Disco2

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1.1 File List

Here is a list of all files with brief descriptions:

Chapter 2

File Documentation

2.1 src/Cell/cell_boundary.c File Reference

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#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/MPIsetup.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- void cell_boundary_outflow_r (struct Cell ***theCells, struct Face *theFaces, struct Grid *theGrid, struct MPIsetup *theMPIsetup, int *nri)
- void cell_boundary_outflow_z (struct Cell ***theCells, struct Face *theFaces, struct Grid *theGrid, struct MPIsetup *theMPIsetup, int *nzk)
- void cell_boundary_fixed_r (struct Cell ***theCells, struct Grid *theGrid, struct MPIsetup *theMPIsetup)

2.1.1 Macro Definition Documentation

2.1.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_boundary.c.

2.1.2 Function Documentation

2.1.2.1 void cell_boundary_fixed_r (struct Cell *** *theCells*, struct Grid * *theGrid*, struct MPIsetup * *theMPIsetup*)

Definition at line 162 of file cell_boundary.c.

2.1.2.2 void cell_boundary_outflow_r (struct Cell *** *theCells*, struct Face * *theFaces*, struct Grid * *theGrid*, struct MPIsetup * *theMPIsetup*, int * *nri*)

Definition at line 13 of file cell_boundary.c.

2.1.2.3 void cell_boundary_outflow_z (struct Cell *** *theCells*, struct Face * *theFaces*, struct Grid * *theGrid*, struct MPIsetup * *theMPIsetup*, int * *nzk*)

Definition at line 91 of file cell_boundary.c.

2.2 src/Cell/cell_clear.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- void cell_clear_w (struct Cell ***theCells, struct Grid *theGrid)
- void cell_clear_divB (struct Cell ***theCells, struct Grid *theGrid)
- void cell_clear_GradPsi (struct Cell ***theCells, struct Grid *theGrid)

2.2.1 Macro Definition Documentation

2.2.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_clear.c.

2.2.2 Function Documentation

2.2.2.1 void cell_clear_divB (struct Cell *** *theCells*, struct Grid * *theGrid*)

Definition at line 25 of file cell_clear.c.

2.2.2.2 void cell_clear_GradPsi (struct Cell *** *theCells*, struct Grid * *theGrid*)

Definition at line 38 of file cell_clear.c.

2.2.2.3 void cell_clear_w (struct Cell *** *theCells*, struct Grid * *theGrid*)

Definition at line 12 of file cell_clear.c.

2.3 src/Cell/cell_conversion.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- void cell_prim2cons (double *prim, double *cons, double r, double dV, double GAMMALAW)
- void cell_calc_cons (struct Cell ***theCells, struct Grid *theGrid)
- void cell_cons2prim (double *cons, double *prim, double r, double dV, struct Grid *theGrid)
- void cell_calc_prim (struct Cell ***theCells, struct Grid *theGrid)

2.3.1 Macro Definition Documentation

2.3.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_conversion.c.

2.3.2 Function Documentation

2.3.2.1 void cell_calc_cons (struct Cell *** *theCells*, struct Grid * *theGrid*)

Definition at line 50 of file cell_conversion.c.

2.3.2.2 void cell_calc_prim (struct Cell *** *theCells*, struct Grid * *theGrid*)

Definition at line 181 of file cell_conversion.c.

2.3.2.3 void cell_cons2prim (double * *cons*, double * *prim*, double *r*, double *dV*, struct Grid * *theGrid*)

Definition at line 126 of file cell_conversion.c.

2.3.2.4 void cell_prim2cons (double * *prim*, double * *cons*, double *r*, double *dV*, double *GAMMALAW*)

Definition at line 12 of file cell_conversion.c.

2.4 src/Cell/cell_create_destroy.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/MPIsetup.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- struct Cell *** cell_create (struct Grid *theGrid, struct MPIsetup *theMPIsetup)
- void cell_destroy (struct Cell ***theCells, struct Grid *theGrid)

2.4.1 Macro Definition Documentation

2.4.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_create_destroy.c.

2.4.2 Function Documentation

2.4.2.1 struct Cell*** cell_create (struct Grid * *theGrid,* struct MPIsetup * *theMPIsetup*) [read]

Definition at line 12 of file cell_create_destroy.c.

2.4.2.2 void cell_destroy (struct Cell *** *theCells,* struct Grid * *theGrid*)

Definition at line 86 of file cell_create_destroy.c.

2.5 src/Cell/cell_flux_p.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Riemann.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- void cell_flux_p (struct Cell ∗∗∗theCells, struct Grid ∗theGrid, double dt)

2.5.1 Macro Definition Documentation

2.5.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_flux_p.c.

2.5.2 Function Documentation

2.5.2.1 void cell_flux_p (struct Cell ∗∗∗ *theCells,* struct Grid ∗ *theGrid,* double *dt*)

Definition at line 12 of file cell_flux_p.c.

2.6 src/Cell/cell_init.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/MPIsetup.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- void cell_single_init (struct Cell ∗∗∗theCells, struct Grid ∗theGrid, int i, int j, int k)
- void cell_init (struct Cell ∗∗∗theCells, struct Grid ∗theGrid, struct MPIsetup ∗theMPIsetup)

2.6.1 Macro Definition Documentation

2.6.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_init.c.

2.6.2 Function Documentation

2.6.2.1 void cell_init (struct Cell *** *theCells*, struct Grid * *theGrid*, struct MPIsetup * *theMPIsetup*)

Definition at line 39 of file cell_init.c.

2.6.2.2 void cell_single_init (struct Cell *** *theCells*, struct Grid * *theGrid*, int *i*, int *j*, int *k*)

Definition at line 12 of file cell_init.c.

2.7 src/Cell/cell_mindt.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- double maxvel (double *prim, double w, double r, struct Grid *theGrid)
- double cell_mindt (struct Cell ***theCells, struct Grid *theGrid)

2.7.1 Macro Definition Documentation

2.7.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_mindt.c.

2.7.2 Function Documentation

2.7.2.1 double cell_mindt (struct Cell *** *theCells*, struct Grid * *theGrid*)

Definition at line 33 of file cell_mindt.c.

2.7.2.2 double maxvel (double * *prim*, double *w*, double *r*, struct Grid * *theGrid*)

Definition at line 9 of file cell_mindt.c.

2.8 src/Cell/cell_misc.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- void cell_clean_pi (struct Cell ∗∗∗theCells, struct Grid ∗theGrid)
- void cell_copy (struct Cell ∗∗∗theCells, struct Grid ∗theGrid)
- void cell_adjust_RK_cons (struct Cell ∗∗∗theCells, struct Grid ∗theGrid, double RK)
- void cell_update_phi (struct Cell ∗∗∗theCells, struct Grid ∗theGrid, double RK, double dt)
- void cell_update_dphi (struct Cell ∗∗∗theCells, struct Grid ∗theGrid)

2.8.1 Macro Definition Documentation

2.8.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_misc.c.

2.8.2 Function Documentation

2.8.2.1 void cell_adjust_RK_cons (struct Cell ∗∗∗ *theCells,* struct Grid ∗ *theGrid,* double *RK*)

Definition at line 47 of file cell_misc.c.

2.8.2.2 void cell_clean_pi (struct Cell ∗∗∗ *theCells,* struct Grid ∗ *theGrid*)

Definition at line 12 of file cell_misc.c.

2.8.2.3 void cell_copy (struct Cell ∗∗∗ *theCells,* struct Grid ∗ *theGrid*)

Definition at line 30 of file cell_misc.c.

2.8.2.4 void cell_update_dphi (struct Cell ∗∗∗ *theCells,* struct Grid ∗ *theGrid*)

Definition at line 87 of file cell_misc.c.

2.8.2.5 void cell_update_phi (struct Cell ∗∗∗ *theCells,* struct Grid ∗ *theGrid,* double *RK,* double *dt*)

Definition at line 65 of file cell_misc.c.

2.9 src/Cell/cell_modify_data.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- void cell_add_cons (struct Cell ∗oneCell, int q, double add)
- void cell_add_divB (struct Cell ∗oneCell, double add)
- void cell_add_GradPsi (struct Cell ∗oneCell, int i, double add)
- void cell_add_wiph (struct Cell ∗oneCell, double add)
- void cell_mult_psi (struct Cell ∗oneCell, double mult)
- void cell_set_prim (struct Cell ∗∗∗theCells, int i, int j, int k, int q, double value)
- void cell_set_tiph (struct Cell ∗∗∗theCells, int i, int j, int k, double value)

2.9.1 Macro Definition Documentation

2.9.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_modify_data.c.

2.9.2 Function Documentation

2.9.2.1 void cell_add_cons (struct Cell ∗ *oneCell,* int *q,* double *add*)

Definition at line 11 of file cell_modify_data.c.

2.9.2.2 void cell_add_divB (struct Cell ∗ *oneCell,* double *add*)

Definition at line 14 of file cell_modify_data.c.

2.9.2.3 void cell_add_GradPsi (struct Cell ∗ *oneCell,* int *i,* double *add*)

Definition at line 17 of file cell_modify_data.c.

2.9.2.4 void cell_add_wiph (struct Cell ∗ *oneCell,* double *add*)

Definition at line 20 of file cell_modify_data.c.

2.9.2.5 void cell_mult_psi (struct Cell * *oneCell,* double *mult*)

Definition at line 23 of file cell_modify_data.c.

2.9.2.6 void cell_set_prim (struct Cell *** *theCells,* int *i,* int *j,* int *k,* int *q,* double *value*)

Definition at line 28 of file cell_modify_data.c.

2.9.2.7 void cell_set_tiph (struct Cell *** *theCells,* int *i,* int *j,* int *k,* double *value*)

Definition at line 31 of file cell_modify_data.c.

2.10 src/Cell/cell_plm.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- void cell_plm_rz (struct Cell ***theCells, struct Grid *theGrid, struct Face *theFaces, int Nf, int rz)
- void cell_plm_p (struct Cell ***theCells, struct Grid *theGrid)

2.10.1 Macro Definition Documentation

2.10.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_plm.c.

2.10.2 Function Documentation

2.10.2.1 void cell_plm_p (struct Cell *** *theCells,* struct Grid * *theGrid*)

Definition at line 107 of file cell_plm.c.

2.10.2.2 void cell_plm_rz (struct Cell *** *theCells,* struct Grid * *theGrid,* struct Face * *theFaces,* int *Nf,* int *rz*)

Definition at line 11 of file cell_plm.c.

2.11 src/Cell/cell_retrieve_data.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- double * cell_prims (struct Cell *theCell)
- double * cell_grad (struct Cell *theCell)
- double * cell_gradp (struct Cell *theCell)
- struct Cell * cell_single (struct Cell ***theCells, int i, int j, int k)
- double cell_tiph (struct Cell *oneCell)
- double cell_dphi (struct Cell *oneCell)
- double cell_wiph (struct Cell *oneCell)

2.11.1 Macro Definition Documentation

2.11.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_retrieve_data.c.

2.11.2 Function Documentation

2.11.2.1 double cell_dphi (struct Cell * *oneCell*)

Definition at line 26 of file cell_retrieve_data.c.

2.11.2.2 double* cell_grad (struct Cell * *theCell*)

Definition at line 14 of file cell_retrieve_data.c.

2.11.2.3 double* cell_gradp (struct Cell * *theCell*)

Definition at line 17 of file cell_retrieve_data.c.

2.11.2.4 double* cell_prims (struct Cell * *theCell*)

Definition at line 11 of file cell_retrieve_data.c.

2.11.2.5 struct Cell* cell_single (struct Cell *** *theCells*, int *i*, int *j*, int *k*) [read]

Definition at line 20 of file cell_retrieve_data.c.

2.11.2.6 double cell_tiph (struct Cell * *oneCell*)

Definition at line 23 of file cell_retrieve_data.c.

2.11.2.7 double cell_wiph (struct Cell * *oneCell*)

Definition at line 29 of file cell_retrieve_data.c.

2.12 src/Cell/cell_set_w.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- void cell_set_wcell (struct Cell ***theCells, struct Grid *theGrid)
- void cell_set_wrigid (struct Cell ***theCells, struct Grid *theGrid)

2.12.1 Macro Definition Documentation

2.12.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_set_w.c.

2.12.2 Function Documentation

2.12.2.1 void cell_set_wcell (struct Cell *** *theCells*, struct Grid * *theGrid*)

Definition at line 13 of file cell_set_w.c.

2.12.2.2 void cell_set_wrigid (struct Cell *** *theCells*, struct Grid * *theGrid*)

Definition at line 32 of file cell_set_w.c.

2.13 src/Cell/cell_source.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- double fgrav (double M, double r, double eps, double n)
- void gravMassForce (struct GravMass ∗theGravMasses, struct Grid ∗theGrid, int p, double r, double phi, double ∗fr, double ∗fp)
- void cell_add_src (struct Cell ∗∗∗theCells, struct Grid ∗theGrid, struct GravMass ∗theGravMasses, double dt)

2.13.1 Macro Definition Documentation

2.13.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_source.c.

2.13.2 Function Documentation

2.13.2.1 void cell_add_src (struct Cell ∗∗∗ *theCells,* struct Grid ∗ *theGrid,* struct GravMass ∗ *theGravMasses,* double *dt*)

Definition at line 119 of file cell_source.c.

2.13.2.2 double fgrav (double *M,* double *r,* double *eps,* double *n*)

Definition at line 12 of file cell_source.c.

2.13.2.3 void gravMassForce (struct GravMass ∗ *theGravMasses,* struct Grid ∗ *theGrid,* int *p,* double *r,* double *phi,* double ∗ *fr,* double ∗ *fp*)

Definition at line 16 of file cell_source.c.

2.14 src/Cell/cell_sync.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/GravMass.h"
#include "../Headers/MPIsetup.h"
#include "../Headers/header.h"
```

Macros

- #define CELL_PRIVATE_DEFS

Functions

- void cell_syncproc_r (struct Cell ***theCells, struct Grid *theGrid, struct MPIsetup *theMPIsetup)
- void cell_syncproc_z (struct Cell ***theCells, struct Grid *theGrid, struct MPIsetup *theMPIsetup)

2.14.1 Macro Definition Documentation

2.14.1.1 #define CELL_PRIVATE_DEFS

Definition at line 1 of file cell_sync.c.

2.14.2 Function Documentation

2.14.2.1 void cell_syncproc_r (struct Cell *** *theCells*, struct Grid * *theGrid*, struct MPIsetup * *theMPIsetup*)

Definition at line 12 of file cell_sync.c.

2.14.2.2 void cell_syncproc_z (struct Cell *** *theCells*, struct Grid * *theGrid*, struct MPIsetup * *theMPIsetup*)

Definition at line 158 of file cell_sync.c.

2.15 src/Face/face_access.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/Cell.h"
#include "../Headers/header.h"
```

Macros

- #define FACE_PRIVATE_DEFS

Functions

- struct Face * face_pointer (struct Face *theFaces, int n)
- struct Cell * face_L_pointer (struct Face *theFaces, int n)
- struct Cell * face_R_pointer (struct Face *theFaces, int n)
- double face_deltaL (struct Face *thisface)
- double face_deltaR (struct Face *thisface)
- double face_cm (struct Face *thisface)
- double face_dA (struct Face *thisface)
- double face_r (struct Face *thisface)

2.15.1 Macro Definition Documentation

2.15.1.1 #define FACE_PRIVATE_DEFS

Definition at line 1 of file face_access.c.

2.15.2 Function Documentation

2.15.2.1 double face_cm (struct Face * *thisface*)

Definition at line 26 of file face_access.c.

2.15.2.2 double face_dA (struct Face * *thisface*)

Definition at line 29 of file face_access.c.

2.15.2.3 double face_deltaL (struct Face * *thisface*)

Definition at line 20 of file face_access.c.

2.15.2.4 double face_deltaR (struct Face * *thisface*)

Definition at line 23 of file face_access.c.

2.15.2.5 struct Cell* face_L_pointer (struct Face * *theFaces*, int *n*) [read]

Definition at line 14 of file face_access.c.

2.15.2.6 struct Face* face_pointer (struct Face * *theFaces*, int *n*) [read]

Definition at line 11 of file face_access.c.

2.15.2.7 double face_r (struct Face * *thisface*)

Definition at line 32 of file face_access.c.

2.15.2.8 struct Cell* face_R_pointer (struct Face * *theFaces,* int *n*) [read]

Definition at line 17 of file face_access.c.

2.16 src/Face/face_create_destroy.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Grid.h"
#include "../Headers/Face.h"
#include "../Headers/Cell.h"
#include "../Headers/TimeStep.h"
#include "../Headers/header.h"
```

Macros

- #define FACE_PRIVATE_DEFS

Functions

- void addFace (struct Face *theFaces, int n, struct Cell *cL, struct Cell *cR, double r, double deltaL, double deltaR, double dphi, double tp, double dz)
- void face_build_r (struct Cell ***theCells, struct Face *theFaces, int *nri, int mode, struct Grid *theGrid)
- void face_build_z (struct Cell ***theCells, struct Face *theFaces, int *nzk, int mode, struct Grid *theGrid)
- struct Face * face_create_r (struct Cell ***theCells, struct Grid *theGrid, struct TimeStep *theTimeStep)
- struct Face * face_create_z (struct Cell ***theCells, struct Grid *theGrid, struct TimeStep *theTimeStep)
- void face_destroy (struct Face *theFaces)

2.16.1 Macro Definition Documentation

2.16.1.1 #define FACE_PRIVATE_DEFS

Definition at line 1 of file face_create_destroy.c.

2.16.2 Function Documentation

2.16.2.1 void addFace (struct Face * *theFaces,* int *n,* struct Cell * *cL,* struct Cell * *cR,* double *r,* double *deltaL,* double *deltaR,* double *dphi,* double *tp,* double *dz*)

Definition at line 11 of file face_create_destroy.c.

2.16.2.2 void face_build_r (struct Cell *** *theCells,* struct Face * *theFaces,* int * *nri,* int *mode,* struct Grid * *theGrid*)

Definition at line 22 of file face_create_destroy.c.

2.16.2.3 void face_build_z (struct Cell *** *theCells,* struct Face * *theFaces,* int * *nzk,* int *mode,* struct Grid * *theGrid*)

Definition at line 108 of file face_create_destroy.c.

2.16.2.4 struct Face* face_create_r (struct Cell *** *theCells*, struct Grid * *theGrid*, struct TimeStep * *theTimeStep*) [read]

Definition at line 195 of file face_create_destroy.c.

2.16.2.5 struct Face* face_create_z (struct Cell *** *theCells*, struct Grid * *theGrid*, struct TimeStep * *theTimeStep*) [read]

Definition at line 206 of file face_create_destroy.c.

2.16.2.6 void face_destroy (struct Face * *theFaces*)

Definition at line 218 of file face_create_destroy.c.

2.17 src/GravMass/GravMass_access.c File Reference

```
#include <stdlib.h>
#include <math.h>
#include "../Headers/GravMass.h"
#include "../Headers/header.h"
```

Macros

- #define PLANET_PRIVATE_DEFS

Functions

- double gravMass_r (struct GravMass *theGravMasses, int p)
- double gravMass_phi (struct GravMass *theGravMasses, int p)
- double gravMass_M (struct GravMass *theGravMasses, int p)

2.17.1 Macro Definition Documentation

2.17.1.1 #define PLANET_PRIVATE_DEFS

Definition at line 1 of file GravMass_access.c.

2.17.2 Function Documentation

2.17.2.1 double gravMass_M (struct GravMass * *theGravMasses*, int *p*)

Definition at line 13 of file GravMass_access.c.

2.17.2.2 double gravMass_phi (struct GravMass * *theGravMasses*, int *p*)

Definition at line 10 of file GravMass_access.c.

2.17.2.3 double gravMass_r (struct GravMass * *theGravMasses,* int *p*)

Definition at line 7 of file GravMass_access.c.

2.18 src/GravMass/GravMass_create_destroy.c File Reference

```
#include <stdlib.h>
#include <math.h>
#include "../Headers/GravMass.h"
#include "../Headers/header.h"
```

Macros

- #define PLANET_PRIVATE_DEFS

Functions

- struct GravMass * gravMass_create (int num_gravMasses)
- void gravMass_destroy (struct GravMass *theGravMasses)

2.18.1 Macro Definition Documentation

2.18.1.1 #define PLANET_PRIVATE_DEFS

Definition at line 1 of file GravMass_create_destroy.c.

2.18.2 Function Documentation

2.18.2.1 struct GravMass* gravMass_create (int *num_gravMasses*) [read]

Definition at line 7 of file GravMass_create_destroy.c.

2.18.2.2 void gravMass_destroy (struct GravMass * *theGravMasses*)

Definition at line 12 of file GravMass_create_destroy.c.

2.19 src/GravMass/GravMass_init.c File Reference

```
#include <stdlib.h>
#include <math.h>
#include "../Headers/GravMass.h"
#include "../Headers/header.h"
```

Macros

- #define PLANET_PRIVATE_DEFS

Functions

- void gravMass_initialize (struct GravMass *theGravMasses)

2.19.1 Macro Definition Documentation

2.19.1.1 #define PLANET_PRIVATE_DEFS

Definition at line 1 of file GravMass_init.c.

2.19.2 Function Documentation

2.19.2.1 void gravMass_initialize (struct GravMass * *theGravMasses*)

Definition at line 7 of file GravMass_init.c.

2.20 src/GravMass/GravMass_misc.c File Reference

```
#include <stdlib.h>
#include <math.h>
#include "../Headers/GravMass.h"
#include "../Headers/Grid.h"
#include "../Headers/header.h"
```

Macros

- #define PLANET_PRIVATE_DEFS

Functions

- void gravMass_clean_pi (struct GravMass *theGravMasses, struct Grid *theGrid)
- void gravMass_copy (struct GravMass *theGravMasses, struct Grid *theGrid)

2.20.1 Macro Definition Documentation

2.20.1.1 #define PLANET_PRIVATE_DEFS

Definition at line 1 of file GravMass_misc.c.

2.20.2 Function Documentation

2.20.2.1 void gravMass_clean_pi (struct GravMass * *theGravMasses,* struct Grid * *theGrid*)

Definition at line 8 of file GravMass_misc.c.

2.20.2.2 void gravMass_copy (struct GravMass * *theGravMasses,* struct Grid * *theGrid*)

Definition at line 18 of file GravMass_misc.c.

2.21 src/Grid/grid_access.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include "../Headers/Grid.h"
#include "../Headers/header.h"
```

Macros

- #define GRID_PRIVATE_DEFS

Functions

- int grid_N_p (struct Grid *theGrid, int i)
- double grid_r_faces (struct Grid *theGrid, int i)
- double grid_z_faces (struct Grid *theGrid, int k)
- int grid_N_r (struct Grid *theGrid)
- int grid_N_z (struct Grid *theGrid)
- int grid_Ncells (struct Grid *theGrid)
- int grid_Restart (struct Grid *theGrid)
- int grid_Ncells_global (struct Grid *theGrid)
- int grid_offset (struct Grid *theGrid)
- int grid_Nghost_rmin (struct Grid *theGrid)
- int grid_Nghost_rmax (struct Grid *theGrid)
- int grid_Nghost_zmin (struct Grid *theGrid)
- int grid_Nghost_zmax (struct Grid *theGrid)
- int grid_ng (struct Grid *theGrid)
- int grid_N_z_global (struct Grid *theGrid)
- int grid_NUM_Q (struct Grid *theGrid)
- int grid_MOVE_CELLS (struct Grid *theGrid)
- int grid_NumGravMass (struct Grid *theGrid)
- double grid_GAMMALAW (struct Grid *theGrid)
- int grid_INCLUDE_VISCOSITY (struct Grid *theGrid)
- double grid_EXPLICIT_VISCOSITY (struct Grid *theGrid)
- double grid_DIVB_CH (struct Grid *theGrid)
- double grid_DIVB_L (struct Grid *theGrid)
- double grid_CFL (struct Grid *theGrid)
- double grid_PLM (struct Grid *theGrid)
- int grid_POWELL (struct Grid *theGrid)
- int grid_GRAV2D (struct Grid *theGrid)
- double grid_G_EPS (struct Grid *theGrid)
- double grid_PHI_ORDER (struct Grid *theGrid)
- double grid_RHO_FLOOR (struct Grid *theGrid)
- double grid_CS_FLOOR (struct Grid *theGrid)
- double grid_CS_CAP (struct Grid *theGrid)
- double grid_VEL_CAP (struct Grid *theGrid)
- double grid_get_T_MAX (struct Grid *theGrid)
- double grid_NUM_CHECKPOINTS (struct Grid *theGrid)

2.21.1 Macro Definition Documentation

2.21.1.1 #define GRID_PRIVATE_DEFS

Definition at line 1 of file grid_access.c.

2.21.2 Function Documentation

2.21.2.1 double grid_CFL (struct Grid * *theGrid*)

Definition at line 77 of file grid_access.c.

2.21.2.2 double grid_CS_CAP (struct Grid * *theGrid*)

Definition at line 101 of file grid_access.c.

2.21.2.3 double grid_CS_FLOOR (struct Grid * *theGrid*)

Definition at line 98 of file grid_access.c.

2.21.2.4 double grid_DIVB_CH (struct Grid * *theGrid*)

Definition at line 71 of file grid_access.c.

2.21.2.5 double grid_DIVB_L (struct Grid * *theGrid*)

Definition at line 74 of file grid_access.c.

2.21.2.6 double grid_EXPLICIT_VISCOSITY (struct Grid * *theGrid*)

Definition at line 68 of file grid_access.c.

2.21.2.7 double grid_G_EPS (struct Grid * *theGrid*)

Definition at line 89 of file grid_access.c.

2.21.2.8 double grid_GAMMALAW (struct Grid * *theGrid*)

Definition at line 62 of file grid_access.c.

2.21.2.9 double grid_get_T_MAX (struct Grid * *theGrid*)

Definition at line 107 of file grid_access.c.

2.21.2.10 int grid_GRAV2D (struct Grid * *theGrid*)

Definition at line 86 of file grid_access.c.

2.21.2.11 int grid_INCLUDE_VISCOSITY (struct Grid * *theGrid*)

Definition at line 65 of file grid_access.c.

2.21.2.12 int grid_MOVE_CELLS (struct Grid * *theGrid*)

Definition at line 56 of file grid_access.c.

2.21.2.13 int grid_N_p (struct Grid * *theGrid,* int *i*)

Definition at line 8 of file grid_access.c.

2.21.2.14 int grid_N_r (struct Grid * *theGrid*)

Definition at line 17 of file grid_access.c.

2.21.2.15 int grid_N_z (struct Grid * *theGrid*)

Definition at line 20 of file grid_access.c.

2.21.2.16 int grid_N_z_global (struct Grid * *theGrid*)

Definition at line 50 of file grid_access.c.

2.21.2.17 int grid_Ncells (struct Grid * *theGrid*)

Definition at line 23 of file grid_access.c.

2.21.2.18 int grid_Ncells_global (struct Grid * *theGrid*)

Definition at line 29 of file grid_access.c.

2.21.2.19 int grid_ng (struct Grid * *theGrid*)

Definition at line 47 of file grid_access.c.

2.21.2.20 int grid_Nghost_rmax (struct Grid * *theGrid*)

Definition at line 38 of file grid_access.c.

2.21.2.21 int grid_Nghost_rmin (struct Grid * *theGrid*)

Definition at line 35 of file grid_access.c.

2.21.2.22 int grid_Nghost_zmax (struct Grid * *theGrid*)

Definition at line 44 of file grid_access.c.

2.21.2.23 int grid_Nghost_zmin (struct Grid * *theGrid*)

Definition at line 41 of file grid_access.c.

2.21.2.24 double grid_NUM_CHECKPOINTS (struct Grid * *theGrid*)

Definition at line 110 of file grid_access.c.

2.21.2.25 int grid_NUM_Q (struct Grid * *theGrid*)

Definition at line 53 of file grid_access.c.

2.21.2.26 int grid_NumGravMass (struct Grid * *theGrid*)

Definition at line 59 of file grid_access.c.

2.21.2.27 int grid_offset (struct Grid * *theGrid*)

Definition at line 32 of file grid_access.c.

2.21.2.28 double grid_PHI_ORDER (struct Grid * *theGrid*)

Definition at line 92 of file grid_access.c.

2.21.2.29 double grid_PLM (struct Grid * *theGrid*)

Definition at line 80 of file grid_access.c.

2.21.2.30 int grid_POWELL (struct Grid * *theGrid*)

Definition at line 83 of file grid_access.c.

2.21.2.31 double grid_r_faces (struct Grid * *theGrid,* int *i*)

Definition at line 11 of file grid_access.c.

2.21.2.32 int grid_Restart (struct Grid * *theGrid*)

Definition at line 26 of file grid_access.c.

2.21.2.33 double grid_RHO_FLOOR (struct Grid * *theGrid*)

Definition at line 95 of file grid_access.c.

2.21.2.34 double grid_VEL_CAP (struct Grid * *theGrid*)

Definition at line 104 of file grid_access.c.

2.21.2.35 double grid_z_faces (struct Grid * *theGrid,* int *k*)

Definition at line 14 of file grid_access.c.

2.22 src/Grid/grid_create_destroy.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include "../Headers/Grid.h"
#include "../Headers/MPIsetup.h"
#include "../Headers/header.h"
```

Macros

- #define GRID_PRIVATE_DEFS

Functions

- struct Grid * grid_create (struct MPIsetup *theMPIsetup)
- void grid_destroy (struct Grid *theGrid)

2.22.1 Macro Definition Documentation

2.22.1.1 #define GRID_PRIVATE_DEFS

Definition at line 1 of file grid_create_destroy.c.

2.22.2 Function Documentation

2.22.2.1 struct Grid* grid_create (struct MPIsetup * *theMPIsetup*) [read]

Definition at line 9 of file grid_create_destroy.c.

2.22.2.2 void grid_destroy (struct Grid * *theGrid*)

Definition at line 76 of file grid_create_destroy.c.

2.23 src/Grid/grid_set.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include <string.h>
#include "../Headers/Grid.h"
#include "../Headers/MPIsetup.h"
#include "../Headers/header.h"
```

Macros

- #define GRID_PRIVATE_DEFS

Enumerations

- enum { VAR_INT, VAR_DOUB, VAR_STR }

Functions

- void grid_set_N_p (struct Grid *theGrid)
- void grid_set_rz (struct Grid *theGrid, struct MPIsetup *theMPIsetup)
- void grid_set_Ncells_and_offset (struct Grid *theGrid, struct MPIsetup *theMPIsetup)
- int readvar (char *filename, char *varname, int vartype, void *ptr)
- int grid_read_par_file (struct Grid *theGrid, struct MPIsetup *theMPIsetup, char *inputfilename)

2.23.1 Macro Definition Documentation

2.23.1.1 #define GRID_PRIVATE_DEFS

Definition at line 1 of file grid_set.c.

2.23.2 Enumeration Type Documentation

2.23.2.1 anonymous enum

Enumerator

VAR_INT

VAR_DOUB

VAR_STR

Definition at line 69 of file grid_set.c.

2.23.3 Function Documentation

2.23.3.1 int grid_read_par_file (struct Grid * *theGrid,* struct MPIsetup * *theMPIsetup,* char * *inputfilename*)

Definition at line 110 of file grid_set.c.

2.23.3.2 void grid_set_N_p (struct Grid * *theGrid*)

Definition at line 10 of file grid_set.c.

2.23.3.3 void grid_set_Ncells_and_offset (struct Grid * *theGrid,* struct MPIsetup * *theMPIsetup*)

Definition at line 41 of file grid_set.c.

2.23.3.4 void grid_set_rz (struct Grid * *theGrid,* struct MPIsetup * *theMPIsetup*)

Definition at line 17 of file grid_set.c.

2.23.3.5 int readvar (char * *filename*, char * *varname*, int *vartype*, void * *ptr*)

Definition at line 71 of file grid_set.c.

2.24 src/Headers/Cell.h File Reference

Functions

- struct Cell *** cell_create (struct Grid *, struct MPIsetup *)
- void cell_destroy (struct Cell ***, struct Grid *)
- void cell_init (struct Cell ***, struct Grid *, struct MPIsetup *)
- void cell_single_init (struct Cell ***, struct Grid *, int, int, int)
- double * cell_prims (struct Cell *)
- double * cell_grad (struct Cell *)
- double * cell_gradp (struct Cell *)
- struct Cell * cell_single (struct Cell ***, int, int, int)
- double cell_tiph (struct Cell *)
- double cell_dphi (struct Cell *)
- double cell_wiph (struct Cell *)
- void cell_add_cons (struct Cell *, int, double)
- void cell_add_divB (struct Cell *, double)
- void cell_add_GradPsi (struct Cell *, int, double)
- void cell_add_wiph (struct Cell *, double)
- void cell_add_src (struct Cell ***, struct Grid *, struct GravMass *, double)
- void cell_mult_psi (struct Cell *, double)
- void cell_clean_pi (struct Cell ***, struct Grid *)
- void cell_update_phi (struct Cell ***, struct Grid *, double, double)
- void cell_update_dphi (struct Cell ***, struct Grid *)
- void cell_clear_w (struct Cell ***, struct Grid *)
- void cell_clear_divB (struct Cell ***, struct Grid *)
- void cell_clear_GradPsi (struct Cell ***, struct Grid *)
- void cell_set_wcell (struct Cell ***, struct Grid *)
- void cell_set_wrigid (struct Cell ***, struct Grid *)
- void cell_syncproc_r (struct Cell ***, struct Grid *, struct MPIsetup *)
- void cell_syncproc_z (struct Cell ***, struct Grid *, struct MPIsetup *)
- void cell_plm_rz (struct Cell ***, struct Grid *, struct Face *, int, int)
- void cell_plm_p (struct Cell ***, struct Grid *)
- void cell_flux_p (struct Cell ***, struct Grid *, double)
- void cell_boundary_outflow_r (struct Cell ***, struct Face *, struct Grid *, struct MPIsetup *, int *)
- void cell_boundary_outflow_z (struct Cell ***, struct Face *, struct Grid *, struct MPIsetup *, int *)
- void cell_boundary_fixed_r (struct Cell ***, struct Grid *, struct MPIsetup *)
- void cell_calc_prim (struct Cell ***, struct Grid *)
- void cell_prim2cons (double *, double *, double, double, double)
- void cell_calc_cons (struct Cell ***, struct Grid *)
- void cell_cons2prim (double *, double *, double, double, struct Grid *)
- double cell_mindt (struct Cell ***, struct Grid *)
- void cell_copy (struct Cell ***, struct Grid *)
- void cell_adjust_RK_cons (struct Cell ***, struct Grid *, double)
- void cell_set_prim (struct Cell ***, int, int, int, int, double)
- void cell_set_tiph (struct Cell ***, int, int, int, double)

2.24.1 Function Documentation

2.24.1.1 void cell_add_cons (struct Cell * , int , double)

Definition at line 11 of file cell_modify_data.c.

2.24.1.2 void cell_add_divB (struct Cell * , double)

Definition at line 14 of file cell_modify_data.c.

2.24.1.3 void cell_add_GradPsi (struct Cell * , int , double)

Definition at line 17 of file cell_modify_data.c.

2.24.1.4 void cell_add_src (struct Cell *** , struct Grid * , struct GravMass * , double)

Definition at line 119 of file cell_source.c.

2.24.1.5 void cell_add_wiph (struct Cell * , double)

Definition at line 20 of file cell_modify_data.c.

2.24.1.6 void cell_adjust_RK_cons (struct Cell *** , struct Grid * , double)

Definition at line 47 of file cell_misc.c.

2.24.1.7 void cell_boundary_fixed_r (struct Cell *** , struct Grid * , struct MPIsetup *)

Definition at line 162 of file cell_boundary.c.

2.24.1.8 void cell_boundary_outflow_r (struct Cell *** , struct Face * , struct Grid * , struct MPIsetup * , int *)

Definition at line 13 of file cell_boundary.c.

2.24.1.9 void cell_boundary_outflow_z (struct Cell *** , struct Face * , struct Grid * , struct MPIsetup * , int *)

Definition at line 91 of file cell_boundary.c.

2.24.1.10 void cell_calc_cons (struct Cell *** , struct Grid *)

Definition at line 50 of file cell_conversion.c.

2.24.1.11 void cell_calc_prim (struct Cell *** , struct Grid *)

Definition at line 181 of file cell_conversion.c.

2.24.1.12 void cell_clean_pi (struct Cell *** , struct Grid *)

Definition at line 12 of file cell_misc.c.

2.24.1.13 void cell_clear_divB (struct Cell *** , struct Grid *)

Definition at line 25 of file cell_clear.c.

2.24.1.14 void cell_clear_GradPsi (struct Cell *** , struct Grid *)

Definition at line 38 of file cell_clear.c.

2.24.1.15 void cell_clear_w (struct Cell *** , struct Grid *)

Definition at line 12 of file cell_clear.c.

2.24.1.16 void cell_cons2prim (double * , double * , double , double , struct Grid *)

Definition at line 126 of file cell_conversion.c.

2.24.1.17 void cell_copy (struct Cell *** , struct Grid *)

Definition at line 30 of file cell_misc.c.

2.24.1.18 struct Cell*** cell_create (struct Grid * , struct MPIsetup *) [read]

Definition at line 12 of file cell_create_destroy.c.

2.24.1.19 void cell_destroy (struct Cell *** , struct Grid *)

Definition at line 86 of file cell_create_destroy.c.

2.24.1.20 double cell_dphi (struct Cell *)

Definition at line 26 of file cell_retrieve_data.c.

2.24.1.21 void cell_flux_p (struct Cell *** , struct Grid * , double)

Definition at line 12 of file cell_flux_p.c.

2.24.1.22 double* cell_grad (struct Cell *)

Definition at line 14 of file cell_retrieve_data.c.

2.24.1.23 double* cell_gradp (struct Cell *)

Definition at line 17 of file cell_retrieve_data.c.

2.24.1.24 void cell_init (struct Cell *** , struct Grid * , struct MPIsetup *)

Definition at line 39 of file cell_init.c.

2.24.1.25 double cell_mindt (struct Cell *** , struct Grid *)

Definition at line 33 of file cell_mindt.c.

2.24.1.26 void cell_mult_psi (struct Cell * , double)

Definition at line 23 of file cell_modify_data.c.

2.24.1.27 void cell_plm_p (struct Cell *** , struct Grid *)

Definition at line 107 of file cell_plm.c.

2.24.1.28 void cell_plm_rz (struct Cell *** , struct Grid * , struct Face * , int , int)

Definition at line 11 of file cell_plm.c.

2.24.1.29 void cell_prim2cons (double * , double * , double , double , double)

Definition at line 12 of file cell_conversion.c.

2.24.1.30 double* cell_prims (struct Cell *)

Definition at line 11 of file cell_retrieve_data.c.

2.24.1.31 void cell_set_prim (struct Cell *** , int , int , int , int , double)

Definition at line 28 of file cell_modify_data.c.

2.24.1.32 void cell_set_tiph (struct Cell *** , int , int , int , double)

Definition at line 31 of file cell_modify_data.c.

2.24.1.33 void cell_set_wcell (struct Cell *** , struct Grid *)

Definition at line 13 of file cell_set_w.c.

2.24.1.34 void cell_set_wrigid (struct Cell *** , struct Grid *)

Definition at line 32 of file cell_set_w.c.

2.24.1.35 struct Cell* cell_single (struct Cell *** , int , int , int) [read]

Definition at line 20 of file cell_retrieve_data.c.

2.24.1.36 void cell_single_init (struct Cell *** , struct Grid * , int , int , int)

Definition at line 12 of file cell_init.c.

2.24.1.37 void cell_syncproc_r (struct Cell ∗∗∗ , struct Grid ∗ , struct MPIsetup ∗)

Definition at line 12 of file cell_sync.c.

2.24.1.38 void cell_syncproc_z (struct Cell ∗∗∗ , struct Grid ∗ , struct MPIsetup ∗)

Definition at line 158 of file cell_sync.c.

2.24.1.39 double cell_tiph (struct Cell ∗)

Definition at line 23 of file cell_retrieve_data.c.

2.24.1.40 void cell_update_dphi (struct Cell ∗∗∗ , struct Grid ∗)

Definition at line 87 of file cell_misc.c.

2.24.1.41 void cell_update_phi (struct Cell ∗∗∗ , struct Grid ∗ , double , double)

Definition at line 65 of file cell_misc.c.

2.24.1.42 double cell_wiph (struct Cell ∗)

Definition at line 29 of file cell_retrieve_data.c.

2.25 src/Headers/Face.h File Reference

Functions

- struct Face ∗ face_create_r (struct Cell ∗∗∗, struct Grid ∗, struct TimeStep ∗)
- struct Face ∗ face_create_z (struct Cell ∗∗∗, struct Grid ∗, struct TimeStep ∗)
- void face_destroy (struct Face ∗)
- struct Face ∗ face_pointer (struct Face ∗, int)
- struct Cell ∗ face_L_pointer (struct Face ∗, int)
- struct Cell ∗ face_R_pointer (struct Face ∗, int)
- double face_deltaL (struct Face ∗)
- double face_deltaR (struct Face ∗)
- double face_cm (struct Face ∗)
- double face_dA (struct Face ∗)
- double face_r (struct Face ∗)

2.25.1 Function Documentation

2.25.1.1 double face_cm (struct Face ∗)

Definition at line 26 of file face_access.c.

2.25.1.2 struct Face∗ face_create_r (struct Cell ∗∗∗ , struct Grid ∗ , struct TimeStep ∗) [read]

Definition at line 195 of file face_create_destroy.c.

2.25.1.3 struct Face* face_create_z (struct Cell ***, struct Grid *, struct TimeStep *) [read]

Definition at line 206 of file face_create_destroy.c.

2.25.1.4 double face_dA (struct Face *)

Definition at line 29 of file face_access.c.

2.25.1.5 double face_deltaL (struct Face *)

Definition at line 20 of file face_access.c.

2.25.1.6 double face_deltaR (struct Face *)

Definition at line 23 of file face_access.c.

2.25.1.7 void face_destroy (struct Face *)

Definition at line 218 of file face_create_destroy.c.

2.25.1.8 struct Cell* face_L_pointer (struct Face *, int) [read]

Definition at line 14 of file face_access.c.

2.25.1.9 struct Face* face_pointer (struct Face *, int) [read]

Definition at line 11 of file face_access.c.

2.25.1.10 double face_r (struct Face *)

Definition at line 32 of file face_access.c.

2.25.1.11 struct Cell* face_R_pointer (struct Face *, int) [read]

Definition at line 17 of file face_access.c.

2.26 src/Headers/GravMass.h File Reference

Functions

- struct GravMass * gravMass_create (int)
- void gravMass_destroy (struct GravMass *)
- void gravMass_initialize (struct GravMass *)
- double gravMass_r (struct GravMass *, int)
- double gravMass_phi (struct GravMass *, int)
- double gravMass_M (struct GravMass *, int)
- void gravMass_clean_pi (struct GravMass *, struct Grid *)
- void gravMass_copy (struct GravMass *, struct Grid *)

2.26.1 Function Documentation

2.26.1.1 void gravMass_clean_pi (struct GravMass * , struct Grid *)

Definition at line 8 of file GravMass_misc.c.

2.26.1.2 void gravMass_copy (struct GravMass * , struct Grid *)

Definition at line 18 of file GravMass_misc.c.

2.26.1.3 struct GravMass* gravMass_create (int) [read]

Definition at line 7 of file GravMass_create_destroy.c.

2.26.1.4 void gravMass_destroy (struct GravMass *)

Definition at line 12 of file GravMass_create_destroy.c.

2.26.1.5 void gravMass_initialize (struct GravMass *)

Definition at line 7 of file GravMass_init.c.

2.26.1.6 double gravMass_M (struct GravMass * , int)

Definition at line 13 of file GravMass_access.c.

2.26.1.7 double gravMass_phi (struct GravMass * , int)

Definition at line 10 of file GravMass_access.c.

2.26.1.8 double gravMass_r (struct GravMass * , int)

Definition at line 7 of file GravMass_access.c.

2.27 src/Headers/Grid.h File Reference

Functions

- struct Grid * grid_create (struct MPIsetup *)
- void grid_destroy (struct Grid *)
- int grid_N_p (struct Grid *, int)
- double grid_r_faces (struct Grid *, int)
- double grid_z_faces (struct Grid *, int)
- int grid_N_r (struct Grid *)
- int grid_N_z (struct Grid *)
- int grid_Restart (struct Grid *)
- int grid_N_z_global (struct Grid *)
- int grid_Ncells (struct Grid *)
- int grid_Ncells_global (struct Grid *)
- int grid_offset (struct Grid *)

- int grid_ng (struct Grid *)
- int grid_Nghost_rmin (struct Grid *)
- int grid_Nghost_rmax (struct Grid *)
- int grid_Nghost_zmin (struct Grid *)
- int grid_Nghost_zmax (struct Grid *)
- int grid_MOVE_CELLS (struct Grid *)
- int grid_NumGravMass (struct Grid *)
- double grid_GAMMALAW (struct Grid *)
- int grid_INCLUDE_VISCOSITY (struct Grid *)
- double grid_EXPLICIT_VISCOSITY (struct Grid *)
- double grid_DIVB_CH (struct Grid *)
- double grid_DIVB_L (struct Grid *)
- double grid_CFL (struct Grid *)
- double grid_PLM (struct Grid *)
- int grid_POWELL (struct Grid *)
- int grid_GRAV2D (struct Grid *)
- double grid_G_EPS (struct Grid *)
- double grid_PHI_ORDER (struct Grid *)
- double grid_RHO_FLOOR (struct Grid *)
- double grid_CS_FLOOR (struct Grid *)
- double grid_CS_CAP (struct Grid *)
- double grid_VEL_CAP (struct Grid *)
- int grid_NUM_Q (struct Grid *)
- double grid_get_T_MAX (struct Grid *)
- double grid_NUM_CHECKPOINTS (struct Grid *)
- int grid_read_par_file (struct Grid *, struct MPIsetup *, char *)
- void grid_set_N_p (struct Grid *)
- void grid_set_rz (struct Grid *, struct MPIsetup *)
- void grid_set_Ncells_and_offset (struct Grid *, struct MPIsetup *)

2.27.1 Function Documentation

2.27.1.1 double grid_CFL (struct Grid *)

Definition at line 77 of file grid_access.c.

2.27.1.2 struct Grid* grid_create (struct MPIsetup *) [read]

Definition at line 9 of file grid_create_destroy.c.

2.27.1.3 double grid_CS_CAP (struct Grid *)

Definition at line 101 of file grid_access.c.

2.27.1.4 double grid_CS_FLOOR (struct Grid *)

Definition at line 98 of file grid_access.c.

2.27.1.5 void grid_destroy (struct Grid *)

Definition at line 76 of file grid_create_destroy.c.

2.27.1.6 double grid_DIVB_CH (struct Grid *)

Definition at line 71 of file grid_access.c.

2.27.1.7 double grid_DIVB_L (struct Grid *)

Definition at line 74 of file grid_access.c.

2.27.1.8 double grid_EXPLICIT_VISCOSITY (struct Grid *)

Definition at line 68 of file grid_access.c.

2.27.1.9 double grid_G_EPS (struct Grid *)

Definition at line 89 of file grid_access.c.

2.27.1.10 double grid_GAMMALAW (struct Grid *)

Definition at line 62 of file grid_access.c.

2.27.1.11 double grid_get_T_MAX (struct Grid *)

Definition at line 107 of file grid_access.c.

2.27.1.12 int grid_GRAV2D (struct Grid *)

Definition at line 86 of file grid_access.c.

2.27.1.13 int grid_INCLUDE_VISCOSITY (struct Grid *)

Definition at line 65 of file grid_access.c.

2.27.1.14 int grid_MOVE_CELLS (struct Grid *)

Definition at line 56 of file grid_access.c.

2.27.1.15 int grid_N_p (struct Grid *, int)

Definition at line 8 of file grid_access.c.

2.27.1.16 int grid_N_r (struct Grid *)

Definition at line 17 of file grid_access.c.

2.27.1.17 int grid_N_z (struct Grid *)

Definition at line 20 of file grid_access.c.

2.27.1.18 int grid_N_z_global (struct Grid *)

Definition at line 50 of file grid_access.c.

2.27.1.19 int grid_Ncells (struct Grid *)

Definition at line 23 of file grid_access.c.

2.27.1.20 int grid_Ncells_global (struct Grid *)

Definition at line 29 of file grid_access.c.

2.27.1.21 int grid_ng (struct Grid *)

Definition at line 47 of file grid_access.c.

2.27.1.22 int grid_Nghost_rmax (struct Grid *)

Definition at line 38 of file grid_access.c.

2.27.1.23 int grid_Nghost_rmin (struct Grid *)

Definition at line 35 of file grid_access.c.

2.27.1.24 int grid_Nghost_zmax (struct Grid *)

Definition at line 44 of file grid_access.c.

2.27.1.25 int grid_Nghost_zmin (struct Grid *)

Definition at line 41 of file grid_access.c.

2.27.1.26 double grid_NUM_CHECKPOINTS (struct Grid *)

Definition at line 110 of file grid_access.c.

2.27.1.27 int grid_NUM_Q (struct Grid *)

Definition at line 53 of file grid_access.c.

2.27.1.28 int grid_NumGravMass (struct Grid *)

Definition at line 59 of file grid_access.c.

2.27.1.29 int grid_offset (struct Grid *)

Definition at line 32 of file grid_access.c.

2.27.1.30 double grid_PHI_ORDER (struct Grid *)

Definition at line 92 of file grid_access.c.

2.27.1.31 double grid_PLM (struct Grid *)

Definition at line 80 of file grid_access.c.

2.27.1.32 int grid_POWELL (struct Grid *)

Definition at line 83 of file grid_access.c.

2.27.1.33 double grid_r_faces (struct Grid *, int)

Definition at line 11 of file grid_access.c.

2.27.1.34 int grid_read_par_file (struct Grid *, struct MPIsetup *, char *)

Definition at line 110 of file grid_set.c.

2.27.1.35 int grid_Restart (struct Grid *)

Definition at line 26 of file grid_access.c.

2.27.1.36 double grid_RHO_FLOOR (struct Grid *)

Definition at line 95 of file grid_access.c.

2.27.1.37 void grid_set_N_p (struct Grid *)

Definition at line 10 of file grid_set.c.

2.27.1.38 void grid_set_Ncells_and_offset (struct Grid *, struct MPIsetup *)

Definition at line 41 of file grid_set.c.

2.27.1.39 void grid_set_rz (struct Grid *, struct MPIsetup *)

Definition at line 17 of file grid_set.c.

2.27.1.40 double grid_VEL_CAP (struct Grid *)

Definition at line 104 of file grid_access.c.

2.27.1.41 double grid_z_faces (struct Grid *, int)

Definition at line 14 of file grid_access.c.

2.28 src/Headers/header.h File Reference

```
#include "mpi.h"
```

Enumerations

- enum {
  RHO, PPP, URR, UPP,
  UZZ, BRR, BPP, BZZ,
  PSI }
- enum {
  DDD, TAU, SRR, LLL,
  SZZ }
- enum { C_FIXED, C_WCELL, C_WRIEMANN, C_RIGID }
- enum { LEFT, LEFTSTAR, RIGHTSTAR, RIGHT }

Variables

- MPI_Comm grid_comm

2.28.1 Enumeration Type Documentation

2.28.1.1 anonymous enum

Enumerator

RHO

PPP

URR

UPP

UZZ

BRR

BPP

BZZ

PSI

Definition at line 1 of file header.h.

2.28.1.2 anonymous enum

Enumerator

DDD

TAU

SRR

LLL

SZZ

Definition at line 2 of file header.h.

2.28.1.3 anonymous enum

Enumerator

C_FIXED

C_WCELL

C_WRIEMANN

C_RIGID

Definition at line 3 of file header.h.

2.28.1.4 anonymous enum

Enumerator

LEFT

LEFTSTAR

RIGHTSTAR

RIGHT

Definition at line 4 of file header.h.

2.28.2 Variable Documentation

2.28.2.1 MPI_Comm grid_comm

Definition at line 6 of file header.h.

2.29 src/Headers/IO.h File Reference

Functions

- struct IO * io_create (struct Grid *)
- void io_destroy (struct IO *, struct Grid *)
- void io_flattened_prim (struct IO *, struct Cell ***, struct Grid *)
- void io_unflattened_prim (struct IO *, struct Cell ***, struct Grid *)
- void io_hdf5_out (struct IO *, struct Grid *, char *)
- void io_hdf5_in (struct IO *, struct Grid *, char *)

2.29.1 Function Documentation

2.29.1.1 struct IO* io_create (struct Grid *) [read]

Definition at line 14 of file io_create_destroy.c.

2.29.1.2 void io_destroy (struct IO *, struct Grid *)

Definition at line 32 of file io_create_destroy.c.

2.29.1.3 void io_flattened_prim (struct IO *, struct Cell ***, struct Grid *)

Definition at line 14 of file io_flatten_unflatten.c.

2.29.1.4 void io_hdf5_in (struct IO * , struct Grid * , char *)

Definition at line 87 of file io_hdf5.c.

2.29.1.5 void io_hdf5_out (struct IO * , struct Grid * , char *)

Definition at line 14 of file io_hdf5.c.

2.29.1.6 void io_unflattened_prim (struct IO * , struct Cell *** , struct Grid *)

Definition at line 35 of file io_flatten_unflatten.c.

2.30 src/Headers/MPIsetup.h File Reference

Functions

- struct MPIsetup * mpisetup_create (int, char **)
- void mpisetup_destroy (struct MPIsetup *)
- void mpisetup_setprocs (struct MPIsetup *)
- void mpisetup_cart_create (struct MPIsetup *)
- void mpisetup_left_right (struct MPIsetup *)
- int mpisetup_check_rin_bndry (struct MPIsetup *)
- int mpisetup_check_rout_bndry (struct MPIsetup *)
- int mpisetup_check_zbot_bndry (struct MPIsetup *)
- int mpisetup_check_ztop_bndry (struct MPIsetup *)
- int mpisetup_MyProc (struct MPIsetup *)
- int mpisetup_NumProcs (struct MPIsetup *)
- int * mpisetup_dim_MyProc (struct MPIsetup *)
- int * mpisetup_dim_NumProcs (struct MPIsetup *)
- int * mpisetup_left_Proc (struct MPIsetup *)
- int * mpisetup_right_Proc (struct MPIsetup *)

2.30.1 Function Documentation

2.30.1.1 void mpisetup_cart_create (struct MPIsetup *)

Definition at line 28 of file mpisetup_routines.c.

2.30.1.2 int mpisetup_check_rin_bndry (struct MPIsetup *)

Definition at line 52 of file mpisetup_routines.c.

2.30.1.3 int mpisetup_check_rout_bndry (struct MPIsetup *)

Definition at line 55 of file mpisetup_routines.c.

2.30.1.4 int mpisetup_check_zbot_bndry (struct MPIsetup *)

Definition at line 58 of file mpisetup_routines.c.

2.30.1.5 int mpisetup_check_ztop_bndry (struct MPIsetup *)

Definition at line 61 of file mpisetup_routines.c.

2.30.1.6 struct MPIsetup* mpisetup_create (int , char **) [read]

Definition at line 7 of file mpisetup_create_destroy.c.

2.30.1.7 void mpisetup_destroy (struct MPIsetup *)

Definition at line 17 of file mpisetup_create_destroy.c.

2.30.1.8 int* mpisetup_dim_MyProc (struct MPIsetup *)

Definition at line 70 of file mpisetup_routines.c.

2.30.1.9 int* mpisetup_dim_NumProcs (struct MPIsetup *)

Definition at line 73 of file mpisetup_routines.c.

2.30.1.10 int* mpisetup_left_Proc (struct MPIsetup *)

Definition at line 76 of file mpisetup_routines.c.

2.30.1.11 void mpisetup_left_right (struct MPIsetup *)

Definition at line 36 of file mpisetup_routines.c.

2.30.1.12 int mpisetup_MyProc (struct MPIsetup *)

Definition at line 64 of file mpisetup_routines.c.

2.30.1.13 int mpisetup_NumProcs (struct MPIsetup *)

Definition at line 67 of file mpisetup_routines.c.

2.30.1.14 int* mpisetup_right_Proc (struct MPIsetup *)

Definition at line 79 of file mpisetup_routines.c.

2.30.1.15 void mpisetup_setprocs (struct MPIsetup *)

Definition at line 7 of file mpisetup_routines.c.

2.31 src/Headers/Riemann.h File Reference

Functions

- struct Riemann * riemann_create (struct Grid *)

- void riemann_destroy (struct Riemann *)
- void riemann_set_primL (struct Riemann *theRiemann, int, double)
- void riemann_set_primR (struct Riemann *theRiemann, int, double)
- void riemann_set_vel (struct Riemann *, double *, double, double *, double, double)
- void riemann_set_state (struct Riemann *theRiemann, int)
- void riemann_set_Ustar (struct Riemann *, double *, double, double *, double)
- double * riemann_Uk (struct Riemann *)
- double * riemann_Ustar (struct Riemann *)
- void riemann_addto_flux_general (struct Riemann *, double, int)
- void riemann_set_flux (struct Riemann *, double, double *, double, double)
- double * riemann_prim (struct Riemann *, int)
- int riemann_state (struct Riemann *)
- double * riemann_F (struct Riemann *)
- double riemann_Ss (struct Riemann *)
- void riemann_driver (struct Cell *, struct Cell *, struct Grid *, double, double, double, double, double, double, double, int)

2.31.1 Function Documentation

2.31.1.1 void riemann_addto_flux_general (struct Riemann * , double , int)

Definition at line 279 of file Riemann_routines.c.

2.31.1.2 struct Riemann* riemann_create (struct Grid *) [read]

Definition at line 9 of file Riemann_create_destroy.c.

2.31.1.3 void riemann_destroy (struct Riemann *)

Definition at line 27 of file Riemann_create_destroy.c.

2.31.1.4 void riemann_driver (struct Cell * , struct Cell * , struct Grid * , double , double , double , double , double , double , double , int)

Definition at line 322 of file Riemann_routines.c.

2.31.1.5 double* riemann_F (struct Riemann *)

Definition at line 311 of file Riemann_routines.c.

2.31.1.6 double* riemann_prim (struct Riemann * , int)

Definition at line 303 of file Riemann_routines.c.

2.31.1.7 void riemann_set_flux (struct Riemann * , double , double * , double , double)

Definition at line 230 of file Riemann_routines.c.

2.31.1.8 void riemann_set_primL (struct Riemann * *theRiemann,* int , double)

Definition at line 10 of file Riemann_routines.c.

2.31.1.9 void riemann_set_primR (struct Riemann * *theRiemann,* int , double)

Definition at line 13 of file Riemann_routines.c.

2.31.1.10 void riemann_set_state (struct Riemann * *theRiemann,* int)

Definition at line 140 of file Riemann_routines.c.

2.31.1.11 void riemann_set_Ustar (struct Riemann * , double * , double , double * , double)

Definition at line 155 of file Riemann_routines.c.

2.31.1.12 void riemann_set_vel (struct Riemann * , double * , double , double * , double , double)

Definition at line 16 of file Riemann_routines.c.

2.31.1.13 double riemann_Ss (struct Riemann *)

Definition at line 318 of file Riemann_routines.c.

2.31.1.14 int riemann_state (struct Riemann *)

Definition at line 315 of file Riemann_routines.c.

2.31.1.15 double* riemann_Uk (struct Riemann *)

Definition at line 294 of file Riemann_routines.c.

2.31.1.16 double* riemann_Ustar (struct Riemann *)

Definition at line 297 of file Riemann_routines.c.

2.32 src/Headers/TimeStep.h File Reference

Functions

- struct TimeStep * timestep_create ()
- void timestep_destroy (struct TimeStep *)
- void timestep_set_dt (struct TimeStep *, struct Cell ***, struct Grid *)
- void timestep_update_t (struct TimeStep *)
- void timestep_set_RK (struct TimeStep *, double)
- void timestep_substep (struct TimeStep *, struct Cell ***, struct Grid *, struct GravMass *, struct MPIsetup *, double)
- void timestep_update_Psi (struct TimeStep *, struct Cell ***, struct Grid *, struct MPIsetup *)
- double timestep_get_t (struct TimeStep *)
- double timestep_get_T_MAX (struct TimeStep *)
- double timestep_NUM_CHECKPOINTS (struct TimeStep *)
- int * timestep_nri (struct TimeStep *)
- int * timestep_nzk (struct TimeStep *)
- void timestep_set_Nfr (struct TimeStep *, struct Grid *)

- void timestep_set_Nfz (struct TimeStep *, struct Grid *)
- int timestep_Nfr (struct TimeStep *)
- int timestep_Nfz (struct TimeStep *)

2.32.1 Function Documentation

2.32.1.1 struct TimeStep* timestep_create ( ) [read]

2.32.1.2 void timestep_destroy (struct TimeStep *)

Definition at line 17 of file timestep_create_destroy.c.

2.32.1.3 double timestep_get_t (struct TimeStep *)

Definition at line 29 of file timestep_routines.c.

2.32.1.4 double timestep_get_T_MAX (struct TimeStep *)

2.32.1.5 int timestep_Nfr (struct TimeStep *)

Definition at line 164 of file timestep_routines.c.

2.32.1.6 int timestep_Nfz (struct TimeStep *)

Definition at line 167 of file timestep_routines.c.

2.32.1.7 int* timestep_nri (struct TimeStep *)

Definition at line 150 of file timestep_routines.c.

2.32.1.8 double timestep_NUM_CHECKPOINTS (struct TimeStep *)

2.32.1.9 int* timestep_nzk (struct TimeStep *)

Definition at line 153 of file timestep_routines.c.

2.32.1.10 void timestep_set_dt (struct TimeStep * , struct Cell *** , struct Grid *)

Definition at line 16 of file timestep_routines.c.

2.32.1.11 void timestep_set_Nfr (struct TimeStep * , struct Grid *)

Definition at line 156 of file timestep_routines.c.

2.32.1.12 void timestep_set_Nfz (struct TimeStep * , struct Grid *)

Definition at line 160 of file timestep_routines.c.

2.32.1.13 void timestep_set_RK (struct TimeStep * , double)

Definition at line 26 of file timestep_routines.c.

2.32.1.14 void timestep_substep (struct TimeStep * , struct Cell *** , struct Grid * , struct GravMass * , struct MPIsetup * , double)

Definition at line 34 of file timestep_routines.c.

2.32.1.15 void timestep_update_Psi (struct TimeStep * , struct Cell *** , struct Grid * , struct MPIsetup *)

Definition at line 124 of file timestep_routines.c.

2.32.1.16 void timestep_update_t (struct TimeStep *)

Definition at line 23 of file timestep_routines.c.

2.33 src/IO/io_create_destroy.c File Reference

```
#include <string.h>
#include <stdlib.h>
#include "../Headers/Grid.h"
#include "../Headers/Cell.h"
#include "hdf5.h"
#include "../Headers/IO.h"
#include "../Headers/header.h"
```

Macros

- #define IO_PRIVATE_DEFS
- #define H5FILE_NAME "testout.h5"
- #define DATASETNAME "DoubleArray"
- #define RANK 2

Functions

- struct IO * io_create (struct Grid *theGrid)
- void io_destroy (struct IO *theIO, struct Grid *theGrid)

2.33.1 Macro Definition Documentation

2.33.1.1 #define DATASETNAME "DoubleArray"

Definition at line 3 of file io_create_destroy.c.

2.33.1.2 #define H5FILE_NAME "testout.h5"

Definition at line 2 of file io_create_destroy.c.

2.33.1.3 #define IO_PRIVATE_DEFS

Definition at line 1 of file io_create_destroy.c.

2.33.1.4 #define RANK 2

Definition at line 4 of file io_create_destroy.c.

2.33.2 Function Documentation

2.33.2.1 struct IO* io_create (struct Grid * *theGrid*) [read]

Definition at line 14 of file io_create_destroy.c.

2.33.2.2 void io_destroy (struct IO * *theIO,* struct Grid * *theGrid*)

Definition at line 32 of file io_create_destroy.c.

2.34 src/IO/io_flatten_unflatten.c File Reference

```
#include <string.h>
#include <stdlib.h>
#include "../Headers/Grid.h"
#include "../Headers/Cell.h"
#include "hdf5.h"
#include "../Headers/IO.h"
#include "../Headers/header.h"
```

Macros

- #define IO_PRIVATE_DEFS
- #define H5FILE_NAME "testout.h5"
- #define DATASETNAME "DoubleArray"
- #define RANK 2

Functions

- void io_flattened_prim (struct IO *io_pointer, struct Cell ***theCells, struct Grid *theGrid)
- void io_unflattened_prim (struct IO *io_pointer, struct Cell ***theCells, struct Grid *theGrid)

2.34.1 Macro Definition Documentation

2.34.1.1 #define DATASETNAME "DoubleArray"

Definition at line 3 of file io_flatten_unflatten.c.

2.34.1.2 #define H5FILE_NAME "testout.h5"

Definition at line 2 of file io_flatten_unflatten.c.

2.34.1.3 #define IO_PRIVATE_DEFS

Definition at line 1 of file io_flatten_unflatten.c.

2.34.1.4 #define RANK 2

Definition at line 4 of file io_flatten_unflatten.c.

2.34.2 Function Documentation

2.34.2.1 void io_flattened_prim (struct IO * *io_pointer,* struct Cell *** *theCells,* struct Grid * *theGrid*)

Definition at line 14 of file io_flatten_unflatten.c.

2.34.2.2 void io_unflattened_prim (struct IO * *io_pointer,* struct Cell *** *theCells,* struct Grid * *theGrid*)

Definition at line 35 of file io_flatten_unflatten.c.

2.35 src/IO/io_hdf5.c File Reference

```
#include <string.h>
#include <stdlib.h>
#include "../Headers/Grid.h"
#include "../Headers/Cell.h"
#include "hdf5.h"
#include "../Headers/IO.h"
#include "../Headers/header.h"
```

Macros

- #define IO_PRIVATE_DEFS
- #define H5FILE_NAME "testout.h5"
- #define DATASETNAME "DoubleArray"
- #define RANK 2

Functions

- void io_hdf5_out (struct IO *io_pointer, struct Grid *theGrid, char *output_filename)
- void io_hdf5_in (struct IO *io_pointer, struct Grid *theGrid, char *input_filename)

2.35.1 Macro Definition Documentation

2.35.1.1 #define DATASETNAME "DoubleArray"

Definition at line 3 of file io_hdf5.c.

2.35.1.2 #define H5FILE_NAME "testout.h5"

Definition at line 2 of file io_hdf5.c.

2.35.1.3 #define IO_PRIVATE_DEFS

Definition at line 1 of file io_hdf5.c.

2.35.1.4 #define RANK 2

Definition at line 4 of file io_hdf5.c.

2.35.2 Function Documentation

2.35.2.1 void io_hdf5_in (struct IO * *io_pointer,* struct Grid * *theGrid,* char * *input_filename*)

Definition at line 87 of file io_hdf5.c.

2.35.2.2 void io_hdf5_out (struct IO * *io_pointer,* struct Grid * *theGrid,* char * *output_filename*)

Definition at line 14 of file io_hdf5.c.

2.36 src/main.c File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include "Headers/MPIsetup.h"
#include "Headers/Cell.h"
#include "Headers/Grid.h"
#include "Headers/Face.h"
#include "Headers/GravMass.h"
#include "Headers/IO.h"
#include "Headers/TimeStep.h"
#include "Headers/header.h"
```

Functions

- int main (int argc, char **argv)

2.36.1 Function Documentation

2.36.1.1 int main (int *argc,* char ** *argv*)

Definition at line 54 of file main.c.

2.37 src/MPIsetup/mpisetup_create_destroy.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include "../Headers/MPIsetup.h"
#include "../Headers/header.h"
```

Macros

- #define MPISETUP_PRIVATE_DEFS

Functions

- struct MPIsetup * mpisetup_create (int argc, char **argv)
- void mpisetup_destroy (struct MPIsetup *theMPIsetup)

2.37.1 Macro Definition Documentation

2.37.1.1 #define MPISETUP_PRIVATE_DEFS

Definition at line 1 of file mpisetup_create_destroy.c.

2.37.2 Function Documentation

2.37.2.1 struct MPIsetup* mpisetup_create (int *argc*, char ** *argv*) [read]

Definition at line 7 of file mpisetup_create_destroy.c.

2.37.2.2 void mpisetup_destroy (struct MPIsetup * *theMPIsetup*)

Definition at line 17 of file mpisetup_create_destroy.c.

2.38 src/MPIsetup/mpisetup_routines.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include "../Headers/MPIsetup.h"
#include "../Headers/header.h"
```

Macros

- #define MPISETUP_PRIVATE_DEFS

Functions

- void mpisetup_setprocs (struct MPIsetup *theMPIsetup)
- void mpisetup_cart_create (struct MPIsetup *theMPIsetup)
- void mpisetup_left_right (struct MPIsetup *theMPIsetup)
- int mpisetup_check_rin_bndry (struct MPIsetup *theMPIsetup)
- int mpisetup_check_rout_bndry (struct MPIsetup *theMPIsetup)
- int mpisetup_check_zbot_bndry (struct MPIsetup *theMPIsetup)
- int mpisetup_check_ztop_bndry (struct MPIsetup *theMPIsetup)
- int mpisetup_MyProc (struct MPIsetup *theMPIsetup)
- int mpisetup_NumProcs (struct MPIsetup *theMPIsetup)
- int * mpisetup_dim_MyProc (struct MPIsetup *theMPIsetup)
- int * mpisetup_dim_NumProcs (struct MPIsetup *theMPIsetup)
- int * mpisetup_left_Proc (struct MPIsetup *theMPIsetup)
- int * mpisetup_right_Proc (struct MPIsetup *theMPIsetup)

2.38.1 Macro Definition Documentation

2.38.1.1 #define MPISETUP_PRIVATE_DEFS

Definition at line 1 of file mpisetup_routines.c.

2.38.2 Function Documentation

2.38.2.1 void mpisetup_cart_create (struct MPIsetup * *theMPIsetup*)

Definition at line 28 of file mpisetup_routines.c.

2.38.2.2 int mpisetup_check_rin_bndry (struct MPIsetup * *theMPIsetup*)

Definition at line 52 of file mpisetup_routines.c.

2.38.2.3 int mpisetup_check_rout_bndry (struct MPIsetup * *theMPIsetup*)

Definition at line 55 of file mpisetup_routines.c.

2.38.2.4 int mpisetup_check_zbot_bndry (struct MPIsetup * *theMPIsetup*)

Definition at line 58 of file mpisetup_routines.c.

2.38.2.5 int mpisetup_check_ztop_bndry (struct MPIsetup * *theMPIsetup*)

Definition at line 61 of file mpisetup_routines.c.

2.38.2.6 int* mpisetup_dim_MyProc (struct MPIsetup * *theMPIsetup*)

Definition at line 70 of file mpisetup_routines.c.

2.38.2.7 int* mpisetup_dim_NumProcs (struct MPIsetup * *theMPIsetup*)

Definition at line 73 of file mpisetup_routines.c.

2.38.2.8 int* mpisetup_left_Proc (struct MPIsetup * *theMPIsetup*)

Definition at line 76 of file mpisetup_routines.c.

2.38.2.9 void mpisetup_left_right (struct MPIsetup * *theMPIsetup*)

Definition at line 36 of file mpisetup_routines.c.

2.38.2.10 int mpisetup_MyProc (struct MPIsetup * *theMPIsetup*)

Definition at line 64 of file mpisetup_routines.c.

2.38.2.11 int mpisetup_NumProcs (struct MPIsetup * *theMPIsetup*)

Definition at line 67 of file mpisetup_routines.c.

2.38.2.12 int* mpisetup_right_Proc (struct MPIsetup * *theMPIsetup*)

Definition at line 79 of file mpisetup_routines.c.

2.38.2.13 void mpisetup_setprocs (struct MPIsetup * *theMPIsetup*)

Definition at line 7 of file mpisetup_routines.c.

2.39 src/Riemann/Riemann_create_destroy.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Grid.h"
#include "../Headers/Riemann.h"
#include "../Headers/header.h"
```

Macros

- #define RIEMANN_PRIVATE_DEFS

Functions

- struct Riemann * riemann_create (struct Grid *theGrid)
- void riemann_destroy (struct Riemann *theRiemann)

2.39.1 Macro Definition Documentation

2.39.1.1 #define RIEMANN_PRIVATE_DEFS

Definition at line 1 of file Riemann_create_destroy.c.

2.39.2 Function Documentation

2.39.2.1 struct Riemann* riemann_create (struct Grid * *theGrid*) [read]

Definition at line 9 of file Riemann_create_destroy.c.

2.39.2.2 void riemann_destroy (struct Riemann * *theRiemann*)

Definition at line 27 of file Riemann_create_destroy.c.

2.40 src/Riemann/Riemann_routines.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Riemann.h"
#include "../Headers/Grid.h"
#include "../Headers/Cell.h"
#include "../Headers/header.h"
```

Macros

- #define RIEMANN_PRIVATE_DEFS

Functions

- void riemann_set_primL (struct Riemann *theRiemann, int q, double input)
- void riemann_set_primR (struct Riemann *theRiemann, int q, double input)
- void riemann_set_vel (struct Riemann *theRiemann, double *n, double r, double *Bpack, double GAMMALAW, double DIVB_CH)
- void riemann_set_state (struct Riemann *theRiemann, int w)
- void riemann_set_Ustar (struct Riemann *theRiemann, double *n, double r, double *Bpack, double GAMMALAW)
- void riemann_set_flux (struct Riemann *theRiemann, double r, double *n, double GAMMALAW, double DIVB_CH)
- void riemann_addto_flux_general (struct Riemann *theRiemann, double w, int NUM_Q)
- double * riemann_Uk (struct Riemann *theRiemann)
- double * riemann_Ustar (struct Riemann *theRiemann)
- double * riemann_prim (struct Riemann *theRiemann, int state)
- double * riemann_F (struct Riemann *theRiemann)
- int riemann_state (struct Riemann *theRiemann)
- double riemann_Ss (struct Riemann *theRiemann)
- void riemann_driver (struct Cell *cL, struct Cell *cR, struct Grid *theGrid, double dA, double dt, double r, double deltaL, double deltaR, double dpL, double dpR, int direction)

2.40.1 Macro Definition Documentation

2.40.1.1 #define RIEMANN_PRIVATE_DEFS

Definition at line 1 of file Riemann_routines.c.

2.40.2 Function Documentation

2.40.2.1 void riemann_addto_flux_general (struct Riemann * *theRiemann,* double *w,* int *NUM_Q*)

Definition at line 279 of file Riemann_routines.c.

2.40.2.2 void riemann_driver (struct Cell * *cL,* struct Cell * *cR,* struct Grid * *theGrid,* double *dA,* double *dt,* double *r,* double *deltaL,* double *deltaR,* double *dpL,* double *dpR,* int *direction*)

Definition at line 322 of file Riemann_routines.c.

2.40.2.3 double* riemann_F (struct Riemann * *theRiemann*)

Definition at line 311 of file Riemann_routines.c.

2.40.2.4 double* riemann_prim (struct Riemann * *theRiemann,* int *state*)

Definition at line 303 of file Riemann_routines.c.

2.40.2.5 void riemann_set_flux (struct Riemann * *theRiemann,* double *r,* double * *n,* double *GAMMALAW,* double *DIVB_CH*)

Definition at line 230 of file Riemann_routines.c.

2.40.2.6 void riemann_set_primL (struct Riemann * *theRiemann,* int *q,* double *input*)

Definition at line 10 of file Riemann_routines.c.

2.40.2.7 void riemann_set_primR (struct Riemann * *theRiemann,* int *q,* double *input*)

Definition at line 13 of file Riemann_routines.c.

2.40.2.8 void riemann_set_state (struct Riemann * *theRiemann,* int *w*)

Definition at line 140 of file Riemann_routines.c.

2.40.2.9 void riemann_set_Ustar (struct Riemann * *theRiemann,* double * *n,* double *r,* double * *Bpack,* double *GAMMALAW*)

Definition at line 155 of file Riemann_routines.c.

2.40.2.10 void riemann_set_vel (struct Riemann * *theRiemann,* double * *n,* double *r,* double * *Bpack,* double *GAMMALAW,* double *DIVB_CH*)

Definition at line 16 of file Riemann_routines.c.

2.40.2.11 double riemann_Ss (struct Riemann * *theRiemann*)

Definition at line 318 of file Riemann_routines.c.

2.40.2.12 int riemann_state (struct Riemann * *theRiemann*)

Definition at line 315 of file Riemann_routines.c.

2.40.2.13 double* riemann_Uk (struct Riemann * *theRiemann*)

Definition at line 294 of file Riemann_routines.c.

2.40.2.14 double* riemann_Ustar (struct Riemann * *theRiemann*)

Definition at line 297 of file Riemann_routines.c.

2.41 src/TimeStep/timestep_create_destroy.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include "../Headers/Grid.h"
#include "../Headers/TimeStep.h"
#include "../Headers/header.h"
```

Macros

- #define TIMESTEP_PRIVATE_DEFS

Functions

- struct TimeStep * timestep_create (struct Grid *theGrid)
- void timestep_destroy (struct TimeStep *theTimeStep)

2.41.1 Macro Definition Documentation

2.41.1.1 #define TIMESTEP_PRIVATE_DEFS

Definition at line 1 of file timestep_create_destroy.c.

2.41.2 Function Documentation

2.41.2.1 struct TimeStep* timestep_create (struct Grid * *theGrid*) [read]

Definition at line 8 of file timestep_create_destroy.c.

2.41.2.2 void timestep_destroy (struct TimeStep * *theTimeStep*)

Definition at line 17 of file timestep_create_destroy.c.

2.42 src/TimeStep/timestep_routines.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <math.h>
#include "../Headers/Cell.h"
#include "../Headers/TimeStep.h"
#include "../Headers/Riemann.h"
#include "../Headers/Grid.h"
#include "../Headers/GravMass.h"
#include "../Headers/Face.h"
#include "../Headers/MPIsetup.h"
#include "../Headers/header.h"
```

Macros

- #define TIMESTEP_PRIVATE_DEFS

Functions

- void timestep_set_dt (struct TimeStep *theTimeStep, struct Cell ***theCells, struct Grid *theGrid)
- void timestep_update_t (struct TimeStep *theTimeStep)
- void timestep_set_RK (struct TimeStep *theTimeStep, double RK)
- double timestep_get_t (struct TimeStep *theTimeStep)
- void timestep_substep (struct TimeStep *theTimeStep, struct Cell ***theCells, struct Grid *theGrid, struct GravMass *theGravMasses, struct MPIsetup *theMPIsetup, double timestep_fac)
- void timestep_update_Psi (struct TimeStep *theTimeStep, struct Cell ***theCells, struct Grid *theGrid, struct MPIsetup *theMPIsetup)
- int * timestep_nri (struct TimeStep *theTimeStep)
- int * timestep_nzk (struct TimeStep *theTimeStep)
- void timestep_set_Nfr (struct TimeStep *theTimeStep, struct Grid *theGrid)
- void timestep_set_Nfz (struct TimeStep *theTimeStep, struct Grid *theGrid)
- int timestep_Nfr (struct TimeStep *theTimeStep)
- int timestep_Nfz (struct TimeStep *theTimeStep)

2.42.1 Macro Definition Documentation

2.42.1.1 #define TIMESTEP_PRIVATE_DEFS

Definition at line 1 of file timestep_routines.c.

2.42.2 Function Documentation

2.42.2.1 double timestep_get_t (struct TimeStep * *theTimeStep*)

Definition at line 29 of file timestep_routines.c.

2.42.2.2 int timestep_Nfr (struct TimeStep * *theTimeStep*)

Definition at line 164 of file timestep_routines.c.

2.42.2.3 int timestep_Nfz (struct TimeStep * *theTimeStep*)

Definition at line 167 of file timestep_routines.c.

2.42.2.4 int* timestep_nri (struct TimeStep * *theTimeStep*)

Definition at line 150 of file timestep_routines.c.

2.42.2.5 int* timestep_nzk (struct TimeStep * *theTimeStep*)

Definition at line 153 of file timestep_routines.c.

2.42.2.6 void timestep_set_dt (struct TimeStep * *theTimeStep,* struct Cell *** *theCells,* struct Grid * *theGrid*)

Definition at line 16 of file timestep_routines.c.

2.42.2.7 void timestep_set_Nfr (struct TimeStep * *theTimeStep,* struct Grid * *theGrid*)

Definition at line 156 of file timestep_routines.c.

2.42.2.8 void timestep_set_Nfz (struct TimeStep * *theTimeStep,* struct Grid * *theGrid*)

Definition at line 160 of file timestep_routines.c.

2.42.2.9 void timestep_set_RK (struct TimeStep * *theTimeStep,* double *RK*)

Definition at line 26 of file timestep_routines.c.

2.42.2.10 void timestep_substep (struct TimeStep * *theTimeStep,* struct Cell *** *theCells,* struct Grid * *theGrid,* struct GravMass * *theGravMasses,* struct MPIsetup * *theMPIsetup,* double *timestep_fac*)

Definition at line 34 of file timestep_routines.c.

2.42.2.11 void timestep_update_Psi (struct TimeStep * *theTimeStep,* struct Cell *** *theCells,* struct Grid * *theGrid,* struct MPIsetup * *theMPIsetup*)

Definition at line 124 of file timestep_routines.c.

2.42.2.12 void timestep_update_t (struct TimeStep * *theTimeStep*)

Definition at line 23 of file timestep_routines.c.

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