Optimization-GEM-Adiabatic

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- real encrit
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- integer nsm
- integer kcnt
- integer jcnt
- integer ncurr
- integer llk
- integer mlk
- integer onemd
- integer iflr
- integer iorb
- integer izonal
- integer adiabatic_electron
- integer ineq0
- integer iflut
- integer nlow
- integer ntor0
- integer mstart
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- real amp
- real tor
- real amie
- real isg
- real rneu
- real rneui
- real emass
- real qel
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- real qbeam
- real teth
- real vexbsw
- real vparsw
- real c4
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- real kxcut
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- real ftrap
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- real adwe
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- integer iget
- integer idg
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- complex, dimension(1:8) apk
- complex, dimension(1:8) ptk
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- integer, dimension(1:8) lapa
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- real, dimension(0:1) mrtio
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- integer, dimension(0:255) isgnft
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- real, dimension(:,:,:), allocatable dadz
- real, dimension(:,:,:), allocatable delbx
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- real, dimension(:), allocatable zg
- real, dimension(:,:,:), allocatable apar
- real, dimension(:,:,:), allocatable dene
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- real, dimension(:,:,:), allocatable den0
- real, dimension(:,:,:), allocatable upazd
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- real, dimension(:,:,:), allocatable upa0t
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- real, dimension(:,:), allocatable cfx
- real, dimension(:,:), allocatable cfy
- real, dimension(:,:), allocatable jac
- real, dimension(:,:), allocatable bmag
- real, dimension(:,:), allocatable bdgxcgy
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- real, dimension(:,:), allocatable u0i
- real, dimension(:,:), allocatable x2
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- real, dimension(:,:), allocatable u2
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- real, dimension(:), allocatable eke
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- 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
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- real, dimension(:), allocatable w110
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- 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

```
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```

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

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integer gem_com::iorb
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4.1.2.112 ipara

```
integer gem_com::ipara
```

4.1.2.113 ipass

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real, dimension(:), allocatable gem_com::ipass
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4.1.2.114 ipg

```
integer gem_com::ipg
```

4.1.2.115 iphbf

```
integer gem_com::iphbf
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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

```
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```

4.1.2.128 izonal

```
integer gem_com::izonal
```

4.1.2.129 jac

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

4.1.2.130 jcnt

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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

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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

```
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4.1.2.354 zg

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4.1.2.355 zshape

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4.2 gem_equil Module Reference

Functions/Subroutines

- subroutine new_equil ()

Variables

- integer itube
- integer ibase
- integer iperi
- integer iperidf
- integer ibunit
- integer icandy =1
- integer isprime =0
- integer ildu =0
- integer eldu =0
- real mimp =2
- real mcmp =12
- real chgi =1
- real chgc =6
- real elon0 =1.0
- real tria0 =0.0
- real rmaj0 =500.0
- real r0
- real a =180.0
- real selon0 =0.0
- real stria0 =0.0
- real rmaj0p =-0.0
- real q0p =0.006
- real q0 =1.4
- real elonp0 =0.
- real triap0 =0.
- real erp =0.01
- real er0 =0.
- real q0abs
- real beta
- real rovera
- real shat0
- real teti
- real tcti
- real rhoia
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- real rovlnc
- real rovltc
- real ncne
- real nuacs
- real gamma_e
- real mach
- real f0

- real f0p
- real bunit
- real rin
- real rout
- real dr
- real dth
- real delz
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- real n0bmax
- real n0cmax
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- real delrn
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- real routa
- real betai
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- real xnir0
- real xu
- real frequ
- real vu
- real eru
- integer nr =256
- integer nr2 =150
- integer ntheta =100
- integer idiag =0
- real, dimension(:,:), allocatable bfld
- real, dimension(:,:), allocatable qhat
- real, dimension(:,:), allocatable radius
- real, dimension(:,:), allocatable gr
- real, dimension(:,:), allocatable gth
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- real, dimension(:,:), allocatable grcgt
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- real, dimension(:), allocatable rmajp

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- real, dimension(:), allocatable sinu
- real, dimension(:), allocatable cosu
- real, dimension(:), allocatable dudl
- real, dimension(:), allocatable dzdl
- real, dimension(:), allocatable bps
- real, dimension(:), allocatable grr

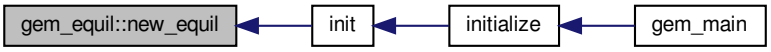
- real, dimension(:), allocatable grz
- real, dimension(:), allocatable gtr
- real, dimension(:), allocatable gtz
- real, dimension(:), allocatable grdgl
- real, dimension(:), allocatable grdgrho
- real, dimension(:), allocatable gtdgl
- real, dimension(:), allocatable gtdgrho
- real, dimension(:), allocatable 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

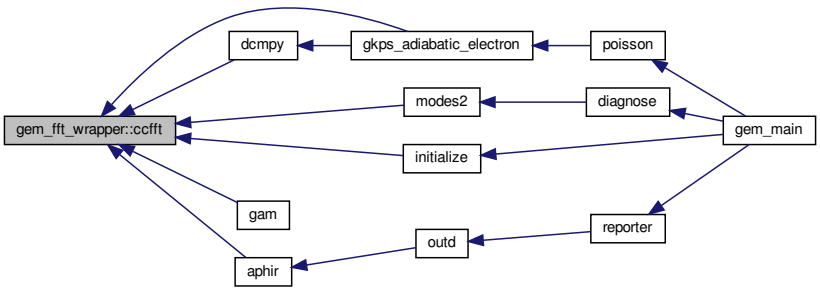
- real, dimension(20000) coefxp
- real, dimension(20000) coefyp
- real, dimension(20000) coefzp
- real, dimension(20000) coefxn
- real, dimension(20000) coefyn
- real, dimension(20000) coefzn
- real, dimension(20000) workxx
- real, dimension(20000) workyy
- real, dimension(20000) workzz
- real, dimension(50000) 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 )
```

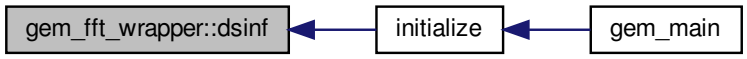
Here is the caller graph for this function:



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 )
```

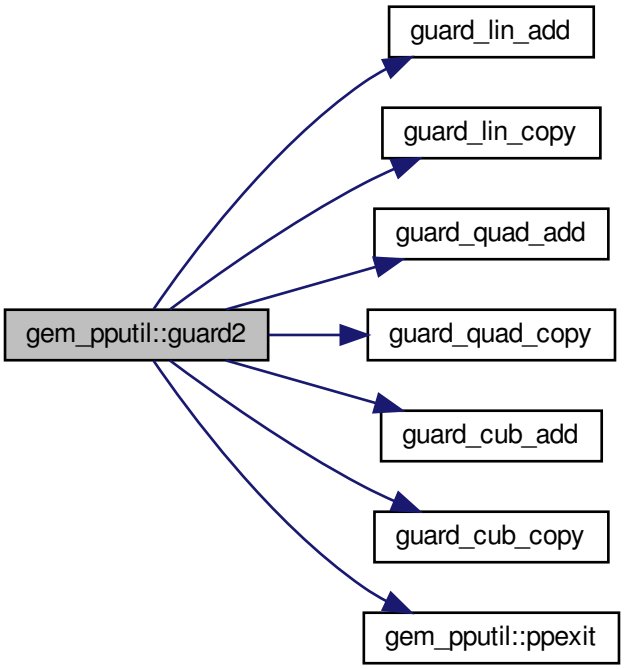
4.4.1.5 end_pmove()

```
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 )
```

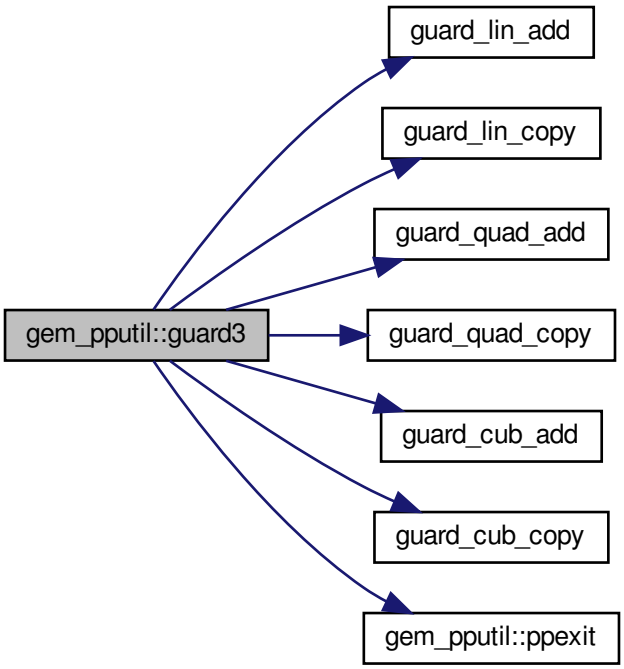
Here is the call graph for this function:



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]
```

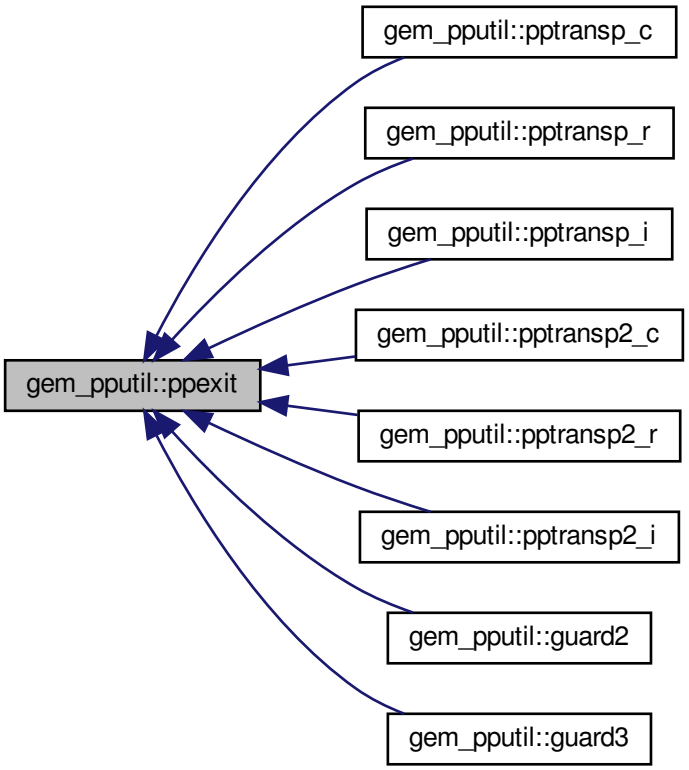
4.4.1.11 ppcfft2_3d()

```
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]
```

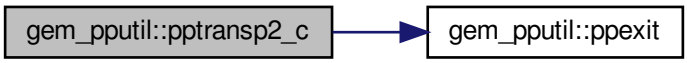
4.4.1.25 ppsum_ra()

```
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 )
```

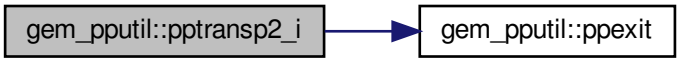
Here is the call graph for this function:



4.4.1.27 pptransp2_i()

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

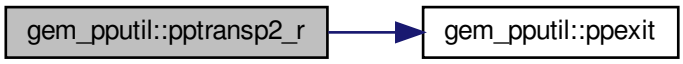
Here is the call graph for this function:



4.4.1.28 pptransp2_r()

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

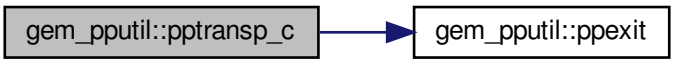
Here is the call graph for this function:



4.4.1.29 pptransp_c()

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

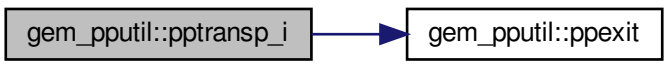
Here is the call graph for this function:



4.4.1.30 pptransp_i()

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

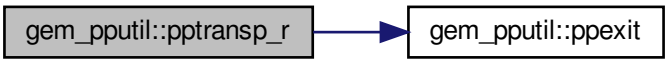
Here is the call graph for this function:



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

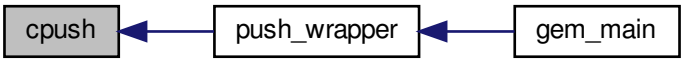
- subroutine cpush (n, ns)

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
- real gem_com::endtm
- real gem_com::begtm
- real gem_com::pstm
- real gem_com::starttm
- real gem_com::lasttm
- real gem_com::tottm
- real, dimension(50000) gem_com::aux1
- real, dimension(20000) gem_com::aux2
- real, dimension(:), allocatable gem_com::workx
- real, dimension(:), allocatable gem_com::worky
- real, dimension(:), allocatable gem_com::workz

- complex, dimension(:), allocatable gem_com::tmpx
- complex, dimension(:), allocatable gem_com::tmpy
- complex, dimension(:), allocatable gem_com::tmpz
- integer gem_com::mme
- integer gem_com::mmb
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- integer, dimension(:), allocatable gem_com::tmm
- integer, dimension(:), allocatable gem_com::lr
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- real, dimension(:), allocatable gem_com::mims
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- real, dimension(:), allocatable gem_com::kapn
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- integer gem_com::timestep
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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
- real, dimension(:), allocatable gem_com::time
- real gem_com::dx
- real gem_com::dy
- real gem_com::dz
- real gem_com::pi
- real gem_com::pi2
- real gem_com::dt
- real gem_com::dte
- 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
- real gem_com::lx
- 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::pzcrite
- real gem_com::encrit
- real gem_com::tot_field_e
- real gem_com::tot_joule

- real gem_com::tot_joule1
- integer gem_com::nm
- integer gem_com::nsm
- integer gem_com::kcnt
- integer gem_com::jcnt
- integer gem_com::ncurr
- integer gem_com::llk
- integer gem_com::mlk
- integer gem_com::onemd
- integer gem_com::iflr
- integer gem_com::iorb
- integer gem_com::izonal
- integer gem_com::adiabatic_electron
- integer gem_com::ineq0
- integer gem_com::iflut
- integer gem_com::nlow
- integer gem_com::ntor0
- integer gem_com::mstart
- real gem_com::cut
- real gem_com::amp
- real gem_com::tor
- real gem_com::amie
- real gem_com::isg
- real gem_com::rneu
- real gem_com::rneui
- real gem_com::emass
- real gem_com::qel
- real gem_com::mbeam
- real gem_com::qbeam
- real gem_com::teth
- real gem_com::vexbsw
- real gem_com::vparsw
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- real gem_com::e0
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- real gem_com::vwidthe
- real gem_com::vcut
- real gem_com::vpp
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- real gem_com::yd0
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- integer gem_com::isuni
- integer gem_com::ifluid
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- real gem_com::avptch
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- integer gem_com::isphi
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- integer gem_com::xnplt
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- integer gem_com::nzcrt
- integer gem_com::npze
- integer gem_com::npzi
- integer gem_com::npzc
- integer gem_com::npzb
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- real gem_com::wmax
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- real, dimension(:), allocatable gem_com::weightmn
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- complex, dimension(:,:,:,:), allocatable gem_com::pmtrx
- 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
- real gem_equil::er0 =0.
- real gem_equil::q0abs
- real gem_equil::beta
- real gem_equil::rovera
- real gem_equil::shat0
- real gem_equil::teti
- real gem_equil::tcti
- real gem_equil::rhoia
- real gem_equil::rovlni
- real gem_equil::rovlti
- real gem_equil::rovlne
- real gem_equil::rovlte
- real gem_equil::rovlnc
- real gem_equil::rovltc

- real gem_equil::ncne
- real gem_equil::nuacs
- real gem_equil::gamma_e
- real gem_equil::mach
- real gem_equil::f0
- real gem_equil::f0p
- real gem_equil::bunit
- real gem_equil::rin
- real gem_equil::rout
- real gem_equil::dr
- real gem_equil::dth
- real gem_equil::delz
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- integer gem_equil::nr2 =150
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- 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

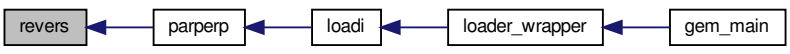
- real function revers (num, n)
- subroutine srcbes (biz, gam0, gam1)

6.7.1 Function/Subroutine Documentation

6.7.1.1 revers()

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

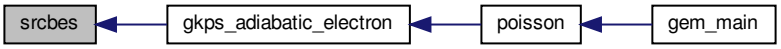
Here is the caller graph for this function:



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

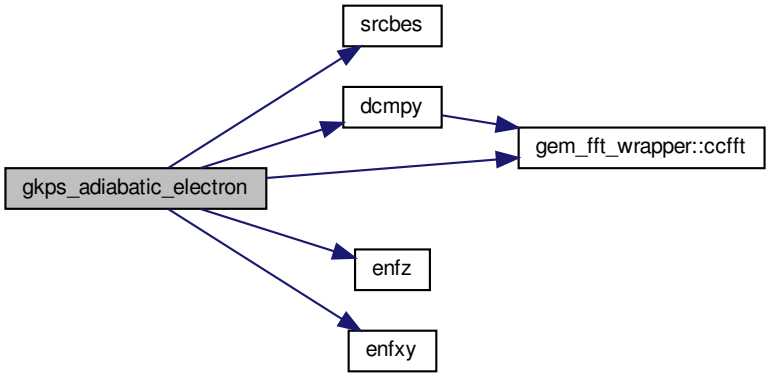
- subroutine gkps_adiabatic_electron (nstep, ip)

6.9.1 Function/Subroutine Documentation

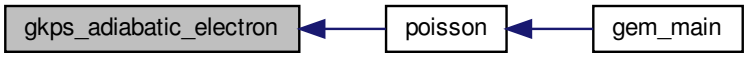
6.9.1.1 gkps_adiabatic_electron()

```
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)

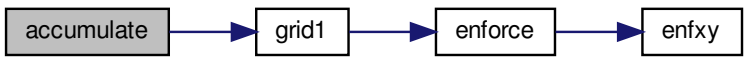
- subroutine restart (iflag, n)
- subroutine parperp (vpar, vperp2, m, pi, cnt, MyId)
- subroutine weight
- subroutine eqmo (ip)
- subroutine spec (n)
- real function ran2 (idum)
- subroutine loadi (ns)
- subroutine enforce (u)
- subroutine enfxy (u)
- subroutine gradu (u, ux, uy)
- subroutine gradx (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:

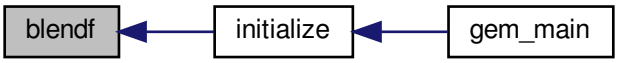


Here is the caller graph for this function:

6.10.1.2 blendf()

```
subroutine blendf ( )
```

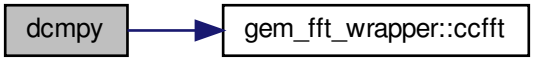
Here is the caller graph for this function:



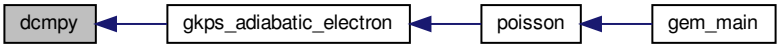
6.10.1.3 dcmpy()

```
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:



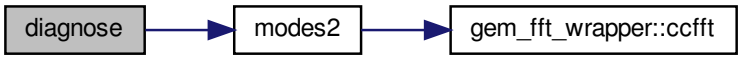
Here is the caller graph for this function:



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()

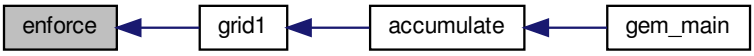
```
real function en3 (
              real s )
```

6.10.1.6 enforce()

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

Here is the call graph for this function:

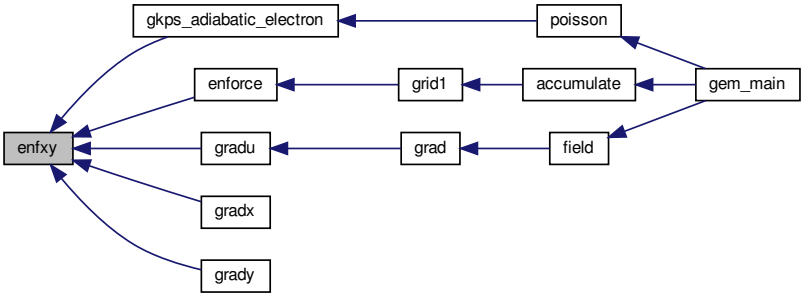
Here is the caller graph for this function:



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()

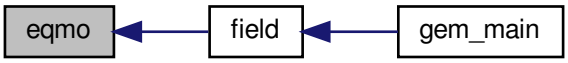
```
subroutine enfz (
             real, dimension(0:imx,0:jmx,0:1) u )
```

Here is the caller graph for this function:

6.10.1.9 eqmo()

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

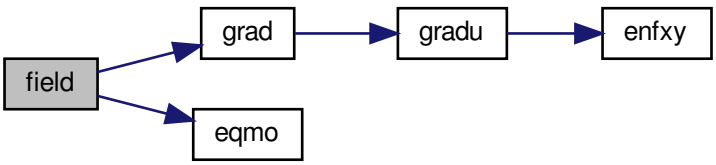
Here is the caller graph for this function:



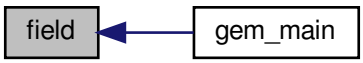
6.10.1.10 field()

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

Here is the call graph for this function:



Here is the caller graph for this function:



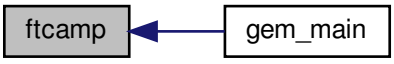
6.10.1.11 filtbl()

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

6.10.1.12 ftcamp()

```
subroutine ftcamp ( )
```

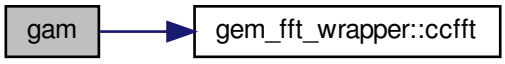
Here is the caller graph for this function:



6.10.1.13 gam()

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

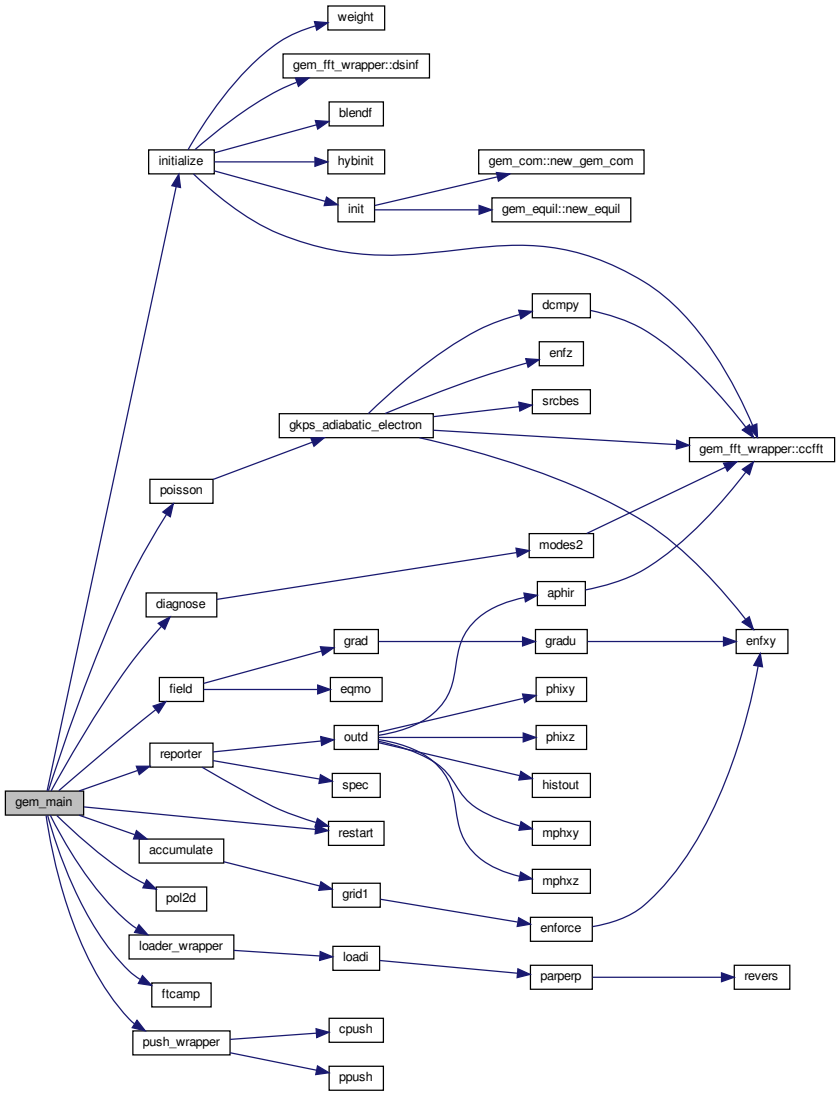
Here is the call graph for this function:



6.10.1.14 gem_main()

```
program gem_main ( )
```

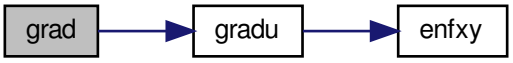
Here is the call graph for this function:



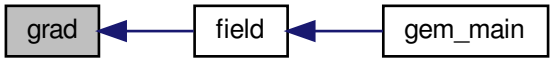
6.10.1.15 grad()

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

Here is the call graph for this function:



Here is the caller graph for this function:

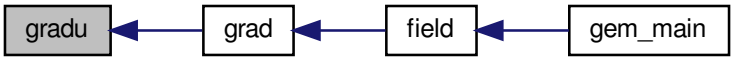


6.10.1.16 gradu()

```
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()

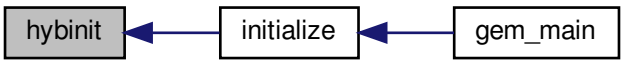
```
subroutine grady (
             real, dimension(0:imx,0:jmx,0:1) u,
             real, dimension(0:imx,0:jmx,0:1) uy )
```

Here is the call graph for this function:

6.10.1.19 hybinit()

```
subroutine hybinit ( )
```

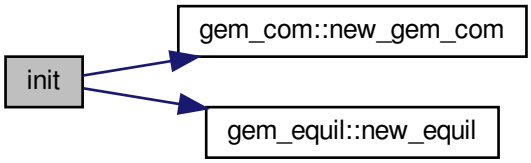
Here is the caller graph for this function:



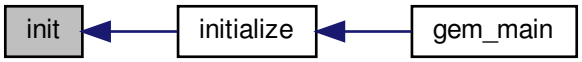
6.10.1.20 init()

```
subroutine init ( )
```

Here is the call graph for this function:



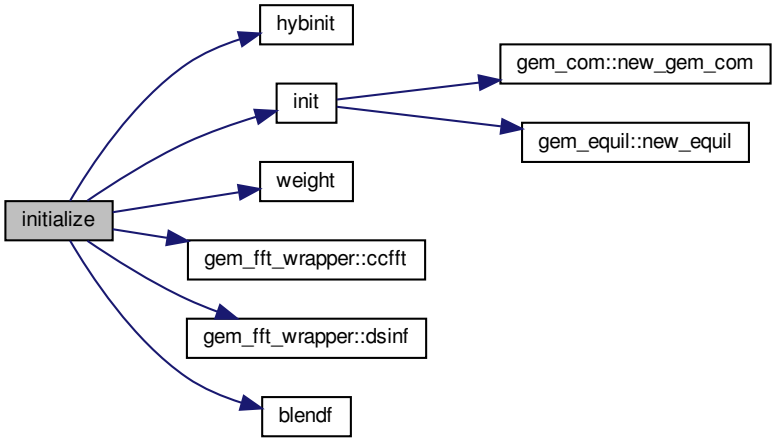
Here is the caller graph for this function:



6.10.1.21 initialize()

```
subroutine initialize ( )
```

Here is the call graph for this function:

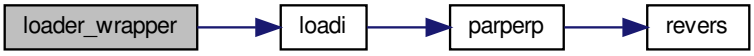


Here is the caller graph for this function:

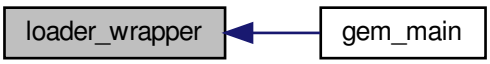
6.10.1.22 loader_wrapper()

```
subroutine loader_wrapper ( )
```

Here is the call graph for this function:



Here is the caller graph for this function:

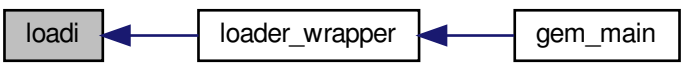


6.10.1.23 loadi()

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

Here is the call graph for this function:

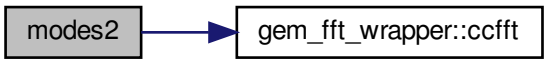
Here is the caller graph for this function:



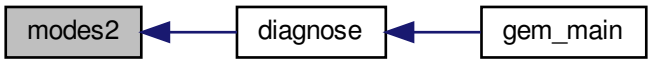
6.10.1.24 modes2()

```
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:

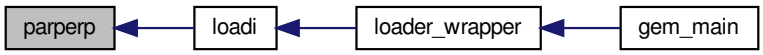


6.10.1.25 parperp()

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

Here is the call graph for this function:

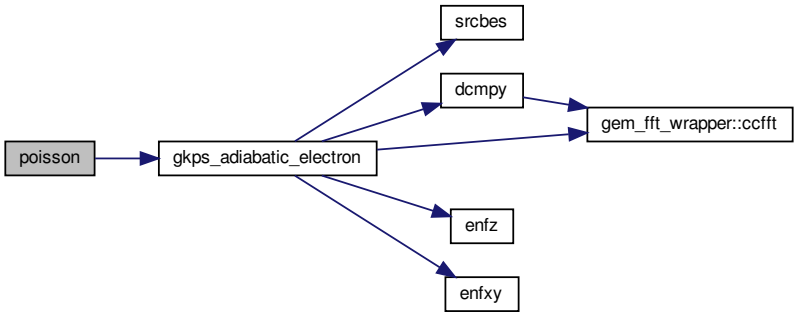
Here is the caller graph for this function:



6.10.1.26 poisson()

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

Here is the call graph for this function:

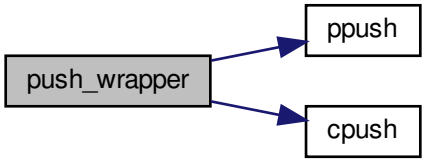


Here is the caller graph for this function:

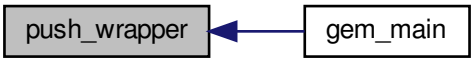
6.10.1.27 push_wrapper()

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

Here is the call graph for this function:



Here is the caller graph for this function:



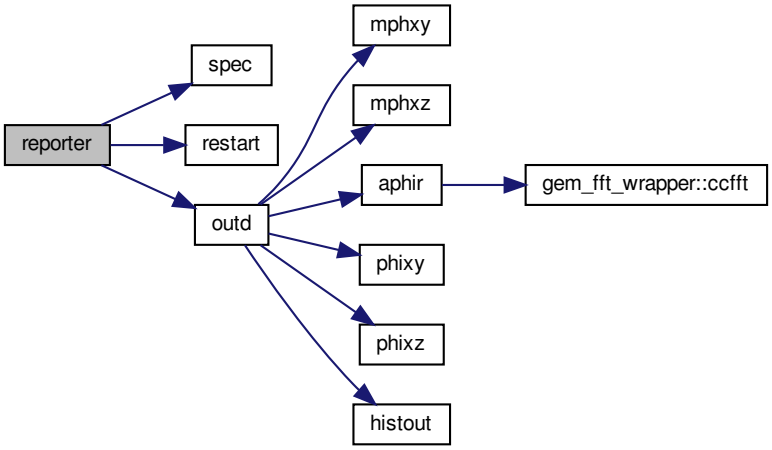
6.10.1.28 ran2()

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

6.10.1.29 reporter()

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

Here is the call graph for this function:

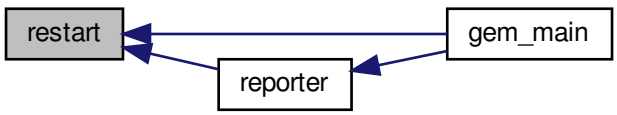


Here is the caller graph for this function:

6.10.1.30 restart()

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

Here is the caller graph for this function:



6.10.1.31 spec()

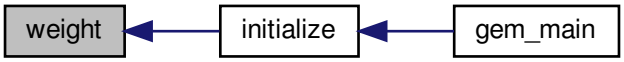
```
subroutine spec (
             integer n )
```

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

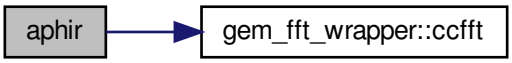
- subroutine outd (n)
- subroutine phixy (grd, fl, unt, n)
- subroutine phixz (grd, fl, unt, n)
- subroutine mphxy (grd, fl, unt)
- subroutine mphxz (grd, fl, unt)
- subroutine histout (unt)
- subroutine aphir (grd, fl, unt, n)
- subroutine dump3d (grd, fl, unt, n)
- subroutine pol2d
- subroutine timephi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

6.11.1 Function/Subroutine Documentation

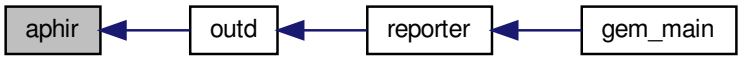
6.11.1.1 aphir()

```
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:



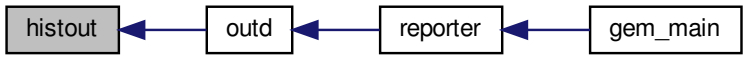
6.11.1.2 dump3d()

```
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 )
```

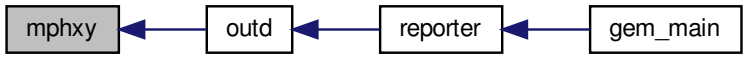
Here is the caller graph for this function:



6.11.1.4 mphxy()

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

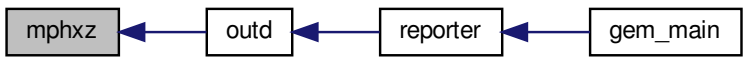
Here is the caller graph for this function:



6.11.1.5 mphxz()

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

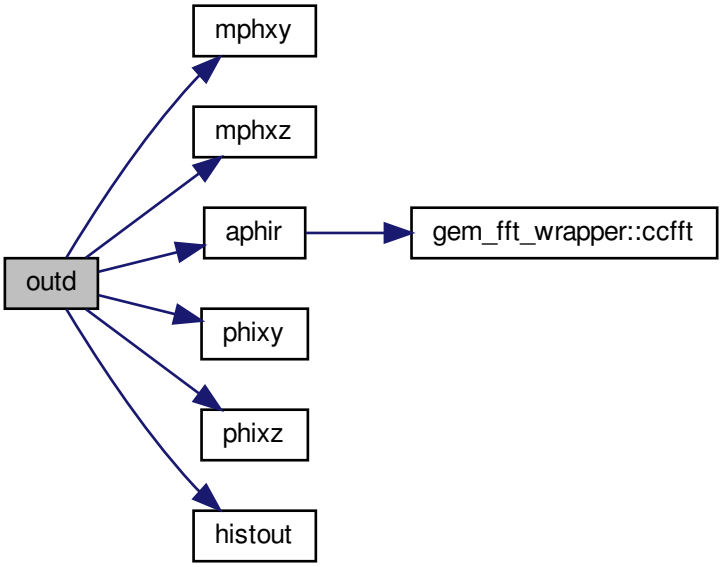
Here is the caller graph for this function:



6.11.1.6 outd()

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

Here is the call graph for this function:

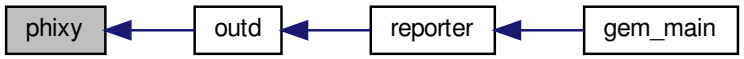


Here is the caller graph for this function:

6.11.1.7 phixy()

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

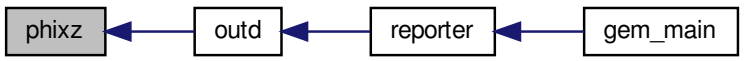
Here is the caller graph for this function:



6.11.1.8 phixz()

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

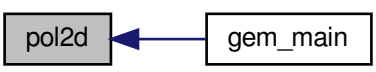
Here is the caller graph for this function:



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

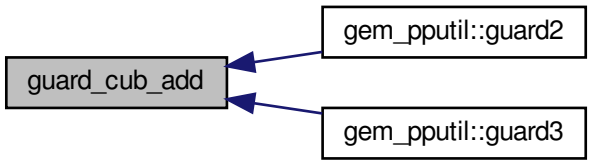
- integer, save gem_pputil::me
- integer, save gem_pputil::nvp
- integer, save gem_pputil::npp
- integer, save gem_pputil::gclr
- integer, save gem_pputil::tclr
- integer, save gem_pputil::pmove_tag =0
- integer, save gem_pputil::tube_comm
- integer, save gem_pputil::grid_comm
- real, dimension(:), allocatable, 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]
```

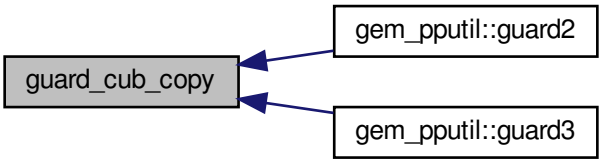
Here is the caller graph for this function:



6.12.1.2 guard_cub_copy()

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

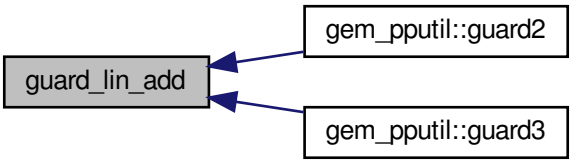
Here is the caller graph for this function:



6.12.1.3 guard_lin_add()

```
subroutine guard_lin_add ( )
```

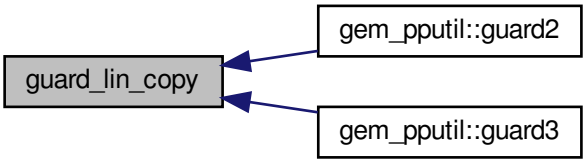
Here is the caller graph for this function:



6.12.1.4 guard_lin_copy()

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

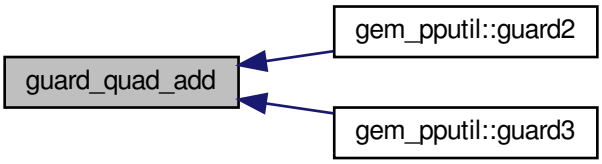
Here is the caller graph for this function:



6.12.1.5 guard_quad_add()

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

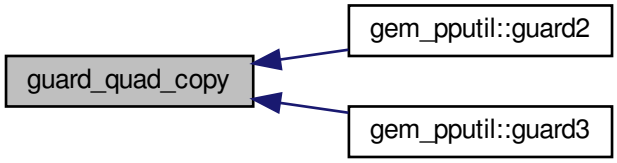
Here is the caller graph for this function:



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

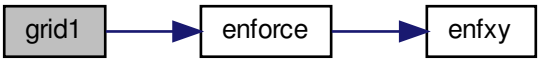
- subroutine grid1 (ip, n)

6.13.1 Function/Subroutine Documentation

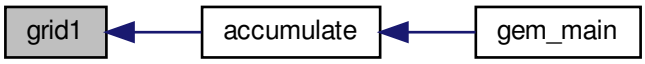
6.13.1.1 grid1()

```
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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