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(12) **United States Patent**
Drell

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(54) **VIDEOCONFERENCING APPARATUS
HAVING INTEGRATED MULTI-POINT
CONFERENCE CAPABILITIES**

6,288,739 B1 * 9/2001 Hales et al. 348/14.07
6,356,294 B1 * 3/2002 Martin et al. 348/14.07
6,437,818 B1 * 8/2002 Ludwig et al. 348/14.09
6,453,336 B1 * 9/2002 Beyda et al. 709/204
6,693,661 B1 * 2/2004 Vanderwilt et al. 348/14.01

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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 708 days.

(21) Appl. No.: **09/684,145**

(22) Filed: **Oct. 5, 2000**

Related U.S. Application Data

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(51) **Int. Cl.**
G06F 15/16 (2006.01)
H04N 7/14 (2006.01)

(52) **U.S. Cl.** **709/204**; 348/14.08; 348/14.09

(58) **Field of Classification Search** 709/204-207;
348/14.01, 14.06-14.16, 552
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,491,797 A	2/1996	Thompson et al.	
5,506,954 A *	4/1996	Arshi et al.	345/501
5,784,561 A *	7/1998	Bruno et al.	709/204
5,914,940 A *	6/1999	Fukuoka et al.	370/263
5,936,662 A *	8/1999	Kim et al.	348/14.09
6,025,870 A *	2/2000	Hardy	348/14.1
6,072,522 A *	6/2000	Ippolito et al.	348/14.1
6,073,192 A *	6/2000	Clapp et al.	710/65
6,124,880 A *	9/2000	Shafiee	348/14.08
6,269,122 B1 *	7/2001	Prasad et al.	375/240.28

OTHER PUBLICATIONS

“Portables and Codecs,” http://www.tandbergusa.com/produkt/port-codec/pt_6000.html.

* cited by examiner

Primary Examiner—Krisna Lim

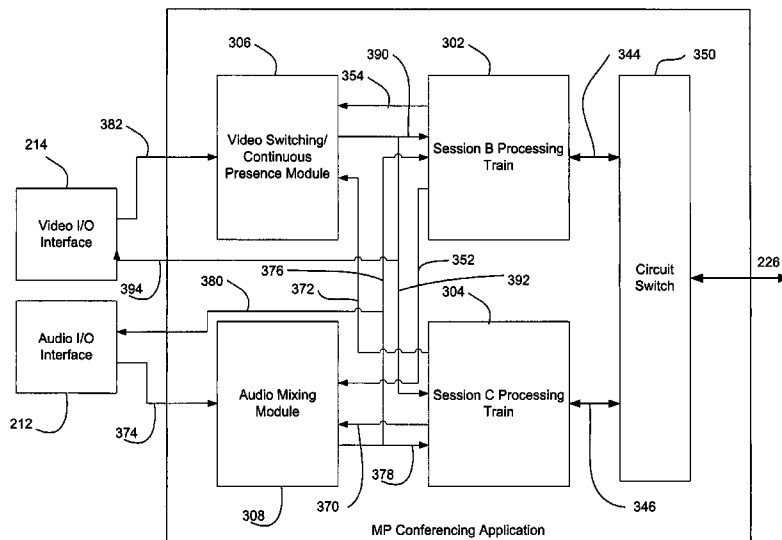
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(57) **ABSTRACT**

A videoconferencing apparatus includes a multi-point (MP) conference application that enables the apparatus to combine and distribute audio and video signals received from a plurality of remote conference endpoints, thereby obviating the need to provide a separate multi-point control unit having hardware-based inverse multiplexers (IMUXs). The MP conference application is configured to generate, for each remote conference endpoint participating in a conference, discrete instances of a signal processing train by means of dynamically allocable IMUXs, each processing train including a communication process and audio/video/data codecs. The processed audio and video signals are subsequently conveyed to an audio mixer and video switching module for combination with locally-generated audio and video signals. The outputs of the audio mixer and video switching module are sent to each of the plurality of signal processing trains, which process the combined signals according to a transmit mode for distribution to the remote endpoints over the network.

10 Claims, 5 Drawing Sheets



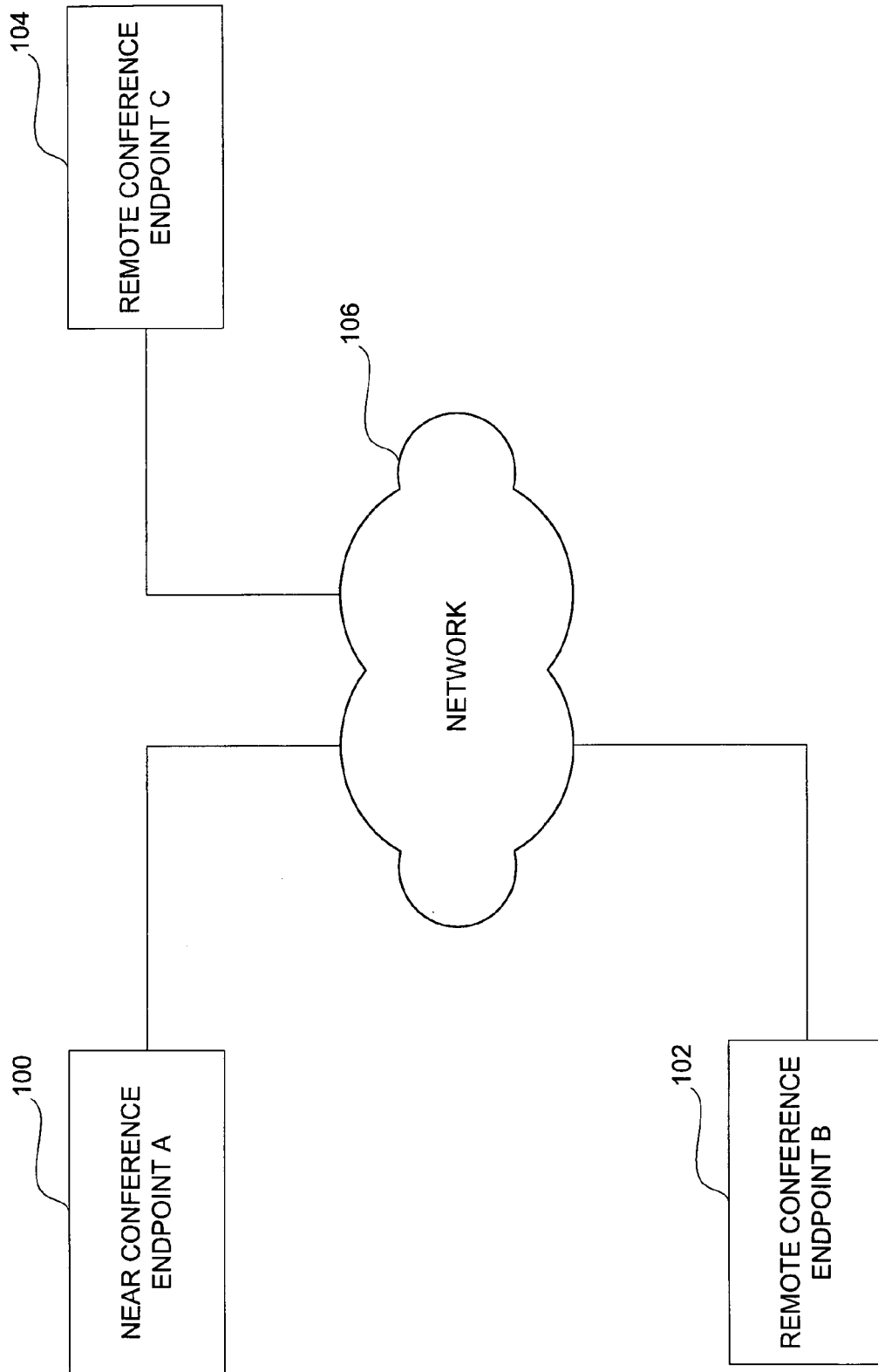


FIG. 1

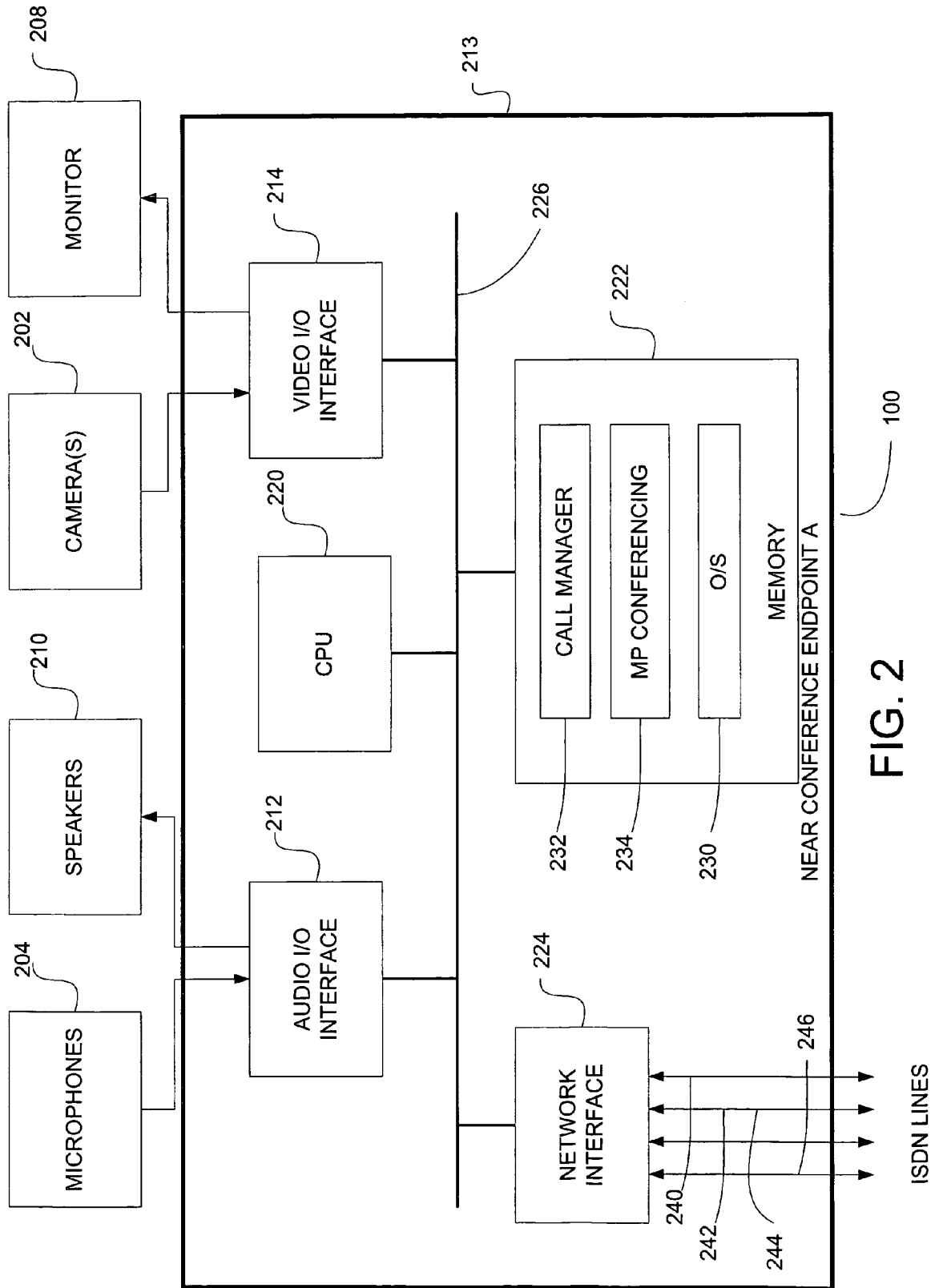


FIG. 2

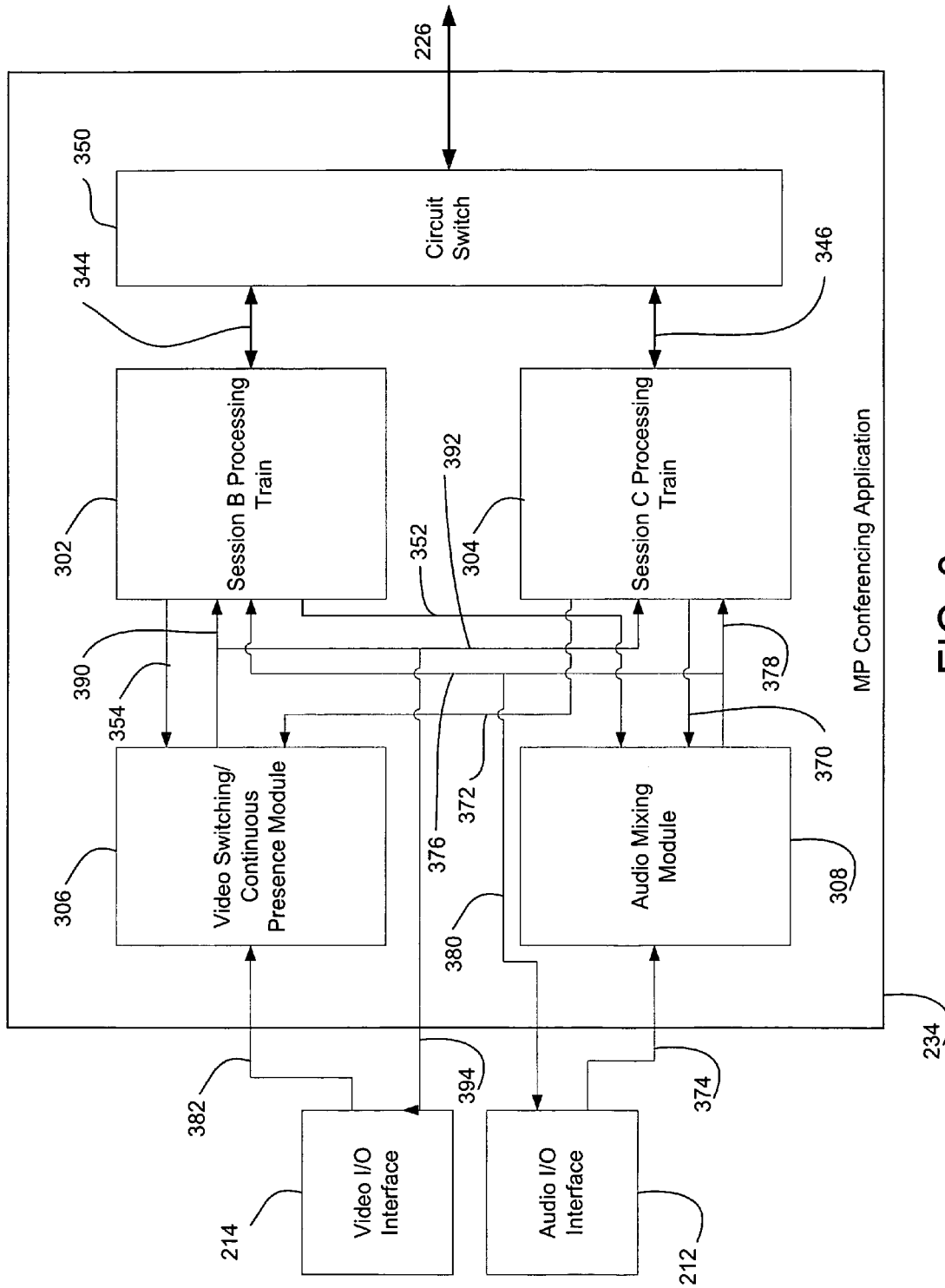


FIG. 3

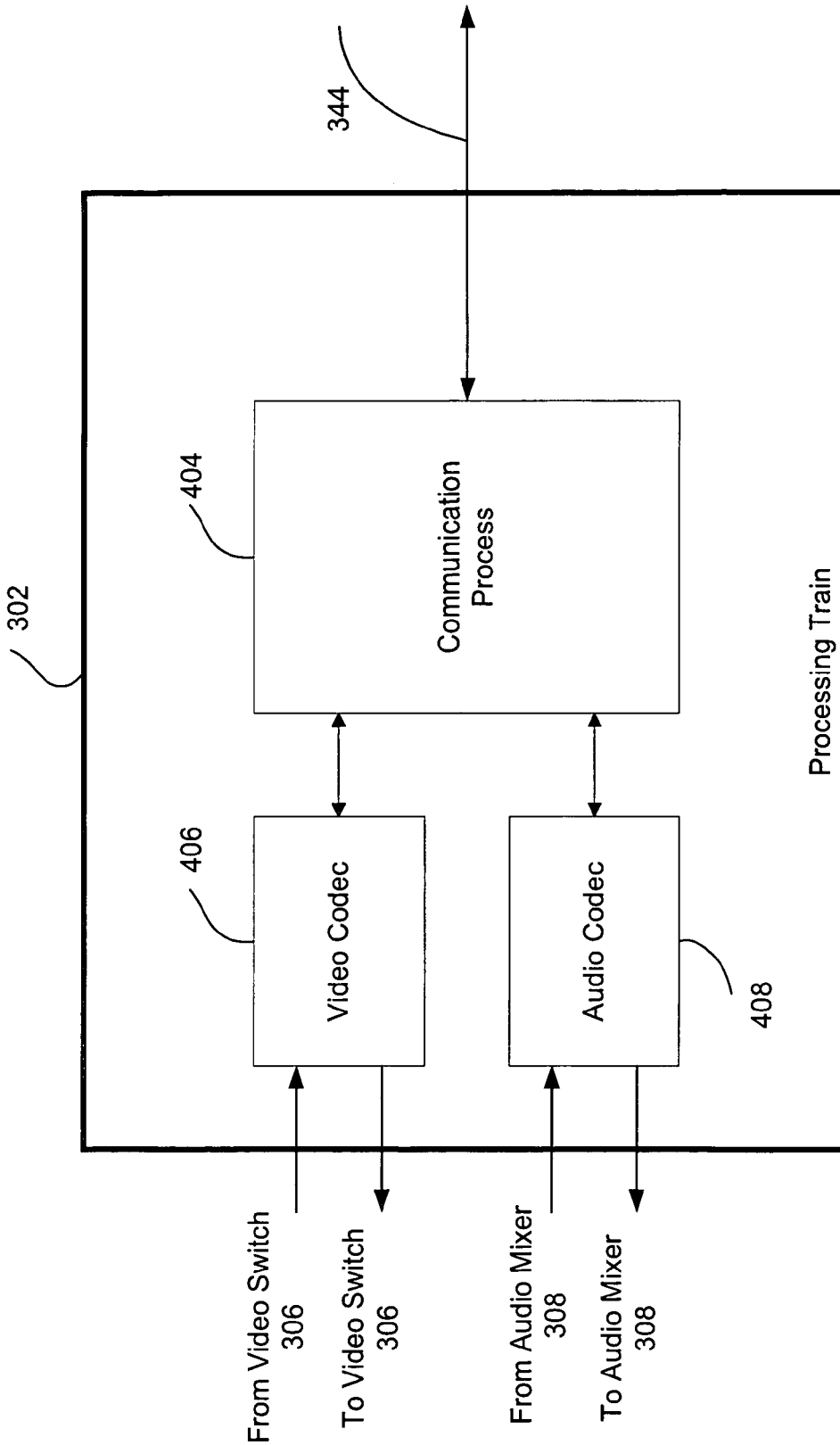


FIG. 4

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