the electricity cost etc. We also have to consider the tradeoff between investing time and money here and other important businesses in our life. As mentioned above, the cost is not an issue as we are earning a large profit.

References:

1. K.Ashford and J.Schimdt(2020,Dec.) What Is Cryptocurrency? [Online]. Available: https://www.forbes.com/advisor/investing/what-is-cryptocurrency/

2. Dustin(2020). What is Hashrate or Hash Power and Why it's important? [Online].Available:https://cryptominertips.com/hashrate-explained/

3. Simple Explained.*How does a blockchain work- Simply Explained*(Nov.13,2017). [Online Video]. Available: https://www.youtube.com/watch?v=SSo_EIwHSd4

4. S.Seth(2019,Aug.) GPU Usage in Cryptocurrency Mining [Online].Available: https://www.investopedia.com/tech/gpu-cryptocurrency-mining/

5. S.Aaron(Nov.11,2020) What is Ethereum? [Online].Available:https://www.bitdegree.org/crypto/what-is-ethereum

6. EtherScan.[Online].Available:https://etherscan.io/ether-mining-calculator?fbclid=IwAR3d FPr4Vq2OX4rNszhlJFqQwAko6Jtzmtb53RbJCIRCxsjLT5dqlTn-a9M

7. Dr.A.Wong(Feb.4,2021) 78-Card GeForce RTX 3080 Mining Rig Powered Up! [Online].Available:https://www.techarp.com/computer/78-rtx-3080-mining-rig

8. CoinMarketCap.[Online].Available:https://coinmarketcap.com/currencies/ethereum/