

DOCUMENTATION

[Table of Contents](#)
[Class Inheritance Tree](#)

NAVIGATION

[Description](#)
[Types](#)
[Subprograms & Entries](#)

Package: *Topologies*

- [Goto spec source_](#)
- [Goto body source_](#)

DESCRIPTION

package Topologies is

Uwe R. Zimmer, Australia, September 2011

TYPES

Topology_Kind (abstract)

type Topology_Kind is interface;

References:

[topologies.ads:7:9 \(declaration\)](#)
[generic_routers_configuration.ads:13:35 \(reference\)](#)
[routers_configuration_structures.adb:7:82 \(reference\)](#)
[routers_configuration_structures.ads:27:82 \(reference\)](#)
[topologies.adb:9:42 \(reference\)](#)
[topologies.adb:13:47 \(reference\)](#)
[topologies.adb:21:44 \(reference\)](#)
[topologies.adb:442:41 \(reference\)](#)
[topologies.adb:466:41 \(reference\)](#)
[topologies.adb:492:65 \(reference\)](#)
[topologies.adb:493:65 \(reference\)](#)
[topologies.adb:494:65 \(reference\)](#)
[topologies.adb:495:65 \(reference\)](#)
[topologies.adb:496:65 \(reference\)](#)
[topologies.adb:497:65 \(reference\)](#)
[topologies.adb:498:65 \(reference\)](#)
[topologies.adb:499:65 \(reference\)](#)
[topologies.adb:500:65 \(reference\)](#)
[topologies.adb:501:65 \(reference\)](#)
[topologies.adb:502:65 \(reference\)](#)
[topologies.ads:9:48 \(reference\)](#)
[topologies.ads:10:48 \(reference\)](#)
[topologies.ads:13:48 \(reference\)](#)
[topologies.ads:14:48 \(reference\)](#)
[topologies.ads:16:71 \(reference\)](#)
[topologies.ads:17:71 \(reference\)](#)
[topologies.ads:18:71 \(reference\)](#)
[topologies.ads:19:71 \(reference\)](#)
[topologies.ads:20:71 \(reference\)](#)

[topologies.ads:21:71](#) (reference)
[topologies.ads:22:71](#) (reference)
[topologies.ads:23:71](#) (reference)
[topologies.ads:24:71](#) (reference)
[topologies.ads:25:71](#) (reference)
[topologies.ads:26:71](#) (reference)

SUBPROGRAMS & ENTRIES

Nodes_in_Topology (abstract)

- [Goto spec in source_](#)

function Nodes_in_Topology

(
 Configurati
 on
 : [Topology_Kind](#))
 return Positive is
 abstract;

References:

[topologies.ads:9:13](#) (declaration)
[generic_routers_configuration.ads:15:49](#) (dispatching call)
[test_routers.adb:331:60](#) (dispatching call)
[topologies.adb:444:50](#) (dispatching call)
[topologies.adb:468:50](#) (dispatching call)

Called by:

[Max_Degree](#) defined at [topologies.ads:14:13](#)

[Min_Degree](#) defined at [topologies.ads:13:13](#)

[Test_Routers](#) defined at [test_routers.adb:17:11](#)

Nodes_Connected (abstract)

- [Goto spec in source_](#)

function Nodes_Connected

(
 Configu
 ration
 Node_
 A,
 Node_
 B
 : [Topology_Kind](#);
 : Positive)
 return
 Boolean is
 abstract;

References:

[topologies.ads:10:13](#) (declaration)
[generic_routers.adb:41:61](#) (dispatching call)
[test_routers.adb:123:25](#) (dispatching call)
[test_routers.adb:125:28](#) (dispatching call)
[topologies.adb:454:19](#) (dispatching call)
[topologies.adb:478:19](#) (dispatching call)

Called by:

[Max_Degree](#) defined at [topologies.ads:14:13](#)

[Min_Degree](#) defined at [topologies.ads:13:13](#)

[Test_Routers.Print_Connections](#) defined at [test_routers.adb:102:20](#)

[Test_Routers.Print_Connections](#) defined at [test_routers.adb:102:20](#)

Min_Degree

- [Goto spec in source_](#)
- [Goto body in source_](#)

function Min_Degree

(
 Configurati
 : [Topology_Ki](#)

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```

on
    nd'Class)
    return
    Natural;

```

References:

[topologies.ads:13:13](#) (declaration)
[test_routers.adb:332:13](#) (call)
[test_routers.adb:333:61](#) (call)
[test_routers.adb:335:60](#) (call)
[topologies.adb:442:13](#) (body)
[topologies.adb:462:8](#) (label)

Called by:

[Test_Routers](#) defined at [test_routers.adb:17:11](#)
[Test_Routers](#) defined at [test_routers.adb:17:11](#)
[Test_Routers](#) defined at [test_routers.adb:17:11](#)

Calls:

[Nodes_Connected](#) defined at [topologies.ads:10:13](#)
[Nodes_in_Topology](#) defined at [topologies.ads:9:13](#)

Max_Degree

- [Goto spec in source_](#)
- [Goto body in source_](#)

function Max_Degree

```

(
    Configuration
on
    : Topology_Ki
    nd'Class)
    return
    Natural;

```

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References:

[topologies.ads:14:13](#) (declaration)
[test_routers.adb:332:48](#) (call)
[test_routers.adb:336:60](#) (call)
[topologies.adb:466:13](#) (body)
[topologies.adb:486:8](#) (label)

Called by:

[Test_Routers](#) defined at [test_routers.adb:17:11](#)
[Test_Routers](#) defined at [test_routers.adb:17:11](#)

Calls:

[Nodes_Connected](#) defined at [topologies.ads:10:13](#)
[Nodes_in_Topology](#) defined at [topologies.ads:9:13](#)

Line

- [Goto spec in source_](#)
- [Goto body in source_](#)

function Line

```

(
    Size
    : Positive)
    return
    Topology_Ki
    nd'Class;

```

References:

[topologies.ads:16:13](#) (declaration)
[routers_configuration_structures.adb:13:47](#) (call)
[topologies.adb:492:13](#) (body)

Called by:

[Routers_Configuration_Structures.Get_Topology](#) defined at

[routers_configuration_structures.ads:27:13](#)

Ring

- [Goto spec in source_](#)
- [Goto body in source_](#)

function Ring

```
(      Size      : Positive)
return
  Topology_Ki
nd'Class;
```

References:

[topologies.ads:17:13](#) (declaration)

[routers_configuration_structures.adb:14:47](#) (call)

[topologies.adb:493:13](#) (body)

Called by:

[Routers_Configuration_Structures.Get_Topology](#) defined at [routers_configuration_structures.ads:27:13](#)

Star

- [Goto spec in source_](#)
- [Goto body in source_](#)

function Star

```
(      Size      : Positive)
return
  Topology_Ki
nd'Class;
```

References:

[topologies.ads:18:13](#) (declaration)

[routers_configuration_structures.adb:15:47](#) (call)

[topologies.adb:494:13](#) (body)

Called by:

[Routers_Configuration_Structures.Get_Topology](#) defined at [routers_configuration_structures.ads:27:13](#)

Fully_Connected

- [Goto spec in source_](#)
- [Goto body in source_](#)

function Fully_Connected

```
(      Size      : Positive)
return
  Topology_Ki
nd'Class;
```

References:

[topologies.ads:19:13](#) (declaration)

[routers_configuration_structures.adb:16:47](#) (call)

[topologies.adb:495:13](#) (body)

Called by:

[Routers_Configuration_Structures.Get_Topology](#) defined at [routers_configuration_structures.ads:27:13](#)

Trees

- [Goto spec in source_](#)
- [Goto body in source_](#)

function Trees

```
(      Degree,      : Positive)
```

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Depths

return
Topology_Ki
nd'Class;

References:

[topologies.ads:20:13](#) (declaration)
[routers_configuration_structures.adb:17:47](#) (call)
[topologies.adb:496:13](#) (body)

Called by:

[Routers_Configuration_Structures.Get_Topology](#) defined at
[routers_configuration_structures.ads:27:13](#)

Mesh

- **Goto spec in source_**
- **Goto body in source_**

function Mesh

(
Dimension,
: Positive)
return
Topology_Ki
nd'Class;

References:

[topologies.ads:21:13](#) (declaration)
[routers_configuration_structures.adb:18:47](#) (call)
[topologies.adb:497:13](#) (body)

Called by:

[Routers_Configuration_Structures.Get_Topology](#) defined at
[routers_configuration_structures.ads:27:13](#)

Torus

- **Goto spec in source_**
- **Goto body in source_**

function Torus

(
Dimension,
: Positive)
return
Topology_Ki
nd'Class;

References:

[topologies.ads:22:13](#) (declaration)
[routers_configuration_structures.adb:19:47](#) (call)
[topologies.adb:498:13](#) (body)

Called by:

[Routers_Configuration_Structures.Get_Topology](#) defined at
[routers_configuration_structures.ads:27:13](#)

Hypercube

- **Goto spec in source_**
- **Goto body in source_**

function Hypercube

(
Dimension,
: Positive)
return
Topology_Ki
nd'Class;

References:

[topologies.ads:23:13](#) (declaration)
[routers_configuration_structures.adb:20:47](#) (call)

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[topologies.adb:499:13](#) (body)

Called by:

[Routers_Configuration_Structures.Get_Topology](#) defined at [routers_configuration_structures.ads:27:13](#)

Cube Connected Cycles

- [Goto spec in source_](#)
- [Goto body in source_](#)

```
function Cube_Connected_Cycles
  (
    Dimension : Positive)
return
  Topology_Ki
nd'Class;
```

References:

[topologies.ads:24:13](#) (declaration)

[routers_configuration_structures.adb:21:47](#) (call)

[topologies.adb:500:13](#) (body)

Called by:

[Routers_Configuration_Structures.Get_Topology](#) defined at [routers_configuration_structures.ads:27:13](#)

Butterfly

- [Goto spec in source_](#)
- [Goto body in source_](#)

```
function Butterfly
  (
    Dimension : Positive)
return
  Topology_Ki
nd'Class;
```

References:

[topologies.ads:25:13](#) (declaration)

[routers_configuration_structures.adb:22:47](#) (call)

[topologies.adb:501:13](#) (body)

Called by:

[Routers_Configuration_Structures.Get_Topology](#) defined at [routers_configuration_structures.ads:27:13](#)

Wrap Around Butterfly

- [Goto spec in source_](#)
- [Goto body in source_](#)

```
function Wrap_Around_Butterfly
  (
    Dimension : Positive)
return
  Topology_Ki
nd'Class;
```

References:

[topologies.ads:26:13](#) (declaration)

[routers_configuration_structures.adb:23:47](#) (call)

[topologies.adb:502:13](#) (body)

Called by:

[Routers_Configuration_Structures.Get_Topology](#) defined at [routers_configuration_structures.ads:27:13](#)

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