

Productive SolidCAM

Automating IC test system manufacturing

Essai drives high-volume production of test boards with SolidCAM integrated CAD/CAM

Chosen as one of the fastest growing private companies in California's Silicon Valley by the San Jose Business Journal, Essai Corporation has become one of the leading providers of products for testing the reliability of IC (integrated circuit) chips in just three years. One of the primary reasons the company has grown so quickly and succeeded in a highly competitive market is its integrated approach to manufacturing, according to Nasser Barabi, founder and owner.

"Before beginning operations, we conducted an extensive qualification program to identify the best combination of design, simulation, and manufacturing technologies to support our business," Barabi recalls. "Our objective was to implement a system that provides seamless integration between all necessary applications, including design (CAD), analysis (CAE), manufacturing (CAM), and enterprise resource planning (ERP). Our main requirement was that all systems had to be fully integrated with the SolidWorks® 3D CAD program and operate on SolidWorks solid modeling data. We needed to manage high-volume production efficiently and effectively to succeed and wanted to avoid having to work with different applications and sets of data.

"By implementing an integrated CAD/CAM system from the very beginning, we believed we could build efficiencies into our processes and avoid the growing pains we were likely to face later on if we had utilized the traditional approach to CAD/CAM," Barabi adds.

After evaluating a variety of SolidWorks-compatible CAM programs, Essai selected SolidCAM® software, a fully integrated machining application that uses the embedded SolidWorks CAD system as its modeling engine, to support its NC programming and manufacturing needs. The company chose SolidCAM as its CAM solution because it is fully integrated with SolidWorks and provides manufacturing programmers

with greater control over how the software creates manufacturing paths for simultaneous 5-axis machining. "At Essai, we are manufacturing sophisticated, custom parts, and SolidCAM provides the robust capabilities our manufacturing personnel need to produce accurate, quality parts consistently," Barabi says.

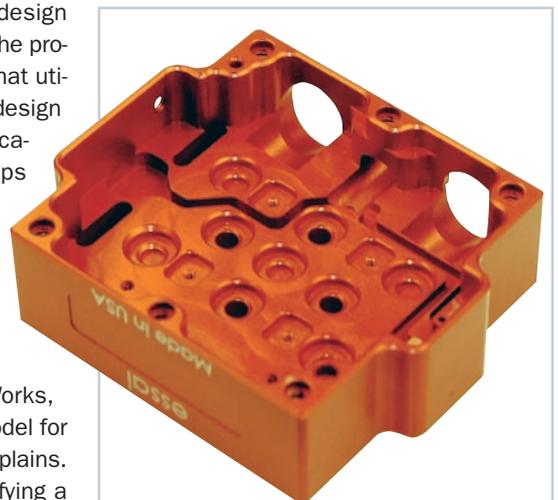
Maintaining design intelligence

Because SolidCAM uses SolidWorks CAD software as its geometry engine, there is no disconnect between design models and machined models, maintaining the design intelligence of the model throughout the process. Non-integrated CAM systems that utilize import/export schemes to bring design geometry into the machining application strip away valuable relationships and design intelligence. With the integrated SolidCAM/SolidWorks approach to CAM, Essai maintains the inherent intelligence of its designs.

"When we develop a design in SolidWorks, we are doing more than creating a model for a single manufacturing run," Barabi explains. "We are often building upon or modifying a previous design and bring all the intelligence of the parent design through on subsequent designs. If changes are made on the manufacturing side, we capture them on both the design side and the manufacturing side



With the SolidCAM system, Essai realizes improved accuracy, such as on the manufacture of this Active Cooling System, which is used to manage the temperature of semiconductor devices during high-volume automated testing.



Using the SolidCAM integrated CAD/CAM system, Essai has achieved greater manufacturing consistency and more predictable manufacturing outcomes.

because SolidWorks and SolidCAM are fully associative. The integrated approach has a lot of advantages, including saving time, accessing a single geometry file, and using the intelligence of our design data in a more efficient, systematic way.

Consistent manufacturing processes

Using the SolidCAM integrated CAD/CAM system helps Essai achieve greater consistency and more predictable manufacturing outcomes, whether it's performing simultaneous or positional milling, wire-EDM, or high-speed machining. In addition to saving time, maintaining a single set of product and manufacturing geometry data provides a common platform that serves as an effective control mechanism from process to process.

"Consistency of process is very important to our success," Barabi stresses. "When we create a manufacturing process today, every process that follows should utilize and build upon it. Six months from now, we will leverage what we do today because everything we do becomes a template for future work. We need to deliver consistency, and the integrated SolidCAM solution gives us the control we need to pick up and utilize the value accrued in past work."

According to Deniz Valle, Essai operations manager, having a common conversational language for manipulating geometry between design and manufacturing not only furthers consistency but also builds valuable input from all personnel into the machining template. "Because SolidCAM is completely integrated with SolidWorks CAD software, we are actually building our CAM programming within SolidWorks. This approach shortens the learning curve for programmers, offers greater geometry editing and manipulation power to manufacturing, and provides a common tool for supporting interaction between designers and machinists. The integrated approach facilitates discussion and resolution of manufacturing issues because everyone is working with the same model and the same modeler. We communicate issues and features a lot better working with an integrated system."

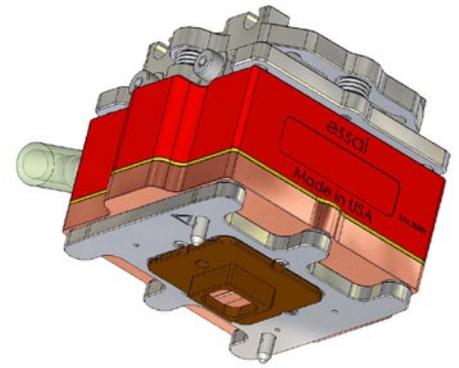
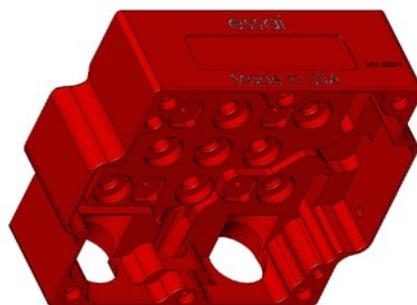
Greater accuracy, higher volume, less rework

By implementing the SolidCAM integrated CAD/CAM system, Essai has improved its first product run success rate dramatically. Increased accuracy results in less amounts of costly rework and enables the company to run higher volumes of different parts in sequence. Barabi says the company's success rate on first product runs has risen from about 10 percent to 90 percent, in large part because of the accuracy and consistency provided by an integrated system.

"We have experienced drastic improvements in our first-run success, which is significant because it allows us to queue everything up back to back and process high volumes efficiently," Barabi explains. "The biggest cost in manufacturing is not related to scrap materials or machine time but to production stoppages. Whenever production stops, you lose money. Whenever production proceeds unimpeded in an automated fashion, you save money. The greatest benefit of an integrated system is that it enables you to minimize the number of mishaps and shutdowns and keep production moving."

Metrics

- Improved first-run success rate from 10 percent to 90 percent
- Increased high-volume throughput
- Maintained design intelligence of parts
- Attained accuracy and consistency of manufacturing processes



essai

Essai is a leading manufacturer of semiconductor test and validation interconnects and assemblies. Essai's products are used globally by semiconductor manufacturers to test the functionality and reliability of leading edge semiconductors ranging from microprocessors to high speed switches. Essai leads the industry with offering innovative engineered solutions that enhance customer system throughput and yields.

Essai Corporation

48580 Kato Road
Fremont, CA 94538
Phone: (510) 580-1700
Email: info@essai.com
Website: www.essai.com

SolidCAM

SolidCAM is a powerful CAM software solution that uses the embedded SolidWorks CAD system as its modeling engine. Gold-certified by SolidWorks in 2003, SolidCAM was specially developed for workshop-oriented NC programming. As a single application, SolidCAM support the mechanical machining processes of 2.5D milling, 3D milling, high-speed machining (HSM), indexial 4/5 multi-sided machining, 5-axis simultaneous milling, turning, turn-mill and wire-EDM. SolidCAM postprocessors can be customized for individual requirements and specific controls so that users can generate efficient NC programs for all CNC machines. More than 24 years of continuous development has gone into the current version of SolidCAM2007 R11. Today, SolidCAM is used profitably on more than 12,000 industrial and educational workstations.

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