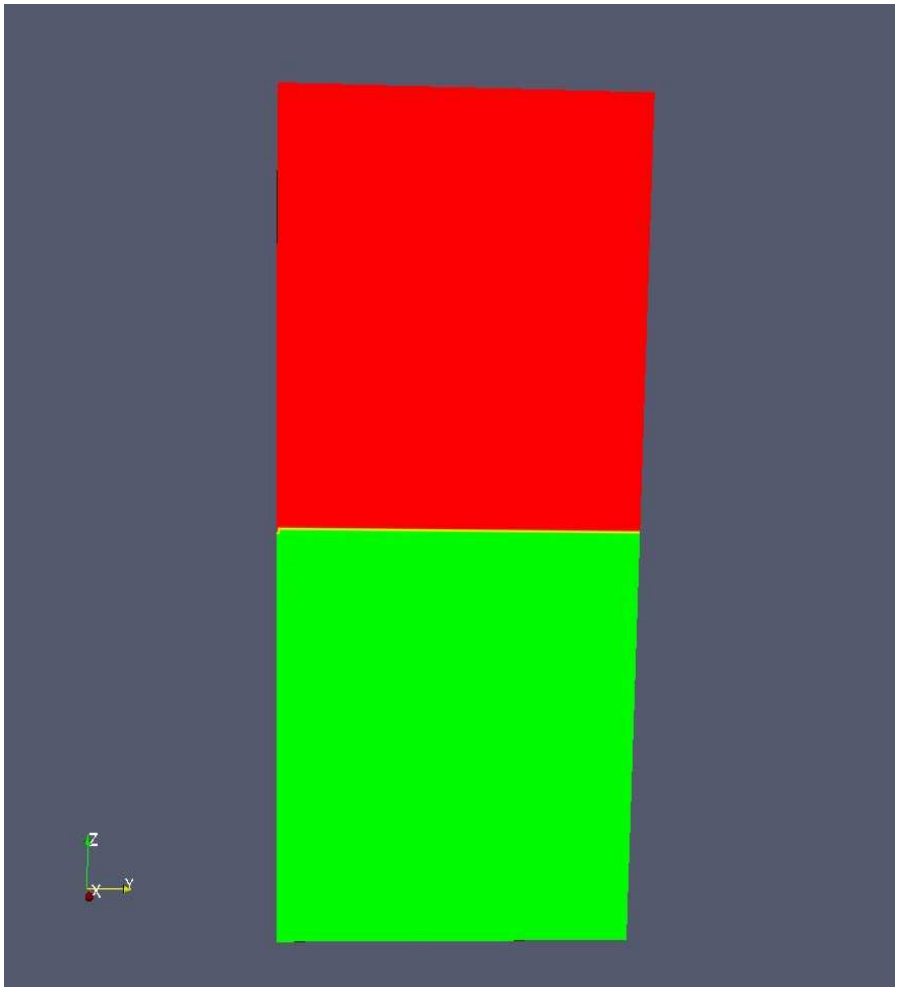
COLUMN MAJOR
Write(3)(((spins(i,j,k),i=1,xx),j=1,yy),k=1,zz)

Q = 2 spin values
X=100
Y=100
Z=200

Assign values to spin[i][j][k]
spin(i,j,[k=1,Z/2]=1
spin(i,j,[k=Z/2+1,Z]=2

Output to a binary file with a (.raw) suffix for Paraview.

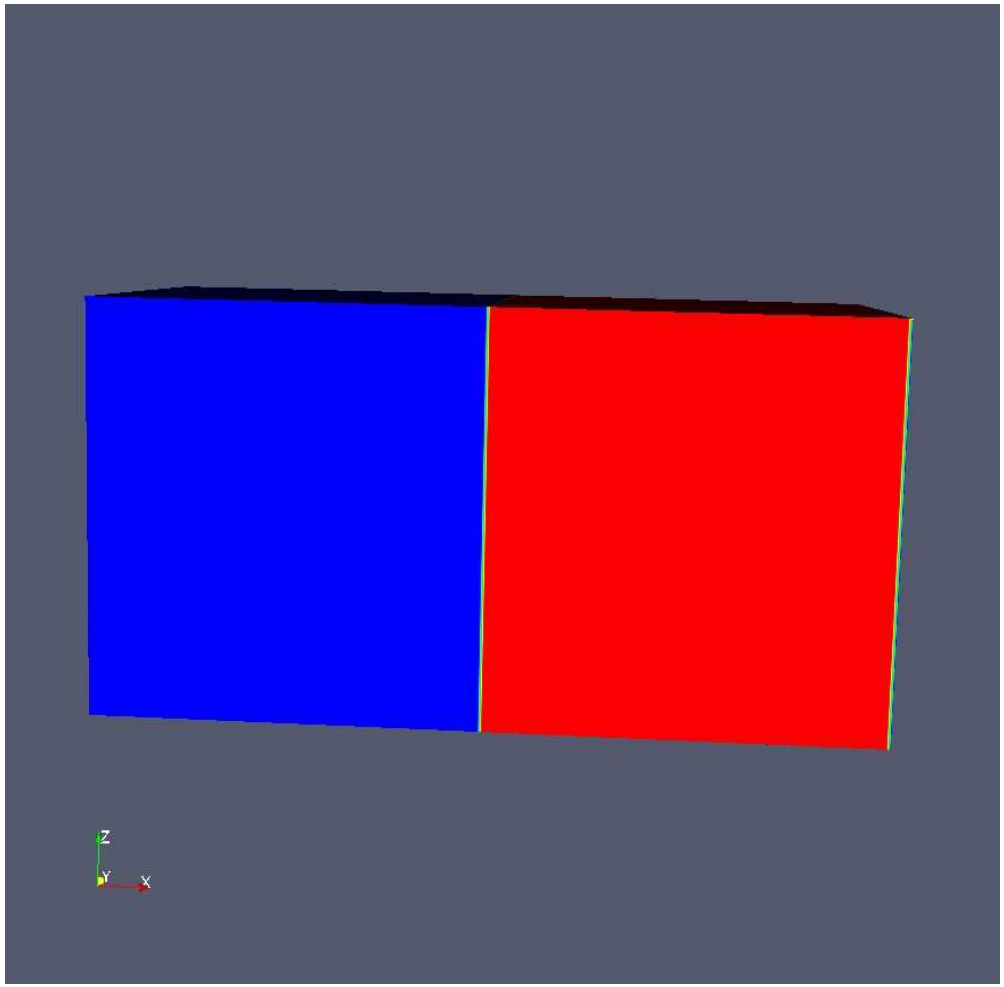


```
! ROW MAJOR
    write(3)(((rngspins(spins(i,j,k)),k=1,zz),j=1,yy),i=1,xx)
```

In reversing the order of packing, one must alter the input dimensions within Paraview:
Extent: 0..199 0..99 0..99
Now the Paraview X axis is equivalent to the MC Z axis

Q = 2 spin values
X=100
Y=100
Z=200

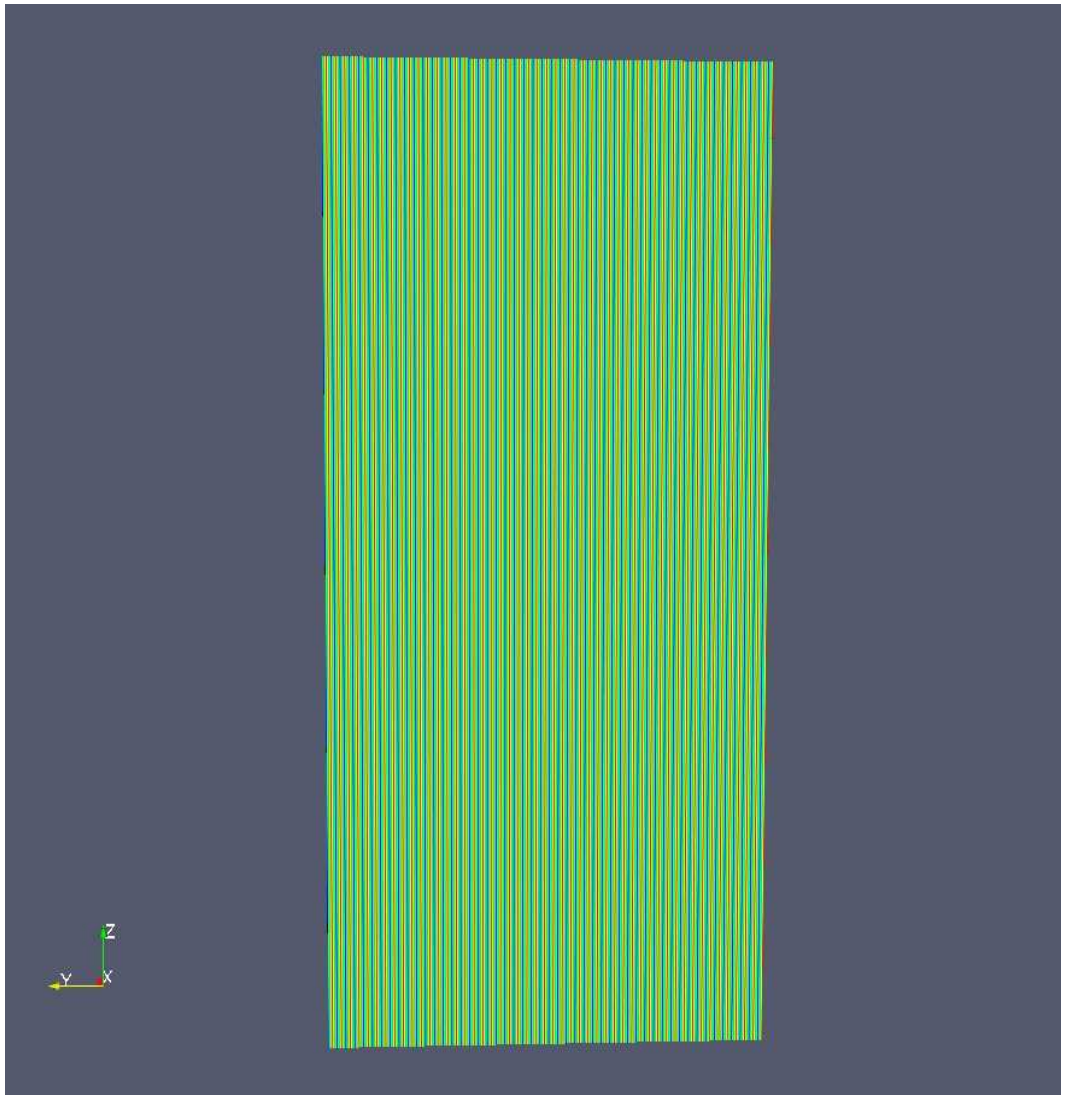
Assign values to spin[i][j][k]
spin(i,j,[k=1,Z/2]=1
spin(i,j,[k=Z/2+1,Z]=2



```
! ROW MAJOR
    write(3)(((rngspins(spins(i,j,k)),k=1,zz),j=1,yy),i=1,xx)
```

If we do NOT reverse the order of packing, the input dimensions within Paraview will be the same as MC:
Extent: 0..99 0..99 0..199
Now the Paraview Z axis is equivalent to the MC Z axis

Now the digital image does not represent the true structure of the MC microstructure.

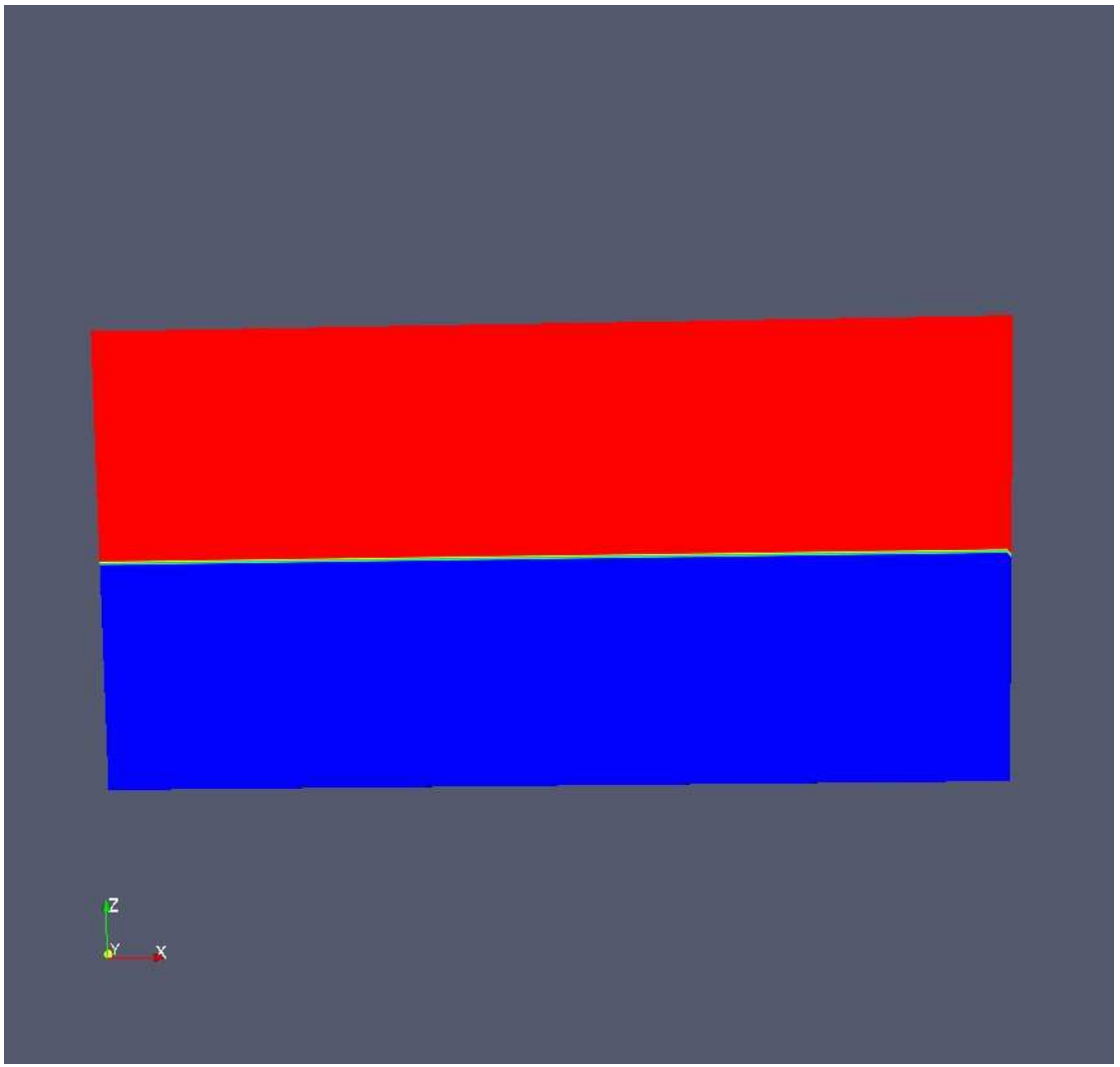


COLUMN MAJOR
Write(3)(((spins(i,j,k),i=1,xx),j=1,yy),k=1,zz)

Q = 2 spin values
X=200
Y=100
Z=100

Assign values to spin[i][j][k]
spin(i,j,[k=1,Z/2]=1
spin(i,j,[k=Z/2+1,Z]=2

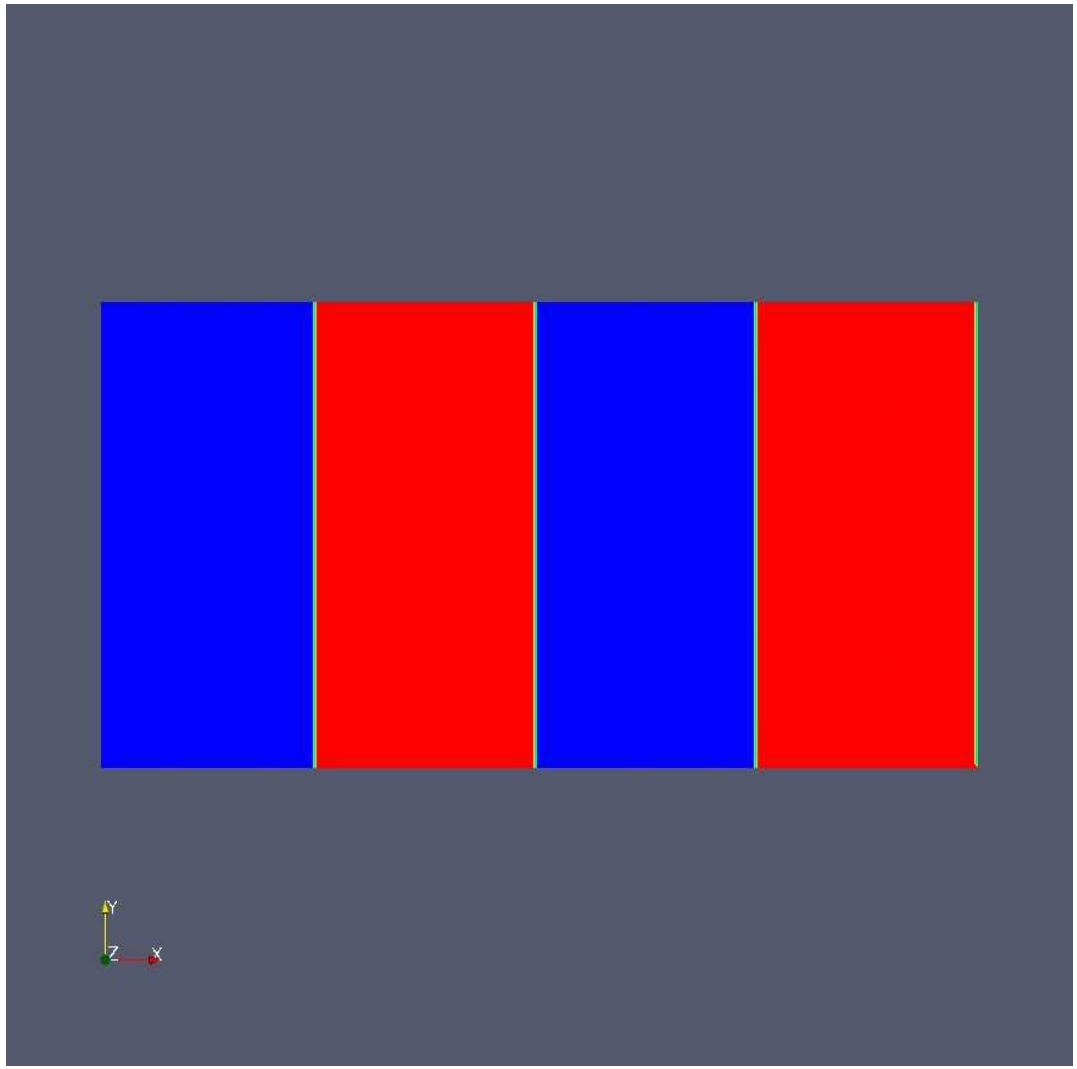
Output to a binary file with a (.raw) suffix for Paraview.



```
! ROW MAJOR
    write(3)(((rngspins(spins(i,j,k)),k=1,zz),j=1,yy),i=1,xx)
```

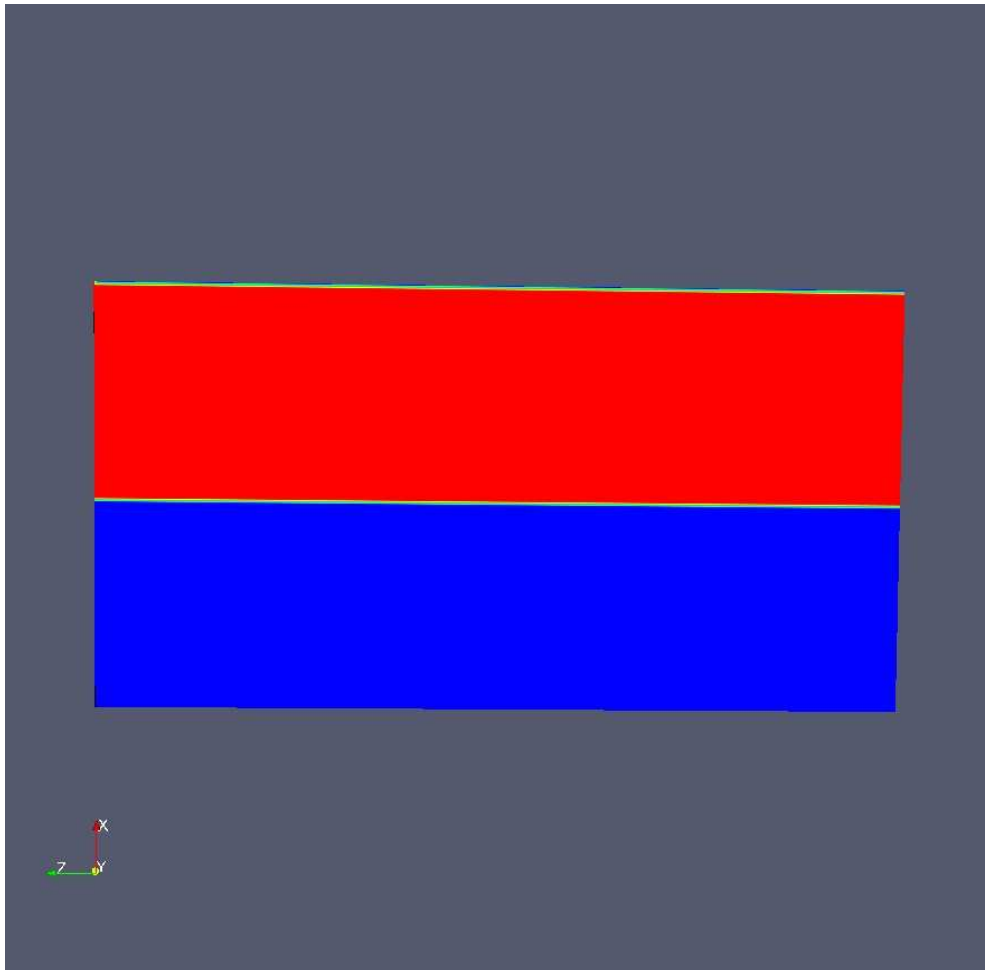
If we do NOT reverse the order of packing, the input dimensions within Paraview will be the same as MC:
Extent: 0..199 0..99 0..99
Now the Paraview Z axis is equivalent to the MC Z axis

Now the digital image does not represent the true structure of the MC microstructure.



```
! ROW MAJOR
      write(3)(((rngspins(spins(i,j,k)),k=1,zz),j=1,yy),i=1,xx)
```

In reversing the order of packing, one must alter the input dimensions within Paraview:
Extent: 0..99   0..99 0..199
Now the Paraview X axis is equivalent to the MC Z axis



CONCLUSION

1. Use column major ordering when using Fortran and pack the arrays in this manner:

write(3)(((spins(i,j,k),i=1,xx),j=1,yy),k=1,zz)

i= fastest varying index
k= slowest varying index

2. Paraview sample axes will be identical to those in the simulation microstructure; hence define the array 'EXTENTS' as

[0...imax-1] [0...jmax-1] [0...kmax-1]