

# CS351 Lab #EC2

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## Moore's Law

### Instructions:

- Assigned date: Thursday November 19<sup>th</sup>, 2020
- Due date: 11:59PM on Sunday December 13<sup>th</sup>, 2020 [firm deadline, no extensions; no submissions after this deadline will be accepted]
- Extra Credit: 30 points
- This lab must be done individually
- Please post your questions to the Piazza forum
- Only a softcopy submission is required; it will automatically be collected through GIT at the deadline; email confirmation will be sent to your HAWK email address; submissions will be graded based on the collected submissions at the deadline, unless an email to the TAs at [cs351-ta-group@iit.edu](mailto:cs351-ta-group@iit.edu) with the subject "[CS351] homework submission is delayed" is received; when a student is ready to have their late assignment graded, they must send another email to the TAs at [cs351-ta-group@iit.edu](mailto:cs351-ta-group@iit.edu) with the subject "[CS351] late homework submission is ready"; late submission will be penalized at 5% per day

### 1 Your Assignment

"Moore's law (<http://www.mooreslaw.org>) is the observation that the number of transistors in a dense integrated circuit (IC) doubles about every two years. Moore's law is an observation and projection of a historical trend. Rather than a law of physics, it is an empirical relationship linked to gains from experience in production. The observation is named after Gordon Moore, the CEO and co-founder of Intel, who in 1965 posited a doubling every year in the number of components per integrated circuit, and projected this rate of growth would continue for at least another decade. In 1975, looking forward to the next decade, he revised the forecast to doubling every two years, a compound annual growth rate of 40%. While Moore did not use empirical evidence in forecasting that the historical trend would continue, his prediction held since 1975 and has since become known as a 'law.'" The Wikipedia article at [https://en.wikipedia.org/wiki/Moore's\\_law](https://en.wikipedia.org/wiki/Moore's_law) has a very nice and detailed description with much more details.

**Industry experts have not reached a consensus on exactly when Moore's law will cease to apply. Your assignment is to write a 4 to 8 page report (single spaced, single column, font size 11, and 1" margins) that has the following components:**

1. Define Moore's Law
2. Presents evidence through tables or graphs that Moore's Law
3. Take a position on whether Moore's Law is:
  - a. Alive
  - b. Dying
  - c. Dead

If you think Moore's Law will never end, discuss why not. If you think it will end, when might that be, and why do you think it will end? Be concrete and cite publications or news articles to support your position.

4. Future of computing:
  - a. If Moore's Law will never end, describe what might a computer look like in 100 years (after the doubling of transistors every two years).
  - b. If Moore's Law will end, describe what are possible next steps for the world beyond Moore's Law. What might a computer look like in 100 years from now (hint: it likely won't be based on the same technology of building computers we have today since Moore's Law would be long dead by then)?
5. References:
  - a. Include references for all the information you have included in this report.

## 2 What you will submit

When you have finished writing your report, you will generate PDF file and push your work to Github. You can find a git cheat sheet here: <https://www.git-tower.com/blog/git-cheat-sheet/>. Your solution will be collected automatically at the deadline. There is no need to submit anything on BB for this assignment. If you cannot access your repository contact the TAs.

**No late submissions will be accepted.**