



Setting the resources path

Loading resources path

Resources Loaded

Setting the XML file path:

Initializing Study

Loading study properties...

Set study definition...

Getting study element data...

Getting study name...

Setting study type...

Setting mesh ID...

Setting product full version (Formatted: Year/Date Code)...

Preparing to separate product version date code...

Setting product version year...

Extracting document name...

Setting document name: SimScaleElectromagnetics

Extracting mesh file name

Setting mesh file name: mesh

Initializing log file

Initializing dev file...

Dev file initialized

Log file initialized

Initializing temp file

Temp file initialized

Started on : Wed Jan 8 13:32:13 2025

Initializing study properties

Non Linear Residual Error: 1e-06

1 Solid(s) found in the current study

EMW\_ERROR\_25: No solid body found or no material applied

Type: Error!

Cure: Check the input file or model to ensure that it is properly formatted and that all

necessary data is included. Make sure that the model includes at least one solid geometry. Verify the material assignment to ensure that it is accurate and complete. Ensure that all elements are correctly assigned to the appropriate material properties.

Ended on : Wed Jan 8 13:32:13 2025

EMW\_WARNING\_60017: Resources estimation is not done for this solving session. Consider using the argument -RunMode with value Estimation, before doing full run to check if resources are available.

Type: Warning!

Start fill elements an node arrays from json mesh file

Getting Points (Nodes) coordinates from the mesh

Start reading global surface mesh faces

Filling the elements array

Start reading global volume mesh

End reading global volume mesh

number of elements: 852837

number of nodes: 299004

partner info: 1788

Compute security key done

Preparing mesh database

Preparing database... ( 0 / 14) ...

Preparing database... ( 1 / 14) ...

Preparing database... ( 2 / 14) ...

Creating tets

Number of vertices : 299004

Vertices created

Number of edges : 1450523

Number of triangels : 2004357

Number of tets : 852837

Preparing database... ( 3 / 14) ...

Preparing database... ( 4 / 14) ...

Preparing database... ( 5 / 14) ...

Preparing database... ( 6 / 14) ...

Euler characteristic of the complex is : 1

Is the complex connected : 1

Preparing database... ( 7 / 14) ...

Preparing database... ( 8 / 14) ...

Preparing database... ( 9 / 14) ...

Preparing database... ( 10 / 14) ...

Preparing database... ( 11 / 14) ...

Preparing database... ( 12 / 14) ...

Number of cohomology generators = 0

Preparing database... ( 13 / 14) ...

Preparing database... ( 14 / 14) ...

Start filling elements boundary conditions

End filling elements boundary conditions  
 Finish preparing mesh dataBase  
 EstimatedRunTime:1477.77s  
 Progress: 1%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:24:38  
 Available Memory(GB): 25.68  
 Available Memory 0 Mb  
 -----< CTransientMagneticStudy::Run 1>-----  
 -----< CTransientMagneticStudy::Run 2>-----  
 -----< CTransientMagneticStudy::Run 3>-----  
 Checking component and materials status  
 Checking Components and mesh availability  
 Checking Load/Restraint mesh  
 EMW\_INFO\_30009: Number of mesh faces found in the Boundary Condition Tangential Flux  
 - 1 is: 597436  
 Type: Info  
 EMW\_INFO\_30009: Number of mesh faces found in the Boundary Condition is: 297506  
 Type: Info  
 Finish All mesh checking  
 Checking Force torque mesh  
 -----< CTransientMagneticStudy::Run 4>-----  
 Setting Coils parameters...  
 -----< CTransientMagneticStudy::Run 5>-----  
 Getting Coils mesh data  
 -----< CTransientMagneticStudy::Run 6>-----  
 Getting Gauss values  
 -----< CTransientMagneticStudy::Run 7>-----  
 Checking material non linear status  
 -----< CTransientMagneticStudy::Run 8>-----  
 Solving Coils conduction problem...  
 Forming Coils Support Regions  
 Preparing linear system...  
 Get Degree of Coupling For Conduction Timing: 00:00:00  
 >>> Nbr of used cores: 4  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Pardiso Direct Solver  
 Multi\_Cores Pardiso Direct Solver:Total spent Cpu Time 0.012743  
 Multi\_Cores Pardiso Direct Solver:Total spent Wall Time 0.012000  
 >>End Solving  
 Solving 00:00:00 Dimension 319 Non\_Zeroes 501

reading file

Main call: Finished scanning the solution file for the multi-core solver: Dimension = 319

File size = 2552 Timing: 00:00:00

0 timing on seconds

Done solving conduction for Coil 1

-----< CTransientMagneticStudy::Run 9>-----

Intermediate Steps before the main solver

-----< CTransientMagneticStudy::Run 10>-----

Start Prepare Linear system for vector TS

PrepareLinearSystemForVectorTS 1

PrepareLinearSystemForVectorTS 1

NumberGlobalForVectorTs 1

NumberGlobalForVectorTs 1

NumberGlobalForVectorTs 2

NumberGlobalForVectorTs 2

NumberGlobalForVectorTs 3

NumberGlobalForVectorTs 3

PrepareLinearSystemForVectorTS 2

PrepareLinearSystemForVectorTS 2

PrepareLinearSystemForVectorTS 3

PrepareLinearSystemForVectorTS 3

PrepareLinearSystemForVectorTS 4

PrepareLinearSystemForVectorTS 4

>>> Nbr of used cores: 4

Finish Prepare linear system for vector TS

Distributing the currents for Coil 1

>> end ScanDataFromFiles

>> Number of Cpus 4

>> Start Solving

>>>Solver :: Multi\_Cores Iterative Solver

>> Set Iterative Parameters

>> WriteSolverParameters

>> RunIterativeSolver

Number of iterations: 322 , true residual: 3.9081e-09

Multi\_Cores Iterative Solver:Total spent Cpu Time 3.557294

Multi\_Cores Iterative Solver:Total spent Wall Time 4.035000

>>End Solving

Solving 00:00:04 Dimension 1003409 Non\_Zeroes 11246825

reading file

Main call: Finished scanning the solution file for the multi-core solver: Dimension =

1003409 File size = 8027272 Timing: 00:00:00

0 timing on seconds

reading file

Distributed Current successfully for Coil 1

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-----< CTransientMagneticStudy::Run 11>-----
Done Distributing the currents
IMT Fix Order TransientMagnetic Timing: 0: 0: 0
Number of cohomology generators = 0
Get degree of coupling for transient magnetic Timing: 0: 0: 1
>>> Nbr of used cores: 4
Start solving for TOmega 0.000000e+00
Assembling matrices for Time 0.000000e+00
Assembling matrices for Time 0.000000e+00
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing: 0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time0.000000e+00
Solving matrices for Time0.000000e+00
Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus 4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.67745e-16
Multi_Cores Iterative Solver:Total spent Cpu Time 0.264943
Multi_Cores Iterative Solver:Total spent Wall Time 0.321000
>>End Solving
Solving 00:00:00 Dimension 149386 Non_Zeroes 1045218
reading file
Main call: Finished scanning the solution file for the multi-core solver: Dimension =
149386 File size = 1195088 Timing: 00:00:00
>>>>>
CTransientMagneticStudy::AssembleGlobalForTransientInductanceDecember2017
Timing: 0: 0: 2
>> end ScanDataFromFiles
>> Number of Cpus 4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 7.32037e-19
Multi_Cores Iterative Solver:Total spent Cpu Time 0.262896
Multi_Cores Iterative Solver:Total spent Wall Time 0.307000

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>>End Solving
Solving 00:00:00 Dimension 149386 Non_Zeroes 1045218
reading file
Main call: Finished scanning the solution file for the multi-core solver: Dimension =
149386 File size = 1195088 Timing: 00:00:00
Progress: 1%
Estimated Time: 0:24:38
Remaining Time: 0:24:18
Available Memory(GB): 25.34
Current CPU Percentage: 31.68
Average cores per hour: 1.27
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0
Done solving for TOmega
Writing Solution... 0.000000e+00
Compute Forces And Torques Transient Timing: 0: 0: 1
Write Solution PerPart Timing: 0:0:10
Write Solution PerPart Timing: 10473.000000ms
Start solving for TOmega 1.000000e-04
Assembling matrices for Time 1.000000e-04
Assembling matrices for Time 1.000000e-04
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing: 0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time1.000000e-04
Solving matrices for Time1.000000e-04
Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus 4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.68978e-16
Multi_Cores Iterative Solver:Total spent Cpu Time 0.264018
Multi_Cores Iterative Solver:Total spent Wall Time 0.308000
>>End Solving
Solving 00:00:00 Dimension 149386 Non_Zeroes 1045218
reading file
Main call: Finished scanning the solution file for the multi-core solver: Dimension =
149386 File size = 1195088 Timing: 00:00:00

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## Computing Circuit Quantities

Progress: 2%

Estimated Time: 0:24:38

Remaining Time: 0:23:58

Available Memory(GB): 25.28

Current CPU Percentage: 51.98

Average cores per hour: 2.08

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0

Done solving for TOmega

Writing Solution... 1.000000e-04

Compute Forces And Torques Transient Timing: 0: 0: 1

Write Solution PerPart Timing: 0:0:12

Write Solution PerPart Timing: 12527.000000ms

Start solving for TOmega 2.000000e-04

Assembling matrices for Time 2.000000e-04

Assembling matrices for Time 2.000000e-04

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore

Timing: 0: 0: 2

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory

Used = 0

Solving matrices for Time2.000000e-04

Solving matrices for Time2.000000e-04

Solver in progress...

>> end ScanDataFromFiles

>> Number of Cpus 4

>> Start Solving

>>>Solver :: Multi\_Cores Iterative Solver

>> Set Iterative Parameters

>> WriteSolverParameters

>> RunIterativeSolver

Number of iterations: 167 , true residual: 3.70062e-16

Multi\_Cores Iterative Solver:Total spent Cpu Time 0.260449

Multi\_Cores Iterative Solver:Total spent Wall Time 0.310000

>>End Solving

Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218

reading file

Main call: Finished scanning the solution file for the multi-core solver: Dimension =

149386 File size = 1195088 Timing: 00:00:00

Computing Circuit Quantities

Progress: 4%

Estimated Time: 0:24:38

Remaining Time: 0:23:38

Available Memory(GB): 25.24  
 Current CPU Percentage: 50.02  
 Average cores per hour: 2.00  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 2.000000e-04  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12124.000000ms  
 Start solving for TOmega 3.000000e-04  
 Assembling matrices for Time 3.000000e-04  
 Assembling matrices for Time 3.000000e-04  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time3.000000e-04  
 Solving matrices for Time3.000000e-04  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.64346e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.254449  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.365000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities  
  
 Progress: 5%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:23:18  
 Available Memory(GB): 25.18  
 Current CPU Percentage: 50.50  
 Average cores per hour: 2.02  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega



Writing Solution... 3.000000e-04  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12055.000000ms  
 Start solving for TOmega 4.000000e-04  
 Assembling matrices for Time 4.000000e-04  
 Assembling matrices for Time 4.000000e-04  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 1  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time4.000000e-04  
 Solving matrices for Time4.000000e-04  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.68532e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.254709  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.321000  
 >>End Solving  
 Solving 00:00:01 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities  
  
 Progress: 6%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:22:58  
 Available Memory(GB): 25.05  
 Current CPU Percentage: 50.64  
 Average cores per hour: 2.03  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 4.000000e-04  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12341.000000ms  
 Start solving for TOmega 5.000000e-04

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Assembling matrices for Time 5.000000e-04
Assembling matrices for Time 5.000000e-04
  CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing:      0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time5.000000e-04
Solving matrices for Time5.000000e-04
Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus  4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.67715e-16
Multi_Cores Iterative Solver:Total spent Cpu Time  0.260252
Multi_Cores Iterative Solver:Total spent Wall Time  0.305000
>>End Solving
  Solving   00:00:00  Dimension  149386 Non_Zeroes  1045218
reading file
  Main call: Finished scanning the solution file for the multi-core solver:  Dimension  =
149386 File size  = 1195088 Timing:  00:00:00
Computing Circuit Quantities

Progress: 8%
Estimated Time: 0:24:38
Remaining Time: 0:22:38
Available Memory(GB): 25.02
Current CPU Percentage: 50.41
Average cores per hour: 2.02
Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0
Done  solving for TOmega
Writing Solution... 5.000000e-04
Compute Forces And Torques Transient  Timing:  0: 0: 1
Write Solution PerPart  Timing: 0:0:12
Write Solution PerPart  Timing: 12395.000000ms
Start solving for TOmega 6.000000e-04
Assembling matrices for Time 6.000000e-04
Assembling matrices for Time 6.000000e-04
  CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing:      0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory

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Used = 0
Solving matrices for Time6.000000e-04
Solving matrices for Time6.000000e-04
Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus 4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.63891e-16
Multi_Cores Iterative Solver:Total spent Cpu Time 0.262440
Multi_Cores Iterative Solver:Total spent Wall Time 0.355000
>>End Solving
Solving 00:00:00 Dimension 149386 Non_Zeroes 1045218
reading file
Main call: Finished scanning the solution file for the multi-core solver: Dimension =
149386 File size = 1195088 Timing: 00:00:00
Computing Circuit Quantities

Progress: 9%
Estimated Time: 0:24:38
Remaining Time: 0:22:18
Available Memory(GB): 24.95
Current CPU Percentage: 50.25
Average cores per hour: 2.01
Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0
Done solving for TOmega
Writing Solution... 6.000000e-04
Compute Forces And Torques Transient Timing: 0: 0: 1
Write Solution PerPart Timing: 0:0:12
Write Solution PerPart Timing: 12304.000000ms
Start solving for TOmega 7.000000e-04
Assembling matrices for Time 7.000000e-04
Assembling matrices for Time 7.000000e-04
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing: 0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time7.000000e-04
Solving matrices for Time7.000000e-04
Solver in progress...
>> end ScanDataFromFiles

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```

>> Number of Cpus  4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.63928e-16
Multi_Cores Iterative Solver:Total spent Cpu Time  0.260028
Multi_Cores Iterative Solver:Total spent Wall Time  0.376000
>>End Solving
  Solving  00:00:00  Dimension  149386 Non_Zeroes  1045218
reading file
  Main call: Finished scanning the solution file for the multi-core solver:  Dimension  =
149386 File size  = 1195088 Timing:  00:00:00
Computing Circuit Quantities

Progress: 10%
Estimated Time: 0:24:38
Remaining Time: 0:21:58
Available Memory(GB): 24.83
Current CPU Percentage: 50.25
Average cores per hour: 2.01
Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0
Done  solving for TOmega
Writing Solution... 7.000000e-04
Compute Forces And Torques Transient  Timing:  0: 0: 1
Write Solution PerPart  Timing: 0:0:12
Write Solution PerPart  Timing: 12338.000000ms
Start solving for TOmega 8.000000e-04
Assembling matrices for Time 8.000000e-04
Assembling matrices for Time 8.000000e-04
  CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing:  0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time8.000000e-04
Solving matrices for Time8.000000e-04
Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus  4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters

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>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.65504e-16
Multi_Cores Iterative Solver:Total spent Cpu Time  0.255685
Multi_Cores Iterative Solver:Total spent Wall Time  0.380000
>>End Solving
Solving  00:00:00  Dimension  149386 Non_Zeroes  1045218
reading file
Main call: Finished scanning the solution file for the multi-core solver:  Dimension  =
149386 File size  = 1195088 Timing:  00:00:00
Computing Circuit Quantities

Progress: 12%
Estimated Time: 0:24:38
Remaining Time: 0:21:38
Available Memory(GB): 24.87
Current CPU Percentage: 50.38
Average cores per hour: 2.02
Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0
Done  solving for TOmega
Writing Solution... 8.000000e-04
Compute Forces And Torques Transient  Timing:  0: 0: 1
Write Solution PerPart  Timing: 0:0:12
Write Solution PerPart  Timing: 12250.000000ms
Start solving for TOmega 9.000000e-04
Assembling matrices for Time 9.000000e-04
Assembling matrices for Time 9.000000e-04
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing: 0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time9.000000e-04
Solving matrices for Time9.000000e-04
Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus  4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.69556e-16
Multi_Cores Iterative Solver:Total spent Cpu Time  0.246590
Multi_Cores Iterative Solver:Total spent Wall Time  0.365000
>>End Solving

```

Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities

Progress: 13%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:21:18  
 Available Memory(GB): 24.80  
 Current CPU Percentage: 50.44  
 Average cores per hour: 2.02  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 9.000000e-04  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12346.000000ms  
 Start solving for TOmega 1.000000e-03  
 Assembling matrices for Time 1.000000e-03  
 Assembling matrices for Time 1.000000e-03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time 1.000000e-03  
 Solving matrices for Time 1.000000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>> Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.65304e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.259136  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.366000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities

Progress: 14%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:20:58  
 Available Memory(GB): 24.70  
 Current CPU Percentage: 50.12  
 Average cores per hour: 2.00  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 1.000000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12183.000000ms  
 Start solving for TOmega 1.100000e-03  
 Assembling matrices for Time 1.100000e-03  
 Assembling matrices for Time 1.100000e-03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time1.100000e-03  
 Solving matrices for Time1.100000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.64481e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.257893  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.392000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities  
  
 Progress: 16%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:20:38  
 Available Memory(GB): 24.63

Current CPU Percentage: 50.54  
 Average cores per hour: 2.02  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 1.100000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12291.000000ms  
 Start solving for TOmega 1.200000e-03  
 Assembling matrices for Time 1.200000e-03  
 Assembling matrices for Time 1.200000e-03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time1.200000e-03  
 Solving matrices for Time1.200000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.62566e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.265244  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.321000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Progress: 17%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:20:18  
 Available Memory(GB): 24.53  
 Current CPU Percentage: 50.39  
 Average cores per hour: 2.02  
 Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 1.200000e-03



Compute Forces And Torques Transient Timing: 0: 0: 2  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12359.000000ms  
 Start solving for TOmega 1.300000e-03  
 Assembling matrices for Time 1.300000e-03  
 Assembling matrices for Time 1.300000e-03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time1.300000e-03  
 Solving matrices for Time1.300000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.65669e-16  
 Progress: 18%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:19:58  
 Available Memory(GB): 24.51  
 Current CPU Percentage: 50.48  
 Average cores per hour: 2.02  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.267576  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.322000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 1.300000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 2  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12073.000000ms  
 Start solving for TOmega 1.400000e-03  
 Assembling matrices for Time 1.400000e-03

```

Assembling matrices for Time 1.400000e-03
  CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing:      0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time1.400000e-03
Solving matrices for Time1.400000e-03
Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus  4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.64326e-16
Multi_Cores Iterative Solver:Total spent Cpu Time  0.255537
Multi_Cores Iterative Solver:Total spent Wall Time  0.388000
>>End Solving
  Solving  00:00:00  Dimension  149386 Non_Zeroes  1045218
reading file
  Main call: Finished scanning the solution file for the multi-core solver:  Dimension  =
149386 File size  = 1195088 Timing:  00:00:00
Computing Circuit Quantities

Progress: 20%
Estimated Time: 0:24:38
Remaining Time: 0:19:38
Available Memory(GB): 24.48
Current CPU Percentage: 50.55
Average cores per hour: 2.02
Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0
Done  solving for TOmega
Writing Solution... 1.400000e-03
Compute Forces And Torques Transient  Timing:  0: 0: 1
Write Solution PerPart  Timing: 0:0:12
Write Solution PerPart  Timing: 12345.000000ms
Start solving for TOmega 1.500000e-03
Assembling matrices for Time 1.500000e-03
Assembling matrices for Time 1.500000e-03
  CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing:      0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0

```

Solving matrices for Time1.500000e-03  
 Solving matrices for Time1.500000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.69899e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.265016  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.317000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities  
  
 Progress: 21%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:19:18  
 Available Memory(GB): 24.40  
 Current CPU Percentage: 50.48  
 Average cores per hour: 2.02  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 1.500000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 2  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12411.000000ms  
 Start solving for TOmega 1.600000e-03  
 Assembling matrices for Time 1.600000e-03  
 Assembling matrices for Time 1.600000e-03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time1.600000e-03  
 Solving matrices for Time1.600000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4

```

>> Start Solving
>>> Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.73641e-16
Progress: 23%
Estimated Time: 0:24:38
Remaining Time: 0:18:58
Available Memory(GB): 24.36
Current CPU Percentage: 50.49
Average cores per hour: 2.02
Multi_Cores Iterative Solver: Total spent Cpu Time  0.266802
Multi_Cores Iterative Solver: Total spent Wall Time  0.316000
>> End Solving
Solving  00:00:01  Dimension  149386 Non_Zeroes  1045218
reading file
Main call: Finished scanning the solution file for the multi-core solver:  Dimension  =
149386 File size  = 1195088 Timing:  00:00:00
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0
Done solving for TOmega
Writing Solution... 1.600000e-03
Compute Forces And Torques Transient  Timing:  0: 0: 2
Write Solution PerPart  Timing: 0:0:13
Write Solution PerPart  Timing: 12330.000000ms
Start solving for TOmega 1.700000e-03
Assembling matrices for Time 1.700000e-03
Assembling matrices for Time 1.700000e-03
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing: 0: 0: 1
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time 1.700000e-03
Solving matrices for Time 1.700000e-03
Solver in progress...
Progress: 24%
Estimated Time: 0:24:38
Remaining Time: 0:18:38
Available Memory(GB): 24.32
Current CPU Percentage: 50.40
Average cores per hour: 2.02
>> end ScanDataFromFiles

```

```

>> Number of Cpus  4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.65574e-16
Multi_Cores Iterative Solver:Total spent Cpu Time  0.274441
Multi_Cores Iterative Solver:Total spent Wall Time  0.326000
>>End Solving
  Solving   00:00:01  Dimension  149386 Non_Zeroes  1045218
reading file
  Main call: Finished scanning the solution file for the multi-core solver:  Dimension  =
149386 File size  = 1195088 Timing:  00:00:00
Computing Circuit Quantities

```

```

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0
Done  solving for TOmega
Writing Solution... 1.700000e-03
Compute Forces And Torques Transient  Timing:   0: 0: 2
Write Solution PerPart  Timing: 0:0:12
Write Solution PerPart  Timing: 12026.000000ms
Start solving for TOmega 1.800000e-03
Assembling matrices for Time 1.800000e-03
Assembling matrices for Time 1.800000e-03
  CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing:           0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time1.800000e-03
Solving matrices for Time1.800000e-03
Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus  4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.63006e-16
Multi_Cores Iterative Solver:Total spent Cpu Time  0.260275
Multi_Cores Iterative Solver:Total spent Wall Time  0.386000
>>End Solving
  Solving   00:00:00  Dimension  149386 Non_Zeroes  1045218

```

reading file

Main call: Finished scanning the solution file for the multi-core solver: Dimension = 149386 File size = 1195088 Timing: 00:00:00

Progress: 25%

Estimated Time: 0:24:38

Remaining Time: 0:18:18

Available Memory(GB): 24.29

Current CPU Percentage: 50.40

Average cores per hour: 2.02

Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0

Done solving for TOmega

Writing Solution... 1.800000e-03

Compute Forces And Torques Transient Timing: 0: 0: 2

Write Solution PerPart Timing: 0:0:12

Write Solution PerPart Timing: 12166.000000ms

Start solving for TOmega 1.900000e-03

Assembling matrices for Time 1.900000e-03

Assembling matrices for Time 1.900000e-03

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore

Timing: 0: 0: 2

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory Used = 0

Solving matrices for Time1.900000e-03

Solving matrices for Time1.900000e-03

Solver in progress...

>> end ScanDataFromFiles

>> Number of Cpus 4

>> Start Solving

>>>Solver :: Multi\_Cores Iterative Solver

>> Set Iterative Parameters

>> WriteSolverParameters

>> RunIterativeSolver

Number of iterations: 167 , true residual: 3.66999e-16

Multi\_Cores Iterative Solver:Total spent Cpu Time 0.267748

Multi\_Cores Iterative Solver:Total spent Wall Time 0.366000

>>End Solving

Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218

reading file

Main call: Finished scanning the solution file for the multi-core solver: Dimension = 149386 File size = 1195088 Timing: 00:00:00

Computing Circuit Quantities

Progress: 27%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:17:58  
 Available Memory(GB): 24.26  
 Current CPU Percentage: 50.46  
 Average cores per hour: 2.02  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 1.900000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12337.000000ms  
 Start solving for TOmega 2.000000e-03  
 Assembling matrices for Time 2.000000e-03  
 Assembling matrices for Time 2.000000e-03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time2.000000e-03  
 Solving matrices for Time2.000000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.67375e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.256549  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.391000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities

Progress: 28%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:17:38  
 Available Memory(GB): 24.19  
 Current CPU Percentage: 50.27

Average cores per hour: 2.01  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 2.000000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12325.000000ms  
 Start solving for TOmega 2.100000e-03  
 Assembling matrices for Time 2.100000e-03  
 Assembling matrices for Time 2.100000e-03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time 2.100000e-03  
 Solving matrices for Time 2.100000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>> Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.65725e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.263474  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.314000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities  
  
 Progress: 29%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:17:18  
 Available Memory(GB): 24.15  
 Current CPU Percentage: 50.35  
 Average cores per hour: 2.01  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 2.100000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1



Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12263.000000ms  
 Start solving for TOmega 2.200000e-03  
 Assembling matrices for Time 2.200000e-03  
 Assembling matrices for Time 2.200000e-03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time2.200000e-03  
 Solving matrices for Time2.200000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.68681e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.257062  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.367000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities  
  
 Progress: 31%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:16:58  
 Available Memory(GB): 24.15  
 Current CPU Percentage: 50.11  
 Average cores per hour: 2.00  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 2.200000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12491.000000ms  
 Start solving for TOmega 2.300000e-03  
 Assembling matrices for Time 2.300000e-03  
 Assembling matrices for Time 2.300000e-03

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time 2.300000e-03  
 Solving matrices for Time 2.300000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>> Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.66199e-16  
 Progress: 32%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:16:38  
 Available Memory(GB): 24.07  
 Current CPU Percentage: 49.84  
 Average cores per hour: 1.99  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.259912  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.310000  
 >>End Solving  
 Solving 00:00:01 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 2.300000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 2  
 Write Solution PerPart Timing: 0:0:13  
 Write Solution PerPart Timing: 12440.000000ms  
 Start solving for TOmega 2.400000e-03  
 Assembling matrices for Time 2.400000e-03  
 Assembling matrices for Time 2.400000e-03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 1  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time 2.400000e-03

Solving matrices for Time 2.400000e-03  
 Solver in progress...  
 Progress: 33%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:16:18  
 Available Memory(GB): 24.00  
 Current CPU Percentage: 50.29  
 Average cores per hour: 2.01  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>> Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.69994e-16  
 Multi\_Cores Iterative Solver: Total spent Cpu Time 0.264904  
 Multi\_Cores Iterative Solver: Total spent Wall Time 0.345000  
 >> End Solving  
 Solving 00:00:01 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities  
  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 2.400000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12388.000000ms  
 Start solving for TOmega 2.500000e-03  
 Assembling matrices for Time 2.500000e-03  
 Assembling matrices for Time 2.500000e-03  
 Progress: 35%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:15:58  
 Available Memory(GB): 23.91  
 Current CPU Percentage: 50.58  
 Average cores per hour: 2.02  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0

Solving matrices for Time 2.500000e-03  
 Solving matrices for Time 2.500000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>> Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.65475e-16  
 Multi\_Cores Iterative Solver: Total spent Cpu Time 0.281341  
 Multi\_Cores Iterative Solver: Total spent Wall Time 0.327000  
 >> End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities  
  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 2.500000e-03  
 Compute Forces And Torques Transient Timing: 0:0:1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12297.000000ms  
 Start solving for TOmega 2.600000e-03  
 Assembling matrices for Time 2.600000e-03  
 Assembling matrices for Time 2.600000e-03  
 Progress: 36%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:15:38  
 Available Memory(GB): 23.90  
 Current CPU Percentage: 50.18  
 Average cores per hour: 2.01  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0:0:2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time 2.600000e-03  
 Solving matrices for Time 2.600000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4

```

>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.6503e-16
Multi_Cores Iterative Solver:Total spent Cpu Time  0.264615
Multi_Cores Iterative Solver:Total spent Wall Time  0.310000
>>End Solving
Solving  00:00:00  Dimension  149386 Non_Zeroes  1045218
reading file
Main call: Finished scanning the solution file for the multi-core solver:  Dimension  =
149386 File size  = 1195088 Timing:  00:00:00
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0
Done  solving for TOmega
Writing Solution... 2.600000e-03
Compute Forces And Torques Transient  Timing:  0: 0: 1
Write Solution PerPart  Timing: 0:0:12
Write Solution PerPart  Timing: 12144.000000ms
Start solving for TOmega 2.700000e-03
Assembling matrices for Time 2.700000e-03
Assembling matrices for Time 2.700000e-03
Progress: 37%
Estimated Time: 0:24:38
Remaining Time: 0:15:18
Available Memory(GB): 23.88
Current CPU Percentage: 50.65
Average cores per hour: 2.03
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing:  0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time2.700000e-03
Solving matrices for Time2.700000e-03
Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus  4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver

```

Number of iterations: 167 , true residual: 3.59641e-16  
Multi\_Cores Iterative Solver:Total spent Cpu Time 0.263916  
Multi\_Cores Iterative Solver:Total spent Wall Time 0.353000  
>>End Solving  
Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
reading file  
Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
149386 File size = 1195088 Timing: 00:00:00  
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
Done solving for TOmega  
Writing Solution... 2.700000e-03  
Compute Forces And Torques Transient Timing: 0: 0: 1  
Write Solution PerPart Timing: 0:0:12  
Write Solution PerPart Timing: 12241.000000ms  
Start solving for TOmega 2.800000e-03  
Assembling matrices for Time 2.800000e-03  
Assembling matrices for Time 2.800000e-03  
Progress: 39%  
Estimated Time: 0:24:38  
Remaining Time: 0:14:58  
Available Memory(GB): 23.77  
Current CPU Percentage: 50.08  
Average cores per hour: 2.00  
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
Timing: 0: 0: 2  
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
Used = 0  
Solving matrices for Time2.800000e-03  
Solving matrices for Time2.800000e-03  
Solver in progress...  
>> end ScanDataFromFiles  
>> Number of Cpus 4  
>> Start Solving  
>>>Solver :: Multi\_Cores Iterative Solver  
>> Set Iterative Parameters  
>> WriteSolverParameters  
>> RunIterativeSolver  
Number of iterations: 167 , true residual: 3.68178e-16  
Multi\_Cores Iterative Solver:Total spent Cpu Time 0.263674  
Multi\_Cores Iterative Solver:Total spent Wall Time 0.310000  
>>End Solving  
Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218

reading file

Main call: Finished scanning the solution file for the multi-core solver: Dimension = 149386 File size = 1195088 Timing: 00:00:00  
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0

Done solving for TOmega

Writing Solution... 2.800000e-03

Compute Forces And Torques Transient Timing: 0: 0: 1

Write Solution PerPart Timing: 0:0:12

Write Solution PerPart Timing: 12580.000000ms

Start solving for TOmega 2.900000e-03

Assembling matrices for Time 2.900000e-03

Assembling matrices for Time 2.900000e-03

Progress: 40%

Estimated Time: 0:24:38

Remaining Time: 0:14:38

Available Memory(GB): 23.74

Current CPU Percentage: 49.69

Average cores per hour: 1.99

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore

Timing: 0: 0: 2

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
Used = 0

Solving matrices for Time2.900000e-03

Solving matrices for Time2.900000e-03

Solver in progress...

>> end ScanDataFromFiles

>> Number of Cpus 4

>> Start Solving

>>>Solver :: Multi\_Cores Iterative Solver

>> Set Iterative Parameters

>> WriteSolverParameters

>> RunIterativeSolver

Number of iterations: 167 , true residual: 3.63079e-16

Multi\_Cores Iterative Solver:Total spent Cpu Time 0.261783

Multi\_Cores Iterative Solver:Total spent Wall Time 0.309000

>>End Solving

Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218

reading file

Main call: Finished scanning the solution file for the multi-core solver: Dimension = 149386 File size = 1195088 Timing: 00:00:00  
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 2.900000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12256.000000ms  
 Start solving for TOmega 3.000000e-03  
 Assembling matrices for Time 3.000000e-03  
 Assembling matrices for Time 3.000000e-03  
 Progress: 41%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:14:18  
 Available Memory(GB): 23.70  
 Current CPU Percentage: 50.19  
 Average cores per hour: 2.01  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time3.000000e-03  
 Solving matrices for Time3.000000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.70428e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.268354  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.317000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 3.000000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12



Write Solution PerPart Timing: 12392.000000ms  
 Start solving for TOmega 3.100000e-03  
 Assembling matrices for Time 3.100000e-03  
 Assembling matrices for Time 3.100000e-03  
 Progress: 43%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:13:58  
 Available Memory(GB): 23.65  
 Current CPU Percentage: 50.00  
 Average cores per hour: 2.00  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time3.100000e-03  
 Solving matrices for Time3.100000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.68176e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.271363  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.324000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities  
  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 3.100000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12521.000000ms  
 Start solving for TOmega 3.200000e-03  
 Assembling matrices for Time 3.200000e-03  
 Assembling matrices for Time 3.200000e-03  
 Progress: 44%

Estimated Time: 0:24:38  
 Remaining Time: 0:13:38  
 Available Memory(GB): 23.61  
 Current CPU Percentage: 49.53  
 Average cores per hour: 1.98  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time 3.200000e-03  
 Solving matrices for Time 3.200000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>> Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.65278e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.273038  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.327000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities  
  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 3.200000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 2  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12249.000000ms  
 Start solving for TOmega 3.300000e-03  
 Assembling matrices for Time 3.300000e-03  
 Assembling matrices for Time 3.300000e-03  
 Progress: 46%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:13:18  
 Available Memory(GB): 23.53  
 Current CPU Percentage: 50.22  
 Average cores per hour: 2.01

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
Timing: 0: 0: 2  
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
Used = 0  
Solving matrices for Time3.300000e-03  
Solving matrices for Time3.300000e-03  
Solver in progress...  
>> end ScanDataFromFiles  
>> Number of Cpus 4  
>> Start Solving  
>>>Solver :: Multi\_Cores Iterative Solver  
>> Set Iterative Parameters  
>> WriteSolverParameters  
>> RunIterativeSolver  
Number of iterations: 167 , true residual: 3.67841e-16  
Multi\_Cores Iterative Solver:Total spent Cpu Time 0.264726  
Multi\_Cores Iterative Solver:Total spent Wall Time 0.340000  
>>End Solving  
Solving 00:00:01 Dimension 149386 Non\_Zeroes 1045218  
reading file  
Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
149386 File size = 1195088 Timing: 00:00:00  
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
Done solving for TOmega  
Writing Solution... 3.300000e-03  
Compute Forces And Torques Transient Timing: 0: 0: 2  
Write Solution PerPart Timing: 0:0:13  
Write Solution PerPart Timing: 12423.000000ms  
Start solving for TOmega 3.400000e-03  
Assembling matrices for Time 3.400000e-03  
Assembling matrices for Time 3.400000e-03  
Progress: 47%  
Estimated Time: 0:24:38  
Remaining Time: 0:12:58  
Available Memory(GB): 23.47  
Current CPU Percentage: 49.84  
Average cores per hour: 1.99

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
Timing: 0: 0: 1  
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
Used = 0  
Solving matrices for Time3.400000e-03

Solving matrices for Time 3.400000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>> Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.62682e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.264563  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.311000  
 >>End Solving  
 Solving 00:00:01 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 3.400000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 2  
 Write Solution PerPart Timing: 0:0:13  
 Write Solution PerPart Timing: 12269.000000ms  
 Start solving for TOmega 3.500000e-03  
 Assembling matrices for Time 3.500000e-03  
 Assembling matrices for Time 3.500000e-03  
 Progress: 48%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:12:38  
 Available Memory(GB): 23.38  
 Current CPU Percentage: 50.40  
 Average cores per hour: 2.02  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 1  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time 3.500000e-03  
 Solving matrices for Time 3.500000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving

```

>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.64392e-16
Multi_Cores Iterative Solver:Total spent Cpu Time  0.261329
Multi_Cores Iterative Solver:Total spent Wall Time  0.389000
>>End Solving
  Solving   00:00:01  Dimension  149386 Non_Zeroes  1045218
reading file
  Main call: Finished scanning the solution file for the multi-core solver:  Dimension  =
149386 File size  = 1195088 Timing:  00:00:00
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0
Done  solving for TOmega
Writing Solution... 3.500000e-03
Compute Forces And Torques Transient  Timing:   0: 0: 2
Write Solution PerPart  Timing: 0:0:13
Write Solution PerPart  Timing: 12134.000000ms
Start solving for TOmega 3.600000e-03
Assembling matrices for Time 3.600000e-03
Assembling matrices for Time 3.600000e-03
Progress: 50%
Estimated Time: 0:24:38
Remaining Time: 0:12:18
Available Memory(GB): 23.36
Current CPU Percentage: 50.80
Average cores per hour: 2.03
  CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing:           0: 0: 1
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time3.600000e-03
Solving matrices for Time3.600000e-03
Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus  4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.67027e-16

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Multi\_Cores Iterative Solver:Total spent Cpu Time 0.251476  
Multi\_Cores Iterative Solver:Total spent Wall Time 0.376000  
>>End Solving  
Solving 00:00:01 Dimension 149386 Non\_Zeroes 1045218  
reading file  
Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
149386 File size = 1195088 Timing: 00:00:00  
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
Done solving for TOmega  
Writing Solution... 3.600000e-03  
Compute Forces And Torques Transient Timing: 0: 0: 2  
Write Solution PerPart Timing: 0:0:13  
Write Solution PerPart Timing: 12366.000000ms  
Start solving for TOmega 3.700000e-03  
Assembling matrices for Time 3.700000e-03  
Assembling matrices for Time 3.700000e-03  
Progress: 51%  
Estimated Time: 0:24:38  
Remaining Time: 0:11:58  
Available Memory(GB): 23.27  
Current CPU Percentage: 50.06  
Average cores per hour: 2.00  
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
Timing: 0: 0: 1  
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
Used = 0  
Solving matrices for Time3.700000e-03  
Solving matrices for Time3.700000e-03  
Solver in progress...  
>> end ScanDataFromFiles  
>> Number of Cpus 4  
>> Start Solving  
>>>Solver :: Multi\_Cores Iterative Solver  
>> Set Iterative Parameters  
>> WriteSolverParameters  
>> RunIterativeSolver  
Number of iterations: 167 , true residual: 3.65023e-16  
Multi\_Cores Iterative Solver:Total spent Cpu Time 0.276469  
Multi\_Cores Iterative Solver:Total spent Wall Time 0.323000  
>>End Solving  
Solving 00:00:01 Dimension 149386 Non\_Zeroes 1045218  
reading file

Main call: Finished scanning the solution file for the multi-core solver: Dimension = 149386 File size = 1195088 Timing: 00:00:00  
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0

Done solving for TOmega

Writing Solution... 3.700000e-03

Compute Forces And Torques Transient Timing: 0: 0: 2

Write Solution PerPart Timing: 0:0:13

Write Solution PerPart Timing: 12375.000000ms

Start solving for TOmega 3.800000e-03

Assembling matrices for Time 3.800000e-03

Assembling matrices for Time 3.800000e-03

Progress: 52%

Estimated Time: 0:24:38

Remaining Time: 0:11:38

Available Memory(GB): 23.31

Current CPU Percentage: 49.80

Average cores per hour: 1.99

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore

Timing: 0: 0: 1

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
Used = 0

Solving matrices for Time3.800000e-03

Solving matrices for Time3.800000e-03

Solver in progress...

>> end ScanDataFromFiles

>> Number of Cpus 4

>> Start Solving

>>>Solver :: Multi\_Cores Iterative Solver

>> Set Iterative Parameters

>> WriteSolverParameters

>> RunIterativeSolver

Number of iterations: 167 , true residual: 3.67266e-16

Multi\_Cores Iterative Solver:Total spent Cpu Time 0.264882

Multi\_Cores Iterative Solver:Total spent Wall Time 0.319000

>>End Solving

Solving 00:00:01 Dimension 149386 Non\_Zeroes 1045218  
reading file

Main call: Finished scanning the solution file for the multi-core solver: Dimension = 149386 File size = 1195088 Timing: 00:00:00  
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0

Done solving for TOmega  
 Writing Solution... 3.800000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12277.000000ms  
 Start solving for TOmega 3.900000e-03  
 Assembling matrices for Time 3.900000e-03  
 Assembling matrices for Time 3.900000e-03  
 Progress: 54%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:11:18  
 Available Memory(GB): 23.28  
 Current CPU Percentage: 50.09  
 Average cores per hour: 2.00  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 1  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time3.900000e-03  
 Solving matrices for Time3.900000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.62209e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.247903  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.369000  
 >>End Solving  
 Solving 00:00:01 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 3.900000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12152.000000ms



Start solving for TOmega 4.000000e-03  
 Assembling matrices for Time 4.000000e-03  
 Assembling matrices for Time 4.000000e-03  
 Progress: 55%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:10:58  
 Available Memory(GB): 23.24  
 Current CPU Percentage: 50.94  
 Average cores per hour: 2.04  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 1  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time4.000000e-03  
 Solving matrices for Time4.000000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.64996e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.266002  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.402000  
 >>End Solving  
 Solving 00:00:01 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 4.000000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12481.000000ms  
 Start solving for TOmega 4.100000e-03  
 Assembling matrices for Time 4.100000e-03  
 Assembling matrices for Time 4.100000e-03  
 Progress: 56%  
 Estimated Time: 0:24:38

Remaining Time: 0:10:38  
 Available Memory(GB): 23.22  
 Current CPU Percentage: 49.70  
 Average cores per hour: 1.99  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time 4.100000e-03  
 Solving matrices for Time 4.100000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>> Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.68098e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.250359  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.375000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 4.100000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12171.000000ms  
 Start solving for TOmega 4.200000e-03  
 Assembling matrices for Time 4.200000e-03  
 Assembling matrices for Time 4.200000e-03  
 Progress: 58%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:10:18  
 Available Memory(GB): 23.14  
 Current CPU Percentage: 50.72  
 Average cores per hour: 2.03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore

Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time4.200000e-03  
 Solving matrices for Time4.200000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.68816e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.255273  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.387000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 4.200000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12208.000000ms  
 Start solving for TOmega 4.300000e-03  
 Assembling matrices for Time 4.300000e-03  
 Assembling matrices for Time 4.300000e-03  
 Progress: 59%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:9:58  
 Available Memory(GB): 23.06  
 Current CPU Percentage: 50.50  
 Average cores per hour: 2.02  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time4.300000e-03  
 Solving matrices for Time4.300000e-03

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Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus 4
>> Start Solving
>>> Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.69254e-16
Multi_Cores Iterative Solver:Total spent Cpu Time 0.249651
Multi_Cores Iterative Solver:Total spent Wall Time 0.373000
>>End Solving
Solving 00:00:00 Dimension 149386 Non_Zeroes 1045218
reading file
Main call: Finished scanning the solution file for the multi-core solver: Dimension =
149386 File size = 1195088 Timing: 00:00:00
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0
Done solving for TOmega
Writing Solution... 4.300000e-03
Compute Forces And Torques Transient Timing: 0: 0: 1
Write Solution PerPart Timing: 0:0:12
Write Solution PerPart Timing: 12211.000000ms
Start solving for TOmega 4.400000e-03
Assembling matrices for Time 4.400000e-03
Assembling matrices for Time 4.400000e-03
Progress: 60%
Estimated Time: 0:24:38
Remaining Time: 0:9:38
Available Memory(GB): 23.06
Current CPU Percentage: 50.67
Average cores per hour: 2.03
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing: 0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time4.400000e-03
Solving matrices for Time4.400000e-03
Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus 4
>> Start Solving
>>> Solver :: Multi_Cores Iterative Solver

```

```

>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.64542e-16
Multi_Cores Iterative Solver:Total spent Cpu Time  0.268621
Multi_Cores Iterative Solver:Total spent Wall Time  0.403000
>>End Solving
  Solving   00:00:00  Dimension  149386 Non_Zeroes  1045218
reading file
  Main call: Finished scanning the solution file for the multi-core solver:  Dimension  =
149386 File size  = 1195088 Timing:  00:00:00
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0
Done  solving for TOmega
Writing Solution... 4.400000e-03
Compute Forces And Torques Transient  Timing:   0: 0: 1
Write Solution PerPart  Timing: 0:0:12
Write Solution PerPart  Timing: 12305.000000ms
Start solving for TOmega 4.500000e-03
Assembling matrices for Time 4.500000e-03
Assembling matrices for Time 4.500000e-03
Progress: 62%
Estimated Time: 0:24:38
Remaining Time: 0:9:18
Available Memory(GB): 22.96
Current CPU Percentage: 49.58
Average cores per hour: 1.98
  CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore
Timing:          0: 0: 2
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory
Used = 0
Solving matrices for Time4.500000e-03
Solving matrices for Time4.500000e-03
Solver in progress...
>> end ScanDataFromFiles
>> Number of Cpus  4
>> Start Solving
>>>Solver :: Multi_Cores Iterative Solver
>> Set Iterative Parameters
>> WriteSolverParameters
>> RunIterativeSolver
Number of iterations: 167 , true residual: 3.66779e-16
Multi_Cores Iterative Solver:Total spent Cpu Time  0.260028

```

Multi\_Cores Iterative Solver:Total spent Wall Time 0.359000  
>>End Solving  
Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
reading file  
Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
149386 File size = 1195088 Timing: 00:00:00  
Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
Done solving for TOmega  
Writing Solution... 4.500000e-03  
Compute Forces And Torques Transient Timing: 0: 0: 2  
Write Solution PerPart Timing: 0:0:12  
Write Solution PerPart Timing: 12252.000000ms  
Start solving for TOmega 4.600000e-03  
Assembling matrices for Time 4.600000e-03  
Assembling matrices for Time 4.600000e-03  
Progress: 63%  
Estimated Time: 0:24:38  
Remaining Time: 0:8:58  
Available Memory(GB): 22.94  
Current CPU Percentage: 50.20  
Average cores per hour: 2.01  
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
Timing: 0: 0: 2  
CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
Used = 0  
Solving matrices for Time4.600000e-03  
Solving matrices for Time4.600000e-03  
Solver in progress...  
>> end ScanDataFromFiles  
>> Number of Cpus 4  
>> Start Solving  
>>>Solver :: Multi\_Cores Iterative Solver  
>> Set Iterative Parameters  
>> WriteSolverParameters  
>> RunIterativeSolver  
Number of iterations: 167 , true residual: 3.65328e-16  
Multi\_Cores Iterative Solver:Total spent Cpu Time 0.261602  
Multi\_Cores Iterative Solver:Total spent Wall Time 0.332000  
>>End Solving  
Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
reading file  
Main call: Finished scanning the solution file for the multi-core solver: Dimension =

149386 File size = 1195088 Timing: 00:00:00

Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0

Done solving for TOmega

Writing Solution... 4.600000e-03

Compute Forces And Torques Transient Timing: 0: 0: 2

Write Solution PerPart Timing: 0:0:13

Write Solution PerPart Timing: 12321.000000ms

Start solving for TOmega 4.700000e-03

Assembling matrices for Time 4.700000e-03

Assembling matrices for Time 4.700000e-03

Progress: 64%

Estimated Time: 0:24:38

Remaining Time: 0:8:38

Available Memory(GB): 22.83

Current CPU Percentage: 50.11

Average cores per hour: 2.00

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore

Timing: 0: 0: 1

CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory

Used = 0

Solving matrices for Time4.700000e-03

Solving matrices for Time4.700000e-03

Solver in progress...

>> end ScanDataFromFiles

>> Number of Cpus 4

>> Start Solving

>>>Solver :: Multi\_Cores Iterative Solver

>> Set Iterative Parameters

>> WriteSolverParameters

>> RunIterativeSolver

Number of iterations: 167 , true residual: 3.65094e-16

Multi\_Cores Iterative Solver:Total spent Cpu Time 0.249671

Multi\_Cores Iterative Solver:Total spent Wall Time 0.378000

>>End Solving

Solving 00:00:01 Dimension 149386 Non\_Zeroes 1045218

reading file

Main call: Finished scanning the solution file for the multi-core solver: Dimension =

149386 File size = 1195088 Timing: 00:00:00

Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0

Done solving for TOmega

Writing Solution... 4.700000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 2  
 Progress: 66%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:8:18  
 Available Memory(GB): 22.85  
 Current CPU Percentage: 50.56  
 Average cores per hour: 2.02  
 Write Solution PerPart Timing: 0:0:13  
 Write Solution PerPart Timing: 12358.000000ms  
 Start solving for TOmega 4.800000e-03  
 Assembling matrices for Time 4.800000e-03  
 Assembling matrices for Time 4.800000e-03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 1  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time4.800000e-03  
 Solving matrices for Time4.800000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.62447e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.269244  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.384000  
 >>End Solving  
 Solving 00:00:01 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities  
  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 4.800000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Progress: 67%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:7:58



Available Memory(GB): 22.81  
 Current CPU Percentage: 50.66  
 Average cores per hour: 2.03  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12283.000000ms  
 Start solving for TOmega 4.900000e-03  
 Assembling matrices for Time 4.900000e-03  
 Assembling matrices for Time 4.900000e-03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time4.900000e-03  
 Solving matrices for Time4.900000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.664e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.255673  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.372000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities

Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 4.900000e-03  
 Compute Forces And Torques Transient Timing: 0: 0: 1  
 Progress: 69%  
 Estimated Time: 0:24:38  
 Remaining Time: 0:7:38  
 Available Memory(GB): 22.75  
 Current CPU Percentage: 50.32  
 Average cores per hour: 2.01  
 Write Solution PerPart Timing: 0:0:12  
 Write Solution PerPart Timing: 12375.000000ms

Start solving for TOmega 5.000000e-03  
 Assembling matrices for Time 5.000000e-03  
 Assembling matrices for Time 5.000000e-03  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore  
 Timing: 0: 0: 2  
 CTransientMagneticStudy::AssembleGlobalForTransientMagneticIterativeMulticore :Memory  
 Used = 0  
 Solving matrices for Time5.000000e-03  
 Solving matrices for Time5.000000e-03  
 Solver in progress...  
 >> end ScanDataFromFiles  
 >> Number of Cpus 4  
 >> Start Solving  
 >>>Solver :: Multi\_Cores Iterative Solver  
 >> Set Iterative Parameters  
 >> WriteSolverParameters  
 >> RunIterativeSolver  
 Number of iterations: 167 , true residual: 3.61889e-16  
 Multi\_Cores Iterative Solver:Total spent Cpu Time 0.264763  
 Multi\_Cores Iterative Solver:Total spent Wall Time 0.311000  
 >>End Solving  
 Solving 00:00:00 Dimension 149386 Non\_Zeroes 1045218  
 reading file  
 Main call: Finished scanning the solution file for the multi-core solver: Dimension =  
 149386 File size = 1195088 Timing: 00:00:00  
 Computing Circuit Quantities  
  
 Process To Compute Transient Circuit Parameters: Time Step= 1 Used memory = 0  
 Done solving for TOmega  
 Writing Solution... 5.000000e-03