

CASE STUDY: CADfix Revolutionizes Legacy Data Access and CAD Interoperability at ArvinMeritor

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- John Osman
Application Engineer at Access Control Systems

CADfix

CADfix removes barriers preventing the reuse of solid models. By providing an extensive set of geometry manipulation tools for importing, repairing and exporting data, CADfix maximizes the reuse of CAD data in downstream applications.



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Overview

Design and engineering departments at tier-one automotive suppliers must be able to accept and deliver CAD data in the same format as their customers. In practice, this usually means that each supplier maintains licenses of those CAD systems used by each of the OEMs that it supplies or would like to supply.

Suppliers like ArvinMeritor would prefer to carry out their work in whatever CAD/CAM/CAE systems they choose. While the OEM's focus is on the end result, the reality is that transferring data from an OEM's native CAD system to that of the supplier is never simple. Attempts to use an intermediary file format like IGES seldom go smoothly. Effective transfer of data between systems has proved so elusive that some OEMs have set in place policies that insist on using the same CAD system throughout the engineering supply chain.

Challenges

One of the biggest challenges in this multi-CAD environment was to reuse the legacy data from CADD5. It quickly became clear that using IGES for this posed more problems than it solved. “It is vital for us to be able to access our legacy data,” explained Osman. “This is the only way we could ensure that the work we have undertaken in the past on both historical and ongoing long-term projects would not be wasted. But using IGES to move the data from CADD5 to CATIA turned out to be a long and drawn-out process.”

The problems stemmed from the fact that CATIA treats IGES as collections of surfaces rather than as true solid geometry. This means that data transfer must begin with extensive preparatory work in CADD5, up to 30 minutes per part, and with up to 40 parts in a typical latch/actuator assembly, this caused a significant bottleneck.

Solution

To tackle this issue, ArvinMeritor invested in CADfix from ITI, deployed on a floating license system to make it available to all CAD/CAM/CAE users. “We knew that CADfix provided a reliable intermediary for transferring data, particularly via the IGES route,” explained Osman. “So we initially took it on board to import and export IGES in such a way that the preparation work in CADD5 would no longer be needed. We have since invested in the native CATIA translators, but even via the IGES route we have seen massive improvements with CADfix.”

Before CADfix, each assembly component required a half hour of preparation before going into CATIA; now parts can be transferred from CADD5 to CATIA in around five minutes. This alone has provided a clear business benefit, as a full assembly takes no more than a couple of hours instead of days.

Result

The introduction of CADfix has meant more than just quick and reliable access to legacy data. It has also meant that live engineering data can be readily shared among departments using different CAD/CAM/CAE systems. STL files, for instance, can be exported directly from CADfix for use in ArvinMeritor's dynamic analysis software (Adams). And the FEA team regularly uses CADfix's defeaturing functionality to remove small details the designer has included that will cause disproportionate problems when it comes to meshing for analysis. In all, some 70 percent of components are processed in CADfix at some point in the design cycle.

The benefits that ArvinMeritor has experienced through its adoption of CADfix are typical and illustrate the importance of meeting the challenge of engineering data interoperability head-on. ITI's own research suggests that up to 80 percent of a typical engineering design project is wasted on reworking data. More and more manufacturers are turning to CADfix as a more efficient tool for data transfer and enhanced interoperability between CAD systems.