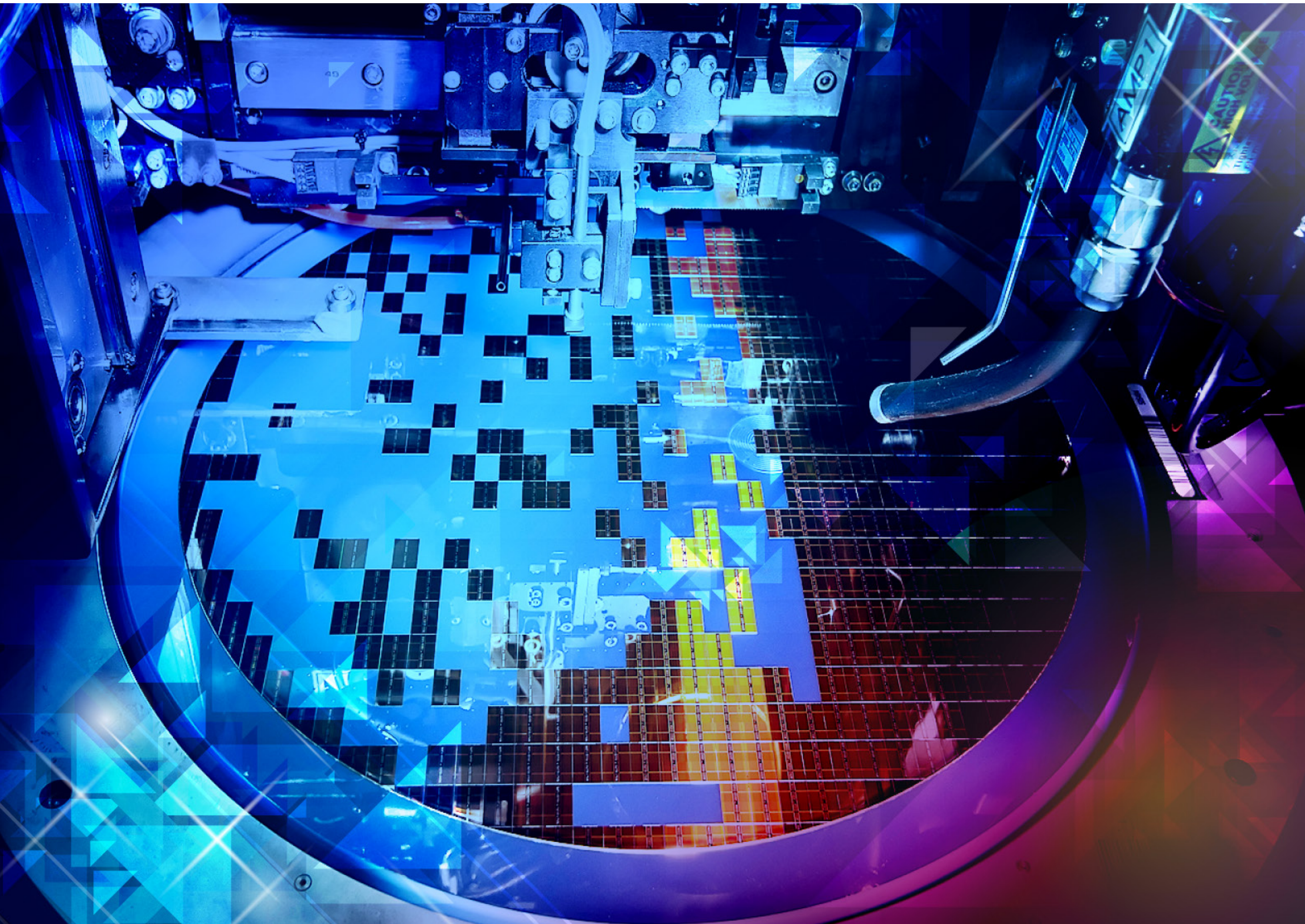
Design Center

Leaders in Next Generation Package Design



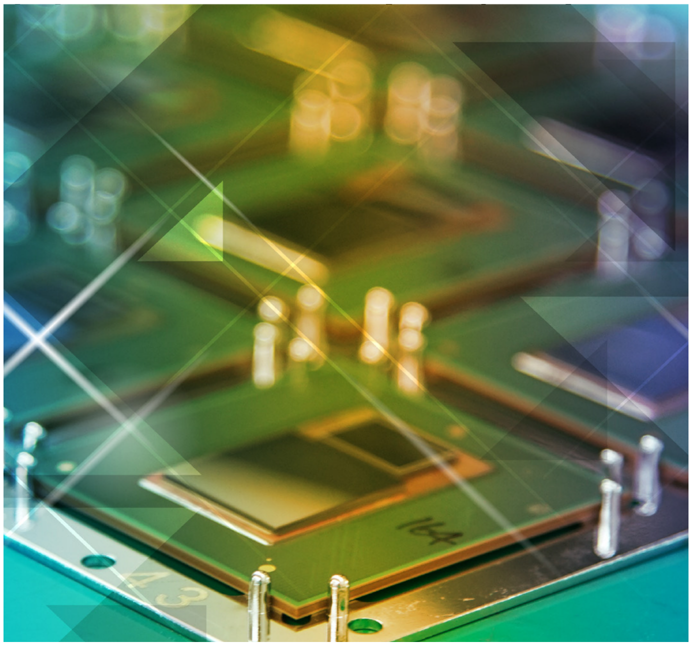
Semiconductor IC Package Design Services

Driving Advanced Semiconductor Package Design

Amkor's design engineers are trained experts and are experienced in the latest design tools and packaging technology. This allows our World Class Design Centers to reduce design cycle times and provide expert advice and service to our customers.

Amkor plays a leading role in supporting customers in the development of next generation package design for existing and emerging products. We process thousands of new designs for our customers every year. As a result, we have an unparalleled level of package design expertise and can provide World Class leadframe, laminate or wafer level design services, including:

- Highly trained and experienced design staff
- Quality, reliable and cost effective designs
- Design for Performance (DFP), Design for Manufacturing (DFM) and Design for Cost (DFC)
- Customer assistance to meet thermal, electrical and mechanical requirements

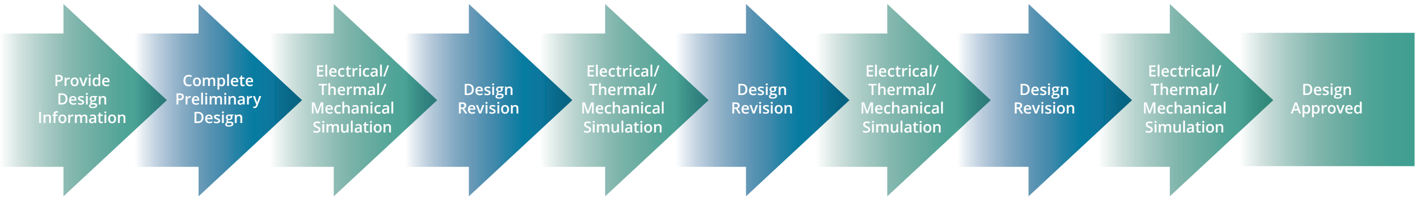


Design For Performance (DFP)

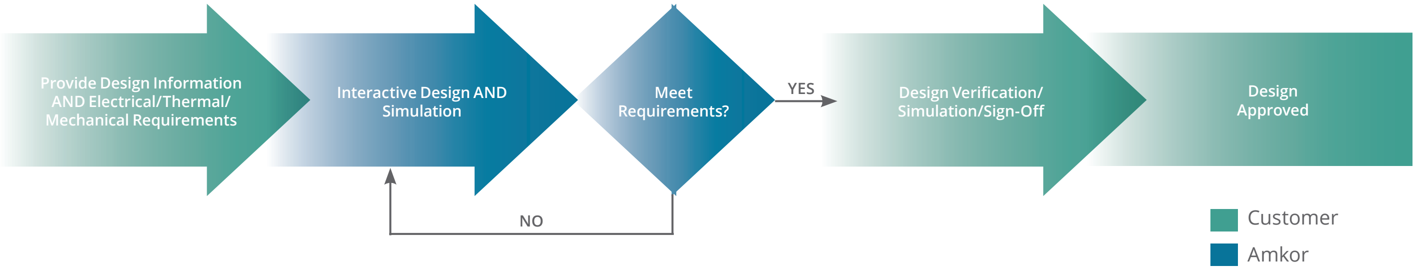
Co-Design for Reduced Cycle Time

Amkor has developed an interactive design optimization method (co-design) that helps reduce overall cycle time. Our fully integrated design and simulation teams work together to meet our customers' most stringent performance requirements. Whether a simple simulation or an extensive engineering analysis is needed, Amkor's design teams are here to help meet or exceed customers design requirements and expectations.

Antiquated Design Process



Advanced Co-Design Process



Design For Manufacturing (DFM)

Design Automation Suite

Amkor offers a Design Automation suite developed specifically for customer use.

- **Online Design Rules**

  Amkor's Design Rules are available for customers to access 24/7.

- **Design DropBox**

  Design DropBox is a secure, cloud based application that verifies customer design data and automatically emails results directly to the customer.

- **SmartPackage™ Assembly Design Kits (PADKs)**

  To fill the void between die design and package design, Amkor's SmartPackage PADK brings together design, manufacturing and assembly verification for HDFO packages.

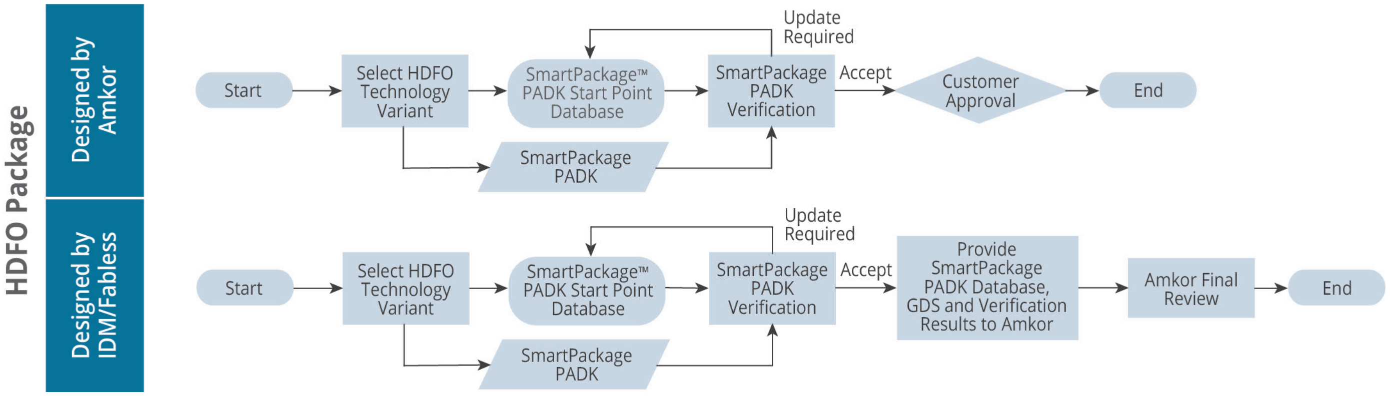
- **Design Quick Start (DQS)**

  Design Quick Start creates a database start file which allows the customer to start a new design quickly and more efficiently.

- **Automatic Package Outline Drawing Generator**

  Automatic Package Outline Drawing Generator allows customers to create package outline drawings by filling out a few required fields. Drawings are automatically generated and sent to the customer via email.

SmartPackage™ PADK Process Flows



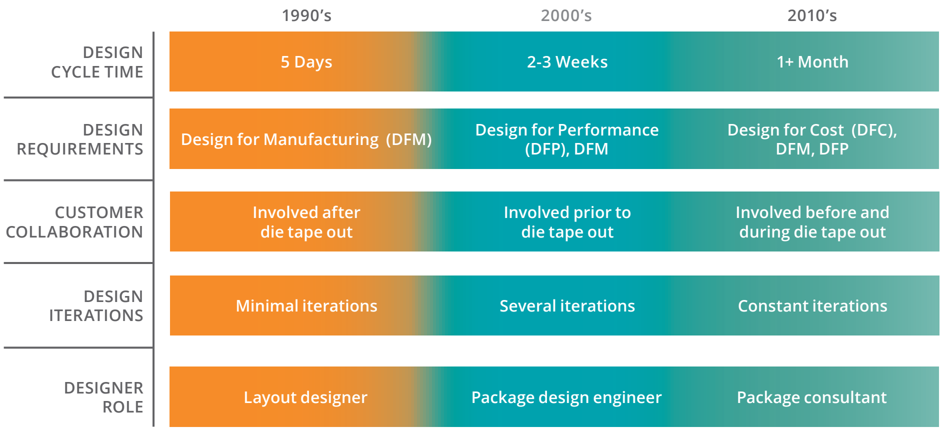
The Evolution of Package Design

Managing Design

Package design requirements continue to evolve in complexity and I/O density which can lead to increased cost. Understanding and controlling the factors that contribute to unnecessary cost can be a challenge. To design a package with the lowest possible cost, the balance between assembly, substrate and material cost needs to be considered.

Design For Cost (DFC)

The Design for Cost (DFC) process evaluates cost versus performance requirements and balances substrate and assembly trade-offs.



	1990's	2000's	2010's
DESIGN CYCLE TIME	5 Days	2-3 Weeks	1+ Month
DESIGN REQUIREMENTS	Design for Manufacturing (DFM)	Design for Performance (DFP), DFM	Design for Cost (DFC), DFM, DFP
CUSTOMER COLLABORATION	Involved after die tape out	Involved prior to die tape out	Involved before and during die tape out
DESIGN ITERATIONS	Minimal iterations	Several iterations	Constant iterations
DESIGNER ROLE	Layout designer	Package design engineer	Package consultant

High Quality at Lowest Possible Cost

Without accurately knowing and considering the individual costs of each of these parameters, the accumulated cost can be much greater than necessary. Amkor has the talent, tools and teamwork required to ensure delivery of the highest quality products at the lowest possible cost.

Distinct Competitive Advantage

At Amkor, we continue to exceed customer expectations and provide a distinct competitive advantage by incorporating “Design for Cost” and “Design for Manufacturing” when “Designing for Performance”.

Our World Class Design Centers are strategically located in Shanghai, Japan, Korea, Philippines, Portugal, Taiwan and the US. We provide expertise in all aspects of package design starting with our existing product line through our next generation technology.

Our worldwide design teams work together to ensure our customers receive fast, courteous and professional design services.

	Shanghai	Japan	Korea	Philippines	Portugal	Taiwan	US
LAMINATE DESIGN	✓	✓	✓	✓		✓	✓
LEADFRAME DESIGN	✓	✓	✓	✓			
WAFER LEVEL DESIGN	✓	✓	✓		✓	✓	✓
DESIGN AUTOMATION			✓				✓
ELECTRICAL SIMULATION		✓	✓			✓	✓
THERMAL/ MECHANICAL SIMULATION		✓	✓			✓	✓
R&D		✓	✓		✓		✓

Visit amkor.com or email sales@amkor.com for more information.

BR402G-EN Rev Date: 02/22