Sprint Documentation

<<Model>> Sprint

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This document is intended to summarize the technical and scientific results, work and solutions performed during the natESM sprints. As indicated on the webpage of the project, the audience for this document is the ESM community/public (PU).

# Summary

Short overview of the reasons for applying for the sprint, the model, programming language, main challenges during the sprint, and main outcomes (technical and scientific) that probably are most interesting for the readers.

# General Information

|  |  |
| --- | --- |
| **Start and end date:** | <<dd.mm.yyyy – dd.mm.yyyy>> |
| **Intended period:** | <<number>> months |
| **Responsible RSE:** | <<name, affiliation>> |
| **Responsible scientist:** | <<name, affiliation>> |

# Sprint Objectives

Focus of the sprint, objectives explained in detail

# Procedure and Insights

## Technical Approach / Procedure

Technical parts of the sprint. First/second/third “work packages” explained

## General Insights

|  |  |
| --- | --- |
|  |  |
| a) Figure YY a. | b) Figure YY b. |
| Figure YY. | |

|  |
| --- |
|  |
| Figure YY. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Problem size | | Execution time (seconds) | | | | | | |
| Matrix size | Number of tasks | | Cuda BLAS subroutines | | OpenACC self-implementation | | CPU Blas subroutines | |
| Loop | Batched | Loop | Batched | |  |
| 40 | 447392 | | 0.81 | < 0.05 | 1.02 | 0.04 | | 0.62 |
| 64 | 176128 | | 0.60 | 0.41 | 0.06 | | 0.61 |
| 96 | 77824 | | 0.15 | 0.19 | 0.10 | | 0.60 |
| 128 | 43008 | | 0.10 | 0.15 | 0.14 | | 0.60 |
| 256 | 12288 | | 0.04 | 0.32 | 0.41 | | 0.73 |
| Table XX. Name | | | | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Problem size | | Execution time (seconds) | | |
| Matrix size | Number of tasks | | CPU | GPU |
| 40 | 447392 | | 0.34 | 65.34 |
| 64 | 176128 | | 0.34 | 31.51 |
| 96 | 77824 | | 0.34 | 17.82 |
| 128 | 43008 | | 0.34 | 11.85 |
| 256 | 12288 | | 0.39 | 5.85 |
| 512 | 3072 | | 0.50 | 3.66 |
| 1024 | 768 | | 1.20 | 1.55 |
| 2048 | 192 | | 1.91 | 0.79 |
| Table XX. Name | | | | |

|  |  |
| --- | --- |
|  |  |
| a) Figure YY a. | b) Figure YY b. |
| Figure YY. Name | |

These graphs demonstrate, in particular, that the optimal number of asynchronous streams for different code blocks (kernels) differs.

General information gained from the sprint, problems solved, new information gained

# Results

Short overview of technical and scientific results, maybe some graphics/data.

# Conclusions and Outlook

Short conclusions, maybe outlook – what need to be done in future.

# References

A full documentation can be found on << PLATFORM>>:   
<<LINK: should be open access for everyone>>