Goodard v. Google, Inc.

EXHIBIT J

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United States Patent [19]	[11] F	atent N	Number:
Purcell	[45] I		Patent:
[54] STRUCTURE AND METHOD OF USING AN	5,245,56	4 9/1993	Quek et al.
ARITHMETIC AND LOGIC UNIT FOR	5,299,31	9 3/1994	Vassiliadis
CARRY PROPAGATION STAGE OF A	5,359,71	8 10/1994	Phillips et a
MULTIPLIER	5,426,74	3 6/1995	Phillips et a

- [75] Inventor: Stephen C. Purcell, Mountain View, Calif.
- [73] Assignce: Chromatic Research, Inc., Santa Clara County, Calif.
- [21] Appl. No.: 281,377
- [22] Filed: Jul. 27, 1994

[51]	Int. Cl. ⁶	G06F 7/52; G06F 7/50
[52]	U.S. Cl	. 364/757; 364/736; 364/754
[58]	Field of Search	364/757 754

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5,623,434

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ABSTRACT

[57]

A multiplier circuit for use in a system which includes an arithmetic and logic unit (ALU). The multiplier circuit includes a carry save stage which receives a first data value and a second data value, and in response, creates a carry signal and a sum signal. The carry and sum signals are provided to input leads of the ALU. The ALU is used to add the carry and sum signals to create a third data value which is equal to the product of the first and second data values. In one embodiment, the input leads to the ALU are multiplexed. Thus, one input lead of the ALU receives either the carry signal or a signal from a first input node and the second input lead of the ALU receives either the sum signal or a signal from a second input node.

11 Claims, 5 Drawing Sheets



Purcell U.S. Patent No. 5,623,434

Purcell: '434 Patent Background for the Purcell Invention

Structure and method for using an arithmetic and logic unit ("ALU") as the carry propagation stage of a multiplier.

- Computer processors perform basic mathematical functions such as addition and multiplication.
- Traditionally, processors used separate, duplicative circuitry to perform addition and multiplication.

Purcell: '434 Patent Prior Art



Purcell: '434 Patent Statement of the Invention

The invention is a novel circuit that requires only one-half of a traditional multiplier circuit connected to an existing ALU to perform a complete multiply operation.

Purcell: '434 Patent Purcell's Invention

