3MatrixMultiplex

v1.0.1

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Chapter 1

File Index

1.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 2

File Documentation

2.1 3MatrixMultiplex/3mm.h File Reference

Header file with function definitions.

```
#include <stdio.h>
#include <unistd.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
#include <time.h>
#include <sys/time.h>
#include <omp.h>
```

Macros

- #define **THREAD_NUM** 16
- #define **_3MM_H**
- #define **LARGE_DATASET**
- #define **NI** 800
- #define **NJ** 900
- #define **NK** 1000
- #define **NL** 1100
- #define **NM** 1200

Functions

- double **rtclock** ()
- void bench_timer_start (void)

  Benchmark timer starter.
- void bench_timer_stop (void)

  Benchmark timer stopper.
- void bench_timer_print (void)

  Benchmark timer printer.
- void init_array (int ni, int nj, int nk, int nl, int nm, float A[ni][nk], float B[nk][nj], float C[nj][nm], float D[nm][nl])
- void print_array (int ni, int nl, float G[ni][nl])
- void kernel_3mm (int ni, int nj, int nk, int nl, int nm, float E[ni][nj], float A[ni][nk], float B[nk][nj], float F[nj][nl], float C[nj][nm], float D[nm][nl], float G[ni][nl])

Variables

- double **bench_t_start**
- double **bench_t_end**

2.1.1 Detailed Description

Header file with function definitions.

2.1.2 Function Documentation

2.1.2.1 init_array()

```
void init_array (
            int ni,
            int nj,
            int nk,
            int nl,
            int nm,
            float A[ni][nk],
            float B[nk][nj],
            float C[nj][nm],
            float D[nm][nl] )
```

Initializes arrays for matrixes

Author

Ubsefor

Version

1.0.1

Parameters

ni	Lenght of matrix A
nk	Height of matrix A, Length of matrix B
nj	Height of matrix B, Length of matrix C
nm	Height of matrix C, Length of matrix D
nl	Height of matrix D
A	A Matrix to initialize
B	B Matrix to initialize
C	C Matrix to initialize
D	D Matrix to initialize

Definition at line 26 of file 3mm.c.

2.1.2.2 kernel_3mm()

```
void kernel_3mm (
             int ni,
             int nj,
             int nk,
             int nl,
             int nm,
             float E[ni][nj],
             float A[ni][nk],
             float B[nk][nj],
             float F[nj][nl],
             float C[nj][nm],
             float D[nm][nl],
             float G[ni][nl] )
```

Kernel for multiplication of matrixes

Author

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Version

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Parameters

ni	Length of matrixes E, A, G
nj	Height of matrixes E, B; Length of matrixes F, C
nk	Height of matrix A; Lenght of matrix B
nl	Height of matrixes F, D, G
nm	Height of matrix C; Length of matrix D
A	Matrix A pre inited
B	Matrix B pre inited
C	Matrix C pre inited
D	Matrix D pre inited
E	Resultig matrix of A∗B
F	Resulting matrix of C∗D
G	Resulting matrix of E∗F

Definition at line 74 of file 3mm.c.

2.1.2.3 print_array()

```
void print_array (
            int ni,
            int nl,
            float G[ni][nl] )
```

Dumps arrays into STDIN

Author

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Version

1.0.0

Warning

For debug only

Parameters

ni	Matrix length
nl	Matrix height
G	Matrix itself

Definition at line 56 of file 3mm.c.

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