Parallelization effort route-map

Precondition: Choose preferred MPI implementation (CAS-5801)
* People: This is a system level decision and we need cross-check the input from supercomputing centers (Jeff/Jim) and from the sys. Admins (James Robnett) with the opinion of the developers (Kumar and myself)

Block A: Integration
- Integrate preferred MPI implementation + mpi4py in CASA dev. Envioronment (update yum repo)
- Modify cmake to allow compilation using MPI and disable GIL
- Integrate mpi4casa tests in Jenkins environment
- Integrate ALMA M100 parallel regression in Jenkins environment
* External dependencies: Precondition
* Internal dependencies: These items have to be done one after the other
* People: Scott replacement, Mark, Darrell

Block B: Development
- Implement imager parallelization at C++ level (CAS-6680)
- Use MPI at C++ level to sync. logging (CAS-6705) (Not sure if Jeff wants this one to be prioritized)
* External dependencies: Development on these items can start w/o waiting for Block A (Integration) because the user/admin manual explains how to set up a MPI-ready dev. environment.
* Internal dependencies: These items can be implemented independently and in parallel.
* People
+ Imager team for CAS-6680
+ Sandra for CAS-6705

Block C: Testing
- Update ALMA M100 regression to include lazy filler + partition approach (Get green light from Jeff)
- Test effects of re-tailing according to the imager parallelization strategy (CAS-5122)
* External dependencies: None
* Internal dependencies: These items can be implemented independently and in parallel.
People:
+ Sandra/Michel Calliac/Dirk/Justo for lazy filler + partition test on ALMA M100
+ Kumar for CAS-5122

Block D: Heuristics, Pipeline
- Implement pipeline heuristics to determine best parallelization approach (settings for cluster, partition, and re-tiling prior to imaging) depending on the data reduction scenario.
- Introduce parallelization awareness in the section of the pipeline scripts which use direct tool access.
* External dependencies: Block A
* Internal dependencies: These items can be implemented independently and in parallel.
* People: Pipeline team, Sandra, Justo