



IMEC TURNS YOUR CONCEPT OR PROTOTYPE INTO A MANUFACTURABLE PRODUCT

Imec is your strategic partner for **translating a challenging device concept or prototype into a manufacturable product, tailored to your specific needs and specifications**. Once the product is developed and fulfills specifications, we enable its **low-volume manufacturing (up to 1000 wafers/year)** by using **imec's fab**. Moreover, **in case high volume is needed, imec can transfer the process to a foundry in Asia – with which we have an established partnership**. Alternatively, **we can also transfer the process to your fab or to a foundry of your choice**.

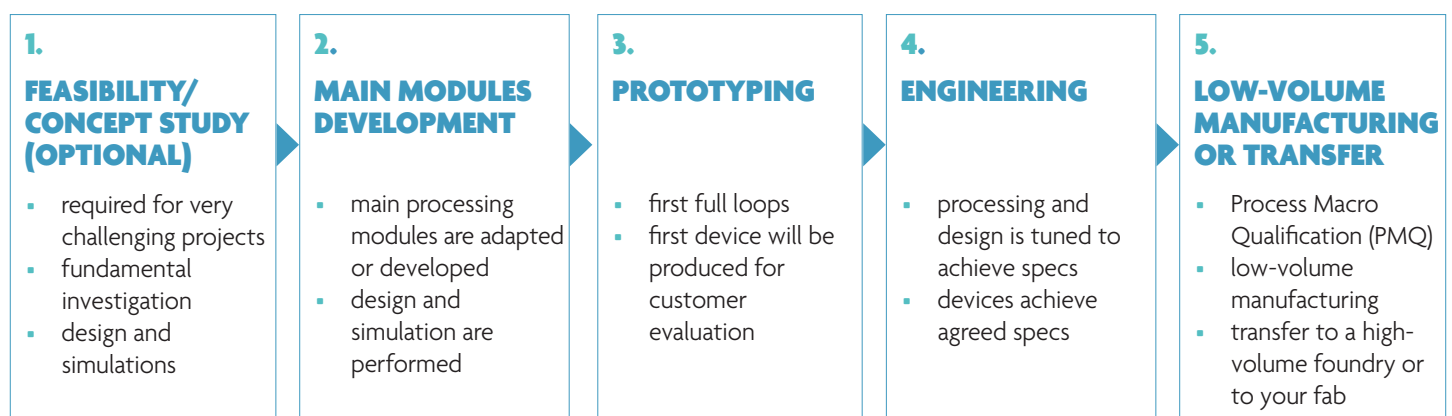
To develop your tailored component, our experienced engineering teams can rely on a wide technology portfolio and extended processing capabilities, including, for example, sensors, detectors, MEMS, 3D integration, Si and SiN photonics, wafer handling and packaging, and 90nm/130nm CMOS.

Imec is the only place where you can find an advanced 200mm/8-inch CMOS pilot line (which is also equipped for MEMS fabrication and 3D integration) that combines the process capabilities and quality of a foundry with the flexibility of a lab.

FROM CONCEPT TO MANUFACTURING

Imec's dedicated development projects are bilateral, tailored to your specific needs. Our teams enable a product starting from either a concept or a prototype: **we can develop a manufacturable process of a prototype you might already have, we can integrate on-chip your current product, or investigate how to tackle a specific application by using semiconductor technology**.

The product development can be divided into **five main phases**:



INTEGRATION AND PROCESSING CAPABILITIES AT IMEC

For dedicated product development, imec uses its 200mm CMOS pilot line, which is also equipped for MEMS fabrication and 3D integration. It comprises:

Full CMOS compatible flow capabilities

- 180nm lines on 200mm wafers
- 193nm DUV ASML lithography available

Wafer handling and packaging

- Processing on Si, SOI, fused silica or glass
- Wafer thinning down to 20µm, grinding and CMP
- Wafer-to-wafer bonding: silicon or glass
- Chip-to-wafer bonding
- Wafer-level bonding of MEMS on CMOS substrates
- Custom post-processing on wafers from other foundries

Materials

- Broad variety of polymers for wafer-scale integration
- Low impedance, corrosion resistive electrode materials
- ALD with sub-nm thickness control, high-k dielectrics
- Electroplating of Cu, Sn, Ni
- Exotic materials introduction into CMOS environment and new material deposition development upon request

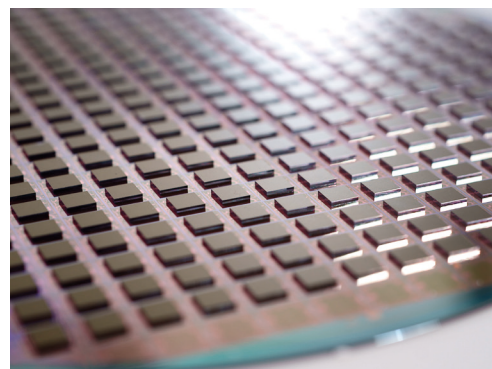
Special features

- Through-silicon wafer etch capability
- Bumping and through-silicon via integration
- Extensive in-line metrology and defect characterization, features down to 50nm
- State-of-the-art optical waveguide performance for visible light, NIR, IR
- Integrated optical filter stacks

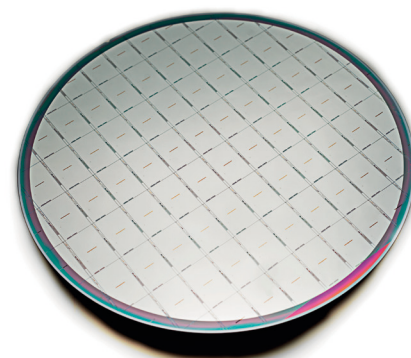
TECHNOLOGY PORTFOLIO AT IMEC

At imec, you can find expertise in many different technology domains. This wide-ranging technology toolbox can be used to enable a chip for your application, or to tackle the challenges required to manufacture your unique device. Our technology portfolio includes:

- (Advanced) MEMS
- Si photonics
- SiN photonics:
 - For processing SiN photonics components standalone or on top of a (foundry) imager
 - Applications: sensors, spectroscopy, solid state lidar
- 3D integration
 - Versatile platform to enable different type of device topologies
- Design and simulation
- Microfluidics
- Novel materials
- ...



Example: chip-to-wafer bonding



Example: high-quality EUV sensor dies, developed for ASML's EUV litho tools



Imec's 200mm/8-inch CMOS pilot line

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