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(54) Title: MEMORY DEVICE

(57) Abstract

A method and an apparatus for storing data provide data memory in a systematic, cyclical arrangement, provide plural data portals in an arrangement defined by modular arithmetic, and provide sequential, relative movement between the data memory and the data portals. When one or more of the plural portals is selected, data can be input or output in a manner which is predictable, straight-forward, free of scheduling constraints, and very efficient, without contention between the separate portals. Also disclosed are a method and apparatus which provide data memory in a systematic, cyclical arrangement, provide a systematic arrangement of plural data outputs, and provide sequential, relative movement between the data memory and the data outputs. The memory devices of the present invention can be designed so that the memory device circulates data either through or past fixed portals. Alternatively, the data can be stored in fixed locations and the portals moved from location to location. Preferred embodiments of the invention utilize semiconductor memory technology in order to implement the memory devices. Another set of embodiments utilizes memory storage media capable of confining propagating waves in order to implement the memory devices.

