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Homework 1

Question 5

Find the current listing (18th) for the Green500 list for November 2021.Review the system architecture for each of the top 10 systems on this list. Discuss the differences that you see from this list and the list for the Top500 you found in question 4. Also compare it to the 17th Green500 list for June 2021.

Like the TOP500, the Green500 list is the biannual worldwide ranking of supercomputers, but in terms of energy efficiency. The list measures the performance per watt using the same benchmark as the TOP500: the High Performance LINPACK (HPL) benchmark.

From the top 10 results for November 2021, and comparing with the TOP500 and the June 2021 Green500, we observe the following:

- Contrary to the TOP500, the Green500 top 10 has a wider variety of locations, including South Korea, the Netherlands or Czechia to name some.
- In terms of architecture, the Cluster model is the dominant one again, like in the TOP500. Both in the November 2021 and June 2021 Green500 top 10 there was only one supercomputer using the MPP architecture.
- From the chart in Fig.1 we can clearly observe that the power efficiency of the supercomputers in the Green500 are considerably higher than the TOP500 ones (except some cases). It is also worth noting that there has been a noticeable increase in power efficiency in the top10 of the Green500 between June and November.

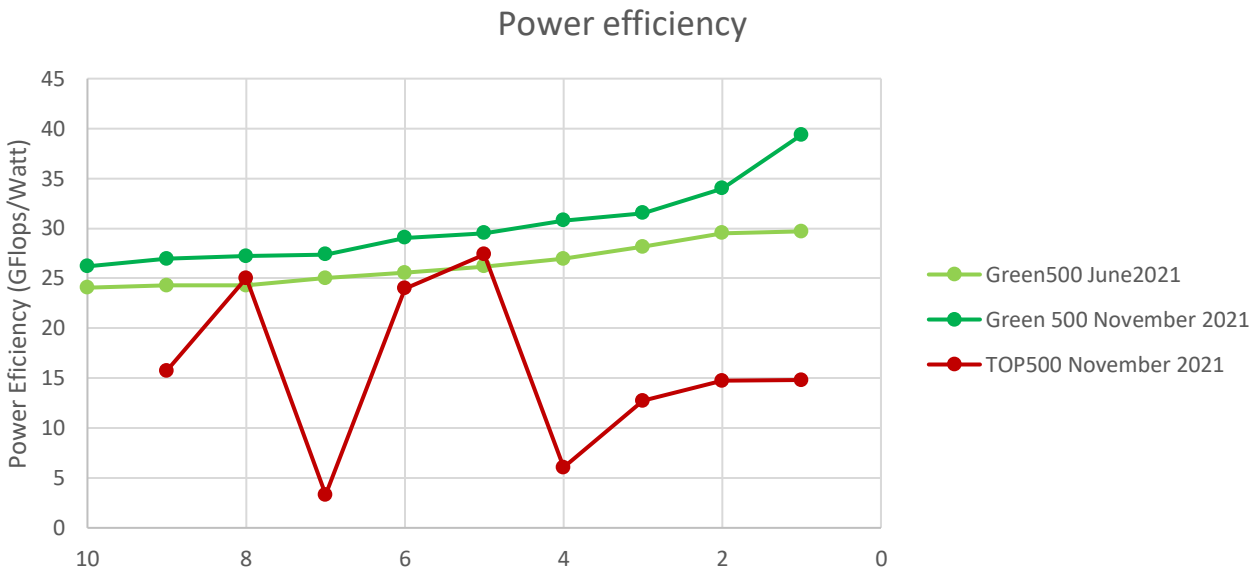

Figure 1: Power efficiency of the top10 supercomputers in each ranking (values for the 10th position form the November 2021 TOP500 are not available)