C++ FAST v8 FRAMEWORK

INPUT FILE

```
nTurbinesGlob: 3
dryRun: False
restart: False
tStart: 0.0
tEnd:  10.0
tMax:   60.0
ntStart: 0
ntEnd:  1600
dtFAST: 0.00625
nEveryCheckPoint: 1600

Turbine0:
  procNo: 0
  TurbinePos: [ 0.0, 0.0, 0.0 ]
  numScOutputs: 0
  numScInputs: 0
  restartFileName: "banana"
  FASTInputFileName: "t1_Test05.fst"
  TurbID:  1

Turbine1:
  procNo: 0
  TurbinePos: [ 0.0, 0.0, 0.0 ]
  numScOutputs: 0
  numScInputs: 0
  restartFileName: "banana"
  FASTInputFileName: "t2_Test05.fst"
  TurbID:  3

Turbine2:
  procNo: 2
  TurbinePos: [ 0.0, 0.0, 0.0 ]
  numScOutputs: 0
  numScInputs: 0
  restartFileName: "banana"
  FASTInputFileName: "t3_Test05.fst"
```

DRIVER PROGRAM

```cpp
#include "FAST_cInterface.h"
#include <iostream>
#include <mpi.h>

int main() {

  iErr = MPI_Init(NULL, NULL);

  FAST_cInterface FAST;
  FAST.readInputFile("cDriver.i");

  for (int nt = FAST.get_ntStart(); nt <=
FAST.get_ntEnd(); nt++) {
      FAST.step();
  }

  FAST.end() ;
  MPI_Finalize() ;

  return 0;
```
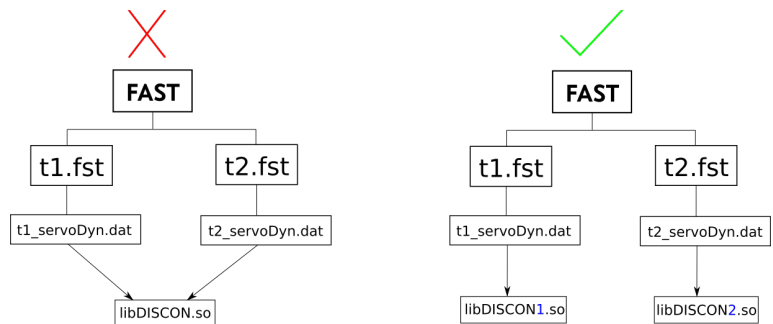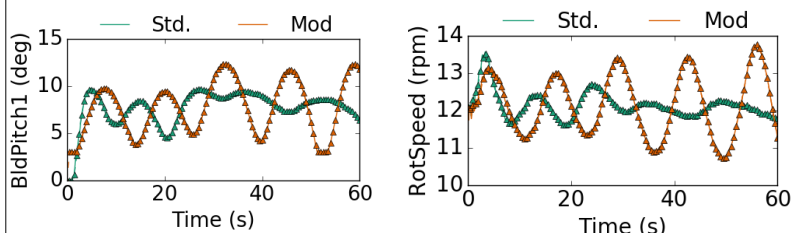
CAN RUN MULTIPLE TURBINES PER CORE

VERIFICATION TEST AGAINST NATIVE FAST

Time history of blade pitch and rotor speed of two turbines with different controllers The triangles correspond to the same case run using a single turbine in FAST.

TESTING FRAMEWORK

```
$bash run_tests.sh

Rtest Begin:

..Test01................ PASSED

..Test02................ PASSED

..Test03................ PASSED

..Test04................ PASSED

..Test05................ PASSED

Rtest End
```