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Abbott

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- [54] MULTILEVEL LOGIC FIELD PROGRAMMABLE DEVICE
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- [73] Assignee: Malleable Technologies, Inc., San Jose, Calif.
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Related U.S. Application Data

- [63] Continuation-in-part of application No. 08/874,817, Jun. 13, 1997, Pat. No. 6,006,321.
- [60] Provisional application No. 60/057,156, Aug. 28, 1997.
- [51] Int. Cl.⁷ G06F 7/38
- [52] U.S. Cl. 326/38; 326/52; 712/43
- [58] Field of Search 326/38, 39, 37, 326/52, 59; 712/37, 43, 42, 33, 21, 227, 229

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[57] ABSTRACT

A method and apparatus for providing a programmable logic datapath that may be used in a field programmable device. According to one aspect of the invention, a programmable logic datapath is provided that includes a plurality of logic elements to perform various (Boolean) logic operations. The programmable logic datapath further includes circuitry to selectively route and select operand bits between the plurality of logic elements (operand bits is used hereinafter to refer to input bits, logic operation result bits, etc., that may be generated within the logic datapath). In one embodiment, by providing control bits concurrently with operand bits to routing and selection (e.g., multiplexing) circuitry, the programmable logic datapath of the invention can provide dynamic programmability to perform a number of logic operations on inputs of various lengths on a cycle-by-cycle basis.

51 Claims, 16 Drawing Sheets

