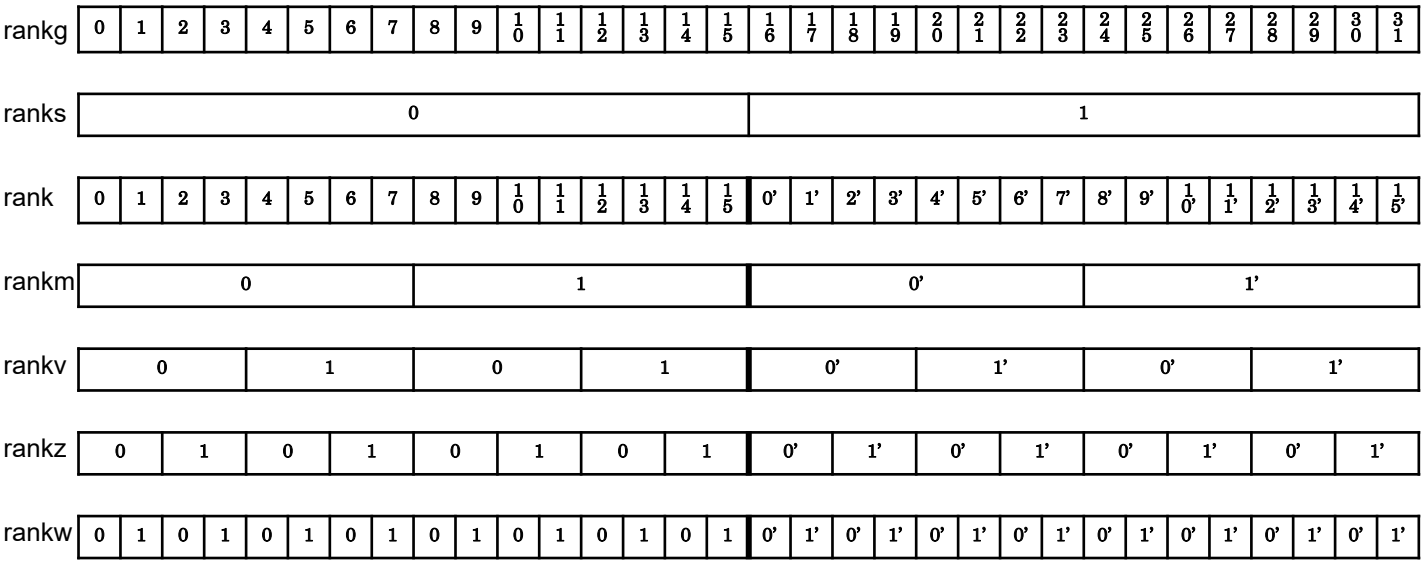
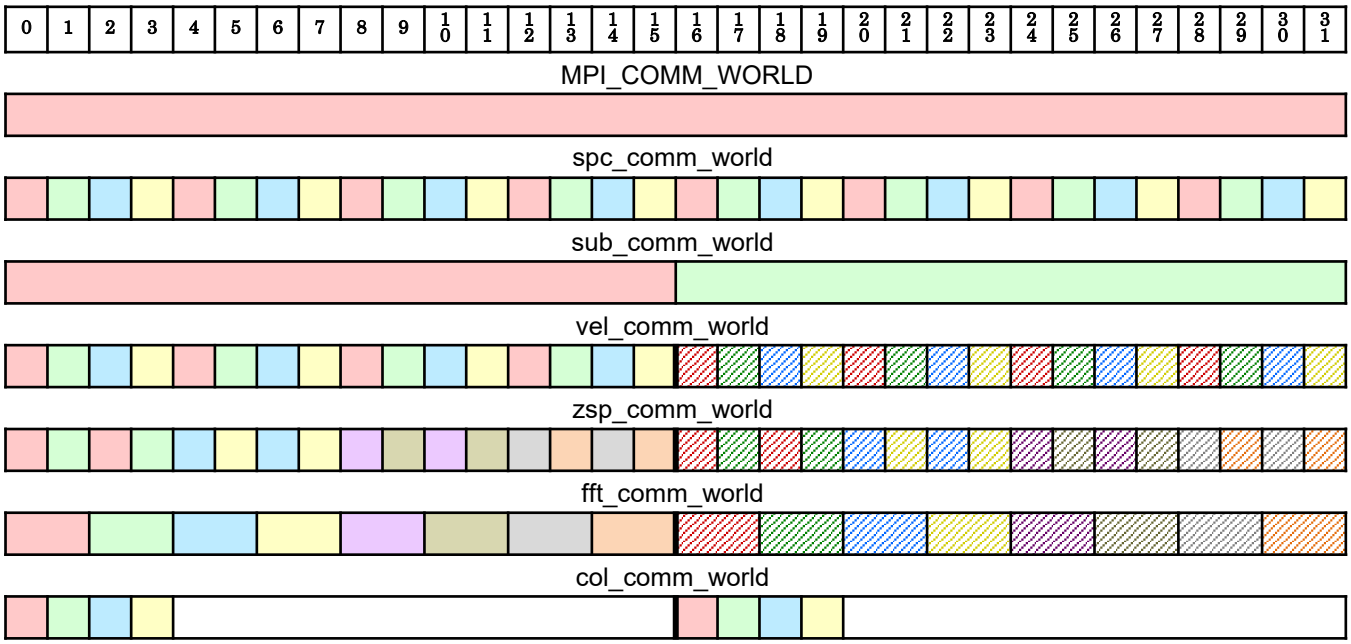
MPI ranks (where nproc = 32, nprocw = 2, nprocz =2, nprocv = 2, nprocm = 2, nprocs = 2)



rankg: global rank in whole MPI processes
ranks: representing species
rank: local rank in each species
rankm: representing μ direction
rankv: representing v direction
rankz: representing z direction
rankw: representing ky direction

MPI communicators (where nproc = 32, nprocw = 2, nprocz =2, nprocv = 2, nprocm = 2, nprocs = 2)



MPI_COMM_WORLD: Communicate among whole MPI processes
spc_comm_world: Communicate among (rankv,rankm,ranks) with fixed (rankw,rankz).
[for velocity-space integration and summation over species]
sub_comm_world: Communicate in ranks.
vel_comm_world: Communicate among (rankv,rankm) with fixed (rankw,rankz), independent to ranks.
[for velocity-space integration in each species]
zsp_comm_world: Communicate among rankz with fixed (rankw,rankv,rankm), independent to ranks.
[for field-line-aligned integration in each species]
fft_comm_world: Communicate among rankw with fixed (rankz,rankv,rankm), independent to ranks.
[for data transpose of parallel 2D FFT]
col_comm_world: Communicate among ranks with vel_rank=0. [for field-particle operator in Sugama collision operator]

Ranks in MPI communicators (where nproc = 32, nprocw = 2, nprocz =2, nprocv = 2, nprocm = 2, nprocs = 2)