

# Development of an European Low Cost Bumping Technology and Service

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## Abstract

This presentation will provide an historic overview on the development of the electroless Ni/Au bumping process on wafer level.

Starting from the early beginning - when the first publications were made in the year 1985, the first “functional wafer was bumped electroless in 1989, the first pilot production line in 1995 was setup, up to the current day, where the electroless Ni/Au process is qualified for production in the industry - the evolution of the process in the different stages will be shown.

Also the further developments of this process in regard to different pad metallization (Al and Cu) will be presented as well as the capability for using wire bonding in combination with the electroless Under Bump Metallization.

A cost model of the electroless Ni/Au bumping process and comparisons with other state of the art bumping methods is presented. A technological overview and comparison of the different bumping processes will be shown.

Finally selected examples of the electroless process implementation in production environments and future roadmaps will be an integral part of this presentation.