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Siemens NX is the Perfect Solution to Automated Design Problems

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Annotation: In this article discussed about siemens nx is the perfect solution to automated design problems

Keywords: siemens nx, Siemens Industry Automation Division, software, lifecycle

Introduction

The Siemens NX program is a software product of the *Siemens PLM Software* company and is designed to work on almost all operating systems.

Siemens PLM Software, a division of *Siemens Industry Automation Division*, is a world leader in software development and product lifecycle management *(PLM - Product Lifecycle Management) services.*

Siemens NX software, considered an automated design system, was initially called Unigraphics. Unigraphics was developed by United Computing. This company was absorbed by McDonnell Douglas (now Boeing) in 1976, and the new company was called McDonnell Douglas Automation Unigraphics Group.

In 2001, this product was integrated into automated design systems in the I-DEAS system. The increase in the additional capabilities of I-DEAS, especially in terms of the Unigraphics program, became the basis for the creation of the NX program.

Additional features of the Imageware product are integrated into the NX program, with the main goal of providing new modeling opportunities for the automotive industry. The module designed in NX is called Shape Studio.

The main competitors of this program are Dassault Systèmes' CATIA and Parametric Technology Corporation's Creo Elements/Pro.

NX's software has been widely implemented in many industrial enterprises - aerospace, automotive, medical equipment production, as well as in the fields of construction.

The integration of NX software with Teamcenter, a data and process management system, is a comprehensive solution in detail manufacturing. This allows you to manage all types of information. Teamcenter accelerates the process of product creation, accelerates the product's place on the market, ensures management and compliance with laws, optimizes the use of enterprise resources, and supports the partnership work of enterprises on product production. Functional capabilities of Teamcenter:

- Management of product nomenclature by programs and projects;
- Production process management;
- Management of the product according to its composition;
- Ensuring compliance with regulatory requirements;
- Management of document exchange;
- Automation of work with the supplier;

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- Management of electromechanical systems design processes;
- Management of analytical processes;
- Technical service: current and major repairs;
- Visualization in the scope of the life cycle;
- Reporting and analytics;
- Cooperation works;
- Working with intellectual resources of the enterprise[50];

The NX automated design system opens up a wide range of possibilities for processing details in prismatic and free forms along 2 and 3 axes.

The NX program is the most convenient software product for solving the development of high-quality details in a short time. One of the achievements of the program is the implementation of the process from the design of the detail to its production in one system.

Every feature of the Siemens NX software package is superior, from simulation modeling to advanced programming capabilities.

One of the main tasks of the industrialized tools is to model surfaces of forms in the NX program, to visualize them, to create a car design, to integrate automated design systems, its technologies and engineering analysis tools. There are two types of industrialized tools in NX. They consist of:

- *NX Mach Series Industrial Design Styling — tools for automated industrial and automotive design;*
- *NX Render and NX Visualize — creating photo-resolution images of products [46];*

Construction. NX's design applications include detail design, working with assemblies, creating user-defined structural elements, pipeline design, and drafting.

NX represents a complete set of tools for programming machines with numerical software control. In addition, the integrated package of software applications ensures the production of details without leaving a single system [46]. These applications allow you to model details, select the geometry of the tools being modeled, and create control programs based on the technologies of the program.

New controllers, machines, and other devices, combined with the effectiveness of software for the design and production of parts, ensure that industrial enterprises are at maximum output[46].

Engineering analysis. The NX Digital Lifecycle Simulation engineering analysis package is the core analysis system of the NX software. This package is bundled with the NX Design application.

NX Nastran - (NASA STRuctural Analysis) is a computer engineering analysis tool for the product being designed. It provides an opportunity to solve many statistical, linear and non-linear dynamic engineering analysis tasks in product development. NX Nastran provides analysis on stress and decay, vibration, durability, heat transfer, and noise.

Designing in NX Tooling equipment is used in the process of designing technological equipment, technological preparation of production. Tools are automatically linked to models of parts and dies, enabling fast and accurate design of various tools.

Multi-coordinate processing in NX ensures the implementation of high-precision complex details during short setup and processes and accelerates the production process [50,54]. With such processing, it is possible to

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accurately describe the movement of the tool in the controlled area. This provides control over collisions and cuts of details.

Draft and primary fast and accurate processing method allows to prepare details of complex shape used mainly in the aerospace industry.

New technologies of automated design in the *NX* program serve for high-speed editing of models of details created in any automated design systems. The program includes additional applications. An example of this is the design hardware module and control software creation applications.

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