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(12) **United States Patent**
Hammes

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(54) **ELIMINATION OF STREAM CONSUMER LOOP OVERTHOOT EFFECTS**

(56) **References Cited**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1985 days.

(21) Appl. No.: **11/456,466**

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(51) **Int. Cl.**
G06F 15/00 (2006.01)
G06F 7/38 (2006.01)
G06F 9/00 (2006.01)
G06F 9/44 (2006.01)

(52) **U.S. Cl.**
USPC 712/241; 714/18

(58) **Field of Classification Search**
USPC 712/241, 201, 25
See application file for complete search history.

U.S. PATENT DOCUMENTS

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Primary Examiner — Andrew Caldwell

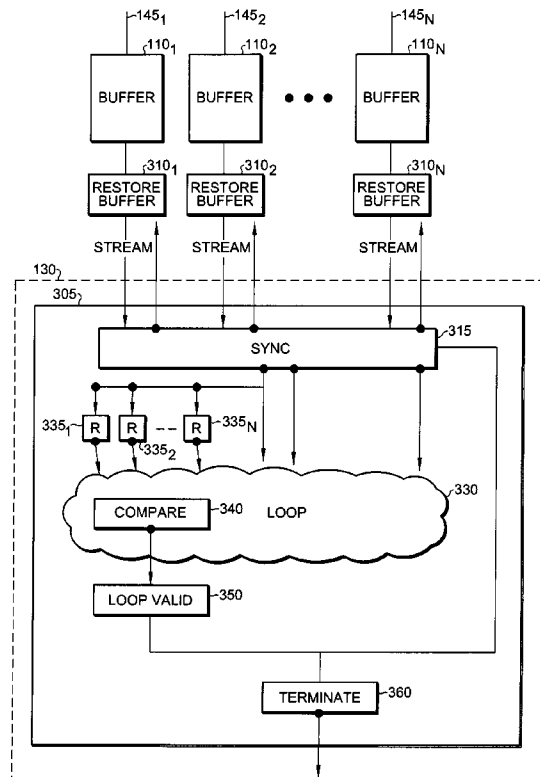
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(57) **ABSTRACT**

A reconfigurable processor invoking data stream pipelining is configured to associate a restore buffer with each incoming data stream. The buffer is configured to be of sufficient size to maintain data values dispatched to a loop so as to restore values fetched and lost due to loop overshoots. The restore buffer stores the values that were recently fetched from the buffer to the loop. To determine how many data values should be restored, the loop counts the number of the data values it takes from each data stream and the number of valid loop iterations that take place. Once a loop termination is detected, the loop halts the fetching of values from the restore buffer and compares, for each stream, the number of loop iterations with the number of values fetched. The difference is the number of extra values that were taken from the restore buffer and are restored.

22 Claims, 6 Drawing Sheets



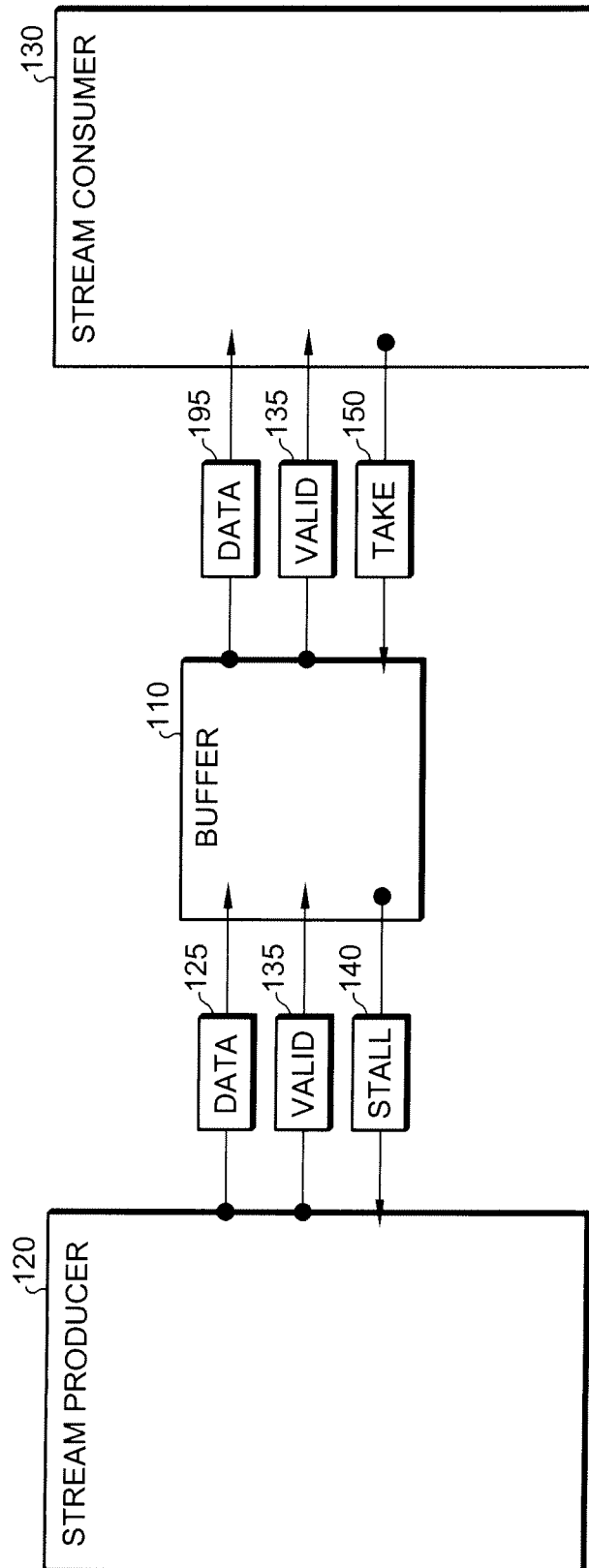


Fig. 1
Prior Art

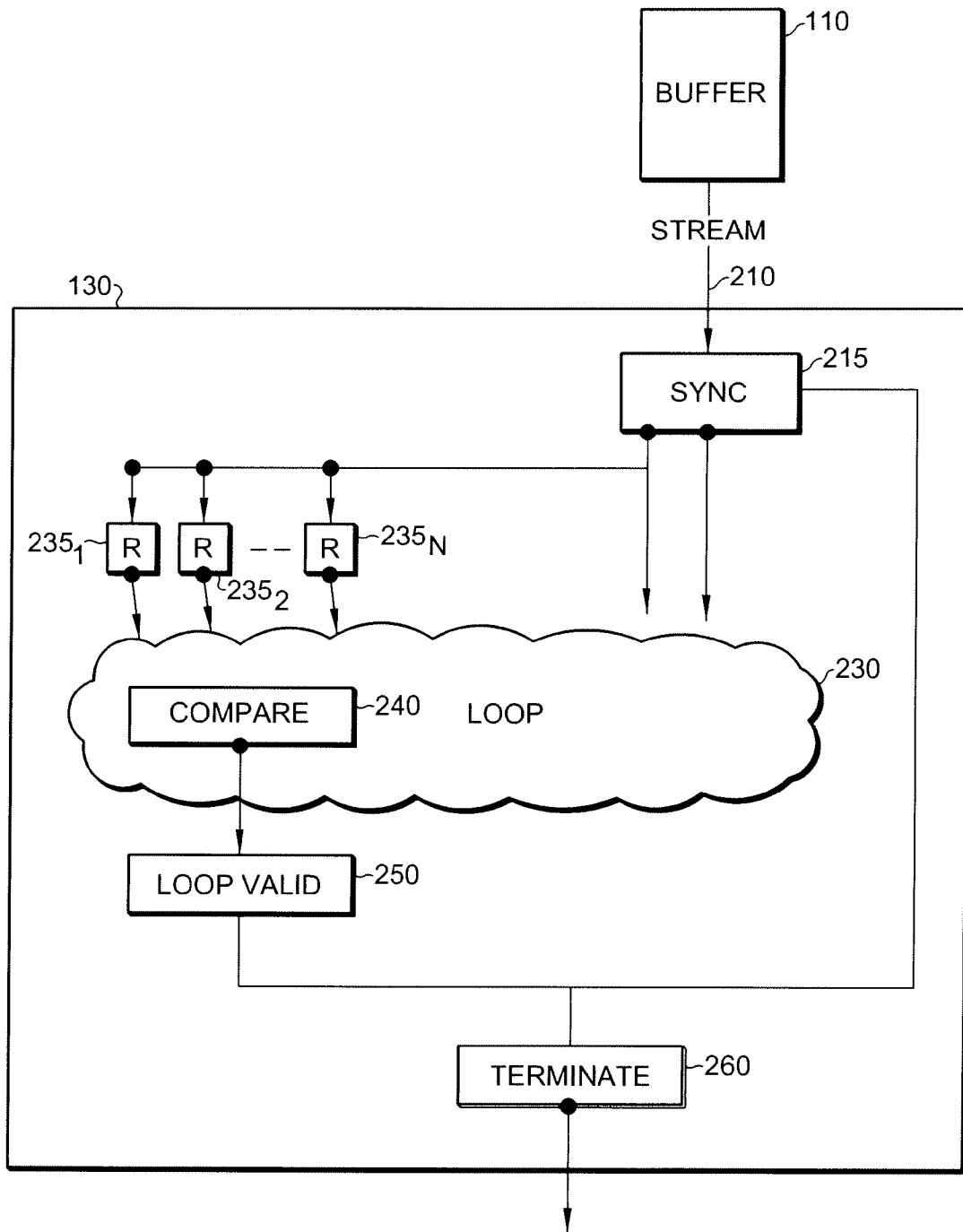


Fig. 2
Prior Art

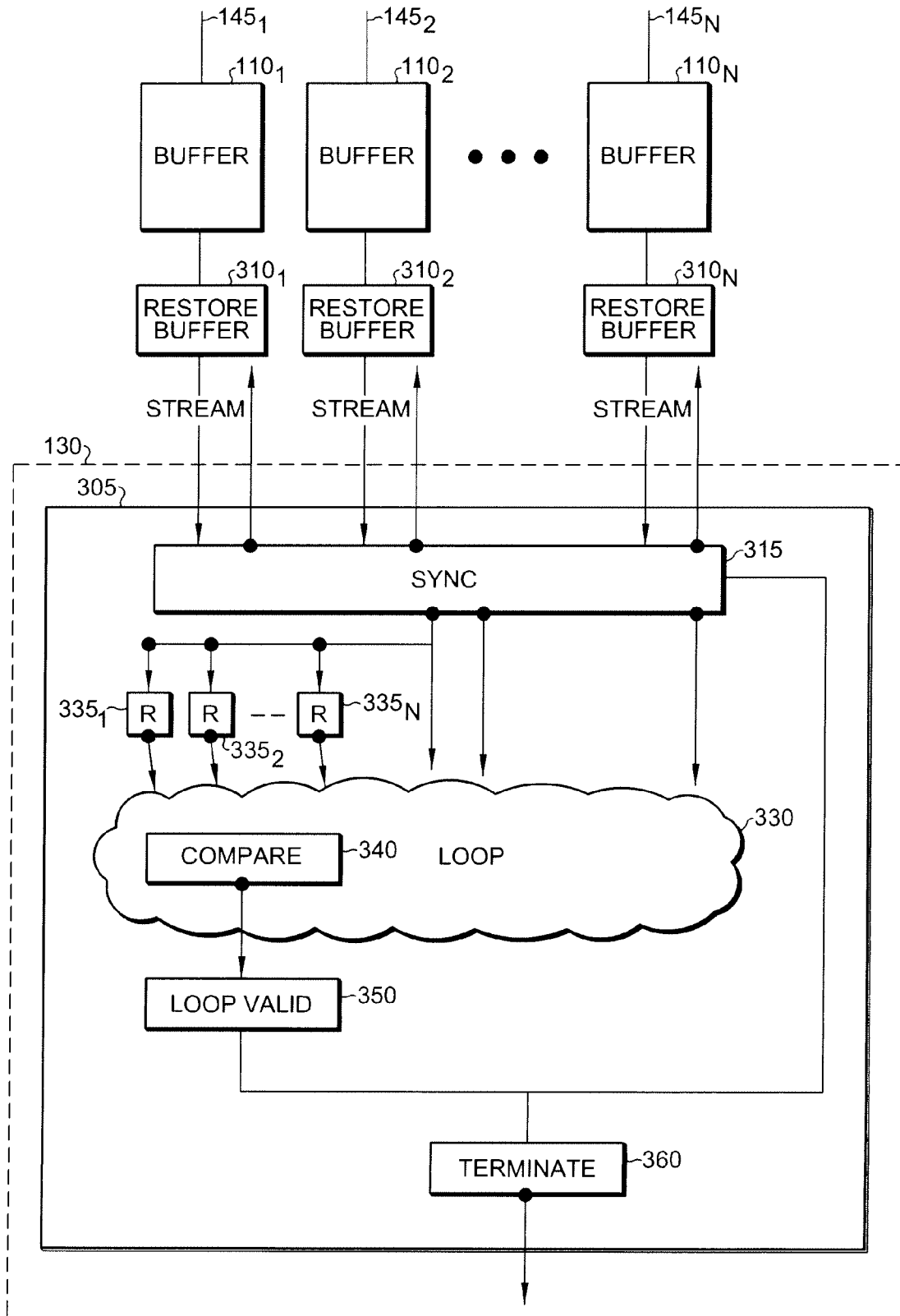


Fig. 3

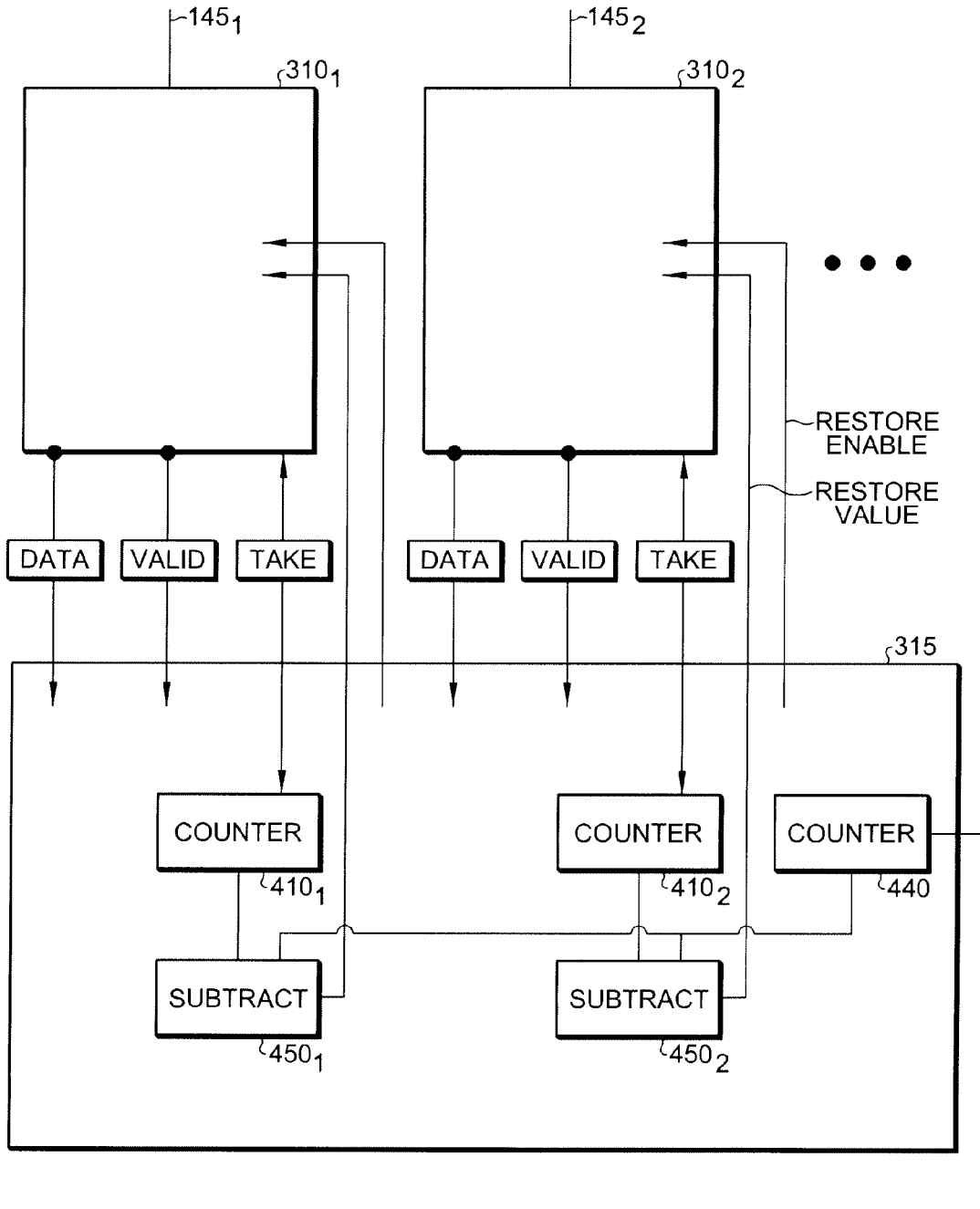


Fig. 4

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