Title (en)

LOGICAL THREE-DIMENSIONAL INTERCONNECTIONS BETWEEN INTEGRATED CIRCUIT CHIPS USING A TWO-DIMENSIONAL MULTI-CHIP MODULE PACKAGE

Title (de)

DREIDIMENSIONALE LOGISCHE VERBINDUNGEN ZWISCHEN INTEGRIERTEN SCHALTUNGSCHIPS MIT ZWEIDIMENSIONALER MULTICHIP-MODULVERPACKUNG

Title (fr)

INTERCONNEXIONS LOGIQUES TRIDIMENSIONNELLES ENTRE DES PUCES DE CIRCUITS INTEGRES UTILISANT UN BOITIER BIDIMENSIONNNEL POUR UN MODULE MULTIPUCE

Publication

EP 0698294 A1 19960228 (EN)

Application

EP 95908601 A 19950120

Priority

- US 9500796 W 19950120
- US 21314694 A 19940315

Abstract (en)

[origin: WO9525348A1] A high-capacity gate array which incorporates an effectively three-dimensional interconnect network. The array is formed from multiple smaller arrays which are connected to a common substrate by means of flip-chip bonding. The substrate is typically a multi-layer substrate which has interconnect lines embedded on or within it, thereby allowing a set of desired interconnections between the smaller logic cell arrays to be implemented. The contact points for connecting logic cells or arrays of cells to the substrate result from placing a multitude of solder bumps on the smaller arrays of logic cells at desired interconnect points. Connecting the interconnect point solder bumps to the multi-layer substrate then permits the individual logic cell arrays to be interconnected in a desired manner. A three-dimensional interconnect network is realized by interconnecting corresponding points on different logic cell arrays so that the arrays are connected in parallel. This has the effect of producing a three-dimensional interconnect network from a two-dimensional arrangement of arrays or chips in an MCM package. The result is a high gate capacity logic device having an increased degree of gate utilization and shortened average interconnect distances, thereby enabling the production of complex devices which have a faster operating speed.

IPC 1-7

H01L 25/065; H03K 19/177

IPC 8 full level

H01L 23/538 (2006.01); **H01L 25/065** (2006.01); **H03K 19/177** (2006.01)

CPC (source: EP KR)

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C-Set (source: EP)

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