Structured Abstract

Context:

To improve the performance of Supercomputer which generates the Terapixel image by changing the high-power consuming GPU nodes.

Objective:

To find the GPU nodes which are highly impacting the performance and thereby reducing the power consumption of the Supercomputer.

Method:

From the obtained observations, generate the Master file which comprises of all the necessary variables that includes with each rendering event of the Terapixel image, with the necessary co-ordinates of all those tasks where each event occurs and with the GPU performance variables. After generating the file, compute the summarization of the GPU performance variables and find the outliers which reduces the performance through various analytic solutions.

Results:

The GPU nodes which impact the performance of the Supercomputer is identified and these GPU nodes are located based on the co-ordinates of the generated Terapixel image. To improve the performance of the Supercomputer these poor performing GPU nodes need to be replaced which significantly reduces the power consumption while rendering the Terapixel image.

Novelty:

Previous publications with the Terapixel image generation focused on describing the architecture, technical features and uses of Supercomputer while the focus of this report is to improve the performance with reduced power consumption.