

### **Summit job map viewer:**

module load job-step-viewer

Run the jsrun job

In log file, there will be an url

Visit that URL and it will show the processor map.

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### **NEW: Instructions for building Catalyst enabled pipeline for mfix exa on summit: (2021)**

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```
module load cmake spectrum-mpi/10.3.1.2-20200121 gcc/7.4.0 cmake/3.15.2
export CC=`which gcc`
export CXX=`which g++`
export FC=`which gfortran`
```

### **Build Paraview using superbuild:**

```
git clone --recursive https://gitlab.kitware.com/paraview/paraview-superbuild.git
cd paraview-superbuild
git checkout v5.8.1
git submodule init
git submodule update

cd ..
mkdir pv_build_5.8.1
cd pv_build_5.8.1
```

### **## configure in login node to pick up openGL files with OpenMP enabled**

```
cmake "-Dparaview_SOURCE_SELECTION:STRING=5.8.1" "-DENABLE_zfp:BOOL=ON"
"-DCMAKE_BUILD_TYPE:STRING=Release" "-DENABLE_netcdf:BOOL=OFF" "-DENABLE_visitbridge:BOOL=ON"
"-DENABLE_ffmpeg:BOOL=ON" "-DENABLE_qt5:BOOL=OFF" "-DENABLE_mpi:BOOL=ON"
"-DUSE_SYSTEM_mpi:BOOL=ON" "-DENABLE_paraview:BOOL=ON" "-DENABLE_xdmf3:BOOL=ON"
"-DBUILD_SHARED_LIBS:BOOL=ON" "-DENABLE_vtkm:BOOL=OFF" "-DENABLE_python:BOOL=ON"
"-DENABLE_python3:BOOL=ON" "-DUSE_SYSTEM_python3:BOOL=OFF" "-DENABLE_numpy:BOOL=ON"
"USE_SYSTEM_numpy:BOOL=OFF" "-DENABLE_scipy:BOOL=ON" "-DENABLE_matplotlib:BOOL=ON"
"-DENABLE_vrpn:BOOL=ON" "-DENABLE_cosmotools:BOOL=OFF" "-DENABLE_egl:BOOL=ON"
"-Dmesa_USE_SWR:BOOL=OFF" "-DENABLE_tbb:BOOL=OFF" "-DENABLE_silo:BOOL=ON"
"-DENABLE_boost:BOOL=ON" "-DENABLE_vortexfinder2:BOOL=OFF" "-DENABLE_las:BOOL=ON"
"-DBUILD_TESTING:BOOL=ON" "-DENABLE_adios2:BOOL=OFF" "-DENABLE_ospray:BOOL=OFF"
"-DENABLE_fontconfig:BOOL=ON" "-DENABLE_bzip2:BOOL=ON" ../paraview-superbuild-5.8.1
```

### **## Get a node and rebuild paraview again:**

```
bsub -W 1:00 -nnodes 1 -P CSC340 -ls /bin/bash
make -j
```

### **## Replace paraview and vtk sources with feature-analysis branch**

#### **#clone the ParaView branch**

```
cd superbuid/paraview
mv src src_orig
git clone https://gitlab.kitware.com/danlipsa/paraview.git src
cd src
git checkout feature-analysis
git submodule init
git submodule update
```

#### **#clone the VTK branch**

```
mv VTK VTK_orig
git clone https://gitlab.kitware.com/danlipsa/vtk.git VTK
cd VTK
git checkout feature-analysis
git submodule init
git submodule update
```

### **## Now Build ParaView again and not the whole superbuid**

```
cd ../../buidl (**this is local paraview buidl, not the superbuid)
```

**Check if the CMAKE Flag VTK\_SMP\_IMPLEMENTATION\_TYPE=OpenMP**

### **## Get a node and rebuild paraview again:**

```
bsub -W 1:00 -nnodes 1 -P CSC340 -ls /bin/bash
make -j
make install
```

#### **AMReX: (for openmp, turn on OMP flag)**

```
cmake -DCMAKE_BUILD_TYPE=Release -DENABLE_PARTICLES=yes -DENABLE_AMRDATA=yes -DENABLE_EB=yes
-DCMAKE_INSTALL_PREFIX=/ccs/home/dutta/alpine_proj_space/MFIX_Exa_Catalyst_NEW_06012021/amrex/install
-DENABLE_CATALYST_INSITU=yes
-DParaView_DIR=/ccs/home/dutta/alpine_proj_space/MFIX_Exa_Catalyst_NEW_06012021/pv_build_5.8.1/install/lib/
cmake/paraview-5.8 ..
```

#### **MFIX-Exa: (for openmp, turn on OMP flag)**

```
cmake -DCMAKE_BUILD_TYPE=Release
-DAMReX_ROOT=/ccs/home/dutta/alpine_proj_space/MFIX_Exa_Catalyst_NEW_06012021/amrex/install
-DParaView_DIR=/ccs/home/dutta/alpine_proj_space/MFIX_Exa_Catalyst_NEW_06012021/pv_build_5.8.1/install/lib/
cmake/paraview-5.8 ..
```

**Example Job submit script in Summit that allows OpenMP to work:**

```
#BSUB -P csc340
#BSUB -W 0:03
#BSUB -nnodes 16
#BSUB -J fcc
#BSUB -o fcc.%J
#BSUB -e fcc.%J
```

```
jsrun -n 32 -a 1 -c 16 -r 2 -EOMP_NUM_THREADS=16 -dpacked -brs
/ccs/home/dutta/scratch/MFIX_Catalyst/fcc/mfix_exec_link inputs
```