SIEMENS

DIGITAL INDUSTRIES SOFTWARE

NX CAD buyer's guide

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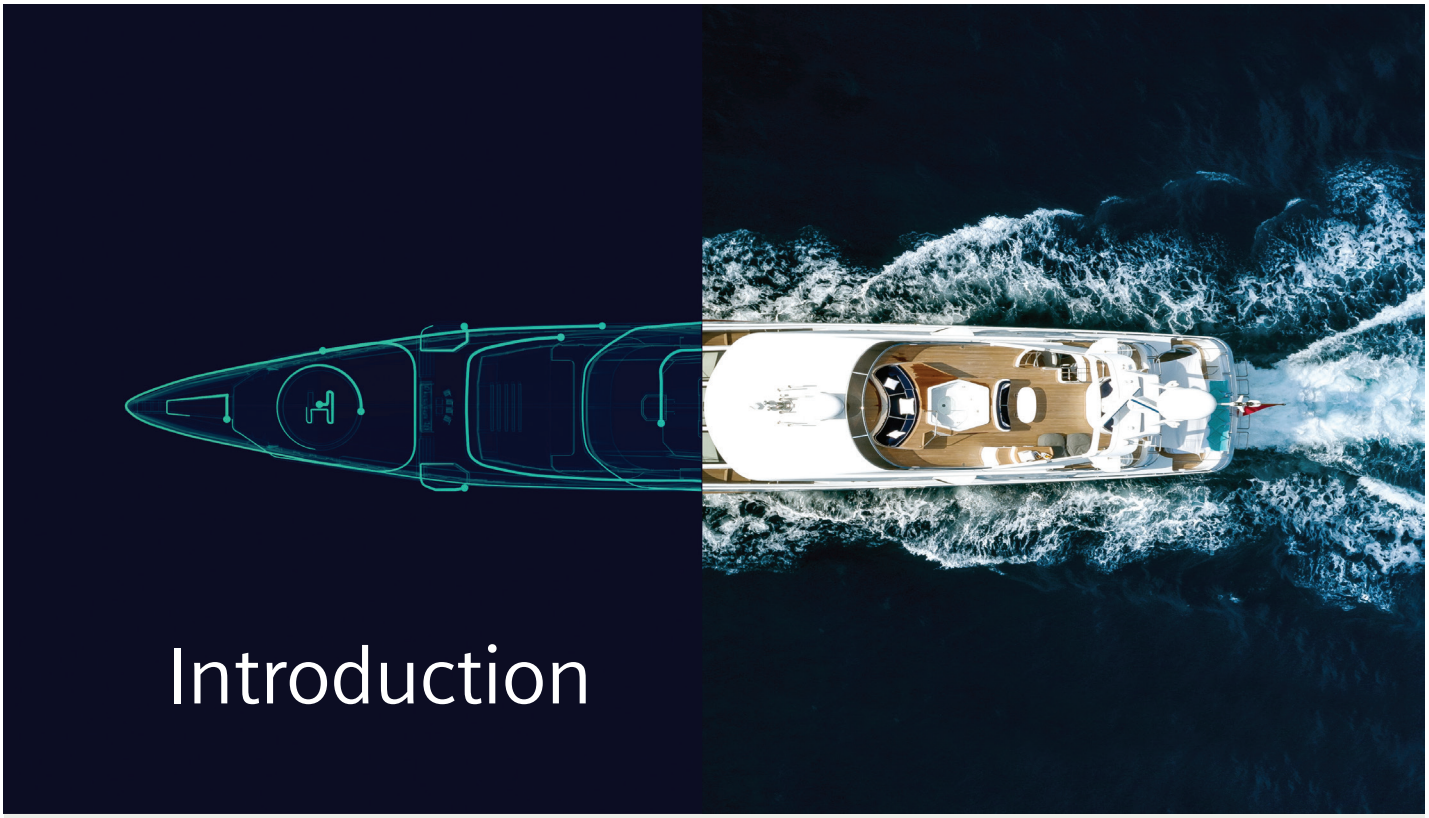

Introduction

Being competitive requires having stellar products and solutions that get you from an idea to full production quickly and with few redesigns. This is where Siemens Digital Industries Software comes in with end-to-end solutions and expertise across the entire product development process, from design through simulation, testing and manufacturing. Voted among the top computer-aided design (CAD) products by G2, NX™ software, part of the Siemens Xcelerator business platform of software, hardware and services, sets the standards for speed, performance and ease of use. No matter what you're designing, using NX accelerates your product development.

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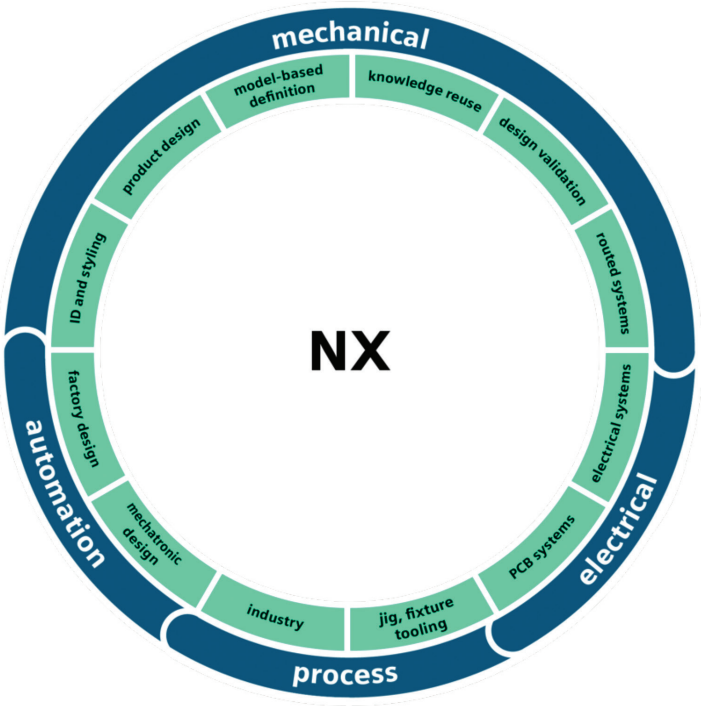
Where engineering meets tomorrow

NX CAD at a glance

NX is a complete solution for product engineering with robust capabilities and seamless scalability to take you from simulation to manufacturing. Produce innovative products faster than ever before with our open, flexible and fully integrated product engineering software suite. NX is a next-generation design platform that removes barriers to innovation.

NX is among the world's most productive and flexible modeling environment, supporting various design workflows along with advanced techniques, including generative engineering.



Gain 90 percent first-time yield and 50 percent faster product design cycles

Siemens has created the NX suite to encompass everything you need for product design and manufacturing across CAD, computer-aided manufacturing (CAM) and computer-aided engineering (CAE), enabling each module to work together flawlessly. The heart of the NX architecture – used for NX Design, Simcenter™ 3D software, NX Additive and Zel X™ solution – which are also part of the Siemens Xcelerator business platform, enables seamless part file use across applications without the need for translation or learning different user interfaces.

Out-of-the-box (OOTB) workflows reduce customization requirements and command prediction speeds for onboarding. The strong core powering NX means users can gain 90 percent on first-time yield and achieve 50 percent faster product design cycles.

Siemens can partner with you across software and hardware to provide a complete digital twin. Only a digital twin can instrument the product lifecycle to simulate, predict and optimize the product and production system before investing in physical prototypes and assets. Using flexible licensing models, NX innovation capabilities are available on-demand to all users. Using NX enables you to seamlessly integrate with other Siemens software, such as Teamcenter® software, allowing all teams to efficiently collaborate and share data throughout the design process.

The difference between CAD and CAM

NX includes mechanical CAD (MCAD), electronic CAD (ECAD), workflow-specific solutions, automations and other capabilities tailored to the needs of product designers. It is best suited for creating visualizations and 3D models, the first part of any digital twin, and analyzing the feasibility of a product's design for errors before moving to manufacturing. Unlike CAD, CAM is mainly used for automating the manufacturing process. Most CAM software translates the designs created by CAD into instructions that drive machine tools to turn designs into physical parts.

The NX CAD easy-to-use interface makes adoption time fast for both beginner and experienced product designers. Regardless of the size of your company or your skill level, the software's robust tools are excellent for creating complex and detailed 3D models, assemblies and drawings of products or components. With NX CAD as your CAD solution, there are no limits to what you can make.

NX CAD drives reliable, efficient design

With NX CAD, your company can deliver products to market right the first time. You can decrease development costs, data anomalies and design limitations. Not only is your business more sustainable with less waste, NX helps you increase product quality with more virtual product models, easier what-if scenarios and fewer costly physical prototypes.

- **Boost product design efficiency and innovation**
- **Reduce design process waste and costs**
- **Accelerate mechanical design processes and improve design quality**
- **Better protect project data and enable future re-use and modification**
- **Streamline collaboration with teams, customers and suppliers**
- **Use a single environment to facilitate the process from model to printed parts**

No matter what you're designing, NX accelerates your product development

Siemens is uniquely positioned to provide its customers end-to-end solutions and expertise across the entire product development process, from design to simulation, testing and manufacturing.

Whether your business is a startup or a multinational corporation, using NX CAD helps you deliver innovative products faster and scale anywhere. Your next innovation begins with an open, flexible and fully integrated engineering software solution that works with the tools you have today.

Part creation

From concept through build, using NX enables more complex and detailed design for industries like aerospace, defense and automotive.

Model-based design

Using NX, companies can support the transition to a single data source model-based engineering platform, design and maintain 3D models and modify legacy drawings and models.

Composite material

Design and analyze products incorporating composite materials, even in massive assemblies like those in the aerospace and automotive industries.

Efficiency and accuracy improvement

Using NX, companies can streamline workflows and improve accuracy with features like parametric feature-based modeling, surface modeling and iteration.

Integration with other software and tools

Companies can integrate NX with other tools, such as Simcenter 3D for analysis and Teamcenter for data management, enabling a more seamless and efficient design process.

Unified solution

With one seamless integration, you can rapidly propagate changes to product and associated process information, all with fewer disjoints in your workflow.

NX CAD leads the pack

Using NX sets the standards for speed, performance and ease of use. Voted among the top CAD products by G2, NX CAD has secured awards as a top CAD Leader and CAD leader in Enterprise, midmarket and small business categories, among other awards. Additionally, it leads the pack with robust 3D capabilities for realistic concept design and modeling.

"NX is one of the best software packages you can use for solid modeling, surfacing, or any of your CAD needs."

Jason B.

Read the full story

"Faster results for product models compared to the other software."

Mohammed S.

Read the full story

"The workflow and user interface are more capable than other competitors' CAD suites. I was able to make complex assemblies with arrangements and such with ease."

Verified User (Engineering)

Read the full story

INDUSTRY: MEDICAL DEVICES/PHARMACEUTICALS

Unlimited Tomorrow

Reduces cost of traditional prosthetics by 90 percent, improves quality and expedites delivery

Unlimited Tomorrow engineers were having trouble designing their sockets for the personalized fit their users needed.

Given the number of customers Unlimited Tomorrow had and was planning to have, reducing the quantity of test sockets was critical to scaling its business. They needed software that could help them produce personalized sockets in a more efficient manner.

Unlimited Tomorrow was skeptical that there was software on the market that could solve their problem. "We set up a meeting with the NX product engineering team," says Easton LaChappelle, founder of Unlimited Tomorrow. "On that very first call, I told them, 'Look, I don't think NX or any other CAD package can help us. What we're asking for is really, really hard.'"

Results

- Disrupted industry with a stay-at-home, personalized solution
- Reduced the cost of a typical prosthetic by 90 percent
- Reduced number of test sockets required for comfortable fit
- Delivered prosthetics five times faster than traditional processes

"Connecting the physical and the digital world. Creating perspectives for future generations."

Matt Landolfa
Lead Mechanical Design Engineer
Unlimited Tomorrow

Read the case study

INDUSTRY: AUTOMOTIVE

Scuderia AlphaTauri

Using NX, Simcenter and Fibersim to create the ideal chassis and seat for F1 drivers

"The chassis is one of the most sophisticated parts of the car for safety and performance reasons," says Raffaele Boschetti, head of information technology (IT) and innovation for Scuderia AlphaTauri. "You need to start working on that part immediately, even if you don't have all of the information. Before partnering with Siemens, we spent three months producing a good chassis."

Aside from the chassis, the seat is important for driver safety and performance. However, seat design is strictly regulated by F1 safety and crash test rules. "It is like a tailored suit," says Francesco Dario Picierro, senior composite design engineer for Scuderia AlphaTauri. "You have to look at things in terms of helmet position, back position and you have to be as low as possible."

Results

- Created a top-performing car ready for testing and the 2022 season
- Leveraged NX, Simcenter and Fibersim to create the ideal chassis and seat for F1 drivers
- Reduced chassis development time from three months to one month

"If you use the same suite that calculates everything from the CAD part to the production line, then you end up with a quality part that will deliver performance on the track."

Raffaele Boschetti
Head of IT and Innovation
Scuderia AlphaTauri

Read the case study

INDUSTRY: AEROSPACE

Bye Aerospace

NX, Fibersim and Simcenter enhance Bye Aerospace productivity with 66 percent fewer engineering staff

The eFlyer 2 is an all-composites airplane with the latest and most advanced aerodynamics and technology in avionics. It has a low part count and is also a robust system, which makes it a durable aircraft.

"We have 20 people on the engineering team," says Tom Bowen, chief engineer at Bye Aerospace. "A typical company would have 50 to 60. The reason we can do that is because Siemens software is so integrated that you don't need the traditional specialists."

"The NX CAD software that we're using right now is a technology enabler. It keeps Bye Aerospace in front," says George Bye, the chief executive officer (CEO) and founder of Bye Aerospace. "The ability to capture all of the aspects of an airplane design is greatly enabled. In capturing the eFlyer 2, Siemens software is particularly capable of helping us to transition to what comes next."

Results

- Reduced product development time while doing more iterations
- Decreased potential size of engineering staff by 66 percent
- Developed an all-composite airplane with a low part count that is still a robust system

"The reason we use NX instead of another CAD system is because it has a more seamless transition from design to analysis, which gives us more time to do more iterations on our design."

Parijaat Malik
Senior Mechanical Systems Engineer
Bye Aerospace

Read the case study

STEP ONE

Choose the NX CAD package that fits you

Scale with Siemens trusted ecosystem

Although NX on premise is still available, NX X is full SaaS NX, users get all the powerful features and functionality of NX with the associated flexibility, security and scalability advantages of Saas. Using NX CAD high-performance, high-scale capabilities, which are available in three preconfigured solutions – NX X Mach™ 1, 2 or 3 software – you can get the right fit for your design needs. Each solution offers tailored functionality for specific product development roles, practices and processes. For businesses of any size, using each NX X CAD Mach solution delivers complete capabilities for all stages of the product development process, from basic design through production.

Each solution includes everything needed to integrate with Teamcenter, allowing you to extend engineering process management tools via scalable collaboration and advanced management.

Compared to other CAD systems, using the NX X CAD Mach series:

- Allows your design to have more complex geometry
- Scales your performance to massive assemblies
- Maintains data across complex simulations
- Integrates fully with your design ecosystem
- Provides a key digital twin component
- Collaborates seamlessly across different teams and departments via Teamcenter

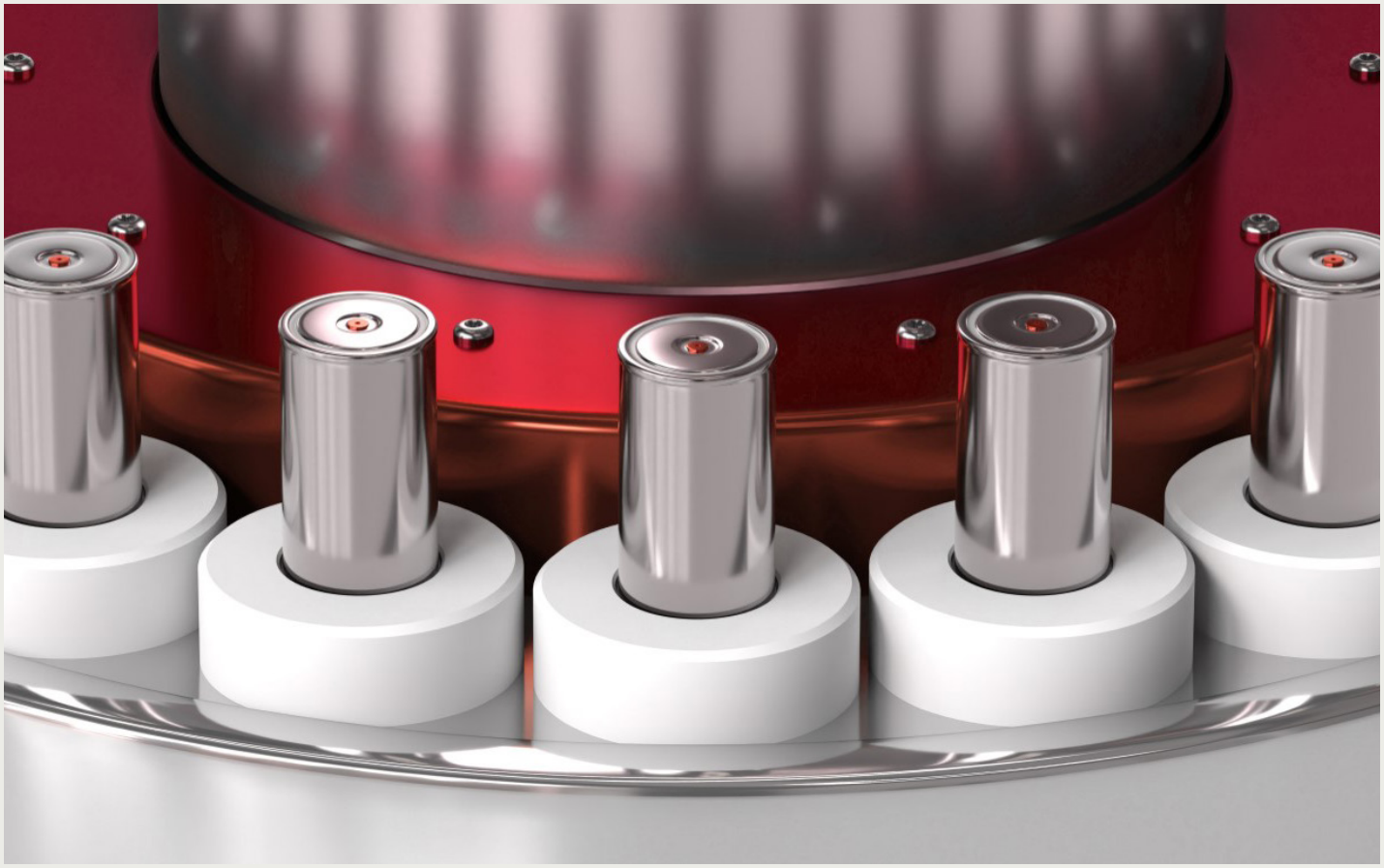
Companies can use NX X Mach 1, 2 and 3 to meet business needs, from design to engineering, with hardware and software.

NX X Mach 1

NX X Mach 1 offers tools for creating and editing designs of typical mechanical components and assemblies, including solid modeling and drafting, basic freeform modeling and sheet metal design. It includes tools for design review, rapid prototyping, web publishing, validation checking, a re-use library and custom program execution. It also offers design-oriented stress and vibration analysis wizards. Additionally, this solution has the necessary tools to integrate with Teamcenter to provide powerful data management and visualization capabilities for product and process management.

NX X Mach 1 is an excellent solution for simple prismatic parts and creating typical mechanical designs.

Buy now: Starting at $8,203 USD

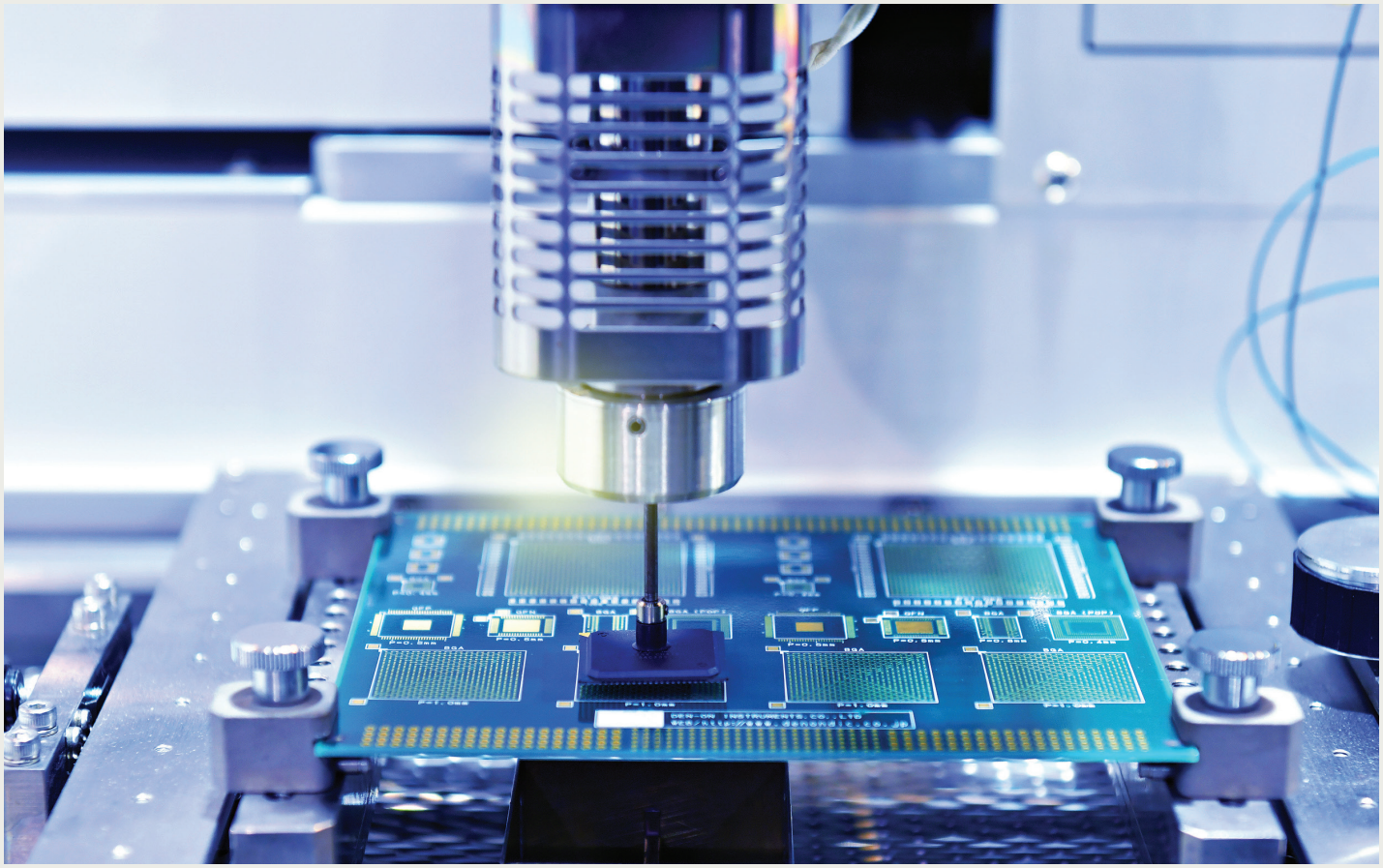


NX X Mach 2

As an alternative to NX X Mach 1, NX X Mach 2 adds enhanced product design capabilities. NX X Mach 2 includes features for validation checking, user-defined features, rendering, 3D annotation for product and manufacturing information (PMI) and basic routing.

NX X Mach 2 is best for those moving beyond product design into a product engineering workflow.

Buy now: Starting at $10,324 USD



NX X Mach 3

NX X Mach 3 is a robust bundle optimized for everything you need for concept design, industrial design and high-end styling. With it, you can customize your CAD solution to focus on industry-specific challenges with specific disciplines, for example, industrial design and mold design. It also includes access to advanced assemblies, freeform and advanced surface analysis capabilities, which you can get using NX X Mach 3.

NX X Mach 3 is best for high-end rendering and industry-specific end-to-end workflows.

Buy now: Starting at $13,879 USD

Compare all three solutions

	NX X CAD Mach 1	NX X CAD Mach 2	NX X CAD Mach 3
Data management			
Base level data management capabilities	•	•	•
Teamcenter integration for NX X	•	•	•
Design modeling			
Feature-based solid modeling	•	•	•
Synchronous technology	•	•	•
Core Convergent Modeling	•	•	•
Drafting	•	•	•
Assemblies	•	•	•
Advanced assembly modeling			•
Basic freeform modeling	•	•	•
Advanced freeform modeling			•
User-defined features		•	•
AI select similar components			•
AI selection prediction			•
Process-specific modeling tools			
Sheet metal design	•	•	•
PMI		•	•
Basic routing		•	•
Industrial design			
Photorealistic rendering		•	•
Visualize shape		•	•
Freeform shape			•
Advanced surface analysis			•
Product validation			
Product validation		•	•
HD3D Visual Reporting OOTB reports	•	•	•
HD3D Visual Reporting custom report editing			•
Molded part validation			•
Data exchange			
DXF/DWG, IGES, STEP 203/214, JT, Solid Edge open, SolidWorks open	•	•	•

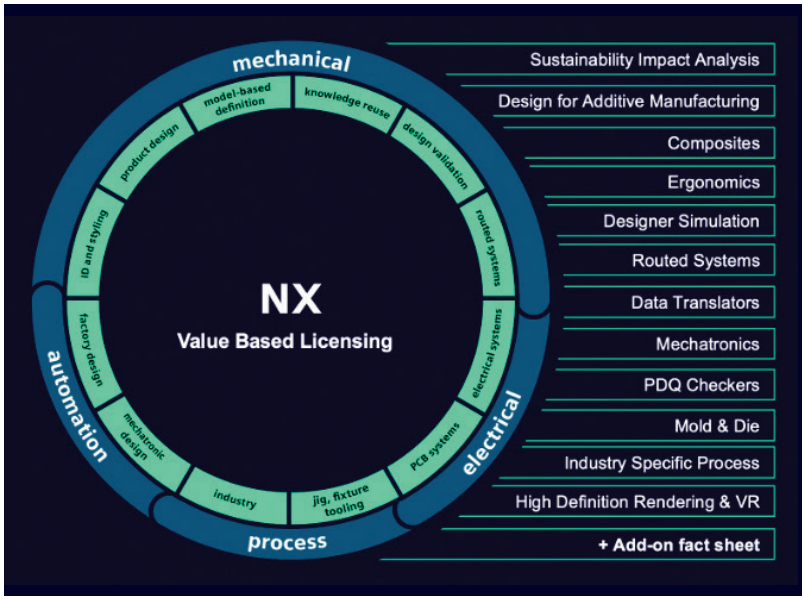
STEP TWO

Get your add-on modules

Innovate without compromise
No matter which NX X CAD Mach solution you choose, with the add-on modules, you can extend its capabilities.

Over 100+ add-on modules are available, allowing you to configure NX X Mach to the specific requirements of your project with specialized design tools, standard parts applications, design-integrated simulation solutions, programming and customization toolkits and direct translators.

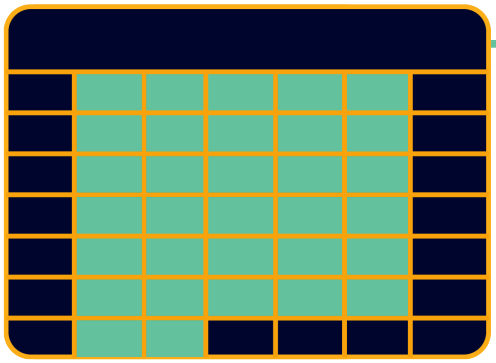
Your NX X Mach purchase is a future-proof investment since every six months we release additional add-ons, continually providing you with new capabilities and innovations.



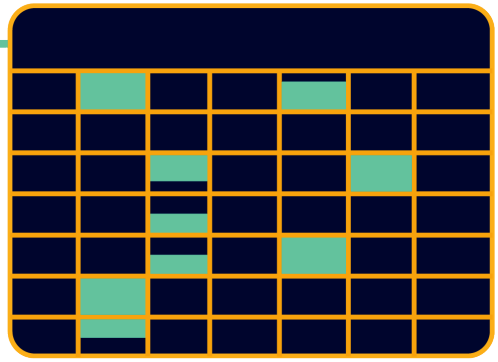
How add-ons work
NX X Mach add-ons are delivered using our innovative value-based licensing model, which provides a flexible, cost-effective solution. Engineering teams can tap into the vast array of capabilities, whether you need them daily or occasionally.

Simply purchase a pool of tokens for your team. In this check-in and check-out model, each add-on and tool in the library has a value. When that add-on is checked out, the token value is subtracted from the pool. When that product is no longer in use, its token value is added back to the available pool.

Daily product use



Occasional product use



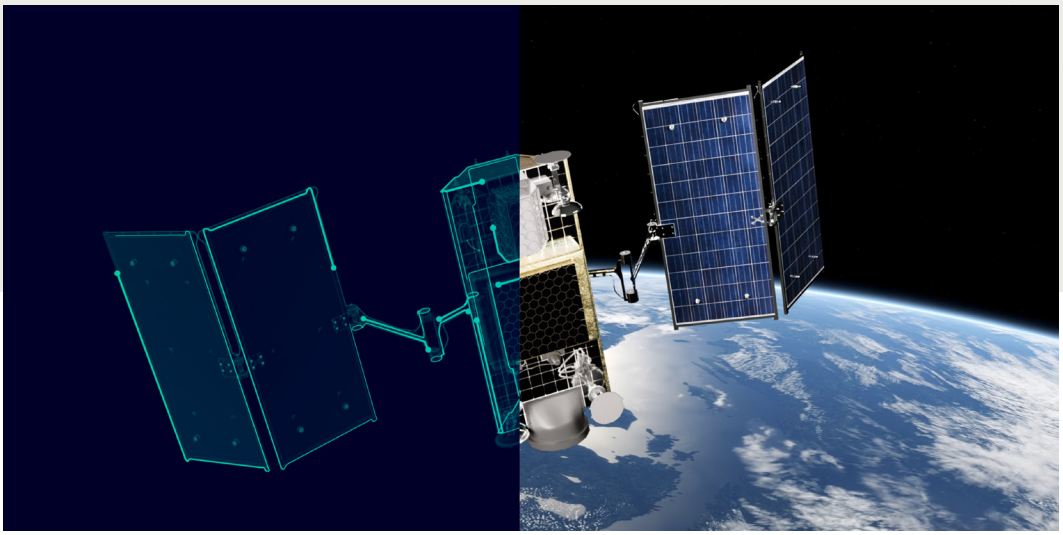
View the add-on modules e-book

Watch the video to learn more

STEP THREE

Choose on premises or Saas

Choose the deployment option that suits you best
Whether you want to use NX on the cloud or host it in your IT environment, NX CAD has licensing options for how you work. You will have the exact same features no matter how you choose to run NX CAD. The choice is yours.

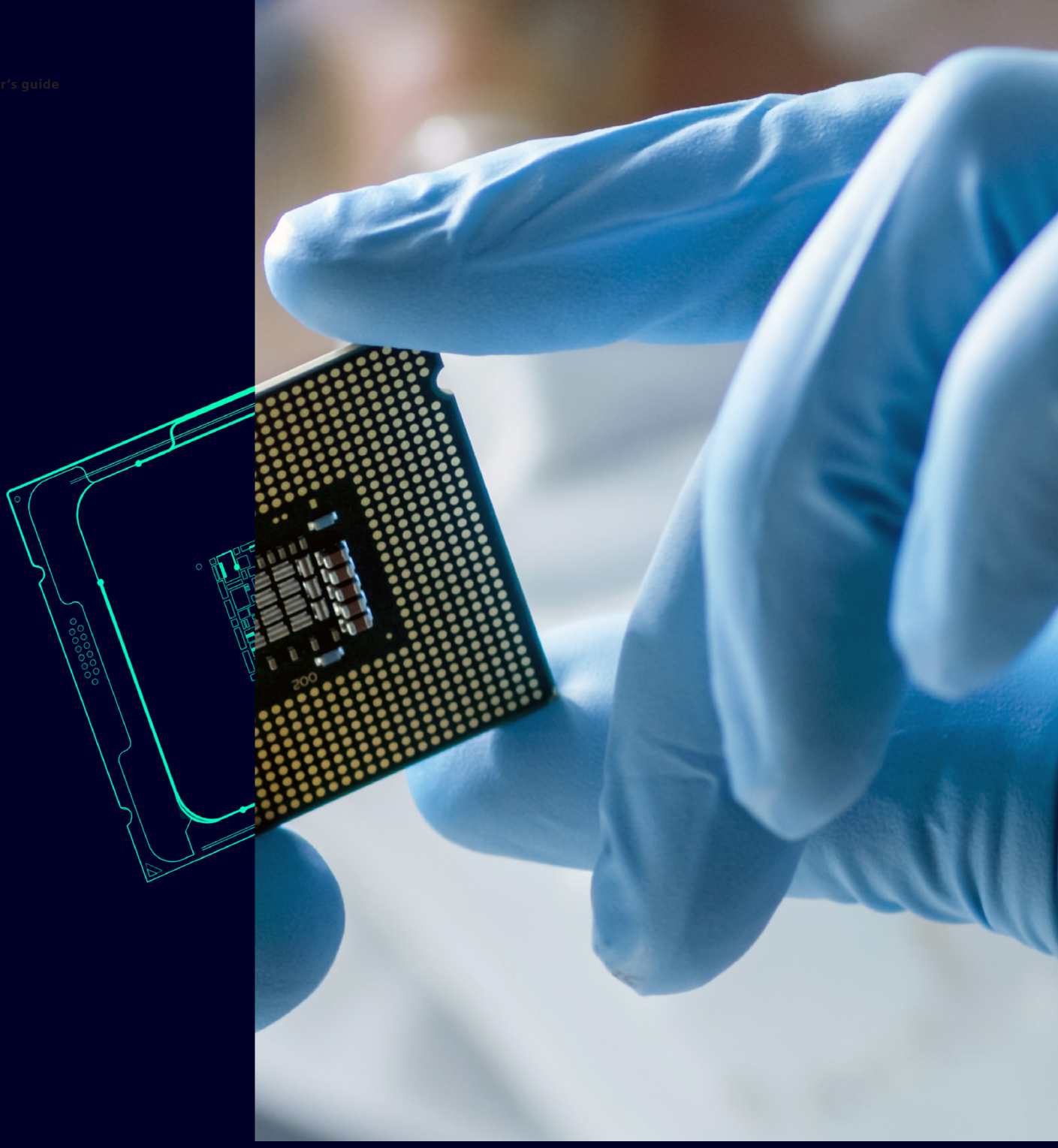


STEP FOUR

Purchasing your NX X Mach solution

Now that you have selected which level of NX X Mach solution is right for your project and which add-ons are a good starting place, you can purchase directly from the e-store or call your Siemens account manager.

Get more detail on our plans and pricing and purchase online



Technical support

Support Center
Start a support request to get help with your product, license or installation.

Community
Connect with fellow Siemens customers.

Chat with us live

Have questions about Siemens software? Get answers in minutes from real people.

Chat

Siemens Digital Industries Software helps organizations of all sizes digitally transform using software, hardware and services from the Siemens Xcelerator business platform. Siemens' software and the comprehensive digital twin enable companies to optimize their design, engineering and manufacturing processes to turn today's ideas into the sustainable products of the future. From chips to entire systems, from product to process, across all industries, Siemens Digital Industries Software – Accelerating transformation.

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For additional numbers, click here.

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