BEGIN\_PROVIDER [ integer(bit\_kind), psi\_det\_sorted\_bit, (N\_int,2,psi\_det\_size) ]

&BEGIN\_PROVIDER [ double precision, psi\_coef\_sorted\_bit, (psi\_det\_size,N\_states) ]

implicit none

BEGIN\_DOC

! Determinants on which we apply <i|H|psi> for perturbation.

! They are sorted by determinants interpreted as integers. Useful

! to accelerate the search of a random determinant in the wave

! function.

END\_DOC

integer :: i,j,k

integer, allocatable :: iorder(:)

integer\*8, allocatable :: bit\_tmp(:)

integer\*8, external :: det\_search\_key

allocate ( iorder(N\_det), bit\_tmp(N\_det) )

do i=1,N\_det

iorder(i) = i

!DIR$ FORCEINLINE

bit\_tmp(i) = det\_search\_key(psi\_det(1,1,i),N\_int)

enddo

call isort(bit\_tmp,iorder,N\_det)

!DIR$ IVDEP

do i=1,N\_det

do j=1,N\_int

psi\_det\_sorted\_bit(j,1,i) = psi\_det(j,1,iorder(i))

psi\_det\_sorted\_bit(j,2,i) = psi\_det(j,2,iorder(i))

enddo

do k=1,N\_states

psi\_coef\_sorted\_bit(i,k) = psi\_coef(iorder(i),k)

enddo

enddo

deallocate(iorder, bit\_tmp)

END\_PROVIDER