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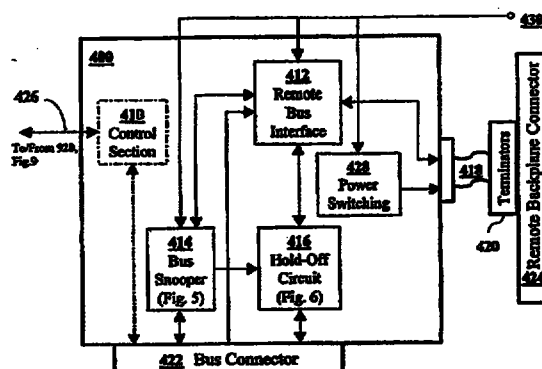
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(54) Title: EXTENDING SYNCHRONOUS BUSES BY ARBITRARY LENGTHS USING NATIVE BUS PROTOCOL



(57) Abstract: A bus extender for extending synchronous busses of limited length provides convenient access to bus cards in ATE systems. The bus extender plugs into a synchronous bus, for example, a PCI bus, and a cable carries bus signals to a remote location, where a remote card is engaged. The bus extender supports both initiator (master) and target (slave) modes of the remote card, and communicates with the remote card in the native protocol of the bus. The bus extender operates without requiring separate control from the bus. For example, the bus extender does not require its own device driver. The bus extender includes a bus snooper circuit that monitors bus transactions with the remote card and stores configuration data. The bus snooper circuit responds locally on behalf of the remote card to bus requests that require rapid responses. The bus extender further includes a state machine that copies the stored configuration data to the remote card to reset the remote card without requiring a reset of the bus. A hold-off circuit is also included within the bus extender, which determines a hold-off interval required for return signals from the remote card to settle. The hold-off circuit receives the return signals applies them to the bus after the hold-off interval elapses.

WO 01/06369 A1