

ANSYS Academic Teaching Advanced

```
*-----*
|
|  W E L C O M E   T O   T H E   A N S Y S ( R )   P R O G R A M
|
*-----*
```

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*****
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*****
```

```
***** ANSYS COMMAND LINE ARGUMENTS *****
BATCH MODE REQUESTED (-b) = NOLIST
INPUT FILE COPY MODE (-c) = COPY
2 PARALLEL CPUS REQUESTED
DESIGNXPLOER REQUESTED
```

START-UP FILE MODE = NOREAD  
STOP FILE MODE = NOREAD

00398919 VERSION=WINDOWS x64 RELEASE= 14.5 UP20120918  
CURRENT JOBNAME=file 08:56:23 OCT 27, 2014 CP= 0.764

PARAMETER \_DS\_PROGRESS = 999.0000000

/INPUT FILE= ds.dat LINE= 0

\*GET \_WALLSTRT FROM ACTI ITEM=TIME WALL VALUE= 8.93972222

TITLE=  
BP Flanschdichtung--Statisch-mechanisch (E5)

SET PARAMETER DIMENSIONS ON \_WB\_PROJECTSCRATCH\_DIR  
TYPE=STRI DIMENSIONS= 248 1 1

PARAMETER \_WB\_PROJECTSCRATCH\_DIR(1) = D:\yseibold\ProjectScratch\ScrD8E4\

SET PARAMETER DIMENSIONS ON \_WB\_SOLVERFILES\_DIR  
TYPE=STRI DIMENSIONS= 248 1 1

PARAMETER \_WB\_SOLVERFILES\_DIR(1) = D:\yseibold\BP Flanschdichtung\_files\dp0\SYS-21\MECH\

SET PARAMETER DIMENSIONS ON \_WB\_USERFILES\_DIR  
TYPE=STRI DIMENSIONS= 248 1 1

PARAMETER \_WB\_USERFILES\_DIR(1) = D:\yseibold\BP Flanschdichtung\_files\user\_files\  
--- Data in consistent NMM units.

MPA UNITS SPECIFIED FOR INTERNAL  
LENGTH = MILLIMETERS (mm)  
MASS = TONNE (Mg)  
TIME = SECONDS (sec)  
TEMPERATURE = CELSIUS (C)  
TOFFSET = 273.0  
FORCE = NEWTON (N)  
HEAT = MILLIJOULES (mJ)

INPUT UNITS ARE ALSO SET TO MPA

1

\*\*\*\*\* ANSYS - ENGINEERING ANALYSIS SYSTEM RELEASE 14.5 \*\*\*\*\*  
ANSYS Academic Teaching Advanced  
00398919 VERSION=WINDOWS x64 08:56:23 OCT 27, 2014 CP= 0.796

BP Flanschdichtung--Statisch-mechanisch (E5)

\*\*\*\*\* ANSYS ANALYSIS DEFINITION (PREP7) \*\*\*\*\*  
\*\*\*\*\* Nodes for the whole assembly \*\*\*\*\*  
\*\*\*\*\* Elements for Body 1 "Dichtung" \*\*\*\*\*  
\*\*\*\*\* Elements for Body 2 "Stempel" \*\*\*\*\*  
\*\*\*\*\* Elements for Body 3 "Platte" \*\*\*\*\*  
\*\*\*\*\* Send User Defined Coordinate System(s) \*\*\*\*\*  
\*\*\*\*\* Set Reference Temperature \*\*\*\*\*  
\*\*\*\*\* Send Materials \*\*\*\*\*  
\*\*\*\*\* Create Contact "Reibungsbehaftet - Dichtung bis Stempel" \*\*\*\*\*  
Real Contact Set For Above Contact Is 5 & 4  
\*\*\*\*\* Create Contact "Reibungsbehaftet - Dichtung bis Platte" \*\*\*\*\*  
Real Contact Set For Above Contact Is 7 & 6  
\*\*\*\*\* Fixed Supports \*\*\*\*\*  
\*\*\*\*\* Create Remote Point "Interner Fernpunkt 2" \*\*\*\*\*  
\*\*\*\*\* Create Remote Point "Interner Fernpunkt" \*\*\*\*\*  
\*\*\*\*\* Construct Remote Displacement Using RBE3/CERIG Contact \*\*\*\*\*  
\*\*\*\*\* Construct Remote Displacement Using RBE3/CERIG Contact \*\*\*\*\*

```
*** Created for Use in Spectrum Analysis ***
*** Created for Use in Spectrum Analysis ***
***** Construct Weak Springs, Prototype 1 *****
***** Construct Weak Springs, Prototype 2 *****
***** Construct Weak Springs, Prototype 3 *****
***** Create Displacement Tables and Functions *****
```

```
***** ROUTINE COMPLETED ***** CP = 1.232
```

```
--- Number of total nodes = 21847
--- Number of contact elements = 40685
--- Number of spring elements = 72
--- Number of bearing elements = 0
--- Number of solid elements = 10893
--- Number of total elements = 51652
```

```
*GET _WALLBSOL FROM ACTI ITEM=TIME WALL VALUE= 8.93972222
*****
***** SOLUTION *****
*****
```

```
***** ANSYS SOLUTION ROUTINE *****
```

```
PERFORM A STATIC ANALYSIS
THIS WILL BE A NEW ANALYSIS
```

```
LARGE DEFORMATION ANALYSIS
```

```
NEW SOLUTION CONTROL OPTION IS ACTIVATED,
THE FOLLOWING COMMANDS ARE RESET TO NEW DEFAULTS:
AUTOTS, DELTIM, NSUB, CNVTOL, LNSRCH, PRED, NROPT,
TINTP, CUTCONTROL, OPNCONTROL, MONITOR, NEQIT, SSTIF, KBC.
```

```
CONTACT TIME PREDICTIONS ARE BASED ON ELEMENT KEYOPT(7) SPECIFIED
```

```
USE SPARSE MATRIX DIRECT SOLVER
```

```
CONTACT INFORMATION PRINTOUT LEVEL 1
```

```
NLDIAG: Nonlinear diagnostics CONT option is set to ON.
Writing frequency : each ITERATION.
```

```
DEFINE RESTART CONTROL FOR LOADSTEP LAST
AT FREQUENCY OF LAST AND NUMBER FOR OVERWRITE IS 0
```

```
DELETE RESTART FILES OF ENDSTEP
*****
***** SOLVE FOR LS 1 *****
```

```
SPECIFIED CONSTRAINT UX FOR SELECTED NODES 21775 TO 21775 BY 1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI541UX
```

```
SPECIFIED CONSTRAINT UY FOR SELECTED NODES 21775 TO 21775 BY 1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI541UY
```

```
SPECIFIED CONSTRAINT UZ FOR SELECTED NODES 21775 TO 21775 BY 1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI541UZ
```

```
SPECIFIED CONSTRAINT ROTX FOR SELECTED NODES 21775 TO 21775 BY 1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI541ROTX
```

```
SPECIFIED CONSTRAINT ROTY FOR SELECTED NODES 21775 TO 21775 BY 1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI541ROTY
```

```
SPECIFIED CONSTRAINT ROTZ FOR SELECTED NODES 21775 TO 21775 BY 1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI541ROTZ
```

```

SPECIFIED CONSTRAINT UX   FOR SELECTED NODES      21776 TO      21776 BY      1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI551UX

SPECIFIED CONSTRAINT UY   FOR SELECTED NODES      21776 TO      21776 BY      1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI551UY

SPECIFIED CONSTRAINT ROTX FOR SELECTED NODES      21776 TO      21776 BY      1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI551ROTX

SPECIFIED CONSTRAINT ROTY FOR SELECTED NODES      21776 TO      21776 BY      1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI551ROTY

SPECIFIED CONSTRAINT ROTZ FOR SELECTED NODES      21776 TO      21776 BY      1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI551ROTZ
*** Set Displacements ***
CMBLOCK read of NODE component _CM171UZ_ZP completed

SELECT      COMPONENT _CM171UZ_ZP

SPECIFIED CONSTRAINT UZ   FOR SELECTED NODES      1 TO      21848 BY      1
SET ACCORDING TO TABLE PARAMETER = _LOADVARI171ZP

ALL SELECT   FOR ITEM=NODE COMPONENT=
IN RANGE     1 TO      21848 STEP      1

      21847 NODES (OF      21847 DEFINED) SELECTED BY NSEL COMMAND.

PRINTOUT RESUMED BY /GOP

USE AUTOMATIC TIME STEPPING THIS LOAD STEP

USE      1 SUBSTEPS INITIALLY THIS LOAD STEP FOR ALL DEGREES OF FREEDOM
FOR AUTOMATIC TIME STEPPING:
  USE      10 SUBSTEPS AS A MAXIMUM
  USE      1 SUBSTEPS AS A MINIMUM

TIME= 1.0000

ERASE THE CURRENT DATABASE OUTPUT CONTROL TABLE.

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF NONE
FOR ALL APPLICABLE ENTITIES

WRITE NSOL ITEMS TO THE DATABASE WITH A FREQUENCY OF ALL
FOR ALL APPLICABLE ENTITIES

WRITE RSOL ITEMS TO THE DATABASE WITH A FREQUENCY OF ALL
FOR ALL APPLICABLE ENTITIES

WRITE STRS ITEMS TO THE DATABASE WITH A FREQUENCY OF ALL
FOR ALL APPLICABLE ENTITIES

WRITE EPEL ITEMS TO THE DATABASE WITH A FREQUENCY OF ALL
FOR ALL APPLICABLE ENTITIES

WRITE EPPL ITEMS TO THE DATABASE WITH A FREQUENCY OF ALL
FOR ALL APPLICABLE ENTITIES

NONLINEAR STABILIZATION CONTROL:
KEY=OFF

*GET ANSINTER_ FROM ACTI ITEM=INT      VALUE= 0.00000000

*IF ANSINTER_      ( = 0.00000      ) NE
0      ( = 0.00000      ) THEN

*ENDIF

```

\*\*\*\*\* ANSYS SOLVE COMMAND \*\*\*\*\*

\*\*\* WARNING \*\*\* CP = 1.264 TIME= 08:56:23  
Element shape checking is currently inactive. Issue SHPP,ON or  
SHPP,WARN to reactivate, if desired.

\*\*\* NOTE \*\*\* CP = 1.326 TIME= 08:56:23  
The model data was checked and warning messages were found.  
Please review output or errors file (  
D:\yseibolds\\_ProjectScratch\ScrD8E4\file.err ) for these warning  
messages.

\*\*\* SELECTION OF ELEMENT TECHNOLOGIES FOR APPLICABLE ELEMENTS \*\*\*  
--- GIVE SUGGESTIONS AND RESET THE KEY OPTIONS ---

ELEMENT TYPE 2 IS SOLID185. IT IS ASSOCIATED WITH LINEAR MATERIALS ONLY  
AND POISSON'S RATIO IS NOT GREATER THAN 0.49. KEYOPT(2)=3 IS SUGGESTED AND  
HAS BEEN RESET.  
KEYOPT(1-12)= 0 3 0 0 0 0 0 0 0 0 0 0

ELEMENT TYPE 3 IS SOLID185. IT IS ASSOCIATED WITH LINEAR MATERIALS ONLY  
AND POISSON'S RATIO IS NOT GREATER THAN 0.49. KEYOPT(2)=3 IS SUGGESTED AND  
HAS BEEN RESET.  
KEYOPT(1-12)= 0 3 0 0 0 0 0 0 0 0 0 0

1

\*\*\*\*\* ANSYS - ENGINEERING ANALYSIS SYSTEM RELEASE 14.5 \*\*\*\*\*  
ANSYS Academic Teaching Advanced  
00398919 VERSION=WINDOWS x64 08:56:23 OCT 27, 2014 CP= 1.357

BP Flanschdichtung--Statisch-mechanisch (E5)

S O L U T I O N O P T I O N S

PROBLEM DIMENSIONALITY. . . . .3-D  
DEGREES OF FREEDOM. . . . . UX UY UZ ROTX ROTY ROTZ  
ANALYSIS TYPE . . . . .STATIC (STEADY-STATE)  
OFFSET TEMPERATURE FROM ABSOLUTE ZERO . . . . . 273.15  
NONLINEAR GEOMETRIC EFFECTS . . . . .ON  
EQUATION SOLVER OPTION. . . . .SPARSE  
PLASTIC MATERIAL PROPERTIES INCLUDED. . . . .YES  
NEWTON-RAPHSON OPTION . . . . .PROGRAM CHOSEN  
GLOBALLY ASSEMBLED MATRIX . . . . .SYMMETRIC

\*\*\* WARNING \*\*\* CP = 1.451 TIME= 08:56:23  
Material number 7 (used by element 31139 ) should normally have at  
least one MP or one TB type command associated with it. Output of  
energy by material may not be available.

\*\*\* NOTE \*\*\* CP = 1.544 TIME= 08:56:23  
The step data was checked and warning messages were found.  
Please review output or errors file (  
D:\yseibolds\\_ProjectScratch\ScrD8E4\file.err ) for these warning  
messages.

\*\*\* NOTE \*\*\* CP = 1.544 TIME= 08:56:23  
This nonlinear analysis defaults to using the full Newton-Raphson  
solution procedure. This can be modified using the NROPT command.

\*\*\* NOTE \*\*\* CP = 1.638 TIME= 08:56:23  
Internal nodes from 21849 to 21850 are created.  
2 internal nodes are used for handling degrees of freedom on pilot  
nodes of rigid target surfaces.

L O A D S T E P O P T I O N S

LOAD STEP NUMBER. . . . . 1

```

TIME AT END OF THE LOAD STEP. . . . . 1.0000
AUTOMATIC TIME STEPPING . . . . . ON
  INITIAL NUMBER OF SUBSTEPS . . . . . 1
  MAXIMUM NUMBER OF SUBSTEPS . . . . . 10
  MINIMUM NUMBER OF SUBSTEPS . . . . . 1
MAXIMUM NUMBER OF EQUILIBRIUM ITERATIONS. . . . . 15
STEP CHANGE BOUNDARY CONDITIONS . . . . . NO
STRESS-STIFFENING . . . . . ON
TERMINATE ANALYSIS IF NOT CONVERGED . . . . .YES (EXIT)
CONVERGENCE CONTROLS. . . . .USE DEFAULTS
COPY INTEGRATION POINT VALUES TO NODE . . . . .YES, FOR ELEMENTS WITH
                                         ACTIVE MAT. NONLINEARITIES

PRINT OUTPUT CONTROLS . . . . .NO PRINTOUT
DATABASE OUTPUT CONTROLS
  ITEM      FREQUENCY  COMPONENT
  ALL       NONE
  NSOL      ALL
  RSOL      ALL
  STRS      ALL
  EPEL      ALL
  EPPL      ALL

```

SOLUTION MONITORING INFO IS WRITTEN TO FILE=  
file.mntr

```

*** NOTE ***                               CP =      3.042   TIME= 08:56:24
It is highly recommended to use the auto contact setting option by
issuing CNCHECK,AUTO command for this problem in order to achieve
better convergence.

```

```

*** NOTE ***                               CP =      3.042   TIME= 08:56:24
Symmetric Deformable- deformable contact pair identified by real
constant set 4 and contact element type 4 has been set up. The
companion pair has real constant set ID 5. Both pairs should have the
same behavior.
ANSYS will keep the current pair and deactivate its companion pair,
resulting in asymmetric contact.
Contact algorithm: Augmented Lagrange method
Contact detection at: Gauss integration point
Contact stiffness factor FKN                1.0000
The resulting contact stiffness              66.667
Default penetration tolerance factor FTOLN  0.10000
The resulting penetration tolerance         0.10000E-01
Max. initial friction coefficient MU        0.40000E-01
Default tangent stiffness factor FKT       1.0000
Default elastic slip factor SLTOL         0.10000E-01
The resulting elastic slip                 0.10000E-03
Update contact stiffness at each iteration
Default Max. friction stress TAUMAX        0.10000E+21
Average contact surface length             0.10000E-01
Average contact pair depth                0.10000
Default pinball region factor PINB        2.0000
The resulting pinball region              0.20000

```

```

*** NOTE ***                               CP =      3.042   TIME= 08:56:24
One of the contact searching regions contains at least 100 target
elements. You may reduce the pinball radius.
Auto contact offset used to close gap     0.0000
Initial penetration is excluded.

```

```

*** NOTE ***                               CP =      3.042   TIME= 08:56:24
Max. Initial penetration 1.E-03 was detected between contact element
23422 and target element 31028.
You may move entire target surface by : x= 0, y= 0, z= -1.E-03,to
reduce initial penetration.
*****

```

\*\*\* NOTE \*\*\* CP = 3.042 TIME= 08:56:24

Symmetric Deformable- deformable contact pair identified by real constant set 5 and contact element type 4 has been set up. The companion pair has real constant set ID 4. Both pairs should have the same behavior.

ANSYS will deactivate the current pair and keep its companion pair, resulting in asymmetric contact.

Contact algorithm: Augmented Lagrange method  
Contact detection at: Gauss integration point

Contact stiffness factor FKN	1.0000
The resulting contact stiffness	66.667
Default penetration tolerance factor FTOLN	0.10000
The resulting penetration tolerance	0.40200E-02
Max. initial friction coefficient MU	0.40000E-01
Default tangent stiffness factor FKT	1.0000
Default elastic slip factor SLTOL	0.10000E-01
The resulting elastic slip	0.45455E-03
Update contact stiffness at each iteration	
Default Max. friction stress TAUMAX	0.10000E+21
Average contact surface length	0.45455E-01
Average contact pair depth	0.40200E-01
Default pinball region factor PINB	2.0000
The resulting pinball region	0.80400E-01

\*\*\* NOTE \*\*\* CP = 3.042 TIME= 08:56:24

One of the contact searching regions contains at least 361 target elements. You may reduce the pinball radius.

Auto contact offset used to close gap 0.0000  
Initial penetration is excluded.

\*\*\* NOTE \*\*\* CP = 3.042 TIME= 08:56:24

Max. Initial penetration 1.E-03 was detected between contact element 30897 and target element 13771.

You may move entire target surface by : x= 0, y= 5.963112008E-22, z= 1.E-03, to reduce initial penetration.

\*\*\*\*\*

\*\*\* NOTE \*\*\* CP = 3.042 TIME= 08:56:24

Symmetric Deformable- deformable contact pair identified by real constant set 6 and contact element type 6 has been set up. The companion pair has real constant set ID 7. Both pairs should have the same behavior.

ANSYS will keep the current pair and deactivate its companion pair, resulting in asymmetric contact.

Contact algorithm: Augmented Lagrange method  
Contact detection at: Gauss integration point

Contact stiffness factor FKN	1.0000
The resulting contact stiffness	66.667
Default penetration tolerance factor FTOLN	0.10000
The resulting penetration tolerance	0.10000E-01
Max. initial friction coefficient MU	0.40000E-01
Default tangent stiffness factor FKT	1.0000
Default elastic slip factor SLTOL	0.10000E-01
The resulting elastic slip	0.10000E-03
Update contact stiffness at each iteration	
Default Max. friction stress TAUMAX	0.10000E+21
Average contact surface length	0.10000E-01
Average contact pair depth	0.10000
Default pinball region factor PINB	2.0000
The resulting pinball region	0.20000
Auto contact offset used to close gap	0.0000
Initial penetration is excluded.	

\*\*\* NOTE \*\*\* CP = 3.042 TIME= 08:56:24

Max. Initial penetration 1.E-03 was detected between contact element 41139 and target element 51393.

You may move entire target surface by : x= 0, y= 0, z= 1.E-03, to reduce

initial penetration.

\*\*\*\*\*

\*\*\* NOTE \*\*\* CP = 3.042 TIME= 08:56:24  
Symmetric Deformable- deformable contact pair identified by real constant set 7 and contact element type 6 has been set up. The companion pair has real constant set ID 6. Both pairs should have the same behavior.  
ANSYS will deactivate the current pair and keep its companion pair, resulting in asymmetric contact.  
Contact algorithm: Augmented Lagrange method  
Contact detection at: Gauss integration point  
Contact stiffness factor FKN 1.0000  
The resulting contact stiffness 66.667  
Default penetration tolerance factor FTOLN 0.10000  
The resulting penetration tolerance 0.10050E-01  
Max. initial friction coefficient MU 0.40000E-01  
Default tangent stiffness factor FKT 1.0000  
Default elastic slip factor SLTOL 0.10000E-01  
The resulting elastic slip 0.12500E-02  
Update contact stiffness at each iteration  
Default Max. friction stress TAUMAX 0.10000E+21  
Average contact surface length 0.12500  
Average contact pair depth 0.10050  
Default pinball region factor PINB 2.0000  
The resulting pinball region 0.20100

\*\*\* NOTE \*\*\* CP = 3.042 TIME= 08:56:24  
One of the contact searching regions contains at least 1849 target elements. You may reduce the pinball radius.  
Auto contact offset used to close gap 0.0000  
Initial penetration is excluded.

\*\*\* NOTE \*\*\* CP = 3.042 TIME= 08:56:24  
Max. Initial penetration 1.E-03 was detected between contact element 51165 and target element 40141.  
You may move entire target surface by : x= 0, y= 0, z= -1.E-03, to reduce initial penetration.  
\*\*\*\*\*

\*\*\* NOTE \*\*\* CP = 3.042 TIME= 08:56:24  
Force-distributed-surface identified by real constant set 8 and contact element type 8 has been set up. The pilot node 21775 is used to apply the force. Internal MPC will be built.  
The used degrees of freedom set is UX UY UZ ROTX ROTY ROTZ  
Please verify constraints (including rotational degrees of freedom) on the pilot node by yourself.

\*\*\* NOTE \*\*\* CP = 3.042 TIME= 08:56:24  
Force-distributed-surface identified by real constant set 10 and contact element type 10 has been set up. The pilot node 21776 is used to apply the force. Internal MPC will be built.  
The used degrees of freedom set is UX UY UZ ROTX ROTY ROTZ  
Please verify constraints (including rotational degrees of freedom) on the pilot node by yourself.  
MAXIMUM NUMBER OF EQUILIBRIUM ITERATIONS HAS BEEN MODIFIED TO BE, NEQIT = 26, BY SOLUTION CONTROL LOGIC.

The FEA model contains 0 external CE equations and 12 internal CE equations.

\*\*\* NOTE \*\*\* CP = 6.521 TIME= 08:56:27  
One of the contact searching regions contains at least 121 target elements. You may reduce the pinball radius (current value 0.2) for contact pair identified by real constant set 4 to speed up contact searching.



\*\*\*\*\*  
SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 5

\*\*\* NOTE \*\*\* CP = 6.521 TIME= 08:56:27  
Contact pair is inactive.

\*\*\*\*\*  
SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 6  
Max. Penetration of 0 has been detected between contact element 41139  
and target element 51393.

Max. Geometrical penetration of -1.E-03 has been detected between  
contact element 41139 and target element 51393.  
For total 10000 contact elements, there are 10000 elements are in  
contact.  
There are 10000 elements are in sticking.  
Contacting area 1.  
Max. Pinball distance 0.2.  
One of the contact searching regions contains at least 36 target  
elements.  
Max. Pressure/force 5.921189465E-16.  
Max. Normal stiffness 66.6666667.  
Min. Normal stiffness 66.6666667.  
\*\*\*\*\*

\*\*\*\*\*  
SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 7

\*\*\* NOTE \*\*\* CP = 6.521 TIME= 08:56:27  
Contact pair is inactive.

\*\*\*\* CENTER OF MASS, MASS, AND MASS MOMENTS OF INERTIA \*\*\*\*

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 0.39446E-08

CENTER OF MASS	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTER OF MASS
XC = -1.5000	IXX = 0.9700E-08	IXX = 0.7112E-09
YC = -1.5000	IYY = 0.9700E-08	IYY = 0.7112E-09
ZC = 0.16960	IZZ = 0.1909E-07	IZZ = 0.1338E-08
	IXY = -0.8875E-08	IXY = -0.3309E-23
	IYZ = 0.1004E-08	IYZ = -0.2275E-23
	IZX = 0.1004E-08	IZX = -0.2895E-23

\*\*\* MASS SUMMARY BY ELEMENT TYPE \*\*\*

TYPE	MASS
2	0.394463E-09
3	0.355016E-08

Range of element maximum matrix coefficients in global coordinates  
Maximum = 5726.38221 at element 10615.  
Minimum = 1.6995493E-41 at element 51605.

\*\*\* WARNING \*\*\* CP = 6.536 TIME= 08:56:27  
Coefficient ratio exceeds 1.0e8 - Check results.

\*\*\* ELEMENT MATRIX FORMULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
1	10000	INTER195	0.749	0.000075
2	605	SOLID185	0.312	0.000516
3	288	SOLID185	0.062	0.000217

4	10121	CONTA174	1.591	0.000157
5	10121	TARGE170	0.374	0.000037
6	10144	CONTA174	1.279	0.000126
7	10144	TARGE170	0.125	0.000012
8	100	CONTA174	0.000	0.000000
9	1	TARGE170	0.000	0.000000
10	55	CONTA174	0.000	0.000000
11	1	TARGE170	0.000	0.000000
12	72	COMBIN14	0.000	0.000000

Time at end of element matrix formulation CP = 6.5364418.

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= file.rdb  
 FOR POSSIBLE RESUME FROM THIS POINT  
 FORCE CONVERGENCE VALUE = 3028. CRITERION= 15.45

SPARSE MATRIX DIRECT SOLVER.

Number of equations = 64657, Maximum wavefront = 1278  
 Memory allocated for solver = 320.497 MB  
 Memory required for in-core = 193.051 MB  
 Optimal memory required for out-of-core = 38.372 MB  
 Minimum memory required for out-of-core = 27.289 MB

\*\*\* NOTE \*\*\* CP = 7.051 TIME= 08:56:27

The Sparse Matrix solver is currently running in the in-core memory mode. This memory mode uses the most amount of memory in order to avoid using the hard drive as much as possible, which most often results in the fastest solution time. This mode is recommended if enough physical memory is present to accommodate all of the solver data.

curEqn= 33097 totEqn= 64657 Job CP sec= 7.628  
 Factor Done= 59% Factor Wall sec= 0.237 rate=20293.2 Mflops  
 curEqn= 64657 totEqn= 64657 Job CP sec= 7.972  
 Factor Done= 100% Factor Wall sec= 0.421 rate=19255.7 Mflops  
 Sparse solver maximum pivot= 45811.0577 at node 21361 UZ.  
 Sparse solver minimum pivot= 3.700837276E-06 at node 19702 UX.  
 Sparse solver minimum pivot in absolute value= 3.700837276E-06 at node 19702 UX.

EQUIL ITER 1 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 0.2000E-01  
 LINE SEARCH PARAMETER = 1.000 SCALED MAX DOF INC = 0.2000E-01  
 FORCE CONVERGENCE VALUE = 0.1381E-03 CRITERION= 0.5206E-04

\*\*\* WARNING \*\*\* CP = 15.038 TIME= 08:56:32

There are 6051 small equation solver pivot terms.

EQUIL ITER 2 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= -9803.

\*\*\* WARNING \*\*\* CP = 15.756 TIME= 08:56:33

Contact element 51137 (real ID 6) status changes abruptly from contact (with target element 51316) -> no-contact.

LINE SEARCH PARAMETER = 0.5000E-01 SCALED MAX DOF INC = -490.1  
 3D CONTACT ELEMENTS: 2140 CONTACT POINTS HAVE TOO MUCH PENETRATION  
 1 FORCE-DISTRIBUTED CONSTRAINTS DO NOT SATISFY COMPATIBILITY CONDITION  
 FORCE CONVERGENCE VALUE = 21.30 CRITERION= 0.4644E-02

\*\*\* WARNING \*\*\* CP = 22.636 TIME= 08:56:37

There are 2470 small equation solver pivot terms.

\*\*\* ERROR \*\*\* CP = 22.667 TIME= 08:56:37

The value of UZ at node 19642 is 2.638046969E+10. It is greater than the current limit of 1000000. This generally indicates rigid body motion as a result of an unconstrained model. Verify that your model is properly constrained.

\*\*\* ERROR \*\*\* CP = 22.667 TIME= 08:56:37

\*\*\* MESSAGE CONTINUATION ---- DIAGNOSTIC INFORMATION \*\*\*

If one or more parts of the model are held together only by contact verify that the contact surfaces are closed. You can check contact status in the SOLUTION module for the converged solutions using CNCHECK.

\*\*\* ERROR \*\*\* CP = 22.667 TIME= 08:56:37

\*\*\* MESSAGE CONTINUATION ---- DIAGNOSTIC INFORMATION \*\*\*  
Rigid body motion can also occur when net section yielding has occurred resulting in large displacements for small increments of load or when buckling has occurred. You can plot the time history curve for node 19642 in the UZ direction to check for stiffness (slope of the curve) approaching zero.  
>>> DOF LIMIT EXCEEDED. MAX VALUE= 0.2638047E+11 LIMIT= 0.000000  
\*\*\* LOAD STEP 1 SUBSTEP 1 NOT COMPLETED. CUM ITER = 3  
\*\*\* BEGIN BISECTION NUMBER 1 NEW TIME INCREMENT= 0.50000

The FEA model contains 0 external CE equations and 12 internal CE equations.

\*\*\* NOTE \*\*\* CP = 26.239 TIME= 08:56:39  
One of the contact searching regions contains at least 121 target elements. You may reduce the pinball radius (current value 0.2) for contact pair identified by real constant set 4 to speed up contact searching.

\*\*\*\*\*  
SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 5

\*\*\* NOTE \*\*\* CP = 26.239 TIME= 08:56:39  
Contact pair is inactive.

\*\*\*\*\*  
SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 6  
Max. Penetration of 0 has been detected between contact element 41139 and target element 51393.

Max. Geometrical penetration of -1.E-03 has been detected between contact element 41139 and target element 51393.  
For total 10000 contact elements, there are 10000 elements are in contact.  
There are 10000 elements are in sticking.  
Contacting area 1.  
Max. Pinball distance 0.2.  
One of the contact searching regions contains at least 36 target elements.  
Max. Pressure/force 1.184237911E-16.  
Max. Normal stiffness 13.3333335.  
Min. Normal stiffness 13.3333335.  
\*\*\*\*\*

\*\*\*\*\*  
SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 7

\*\*\* NOTE \*\*\* CP = 26.239 TIME= 08:56:39  
Contact pair is inactive.

Range of element maximum matrix coefficients in global coordinates  
Maximum = 5726.38221 at element 10615.  
Minimum = 1.6995493E-41 at element 51605.

\*\*\* WARNING \*\*\* CP = 26.239 TIME= 08:56:39  
Coefficient ratio exceeds 1.0e8 - Check results.  
FORCE CONVERGENCE VALUE = 1514. CRITERION= 7.726

SPARSE MATRIX DIRECT SOLVER.  
Number of equations = 64657, Maximum wavefront = 1278  
Memory allocated for solver = 320.497 MB  
Memory required for in-core = 193.051 MB  
Optimal memory required for out-of-core = 38.372 MB  
Minimum memory required for out-of-core = 27.289 MB

\*\*\* NOTE \*\*\* CP = 26.707 TIME= 08:56:40  
The Sparse Matrix solver is currently running in the in-core memory mode. This memory mode uses the most amount of memory in order to

avoid using the hard drive as much as possible, which most often results in the fastest solution time. This mode is recommended if enough physical memory is present to accommodate all of the solver data.

Sparse solver maximum pivot= 45811.0577 at node 21361 UZ.

Sparse solver minimum pivot= 2.091779988E-06 at node 19702 UX.

Sparse solver minimum pivot in absolute value= 2.091779988E-06 at node 19702 UX.

EQUIL ITER 1 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 0.1000E-01  
LINE SEARCH PARAMETER = 1.000 SCALED MAX DOF INC = 0.1000E-01  
FORCE CONVERGENCE VALUE = 0.3698E-04 CRITERION= 0.5206E-04 <<< CONVERGED

\*\*\* WARNING \*\*\* CP = 32.979 TIME= 08:56:44

A reference force value times the tolerance is used by the Newton-Raphson method for checking convergence. The calculated reference FORCE CONVERGENCE VALUE = 1.137076082E-04 is less than a threshold. This threshold defaults to 1.0-2 or is specified as MINREF on the CNVTOL command. Check results carefully.

>>> SOLUTION CONVERGED AFTER EQUILIBRIUM ITERATION 1

\*\*\* ELEMENT RESULT CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
1	10000	INTER195	0.593	0.000059
2	605	SOLID185	0.125	0.000206
3	288	SOLID185	0.094	0.000325
4	10121	CONTA174	0.905	0.000089
5	10121	TARGE170	0.094	0.000009
6	10144	CONTA174	0.842	0.000083
7	10144	TARGE170	0.094	0.000009
8	100	CONTA174	0.000	0.000000
9	1	TARGE170	0.000	0.000000
10	55	CONTA174	0.000	0.000000
11	1	TARGE170	0.000	0.000000
12	72	COMBIN14	0.000	0.000000

\*\*\* NODAL LOAD CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
1	10000	INTER195	0.094	0.000009
2	605	SOLID185	0.000	0.000000
3	288	SOLID185	0.000	0.000000
4	10121	CONTA174	0.000	0.000000
5	10121	TARGE170	0.062	0.000006
6	10144	CONTA174	0.156	0.000015
7	10144	TARGE170	0.094	0.000009
8	100	CONTA174	0.000	0.000000
9	1	TARGE170	0.000	0.000000
10	55	CONTA174	0.000	0.000000
11	1	TARGE170	0.000	0.000000
12	72	COMBIN14	0.000	0.000000

\*\*\* LOAD STEP 1 SUBSTEP 1 COMPLETED. CUM ITER = 4

\*\*\* TIME = 0.500000 TIME INC = 0.500000

\*\*\* AUTO STEP TIME: NEXT TIME INC = 0.50000 UNCHANGED

FORCE CONVERGENCE VALUE = 0.7416E-04 CRITERION= 0.5102E-04

\*\*\* WARNING \*\*\* CP = 39.281 TIME= 08:56:48

There are 5983 small equation solver pivot terms.

EQUIL ITER 1 COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= -5514.

\*\*\* WARNING \*\*\* CP = 40.014 TIME= 08:56:48

Contact element 51018 (real ID 6) status changes abruptly from contact (with target element 51315) -> no-contact.

LINE SEARCH PARAMETER = 0.5000E-01 SCALED MAX DOF INC = -275.7

3D CONTACT ELEMENTS: 1525 CONTACT POINTS HAVE TOO MUCH PENETRATION

1 FORCE-DISTRIBUTED CONSTRAINTS DO NOT SATISFY COMPATIBILITY CONDITION

FORCE CONVERGENCE VALUE = 12.92 CRITERION= 0.8605E-03

\*\*\* WARNING \*\*\* CP = 47.003 TIME= 08:56:53

There are 1849 small equation solver pivot terms.

```
*** ERROR ***                      CP =      47.066   TIME= 08:56:53
The value of UZ at node 4767 is 1.681199542E+09. It is greater than
the current limit of 1000000. This generally indicates rigid body
motion as a result of an unconstrained model. Verify that your model
is properly constrained.
```

```
*** ERROR ***                      CP =      47.066   TIME= 08:56:53
*** MESSAGE CONTINUATION ---- DIAGNOSTIC INFORMATION ***
If one or more parts of the model are held together only by contact
verify that the contact surfaces are closed. You can check contact
status in the SOLUTION module for the converged solutions using
CNCHECK.
```

```
*** ERROR ***                      CP =      47.066   TIME= 08:56:53
*** MESSAGE CONTINUATION ---- DIAGNOSTIC INFORMATION ***
Rigid body motion can also occur when net section yielding has
occurred resulting in large displacements for small increments of load
or when buckling has occurred. You can plot the time history curve
for node 4767 in the UZ direction to check for stiffness (slope of the
curve) approaching zero.
  >>> DOF LIMIT EXCEEDED. MAX VALUE= 0.1681200E+10 LIMIT= 0.000000
      IT MAY BE DUE TO PREDICTOR IS ON.
      PREDICTOR IS TURNED OFF FROM THIS POINT ONWARDS.
*** LOAD STEP      1  SUBSTEP      2  NOT COMPLETED. CUM ITER =      6
*** RESTART TIME INCREMENT WITH PREDICTOR TURNED OFF
```

FORCE CONVERGENCE VALUE = 1514. CRITERION= 7.726

```
*** WARNING ***                   CP =      51.636   TIME= 08:56:56
There are 5983 small equation solver pivot terms.
EQUIL ITER      1  COMPLETED. NEW TRIANG MATRIX. MAX DOF INC= 2693.
```

```
*** WARNING ***                   CP =      52.494   TIME= 08:56:56
Contact element 51019 (real ID 6) status changes abruptly from contact
(with target element 51315) -> no-contact.
LINE SEARCH PARAMETER = 0.5000E-01 SCALED MAX DOF INC = 134.6
3D CONTACT ELEMENTS: 1791 CONTACT POINTS HAVE TOO MUCH PENETRATION
  1 FORCE-DISTRIBUTED CONSTRAINTS DO NOT SATISFY COMPATIBILITY CONDITION
FORCE CONVERGENCE VALUE = 1396. CRITERION= 7.267
```

```
*** WARNING ***                   CP =      59.592   TIME= 08:57:01
There are 1880 small equation solver pivot terms.
```

```
*** ERROR ***                      CP =      59.655   TIME= 08:57:01
The value of UZ at node 20372 is 2.792523482E+09. It is greater than
the current limit of 1000000. This generally indicates rigid body
motion as a result of an unconstrained model. Verify that your model
is properly constrained.
```

```
*** ERROR ***                      CP =      59.655   TIME= 08:57:01
*** MESSAGE CONTINUATION ---- DIAGNOSTIC INFORMATION ***
If one or more parts of the model are held together only by contact
verify that the contact surfaces are closed. You can check contact
status in the SOLUTION module for the converged solutions using
CNCHECK.
```

```
*** ERROR ***                      CP =      59.655   TIME= 08:57:01
*** MESSAGE CONTINUATION ---- DIAGNOSTIC INFORMATION ***
Rigid body motion can also occur when net section yielding has
occurred resulting in large displacements for small increments of load
or when buckling has occurred. You can plot the time history curve
for node 20372 in the UZ direction to check for stiffness (slope of
the curve) approaching zero.
  >>> DOF LIMIT EXCEEDED. MAX VALUE= 0.2792523E+10 LIMIT= 0.000000
*** LOAD STEP      1  SUBSTEP      2  NOT COMPLETED. CUM ITER =      8
*** BEGIN BISECTION NUMBER      1  NEW TIME INCREMENT= 0.25000
```

FORCE CONVERGENCE VALUE = 757.1 CRITERION= 3.863

```

*** WARNING ***                               CP =      64.148   TIME= 08:57:04
There are 5983 small equation solver pivot terms.
EQUIL ITER   1 COMPLETED.  NEW TRIANG MATRIX.  MAX DOF INC=   7280.

*** WARNING ***                               CP =      64.928   TIME= 08:57:05
Contact element 51018 (real ID 6) status changes abruptly from contact
(with target element 51315) -> no-contact.
LINE SEARCH PARAMETER =  0.5000E-01 SCALED MAX DOF INC =   364.0
3D CONTACT ELEMENTS: 2109 CONTACT POINTS HAVE TOO MUCH PENETRATION
   1 FORCE-DISTRIBUTED CONSTRAINTS DO NOT SATISFY COMPATIBILITY CONDITION
FORCE CONVERGENCE VALUE =  719.9       CRITERION=  3.801

*** WARNING ***                               CP =      72.213   TIME= 08:57:09
There are 1731 small equation solver pivot terms.

*** ERROR ***                                 CP =      72.244   TIME= 08:57:09
The value of UZ at node 20370 is 4.547241094E+09.  It is greater than
the current limit of 1000000.  This generally indicates rigid body
motion as a result of an unconstrained model.  Verify that your model
is properly constrained.

*** ERROR ***                                 CP =      72.244   TIME= 08:57:09
*** MESSAGE CONTINUATION ---- DIAGNOSTIC INFORMATION ***
If one or more parts of the model are held together only by contact
verify that the contact surfaces are closed.  You can check contact
status in the SOLUTION module for the converged solutions using
CNCHECK.

*** ERROR ***                                 CP =      72.244   TIME= 08:57:09
*** MESSAGE CONTINUATION ---- DIAGNOSTIC INFORMATION ***
Rigid body motion can also occur when net section yielding has
occurred resulting in large displacements for small increments of load
or when buckling has occurred.  You can plot the time history curve
for node 20370 in the UZ direction to check for stiffness (slope of
the curve) approaching zero.
>>> DOF LIMIT EXCEEDED.  MAX VALUE= 0.4547241E+10  LIMIT=  0.000000
*** LOAD STEP      1  SUBSTEP      2  NOT COMPLETED.  CUM ITER =    10
*** BEGIN BISECTION NUMBER  2  NEW TIME INCREMENT=  0.10000

FORCE CONVERGENCE VALUE =  302.8       CRITERION=  1.545

*** WARNING ***                               CP =      76.893   TIME= 08:57:12
There are 5985 small equation solver pivot terms.
EQUIL ITER   1 COMPLETED.  NEW TRIANG MATRIX.  MAX DOF INC=  0.4880E+05

*** WARNING ***                               CP =      77.813   TIME= 08:57:13
Contact element 51019 (real ID 6) status changes abruptly from contact
(with target element 51315) -> no-contact.
LINE SEARCH PARAMETER =  0.5000E-01 SCALED MAX DOF INC =   2440.
3D CONTACT ELEMENTS: 2288 CONTACT POINTS HAVE TOO MUCH PENETRATION
   1 FORCE-DISTRIBUTED CONSTRAINTS DO NOT SATISFY COMPATIBILITY CONDITION
FORCE CONVERGENCE VALUE =  302.3       CRITERION=  1.498

*** WARNING ***                               CP =      85.099   TIME= 08:57:17
There are 1318 small equation solver pivot terms.

*** ERROR ***                                 CP =      85.161   TIME= 08:57:17
The value of UZ at node 19278 is 1.231507725E+09.  It is greater than
the current limit of 1000000.  This generally indicates rigid body
motion as a result of an unconstrained model.  Verify that your model
is properly constrained.

*** ERROR ***                                 CP =      85.161   TIME= 08:57:17
*** MESSAGE CONTINUATION ---- DIAGNOSTIC INFORMATION ***
If one or more parts of the model are held together only by contact
verify that the contact surfaces are closed.  You can check contact
status in the SOLUTION module for the converged solutions using
CNCHECK.

```

\*\*\* ERROR \*\*\* CP = 85.161 TIME= 08:57:17  
\*\*\* MESSAGE CONTINUATION ---- DIAGNOSTIC INFORMATION \*\*\*  
Rigid body motion can also occur when net section yielding has occurred resulting in large displacements for small increments of load or when buckling has occurred. You can plot the time history curve for node 19278 in the UZ direction to check for stiffness (slope of the curve) approaching zero.

\*\*\*\*\*  
SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 4  
Max. Penetration of -0.194582937 has been detected between contact element 27005 and target element 31116.

\*\*\* WARNING \*\*\* CP = 85.161 TIME= 08:57:17  
The geometrical penetration may be too large. Increase pinball if it is a true geometrical penetration. Decrease pinball if it is a false one.  
For total 10000 contact elements, there are 2509 elements are in contact.  
There are 2500 elements are in sticking.  
Contacting area 0.25183413.  
10 contact points have too much penetration (do not meet compatibility condition).  
Contact element 30391 has the highest number of status changes (total 1) during this substep.  
Contact element 28371 has Max. Elastic slip distance of 5.0465973E-05.  
Max. Total sliding distance 5.959824957E-02.  
Max. Pinball distance 0.2.  
One of the contact searching regions contains at least 55 target elements.

\*\*\* NOTE \*\*\* CP = 85.161 TIME= 08:57:17  
You may reduce the pinball to speed up contact searching.  
Max. Pressure/force 1.94582937.  
Max. Friction stress/force 7.783317469E-02.  
Max. Normal stiffness 6.66666667.  
Min. Normal stiffness 6.66666667.  
Max. Tangential stiffness 778.331747.  
Min. Tangential stiffness 0.425736206.  
\*\*\*\*\*

\*\*\*\*\*  
SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 5

\*\*\* NOTE \*\*\* CP = 85.161 TIME= 08:57:17  
Contact pair is inactive.

\*\*\*\*\*  
SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 6  
Max. Penetration of -0.199841326 has been detected between contact element 49261 and target element 51310.

\*\*\* WARNING \*\*\* CP = 85.161 TIME= 08:57:17  
The geometrical penetration may be too large. Increase pinball if it is a true geometrical penetration. Decrease pinball if it is a false one.  
For total 10000 contact elements, there are 4853 elements are in contact.  
There are 2813 elements are in sticking.  
Contacting area 1.2046749.  
171 contact points have abrupt change in contact status.  
2278 contact points have too much penetration (do not meet compatibility condition).  
Contact element 51126 has the highest number of status changes (total 2) during this substep.  
Contact element 49212 has Max. Elastic slip distance of 9.684577701E-05.  
Max. Total sliding distance 9.067527746E-02.  
Max. Pinball distance 0.2.  
One of the contact searching regions contains at least 35 target

elements.  
Max. Pressure/force 1.99841326.  
Max. Friction stress/force 7.993653055E-02.  
Max. Normal stiffness 6.66666667.  
Min. Normal stiffness 6.66666667.  
Max. Tangential stiffness 799.365305.  
Min. Tangential stiffness 0.2.

\*\*\*\*\*

\*\*\*\*\*

SUMMARY FOR CONTACT PAIR IDENTIFIED BY REAL CONSTANT SET 7

\*\*\* NOTE \*\*\* CP = 85.161 TIME= 08:57:17  
Contact pair is inactive.

\*\*\* WARNING \*\*\* CP = 85.161 TIME= 08:57:17  
The unconverged solution (identified as time 1 substep 999999) is  
output for analysis debug purposes. Results should not be used for  
any other purpose.

R E S T A R T I N F O R M A T I O N

REASON FOR TERMINATION. . . . .DOF LIMIT EXCEEDED  
FILES NEEDED FOR RESTARTING . . . . . file.Rnnn  
file.ldhi  
file.rdb  
TIME OF LAST SOLUTION . . . . . 0.50000  
TIME AT START OF THE LOAD STEP . . . . 0.0000  
TIME AT END OF THE LOAD STEP . . . . . 1.0000

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= file.db  
FOR POSSIBLE RESUME FROM THIS POINT

NUMBER OF WARNING MESSAGES ENCOUNTERED= 23  
NUMBER OF ERROR MESSAGES ENCOUNTERED= 15

\*\*\*\*\* PROBLEM TERMINATED BY INDICATED ERROR(S) OR BY END OF INPUT DATA \*\*\*\*\*

+----- A N S Y S S T A T I S T I C S -----+

Release: 14.5 Build: UP20120918 Platform: WINDOWS x64  
Date Run: 10/27/2014 Time: 08:57  
Windows Process ID: 1128

Processor Model: Intel(R) Core(TM) i7-3770 CPU @ 3.40GHz

Compiler: Intel(R) FORTRAN Compiler Version 11.1.0 (Build: 20100414)  
Microsoft(R) Visual C/C++ Compiler Version 15.0 (Build: 30729)  
Intel(R) Math Kernel Library Version 10.3.3 Product Build 20110314

Total number of cores available : 8  
Number of physical cores available : 4  
Number of cores requested : 2 (Shared Memory Parallel)

GPU Acceleration: Not Requested

Job Name: file  
Working Directory: D:\yseibold\ProjectScratch\ScrD8E4

Total CPU time for main thread : 55.7 seconds  
Total CPU time summed for all threads : 85.5 seconds



Elapsed time spent pre-processing model (/PREP7) : 0.2 seconds  
Elapsed time spent solution - preprocessing : 0.3 seconds  
Elapsed time spent computing solution : 54.3 seconds  
Elapsed time spent solution - postprocessing : 0.0 seconds  
Elapsed time spent post-processing model (/POST1) : 0.0 seconds

Equation solver computational rate : 18621.0 Mflops  
Equation solver effective I/O rate : 10439.1 MB/sec

Maximum total memory used : 530.0 MB  
Maximum total memory allocated : 1088.0 MB  
Maximum total memory available : 8 GB

+----- E N D A N S Y S S T A T I S T I C S -----+

```
*-----*
|
|                                ANSYS RUN COMPLETED
|-----|
|                                Release 14.5                UP20120918                WINDOWS x64
|-----|
| Database Requested(-db)  512 MB  Scratch Memory Requested  512 MB
| Maximum Database Used   82 MB    Maximum Scratch Memory Used  448 MB
|-----|
|
| CP Time      (sec) =          85.535      Time = 08:57:18
| Elapsed Time (sec) =          57.000      Date  = 10/27/2014
|
|-----|
*
```