

United States Patent [19]

Loper et al.

[11] **Patent Number:** **5,870,616**[45] **Date of Patent:** **Feb. 9, 1999**

[54] **SYSTEM AND METHOD FOR REDUCING POWER CONSUMPTION IN AN ELECTRONIC CIRCUIT**

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[21] Appl. No.: **726,871**

[22] Filed: **Oct. 4, 1996**

[51] **Int. Cl.**⁶ **G06F 1/32**

[52] **U.S. Cl.** **395/750.05; 395/750.01;**
395/750.03; 711/128

[58] **Field of Search** 395/750.01, 750.03,
395/750.04, 750.05, 750.06, 750.07, 450,
452, 453, 455; 711/123, 125, 126, 128

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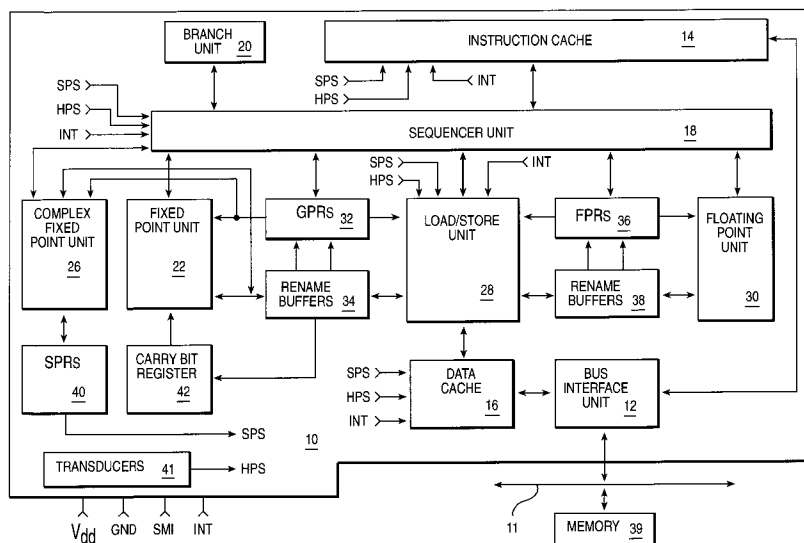
Attorney, Agent, or Firm—Casimer K. Salys; Michael Davis, Jr.

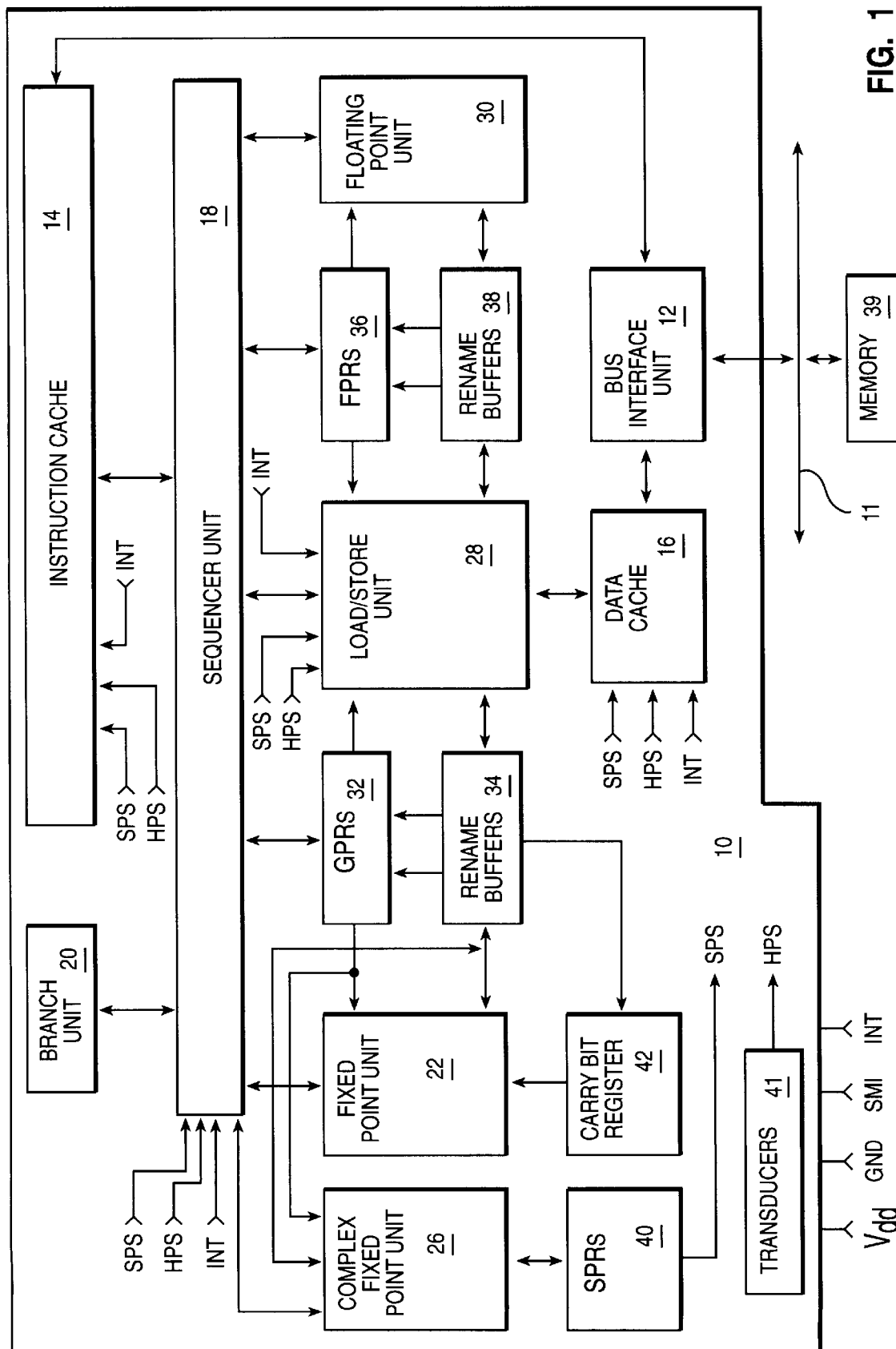
[57]

ABSTRACT

While a set-associative cache memory operates in a first power mode, information is stored in up to N number of ways of the cache memory, where N is an integer number and $N \geq 1$. While the cache memory operates in a second power mode, the information is stored in up to M number of ways of the cache memory, where M is an integer number and $0 < M < N$.

22 Claims, 5 Drawing Sheets





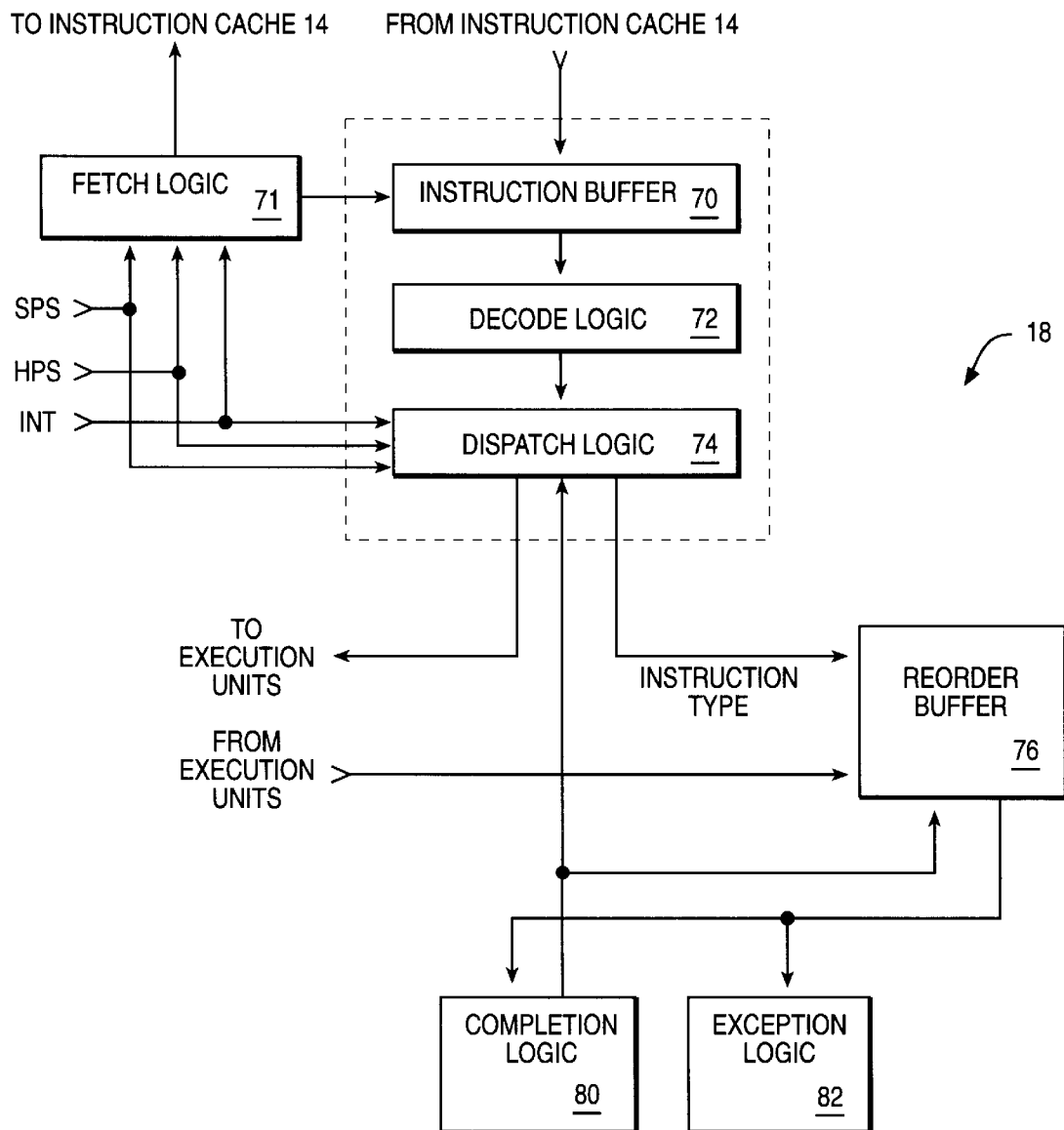


FIG. 2

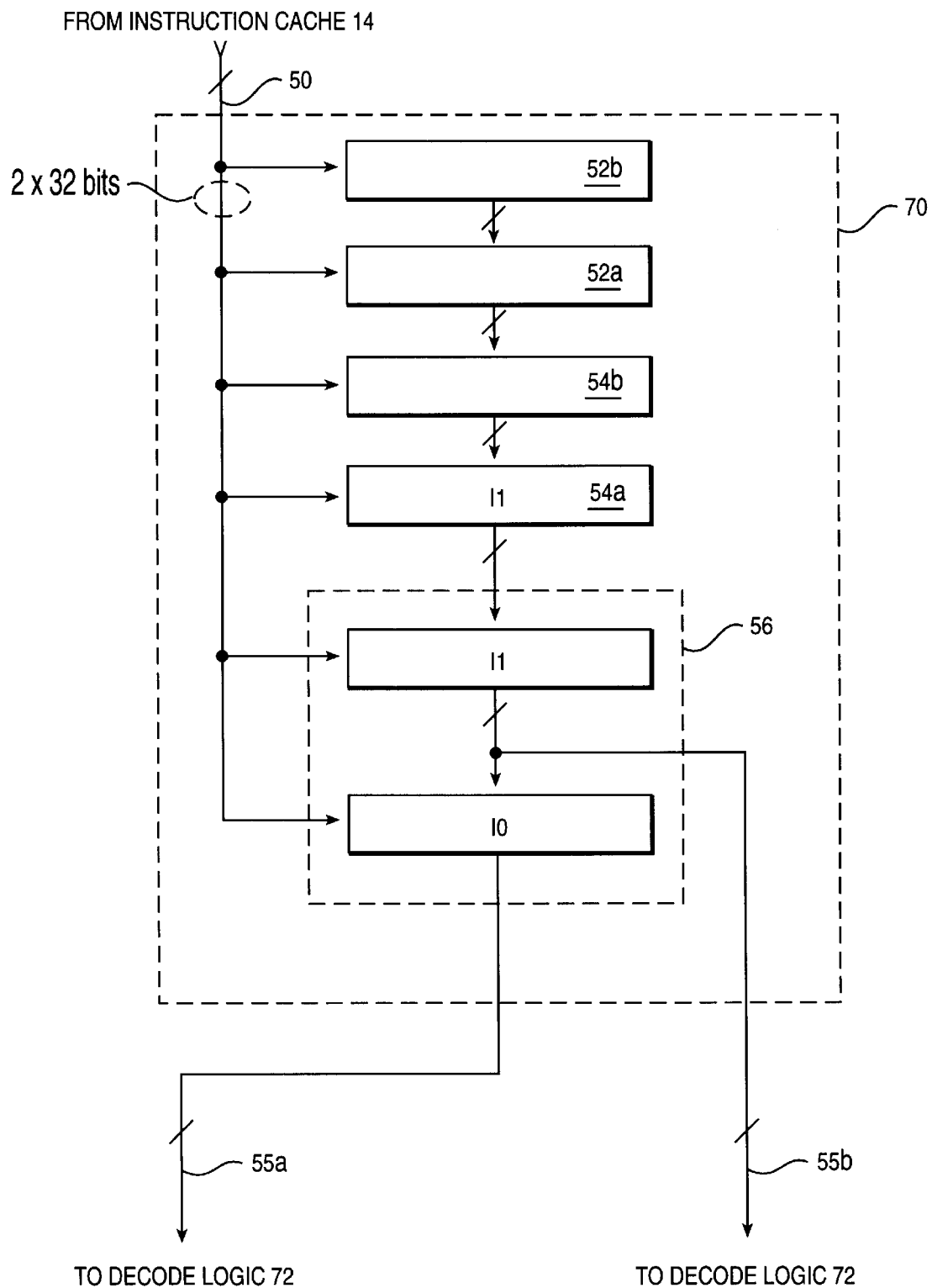


FIG. 3

76

175 COMPLETION ALLOCATION 173	BUFFER NUMBER	INSTRUCTION TYPE	#GPR DEST.	#FPR DEST.	FINISHED	EXCEPTION
		EXECUTION UNIT				
	0					
	1	22	1	0	0	0
	2	22	1	0	0	0
	3					
	4					

FIG. 4

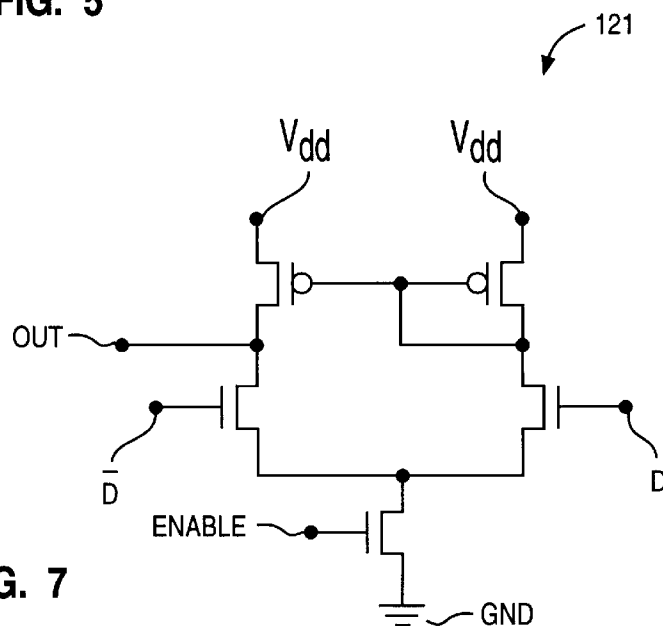
38

182 WRITE-BACK COMPLETION 184	BUFFER NUMBER	REGISTER NUMBER	INFOR- MATION
	0		
	1		
	2		
	3		

FIG. 5

ALLOCA-
TION
180

FIG. 7



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