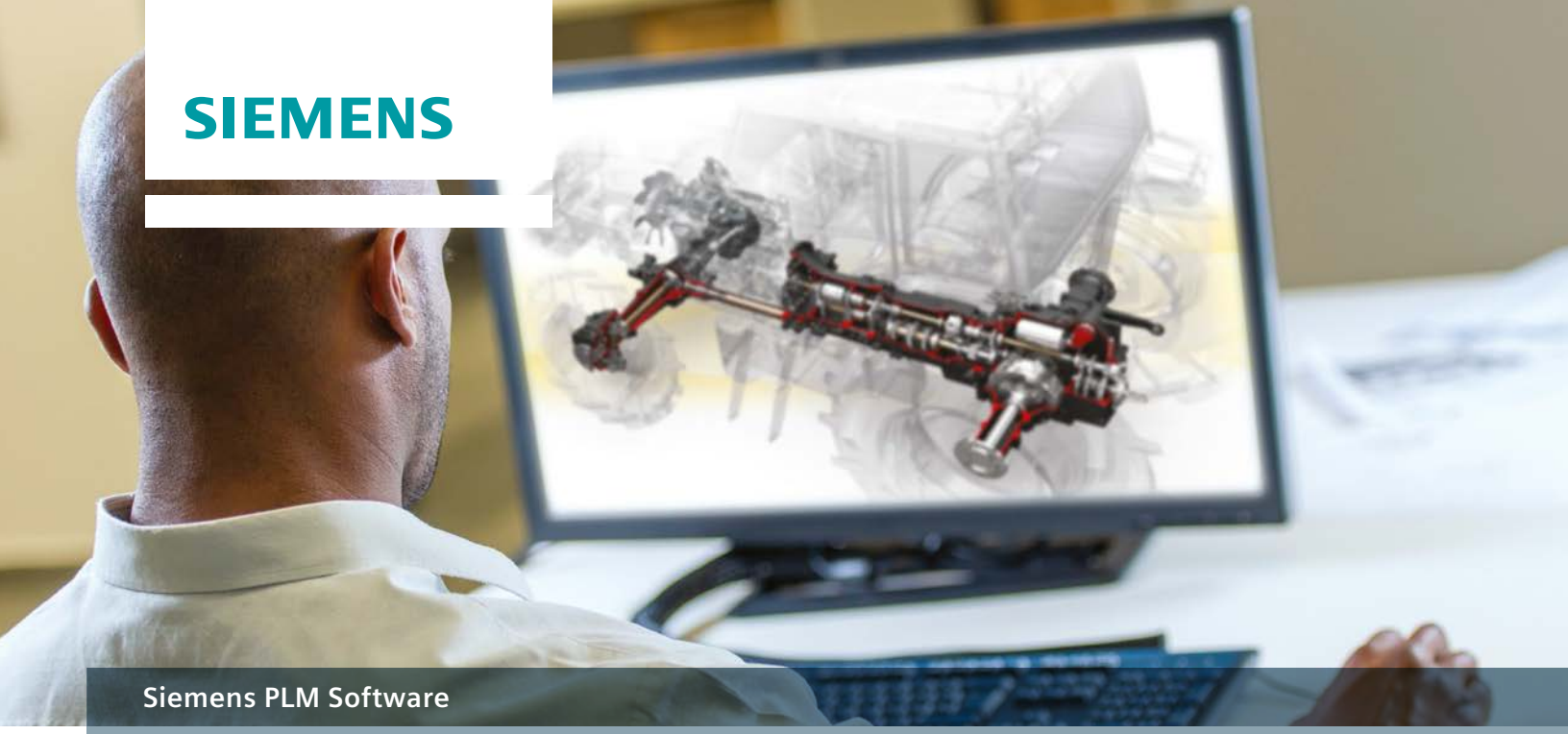


SIEMENS

Siemens PLM Software

Parasolid

Parasolid benefits

- Provides ideal foundation for innovative 3D application development
- Reduces development costs and risks by providing a proven 3D modeling solution
- Ensures state-of-the-art quality and robustness
- Convergent modeling technology seamlessly integrates classic b-rep and facet b-rep modeling operations in a unified architecture
- Offers world-class technical support for rapid time-to-market
- Enables instant compatibility with other Parasolid-based applications through translation-free exchange of 3D data

Summary

Parasolid® software is the world's premier 3D geometric modeling component, selected by leading application vendors and end-user organizations spanning multiple industries as their preferred platform for delivering innovative 3D solutions with unparalleled modeling power, versatility and interoperability. A key offering within Siemens PLM Software's PLM Components family of software products, Parasolid is targeted at a broad range of applications across the product lifecycle and provides robust, high-quality functionality that is easy to use and cost-effective to implement.

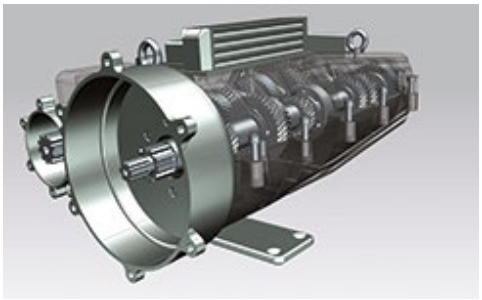
World-class geometric modeling for demanding 3D applications

Parasolid supports solid modeling, facet modeling, generalized cellular modeling, direct modeling and freeform surface/sheet modeling within an integrated framework.

Parasolid is available in three commercial packages: Designer, Editor and Communicator – each of which is offered with convergent modeling technology as an option – and is also available to the academic community via an Educator package. The functional scope and typical application at each level are outlined below. The table on the next page summarizes the corresponding functionality.

Parasolid Designer delivers the full power of Parasolid functionality for unlimited creation, manipulation, interrogation and storage of 3D models. Over 900 object-based API functions provide the most comprehensive and robust 3D modeling platform for demanding 3D applications.

Parasolid Editor provides an extended subset of Parasolid functionality that is ideal for analysis, manufacturing and other downstream applications that need to easily manipulate, edit, repair or simplify 3D models without the need for advanced modeling operations.



Parasolid

Parasolid facts

- Fully integrated modeling of 3D curves, surfaces and solids with over 900 API functions
- Modeling foundation for hundreds of the world's leading CAD, CAM and CAE applications
- Corporate standard for Siemens' NX™, Solid Edge®, Femap™ and Teamcenter® software solutions
- Used in over 3.5 million seats of application software globally
- Licensed by 170 software vendors for integration into more than 350 applications
- Provides industry-leading robustness with over a million quality tests run daily
- Provides unmatched two-way data compatibility via Parasolid native XT format

Parasolid usage

Parasolid is the component of choice for both cloud-based solutions and traditional stand-alone workstations. Parasolid is deployed across a wide range of PLM application domains, including:

- Mechanical CAD
- CAM/manufacturing
- CAE/validation
- AEC
- Visualization
- Data exchange
- Interoperability
- Knowledge-based engineering
- CMM/inspection
- CNC/machine tools
- Corporate R&D
- Academic R&D

Parasolid Communicator comprises versatile base functionality, including interoperability, visualization and data interrogation capabilities, that provides a platform for applications to consume existing 3D models.

Parasolid Educator, complementing the above commercial packages, provides academic institutions with the full power of Parasolid functionality for teaching, research and industrial collaboration.

Key functionality	Designer	Editor	Communicator
Advanced modeling	•		
Full Boolean functionality	•		
Euler operations	•		
Extrusion	•		
Offsetting	•		
Hollowing	•		
Thickening	•		
Tapering	•		
Edge and face blending	•		
Face change	•		
Embossing	•		
Free form lofting and sweeping	•		
Modeling support	•	•	
Unite, subtract and intersect operators	•	•	
General imprinting	•	•	
Sheet trimming and extension	•	•	
Profile sweeping and spinning	•	•	
Patching of holes in 3D models	•	•	
Editing and optimization	•	•	
Identification and removal of model detail	•	•	
Face deletion and replacement	•	•	
Face transformation	•	•	
Swept and spun outlining	•	•	
Import and export	•	•	•
Reading/writing of Parasolid XT files	•	•	•
Boundary representation import	•	•	•
Trimmed surface import and sewing	•	•	•
Geometry creation	•	•	•
Creation of solid primitives	•	•	•
Creation of B-spline entities	•	•	•
Interrogation and computation	•	•	•
Topological evaluations and inquiries	•	•	•
Geometric evaluations and inquiries	•	•	•
Mass properties	•	•	•
Min/max distance and clash detection	•	•	•
Visualization and drafting	•	•	•
Nondestructive sectioning	•	•	•
Graphical output	•	•	•
Faceting/meshing	•	•	•

Foundation capabilities
Parasolid is built on critical foundation capabilities that enable Parasolid to be deployed successfully in a wide variety of software applications. Enabled across all relevant functionality, Parasolid foundation capabilities include:

- *Tolerant modeling* for intrinsically reliable modeling with imported data
- *Convergent modeling technology*, available as a licensed option, seamlessly integrates classic b-rep and facet b-rep modeling operations in a unified architecture
- *Attributes and callbacks* for application-specific characteristics and behavior
- *Session and partitioned* rollback for flexible history and undo/redo implementation
- *Data management and tracking* for managing models and associated data as they evolve
- *Thread safety and symmetric multi-processing support* for optimal performance on multi-processor machines
- *Model storage* in forwards and backwards compatible native XT format
- *.NET Binding* to integrate Parasolid into .NET applications written in C#
- *Broad platform coverage* including comprehensive support for Windows, Linux, Unix and Mac

Getting started
Parasolid is delivered with a comprehensive set of documentation and developer resources, including a complete Jumpstart Kit of tools that promote easy integration of Parasolid into new and existing applications:

- *Full Product Documentation Suite* in html and pdf formats
- *Parasolid Workshop* prototyping environment for Windows
- *Example Application Resources* to get you up and running
- *Code Example Suite* illustrates best implementation practice
- *Parasolid 'Getting Started' Guide* answers your questions
- *Parasolid Overview* summarizes Parasolid capabilities
- *Parasolid API Training Materials* to educate the team

Convergent modeling: facet model of knee joint with b-rep surgical guide, modeled in single architecture.

Support, training and consulting
Parasolid has a renowned technical support, training and consulting team, dedicated to helping customers achieve the best possible implementation by providing expert advice on all matters related to Parasolid usage.

Responsive telephone and email support is backed by an online support center that provides round-the-clock access to frequent product updates, as well as customer-specific issue reporting and tracking.

In addition, specialized training and consulting services are available that can be tailored to customer requirements.

Whether you are starting fresh, extending an existing application or transitioning from other modeling technology, the Parasolid support, training and consulting team is with you every step of the way.

Interoperability products
The Parasolid product suite is augmented by a range of add-on products that provide high-quality interoperability with third-party CAD data. These include Parasolid Bodyshop, a specialized tool for boosting the success of 3D data exchange by cleaning and repairing imported models, and Parasolid Translator toolkits for converting model data between Parasolid and other major standard and proprietary CAD formats, including STEP, IGES, Catia V4, Catia V5, Pro/Engineer and ACIS(SAT).

Siemens PLM Software partners with Tech Soft 3D to offer Hoops Exchange. This highly-integrated and industry-proven 3D data collaboration solution for Parasolid provides high performance import, export, healing and visualization tools for a wide range of 3D file formats.

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