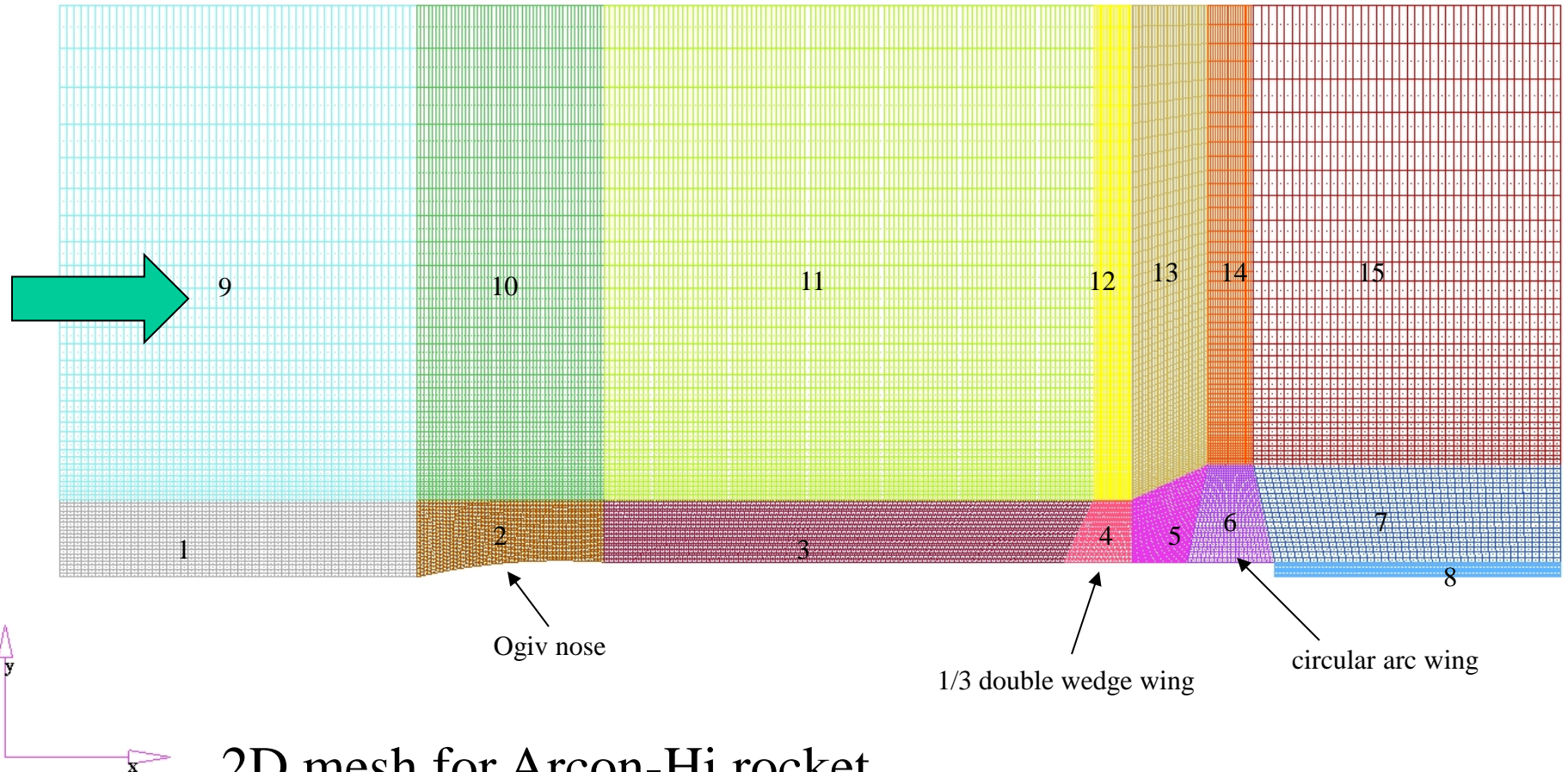


# Arcon-Hi Rocket



2D mesh for Arcon-Hi rocket

Model : 16400 quad cells, 16781 nodes

15 zones, mesh generation time is about 25 minutes

# Arcon-Hi Rocket

## Model

537,180 nodes, 524,832 cells

64 pyramids, 2880 prisms

521,888 hexahedrons



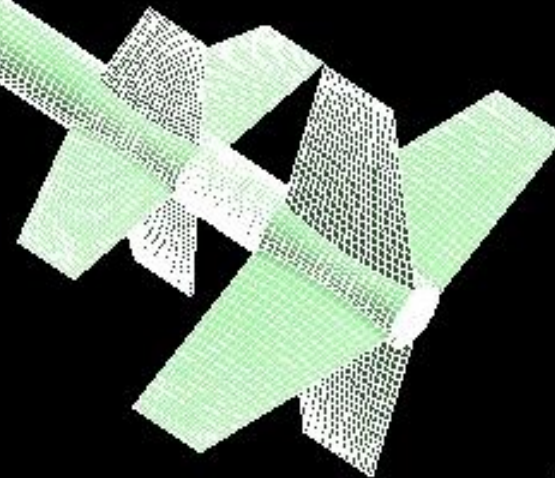
Mach = 0.95

$\alpha = 5^\circ$



Mach = 1.2

$\alpha = 10^\circ$



Tail with ring-support



Mach = 0.95

$\alpha = 5^\circ$

### 3D Model

537,680 nodes, 524,832 cells

64 pyramids, 2880 prisms

521,888 hexahedrons



Ogив nose shape

Nose section surface mesh

$x$   $z$   $x$

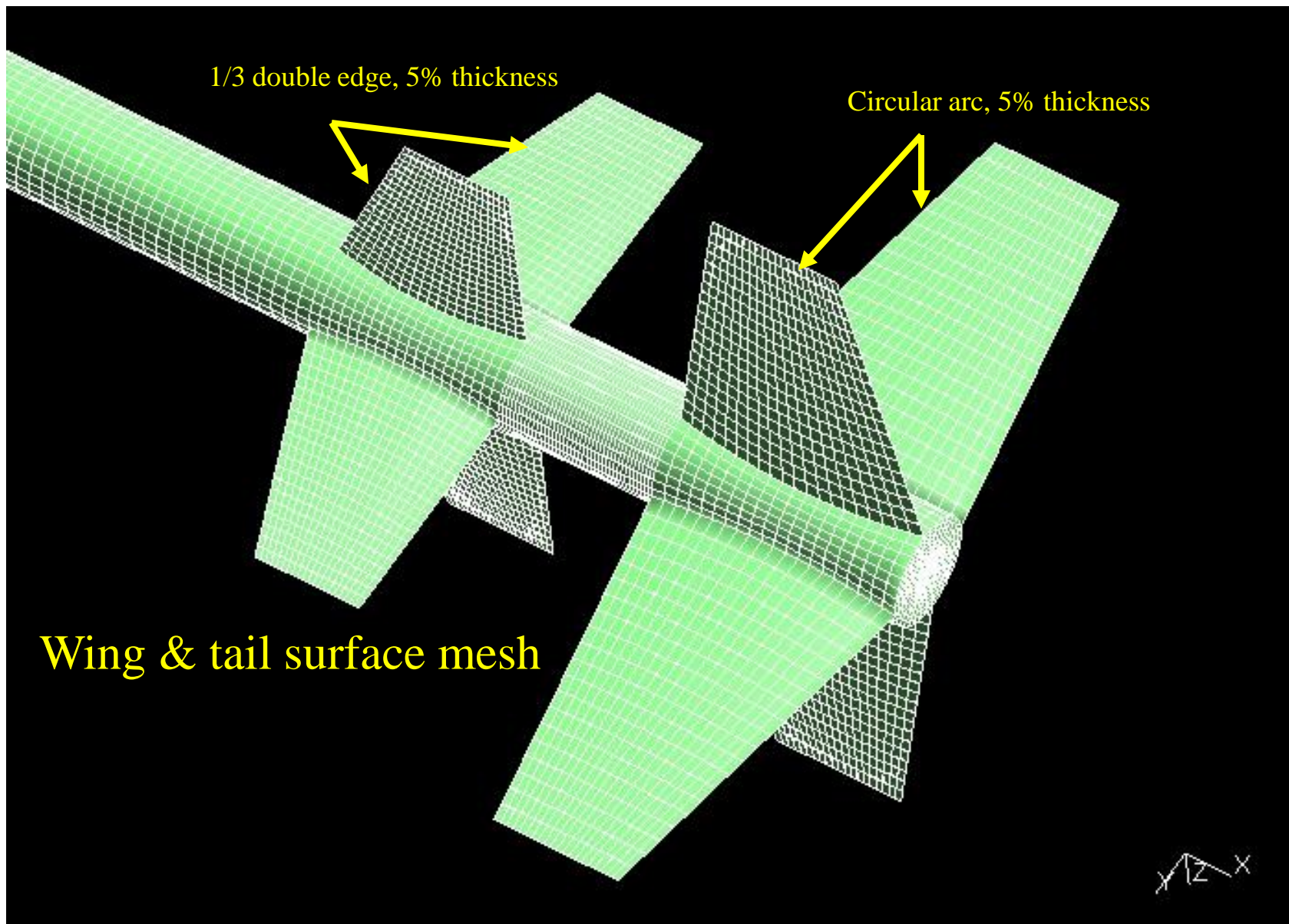


1/3 double edge, 5% thickness

Circular arc, 5% thickness

Wing & tail surface mesh

12 X

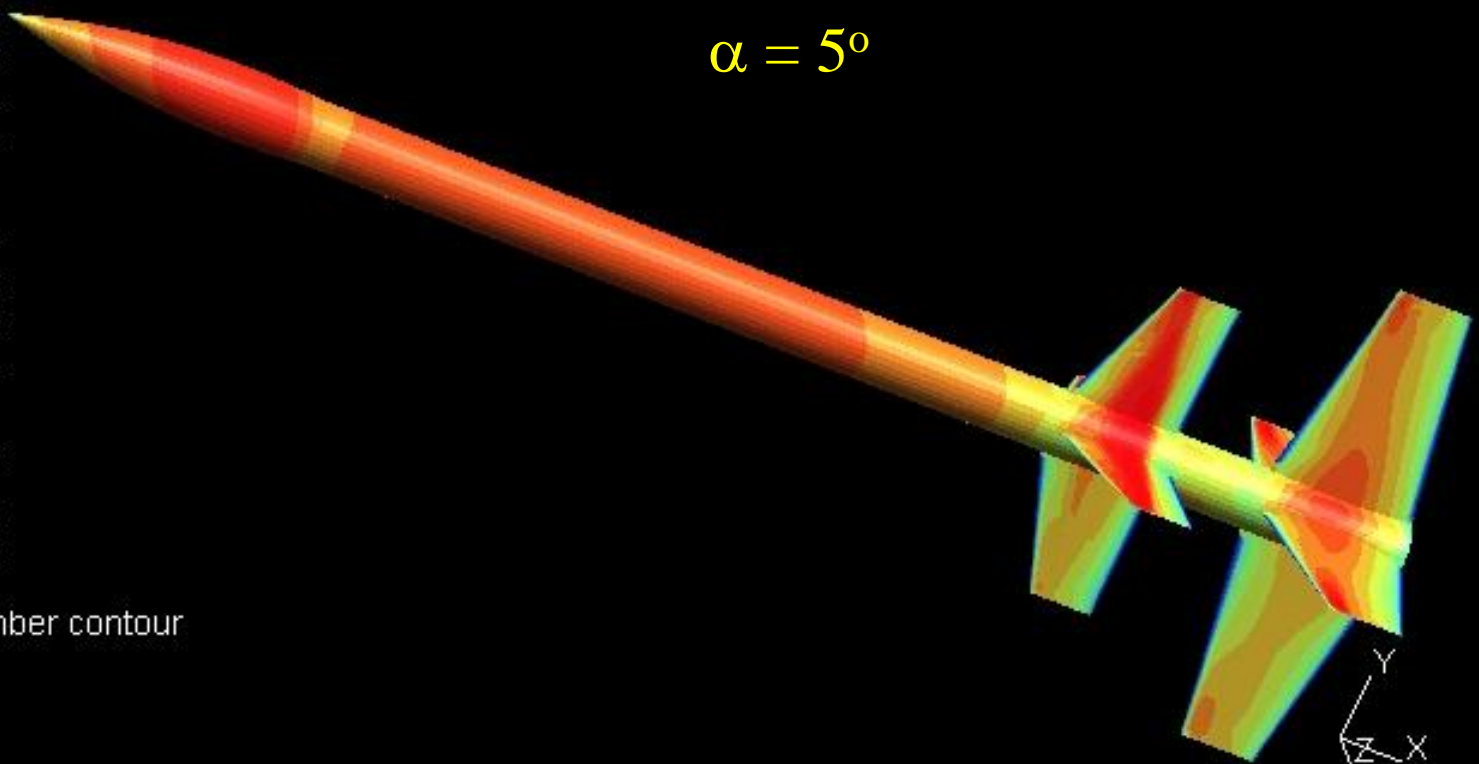


20,431 seconds of run time for 1500 iterations  
CD change is  $1.0 \times 10^{-7}$

Mach = 0.95  
 $\alpha = 5^\circ$

1.219  
1.143  
1.067  
0.991  
0.915  
0.839  
0.763  
0.687  
0.611  
0.535  
0.459  
0.383  
0.307  
0.231  
0.155  
0.079  
0.003

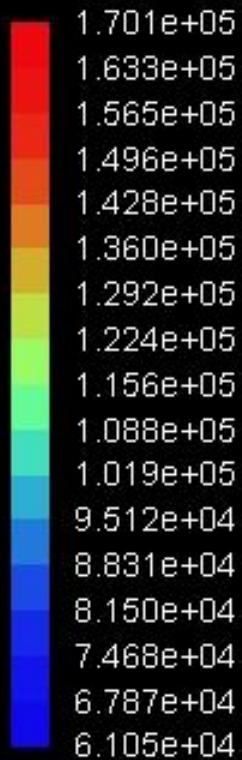
Mach number contour



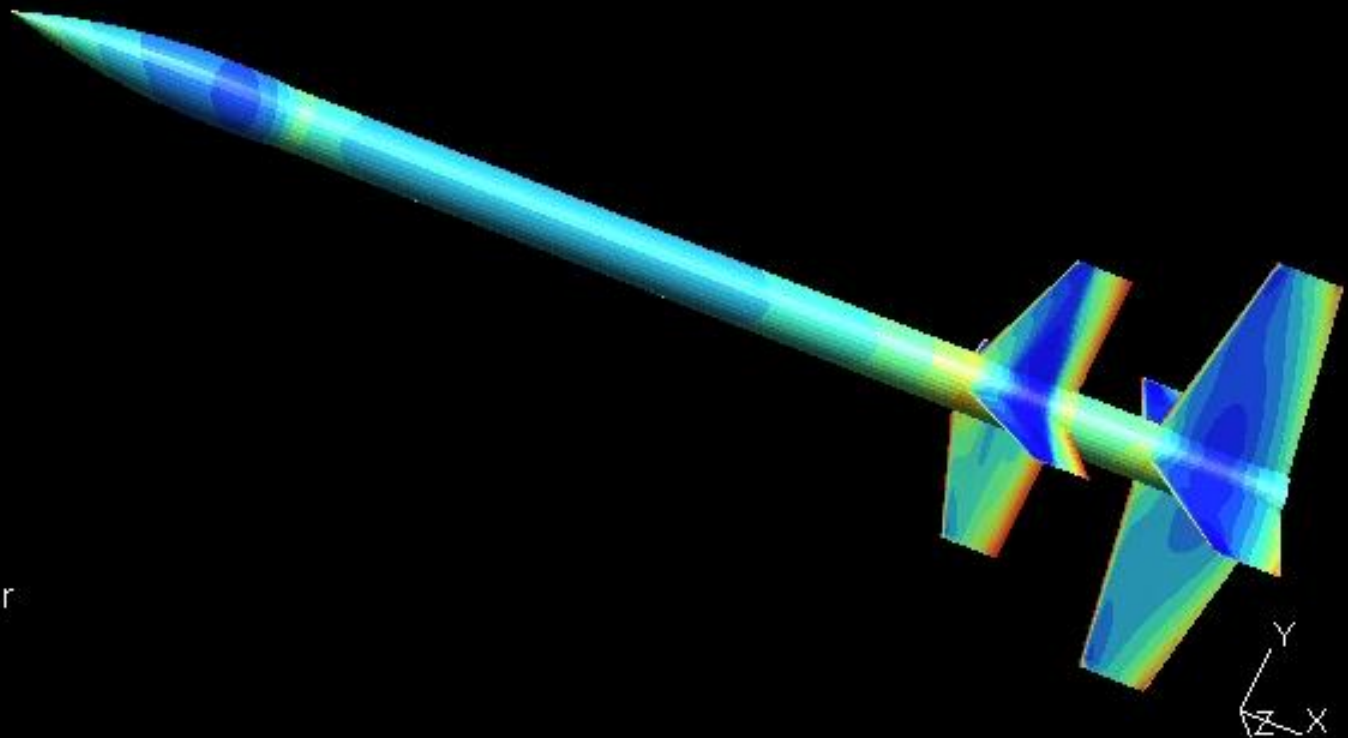
Mach number contour for Mach 0.95 flow past Arcon-Hi rocket at 5 degrees angle of attack.

**Mach = 0.95**

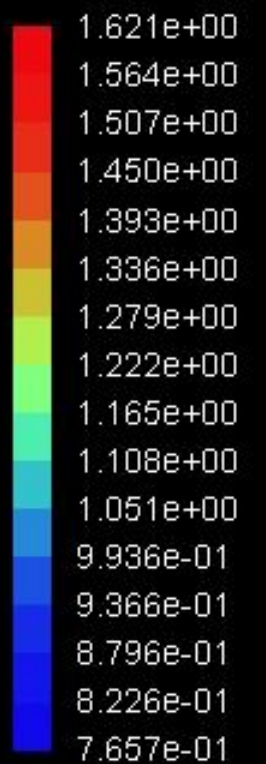
**$\alpha = 5^\circ$**



Pressure contour

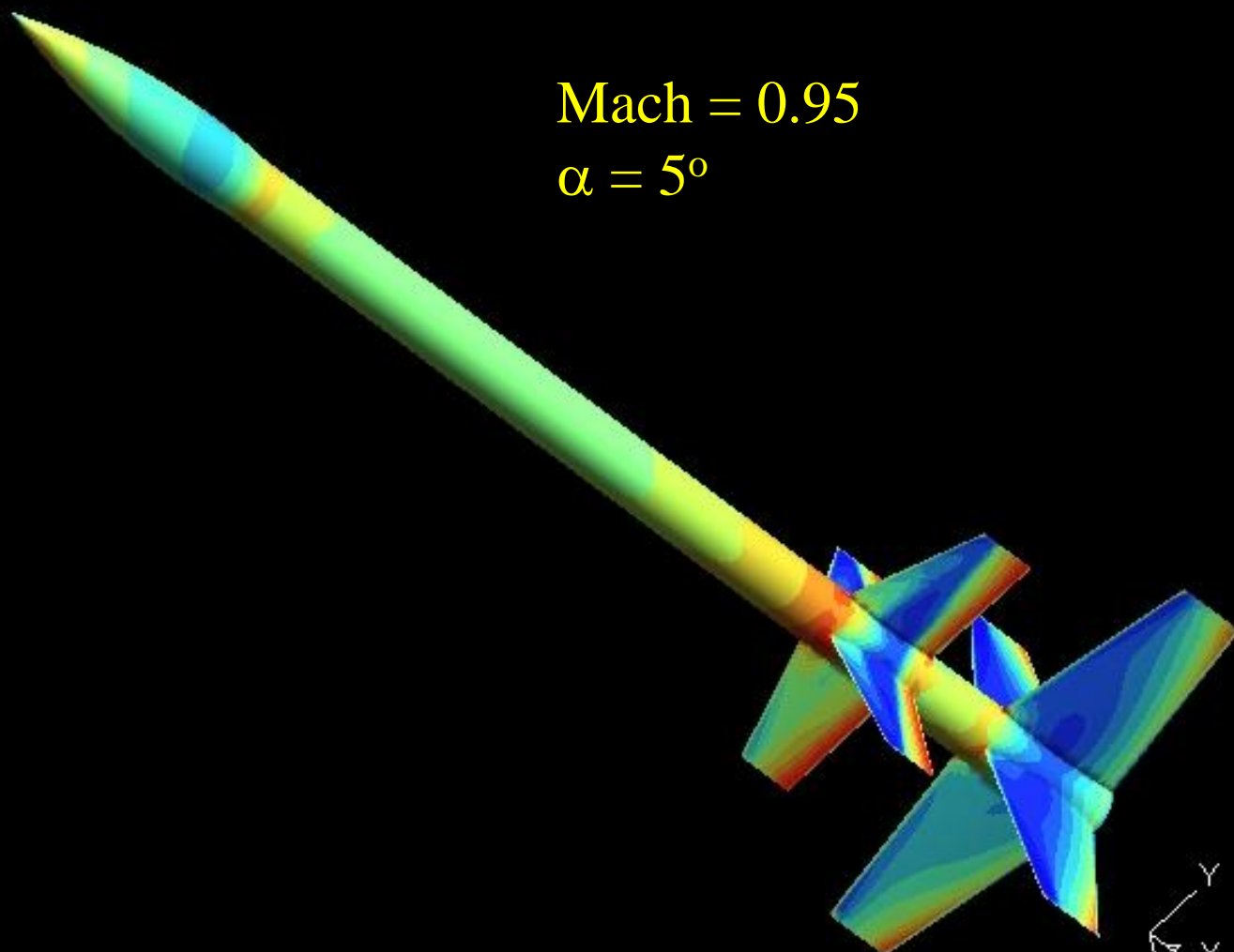


**Pressure contour for Mach 0.95 flow past Arcon-Hi rocket at 5 degrees angle of attack.**



Density contour

$\text{Mach} = 0.95$   
 $\alpha = 5^\circ$



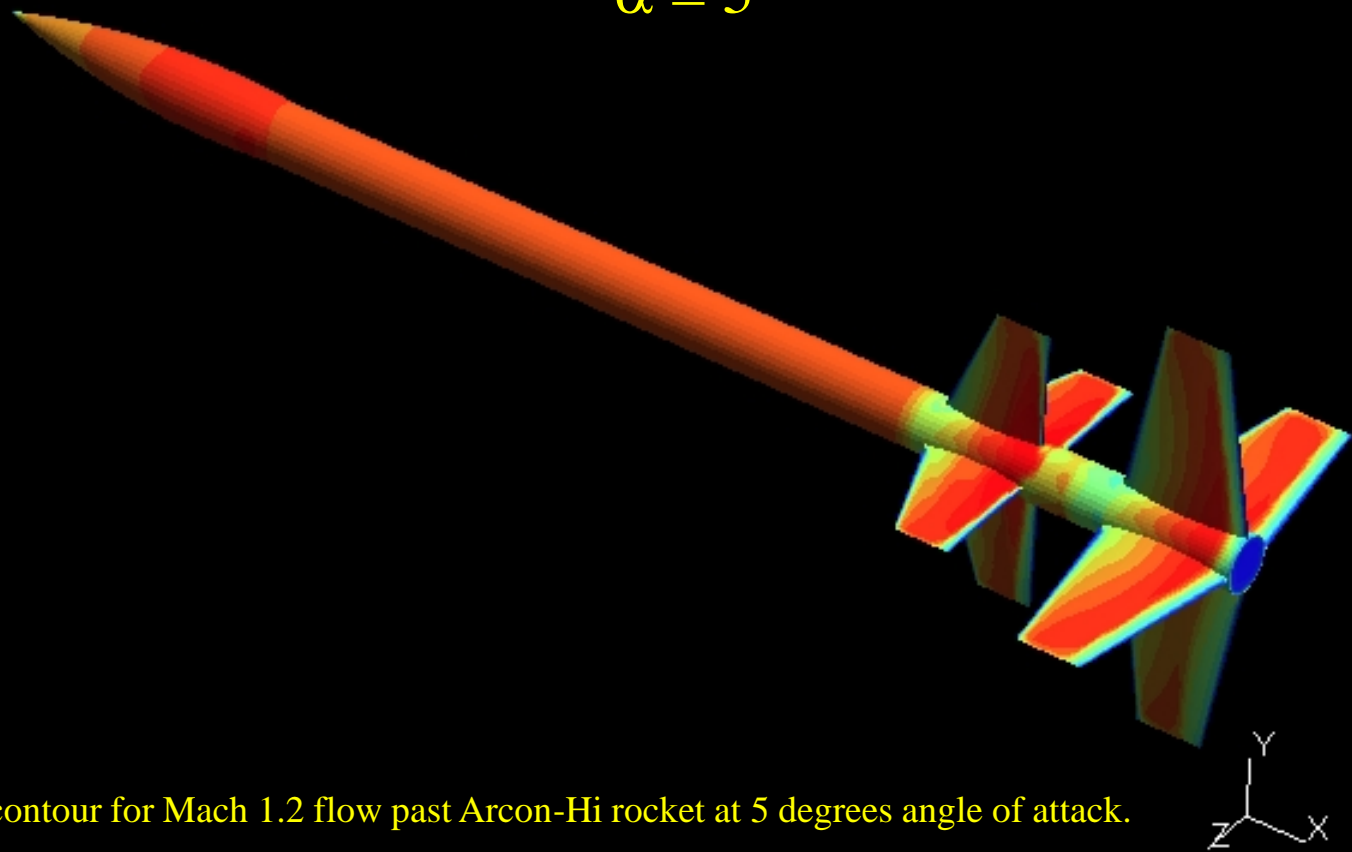
Density contour for Mach 0.95 flow past Arcon-Hi rocket at 5 degrees angle of attack.





Mach number

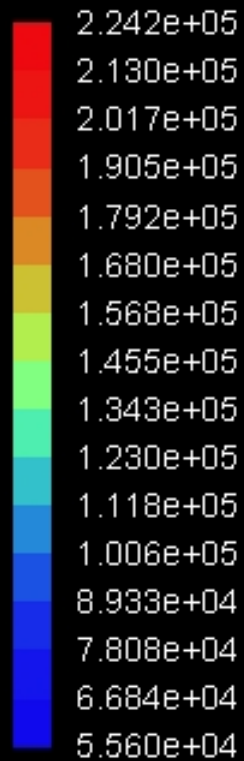
**Mach = 1.2**  
 **$\alpha = 5^\circ$**



**Mach number contour for Mach 1.2 flow past Arcon-Hi rocket at 5 degrees angle of attack.**

**Mach = 1.2**

**$\alpha = 5^\circ$**



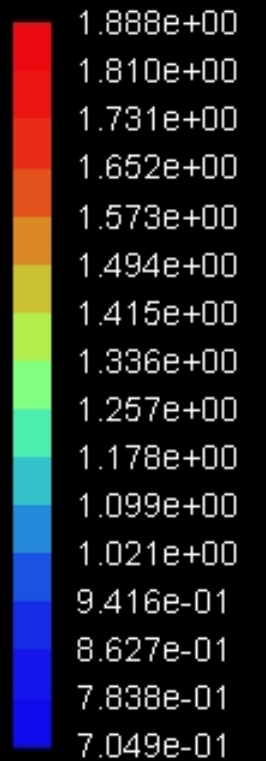
Pressure contour

**Pressure contour for Mach 1.2 flow past Arcon-Hi rocket at 5 degrees angle of attack.**

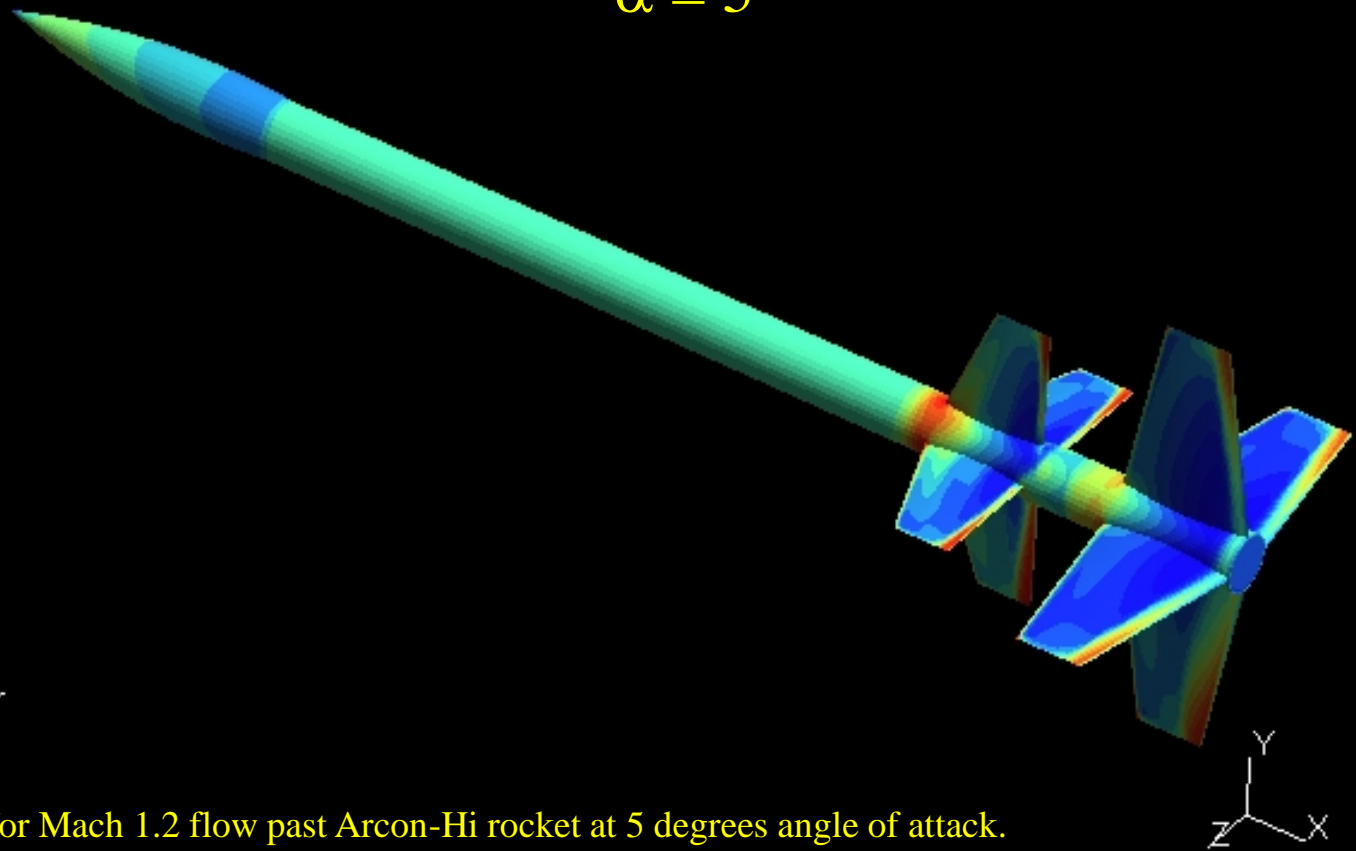


Mach = 1.2

$\alpha = 5^\circ$



Density contour



Density contour for Mach 1.2 flow past Arcon-Hi rocket at 5 degrees angle of attack.

### 3D Model

537,680 nodes, 524,832 cells

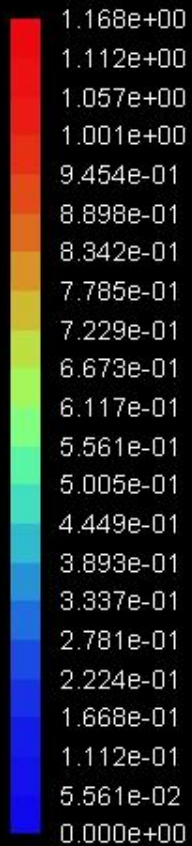
64 pyramids, 2880 prisms

521,888 hexahedrons



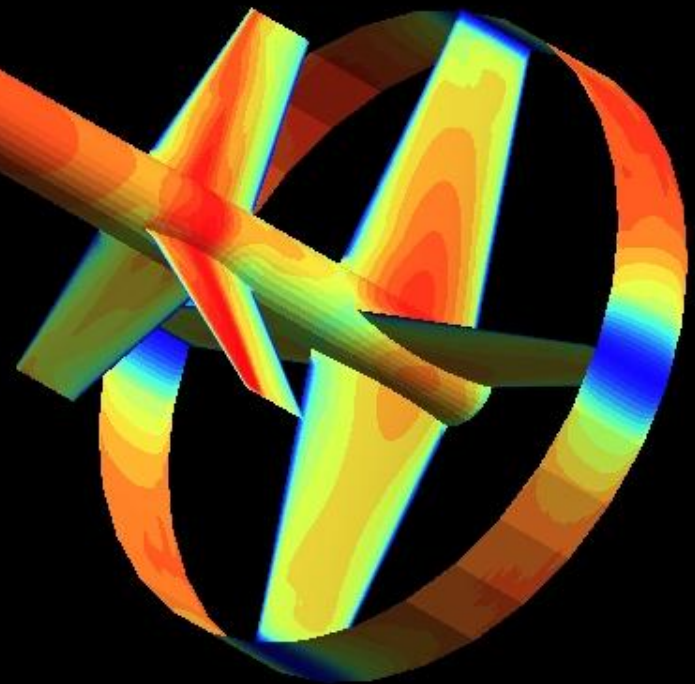


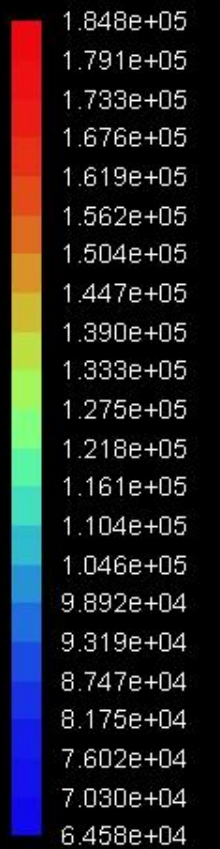
20,465 seconds of run time for 1500 iterations  
CD change is  $1.0 \times 10^{-4}$



Mach number contour

**Mach = 0.95**  
 **$\alpha = 5^\circ$**

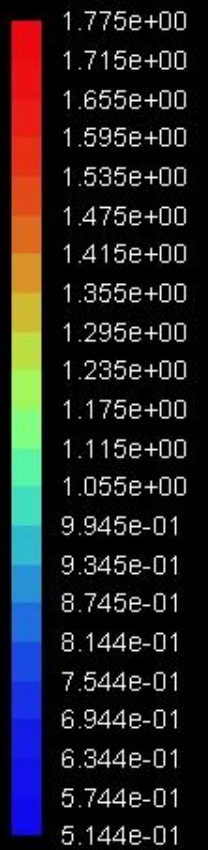




Pressure contour

$\text{Mach} = 0.95$   
 $\alpha = 5^\circ$





Density contour

$\text{Mach} = 0.95$   
 $\alpha = 5^\circ$

