



Crash and Flow Analysis of an Super Sonic Aircraft Using Ansys

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ABSTRACT

To apply boundary conditions as input, obtain lift and drag coefficient plots, see how streamlines and volume rendering are generated on an aircraft, and then perform explicit dynamics on an aircraft running at various velocities for various materials. Finally, examine how deformation and stresses affect the body. Analyze the aircraft's greatest and minimum deformation as well as its stresses. Information about the state of the aircraft manufacturing industry, the status of aircraft assembly coordination, and development trends. The feasibility of visual and integrated coordinate design, assembly coordination scheme simulation, and knowledge-based feasibility evaluation are all thoroughly investigated.

Keywords: ANSYS, Deformations, Explicit Dynamics, Flow analysis.

1. Introduction

The F-16, often known as the "VIPER," is the most popular, versatile, and successful multi-fighter in the world. In 1976, the F-16 falcon was introduced and sent into service with the USAF. As it is effective in all multirole jet fighter roles, the F-16 is now in service in 25 different nations. It is equipped with AESA technology, allowing the pilot to view. The best perspective of the target region is provided by a comprehensive digital map with adjustable zoom levels. For more than 36 years, Lockheed Martin has been producing the F16 Fighting Falcon. The Lockheed Corporation has a proven track record of creating a variety of high-quality products and parts that can survive all types of weather. The F-16 can carry 3000 pounds (570 liters) more fuel and has an external fuel tank capacity of 600 gallon (2271.25 liters), making it a strategic operational upgraded fighter.



Figure 1. Super Sonic Air Craft

Specifications f-16 falcon

Length	-	49.3 feet/ 15.027meters
Height	-	16.7 feet/ 5.090meters
Speed	-	1500mph (Mach 2+)
Wing span	-	31 feet/ 9.449meters
Empty weight	-	20300lb/ 9207kg
Engine throat class	-	29000lb/ 13000kg