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# 1982

## Applying chip-on-board (COB) technique to LSI circuits

### ~ Packaging ~

Around 1982, a MPU package for digital watches using laminated ceramic technology was changed to COB (Chip On Board) method using glass epoxy substrate for cost reduction. Various types of assembly structures were prototyped at Iruma-Denshi, an affiliated company of Hitachi, including a type of mounting MPU on the front surface and ROMs on the back side of PCB which was counterbore formed to make depression at the LSI mounting portion, and a type of lift-holding LSI by wire bonding for IC card type calculator application. The glass epoxy board were manufactured by Ibikawa-Denshi-Kogyo (Now Ibiden) by the request.

COB technology was applied to LSIs for small electronic devices such as digital watches, thermometers, single-lens reflex cameras, and IC cards,

This COB technology led the development move of packages like PPGA and FCBGA which became the main packages of processors for PCs.

