DisCostiC

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Chapter 6

Module Documentation

6.1 DisCosTiC

Enumerations

- enum DisCosTiC::Operation_t { DisCosTiC::SEND = 1, DisCosTiC::RECV = 2, DisCosTiC::COMP = 3, DisCosTiC::MSG =4 }

  The Operation_t enum defines different opertation types of entities.
- enum DisCosTiC::Mode_t { DisCosTiC::NONBLOCKING, DisCosTiC::BLOCKING }

  The Mode_t enum defines operation type of SEND and RECV entities (i.e., either blocking calls that reutn on;y on completion of operation or non-blocking calls that return with start of operation)

6.1.1 Detailed Description

6.1.2 Enumeration Type Documentation

6.1.2.1 Mode_t

`enum DisCosTiC::Mode_t`

The Mode_t enum defines operation type of SEND and RECV entities (i.e., either blocking calls that reutn on;y on completion of operation or non-blocking calls that return with start of operation)

Enumerator

NONBLOCKING	isend and irecv MPI routines, non-blocking: next operation not be executed before starting of previous operation
BLOCKING	send and recv MPI routines, blocking: next operation not be executed before finishing of previous operation

6.1.2.2 Operation_t

`enum DisCosTiC::Operation_t`

The Operation_t enum defines different opertation types of entities.

Enumerator

SEND	send operation type
RECV	recv operation type
COMP	compuation operation type
MSG	message / transmission operation type

Chapter 7

Namespace Documentation

7.1 Convert-HEAT Namespace Reference

Classes

- class newNode
- class Tree

Functions

- def deINIT (sentence)
- def findBTWmarkers (mark1, mark2, sampleStr)
- def findVar (val, lis)
- def checkChildren (node, val)
- def traverseDown (node, val)
- def findArg (node, val)
- def getMother (motherNode)
- def fill_the_void (newTree, node, name, segmented, funcList)
- def print_list (list)
- def findNodes (name, list)
- def commentsRemover (code)
- def findPurpose (line)
- def compareFunc (funcList, name)

Variables

- list code = [ ];
- temp = f.read()
- line2 = line.strip()
- a = newNode(line2,"init")
- b = segments.pop()
- iter
- t
- n
- type
- name

- string totalLine = ""
- prevLine = line
- string code3 = ''
- line = line.strip()
- list motherNode = [ ]
- tree = AnyNode(id=n,parent=None,src=line,type=t)
- def mom = getMother(motherNode)
- def r = compareFunc(funcs,n)
- list commNode = [ ]
- result = leaf.id[leaf.id.find("(")+1:leaf.id.find(";")-1]
- arguments = result.split(',')
- res = re.search(arguments[1].strip()+" = [0-9]+;", code3)
- string val = "int "+res
- def execNode = traverseDown(leaf,"*"+temp[1:min(arguments[0].index("["),arguments[0].index("("))])
- parNode = node
- int prn = 0
- f = open('../test/P2P_HEAT.hpp', 'w')
- list startArgs = [ ]
- vari = i.src[i.src.find("int")+4:i.src.find("=")-1].strip()
- src
- here = os.path.dirname(os.path.realpath(__file__))
- string subdir = "nodelevel"
- string subdir2 = "kernels"
- string filename = "heat.c"
- filepath = os.path.join(here, "..",subdir,subdir2, filename)
- ex = open(filepath, 'w')
- string args = ''

7.1.1 Function Documentation

7.1.1.1 checkChildren()

```
def Convert-HEAT.checkChildren (
              node,
              val )
```

Here is the call graph for this function:

7.1.1.2 commentsRemover()

```
def Convert-HEAT.commentsRemover (
              code )
```

Here is the call graph for this function:

7.1.1.3 compareFunc()

```
def Convert-HEAT.compareFunc (
              funcList,
              name )
```

Here is the call graph for this function:

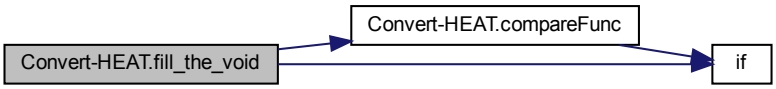
7.1.1.4 deINIT()

```
def Convert-HEAT.deINIT (
              sentence )
```

7.1.1.5 fill_the_void()

```
def Convert-HEAT.fill_the_void (
              newTree,
              node,
              name,
              segmented,
              funcList )
```

Here is the call graph for this function:



7.1.1.6 findArg()

```
def Convert-HEAT.findArg (
              node,
              val )
```

7.1.1.7 findBTWmarkers()

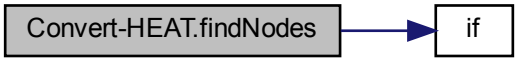
```
def Convert-HEAT.findBTWmarkers (
              mark1,
              mark2,
              sampleStr )
```

Here is the call graph for this function:

7.1.1.8 findNodes()

```
def Convert-HEAT.findNodes (
              name,
              list )
```

Here is the call graph for this function:



7.1.1.9 findPurpose()

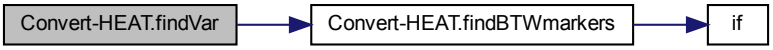
```
def Convert-HEAT.findPurpose (
              line )
```

Here is the call graph for this function:

7.1.1.10 findVar()

```
def Convert-HEAT.findVar (
              val,
              lis )
```

Here is the call graph for this function:



7.1.1.11 getMother()

```
def Convert-HEAT.getMother (
              motherNode )
```

Here is the call graph for this function:

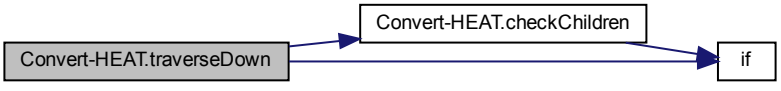
7.1.1.12 print_list()

```
def Convert-HEAT.print_list (
              list )
```

7.1.1.13 traverseDown()

```
def Convert-HEAT.traverseDown (
              node,
              val )
```

Here is the call graph for this function:



7.1.2 Variable Documentation

7.1.2.1 a

```
Convert-HEAT.a = newNode(line2,"init")
```

7.1.2.2 args

```
string Convert-HEAT.args = ''
```

7.1.2.3 arguments

```
Convert-HEAT.arguments = result.split(',')
```

7.1.2.4 b

```
Convert-HEAT.b = segments.pop()
```

7.1.2.5 code

```
def Convert-HEAT.code = [];
```

7.1.2.6 code3

```
string Convert-HEAT.code3 = ''
```

7.1.2.7 commNode

```
Convert-HEAT.commNode = []
```

7.1.2.8 ex

```
Convert-HEAT.ex = open(filepath, 'w')
```

7.1.2.9 execNode

```
def Convert-HEAT.execNode = traverseDown(leaf,"*"+temp[1:min(arguments[0].index("["),arguments[0].index("("))]
```

7.1.2.10 f

```
Convert-HEAT.f = open('../test/P2P_HEAT.hpp', 'w')
```

7.1.2.11 filename

```
string Convert-HEAT.filename = "heat.c"
```

7.1.2.12 filepath

```
Convert-HEAT.filepath = os.path.join(here, "..",subdir,subdir2, filename)
```

7.1.2.13 here

```
Convert-HEAT.here = os.path.dirname(os.path.realpath(__file__))
```

7.1.2.14 iter

```
Convert-HEAT.iter
```

7.1.2.15 line

```
Convert-HEAT.line = line.strip()
```

7.1.2.16 line2

```
Convert-HEAT.line2 = line.strip()
```

7.1.2.17 mom

```
def Convert-HEAT.mom = getMother(motherNode)
```

7.1.2.18 motherNode

```
list Convert-HEAT.motherNode = []
```

7.1.2.19 n

```
Convert-HEAT.n
```

7.1.2.20 name

```
Convert-HEAT.name
```

7.1.2.21 parNode

```
Convert-HEAT.parNode = node
```

7.1.2.22 prevLine

```
Convert-HEAT.prevLine = line
```

7.1.2.23 prn

```
int Convert-HEAT.prn = 0
```

7.1.2.24 r

```
def Convert-HEAT.r = compareFunc(funcs,n)
```

7.1.2.25 res

```
Convert-HEAT.res = re.search(arguments[1].strip()+" = [0-9]+;", code3)
```

7.1.2.26 result

```
Convert-HEAT.result = leaf.id[leaf.id.find("(")+1:leaf.id.find(";")-1]
```

7.1.2.27 src

```
Convert-HEAT.src
```

7.1.2.28 startArgs

```
list Convert-HEAT.startArgs = []
```

7.1.2.29 subdir

```
string Convert-HEAT.subdir = "nodelevel"
```

7.1.2.30 subdir2

```
string Convert-HEAT.subdir2 = "kernels"
```

7.1.2.31 t

```
Convert-HEAT.t
```

7.1.2.32 temp

```
list Convert-HEAT.temp = f.read()
```

7.1.2.33 totalLine

```
string Convert-HEAT.totalLine = ""
```

7.1.2.34 tree

```
Convert-HEAT.tree = AnyNode(id=n,parent=None,src=line,type=t)
```

7.1.2.35 type

```
Convert-HEAT.type
```

7.1.2.36 val

```
string Convert-HEAT.val = "int "+res
```

7.1.2.37 vari

```
Convert-HEAT.vari = i.src[i.src.find("int")+4:i.src.find("=")-1].strip()
```

7.2 Convert-HPCG Namespace Reference

Classes

- class data

Functions

- def get_parent (arr)
- def nodesToTxt (nodes)
- def findFuncName (line)
- def findFuncs (nodes)
- def writeToFile2 (txt, filename)
- def writeToFile (txt)
- def releventIterations (nodes)
- def transform_code (code)
- def findPurpose (line)
- def getCode (filename)
- def find_kernel (kernel, func, output)
- def extract_exec (src, name)
- def selected_print (nodes, num, kernels)
- def clean_code (code)
- def funcCode (node, here)
- def cleanup ()
- def finalize (nodes, kernels, a)

Variables

- a = data()
- tuple kernels
- string code2 = ''
- list segments = [ ]
- string totalLine = ''
- list funcList = [ ]
- def code = getCode("main.cpp")
- def code_1 = clean_code(code)
- def nodes = transform_code(code_1)
- def forCalls = releventIterations(nodes)
- list forCall = [ ]

7.2.1 Function Documentation

7.2.1.1 clean_code()

```
def Convert-HPCG.clean_code (
              code )
```

Removes all forms of comments from the code and returns a string of the same code without comments or imports

7.2.1.2 cleanup()

```
def Convert-HPCG.cleanup ( )
```

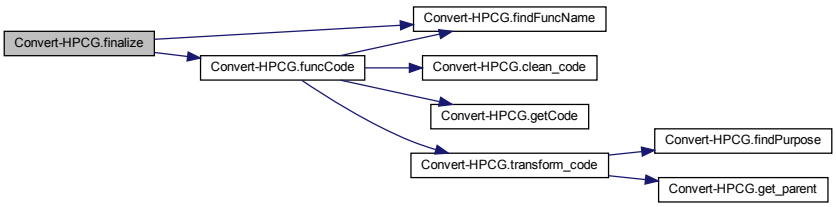
7.2.1.3 extract_exec()

```
def Convert-HPCG.extract_exec (
              src,
              name )
```

7.2.1.4 finalize()

```
def Convert-HPCG.finalize (
              nodes,
              kernels,
              a )
```

Here is the call graph for this function:



7.2.1.5 find_kernel()

```
def Convert-HPCG.find_kernel (
              kernel,
              func,
              output )
```

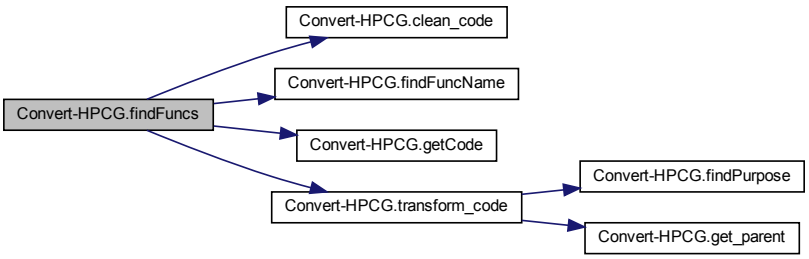
7.2.1.6 findFuncName()

```
def Convert-HPCG.findFuncName (
              line )
```

7.2.1.7 findFuncs()

```
def Convert-HPCG.findFuncs (
              nodes )
```

Here is the call graph for this function:



7.2.1.8 findPurpose()

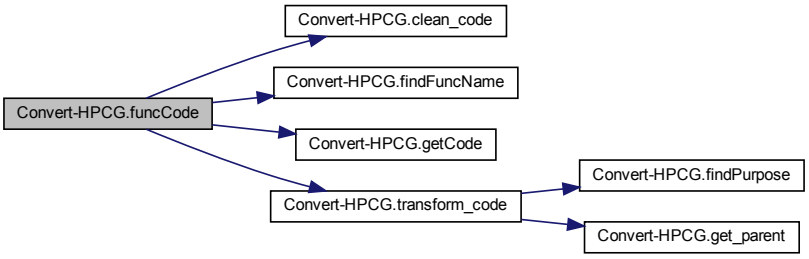
```
def Convert-HPCG.findPurpose (
              line )
```

```
Takes any line of code and tries to intrepret its purpose while seperating any important names
```

7.2.1.9 funcCode()

```
def Convert-HPCG.funcCode (
              node,
              here )
```

Here is the call graph for this function:



7.2.1.10 get_parent()

```
def Convert-HPCG.get_parent (
              arr )
```

```
Takes in any array and returns the last appended value.
If the array is empty then it returns None.
```

7.2.1.11 getCode()

```
def Convert-HPCG.getCode (
              filename )
```

7.2.1.12 nodesToTxt()

```
def Convert-HPCG.nodesToTxt (
              nodes )
```

```
Converts any given list of nodes to text for easier printing
```

7.2.1.13 releventIterations()

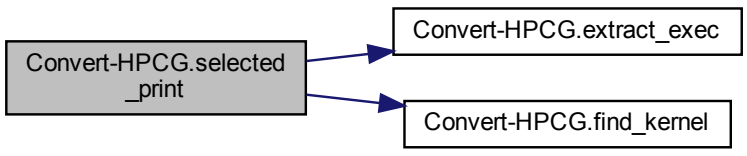
```
def Convert-HPCG.releventIterations (
              nodes )
```

```
Takes all possible nodes and tries to figure out the relevant nodes.
Picks for loops on the basis of if they are calling any relevant functions
outputs a list of relevant for loops
   nodes: contains all the nodes in the tree
```

7.2.1.14 selected_print()

```
def Convert-HPCG.selected_print (
              nodes,
              num,
              kernels )
```

Here is the call graph for this function:

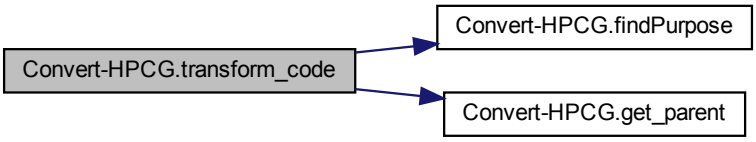


7.2.1.15 transform_code()

```
def Convert-HPCG.transform_code (
              code )
```

```
Takes string code and converts it into a tree based on curly brackets.
Uses the AnyTree Library to create tree and stores 2 extra variables
   src: contains the name of the function being called
   type: contains the type of line of code
```

Here is the call graph for this function:



7.2.1.16 writeToFile()

```
def Convert-HPCG.writeToFile (
              txt )
```

```
Writes to the file given the nodes
```

7.2.1.17 writeToFile2()

```
def Convert-HPCG.writeToFile2 (
              txt,
              filename )
```

```
Writes to the file given the nodes
```

7.2.2 Variable Documentation

7.2.2.1 a

```
Convert-HPCG.a = data()
```

7.2.2.2 code

```
def Convert-HPCG.code = getCode("main.cpp")
```

7.2.2.3 code2

```
string Convert-HPCG.code2 = ''
```

7.2.2.4 code_1

```
def Convert-HPCG.code_1 = clean_code(code)
```

7.2.2.5 forCall

```
list Convert-HPCG.forCall = []
```

7.2.2.6 forCalls

```
def Convert-HPCG.forCalls = releventIterations(nodes)
```

7.2.2.7 funcList

```
list Convert-HPCG.funcList = []
```

7.2.2.8 kernels

```
tuple Convert-HPCG.kernels
```

Initial value:

```
1 =  (["ComputeSPMV_ref","L"], ["ComputeWAXPBY_ref","E"], ["ComputeDotProduct_ref","E"],
       ["ComputeMG_ref","M"],
2                ["ComputeProlongation_ref","E"], ["ComputeSYMGS_ref","E"], ["ComputeRestriction_ref","E"])
```

7.2.2.9 nodes

```
def Convert-HPCG.nodes = transform_code(code_1)
```

7.2.2.10 segments

```
list Convert-HPCG.segments = []
```

7.2.2.11 totalLine

```
string Convert-HPCG.totalLine = ''
```

7.3 Convert-POISSONNS Namespace Reference

Classes

- class newNode
- class Tree

Functions

- def deINIT (sentence)
- def findBTWmarkers (mark1, mark2, sampleStr)
- def findVar (val, lis)
- def checkChildren (node, val)
- def traverseDown (node, val)
- def findArg (node, val)
- def getMother (motherNode)
- def fill_the_void (newTree, node, name, segmented, funcList)
- def print_list (list)
- def findNodes (name, list)
- def commentsRemover (code)
- def findPurpose (line)
- def compareFunc (funcList, name)
- def isfloat (num)
- def var_replacer (line, number_dict)

Variables

- list code = dict();

  Driver Code #.
- temp = f.read()
- line2 = line.strip()
- a = newNode(line2,"init")
- b = segments.pop()
- iter
- t
- n
- type
- name
- string totalLine = ""
- prevLine = line
- line = line.strip()
- subline1 = line[0:line.find("=")]
- subline2 = line[line.find(" = ")+2:len(line)-1]
- string code3 = ''
- list motherNode = [ ]
- tree = AnyNode(id=n,parent=None,src=line,type=t)
- def mom = getMother(motherNode)
- def r = compareFunc(funcs,n)
- list commNode = [ ]
- result = leaf.id[leaf.id.find("(")+1:leaf.id.find(";")-1]
- arguments = result.split(',')
- res = re.search(arguments[1].strip()+" = [0-9]+;", code3)
- string val = "int "+res
- def execNode = traverseDown(leaf,"∗"+temp[1:min(arguments[0].index("["),arguments[0].index("("))])
- parNode = node
- int prn = 0
- f = open('../test/P2P_POISSONNS.hpp', 'w')
- list startArgs = [ ]
- src
- vari = i.src[i.src.find("int")+4:i.src.find("=")-1].strip()
- empty_vars = list()

  Code for preparing hotspot as required by KERNCRAFT #.
- here = os.path.dirname(os.path.realpath(__file__))
- string subdir = "nodelevel"
- string subdir2 = "kernels"
- string filename = "POISSONNS.c"
- filepath = os.path.join(here, "..",subdir,subdir2, filename)
- ex = open(filepath, 'w')
- multi = i.src[i.src.find(" "):-1].strip().split(",")
- string args = '-D '

7.3.1 Function Documentation

7.3.1.1 checkChildren()

```
def Convert-POISSONNS.checkChildren (
              node,
              val )
```

Here is the call graph for this function:

7.3.1.2 commentsRemover()

```
def Convert-POISSONNS.commentsRemover (
              code )
```

Here is the call graph for this function:

7.3.1.3 compareFunc()

```
def Convert-POISSONNS.compareFunc (
              funcList,
              name )
```

Here is the call graph for this function:

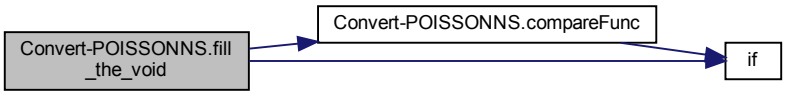
7.3.1.4 deINIT()

```
def Convert-POISSONNS.deINIT (
              sentence )
```

7.3.1.5 fill_the_void()

```
def Convert-POISSONNS.fill_the_void (
              newTree,
              node,
              name,
              segmented,
              funcList )
```

Here is the call graph for this function:



7.3.1.6 findArg()

```
def Convert-POISSONNS.findArg (
              node,
              val )
```

7.3.1.7 findBTWmarkers()

```
def Convert-POISSONNS.findBTWmarkers (
              mark1,
              mark2,
              sampleStr )
```

Here is the call graph for this function:

7.3.1.8 findNodes()

```
def Convert-POISSONNS.findNodes (
              name,
              list )
```

Here is the call graph for this function:

7.3.1.9 findPurpose()

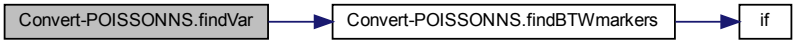
```
def Convert-POISSONNS.findPurpose (
              line )
```

Here is the call graph for this function:

7.3.1.10 findVar()

```
def Convert-POISSONNS.findVar (
              val,
              lis )
```

Here is the call graph for this function:



7.3.1.11 getMother()

```
def Convert-POISSONNS.getMother (
              motherNode )
```

Here is the call graph for this function:

7.3.1.12 isfloat()

```
def Convert-POISSONNS.isfloat (
              num )
```

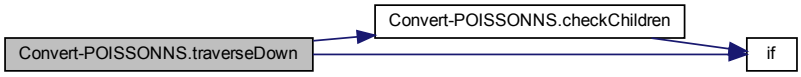
7.3.1.13 print_list()

```
def Convert-POISSONNS.print_list (
              list )
```

7.3.1.14 traverseDown()

```
def Convert-POISSONNS.traverseDown (
              node,
              val )
```

Here is the call graph for this function:



7.3.1.15 var_replacer()

```
def Convert-POISSONNS.var_replacer (
              line,
              number_dict )
```

7.3.2 Variable Documentation

7.3.2.1 a

```
Convert-POISSONNS.a = newNode(line2,"init")
```

7.3.2.2 args

```
string Convert-POISSONNS.args = '-D '
```

7.3.2.3 arguments

```
Convert-POISSONNS.arguments = result.split(',')
```

7.3.2.4 b

```
Convert-POISSONNS.b = segments.pop()
```

7.3.2.5 code

```
def Convert-POISSONNS.code = dict();
```

Driver Code #.

7.3.2.6 code3

```
string Convert-POISSONNS.code3 = ''
```

7.3.2.7 commNode

```
Convert-POISSONNS.commNode = []
```

7.3.2.8 empty_vars

```
Convert-POISSONNS.empty_vars = list()
```

Code for preparing hotspot as required by KERNCRAFT #.

7.3.2.9 ex

```
Convert-POISSONNS.ex = open(filepath, 'w')
```

7.3.2.10 execNode

```
def Convert-POISSONNS.execNode = traverseDown(leaf,"*"+temp[1:min(arguments[0].index("["),arguments[0].index("
```

7.3.2.11 f

```
Convert-POISSONNS.f = open('../test/P2P_POISSONNS.hpp', 'w')
```

7.3.2.12 filename

```
string Convert-POISSONNS.filename = "POISSONNS.c"
```

7.3.2.13 filepath

```
Convert-POISSONNS.filepath = os.path.join(here, "..",subdir,subdir2, filename)
```

7.3.2.14 here

```
Convert-POISSONNS.here = os.path.dirname(os.path.realpath(__file__))
```

7.3.2.15 iter

```
Convert-POISSONNS.iter
```

7.3.2.16 line

```
Convert-POISSONNS.line = line.strip()
```

7.3.2.17 line2

```
Convert-POISSONNS.line2 = line.strip()
```

7.3.2.18 mom

```
def Convert-POISSONNS.mom = getMother(motherNode)
```

7.3.2.19 motherNode

```
list Convert-POISSONNS.motherNode = []
```

7.3.2.20 multi

```
list Convert-POISSONNS.multi = i.src[i.src.find(" "):-1].strip().split(",")
```

7.3.2.21 n

```
Convert-POISSONNS.n
```

7.3.2.22 name

```
Convert-POISSONNS.name
```

7.3.2.23 parNode

```
Convert-POISSONNS.parNode = node
```

7.3.2.24 prevLine

```
Convert-POISSONNS.prevLine = line
```

7.3.2.25 prn

```
int Convert-POISSONNS.prn = 0
```

7.3.2.26 r

```
def Convert-POISSONNS.r = compareFunc(funcs,n)
```

7.3.2.27 res

```
Convert-POISSONNS.res = re.search(arguments[1].strip()+" = [0-9]+;", code3)
```

7.3.2.28 result

```
Convert-POISSONNS.result = leaf.id[leaf.id.find("(")+1:leaf.id.find(";")-1]
```

7.3.2.29 src

```
Convert-POISSONNS.src
```

7.3.2.30 startArgs

```
list Convert-POISSONNS.startArgs = []
```

7.3.2.31 subdir

```
string Convert-POISSONNS.subdir = "nodelevel"
```

7.3.2.32 subdir2

```
string Convert-POISSONNS.subdir2 = "kernels"
```

7.3.2.33 subline1

```
Convert-POISSONNS.subline1 = line[0:line.find("=")]
```

7.3.2.34 subline2

```
Convert-POISSONNS.subline2 = line[line.find(" = ")+2:len(line)-1]
```

7.3.2.35 t

```
Convert-POISSONNS.t
```

7.3.2.36 temp

```
list Convert-POISSONNS.temp = f.read()
```

7.3.2.37 totalLine

```
string Convert-POISSONNS.totalLine = ""
```

7.3.2.38 tree

```
Convert-POISSONNS.tree = AnyNode(id=n,parent=None,src=line,type=t)
```

7.3.2.39 type

```
Convert-POISSONNS.type
```

7.3.2.40 val

```
string Convert-POISSONNS.val = "int "+res
```

7.3.2.41 vari

```
Convert-POISSONNS.vari = i.src[i.src.find("int")+4:i.src.find("=")-1].strip()
```

7.4 Convert-STREAM Namespace Reference

Functions

- def get_parent (arr)
- def nodesToTxt (nodes)
- def findFuncName (line)
- def findFuncs (nodes)
- def writeToFile (nodes)
- def releventIterations (nodes)
- def transform_code (code)
- def findPurpose (line)
- def getCode (filename)
- def clean_code (code)

Variables

- list code2 = [ ];
- def code = getCode("x.cpp")
- def code_1 = clean_code(code)
- def nodes = transform_code(code_1)
- def forCalls = releventIterations(nodes)

7.4.1 Function Documentation

7.4.1.1 clean_code()

```
def Convert-STREAM.clean_code (
              code )
```

```
Removes all forms of comments from the code and returns a string of the same code without comments or imports
```

7.4.1.2 findFuncName()

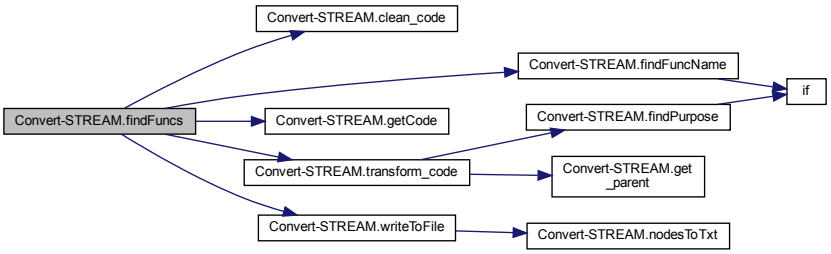
```
def Convert-STREAM.findFuncName (
              line )
```

Here is the call graph for this function:

7.4.1.3 findFuncs()

```
def Convert-STREAM.findFuncs (
              nodes )
```

Here is the call graph for this function:



7.4.1.4 findPurpose()

```
def Convert-STREAM.findPurpose (
              line )
```

Takes any line of code and tries to intrepret its purpose while seperating any important names

Here is the call graph for this function:

7.4.1.5 get_parent()

```
def Convert-STREAM.get_parent (
              arr )

Takes in any array and returns the last appended value.
If the array is empty then it returns None.
```

7.4.1.6 getCode()

```
def Convert-STREAM.getCode (
              filename )
```

7.4.1.7 nodesToTxt()

```
def Convert-STREAM.nodesToTxt (
              nodes )

Converts any given list of nodes to text for easier printing
```

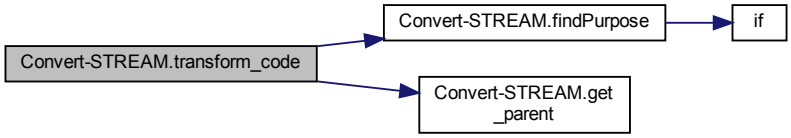
7.4.1.8 releventIterations()

```
def Convert-STREAM.releventIterations (
              nodes )

Takes all possible nodes and tries to figure out the relevant nodes.
Picks for loops on the basis of if they are calling any relevant functions
outputs a list of relevant for loops
   nodes: contains all the nodes in the tree
```

7.4.1.9 transform_code()

```
def Convert-STREAM.transform_code (
              code )

Takes string code and converts it into a tree based on curly brackets.
Uses the AnyTree Library to create tree and stores 2 extra variables
   src: contains the name of the function being called
   type: contains the type of line of code
```

Here is the call graph for this function:



7.4.1.10 writeToFile()

```
def Convert-STREAM.writeToFile (
              nodes )

Writes to the file given the nodes
```

Here is the call graph for this function:

7.4.2 Variable Documentation

7.4.2.1 code

```
def Convert-STREAM.code = getCode("x.cpp")
```

7.4.2.2 code2

```
list Convert-STREAM.code2 = [];
```

7.4.2.3 code_1

```
def Convert-STREAM.code_1 = clean_code(code)
```

7.4.2.4 forCalls

```
def Convert-STREAM.forCalls = releventIterations(nodes)
```

7.4.2.5 nodes

```
def Convert-STREAM.nodes = transform_code(code_1)
```

7.5 DataType Namespace Reference

< enumerated types

Classes

- class vector3T

  a class to represent fixed-size three-dimensional vector data-type of arbitrary types with coefficients type, addr, size

7.5.1 Detailed Description

< enumerated types

7.6 DisCosTiC Namespace Reference

< benchmark test cases

Classes

- struct AST_OP
- struct AST_OP_
- struct AST_OP_TYPE
- class Benchmark
- class CompModel
- struct DisCosTiC_OP
- struct DisCosTiC_queueOP
- class Grid
- class Grid_Init

  this class exposes all P graphVec and manages dependencies and execution order. It returns a list of executable operations and offers an interface to mark operations as executed.
- struct iteratorRange

  iterator ranges for each entityTypes to support iteration with range-based for loops. Iterating over sets of entityTypes is one of the most common operation. Our infrastructure implements this custom range-based for loops in the C++ ways by providing iterators and matching begin(), end() and stepSize(scalarT stepSize) methods.
- struct OpMatcher

  this matches and removes operations from list if found, otherwise returns false
- struct OpTimeComparator

  this is a comparison functor that can be used to compare and sort DisCosTiC_OP by time
- struct std_iter

  a time stepping loop

Typedefs

- using VecDeserialNode = std::vector< AST_OP_TYPE >
- using Operations = std::vector< DisCosTiC_OP >
- using ListqueueOp = std::list< DisCosTiC_queueOP >
- using VecListqueueOp = std::vector< ListqueueOp >
- using PriorityQueue_t = std::priority_queue< DisCosTiC_OP, Operations, OpTimeComparator >
- using Event = std::pair< DisCosTiC_Indextype, DisCosTiC::AST_OP * >
- using idNodeTypePairT = std::pair< DisCosTiC_Indextype, DisCosTiC::AST_OP_ >
- using idNodePair = std::vector< std::vector< Event > >
- using idNodeTypePair = std::vector< std::vector< idNodeTypePairT > >
- using tupleIdNodePair = std::tuple< idNodePair, idNodePair, idNodePair >
- using Networktype = std::array< DisCosTiC_Timetype, 4 >
- using VecSeqGraph_t = std::vector< Grid >
- using VecGraph_t = std::vector< Benchmark >

Enumerations

- enum Operation_t { SEND = 1, RECV = 2, COMP = 3, MSG =4 }

  The Operation_t enum defines different opertation types of entities.
- enum Mode_t { NONBLOCKING, BLOCKING }

  The Mode_t enum defines operation type of SEND and RECV entities (i.e., either blocking calls that reutn on;y on completion of operation or non-blocking calls that return with start of operation)

Functions

- template<typename... T>
  auto make_vector (T &&...args)
- template<typename scalarT >
  iteratorRange< scalarT > getRange (scalarT begin, scalarT end)
- template<typename scalarT >
  iteratorRange< scalarT > getRange (scalarT end)
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ~Benchmark ()

  destructor

Variables

- DisCosTiC_Datatype nodesCount
- DisCosTiC_Datatype networksCount
- DisCosTiC_Datatype systemsize
- DisCosTiC_Datatype numOperations
- AST * DisCosTiC
- DisCosTiC::VecDeserialNode Nodes
- DisCosTiC_Datatype datasize
- DisCosTiC_Datatype numTimesteps
- class DisCosTiC::Benchmark GetNumCores

  end of Benchmark class

7.6.1 Detailed Description

< benchmark test cases

< enumerated types < data structures

7.6.2 Typedef Documentation

7.6.2.1 Event

```
using DisCosTiC::Event = typedef std::pair<DisCosTiC_Indextype, DisCosTiC::AST_OP *>
```

7.6.2.2 idNodePair

```
using DisCosTiC::idNodePair = typedef std::vector<std::vector<Event> >
```

7.6.2.3 idNodeTypePair

```
using DisCosTiC::idNodeTypePair = typedef std::vector<std::vector<idNodeTypePairT> >
```

7.6.2.4 idNodeTypePairT

```
using DisCosTiC::idNodeTypePairT = typedef std::pair<DisCosTiC_Indextype, DisCosTiC::AST_OP_>
```

7.6.2.5 ListqueueOp

```
using DisCosTiC::ListqueueOp = typedef std::list<DisCosTiC_queueOP>
```

7.6.2.6 Networktype

```
using DisCosTiC::Networktype = typedef std::array<DisCosTiC_Timetype, 4>
```

7.6.2.7 Operations

```
using DisCosTiC::Operations = typedef std::vector<DisCosTiC_OP>
```

7.6.2.8 PriorityQueue_t

```
using DisCosTiC::PriorityQueue_t = typedef std::priority_queue<DisCosTiC_OP, Operations, OpTimeComparator>
```

7.6.2.9 tupleIdNodePair

```
using DisCosTiC::tupleIdNodePair = typedef std::tuple<idNodePair, idNodePair, idNodePair>
```

7.6.2.10 VecDeserialNode

```
using DisCosTiC::VecDeserialNode = typedef std::vector<AST_OP_TYPE>
```

7.6.2.11 VecGraph_t

```
typedef std::vector< Benchmark > DisCosTiC::VecGraph_t
```

7.6.2.12 VecListqueueOp

```
using DisCosTiC::VecListqueueOp = typedef std::vector<ListqueueOp>
```

7.6.2.13 VecSeqGraph_t

```
using DisCosTiC::VecSeqGraph_t = typedef std::vector<Grid>
```

7.6.3 Function Documentation

7.6.3.1 GetNumNetworks()

```
uint8_t DisCosTiC::GetNumNetworks ( )
```

the maximum number of the network interface controller

7.6.3.2 getRange() [1/2]

```
template<typename scalarT >
iteratorRange<scalarT> DisCosTiC::getRange (
            scalarT begin,
            scalarT end )
```

7.6.3.3 getRange() [2/2]

```
template<typename scalarT >
iteratorRange<scalarT> DisCosTiC::getRange (
            scalarT end )
```

7.6.3.4 make_vector()

```
template<typename...  T>
auto DisCosTiC::make_vector (
             T &&...  args )
```

7.6.3.5 ~Benchmark()

```
DisCosTiC::~Benchmark ( )
```

destructor

7.6.4 Variable Documentation

7.6.4.1 datasize

```
DisCosTiC_Datatype DisCosTiC::datasize  [private]
```

7.6.4.2 DisCosTiC

```
AST * DisCosTiC::DisCosTiC  [private]
```

7.6.4.3 GetNumCores

```
class DisCosTiC::Benchmark DisCosTiC::GetNumCores ( )
```

end of Benchmark class

< end of Oneway_PositiveDisplacement

the maximum number of the nodes

7.6.4.4 networksCount

```
DisCosTiC_Datatype DisCosTiC::networksCount
```

7.6.4.5 Nodes

```
DisCosTiC::VecDeserialNode DisCosTiC::Nodes  [private]
```

7.6.4.6 nodesCount

```
DisCosTiC_Datatype DisCosTiC::nodesCount
```

7.6.4.7 numOperations

```
DisCosTiC_Datatype DisCosTiC::numOperations
```

7.6.4.8 numTimesteps

```
DisCosTiC_Datatype DisCosTiC::numTimesteps  [private]
```

7.6.4.9 systemsize

```
DisCosTiC_Datatype DisCosTiC::systemsize
```

7.7 diskern Namespace Reference

Classes

- class AppendStringRange
- class VersionAction

Functions

- def space (start, stop, num, endpoint=True, log=False, base=10)
- def int_or_str (s)
- def uniquify (l)
- def get_last_modified_datetime (dir_path=os.path.dirname(__file__))
- def create_parser ()
- def check_arguments (args, parser)
- def to_tuple (x)
- def identifier_from_arguments (args, ∗∗kwargs)
- def run (parser, args, extras, system_number, output_file=sys.stdout)
- def report (model, extras, system_number, output_file)
- def main ()

7.7.1 Detailed Description

Comand line interface of Kerncraft.

7.7.2 Function Documentation

7.7.2.1 check_arguments()

```
def diskern.check_arguments (
              args,
              parser )
```

Check arguments passed by user that are not checked by argparse itself.

Also register files for closing.

7.7.2.2 create_parser()

```
def diskern.create_parser ( )
```

Return argparse parser.

7.7.2.3 get_last_modified_datetime()

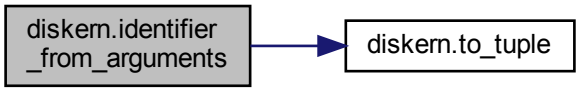
```
def diskern.get_last_modified_datetime (
              dir_path = os.path.dirname(__file__) )
```

Return datetime object of latest change in kerncraft module directory.

7.7.2.4 identifier_from_arguments()

```
def diskern.identifier_from_arguments (
              args,
             ** kwargs )
```

Here is the call graph for this function:



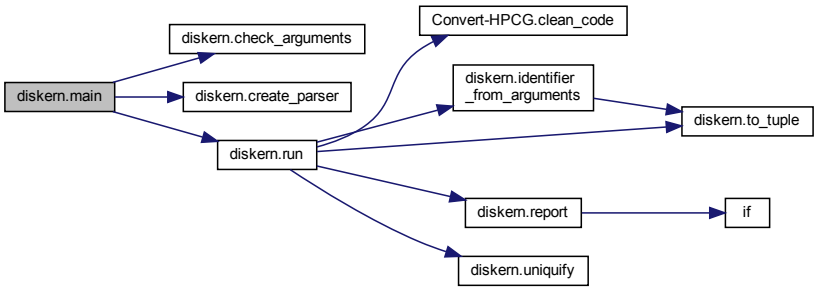
7.7.2.5 int_or_str()

```
def diskern.int_or_str (
              s )

Casts string to int if possible, otherwise return original string.
```

7.7.2.6 main()

```
def diskern.main ( )

Initialize and run command line interface.
```

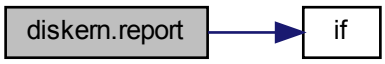
Here is the call graph for this function:



7.7.2.7 report()

```
def diskern.report (
              model,
              extras,
              system_number,
              output_file )
```

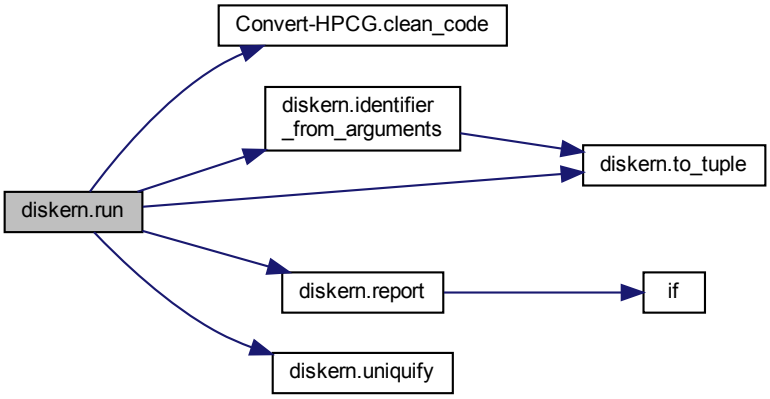
Here is the call graph for this function:



7.7.2.8 run()

```
def diskern.run (
              parser,
              args,
              extras,
              system_number,
              output_file = sys.stdout )

Run command line interface.
```

Here is the call graph for this function:



7.7.2.9 space()

```
def diskern.space (
              start,
              stop,
              num,
              endpoint = True,
              log = False,
              base = 10 )
```

```
Return list of evenly spaced integers over an interval.
Numbers can either be evenly distributed in a linear space (if *log* is False) or in a log
space (if *log* is True). If *log* is True, base is used to define the log space basis.
If *endpoint* is True, *stop* will be the last retruned value, as long as *num* >= 2.
```

7.7.2.10 to_tuple()

```
def diskern.to_tuple (
              x )
```

```
Transform nested lists (and tuple) in purely nested tuples.
```

7.7.2.11 uniquify()

```
def diskern.uniquify (
              l )
```

7.8 plot_machine_file Namespace Reference

Functions

- def main ()

Variables

- string kernel_colors = 'bgrcmyk'

7.8.1 Function Documentation

7.8.1.1 main()

```
def plot_machine_file.main ( )
```

7.8.2 Variable Documentation

7.8.2.1 kernel_colors

```
string plot_machine_file.kernel_colors = 'bgrcmyk'
```

7.9 UserInterface Namespace Reference

it parses the user-defined configuration file (.cfg)

Classes

- class ChromeTraceViz
- class ConfigParser

  a wrapper class which contains functions for parsing the configuration file
- class Conversion

  a wrapper class which contain function for the conversion of std::string to primitive types (int, float, double, etc.,)
- class NetworkConfigParser

  a wrapper class which contains functions for parsing the configuration file
- class TimeRankOP
- class YAMLParser

7.9.1 Detailed Description

it parses the user-defined configuration file (.cfg)

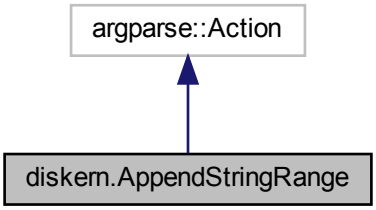
it parses the user-defined configuration file (.yml)

Chapter 8

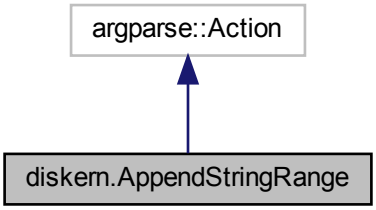
Class Documentation

8.1 diskern.AppendStringRange Class Reference

Inheritance diagram for diskern.AppendStringRange:



Collaboration diagram for diskern.AppendStringRange:



Public Member Functions

- def __call__ (self, parser, namespace, values, option_string=None)

8.1.1 Detailed Description

```
Argparse Action to append integer range from string.
A range description must have the following format: start[-stop[:num[log[base]]]]
if stop is given, a list of integers is compiled
if num is given, an evenly spaced list of integers from start to stop is compiled
if log is given, the integers are evenly spaced on a log space
if base is given, the integers are evenly spaced on that base (default: 10)
```

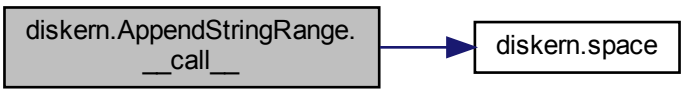
8.1.2 Member Function Documentation

8.1.2.1 __call__()

```
def diskern.AppendStringRange.__call__ (
              self,
              parser,
              namespace,
              values,
              option_string = None )
```

```
Execute action.
```

Here is the call graph for this function:



The documentation for this class was generated from the following file:

- kerncraftintegration/diskern.py

8.2 AST Class Reference

```
#include <AST.hpp>
```

Public Member Functions

- AST (UserInterface::ConfigParser *CFG_args, DisCosTiC_Datatype numRanks)

  constructor that initializes the coordinates for sendCount, recvCount, compCount, rankCount, depCount, and curtag. (create filename)
- ~AST ()

  destructor
- void InsertSrcDest ()

  append to independent set
- void EraseSrcDest (DisCosTiC_Indextype src, DisCosTiC_Indextype dest)

  EraseSrcDest from independent set.
- void StartOp ()

  start an operation
- locopPair_t EndOp ()

  complete an operation
- void Settag (DisCosTiC_Datatype tag)

  set a tag
- void SetRank (DisCosTiC_Datatype r)
- void SetNumRanks (DisCosTiC_Datatype nr)
- void insertID (std::map< std::string, DisCosTiC::AST_OP * > *idTable, char *ID, DisCosTiC::AST_OP *op)
- void insertdeserialID (std::map< std::string, DisCosTiC::AST_OP_TYPE > *idTable, char *ID, DisCosTiC::AST_OP_TYPE op)
- void insertDep (std::map< std::string, std::string > *depTable, char *ID1, char *ID2)
- DisCosTiC::AST_OP * retrieveID (std::map< std::string, DisCosTiC::AST_OP * > *idTable, std::string id)
- DisCosTiC::AST_OP_TYPE retrievedeserialID (std::map< std::string, DisCosTiC::AST_OP_TYPE > *id↩ Table, std::string id)
- void Rank_Init (DisCosTiC_Datatype rank)

  start a rank
- DisCosTiC::AST_OP * addNode ()
- DisCosTiC_Datatype MaxCPU (DisCosTiC_Datatype node=0)
- DisCosTiC_Datatype Maxnetwork (DisCosTiC_Datatype network=0)
- DisCosTiC_Datatype getNumOps ()

  get the number of operations for each rank
- DisCosTiC::Event Send (DisCosTiC_Datatype bufsize, DisCosTiC_Datatype dst, DisCosTiC::Event depOP)

  perform a message sending operation
- DisCosTiC::Event Send (const void *buf, DisCosTiC_Datatype bufsize, MPI_Datatype datatype, DisCosTiC_Datatype dst, int tag, MPI_Comm comm, MPI_Request *request, DisCosTiC::Event depOP)

  perform a message sending operation
- DisCosTiC::Event Isend (DisCosTiC_Datatype bufsize, DisCosTiC_Datatype dst, DisCosTiC::Event depOP)

  perform a non-blocking message sending operation
- DisCosTiC::Event Isend (const void *buf, DisCosTiC_Datatype bufsize, MPI_Datatype datatype, DisCosTiC_Datatype dst, int tag, MPI_Comm comm, MPI_Request *request, DisCosTiC::Event depOP)

  perform a non-blocking message sending operation
- DisCosTiC::Event Recv (DisCosTiC_Datatype bufsize, DisCosTiC_Datatype src, DisCosTiC::Event depOP)

  perform a message receiving operation
- DisCosTiC::Event Recv (const void *buf, DisCosTiC_Datatype bufsize, MPI_Datatype datatype, DisCosTiC_Datatype src, int tag, MPI_Comm comm, MPI_Request *request, DisCosTiC::Event depOP)

  perform a message receiving operation
- DisCosTiC::Event Irecv (DisCosTiC_Datatype bufsize, DisCosTiC_Datatype src, DisCosTiC::Event depOP)

  perform a non-blocking message receiving operation
- DisCosTiC::Event Irecv (const void *buf, DisCosTiC_Datatype bufsize, MPI_Datatype datatype, DisCosTiC_Datatype src, int tag, MPI_Comm comm, MPI_Request *request, DisCosTiC::Event depOP)

  perform a non-blocking message receiving operation

- DisCosTiC::Event Exec (std::string opname, DisCosTiC::Event depOP1, UserInterface::YAMLParser YAML_args, DisCosTiC_Datatype process_Rank, DisCosTiC_Datatype N_size_Of_Cluster, MPI_Comm comm)

  perform computation operation with blocking communication routines
- DisCosTiC::Event Iexec (std::string opname, UserInterface::YAMLParser YAML_args, DisCosTiC::Event depOP1, DisCosTiC_Datatype process_Rank, DisCosTiC_Datatype N_size_Of_Cluster, MPI_Comm comm)

  perform computation operation with non-blocking communication routines
- void execNodeLVL (std::string &opname, UserInterface::YAMLParser YAML_args, DisCosTiC_Timetype *rt, DisCosTiC_Datatype process_Rank, DisCosTiC_Datatype N_size_Of_Cluster, MPI_Comm comm)
- void blocking (DisCosTiC_Indextype src, DisCosTiC_Indextype dest)

  perform computation operation
- void blockingDep (DisCosTiC::Event a, DisCosTiC::Event b)
- void nonBlocking (DisCosTiC_Indextype src, DisCosTiC_Indextype dest)

  dependency on non-blocking send/recv operation that satisfied with start of an operation while link to wait/test loop StartDependency means that a can not be executed before b is started
- void nonBlockingDep (DisCosTiC::Event a, DisCosTiC::Event b)
- void print_indicesTable ()

  DEBUG: printing table that consists of node id with node type.
- void print_indicesDeserializedTable ()
- void print_depTable ()

  DEBUG: printing table that consist of respective node dependencies.
- void Rank_Finalize ()

  end of each process runtime with closing loop
- void File_Write ()

  write to output file

Public Attributes

- std::vector< DisCosTiC::AST_OP * > allNodes
- std::vector< DisCosTiC::AST_OP * > RootNodes

Private Attributes

- idSetT start

  private variables required for nonblocking calls
- idSetT end

  the operations which are independent at start and end
- std::string content
- std::string filename
- std::fstream myfile
- DisCosTiC_Indextype labelCount
- DisCosTiC_Indextype edgesCount
- std::vector< bool > ranks_init
- DisCosTiC_Indextype count
- DisCosTiC_Datatype dummyNode
- DisCosTiC_Datatype node
- DisCosTiC_Datatype sendCount
- DisCosTiC_Datatype recvCount
- DisCosTiC_Datatype compCount
- DisCosTiC_Datatype rankCount
- DisCosTiC_Datatype depCount
- DisCosTiC_Datatype curtag

- DisCosTiC_Datatype rank
- DisCosTiC_Datatype timeunit_conv
- std::map< std::string, DisCosTiC::AST_OP * > * indicesTable = new std::map<std::string, DisCosTiC::AST_OP *>
- std::map< std::string, std::string > * depTable = new std::map<std::string, std::string>
- std::map< std::string, DisCosTiC::AST_OP_TYPE > * indicesDeserializedTable = new std::map<std::string, DisCosTiC::AST_OP_TYPE>
- DisCosTiC_Datatype mode
- DisCosTiC_Timetype execsize
- std::string func

8.2.1 Constructor & Destructor Documentation

8.2.1.1 AST()

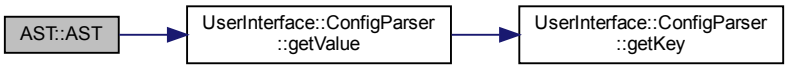
```
AST::AST (
            UserInterface::ConfigParser * CFG_args,
            DisCosTiC_Datatype numRanks )  [inline]
```

constructor that initializes the coordinates for sendCount, recvCount, compCount, rankCount, depCount, and curtag. (create filename)

Parameters

CFG_args	and numRanks

Here is the call graph for this function:



8.2.1.2 ~AST()

```
AST::~AST ( )  [inline]
```

destructor

8.2.2 Member Function Documentation

8.2.2.1 addNode()

```
DisCosTiC::AST_OP* AST::addNode ( )  [inline]
```

8.2.2.2 blocking()

```
void AST::blocking (
            DisCosTiC_Indextype src,
            DisCosTiC_Indextype dest )  [inline]
```

perform computation operation

Parameters

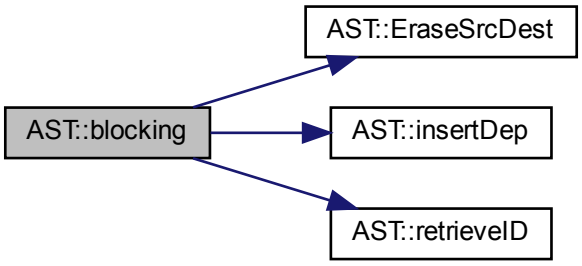
in	*name*	of computational phase (opname) of string datatype
in	*time*	of computational phase (bufSize) of DisCosTiC_Timetype datatype

dependency on blocking send/recv operation that satisfied with start of an operation. Dependency means that a can not be executed before b is finished

Parameters

in	*src*	of DisCosTiC_Indextype datatype
in	*dest*	of DisCosTiC_Indextype datatype

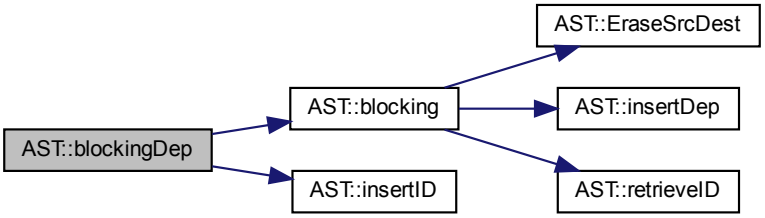
Here is the call graph for this function:



8.2.2.3 blockingDep()

```
void AST::blockingDep (
            DisCosTiC::Event a,
            DisCosTiC::Event b )  [inline]
```

Here is the call graph for this function:



8.2.2.4 EndOp()

```
locopPair_t AST::EndOp ( )  [inline]
```

complete an operation

8.2.2.5 EraseSrcDest()

```
void AST::EraseSrcDest (
            DisCosTiC_Indextype src,
            DisCosTiC_Indextype dest )  [inline]
```

EraseSrcDest from independent set.

Parameters

in	*src*	of DisCosTiC_Indextype datatype
in	*dest*	of DisCosTiC_Indextype datatype

8.2.2.6 Exec()

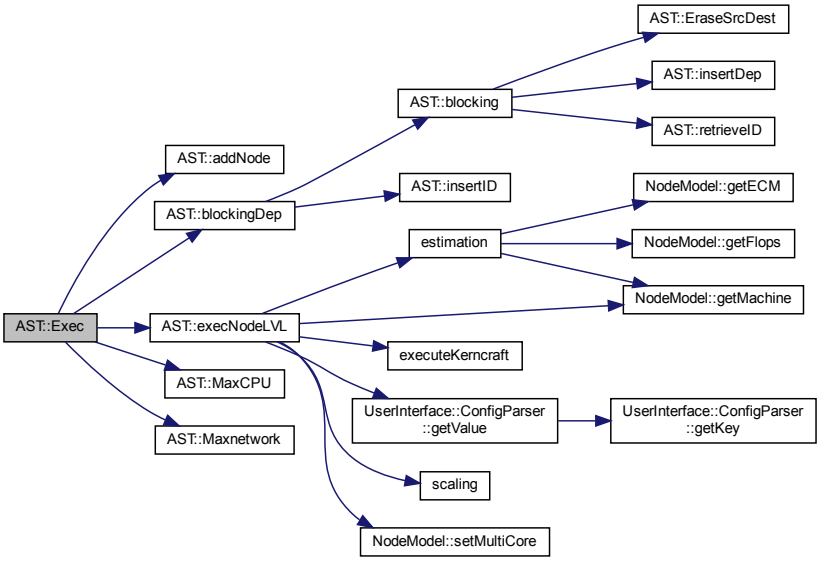
```
DisCosTiC::Event AST::Exec (
            std::string opname,
            DisCosTiC::Event depOP1,
            UserInterface::YAMLParser YAML_args,
            DisCosTiC_Datatype process_Rank,
            DisCosTiC_Datatype N_size_Of_Cluster,
            MPI_Comm comm )  [inline]
```

perform computation operation with blocking communication routines

Parameters

in	*name*	of computational phase (opname) of string datatype
in	*time*	of computational phase (bufSize) of DisCosTiC_Timetype datatype
in	*node*	number of multinode system (node) of integer datatype

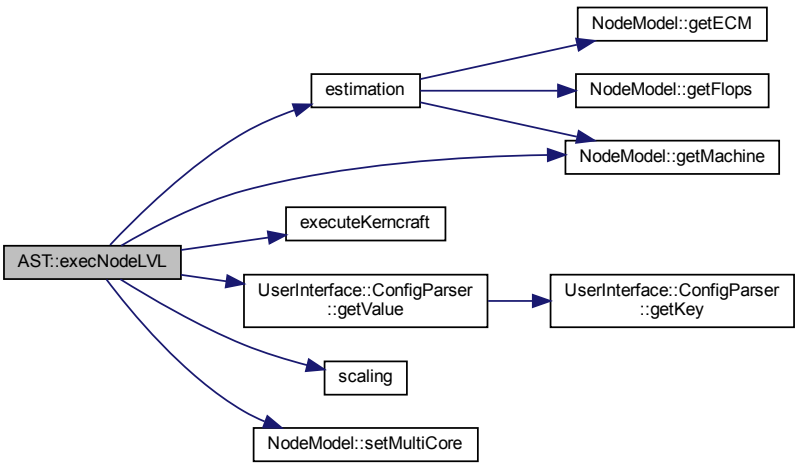
Here is the call graph for this function:



8.2.2.7 execNodeLVL()

```
void AST::execNodeLVL (
            std::string & opname,
            UserInterface::YAMLParser YAML_args,
            DisCosTiC_Timetype * rt,
            DisCosTiC_Datatype process_Rank,
            DisCosTiC_Datatype N_size_Of_Cluster,
            MPI_Comm comm )  [inline]
```

Here is the call graph for this function:



8.2.2.8 File_Write()

```
void AST::File_Write ( )  [inline]
```

write to output file

8.2.2.9 getNumOps()

```
DisCosTiC_Datatype AST::getNumOps ( )  [inline]
```

get the number of operations for each rank

8.2.2.10 Iexec()

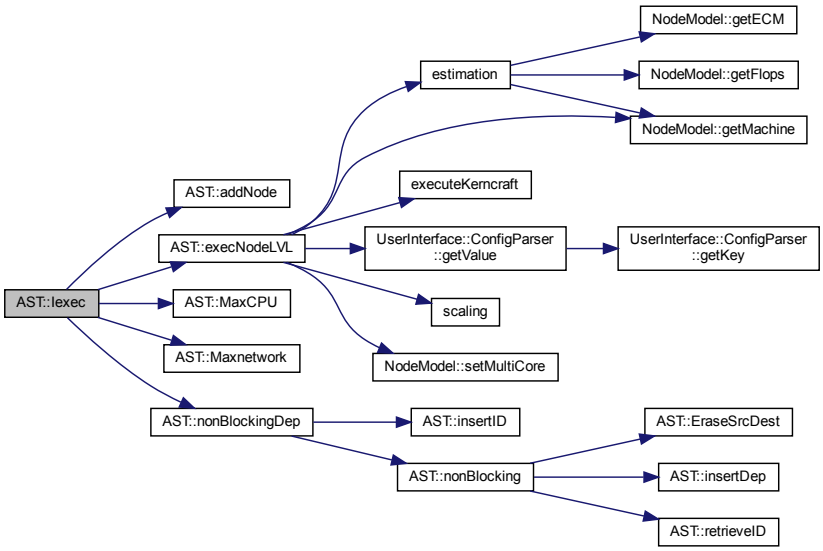
```
DisCosTiC::Event AST::Iexec (
            std::string opname,
            UserInterface::YAMLParser YAML_args,
            DisCosTiC::Event depOP1,
            DisCosTiC_Datatype process_Rank,
            DisCosTiC_Datatype N_size_Of_Cluster,
            MPI_Comm comm )  [inline]
```

perform computation operation with non-blocking communication routines

Parameters

in	*name*	of computational phase (opname) of string datatype
in	*time*	of computational phase (bufSize) of DisCosTiC_Timetype datatype
in	*node*	number of multinode system (node) of integer datatype

Here is the call graph for this function:



8.2.2.11 insertDep()

```
void AST::insertDep (
            std::map< std::string, std::string > * depTable,
            char * ID1,
            char * ID2 )  [inline]
```

8.2.2.12 insertdeserialID()

```
void AST::insertdeserialID (
            std::map< std::string, DisCosTiC::AST_OP_TYPE > * idTable,
            char * ID,
            DisCosTiC::AST_OP_TYPE op )  [inline]
```

8.2.2.13 insertID()

```
void AST::insertID (
            std::map< std::string, DisCosTiC::AST_OP * > * idTable,
            char * ID,
            DisCosTiC::AST_OP * op )  [inline]
```

8.2.2.14 InsertSrcDest()

```
void AST::InsertSrcDest ( )  [inline]
```

append to independent set

8.2.2.15 Irecv() [1/2]

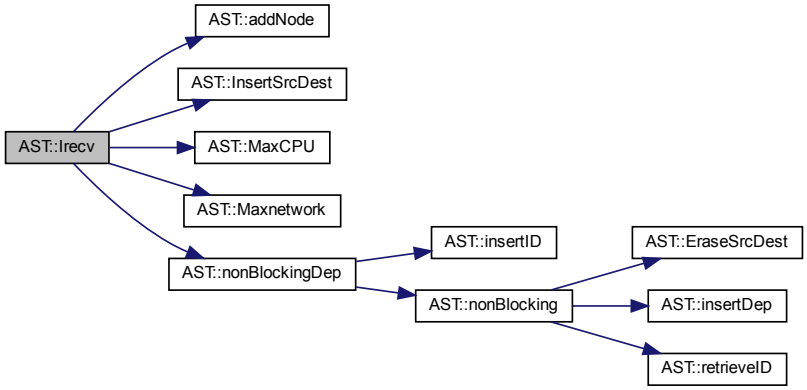
```
DisCosTiC::Event AST::Irecv (
            const void * buf,
            DisCosTiC_Datatype bufsize,
            MPI_Datatype datatype,
            DisCosTiC_Datatype src,
            int tag,
            MPI_Comm comm,
            MPI_Request * request,
            DisCosTiC::Event depOP )  [inline]
```

perform a non-blocking message receiving operation

Parameters

in	*the*	maximum number of receiving buffer elements (bufsize: message size in bytes) of integer datatype of each send buffer element
in	*source*	rank (src) of integer datatype

Here is the call graph for this function:



8.2.2.16 Irecv() [2/2]

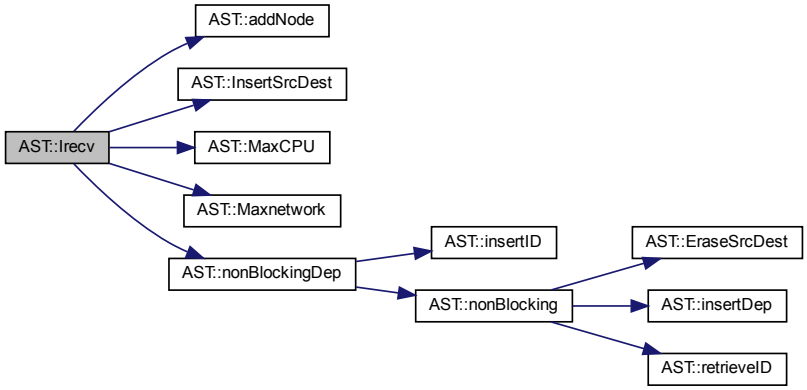
```
DisCosTiC::Event AST::Irecv (
            DisCosTiC_Datatype bufsize,
            DisCosTiC_Datatype src,
            DisCosTiC::Event depOP )  [inline]
```

perform a non-blocking message receiving operation

Parameters

in	*the*	maximum number of receiving buffer elements (bufsize: message size in bytes) of integer datatype of each send buffer element
in	*source*	rank (src) of integer datatype

Here is the call graph for this function:



8.2.2.17 Isend() [1/2]

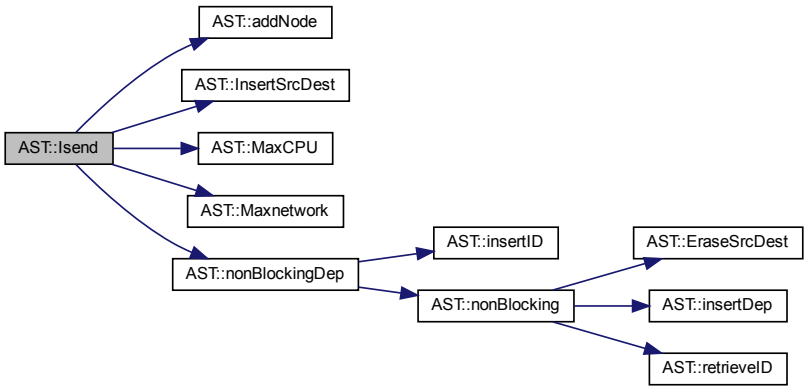
```
DisCosTiC::Event AST::Isend (
            const void * buf,
            DisCosTiC_Datatype bufsize,
            MPI_Datatype datatype,
            DisCosTiC_Datatype dst,
            int tag,
            MPI_Comm comm,
            MPI_Request * request,
            DisCosTiC::Event depOP )  [inline]
```

perform a non-blocking message sending operation

Parameters

in	*the*	number of sending buffer elements (bufsize) of integer datatype of each send buffer element
in	*destination*	rank (dst) of integer datatype

Here is the call graph for this function:



8.2.2.18 Isend() [2/2]

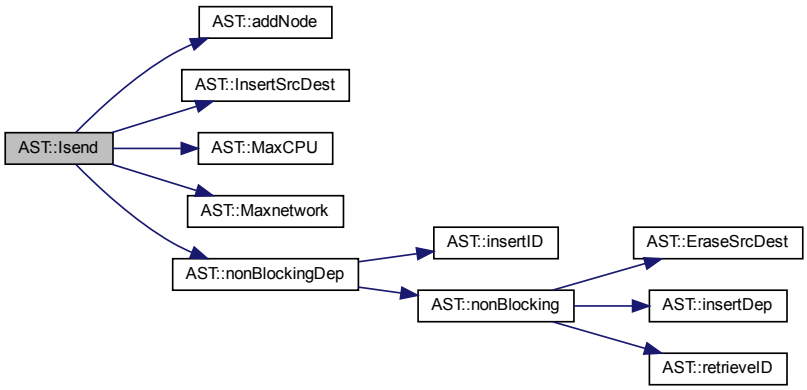
```
DisCosTiC::Event AST::Isend (
            DisCosTiC_Datatype bufsize,
            DisCosTiC_Datatype dst,
            DisCosTiC::Event depOP )  [inline]
```

perform a non-blocking message sending operation

Parameters

in	*the*	number of sending buffer elements (bufsize) of integer datatype of each send buffer element
in	*destination*	rank (dst) of integer datatype

Here is the call graph for this function:



8.2.2.19 MaxCPU()

```
DisCosTiC_Datatype AST::MaxCPU (
            DisCosTiC_Datatype node = 0 )  [inline]
```

8.2.2.20 Maxnetwork()

```
DisCosTiC_Datatype AST::Maxnetwork (
            DisCosTiC_Datatype network = 0 )  [inline]
```

8.2.2.21 nonBlocking()

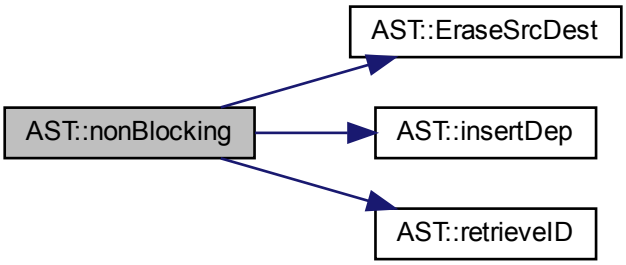
```
void AST::nonBlocking (
            DisCosTiC_Indextype src,
            DisCosTiC_Indextype dest )  [inline]
```

dependency on non-blocking send/recv operation that satisfied with start of an operation while link to wait/test loop StartDependency means that a can not be executed before b is started

Parameters

in	*src*	of DisCosTiC_Indextype datatype
in	*dest*	of DisCosTiC_Indextype datatype

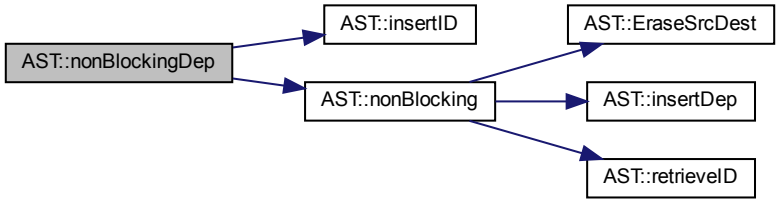
Here is the call graph for this function:



8.2.2.22 nonBlockingDep()

```
void AST::nonBlockingDep (
            DisCosTiC::Event a,
            DisCosTiC::Event b )  [inline]
```

Here is the call graph for this function:



8.2.2.23 print_depTable()

```
void AST::print_depTable ( )  [inline]
```

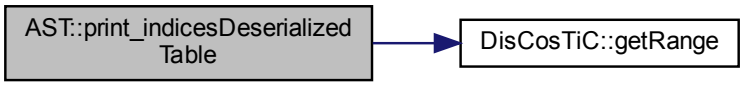
DEBUG: printing table that consist of respective node dependencies.

Here is the call graph for this function:

8.2.2.24 print_indicesDeserializedTable()

```
void AST::print_indicesDeserializedTable ( )  [inline]
```

Here is the call graph for this function:



8.2.2.25 print_indicesTable()

```
void AST::print_indicesTable ( )  [inline]
```

DEBUG: printing table that consists of node id with node type.

Here is the call graph for this function:

8.2.2.26 Rank_Finalize()

```
void AST::Rank_Finalize ( )  [inline]
```

end of each process runtime with closing loop

8.2.2.27 Rank_Init()

```
void AST::Rank_Init (
            DisCosTiC_Datatype rank )  [inline]
```

start a rank

Parameters

in	*processor*	rank of integer type

< reset label counterHere is the call graph for this function:

8.2.2.28 Recv() [1/2]

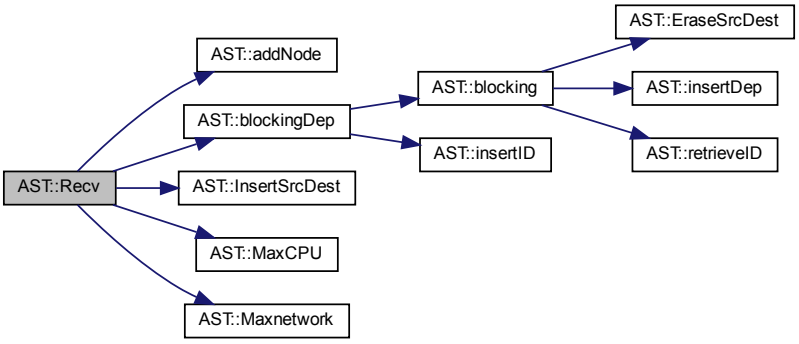
```
DisCosTiC::Event AST::Recv (
            const void * buf,
            DisCosTiC_Datatype bufsize,
            MPI_Datatype datatype,
            DisCosTiC_Datatype src,
            int tag,
            MPI_Comm comm,
            MPI_Request * request,
            DisCosTiC::Event depOP )  [inline]
```

perform a message receiving operation

Parameters

in	*the*	maximum number of receiving buffer elements (bufsize: message size in bytes) of integer datatype of each send buffer element
in	*source*	rank (src) of integer datatype

Here is the call graph for this function:



8.2.2.29 Recv() [2/2]

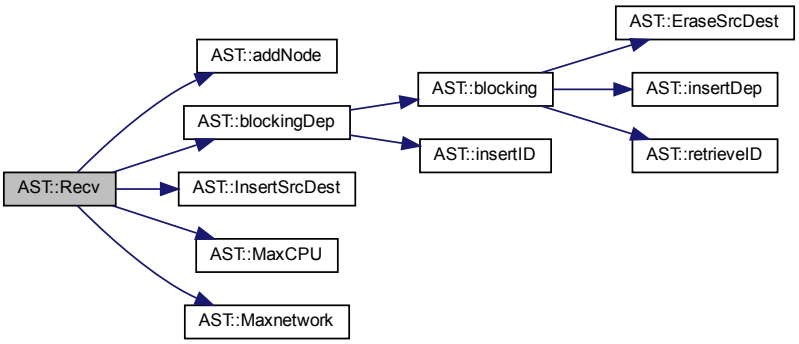
```
DisCosTiC::Event AST::Recv (
            DisCosTiC_Datatype bufsize,
            DisCosTiC_Datatype src,
            DisCosTiC::Event depOP )  [inline]
```

perform a message receiving operation

Parameters

in	*the*	maximum number of receiving buffer elements (bufsize: message size in bytes) of integer datatype of each send buffer element
in	*source*	rank (src) of integer datatype

Here is the call graph for this function:



8.2.2.30 retrievedeserialID()

```
DisCosTiC::AST_OP_TYPE AST::retrievedeserialID (
            std::map< std::string, DisCosTiC::AST_OP_TYPE > * idTable,
            std::string id )  [inline]
```

8.2.2.31 retrieveID()

```
DisCosTiC::AST_OP* AST::retrieveID (
            std::map< std::string, DisCosTiC::AST_OP * > * idTable,
            std::string id )  [inline]
```

8.2.2.32 Send() [1/2]

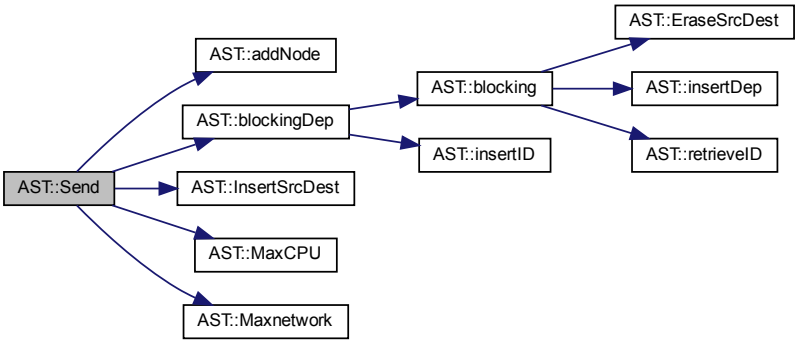
```
DisCosTiC::Event AST::Send (
            const void * buf,
            DisCosTiC_Datatype bufsize,
            MPI_Datatype datatype,
            DisCosTiC_Datatype dst,
            int tag,
            MPI_Comm comm,
            MPI_Request * request,
            DisCosTiC::Event depOP )  [inline]
```

perform a message sending operation

Parameters

in	*the*	number of sending buffer elements (bufsize) of integer datatype of each send buffer element
in	*destination*	rank (dst) of integer datatype

Here is the call graph for this function:



8.2.2.33 Send() [2/2]

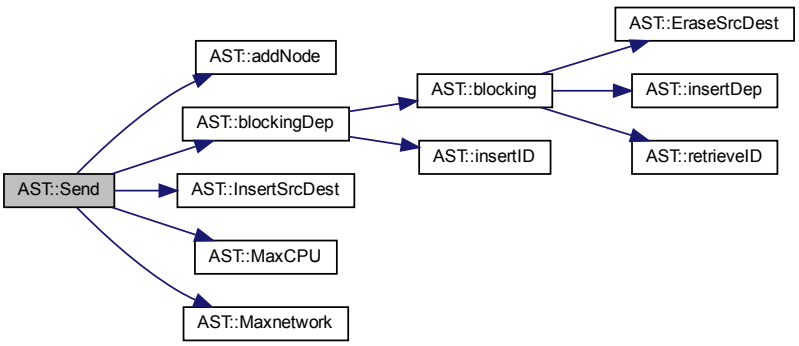
```
DisCosTiC::Event AST::Send (
            DisCosTiC_Datatype bufsize,
            DisCosTiC_Datatype dst,
            DisCosTiC::Event depOP )  [inline]
```

perform a message sending operation

Parameters

in	*the*	number of sending buffer elements (bufsize) of integer datatype of each send buffer element
in	*destination*	rank (dst) of integer datatype

Here is the call graph for this function:



8.2.2.34 SetNumRanks()

```
void AST::SetNumRanks (
            DisCosTiC_Datatype nr )  [inline]
```

8.2.2.35 SetRank()

```
void AST::SetRank (
            DisCosTiC_Datatype r )  [inline]
```

8.2.2.36 Settag()

```
void AST::Settag (
            DisCosTiC_Datatype tag )  [inline]
```

set a tag

Parameters

in	*message*	tag of integer type

8.2.2.37 StartOp()

```
void AST::StartOp ( )  [inline]
```

start an operation

8.2.3 Member Data Documentation

8.2.3.1 allNodes

```
std::vector<DisCosTiC::AST_OP *> AST::allNodes
```

8.2.3.2 compCount

DisCosTiC_Datatype AST::compCount [private]

8.2.3.3 content

std::string AST::content [private]

8.2.3.4 count

DisCosTiC_Indextype AST::count [private]

8.2.3.5 curtag

DisCosTiC_Datatype AST::curtag [private]

8.2.3.6 depCount

DisCosTiC_Datatype AST::depCount [private]

8.2.3.7 depTable

std::map<std::string, std::string>* AST::depTable = new std::map<std::string, std::string>
[private]

8.2.3.8 dummyNode

DisCosTiC_Datatype AST::dummyNode [private]

8.2.3.9 edgesCount

DisCosTiC_Indextype AST::edgesCount [private]

8.2.3.10 end

idSetT AST::end [private]

the operations which are independent at start and end

8.2.3.11 execsize

DisCosTiC_Timetype AST::execsize [private]

8.2.3.12 filename

std::string AST::filename [private]

8.2.3.13 func

std::string AST::func [private]

8.2.3.14 indicesDeserializedTable

std::map<std::string, DisCosTiC::AST_OP_TYPE>* AST::indicesDeserializedTable = new std::map<std↩
::string, DisCosTiC::AST_OP_TYPE> [private]

8.2.3.15 indicesTable

std::map<std::string, DisCosTiC::AST_OP *>* AST::indicesTable = new std::map<std::string,
DisCosTiC::AST_OP *> [private]

8.2.3.16 labelCount

DisCosTiC_Indextype AST::labelCount [private]

8.2.3.17 mode

DisCosTiC_Datatype AST::mode [private]

8.2.3.18 myfile

std::fstream AST::myfile [private]

8.2.3.19 node

DisCosTiC_Datatype AST::node [private]

8.2.3.20 rank

DisCosTiC_Datatype AST::rank [private]

8.2.3.21 rankCount

DisCosTiC_Datatype AST::rankCount [private]

8.2.3.22 ranks_init

std::vector<bool> AST::ranks_init [private]

8.2.3.23 recvCount

DisCosTiC_Datatype AST::recvCount [private]

8.2.3.24 RootNodes

```
std::vector<DisCosTiC::AST_OP *> AST::RootNodes
```

8.2.3.25 sendCount

```
DisCosTiC_Datatype AST::sendCount  [private]
```

8.2.3.26 start

```
idSetT AST::start  [private]
```

private variables required for nonblocking calls

8.2.3.27 timeunit_conv

```
DisCosTiC_Datatype AST::timeunit_conv  [private]
```

The documentation for this class was generated from the following file:

- include/AST.hpp

8.3 DisCosTiC::AST_OP Struct Reference

```
#include <DataStruct.hpp>
```

Public Attributes

- DisCosTiC_Timetype bufSize
  number of bytes (data size) of this operation
- std::vector< AST_OP * > DepOperations
  dependencies for blocking routines, i.e., other operations that depend on this current operation
- std::vector< AST_OP * > IdepOperations
  dependencies for non-blocking routines, i.e., other operations that depend on current operation
- DisCosTiC_Indextype depCount
- DisCosTiC_Indextype label
  index/identifier of this operation for each rack
- DisCosTiC_Indextype target
  rank of target/partner (source for recv / dest for send / no real target for comp, just added for completeness)
- DisCosTiC_Indextype tag
  tag of AST_OP (no real tag for comp, just added for completeness)
- DisCosTiC_Indextype node
  node or proceessing element for this operation
- DisCosTiC_Indextype network
  type of network for this operation
- char type
  type of AST_OP send, receive or computation
- char mode
  TODO: add blocking/non-blocking mode.

8.3.1 Member Data Documentation

8.3.1.1 bufSize

`DisCosTiC_Timetype DisCosTiC::AST_OP::bufSize`

number of bytes (data size) of this operation

8.3.1.2 depCount

`DisCosTiC_Indextype DisCosTiC::AST_OP::depCount`

8.3.1.3 DepOperations

`std::vector<AST_OP *> DisCosTiC::AST_OP::DepOperations`

dependencies for blocking routines, i.e., other operations that depend on this current operation

8.3.1.4 IdepOperations

`std::vector<AST_OP *> DisCosTiC::AST_OP::IdepOperations`

dependencies for non-blocking routines, i.e., other operations that depend on current operation

8.3.1.5 label

`DisCosTiC_Indextype DisCosTiC::AST_OP::label`

index/identifier of this operation for each rack

8.3.1.6 mode

`char DisCosTiC::AST_OP::mode`

TODO: add blocking/non-blocking mode.

8.3.1.7 network

```
DisCosTiC_Indextype DisCosTiC::AST_OP::network
```

type of network for this operation

8.3.1.8 node

```
DisCosTiC_Indextype DisCosTiC::AST_OP::node
```

node or proceessing element for this operation

8.3.1.9 tag

```
DisCosTiC_Indextype DisCosTiC::AST_OP::tag
```

tag of AST_OP (no real tag for comp, just added for completeness)

8.3.1.10 target

```
DisCosTiC_Indextype DisCosTiC::AST_OP::target
```

rank of target/partner (source for recv / dest for send / no real target for comp, just added for completeness)

8.3.1.11 type

```
char DisCosTiC::AST_OP::type
```

type of AST_OP send, receive or computation

The documentation for this struct was generated from the following file:

- include/DataStruct.hpp

8.4 DisCosTiC::AST_OP_ Struct Reference

```
#include <DataStruct.hpp>
```

Public Attributes

- DisCosTiC_Datatype bufSize
- DisCosTiC_Indextype depCount
- DisCosTiC_Indextype label
- DisCosTiC_Indextype target
- DisCosTiC_Indextype tag
- DisCosTiC_Indextype node
- DisCosTiC_Indextype network
- char type
- DisCosTiC_Indextype depsCount
- DisCosTiC_Indextype depApdxStartLabel
- DisCosTiC_Indextype idepsCount
- DisCosTiC_Indextype idepApdxStartLabel
- char mode

  TODO: add blocking/non-blocking mode.

8.4.1 Member Data Documentation

8.4.1.1 bufSize

```
DisCosTiC_Datatype DisCosTiC::AST_OP_::bufSize
```

8.4.1.2 depApdxStartLabel

```
DisCosTiC_Indextype DisCosTiC::AST_OP_::depApdxStartLabel
```

8.4.1.3 depCount

```
DisCosTiC_Indextype DisCosTiC::AST_OP_::depCount
```

8.4.1.4 depsCount

```
DisCosTiC_Indextype DisCosTiC::AST_OP_::depsCount
```

8.4.1.5 idepApdxStartLabel

DisCosTiC_Indextype DisCosTiC::AST_OP_::idepApdxStartLabel

8.4.1.6 idepsCount

DisCosTiC_Indextype DisCosTiC::AST_OP_::idepsCount

8.4.1.7 label

DisCosTiC_Indextype DisCosTiC::AST_OP_::label

8.4.1.8 mode

char DisCosTiC::AST_OP_::mode

TODO: add blocking/non-blocking mode.

8.4.1.9 network

DisCosTiC_Indextype DisCosTiC::AST_OP_::network

8.4.1.10 node

DisCosTiC_Indextype DisCosTiC::AST_OP_::node

8.4.1.11 tag

DisCosTiC_Indextype DisCosTiC::AST_OP_::tag

8.4.1.12 target

```
DisCosTiC_Indextype DisCosTiC::AST_OP_::target
```

8.4.1.13 type

```
char DisCosTiC::AST_OP_::type
```

The documentation for this struct was generated from the following file:

- include/DataStruct.hpp

8.5 DisCosTiC::AST_OP_TYPE Struct Reference

```
#include <DataStruct.hpp>
```

Public Attributes

- DisCosTiC_Datatype bufSize
- std::vector< DisCosTiC_Indextype > DepOperations
- std::vector< DisCosTiC_Indextype > IdepOperations
- DisCosTiC_Indextype depCount
- DisCosTiC_Indextype label
- DisCosTiC_Indextype target
- DisCosTiC_Indextype tag
- DisCosTiC_Indextype node
- DisCosTiC_Indextype network
- char type
- char mode

  TODO: add blocking/non-blocking mode.

8.5.1 Member Data Documentation

8.5.1.1 bufSize

```
DisCosTiC_Datatype DisCosTiC::AST_OP_TYPE::bufSize
```

8.5.1.2 depCount

```
DisCosTiC_Indextype DisCosTiC::AST_OP_TYPE::depCount
```

8.5.1.3 DepOperations

```
std::vector<DisCosTiC_Indextype> DisCosTiC::AST_OP_TYPE::DepOperations
```

8.5.1.4 IdepOperations

```
std::vector<DisCosTiC_Indextype> DisCosTiC::AST_OP_TYPE::IdepOperations
```

8.5.1.5 label

```
DisCosTiC_Indextype DisCosTiC::AST_OP_TYPE::label
```

8.5.1.6 mode

```
char DisCosTiC::AST_OP_TYPE::mode
```

TODO: add blocking/non-blocking mode.

8.5.1.7 network

```
DisCosTiC_Indextype DisCosTiC::AST_OP_TYPE::network
```

8.5.1.8 node

```
DisCosTiC_Indextype DisCosTiC::AST_OP_TYPE::node
```

8.5.1.9 tag

```
DisCosTiC_Indextype DisCosTiC::AST_OP_TYPE::tag
```

8.5.1.10 target

```
DisCosTiC_Indextype DisCosTiC::AST_OP_TYPE::target
```

8.5.1.11 type

```
char DisCosTiC::AST_OP_TYPE::type
```

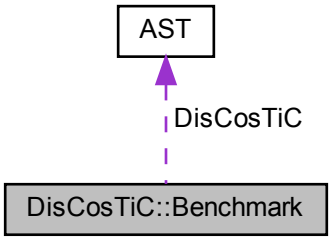
The documentation for this struct was generated from the following file:

- include/DataStruct.hpp

8.6 DisCosTiC::Benchmark Class Reference

```
#include <ADD_FILE.hpp>
```

Collaboration diagram for DisCosTiC::Benchmark:



Public Member Functions

- Benchmark (UserInterface::ConfigParser *CFG_args)
  constructor that initializes the coordinates
- uint8_t GetNumCores ()
  the maximum number of the nodes
- uint8_t GetNumNetworks ()
  the maximum number of the network interface controller
- ~Benchmark ()
  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)
  constructor that initializes the coordinates
- uint8_t GetNumCores ()
  the maximum number of the nodes
- uint8_t GetNumNetworks ()
  the maximum number of the network interface controller
- ~Benchmark ()
  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)
  constructor that initializes the coordinates
- uint8_t GetNumCores ()
  the maximum number of the nodes
- uint8_t GetNumNetworks ()
  the maximum number of the network interface controller
- ~Benchmark ()
  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)
  constructor that initializes the coordinates
- uint8_t GetNumCores ()
  the maximum number of the nodes
- uint8_t GetNumNetworks ()
  the maximum number of the network interface controller
- ~Benchmark ()
  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)
  constructor that initializes the coordinates
- uint8_t GetNumCores ()
  the maximum number of the nodes
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  the maximum number of the network interface controller
- ~Benchmark ()
  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)
  constructor that initializes the coordinates
- uint8_t GetNumCores ()
  the maximum number of the nodes
- uint8_t GetNumNetworks ()
  the maximum number of the network interface controller
- ~Benchmark ()
  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)

constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

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- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

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- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

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- uint8_t GetNumNetworks ()

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- Benchmark (UserInterface::ConfigParser *CFG_args)

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- uint8_t GetNumCores ()

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- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

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  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ~Benchmark ()

destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- DisCosTiC File_Write ()
- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

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- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

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  the maximum number of the network interface controller

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  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

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destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

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- Benchmark (UserInterface::ConfigParser *CFG_args)

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- uint8_t GetNumCores ()

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- Benchmark (UserInterface::ConfigParser *CFG_args)

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- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

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  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

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- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ∼Benchmark ()

  destructor
- Benchmark (UserInterface::ConfigParser ∗CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ∼Benchmark ()

  destructor
- Benchmark (UserInterface::ConfigParser ∗CFG_args)

  constructor that initializes the coordinates
- Benchmark (UserInterface::ConfigParser ∗CFG_args)

  constructor that initializes the coordinates
- Benchmark (UserInterface::ConfigParser ∗CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ∼Benchmark ()

  destructor
- Benchmark (UserInterface::ConfigParser ∗CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ∼Benchmark ()

  destructor
- Benchmark (UserInterface::ConfigParser ∗CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ∼Benchmark ()

  destructor
- Benchmark (UserInterface::ConfigParser ∗CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ∼Benchmark ()

  destructor
- Benchmark (UserInterface::ConfigParser ∗CFG_args)

constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller

- ~Benchmark ()

  destructor

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates

- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ~Benchmark ()

  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ~Benchmark ()

  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ~Benchmark ()

  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates
- DisCosTiC File_Write ()
- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ~Benchmark ()

  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ~Benchmark ()

  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes
- uint8_t GetNumNetworks ()

  the maximum number of the network interface controller
- ~Benchmark ()

  destructor
- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates
- uint8_t GetNumCores ()

  the maximum number of the nodes

- uint8_t GetNumNetworks ()
  the maximum number of the network interface controller
- ∼Benchmark ()
  destructor
- Benchmark (UserInterface::ConfigParser ∗CFG_args)
  constructor that initializes the coordinates
- uint8_t GetNumCores ()
  the maximum number of the nodes
- uint8_t GetNumNetworks ()
  the maximum number of the network interface controller
- ∼Benchmark ()
  destructor
- Benchmark (UserInterface::ConfigParser ∗CFG_args)
  constructor that initializes the coordinates
- uint8_t GetNumCores ()
  the maximum number of the nodes
- uint8_t GetNumNetworks ()
  the maximum number of the network interface controller
- ∼Benchmark ()
  destructor

Public Attributes

- DisCosTiC_Datatype nodesCount
- DisCosTiC_Datatype networksCount
- DisCosTiC_Datatype systemsize
- DisCosTiC_Datatype numOperations
- delete DisCosTiC
- return ID

Private Attributes

- AST ∗ DisCosTiC
- DisCosTiC::VecDeserialNode Nodes
- DisCosTiC_Datatype datasize
- DisCosTiC_Datatype numTimesteps

8.6.1 Constructor & Destructor Documentation

8.6.1.1 Benchmark() [1/56]

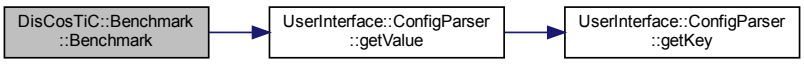
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.2 ~Benchmark() [1/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.3 Benchmark() [2/56]

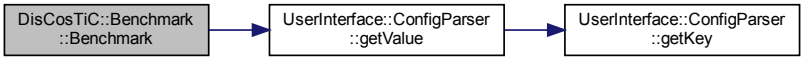
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.4 ~Benchmark() [2/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.5 Benchmark() [3/56]

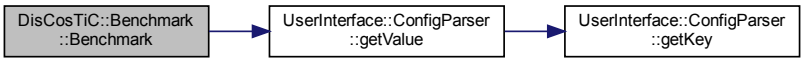
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.6 ~Benchmark() [3/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.7 Benchmark() [4/56]

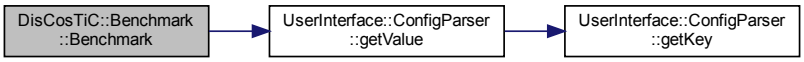
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.8 ~Benchmark() [4/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.9 Benchmark() [5/56]

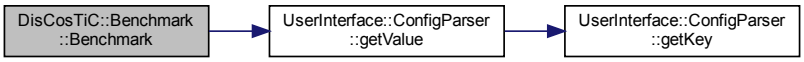
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.10 ~Benchmark() [5/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.11 Benchmark() [6/56]

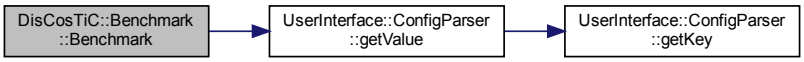
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.12 ~Benchmark() [6/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.13 Benchmark() [7/56]

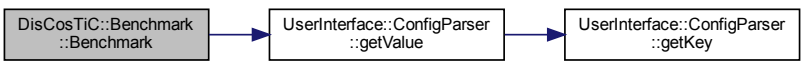
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.14 ~Benchmark() [7/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.15 Benchmark() [8/56]

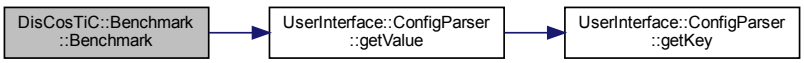
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.16 ~Benchmark() [8/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.17 Benchmark() [9/56]

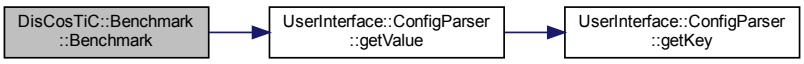
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.18 ~Benchmark() [9/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.19 Benchmark() [10/56]

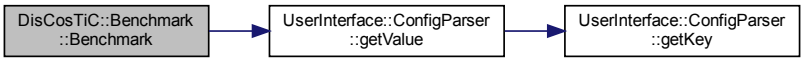
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.20 ~Benchmark() [10/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.21 Benchmark() [11/56]

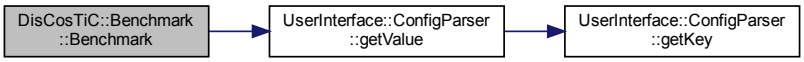
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.22 ~Benchmark() [11/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.23 Benchmark() [12/56]

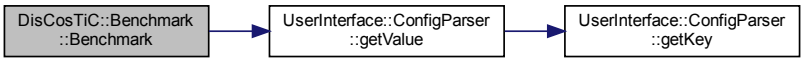
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.24 ~Benchmark() [12/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.25 Benchmark() [13/56]

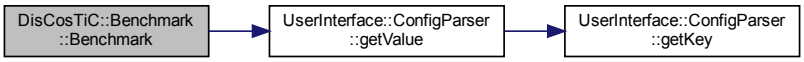
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.26 ~Benchmark() [13/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.27 Benchmark() [14/56]

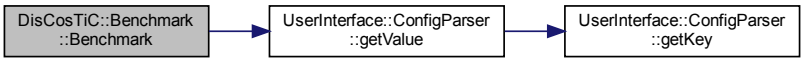
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.28 ~Benchmark() [14/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.29 Benchmark() [15/56]

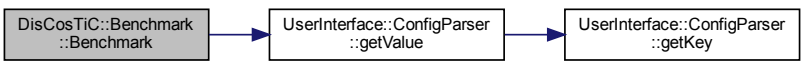
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.30 ~Benchmark() [15/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.31 Benchmark() [16/56]

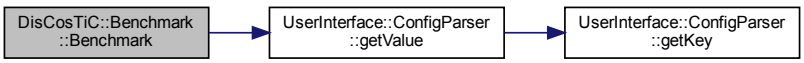
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.32 ~Benchmark() [16/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.33 Benchmark() [17/56]

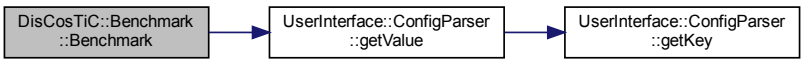
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.34 ~Benchmark() [17/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.35 Benchmark() [18/56]

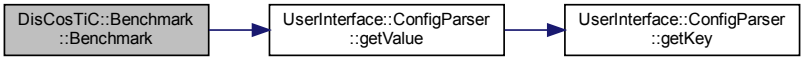
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.36 ~Benchmark() [18/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.37 Benchmark() [19/56]

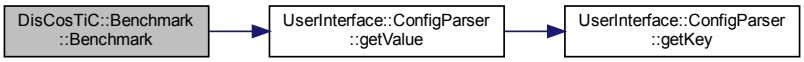
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.38 ~Benchmark() [19/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.39 Benchmark() [20/56]

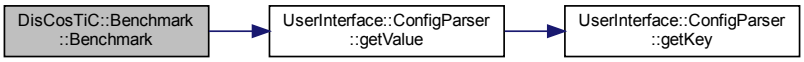
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.40 ~Benchmark() [20/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.41 Benchmark() [21/56]

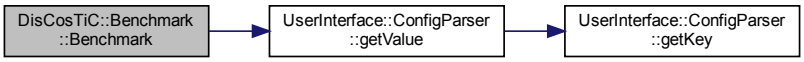
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.42 ~Benchmark() [21/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.43 Benchmark() [22/56]

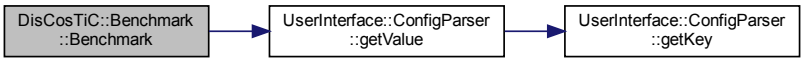
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.44 Benchmark() [23/56]

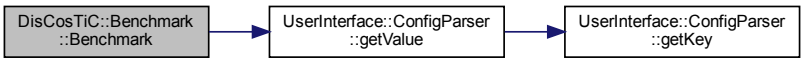
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.45 ~Benchmark() [22/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.46 Benchmark() [24/56]

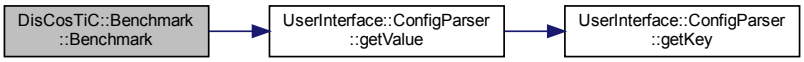
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.47 ~Benchmark() [23/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.48 Benchmark() [25/56]

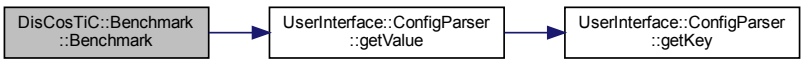
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.49 ~Benchmark() [24/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.50 Benchmark() [26/56]

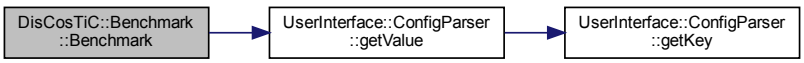
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.51 ~Benchmark() [25/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.52 Benchmark() [27/56]

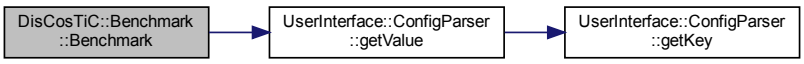
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.53 ~Benchmark() [26/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.54 Benchmark() [28/56]

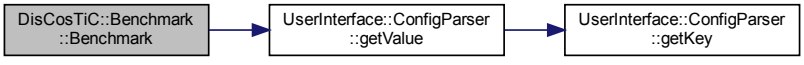
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.55 ~Benchmark() [27/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.56 Benchmark() [29/56]

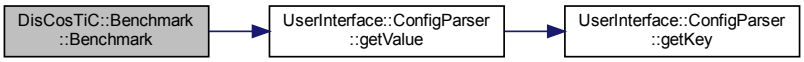
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.57 ~Benchmark() [28/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.58 Benchmark() [30/56]

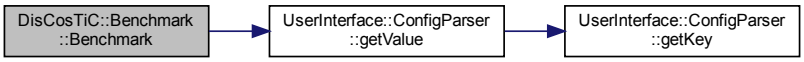
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.59 ~Benchmark() [29/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.60 Benchmark() [31/56]

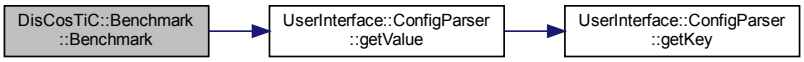
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.61 ~Benchmark() [30/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.62 Benchmark() [32/56]

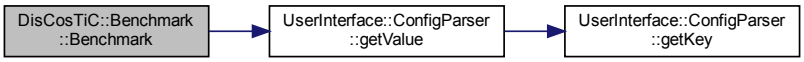
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.63 ~Benchmark() [31/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.64 Benchmark() [33/56]

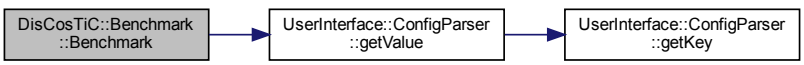
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.65 ~Benchmark() [32/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.66 Benchmark() [34/56]

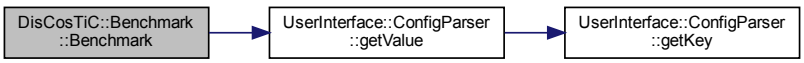
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.67 ~Benchmark() [33/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.68 Benchmark() [35/56]

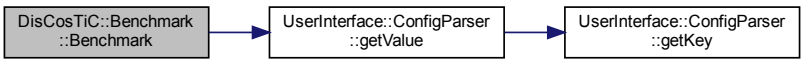
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.69 Benchmark() [36/56]

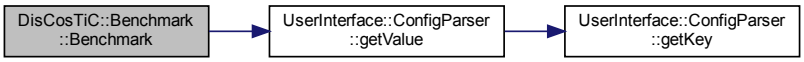
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.70 Benchmark() [37/56]

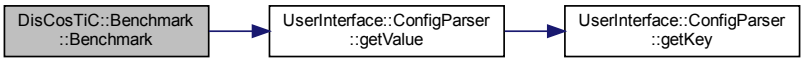
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.71 ~Benchmark() [34/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.72 Benchmark() [38/56]

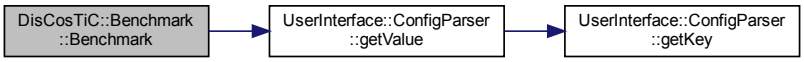
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.73 ~Benchmark() [35/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.74 Benchmark() [39/56]

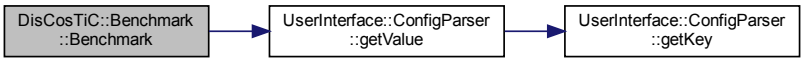
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.75 ~Benchmark() [36/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.76 Benchmark() [40/56]

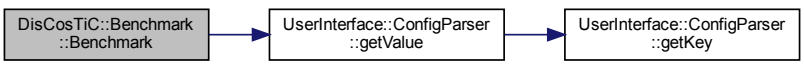
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.77 ~Benchmark() [37/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.78 Benchmark() [41/56]

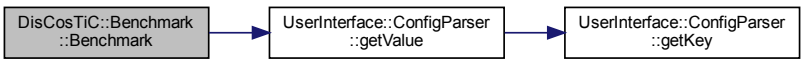
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.79 ~Benchmark() [38/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.80 Benchmark() [42/56]

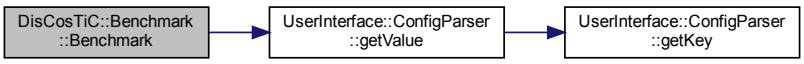
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.81 ~Benchmark() [39/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.82 Benchmark() [43/56]

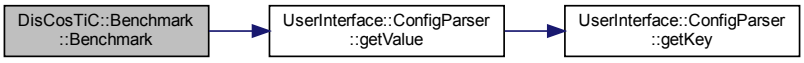
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.83 ~Benchmark() [40/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.84 Benchmark() [44/56]

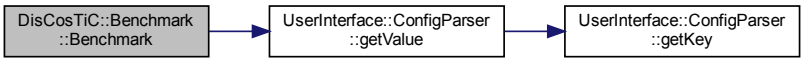
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.85 ~Benchmark() [41/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.86 Benchmark() [45/56]

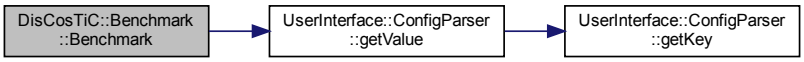
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.87 ~Benchmark() [42/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.88 Benchmark() [46/56]

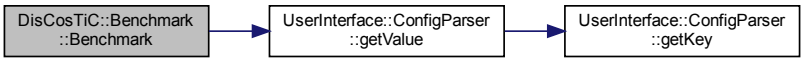
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.89 ~Benchmark() [43/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.90 Benchmark() [47/56]

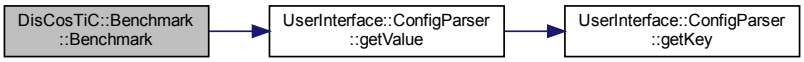
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.91 ~Benchmark() [44/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.92 Benchmark() [48/56]

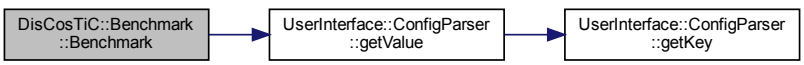
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.93 ~Benchmark() [45/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.94 Benchmark() [49/56]

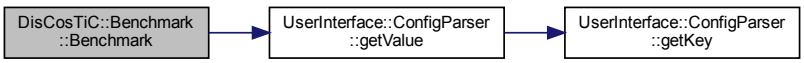
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.95 ~Benchmark() [46/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.96 Benchmark() [50/56]

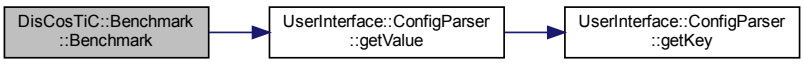
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.97 Benchmark() [51/56]

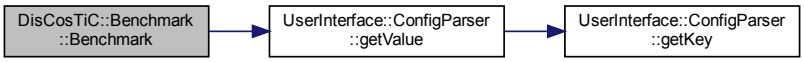
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.98 ~Benchmark() [47/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.99 Benchmark() [52/56]

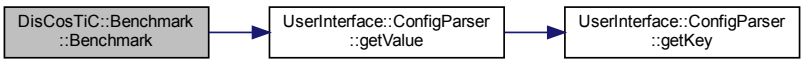
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.100 ~Benchmark() [48/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.101 Benchmark() [53/56]

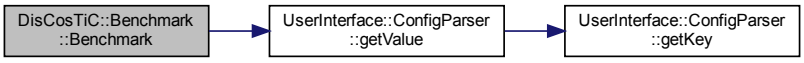
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.102 ~Benchmark() [49/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.103 Benchmark() [54/56]

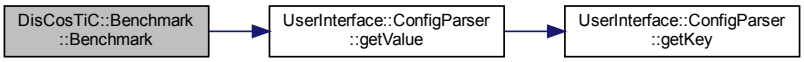
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.104 ~Benchmark() [50/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.105 Benchmark() [55/56]

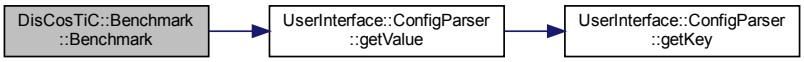
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.106 ~Benchmark() [51/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.1.107 Benchmark() [56/56]

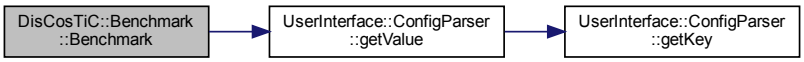
```
DisCosTiC::Benchmark::Benchmark (
            UserInterface::ConfigParser * CFG_args )  [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	

Here is the call graph for this function:



8.6.1.108 ~Benchmark() [52/52]

```
DisCosTiC::Benchmark::~Benchmark ( )  [inline]
```

destructor

8.6.2 Member Function Documentation

8.6.2.1 File_Write() [1/2]

```
DisCosTiC DisCosTiC::Benchmark::File_Write ( )
```

8.6.2.2 File_Write() [2/2]

```
DisCosTiC DisCosTiC::Benchmark::File_Write ( )
```

8.6.2.3 GetNumCores() [1/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.4 GetNumCores() [2/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.5 GetNumCores() [3/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.6 GetNumCores() [4/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.7 GetNumCores() [5/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.8 GetNumCores() [6/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.9 GetNumCores() [7/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.10 GetNumCores() [8/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.11 GetNumCores() [9/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.12 GetNumCores() [10/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.13 GetNumCores() [11/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.14 GetNumCores() [12/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.15 GetNumCores() [13/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.16 GetNumCores() [14/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.17 GetNumCores() [15/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.18 GetNumCores() [16/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.19 GetNumCores() [17/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.20 GetNumCores() [18/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.21 GetNumCores() [19/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.22 GetNumCores() [20/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.23 GetNumCores() [21/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.24 GetNumCores() [22/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.25 GetNumCores() [23/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.26 GetNumCores() [24/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.27 GetNumCores() [25/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.28 GetNumCores() [26/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.29 GetNumCores() [27/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.30 GetNumCores() [28/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.31 GetNumCores() [29/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.32 GetNumCores() [30/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.33 GetNumCores() [31/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.34 GetNumCores() [32/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.35 GetNumCores() [33/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.36 GetNumCores() [34/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.37 GetNumCores() [35/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.38 GetNumCores() [36/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.39 GetNumCores() [37/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.40 GetNumCores() [38/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.41 GetNumCores() [39/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.42 GetNumCores() [40/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.43 GetNumCores() [41/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.44 GetNumCores() [42/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.45 GetNumCores() [43/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.46 GetNumCores() [44/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.47 GetNumCores() [45/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.48 GetNumCores() [46/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.49 GetNumCores() [47/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.50 GetNumCores() [48/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.51 GetNumCores() [49/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.52 GetNumCores() [50/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.53 GetNumCores() [51/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.54 GetNumCores() [52/52]

```
uint8_t DisCosTiC::Benchmark::GetNumCores ( )  [inline]
```

the maximum number of the nodes

8.6.2.55 GetNumNetworks() [1/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.56 GetNumNetworks() [2/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.57 GetNumNetworks() [3/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.58 GetNumNetworks() [4/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.59 GetNumNetworks() [5/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.60 GetNumNetworks() [6/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.61 GetNumNetworks() [7/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.62 GetNumNetworks() [8/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.63 GetNumNetworks() [9/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.64 GetNumNetworks() [10/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.65 GetNumNetworks() [11/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.66 GetNumNetworks() [12/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.67 GetNumNetworks() [13/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.68 GetNumNetworks() [14/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.69 GetNumNetworks() [15/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.70 GetNumNetworks() [16/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.71 GetNumNetworks() [17/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.72 GetNumNetworks() [18/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.73 GetNumNetworks() [19/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.74 GetNumNetworks() [20/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.75 GetNumNetworks() [21/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.76 GetNumNetworks() [22/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.77 GetNumNetworks() [23/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.78 GetNumNetworks() [24/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.79 GetNumNetworks() [25/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.80 GetNumNetworks() [26/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.81 GetNumNetworks() [27/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.82 GetNumNetworks() [28/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.83 GetNumNetworks() [29/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.84 GetNumNetworks() [30/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.85 GetNumNetworks() [31/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.86 GetNumNetworks() [32/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.87 GetNumNetworks() [33/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.88 GetNumNetworks() [34/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.89 GetNumNetworks() [35/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.90 GetNumNetworks() [36/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.91 GetNumNetworks() [37/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.92 GetNumNetworks() [38/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.93 GetNumNetworks() [39/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.94 GetNumNetworks() [40/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.95 GetNumNetworks() [41/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.96 GetNumNetworks() [42/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.97 GetNumNetworks() [43/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.98 GetNumNetworks() [44/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.99 GetNumNetworks() [45/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.100 GetNumNetworks() [46/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.101 GetNumNetworks() [47/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.102 GetNumNetworks() [48/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.103 GetNumNetworks() [49/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.104 GetNumNetworks() [50/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.105 GetNumNetworks() [51/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.2.106 GetNumNetworks() [52/52]

```
uint8_t DisCosTiC::Benchmark::GetNumNetworks ( )  [inline]
```

the maximum number of the network interface controller

8.6.3 Member Data Documentation

8.6.3.1 datasize

```
DisCosTiC_Datatype DisCosTiC::Benchmark::datasize  [private]
```

8.6.3.2 DisCosTiC [1/2]

```
AST * DisCosTiC::Benchmark::DisCosTiC  [private]
```

8.6.3.3 DisCosTiC [2/2]

```
delete DisCosTiC::Benchmark::DisCosTiC
```

8.6.3.4 ID

```
return DisCosTiC::Benchmark::ID
```

8.6.3.5 networksCount

```
DisCosTiC_Datatype DisCosTiC::Benchmark::networksCount
```

8.6.3.6 Nodes

```
DisCosTiC::VecDeserialNode DisCosTiC::Benchmark::Nodes  [private]
```

8.6.3.7 nodesCount

```
DisCosTiC_Datatype DisCosTiC::Benchmark::nodesCount
```

8.6.3.8 numOperations

```
DisCosTiC_Datatype DisCosTiC::Benchmark::numOperations
```

8.6.3.9 numTimesteps

```
DisCosTiC_Datatype DisCosTiC::Benchmark::numTimesteps  [private]
```

8.6.3.10 systemsize

```
DisCosTiC_Datatype DisCosTiC::Benchmark::systemsize
```

The documentation for this class was generated from the following files:

- test/ADD_FILE.hpp
- test/ADD_LBL.hpp
- test/COPY_FILE.hpp
- test/COPY_LBL.hpp
- test/DAXPY_FILE.hpp
- test/DAXPY_LBL.hpp
- test/DIVIDE_FILE.hpp
- test/DIVIDE_LBL.hpp
- test/DMMM_FILE.hpp
- test/DMMM_LBL.hpp
- test/DMVM-TRANSPOSE_FILE.hpp
- test/DMVM-TRANSPOSE_LBL.hpp
- test/DMVM_FILE.hpp
- test/DMVM_LBL.hpp
- test/HEAT_COMP.hpp
- test/HEAT_FILE.hpp
- test/HEAT_LBL.hpp
- test/HEAT_SRC.hpp
- test/HEATDIVIDE_FILE.hpp
- test/HEATHEAT_FILE.hpp
- test/HEATSOR_FILE.hpp
- test/HPCG.hpp
- test/KAHAN-DOT_FILE.hpp
- test/KAHAN-DOT_LBL.hpp
- test/SCALAR-PRODUCT_FILE.hpp
- test/SCALAR-PRODUCT_LBL.hpp
- test/SCALE_FILE.hpp
- test/SCALE_LBL.hpp
- test/SCHOENAUER-DIV_FILE.hpp
- test/SCHOENAUER-DIV_LBL.hpp
- test/SCHOENAUER_FILE.hpp
- test/SCHOENAUER_LBL.hpp
- test/SOR_COMP.hpp
- test/SOR_FILE.hpp
- test/SOR_LBL.hpp
- test/SOR_SRC.hpp
- test/STENCIL-1D-3PT_FILE.hpp
- test/STENCIL-1D-3PT_LBL.hpp
- test/STENCIL-3D-27PT_FILE.hpp
- test/STENCIL-3D-27PT_LBL.hpp
- test/STENCIL-3D-7PT_FILE.hpp
- test/STENCIL-3D-7PT_LBL.hpp
- test/STENCIL-3D-LONGRANGE_FILE.hpp
- test/STENCIL-3D-LONGRANGE_LBL.hpp
- test/STENCIL-UXX_FILE.hpp
- test/STENCIL-UXX_LBL.hpp
- test/STREAM_COMP.hpp
- test/STREAM_FILE.hpp

- test/STREAM_LBL.hpp
- test/STREAM_SRC.hpp
- test/SUM_FILE.hpp
- test/SUM_LBL.hpp
- test/VECTOR-SUM_FILE.hpp
- test/VECTOR-SUM_LBL.hpp
- test/WAXPY_FILE.hpp
- test/WAXPY_LBL.hpp

8.7 UserInterface::ChromeTraceViz Class Reference

`#include <TimeRankOP.hpp>`

Public Member Functions

- ChromeTraceViz (UserInterface::ConfigParser *args_info, DisCosTiC_Datatype rank, DisCosTiC_Datatype numRanks)
- void args (std::string args_name, DisCosTiC_Indextype rank)
- void completeEvents (std::string name, DisCosTiC_Indextype rank, DisCosTiC_Indextype tid, std::string time, std::string duration)
- void durationEventBegin (std::string name, DisCosTiC_Indextype rank, DisCosTiC_Indextype tid, std::string time)
- void durationEventEnd (std::string name, DisCosTiC_Indextype rank, DisCosTiC_Indextype tid, std::string time)
- void flowEventBegin (std::string name, DisCosTiC_Indextype source, DisCosTiC_Indextype source_tid, std::string time, DisCosTiC_Indextype index)
- void flowEventEnd (std::string name, DisCosTiC_Indextype dest, DisCosTiC_Indextype dest_tid, std::string time, DisCosTiC_Indextype index)
- void closeFile ()
- ~ChromeTraceViz ()

Public Attributes

- std::map< std::string, DisCosTiC_Indextype > arc

Private Attributes

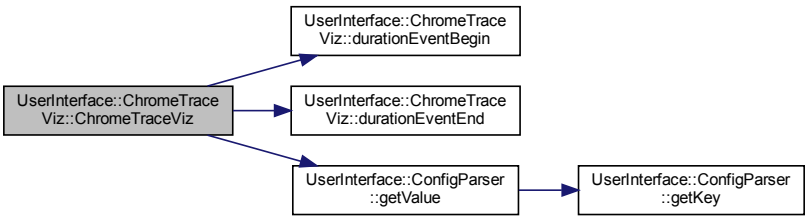
- std::ofstream ofs
- std::string filename
- DisCosTiC_Indextype max_rank_id = 0
- DisCosTiC_Indextype max_tid = 0
- DisCosTiC_Indextype numRanks = 0
- DisCosTiC_Indextype rank = -1

8.7.1 Constructor & Destructor Documentation

8.7.1.1 ChromeTraceViz()

```
UserInterface::ChromeTraceViz::ChromeTraceViz (
            UserInterface::ConfigParser * args_info,
            DisCosTiC_Datatype rank,
            DisCosTiC_Datatype numRanks )  [inline]
```

Here is the call graph for this function:



8.7.1.2 ~ChromeTraceViz()

```
UserInterface::ChromeTraceViz::~ChromeTraceViz ( )  [inline]
```

8.7.2 Member Function Documentation

8.7.2.1 args()

```
void UserInterface::ChromeTraceViz::args (
            std::string args_name,
            DisCosTiC_Indextype rank )  [inline]
```

8.7.2.2 closeFile()

```
void UserInterface::ChromeTraceViz::closeFile ( )  [inline]
```

print metadata for trace to output file

8.7.2.3 completeEvents()

```
void UserInterface::ChromeTraceViz::completeEvents (
            std::string name,
            DisCosTiC_Indextype rank,
            DisCosTiC_Indextype tid,
            std::string time,
            std::string duration )  [inline]
```

8.7.2.4 durationEventBegin()

```
void UserInterface::ChromeTraceViz::durationEventBegin (
            std::string name,
            DisCosTiC_Indextype rank,
            DisCosTiC_Indextype tid,
            std::string time )  [inline]
```

8.7.2.5 durationEventEnd()

```
void UserInterface::ChromeTraceViz::durationEventEnd (
            std::string name,
            DisCosTiC_Indextype rank,
            DisCosTiC_Indextype tid,
            std::string time )  [inline]
```

8.7.2.6 flowEventBegin()

```
void UserInterface::ChromeTraceViz::flowEventBegin (
            std::string name,
            DisCosTiC_Indextype source,
            DisCosTiC_Indextype source_tid,
            std::string time,
            DisCosTiC_Indextype index )  [inline]
```

8.7.2.7 flowEventEnd()

```
void UserInterface::ChromeTraceViz::flowEventEnd (
            std::string name,
            DisCosTiC_Indextype dest,
            DisCosTiC_Indextype dest_tid,
            std::string time,
            DisCosTiC_Indextype index )  [inline]
```

8.7.3 Member Data Documentation

8.7.3.1 arc

```
std::map<std::string, DisCosTiC_Indextype> UserInterface::ChromeTraceViz::arc
```

8.7.3.2 filename

```
std::string UserInterface::ChromeTraceViz::filename  [private]
```

8.7.3.3 max_rank_id

```
DisCosTiC_Indextype UserInterface::ChromeTraceViz::max_rank_id = 0  [private]
```

8.7.3.4 max_tid

```
DisCosTiC_Indextype UserInterface::ChromeTraceViz::max_tid = 0  [private]
```

8.7.3.5 numRanks

```
DisCosTiC_Indextype UserInterface::ChromeTraceViz::numRanks = 0  [private]
```

8.7.3.6 ofs

```
std::ofstream UserInterface::ChromeTraceViz::ofs  [private]
```

8.7.3.7 rank

```
DisCosTiC_Indextype UserInterface::ChromeTraceViz::rank = -1  [private]
```

The documentation for this class was generated from the following file:

- visualization/TimeRankOP.hpp

8.8 DisCosTiC::CompModel Class Reference

`#include <CompModel.hpp>`

Public Member Functions

- CompModel (UserInterface::ConfigParser *CFG_args, UserInterface::YAMLParser YAML_args, int process_Rank)

  constructor that initializes the coordinates for unit_converter, node and start time

Public Attributes

- DisCosTiC_Datatype node

  core to execute on
- DisCosTiC_Timetype start_time

  start time for this local operation

Private Attributes

- DisCosTiC_Timetype unit_converter

  multiplier - relative to microseconds

8.8.1 Constructor & Destructor Documentation

8.8.1.1 CompModel()

```
DisCosTiC::CompModel::CompModel (
            UserInterface::ConfigParser * CFG_args,
            UserInterface::YAMLParser YAML_args,
            int process_Rank )  [inline]
```

constructor that initializes the coordinates for unit_converter, node and start time

Parameters

_unit_converter	and node

reading system properties

maximum performance for core-bound workloads

multiplication with cores

reading properties for memory-bound STREAM TRIAD benchmark

performance for memory-bound workloads due to transfer bottleneck performance in Flop/s with roofline model: arithmetic intensity (= flops / bytes_transfer) ∗ bandwidth

< data at the missed-write location is not loaded to cache, and is written directly to the backing store

< data at the missed-write location is loaded to cache, followed by a write-hit operation

multiplication with WA_factorHere is the call graph for this function:

8.8.2 Member Data Documentation

8.8.2.1 node

```
DisCosTiC_Datatype DisCosTiC::CompModel::node
```

core to execute on

8.8.2.2 start_time

```
DisCosTiC_Timetype DisCosTiC::CompModel::start_time
```

start time for this local operation

8.8.2.3 unit_converter

```
DisCosTiC_Timetype DisCosTiC::CompModel::unit_converter  [private]
```

multiplier - relative to microseconds

The documentation for this class was generated from the following file:

- include/CompModel.hpp

8.9 UserInterface::ConfigParser Class Reference

a wrapper class which contains functions for parsing the configuration file

`#include <ConfigParser.hpp>`

Public Member Functions

- ConfigParser (const std::string &fileName)

  a class to set the name of the configuration file and extracts and parses the data
- bool getKey (const std::string &key) const

  a function for finding the key
- template<typename scalarT >
  scalarT getValue (const std::string &key, scalarT const &defaultValue=scalarT()) const

  a function that retrieves the value of a specific key

Private Member Functions

- void removeComment (std::string &line) const

  a function that removes everything from the semicolon (including it) to the end of the line.
- bool whitespace (const std::string &line) const

  a function that returns false if a non-space character was found, true otherwise. The function is "const" because it does not alter any class member variables.
- void extractKey (std::string &key, size_t const &sepPos, const std::string &line) const

  a function that extracts the key from the pair of key = value
- void extractValue (std::string &value, size_t const &sepPos, const std::string &line) const

  a function that extracts the value from the pair of key = value
- void parseLine (const std::string &line, size_t const lineNum)

  a function that parse the line by calling above mentioed functions

Private Attributes

- std::map< std::string, std::string > data

  which will hold pairs of key-value
- std::string fileName

  As member variables, we will only have a std::string, which will hold the name of the configuration file.

8.9.1 Detailed Description

a wrapper class which contains functions for parsing the configuration file

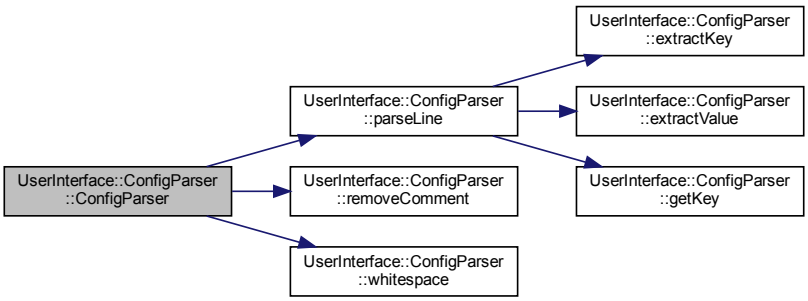
8.9.2 Constructor & Destructor Documentation

8.9.2.1 ConfigParser()

```
UserInterface::ConfigParser::ConfigParser (
            const std::string & fileName )  [inline]
```

a class to set the name of the configuration file and extracts and parses the data

Here is the call graph for this function:



8.9.3 Member Function Documentation

8.9.3.1 extractKey()

```
void UserInterface::ConfigParser::extractKey (
            std::string & key,
            size_t const & sepPos,
            const std::string & line ) const  [inline], [private]
```

a function that extracts the key from the pair of key = value

8.9.3.2 extractValue()

```
void UserInterface::ConfigParser::extractValue (
            std::string & value,
            size_t const & sepPos,
            const std::string & line ) const  [inline], [private]
```

a function that extracts the value from the pair of key = value

8.9.3.3 getKey()

```
bool UserInterface::ConfigParser::getKey (
            const std::string & key ) const  [inline]
```

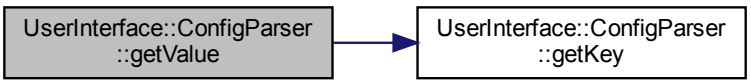
a function for finding the key

8.9.3.4 getValue()

```
template<typename scalarT >
scalarT UserInterface::ConfigParser::getValue (
            const std::string & key,
            scalarT const & defaultValue = scalarT() ) const  [inline]
```

a function that retrieves the value of a specific key

Here is the call graph for this function:

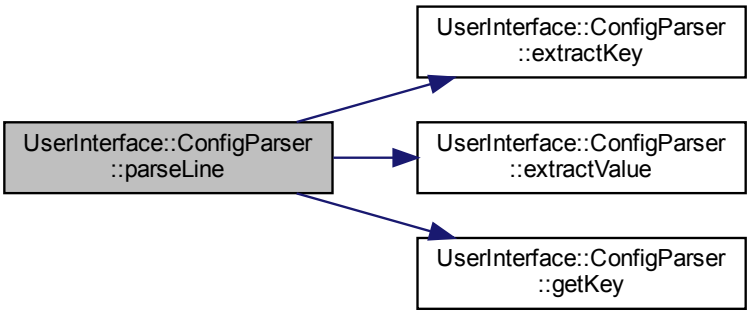


8.9.3.5 parseLine()

```
void UserInterface::ConfigParser::parseLine (
            const std::string & line,
            size_t const lineNum )  [inline], [private]
```

a function that parse the line by calling above mentioed functions

Here is the call graph for this function:



8.9.3.6 removeComment()

```
void UserInterface::ConfigParser::removeComment (
            std::string & line ) const  [inline], [private]
```

a function that removes everything from the semicolon (including it) to the end of the line.

8.9.3.7 whitespace()

```
bool UserInterface::ConfigParser::whitespace (
            const std::string & line ) const  [inline], [private]
```

a function that returns false if a non-space character was found, true otherwise. The function is "const" because it does not alter any class member variables.

8.9.4 Member Data Documentation

8.9.4.1 data

```
std::map<std::string, std::string> UserInterface::ConfigParser::data  [private]
```

which will hold pairs of key-value

8.9.4.2 fileName

```
std::string UserInterface::ConfigParser::fileName  [private]
```

As member variables, we will only have a std::string, which will hold the name of the configuration file.

The documentation for this class was generated from the following file:

- include/ConfigParser.hpp

8.10 UserInterface::Conversion Class Reference

a wrapper class which contain function for the conversion of std::string to primitive types (int, float, double, etc.,)

```
#include <ConfigParser.hpp>
```

Static Public Member Functions

- template<typename T >
  static T stringTOScalarT (std::string const &val)
- template<typename T >
  static std::vector< T > stringTOArray (std::string const &val)

8.10.1 Detailed Description

a wrapper class which contain function for the conversion of std::string to primitive types (int, float, double, etc.,)

8.10.2 Member Function Documentation

8.10.2.1 stringTOArray()

```
template<typename T >
static std::vector<T> UserInterface::Conversion::stringTOArray (
            std::string const & val )  [inline], [static]
```

8.10.2.2 stringTOScalarT()

```
template<typename T >
static T UserInterface::Conversion::stringTOScalarT (
            std::string const & val )  [inline], [static]
```

The documentation for this class was generated from the following file:

- include/ConfigParser.hpp

8.11 Convert-HPCG.data Class Reference

Public Member Functions

- def __init__ (self)
- def add (self, name, node)
- def exists (self, name)
- def find (self, name)

Public Attributes

- nodelist
- notlist

Static Public Attributes

- list nodelist = [ ]
- list notlist = [ ]

8.11.1 Constructor & Destructor Documentation

8.11.1.1 __init__()

```
def Convert-HPCG.data.__init__ (
              self )
```

8.11.2 Member Function Documentation

8.11.2.1 add()

```
def Convert-HPCG.data.add (
              self,
              name,
              node )
```

8.11.2.2 exists()

```
def Convert-HPCG.data.exists (
              self,
              name )
```

8.11.2.3 find()

```
def Convert-HPCG.data.find (
              self,
              name )
```

8.11.3 Member Data Documentation

8.11.3.1 nodelist [1/2]

```
list Convert-HPCG.data.nodelist = []  [static]
```

8.11.3.2 nodelist [2/2]

```
Convert-HPCG.data.nodelist
```

8.11.3.3 notlist [1/2]

```
list Convert-HPCG.data.notlist = []  [static]
```

8.11.3.4 notlist [2/2]

```
Convert-HPCG.data.notlist
```

The documentation for this class was generated from the following file:

- staticanalysis/Convert-HPCG.py

8.12 DisCosTiC::DisCosTiC_OP Struct Reference

```
#include <DataStruct.hpp>
```

Public Attributes

- DisCosTiC_Timetype time
- DisCosTiC_Timetype starttime

  only used for MSGs to identify start times
- DisCosTiC_Timetype syncstart

  ifdef RANKSYNC
- DisCosTiC_Timetype numOpsInQueue

  STRICT_ORDER a timestamp that determines the (original) insertion order of elemenqueueOp in the queue, it is increased for every new element, not for re-insertions! Needed for correctness. Keep order between Send/Recv and exec in NB case ∗/.
- DisCosTiC_Datatype bufSize
- DisCosTiC_Indextype target
- DisCosTiC_Indextype rank

  owning rank of this operation
- DisCosTiC_Indextype label
- DisCosTiC_Indextype tag
- DisCosTiC_Indextype node
- DisCosTiC_Indextype network
- char type
- char mode

  TODO: add blocking/non-blocking mode.

8.12.1 Member Data Documentation

8.12.1.1 bufSize

```
DisCosTiC_Datatype DisCosTiC::DisCosTiC_OP::bufSize
```

8.12.1.2 label

```
DisCosTiC_Indextype DisCosTiC::DisCosTiC_OP::label
```

8.12.1.3 mode

```
char DisCosTiC::DisCosTiC_OP::mode
```

TODO: add blocking/non-blocking mode.

8.12.1.4 network

```
DisCosTiC_Indextype DisCosTiC::DisCosTiC_OP::network
```

8.12.1.5 node

```
DisCosTiC_Indextype DisCosTiC::DisCosTiC_OP::node
```

8.12.1.6 numOpsInQueue

```
DisCosTiC_Timetype DisCosTiC::DisCosTiC_OP::numOpsInQueue
```

STRICT_ORDER a timestamp that determines the (original) insertion order of elemenqueueOp in the queue, it is increased for every new element, not for re-insertions! Needed for correctness. Keep order between Send/Recv and exec in NB case ∗/.

8.12.1.7 rank

```
DisCosTiC_Indextype DisCosTiC::DisCosTiC_OP::rank
```

owning rank of this operation

8.12.1.8 starttime

```
DisCosTiC_Timetype DisCosTiC::DisCosTiC_OP::starttime
```

only used for MSGs to identify start times

8.12.1.9 syncstart

```
DisCosTiC_Timetype DisCosTiC::DisCosTiC_OP::syncstart
```

ifdef RANKSYNC

8.12.1.10 tag

```
DisCosTiC_Indextype DisCosTiC::DisCosTiC_OP::tag
```

8.12.1.11 target

```
DisCosTiC_Indextype DisCosTiC::DisCosTiC_OP::target
```

8.12.1.12 time

```
DisCosTiC_Timetype DisCosTiC::DisCosTiC_OP::time
```

8.12.1.13 type

```
char DisCosTiC::DisCosTiC_OP::type
```

The documentation for this struct was generated from the following file:

- include/DataStruct.hpp

8.13 DisCosTiC::DisCosTiC_queueOP Struct Reference

`#include <DataStruct.hpp>`

Public Attributes

- DisCosTiC_Timetype starttime
  for visualization
- DisCosTiC_Datatype bufSize
- DisCosTiC_Indextype src
  TODO: src can go, if matching.
- DisCosTiC_Indextype tag
  TODO: tag can go, if matching.
- DisCosTiC_Indextype label

8.13.1 Member Data Documentation

8.13.1.1 bufSize

`DisCosTiC_Datatype DisCosTiC::DisCosTiC_queueOP::bufSize`

8.13.1.2 label

`DisCosTiC_Indextype DisCosTiC::DisCosTiC_queueOP::label`

8.13.1.3 src

`DisCosTiC_Indextype DisCosTiC::DisCosTiC_queueOP::src`

TODO: src can go, if matching.

8.13.1.4 starttime

`DisCosTiC_Timetype DisCosTiC::DisCosTiC_queueOP::starttime`

for visualization

8.13.1.5 tag

```
DisCosTiC_Indextype DisCosTiC::DisCosTiC_queueOP::tag
```

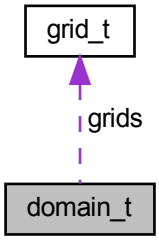
TODO: tag can go, if matching.

The documentation for this struct was generated from the following file:

- include/DataStruct.hpp

8.14 domain_t Struct Reference

Collaboration diagram for domain_t:



Public Attributes

- int x
- int y
- int dim_x
- int dim_y
- int global_dim_x
- int global_dim_y
- struct grid_t grids [2]
- int comm_rank
- int comm_size
- int iterations_performed
- int iterations_to_perform
- int active_grid

8.14.1 Member Data Documentation

8.14.1.1 active_grid

```
int domain_t::active_grid
```

8.14.1.2 comm_rank

```
int domain_t::comm_rank
```

8.14.1.3 comm_size

```
int domain_t::comm_size
```

8.14.1.4 dim_x

```
int domain_t::dim_x
```

8.14.1.5 dim_y

```
int domain_t::dim_y
```

8.14.1.6 global_dim_x

```
int domain_t::global_dim_x
```

8.14.1.7 global_dim_y

```
int domain_t::global_dim_y
```

8.14.1.8 grids

```
struct grid_t domain_t::grids[2]
```

8.14.1.9 iterations_performed

```
int domain_t::iterations_performed
```

8.14.1.10 iterations_to_perform

```
int domain_t::iterations_to_perform
```

8.14.1.11 x

```
int domain_t::x
```

8.14.1.12 y

```
int domain_t::y
```

The documentation for this struct was generated from the following file:

- staticanalysis/heat.c

8.15 ECM Struct Reference

```
#include <NodeModel.hpp>
```

Public Attributes

- DisCosTiC_Timetype T_OL_
- DisCosTiC_Timetype T_nOL_
- DisCosTiC_Timetype T_L1L2_
- DisCosTiC_Timetype T_L2L3_
- DisCosTiC_Timetype T_L3Mem_
- DisCosTiC_Timetype T_ECM_
- DisCosTiC_Timetype T_MECM_
- DisCosTiC_Timetype ECM_core

8.15.1 Member Data Documentation

8.15.1.1 ECM_core

DisCosTiC_Timetype ECM::ECM_core

8.15.1.2 T_ECM_

DisCosTiC_Timetype ECM::T_ECM_

8.15.1.3 T_L1L2_

DisCosTiC_Timetype ECM::T_L1L2_

8.15.1.4 T_L2L3_

DisCosTiC_Timetype ECM::T_L2L3_

8.15.1.5 T_L3Mem_

DisCosTiC_Timetype ECM::T_L3Mem_

8.15.1.6 T_MECM_

DisCosTiC_Timetype ECM::T_MECM_

8.15.1.7 T_nOL_

DisCosTiC_Timetype ECM::T_nOL_

8.15.1.8 T_OL_

DisCosTiC_Timetype ECM::T_OL_

The documentation for this struct was generated from the following file:

- nodelevel/include/NodeModel.hpp

8.16 DisCosTiC::Grid Class Reference

#include <Grid.hpp>

Public Member Functions

- DisCosTiC::AST_OP_TYPE getOp (Benchmark benchmark, DisCosTiC::idNodeTypePair ID, DisCosTiC_Datatype rank, DisCosTiC_Datatype label)

  get the nodes
- DisCosTiC_Datatype getNumOps ()

  default constructor
- void getTypeSortedOps (DisCosTiC::Operations &opVec)

  get the all operations ordered by their type for all ranks and time steps
- void getSortedRootOps (DisCosTiC::Operations &opVec)

  get the initial root operations ordered by their type for all ranks and time steps
- void setOp (DisCosTiC_Datatype rank, DisCosTiC_Datatype label, Benchmark benchmark, DisCosTiC::idNodeTypePair ID)

  set the operation, if started
- void unsetOp (DisCosTiC_Datatype rank, DisCosTiC_Datatype label, Benchmark benchmark, DisCosTiC::idNodeTypePair ID)

  un set the operation, if completed

Public Attributes

- DisCosTiC_Datatype numOps

  private members of Grid class
- DisCosTiC_Datatype numRanks
- DisCosTiC_Datatype myRank
- DisCosTiC::VecDeserialNode Nodes

8.16.1 Member Function Documentation

8.16.1.1 getNumOps()

DisCosTiC_Datatype DisCosTiC::Grid::getNumOps ( ) [inline]

default constructor

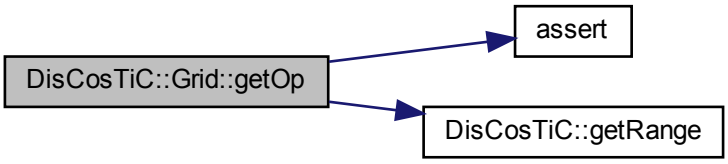
get the number of operations for each rank

8.16.1.2 getOp()

```
DisCosTiC::AST_OP_TYPE DisCosTiC::Grid::getOp (
            Benchmark benchmark,
            DisCosTiC::idNodeTypePair ID,
            DisCosTiC_Datatype rank,
            DisCosTiC_Datatype label )  [inline]
```

get the nodes

Here is the call graph for this function:



8.16.1.3 getSortedRootOps()

```
void DisCosTiC::Grid::getSortedRootOps (
            DisCosTiC::Operations & opVec )  [inline]
```

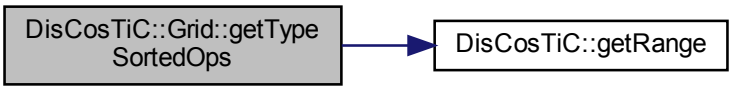
get the initial root operations ordered by their type for all ranks and time steps

8.16.1.4 getTypeSortedOps()

```
void DisCosTiC::Grid::getTypeSortedOps (
            DisCosTiC::Operations & opVec )  [inline]
```

get the all operations ordered by their type for all ranks and time steps

this is a sort operation that can be used to compare DisCosTiC_OP by type and sort them with respect with that respectHere is the call graph for this function:

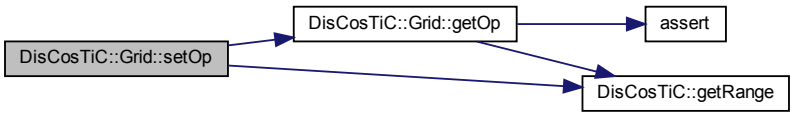


8.16.1.5 setOp()

```
void DisCosTiC::Grid::setOp (
            DisCosTiC_Datatype rank,
            DisCosTiC_Datatype label,
            Benchmark benchmark,
            DisCosTiC::idNodeTypePair ID )  [inline]
```

set the operation, if started

Here is the call graph for this function:

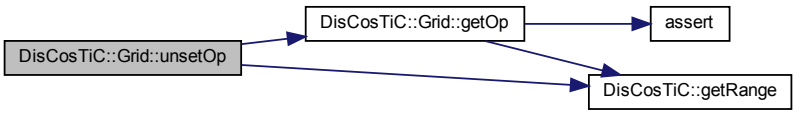


8.16.1.6 unsetOp()

```
void DisCosTiC::Grid::unsetOp (
            DisCosTiC_Datatype rank,
            DisCosTiC_Datatype label,
            Benchmark benchmark,
            DisCosTiC::idNodeTypePair ID )  [inline]
```

un set the operation, if completed

Here is the call graph for this function:



8.16.2 Member Data Documentation

8.16.2.1 myRank

```
DisCosTiC_Datatype DisCosTiC::Grid::myRank
```

8.16.2.2 Nodes

```
DisCosTiC::VecDeserialNode DisCosTiC::Grid::Nodes
```

8.16.2.3 numOps

```
DisCosTiC_Datatype DisCosTiC::Grid::numOps
```

private members of Grid class

8.16.2.4 numRanks

```
DisCosTiC_Datatype DisCosTiC::Grid::numRanks
```

The documentation for this class was generated from the following file:

- include/Grid.hpp

8.17 DisCosTiC::Grid_Init Class Reference

this class exposes all P graphVec and manages dependencies and execution order. It returns a list of executable operations and offers an interface to mark operations as executed.

```
#include <GridInit.hpp>
```

Public Member Functions

- Grid_Init (DisCosTiC_Datatype num_ranks_, DisCosTiC_Datatype num_operations_, Benchmark benchmark, DisCosTiC::idNodeTypePair ID)

  constructor that initializes the variables.
- ~Grid_Init ()

  destructor

Public Attributes

- DisCosTiC::VecSeqGraph_t graphVec

  public variables

Private Attributes

- DisCosTiC_Datatype num_ranks

  private variables
- DisCosTiC_Datatype num_operations

8.17.1 Detailed Description

this class exposes all P graphVec and manages dependencies and execution order. It returns a list of executable operations and offers an interface to mark operations as executed.

8.17.2 Constructor & Destructor Documentation

8.17.2.1 Grid_Init()

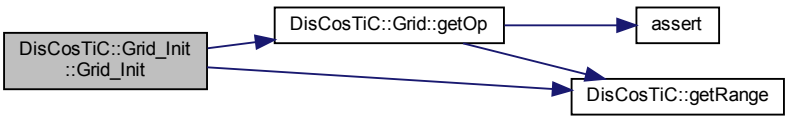
```
DisCosTiC::Grid_Init::Grid_Init (
            DisCosTiC_Datatype num_ranks_,
            DisCosTiC_Datatype num_operations_,
            Benchmark benchmark,
            DisCosTiC::idNodeTypePair ID )  [inline]
```

constructor that initializes the variables.

Parameters

binary	file name

get root nodes of type DisCosTiC::AST_OP_TYPE (i.e., exec in our case) and other info of all ranksHere is the call graph for this function:



8.17.2.2 ~Grid_Init()

```
DisCosTiC::Grid_Init::~Grid_Init ( )  [inline]
```

destructor

8.17.3 Member Data Documentation

8.17.3.1 graphVec

```
DisCosTiC::VecSeqGraph_t DisCosTiC::Grid_Init::graphVec
```

public variables

8.17.3.2 num_operations

```
DisCosTiC_Datatype DisCosTiC::Grid_Init::num_operations  [private]
```

8.17.3.3 num_ranks

```
DisCosTiC_Datatype DisCosTiC::Grid_Init::num_ranks  [private]
```

private variables

The documentation for this class was generated from the following file:

- include/GridInit.hpp

8.18 grid_t Struct Reference

Public Attributes

- double * data
- double * inner_cells
- double * ghost_cells_bottom
- double * ghost_cells_top

8.18.1 Member Data Documentation

8.18.1.1 data

```
double* grid_t::data
```

8.18.1.2 ghost_cells_bottom

```
double* grid_t::ghost_cells_bottom
```

8.18.1.3 ghost_cells_top

```
double* grid_t::ghost_cells_top
```

8.18.1.4 inner_cells

```
double* grid_t::inner_cells
```

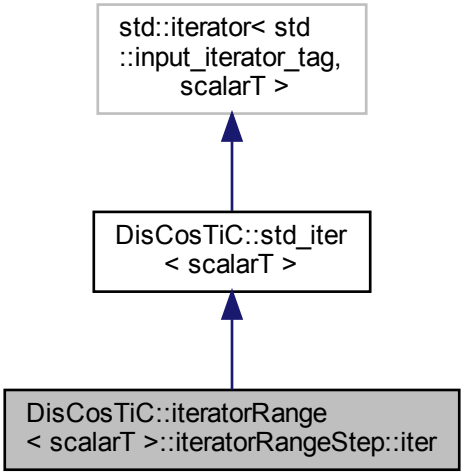
The documentation for this struct was generated from the following file:

- staticanalysis/heat.c

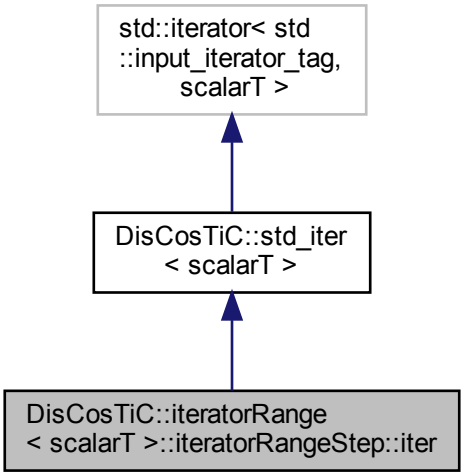
8.19 DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::iter Struct Reference

```
#include <DataType.hpp>
```

Inheritance diagram for DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::iter:



Collaboration diagram for DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::iter:



Public Member Functions

- iter (scalarT it, scalarT stepSize)
- iter & operator++ ()
- iter operator++ (int)
- bool operator== (iter const &other) const
- bool operator!= (iter const &other) const

Protected Attributes

- scalarT stepSize

8.19.1 Constructor & Destructor Documentation

8.19.1.1 iter()

```
template<typename scalarT >
DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::iter::iter (
            scalarT it,
            scalarT stepSize )  [inline]
```

8.19.2 Member Function Documentation

8.19.2.1 operator"!=()

```
template<typename scalarT >
bool DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::iter::operator!= (
            iter const & other ) const  [inline]
```

8.19.2.2 operator++() [1/2]

```
template<typename scalarT >
iter& DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::iter::operator++ ( )  [inline]
```

8.19.2.3 operator++() [2/2]

```
template<typename scalarT >
iter DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::iter::operator++ (
            int  )  [inline]
```

8.19.2.4 operator==()

```
template<typename scalarT >
bool DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::iter::operator== (
            iter const & other ) const  [inline]
```

8.19.3 Member Data Documentation

8.19.3.1 stepSize

```
template<typename scalarT >
scalarT DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::iter::stepSize  [protected]
```

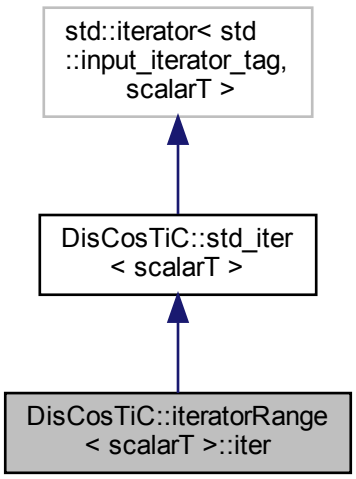
The documentation for this struct was generated from the following file:

- include/DataType.hpp

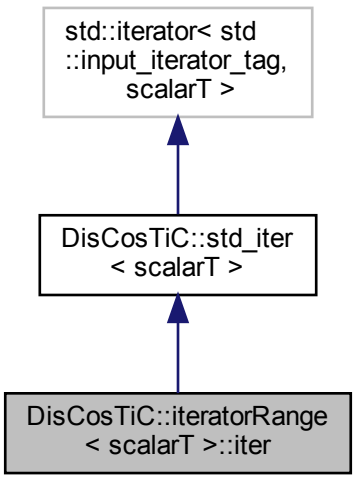
8.20 DisCosTiC::iteratorRange< scalarT >::iter Struct Reference

`#include <DataType.hpp>`

Inheritance diagram for DisCosTiC::iteratorRange< scalarT >::iter:



Collaboration diagram for DisCosTiC::iteratorRange< scalarT >::iter:



Public Member Functions

- iter (scalarT it)

Additional Inherited Members

8.20.1 Constructor & Destructor Documentation

8.20.1.1 iter()

```
template<typename scalarT >
DisCosTiC::iteratorRange< scalarT >::iter::iter (
            scalarT it )  [inline]
```

The documentation for this struct was generated from the following file:

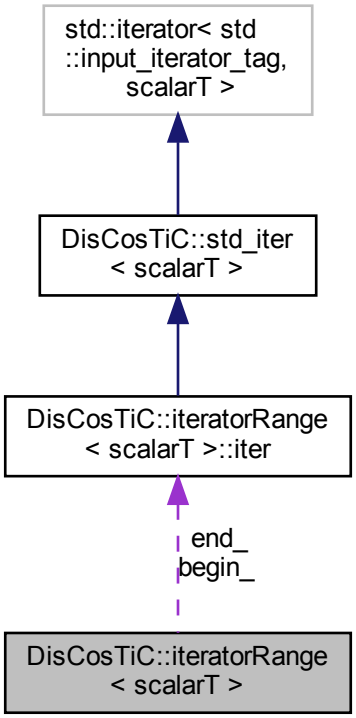
- include/DataType.hpp

8.21 DisCosTiC::iteratorRange< scalarT > Struct Template Reference

iterator ranges for each entityTypes to support iteration with range-based for loops. Iterating over sets of entityTypes is one of the most common operation. Our infrastructure implements this custom range-based for loops in the C++ ways by providing iterators and matching begin(), end() and stepSize(scalarT stepSize) methods.

```
#include <DataType.hpp>
```

Collaboration diagram for DisCosTiC::iteratorRange< scalarT >:



Classes

- struct iter
- struct iteratorRangeStep

  wrapper class of range-based for loop with certain step size

Private Attributes

- iter begin_
- iter end_

8.21.1 Detailed Description

template<typename scalarT>
struct DisCosTiC::iteratorRange< scalarT >

iterator ranges for each entityTypes to support iteration with range-based for loops. Iterating over sets of entityTypes is one of the most common operation. Our infrastructure implements this custom range-based for loops in the C++ ways by providing iterators and matching begin(), end() and stepSize(scalarT stepSize) methods.

8.21.2 Member Data Documentation

8.21.2.1 begin_

```
template<typename scalarT >
iter DisCosTiC::iteratorRange< scalarT >::begin_  [private]
```

8.21.2.2 end_

```
template<typename scalarT >
iter DisCosTiC::iteratorRange< scalarT >::end_  [private]
```

The documentation for this struct was generated from the following file:

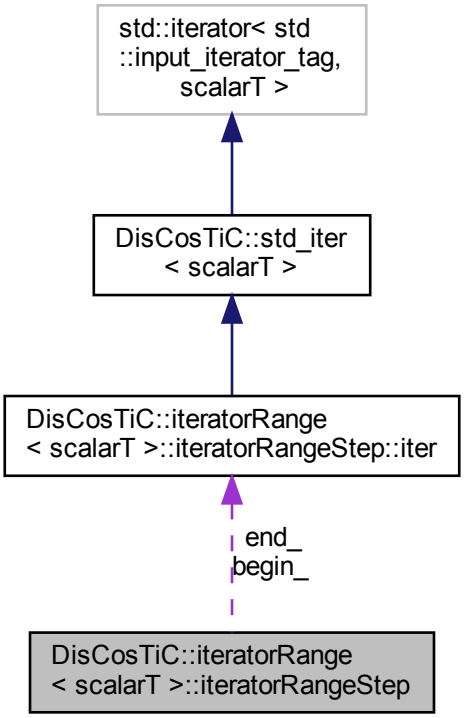
- include/DataType.hpp

8.22 DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep Struct Reference

wrapper class of range-based for loop with certain step size

`#include <DataType.hpp>`

Collaboration diagram for DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep:



Classes

- struct iter

Public Member Functions

- iteratorRangeStep (scalarT begin, scalarT end, scalarT stepSize)
- iter begin () const
- iter end () const

Private Attributes

- iter begin_
- iter end_

8.22.1 Detailed Description

template<typename scalarT>
struct DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep

wrapper class of range-based for loop with certain step size

8.22.2 Constructor & Destructor Documentation

8.22.2.1 iteratorRangeStep()

```
template<typename scalarT >
DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::iteratorRangeStep (
            scalarT begin,
            scalarT end,
            scalarT stepSize )  [inline]
```

8.22.3 Member Function Documentation

8.22.3.1 begin()

```
template<typename scalarT >
iter DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::begin ( ) const  [inline]
```

8.22.3.2 end()

```
template<typename scalarT >
iter DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::end ( ) const  [inline]
```

8.22.4 Member Data Documentation

8.22.4.1 begin_

```
template<typename scalarT >
iter DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::begin_  [private]
```

8.22.4.2 end_

```
template<typename scalarT >
iter DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::end_  [private]
```

The documentation for this struct was generated from the following file:

- include/DataType.hpp

8.23 Machine Struct Reference

`#include <NodeModel.hpp>`

Public Attributes

- DisCosTiC_Datatype n_cores_
- DisCosTiC_Datatype p0_nom_
- DisCosTiC_Datatype cores_per_numa_domain_
- DisCosTiC_Datatype cores_per_socket_
- DisCosTiC_Datatype sockets_
- DisCosTiC_Timetype f_core_
- DisCosTiC_Timetype f_uncore_
- DisCosTiC_Timetype f_core_nom_
- DisCosTiC_Timetype alpha_
- DisCosTiC_Timetype task_

8.23.1 Member Data Documentation

8.23.1.1 alpha_

```
DisCosTiC_Timetype Machine::alpha_
```

8.23.1.2 cores_per_numa_domain_

```
DisCosTiC_Datatype Machine::cores_per_numa_domain_
```

8.23.1.3 cores_per_socket_

```
DisCosTiC_Datatype Machine::cores_per_socket_
```

8.23.1.4 f_core_

```
DisCosTiC_Timetype Machine::f_core_
```

8.23.1.5 f_core_nom_

```
DisCosTiC_Timetype Machine::f_core_nom_
```

8.23.1.6 f_uncore_

```
DisCosTiC_Timetype Machine::f_uncore_
```

8.23.1.7 n_cores_

```
DisCosTiC_Datatype Machine::n_cores_
```

8.23.1.8 p0_nom_

```
DisCosTiC_Datatype Machine::p0_nom_
```

8.23.1.9 sockets_

```
DisCosTiC_Datatype Machine::sockets_
```

8.23.1.10 task_

```
DisCosTiC_Timetype Machine::task_
```

The documentation for this struct was generated from the following file:

- nodelevel/include/NodeModel.hpp

8.24 UserInterface::NetworkConfigParser Class Reference

a wrapper class which contains functions for parsing the configuration file

`#include <NetworkConfigParser.hpp>`

Public Member Functions

- NetworkConfigParser ()

  a class to set the name of the configuration file and extracts and parses the data
- NetworkConfigParser (const std::string &fileName)
- void readData (const std::string &fileName)
- void setData (const int buffersize)
- bool getKey (const std::string &key) const
- template<typename scalarT >
  scalarT getValue (const std::string &key, scalarT const &defaultValue=scalarT()) const

  a function that retrieves the value of a specific key

Private Member Functions

- void removeComment (std::string &line) const

  a function that removes everything from the semicolon (including it) to the end of the line.
- bool whitespace (const std::string &line) const

  a function that returns false if a non-space character was found, true otherwise. The function is "const" because it does not alter any class member variables.
- void parseLine (const std::string &line, size_t const lineNum)

  a function that parse the line by calling above mentioed functions

Private Attributes

- int dataCounter = 0
- double networkFileData [400][8] = {0}
- std::map< std::string, std::string > data

  which will hold pairs of key-value
- std::string fileName

  As member variables, we will only have a std::string, which will hold the name of the configuration file.

8.24.1 Detailed Description

a wrapper class which contains functions for parsing the configuration file

8.24.2 Constructor & Destructor Documentation

8.24.2.1 NetworkConfigParser() [1/2]

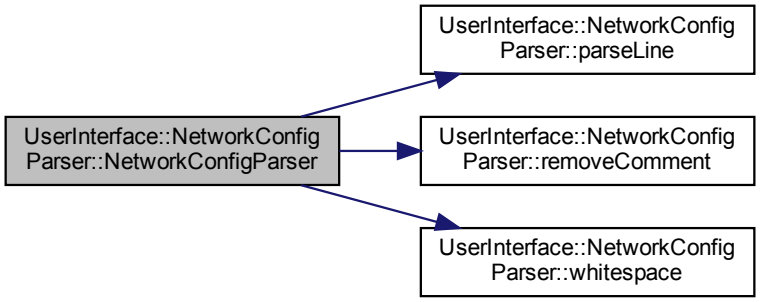
```
UserInterface::NetworkConfigParser::NetworkConfigParser ( )  [inline]
```

a class to set the name of the configuration file and extracts and parses the data

8.24.2.2 NetworkConfigParser() [2/2]

```
UserInterface::NetworkConfigParser::NetworkConfigParser (
            const std::string & fileName )  [inline]
```

Here is the call graph for this function:



8.24.3 Member Function Documentation

8.24.3.1 getKey()

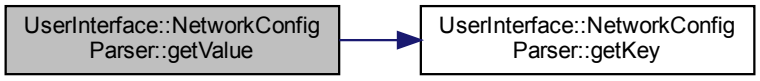
```
bool UserInterface::NetworkConfigParser::getKey (
            const std::string & key ) const  [inline]
```

8.24.3.2 getValue()

```
template<typename scalarT >
scalarT UserInterface::NetworkConfigParser::getValue (
            const std::string & key,
            scalarT const & defaultValue = scalarT() ) const  [inline]
```

a function that retrieves the value of a specific key

Here is the call graph for this function:



8.24.3.3 parseLine()

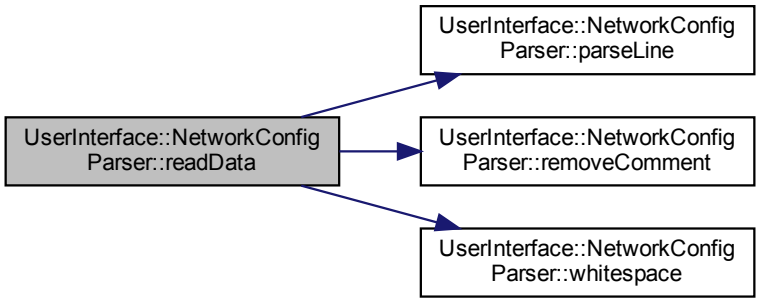
```
void UserInterface::NetworkConfigParser::parseLine (
            const std::string & line,
            size_t const lineNum )  [inline], [private]
```

a function that parse the line by calling above mentioed functions

8.24.3.4 readData()

```
void UserInterface::NetworkConfigParser::readData (
            const std::string & fileName )  [inline]
```

Here is the call graph for this function:



8.24.3.5 removeComment()

```
void UserInterface::NetworkConfigParser::removeComment (
            std::string & line ) const  [inline], [private]
```

a function that removes everything from the semicolon (including it) to the end of the line.

8.24.3.6 setData()

```
void UserInterface::NetworkConfigParser::setData (
            const int buffersize )  [inline]
```

8.24.3.7 whitespace()

```
bool UserInterface::NetworkConfigParser::whitespace (
            const std::string & line ) const  [inline], [private]
```

a function that returns false if a non-space character was found, true otherwise. The function is "const" because it does not alter any class member variables.

8.24.4 Member Data Documentation

8.24.4.1 data

```
std::map<std::string, std::string> UserInterface::NetworkConfigParser::data  [private]
```

which will hold pairs of key-value

8.24.4.2 dataCounter

```
int UserInterface::NetworkConfigParser::dataCounter = 0  [private]
```

8.24.4.3 fileName

```
std::string UserInterface::NetworkConfigParser::fileName  [private]
```

As member variables, we will only have a std::string, which will hold the name of the configuration file.

8.24.4.4 networkFileData

```
double UserInterface::NetworkConfigParser::networkFileData[400][8] = {0}  [private]
```

The documentation for this class was generated from the following file:

- include/NetworkConfigParser.hpp

8.25 Convert-HEAT.newNode Class Reference

Public Member Functions

- def __init__ (self, data, type)

Public Attributes

- data
- type
- children
- name
- iter
- left
- right

8.25.1 Constructor & Destructor Documentation

8.25.1.1 __init__()

```
def Convert-HEAT.newNode.__init__ (
              self,
              data,
              type )
```

8.25.2 Member Data Documentation

8.25.2.1 children

```
Convert-HEAT.newNode.children
```

8.25.2.2 data

```
Convert-HEAT.newNode.data
```

8.25.2.3 iter

```
Convert-HEAT.newNode.iter
```

8.25.2.4 left

```
Convert-HEAT.newNode.left
```

8.25.2.5 name

```
Convert-HEAT.newNode.name
```

8.25.2.6 right

```
Convert-HEAT.newNode.right
```

8.25.2.7 type

```
Convert-HEAT.newNode.type
```

The documentation for this class was generated from the following file:

- staticanalysis/Convert-HEAT.py

8.26 Convert-POISSONNS.newNode Class Reference

Public Member Functions

- def __init__ (self, data, type)

Public Attributes

- data
- type
- children
- name
- iter
- left
- right

8.26.1 Constructor & Destructor Documentation

8.26.1.1 __init__()

```
def Convert-POISSONNS.newNode.__init__ (
              self,
              data,
              type )
```

8.26.2 Member Data Documentation

8.26.2.1 children

```
Convert-POISSONNS.newNode.children
```

8.26.2.2 data

```
Convert-POISSONNS.newNode.data
```

8.26.2.3 iter

```
Convert-POISSONNS.newNode.iter
```

8.26.2.4 left

`Convert-POISSONNS.newNode.left`

8.26.2.5 name

`Convert-POISSONNS.newNode.name`

8.26.2.6 right

`Convert-POISSONNS.newNode.right`

8.26.2.7 type

`Convert-POISSONNS.newNode.type`

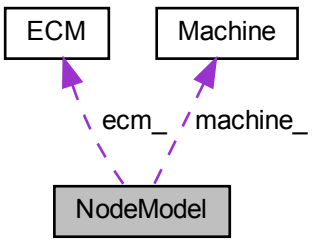
The documentation for this class was generated from the following file:

- staticanalysis/Convert-POISSONNS.py

8.27 NodeModel Class Reference

`#include <NodeModel.hpp>`

Collaboration diagram for NodeModel:



Public Member Functions

- NodeModel ()=default
- NodeModel (Machine &machine, ECM &ecm, DisCosTiC_Datatype flops, std::string &filename)
- NodeModel (UserInterface::ConfigParser *CFG_args, UserInterface::YAMLParser YAML_args, UserInterface::ConfigParser *CFG_args2, std::string ECM_core)
- NodeModel (UserInterface::ConfigParser *CFG_args, UserInterface::YAMLParser YAML_args, DisCosTiC_Timetype T_OL, DisCosTiC_Timetype T_nOL, DisCosTiC_Timetype T_L1L2, DisCosTiC_Timetype T_L2L3, DisCosTiC_Timetype T_L3Mem, DisCosTiC_Timetype T_ECM, DisCosTiC_Timetype ECM_core)
- ~NodeModel ()=default
- Machine & getMachine ()
- ECM & getECM ()
- DisCosTiC_Datatype getFlops ()
- std::string & getFileName ()
- void setMultiCore (DisCosTiC_Timetype T_MECM)

Public Attributes

- std::string benchmark_kernel

Private Attributes

- Machine machine_
- ECM ecm_
- DisCosTiC_Datatype flops_
- std::string filename_

8.27.1 Constructor & Destructor Documentation

8.27.1.1 NodeModel() [1/4]

```
NodeModel::NodeModel ( )  [default]
```

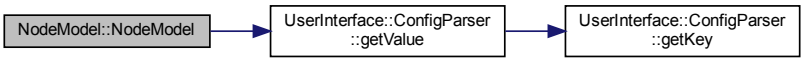
8.27.1.2 NodeModel() [2/4]

```
NodeModel::NodeModel (
            Machine & machine,
            ECM & ecm,
            DisCosTiC_Datatype flops,
            std::string & filename )  [inline]
```

8.27.1.3 NodeModel() [3/4]

```
NodeModel::NodeModel (
            UserInterface::ConfigParser * CFG_args,
            UserInterface::YAMLParser YAML_args,
            UserInterface::ConfigParser * CFG_args2,
            std::string ECM_core )  [inline]
```

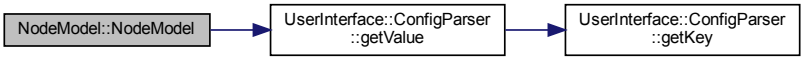
Here is the call graph for this function:



8.27.1.4 NodeModel() [4/4]

```
NodeModel::NodeModel (
            UserInterface::ConfigParser * CFG_args,
            UserInterface::YAMLParser YAML_args,
            DisCosTiC_Timetype T_OL,
            DisCosTiC_Timetype T_nOL,
            DisCosTiC_Timetype T_L1L2,
            DisCosTiC_Timetype T_L2L3,
            DisCosTiC_Timetype T_L3Mem,
            DisCosTiC_Timetype T_ECM,
            DisCosTiC_Timetype ECM_core )  [inline]
```

Here is the call graph for this function:



8.27.1.5 ~NodeModel()

```
NodeModel::~NodeModel ( )  [default]
```

8.27.2 Member Function Documentation

8.27.2.1 getECM()

```
ECM& NodeModel::getECM ( )  [inline]
```

8.27.2.2 getFileName()

```
std::string& NodeModel::getFileName ( )  [inline]
```

8.27.2.3 getFlops()

```
DisCosTiC_Datatype NodeModel::getFlops ( )  [inline]
```

8.27.2.4 getMachine()

```
Machine& NodeModel::getMachine ( )  [inline]
```

8.27.2.5 setMultiCore()

```
void NodeModel::setMultiCore (
            DisCosTiC_Timetype T_MECM )  [inline]
```

8.27.3 Member Data Documentation

8.27.3.1 benchmark_kernel

```
std::string NodeModel::benchmark_kernel
```

8.27.3.2 ecm_

```
ECM NodeModel::ecm_  [private]
```

8.27.3.3 filename_

```
std::string NodeModel::filename_  [private]
```

8.27.3.4 flops_

```
DisCosTiC_Datatype NodeModel::flops_  [private]
```

8.27.3.5 machine_

```
Machine NodeModel::machine_  [private]
```

The documentation for this class was generated from the following file:

- nodelevel/include/NodeModel.hpp

8.28 DisCosTiC::OpMatcher Struct Reference

this matches and removes operations from list if found, otherwise returns false

```
#include <DataStruct.hpp>
```

Static Public Member Functions

- static bool listmatch (const DisCosTiC::DisCosTiC_OP &OP, DisCosTiC::ListqueueOp *Q, DisCosTiC::DisCosTiC_queueOP *matchedOP_=NULL)

8.28.1 Detailed Description

this matches and removes operations from list if found, otherwise returns false

8.28.2 Member Function Documentation

8.28.2.1 listmatch()

```
static bool DisCosTiC::OpMatcher::listmatch (
             const DisCosTiC::DisCosTiC_OP & OP,
             DisCosTiC::ListqueueOp * Q,
             DisCosTiC::DisCosTiC_queueOP * matchedOP_ = NULL )  [inline], [static]
```

The documentation for this struct was generated from the following file:

- include/DataStruct.hpp

8.29 DisCosTiC::OpTimeComparator Struct Reference

this is a comparison functor that can be used to compare and sort DisCosTiC_OP by time

```
#include <DataStruct.hpp>
```

Public Member Functions

- bool operator() (DisCosTiC_OP a, DisCosTiC_OP b)

8.29.1 Detailed Description

this is a comparison functor that can be used to compare and sort DisCosTiC_OP by time

8.29.2 Member Function Documentation

8.29.2.1 operator()()

```
bool DisCosTiC::OpTimeComparator::operator() (
             DisCosTiC_OP a,
             DisCosTiC_OP b )  [inline]
```

< STRICT_ORDER

The documentation for this struct was generated from the following file:

- include/DataStruct.hpp

8.30 Solver Struct Reference

Public Attributes

- double dx
- double dy
- double ys
- int imax
- int jmax
- int jmaxLocal
- int rank
- int size
- double xlength
- double ylength
- double * p
- double * rhs
- double eps
- double omega
- double rho
- int itermax

8.30.1 Member Data Documentation

8.30.1.1 dx

```
double Solver::dx
```

8.30.1.2 dy

```
double Solver::dy
```

8.30.1.3 eps

```
double Solver::eps
```

8.30.1.4 imax

```
int Solver::imax
```

8.30.1.5 itermax

```
int Solver::itermax
```

8.30.1.6 jmax

```
int Solver::jmax
```

8.30.1.7 jmaxLocal

```
int Solver::jmaxLocal
```

8.30.1.8 omega

```
double Solver::omega
```

8.30.1.9 p

```
double* Solver::p
```

8.30.1.10 rank

```
int Solver::rank
```

8.30.1.11 rho

```
double Solver::rho
```

8.30.1.12 rhs

```
double * Solver::rhs
```

8.30.1.13 size

```
int Solver::size
```

8.30.1.14 xlength

```
double Solver::xlength
```

8.30.1.15 ylength

```
double Solver::ylength
```

8.30.1.16 ys

```
double Solver::ys
```

The documentation for this struct was generated from the following file:

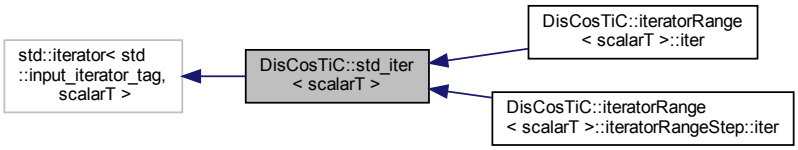
- staticanalysis/poissonNS.c

8.31 DisCosTiC::std_iter< scalarT > Struct Template Reference

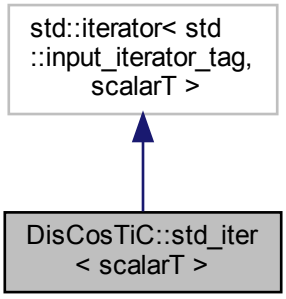
a time stepping loop

```
#include <DataType.hpp>
```

Inheritance diagram for DisCosTiC::std_iter< scalarT >:



Collaboration diagram for DisCosTiC::std_iter< scalarT >:



Public Member Functions

- std_iter (scalarT it)
- scalarT operator∗ () const
- scalarT const ∗ operator-> () const
- std_iter & operator++ ()
- std_iter operator++ (int)
- bool operator== (std_iter const &other) const
- bool operator!= (std_iter const &other) const

Protected Attributes

- scalarT it

8.31.1 Detailed Description

template<typename scalarT>
struct DisCosTiC::std_iter< scalarT >

a time stepping loop

8.31.2 Constructor & Destructor Documentation

8.31.2.1 std_iter()

```
template<typename scalarT >
DisCosTiC::std_iter< scalarT >::std_iter (
            scalarT it )  [inline]
```

8.31.3 Member Function Documentation

8.31.3.1 operator"!=()

```
template<typename scalarT >
bool DisCosTiC::std_iter< scalarT >::operator!= (
            std_iter< scalarT > const & other ) const  [inline]
```

8.31.3.2 operator*()

```
template<typename scalarT >
scalarT DisCosTiC::std_iter< scalarT >::operator* ( ) const  [inline]
```

8.31.3.3 operator++() [1/2]

```
template<typename scalarT >
std_iter& DisCosTiC::std_iter< scalarT >::operator++ ( )  [inline]
```

8.31.3.4 operator++() [2/2]

```
template<typename scalarT >
std_iter DisCosTiC::std_iter< scalarT >::operator++ (
            int  )  [inline]
```

8.31.3.5 operator->()

```
template<typename scalarT >
scalarT const* DisCosTiC::std_iter< scalarT >::operator-> ( ) const  [inline]
```

8.31.3.6 operator==()

```
template<typename scalarT >
bool DisCosTiC::std_iter< scalarT >::operator== (
            std_iter< scalarT > const & other ) const  [inline]
```

8.31.4 Member Data Documentation

8.31.4.1 it

```
template<typename scalarT >
scalarT DisCosTiC::std_iter< scalarT >::it  [protected]
```

The documentation for this struct was generated from the following file:

- include/DataType.hpp

8.32 UserInterface::TimeRankOP Class Reference

```
#include <TimeRankOP.hpp>
```

Public Member Functions

- TimeRankOP (UserInterface::ConfigParser *args_info, DisCosTiC_Datatype rank, int totalrank)

  constructor that initializes the coordinates
- void osend (DisCosTiC_Datatype rank, DisCosTiC_Datatype start, DisCosTiC_Datatype end, DisCosTiC_Datatype cpu, float r=0.0, float g=0.0, float b=1.0)

  print time taken by overhead at sender side to output file
- void orecv (DisCosTiC_Datatype rank, DisCosTiC_Datatype start, DisCosTiC_Datatype end, DisCosTiC_Datatype cpu, float r=0.0, float g=0.0, float b=1.0)

  print time taken by overhead at receiver side to output file
- void comp (DisCosTiC_Datatype rank, DisCosTiC_Datatype start, DisCosTiC_Datatype end, DisCosTiC_Datatype cpu, float r=1.0, float g=0.0, float b=0.0)

  print time taken by execution to output file
- void msg (DisCosTiC_Datatype source, DisCosTiC_Datatype dest, DisCosTiC_Datatype starttime, DisCosTiC_Datatype endtime, DisCosTiC_Datatype size, DisCosTiC_Datatype G, float r=0.0, float g=0.0, float b=1.0)

  print time taken by message transmission to output file
- ~TimeRankOP ()

  destructor

Private Member Functions

- void ranknum (DisCosTiC_Datatype numranks)

  print number of processes to output file
- void file_write (bool append)

  print all events (i.e., osend, orecv, execution, msg transmission) to output file

Private Attributes

- std::string content

  private variables
- std::string filename

8.32.1 Constructor & Destructor Documentation

8.32.1.1 TimeRankOP()

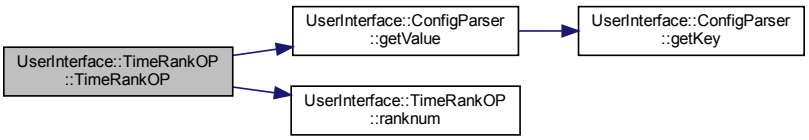
```
UserInterface::TimeRankOP::TimeRankOP (
            UserInterface::ConfigParser * args_info,
            DisCosTiC_Datatype rank,
            int totalrank ) [inline]
```

constructor that initializes the coordinates

Parameters

CFG_args	and number of ranks

Here is the call graph for this function:



8.32.1.2 ~TimeRankOP()

```
UserInterface::TimeRankOP::~TimeRankOP ( ) [inline]
```

destructor

8.32.2 Member Function Documentation

8.32.2.1 comp()

```
void UserInterface::TimeRankOP::comp (
            DisCosTiC_Datatype rank,
            DisCosTiC_Datatype start,
            DisCosTiC_Datatype end,
            DisCosTiC_Datatype cpu,
            float r = 1.0,
            float g = 0.0,
            float b = 0.0 )  [inline]
```

print time taken by execution to output file

Parameters

rank	(process number), start (time), end (time), cpu (core number)

8.32.2.2 file_write()

```
void UserInterface::TimeRankOP::file_write (
            bool append )  [inline], [private]
```

print all events (i.e., osend, orecv, execution, msg transmission) to output file

Parameters

append	

8.32.2.3 msg()

```
void UserInterface::TimeRankOP::msg (
            DisCosTiC_Datatype source,
            DisCosTiC_Datatype dest,
            DisCosTiC_Datatype starttime,
            DisCosTiC_Datatype endtime,
            DisCosTiC_Datatype size,
            DisCosTiC_Datatype G,
            float r = 0.0,
            float g = 0.0,
            float b = 1.0 )  [inline]
```

print time taken by message transmission to output file

Parameters

rank	(process number), start (time), end (time), cpu (core number)

8.32.2.4 orecv()

```
void UserInterface::TimeRankOP::orecv (
            DisCosTiC_Datatype rank,
            DisCosTiC_Datatype start,
            DisCosTiC_Datatype end,
            DisCosTiC_Datatype cpu,
            float r = 0.0,
            float g = 0.0,
            float b = 1.0 )  [inline]
```

print time taken by overhead at receiver side to output file

Parameters

rank	(process number), start (time), end (time), cpu (core number)

8.32.2.5 osend()

```
void UserInterface::TimeRankOP::osend (
            DisCosTiC_Datatype rank,
            DisCosTiC_Datatype start,
            DisCosTiC_Datatype end,
            DisCosTiC_Datatype cpu,
            float r = 0.0,
            float g = 0.0,
            float b = 1.0 )  [inline]
```

print time taken by overhead at sender side to output file

Parameters

rank	(process number), start (time), end (time), cpu (core number)

8.32.2.6 ranknum()

```
void UserInterface::TimeRankOP::ranknum (
            DisCosTiC_Datatype numranks )  [inline], [private]
```

print number of processes to output file

Parameters

numranks	(total number of process)

8.32.3 Member Data Documentation

8.32.3.1 content

```
std::string UserInterface::TimeRankOP::content  [private]
```

private variables

8.32.3.2 filename

```
std::string UserInterface::TimeRankOP::filename  [private]
```

The documentation for this class was generated from the following file:

- visualization/TimeRankOP.hpp

8.33 Convert-HEAT.Tree Class Reference

Public Member Functions

- def __init__ (self, src, name)
- def addChild (node)

Public Attributes

- line
- src
- name
- data

8.33.1 Constructor & Destructor Documentation

8.33.1.1 __init__()

```
def Convert-HEAT.Tree.__init__ (
              self,
              src,
              name )
```

8.33.2 Member Function Documentation

8.33.2.1 addChild()

```
def Convert-HEAT.Tree.addChild (
              node )
```

8.33.3 Member Data Documentation

8.33.3.1 data

```
Convert-HEAT.Tree.data
```

8.33.3.2 line

```
Convert-HEAT.Tree.line
```

8.33.3.3 name

```
Convert-HEAT.Tree.name
```

8.33.3.4 src

```
Convert-HEAT.Tree.src
```

The documentation for this class was generated from the following file:

- staticanalysis/Convert-HEAT.py

8.34 Convert-POISSONNS.Tree Class Reference

Public Member Functions

- def __init__ (self, src, name)
- def addChild (node)

Public Attributes

- line
- src
- name
- data

8.34.1 Constructor & Destructor Documentation

8.34.1.1 __init__()

```
def Convert-POISSONNS.Tree.__init__ (
              self,
              src,
              name )
```

8.34.2 Member Function Documentation

8.34.2.1 addChild()

```
def Convert-POISSONNS.Tree.addChild (
              node )
```

8.34.3 Member Data Documentation

8.34.3.1 data

```
Convert-POISSONNS.Tree.data
```

8.34.3.2 line

```
Convert-POISSONNS.Tree.line
```

8.34.3.3 name

```
Convert-POISSONNS.Tree.name
```

8.34.3.4 src

```
Convert-POISSONNS.Tree.src
```

The documentation for this class was generated from the following file:

- staticanalysis/Convert-POISSONNS.py

8.35 DataType::vector3T< Tx, Ty, Tz > Class Template Reference

a class to represent fixed-size three-dimensional vector data-type of arbitrary types with coefficients type, addr, size

```
#include <DataType.hpp>
```

Public Member Functions

- vector3T ()
  constructors
- vector3T (const vector3T &elem)
- vector3T (Tx t, Ty a, Tz s)
- vector3T & operator= (const vector3T &elem)
  a operator=() member

Public Attributes

- Tx type
  public variables type, addr, size in three-dimensional of integer and btime_t datatype
- Ty addr
  actual address in memory where to read/write
- Tz size
  size of data to read/write (referenced by the address addr) in bytes

8.35.1 Detailed Description

template<typename Tx, typename Ty, typename Tz>
class DataType::vector3T< Tx, Ty, Tz >

a class to represent fixed-size three-dimensional vector data-type of arbitrary types with coefficients type, addr, size

8.35.2 Constructor & Destructor Documentation

8.35.2.1 vector3T() [1/3]

```
template<typename Tx , typename Ty , typename Tz >
DataType::vector3T< Tx, Ty, Tz >::vector3T ( )  [inline]
```

constructors

8.35.2.2 vector3T() [2/3]

```
template<typename Tx , typename Ty , typename Tz >
DataType::vector3T< Tx, Ty, Tz >::vector3T (
            const vector3T< Tx, Ty, Tz > & elem )  [inline]
```

8.35.2.3 vector3T() [3/3]

```
template<typename Tx , typename Ty , typename Tz >
DataType::vector3T< Tx, Ty, Tz >::vector3T (
            Tx t,
            Ty a,
            Tz s )  [inline]
```

8.35.3 Member Function Documentation

8.35.3.1 operator=()

```
template<typename Tx , typename Ty , typename Tz >
vector3T& DataType::vector3T< Tx, Ty, Tz >::operator= (
            const vector3T< Tx, Ty, Tz > & elem )  [inline]
```

a operator=() member

Parameters

o	of type scalarT.

8.35.4 Member Data Documentation

8.35.4.1 addr

```
template<typename Tx , typename Ty , typename Tz >
Ty DataType::vector3T< Tx, Ty, Tz >::addr
```

actual address in memory where to read/write

8.35.4.2 size

```
template<typename Tx , typename Ty , typename Tz >
Tz DataType::vector3T< Tx, Ty, Tz >::size
```

size of data to read/write (referenced by the address addr) in bytes

8.35.4.3 type

```
template<typename Tx , typename Ty , typename Tz >
Tx DataType::vector3T< Tx, Ty, Tz >::type
```

public variables type, addr, size in three-dimensional of integer and btime_t datatype

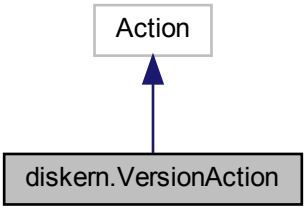
type, which can be IN=1 or OUT=2 indicated by a '<' or '>' in the schedule

The documentation for this class was generated from the following file:

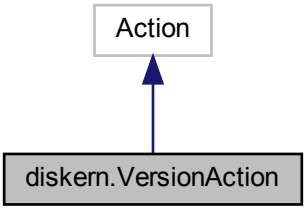
- include/DataType.hpp

8.36 diskern.VersionAction Class Reference

Inheritance diagram for diskern.VersionAction:



Collaboration diagram for diskern.VersionAction:



Public Member Functions

- def __init__ (self, option_strings, version, dest=argparse.SUPPRESS, default=argparse.SUPPRESS, help="show program's version number and exit")
- def __call__ (self, parser, namespace, values, option_string=None)

Public Attributes

- version

8.36.1 Detailed Description

```
Reimplementation of the version action, because argparse's version outputs to stderr.
```

8.36.2 Constructor & Destructor Documentation

8.36.2.1 __init__()

```
def diskern.VersionAction.__init__ (
              self,
              option_strings,
              version,
              dest = argparse.SUPPRESS,
              default = argparse.SUPPRESS,
              help = "show program's version number and exit" )
```

8.36.3 Member Function Documentation

8.36.3.1 __call__()

```
def diskern.VersionAction.__call__ (
              self,
              parser,
              namespace,
              values,
              option_string = None )
```

8.36.4 Member Data Documentation

8.36.4.1 version

```
diskern.VersionAction.version
```

The documentation for this class was generated from the following file:

- kerncraftintegration/diskern.py

8.37 UserInterface::YAMLParser Class Reference

```
#include <YAMLParser.hpp>
```

Public Member Functions

- void removeComment (std::string &line) const

  a function that removes everything from the semicolon (including it) to the end of the line.
- bool whitespace (const std::string &line) const

  a function that returns false if a non-space character was found, true otherwise. The function is "const" because it does not alter any class member variables.
- void parseLine (const std::string &line, size_t const lineNum)

  a function that extracts the key from the pair of key = value
- YAMLParser (const std::string &fileName)

  a class to set the name of the configuration file and extracts and parses the data

Public Attributes

- std::map< std::string, std::string > data

  which will hold pairs of key-value
- std::string fileName

  As member variables, we will only have a std::string, which will hold the name of the configuration file.
- std::string micro_architecture
- DisCosTiC_Datatype FP_instructions_per_cycle
- DisCosTiC_Datatype FP_ops_per_instruction_SP
- DisCosTiC_Datatype FP_ops_per_instruction_DP
- real_t clk_freq_in_GHz
- DisCosTiC_Datatype cores_per_chip
- DisCosTiC_Datatype chips_per_node
- DisCosTiC_Datatype cores_per_numa_domain
- std::vector< real_t > MEM_bandwidth
- bool flag

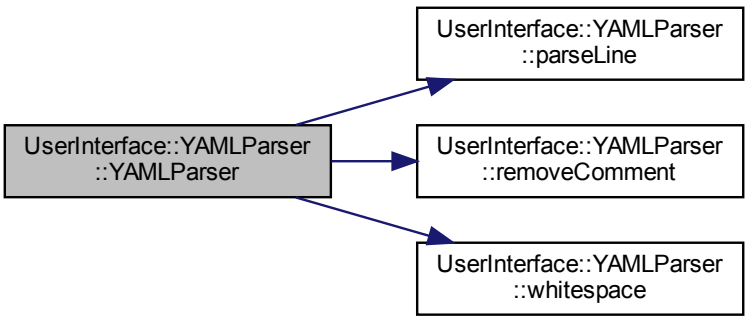
8.37.1 Constructor & Destructor Documentation

8.37.1.1 YAMLParser()

```
UserInterface::YAMLParser::YAMLParser (
            const std::string & fileName )  [inline]
```

a class to set the name of the configuration file and extracts and parses the data

Here is the call graph for this function:



8.37.2 Member Function Documentation

8.37.2.1 parseLine()

```
void UserInterface::YAMLParser::parseLine (
            const std::string & line,
            size_t const lineNum )  [inline]
```

a function that extracts the key from the pair of key = value

a function that parse the line by calling above mentioed functions

8.37.2.2 removeComment()

```
void UserInterface::YAMLParser::removeComment (
            std::string & line ) const  [inline]
```

a function that removes everything from the semicolon (including it) to the end of the line.

8.37.2.3 whitespace()

```
bool UserInterface::YAMLParser::whitespace (
            const std::string & line ) const  [inline]
```

a function that returns false if a non-space character was found, true otherwise. The function is "const" because it does not alter any class member variables.

8.37.3 Member Data Documentation

8.37.3.1 chips_per_node

```
DisCosTiC_Datatype UserInterface::YAMLParser::chips_per_node
```

8.37.3.2 clk_freq_in_GHz

```
real_t UserInterface::YAMLParser::clk_freq_in_GHz
```

8.37.3.3 cores_per_chip

```
DisCosTiC_Datatype UserInterface::YAMLParser::cores_per_chip
```

8.37.3.4 cores_per_numa_domain

```
DisCosTiC_Datatype UserInterface::YAMLParser::cores_per_numa_domain
```

8.37.3.5 data

```
std::map<std::string, std::string> UserInterface::YAMLParser::data
```

which will hold pairs of key-value

8.37.3.6 fileName

```
std::string UserInterface::YAMLParser::fileName
```

As member variables, we will only have a std::string, which will hold the name of the configuration file.

8.37.3.7 flag

```
bool UserInterface::YAMLParser::flag
```

8.37.3.8 FP_instructions_per_cycle

```
DisCosTiC_Datatype UserInterface::YAMLParser::FP_instructions_per_cycle
```

8.37.3.9 FP_ops_per_instruction_DP

```
DisCosTiC_Datatype UserInterface::YAMLParser::FP_ops_per_instruction_DP
```

8.37.3.10 FP_ops_per_instruction_SP

```
DisCosTiC_Datatype UserInterface::YAMLParser::FP_ops_per_instruction_SP
```

8.37.3.11 MEM_bandwidth

```
std::vector<real_t> UserInterface::YAMLParser::MEM_bandwidth
```

8.37.3.12 micro_architecture

```
std::string UserInterface::YAMLParser::micro_architecture
```

The documentation for this class was generated from the following file:

- include/YAMLParser.hpp

Chapter 9

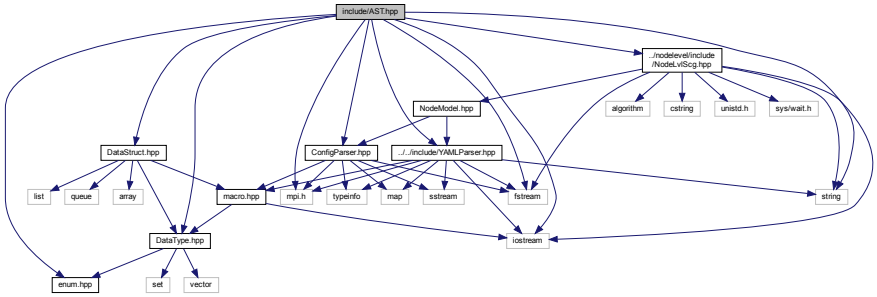
File Documentation

9.1 Doxyfile File Reference

9.2 include/AST.hpp File Reference

```
#include <iostream>
#include <fstream>
#include <mpi.h>
#include <string>
#include "enum.hpp"
#include "DataStruct.hpp"
#include "DataType.hpp"
#include "ConfigParser.hpp"
#include "../nodelevel/include/NodeLvlScg.hpp"
#include "YAMLParser.hpp"
```

Include dependency graph for AST.hpp:



Classes

- class AST

Variables

- UserInterface::ConfigParser CFG_args ("config.cfg")
  < *configuration file parser*
- static bool Verbose = CFG_args.getValue<DisCosTiC_Datatype>("Verbose")
- static bool kerncraftExecuted = false
- static bool barrier = false
- static bool barrier_hetero = false
- int scaling_cores = -1
- int bytes_to_send = 0
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.2.1 Variable Documentation

9.2.1.1 arch_name

```
std::string arch_name
```

9.2.1.2 barrier

```
bool barrier = false  [static]
```

9.2.1.3 barrier_hetero

```
bool barrier_hetero = false  [static]
```

9.2.1.4 bytes_to_send

```
int bytes_to_send = 0
```

9.2.1.5 cc_numa_domain

```
int cc_numa_domain
```

9.2.1.6 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.2.1.7 CFG_args

```
UserInterface::ConfigParser CFG_args("config.cfg")
```

< configuration file parser

< enumerated types < data structures < data types

9.2.1.8 cores_per_socket

```
int cores_per_socket
```

9.2.1.9 heteregeneous_mode

```
int heteregeneous_mode
```

9.2.1.10 kerncraftExecuted

```
bool kerncraftExecuted = false  [static]
```

9.2.1.11 node

```
int node
```

9.2.1.12 primary_processes

```
int primary_processes
```

9.2.1.13 scaling_cores

```
int scaling_cores = -1
```

9.2.1.14 secondary_processes

```
int secondary_processes
```

9.2.1.15 socket

```
int socket
```

9.2.1.16 system_number

```
int system_number
```

9.2.1.17 task_per_node

```
int task_per_node
```

9.2.1.18 Verbose

```
bool Verbose = CFG_args.getValue<DisCosTiC_Datatype>("Verbose")  [static]
```

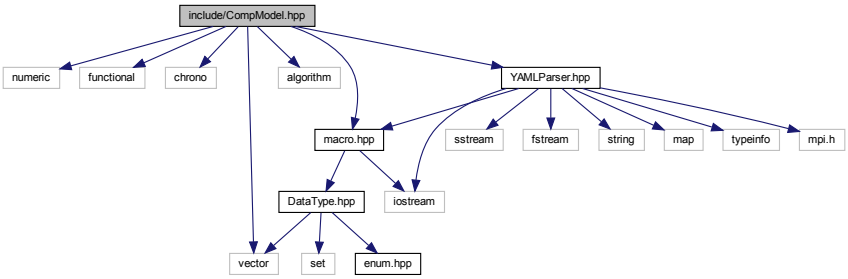
9.2.1.19 virtual_rank

```
int virtual_rank
```

9.3 include/CompModel.hpp File Reference

```
#include <numeric>
#include <functional>
#include <chrono>
#include <vector>
#include <algorithm>
#include "macro.hpp"
#include "YAMLParser.hpp"
```

Include dependency graph for CompModel.hpp:



Classes

- class DisCosTiC::CompModel

Namespaces

- DisCosTiC

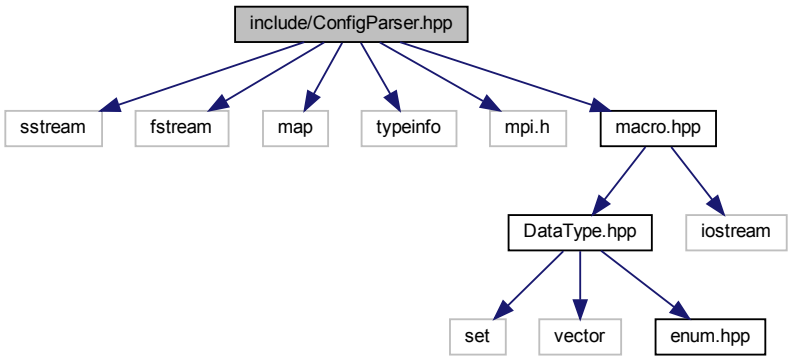
  < *benchmark test cases*

9.4 include/ConfigParser.hpp File Reference

```
#include <sstream>
#include <fstream>
#include <map>
#include <typeinfo>
#include <mpi.h>
```

```
#include "macro.hpp"
```

Include dependency graph for ConfigParser.hpp:



This graph shows which files directly or indirectly include this file:

Classes

- class UserInterface::Conversion

  a wrapper class which contain function for the conversion of std::string to primitive types (int, float, double, etc.,)
- class UserInterface::ConfigParser

  a wrapper class which contains functions for parsing the configuration file

Namespaces

- UserInterface

  it parses the user-defined configuration file (.cfg)

9.4.1 Detailed Description

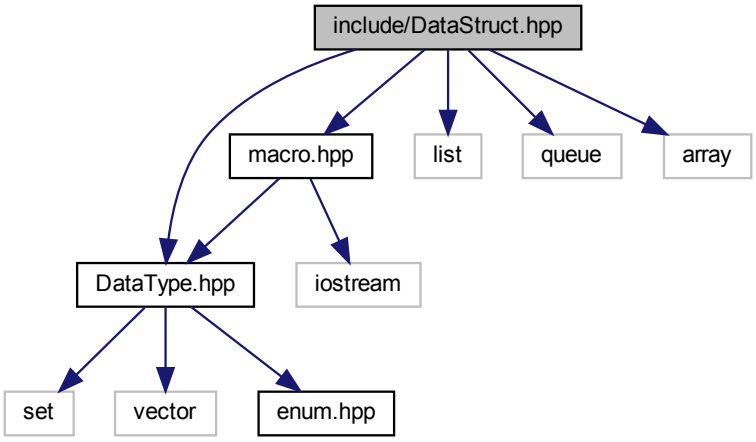
CONFIGPARSER_HPP

\Author: Ayesha Afzal ayesha.afzal@fau.de \Copyright © 2024 HPC, FAU Erlangen-Nuremberg. All rights reserved.

9.5 include/DataStruct.hpp File Reference

```
#include "DataType.hpp"
#include "macro.hpp"
#include <list>
#include <queue>
#include <array>
```

Include dependency graph for DataStruct.hpp:



Classes

- struct DisCosTiC::AST_OP
- struct DisCosTiC::AST_OP_
- struct DisCosTiC::AST_OP_TYPE
- struct DisCosTiC::DisCosTiC_OP
- struct DisCosTiC::DisCosTiC_queueOP
- struct DisCosTiC::OpTimeComparator

  this is a comparison functor that can be used to compare and sort DisCosTiC_OP by time
- struct DisCosTiC::OpMatcher

  this matches and removes operations from list if found, otherwise returns false

Namespaces

- DisCosTiC

  < benchmark test cases

Typedefs

- using DisCosTiC::VecDeserialNode = std::vector< AST_OP_TYPE >
- using DisCosTiC::Operations = std::vector< DisCosTiC_OP >
- using DisCosTiC::ListqueueOp = std::list< DisCosTiC_queueOP >
- using DisCosTiC::VecListqueueOp = std::vector< ListqueueOp >
- using DisCosTiC::PriorityQueue_t = std::priority_queue< DisCosTiC_OP, Operations, OpTimeComparator >
- using DisCosTiC::Event = std::pair< DisCosTiC_Indextype, DisCosTiC::AST_OP * >
- using DisCosTiC::idNodeTypePairT = std::pair< DisCosTiC_Indextype, DisCosTiC::AST_OP_ >
- using DisCosTiC::idNodePair = std::vector< std::vector< Event > >
- using DisCosTiC::idNodeTypePair = std::vector< std::vector< idNodeTypePairT > >
- using DisCosTiC::tupleIdNodePair = std::tuple< idNodePair, idNodePair, idNodePair >
- using DisCosTiC::Networktype = std::array< DisCosTiC_Timetype, 4 >

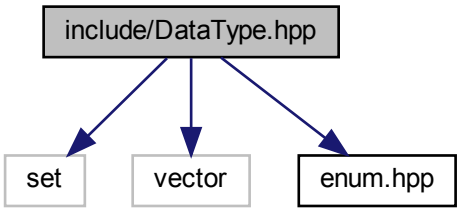
Functions

- template<typename... T>
  auto DisCosTiC::make_vector (T &&...args)

9.6 include/DataType.hpp File Reference

```
#include <set>
#include <vector>
#include "enum.hpp"
```

Include dependency graph for DataType.hpp:



This graph shows which files directly or indirectly include this file:

Classes

- class DataType::vector3T< Tx, Ty, Tz >

  a class to represent fixed-size three-dimensional vector data-type of arbitrary types with coefficients type, addr, size
- struct DisCosTiC::std_iter< scalarT >

  a time stepping loop
- struct DisCosTiC::iteratorRange< scalarT >

  iterator ranges for each entityTypes to support iteration with range-based for loops. Iterating over sets of entityTypes is one of the most common operation. Our infrastructure implements this custom range-based for loops in the C++ ways by providing iterators and matching begin(), end() and stepSize(scalarT stepSize) methods.
- struct DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep

  wrapper class of range-based for loop with certain step size
- struct DisCosTiC::iteratorRange< scalarT >::iteratorRangeStep::iter
- struct DisCosTiC::iteratorRange< scalarT >::iter

Namespaces

- DataType

  < enumerated types
- DisCosTiC

  < benchmark test cases

Typedefs

- using real_t = double
- using size_t = std::size_t
- using DisCosTiC_Timetype = double
- using DisCosTiC_Datatype = std::size_t
- using DisCosTiC_Indextype = std::size_t
- using idSetT = std::set< DisCosTiC_Indextype >
- using vec1T = std::vector< DisCosTiC_Indextype >
- using Time = std::vector< DisCosTiC_Timetype >
- using Real = std::vector< real_t >
- using Timevec2T = std::vector< std::vector< DisCosTiC_Timetype > >
- using vec3T = DataType::vector3T< size_t, size_t, DisCosTiC_Timetype >
- using locop_t = std::vector< std::pair< DisCosTiC_Indextype, DisCosTiC::Mode_t > >

  identify local operations for dependencies
- using locopPair_t = std::pair< locop_t, locop_t >

Functions

- template<typename scalarT >
  iteratorRange< scalarT > DisCosTiC::getRange (scalarT begin, scalarT end)
- template<typename scalarT >
  iteratorRange< scalarT > DisCosTiC::getRange (scalarT end)

9.6.1 Typedef Documentation

9.6.1.1 DisCosTiC_Datatype

```
using DisCosTiC_Datatype = std::size_t
```

9.6.1.2 DisCosTiC_Indextype

```
using DisCosTiC_Indextype = std::size_t
```

9.6.1.3 DisCosTiC_Timetype

```
using DisCosTiC_Timetype = double
```

9.6.1.4 idSetT

```
using idSetT = std::set<DisCosTiC_Indextype>
```

9.6.1.5 locop_t

```
using locop_t = std::vector<std::pair<DisCosTiC_Indextype, DisCosTiC::Mode_t> >
```

identify local operations for dependencies

9.6.1.6 locopPair_t

```
using locopPair_t = std::pair<locop_t, locop_t>
```

9.6.1.7 Real

```
using Real = std::vector<real_t>
```

9.6.1.8 real_t

```
using real_t = double
```

9.6.1.9 size_t

```
using size_t = std::size_t
```

9.6.1.10 Time

```
using Time = std::vector<DisCosTiC_Timetype>
```

9.6.1.11 Timevec2T

```
using Timevec2T = std::vector<std::vector<DisCosTiC_Timetype> >
```

9.6.1.12 vec1T

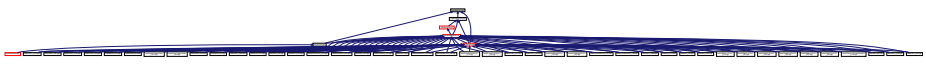
```
using vec1T = std::vector<DisCosTiC_Indextype>
```

9.6.1.13 vec3T

```
using vec3T = DataType::vector3T<size_t, size_t, DisCosTiC_Timetype>
```

9.7 include/enum.hpp File Reference

This graph shows which files directly or indirectly include this file:



Namespaces

- DisCosTiC

  < *benchmark test cases*

Enumerations

- enum DisCosTiC::Operation_t { DisCosTiC::SEND = 1, DisCosTiC::RECV = 2, DisCosTiC::COMP = 3, DisCosTiC::MSG =4 }

  The Operation_t enum defines different opertation types of entities.

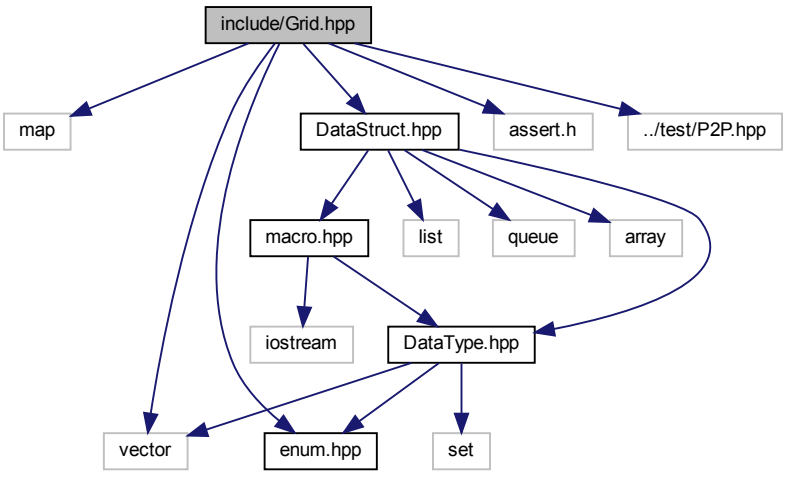
- enum DisCosTiC::Mode_t { DisCosTiC::NONBLOCKING, DisCosTiC::BLOCKING }

  The Mode_t enum defines operation type of SEND and RECV entities (i.e., either blocking calls that reutn on;y on completion of operation or non-blocking calls that return with start of operation)

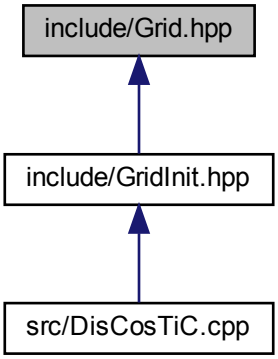
9.8 include/Grid.hpp File Reference

```
#include <map>
#include <vector>
#include <assert.h>
#include "enum.hpp"
#include "DataStruct.hpp"
#include "../test/P2P.hpp"
```

Include dependency graph for Grid.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class DisCosTiC::Grid

Namespaces

- DisCosTiC

  < *benchmark test cases*

Typedefs

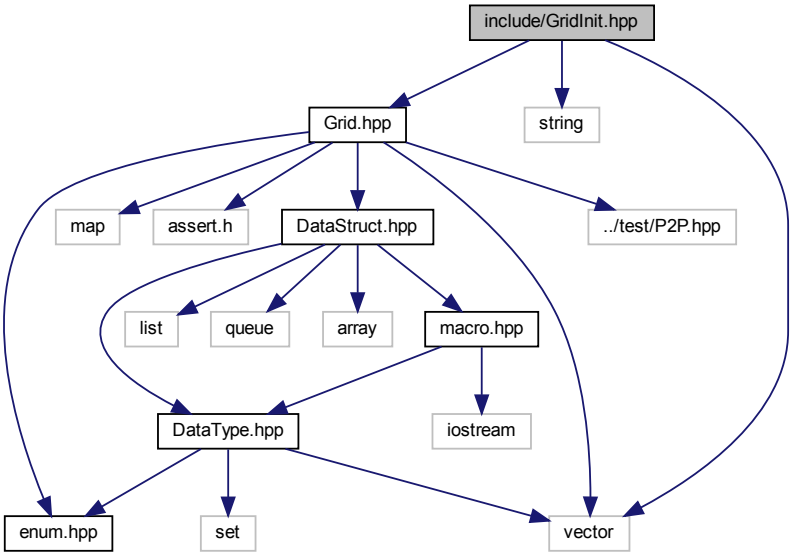
- using DisCosTiC::VecSeqGraph_t = std::vector< Grid >

9.9 include/GridInit.hpp File Reference

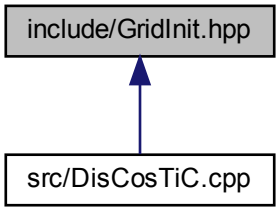
```
#include <vector>
#include <string>
```

```
#include "Grid.hpp"
```

Include dependency graph for GridInit.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class DisCosTiC::Grid_Init

  this class exposes all P graphVec and manages dependencies and execution order. It returns a list of executable operations and offers an interface to mark operations as executed.

Namespaces

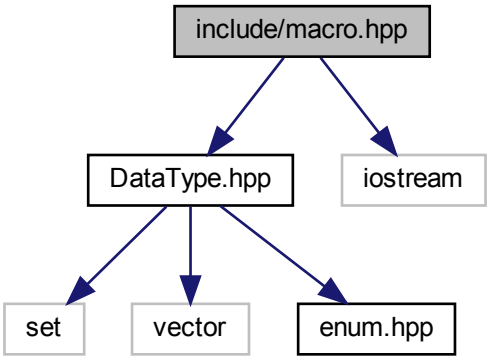
- DisCosTiC

  < benchmark test cases

9.10 include/macro.hpp File Reference

```
#include "DataType.hpp"
#include <iostream>
```

Include dependency graph for macro.hpp:



This graph shows which files directly or indirectly include this file:

Macros

- #define print_vec1T(vec)
- #define print_vec2T(vec)
- #define print_pairedVec2T(vec)
- #define print_pairedVecNonPointer2T(vec)
- #define print_pairedVec_NonPointer2T(vec)
- #define itFirst_Vec2T(vec)
- #define iqueueOpecond_Vec2T(vec)
- #define print_vec3T(vec)
- #define print_OpPropertiesT(op)
- #define print_OpPropertiesNonPointerT(op)
- #define print_DeserialNodeT(op)
- #define print_DeserialNodeNonPointerT(op)
- #define print_AST_OP_NonPointerT(op)
- #define fileopen(myfile, filename)

  open an open file
- #define fileclose(myfile, filename)

  close an open file
- #define AppendString(str, content)

  append a string
- #define toCharPointer(content)

append content to a string with label l

- #define max_vec1T(vec)

  find max value of a vector

- #define progessPrint(progress, qCounter, q1, q2, q3)

  print progress

- #define queues_empty_check(check, q)

  check if all queues are empty

- #define allRanksTime(numRanks, nexto)

  print final time for all ranks

- #define slowRankTime(numRanks, nexto)

  print final maximum time for only rank taking maximum time

- #define verboseCompInitPrint(rank, operation)

  print verbose output for computational phases

- #define verboseCompFinalPrint(rank, operation)
- #define verboseSendInitPrint(rank, operation)
- #define verboseSendFinalPrint(rank, operation)
- #define verboseRecvInitPrint(rank, operation)
- #define verboseRecvFinalPrint(rank, operation)
- #define verboseCompPrint(operation)
- #define verboseSendPrint(operation)
- #define verboseSendIrequiresPrint(operation)
- #define verboseEagerSendPrint(o, operation)
- #define verboseRendezvousSendPrint(operation)
- #define verboseRecvPrint(operation)
- #define verboseRendezvousRecvPrint(operation)
- #define verboseMsgPrint(operation, oSuccessor, grSuccessor)
- #define help()
- #define version()

  end P2P_HPP

Variables

- static const DisCosTiC_Indextype INVALID_ID = -1

  < data types

- static const DisCosTiC_Indextype MPI_ANY_SOURC = ∼0
- static const DisCosTiC_Indextype MPI_ANY_TA = ∼0

9.10.1 Macro Definition Documentation

9.10.1.1 allRanksTime

```
#define allRanksTime(
               numRanks,
               nexto )
```

Value:

```
  std::cout « "\n-----------------------------------------------------------------" « std::endl;     \
    std::cout « "FULL APPLICATION PERFORMANCE (for all MPI processes)" « std::endl;                    \
    std::cout « "rank                          runtime [s]" « std::endl;                  \
  std::cout « "-----------------------------------------------------------------" « std::endl;     \
    for (auto rank : DisCosTiC::getRange(numRanks))                                                    \
    {                                                                                                  \
        DisCosTiC_Timetype maxo = *(std::max_element(nexto[rank].begin(), nexto[rank].end()));         \
        std::cout « rank « "                             " « maxo / 1e9 « std::endl; \
    }                                                                                                  \
  std::cout « "-----------------------------------------------------------------" « std::endl;
```

print final time for all ranks

9.10.1.2 AppendString

```
#define AppendString(
               str,
               content )
```

Value:

```
    {                                \
        this->content.append(str); \
    }
```

append a string

Parameters

string	

9.10.1.3 fileclose

```
#define fileclose(
               myfile,
               filename )
```

Value:

```
    {
            \
        if (myfile.is_open())
            \
        {
            \
            try
              \
            {
              \
                myfile.close();
              \
```

```
            }
              \
            catch (std::ofstream::failure const &e)
              \
            {
              \
                std::cerr « "error: closing file definition of " « this->filename « " for writing" «
       std::endl; \
                std::exit(EXIT_FAILURE);
              \
            }
              \
        }
              \
    }
```

close an open file

9.10.1.4 fileopen

```
#define fileopen(
                myfile,
                filename )
```

Value:

```
    {                                                                   \
        try                                                             \
        {                                                               \
            myfile.open(filename);                                      \
        }                                                               \
        catch (std::ifstream::failure const &e)                         \
        {                                                               \
            std::cerr « "error: opening file definition of "           \
                      « this->filename « " for reading, with message '" \
                      « e.what() « std::endl;                           \
            std::exit(EXIT_FAILURE);                                     \
        }                                                               \
    }
```

open an open file

9.10.1.5 help

```
#define help( )
```

9.10.1.6 iqueueOpecond_Vec2T

```
#define iqueueOpecond_Vec2T(
                vec )
```

Value:

```
    {                               \
        for (auto &row : vec)       \
        {                           \
            for (auto &col : row)  \
                col.second;         \
        }                           \
    }
```

9.10.1.7 itFirst_Vec2T

```
#define itFirst_Vec2T(
              vec )
```

Value:

```
    {                                                \
        for (auto &row : vec)                        \
        {                                            \
            for (auto &col : row)                    \
                std::cout « col.first « std::endl; \
        }                                            \
    }
```

9.10.1.8 max_vec1T

```
#define max_vec1T(
              vec )
```

Value:

```
    {                                                 \
        DisCosTiC_Datatype max = 0;                   \
        for (auto i : DisCosTiC::getRange(vec.size())) \
            max = std::max(max, vec[i].size());       \
        std::cout « max;                             \
    }
```

find max value of a vector

9.10.1.9 print_AST_OP_NonPointerT

```
#define print_AST_OP_NonPointerT(
              op )
```

Value:

```
    {                                                                                \
        std::cout « "num_deps: " « op.num_deps                                      \
                  « "  deps_startlabel_in_apdx: " « op.deps_startlabel_in_apdx      \
                  « "  num_startdeps.bufSize(): " « op.num_startdeps               \
                  « "  startdeps_startlabel_in_apdx: " « op.startdeps_startlabel_in_apdx \
                  « "  depCount: " « op.depCount                                   \
                  « "  target: " « op.target                                       \
                  « "  label: " « op.label                                         \
                  « "  tag: " « op.tag                                             \
                  « "  node: " « +op.node                                          \
                  « "  network: " « +op.network                                    \
                  « "  type: " « +op.type                                          \
                  « "  bufSize: " « op.bufSize                                     \
                  « std::endl;                                                      \
    }
```

9.10.1.10 print_DeserialNodeNonPointerT

```
#define print_DeserialNodeNonPointerT(
              op )
```

Value:

```
    {                                                                       \
        std::cout « "DepOperations.size(): " « op.DepOperations.size()     \
                  « "  IdepOperations.size(): " « op.IdepOperations.size() \
                  « "  depCount: " « op.depCount                           \
                  « "  target: " « op.target                               \
                  « "  label: " « op.label                                 \
                  « "  tag: " « op.tag                                     \
                  « "  node: " « +op.node                                  \
                  « "  network: " « +op.network                            \
                  « "  type: " « +op.type                                  \
                  « "  bufSize: " « op.bufSize                             \
                  « std::endl;                                             \
    }
```

9.10.1.11 print_DeserialNodeT

```
#define print_DeserialNodeT(
              op )
```

Value:

```
    {                                                                  \
        std::cout « "DepOperations: " « op->DepOperations.size()     \
                  « "  IdepOperations: " « op->IdepOperations.size() \
                  « "  depCount: " « op->depCount                    \
                  « "  target: " « op->target                        \
                  « "  label: " « op->label                          \
                  « "  tag: " « op->tag                              \
                  « "  node: " « +op->node                           \
                  « "  network: " « +op->network                     \
                  « "  type: " « +op->type                           \
                  « "  bufSize: " « op->bufSize                      \
                  « std::endl;                                        \
    }
```

9.10.1.12 print_OpPropertiesNonPointerT

```
#define print_OpPropertiesNonPointerT(
              op )
```

Value:

```
    {                                                                    \
        std::cout « "  rank: " « op.rank                               \
                  « "    time: " « op.time                             \
                  « "  starttime: " « op.starttime                     \
                  « "  syncstart: " « op.syncstart                     \
                  « "  numOpsInQueue: " « op.numOpsInQueue             \
                  « "  bufSize: " « op.bufSize                         \
                  « "  target: " « op.target « " label: " « op.label \
                  « "  tag: " « op.tag                                 \
                  « "  node: " « +op.node                              \
                  « "  network: " « +op.network                        \
                  « "  type: " « +op.type                              \
                  « " mode : " « +op.mode « std::endl;                \
    }
```

9.10.1.13 print_OpPropertiesT

```
#define print_OpPropertiesT(
              op )
```

Value:

```
    {                                                       \
        std::cout « "time: " « op->time                     \
                  « "  starttime: " « op->starttime         \
                  « "  syncstart: " « op->syncstart         \
                  « "  numOpsInQueue: " « op->numOpsInQueue \
                  « "  bufSize: " « op->bufSize              \
                  « "  target: " « op->target                \
                  « "  rank: " « op->rank                    \
                  « "  label: " « op->label                  \
                  « "  tag: " « op->tag                      \
                  « "  node: " « +op->node                   \
                  « "  network: " « +op->network             \
                  « "  type: " « +op->type « std::endl;     \
    }
```

9.10.1.14 print_pairedVec2T

```
#define print_pairedVec2T(
              vec )
```

Value:

```
    {                                                                                   \
        for (auto i : DisCosTiC::getRange(vec.size()))                                  \
        {                                                                               \
            for (auto j : DisCosTiC::getRange(vec[i].size()))                           \
            {                                                                           \
                std::cout « "[" « i « "][" « j « "]:"                                   \
                          « "\t label = " « vec[i][j].first « "\t AST_OP info : "; \
                print_DeserialNodeT(+vec[i][j].second);                                 \
            }                                                                           \
        }                                                                               \
    }
```

9.10.1.15 print_pairedVec_NonPointer2T

```
#define print_pairedVec_NonPointer2T(
              vec )
```

Value:

```
    {                                                                                   \
        for (auto i : DisCosTiC::getRange(vec.size()))                                  \
        {                                                                               \
            for (auto j : DisCosTiC::getRange(vec[i].size()))                           \
            {                                                                           \
                std::cout « "[" « i « "][" « j « "]:"                                   \
                          « "\t label = " « vec[i][j].first « "\t AST_OP info : "; \
                print_AST_OP_NonPointerT(+vec[i][j].second);                            \
            }                                                                           \
        }                                                                               \
    }
```

9.10.1.16 print_pairedVecNonPointer2T

```
#define print_pairedVecNonPointer2T(
                vec )
```

Value:

```
    {                                                                                   \
        for (auto i : DisCosTiC::getRange(vec.size()))                                  \
            for (auto j : DisCosTiC::getRange(vec[i].size()))                           \
                std::cout « "[" « i « "][" « j « "]:"                                   \
                          « "\t label = " « vec[i][j].first « "\t AST_OP info : "; \
        print_DeserialNodeNonPointerT(+vec[i][j].second);                               \
    }                                                                                   \
    }                                                                                   \
    }
```

9.10.1.17 print_vec1T

```
#define print_vec1T(
                vec )
```

Value:

```
    {                                           \
        std::cout « "{";                        \
        for (auto i : DisCosTiC::getRange(vec.size())) \
            std::cout « (i ? " , " : "") « vec[i];   \
        std::cout « " }" « std::endl;           \
    }
```

9.10.1.18 print_vec2T

```
#define print_vec2T(
                vec )
```

Value:

```
    {                                                                               \
        for (auto i : DisCosTiC::getRange(vec[0].size()))                           \
        {                                                                           \
            for (auto j : DisCosTiC::getRange(vec[i].size()))                       \
            {                                                                       \
                std::cout « "[" « i « "][" « j « "]=" « vec[i][j] « std::endl; \
            }                                                                       \
        }                                                                           \
    }
```

9.10.1.19 print_vec3T

```
#define print_vec3T(
                vec )
```

Value:

```
    {                                                                                       \
        for (auto i : DisCosTiC::getRange(vec[0].size()))                                   \
        {                                                                                   \
            for (auto j : DisCosTiC::getRange(vec[i].size()))                               \
            {                                                                               \
                for (auto k : DisCosTiC::getRange(vec[j].size()))                           \
                {                                                                           \
                    std::cout « "[" « i « "][" « j « "][" « k « "]=" « vec[i][j][k] « std::endl; \
                }                                                                           \
            }                                                                               \
        }                                                                                   \
    }
```

9.10.1.20 progessPrint

```
#define progessPrint(
                progress,
                qCounter,
                q1,
                q2,
                q3 )
```

Value:

```
    {                                                                                   \
        std::cout « "Discostic Progress: " « progress                                   \
                  « " % (queue counter: " « qCounter « ") ";                            \
        std::cout « "[Queue bufSize: " « q1.size() « " Max Receive Queue bufSize: "; \
        max_vec1T(q2);                                                                  \
        std::cout « " Max Unexpected Message Queue bufSize: ";                          \
        max_vec1T(q3);                                                                  \
        std::cout « "]" « std::endl;                                                    \
    }
```

print progress

9.10.1.21 queues_empty_check

```
#define queues_empty_check(
                check,
                q )
```

Value:

```
    for (auto rank : DisCosTiC::getRange(numRanks))                                                 \
    {                                                                                               \
        if (!q[rank].empty())                                                                       \
        {                                                                                           \
            std::cerr « " queue on rank " « rank                                                \
                      « " contains " « q[rank].size()                                           \
                      « " operations!";                                                         \
            for (DisCosTiC::ListqueueOp::iterator iter = q[rank].begin(); iter != q[rank].end(); ++iter) \
                std::cerr « "\t [ source ==> " « iter->src                                      \
                          « ", tag ==> " « iter->tag                                            \
                          « "]" « std::endl;                                                    \
            check = false;                                                                      \
        }                                                                                       \
    }
```

check if all queues are empty

end of for loop

9.10.1.22 slowRankTime

```
#define slowRankTime(
                numRanks,
                nexto )
```

Value:

```
    std::cout « "\nFULL APPLICATION PERFORMANCE (for slowest rank):" « std::endl;              \
    DisCosTiC_Timetype max = 0;                                                                 \
    DisCosTiC_Datatype rank = 0;                                                                \
    for (auto rank : DisCosTiC::getRange(numRanks))                                             \
    {                                                                                           \
        DisCosTiC_Timetype maxo = *(std::max_element(nexto[rank].begin(), nexto[rank].end()));  \
        DisCosTiC_Timetype cur = maxo;                                                          \
        if (cur > max)                                                                          \
```

```
        {                                                                                                   \
            rank = rank;                                                                                    \
            max = cur;                                                                                      \
        }                                                                                                   \
    }                                                                                                       \
    std::cout « "----------------------------------------------------------------" « std::endl; \
    std::cout « "rank            runtime [ns]            runtime [s]" « std::endl;                  \
    std::cout « "----------------------------------------------------------------" « std::endl; \
    std::cout « rank « " \t\t " « max « " \t\t " « max / 1e9 « std::endl;
```

print final maximum time for only rank taking maximum time

9.10.1.23 toCharPointer

```
#define toCharPointer(
              content )
```

Value:

```
    {                                                                   \
        const_cast<char *>(("l" + std::to_string(content)).c_str()) \
    }
```

append content to a string with label l

Parameters

DisCosTiC_Indextype	

9.10.1.24 verboseCompFinalPrint

```
#define verboseCompFinalPrint(
              rank,
              operation )
```

Value:

```
    std::cout « "rank: " « rank                       \
              « " [ node: " « +operation.node         \
              « ", network: " « +operation.network    \
              « "] computation: " « operation.bufSize \
              « ", time: " « operation.time           \
              « ", label: " « operation.label « std::endl;
```

9.10.1.25 verboseCompInitPrint

```
#define verboseCompInitPrint(
              rank,
              operation )
```

Value:

```
    std::cout « "initialize rank: " « rank         \
              « " [ node: " « +operation.node      \
              « ", network: " « +operation.network \
              « "] computation: " « operation.bufSize « std::endl;
```

print verbose output for computational phases

9.10.1.26 verboseCompPrint

```
#define verboseCompPrint(
              operation )
```

Value:

```
    {                                                                    \
        std::cout « "\n[rank: " « operation.rank                    \
                  « ", node: " « +operation.node                    \
                  « "]:" « std::endl;                               \
        std::cout « "local operation bufSize= " « operation.bufSize \
                  « " ns, total time= " « operation.time            \
                  « " ns" « std::endl;                              \
    }
```

9.10.1.27 verboseEagerSendPrint

```
#define verboseEagerSendPrint(
              o,
              operation )
```

Value:

```
    std::cout « "eager satisfy local requires at total time = " « operation.starttime + o \
              « " ns" « std::endl;
```

9.10.1.28 verboseMsgPrint

```
#define verboseMsgPrint(
              operation,
              oSuccessor,
              grSuccessor )
```

Value:

```
    {                                                                                \
        std::cout « "\n[rank: " « operation.rank                                \
                  « ", node: " « +operation.node                                \
                  « "]:" « std::endl;                                           \
        std::cout « "receive msg from rank " « operation.target                 \
                  « ", total time= " « operation.time                           \
                  « " ns" « std::endl;                                          \
        std::cout « "o= " « oSuccessor[operation.rank][operation.node]          \
                  « " ns, successor gr= " « grSuccessor[operation.rank][operation.network] \
                  « " ns" « std::endl;                                          \
    }
```

9.10.1.29 verboseRecvFinalPrint

```
#define verboseRecvFinalPrint(
              rank,
              operation )
```

Value:

```
    std::cout « "rank: " « rank                       \
              « " [ node: " « +operation.node         \
              « ", network: " « +operation.network    \
              « "] receive from: " « operation.target \
              « ", tag: " « operation.tag             \
              « ", bufSize: " « operation.bufSize     \
              « ", time: " « operation.time           \
              « ", label: " « operation.label « std::endl;
```

9.10.1.30 verboseRecvInitPrint

```
#define verboseRecvInitPrint(
              rank,
              operation )
```

Value:

```
    std::cout « "initialize rank: " « rank            \
              « " [ node: " « +operation.node         \
              « ", network: " « +operation.network    \
              « "] receive from: " « operation.target \
              « "tag: " « operation.tag               \
              « " bufSize: " « operation.bufSize « std::endl;
```

9.10.1.31 verboseRecvPrint

```
#define verboseRecvPrint(
              operation )
```

Value:

```
    {                                                    \
        std::cout « "\n[rank: " « operation.rank          \
                  « ", node: " « +operation.node          \
                  « "]:" « std::endl;                     \
        std::cout « "receive from rank " « operation.target \
                  « " , total time= " « operation.time    \
                  « " ns" « std::endl;                    \
    }
```

9.10.1.32 verboseRendezvousRecvPrint

```
#define verboseRendezvousRecvPrint(
              operation )
```

Value:

```
    std::cout « "satisfy remote requires at rank " « operation.target \
              « " (label: " « operation.label                         \
              « ")" « std::endl;
```

9.10.1.33 verboseRendezvousSendPrint

```
#define verboseRendezvousSendPrint(
              operation )
```

Value:

```
    std::cout « "start rendezvous message to: " « operation.rank \
              « " (label:  " « operation.label                   \
              « ")" « std::endl;
```

9.10.1.34 verboseSendFinalPrint

```
#define verboseSendFinalPrint(
              rank,
              operation )
```

Value:

```
    std::cout « "rank: " « rank                    \
              « " [ node: " « +operation.node      \
              « ", network: " « +operation.network \
              « "] send to: " « operation.target   \
              « ", tag: " « operation.tag          \
              « ", bufSize: " « operation.bufSize  \
              « ", time: " « operation.time        \
              « ", label: " « operation.label « std::endl;
```

9.10.1.35 verboseSendInitPrint

```
#define verboseSendInitPrint(
              rank,
              operation )
```

Value:

```
    std::cout « "initialize rank: " « rank         \
              « " [ node: " « +operation.node      \
              « ", network: " « +operation.network \
              « "] send to: " « operation.target   \
              « "tag: " « operation.tag            \
              « " bufSize: " « operation.bufSize « std::endl;
```

9.10.1.36 verboseSendIrequiresPrint

```
#define verboseSendIrequiresPrint(
              operation )
```

Value:

```
    {                                                                   \
        std::cout « "satisfy local non-blocking dependencies" « std::endl;   \
        std::cout « "send inserting msg to rank " « operation.rank          \
                  « ", total time= " « operation.time « " ns" « std::endl; \
    }
```

9.10.1.37 verboseSendPrint

```
#define verboseSendPrint(
              operation )
```

Value:

```
    {                                                \
        std::cout « "\n[rank: " « operation.rank       \
                  « ", node: " « +operation.node       \
                  « "]:" « std::endl;                  \
        std::cout « "send to rank " « operation.target \
                  « ", total time= " « operation.time  \
                  « " ns" « std::endl;                 \
    }
```

9.10.1.38 version

```
#define version( )
```

Value:

```
    {                                                                                                \
        std::cout « "\nDistributed Cost in Cluster (DisCostiC)" « std::endl;                        \
        std::cout « "Version : v1.0.0" « std::endl;                                                 \
        std::cout « "Author : Ayesha Afzal <ayesha.afzal@fau.de>" « std::endl;                      \
        std::cout « "Copyright : 2024 HPC, FAU Erlangen-Nuremberg. All rights reserved" « std::endl; \
    }
```

end P2P_HPP

9.10.2 Variable Documentation

9.10.2.1 INVALID_ID

```
const DisCosTiC_Indextype INVALID_ID = -1  [static]
```

< data types

9.10.2.2 MPI_ANY_SOURC

```
const DisCosTiC_Indextype MPI_ANY_SOURC = ~0  [static]
```

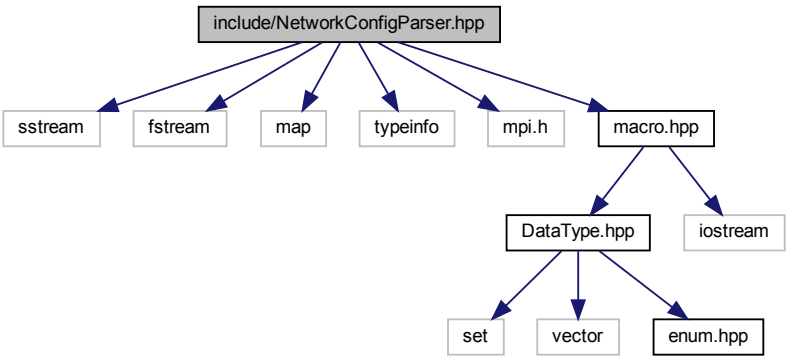
9.10.2.3 MPI_ANY_TA

```
const DisCosTiC_Indextype MPI_ANY_TA = ~0  [static]
```

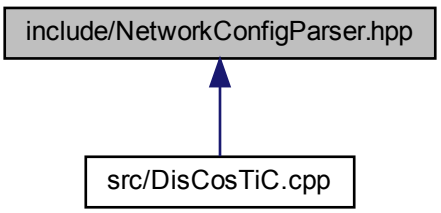
9.11 include/NetworkConfigParser.hpp File Reference

```
#include <sstream>
#include <fstream>
#include <map>
#include <typeinfo>
#include <mpi.h>
#include "macro.hpp"
```

Include dependency graph for NetworkConfigParser.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class UserInterface::NetworkConfigParser

  a wrapper class which contains functions for parsing the configuration file

Namespaces

- UserInterface

  it parses the user-defined configuration file (.cfg)

9.11.1 Detailed Description

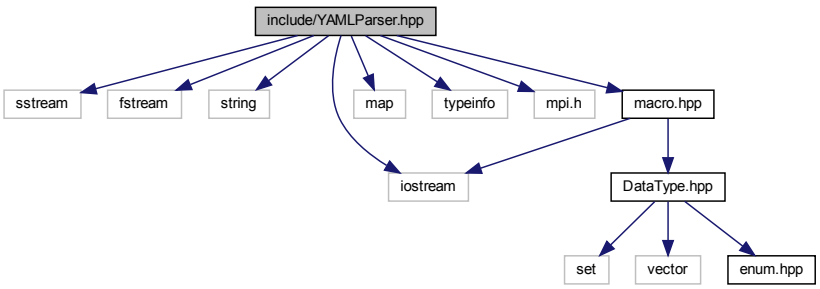
CONFIGPARSER_HPP

\Author: Ayesha Afzal ayesha.afzal@fau.de \Copyright © 2024 HPC, FAU Erlangen-Nuremberg. All rights reserved.

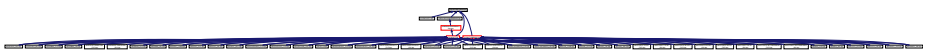
9.12 include/YAMLParser.hpp File Reference

```
#include <sstream>
#include <fstream>
#include <string>
#include <iostream>
#include <map>
#include <typeinfo>
#include <mpi.h>
#include "macro.hpp"
```

Include dependency graph for YAMLParser.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class UserInterface::YAMLParser

Namespaces

- UserInterface

  it parses the user-defined configuration file (.cfg)

9.12.1 Detailed Description

YAMLPARSER_HPP

\Author: Ayesha Afzal ayesha.afzal@fau.de \Copyright © 2024 HPC, FAU Erlangen-Nuremberg. All rights reserved.

9.13 kerncraftintegration/diskern.py File Reference

Classes

- class diskern.AppendStringRange
- class diskern.VersionAction

Namespaces

- diskern

Functions

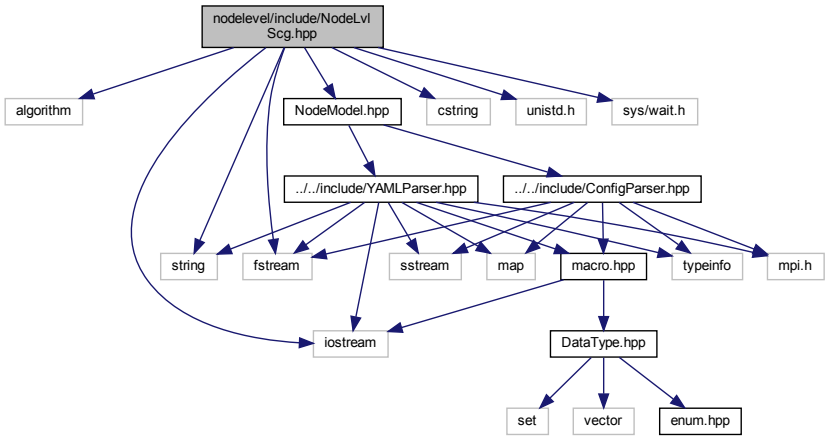
- def diskern.space (start, stop, num, endpoint=True, log=False, base=10)
- def diskern.int_or_str (s)
- def diskern.uniquify (l)
- def diskern.get_last_modified_datetime (dir_path=os.path.dirname(__file__))
- def diskern.create_parser ()
- def diskern.check_arguments (args, parser)
- def diskern.to_tuple (x)
- def diskern.identifier_from_arguments (args, ∗∗kwargs)
- def diskern.run (parser, args, extras, system_number, output_file=sys.stdout)
- def diskern.report (model, extras, system_number, output_file)
- def diskern.main ()

9.14 nodelevel/include/NodeLvlScg.hpp File Reference

```
#include <algorithm>
#include <fstream>
#include <string>
#include <iostream>
#include <cstring>
#include <unistd.h>
#include <sys/wait.h>
```

```
#include "NodeModel.hpp"
```

Include dependency graph for NodeLvlScg.hpp:



This graph shows which files directly or indirectly include this file:

Functions

- void estimation (NodeModel &NM, DisCosTiC_Timetype *perf_est, DisCosTiC_Timetype *runtime)
- void scaling (NodeModel &NM, DisCosTiC_Timetype *scaling_performance, DisCosTiC_Timetype *scaling_numa)
- void executeKerncraft (char *argV[], int size)

9.14.1 Detailed Description

NODELVLSCG_HPP

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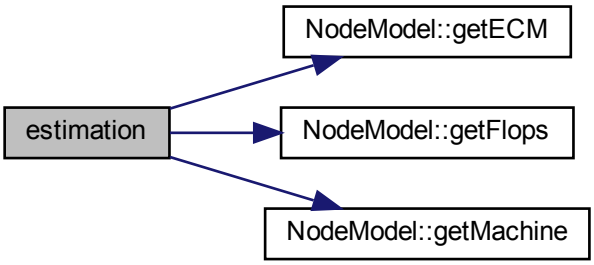
9.14.2 Function Documentation

9.14.2.1 estimation()

```
void estimation (
            NodeModel & NM,
            DisCosTiC_Timetype * perf_est,
            DisCosTiC_Timetype * runtime )
```

Here is the call graph for this function:



9.14.2.2 executeKerncraft()

```
void executeKerncraft (
            char * argV[],
            int size )
```

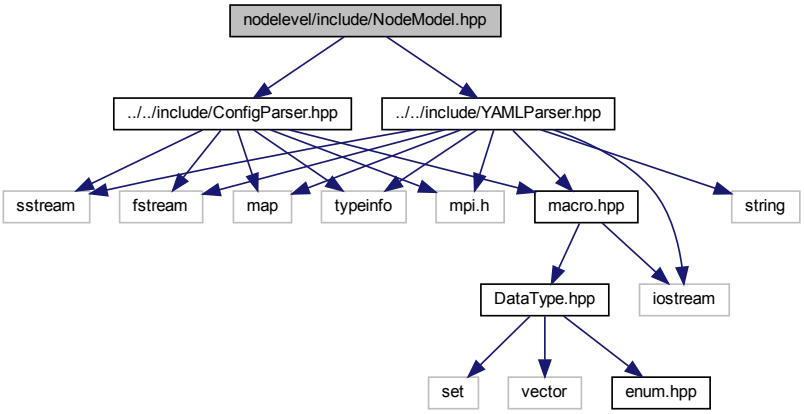
9.14.2.3 scaling()

```
void scaling (
            NodeModel & NM,
            DisCosTiC_Timetype * scaling_performance,
            DisCosTiC_Timetype * scaling_numa )
```

9.15 nodelevel/include/NodeModel.hpp File Reference

```
#include "../../include/ConfigParser.hpp"
#include "../../include/YAMLParser.hpp"
```

Include dependency graph for NodeModel.hpp:



This graph shows which files directly or indirectly include this file:

Classes

- struct Machine
- struct ECM
- class NodeModel

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.15.1 Detailed Description

NODEMODEL_HPP

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9.15.2 Variable Documentation

9.15.2.1 arch_name

```
std::string arch_name
```

9.15.2.2 bytes_to_send

```
int bytes_to_send
```

9.15.2.3 cc_numa_domain

```
int cc_numa_domain
```

9.15.2.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.15.2.5 cores_per_socket

```
int cores_per_socket
```

9.15.2.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.15.2.7 node

```
int node
```

9.15.2.8 primary_processes

```
int primary_processes
```

9.15.2.9 scaling_cores

```
int scaling_cores
```

9.15.2.10 secondary_processes

```
int secondary_processes
```

9.15.2.11 socket

```
int socket
```

9.15.2.12 system_number

```
int system_number
```

9.15.2.13 task_per_node

```
int task_per_node
```

9.15.2.14 virtual_rank

```
int virtual_rank
```

9.16 nodelevel/kernels/ADD.c File Reference

Functions

- for (int i=0;i< N;++i) a[i]

Variables

- double a [N]
- double b [N]
- double c [N]

9.16.1 Function Documentation

9.16.1.1 for()

```
for ( )
```

9.16.2 Variable Documentation

9.16.2.1 a

```
double a[N]
```

9.16.2.2 b

```
double b[N]
```

9.16.2.3 c

```
double c[N]
```

9.17 nodelevel/kernels/COPY.c File Reference

Functions

- for (int i=0;i< N;++i) a[i]

Variables

- double a [N]
- double b [N]

9.17.1 Function Documentation

9.17.1.1 for()

```
for ( )
```

9.17.2 Variable Documentation

9.17.2.1 a

```
double a[N]
```

9.17.2.2 b

```
double b[N]
```

9.18 nodelevel/kernels/DAXPY.c File Reference

Functions

- for (int i=0;i< N;++i) a[i]

Variables

- double a [N]
- double b [N]
- double s

9.18.1 Function Documentation

9.18.1.1 for()

```
for ( )
```

9.18.2 Variable Documentation

9.18.2.1 a

```
double a[N]
```

9.18.2.2 b

```
double b[N]
```

9.18.2.3 s

```
double s
```

9.19 nodelevel/kernels/DIVIDE.c File Reference

Functions

- for (int i=0;i< N;++i) s

Variables

- double s
- int N

9.19.1 Function Documentation

9.19.1.1 for()

```
for ( )
```

9.19.2 Variable Documentation

9.19.2.1 N

```
int N
```

9.19.2.2 s

```
double s
```

9.20 nodelevel/kernels/DMMM.c File Reference

Functions

- for (int i=0;i< N;i++)

Variables

- double S [N][N]
- double D [N][N]

9.20.1 Function Documentation

9.20.1.1 for()

```
for ( )
```

9.20.2 Variable Documentation

9.20.2.1 D

```
double D[N][N]
```

9.20.2.2 S

```
double S[N][N]
```

9.21 nodelevel/kernels/DMVM-TRANSPOSE.c File Reference

Functions

- for (int j=0;j< M;++j)

Variables

- double a [M][N]
- double b [N]
- double c [N]

9.21.1 Function Documentation

9.21.1.1 for()

```
for ( )
```

9.21.2 Variable Documentation

9.21.2.1 a

```
double a[M][N]
```

9.21.2.2 b

```
double b[N]
```

9.21.2.3 c

```
double c[N]
```

9.22 nodelevel/kernels/DMVM.c File Reference

Functions

- for (int j=0;j< M;++j)

Variables

- double a [N][M]
- double b [N]
- double c [N]

9.22.1 Function Documentation

9.22.1.1 for()

```
for ( )
```

9.22.2 Variable Documentation

9.22.2.1 a

```
double a[N][M]
```

9.22.2.2 b

```
double b[N]
```

9.22.2.3 c

```
double c[N]
```

9.23 nodelevel/kernels/HEAT-LINEAR.c File Reference

Functions

- for (int y=start_y;y< end_y;++y) for(int x

Variables

- double src [M ∗N]
- double dst [M ∗N]
- int start_x = 1
- int end_x = M - 1
- int start_y = 1
- int end_y = N - 1

9.23.1 Function Documentation

9.23.1.1 for()

```
for ( )
```

9.23.2 Variable Documentation

9.23.2.1 dst

```
double dst[M ∗N]
```

9.23.2.2 end_x

```
int end_x = M - 1
```

9.23.2.3 end_y

```
int end_y = N - 1
```

9.23.2.4 src

```
double src[M *N]
```

9.23.2.5 start_x

```
int start_x = 1
```

9.23.2.6 start_y

```
int start_y = 1
```

9.24 nodelevel/kernels/HEAT.c File Reference

Functions

- for (int y=0;y< dim_y;y++) for(int x=0

Variables

- double dst [dim_y][dim_x]
- double src [dim_y][dim_x]

9.24.1 Function Documentation

9.24.1.1 for()

```
for ( )  [pure virtual]
```

9.24.2 Variable Documentation

9.24.2.1 dst

```
double dst[dim_y][dim_x]
```

9.24.2.2 src

```
double src[dim_y][dim_x]
```

9.25 nodelevel/kernels/KAHAN-DOT.c File Reference

Functions

- for (int i=0;i< N;++i)

Variables

- double a [N]
- double b [N]
- double c
- double sum
- double prod
- double t
- double y

9.25.1 Function Documentation

9.25.1.1 for()

```
for ( )
```

9.25.2 Variable Documentation

9.25.2.1 a

```
double a[N]
```

9.25.2.2 b

```
double b[N]
```

9.25.2.3 c

```
double c
```

9.25.2.4 prod

```
double prod
```

9.25.2.5 sum

```
double sum
```

9.25.2.6 t

```
double t
```

9.25.2.7 y

```
double y
```

9.26 nodelevel/kernels/SCALAR-PRODUCT.c File Reference

Functions

- for (int i=0;i< N;++i)

Variables

- double a [N]
- double b [N]
- double s

9.26.1 Function Documentation

9.26.1.1 for()

```
for ( )
```

9.26.2 Variable Documentation

9.26.2.1 a

```
double a[N]
```

9.26.2.2 b

```
double b[N]
```

9.26.2.3 s

```
double s
```

9.27 nodelevel/kernels/SCALE.c File Reference

Functions

- for (int i=0;i< N;++i) a[i]

Variables

- double a [N]
- double b [N]
- double s

9.27.1 Function Documentation

9.27.1.1 for()

```
for ( )
```

9.27.2 Variable Documentation

9.27.2.1 a

```
double a[N]
```

9.27.2.2 b

```
double b[N]
```

9.27.2.3 s

```
double s
```

9.28 nodelevel/kernels/SCHOENAUER-TRIAD-DIV.c File Reference

Functions

- for (int i=0;i< N;++i) a[i]

Variables

- double a [N]
- double b [N]
- double c [N]
- double d [N]

9.28.1 Function Documentation

9.28.1.1 for()

```
for ( )
```

9.28.2 Variable Documentation

9.28.2.1 a

```
double a[N]
```

9.28.2.2 b

```
double b[N]
```

9.28.2.3 c

```
double c[N]
```

9.28.2.4 d

```
double d[N]
```

9.29 nodelevel/kernels/SCHOENAUER-TRIAD.c File Reference

Functions

- for (int i=0;i< N;++i) a[i]

Variables

- double a [N]
- double b [N]
- double c [N]
- double d [N]
- double s

9.29.1 Function Documentation

9.29.1.1 for()

```
for ( )
```

9.29.2 Variable Documentation

9.29.2.1 a

```
double a[N]
```

9.29.2.2 b

```
double b[N]
```

9.29.2.3 c

```
double c[N]
```

9.29.2.4 d

```
double d[N]
```

9.29.2.5 s

```
double s
```

9.30 nodelevel/kernels/SOR-LINEAR.c File Reference

Functions

- for (int j=1;j< jmaxLocal+1;j++)

Variables

- double r1
- double res
- double dx
- double dy
- double dx2
- double dy2
- double idx2
- double idy2
- double omega
- double factor
- double src [jmaxLocal][imax]
- double rhs [jmaxLocal][imax]

9.30.1 Function Documentation

9.30.1.1 for()

```
for ( )
```

9.30.2 Variable Documentation

9.30.2.1 dx

```
double dx
```

9.30.2.2 dx2

```
double dx2
```

9.30.2.3 dy

```
double dy
```

9.30.2.4 dy2

```
double dy2
```

9.30.2.5 factor

```
double factor
```

9.30.2.6 idx2

```
double idx2
```

9.30.2.7 idy2

```
double idy2
```

9.30.2.8 omega

```
double omega
```

9.30.2.9 r1

```
double r1
```

9.30.2.10 res

```
double res
```

9.30.2.11 rhs

```
double rhs[jmaxLocal][imax]
```

9.30.2.12 src

```
double src[jmaxLocal][imax]
```

9.31 nodelevel/kernels/SOR.c File Reference

Functions

- for (int j=1;j< jmaxLocal+1;j++)

Variables

- double r1
- double res
- double dx
- double dy
- double dx2
- double dy2
- double idx2
- double idy2
- double omega
- double factor
- double src [imax][imax]
- double rhs [imax][imax]

9.31.1 Function Documentation

9.31.1.1 for()

```
for ( )
```

9.31.2 Variable Documentation

9.31.2.1 dx

```
double dx
```

9.31.2.2 dx2

```
double dx2
```

9.31.2.3 dy

```
double dy
```

9.31.2.4 dy2

```
double dy2
```

9.31.2.5 factor

```
double factor
```

9.31.2.6 idx2

```
double idx2
```

9.31.2.7 idy2

```
double idy2
```

9.31.2.8 omega

```
double omega
```

9.31.2.9 r1

```
double r1
```

9.31.2.10 res

```
double res
```

9.31.2.11 rhs

```
double rhs[imax][imax]
```

9.31.2.12 src

```
double src[imax][imax]
```

9.32 nodelevel/kernels/STENCIL-1D-3PT.c File Reference

Functions

- for (int i=1;i< N-1;++i) b[i]

Variables

- double a [N]
- double b [N]
- double c

9.32.1 Function Documentation

9.32.1.1 for()

```
for ( )
```

9.32.2 Variable Documentation

9.32.2.1 a

```
double a[N]
```

9.32.2.2 b

```
double b[N]
```

9.32.2.3 c

```
double c
```

9.33 nodelevel/kernels/STENCIL-3D-27PT.c File Reference

Functions

- for (int k=1;k< M-1;++k) for(int j

Variables

- double a [M][N][N]
- double b [M][N][N]
- double s

9.33.1 Function Documentation

9.33.1.1 for()

```
for ( )
```

9.33.2 Variable Documentation

9.33.2.1 a

```
double a[M][N][N]
```

9.33.2.2 b

```
double b[M][N][N]
```

9.33.2.3 s

```
double s
```

9.34 nodelevel/kernels/STENCIL-3D-7PT.c File Reference

Functions

- for (int k=1;k< M-1;++k) for(int j

Variables

- double a [M][N][N]
- double b [M][N][N]
- double s

9.34.1 Function Documentation

9.34.1.1 for()

```
for ( )
```

9.34.2 Variable Documentation

9.34.2.1 a

```
double a[M][N][N]
```

9.34.2.2 b

```
double b[M][N][N]
```

9.34.2.3 s

```
double s
```

9.35 nodelevel/kernels/STENCIL-3D-LONGRANGE.c File Reference

Functions

- for (int k=4;k< M-4;k++)

Variables

- double U [M][N][N]
- double V [M][N][N]
- double ROC [M][N][N]
- double c0
- double c1
- double c2
- double c3
- double c4
- double lap

9.35.1 Function Documentation

9.35.1.1 for()

```
for ( )
```

9.35.2 Variable Documentation

9.35.2.1 c0

```
double c0
```

9.35.2.2 c1

```
double c1
```

9.35.2.3 c2

```
double c2
```

9.35.2.4 c3

```
double c3
```

9.35.2.5 c4

```
double c4
```

9.35.2.6 lap

```
double lap
```

9.35.2.7 ROC

```
double ROC[M][N][N]
```

9.35.2.8 U

```
double U[M][N][N]
```

9.35.2.9 V

```
double V[M][N][N]
```

9.36 nodelevel/kernels/STENCIL-UXX.c File Reference

Functions

- for (int k=2;k< M-2;k++)

Variables

- double u1 [M][N][N]
- double d1 [M][N][N]
- double xx [M][N][N]
- double xy [M][N][N]
- double xz [M][N][N]
- double c1
- double c2
- double d
- double dth

9.36.1 Function Documentation

9.36.1.1 for()

```
for ( )
```

9.36.2 Variable Documentation

9.36.2.1 c1

```
double c1
```

9.36.2.2 c2

```
double c2
```

9.36.2.3 d

```
double d
```

9.36.2.4 d1

```
double d1[M][N][N]
```

9.36.2.5 dth

```
double dth
```

9.36.2.6 u1

```
double u1[M][N][N]
```

9.36.2.7 xx

```
double xx[M][N][N]
```

9.36.2.8 xy

```
double xy[M][N][N]
```

9.36.2.9 xz

```
double xz[M][N][N]
```

9.37 nodelevel/kernels/STREAM-TRIAD.c File Reference

Functions

- for (int i=0;i< N;++i)

Variables

- double a [N]
- double b [N]
- double c [N]
- double s

9.37.1 Function Documentation

9.37.1.1 for()

```
for ( )
```

9.37.2 Variable Documentation

9.37.2.1 a

```
double a[N]
```

9.37.2.2 b

```
double b[N]
```

9.37.2.3 c

```
double c[N]
```

9.37.2.4 s

```
double s
```

9.38 nodelevel/kernels/SUM.c File Reference

Functions

- for (int i=0;i< N;++i) a[i]

Variables

- double a [N]
- double b [N]
- double c [N]

9.38.1 Function Documentation

9.38.1.1 for()

```
for ( )
```

9.38.2 Variable Documentation

9.38.2.1 a

```
double a[N]
```

9.38.2.2 b

```
double b[N]
```

9.38.2.3 c

```
double c[N]
```

9.39 nodelevel/kernels/VECTOR-SUM.c File Reference

Functions

- for (int i=0;i< N;++i)

Variables

- double a [N]
- double s

9.39.1 Function Documentation

9.39.1.1 for()

```
for ( )
```

9.39.2 Variable Documentation

9.39.2.1 a

```
double a[N]
```

9.39.2.2 s

```
double s
```

9.40 nodelevel/kernels/WAXPY.c File Reference

Functions

- for (int i=0;i< N;i++) a[i]

Variables

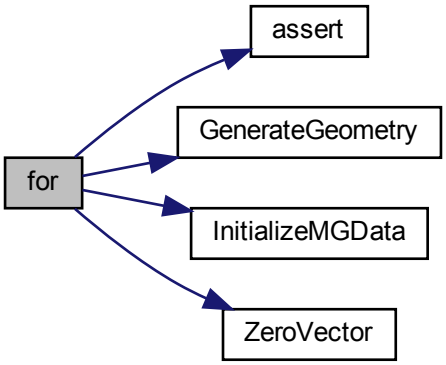
- double s
- double a [N]
- double b [N]
- double c [N]

9.40.1 Function Documentation

9.40.1.1 for()

```
for ( )
```

Here is the call graph for this function:



9.40.2 Variable Documentation

9.40.2.1 a

```
double a[N]
```

9.40.2.2 b

```
double b[N]
```

9.40.2.3 c

```
double c[N]
```

9.40.2.4 s

```
double s
```

9.41 nodelevel/machine-files/plot_machine_file.py File Reference

Namespaces

- plot_machine_file

Functions

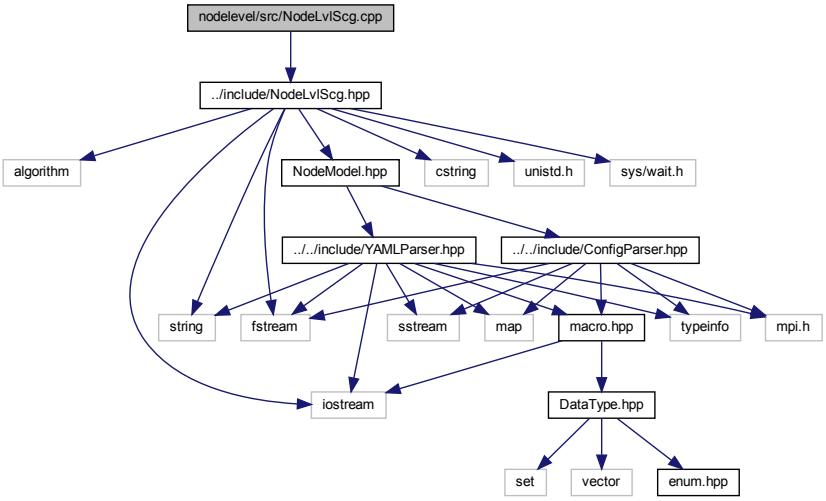
- def plot_machine_file.main ()

Variables

- string plot_machine_file.kernel_colors = 'bgrcmyk'

9.42 nodelevel/src/NodeLvlScg.cpp File Reference

`#include "../include/NodeLvlScg.hpp"`
Include dependency graph for NodeLvlScg.cpp:



Enumerations

- enum bound_type { COMPUTE = 0, MEMORY = 1, COMPUTE = 0, MEMORY = 1 }

Functions

- void estimation (NodeModel &NM, DisCosTiC_Timetype *perf_est, DisCosTiC_Timetype *runtime)
- __declspec (noalias) void scaling(NodeModel &NM
- if (ecm.T_L3Mem_ !=0.0)

Variables

- int bound = 0
- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name
- DisCosTiC_Timetype * scaling_performance
- DisCosTiC_Timetype DisCosTiC_Timetype * scaling_numa
- Machine m = NM.getMachine()

9.42.1 Detailed Description

NODELVLSCG_CPP

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9.42.2 Enumeration Type Documentation

9.42.2.1 bound_type

```
enum bound_type
```

Enumerator

COMPUTE	
MEMORY	
COMPUTE	
MEMORY	

9.42.3 Function Documentation

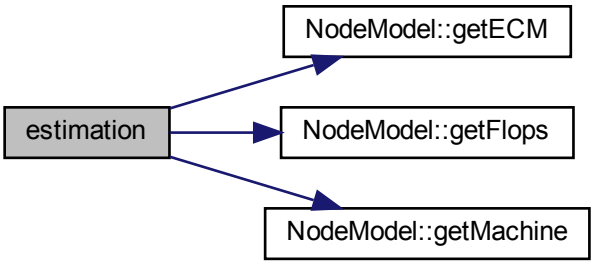
9.42.3.1 __declspec()

```
__declspec (
            noalias  ) &
```

9.42.3.2 estimation()

```
void estimation (
            NodeModel & NM,
            DisCosTiC_Timetype * perf_est,
            DisCosTiC_Timetype * runtime )
```

Here is the call graph for this function:



9.42.3.3 if()

```
if (
             ecm.T_L3Mem_ !     = 0.0 )
```

9.42.4 Variable Documentation

9.42.4.1 arch_name

```
std::string arch_name
```

9.42.4.2 bound

```
int bound = 0
```

9.42.4.3 bytes_to_send

```
int bytes_to_send
```

9.42.4.4 cc_numa_domain

```
int cc_numa_domain
```

9.42.4.5 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.42.4.6 cores_per_socket

```
int cores_per_socket
```

9.42.4.7 heteregeneous_mode

```
int heteregeneous_mode
```

9.42.4.8 m

```
Machine m = NM.getMachine()
```

9.42.4.9 node

```
int node
```

9.42.4.10 primary_processes

```
int primary_processes
```

9.42.4.11 scaling_cores

```
int scaling_cores
```

9.42.4.12 scaling_numa

```
DisCosTiC_Timetype DisCosTiC_Timetype* scaling_numa
```

Initial value:

```
{
    ECM ecm = NM.getECM()
```

9.42.4.13 scaling_performance

```
DisCosTiC_Timetype* scaling_performance
```

9.42.4.14 secondary_processes

```
int secondary_processes
```

9.42.4.15 socket

```
int socket
```

9.42.4.16 system_number

```
int system_number
```

9.42.4.17 task_per_node

```
int task_per_node
```

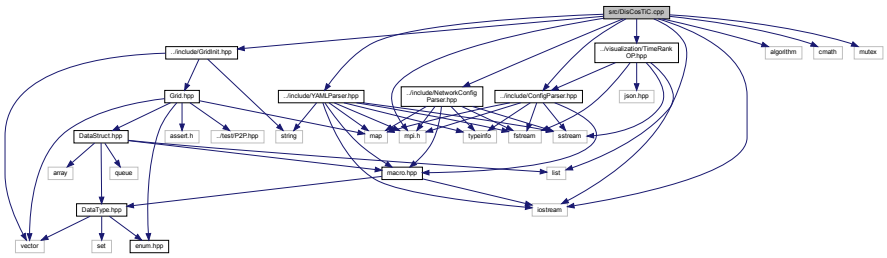
9.42.4.18 virtual_rank

```
int virtual_rank
```

9.43 src/DisCosTiC.cpp File Reference

```
#include <iostream>
#include <list>
#include <algorithm>
#include <cmath>
#include <mpi.h>
#include "../include/ConfigParser.hpp"
#include "../include/NetworkConfigParser.hpp"
#include "../include/YAMLParser.hpp"
#include "../visualization/TimeRankOP.hpp"
#include "../include/GridInit.hpp"
#include <mutex>
```

Include dependency graph for DisCosTiC.cpp:



Macros

- #define USE_CHROMEVIZ

Enumerations

- enum communication_mode { LOGGP = 0, SIMPLELB = 1 }
- enum communication_type { INTRACHIP = 0, INTERCHIP = 1, INTERNODE = 2, INTERCLUSTER = 3 }
- enum time { START = 0, END = 1 }
- enum bound_type { COMPUTE = 0, MEMORY = 1, COMPUTE = 0, MEMORY = 1 }

Functions

- DisCosTiC::DisCosTiC_OP copy (DisCosTiC::DisCosTiC_OP op_og, DisCosTiC::DisCosTiC_OP op_copy)
- double * finalize (double a, double b, double c, double d, double e, double arr[5])
- int main (int argc, char **argv)

Variables

- int bound
- int scaling_cores
- int bytes_to_send
- int virtual_rank = 0
- int system_number = 0
- int task_per_node = 0

- int node = 0
- int cc_numa_domain_per_socket = 0
- int cores_per_socket = 0
- int cc_numa_domain = 0
- int socket = 0
- int primary_processes = 0
- int secondary_processes = 0
- int heteregeneous_mode = 0
- std::string arch_name = ""
- std::string interconnect_name = ""
- std::string MPIlibrary_name = ""

9.43.1 Macro Definition Documentation

9.43.1.1 USE_CHROMEVIZ

```
#define USE_CHROMEVIZ
```

9.43.2 Enumeration Type Documentation

9.43.2.1 bound_type

```
enum bound_type
```

Enumerator

COMPUTE	
MEMORY	
COMPUTE	
MEMORY	

9.43.2.2 communication_mode

```
enum communication_mode
```

Enumerator

LOGGP	
SIMPLELB	

9.43.2.3 communication_type

```
enum communication_type
```

Enumerator

INTRACHIP	
INTERCHIP	
INTERNODE	
INTERCLUSTER	

9.43.2.4 time

```
enum time
```

Enumerator

START	
END	

9.43.3 Function Documentation

9.43.3.1 copy()

```
DisCosTiC::DisCosTiC_OP copy (
            DisCosTiC::DisCosTiC_OP op_og,
            DisCosTiC::DisCosTiC_OP op_copy )
```

9.43.3.2 finalize()

```
double* finalize (
            double a,
            double b,
            double c,
            double d,
            double e,
            double arr[5] )
```

9.43.3.3 main()

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

< print version number of toolkit

< print current date and time

< generate AST for Oneway_PositiveDisplacement communication pattern example

rootGrabber: get root nodes of DisCosTiC::AST_OP_TYPE type (i.e., exec in our case) of all ranks

it parses and print user-defined parameters or args of configuration file (config.cfg).

< number of synchronization induced by MPI routines

define and initialize next available time of computation, receive and send for all CPU nodes and ranks

initialize root operations for each rank (only once per run!). These sorted operations order by type retrieve from test case application added to the queue (that has operations of all processes and their earliest start times). (each operation = time, rank, next operation).

Start of parallelization code runs for all processes that are not the master rank

the switch on type of each operation: whenever a blocking or non-blocking dependency or something is satisfied, the rank is added to the list of ranks that completed someting (finishedRankList)

operations of all ranks with their starting times and counter over operation statuses

< get rid of baseline comp time

< get rid of baseline comp time and add original computing time modeled by analytical roofline model

injected long disturbance at given rank and given timestep

< message is only received after G is charged

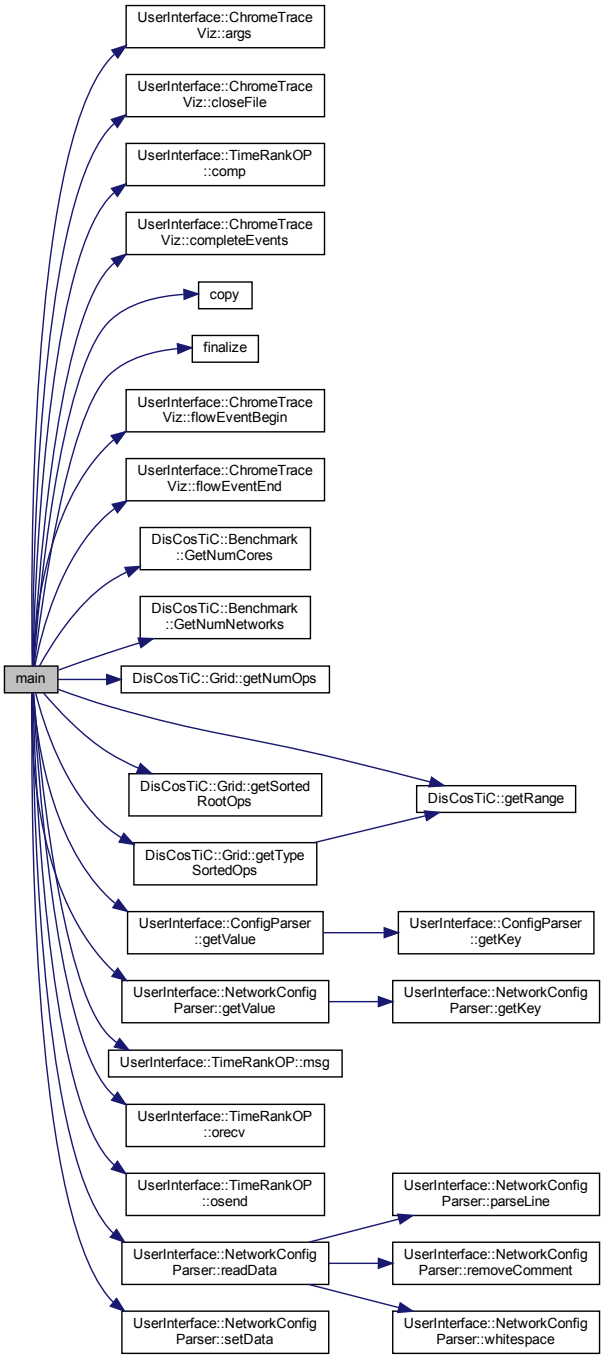
satisfy remote requires

set the remote clocks to operation.time (there is no event < operation.time in the queue)

add new sorted operations order by type to the queue

Start of Master Ranks code runs for the master rank

end of parallelizationHere is the call graph for this function:



9.43.4 Variable Documentation

9.43.4.1 arch_name

```
std::string arch_name = ""
```

9.43.4.2 bound

```
int bound
```

9.43.4.3 bytes_to_send

```
int bytes_to_send
```

9.43.4.4 cc_numa_domain

```
int cc_numa_domain = 0
```

9.43.4.5 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket = 0
```

9.43.4.6 cores_per_socket

```
int cores_per_socket = 0
```

9.43.4.7 heteregeneous_mode

```
int heteregeneous_mode = 0
```

9.43.4.8 interconnect_name

```
std::string interconnect_name = ""
```

9.43.4.9 MPIlibrary_name

```
std::string MPIlibrary_name = ""
```

9.43.4.10 node

```
int node = 0
```

9.43.4.11 primary_processes

```
int primary_processes = 0
```

9.43.4.12 scaling_cores

```
int scaling_cores
```

9.43.4.13 secondary_processes

```
int secondary_processes = 0
```

9.43.4.14 socket

```
int socket = 0
```

9.43.4.15 system_number

```
int system_number = 0
```

9.43.4.16 task_per_node

```
int task_per_node = 0
```

9.43.4.17 virtual_rank

```
int virtual_rank = 0
```

9.44 staticanalysis/Convert-HEAT.py File Reference

Classes

- class Convert-HEAT.newNode
- class Convert-HEAT.Tree

Namespaces

- Convert-HEAT

Functions

- def Convert-HEAT.deINIT (sentence)
- def Convert-HEAT.findBTWmarkers (mark1, mark2, sampleStr)
- def Convert-HEAT.findVar (val, lis)
- def Convert-HEAT.checkChildren (node, val)
- def Convert-HEAT.traverseDown (node, val)
- def Convert-HEAT.findArg (node, val)
- def Convert-HEAT.getMother (motherNode)
- def Convert-HEAT.fill_the_void (newTree, node, name, segmented, funcList)
- def Convert-HEAT.print_list (list)
- def Convert-HEAT.findNodes (name, list)
- def Convert-HEAT.commentsRemover (code)
- def Convert-HEAT.findPurpose (line)
- def Convert-HEAT.compareFunc (funcList, name)

Variables

- list Convert-HEAT.code = [ ];
- Convert-HEAT.temp = f.read()
- Convert-HEAT.line2 = line.strip()
- Convert-HEAT.a = newNode(line2,"init")
- Convert-HEAT.b = segments.pop()
- Convert-HEAT.iter
- Convert-HEAT.t
- Convert-HEAT.n
- Convert-HEAT.type
- Convert-HEAT.name
- string Convert-HEAT.totalLine = ""
- Convert-HEAT.prevLine = line
- string Convert-HEAT.code3 = ''
- Convert-HEAT.line = line.strip()
- list Convert-HEAT.motherNode = [ ]
- Convert-HEAT.tree = AnyNode(id=n,parent=None,src=line,type=t)

- def Convert-HEAT.mom = getMother(motherNode)
- def Convert-HEAT.r = compareFunc(funcs,n)
- list Convert-HEAT.commNode = [ ]
- Convert-HEAT.result = leaf.id[leaf.id.find("(")+1:leaf.id.find(";")-1]
- Convert-HEAT.arguments = result.split(',')
- Convert-HEAT.res = re.search(arguments[1].strip()+" = [0-9]+;", code3)
- string Convert-HEAT.val = "int "+res
- def Convert-HEAT.execNode = traverseDown(leaf,"∗"+temp[1:min(arguments[0].index("["),arguments[0].index("("))])
- Convert-HEAT.parNode = node
- int Convert-HEAT.prn = 0
- Convert-HEAT.f = open('../test/P2P_HEAT.hpp', 'w')
- list Convert-HEAT.startArgs = [ ]
- Convert-HEAT.vari = i.src[i.src.find("int")+4:i.src.find("=")-1].strip()
- Convert-HEAT.src
- Convert-HEAT.here = os.path.dirname(os.path.realpath(__file__))
- string Convert-HEAT.subdir = "nodelevel"
- string Convert-HEAT.subdir2 = "kernels"
- string Convert-HEAT.filename = "heat.c"
- Convert-HEAT.filepath = os.path.join(here, "..",subdir,subdir2, filename)
- Convert-HEAT.ex = open(filepath, 'w')
- string Convert-HEAT.args = ''

9.45 staticanalysis/Convert-HPCG.py File Reference

Classes

- class Convert-HPCG.data

Namespaces

- Convert-HPCG

Functions

- def Convert-HPCG.get_parent (arr)
- def Convert-HPCG.nodesToTxt (nodes)
- def Convert-HPCG.findFuncName (line)
- def Convert-HPCG.findFuncs (nodes)
- def Convert-HPCG.writeToFile2 (txt, filename)
- def Convert-HPCG.writeToFile (txt)
- def Convert-HPCG.releventIterations (nodes)
- def Convert-HPCG.transform_code (code)
- def Convert-HPCG.findPurpose (line)
- def Convert-HPCG.getCode (filename)
- def Convert-HPCG.find_kernel (kernel, func, output)
- def Convert-HPCG.extract_exec (src, name)
- def Convert-HPCG.selected_print (nodes, num, kernels)
- def Convert-HPCG.clean_code (code)
- def Convert-HPCG.funcCode (node, here)
- def Convert-HPCG.cleanup ()
- def Convert-HPCG.finalize (nodes, kernels, a)

Variables

- Convert-HPCG.a = data()
- tuple Convert-HPCG.kernels
- string Convert-HPCG.code2 = ''
- list Convert-HPCG.segments = [ ]
- string Convert-HPCG.totalLine = ''
- list Convert-HPCG.funcList = [ ]
- def Convert-HPCG.code = getCode("main.cpp")
- def Convert-HPCG.code_1 = clean_code(code)
- def Convert-HPCG.nodes = transform_code(code_1)
- def Convert-HPCG.forCalls = releventIterations(nodes)
- list Convert-HPCG.forCall = [ ]

9.46 staticanalysis/Convert-POISSONNS.py File Reference

Classes

- class Convert-POISSONNS.newNode
- class Convert-POISSONNS.Tree

Namespaces

- Convert-POISSONNS

Functions

- def Convert-POISSONNS.deINIT (sentence)
- def Convert-POISSONNS.findBTWmarkers (mark1, mark2, sampleStr)
- def Convert-POISSONNS.findVar (val, lis)
- def Convert-POISSONNS.checkChildren (node, val)
- def Convert-POISSONNS.traverseDown (node, val)
- def Convert-POISSONNS.findArg (node, val)
- def Convert-POISSONNS.getMother (motherNode)
- def Convert-POISSONNS.fill_the_void (newTree, node, name, segmented, funcList)
- def Convert-POISSONNS.print_list (list)
- def Convert-POISSONNS.findNodes (name, list)
- def Convert-POISSONNS.commentsRemover (code)
- def Convert-POISSONNS.findPurpose (line)
- def Convert-POISSONNS.compareFunc (funcList, name)
- def Convert-POISSONNS.isfloat (num)
- def Convert-POISSONNS.var_replacer (line, number_dict)

Variables

- list Convert-POISSONNS.code = dict();

  Driver Code #.
- Convert-POISSONNS.temp = f.read()
- Convert-POISSONNS.line2 = line.strip()
- Convert-POISSONNS.a = newNode(line2,"init")
- Convert-POISSONNS.b = segments.pop()
- Convert-POISSONNS.iter
- Convert-POISSONNS.t
- Convert-POISSONNS.n
- Convert-POISSONNS.type
- Convert-POISSONNS.name
- string Convert-POISSONNS.totalLine = ""
- Convert-POISSONNS.prevLine = line
- Convert-POISSONNS.line = line.strip()
- Convert-POISSONNS.subline1 = line[0:line.find("=")]
- Convert-POISSONNS.subline2 = line[line.find(" = ")+2:len(line)-1]
- string Convert-POISSONNS.code3 = ''
- list Convert-POISSONNS.motherNode = [ ]
- Convert-POISSONNS.tree = AnyNode(id=n,parent=None,src=line,type=t)
- def Convert-POISSONNS.mom = getMother(motherNode)
- def Convert-POISSONNS.r = compareFunc(funcs,n)
- list Convert-POISSONNS.commNode = [ ]
- Convert-POISSONNS.result = leaf.id[leaf.id.find("(")+1:leaf.id.find(";")-1]
- Convert-POISSONNS.arguments = result.split(',')
- Convert-POISSONNS.res = re.search(arguments[1].strip()+" = [0-9]+;", code3)
- string Convert-POISSONNS.val = "int "+res
- def Convert-POISSONNS.execNode = traverseDown(leaf,"∗"+temp[1:min(arguments[0].index("["),arguments[0].index("("))])
- Convert-POISSONNS.parNode = node
- int Convert-POISSONNS.prn = 0
- Convert-POISSONNS.f = open('../test/P2P_POISSONNS.hpp', 'w')
- list Convert-POISSONNS.startArgs = [ ]
- Convert-POISSONNS.src
- Convert-POISSONNS.vari = i.src[i.src.find("int")+4:i.src.find("=")-1].strip()
- Convert-POISSONNS.empty_vars = list()

  Code for preparing hotspot as required by KERNCRAFT #.
- Convert-POISSONNS.here = os.path.dirname(os.path.realpath(__file__))
- string Convert-POISSONNS.subdir = "nodelevel"
- string Convert-POISSONNS.subdir2 = "kernels"
- string Convert-POISSONNS.filename = "POISSONNS.c"
- Convert-POISSONNS.filepath = os.path.join(here, "..",subdir,subdir2, filename)
- Convert-POISSONNS.ex = open(filepath, 'w')
- Convert-POISSONNS.multi = i.src[i.src.find(" "):-1].strip().split(",")
- string Convert-POISSONNS.args = '-D '

9.47 staticanalysis/Convert-STREAM.py File Reference

Namespaces

- Convert-STREAM

Functions

- def Convert-STREAM.get_parent (arr)
- def Convert-STREAM.nodesToTxt (nodes)
- def Convert-STREAM.findFuncName (line)
- def Convert-STREAM.findFuncs (nodes)
- def Convert-STREAM.writeToFile (nodes)
- def Convert-STREAM.releventIterations (nodes)
- def Convert-STREAM.transform_code (code)
- def Convert-STREAM.findPurpose (line)
- def Convert-STREAM.getCode (filename)
- def Convert-STREAM.clean_code (code)

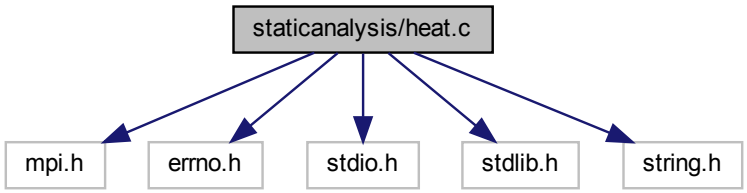
Variables

- list Convert-STREAM.code2 = [ ];
- def Convert-STREAM.code = getCode("x.cpp")
- def Convert-STREAM.code_1 = clean_code(code)
- def Convert-STREAM.nodes = transform_code(code_1)
- def Convert-STREAM.forCalls = releventIterations(nodes)

9.48 staticanalysis/heat.c File Reference

```
#include <mpi.h>
#include <errno.h>
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
```

Include dependency graph for heat.c:



Classes

- struct grid_t
- struct domain_t

Macros

- #define _GNU_SOURCE

Functions

- static int max_int (int a, int b)
- static void dump_domain (struct domain_t *domain)

  Collective routine that writs the domain as a PGM file.
- static void init_grid_data (struct domain_t *domain, int grid_idx)

  Initialize grid @grid_idx in domain.
- struct domain_t * init (int argc, char *argv[], int rank, int size)

  Allocate and initialize domain and grids. Aborts on error.
- static void deinit (struct domain_t *domain)

  Deinitialize and free resources associated with `domain`.
- static void exchange (struct domain_t *domain, int grid_idx)

  Exchange ghost cells.
- static void relax (struct domain_t *domain, int src_grid_idx, int dst_grid_idx)

  Perform one sweep over the domain.
- static double iterate (struct domain_t *domain)

  Perform a fixed amount of iterations over given domain.
- int main (int argc, char *argv[])

Variables

- const double V_DEFAULT = 0.1
- const double V_TOP = 1.0
- const double V_RIGHT = 2.0
- const double V_BOTTOM = 3.0
- const double V_LEFT = 4.0
- const double V_MAX = 4.0

9.48.1 Macro Definition Documentation

9.48.1.1 _GNU_SOURCE

```
#define _GNU_SOURCE
```

9.48.2 Function Documentation

9.48.2.1 deinit()

```
static void deinit (
            struct domain_t * domain )  [static]
```

Deinitialize and free resources associated with `domain`.

Parameters

domain	The domain to free.

9.48.2.2 dump_domain()

```
static void dump_domain (
            struct domain_t * domain )  [static]
```

Collective routine that writes the domain as a PGM file.

Simple implementation for writing the domain as PGM file. No MPI comminucation or IO is involved.

Parameters

domain	The domain to dump.

9.48.2.3 exchange()

```
static void exchange (
            struct domain_t * domain,
            int grid_idx )  [static]
```

Exchange ghost cells.

Parameters

domain	The domain to use.
grid_idx	The grid in `domain` to use.

9.48.2.4 init()

```
struct domain_t* init (
            int argc,
            char * argv[],
            int rank,
            int size )
```

Allocate and initialize domain and grids. Aborts on error.

Parameters

argc	

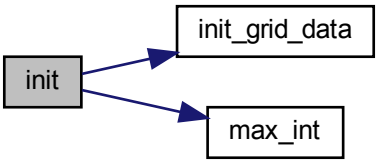
Parameters

argv	
rank	The rank the current MPI process in MPI_COMM_WORLD.
size	The size of MPI_COMM_WORLD.

Returns

an initialized domain or stopps execution on error.

Here is the call graph for this function:



9.48.2.5 init_grid_data()

```
static void init_grid_data (
             struct domain_t * domain,
             int grid_idx )  [static]
```

Initialize grid @grid_idx in domain.

Parameters

domain	The domain that contains the grids.
grid_idx	The grid in `domain` to initialize.

9.48.2.6 iterate()

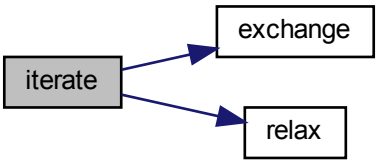
```
static double iterate (
             struct domain_t * domain )  [static]
```

Perform a fixed amount of iterations over given domain.

Parameters

domain	The domain to iterate over.

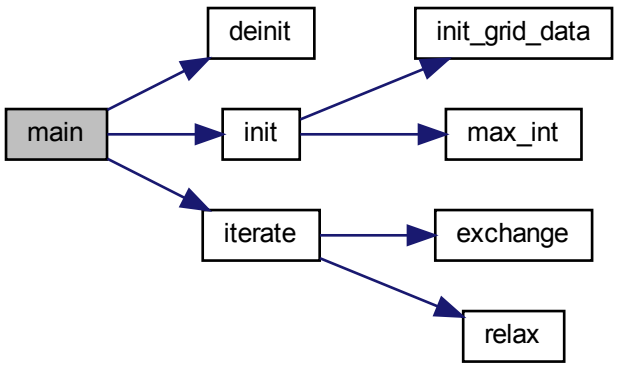
A single iteration consists of a ghost cell exchange and a relaxation step. The active_grid and iterations_performed member of `domain` will be updated upon return. Here is the call graph for this function:



9.48.2.7 main()

```
int main (
             int argc,
             char * argv[] )
```

Here is the call graph for this function:



9.48.2.8 max_int()

```
static int max_int (
            int a,
            int b )  [static]
```

9.48.2.9 relax()

```
static void relax (
            struct domain_t * domain,
            int src_grid_idx,
            int dst_grid_idx )  [static]
```

Perform one sweep over the domain.

Parameters

domain	The domain to use.
src_grid_idx	Source grid index in `domain`.
dst_grid_idx	Destination grid index in `domain`.

9.48.3 Variable Documentation

9.48.3.1 V_BOTTOM

```
const double V_BOTTOM = 3.0
```

9.48.3.2 V_DEFAULT

```
const double V_DEFAULT = 0.1
```

9.48.3.3 V_LEFT

```
const double V_LEFT = 4.0
```

9.48.3.4 V_MAX

```
const double V_MAX = 4.0
```

9.48.3.5 V_RIGHT

```
const double V_RIGHT = 2.0
```

9.48.3.6 V_TOP

```
const double V_TOP = 1.0
```

9.49 staticanalysis/HPCG-initial.c File Reference

Functions

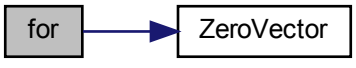
- for (int i=0;i< numberOfCalls;++i)

9.49.1 Function Documentation

9.49.1.1 for()

```
for ( )
```

Here is the call graph for this function:



9.50 staticanalysis/HPCG.c File Reference

Functions

- for (int level=1;level< numberOfMgLevels;++level)
- assert (nxf%2==0)
- assert (nyf%2==0)
- assert (nzf%2==0)
- assert (localNumberOfRows >0)
- if (pz >0)
- GenerateGeometry (Af.geom->size, Af.geom->rank, Af.geom->numThreads, Af.geom->pz, zlc, zuc, nxc, nyc, nzc, Af.geom->npx, Af.geom->npy, Af.geom->npz, geomc)
- InitializeMGData (f2cOperator, rc, xc, Axf, ∗mgData)
- if (b!=0)
- int ComputeSPMV_ref assert (x.localLength >=A.localNumberOfColumns)
- assert (y.localLength >=A.localNumberOfRows)
- ExchangeHalo (A, x)
- int ComputeMG_ref assert (x.localLength==A.localNumberOfColumns)
- ZeroVector (x)
- if (A.mgData!=0)
- if (ierr!=0)
- if (print_freq, print_freq=50)
- if (ierr)

Variables

- void GenerateCoarseProblem global_int_t nxf = Af.geom->nx
- global_int_t nyf = Af.geom->ny
- global_int_t nzf = Af.geom->nz
- local_int_t nxc = nxf/2
- local_int_t nyc = nyf/2
- local_int_t nzc = nzf/2
- local_int_t ∗ f2cOperator = new local_int_t[Af.localNumberOfRows]
- local_int_t localNumberOfRows = nxc∗nyc∗nzc
- Geometry ∗ geomc = new Geometry
- local_int_t zlc = 0
- local_int_t zuc = 0
- int pz = Af.geom->pz
- SparseMatrix ∗ Ac = new SparseMatrix
- Vector ∗ rc = new Vector
- Vector ∗ xc = new Vector
- Vector ∗ Axf = new Vector
- MGData ∗ mgData = new MGData
- return
- curLevelMatrix = curLevelMatrix->Ac
- void CheckProblem global_int_t nx = A.geom->nx
- global_int_t ny = A.geom->ny
- global_int_t nz = A.geom->nz
- global_int_t gnx = A.geom->gnx
- global_int_t gny = A.geom->gny
- global_int_t gnz = A.geom->gnz
- global_int_t gix0 = A.geom->gix0
- global_int_t giy0 = A.geom->giy0

- global_int_t giz0 = A.geom->giz0
- global_int_t totalNumberOfRows = gnx*gny*gnz
- double * bv = 0
- double * xv = 0
- double * xexactv = 0
- curb = 0
- curx = 0
- curxexact = 0
- double *const yv = y.values
- const local_int_t nrow = A.localNumberOfRows
- ierr = ComputeMG_ref(A, b_computed, x_overlap)
- else
- int CG_ref double t_begin = mytimer()
- normr = 0.0
- double rtz = 0.0
- double oldrtz = 0.0
- double alpha = 0.0
- double beta = 0.0
- double pAp = 0.0
- double t0 = 0.0
- double t1 = 0.0
- double t2 = 0.0
- double t3 = 0.0
- double t4 = 0.0
- double t5 = 0.0
- Vector & r = data.r
- Vector & z = data.z
- Vector & p = data.p
- Vector & Ap = data.Ap
- int print_freq = 1
- times [1] = t1
- testnorms_data values [i] = normr / normr0

9.50.1 Function Documentation

9.50.1.1 assert() [1/7]

```
assert (
            localNumberOfRows ,
            0  )
```

9.50.1.2 assert() [2/7]

```
assert (
            nxf% 2 = =0 )
```

9.50.1.3 assert() [3/7]

```
assert (
            nyf% 2 == 0 )
```

9.50.1.4 assert() [4/7]

```
assert (
            nzf% 2 == 0 )
```

9.50.1.5 assert() [5/7]

```
int ComputeSPMV_ref assert (
            x.localLength >=A. localNumberOfColumns )
```

9.50.1.6 assert() [6/7]

```
int ComputeMG_ref assert (
            x.  localLength == A.localNumberOfColumns )
```

9.50.1.7 assert() [7/7]

```
assert (
            y.localLength >=A. localNumberOfRows )
```

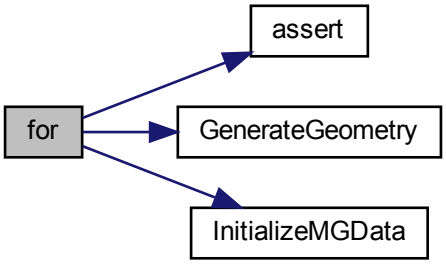
9.50.1.8 ExchangeHalo()

```
ExchangeHalo (
            A ,
            x  )
```

9.50.1.9 for()

```
for ( )
```

Here is the call graph for this function:



9.50.1.10 GenerateGeometry()

```
GenerateGeometry (
            Af.geom-> size,
            Af.geom-> rank,
            Af.geom-> numThreads,
            Af.geom-> pz,
            zlc ,
            zuc ,
            nxc ,
            nyc ,
            nzc ,
            Af.geom-> npx,
            Af.geom-> npy,
            Af.geom-> npz,
            geomc  )
```

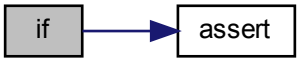
9.50.1.11 if() [1/6]

```
if (
            A.mgData!    = 0 )
```

9.50.1.12 if() [2/6]

```
if (
             b!     = 0 )
```

Here is the call graph for this function:



9.50.1.13 if() [3/6]

```
if (
             ierr!     = 0 )
```

9.50.1.14 if() [4/6]

```
if (
             ierr  )
```

9.50.1.15 if() [5/6]

```
if (
             print_freq ,
             print_freq= 50 )
```

9.50.1.16 if() [6/6]

```
if (
             pz ,
             0  )
```

9.50.1.17 InitializeMGData()

```
InitializeMGData (
            f2cOperator ,
            rc ,
            xc ,
            Axf ,
            * mgData )
```

9.50.1.18 ZeroVector()

```
ZeroVector (
            x  )
```

9.50.2 Variable Documentation

9.50.2.1 Ac

```
Af Ac = new SparseMatrix
```

9.50.2.2 alpha

```
double alpha = 0.0
```

9.50.2.3 Ap

```
Vector & Ap = data.Ap
```

9.50.2.4 Axf

```
InitializeVector * Axf = new Vector
```

9.50.2.5 beta

```
double beta = 0.0
```

9.50.2.6 bv

```
double* bv = 0
```

9.50.2.7 curb

```
curb = 0
```

9.50.2.8 curLevelMatrix

```
curLevelMatrix = curLevelMatrix->Ac
```

9.50.2.9 curx

```
curx = 0
```

9.50.2.10 curxexact

```
curxexact = 0
```

9.50.2.11 else

```
else
```

Initial value:

```
{
ierr = ComputeSYMGS_ref(A, r, x)
```

9.50.2.12 f2cOperator

```
local_int_t* f2cOperator = new local_int_t[Af.localNumberOfRows]
```

9.50.2.13 geomc

```
Geometry* geomc = new Geometry
```

9.50.2.14 gix0

```
global_int_t gix0 = A.geom->gix0
```

9.50.2.15 giy0

```
global_int_t giy0 = A.geom->giy0
```

9.50.2.16 giz0

```
global_int_t giz0 = A.geom->giz0
```

9.50.2.17 gnx

```
global_int_t gnx = A.geom->gnx
```

9.50.2.18 gny

```
global_int_t gny = A.geom->gny
```

9.50.2.19 gnz

```
global_int_t gnz = A.geom->gnz
```

9.50.2.20 ierr

```
int ierr = ComputeMG_ref(A, b_computed, x_overlap)
```

9.50.2.21 localNumberOfRows

```
local_int_t localNumberOfRows = nxc*nyc*nzc
```

9.50.2.22 mgData

```
Af mgData = new MGData
```

9.50.2.23 normr

```
normr = 0.0
```

9.50.2.24 nrow

```
local_int_t nrow = A.localNumberOfRows
```

9.50.2.25 nx

```
void CheckProblem global_int_t nx = A.geom->nx
```

9.50.2.26 nxc

```
nxc = nxf/2
```

9.50.2.27 nxf

```
void GenerateCoarseProblem global_int_t nxf = Af.geom->nx
```

9.50.2.28 ny

```
global_int_t ny = A.geom->ny
```

9.50.2.29 nyc

```
nyc = nyf/2
```

9.50.2.30 nyf

```
global_int_t nyf = Af.geom->ny
```

9.50.2.31 nz

```
global_int_t nz = A.geom->nz
```

9.50.2.32 nzc

```
nzc = nzf/2
```

9.50.2.33 nzf

```
global_int_t nzf = Af.geom->nz
```

9.50.2.34 oldrtz

```
double oldrtz = 0.0
```

9.50.2.35 p

```
Vector & p = data.p
```

9.50.2.36 pAp

```
double pAp = 0.0
```

9.50.2.37 print_freq

```
int print_freq = 1
```

9.50.2.38 pz

```
int pz = Af.geom->pz
```

9.50.2.39 r

```
Vector & r = data.r
```

9.50.2.40 rc

```
InitializeVector * rc = new Vector
```

9.50.2.41 return

```
return
```

9.50.2.42 rtz

```
double rtz = 0.0
```

9.50.2.43 t0

```
double t0 = 0.0
```

9.50.2.44 t1

```
double t1 = 0.0
```

9.50.2.45 t2

```
double t2 = 0.0
```

9.50.2.46 t3

```
double t3 = 0.0
```

9.50.2.47 t4

```
double t4 = 0.0
```

9.50.2.48 t5

```
double t5 = 0.0
```

9.50.2.49 t_begin

```
int CG double t_begin = mytimer()
```

9.50.2.50 times

```
times[0] = t1
```

9.50.2.51 totalNumberOfRows

```
global_int_t totalNumberOfRows = gnx*gny*gnz
```

9.50.2.52 values

```
testnorms_data values[i] = normr / normr0
```

9.50.2.53 xc

```
InitializeVector * xc = new Vector
```

9.50.2.54 xexactv

```
double* xexactv = 0
```

9.50.2.55 xv

```
const double *const xv = 0
```

9.50.2.56 yv

```
double* const yv = y.values
```

9.50.2.57 z

```
Vector & z = data.z
```

9.50.2.58 zlc

```
local_int_t zlc = 0
```

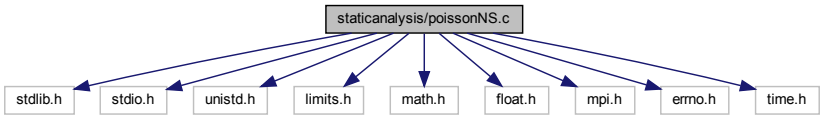
9.50.2.59 zuc

```
local_int_t zuc = 0
```

9.51 staticanalysis/poissonNS.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <unistd.h>
#include <limits.h>
#include <math.h>
#include <float.h>
#include <mpi.h>
#include <errno.h>
#include <time.h>
```

Include dependency graph for poissonNS.c:



Classes

- struct Solver

Macros

- #define _GNU_SOURCE
- #define PI 3.14159265358979323846
- #define P(i, j) p[(j)∗(imax+2) + (i)]
- #define RHS(i, j) rhs[(j)∗(imax+2) + (i)]
- #define MIN(x, y) ((x)<(y)?(x):(y))
- #define MAX(x, y) ((x)>(y)?(x):(y))
- #define ABS(a) ((a) >= 0 ? (a) : -(a))

Functions

- static double getTimeStamp ()
- static double getTimeResolution ()
- static int sizeOfRank (int rank, int size, int N)
- static void initSolver (struct Solver ∗solver)
- static void exchange (struct Solver ∗solver)
- static double kernel (struct Solver ∗solver)
- static int solve (struct Solver ∗solver)
- int main (int argc, char ∗∗argv)

9.51.1 Macro Definition Documentation

9.51.1.1 _GNU_SOURCE

```
#define _GNU_SOURCE
```

9.51.1.2 ABS

```
#define ABS(
              a ) ((a) >= 0 ?  (a) :  -(a))
```

9.51.1.3 MAX

```
#define MAX(
              x,
              y ) ((x)>(y)?(x):(y))
```

9.51.1.4 MIN

```
#define MIN(
              x,
              y ) ((x)<(y)?(x):(y))
```

9.51.1.5 P

```
#define P(
              i,
              j ) p[(j)*(imax+2) + (i)]
```

9.51.1.6 PI

```
#define PI 3.14159265358979323846
```

9.51.1.7 RHS

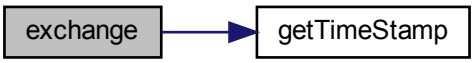
```
#define RHS(
              i,
              j ) rhs[(j)*(imax+2) + (i)]
```

9.51.2 Function Documentation

9.51.2.1 exchange()

```
static void exchange (
            struct Solver * solver )  [static]
```

Here is the call graph for this function:



9.51.2.2 getTimeResolution()

```
static double getTimeResolution ( )  [static]
```

9.51.2.3 getTimeStamp()

```
static double getTimeStamp ( )  [static]
```

9.51.2.4 initSolver()

```
static void initSolver (
            struct Solver * solver )  [static]
```

Here is the call graph for this function:

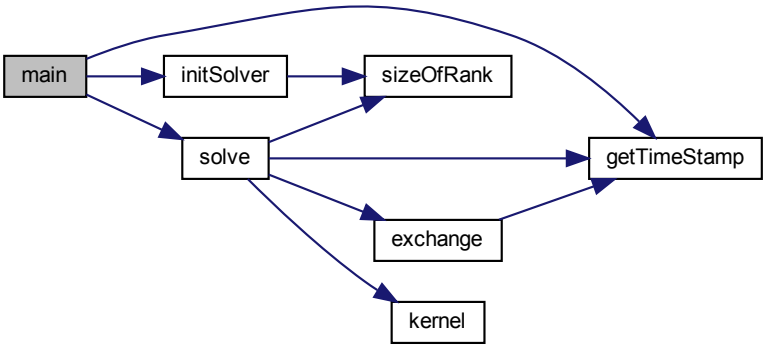
9.51.2.5 kernel()

```
static double kernel (
            struct Solver * solver )  [static]
```

9.51.2.6 main()

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

Here is the call graph for this function:



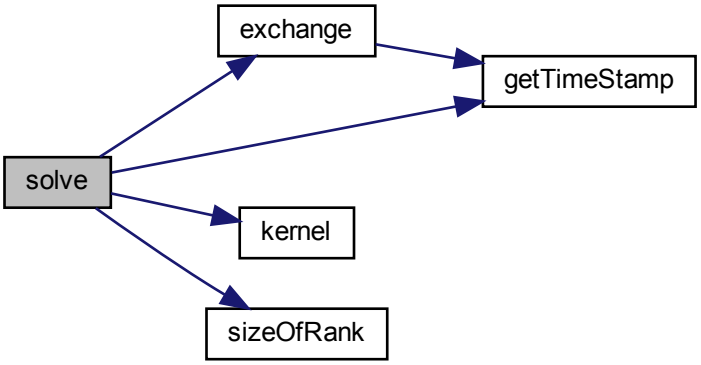
9.51.2.7 sizeOfRank()

```
static int sizeOfRank (
            int rank,
            int size,
            int N )  [static]
```

9.51.2.8 solve()

```
static int solve (
            struct Solver * solver )  [static]
```

Here is the call graph for this function:

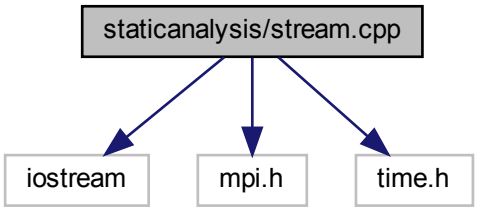


9.52 staticanalysis/requirements.txt File Reference

9.53 staticanalysis/stream.cpp File Reference

```
#include <iostream>
#include <mpi.h>
#include <time.h>
```

Include dependency graph for stream.cpp:



Functions

- static double getTimeStamp ()
- static double getTimeResolution ()
- int main (int argc, char **argv)

9.53.1 Function Documentation

9.53.1.1 getTimeResolution()

```
static double getTimeResolution ( )  [static]
```

9.53.1.2 getTimeStamp()

```
static double getTimeStamp ( )  [static]
```

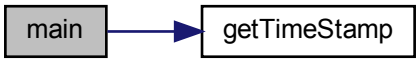
9.53.1.3 main()

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

< dynamic allocation of the array a

< dynamic allocation of the array b

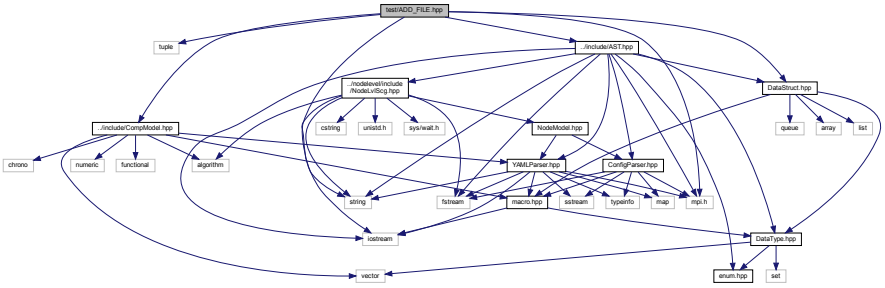
< dynamic allocation of the array cHere is the call graph for this function:



9.54 test/ADD_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for ADD_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Typedefs

- using DisCosTiC::VecGraph_t = std::vector< Benchmark >

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.54.1 Variable Documentation

9.54.1.1 arch_name

```
std::string arch_name
```

9.54.1.2 bytes_to_send

```
int bytes_to_send
```

9.54.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.54.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.54.1.5 cores_per_socket

```
int cores_per_socket
```

9.54.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.54.1.7 node

```
int node
```

9.54.1.8 primary_processes

```
int primary_processes
```

9.54.1.9 scaling_cores

```
int scaling_cores
```

9.54.1.10 secondary_processes

```
int secondary_processes
```

9.54.1.11 socket

```
int socket
```

9.54.1.12 system_number

```
int system_number
```

9.54.1.13 task_per_node

```
int task_per_node
```

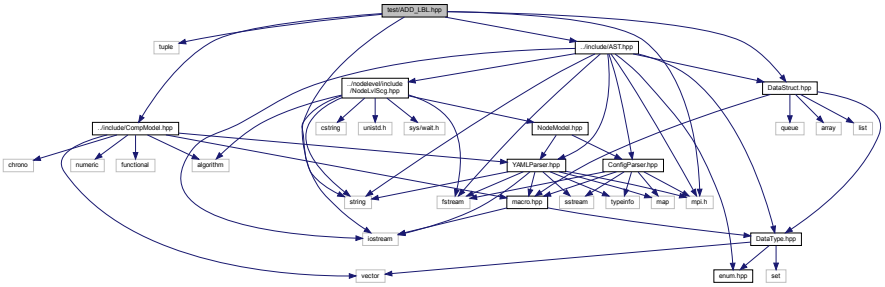
9.54.1.14 virtual_rank

```
int virtual_rank
```

9.55 test/ADD_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for ADD_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.55.1 Variable Documentation

9.55.1.1 arch_name

```
std::string arch_name
```

9.55.1.2 bytes_to_send

```
int bytes_to_send
```

9.55.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.55.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.55.1.5 cores_per_socket

```
int cores_per_socket
```

9.55.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.55.1.7 node

```
int node
```

9.55.1.8 primary_processes

```
int primary_processes
```

9.55.1.9 scaling_cores

```
int scaling_cores
```

9.55.1.10 secondary_processes

```
int secondary_processes
```

9.55.1.11 socket

```
int socket
```

9.55.1.12 system_number

```
int system_number
```

9.55.1.13 task_per_node

```
int task_per_node
```

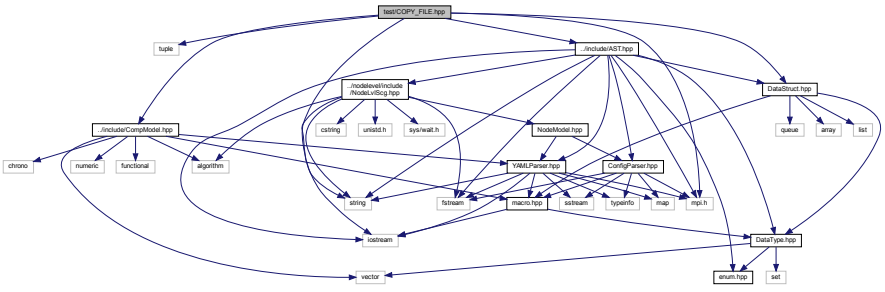
9.55.1.14 virtual_rank

```
int virtual_rank
```

9.56 test/COPY_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for COPY_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.56.1 Variable Documentation

9.56.1.1 arch_name

```
std::string arch_name
```

9.56.1.2 bytes_to_send

```
int bytes_to_send
```

9.56.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.56.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.56.1.5 cores_per_socket

```
int cores_per_socket
```

9.56.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.56.1.7 node

```
int node
```

9.56.1.8 primary_processes

```
int primary_processes
```

9.56.1.9 scaling_cores

```
int scaling_cores
```

9.56.1.10 secondary_processes

```
int secondary_processes
```

9.56.1.11 socket

```
int socket
```

9.56.1.12 system_number

```
int system_number
```

9.56.1.13 task_per_node

```
int task_per_node
```

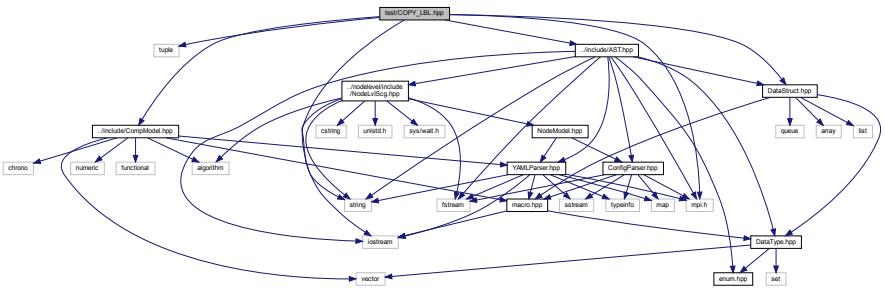
9.56.1.14 virtual_rank

```
int virtual_rank
```

9.57 test/COPY_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for COPY_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.57.1 Variable Documentation

9.57.1.1 arch_name

```
std::string arch_name
```

9.57.1.2 bytes_to_send

```
int bytes_to_send
```

9.57.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.57.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.57.1.5 cores_per_socket

```
int cores_per_socket
```

9.57.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.57.1.7 node

```
int node
```

9.57.1.8 primary_processes

```
int primary_processes
```

9.57.1.9 scaling_cores

```
int scaling_cores
```

9.57.1.10 secondary_processes

```
int secondary_processes
```

9.57.1.11 socket

```
int socket
```

9.57.1.12 system_number

```
int system_number
```

9.57.1.13 task_per_node

```
int task_per_node
```

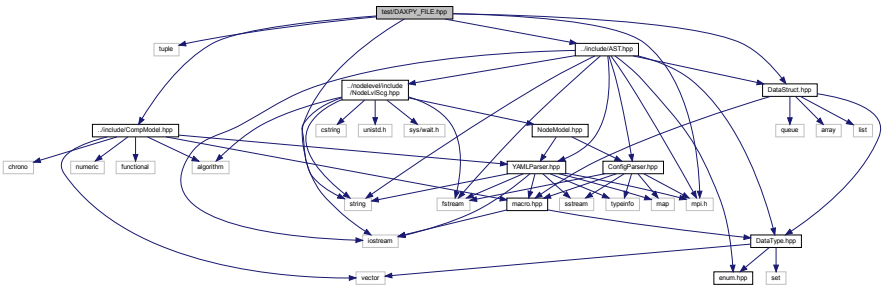
9.57.1.14 virtual_rank

```
int virtual_rank
```

9.58 test/DAXPY_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for DAXPY_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.58.1 Variable Documentation

9.58.1.1 arch_name

```
std::string arch_name
```

9.58.1.2 bytes_to_send

```
int bytes_to_send
```

9.58.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.58.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.58.1.5 cores_per_socket

```
int cores_per_socket
```

9.58.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.58.1.7 node

```
int node
```

9.58.1.8 primary_processes

```
int primary_processes
```

9.58.1.9 scaling_cores

```
int scaling_cores
```

9.58.1.10 secondary_processes

```
int secondary_processes
```

9.58.1.11 socket

```
int socket
```

9.58.1.12 system_number

```
int system_number
```

9.58.1.13 task_per_node

```
int task_per_node
```

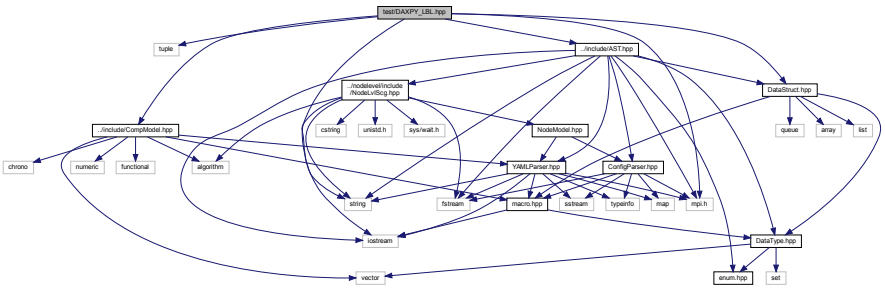
9.58.1.14 virtual_rank

```
int virtual_rank
```

9.59 test/DAXPY_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for DAXPY_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.59.1 Variable Documentation

9.59.1.1 arch_name

```
std::string arch_name
```

9.59.1.2 bytes_to_send

```
int bytes_to_send
```

9.59.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.59.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.59.1.5 cores_per_socket

```
int cores_per_socket
```

9.59.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.59.1.7 node

```
int node
```

9.59.1.8 primary_processes

```
int primary_processes
```

9.59.1.9 scaling_cores

```
int scaling_cores
```

9.59.1.10 secondary_processes

```
int secondary_processes
```

9.59.1.11 socket

```
int socket
```

9.59.1.12 system_number

```
int system_number
```

9.59.1.13 task_per_node

```
int task_per_node
```

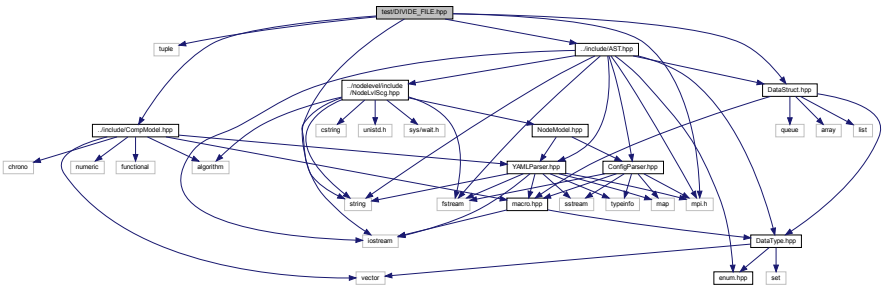
9.59.1.14 virtual_rank

```
int virtual_rank
```

9.60 test/DIVIDE_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for DIVIDE_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.60.1 Variable Documentation

9.60.1.1 arch_name

```
std::string arch_name
```

9.60.1.2 bytes_to_send

```
int bytes_to_send
```

9.60.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.60.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.60.1.5 cores_per_socket

```
int cores_per_socket
```

9.60.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.60.1.7 node

```
int node
```

9.60.1.8 primary_processes

```
int primary_processes
```

9.60.1.9 scaling_cores

```
int scaling_cores
```

9.60.1.10 secondary_processes

```
int secondary_processes
```

9.60.1.11 socket

```
int socket
```

9.60.1.12 system_number

```
int system_number
```

9.60.1.13 task_per_node

```
int task_per_node
```

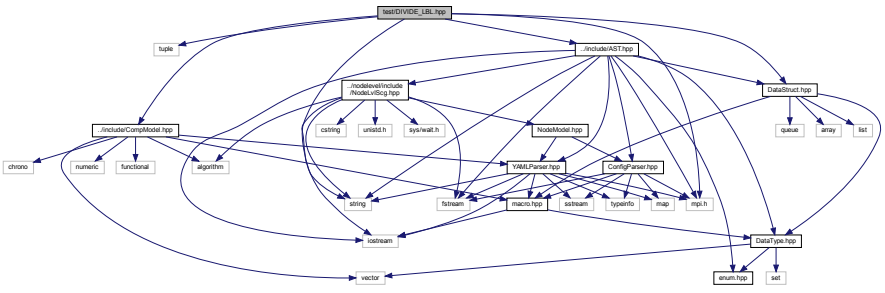
9.60.1.14 virtual_rank

```
int virtual_rank
```

9.61 test/DIVIDE_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for DIVIDE_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.61.1 Variable Documentation

9.61.1.1 arch_name

```
std::string arch_name
```

9.61.1.2 bytes_to_send

```
int bytes_to_send
```

9.61.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.61.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.61.1.5 cores_per_socket

```
int cores_per_socket
```

9.61.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.61.1.7 node

```
int node
```

9.61.1.8 primary_processes

```
int primary_processes
```

9.61.1.9 scaling_cores

```
int scaling_cores
```

9.61.1.10 secondary_processes

```
int secondary_processes
```

9.61.1.11 socket

```
int socket
```

9.61.1.12 system_number

```
int system_number
```

9.61.1.13 task_per_node

```
int task_per_node
```

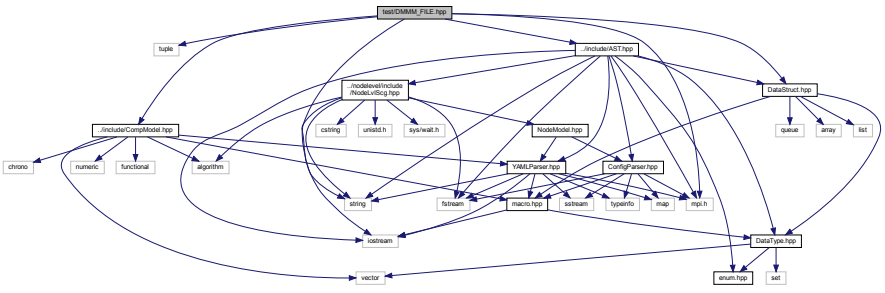
9.61.1.14 virtual_rank

```
int virtual_rank
```

9.62 test/DMMM_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for DMMM_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.62.1 Variable Documentation

9.62.1.1 arch_name

```
std::string arch_name
```

9.62.1.2 bytes_to_send

```
int bytes_to_send
```

9.62.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.62.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.62.1.5 cores_per_socket

```
int cores_per_socket
```

9.62.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.62.1.7 node

```
int node
```

9.62.1.8 primary_processes

```
int primary_processes
```

9.62.1.9 scaling_cores

```
int scaling_cores
```

9.62.1.10 secondary_processes

```
int secondary_processes
```

9.62.1.11 socket

```
int socket
```

9.62.1.12 system_number

```
int system_number
```

9.62.1.13 task_per_node

```
int task_per_node
```

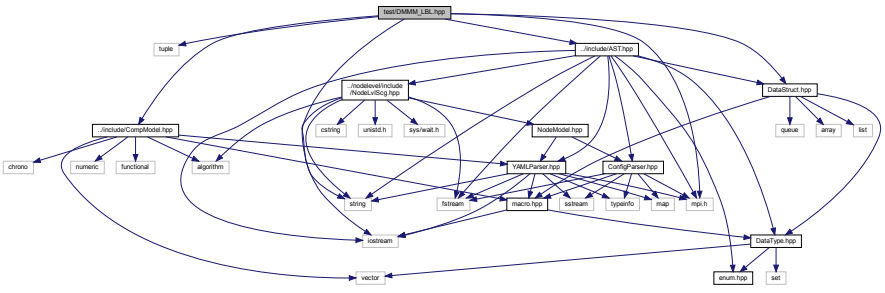
9.62.1.14 virtual_rank

```
int virtual_rank
```

9.63 test/DMMM_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for DMMM_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.63.1 Variable Documentation

9.63.1.1 arch_name

```
std::string arch_name
```

9.63.1.2 bytes_to_send

```
int bytes_to_send
```

9.63.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.63.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.63.1.5 cores_per_socket

```
int cores_per_socket
```

9.63.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.63.1.7 node

```
int node
```

9.63.1.8 primary_processes

```
int primary_processes
```

9.63.1.9 scaling_cores

```
int scaling_cores
```

9.63.1.10 secondary_processes

```
int secondary_processes
```

9.63.1.11 socket

```
int socket
```

9.63.1.12 system_number

```
int system_number
```

9.63.1.13 task_per_node

```
int task_per_node
```

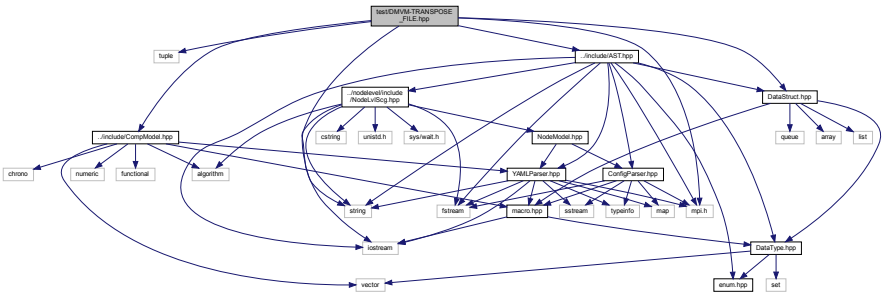
9.63.1.14 virtual_rank

```
int virtual_rank
```

9.64 test/DMVM-TRANSPOSE_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for DMVM-TRANSPOSE_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.64.1 Variable Documentation

9.64.1.1 arch_name

```
std::string arch_name
```

9.64.1.2 bytes_to_send

```
int bytes_to_send
```

9.64.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.64.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.64.1.5 cores_per_socket

```
int cores_per_socket
```

9.64.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.64.1.7 node

```
int node
```

9.64.1.8 primary_processes

```
int primary_processes
```

9.64.1.9 scaling_cores

```
int scaling_cores
```

9.64.1.10 secondary_processes

```
int secondary_processes
```

9.64.1.11 socket

```
int socket
```

9.64.1.12 system_number

```
int system_number
```

9.64.1.13 task_per_node

```
int task_per_node
```

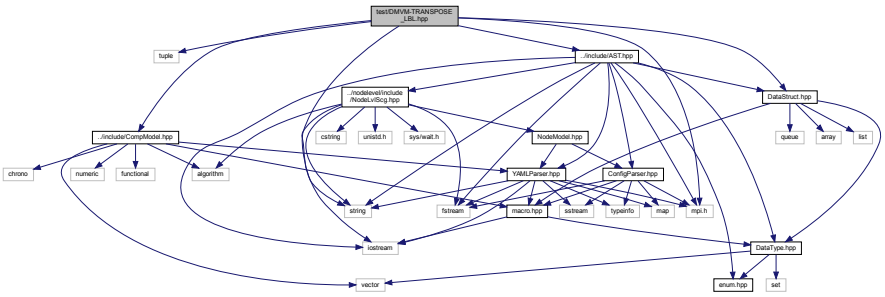
9.64.1.14 virtual_rank

```
int virtual_rank
```

9.65 test/DMVM-TRANSPOSE_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for DMVM-TRANSPOSE_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.65.1 Variable Documentation

9.65.1.1 arch_name

```
std::string arch_name
```

9.65.1.2 bytes_to_send

```
int bytes_to_send
```

9.65.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.65.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.65.1.5 cores_per_socket

```
int cores_per_socket
```

9.65.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.65.1.7 node

```
int node
```

9.65.1.8 primary_processes

```
int primary_processes
```

9.65.1.9 scaling_cores

```
int scaling_cores
```

9.65.1.10 secondary_processes

```
int secondary_processes
```

9.65.1.11 socket

```
int socket
```

9.65.1.12 system_number

```
int system_number
```

9.65.1.13 task_per_node

```
int task_per_node
```

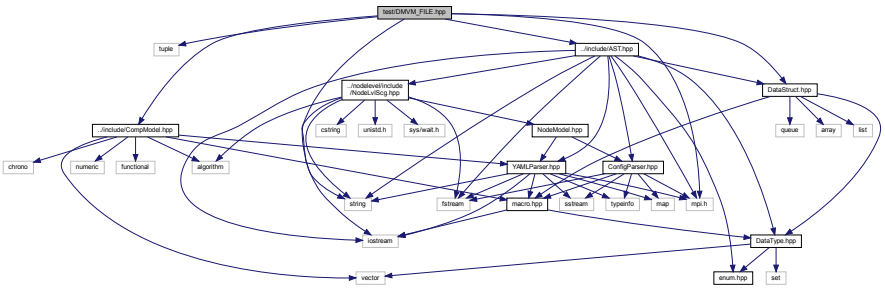
9.65.1.14 virtual_rank

```
int virtual_rank
```

9.66 test/DMVM_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for DMVM_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.66.1 Variable Documentation

9.66.1.1 arch_name

```
std::string arch_name
```

9.66.1.2 bytes_to_send

```
int bytes_to_send
```

9.66.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.66.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.66.1.5 cores_per_socket

```
int cores_per_socket
```

9.66.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.66.1.7 node

```
int node
```

9.66.1.8 primary_processes

```
int primary_processes
```

9.66.1.9 scaling_cores

```
int scaling_cores
```

9.66.1.10 secondary_processes

```
int secondary_processes
```

9.66.1.11 socket

```
int socket
```

9.66.1.12 system_number

```
int system_number
```

9.66.1.13 task_per_node

```
int task_per_node
```

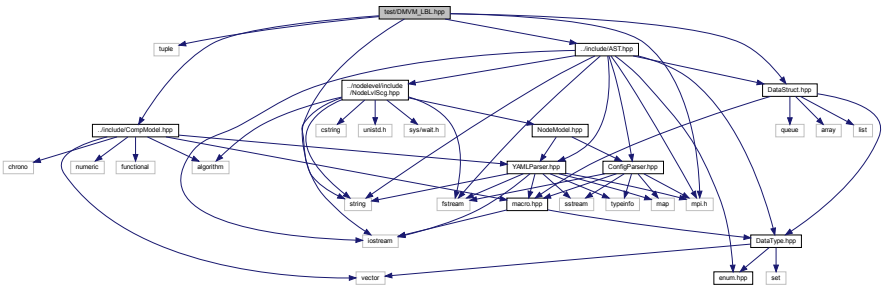
9.66.1.14 virtual_rank

```
int virtual_rank
```

9.67 test/DMVM_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for DMVM_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.67.1 Variable Documentation

9.67.1.1 arch_name

```
std::string arch_name
```

9.67.1.2 bytes_to_send

```
int bytes_to_send
```

9.67.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.67.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.67.1.5 cores_per_socket

```
int cores_per_socket
```

9.67.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.67.1.7 node

```
int node
```

9.67.1.8 primary_processes

```
int primary_processes
```

9.67.1.9 scaling_cores

```
int scaling_cores
```

9.67.1.10 secondary_processes

```
int secondary_processes
```

9.67.1.11 socket

```
int socket
```

9.67.1.12 system_number

```
int system_number
```

9.67.1.13 task_per_node

```
int task_per_node
```

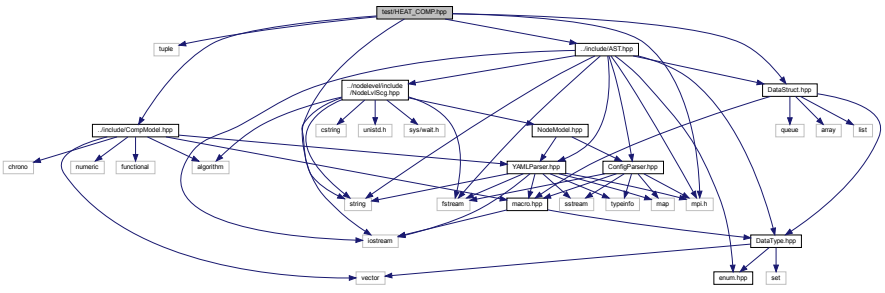
9.67.1.14 virtual_rank

```
int virtual_rank
```

9.68 test/HEAT_COMP.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for HEAT_COMP.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.68.1 Variable Documentation

9.68.1.1 arch_name

```
std::string arch_name
```

9.68.1.2 bytes_to_send

```
int bytes_to_send
```

9.68.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.68.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.68.1.5 cores_per_socket

```
int cores_per_socket
```

9.68.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.68.1.7 node

```
int node
```

9.68.1.8 primary_processes

```
int primary_processes
```

9.68.1.9 scaling_cores

```
int scaling_cores
```

9.68.1.10 secondary_processes

```
int secondary_processes
```

9.68.1.11 socket

```
int socket
```

9.68.1.12 system_number

```
int system_number
```

9.68.1.13 task_per_node

```
int task_per_node
```

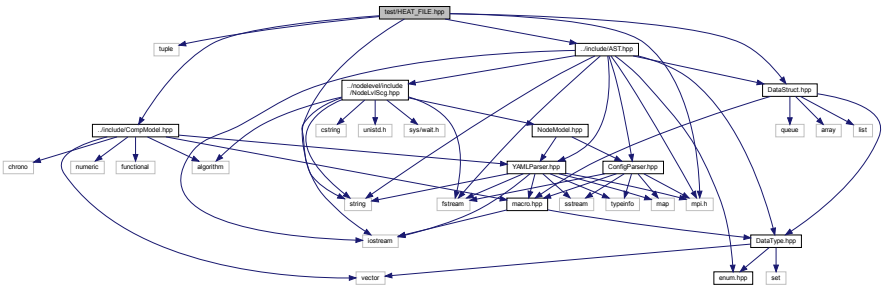
9.68.1.14 virtual_rank

```
int virtual_rank
```

9.69 test/HEAT_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for HEAT_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.69.1 Variable Documentation

9.69.1.1 arch_name

```
std::string arch_name
```

9.69.1.2 bytes_to_send

```
int bytes_to_send
```

9.69.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.69.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.69.1.5 cores_per_socket

```
int cores_per_socket
```

9.69.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.69.1.7 node

```
int node
```

9.69.1.8 primary_processes

```
int primary_processes
```

9.69.1.9 scaling_cores

```
int scaling_cores
```

9.69.1.10 secondary_processes

```
int secondary_processes
```

9.69.1.11 socket

```
int socket
```

9.69.1.12 system_number

```
int system_number
```

9.69.1.13 task_per_node

```
int task_per_node
```

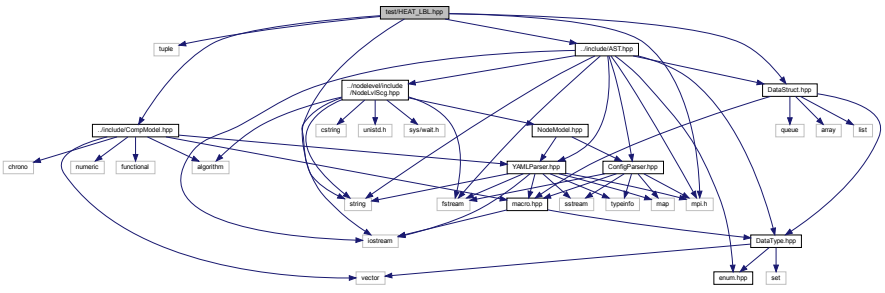
9.69.1.14 virtual_rank

```
int virtual_rank
```

9.70 test/HEAT_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for HEAT_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.70.1 Variable Documentation

9.70.1.1 arch_name

```
std::string arch_name
```

9.70.1.2 bytes_to_send

```
int bytes_to_send
```

9.70.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.70.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.70.1.5 cores_per_socket

```
int cores_per_socket
```

9.70.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.70.1.7 node

```
int node
```

9.70.1.8 primary_processes

```
int primary_processes
```

9.70.1.9 scaling_cores

```
int scaling_cores
```

9.70.1.10 secondary_processes

```
int secondary_processes
```

9.70.1.11 socket

```
int socket
```

9.70.1.12 system_number

```
int system_number
```

9.70.1.13 task_per_node

```
int task_per_node
```

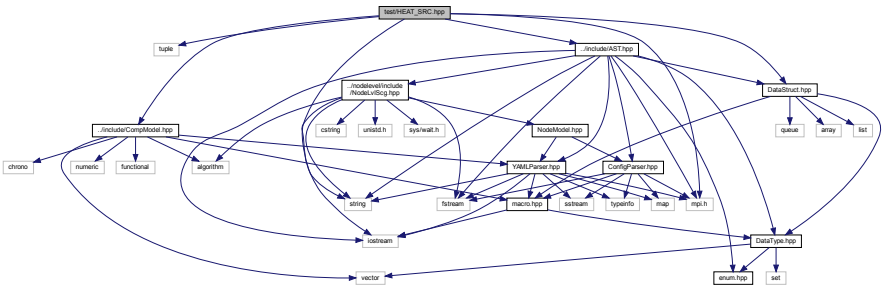
9.70.1.14 virtual_rank

```
int virtual_rank
```

9.71 test/HEAT_SRC.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for HEAT_SRC.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.71.1 Variable Documentation

9.71.1.1 arch_name

```
std::string arch_name
```

9.71.1.2 bytes_to_send

```
int bytes_to_send
```

9.71.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.71.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.71.1.5 cores_per_socket

```
int cores_per_socket
```

9.71.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.71.1.7 node

```
int node
```

9.71.1.8 primary_processes

```
int primary_processes
```

9.71.1.9 scaling_cores

```
int scaling_cores
```

9.71.1.10 secondary_processes

```
int secondary_processes
```

9.71.1.11 socket

```
int socket
```

9.71.1.12 system_number

```
int system_number
```

9.71.1.13 task_per_node

```
int task_per_node
```

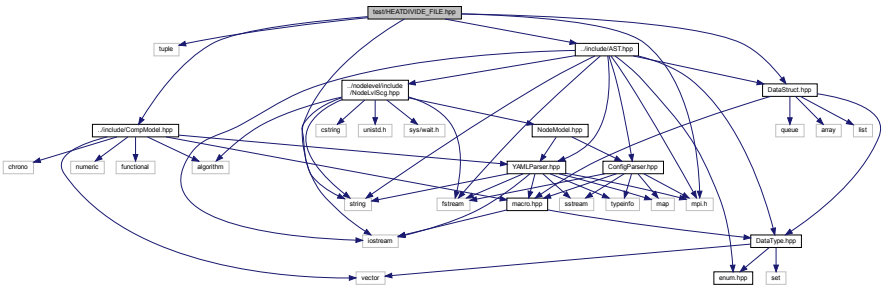
9.71.1.14 virtual_rank

```
int virtual_rank
```

9.72 test/HEATDIVIDE_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for HEATDIVIDE_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.72.1 Variable Documentation

9.72.1.1 arch_name

```
std::string arch_name
```

9.72.1.2 bytes_to_send

```
int bytes_to_send
```

9.72.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.72.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.72.1.5 cores_per_socket

```
int cores_per_socket
```

9.72.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.72.1.7 node

```
int node
```

9.72.1.8 primary_processes

```
int primary_processes
```

9.72.1.9 scaling_cores

```
int scaling_cores
```

9.72.1.10 secondary_processes

```
int secondary_processes
```

9.72.1.11 socket

```
int socket
```

9.72.1.12 system_number

```
int system_number
```

9.72.1.13 task_per_node

```
int task_per_node
```

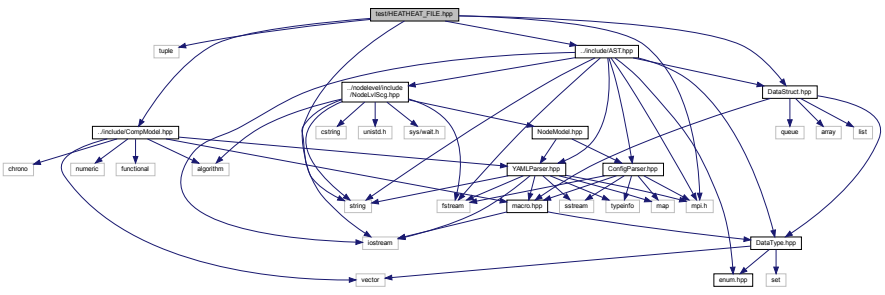
9.72.1.14 virtual_rank

```
int virtual_rank
```

9.73 test/HEATHEAT_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for HEATHEAT_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.73.1 Variable Documentation

9.73.1.1 arch_name

```
std::string arch_name
```

9.73.1.2 bytes_to_send

```
int bytes_to_send
```

9.73.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.73.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.73.1.5 cores_per_socket

```
int cores_per_socket
```

9.73.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.73.1.7 node

```
int node
```

9.73.1.8 primary_processes

```
int primary_processes
```

9.73.1.9 scaling_cores

```
int scaling_cores
```

9.73.1.10 secondary_processes

```
int secondary_processes
```

9.73.1.11 socket

```
int socket
```

9.73.1.12 system_number

```
int system_number
```

9.73.1.13 task_per_node

```
int task_per_node
```

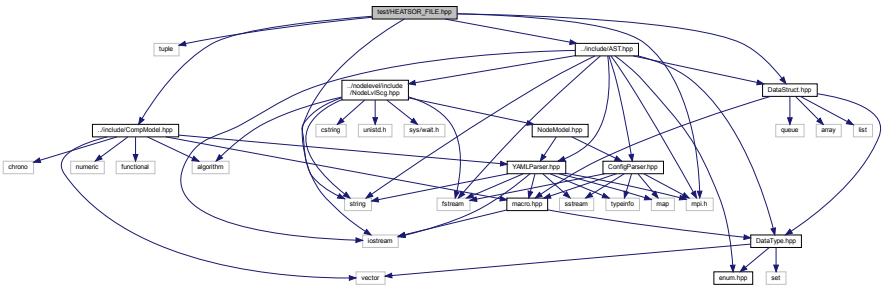
9.73.1.14 virtual_rank

```
int virtual_rank
```

9.74 test/HEATSOR_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for HEATSOR_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.74.1 Variable Documentation

9.74.1.1 arch_name

```
std::string arch_name
```

9.74.1.2 bytes_to_send

```
int bytes_to_send
```

9.74.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.74.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.74.1.5 cores_per_socket

```
int cores_per_socket
```

9.74.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.74.1.7 node

```
int node
```

9.74.1.8 primary_processes

```
int primary_processes
```

9.74.1.9 scaling_cores

```
int scaling_cores
```

9.74.1.10 secondary_processes

```
int secondary_processes
```

9.74.1.11 socket

```
int socket
```

9.74.1.12 system_number

```
int system_number
```

9.74.1.13 task_per_node

```
int task_per_node
```

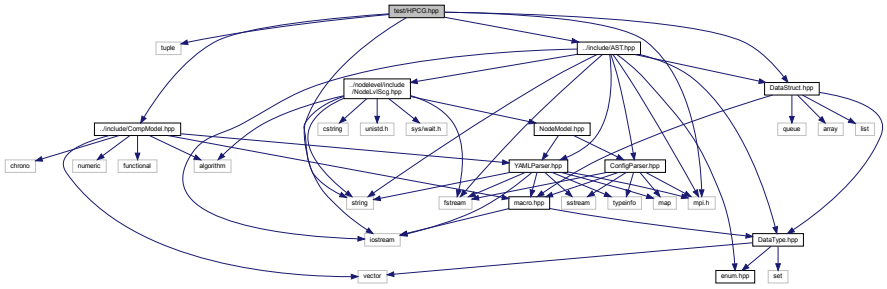
9.74.1.14 virtual_rank

```
int virtual_rank
```

9.75 test/HPCG.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for HPCG.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Typedefs

- using VecGraph_t = std::vector< Benchmark >

  end of Benchmark class

Functions

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates
- DisCosTiC File_Write ()
- uint8_t DisCosTiC::GetNumNetworks ()

  the maximum number of the network interface controller
- DisCosTiC::~Benchmark ()

  destructor

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name
- delete DisCosTiC
- return ID
- DisCosTiC_Datatype DisCosTiC::nodesCount
- DisCosTiC_Datatype DisCosTiC::networksCount
- DisCosTiC_Datatype DisCosTiC::systemsize
- DisCosTiC_Datatype DisCosTiC::numOperations
- AST * DisCosTiC::DisCosTiC
- DisCosTiC::VecDeserialNode DisCosTiC::Nodes
- DisCosTiC_Datatype DisCosTiC::datasize
- DisCosTiC_Datatype DisCosTiC::numTimesteps
- class DisCosTiC::Benchmark DisCosTiC::GetNumCores

  end of Benchmark class

9.75.1 Typedef Documentation

9.75.1.1 VecGraph_t

```
using VecGraph_t = std::vector<Benchmark>
```

end of Benchmark class

9.75.2 Function Documentation

9.75.2.1 Benchmark()

```
GetNumCores::Benchmark (
            UserInterface::ConfigParser * CFG_args )
```

constructor that initializes the coordinates

Parameters

CFG_args	

9.75.2.2 File_Write()

```
DisCosTiC GetNumCores::File_Write ( )
```

9.75.3 Variable Documentation

9.75.3.1 arch_name

```
std::string arch_name
```

9.75.3.2 bytes_to_send

```
int bytes_to_send
```

9.75.3.3 cc_numa_domain

```
int cc_numa_domain
```

9.75.3.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.75.3.5 cores_per_socket

```
int cores_per_socket
```

9.75.3.6 DisCosTiC

```
delete DisCosTiC
```

9.75.3.7 heteregeneous_mode

```
int heteregeneous_mode
```

9.75.3.8 ID

```
return ID
```

9.75.3.9 node

```
int node
```

9.75.3.10 primary_processes

```
int primary_processes
```

9.75.3.11 scaling_cores

```
int scaling_cores
```

9.75.3.12 secondary_processes

```
int secondary_processes
```

9.75.3.13 socket

```
int socket
```

9.75.3.14 system_number

```
int system_number
```

9.75.3.15 task_per_node

```
int task_per_node
```

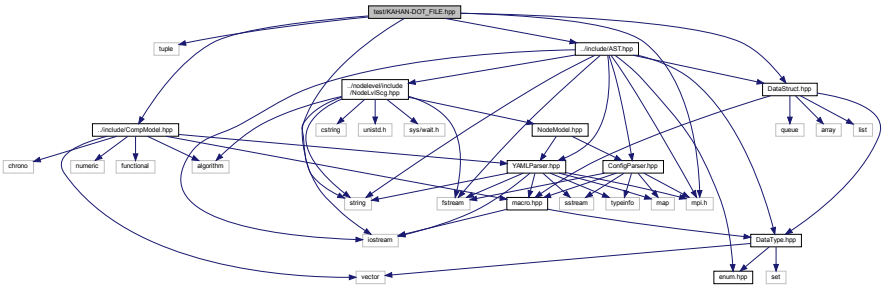
9.75.3.16 virtual_rank

```
int virtual_rank
```

9.76 test/KAHAN-DOT_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for KAHAN-DOT_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name
- class DisCosTiC::Benchmark DisCosTiC::GetNumCores

  end of Benchmark class

9.76.1 Variable Documentation

9.76.1.1 arch_name

```
std::string arch_name
```

9.76.1.2 bytes_to_send

```
int bytes_to_send
```

9.76.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.76.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.76.1.5 cores_per_socket

```
int cores_per_socket
```

9.76.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.76.1.7 node

```
int node
```

9.76.1.8 primary_processes

```
int primary_processes
```

9.76.1.9 scaling_cores

```
int scaling_cores
```

9.76.1.10 secondary_processes

```
int secondary_processes
```

9.76.1.11 socket

```
int socket
```

9.76.1.12 system_number

```
int system_number
```

9.76.1.13 task_per_node

```
int task_per_node
```

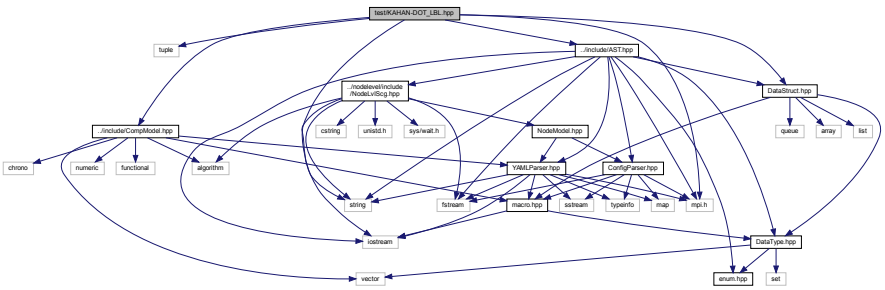
9.76.1.14 virtual_rank

```
int virtual_rank
```

9.77 test/KAHAN-DOT_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for KAHAN-DOT_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.77.1 Variable Documentation

9.77.1.1 arch_name

```
std::string arch_name
```

9.77.1.2 bytes_to_send

```
int bytes_to_send
```

9.77.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.77.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.77.1.5 cores_per_socket

```
int cores_per_socket
```

9.77.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.77.1.7 node

```
int node
```

9.77.1.8 primary_processes

```
int primary_processes
```

9.77.1.9 scaling_cores

```
int scaling_cores
```

9.77.1.10 secondary_processes

```
int secondary_processes
```

9.77.1.11 socket

```
int socket
```

9.77.1.12 system_number

```
int system_number
```

9.77.1.13 task_per_node

```
int task_per_node
```

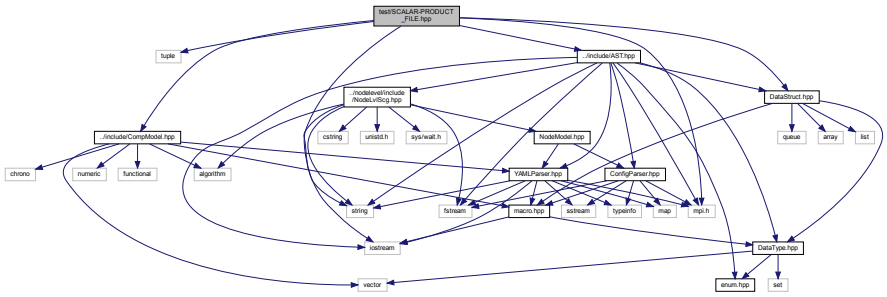
9.77.1.14 virtual_rank

```
int virtual_rank
```

9.78 test/SCALAR-PRODUCT_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SCALAR-PRODUCT_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.78.1 Variable Documentation

9.78.1.1 arch_name

```
std::string arch_name
```

9.78.1.2 bytes_to_send

```
int bytes_to_send
```

9.78.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.78.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.78.1.5 cores_per_socket

```
int cores_per_socket
```

9.78.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.78.1.7 node

```
int node
```

9.78.1.8 primary_processes

```
int primary_processes
```

9.78.1.9 scaling_cores

```
int scaling_cores
```

9.78.1.10 secondary_processes

```
int secondary_processes
```

9.78.1.11 socket

```
int socket
```

9.78.1.12 system_number

```
int system_number
```

9.78.1.13 task_per_node

```
int task_per_node
```

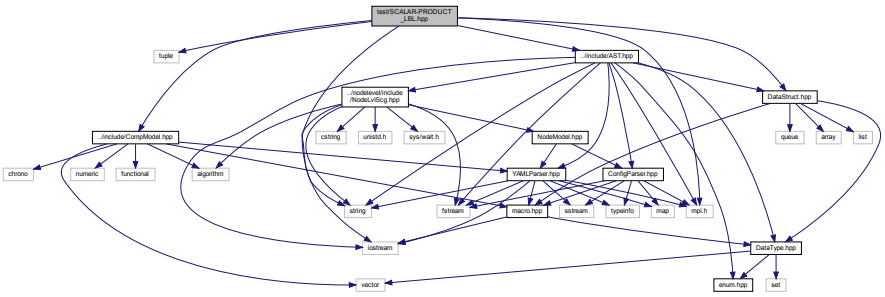
9.78.1.14 virtual_rank

```
int virtual_rank
```

9.79 test/SCALAR-PRODUCT_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SCALAR-PRODUCT_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.79.1 Variable Documentation

9.79.1.1 arch_name

```
std::string arch_name
```

9.79.1.2 bytes_to_send

```
int bytes_to_send
```

9.79.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.79.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.79.1.5 cores_per_socket

```
int cores_per_socket
```

9.79.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.79.1.7 node

```
int node
```

9.79.1.8 primary_processes

```
int primary_processes
```

9.79.1.9 scaling_cores

```
int scaling_cores
```

9.79.1.10 secondary_processes

```
int secondary_processes
```

9.79.1.11 socket

```
int socket
```

9.79.1.12 system_number

```
int system_number
```

9.79.1.13 task_per_node

```
int task_per_node
```

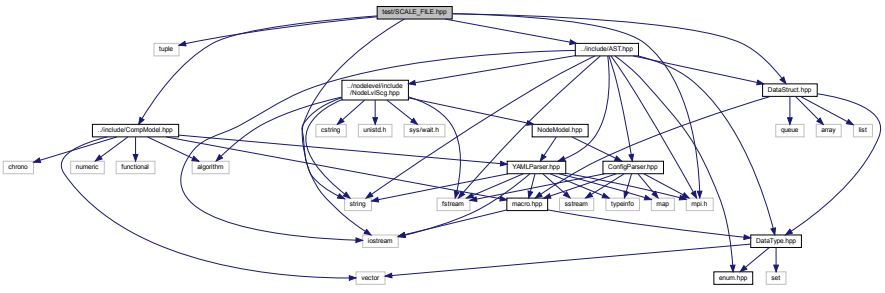
9.79.1.14 virtual_rank

```
int virtual_rank
```

9.80 test/SCALE_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SCALE_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.80.1 Variable Documentation

9.80.1.1 arch_name

```
std::string arch_name
```

9.80.1.2 bytes_to_send

```
int bytes_to_send
```

9.80.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.80.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.80.1.5 cores_per_socket

```
int cores_per_socket
```

9.80.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.80.1.7 node

```
int node
```

9.80.1.8 primary_processes

```
int primary_processes
```

9.80.1.9 scaling_cores

```
int scaling_cores
```

9.80.1.10 secondary_processes

```
int secondary_processes
```

9.80.1.11 socket

```
int socket
```

9.80.1.12 system_number

```
int system_number
```

9.80.1.13 task_per_node

```
int task_per_node
```

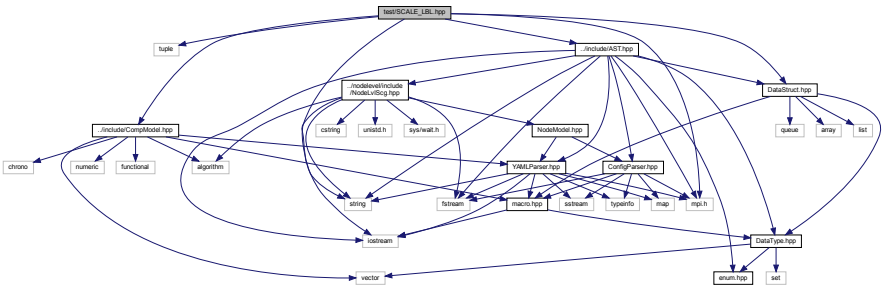
9.80.1.14 virtual_rank

```
int virtual_rank
```

9.81 test/SCALE_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SCALE_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.81.1 Variable Documentation

9.81.1.1 arch_name

```
std::string arch_name
```

9.81.1.2 bytes_to_send

```
int bytes_to_send
```

9.81.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.81.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.81.1.5 cores_per_socket

```
int cores_per_socket
```

9.81.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.81.1.7 node

```
int node
```

9.81.1.8 primary_processes

```
int primary_processes
```

9.81.1.9 scaling_cores

```
int scaling_cores
```

9.81.1.10 secondary_processes

```
int secondary_processes
```

9.81.1.11 socket

```
int socket
```

9.81.1.12 system_number

```
int system_number
```

9.81.1.13 task_per_node

```
int task_per_node
```

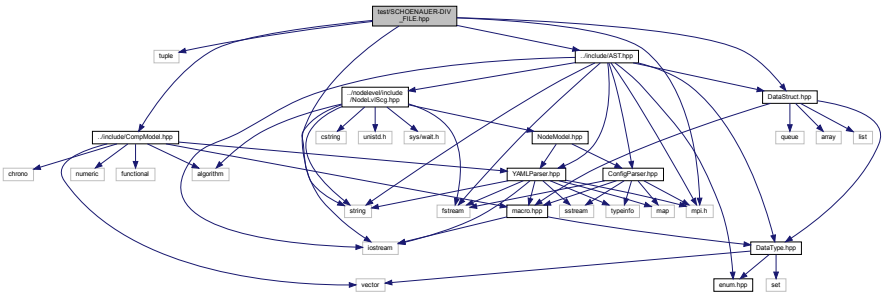
9.81.1.14 virtual_rank

```
int virtual_rank
```

9.82 test/SCHOENAUER-DIV_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SCHOENAUER-DIV_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.82.1 Variable Documentation

9.82.1.1 arch_name

```
std::string arch_name
```

9.82.1.2 bytes_to_send

```
int bytes_to_send
```

9.82.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.82.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.82.1.5 cores_per_socket

```
int cores_per_socket
```

9.82.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.82.1.7 node

```
int node
```

9.82.1.8 primary_processes

```
int primary_processes
```

9.82.1.9 scaling_cores

```
int scaling_cores
```

9.82.1.10 secondary_processes

```
int secondary_processes
```

9.82.1.11 socket

```
int socket
```

9.82.1.12 system_number

```
int system_number
```

9.82.1.13 task_per_node

```
int task_per_node
```

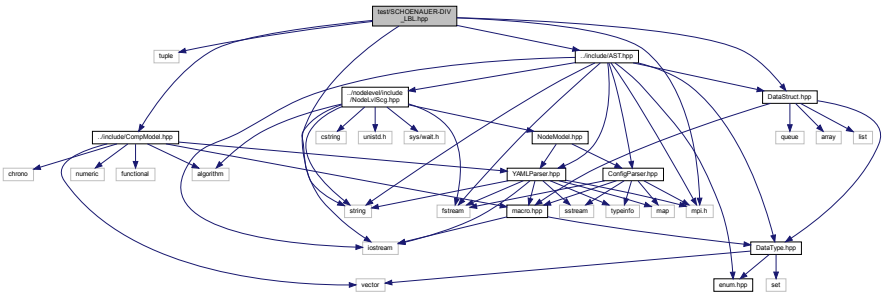
9.82.1.14 virtual_rank

```
int virtual_rank
```

9.83 test/SCHOENAUER-DIV_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SCHOENAUER-DIV_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.83.1 Variable Documentation

9.83.1.1 arch_name

```
std::string arch_name
```

9.83.1.2 bytes_to_send

```
int bytes_to_send
```

9.83.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.83.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.83.1.5 cores_per_socket

```
int cores_per_socket
```

9.83.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.83.1.7 node

```
int node
```

9.83.1.8 primary_processes

```
int primary_processes
```

9.83.1.9 scaling_cores

```
int scaling_cores
```

9.83.1.10 secondary_processes

```
int secondary_processes
```

9.83.1.11 socket

```
int socket
```

9.83.1.12 system_number

```
int system_number
```

9.83.1.13 task_per_node

```
int task_per_node
```

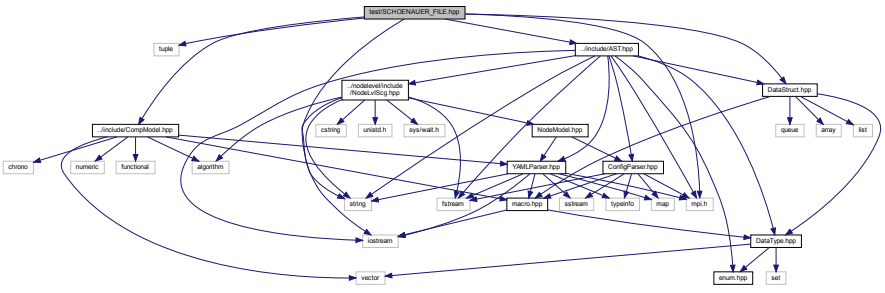
9.83.1.14 virtual_rank

```
int virtual_rank
```

9.84 test/SCHOENAUER_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SCHOENAUER_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.84.1 Variable Documentation

9.84.1.1 arch_name

```
std::string arch_name
```

9.84.1.2 bytes_to_send

```
int bytes_to_send
```

9.84.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.84.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.84.1.5 cores_per_socket

```
int cores_per_socket
```

9.84.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.84.1.7 node

```
int node
```

9.84.1.8 primary_processes

```
int primary_processes
```

9.84.1.9 scaling_cores

```
int scaling_cores
```

9.84.1.10 secondary_processes

```
int secondary_processes
```

9.84.1.11 socket

```
int socket
```

9.84.1.12 system_number

```
int system_number
```

9.84.1.13 task_per_node

```
int task_per_node
```

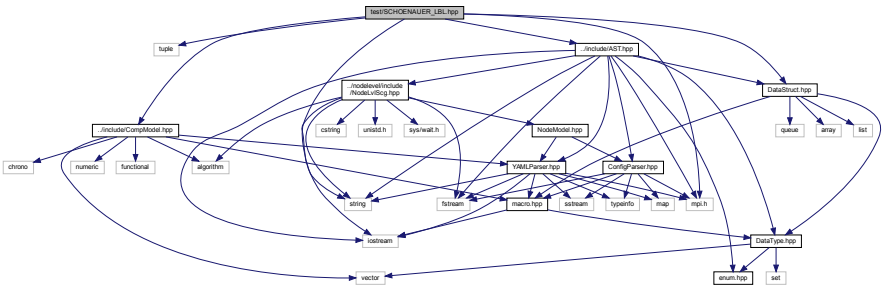
9.84.1.14 virtual_rank

```
int virtual_rank
```

9.85 test/SCHOENAUER_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SCHOENAUER_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.85.1 Variable Documentation

9.85.1.1 arch_name

```
std::string arch_name
```

9.85.1.2 bytes_to_send

```
int bytes_to_send
```

9.85.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.85.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.85.1.5 cores_per_socket

```
int cores_per_socket
```

9.85.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.85.1.7 node

```
int node
```

9.85.1.8 primary_processes

```
int primary_processes
```

9.85.1.9 scaling_cores

```
int scaling_cores
```

9.85.1.10 secondary_processes

```
int secondary_processes
```

9.85.1.11 socket

```
int socket
```

9.85.1.12 system_number

```
int system_number
```

9.85.1.13 task_per_node

```
int task_per_node
```

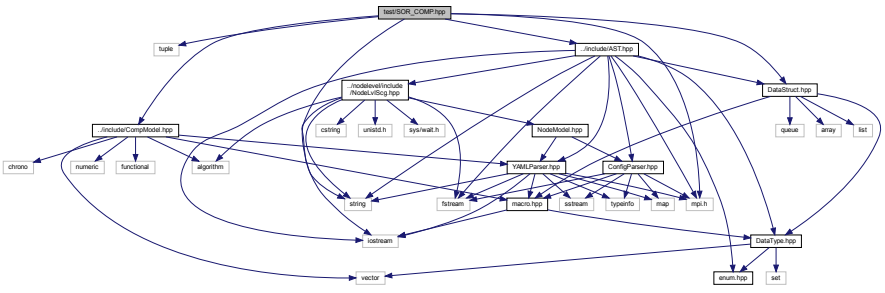
9.85.1.14 virtual_rank

```
int virtual_rank
```

9.86 test/SOR_COMP.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SOR_COMP.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.86.1 Variable Documentation

9.86.1.1 arch_name

```
std::string arch_name
```

9.86.1.2 bytes_to_send

```
int bytes_to_send
```

9.86.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.86.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.86.1.5 cores_per_socket

```
int cores_per_socket
```

9.86.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.86.1.7 node

```
int node
```

9.86.1.8 primary_processes

```
int primary_processes
```

9.86.1.9 scaling_cores

```
int scaling_cores
```

9.86.1.10 secondary_processes

```
int secondary_processes
```

9.86.1.11 socket

```
int socket
```

9.86.1.12 system_number

```
int system_number
```

9.86.1.13 task_per_node

```
int task_per_node
```

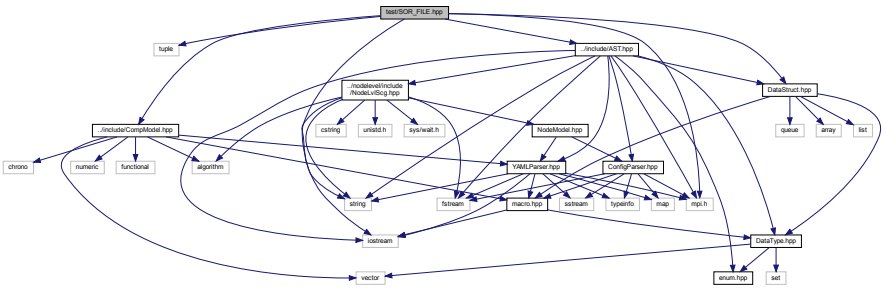
9.86.1.14 virtual_rank

```
int virtual_rank
```

9.87 test/SOR_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SOR_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.87.1 Variable Documentation

9.87.1.1 arch_name

```
std::string arch_name
```

9.87.1.2 bytes_to_send

```
int bytes_to_send
```

9.87.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.87.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.87.1.5 cores_per_socket

```
int cores_per_socket
```

9.87.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.87.1.7 node

```
int node
```

9.87.1.8 primary_processes

```
int primary_processes
```

9.87.1.9 scaling_cores

```
int scaling_cores
```

9.87.1.10 secondary_processes

```
int secondary_processes
```

9.87.1.11 socket

```
int socket
```

9.87.1.12 system_number

```
int system_number
```

9.87.1.13 task_per_node

```
int task_per_node
```

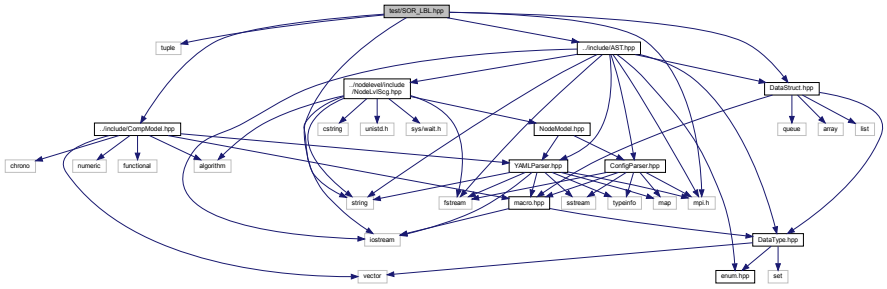
9.87.1.14 virtual_rank

```
int virtual_rank
```

9.88 test/SOR_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SOR_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Typedefs

- using VecGraph_t = std::vector< Benchmark >

  end of Benchmark class

Functions

- Benchmark (UserInterface::ConfigParser *CFG_args)
  constructor that initializes the coordinates
- uint8_t DisCosTiC::GetNumNetworks ()
  the maximum number of the network interface controller
- DisCosTiC::~Benchmark ()
  destructor

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name
- delete DisCosTiC
- return ID
- class DisCosTiC::Benchmark DisCosTiC::GetNumCores
  end of Benchmark class

9.88.1 Typedef Documentation

9.88.1.1 VecGraph_t

```
using VecGraph_t = std::vector<Benchmark>
```

end of Benchmark class

9.88.2 Function Documentation

9.88.2.1 Benchmark()

```
GetNumCores::Benchmark (
            UserInterface::ConfigParser * CFG_args )
```

constructor that initializes the coordinates

Parameters

CFG_args	

9.88.3 Variable Documentation

9.88.3.1 arch_name

```
std::string arch_name
```

9.88.3.2 bytes_to_send

```
int bytes_to_send
```

9.88.3.3 cc_numa_domain

```
int cc_numa_domain
```

9.88.3.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.88.3.5 cores_per_socket

```
int cores_per_socket
```

9.88.3.6 DisCosTiC

```
delete DisCosTiC
```

9.88.3.7 heteregeneous_mode

```
int heteregeneous_mode
```

9.88.3.8 ID

```
return ID
```

9.88.3.9 node

```
int node
```

9.88.3.10 primary_processes

```
int primary_processes
```

9.88.3.11 scaling_cores

```
int scaling_cores
```

9.88.3.12 secondary_processes

```
int secondary_processes
```

9.88.3.13 socket

```
int socket
```

9.88.3.14 system_number

```
int system_number
```

9.88.3.15 task_per_node

```
int task_per_node
```

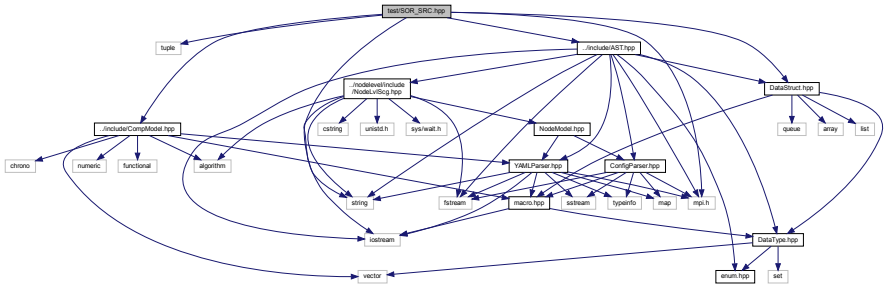
9.88.3.16 virtual_rank

```
int virtual_rank
```

9.89 test/SOR_SRC.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SOR_SRC.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Typedefs

- using VecGraph_t = std::vector< Benchmark >

  end of Benchmark class

Functions

- Benchmark (UserInterface::ConfigParser *CFG_args)
  constructor that initializes the coordinates
- uint8_t DisCosTiC::GetNumNetworks ()
  the maximum number of the network interface controller
- DisCosTiC::~Benchmark ()
  destructor

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name
- delete DisCosTiC
- return ID
- class DisCosTiC::Benchmark DisCosTiC::GetNumCores
  end of Benchmark class

9.89.1 Typedef Documentation

9.89.1.1 VecGraph_t

```
using VecGraph_t = std::vector<Benchmark>
```

end of Benchmark class

9.89.2 Function Documentation

9.89.2.1 Benchmark()

```
GetNumCores::Benchmark (
            UserInterface::ConfigParser * CFG_args )
```

constructor that initializes the coordinates

Parameters

CFG_args	

9.89.3 Variable Documentation

9.89.3.1 arch_name

```
std::string arch_name
```

9.89.3.2 bytes_to_send

```
int bytes_to_send
```

9.89.3.3 cc_numa_domain

```
int cc_numa_domain
```

9.89.3.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.89.3.5 cores_per_socket

```
int cores_per_socket
```

9.89.3.6 DisCosTiC

```
delete DisCosTiC
```

9.89.3.7 heteregeneous_mode

```
int heteregeneous_mode
```

9.89.3.8 ID

```
return ID
```

9.89.3.9 node

```
int node
```

9.89.3.10 primary_processes

```
int primary_processes
```

9.89.3.11 scaling_cores

```
int scaling_cores
```

9.89.3.12 secondary_processes

```
int secondary_processes
```

9.89.3.13 socket

```
int socket
```

9.89.3.14 system_number

```
int system_number
```

9.89.3.15 task_per_node

```
int task_per_node
```

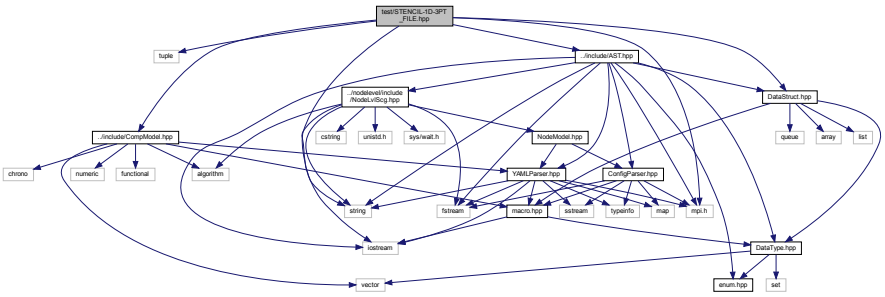
9.89.3.16 virtual_rank

```
int virtual_rank
```

9.90 test/STENCIL-1D-3PT_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STENCIL-1D-3PT_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.90.1 Variable Documentation

9.90.1.1 arch_name

```
std::string arch_name
```

9.90.1.2 bytes_to_send

```
int bytes_to_send
```

9.90.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.90.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.90.1.5 cores_per_socket

```
int cores_per_socket
```

9.90.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.90.1.7 node

```
int node
```

9.90.1.8 primary_processes

```
int primary_processes
```

9.90.1.9 scaling_cores

```
int scaling_cores
```

9.90.1.10 secondary_processes

```
int secondary_processes
```

9.90.1.11 socket

```
int socket
```

9.90.1.12 system_number

```
int system_number
```

9.90.1.13 task_per_node

```
int task_per_node
```

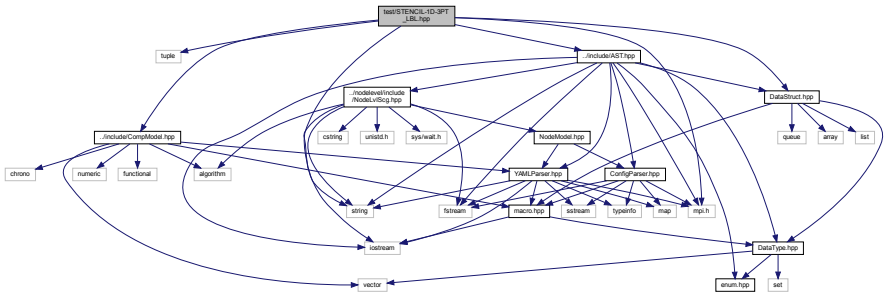
9.90.1.14 virtual_rank

```
int virtual_rank
```

9.91 test/STENCIL-1D-3PT_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STENCIL-1D-3PT_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.91.1 Variable Documentation

9.91.1.1 arch_name

```
std::string arch_name
```

9.91.1.2 bytes_to_send

```
int bytes_to_send
```

9.91.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.91.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.91.1.5 cores_per_socket

```
int cores_per_socket
```

9.91.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.91.1.7 node

```
int node
```

9.91.1.8 primary_processes

```
int primary_processes
```

9.91.1.9 scaling_cores

```
int scaling_cores
```

9.91.1.10 secondary_processes

```
int secondary_processes
```

9.91.1.11 socket

```
int socket
```

9.91.1.12 system_number

```
int system_number
```

9.91.1.13 task_per_node

```
int task_per_node
```

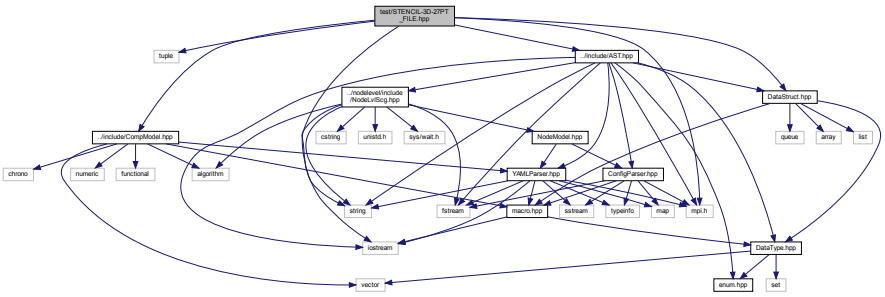
9.91.1.14 virtual_rank

```
int virtual_rank
```

9.92 test/STENCIL-3D-27PT_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STENCIL-3D-27PT_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.92.1 Variable Documentation

9.92.1.1 arch_name

```
std::string arch_name
```

9.92.1.2 bytes_to_send

```
int bytes_to_send
```

9.92.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.92.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.92.1.5 cores_per_socket

```
int cores_per_socket
```

9.92.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.92.1.7 node

```
int node
```

9.92.1.8 primary_processes

```
int primary_processes
```

9.92.1.9 scaling_cores

```
int scaling_cores
```

9.92.1.10 secondary_processes

```
int secondary_processes
```

9.92.1.11 socket

```
int socket
```

9.92.1.12 system_number

```
int system_number
```

9.92.1.13 task_per_node

```
int task_per_node
```

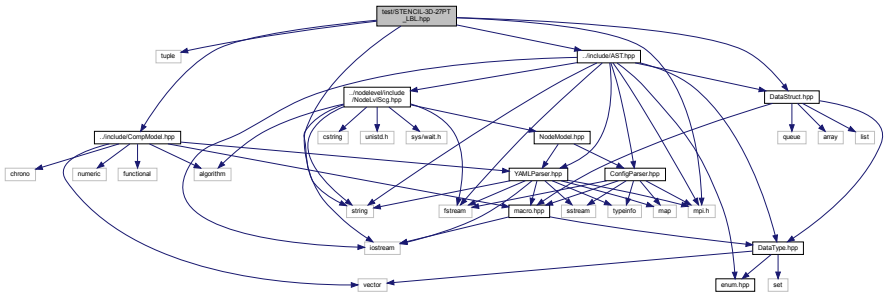
9.92.1.14 virtual_rank

```
int virtual_rank
```

9.93 test/STENCIL-3D-27PT_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STENCIL-3D-27PT_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.93.1 Variable Documentation

9.93.1.1 arch_name

```
std::string arch_name
```

9.93.1.2 bytes_to_send

```
int bytes_to_send
```

9.93.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.93.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.93.1.5 cores_per_socket

```
int cores_per_socket
```

9.93.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.93.1.7 node

```
int node
```

9.93.1.8 primary_processes

```
int primary_processes
```

9.93.1.9 scaling_cores

```
int scaling_cores
```

9.93.1.10 secondary_processes

```
int secondary_processes
```

9.93.1.11 socket

```
int socket
```

9.93.1.12 system_number

```
int system_number
```

9.93.1.13 task_per_node

```
int task_per_node
```

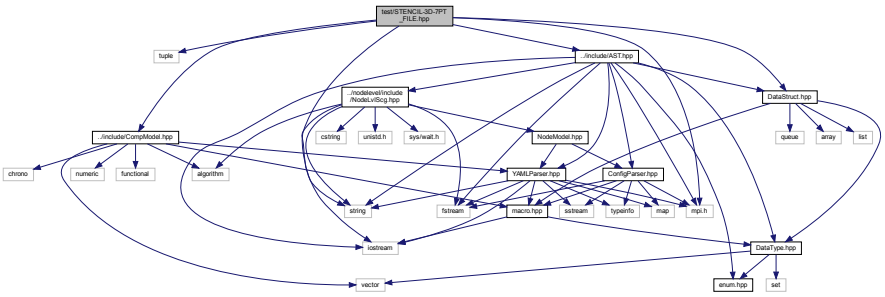
9.93.1.14 virtual_rank

```
int virtual_rank
```

9.94 test/STENCIL-3D-7PT_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STENCIL-3D-7PT_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.94.1 Variable Documentation

9.94.1.1 arch_name

```
std::string arch_name
```

9.94.1.2 bytes_to_send

```
int bytes_to_send
```

9.94.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.94.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.94.1.5 cores_per_socket

```
int cores_per_socket
```

9.94.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.94.1.7 node

```
int node
```

9.94.1.8 primary_processes

```
int primary_processes
```

9.94.1.9 scaling_cores

```
int scaling_cores
```

9.94.1.10 secondary_processes

```
int secondary_processes
```

9.94.1.11 socket

```
int socket
```

9.94.1.12 system_number

```
int system_number
```

9.94.1.13 task_per_node

```
int task_per_node
```

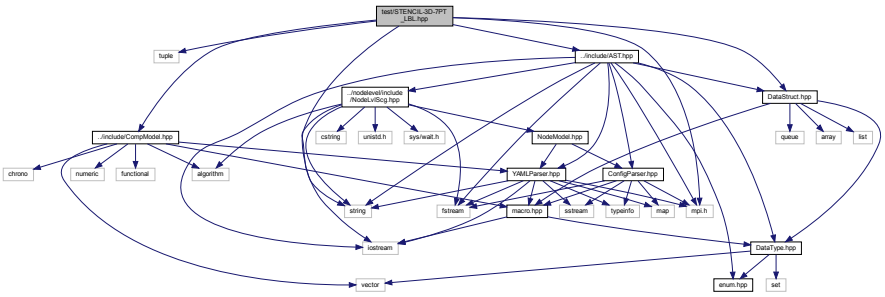
9.94.1.14 virtual_rank

```
int virtual_rank
```

9.95 test/STENCIL-3D-7PT_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STENCIL-3D-7PT_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.95.1 Variable Documentation

9.95.1.1 arch_name

```
std::string arch_name
```

9.95.1.2 bytes_to_send

```
int bytes_to_send
```

9.95.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.95.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.95.1.5 cores_per_socket

```
int cores_per_socket
```

9.95.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.95.1.7 node

```
int node
```

9.95.1.8 primary_processes

```
int primary_processes
```

9.95.1.9 scaling_cores

```
int scaling_cores
```

9.95.1.10 secondary_processes

```
int secondary_processes
```

9.95.1.11 socket

```
int socket
```

9.95.1.12 system_number

```
int system_number
```

9.95.1.13 task_per_node

```
int task_per_node
```

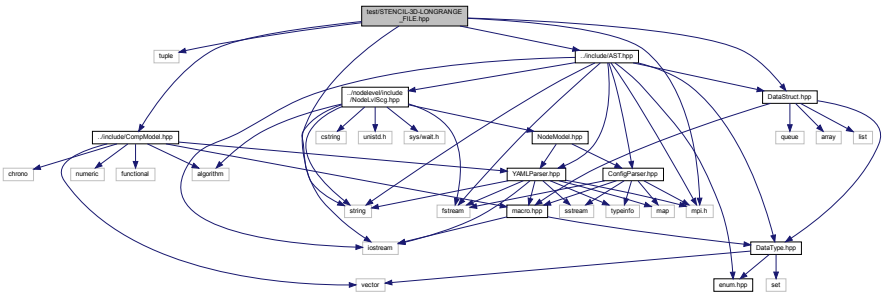
9.95.1.14 virtual_rank

```
int virtual_rank
```

9.96 test/STENCIL-3D-LONGRANGE_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STENCIL-3D-LONGRANGE_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.96.1 Variable Documentation

9.96.1.1 arch_name

```
std::string arch_name
```

9.96.1.2 bytes_to_send

```
int bytes_to_send
```

9.96.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.96.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.96.1.5 cores_per_socket

```
int cores_per_socket
```

9.96.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.96.1.7 node

```
int node
```

9.96.1.8 primary_processes

```
int primary_processes
```

9.96.1.9 scaling_cores

```
int scaling_cores
```

9.96.1.10 secondary_processes

```
int secondary_processes
```

9.96.1.11 socket

```
int socket
```

9.96.1.12 system_number

```
int system_number
```

9.96.1.13 task_per_node

```
int task_per_node
```

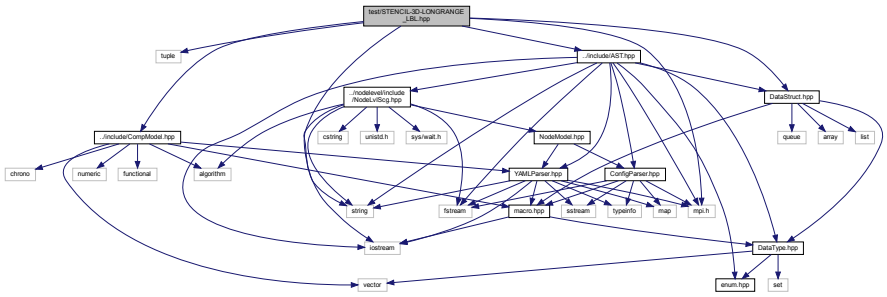
9.96.1.14 virtual_rank

```
int virtual_rank
```

9.97 test/STENCIL-3D-LONGRANGE_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STENCIL-3D-LONGRANGE_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.97.1 Variable Documentation

9.97.1.1 arch_name

```
std::string arch_name
```

9.97.1.2 bytes_to_send

```
int bytes_to_send
```

9.97.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.97.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.97.1.5 cores_per_socket

```
int cores_per_socket
```

9.97.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.97.1.7 node

```
int node
```

9.97.1.8 primary_processes

```
int primary_processes
```

9.97.1.9 scaling_cores

```
int scaling_cores
```

9.97.1.10 secondary_processes

```
int secondary_processes
```

9.97.1.11 socket

```
int socket
```

9.97.1.12 system_number

```
int system_number
```

9.97.1.13 task_per_node

```
int task_per_node
```

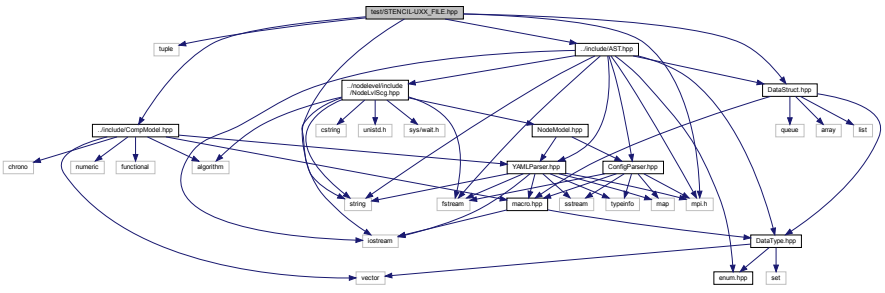
9.97.1.14 virtual_rank

```
int virtual_rank
```

9.98 test/STENCIL-UXX_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STENCIL-UXX_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.98.1 Variable Documentation

9.98.1.1 arch_name

```
std::string arch_name
```

9.98.1.2 bytes_to_send

```
int bytes_to_send
```

9.98.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.98.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.98.1.5 cores_per_socket

```
int cores_per_socket
```

9.98.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.98.1.7 node

```
int node
```

9.98.1.8 primary_processes

```
int primary_processes
```

9.98.1.9 scaling_cores

```
int scaling_cores
```

9.98.1.10 secondary_processes

```
int secondary_processes
```

9.98.1.11 socket

```
int socket
```

9.98.1.12 system_number

```
int system_number
```

9.98.1.13 task_per_node

```
int task_per_node
```

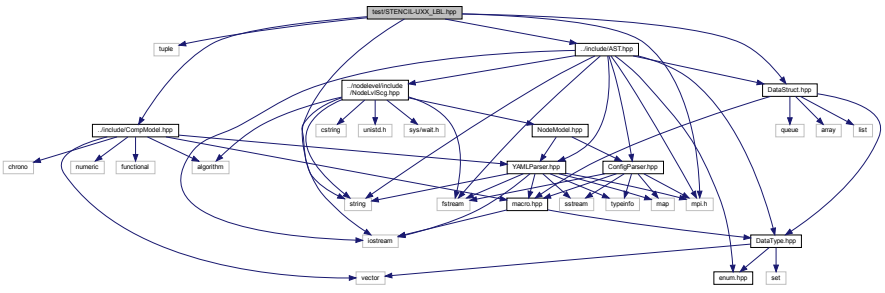
9.98.1.14 virtual_rank

```
int virtual_rank
```

9.99 test/STENCIL-UXX_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STENCIL-UXX_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.99.1 Variable Documentation

9.99.1.1 arch_name

```
std::string arch_name
```

9.99.1.2 bytes_to_send

```
int bytes_to_send
```

9.99.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.99.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.99.1.5 cores_per_socket

```
int cores_per_socket
```

9.99.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.99.1.7 node

```
int node
```

9.99.1.8 primary_processes

```
int primary_processes
```

9.99.1.9 scaling_cores

```
int scaling_cores
```

9.99.1.10 secondary_processes

```
int secondary_processes
```

9.99.1.11 socket

```
int socket
```

9.99.1.12 system_number

```
int system_number
```

9.99.1.13 task_per_node

```
int task_per_node
```

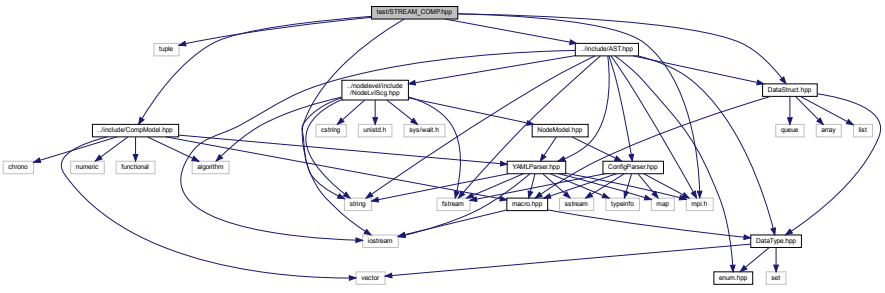
9.99.1.14 virtual_rank

```
int virtual_rank
```

9.100 test/STREAM_COMP.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STREAM_COMP.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.100.1 Variable Documentation

9.100.1.1 arch_name

```
std::string arch_name
```

9.100.1.2 bytes_to_send

```
int bytes_to_send
```

9.100.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.100.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.100.1.5 cores_per_socket

```
int cores_per_socket
```

9.100.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.100.1.7 node

```
int node
```

9.100.1.8 primary_processes

```
int primary_processes
```

9.100.1.9 scaling_cores

```
int scaling_cores
```

9.100.1.10 secondary_processes

```
int secondary_processes
```

9.100.1.11 socket

```
int socket
```

9.100.1.12 system_number

```
int system_number
```

9.100.1.13 task_per_node

```
int task_per_node
```

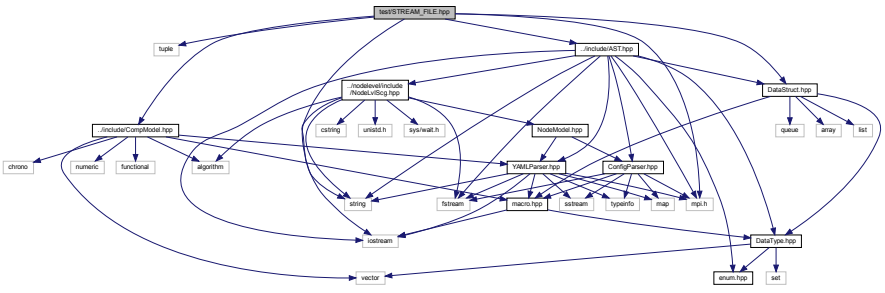
9.100.1.14 virtual_rank

```
int virtual_rank
```

9.101 test/STREAM_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STREAM_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.101.1 Variable Documentation

9.101.1.1 arch_name

```
std::string arch_name
```

9.101.1.2 bytes_to_send

```
int bytes_to_send
```

9.101.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.101.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.101.1.5 cores_per_socket

```
int cores_per_socket
```

9.101.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.101.1.7 node

```
int node
```

9.101.1.8 primary_processes

```
int primary_processes
```

9.101.1.9 scaling_cores

```
int scaling_cores
```

9.101.1.10 secondary_processes

```
int secondary_processes
```

9.101.1.11 socket

```
int socket
```

9.101.1.12 system_number

```
int system_number
```

9.101.1.13 task_per_node

```
int task_per_node
```

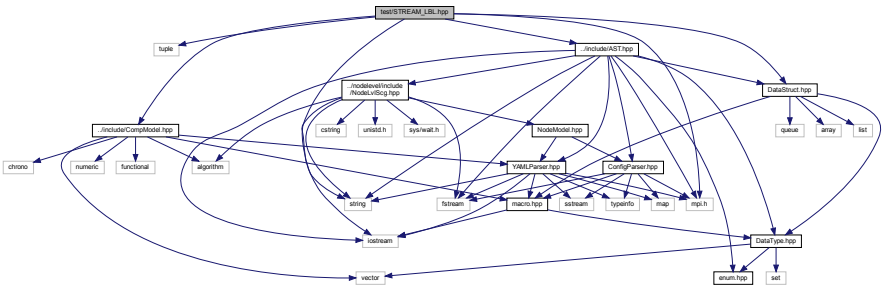
9.101.1.14 virtual_rank

```
int virtual_rank
```

9.102 test/STREAM_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STREAM_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.102.1 Variable Documentation

9.102.1.1 arch_name

```
std::string arch_name
```

9.102.1.2 bytes_to_send

```
int bytes_to_send
```

9.102.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.102.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.102.1.5 cores_per_socket

```
int cores_per_socket
```

9.102.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.102.1.7 node

```
int node
```

9.102.1.8 primary_processes

```
int primary_processes
```

9.102.1.9 scaling_cores

```
int scaling_cores
```

9.102.1.10 secondary_processes

```
int secondary_processes
```

9.102.1.11 socket

```
int socket
```

9.102.1.12 system_number

```
int system_number
```

9.102.1.13 task_per_node

```
int task_per_node
```

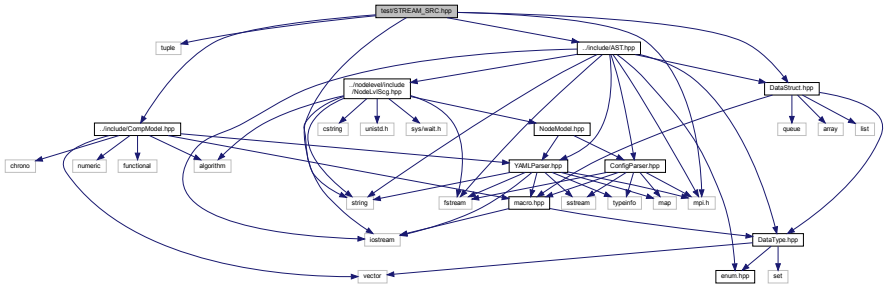
9.102.1.14 virtual_rank

```
int virtual_rank
```

9.103 test/STREAM_SRC.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for STREAM_SRC.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Typedefs

- using VecGraph_t = std::vector< Benchmark >

  end of Benchmark class

Functions

- Benchmark (UserInterface::ConfigParser *CFG_args)

  constructor that initializes the coordinates
- DisCosTiC File_Write ()
- uint8_t DisCosTiC::GetNumNetworks ()

  the maximum number of the network interface controller
- DisCosTiC::~Benchmark ()

  destructor

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name
- delete DisCosTiC
- return ID
- class DisCosTiC::Benchmark DisCosTiC::GetNumCores

  end of Benchmark class

9.103.1 Typedef Documentation

9.103.1.1 VecGraph_t

```
using VecGraph_t = std::vector<Benchmark>
```

end of Benchmark class

9.103.2 Function Documentation

9.103.2.1 Benchmark()

```
GetNumCores::Benchmark (
            UserInterface::ConfigParser * CFG_args )
```

constructor that initializes the coordinates

Parameters

CFG_args	

9.103.2.2 File_Write()

```
DisCosTiC GetNumCores::File_Write ( )
```

9.103.3 Variable Documentation

9.103.3.1 arch_name

```
std::string arch_name
```

9.103.3.2 bytes_to_send

```
int bytes_to_send
```

9.103.3.3 cc_numa_domain

```
int cc_numa_domain
```

9.103.3.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.103.3.5 cores_per_socket

```
int cores_per_socket
```

9.103.3.6 DisCosTiC

```
delete DisCosTiC
```

9.103.3.7 heteregeneous_mode

```
int heteregeneous_mode
```

9.103.3.8 ID

```
return ID
```

9.103.3.9 node

```
int node
```

9.103.3.10 primary_processes

```
int primary_processes
```

9.103.3.11 scaling_cores

```
int scaling_cores
```

9.103.3.12 secondary_processes

```
int secondary_processes
```

9.103.3.13 socket

```
int socket
```

9.103.3.14 system_number

```
int system_number
```

9.103.3.15 task_per_node

```
int task_per_node
```

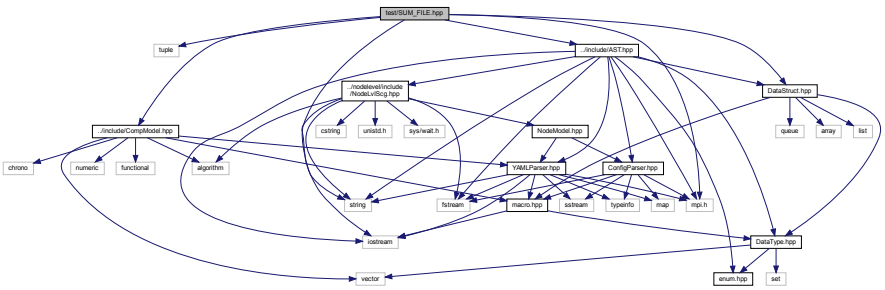
9.103.3.16 virtual_rank

```
int virtual_rank
```

9.104 test/SUM_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SUM_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.104.1 Variable Documentation

9.104.1.1 arch_name

```
std::string arch_name
```

9.104.1.2 bytes_to_send

```
int bytes_to_send
```

9.104.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.104.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.104.1.5 cores_per_socket

```
int cores_per_socket
```

9.104.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.104.1.7 node

```
int node
```

9.104.1.8 primary_processes

```
int primary_processes
```

9.104.1.9 scaling_cores

```
int scaling_cores
```

9.104.1.10 secondary_processes

```
int secondary_processes
```

9.104.1.11 socket

```
int socket
```

9.104.1.12 system_number

```
int system_number
```

9.104.1.13 task_per_node

```
int task_per_node
```

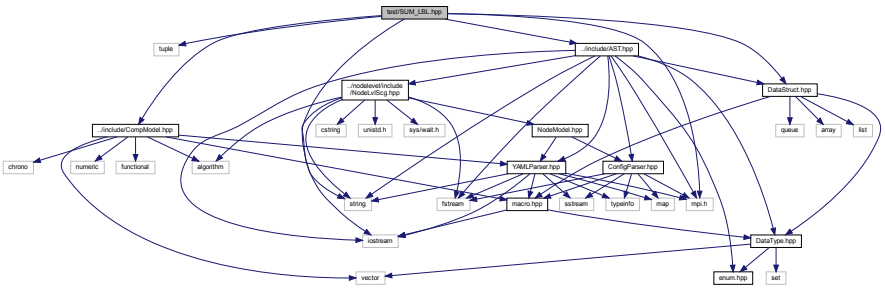
9.104.1.14 virtual_rank

```
int virtual_rank
```

9.105 test/SUM_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for SUM_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.105.1 Variable Documentation

9.105.1.1 arch_name

```
std::string arch_name
```

9.105.1.2 bytes_to_send

```
int bytes_to_send
```

9.105.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.105.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.105.1.5 cores_per_socket

```
int cores_per_socket
```

9.105.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.105.1.7 node

```
int node
```

9.105.1.8 primary_processes

```
int primary_processes
```

9.105.1.9 scaling_cores

```
int scaling_cores
```

9.105.1.10 secondary_processes

```
int secondary_processes
```

9.105.1.11 socket

```
int socket
```

9.105.1.12 system_number

```
int system_number
```

9.105.1.13 task_per_node

```
int task_per_node
```

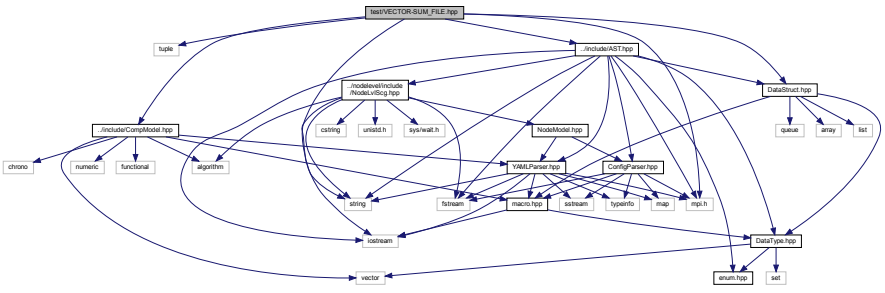
9.105.1.14 virtual_rank

```
int virtual_rank
```

9.106 test/VECTOR-SUM_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for VECTOR-SUM_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.106.1 Variable Documentation

9.106.1.1 arch_name

```
std::string arch_name
```

9.106.1.2 bytes_to_send

```
int bytes_to_send
```

9.106.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.106.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.106.1.5 cores_per_socket

```
int cores_per_socket
```

9.106.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.106.1.7 node

```
int node
```

9.106.1.8 primary_processes

```
int primary_processes
```

9.106.1.9 scaling_cores

```
int scaling_cores
```

9.106.1.10 secondary_processes

```
int secondary_processes
```

9.106.1.11 socket

```
int socket
```

9.106.1.12 system_number

```
int system_number
```

9.106.1.13 task_per_node

```
int task_per_node
```

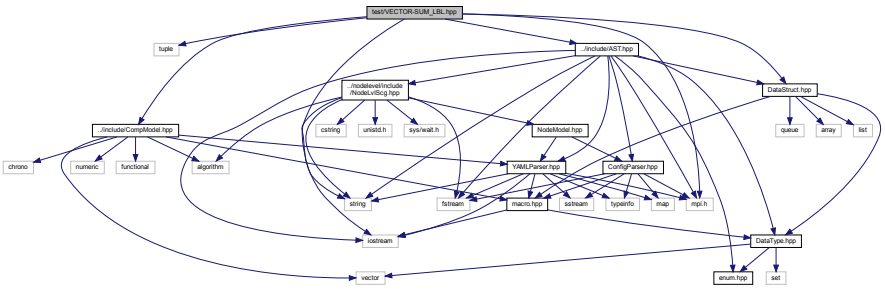
9.106.1.14 virtual_rank

```
int virtual_rank
```

9.107 test/VECTOR-SUM_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for VECTOR-SUM_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.107.1 Variable Documentation

9.107.1.1 arch_name

```
std::string arch_name
```

9.107.1.2 bytes_to_send

```
int bytes_to_send
```

9.107.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.107.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.107.1.5 cores_per_socket

```
int cores_per_socket
```

9.107.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.107.1.7 node

```
int node
```

9.107.1.8 primary_processes

```
int primary_processes
```

9.107.1.9 scaling_cores

```
int scaling_cores
```

9.107.1.10 secondary_processes

```
int secondary_processes
```

9.107.1.11 socket

```
int socket
```

9.107.1.12 system_number

```
int system_number
```

9.107.1.13 task_per_node

```
int task_per_node
```

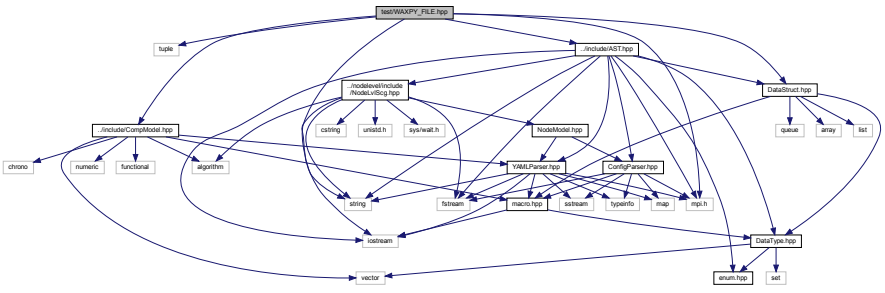
9.107.1.14 virtual_rank

```
int virtual_rank
```

9.108 test/WAXPY_FILE.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for WAXPY_FILE.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.108.1 Variable Documentation

9.108.1.1 arch_name

```
std::string arch_name
```

9.108.1.2 bytes_to_send

```
int bytes_to_send
```

9.108.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.108.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.108.1.5 cores_per_socket

```
int cores_per_socket
```

9.108.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.108.1.7 node

```
int node
```

9.108.1.8 primary_processes

```
int primary_processes
```

9.108.1.9 scaling_cores

```
int scaling_cores
```

9.108.1.10 secondary_processes

```
int secondary_processes
```

9.108.1.11 socket

```
int socket
```

9.108.1.12 system_number

```
int system_number
```

9.108.1.13 task_per_node

```
int task_per_node
```

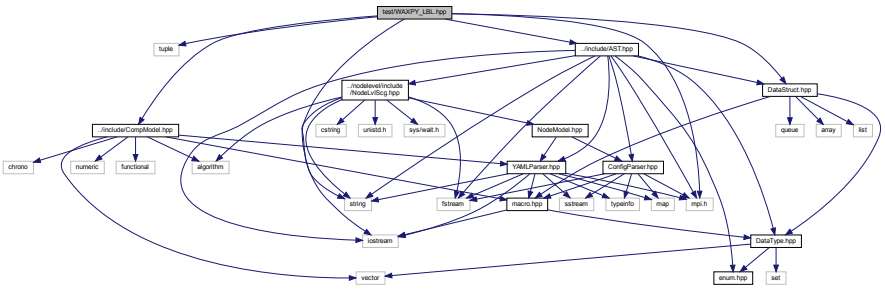
9.108.1.14 virtual_rank

```
int virtual_rank
```

9.109 test/WAXPY_LBL.hpp File Reference

```
#include <tuple>
#include <mpi.h>
#include <string>
#include "../include/CompModel.hpp"
#include "../include/AST.hpp"
#include "../include/DataStruct.hpp"
```

Include dependency graph for WAXPY_LBL.hpp:



Classes

- class DisCosTiC::Benchmark

Namespaces

- DisCosTiC

  < *benchmark test cases*

Variables

- int scaling_cores
- int bytes_to_send
- int virtual_rank
- int system_number
- int task_per_node
- int node
- int cc_numa_domain_per_socket
- int cores_per_socket
- int cc_numa_domain
- int socket
- int primary_processes
- int secondary_processes
- int heteregeneous_mode
- std::string arch_name

9.109.1 Variable Documentation

9.109.1.1 arch_name

```
std::string arch_name
```

9.109.1.2 bytes_to_send

```
int bytes_to_send
```

9.109.1.3 cc_numa_domain

```
int cc_numa_domain
```

9.109.1.4 cc_numa_domain_per_socket

```
int cc_numa_domain_per_socket
```

9.109.1.5 cores_per_socket

```
int cores_per_socket
```

9.109.1.6 heteregeneous_mode

```
int heteregeneous_mode
```

9.109.1.7 node

```
int node
```

9.109.1.8 primary_processes

```
int primary_processes
```

9.109.1.9 scaling_cores

```
int scaling_cores
```

9.109.1.10 secondary_processes

```
int secondary_processes
```

9.109.1.11 socket

```
int socket
```

9.109.1.12 system_number

```
int system_number
```

9.109.1.13 task_per_node

```
int task_per_node
```

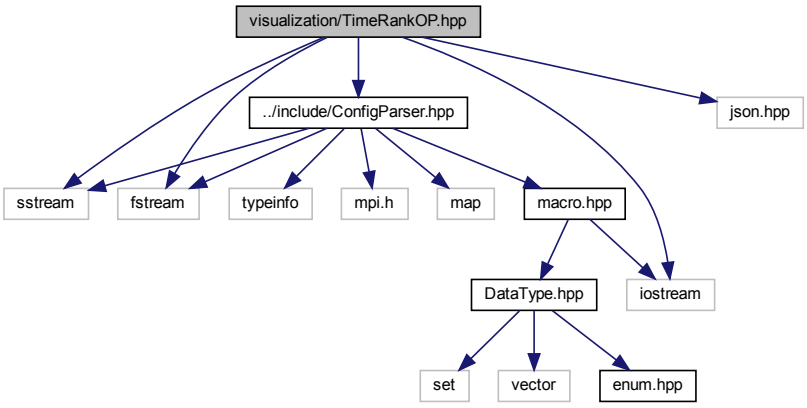
9.109.1.14 virtual_rank

```
int virtual_rank
```

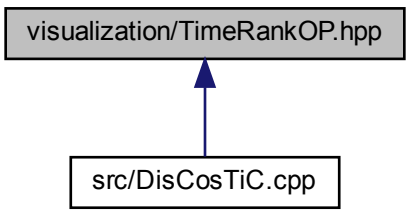
9.110 visualization/TimeRankOP.hpp File Reference

```
#include <sstream>
#include <fstream>
#include <iostream>
#include "json.hpp"
#include "../include/ConfigParser.hpp"
```

Include dependency graph for TimeRankOP.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class UserInterface::TimeRankOP
- class UserInterface::ChromeTraceViz

Namespaces

- UserInterface

  it parses the user-defined configuration file (.cfg)

Typedefs

- using json = nlohmann::json

  configuration file parser

9.110.1 Typedef Documentation

9.110.1.1 json

```
using json = nlohmann::json
```

configuration file parser

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