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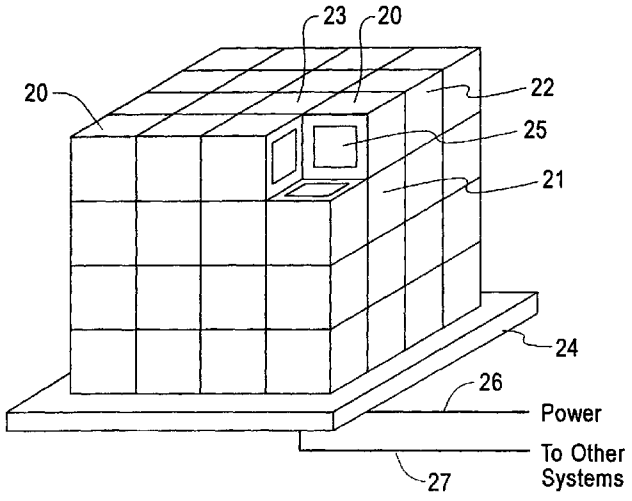
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(54) Title: A SCALABLE COMPUTER SYSTEM HAVING SURFACE-MOUNTED CAPACITIVE COUPLERS FOR INTERCOMMUNICATION



(57) Abstract: A scalable and compact computer system of three-dimensional subsystems (20-23) each having capacitive couplers (25) of its external surfaces for transmitting and receiving electrical signals to and from adjacent subsystems (20-23). Each surface having an electrically non-conducting substrate, one or more electrically conducting pads on the substrate, and electrical leads for coupling the pads to the subsystem's circuits. Two adjacent pads, each from a different subsystem (20-23), form a capacitive coupler (35) to carry the signals between the subsystems (20-23). The pads are covered by a low-loss dielectric material having a large dielectric constant for improved signal transmission. A differential signal may be supported using two capacitive couplers (25) to respectively carry the positive and negative signals of the differential signal. The subsystems (20-23) might be replaced or left in place when they failed. Additional subsystems (20-23) might be added to the system to expand its capacity.

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