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I would like to share my unique insights on the recent breakthrough of Apple's System-on-a-Chip (SoC) M1 chip that was announced in November 2020 and its potential impact on Apple's market share and revenue growth in the computer segment, along with implications on adoption and competitors.

The M1 chip has the potential to disrupt the market with energy efficiency and speed, expanding market share in the $260B enterprise PC market and the $389B software developing market. It represents a 380% growth in the stock price in 7 years.

Apple will disrupt the $260B enterprise computer market and increase market share from 7.7% to 24% because:
1. The M1 chip is 18% faster than the highest-end Intel i9 chip, uses only 10% of energy, and has a superior unified design with Apple's ecosystem that increases productivity in software development
2. The M1 chip Mac computers are expected to have a short adoption timeline as a key collaborator, Microsoft, has paved the way for swift adoption
3. The M1 chip to expected to sustain competitive advantage post-launch as competitors are not only behind in technology but also at a disadvantage due to key barriers of entry

Transcendental technology breakthroughs of the M1 chip will lead to enterprise adoption:
1. **The M1 SoC design is power and thermal efficient, leading to cost savings of $101 /person-year.** The M1 chip integrates the CPU, GPU, TPU (AI accelerator), and memory, rather than the prevailing design of a motherboard that connects the different components through a central interfacing circuit board. The integrated design cuts down energy consumption by $101 a year per person, with savings going up as future improvements are introduced, through reduction of transmissions between components
2. **M1 is the fastest chip in the market, reducing IT CAPEX by 65% for the same performance.** The performance leap with the M1 chip is significant- it is 18% faster than the leading Intel i9 computer chip. The superior performance presents the opportunity to cut hardware CAPEX by 65% through lower spending on memory, processors, and computers
3. **The unified memory design and the portability between phone apps and computer apps will lower software development costs by 32%.** Existing phone apps will be able to run on the M1 chip computer, expanding use cases and utilization of existing app developers. Assuming computer software penetration follows that of phones, 32% of the developing talents currently working on computer-based software could be eliminated

Key enterprise software and operating system collaborator Microsoft smoothed the path to adoption:
1. **Microsoft Windows OS and apps compatibility has paved the way for enterprise adoption of Apple's hardware.** Starting in 2018, Microsoft started to embrace the reduced-instruction-set-computer (RISC) architecture, the foundation for SoC computer chip, for its Windows operating system and applications. In addition to making Azurebook run on RISC, Microsoft has also fully developed its operating system and apps to be RISC native. As a result, enterprise adoption is expected to happen swiftly as Apple's M1 computers can seamlessly run Windows along with its key enterprise software (e.g., Excel)

Competitors face structural and technological barriers:
Competitors face significant barriers to challenge Apple in the SoC computer chip computer market as they lack vertical integration with manufacturing capacity and existing mobile/PC/services businesses
1. **Vertical integration with manufacturing capacity**: Fabless players are structurally at a disadvantage as their legacy manufacturing process (catering to CISC based customers) poses a bottleneck for additional processors and memories on a less than 10-nanometer chip, both of which are required to produce SoC
2. **Existing mobile/PC/services business to capture the full benefit of the technology**: No other competitor offers better portability between phone and computer than Apple, which has 7.7% market share in PC and 25% in mobile, as Apple's closest competitors, Samsung and Microsoft, lack critical elements to challenge Apple:
   a. **Samsung**: Samsung designs and manufactures SoC chips for its smartphone lines but lacks a significant presence in the computer market

b. **Microsoft**: Microsoft has a significant presence in smartphones/tablets/computers, as well as a very significant services business (operating system), but lacks chip manufacturing capabilities and just began designing processors in November 2020. The realization for its first processor is slated to be November 2021, and Microsoft is at least 5 years behind in designing and producing a computer SoC

Key developments to watch and timelines:

1. **A more seamless Windows and its suite experience**: While Microsoft has a RISC version and can run natively on M1 computers, the M1 computer is not included in Microsoft's existing licensing agreements for its operating systems. Key developments to look for are virtualization partners' progress (such as Parallels, which is the first to enable Windows to run on M1) and Microsoft's new licenses
2. **Scalability to higher specs:** As alluded to earlier, the ability to put more processors and memories onto a < 10-nanometer chip is a key part of the value add. The current M1 chip is an 8-core chip and up to 16GB memory, fit for daily use and Apple's entry-level computers. The current high-end computer has more than double the specs. The key metric to track is Apple's release schedule for the next few years. Apple has one hardware release event a year, and if its A-series SoC phone chip is any indication, there has been a bi-generational leap in specs. It is crucial to watch the next two releases, including the new Mac lineup

In summary, the M1 chip is a piece of transcendental technology. If you can picture the time of iPhone 4, the last iPhone before Apple's SoC A1 phone chip, it is where we stand now with personal computers. The M1 chip ushers in an exciting next stage for market growth and technological advancement for Apple and the industry.