Large Scale Computing

Lab 3

1. **Job script**

#!/bin/bash

#SBATCH --job-name=blender\_flower

#SBATCH --output=blender.out

#SBATCH --error=blender.err

#SBATCH --array=1-100

#SBATCH --time=00:30:0

#SBATCH -N 1

#SBATCH --ntasks-per-node=1

#SBATCH --cpus-per-task=4

#SBATCH --mem-per-cpu=1GB

#SBATCH -p plgrid

#SBATCH -A plglscclass24-cpu

module load blender

BLEND\_FILE="repeat\_zone\_flower\_by\_MiRA.blend"

OUTPUT\_DIR="$SCRATCH/rendered\_frames"

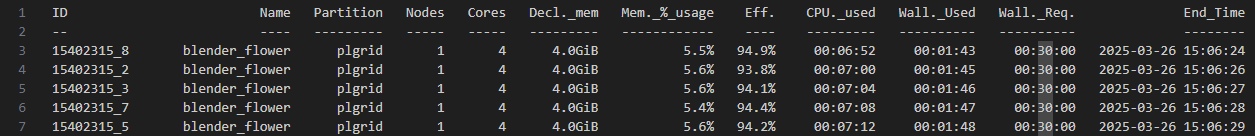
mkdir -p $OUTPUT\_DIR

blender -b "$BLEND\_FILE" -o "$OUTPUT\_DIR/frame\_" -F PNG -f $SLURM\_ARRAY\_TASK\_ID

# Notify completion

echo "Rendering completed for frame $SLURM\_ARRAY\_TASK\_ID. Results are in $OUTPUT\_DIR"

1. **History**

****

To perform calculations I used a python script:

import re

def parse\_time\_to\_hours(time\_str):

    h, m, s = map(int, time\_str.split(':'))

    return h + m / 60 + s / 3600

file\_path = "hpc-jobs-history.txt"

total\_cpu\_hours = 0

total\_efficiency = 0

job\_count = 0

with open(file\_path, "r") as file:

    for line in file:

       # ID   Name   Partition   Nodes   Cores   Decl.\_mem   Mem.\_%\_usage   Eff. CPU.\_used   Wall.\_Used   Wall.\_Req.   End\_Time

        match = re.search(r"(\d+)\s+\S+\s+\S+\s+\d+\s+(\d+)\s+\S+\s+\S+\s+(\S+)%\s+(\d+:\d+:\d+)\s+(\d+:\d+:\d+)", line)

        if match:

            cores = int(match.group(2))

            efficiency = float(match.group(3))

            cpu\_time = parse\_time\_to\_hours(match.group(4))

            print(match.group(1), match.group(2), match.group(3), match.group(4))

            total\_cpu\_hours += cpu\_time

            total\_efficiency += efficiency

            job\_count += 1

average\_efficiency = (total\_efficiency / job\_count) if job\_count else 0

print(f"Total CPU-Hours Used: {total\_cpu\_hours:.2f} hours")

print(f"Average Efficiency: {average\_efficiency:.2f}%")

1. **Efficiency**

Average efficiency ≈ 97.53%

Highest efficiency = 99.4%

1. **CPU-hours**

Estimated time for the whole animation ≈ 61.92 h