



International SEMATECH Manufacturing Initiative (ISMI)

Abstract Title:	Flexible Fab Design to Accommodate Various Business Needs		
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Problem

The challenge of providing a flexible fab design is a key focus for Intel. The dynamic environment of the semiconductor market results in product forecasts that are ever changing causing oversizing of a new facility with unnecessary investment in construction capital or conversely, undersizing of a new facility resulting in lower product output impacting revenue. How can a fab be designed which not only allows a closer alignment with product forecast but also allows for flexibility in size?

Approach

A conceptual study of a modular factory was conducted. This study analyzed building both a smaller modular fab that could easily be expanded along with building a full sized modular fab that is expandable.

Results

A new structural/shell concept was designed allowing for any size fab, with the ability to easily expand. Additionally, the new design has cost savings in structure/shell vs current designs.

Study showed that significant construction costs can be deferred for building a smaller modular expandable shell where minimizing the capital invest was desirable (risky geography, limited ramp, adding onto existing facility). For a full size shell, the study showed that capital deferment is still possible by not having to oversize the facility for future technology generation conversions.