

Optimization-GEM-Adiabatic

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## Chapter 4

# Module Documentation

### 4.1 `gem_com` Module Reference

#### Data Types

- interface `en3`
- interface `ran2`
- interface `revers`

#### Functions/Subroutines

- subroutine `new_gem_com` ()

#### Variables

- integer `imx`
- integer `jmx`
- integer `kmx`
- integer `mmx`
- integer `mmxe`
- integer `nmx`
- integer `nsmx`
- integer `nsubd` =8
- integer `modemx`
- integer `ntube` =4
- integer `nxpp`
- integer `ngdx` =5
- integer `nb` =6
- integer `negrd` =8
- integer `nlgrd` =8
- character(len=70) `outname`
- real `endtm`
- real `begtm`
- real `pstm`
- real `starttm`
- real `lasttm`

- real [tottm](#)
- real, dimension(50000) [aux1](#)
- real, dimension(20000) [aux2](#)
- real, dimension(:), allocatable [workx](#)
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- complex, dimension(:), allocatable [tmpx](#)
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- integer [mme](#)
- integer [mmb](#)
- real, dimension(:, :), allocatable [rwx](#)
- real, dimension(:, :), allocatable [rwy](#)
- integer, dimension(:), allocatable [mm](#)
- integer, dimension(:), allocatable [tmm](#)
- integer, dimension(:), allocatable [lr](#)
- real, dimension(:), allocatable [tets](#)
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- integer [nsm](#)
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- integer [mlk](#)
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- integer [iflr](#)
- integer [iorb](#)
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- integer [mstart](#)
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- real [qel](#)
- real [mbeam](#)
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- real [aven](#)
- real [avptch](#)
- integer [icrs\\_sec](#)
- integer [ipg](#)
- integer [isphi](#)
- integer, dimension(0:255) [isgnft](#)
- integer, dimension(0:255) [jft](#)
- real, dimension(:, :, :), allocatable [den](#)
- real, dimension(:, :, :), allocatable [dnidt](#)
- real, dimension(:, :, :), allocatable [jpar](#)
- real, dimension(:, :, :), allocatable [jpex](#)
- real, dimension(:, :, :), allocatable [jpey](#)
- real, dimension(:, :, :), allocatable [dti](#)

- real, dimension(:, :, :), allocatable [rho](#)
- real, dimension(:, :, :), allocatable [jion](#)
- real, dimension(:, :, :), allocatable [jionx](#)
- real, dimension(:, :, :), allocatable [jiony](#)
- real, dimension(:, :, :), allocatable [phi](#)
- real, dimension(:, :, :), allocatable [drhodt](#)
- real, dimension(:, :, :), allocatable [dnedt](#)
- real, dimension(:, :, :), allocatable [dphidt](#)
- real, dimension(:, :, :), allocatable [drhoidt](#)
- real, dimension(:, :, :), allocatable [ex](#)
- real, dimension(:, :, :), allocatable [ey](#)
- real, dimension(:, :, :), allocatable [ez](#)
- real, dimension(:, :, :), allocatable [dpdz](#)
- real, dimension(:, :, :), allocatable [dadz](#)
- real, dimension(:, :, :), allocatable [delbx](#)
- real, dimension(:, :, :), allocatable [delby](#)
- real, dimension(:), allocatable [xg](#)
- real, dimension(:), allocatable [yg](#)
- real, dimension(:), allocatable [zg](#)
- real, dimension(:, :, :), allocatable [apar](#)
- real, dimension(:, :, :), allocatable [dene](#)
- real, dimension(:, :, :), allocatable [upar](#)
- real, dimension(:, :, :), allocatable [upart](#)
- real, dimension(:, :, :), allocatable [delte](#)
- real, dimension(:, :, :), allocatable [upex](#)
- real, dimension(:, :, :), allocatable [upey](#)
- real, dimension(:, :, :), allocatable [upa0](#)
- real, dimension(:, :, :), allocatable [den0](#)
- real, dimension(:, :, :), allocatable [upazd](#)
- real, dimension(:, :, :), allocatable [upa00](#)
- real, dimension(:, :, :), allocatable [upa0t](#)
- real, dimension(:, :, :), allocatable [den0apa](#)
- real, dimension(:, :), allocatable [cfx](#)
- real, dimension(:, :), allocatable [cfy](#)
- real, dimension(:, :), allocatable [jac](#)
- real, dimension(:, :), allocatable [bmag](#)
- real, dimension(:, :), allocatable [bdgxcgy](#)
- real, dimension(:, :), allocatable [bdgrzn](#)
- real, dimension(:, :), allocatable [ggxdgy](#)
- real, dimension(:, :), allocatable [ggy2](#)
- real, dimension(:, :), allocatable [ggx](#)
- real, dimension(:), allocatable [gn0e](#)
- real, dimension(:), allocatable [gt0e](#)
- real, dimension(:), allocatable [gt0i](#)
- real, dimension(:), allocatable [avap](#)
- real, dimension(:, :), allocatable [gn0s](#)
- real, dimension(:, :), allocatable [mu](#)
- real, dimension(:, :), allocatable [xii](#)
- real, dimension(:, :), allocatable [pzi](#)
- real, dimension(:, :), allocatable [eki](#)
- real, dimension(:, :), allocatable [z0i](#)
- real, dimension(:, :), allocatable [u0i](#)
- real, dimension(:, :), allocatable [x2](#)
- real, dimension(:, :), allocatable [y2](#)
- real, dimension(:, :), allocatable [z2](#)

- real, dimension(:, :), allocatable [u2](#)
- real, dimension(:, :), allocatable [x3](#)
- real, dimension(:, :), allocatable [y3](#)
- real, dimension(:, :), allocatable [z3](#)
- real, dimension(:, :), allocatable [u3](#)
- real, dimension(:, :), allocatable [w2](#)
- real, dimension(:, :), allocatable [w3](#)
- real, dimension(:), allocatable [mue](#)
- real, dimension(:), allocatable [xie](#)
- real, dimension(:), allocatable [pze](#)
- real, dimension(:), allocatable [eke](#)
- real, dimension(:), allocatable [z0e](#)
- real, dimension(:), allocatable [u0e](#)
- real, dimension(:), allocatable [x2e](#)
- real, dimension(:), allocatable [y2e](#)
- real, dimension(:), allocatable [z2e](#)
- real, dimension(:), allocatable [u2e](#)
- real, dimension(:), allocatable [mue2](#)
- real, dimension(:), allocatable [x3e](#)
- real, dimension(:), allocatable [y3e](#)
- real, dimension(:), allocatable [z3e](#)
- real, dimension(:), allocatable [u3e](#)
- real, dimension(:), allocatable [mue3](#)
- real, dimension(:), allocatable [w2e](#)
- real, dimension(:), allocatable [w3e](#)
- real, dimension(:), allocatable [ipass](#)
- real, dimension(:), allocatable [index](#)
- real, dimension(:), allocatable [w000](#)
- real, dimension(:), allocatable [w001](#)
- real, dimension(:), allocatable [w010](#)
- real, dimension(:), allocatable [w011](#)
- real, dimension(:), allocatable [w100](#)
- real, dimension(:), allocatable [w101](#)
- real, dimension(:), allocatable [w110](#)
- real, dimension(:), allocatable [w111](#)
- integer [nplot](#)
- integer [xnplt](#)
- integer [imovie](#) = 1000000
- integer [nzcrt](#)
- integer [npze](#)
- integer [npzi](#)
- integer [npzc](#)
- integer [npzb](#)
- real [contu](#)
- real [wmax](#)
- real, dimension(:, :), allocatable [ke](#)
- real, dimension(:), allocatable [fe](#)
- real, dimension(:), allocatable [te](#)
- real, dimension(:), allocatable [rmsphi](#)
- real, dimension(:), allocatable [rmsapa](#)
- real, dimension(:), allocatable [avewe](#)
- real, dimension(:, :), allocatable [nos](#)
- real, dimension(:, :), allocatable [avewi](#)
- real, dimension(:), allocatable [vol](#)
- real, dimension(:, :), allocatable [efle\\_es](#)



- real, dimension(:,), allocatable [efle\\_em](#)
- real, dimension(:,), allocatable [pfle\\_es](#)
- real, dimension(:,), allocatable [pfle\\_em](#)
- real, dimension(:,,:), allocatable [pfl\\_es](#)
- real, dimension(:,,:), allocatable [pfl\\_em](#)
- real, dimension(:,,:), allocatable [efl\\_es](#)
- real, dimension(:,,:), allocatable [efl\\_em](#)
- real, dimension(:,), allocatable [chii](#)
- real, dimension(:,), allocatable [chie](#)
- real, dimension(:,), allocatable [ddi](#)
- real, dimension(:,), allocatable [achii](#)
- real, dimension(:,), allocatable [achie](#)
- real, dimension(:,), allocatable [addi](#)
- integer [modem](#)
- integer, dimension(:,), allocatable [lmode](#)
- integer, dimension(:,), allocatable [mmode](#)
- integer, dimension(:,), allocatable [nmode](#)
- complex, dimension(:,), allocatable [pmodehis](#)
- real, dimension(:,), allocatable [mdhis](#)
- real, dimension(:,), allocatable [mdhisa](#)
- real, dimension(:,), allocatable [mdhisb](#)
- real, dimension(:,), allocatable [mdhisc](#)
- real, dimension(:,), allocatable [mdhisd](#)
- complex, dimension(:,), allocatable [aparhis](#)
- complex, dimension(:,), allocatable [phihis](#)
- real, dimension(:,), allocatable [phik](#)
- integer, dimension(:,), allocatable [deljp](#)
- integer, dimension(:,), allocatable [deljm](#)
- integer, dimension(:,), allocatable [jpl](#)
- integer, dimension(:,), allocatable [jpn](#)
- integer, dimension(:,), allocatable [jmi](#)
- integer, dimension(:,), allocatable [jmn](#)
- real, dimension(:,), allocatable [weightp](#)
- real, dimension(:,), allocatable [weightm](#)
- real, dimension(:,), allocatable [weightpn](#)
- real, dimension(:,), allocatable [weightmn](#)
- complex, dimension(:,,:), allocatable [pol](#)
- complex, dimension(:,,:), allocatable [pmtrx](#)
- complex, dimension(:,,:), allocatable [pmtrxi](#)
- complex, dimension(:,), allocatable [pfac](#)
- integer, parameter [master](#) =0
- integer [numprocs](#)
- integer [myid](#)
- integer [last](#)
- integer [cnt](#)
- integer [ierr](#)
- integer [grid\\_comm](#)
- integer [tube\\_comm](#)
- integer [gclr](#)
- integer [tclr](#)
- integer [glst](#)
- integer [tlst](#)
- integer, dimension(mpi\_status\_size) [stat](#)
- integer [lngbr](#)
- integer [rngbr](#)

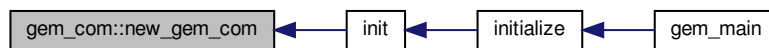
- integer `idprv`
- integer `idnxt`
- character(len= \*) `directory`
- character(len= \*) `outdir`

## 4.1.1 Function/Subroutine Documentation

### 4.1.1.1 `new_gem_com()`

```
subroutine gem_com::new_gem_com ( )
```

Here is the caller graph for this function:



## 4.1.2 Variable Documentation

### 4.1.2.1 `achie`

```
real, dimension(:), allocatable gem_com::achie
```

### 4.1.2.2 `achii`

```
real, dimension(:), allocatable gem_com::achii
```

### 4.1.2.3 `addi`

```
real, dimension(:), allocatable gem_com::addi
```

#### 4.1.2.4 adiabatic\_electron

```
integer gem_com::adiabatic_electron
```

#### 4.1.2.5 adwe

```
real gem_com::adwe
```

#### 4.1.2.6 adwn

```
real gem_com::adwn
```

#### 4.1.2.7 adwp

```
real gem_com::adwp
```

#### 4.1.2.8 amie

```
real gem_com::amie
```

#### 4.1.2.9 amp

```
real gem_com::amp
```

#### 4.1.2.10 apar

```
real, dimension(:, :, :), allocatable gem_com::apar
```

#### 4.1.2.11 aparhis

```
complex, dimension(:, :), allocatable gem_com::aparhis
```

**4.1.2.12 apk**

```
complex, dimension(1:8) gem_com::apk
```

**4.1.2.13 aux1**

```
real, dimension(50000) gem_com::aux1
```

**4.1.2.14 aux2**

```
real, dimension(20000) gem_com::aux2
```

**4.1.2.15 avap**

```
real, dimension(:), allocatable gem_com::avap
```

**4.1.2.16 aven**

```
real gem_com::aven
```

**4.1.2.17 avewe**

```
real, dimension(:), allocatable gem_com::avewe
```

**4.1.2.18 avewi**

```
real, dimension(:,:), allocatable gem_com::avewi
```

**4.1.2.19 avptch**

```
real gem_com::avptch
```

#### 4.1.2.20 bcut

```
real gem_com::bcut
```

#### 4.1.2.21 bdgrzn

```
real, dimension(:,:), allocatable gem_com::bdgrzn
```

#### 4.1.2.22 bdgxcgy

```
real, dimension(:,:), allocatable gem_com::bdgxcgy
```

#### 4.1.2.23 begtm

```
real gem_com::begtm
```

#### 4.1.2.24 bmag

```
real, dimension(:,:), allocatable gem_com::bmag
```

#### 4.1.2.25 br0

```
real gem_com::br0
```

#### 4.1.2.26 c4

```
real gem_com::c4
```

#### 4.1.2.27 camp

```
complex, dimension(:,:), allocatable gem_com::camp
```

**4.1.2.28 campf**

complex, dimension(:, :), allocatable gem\_com::campf

**4.1.2.29 cfx**

real, dimension(:, :), allocatable gem\_com::cfx

**4.1.2.30 cfy**

real, dimension(:, :), allocatable gem\_com::cfy

**4.1.2.31 chie**

real, dimension(:, :), allocatable gem\_com::chie

**4.1.2.32 chii**

real, dimension(:, :), allocatable gem\_com::chii

**4.1.2.33 cnt**

integer gem\_com::cnt

**4.1.2.34 coefx**

real, dimension(:), allocatable gem\_com::coefx

**4.1.2.35 coefy**

real, dimension(:), allocatable gem\_com::coefy

**4.1.2.36 coefz**

```
real, dimension(:), allocatable gem_com::coefz
```

**4.1.2.37 contu**

```
real gem_com::contu
```

**4.1.2.38 cut**

```
real gem_com::cut
```

**4.1.2.39 dadz**

```
real, dimension(:,:,:), allocatable gem_com::dadz
```

**4.1.2.40 ddi**

```
real, dimension(:,:), allocatable gem_com::ddi
```

**4.1.2.41 delbx**

```
real, dimension(:,:,:), allocatable gem_com::delbx
```

**4.1.2.42 delby**

```
real, dimension(:,:,:), allocatable gem_com::delby
```

**4.1.2.43 deljm**

```
integer, dimension(:), allocatable gem_com::deljm
```

#### 4.1.2.44 deljp

integer, dimension(:), allocatable gem\_com::deljp

#### 4.1.2.45 delte

real, dimension(:,:,:), allocatable gem\_com::delte

#### 4.1.2.46 den

real, dimension(:,:,:), allocatable gem\_com::den

#### 4.1.2.47 den0

real, dimension(:,:,:), allocatable gem\_com::den0

#### 4.1.2.48 den0apa

real, dimension(:,:,:), allocatable gem\_com::den0apa

#### 4.1.2.49 dene

real, dimension(:,:,:), allocatable gem\_com::dene

#### 4.1.2.50 directory

character(len=\*) gem\_com::directory

#### 4.1.2.51 dnedt

real, dimension(:,:,:), allocatable gem\_com::dnedt



**4.1.2.52 dnidt**

real, dimension(:,:,:), allocatable gem\_com::dnidt

**4.1.2.53 dpdtk**

complex, dimension(1:8) gem\_com::dpdtk

**4.1.2.54 dpdz**

real, dimension(:,:,:), allocatable gem\_com::dpdz

**4.1.2.55 dphidt**

real, dimension(:,:,:), allocatable gem\_com::dphidt

**4.1.2.56 drhodt**

real, dimension(:,:,:), allocatable gem\_com::drhodt

**4.1.2.57 drhoidt**

real, dimension(:,:,:), allocatable gem\_com::drhoidt

**4.1.2.58 dt**

real gem\_com::dt

**4.1.2.59 dte**

real gem\_com::dte

#### 4.1.2.60 dti

```
real, dimension(:,:,:), allocatable gem_com::dti
```

#### 4.1.2.61 dx

```
real gem_com::dx
```

#### 4.1.2.62 dy

```
real gem_com::dy
```

#### 4.1.2.63 dz

```
real gem_com::dz
```

#### 4.1.2.64 e0

```
real gem_com::e0
```

#### 4.1.2.65 efl\_em

```
real, dimension(:,:,:), allocatable gem_com::efl_em
```

#### 4.1.2.66 efl\_es

```
real, dimension(:,:,:), allocatable gem_com::efl_es
```

#### 4.1.2.67 efle\_em

```
real, dimension(:,:), allocatable gem_com::efle_em
```

**4.1.2.68 efle\_es**

```
real, dimension(:, :), allocatable gem_com::efle_es
```

**4.1.2.69 eke**

```
real, dimension(:), allocatable gem_com::eke
```

**4.1.2.70 eki**

```
real, dimension(:, :), allocatable gem_com::eki
```

**4.1.2.71 emass**

```
real gem_com::emass
```

**4.1.2.72 encrit**

```
real gem_com::encrit
```

**4.1.2.73 endtm**

```
real gem_com::endtm
```

**4.1.2.74 eprs**

```
real gem_com::eprs
```

**4.1.2.75 ex**

```
real, dimension(:, :, :), allocatable gem_com::ex
```

**4.1.2.76 ey**

```
real, dimension(:, :, :), allocatable gem_com::ey
```

**4.1.2.77 ez**

```
real, dimension(:, :, :), allocatable gem_com::ez
```

**4.1.2.78 fe**

```
real, dimension(:), allocatable gem_com::fe
```

**4.1.2.79 fradi**

```
real gem_com::fradi
```

**4.1.2.80 frmax**

```
real gem_com::frmax
```

**4.1.2.81 ftrap**

```
real gem_com::ftrap
```

**4.1.2.82 gclr**

```
integer gem_com::gclr
```

**4.1.2.83 ggx**

```
real, dimension(:, :), allocatable gem_com::ggx
```

**4.1.2.84 ggxdgy**

```
real, dimension(:,:), allocatable gem_com::ggxdgy
```

**4.1.2.85 ggy2**

```
real, dimension(:,:), allocatable gem_com::ggy2
```

**4.1.2.86 glst**

```
integer gem_com::glst
```

**4.1.2.87 gn0e**

```
real, dimension(:), allocatable gem_com::gn0e
```

**4.1.2.88 gn0s**

```
real, dimension(:,:), allocatable gem_com::gn0s
```

**4.1.2.89 grid\_comm**

```
integer gem_com::grid_comm
```

**4.1.2.90 gt0e**

```
real, dimension(:), allocatable gem_com::gt0e
```

**4.1.2.91 gt0i**

```
real, dimension(:), allocatable gem_com::gt0i
```

**4.1.2.92 iadi**

```
integer gem_com::iadi
```

**4.1.2.93 iapbf**

```
integer gem_com::iapbf
```

**4.1.2.94 icorr**

```
integer gem_com::icorr
```

**4.1.2.95 icrs\_sec**

```
integer gem_com::icrs_sec
```

**4.1.2.96 idg**

```
integer gem_com::idg
```

**4.1.2.97 idnxt**

```
integer gem_com::idnxt
```

**4.1.2.98 idpbf**

```
integer gem_com::idpbf
```

**4.1.2.99 idprv**

```
integer gem_com::idprv
```

**4.1.2.100 ierr**

```
integer gem_com::ierr
```

**4.1.2.101 iflr**

```
integer gem_com::iflr
```

**4.1.2.102 ifluid**

```
integer gem_com::ifluid
```

**4.1.2.103 iflut**

```
integer gem_com::iflut
```

**4.1.2.104 ifskp**

```
integer gem_com::ifskp
```

**4.1.2.105 iget**

```
integer gem_com::iget
```

**4.1.2.106 im**

```
integer gem_com::im
```

**4.1.2.107 imovie**

```
integer gem_com::imovie =1000000
```

**4.1.2.108 imx**

```
integer gem_com::imx
```

**4.1.2.109 index**

```
real, dimension(:), allocatable gem_com::index
```

**4.1.2.110 ineq0**

```
integer gem_com::ineq0
```

**4.1.2.111 iorb**

```
integer gem_com::iorb
```

**4.1.2.112 ipara**

```
integer gem_com::ipara
```

**4.1.2.113 ipass**

```
real, dimension(:), allocatable gem_com::ipass
```

**4.1.2.114 ipg**

```
integer gem_com::ipg
```

**4.1.2.115 iphbf**

```
integer gem_com::iphbf
```



**4.1.2.116 ipred**

```
integer gem_com::ipred
```

**4.1.2.117 iput**

```
integer gem_com::iput
```

**4.1.2.118 iseed**

```
integer gem_com::iseed
```

**4.1.2.119 isft**

```
integer gem_com::isft
```

**4.1.2.120 isg**

```
real gem_com::isg
```

**4.1.2.121 isgnft**

```
integer, dimension(0:255) gem_com::isgnft
```

**4.1.2.122 ishift**

```
integer gem_com::ishift
```

**4.1.2.123 isiap**

```
integer gem_com::isiap
```

**4.1.2.124 ision**

```
integer gem_com::ision
```

**4.1.2.125 isphi**

```
integer gem_com::isphi
```

**4.1.2.126 isuni**

```
integer gem_com::isuni
```

**4.1.2.127 iu**

```
complex gem_com::iu
```

**4.1.2.128 izonal**

```
integer gem_com::izonal
```

**4.1.2.129 jac**

```
real, dimension(:, :), allocatable gem_com::jac
```

**4.1.2.130 jcnt**

```
integer gem_com::jcnt
```

**4.1.2.131 jcorr**

```
integer gem_com::jcorr
```

**4.1.2.132 jft**

integer, dimension(0:255) gem\_com::jft

**4.1.2.133 jion**

real, dimension(:,:,:), allocatable gem\_com::jion

**4.1.2.134 jionx**

real, dimension(:,:,:), allocatable gem\_com::jionx

**4.1.2.135 jiony**

real, dimension(:,:,:), allocatable gem\_com::jiony

**4.1.2.136 jm**

integer gem\_com::jm

**4.1.2.137 jmi**

integer, dimension(:,:), allocatable gem\_com::jmi

**4.1.2.138 jmn**

integer, dimension(:,:), allocatable gem\_com::jmn

**4.1.2.139 jmx**

integer gem\_com::jmx

**4.1.2.140 jpar**

```
real, dimension(:,:,:), allocatable gem_com::jpar
```

**4.1.2.141 jpex**

```
real, dimension(:,:,:), allocatable gem_com::jpex
```

**4.1.2.142 jpey**

```
real, dimension(:,:,:), allocatable gem_com::jpey
```

**4.1.2.143 jpl**

```
integer, dimension(:,:), allocatable gem_com::jpl
```

**4.1.2.144 jpn**

```
integer, dimension(:,:), allocatable gem_com::jpn
```

**4.1.2.145 jpred**

```
integer gem_com::jpred
```

**4.1.2.146 kapn**

```
real, dimension(:), allocatable gem_com::kapn
```

**4.1.2.147 kapt**

```
real, dimension(:), allocatable gem_com::kapt
```

**4.1.2.148 kent**

```
integer gem_com::kent
```

**4.1.2.149 ke**

```
real, dimension(:, :), allocatable gem_com::ke
```

**4.1.2.150 km**

```
integer gem_com::km
```

**4.1.2.151 kmx**

```
integer gem_com::kmx
```

**4.1.2.152 kxcut**

```
real gem_com::kxcut
```

**4.1.2.153 kycut**

```
real gem_com::kycut
```

**4.1.2.154 kzlook**

```
integer gem_com::kzlook
```

**4.1.2.155 lapa**

```
integer, dimension(1:8) gem_com::lapa
```

**4.1.2.156 last**

```
integer gem_com::last
```

**4.1.2.157 lasttm**

```
real gem_com::lasttm
```

**4.1.2.158 llk**

```
integer gem_com::llk
```

**4.1.2.159 lmode**

```
integer, dimension(:), allocatable gem_com::lmode
```

**4.1.2.160 lngbr**

```
integer gem_com::lngbr
```

**4.1.2.161 lr**

```
integer, dimension(:), allocatable gem_com::lr
```

**4.1.2.162 lr0**

```
real gem_com::lr0
```

**4.1.2.163 lx**

```
real gem_com::lx
```

**4.1.2.164 ly**

```
real gem_com::ly
```

**4.1.2.165 lz**

```
real gem_com::lz
```

**4.1.2.166 mapa**

```
integer, dimension(1:8) gem_com::mapa
```

**4.1.2.167 master**

```
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**4.1.2.168 mbeam**

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**4.1.2.262 rngbr**

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- real, dimension(:), allocatable [gtdgl](#)
- real, dimension(:), allocatable [gtdgrho](#)
- real, dimension(:), allocatable [dldr](#)
- real, dimension(:), allocatable [dldt](#)
- real, dimension(:), allocatable [drhdr](#)
- real, dimension(:), allocatable [drhdt](#)
- real, dimension(:), allocatable [dbdl](#)
- real, dimension(:), allocatable [dbdrho](#)
- real, dimension(:), allocatable [db2dl](#)
- real, dimension(:), allocatable [db2drho](#)
- real, dimension(:), allocatable [dbpsdl](#)
- real, dimension(:), allocatable [dipdr](#)
- real, dimension(:), allocatable [rdtemp](#)
- real [candyf0p](#)
- real, dimension(:), allocatable [candyd0](#)
- real, dimension(:), allocatable [candyd1](#)
- real, dimension(:), allocatable [candyd2](#)
- real, dimension(:), allocatable [candynus](#)
- real, dimension(:), allocatable [candynu1](#)
- real, dimension(:), allocatable [candydr](#)
- real, dimension(:), allocatable [psip2](#)
- real, dimension(:, :), allocatable [curvbz](#)
- real, dimension(:, :), allocatable [srbr](#)
- real, dimension(:, :), allocatable [srbz](#)
- real, dimension(:, :), allocatable [thbr](#)
- real, dimension(:, :), allocatable [thbz](#)
- real, dimension(:, :), allocatable [prsrbr](#)
- real, dimension(:, :), allocatable [prsrbz](#)
- real, dimension(:, :), allocatable [pthsrbr](#)
- real, dimension(:, :), allocatable [pthsrbz](#)
- real, dimension(:, :), allocatable [bdcrvb](#)
- real, dimension(:, :), allocatable [t0s](#)
- real, dimension(:, :), allocatable [xn0s](#)
- real, dimension(:, :), allocatable [capts](#)
- real, dimension(:, :), allocatable [capns](#)
- real, dimension(:, :), allocatable [vpars](#)
- real, dimension(:, :), allocatable [vparsp](#)
- real, dimension(:), allocatable [cn0s](#)
- real, dimension(:), allocatable [n0smax](#)
- real, dimension(:), allocatable [tgis](#)
- real [tge](#)
- character(len=32) [trflnm](#)

#### 4.2.1 Function/Subroutine Documentation

## 4.2.1.1 new\_equil()

```
subroutine gem_equil::new_equil ( )
```

Here is the caller graph for this function:



## 4.2.2 Variable Documentation

## 4.2.2.1 a

```
real gem_equil::a =180.0
```

## 4.2.2.2 bdcrvb

```
real, dimension(:,,:), allocatable gem_equil::bdcrvb
```

## 4.2.2.3 beta

```
real gem_equil::beta
```

## 4.2.2.4 betai

```
real gem_equil::betai
```

## 4.2.2.5 bfld

```
real, dimension(:,,:), allocatable gem_equil::bfld
```

#### 4.2.2.6 bps

```
real, dimension(:), allocatable gem_equil::bps
```

#### 4.2.2.7 bunit

```
real gem_equil::bunit
```

#### 4.2.2.8 candyd0

```
real, dimension(:), allocatable gem_equil::candyd0
```

#### 4.2.2.9 candyd1

```
real, dimension(:), allocatable gem_equil::candyd1
```

#### 4.2.2.10 candyd2

```
real, dimension(:), allocatable gem_equil::candyd2
```

#### 4.2.2.11 candydr

```
real, dimension(:), allocatable gem_equil::candydr
```

#### 4.2.2.12 candyf0p

```
real gem_equil::candyf0p
```

#### 4.2.2.13 candynu1

```
real, dimension(:), allocatable gem_equil::candynu1
```

**4.2.2.14 candynus**

```
real, dimension(:), allocatable gem_equil::candynus
```

**4.2.2.15 capnb**

```
real, dimension(:), allocatable gem_equil::capnb
```

**4.2.2.16 capnc**

```
real, dimension(:), allocatable gem_equil::capnc
```

**4.2.2.17 capne**

```
real, dimension(:), allocatable gem_equil::capne
```

**4.2.2.18 capni**

```
real, dimension(:), allocatable gem_equil::capni
```

**4.2.2.19 capns**

```
real, dimension(:,:), allocatable gem_equil::capns
```

**4.2.2.20 captb**

```
real, dimension(:), allocatable gem_equil::captb
```

**4.2.2.21 captc**

```
real, dimension(:), allocatable gem_equil::captc
```

**4.2.2.22 capte**

```
real, dimension(:), allocatable gem_equil::capte
```

**4.2.2.23 capti**

```
real, dimension(:), allocatable gem_equil::capti
```

**4.2.2.24 capts**

```
real, dimension(:, :), allocatable gem_equil::capts
```

**4.2.2.25 chgc**

```
real gem_equil::chgc =6
```

**4.2.2.26 chgi**

```
real gem_equil::chgi =1
```

**4.2.2.27 cn0b**

```
real gem_equil::cn0b
```

**4.2.2.28 cn0c**

```
real gem_equil::cn0c
```

**4.2.2.29 cn0e**

```
real gem_equil::cn0e
```

**4.2.2.30 cn0i**

```
real gem_equil::cn0i
```

**4.2.2.31 cn0s**

```
real, dimension(:), allocatable gem_equil::cn0s
```

**4.2.2.32 cosu**

```
real, dimension(:), allocatable gem_equil::cosu
```

**4.2.2.33 curvbz**

```
real, dimension(:,:), allocatable gem_equil::curvbz
```

**4.2.2.34 db2dl**

```
real, dimension(:), allocatable gem_equil::db2dl
```

**4.2.2.35 db2drho**

```
real, dimension(:), allocatable gem_equil::db2drho
```

**4.2.2.36 dbdl**

```
real, dimension(:), allocatable gem_equil::dbdl
```

**4.2.2.37 dbdr**

```
real, dimension(:,:), allocatable gem_equil::dbdr
```

**4.2.2.38 dbdrho**

```
real, dimension(:), allocatable gem_equil::dbdrho
```

**4.2.2.39 dbdth**

```
real, dimension(:, :), allocatable gem_equil::dbdth
```

**4.2.2.40 dbpsdl**

```
real, dimension(:), allocatable gem_equil::dbpsdl
```

**4.2.2.41 delra**

```
real gem_equil::delra
```

**4.2.2.42 delre**

```
real gem_equil::delre
```

**4.2.2.43 delri**

```
real gem_equil::delri
```

**4.2.2.44 delrn**

```
real gem_equil::delrn
```

**4.2.2.45 delz**

```
real gem_equil::delz
```



**4.2.2.46 dipdr**

```
real, dimension(:), allocatable gem_equil::dipdr
```

**4.2.2.47 dldr**

```
real, dimension(:), allocatable gem_equil::dldr
```

**4.2.2.48 dldt**

```
real, dimension(:), allocatable gem_equil::dldt
```

**4.2.2.49 dldth**

```
real, dimension(:), allocatable gem_equil::dldth
```

**4.2.2.50 dqhdr**

```
real, dimension(:,:), allocatable gem_equil::dqhdr
```

**4.2.2.51 dr**

```
real gem_equil::dr
```

**4.2.2.52 drhdr**

```
real, dimension(:), allocatable gem_equil::drhdr
```

**4.2.2.53 drhdt**

```
real, dimension(:), allocatable gem_equil::drhdt
```

**4.2.2.54 dth**

```
real gem_equil::dth
```

**4.2.2.55 dudl**

```
real, dimension(:), allocatable gem_equil::dudl
```

**4.2.2.56 dydr**

```
real, dimension(:, :), allocatable gem_equil::dydr
```

**4.2.2.57 dzdl**

```
real, dimension(:), allocatable gem_equil::dzdl
```

**4.2.2.58 eadj**

```
real gem_equil::eadj
```

**4.2.2.59 eldu**

```
integer gem_equil::eldu =0
```

**4.2.2.60 elon**

```
real, dimension(:), allocatable gem_equil::elon
```

**4.2.2.61 elon0**

```
real gem_equil::elon0 =1.0
```

**4.2.2.62 elonp0**

```
real gem_equil::elonp0 =0.
```

**4.2.2.63 er**

```
real, dimension(:), allocatable gem_equil::er
```

**4.2.2.64 er0**

```
real gem_equil::er0 =0.
```

**4.2.2.65 erp**

```
real gem_equil::erp =0.01
```

**4.2.2.66 eru**

```
real gem_equil::eru
```

**4.2.2.67 f**

```
real, dimension(:), allocatable gem_equil::f
```

**4.2.2.68 f0**

```
real gem_equil::f0
```

**4.2.2.69 f0p**

```
real gem_equil::f0p
```

#### 4.2.2.70 frequ

```
real gem_equil::frequ
```

#### 4.2.2.71 gamma\_e

```
real gem_equil::gamma_e
```

#### 4.2.2.72 gr

```
real, dimension(:,:), allocatable gem_equil::gr
```

#### 4.2.2.73 grcgt

```
real, dimension(:,:), allocatable gem_equil::grcgt
```

#### 4.2.2.74 grdgl

```
real, dimension(:), allocatable gem_equil::grdgl
```

#### 4.2.2.75 grdgrho

```
real, dimension(:), allocatable gem_equil::grdgrho
```

#### 4.2.2.76 grdgt

```
real, dimension(:,:), allocatable gem_equil::grdgt
```

#### 4.2.2.77 grr

```
real, dimension(:), allocatable gem_equil::grr
```

**4.2.2.78 grz**

real, dimension(:), allocatable gem\_equil::grz

**4.2.2.79 gtdgl**

real, dimension(:), allocatable gem\_equil::gtdgl

**4.2.2.80 gtdgrho**

real, dimension(:), allocatable gem\_equil::gtdgrho

**4.2.2.81 gth**

real, dimension(:, :), allocatable gem\_equil::gth

**4.2.2.82 gtr**

real, dimension(:), allocatable gem\_equil::gtr

**4.2.2.83 gtz**

real, dimension(:), allocatable gem\_equil::gtz

**4.2.2.84 gxdgy**

real, dimension(:, :), allocatable gem\_equil::gxdgy

**4.2.2.85 hght**

real, dimension(:, :), allocatable gem\_equil::hght

**4.2.2.86 ibase**

```
integer gem_equil::ibase
```

**4.2.2.87 ibunit**

```
integer gem_equil::ibunit
```

**4.2.2.88 icandy**

```
integer gem_equil::icandy =1
```

**4.2.2.89 idiag**

```
integer gem_equil::idiag =0
```

**4.2.2.90 ildu**

```
integer gem_equil::ildu =0
```

**4.2.2.91 iperi**

```
integer gem_equil::iperi
```

**4.2.2.92 iperidf**

```
integer gem_equil::iperidf
```

**4.2.2.93 isprime**

```
integer gem_equil::isprime =0
```

**4.2.2.94 itube**

```
integer gem_equil::itube
```

**4.2.2.95 jacmax**

```
real gem_equil::jacmax
```

**4.2.2.96 jacob**

```
real, dimension(:, :), allocatable gem_equil::jacob
```

**4.2.2.97 jacoba**

```
real, dimension(:), allocatable gem_equil::jacoba
```

**4.2.2.98 jfn**

```
real, dimension(:), allocatable gem_equil::jfn
```

**4.2.2.99 lxa**

```
real gem_equil::lxa
```

**4.2.2.100 lymult**

```
real gem_equil::lymult
```

**4.2.2.101 mach**

```
real gem_equil::mach
```

**4.2.2.102 mcmp**

```
real gem_equil::mcmp =12
```

**4.2.2.103 mimp**

```
real gem_equil::mimp =2
```

**4.2.2.104 n0bmax**

```
real gem_equil::n0bmax
```

**4.2.2.105 n0cmax**

```
real gem_equil::n0cmax
```

**4.2.2.106 n0emax**

```
real gem_equil::n0emax
```

**4.2.2.107 n0imax**

```
real gem_equil::n0imax
```

**4.2.2.108 n0smax**

```
real, dimension(:), allocatable gem_equil::n0smax
```

**4.2.2.109 ncne**

```
real gem_equil::ncne
```



**4.2.2.110 nr**

```
integer gem_equil::nr =256
```

**4.2.2.111 nr2**

```
integer gem_equil::nr2 =150
```

**4.2.2.112 ntheta**

```
integer gem_equil::ntheta =100
```

**4.2.2.113 nuacs**

```
real gem_equil::nuacs
```

**4.2.2.114 nue0**

```
real, dimension(:), allocatable gem_equil::nue0
```

**4.2.2.115 phinc**

```
real, dimension(:), allocatable gem_equil::phinc
```

**4.2.2.116 phincp**

```
real, dimension(:), allocatable gem_equil::phincp
```

**4.2.2.117 prsrbr**

```
real, dimension(:, :), allocatable gem_equil::prsrbr
```

**4.2.2.118 prsrbz**

```
real, dimension(:, :), allocatable gem_equil::prsrbz
```

**4.2.2.119 psi**

```
real, dimension(:), allocatable gem_equil::psi
```

**4.2.2.120 psip**

```
real, dimension(:), allocatable gem_equil::psip
```

**4.2.2.121 psip2**

```
real, dimension(:), allocatable gem_equil::psip2
```

**4.2.2.122 pthsrbr**

```
real, dimension(:, :), allocatable gem_equil::pthsrbr
```

**4.2.2.123 pthsrbz**

```
real, dimension(:, :), allocatable gem_equil::pthsrbz
```

**4.2.2.124 q0**

```
real gem_equil::q0 =1.4
```

**4.2.2.125 q0abs**

```
real gem_equil::q0abs
```

**4.2.2.126 q0p**

```
real gem_equil::q0p =0.006
```

**4.2.2.127 qhat**

```
real, dimension(:,,:), allocatable gem_equil::qhat
```

**4.2.2.128 r0**

```
real gem_equil::r0
```

**4.2.2.129 r0a**

```
real gem_equil::r0a
```

**4.2.2.130 radius**

```
real, dimension(:,,:), allocatable gem_equil::radius
```

**4.2.2.131 rdtemp**

```
real, dimension(:), allocatable gem_equil::rdtemp
```

**4.2.2.132 rhoia**

```
real gem_equil::rhoia
```

**4.2.2.133 rin**

```
real gem_equil::rin
```

**4.2.2.134 rina**

```
real gem_equil::rina
```

**4.2.2.135 rmaj**

```
real, dimension(:), allocatable gem_equil::rmaj
```

**4.2.2.136 rmaj0**

```
real gem_equil::rmaj0 =500.0
```

**4.2.2.137 rmaj0p**

```
real gem_equil::rmaj0p =-0.0
```

**4.2.2.138 rmajp**

```
real, dimension(:), allocatable gem_equil::rmajp
```

**4.2.2.139 rout**

```
real gem_equil::rout
```

**4.2.2.140 routa**

```
real gem_equil::routa
```

**4.2.2.141 rovera**

```
real gem_equil::rovera
```

**4.2.2.142 rovlnc**

```
real gem_equil::rovlnc
```

**4.2.2.143 rovlne**

```
real gem_equil::rovlne
```

**4.2.2.144 rovlni**

```
real gem_equil::rovlni
```

**4.2.2.145 rovltc**

```
real gem_equil::rovltc
```

**4.2.2.146 rovlte**

```
real gem_equil::rovlte
```

**4.2.2.147 rovlti**

```
real gem_equil::rovlti
```

**4.2.2.148 selon**

```
real, dimension(:), allocatable gem_equil::selon
```

**4.2.2.149 selon0**

```
real gem_equil::selon0 =0.0
```

**4.2.2.150 sf**

```
real, dimension(:), allocatable gem_equil::sf
```

**4.2.2.151 shat0**

```
real gem_equil::shat0
```

**4.2.2.152 sinu**

```
real, dimension(:), allocatable gem_equil::sinu
```

**4.2.2.153 srbr**

```
real, dimension(:, :), allocatable gem_equil::srbr
```

**4.2.2.154 srbz**

```
real, dimension(:, :), allocatable gem_equil::srbz
```

**4.2.2.155 stria**

```
real, dimension(:), allocatable gem_equil::stria
```

**4.2.2.156 stria0**

```
real gem_equil::stria0 =0.0
```

**4.2.2.157 t0b**

```
real, dimension(:), allocatable gem_equil::t0b
```

**4.2.2.158 t0bp**

real, dimension(:), allocatable gem\_equil::t0bp

**4.2.2.159 t0c**

real, dimension(:), allocatable gem\_equil::t0c

**4.2.2.160 t0cp**

real, dimension(:), allocatable gem\_equil::t0cp

**4.2.2.161 t0e**

real, dimension(:), allocatable gem\_equil::t0e

**4.2.2.162 t0ep**

real, dimension(:), allocatable gem\_equil::t0ep

**4.2.2.163 t0i**

real, dimension(:), allocatable gem\_equil::t0i

**4.2.2.164 t0ip**

real, dimension(:), allocatable gem\_equil::t0ip

**4.2.2.165 t0s**

real, dimension(:, :), allocatable gem\_equil::t0s

**4.2.2.166 tcti**

```
real gem_equil::tcti
```

**4.2.2.167 teti**

```
real gem_equil::teti
```

**4.2.2.168 tge**

```
real gem_equil::tge
```

**4.2.2.169 tgis**

```
real, dimension(:), allocatable gem_equil::tgis
```

**4.2.2.170 thbr**

```
real, dimension(:,:), allocatable gem_equil::thbr
```

**4.2.2.171 thbz**

```
real, dimension(:,:), allocatable gem_equil::thbz
```

**4.2.2.172 thflx**

```
real, dimension(:,:), allocatable gem_equil::thflx
```

**4.2.2.173 thfnz**

```
real, dimension(:), allocatable gem_equil::thfnz
```



**4.2.2.174 tir0**

```
real gem_equil::tir0
```

**4.2.2.175 trflnm**

```
character(len=32) gem_equil::trflnm
```

**4.2.2.176 tria**

```
real, dimension(:), allocatable gem_equil::tria
```

**4.2.2.177 tria0**

```
real gem_equil::tria0 =0.0
```

**4.2.2.178 triap0**

```
real gem_equil::triap0 =0.
```

**4.2.2.179 upari**

```
real, dimension(:), allocatable gem_equil::upari
```

**4.2.2.180 vparb**

```
real, dimension(:), allocatable gem_equil::vparb
```

**4.2.2.181 vparbp**

```
real, dimension(:), allocatable gem_equil::vparbp
```

**4.2.2.182 vparc**

```
real, dimension(:), allocatable gem_equil::vparc
```

**4.2.2.183 vparcp**

```
real, dimension(:), allocatable gem_equil::vparcp
```

**4.2.2.184 vpari**

```
real, dimension(:), allocatable gem_equil::vpari
```

**4.2.2.185 vparip**

```
real, dimension(:), allocatable gem_equil::vparip
```

**4.2.2.186 vpars**

```
real, dimension(:,:), allocatable gem_equil::vpars
```

**4.2.2.187 vparsp**

```
real, dimension(:,:), allocatable gem_equil::vparsp
```

**4.2.2.188 vu**

```
real gem_equil::vu
```

**4.2.2.189 xn0b**

```
real, dimension(:), allocatable gem_equil::xn0b
```

**4.2.2.190 xn0bp**

real, dimension(:), allocatable gem\_equil::xn0bp

**4.2.2.191 xn0c**

real, dimension(:), allocatable gem\_equil::xn0c

**4.2.2.192 xn0cp**

real, dimension(:), allocatable gem\_equil::xn0cp

**4.2.2.193 xn0e**

real, dimension(:), allocatable gem\_equil::xn0e

**4.2.2.194 xn0ep**

real, dimension(:), allocatable gem\_equil::xn0ep

**4.2.2.195 xn0i**

real, dimension(:), allocatable gem\_equil::xn0i

**4.2.2.196 xn0ip**

real, dimension(:), allocatable gem\_equil::xn0ip

**4.2.2.197 xn0s**

real, dimension(:, :), allocatable gem\_equil::xn0s

**4.2.2.198 xnir0**

```
real gem_equil::xnir0
```

**4.2.2.199 xu**

```
real gem_equil::xu
```

**4.2.2.200 yfn**

```
real, dimension(:,:), allocatable gem_equil::yfn
```

**4.2.2.201 zeff**

```
real, dimension(:), allocatable gem_equil::zeff
```

**4.2.2.202 zfnth**

```
real, dimension(:), allocatable gem_equil::zfnth
```

**4.3 gem\_fft\_wrapper Module Reference****Functions/Subroutines**

- subroutine [ccfft](#) (c, isign, n, scale, x, table, work, isys)
- subroutine [dsinf](#) (init, x, inc1x, inc2x, inc1y, inc2y, n, m, scale, aux1, naux1, aux2, naux2)

**Variables**

- real, dimension(20000) [coefxp](#)
- real, dimension(20000) [coefyp](#)
- real, dimension(20000) [coefzp](#)
- real, dimension(20000) [coefxn](#)
- real, dimension(20000) [coefyn](#)
- real, dimension(20000) [coefzn](#)
- real, dimension(20000) [workxx](#)
- real, dimension(20000) [workyy](#)
- real, dimension(20000) [workzz](#)
- real, dimension(50000) [wsave](#)

### 4.3.1 Function/Subroutine Documentation

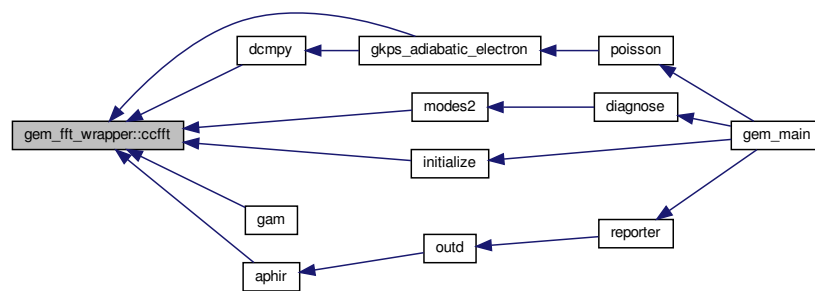
#### 4.3.1.1 ccfft()

```

subroutine gem_fft_wrapper::ccfft (
    character c,
    integer isign,
    integer n,
    real scale,
    complex, dimension(0:) x,
    real, dimension(:) table,
    real, dimension(:) work,
    integer isys )

```

Here is the caller graph for this function:



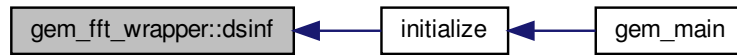
#### 4.3.1.2 dsinf()

```

subroutine gem_fft_wrapper::dsinf (
    integer init,
    real, dimension(:) x,
    integer inc1x,
    integer inc2x,
    integer inc1y,
    integer inc2y,
    integer n,
    integer m,
    real scale,
    real, dimension(:) aux1,
    integer naux1,
    real, dimension(:) aux2,
    integer naux2 )

```

Here is the caller graph for this function:



## 4.3.2 Variable Documentation

### 4.3.2.1 coefxn

`real, dimension(20000) gem_fft_wrapper::coefxn`

### 4.3.2.2 coefxp

`real, dimension(20000) gem_fft_wrapper::coefxp`

### 4.3.2.3 coefyn

`real, dimension(20000) gem_fft_wrapper::coefyn`

### 4.3.2.4 coefyp

`real, dimension(20000) gem_fft_wrapper::coefyp`

### 4.3.2.5 coefzn

`real, dimension(20000) gem_fft_wrapper::coefzn`

#### 4.3.2.6 coefzp

real, dimension(20000) gem\_fft\_wrapper::coefzp

#### 4.3.2.7 workxx

real, dimension(20000) gem\_fft\_wrapper::workxx

#### 4.3.2.8 workyy

real, dimension(20000) gem\_fft\_wrapper::workyy

#### 4.3.2.9 workzz

real, dimension(20000) gem\_fft\_wrapper::workzz

#### 4.3.2.10 wsave

real, dimension(50000) gem\_fft\_wrapper::wsave

## 4.4 gem\_pputil Module Reference

### Data Types

- interface [disp](#)
- interface [guard](#)
- interface [ppcfft2](#)
- interface [ppmax](#)
- interface [ppmin](#)
- interface [ppsum](#)
- interface [pptransp](#)

## Functions/Subroutines

- subroutine, public [init\\_pmove](#) (xp, np, lz, ierr)
- subroutine, public [pmove](#) (xp, np\_old, np\_new, ierr)
- subroutine, public [end\\_pmove](#) (ierr)
- subroutine [dispi](#) (iarr, string)
- subroutine [disp2i](#) (arr, string)
- subroutine [dispr](#) (arr, string)
- subroutine [disp2r](#) (arr, string)
- subroutine, public [ppinit](#) (idproc, nproc, ntube, com1, com2)
- subroutine, public [ppexit](#)
- subroutine [ppsum\\_r](#) (f)
- subroutine [ppsum\\_ra](#) (f)
- subroutine [ppsum\\_i](#) (f)
- subroutine [ppsum\\_ia](#) (f)
- subroutine [ppmax\\_r](#) (f)
- subroutine [ppmax\\_ra](#) (f)
- subroutine [ppmax\\_i](#) (f)
- subroutine [ppmax\\_ia](#) (f)
- subroutine [ppmin\\_r](#) (f)
- subroutine [ppmin\\_ra](#) (f)
- subroutine [ppmin\\_i](#) (f)
- subroutine [ppmin\\_ia](#) (f)
- subroutine [pptransp\\_c](#) (a, b)
- subroutine [pptransp\\_r](#) (a, b)
- subroutine [pptransp\\_i](#) (a, b)
- subroutine [pptransp2\\_c](#) (a, b)
- subroutine [pptransp2\\_r](#) (a, b)
- subroutine [pptransp2\\_i](#) (a, b)
- subroutine, public [timera](#) (icntrl, string, eltime)
- subroutine [guard2](#) (f, nidbas, flag)
- subroutine [guard3](#) (f, nidbas, flag)
- subroutine [ppcfft2\\_2d](#) (isign, f, g)
- subroutine [ppcfft2\\_3d](#) (isign, f, g)

## Variables

- integer, save [me](#)
- integer, save [nvp](#)
- integer, save [npp](#)
- integer, save [gclr](#)
- integer, save [tclr](#)
- integer, save [pmove\\_tag](#) =0
- integer, save [tube\\_comm](#)
- integer, save [grid\\_comm](#)
- real, dimension(:), allocatable, save [s\\_buf](#)
- real, dimension(:), allocatable, save [r\\_buf](#)
- integer, dimension(:), allocatable, save [s\\_counts](#)
- integer, dimension(:), allocatable, save [s\\_displ](#)
- integer, dimension(:), allocatable, save [r\\_counts](#)
- integer, dimension(:), allocatable, save [r\\_displ](#)
- integer, dimension(:), allocatable, save [ipsend](#)
- integer, dimension(:), allocatable, save [iphole](#)



## 4.4.1 Function/Subroutine Documentation

### 4.4.1.1 disp2i()

```
subroutine gem_pputil::disp2i (  
    integer, dimension(:,:), intent(in) arr,  
    character(len=*), intent(in) string )
```

### 4.4.1.2 disp2r()

```
subroutine gem_pputil::disp2r (  
    real, dimension(:,:), intent(in) arr,  
    character(len=*), intent(in) string )
```

### 4.4.1.3 dispi()

```
subroutine gem_pputil::dispi (  
    integer, dimension(:), intent(in) iarr,  
    character(len=*), intent(in) string )
```

### 4.4.1.4 dispr()

```
subroutine gem_pputil::dispr (  
    real, dimension(:), intent(in) arr,  
    character(len=*), intent(in) string )
```

### 4.4.1.5 end\_pmove()

```
subroutine, public gem_pputil::end_pmove (  
    integer, intent(out) ierr )
```

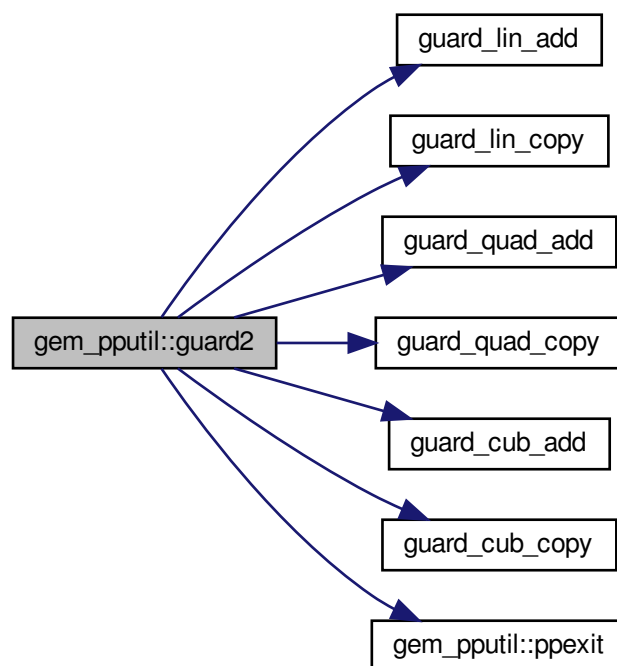
## 4.4.1.6 guard2()

```

subroutine gem_pputil::guard2 (
    real, dimension(:, :, :), intent(inout) f,
    integer, intent(in) nidbas,
    integer, intent(in) flag )

```

Here is the call graph for this function:



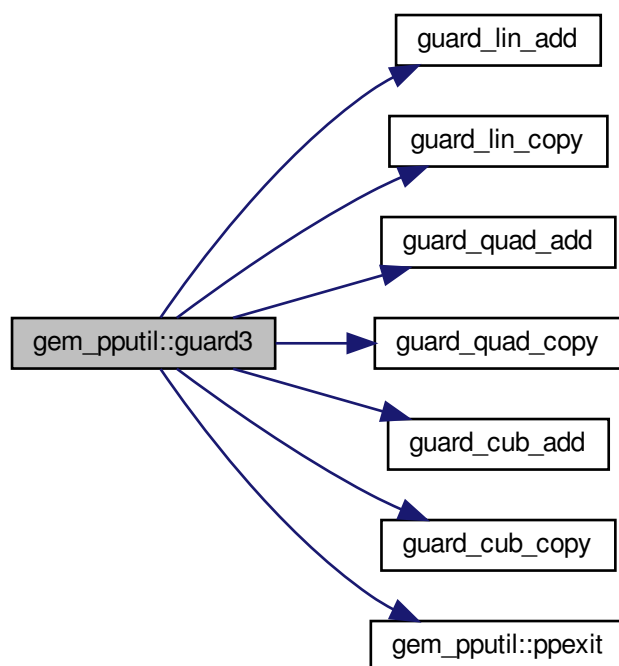
## 4.4.1.7 guard3()

```

subroutine gem_pputil::guard3 (
    real, dimension(:, :, :, :), intent(inout) f,
    integer, intent(in) nidbas,
    integer, intent(in) flag ) [private]

```

Here is the call graph for this function:



#### 4.4.1.8 init\_pmove()

```

subroutine, public gem_pputil::init_pmove (
    real, dimension(:), intent(in) xp,
    integer, intent(in) np,
    real, intent(in) lz,
    integer, intent(out) ierr )
  
```

#### 4.4.1.9 pmove()

```

subroutine, public gem_pputil::pmove (
    real, dimension(:), intent(inout) xp,
    integer, intent(in) np_old,
    integer, intent(out) np_new,
    integer, intent(out) ierr )
  
```

## 4.4.1.10 ppcfft2\_2d()

```

subroutine gem_pputil::ppcfft2_2d (
    integer, intent(in) isign,
    complex, dimension (:,:), intent(inout) f,
    complex, dimension (:,:), intent(out) g ) [private]

```

## 4.4.1.11 ppcfft2\_3d()

```

subroutine gem_pputil::ppcfft2_3d (
    integer, intent(in) isign,
    complex, dimension (:,:,), intent(inout) f,
    complex, dimension (:,:,), intent(out) g ) [private]

```

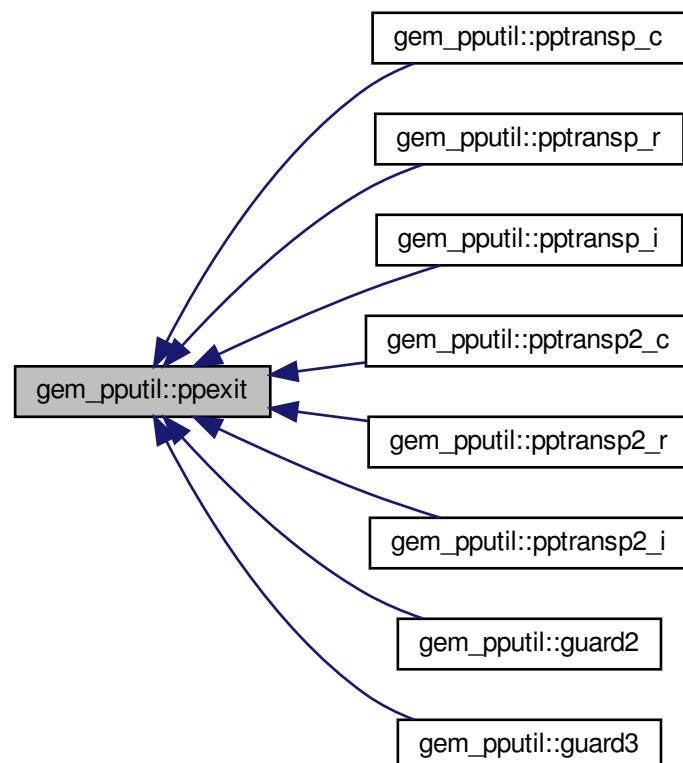
## 4.4.1.12 ppexit()

```

subroutine, public gem_pputil::ppexit ( )

```

Here is the caller graph for this function:



#### 4.4.1.13 ppinit()

```
subroutine, public gem_pputil::ppinit (  
    integer, intent(out) idproc,  
    integer, intent(out) nproc,  
    integer, intent(in) ntube,  
    integer, intent(out) com1,  
    integer, intent(out) com2 )
```

#### 4.4.1.14 ppmax\_i()

```
subroutine gem_pputil::ppmax_i (  
    integer, intent(inout) f )
```

#### 4.4.1.15 ppmax\_ia()

```
subroutine gem_pputil::ppmax_ia (  
    integer, dimension (:), intent(inout) f )
```

#### 4.4.1.16 ppmax\_r()

```
subroutine gem_pputil::ppmax_r (  
    real, intent(inout) f )
```

#### 4.4.1.17 ppmax\_ra()

```
subroutine gem_pputil::ppmax_ra (  
    real, dimension (:), intent(inout) f )
```

#### 4.4.1.18 ppmin\_i()

```
subroutine gem_pputil::ppmin_i (  
    integer, intent(inout) f )
```

#### 4.4.1.19 ppmin\_ia()

```
subroutine gem_pputil::ppmin_ia (  
    integer, dimension (:), intent(inout) f )
```

#### 4.4.1.20 ppmin\_r()

```
subroutine gem_pputil::ppmin_r (  
    real, intent(inout) f )
```

#### 4.4.1.21 ppmin\_ra()

```
subroutine gem_pputil::ppmin_ra (  
    real, dimension (:), intent(inout) f )
```

#### 4.4.1.22 ppsum\_i()

```
subroutine gem_pputil::ppsum_i (  
    integer, intent(inout) f )
```

#### 4.4.1.23 ppsum\_ia()

```
subroutine gem_pputil::ppsum_ia (  
    integer, dimension (:), intent(inout) f )
```

#### 4.4.1.24 ppsum\_r()

```
subroutine gem_pputil::ppsum_r (  
    real, intent(inout) f ) [private]
```

#### 4.4.1.25 ppsum\_ra()

```
subroutine gem_pputil::ppsum_ra (  
    real, dimension (:), intent(inout) f )
```

## 4.4.1.26 pptransp2\_c()

```
subroutine gem_pputil::pptransp2_c (  
    complex, dimension(:,:,:), intent(in) a,  
    complex, dimension(:,:,:), intent(out) b )
```

Here is the call graph for this function:



## 4.4.1.27 pptransp2\_i()

```
subroutine gem_pputil::pptransp2_i (  
    integer, dimension(:,:,:), intent(in) a,  
    integer, dimension(:,:,:), intent(out) b )
```

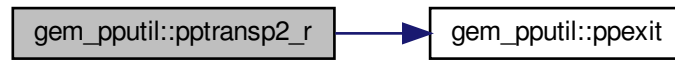
Here is the call graph for this function:



## 4.4.1.28 pptransp2\_r()

```
subroutine gem_pputil::pptransp2_r (  
    real, dimension(:,:,:), intent(in) a,  
    real, dimension(:,:,:), intent(out) b )
```

Here is the call graph for this function:



#### 4.4.1.29 pptransp\_c()

```
subroutine gem_pputil::pptransp_c (  
    complex, dimension(:, :), intent(in) a,  
    complex, dimension(:, :), intent(out) b )
```

Here is the call graph for this function:



#### 4.4.1.30 pptransp\_i()

```
subroutine gem_pputil::pptransp_i (  
    integer, dimension(:, :), intent(in) a,  
    integer, dimension(:, :), intent(out) b )
```

Here is the call graph for this function:





#### 4.4.1.31 pptransp\_r()

```
subroutine gem_pputil::pptransp_r (  
    real, dimension(:, :), intent(in) a,  
    real, dimension(:, :), intent(out) b )
```

Here is the call graph for this function:



#### 4.4.1.32 timera()

```
subroutine, public gem_pputil::timera (  
    integer, intent(in) icntrl,  
    character(len=*), intent(in) string,  
    real, intent(out), optional eltime )
```

### 4.4.2 Variable Documentation

#### 4.4.2.1 gclr

```
integer, save gem_pputil::gclr [private]
```

#### 4.4.2.2 grid\_comm

```
integer, save gem_pputil::grid_comm [private]
```

#### 4.4.2.3 iphole

```
integer, dimension(:), allocatable, save gem_pputil::iphole [private]
```

#### 4.4.2.4 ipsend

```
integer, dimension(:), allocatable, save gem_pputil::ipsend [private]
```

#### 4.4.2.5 me

```
integer, save gem_pputil::me [private]
```

#### 4.4.2.6 npp

```
integer, save gem_pputil::npp [private]
```

#### 4.4.2.7 nvp

```
integer, save gem_pputil::nvp [private]
```

#### 4.4.2.8 pmove\_tag

```
integer, save gem_pputil::pmove_tag =0 [private]
```

#### 4.4.2.9 r\_buf

```
real, dimension(:), allocatable, save gem_pputil::r_buf [private]
```

#### 4.4.2.10 r\_counts

```
integer, dimension(:), allocatable, save gem_pputil::r_counts [private]
```

#### 4.4.2.11 r\_displ

```
integer, dimension(:), allocatable, save gem_pputil::r_displ [private]
```

**4.4.2.12 s\_buf**

real, dimension(:), allocatable, save gem\_pputil::s\_buf [private]

**4.4.2.13 s\_counts**

integer, dimension(:), allocatable, save gem\_pputil::s\_counts [private]

**4.4.2.14 s\_displ**

integer, dimension(:), allocatable, save gem\_pputil::s\_displ [private]

**4.4.2.15 tclr**

integer, save gem\_pputil::tclr [private]

**4.4.2.16 tube\_comm**

integer, save gem\_pputil::tube\_comm [private]



## Chapter 5

# Data Type Documentation

### 5.1 gem\_pputil::disp Interface Reference

#### Private Member Functions

- subroutine [dispi](#) (iarr, string)
- subroutine [dispr](#) (arr, string)
- subroutine [disp2i](#) (arr, string)
- subroutine [disp2r](#) (arr, string)

#### 5.1.1 Member Function/Subroutine Documentation

##### 5.1.1.1 disp2i()

```
subroutine gem_pputil::disp::disp2i (  
    integer, dimension(:, :), intent(in) arr,  
    character(len=*), intent(in) string ) [private]
```

##### 5.1.1.2 disp2r()

```
subroutine gem_pputil::disp::disp2r (  
    real, dimension(:, :), intent(in) arr,  
    character(len=*), intent(in) string ) [private]
```

### 5.1.1.3 `dispi()`

```
subroutine gem_pputil::disp::dispi (
    integer, dimension(:), intent(in) iarr,
    character(len=*), intent(in) string ) [private]
```

### 5.1.1.4 `dispr()`

```
subroutine gem_pputil::disp::dispr (
    real, dimension(:), intent(in) arr,
    character(len=*), intent(in) string ) [private]
```

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

- [gem\\_pputil.f90](#)

## 5.2 `gem_com::en3` Interface Reference

### Public Member Functions

- real function [en3](#) (s)

### 5.2.1 Constructor & Destructor Documentation

#### 5.2.1.1 `en3()`

```
real function gem_com::en3::en3 (
    real s )
```

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

- [gem\\_com.f90](#)

## 5.3 `gem_pputil::guard` Interface Reference

### Private Member Functions

- subroutine [guard2](#) (f, nidbas, flag)
- subroutine [guard3](#) (f, nidbas, flag)

### 5.3.1 Member Function/Subroutine Documentation

#### 5.3.1.1 guard2()

```
subroutine gem_pputil::guard::guard2 (
    real, dimension(:, :), intent(inout) f,
    integer, intent(in) nidbas,
    integer, intent(in) flag ) [private]
```

#### 5.3.1.2 guard3()

```
subroutine gem_pputil::guard::guard3 (
    real, dimension(:, :, :), intent(inout) f,
    integer, intent(in) nidbas,
    integer, intent(in) flag ) [private]
```

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

- [gem\\_pputil.f90](#)

## 5.4 gem\_pputil::ppcfft2 Interface Reference

### Private Member Functions

- subroutine [ppcfft2\\_2d](#) (isign, f, g)
- subroutine [ppcfft2\\_3d](#) (isign, f, g)

### 5.4.1 Member Function/Subroutine Documentation

#### 5.4.1.1 ppcfft2\_2d()

```
subroutine gem_pputil::ppcfft2::ppcfft2_2d (
    integer, intent(in) isign,
    complex, dimension (:, :), intent(inout) f,
    complex, dimension (:, :), intent(out) g ) [private]
```

#### 5.4.1.2 ppcfft2\_3d()

```
subroutine gem_pputil::ppcfft2::ppcfft2_3d (
    integer, intent(in) isign,
    complex, dimension (:,:,), intent(inout) f,
    complex, dimension (:,:,), intent(out) g ) [private]
```

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

- [gem\\_pputil.f90](#)

## 5.5 gem\_pputil::ppmax Interface Reference

### Private Member Functions

- subroutine [ppmax\\_r](#) (f)
- subroutine [ppmax\\_ra](#) (f)
- subroutine [ppmax\\_i](#) (f)
- subroutine [ppmax\\_ia](#) (f)

### 5.5.1 Member Function/Subroutine Documentation

#### 5.5.1.1 ppmax\_i()

```
subroutine gem_pputil::ppmax::ppmax_i (
    integer, intent(inout) f ) [private]
```

#### 5.5.1.2 ppmax\_ia()

```
subroutine gem_pputil::ppmax::ppmax_ia (
    integer, dimension (:), intent(inout) f ) [private]
```

#### 5.5.1.3 ppmax\_r()

```
subroutine gem_pputil::ppmax::ppmax_r (
    real, intent(inout) f ) [private]
```



## 5.5.1.4 ppmax\_ra()

```
subroutine gem_pputil::ppmax::ppmax_ra (
    real, dimension (:), intent(inout) f ) [private]
```

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

- [gem\\_pputil.f90](#)

## 5.6 gem\_pputil::ppmin Interface Reference

## Private Member Functions

- subroutine [ppmin\\_r](#) (f)
- subroutine [ppmin\\_ra](#) (f)
- subroutine [ppmin\\_i](#) (f)
- subroutine [ppmin\\_ia](#) (f)

## 5.6.1 Member Function/Subroutine Documentation

## 5.6.1.1 ppmin\_i()

```
subroutine gem_pputil::ppmin::ppmin_i (
    integer, intent(inout) f ) [private]
```

## 5.6.1.2 ppmin\_ia()

```
subroutine gem_pputil::ppmin::ppmin_ia (
    integer, dimension (:), intent(inout) f ) [private]
```

## 5.6.1.3 ppmin\_r()

```
subroutine gem_pputil::ppmin::ppmin_r (
    real, intent(inout) f ) [private]
```

#### 5.6.1.4 ppmin\_ra()

```
subroutine gem_pputil::ppmin::ppmin_ra (  
    real, dimension (:), intent(inout) f ) [private]
```

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

- [gem\\_pputil.f90](#)

## 5.7 gem\_pputil::ppsum Interface Reference

### Private Member Functions

- subroutine [ppsum\\_r](#) (f)
- subroutine [ppsum\\_ra](#) (f)
- subroutine [ppsum\\_i](#) (f)
- subroutine [ppsum\\_ia](#) (f)

### 5.7.1 Member Function/Subroutine Documentation

#### 5.7.1.1 ppsum\_i()

```
subroutine gem_pputil::ppsum::ppsum_i (  
    integer, intent(inout) f ) [private]
```

#### 5.7.1.2 ppsum\_ia()

```
subroutine gem_pputil::ppsum::ppsum_ia (  
    integer, dimension (:), intent(inout) f ) [private]
```

#### 5.7.1.3 ppsum\_r()

```
subroutine gem_pputil::ppsum::ppsum_r (  
    real, intent(inout) f ) [private]
```

## 5.7.1.4 ppsum\_ra()

```
subroutine gem_pputil::ppsum::ppsum_ra (
    real, dimension (:), intent(inout) f ) [private]
```

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

- [gem\\_pputil.f90](#)

## 5.8 gem\_pputil::pptransp Interface Reference

## Private Member Functions

- subroutine [pptransp\\_c](#) (a, b)
- subroutine [pptransp\\_r](#) (a, b)
- subroutine [pptransp\\_i](#) (a, b)
- subroutine [pptransp2\\_c](#) (a, b)
- subroutine [pptransp2\\_r](#) (a, b)
- subroutine [pptransp2\\_i](#) (a, b)

## 5.8.1 Member Function/Subroutine Documentation

## 5.8.1.1 pptransp2\_c()

```
subroutine gem_pputil::pptransp::pptransp2_c (
    complex, dimension (:, :, :), intent(in) a,
    complex, dimension (:, :, :), intent(out) b ) [private]
```

## 5.8.1.2 pptransp2\_i()

```
subroutine gem_pputil::pptransp::pptransp2_i (
    integer, dimension (:, :, :), intent(in) a,
    integer, dimension (:, :, :), intent(out) b ) [private]
```

## 5.8.1.3 pptransp2\_r()

```
subroutine gem_pputil::pptransp::pptransp2_r (
    real, dimension (:, :, :), intent(in) a,
    real, dimension (:, :, :), intent(out) b ) [private]
```

#### 5.8.1.4 pptransp\_c()

```
subroutine gem_pputil::pptransp::pptransp_c (
    complex, dimension(:, :), intent(in) a,
    complex, dimension(:, :), intent(out) b ) [private]
```

#### 5.8.1.5 pptransp\_i()

```
subroutine gem_pputil::pptransp::pptransp_i (
    integer, dimension(:, :), intent(in) a,
    integer, dimension(:, :), intent(out) b ) [private]
```

#### 5.8.1.6 pptransp\_r()

```
subroutine gem_pputil::pptransp::pptransp_r (
    real, dimension(:, :), intent(in) a,
    real, dimension(:, :), intent(out) b ) [private]
```

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

- [gem\\_pputil.f90](#)

## 5.9 gem\_com::ran2 Interface Reference

### Public Member Functions

- real function [ran2](#) (i)

#### 5.9.1 Constructor & Destructor Documentation

##### 5.9.1.1 ran2()

```
real function gem_com::ran2::ran2 (
    i )
```

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

- [gem\\_com.f90](#)

## 5.10 gem\_com::revers Interface Reference

### Public Member Functions

- real function [revers](#) (num, n)

### 5.10.1 Constructor & Destructor Documentation

#### 5.10.1.1 revers()

```
real function gem_com::revers::revers (  
    num,  
    n )
```

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

- [gem\\_com.f90](#)



## Chapter 6

# File Documentation

### 6.1 cpush.f90 File Reference

#### Functions/Subroutines

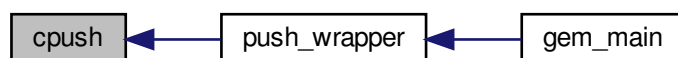
- subroutine `cpush` (*n*, *ns*)

#### 6.1.1 Function/Subroutine Documentation

##### 6.1.1.1 `cpush()`

```
subroutine cpush (  
    integer n,  
    integer ns )
```

Here is the caller graph for this function:



## 6.2 cpushlie.h File Reference

## 6.3 cpushngp.h File Reference

## 6.4 gem\_com.f90 File Reference

### Data Types

- interface [gem\\_com::revers](#)
- interface [gem\\_com::ran2](#)
- interface [gem\\_com::en3](#)

### Modules

- module [gem\\_com](#)

### Functions/Subroutines

- subroutine [gem\\_com::new\\_gem\\_com](#) ()

### Variables

- integer [gem\\_com::imx](#)
- integer [gem\\_com::jmx](#)
- integer [gem\\_com::kmx](#)
- integer [gem\\_com::mmx](#)
- integer [gem\\_com::mmxe](#)
- integer [gem\\_com::nmx](#)
- integer [gem\\_com::nsmx](#)
- integer [gem\\_com::nsubd](#) =8
- integer [gem\\_com::modemx](#)
- integer [gem\\_com::ntube](#) =4
- integer [gem\\_com::nxpp](#)
- integer [gem\\_com::ngdx](#) =5
- integer [gem\\_com::nb](#) =6
- integer [gem\\_com::negrd](#) =8
- integer [gem\\_com::nlgrd](#) =8
- character(len=70) [gem\\_com::outname](#)
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- real [gem\\_com::begtm](#)
- real [gem\\_com::pstm](#)
- real [gem\\_com::starttm](#)
- real [gem\\_com::lasttm](#)
- real [gem\\_com::tottm](#)
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- real, dimension(20000) [gem\\_com::aux2](#)
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- real, dimension(:), allocatable [gem\\_com::worky](#)
- real, dimension(:), allocatable [gem\\_com::workz](#)



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- complex, dimension(:), allocatable [gem\\_com::tmpy](#)
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- integer [gem\\_com::mmb](#)
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- integer [gem\\_com::jm](#)
- integer [gem\\_com::km](#)
- integer [gem\\_com::mykm](#)
- integer [gem\\_com::iseed](#)
- integer [gem\\_com::nrst](#)
- integer [gem\\_com::nfreq](#)
- integer [gem\\_com::isft](#)
- integer [gem\\_com::mynf](#)
- integer [gem\\_com::ifskp](#)
- integer [gem\\_com::iphbf](#)
- integer [gem\\_com::iapbf](#)
- integer [gem\\_com::idpbf](#)
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- real [gem\\_com::dy](#)
- real [gem\\_com::dz](#)
- real [gem\\_com::pi](#)
- real [gem\\_com::pi2](#)
- real [gem\\_com::dt](#)
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- real [gem\\_com::totvol](#)
- real [gem\\_com::n0](#)
- real [gem\\_com::n0e](#)
- real [gem\\_com::tcurr](#)
- real [gem\\_com::rmpp](#)
- real [gem\\_com::rmaa](#)
- real [gem\\_com::eprs](#)
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- real [gem\\_com::ly](#)
- real [gem\\_com::lz](#)
- real [gem\\_com::xshape](#)
- real [gem\\_com::yshape](#)
- real [gem\\_com::zshape](#)
- real, dimension(5) [gem\\_com::pzcrit](#)
- real [gem\\_com::pzcite](#)
- real [gem\\_com::encrit](#)
- real [gem\\_com::tot\\_field\\_e](#)
- real [gem\\_com::tot\\_joule](#)

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- integer `gem_com::nm`
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- integer `gem_com::iorb`
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- integer [gem\\_com::xnplt](#)
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- complex, dimension(:, :, :), allocatable [gem\\_com::pmtrxi](#)
- complex, dimension(:, :), allocatable [gem\\_com::pfac](#)
- integer, parameter [gem\\_com::master](#) = 0
- integer [gem\\_com::numprocs](#)
- integer [gem\\_com::myid](#)
- integer [gem\\_com::last](#)
- integer [gem\\_com::cnt](#)
- integer [gem\\_com::ierr](#)
- integer [gem\\_com::grid\\_comm](#)
- integer [gem\\_com::tube\\_comm](#)
- integer [gem\\_com::gclr](#)
- integer [gem\\_com::tclr](#)
- integer [gem\\_com::glst](#)
- integer [gem\\_com::tlst](#)
- integer, dimension(mpi\_status\_size) [gem\\_com::stat](#)
- integer [gem\\_com::lngbr](#)
- integer [gem\\_com::rngbr](#)
- integer [gem\\_com::idprv](#)
- integer [gem\\_com::idnxt](#)
- character(len= \*) [gem\\_com::directory](#)
- character(len= \*) [gem\\_com::outdir](#)

## 6.5 gem\_equil.f90 File Reference

### Modules

- module [gem\\_equil](#)

### Functions/Subroutines

- subroutine [gem\\_equil::new\\_equil](#) ()

### Variables

- integer [gem\\_equil::itube](#)
- integer [gem\\_equil::ibase](#)
- integer [gem\\_equil::iperi](#)
- integer [gem\\_equil::iperidf](#)
- integer [gem\\_equil::ibunit](#)
- integer [gem\\_equil::icandy](#) =1
- integer [gem\\_equil::isprime](#) =0
- integer [gem\\_equil::ildu](#) =0
- integer [gem\\_equil::eldu](#) =0
- real [gem\\_equil::mimp](#) =2
- real [gem\\_equil::mcmp](#) =12
- real [gem\\_equil::chgi](#) =1
- real [gem\\_equil::chgc](#) =6
- real [gem\\_equil::elon0](#) =1.0
- real [gem\\_equil::tria0](#) =0.0
- real [gem\\_equil::rmaj0](#) =500.0
- real [gem\\_equil::r0](#)
- real [gem\\_equil::a](#) =180.0
- real [gem\\_equil::selon0](#) =0.0
- real [gem\\_equil::stria0](#) =0.0
- real [gem\\_equil::rmaj0p](#) =-0.0
- real [gem\\_equil::q0p](#) =0.006
- real [gem\\_equil::q0](#) =1.4
- real [gem\\_equil::elonp0](#) =0.
- real [gem\\_equil::triap0](#) =0.
- real [gem\\_equil::erp](#) =0.01
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- real, dimension(:), allocatable [gem\\_equil::zfnth](#)
- real, dimension(:), allocatable [gem\\_equil::thfnz](#)
- real, dimension(:), allocatable [gem\\_equil::t0i](#)
- real, dimension(:), allocatable [gem\\_equil::t0e](#)
- real, dimension(:), allocatable [gem\\_equil::t0b](#)
- real, dimension(:), allocatable [gem\\_equil::t0c](#)
- real, dimension(:), allocatable [gem\\_equil::t0ip](#)
- real, dimension(:), allocatable [gem\\_equil::t0ep](#)
- real, dimension(:), allocatable [gem\\_equil::t0bp](#)
- real, dimension(:), allocatable [gem\\_equil::t0cp](#)
- real, dimension(:), allocatable [gem\\_equil::xn0i](#)
- real, dimension(:), allocatable [gem\\_equil::xn0e](#)
- real, dimension(:), allocatable [gem\\_equil::xn0c](#)
- real, dimension(:), allocatable [gem\\_equil::xn0b](#)
- real, dimension(:), allocatable [gem\\_equil::xn0ip](#)
- real, dimension(:), allocatable [gem\\_equil::xn0ep](#)
- real, dimension(:), allocatable [gem\\_equil::xn0bp](#)
- real, dimension(:), allocatable [gem\\_equil::xn0cp](#)
- real, dimension(:), allocatable [gem\\_equil::vpari](#)
- real, dimension(:), allocatable [gem\\_equil::vparc](#)
- real, dimension(:), allocatable [gem\\_equil::vparb](#)
- real, dimension(:), allocatable [gem\\_equil::vparip](#)
- real, dimension(:), allocatable [gem\\_equil::vparcp](#)
- real, dimension(:), allocatable [gem\\_equil::vparbp](#)
- real, dimension(:), allocatable [gem\\_equil::capti](#)
- real, dimension(:), allocatable [gem\\_equil::capte](#)
- real, dimension(:), allocatable [gem\\_equil::captb](#)
- real, dimension(:), allocatable [gem\\_equil::captc](#)
- real, dimension(:), allocatable [gem\\_equil::capni](#)
- real, dimension(:), allocatable [gem\\_equil::capne](#)
- real, dimension(:), allocatable [gem\\_equil::capnb](#)
- real, dimension(:), allocatable [gem\\_equil::capnc](#)
- real, dimension(:), allocatable [gem\\_equil::zeff](#)
- real, dimension(:), allocatable [gem\\_equil::nue0](#)
- real, dimension(:), allocatable [gem\\_equil::phinc](#)
- real, dimension(:), allocatable [gem\\_equil::phincp](#)
- real, dimension(:), allocatable [gem\\_equil::er](#)
- real, dimension(:), allocatable [gem\\_equil::upari](#)
- real, dimension(:), allocatable [gem\\_equil::dldth](#)
- real, dimension(:), allocatable [gem\\_equil::sinu](#)

- real, dimension(:), allocatable [gem\\_equil::cosu](#)
- real, dimension(:), allocatable [gem\\_equil::dudl](#)
- real, dimension(:), allocatable [gem\\_equil::dzdl](#)
- real, dimension(:), allocatable [gem\\_equil::bps](#)
- real, dimension(:), allocatable [gem\\_equil::grr](#)
- real, dimension(:), allocatable [gem\\_equil::grz](#)
- real, dimension(:), allocatable [gem\\_equil::gtr](#)
- real, dimension(:), allocatable [gem\\_equil::gtz](#)
- real, dimension(:), allocatable [gem\\_equil::grdgl](#)
- real, dimension(:), allocatable [gem\\_equil::grdgrho](#)
- real, dimension(:), allocatable [gem\\_equil::gtdgl](#)
- real, dimension(:), allocatable [gem\\_equil::gtdgrho](#)
- real, dimension(:), allocatable [gem\\_equil::dlr](#)
- real, dimension(:), allocatable [gem\\_equil::dldt](#)
- real, dimension(:), allocatable [gem\\_equil::drhdr](#)
- real, dimension(:), allocatable [gem\\_equil::drhdt](#)
- real, dimension(:), allocatable [gem\\_equil::dbdl](#)
- real, dimension(:), allocatable [gem\\_equil::dbdrho](#)
- real, dimension(:), allocatable [gem\\_equil::db2dl](#)
- real, dimension(:), allocatable [gem\\_equil::db2drho](#)
- real, dimension(:), allocatable [gem\\_equil::dbpsdl](#)
- real, dimension(:), allocatable [gem\\_equil::dipdr](#)
- real, dimension(:), allocatable [gem\\_equil::rdtemp](#)
- real [gem\\_equil::candyf0p](#)
- real, dimension(:), allocatable [gem\\_equil::candyd0](#)
- real, dimension(:), allocatable [gem\\_equil::candyd1](#)
- real, dimension(:), allocatable [gem\\_equil::candyd2](#)
- real, dimension(:), allocatable [gem\\_equil::candynus](#)
- real, dimension(:), allocatable [gem\\_equil::candynu1](#)
- real, dimension(:), allocatable [gem\\_equil::candydr](#)
- real, dimension(:), allocatable [gem\\_equil::psip2](#)
- real, dimension(:,), allocatable [gem\\_equil::curvbz](#)
- real, dimension(:,), allocatable [gem\\_equil::srbr](#)
- real, dimension(:,), allocatable [gem\\_equil::srbz](#)
- real, dimension(:,), allocatable [gem\\_equil::thbr](#)
- real, dimension(:,), allocatable [gem\\_equil::thbz](#)
- real, dimension(:,), allocatable [gem\\_equil::prsrbr](#)
- real, dimension(:,), allocatable [gem\\_equil::prsrbz](#)
- real, dimension(:,), allocatable [gem\\_equil::pthsrbr](#)
- real, dimension(:,), allocatable [gem\\_equil::pthsrbz](#)
- real, dimension(:,), allocatable [gem\\_equil::bdcrvb](#)
- real, dimension(:,), allocatable [gem\\_equil::t0s](#)
- real, dimension(:,), allocatable [gem\\_equil::xn0s](#)
- real, dimension(:,), allocatable [gem\\_equil::capts](#)
- real, dimension(:,), allocatable [gem\\_equil::capns](#)
- real, dimension(:,), allocatable [gem\\_equil::vpars](#)
- real, dimension(:,), allocatable [gem\\_equil::vparsp](#)
- real, dimension(:), allocatable [gem\\_equil::cn0s](#)
- real, dimension(:), allocatable [gem\\_equil::n0smax](#)
- real, dimension(:), allocatable [gem\\_equil::tgis](#)
- real [gem\\_equil::tge](#)
- character(len=32) [gem\\_equil::trflnm](#)

## 6.6 gem\_erf.f90 File Reference

### Functions/Subroutines

- real function [erf](#) (y)

#### 6.6.1 Function/Subroutine Documentation

##### 6.6.1.1 erf()

```
real function erf (  
    real y )
```

## 6.7 gem\_fcnt.f90 File Reference

### Functions/Subroutines

- real function [revers](#) (num, n)
- subroutine [srcbes](#) (biz, gam0, gam1)

#### 6.7.1 Function/Subroutine Documentation

##### 6.7.1.1 revers()

```
real function revers (  
    integer num,  
    integer n )
```

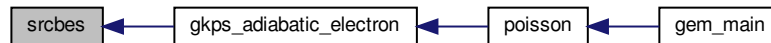
Here is the caller graph for this function:



### 6.7.1.2 srcbes()

```
subroutine srcbes (
    real biz,
    real gam0,
    real gam1 )
```

Here is the caller graph for this function:



## 6.8 gem\_fft\_wrapper.f90 File Reference

### Modules

- module [gem\\_fft\\_wrapper](#)

### Functions/Subroutines

- subroutine [gem\\_fft\\_wrapper::ccfft](#) (c, isign, n, scale, x, table, work, isys)
- subroutine [gem\\_fft\\_wrapper::dsinf](#) (init, x, inc1x, inc2x, inc1y, inc2y, n, m, scale, aux1, naux1, aux2, naux2)

### Variables

- real, dimension(20000) [gem\\_fft\\_wrapper::coefxp](#)
- real, dimension(20000) [gem\\_fft\\_wrapper::coefyp](#)
- real, dimension(20000) [gem\\_fft\\_wrapper::coefzp](#)
- real, dimension(20000) [gem\\_fft\\_wrapper::coefxn](#)
- real, dimension(20000) [gem\\_fft\\_wrapper::coefyn](#)
- real, dimension(20000) [gem\\_fft\\_wrapper::coefzn](#)
- real, dimension(20000) [gem\\_fft\\_wrapper::workxx](#)
- real, dimension(20000) [gem\\_fft\\_wrapper::workyy](#)
- real, dimension(20000) [gem\\_fft\\_wrapper::workzz](#)
- real, dimension(50000) [gem\\_fft\\_wrapper::wsave](#)

## 6.9 gem\_gkps\_adi.f90 File Reference

### Functions/Subroutines

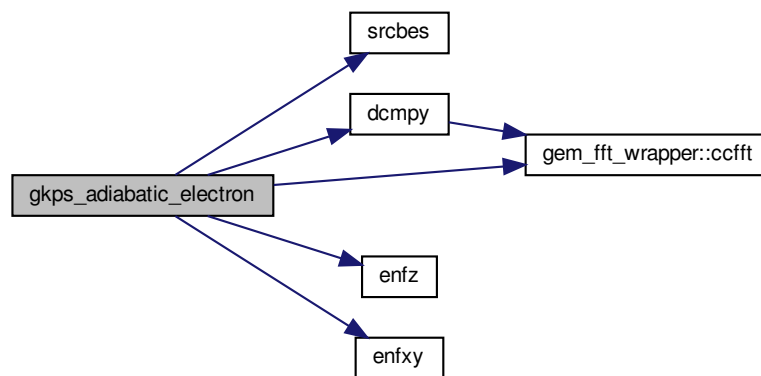
- subroutine [gkps\\_adiabatic\\_electron](#) (nstep, ip)

### 6.9.1 Function/Subroutine Documentation

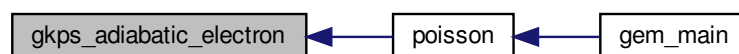
#### 6.9.1.1 gkps\_adiabatic\_electron()

```
subroutine gkps_adiabatic_electron (
    integer nstep,
    integer ip )
```

Here is the call graph for this function:



Here is the caller graph for this function:



## 6.10 gem\_main.f90 File Reference

### Functions/Subroutines

- program [gem\\_main](#)
- subroutine [hybinit](#)
- subroutine [init](#)
- subroutine [grad](#) (ip)
- subroutine [modes2](#) (u, modehis, n)

- subroutine [restart](#) (iflag, n)
- subroutine [parperp](#) (vpar, vperp2, m, pi, cnt, Myld)
- subroutine [weight](#)
- subroutine [eqmo](#) (ip)
- subroutine [spec](#) (n)
- real function [ran2](#) (idum)
- subroutine [loadi](#) (ns)
- subroutine [enforce](#) (u)
- subroutine [enfx](#) (u)
- subroutine [gradu](#) (u, ux, uy)
- subroutine [gradx](#) (u, ux)
- subroutine [grady](#) (u, uy)
- subroutine [enfz](#) (u)
- subroutine [initialize](#)
- subroutine [loader\\_wrapper](#)
- subroutine [accumulate](#) (n, ip)
- subroutine [poisson](#) (n, ip)
- subroutine [field](#) (n, ip)
- subroutine [push\\_wrapper](#) (n, ip)
- subroutine [diagnose](#) (n)
- subroutine [reporter](#) (n)
- subroutine [dcmpy](#) (u, v)
- real function [en3](#) (s)
- subroutine [blendf](#)
- subroutine [filtbl](#) (u)
- subroutine [gam](#) (u, v)
- subroutine [ftcamp](#)

## 6.10.1 Function/Subroutine Documentation

### 6.10.1.1 `accumulate()`

```
subroutine accumulate (
    integer n,
    integer ip )
```

Here is the call graph for this function:



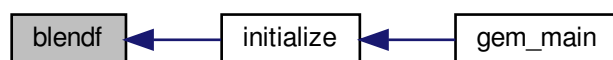
Here is the caller graph for this function:



#### 6.10.1.2 blendf()

```
subroutine blendf ( )
```

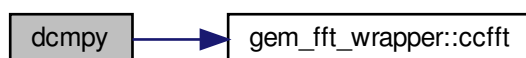
Here is the caller graph for this function:



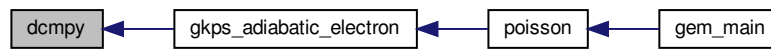
#### 6.10.1.3 dcmpy()

```
subroutine dcmpy (
    real, dimension(0:imx-1,0:jmx-1,0:1) u,
    complex, dimension(0:imx-1,0:jcnt-1,0:1) v )
```

Here is the call graph for this function:



Here is the caller graph for this function:

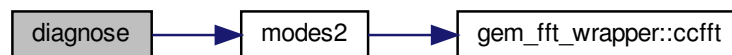


#### 6.10.1.4 diagnose()

```

subroutine diagnose (
    integer n )
  
```

Here is the call graph for this function:



Here is the caller graph for this function:



#### 6.10.1.5 en3()

```

real function en3 (
    real s )
  
```



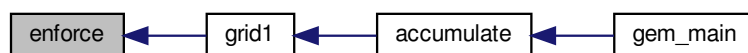
## 6.10.1.6 enforce()

```
subroutine enforce (  
    real, dimension(0:imx,0:jmx,0:1) u )
```

Here is the call graph for this function:



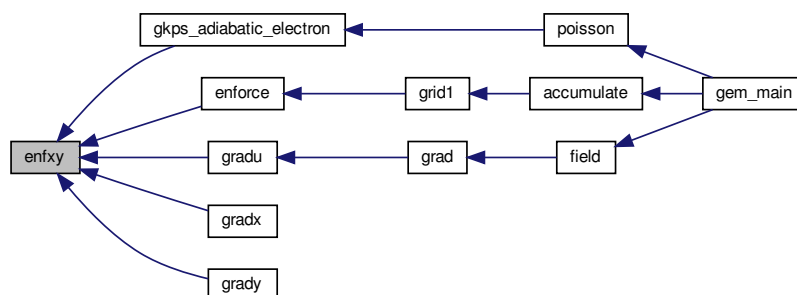
Here is the caller graph for this function:



## 6.10.1.7 enfxy()

```
subroutine enfxy (  
    real, dimension(0:imx,0:jmx,0:1) u )
```

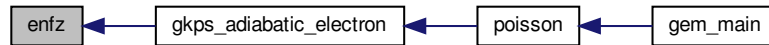
Here is the caller graph for this function:



#### 6.10.1.8 enfz()

```
subroutine enfz (  
    real, dimension(0:imx,0:jmx,0:1) u )
```

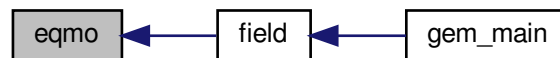
Here is the caller graph for this function:



#### 6.10.1.9 eqmo()

```
subroutine eqmo (  
    integer ip )
```

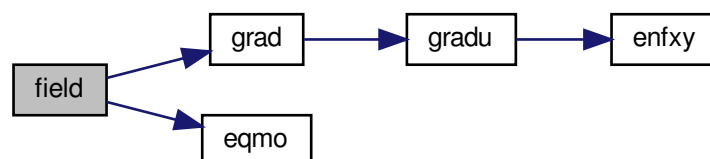
Here is the caller graph for this function:



#### 6.10.1.10 field()

```
subroutine field (  
    integer n,  
    integer ip )
```

Here is the call graph for this function:



Here is the caller graph for this function:



#### 6.10.1.11 `filtbl()`

```
subroutine filtbl (  
    complex, dimension(0:imx-1,0:jmx-1,0:1) u )
```

#### 6.10.1.12 `ftcamp()`

```
subroutine ftcamp ( )
```

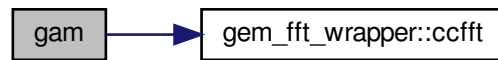
Here is the caller graph for this function:



#### 6.10.1.13 `gam()`

```
subroutine gam (  
    complex, dimension(0:imx-1) u,  
    complex, dimension(0:imx-1) v )
```

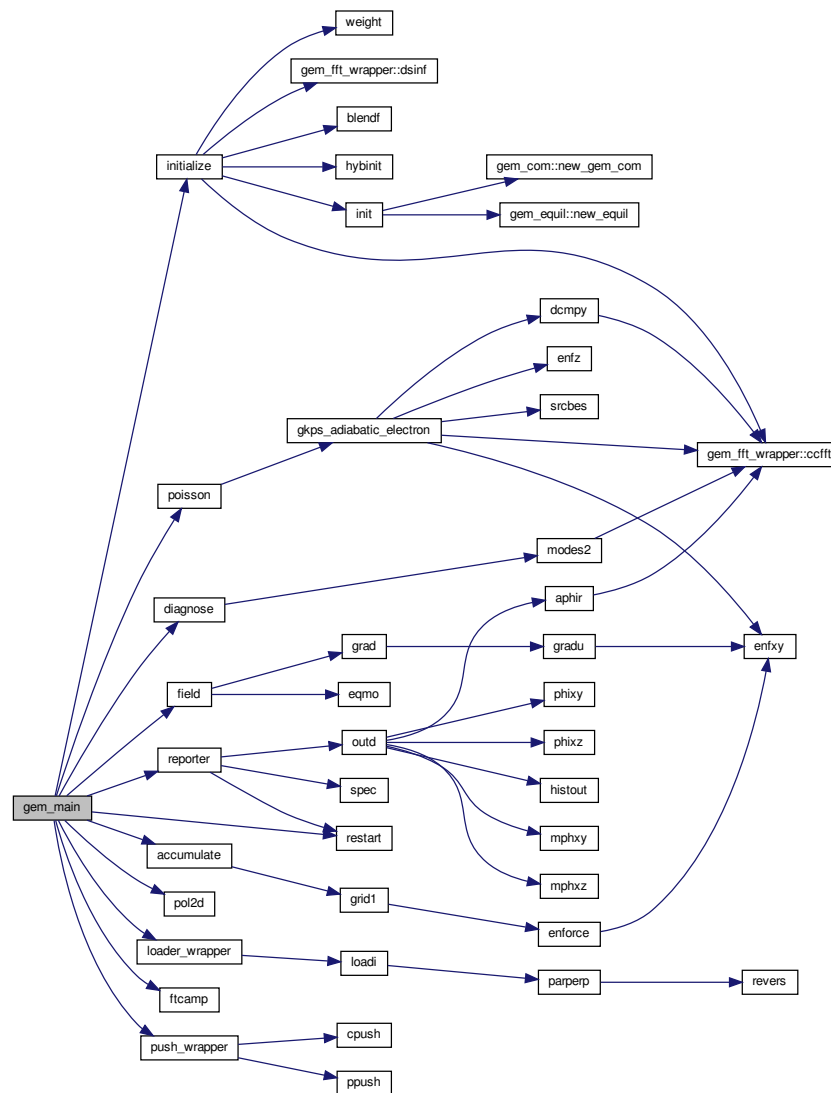
Here is the call graph for this function:



#### 6.10.1.14 gem\_main()

```
program gem_main ( )
```

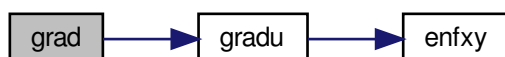
Here is the call graph for this function:



### 6.10.1.15 grad()

```
subroutine grad (  
    integer ip )
```

Here is the call graph for this function:



Here is the caller graph for this function:



### 6.10.1.16 gradu()

```
subroutine gradu (  
    real, dimension(0:imx,0:jmx,0:1) u,  
    real, dimension(0:imx,0:jmx,0:1) ux,  
    real, dimension(0:imx,0:jmx,0:1) uy )
```

Here is the call graph for this function:



Here is the caller graph for this function:



#### 6.10.1.17 gradx()

```
subroutine gradx (  
    real, dimension(0:imx,0:jmx,0:1) u,  
    real, dimension(0:imx,0:jmx,0:1) ux )
```

Here is the call graph for this function:



#### 6.10.1.18 grady()

```
subroutine grady (  
    real, dimension(0:imx,0:jmx,0:1) u,  
    real, dimension(0:imx,0:jmx,0:1) uy )
```

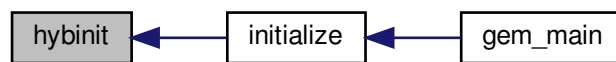
Here is the call graph for this function:



## 6.10.1.19 hybinit()

```
subroutine hybinit ( )
```

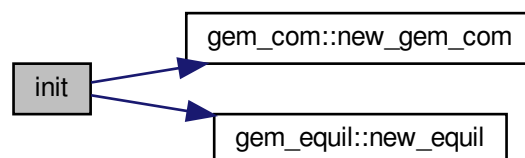
Here is the caller graph for this function:



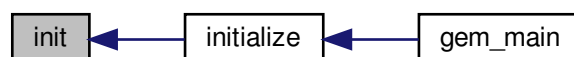
## 6.10.1.20 init()

```
subroutine init ( )
```

Here is the call graph for this function:



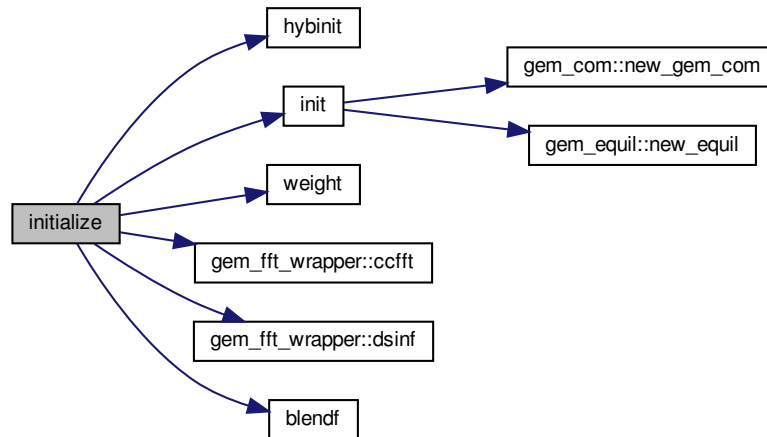
Here is the caller graph for this function:



### 6.10.1.21 initialize()

```
subroutine initialize ( )
```

Here is the call graph for this function:



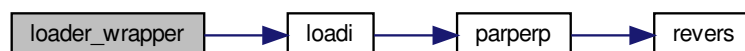
Here is the caller graph for this function:



### 6.10.1.22 loader\_wrapper()

```
subroutine loader_wrapper ( )
```

Here is the call graph for this function:





Here is the caller graph for this function:



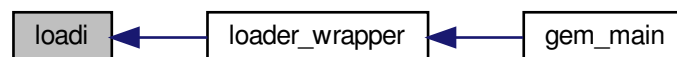
#### 6.10.1.23 loadi()

```
subroutine loadi (  
    integer ns )
```

Here is the call graph for this function:



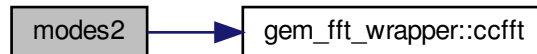
Here is the caller graph for this function:



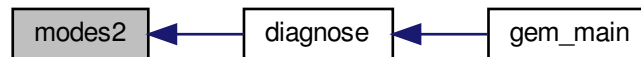
#### 6.10.1.24 modes2()

```
subroutine modes2 (  
    real, dimension(0:imx,0:jmx,0:1) u,  
    complex, dimension(modemx,0:nmx) modehis,  
    integer n )
```

Here is the call graph for this function:



Here is the caller graph for this function:



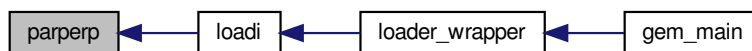
#### 6.10.1.25 parperp()

```
subroutine parperp (  
    real vpar,  
    real vperp2,  
    integer m,  
    real pi,  
    integer cnt,  
    integer MyId )
```

Here is the call graph for this function:



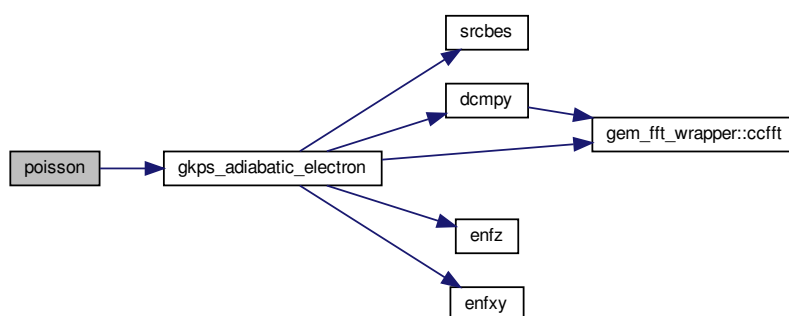
Here is the caller graph for this function:



#### 6.10.1.26 poisson()

```
subroutine poisson (  
    integer n,  
    integer ip )
```

Here is the call graph for this function:



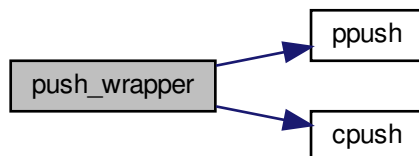
Here is the caller graph for this function:



#### 6.10.1.27 push\_wrapper()

```
subroutine push_wrapper (  
    integer n,  
    integer ip )
```

Here is the call graph for this function:



Here is the caller graph for this function:



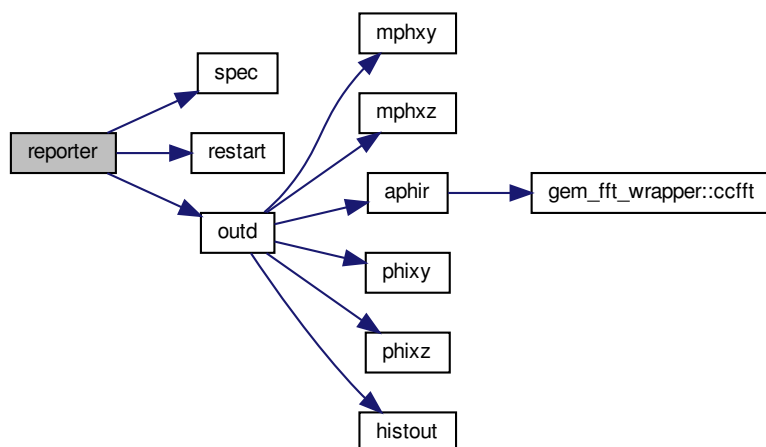
#### 6.10.1.28 ran2()

```
real function ran2 (  
    idum )
```

#### 6.10.1.29 reporter()

```
subroutine reporter (  
    integer n )
```

Here is the call graph for this function:



Here is the caller graph for this function:

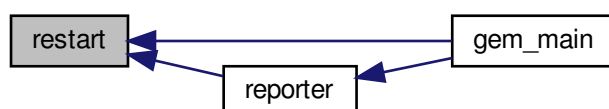


#### 6.10.1.30 restart()

```

subroutine restart (
    integer iflag,
    integer n )
  
```

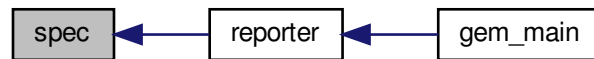
Here is the caller graph for this function:



### 6.10.1.31 spec()

```
subroutine spec (  
    integer n )
```

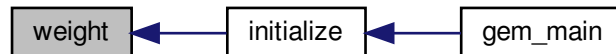
Here is the caller graph for this function:



### 6.10.1.32 weight()

```
subroutine weight ( )
```

Here is the caller graph for this function:



## 6.11 gem\_outd.f90 File Reference

### Functions/Subroutines

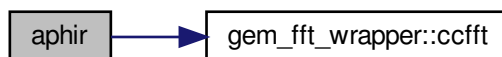
- subroutine [outd](#) (n)
- subroutine [phixy](#) (grd, fl, unt, n)
- subroutine [phixz](#) (grd, fl, unt, n)
- subroutine [mphxy](#) (grd, fl, unt)
- subroutine [mphxz](#) (grd, fl, unt)
- subroutine [histout](#) (unt)
- subroutine [aphir](#) (grd, fl, unt, n)
- subroutine [dump3d](#) (grd, fl, unt, n)
- subroutine [pol2d](#)
- subroutine [timephi](#) (grd, rim, fl, unt, n)

## 6.11.1 Function/Subroutine Documentation

### 6.11.1.1 aphir()

```
subroutine aphir (  
    real, dimension(0:imx,0:jmx,0:1) grd,  
    character(len=5) fl,  
    integer unt,  
    integer n )
```

Here is the call graph for this function:



Here is the caller graph for this function:



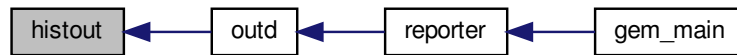
### 6.11.1.2 dump3d()

```
subroutine dump3d (  
    real, dimension(0:imx,0:jmx,0:1) grd,  
    character(len=5) fl,  
    integer unt,  
    integer n )
```

#### 6.11.1.3 histout()

```
subroutine histout (  
    integer unt )
```

Here is the caller graph for this function:



#### 6.11.1.4 mphxy()

```
subroutine mphxy (  
    real, dimension(0:imx,0:jmx,0:1) grd,  
    character(len=5) fl,  
    integer unt )
```

Here is the caller graph for this function:



#### 6.11.1.5 mphxz()

```
subroutine mphxz (  
    real, dimension(0:imx,0:jmx,0:1) grd,  
    character(len=5) fl,  
    integer unt )
```

Here is the caller graph for this function:

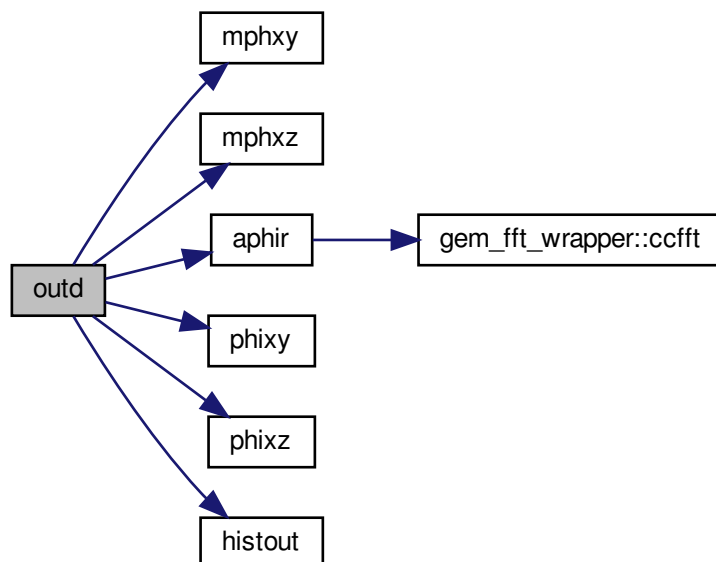




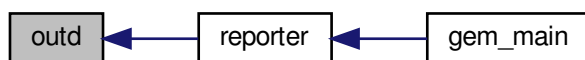
## 6.11.1.6 outd()

```
subroutine outd (  
    integer n )
```

Here is the call graph for this function:



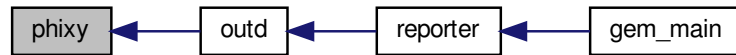
Here is the caller graph for this function:



## 6.11.1.7 phixy()

```
subroutine phixy (  
    real, dimension(0:imx,0:jmx,0:1) grd,  
    character(len=5) fl,  
    integer unt,  
    integer n )
```

Here is the caller graph for this function:



#### 6.11.1.8 phixz()

```
subroutine phixz (  
    real, dimension(0:imx,0:jmx,0:1) grd,  
    character(len=5) fl,  
    integer unt,  
    integer n )
```

Here is the caller graph for this function:



#### 6.11.1.9 pol2d()

```
subroutine pol2d ( )
```

Here is the caller graph for this function:



## 6.11.1.10 timephi()

```

subroutine timephi (
    real, dimension(0:imx,0:jmx,0:1) grd,
    integer rim,
    character(len=5) fl,
    integer unt,
    integer n )

```

## 6.12 gem\_pputil.f90 File Reference

## Data Types

- interface [gem\\_pputil::disp](#)
- interface [gem\\_pputil::ppsum](#)
- interface [gem\\_pputil::ppmax](#)
- interface [gem\\_pputil::ppmin](#)
- interface [gem\\_pputil::pptransp](#)
- interface [gem\\_pputil::guard](#)
- interface [gem\\_pputil::ppcfft2](#)

## Modules

- module [gem\\_pputil](#)

## Functions/Subroutines

- subroutine, public [gem\\_pputil::init\\_pmove](#) (xp, np, lz, ierr)
- subroutine, public [gem\\_pputil::pmove](#) (xp, np\_old, np\_new, ierr)
- subroutine, public [gem\\_pputil::end\\_pmove](#) (ierr)
- subroutine [gem\\_pputil::dispi](#) (iarr, string)
- subroutine [gem\\_pputil::disp2i](#) (arr, string)
- subroutine [gem\\_pputil::dispr](#) (arr, string)
- subroutine [gem\\_pputil::disp2r](#) (arr, string)
- subroutine, public [gem\\_pputil::ppinit](#) (idproc, nproc, ntube, com1, com2)
- subroutine, public [gem\\_pputil::ppexit](#)
- subroutine [gem\\_pputil::ppsum\\_r](#) (f)
- subroutine [gem\\_pputil::ppsum\\_ra](#) (f)
- subroutine [gem\\_pputil::ppsum\\_i](#) (f)
- subroutine [gem\\_pputil::ppsum\\_ia](#) (f)
- subroutine [gem\\_pputil::ppmax\\_r](#) (f)
- subroutine [gem\\_pputil::ppmax\\_ra](#) (f)
- subroutine [gem\\_pputil::ppmax\\_i](#) (f)
- subroutine [gem\\_pputil::ppmax\\_ia](#) (f)
- subroutine [gem\\_pputil::ppmin\\_r](#) (f)
- subroutine [gem\\_pputil::ppmin\\_ra](#) (f)
- subroutine [gem\\_pputil::ppmin\\_i](#) (f)
- subroutine [gem\\_pputil::ppmin\\_ia](#) (f)
- subroutine [gem\\_pputil::pptransp\\_c](#) (a, b)
- subroutine [gem\\_pputil::pptransp\\_r](#) (a, b)

- subroutine [gem\\_pputil::pptransp\\_i](#) (a, b)
- subroutine [gem\\_pputil::pptransp2\\_c](#) (a, b)
- subroutine [gem\\_pputil::pptransp2\\_r](#) (a, b)
- subroutine [gem\\_pputil::pptransp2\\_i](#) (a, b)
- subroutine, public [gem\\_pputil::timera](#) (icntrl, string, eltime)
- subroutine [gem\\_pputil::guard2](#) (f, nidbas, flag)
- subroutine [guard\\_lin\\_add](#)
- subroutine [guard\\_quad\\_add](#)
- subroutine [guard\\_cub\\_add](#)
- subroutine [guard\\_lin\\_copy](#)
- subroutine [guard\\_quad\\_copy](#)
- subroutine [guard\\_cub\\_copy](#)
- subroutine [gem\\_pputil::guard3](#) (f, nidbas, flag)
- subroutine [gem\\_pputil::ppcfft2\\_2d](#) (isign, f, g)
- subroutine [gem\\_pputil::ppcfft2\\_3d](#) (isign, f, g)

## Variables

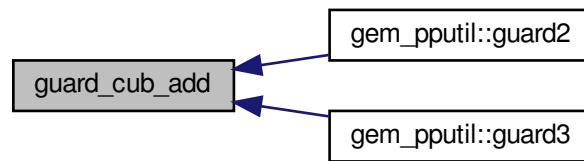
- integer, save [gem\\_pputil::me](#)
- integer, save [gem\\_pputil::nvp](#)
- integer, save [gem\\_pputil::npp](#)
- integer, save [gem\\_pputil::gclr](#)
- integer, save [gem\\_pputil::tclr](#)
- integer, save [gem\\_pputil::pmove\\_tag](#) =0
- integer, save [gem\\_pputil::tube\\_comm](#)
- integer, save [gem\\_pputil::grid\\_comm](#)
- real, dimension(:), allocatable, save [gem\\_pputil::s\\_buf](#)
- real, dimension(:), allocatable, save [gem\\_pputil::r\\_buf](#)
- integer, dimension(:), allocatable, save [gem\\_pputil::s\\_counts](#)
- integer, dimension(:), allocatable, save [gem\\_pputil::s\\_displ](#)
- integer, dimension(:), allocatable, save [gem\\_pputil::r\\_counts](#)
- integer, dimension(:), allocatable, save [gem\\_pputil::r\\_displ](#)
- integer, dimension(:), allocatable, save [gem\\_pputil::ipsend](#)
- integer, dimension(:), allocatable, save [gem\\_pputil::iphole](#)

## 6.12.1 Function/Subroutine Documentation

### 6.12.1.1 [guard\\_cub\\_add\(\)](#)

```
subroutine guard_cub_add ( ) [private]
```

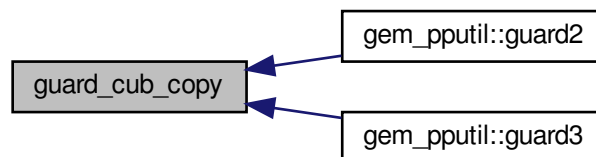
Here is the caller graph for this function:



#### 6.12.1.2 `guard_cub_copy()`

```
subroutine guard_cub_copy ( ) [private]
```

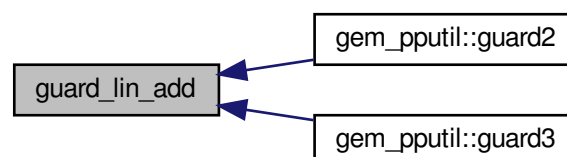
Here is the caller graph for this function:



#### 6.12.1.3 `guard_lin_add()`

```
subroutine guard_lin_add ( )
```

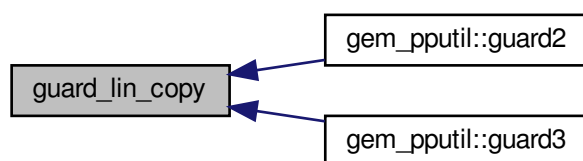
Here is the caller graph for this function:



#### 6.12.1.4 guard\_lin\_copy()

```
subroutine guard_lin_copy ( ) [private]
```

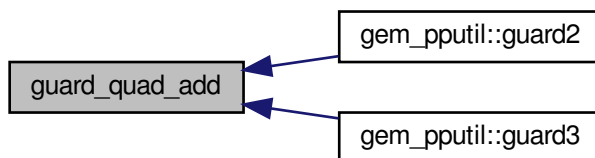
Here is the caller graph for this function:



#### 6.12.1.5 guard\_quad\_add()

```
subroutine guard_quad_add ( ) [private]
```

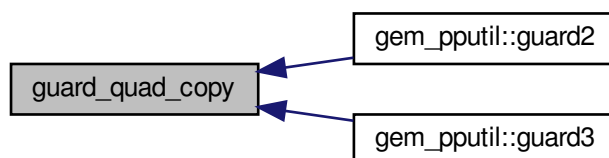
Here is the caller graph for this function:



## 6.12.1.6 guard\_quad\_copy()

```
subroutine guard_quad_copy ( ) [private]
```

Here is the caller graph for this function:



## 6.13 grid1.f90 File Reference

## Functions/Subroutines

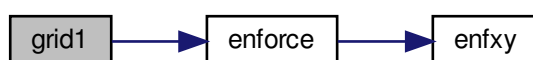
- subroutine [grid1](#) (*ip*, *n*)

## 6.13.1 Function/Subroutine Documentation

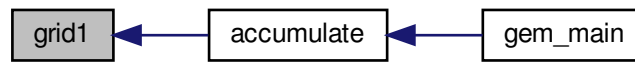
## 6.13.1.1 grid1()

```
subroutine grid1 (  
    integer ip,  
    integer n )
```

Here is the call graph for this function:



Here is the caller graph for this function:



## 6.14 hcushngp.h File Reference

## 6.15 hpushngp.h File Reference

## 6.16 ppush.f90 File Reference

### Functions/Subroutines

- subroutine [ppush](#) (n, ns)

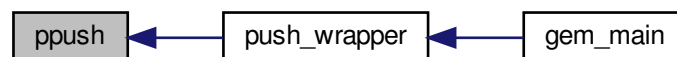
### 6.16.1 Function/Subroutine Documentation

#### 6.16.1.1 ppush()

```

subroutine ppush (
    integer n,
    integer ns )
  
```

Here is the caller graph for this function:



## 6.17 ppushlie.h File Reference

## 6.18 ppushngp.h File Reference



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