Principal Packaging Engineer

Job Specification

About Optalysys

Optalysys is a pioneering UK and US based deep-tech company developing new ways to power the future of computing. By harnessing light, we are creating advanced photonic technologies that help the world's most demanding systems run faster and more efficiently. Our work supports breakthroughs in areas such as artificial intelligence, cybersecurity and scientific discovery. At Optalysys, we're bringing together talented people who are passionate about building technology that expands what computing — and humanity — can achieve

We are committed to building a home for exceptional talent.

About the Role

Role: Principal Packaging Engineer
Department: Packaging / IC Design
Location: US (Hybrid / Onsite)
Employment Type: Permanent, Full-Time
Level: IC4

Optalysys is pioneering a new generation of computing platforms for cryptography, artificial intelligence, and high-performance computing (HPC). Our Optalysys One technology leverages silicon photonics to unlock unprecedented compute performance and efficiency, enabling solutions that are not achievable with conventional electronic architectures.

We are looking for a Principal Packaging Engineer to drive the development of next-generation heterogeneous integration and advanced packaging technologies for photonics-enabled compute systems.

In this role, you will architect and deliver cutting-edge 2.5D and 3D packaging solutions that integrate silicon photonics, CMOS, and III-V devices into scalable, manufacturable systems. You will play a critical role in building Optalysys' advanced packaging capability and shaping the future of optical computing hardware.

This is a high-impact role that combines system architecture, advanced packaging, photonics integration, and cross-industry collaboration with foundries and OSAT partners.

Key Responsibilities

Architect Next-Generation Photonic Packaging

- Lead the development of 2.5D and 3D heterogeneous packaging architectures for Optalysys' photonic computing platforms.
- Define integration strategies for silicon photonics, CMOS, and III-V devices, including FAU and OCI optical interfaces.
- Design advanced interposers, laminates, and redistribution layers (RDL) optimized for high-bandwidth photonic systems.

Enable Optical Compute Systems

- Develop integration solutions for co-packaged optics, near-packaged optics, and pluggable optical technologies.
- Work closely with silicon photonics, AMS, CMOS, and PCB design teams to enable system-level integration.

- Establish packaging design rules and guidelines for multi-die heterogeneous systems.

Model, Optimise, and Validate Advanced Packages

- Perform thermal modelling, signal integrity analysis, and mechanical reliability simulations.
- Evaluate packaging trade-offs to achieve maximum performance, efficiency, and scalability.
- Drive reliability testing including temperature cycling, mating cycles, and mechanical stress testing.

Design for Manufacturability and Scale

- Implement Design for Test (DFT) and Design for Manufacturability (DFM) methodologies.
- Develop Assembly Development Kits (ADKs) and packaging design frameworks.
- Define test plans for package qualification and validation.
- Lead failure analysis and root cause investigations.

Collaborate Across the Semiconductor Ecosystem

- Partner with CMOS and silicon photonics foundries, OSAT partners, and external design houses.
- Coordinate cross-disciplinary development across photonics, electronics, and packaging teams.
- Maintain traceable and auditable engineering documentation throughout the product lifecycle.

Build and Lead Packaging Innovation

- Help establish and grow Optalysys' advanced packaging capability.
- Drive innovations that enable high-performance optical computing systems.
- Contribute to technical strategy and roadmap for next-generation packaging technologies.

Required Experience & Skills

- MS or PhD in Electronics, Photonics, Mechanical Engineering, Materials Science, or a related field.
- 10–15 years of experience in semiconductor packaging and assembly.
- Deep expertise in:
- 2.5D / 3D packaging technologies
- Heterogeneous integration
- Interposers, laminates, and RDL design

- Advanced semiconductor materials and packaging processes
- Experience with silicon photonics packaging and optical integration (FAU, OCI or similar).
- Strong background in thermal, mechanical, and reliability modelling of advanced packages.
- Proven track record of delivering innovative packaging solutions in complex semiconductor systems.
- Excellent cross-functional communication and collaboration skills.
- Experience working with foundries, OSAT partners, and external design teams.
- Familiarity with Agile development practices.

Benefits

We offer competitive compensation. The base salary range for this role determined based on location, experience, educational background, and market data.

Salary Range: total compensation goes beyond base salary, it also includes comprehensive health care plan, retirement savings matching program, generous time off, annual performance-based bonus, and other rewards that recognise your impact and contribution.

Benefits eligibility may vary depending on your employment status and location. Optalysys recruits, employs, trains, compensates, and promotes regardless of race, religion, color, national origin, sex, disability, age, veteran status, and other protected status as required by applicable law.

How to apply

Please send a copy of your CV to recruitment@optalysys.com with a cover letter