

## عنوان مقاله:

PARALLELIZING A THIN-LAYER NAVIER-STOKES SOLVER FOR SUPERSONIC TURBULENT FLOWS AROUND WING-BODY COMBINATIONS

## محل انتشار:

چهاردهمین کنفرانس سالانه مهندسی مکانیک (سال: 1385)

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## خلاصه مقاله:

In this study, an existing Thin Layer Navier-Stokes solver is parallelized and the flow field results obtained for supersonic turbulent flows around a wing-body combination are presented. As a serial code, TLNS solver is very time consuming and takes a large part of memory due to the complicated and lengthy computations. Also for complicated geometries an exceeding number of grid points are required which necessitates longer serial computation times. Therefore parallelizing the code has brought a lot of savings in computer time and memory for each computational node. In this study, a cluster of 44 computational nodes with 2.4 and 2.8 GHz, P4 CPU has been used. MPI library is also used for communicating data among processors. For executing this code on parallel processors, the domain is partitioned in 1-D form in longitudinal, radial and circumferential directions and the results are compared with serial computations. Also the running times obtained from executing the parallel program on 1 up to 16 nodes, for several directions of partitioning, are compared and the best method for partitioning the domain is presented

## کلمات کلیدی:

Thin Layer Navier Stokes- Subdomain- Parallelization

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/27950>

