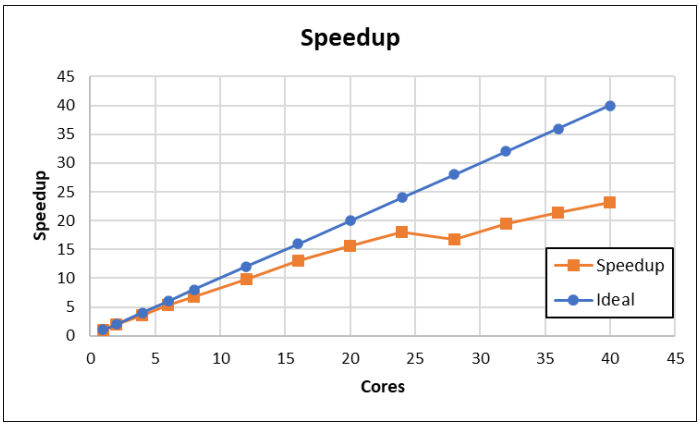
SU2 Scaling Analysis

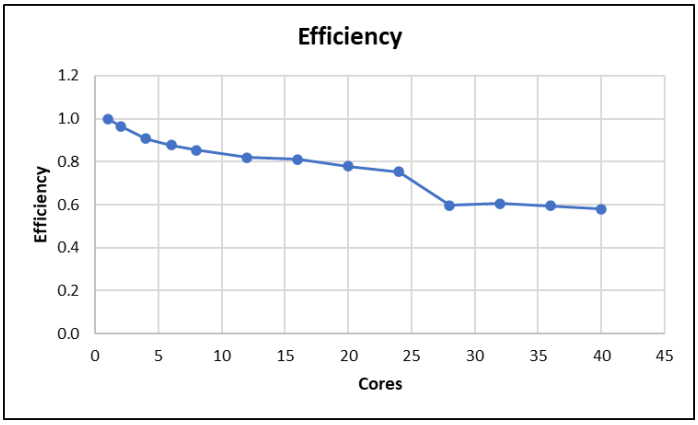
- Strong scaling

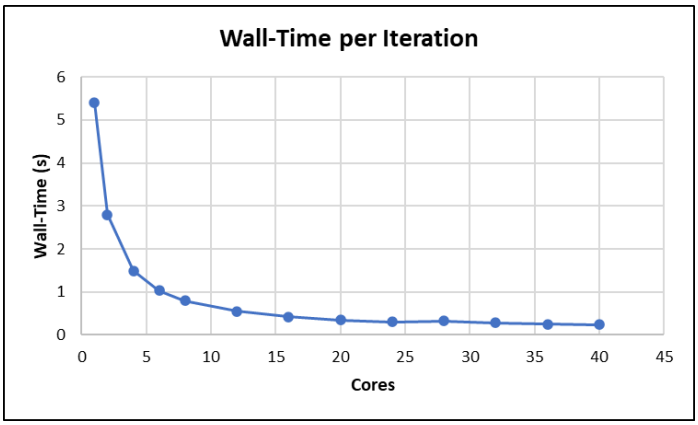
  Strong scaling analysis was performed using coarse mesh simulations of backward facing step problem at 640th iteration. The total mesh count is 237,120. Average wall-clock time per iteration is used as the time standard for scaling analysis. Speedup and efficiency are plotted for different core counts based on the following equations (n is number of cores):

$$Strong\ Speedup = \frac{T(1)}{T(n)}$$

$$Strong\ Efficiency = \frac{1}{n} * Strong\ Speedup$$







- Weak Scaling

  Weak scaling analysis was performed using coarse mesh simulations of backward facing step problem at 670th iteration, by parameterizing the divisions of the domain in z-direction. Average wall-clock time per iteration is used as the time standard for scaling analysis. Speedup is plotted against node count based on the following relation (n is the number of cores, M is the number of mesh points in base mesh):

$$Weak\ Speedup = \frac{T(M,1)}{T(n\ \times M,n)}$$