

Design Center

Amkor World Class Design Center

Amkor's world class design centers are strategically located in the United States, South Korea, Philippines, China and Taiwan. We provide expertise in all aspects of package design beginning with our existing product line through our next generation technology. Our worldwide design team works together to ensure our customers receive fast, courteous and professional design services.



Amkor's world class design center has been designing semiconductor packages for decades and process thousands of new designs from our large customer base every year. As a result, we have an unparalleled level of package design expertise and can provide best in class leadframe, laminate or wafer level design services, including the following:

- High quality, reliable and cost effective designs
- DFM (Design For Manufacturing) and DFC (Design For Cost)
- Highly trained and experienced design staff
- Excellent customer design collaboration to meet thermal, electrical and mechanical requirements
- Design automation and support
- Use of state-of-the-art design software
- Design chain management and design chain optimization

Design Review Collaboration

Collaboration with our customers on the design at the earliest stages of engagement ensures that their substrate design is:

- Designed to meet Amkor/customer specifications
- Manufactured in accordance with package and substrate supplier specifications
- Designed with the lowest substrate and assembly cost in mind

Amkor's design engineers are available to assist our customers by sharing package design best known methods discovered through experience, design software updates and strong relationships with software suppliers.

Amkor – Driving the Packaging Software Industry

We work closely with software suppliers and work collaboratively with them to drive next generation package design. Our design engineers are trained experts and have access to the latest software releases. The knowledge of the latest design tools and emerging technology allows the Amkor world class design centers to reduce design cycle times and provide expert advice to our customers.

Amkor plays a leading role in helping several major software suppliers develop package design software for existing and emerging products.

Visit Amkor Technology online for locations and to view the most current product information.



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Amkor – Superior Design Chain Management

Amkor's World Class Design Centers offer effective Design Chain Management by:

- Working with the customer to fully understand their evolving needs
- Collaborating with suppliers and knowing how to capitalize on their strengths
- Communicating with our assembly locations to ensure manufacturability
- Understanding and controlling the factors that contribute to additional cost

We have the talent, ability and teamwork required to ensure delivery of the highest quality products at the lowest possible cost.

Amkor has state-of-the-art software and technical resources to enable a highly efficient design chain management system.

Amkor provides a range of Design Chain Management services including:

- Design chain integration
- Design chain analysis & optimization
- Metric definition and tracking
- Process integration and improvement

Online Design Rules

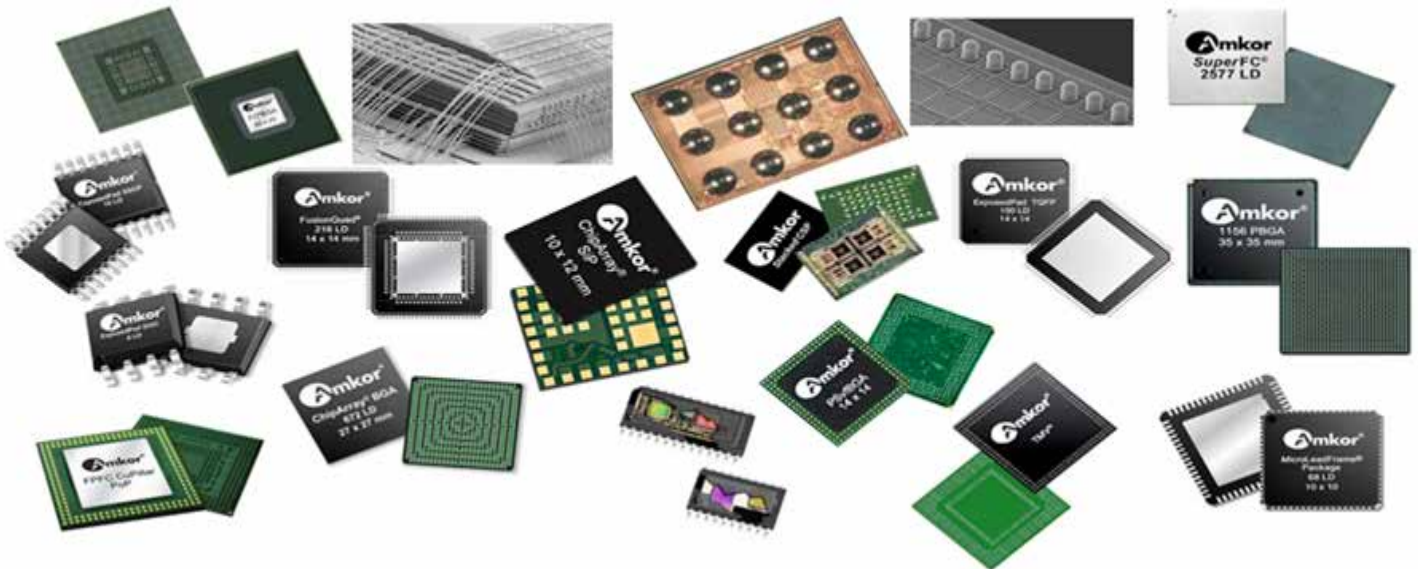
Amkor's customers can access secure package specific design rules through Amkor's Web.data site. The Web.Data link can be found in the upper right corner of the Customer Center.

Benefits of using Amkor's Online Design Rules:

- Automatic notification of design rule updates
- Access to specific package design rules
- Enables customers to align with Amkor's assembly requirements
- Central location for Amkor design rules

Packaging Industry Knowledge

Amkor's World Class Design Centers have many years of semiconductor packaging design experience. With this knowledge and expertise, we can also provide a variety of educational services that provide our customers with the skills required to design complex semiconductor packages.



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Design Center Automation Support

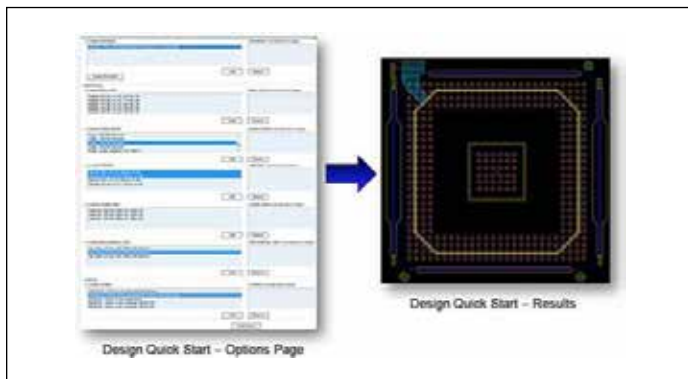
Today's semiconductor organizations are often left without automation support. Amkor's World Class Design Centers can provide a full range of automation and EDA support services; including everything from package library management to a robust catalog of automation tools. We are continuously evaluating our processes, improving our tools and automating design processes to reduce cycle time and ensure quality. Our automation is tightly integrated with PLM ensuring consistency across systems.

Automation Services

Amkor's World Class Design Centers have an unparalleled level of custom software that streamlines processes and eliminates error-prone manual efforts. Our automation team has been developing custom software within the packaging industry since 1998. We have the background, experience and knowledge to assist customers in developing custom application development for all IC package design needs. Several customers understand the value of Amkor's custom automation and have integrated it into their design flow.

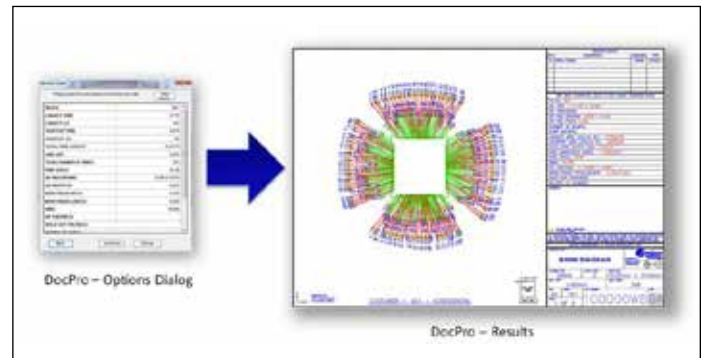
Design Quick Start

Design Quick Start (DQS) is an example of Amkor's powerful automation capability. DQS allows up-to-date access to Amkor's design libraries and automatically builds a Cadence Allegro/APD/SiP or Sigrity UPD database with all of the parts required for a successful Amkor design. Design Quick Start provides the design engineer all of the components, pad stacks and strip data loaded into the design, making the design immediately ready for laying out bond fingers and routing. DQS is integrated with PLM and filters available library selections based on design values.



DocPro

DocPro is Amkor's automated drawing documentation tool. DocPro is integrated with Amkor's internal systems and automatically populates the required fields with verified design values based on request and package type. DocPro has dramatically decreased the time required to document a design and has virtually eliminated all manual drawing input.



Design Tool Automation

Amkor's Design Automation is a family of highly specialized tools that have been developed by Amkor to reduce cycle time and increase accuracy of advanced package design for laying out bond fingers and routing.

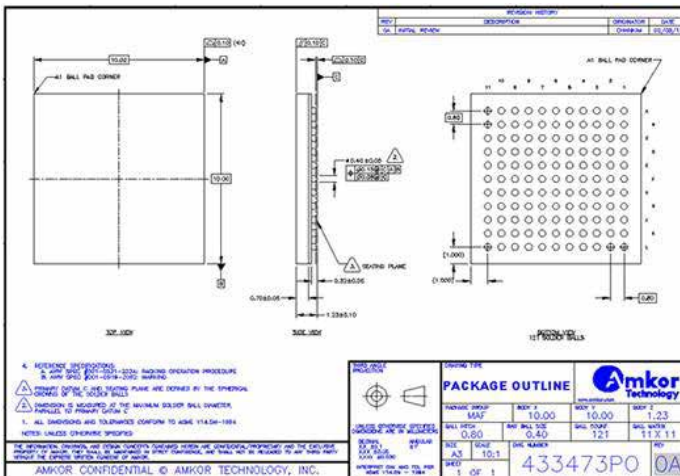
Advanced CAM Tool Automation

Amkor has developed innovative CAM Automation. Manufacturing data is an essential aspect of every design. Several of Amkor's customers realize the value of highly advanced CAM checks and are using the automation developed by Amkor.

Automatic Drawing Generation

Amkor's World Class Design Center's design automation team has developed state-of-the-art Automatic Drawing Generation software. Amkor is a pioneer in developing next generation technology, and these tools are no exception.

The Automatic Drawing Generator creates drawings based on unique and product specific values input by the user. The drawing is created, dimensioned and then documented by DocPro. This automation not only ensures standards are followed but it also maintains consistent drawing formats. After the drawing is completed and documented, it can be easily checked into PLM and routed for approval.



Drawing Search, Reuse and Creation

Drawing Search Tool (DST) is Amkor's internally developed software that enables drawing search, reuse and creation. The application searches for existing drawings based on drawing related search criteria and returns matches. This allows drawing reuse of support drawings such as Package Outline Drawings. If a match is not available, DST allows the user to automatically generate a new drawing. The tool validates user input and passes the information to other programs such as the Automatic Drawing Generator.

Advanced Reporting

Amkor's World Class Design Centers support advanced reporting and analysis. This is not only used to enable advancing technology, but also provides data on cycle time, supplier performance and design trends. This enables Amkor to focus our efforts and provide the best possible service to our customers. Amkor's PLM System is used extensively for reporting since it not only contains design information, but is also the hub for tracking all customer requests and supplier communication. This wealth of information enables the advanced reporting capabilities that we not only use internally, but also use to assist our customers.

Product Lifecycle Management (PLM)

Amkor's Product Lifecycle Management (PLM) is a web-based tool that provides a portal to Amkor's semiconductor package design services.

PLM creates an environment for collaborative design management. Customers, suppliers and Amkor use PLM as a communication channel.

Key Features:

- Secure user based access control
- Product data management system
- Single source of project information
- Design Work Request Creation
- Design request tracking
- Automated workflows
- Supplier communication management
- Bill of material management
- Business insight through reporting services

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