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Asserting CSP's priority over MCM

~ Packaging ~

On July 18, 1994, Hitachi made a presentation at International Package Roadmap Workshop which was held together with SEMICON West, and talked on the superiority of CSP (Chip Scale Package) over MCM (Multi-Chip Module) and KGD (Known Good Die) in terms of design flexibility, low cost, and high reliability. The concept of CSP was explained as realizing LSI performance in the minimum package outline, resulting in the higher density assembly. It was also proposed to define CSP as the package with the size below 1.4x of die size, or below 2x in area. SOJ and TSOP in LOC (Lead On Chip) structure for DRAM, and MCC (Micro Chip Carrier) for main frame computers were included in this category.

The figure below is a part of the material presented at this time. After this presentation, various compact size packages were developed; BCC (Bumped Chip Carrier) from Fujitsu, QFN (Quad Flat Non-Lead) from Matsushita Electronic Components, WCSP from Oki, EFP (Electro Forming Package) applying Ni electroplating from Hitachi Metals. From overseas companies, μBGA from Tessera in the US, Fan In structure from MicroSMT, μStar and FBGA using TAB tape from TI and Sharp(Japan), 3DPlus from Thomson, glass packages from Shellcase in Israel, and so on. These CSP packages were adopted in portable electronic devices and became the base for various new products such as portable music players, mobile phones, digital cameras and so on.

