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United States Patent [19] Chong

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[45] Date of Patent: ***May 30, 2000**

[54] **METHOD AND APPARATUS FOR HIGH AVAILABILITY AND CACHING DATA STORAGE DEVICES** 5,734,818 3/1998 Kern et al. 714/20
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[75] Inventor: **Fay Chong**, Cupertino, Calif.
[73] Assignee: **Sun Microsystems, Inc.**, Palo Alto, Calif.

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[*] Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

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Robert W. Kembel, "In-Depth Fibre Channel Arbitrated Loop," published by Northwest Learning Associates for Solution Technology, 1996, ISBN 0-0931836-81-6, XP002055479, USA, twenty-four (24) pages.

[21] Appl. No.: **08/883,923**

[22] Filed: **Jun. 26, 1997**

[51] Int. Cl.⁷ **H02H 3/05; H03K 19/003**

[52] U.S. Cl. **714/12; 714/13**

[58] **Field of Search** 395/182.11, 182.1, 395/182.09, 182.08, 182.04, 182.05; 714/13, 12, 10, 11, 6-7

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Attorney, Agent, or Firm—O'Melveny & Myers

[57] ABSTRACT

A method and apparatus for high availability and caching data storage devices. According to a preferred embodiment of the invention, there is provided an apparatus. The apparatus comprises a primary controller, a secondary controller having the same address as that of the primary controller, a switching circuit coupled to the primary and secondary controllers, and a control circuit coupled to the switching circuit. According to this preferred embodiment of the invention, in a normal operation, the control circuit sets the switching circuit so that the primary controller receives and responds to input data supplied from a host, and the secondary controller receives the input data. In a fail-over operation in which the primary controller fails, the control circuit sets the switching circuit so that the primary controller is disabled, and the secondary controller receives and responds to the input data supplied from the host. The fail-over is transparent to the host. The apparatus may further comprise a data storage device coupled to both the primary and secondary controllers. An alternative preferred embodiment of the invention is also provided.

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16 Claims, 4 Drawing Sheets

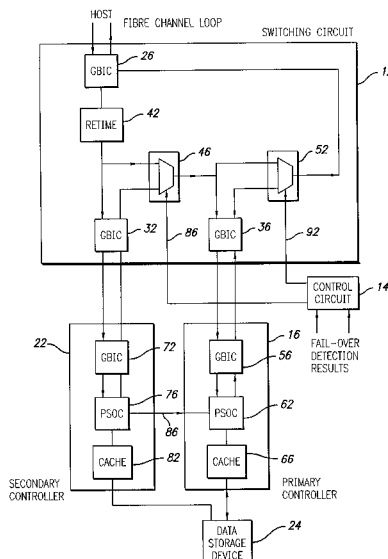


FIG. 1

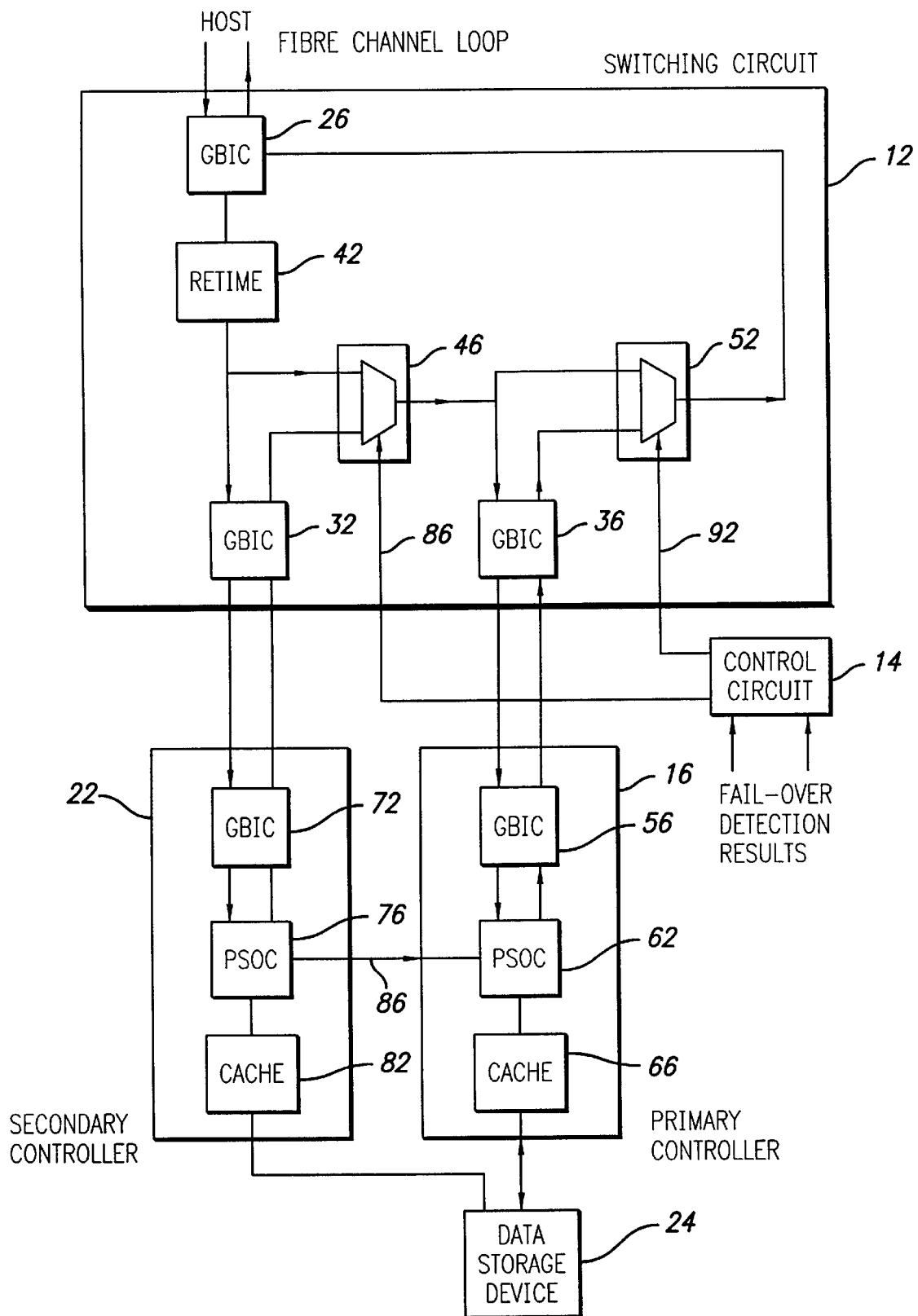
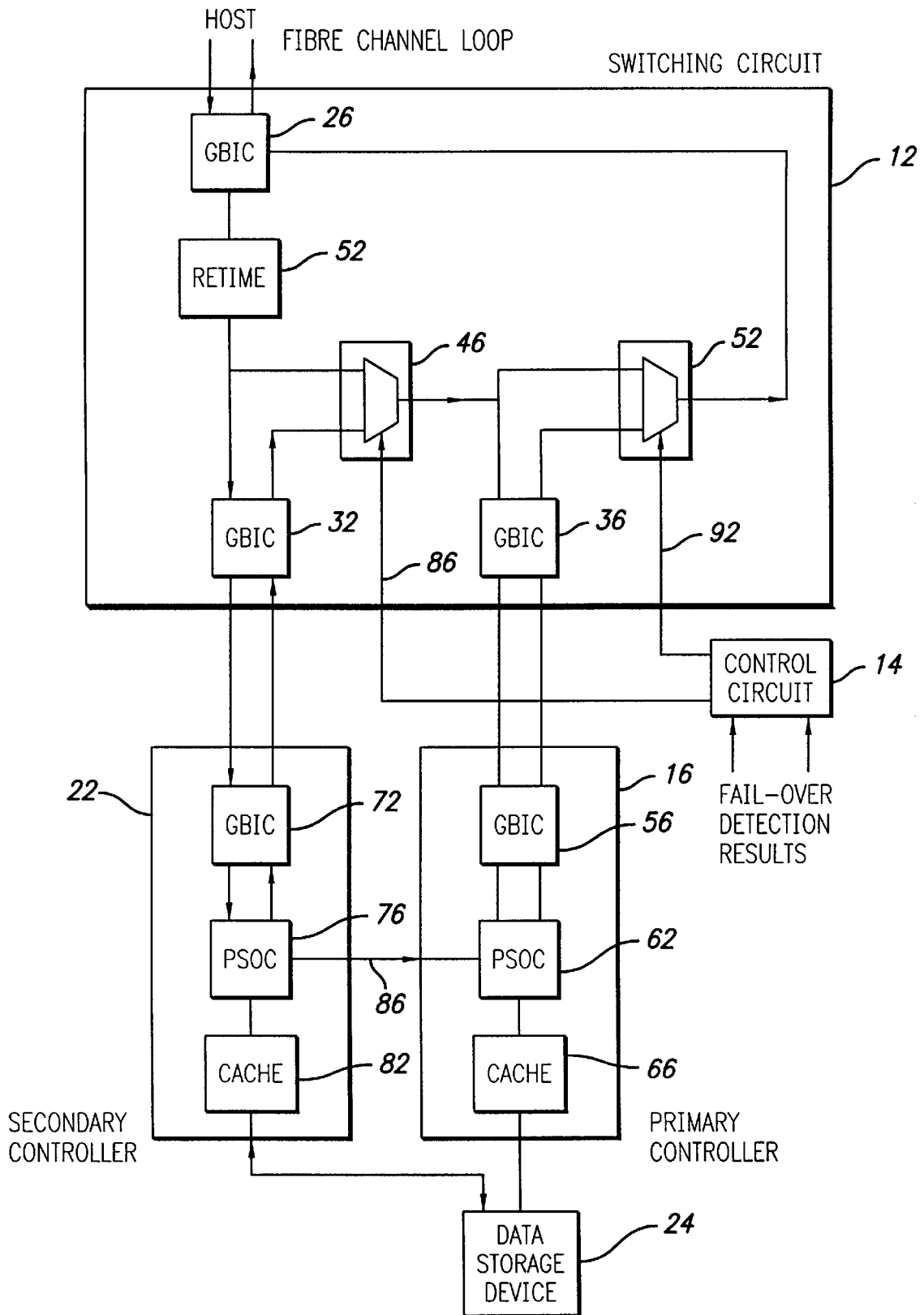


FIG. 2



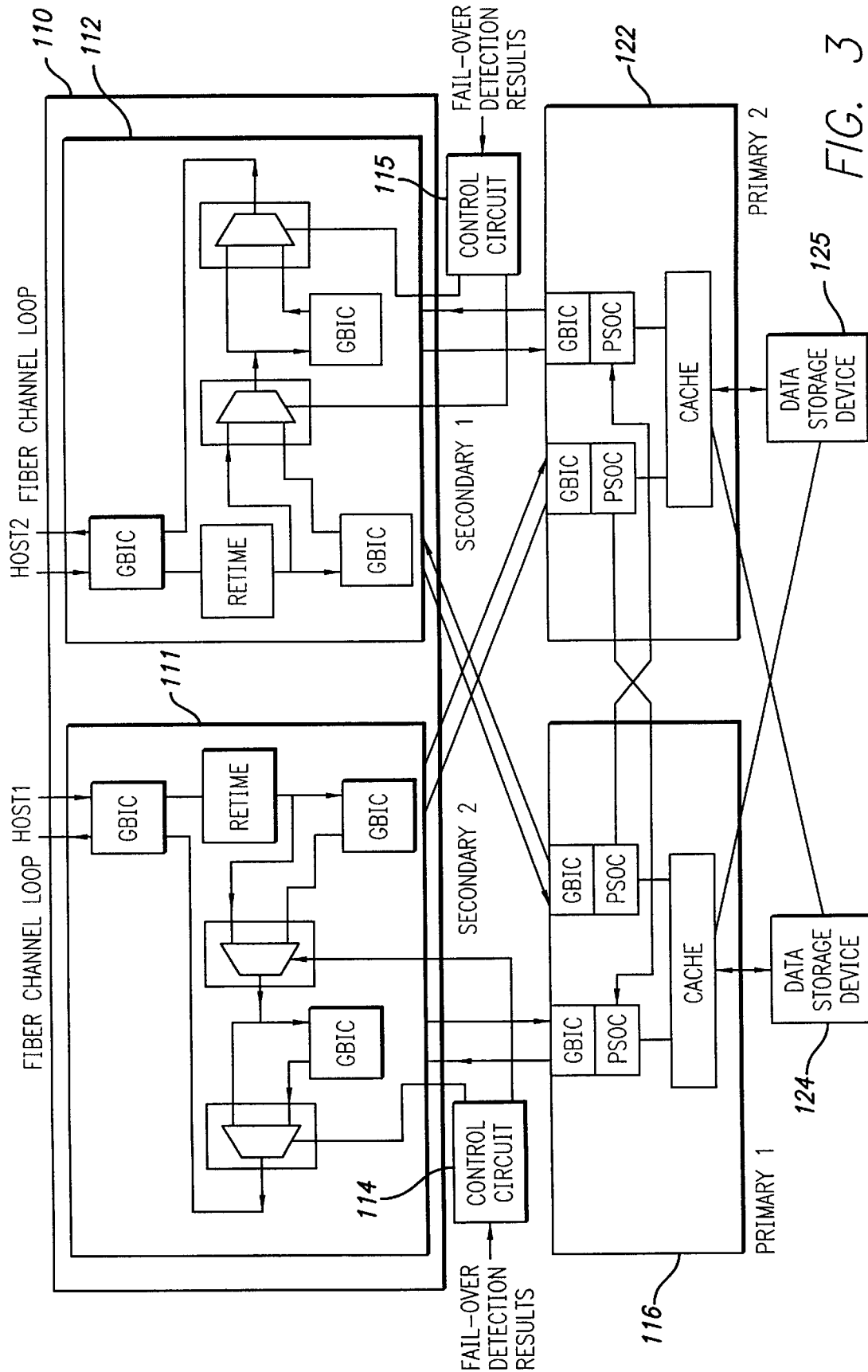


FIG. 3

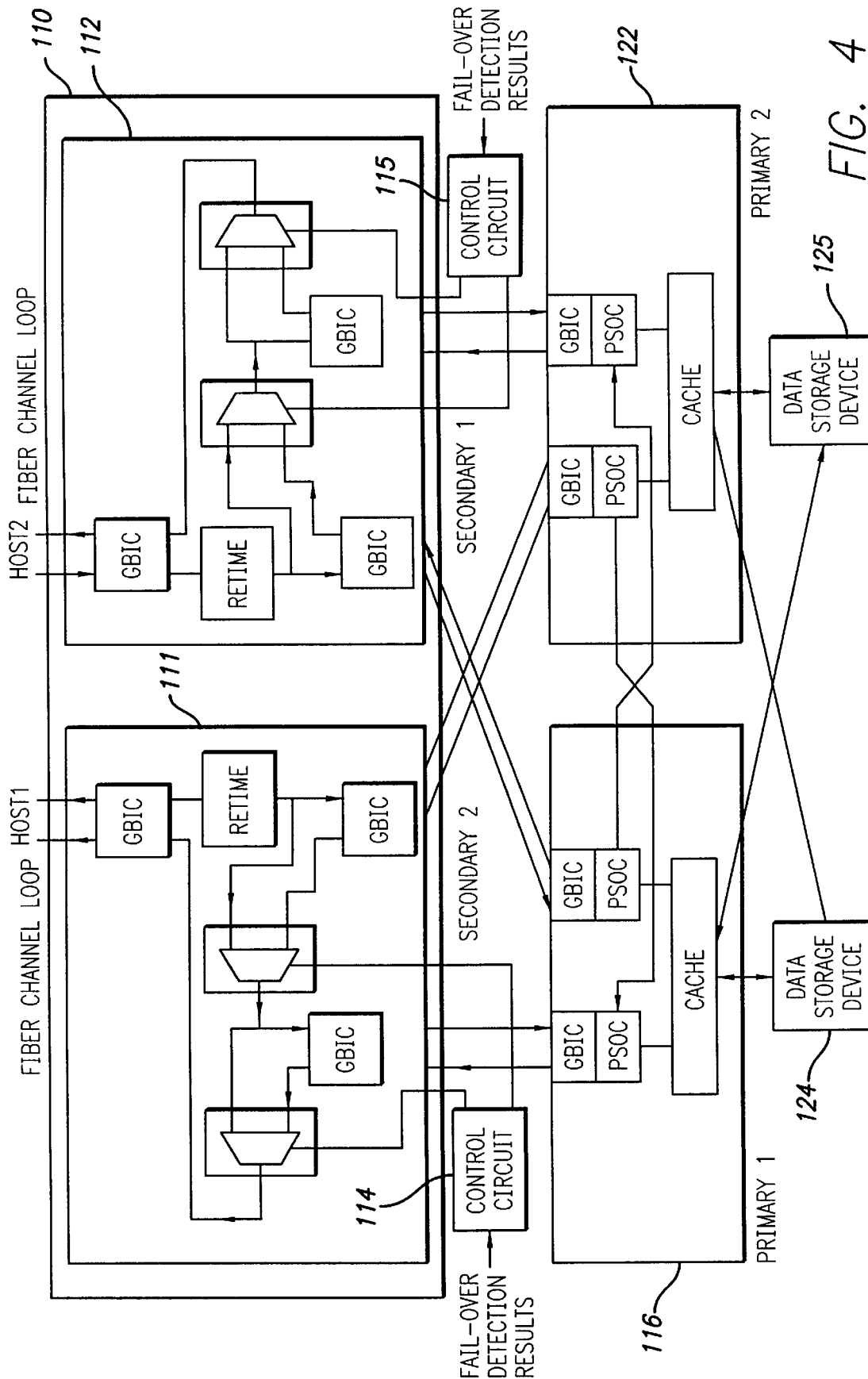


FIG. 4

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