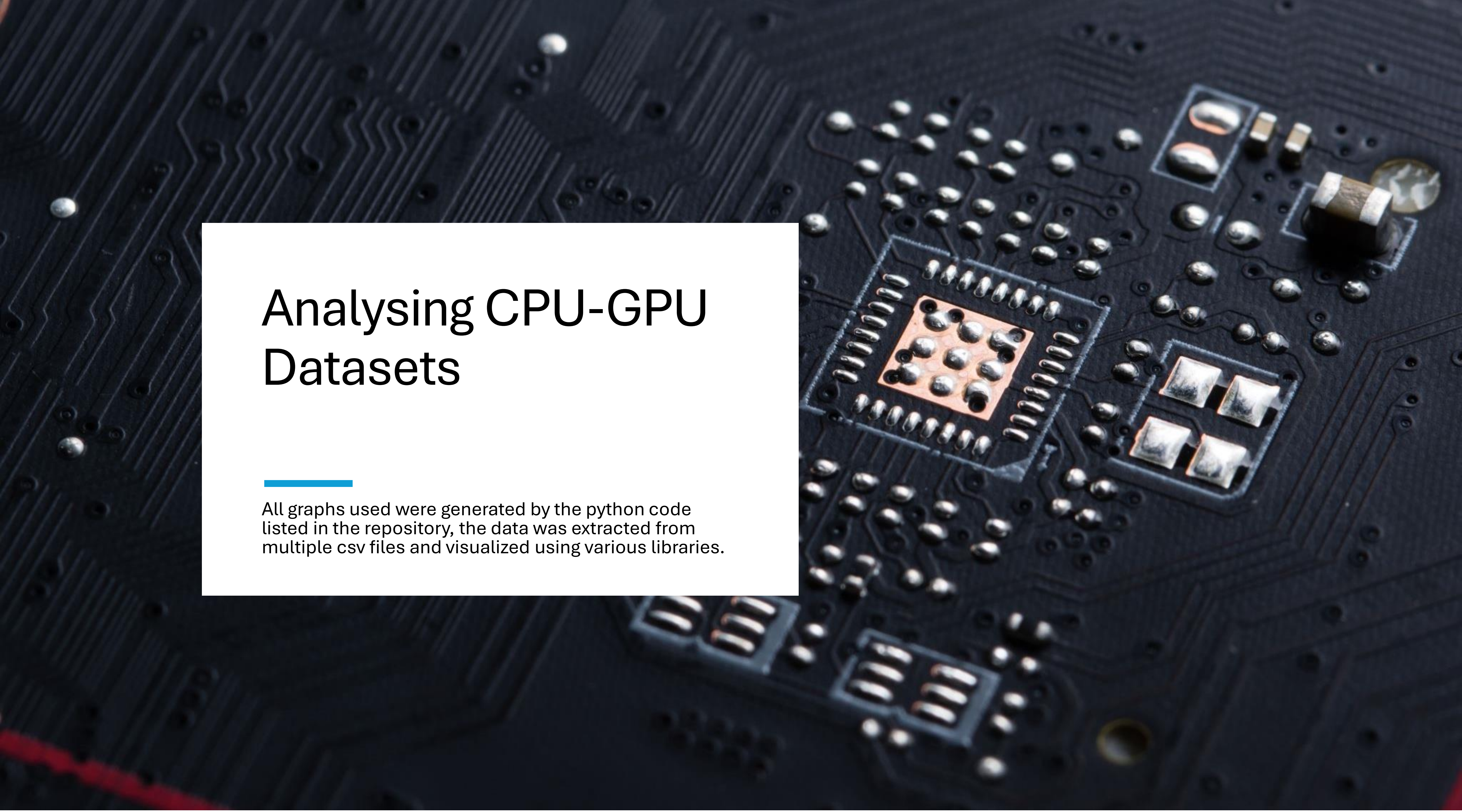
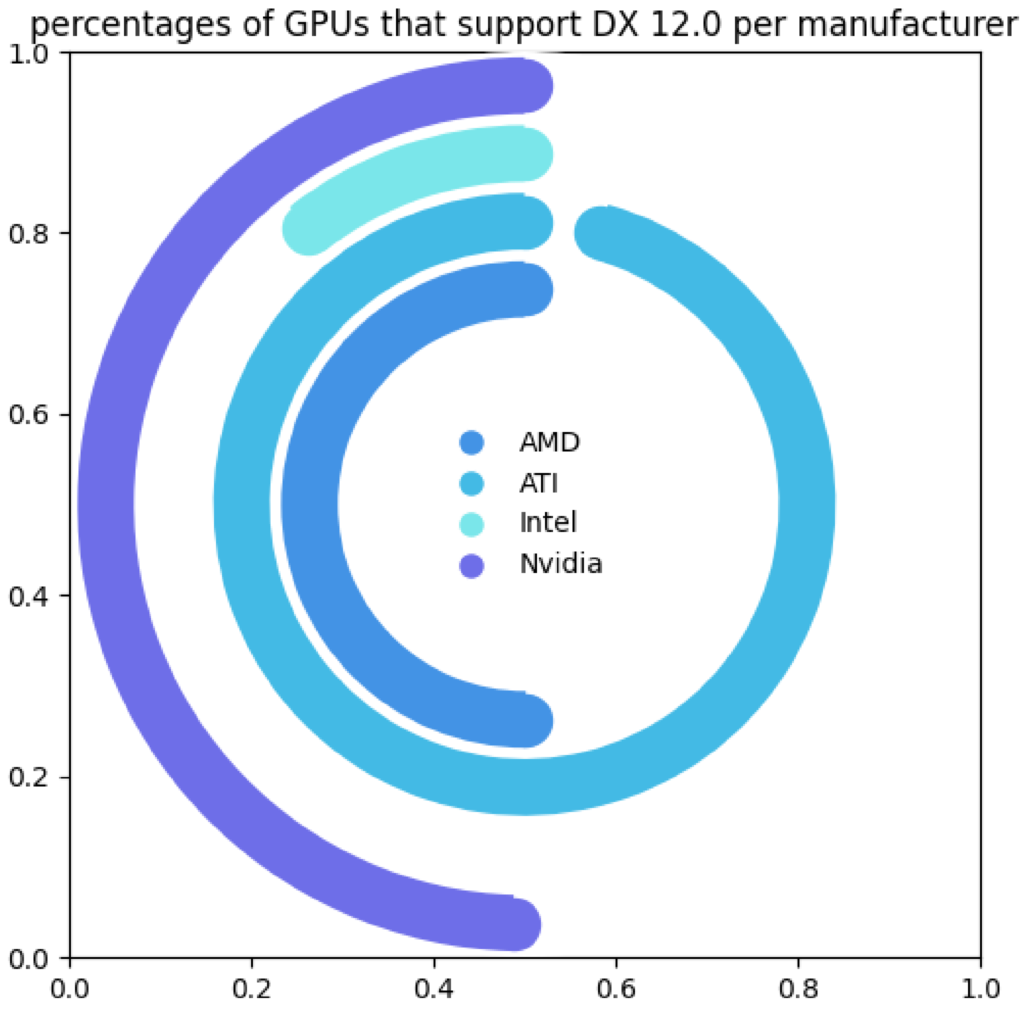


Analysing CPU-GPU Datasets

All graphs used were generated by the python code listed in the repository, the data was extracted from multiple csv files and visualized using various libraries.

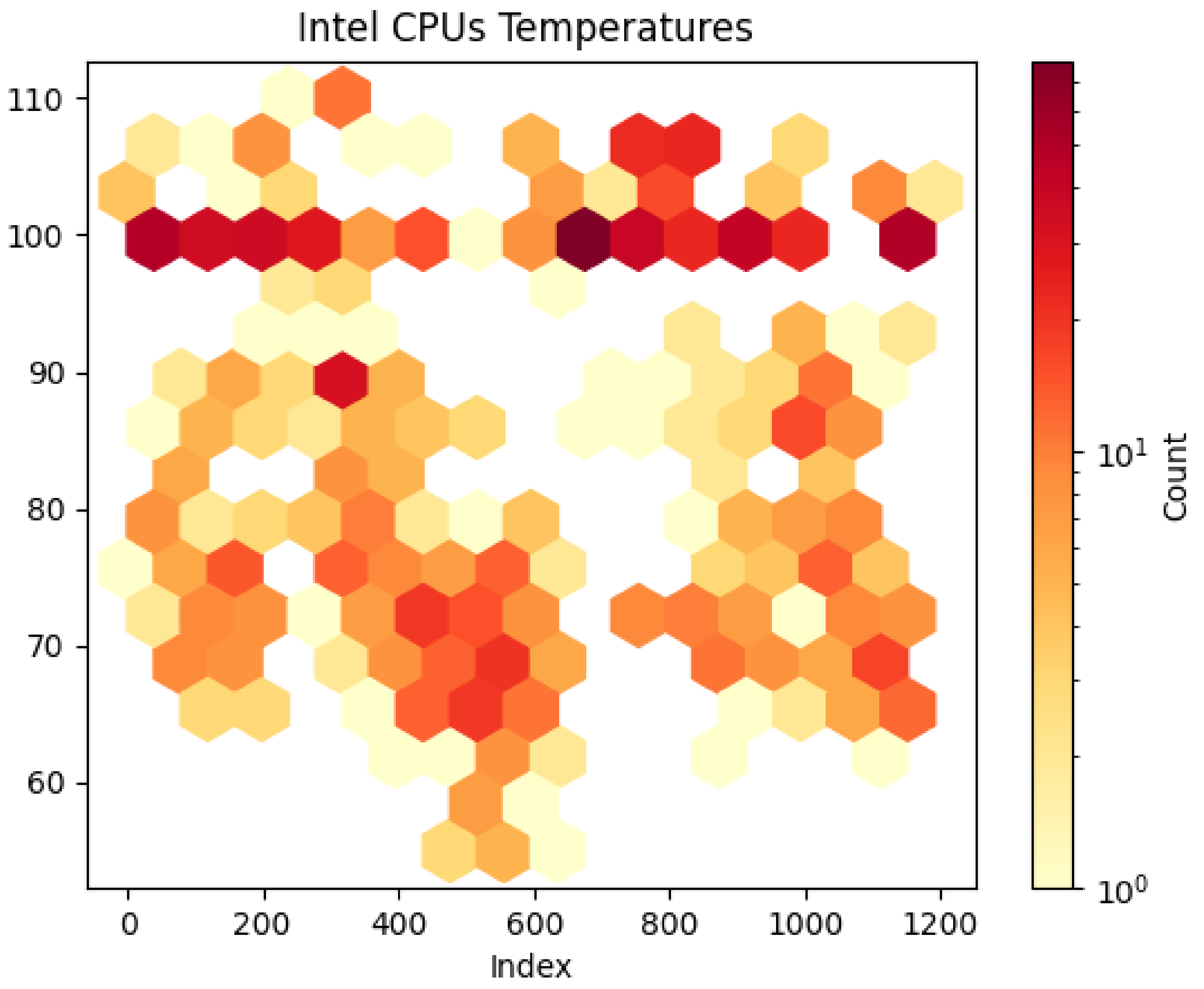
GPU percentages that support DX 12.0:

- We analyzed data from the "All_GPUs.csv" file to determine the percentage of GPUs supporting DX 12.0, grouped by vendor. Interestingly, ATI GPUs showed the highest adoption rate, potentially indicating a focus on the gaming market. This aligns with ATI's (now AMD's) historical strength in gaming-oriented GPUs, where DX 12.0 compatibility is crucial. Conversely, Intel, primarily known for CPUs and integrated graphics, might not prioritize dedicated gaming GPUs and their specific software needs. (potential dataset limitations regarding timeframes or brand representation must be conidered)



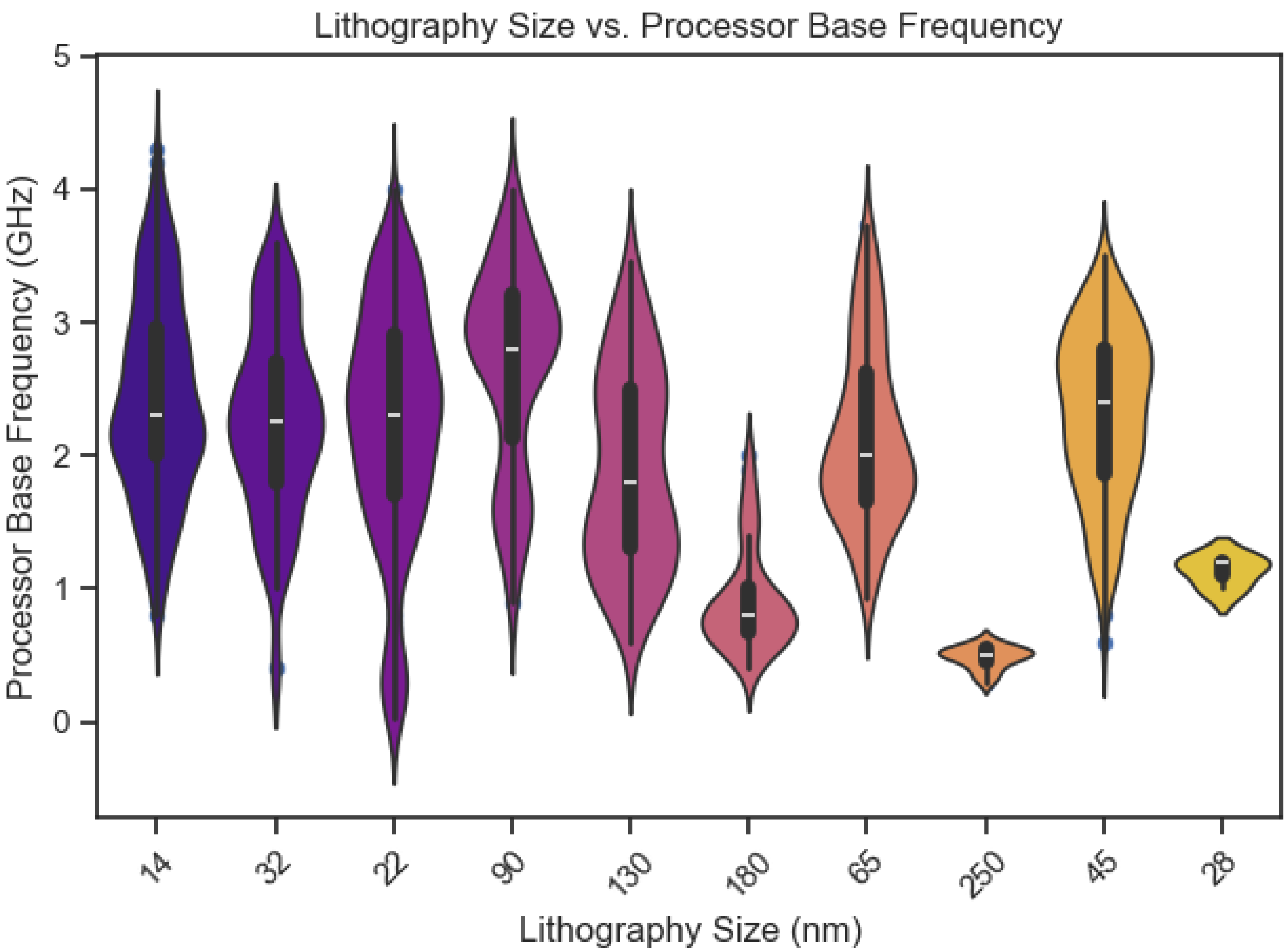
Plot of all Intel CPUs temperatures:

- Temperature data from "Intel_CPUs.csv" was converted to GHz and visually represented using a hexagonal bin plot. Intel CPUs exhibit a diverse range of temperatures, influenced by factors like specific model, generation, and intended use (mobile vs. desktop). While average temperatures can vary significantly, most Intel CPUs operate within 40-80°C under normal conditions. Individual models might have different tolerances, with high-performance CPUs potentially reaching slightly higher temperatures under heavy workloads.



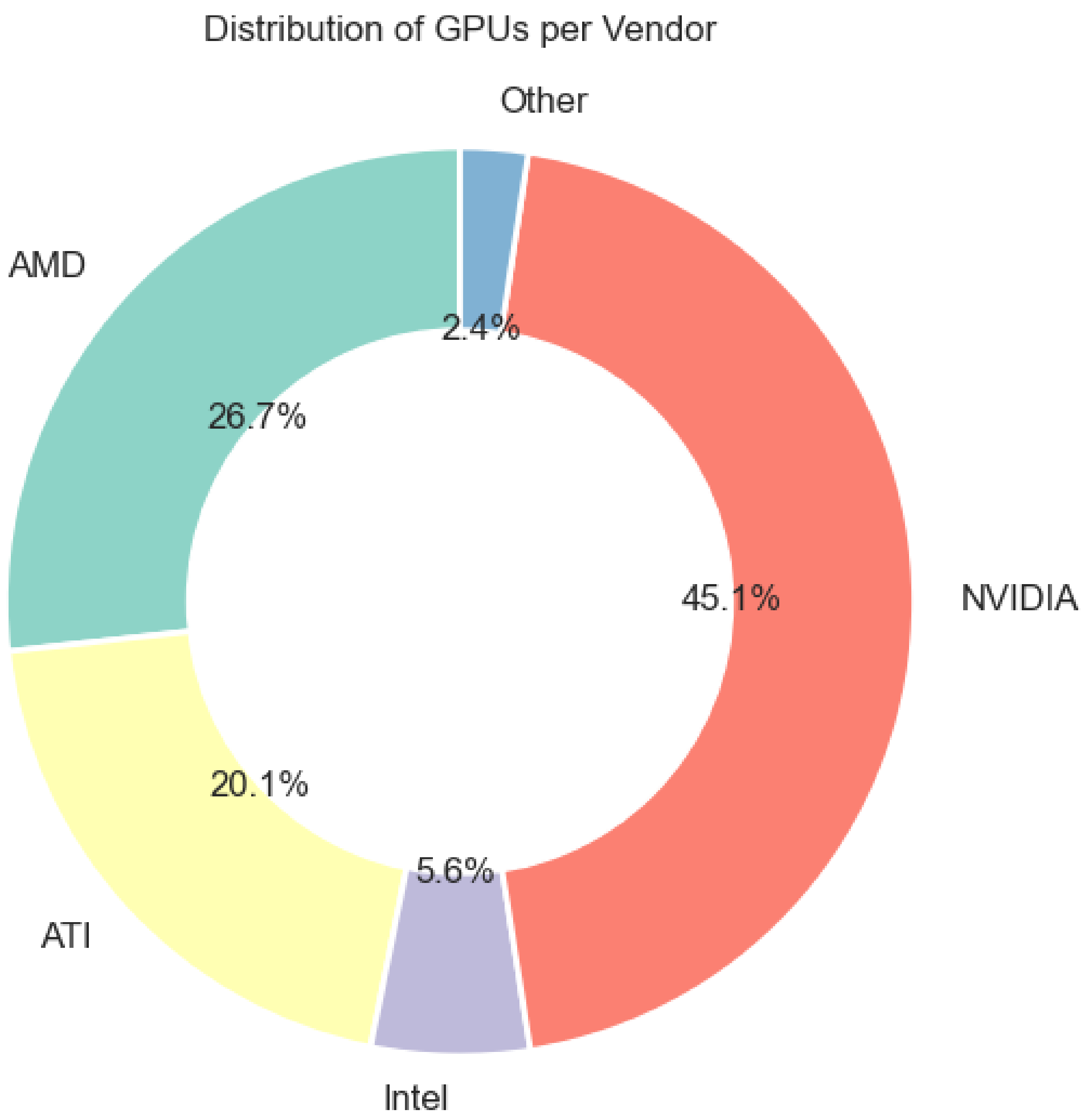
Relationship between Lithography and processor speed:

- "Intel_CPUs.csv" data was analyzed to explore the relationship between lithography size and processor base frequency. Smaller lithography sizes were associated with higher frequencies, suggesting an impact on processor speed. However, it's crucial to remember that correlation doesn't imply causation, and other factors can influence performance. Future advancements in lithography technology are continuously being explored. (the observed relationship doesn't necessarily imply causation.)



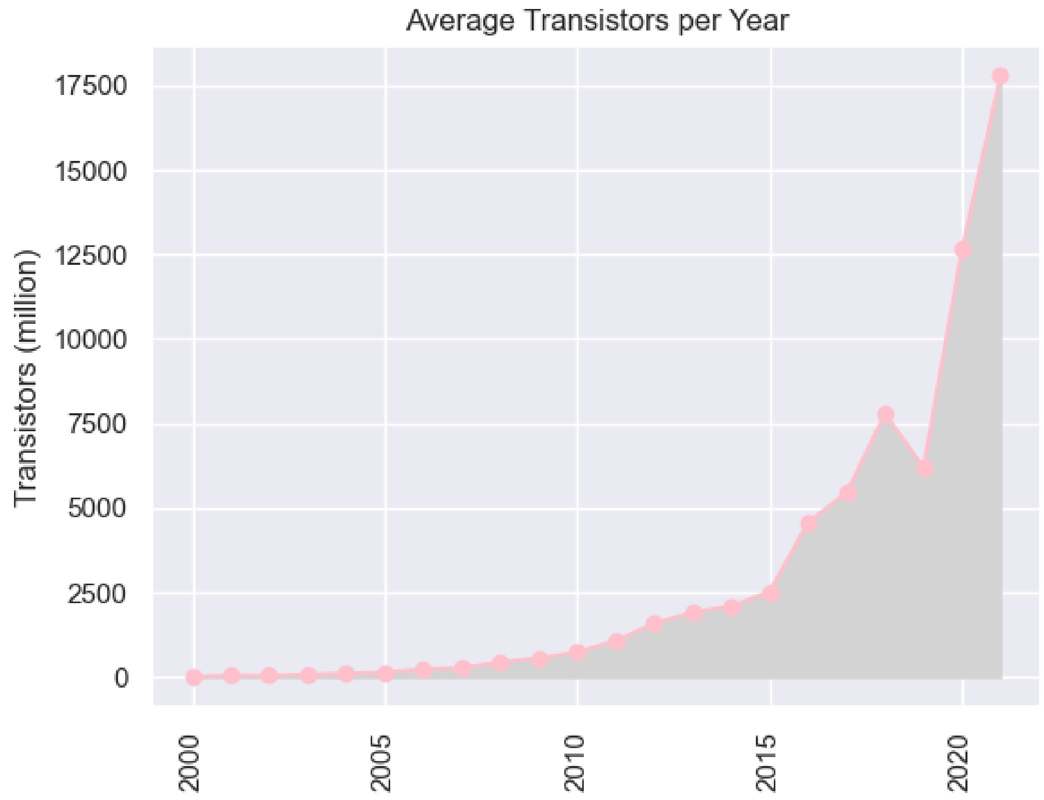
Percentage of GPU production based on Vendor:

- "chip_dataset cpus vs gpus.csv" data revealed NVIDIA as the leading GPU producer within the analyzed timeframe. This might be due to various factors like market trends, competitor strategies, or product offerings.



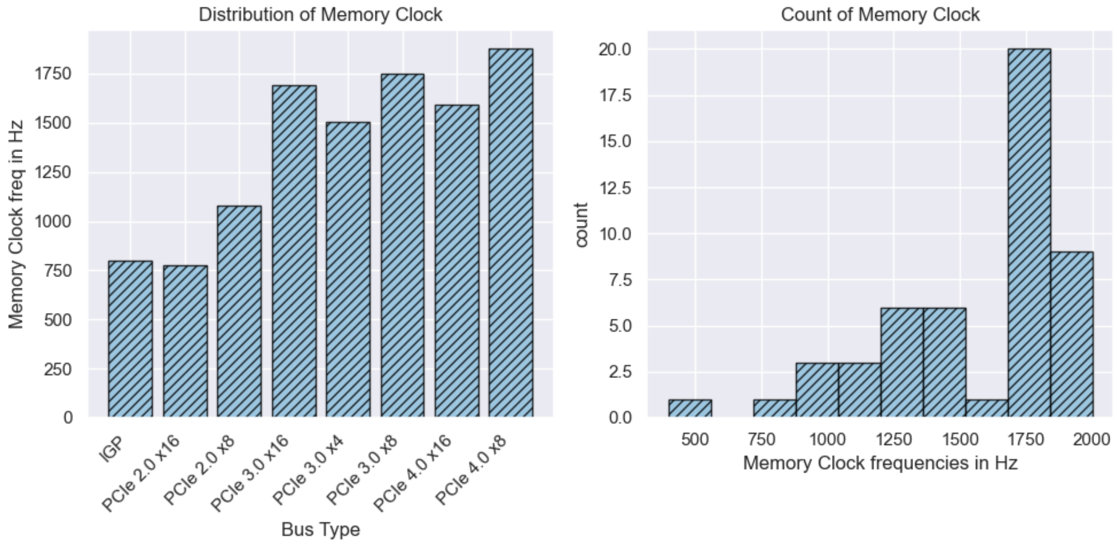
The growth of transistors over the years:

- Data from "chip_dataset cpus vs gpus.csv" showed an exponential increase in the average number of transistors per chip year, aligning with Moore's Law's prediction of doubling every two years. While this trend has historically held true, advancements in recent years face increasing technical challenges, potentially slowing down its future applicability. (Moore's Law's applicability might be slowing down.)



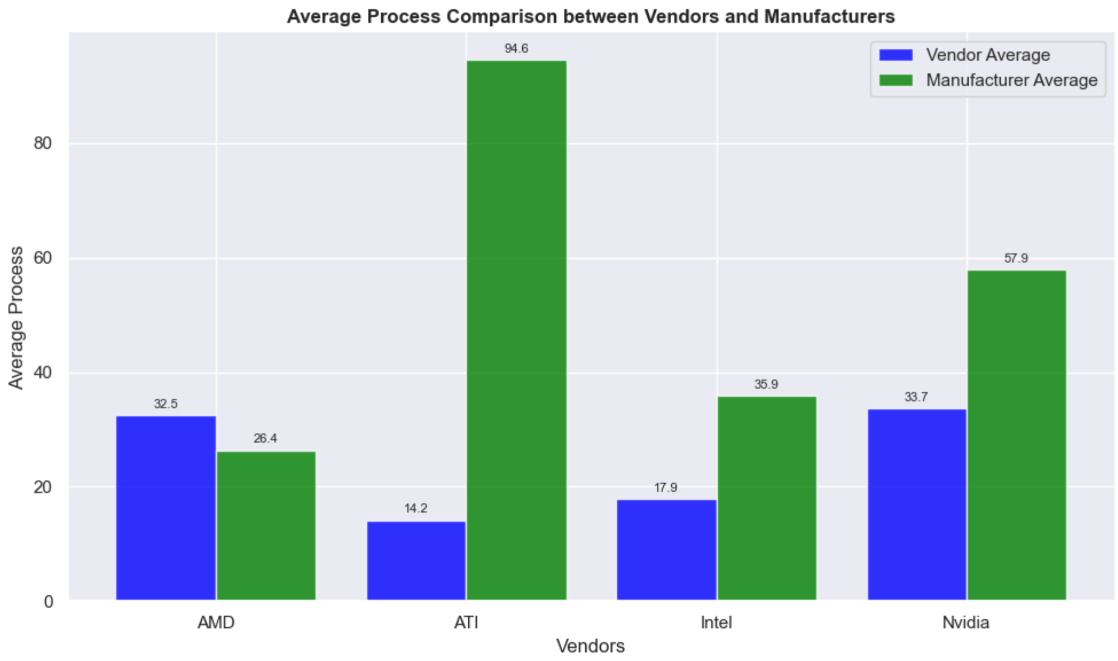
Bus Type and GPU clock frequency:

- Memory clock frequency data from "gpu.csv" was cleaned and analyzed, separating it by bus type. We visualized the distribution using a bar plot and a histogram. While PCIe versions (3.0 vs. 4.0) primarily impact bandwidth, not clock frequency, newer versions tend to have higher clock speeds due to other advancements.

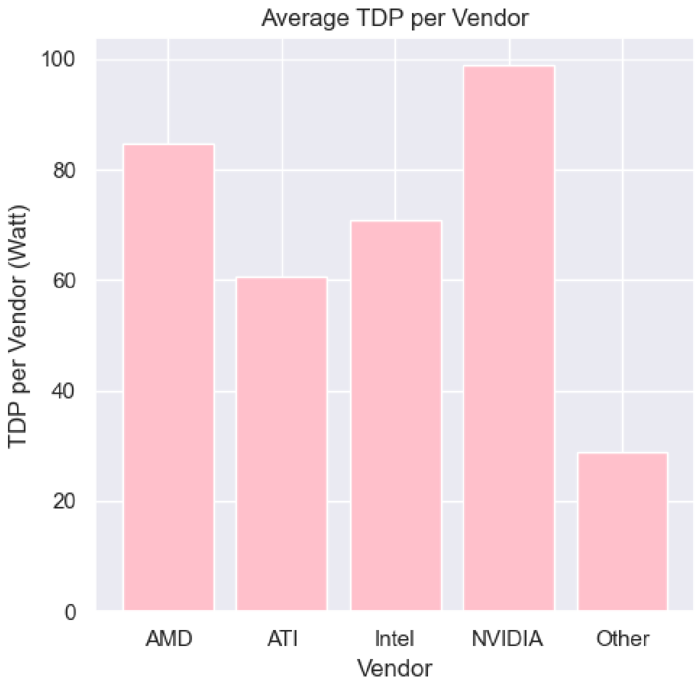


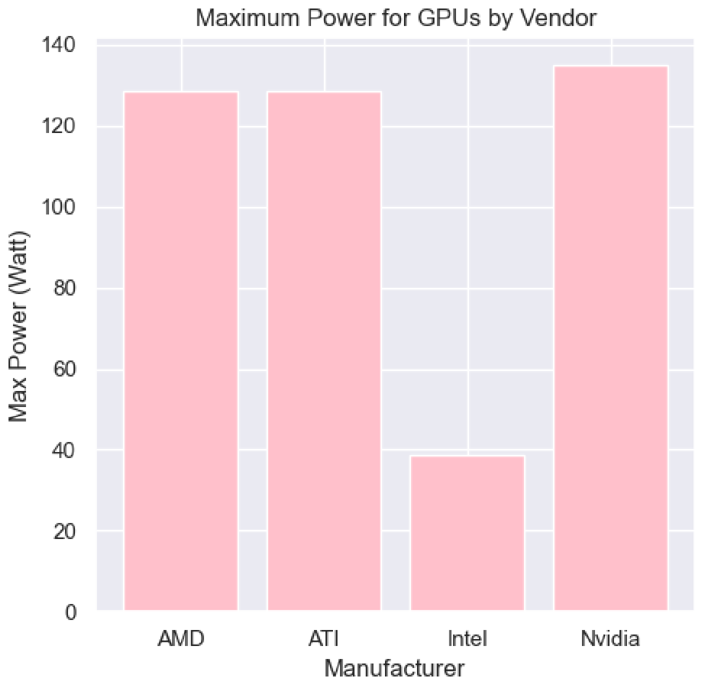
Comparing process averages of different manufacturers/vendors:

- Data from "chip_dataset cpus vs gpus.csv" and "All_GPUs.csv" revealed an anomaly in ATI's average process size. This significant deviation suggests potential outliers or data inconsistencies requiring further investigation. One possibility is the impact of ATI's acquisition by AMD, as such events can influence product lines and data patterns, especially if datasets span different pre- and post-acquisition periods. (cause remains inconclusive without further exploration.)



TDP/Power comparison between vendors:





- TDP and power consumption data from "chip_dataset cpus vs gpus.csv" and "All_GPUs.csv" were combined for vendor-based comparisons. NVIDIA displayed the highest power consumption in both plots. This aligns with the fact that they primarily manufacture GPUs, known for higher power demands compared to CPUs due to their complex architecture and higher clock speeds. (TDP is not a direct measure of power consumption and might have limitations.)