

# Top 10 Reasons to Buy CAM EXPRESS

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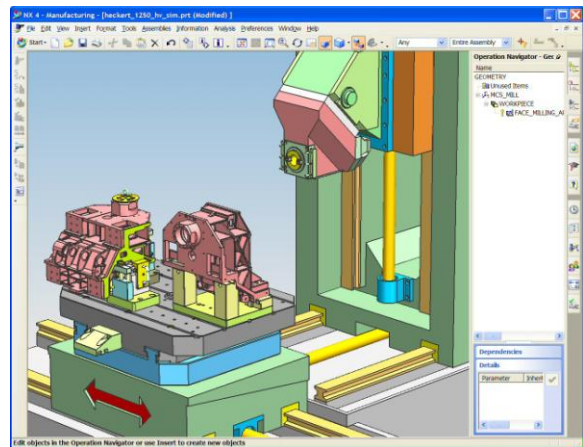
## 1. The depth and breadth of the capability of CAM Express

CAM Express offers a broad range of in-depth NC programming capabilities that still exceed the capabilities provided by most of the CAM only software vendors.

A key benefit is the breadth of capabilities being provided all in one CAM system. Machine shops buying other CAM systems may need multiple packages to address all of their needs. With CAM Express they can obtain a range of machine tool programming capabilities such as turning, prismatic milling and drilling , 3 axis milling, 5 axis milling and wire EDM all in one system.

SIEMENS PLM Software is known as a leader in the CAM market place with powerful software for NC programming. CAM Express provides users with access to all of that power and capability in a system that is easy to implement, easy to learn and easy to use.

The depth and power of CAM Express and the range of functions supported enables users and shop owners/ managers to get the most out of their new, more advanced machine tools.



## Summary

- CAM Express has a wide range of functions in one system compared to most of the specialist CAM vendors – this can mean that a shop needs only one system and to deal with only one (or fewer) software vendors.
  - The breadth and depth of the capability means that users of CAM Express can program most jobs in the software - there is always a way to get the job done in NX CAM
  - This depth and power means that customers can get more from their investments in the latest machine tools – including mill-turn machines, 5 axis axis and high speed milling machines
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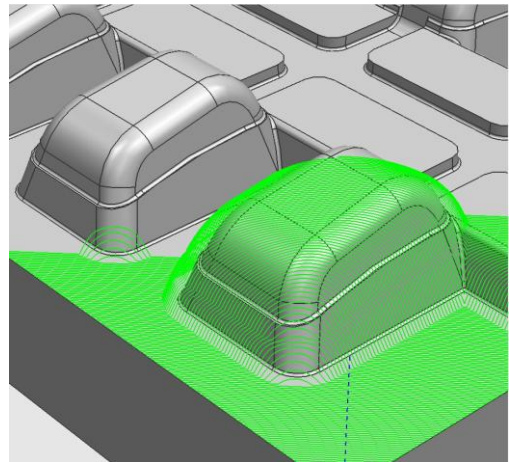
## 2. CAM Express helps maximize the value of your advanced machine tools.

Many machine shops are responding to competitive pressures by investing in new, high productivity machines. The tooling industry has been transformed by the trend to high speed milling. Likewise, production shops are increasingly implementing multi-function turning centers and mill-turns to reduce setups and cycle times.

These machine tool investments rely on NC programming systems to achieve their best results. If a new turning center causes synch codes to be inserted by hand, the programming process slows down and cycle times may not be sufficiently reduced. If cutting patterns don't provide constant chip loads, a new high speed mill may struggle with tool breakage.

### *Constant Chip Loading*

CAM Express delivers roughing cuts that maximize material removal without exceeding the specified chip load. The most advanced trochoidal cut patterns are applied to any geometry configuration, letting you push your cut parameters to the edge of the envelope. When the ins and outs of tool path patterns introduce corners, alleys, stepover motion, etc., chip loads can spike, damaging tools with shock and heat loads. CAM Express uses a very flexible trochoidal approach that prevents these spikes and keeps your cutting forces steady. This is the way to get maximum productivity out of any machine: push the limits without exceeding them.

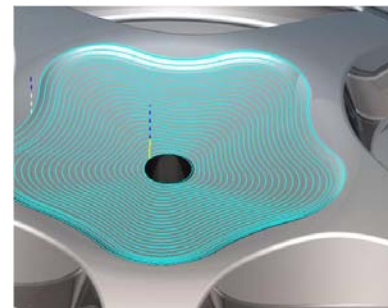


### *Effective Semi-finishing*

CAM Express applies a comprehensive set of technology to ensure that finish stock is predictable and consistent. Nothing causes problems with finish cuts like unexpected material, and CAM Express makes sure that your semi-finishing cuts leave the finish stock you expect. Z-level patterns ensure that large steps are not left behind by applying hybrid patterns, automatic cut levels, and steep area containment.

### *The smoothest Z-level finishing*

Z-level finishing in CAM Express maintains smooth contact with the part from top to bottom. Step downs ramp gradually down the part, combining the speed and smoothness of a Z-level cut with the constant contact, constant chip load of a spiral

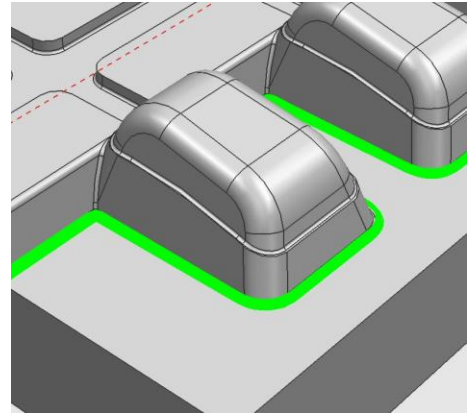


pattern.

Streamline operations fit toolpath to the part contours in a smooth, flowing manner that does depend on the underlying surface constructions. This cut method matches contours, whether open or bounded, minimizing lifts, reducing tool wear, and providing excellent surface finish.

#### *Automatic rest milling*

Rest material machining is the application of a series of tools, from larger to smaller, to rough a part. Each tool in the series is asked to cut only what remains from the previous tool. CAM Express automatically tracks the rest material from one tool to the next, helping to program the tool sequence and keeping the dependent operations in synch with their previous operations.



#### *Integrated Milling and Turning*

CAM Express offers a complete set of turning operations in the same environment as the complete milling operation set. Creating mill-turn operations is as easy as picking the appropriate coordinate system and programming the motion. In process workpiece models and program sequences handle the switch from milling to turning and back again easily and naturally.

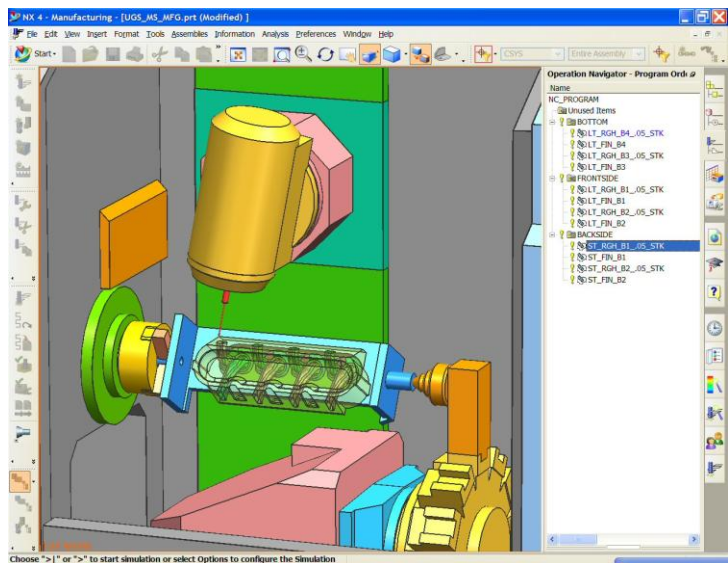
#### *Intuitive Synchronization*

Multi-channel turning centers promise and provide the increased productivity that comes from attacking workpieces from several sides simultaneously. But how do you know if you have your program as efficient as possible? CAM Express provides synchronization tools that let you develop multi-channel programs in an intuitive timeline environment.

As you explore different approaches for optimizing your program, the total time and relationships between different moving parts is easily seen and simulated.

#### *G-code driven simulation*

CAM Express simulates machine tool motion in a robust assembly environment, making it easy to see complex rotations or simultaneous motion graphically before asking the machine to do these advanced motions. Unlike most other systems, however, CAM Express uses the posted G-



and M-codes to drive the machine simulation functions. This important distinction means that you see ALL of the machine motion, including any tool-change motion or go-home motion or any of the other moves that post processors often inject in to a part program as it prepared for a specific machine tool. When you simulate the internal tool paths from a different system, you might still have a surprise waiting for you at the machine, depending on what tricks the post has up its sleeve. This capability is absolutely essential for programming multi-function turning centers and mill-turns, as well as 5-axis equipment.

### **Summary**

- As shops respond to the pressure cooker of competition, they also need to utilize state of the art CAM technology. It is an integral part of any technology upgrade.
- CAM Express is capable, proven CAM technology that supports the latest in high efficiency, high capability machines.

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### **3. Available as proven, reliable software from Siemens PLM, the #1 CAM vendor, with more than 25 years of success in the CAM market.**

CAM Express is provided by Siemens PLM, a long established CAM vendor. In fact our capability in CAM pre-dates our CAD software with early developments being in and for the aerospace industry. NX CAM (formerly developed and marketed as the Unigraphics product) has been sold to many thousands of customers world-wide and in many industries.

The software is fully proven and in use with almost every size of machine shop from the smallest to the very biggest companies. With a large user base SIEMENS PLM is able to continue to invest in developing the software to maintain its competitive capability. Siemens PLM is a top rated vendor revenue according to CIMdata.

### **Summary**

- Siemens PLM has provided CAM software solutions for a long time, and knows how to provide real productivity in real world situations.
- CAM Express benefits from the full weight of Siemens PLM expertise in CAM development.
- You are in the NC business for the long haul. So is Siemens PLM.

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#### 4. Supplied with world class software support from Siemens PLM

Siemens PLM does have the most extensive and effective customer support capability of any of the CAM vendors with a far larger resource of technical staff attached to our customer support hotlines than many vendors have. The systems in place to track and monitor customer issues and support calls are world-class. Other vendors leave all support to their resellers.

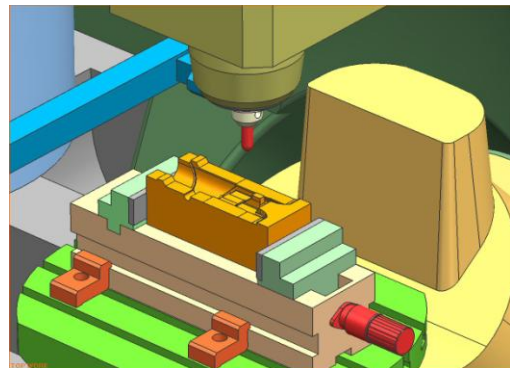
##### Summary

- Not every CAM vendor has excellent support. Siemens PLM does.

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#### 5. Available as integrated packages with Siemens PLM CAD applications (NX and Solid Edge) providing full range CAD/CAM with market leading capability and value

Siemens PLM has two of the most comprehensive CAD systems available. Most of the specialist CAM vendors try to provide basic modeling and drafting software but these don't come close to the capabilities that USG can offer with either Solid Edge or NX CAD.



As a result, many shops will buy copies of additional CAD products in order to create or edit the 3D geometry that they need as a basis for their CAM applications. This often means that they have software from more than one vendor (CAD and CAM supplier separately). Siemens PLM supplies a complete solution to give the NC programmer the CAD tools he may need.

With integrated CAD and CAM, the maximum benefits of associativity can be realized. Change cycles are reduced, Communication is improved. Concurrency is achieved.

##### Summary

- NC Shops need capable CAD systems, with the highest level of associativity and integration available.
- SIEMENS PLM supplies CAM Express with either Solid Edge or with NX CAD
- Benefits include single vendor, packaged prices, and increased functional capabilities for concurrency and change accommodation.

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## **6. Packaged with a comprehensive foundation of core functions from post processor creation and editing to shop documentation output.**

### **Competitive Advantages**

The CAM Express packages each has a wide range of functions built in as a base capability in each package – such as the Post Builder, base geometry creation and assemblies module, translators and tool-path verification. These functions include:

- ▶ CAD Translators
  - ▶ DXF, IGES, STEP, JT
- ▶ Post Processor build and edit
- ▶ Tool path verification
- ▶ Geometry assembly
- ▶ Stock shape creation
- ▶ Boundary defining functions
- ▶ Tool library interface
- ▶ Operation navigator
- ▶ Machining parameter library

### **Summary**

- NC Shops require all the supporting functional capabilities in order to operate efficiently and effectively.
- Siemens PLM includes these functions with every CAM Express product. There is no need to purchase add-on modules to perform these essential tasks.

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## **7. Pre-configured with industry best practices increasing user productivity, with selectable user environments to match key types of machining.**

Siemens PLM focuses the power of its CAM Express products on the NC programming approaches relevant to your industry. User selectable programming environments preconfigure the software and make it easy for the less experienced or new user to take advantage of the power of the CAM Express. The user only sees the options relevant for the type of work selected, such as prismatic (machinery) part programming. The system presents the functions needed and pre-sets key variables ready for use.

Of course, you can expand your view and usage of the programming system as needed to address different situations and requirements. The full breadth and flexibility remains available for use at all times. However, preconfigured software streamlines your processes and help focus your efforts on the programming tasks most typical for you.

### **Summary**

- While breadth of capability is crucial, it is also important to deploy software quickly and easily.
- CAM Express provides ready software environments for mold and die machining, for 2 ½ Axis machining, and for mill-turn machining.
- Users learn and produce quickly.

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## **8. Easy to deploy and to use with on-line access to Siemens PLM's post processor library and options for complete machine tool support kits.**

Siemens PLM provides direct access to a range of post processors via an on-line library that is hosted by the Siemens PLM Global Technical Access Center. This makes it easy for new customers or those adding machines to find and download posts directly into the CAM Express installations. This saves time and eliminates the cost of building a post processor for each machine. It makes it much faster to get up to speed.

Siemens PLM offers complete support kits for more advanced machines such as mill-turn machines. These kits include an advanced post processor (in most cases these are built using the NX Post Builder application), a 3D simulation model and a simulation driver - the simulation in CAM Express is driven from the G-code created from the post processor output. This is a clear advantage over most systems that drive their simulations from an internal representation of the tool-path – before the post processor stage.

### **Summary**

- Post processors represent a critical deployment gate for any shop implementing NC software.

- Siemens PLM provides access to a library of posts that are easy to install and modify as needed for immediate use.
  - This is in addition to the Post Builder tools that build and edit posts from scratch.
  - Full kits are also available for certain complex machines, providing a turn-key solution for posting and machine simulation.
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## 9. Designed to deliver a low total cost of ownership

CAM Express is industry leading CAM software at an affordable price. The range of capability provided in the packages is outstanding among other vendors. This is further magnified for the packages that include either Solid Edge or NX CAD with CAM Express. Yet the price is in line with industry expectations, very clearly a more-for-less proposition.

Additionally, costs over the life of the software are minimized. The ease of deployment of CAM Express, the reduced learning curve, and the ease of use all contribute to the low cost of ownership. Items such as the access to the GTAC Post Library also help reduce costs for the customer.

### Summary

- Cost is an issue, but value for investment is the real driver for machine shops.
  - CAM Express provides outstanding value at an affordable cost.
  - Long term savings in training and implementation further drive the value of CAM Express.
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## 10. The CAM Express software is part of a wide range of engineering software provided by Siemens PLM within its PLM Portfolio.

Siemens PLM provides more than just CAM and CAD software. The larger Product Lifecycle Management (PLM) portfolio includes the leading data management solutions, collaboration tools, advanced mold design and progressive die design application integrations, process planning and digital manufacturing tools.

Whatever your needs as you scale up your CAM solution, Siemens PLM Software can provide leading applications and in-depth implementation experience.



## **Summary**

- While NC Programming is the foundation of CAM technology in most machine shops, competitive pressures will continue to drive more comprehensive implementations of PLM process integrations.
- Siemens PLM Software is the leader across the PLM spectrum, from data management to digital manufacturing.