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Enter case reference: tryout
Reading in parameter file: Parfiles/tryout.txt

Section identifier: naca4412_yt_v5
Number of panels: 400
Reynolds number: 20 million
Range of incidences (degrees): -10:1:10

Results for alpha = -10.000 degrees

  Lift coefficient: -0.344
  Drag coefficient: 0.00779
  Lift-to-drag ratio: -44.177

  Upper surface boundary layer:
    Natural transition at x = 0.419

  Lower surface boundary layer:
    Natural transition at x = 0.007
    Turbulent separation at x = 0.012


Results for alpha = -9.000 degrees

  Lift coefficient: -0.227
  Drag coefficient: 0.00649
  Lift-to-drag ratio: -35.029

  Upper surface boundary layer:
    Natural transition at x = 0.393

  Lower surface boundary layer:
    Natural transition at x = 0.007
    Turbulent separation at x = 0.012


Results for alpha = -8.000 degrees

  Lift coefficient: -0.110
  Drag coefficient: 0.00552
  Lift-to-drag ratio: -20.001

  Upper surface boundary layer:
    Natural transition at x = 0.373

  Lower surface boundary layer:
    Natural transition at x = 0.007
    Turbulent separation at x = 0.012


Results for alpha = -7.000 degrees

  Lift coefficient: 0.007
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  Drag coefficient: 0.00484
  Lift-to-drag ratio: 1.362

  Upper surface boundary layer:
    Natural transition at x = 0.352

  Lower surface boundary layer:
    Natural transition at x = 0.007
    Turbulent separation at x = 0.012


Results for alpha = -6.000 degrees

  Lift coefficient: 0.124
  Drag coefficient: 0.00440
  Lift-to-drag ratio: 28.052

  Upper surface boundary layer:
    Natural transition at x = 0.332

  Lower surface boundary layer:
    Natural transition at x = 0.007
    Turbulent separation at x = 0.012


Results for alpha = -5.000 degrees

  Lift coefficient: 0.240
  Drag coefficient: 0.00558
  Lift-to-drag ratio: 43.100

  Upper surface boundary layer:
    Natural transition at x = 0.316

  Lower surface boundary layer:
    Natural transition at x = 0.007
    Turbulent separation at x = 0.272


Results for alpha = -4.000 degrees

  Lift coefficient: 0.357
  Drag coefficient: 0.00536
  Lift-to-drag ratio: 66.633

  Upper surface boundary layer:
    Natural transition at x = 0.296

  Lower surface boundary layer:
    Natural transition at x = 0.007
    Turbulent separation at x = 0.282
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Results for alpha = -3.000 degrees

  Lift coefficient: 0.474
  Drag coefficient: 0.00525
  Lift-to-drag ratio: 90.208

  Upper surface boundary layer:
    Natural transition at x = 0.275

  Lower surface boundary layer:
    Natural transition at x = 0.007
    Turbulent separation at x = 0.291


Results for alpha = -2.000 degrees

  Lift coefficient: 0.591
  Drag coefficient: 0.00643
  Lift-to-drag ratio: 91.772

  Upper surface boundary layer:
    Natural transition at x = 0.255

  Lower surface boundary layer:
    Natural transition at x = 0.007


Results for alpha = -1.000 degrees

  Lift coefficient: 0.707
  Drag coefficient: 0.00662
  Lift-to-drag ratio: 106.765

  Upper surface boundary layer:
    Natural transition at x = 0.224

  Lower surface boundary layer:
    Laminar separation at x = 0.007
    Turbulent reattachment at x = 0.012


Results for alpha = 0.000 degrees

  Lift coefficient: 0.823
  Drag coefficient: 0.00686
  Lift-to-drag ratio: 119.932

  Upper surface boundary layer:
    Natural transition at x = 0.194

  Lower surface boundary layer:
    Laminar separation at x = 0.007
    Turbulent reattachment at x = 0.012
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Results for alpha = 1.000 degrees

  Lift coefficient: 0.939
  Drag coefficient: 0.00713
  Lift-to-drag ratio: 131.764

  Upper surface boundary layer:
    Natural transition at x = 0.169

  Lower surface boundary layer:
    Laminar separation at x = 0.012
    Turbulent reattachment at x = 0.017


Results for alpha = 2.000 degrees

  Lift coefficient: 1.055
  Drag coefficient: 0.00738
  Lift-to-drag ratio: 142.851

  Upper surface boundary layer:
    Natural transition at x = 0.149

  Lower surface boundary layer:
    Laminar separation at x = 0.042
    Turbulent reattachment at x = 0.047


Results for alpha = 3.000 degrees

  Lift coefficient: 1.170
  Drag coefficient: 0.00779
  Lift-to-drag ratio: 150.193

  Upper surface boundary layer:
    Natural transition at x = 0.124

  Lower surface boundary layer:
    Laminar separation at x = 0.047
    Turbulent reattachment at x = 0.053


Results for alpha = 4.000 degrees

  Lift coefficient: 1.285
  Drag coefficient: 0.00849
  Lift-to-drag ratio: 151.317

  Upper surface boundary layer:
    Natural transition at x = 0.079
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  Lower surface boundary layer:
    Laminar separation at x = 0.047
    Turbulent reattachment at x = 0.053


Results for alpha = 5.000 degrees

  Lift coefficient: 1.400
  Drag coefficient: 0.00925
  Lift-to-drag ratio: 151.269

  Upper surface boundary layer:
    Natural transition at x = 0.042

  Lower surface boundary layer:
    Natural transition at x = 0.098


Results for alpha = 6.000 degrees

  Lift coefficient: 1.514
  Drag coefficient: 0.00985
  Lift-to-drag ratio: 153.613

  Upper surface boundary layer:
    Natural transition at x = 0.033

  Lower surface boundary layer:
    Natural transition at x = 0.098


Results for alpha = 7.000 degrees

  Lift coefficient: 1.627
  Drag coefficient: 0.01047
  Lift-to-drag ratio: 155.361

  Upper surface boundary layer:
    Natural transition at x = 0.024

  Lower surface boundary layer:
    Natural transition at x = 0.164


Results for alpha = 8.000 degrees

  Lift coefficient: 1.741
  Drag coefficient: 0.01246
  Lift-to-drag ratio: 139.731

  Upper surface boundary layer:
    Laminar separation at x = 0.001
    Turbulent reattachment at x = 0.002
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    Turbulent separation at x = 1.000

  Lower surface boundary layer:
    Natural transition at x = 0.169


Results for alpha = 9.000 degrees

  Lift coefficient: 1.853
  Drag coefficient: 0.01385
  Lift-to-drag ratio: 133.832

  Upper surface boundary layer:
    Natural transition at x = 0.001
    Turbulent separation at x = 0.995

  Lower surface boundary layer:
    Natural transition at x = 0.169


Results for alpha = 10.000 degrees

  Lift coefficient: 1.965
  Drag coefficient: 0.01548
  Lift-to-drag ratio: 126.988

  Upper surface boundary layer:
    Natural transition at x = 0.001
    Turbulent separation at x = 0.990

  Lower surface boundary layer:
    Natural transition at x = 0.174

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