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(54) Title: REDUCING CUMULATIVE TIME DELAY IN SYNCHRONIZING TRANSFER OF DATA BETWEEN TWO MUTUALLY ASYNCHRONOUS BUSES

(57) Abstract

An interface between first and second data buses (110 and 120) includes a first bus state machine (406) which controls data transfers from the first data bus (110) to a data buffer (132). The interface includes a second bus state machine (404) which controls data transfers from the data buffer (132) to the second data bus (120). The data buffer (132) includes a plurality of storage locations accessed on a first-in/first-out basis. A respective valid data flag (170) for each storage location is set by the first bus state machine (406) when data are stored in the storage location (132) from the first data bus (110) and is cleared by the second bus state machine (404) when data are transferred from the storage location (132) to the second data bus (120). The data valid flags (170) are synchronized with first and second bus clocks respectively associated with the first and second bus state machines (406 and 404) to assure that the data valid flags (170) change synchronously with respect to each state machine. In order to reduce the time required to output sequential data from multiple data locations in the data buffer (132), each data valid flag (170) is synchronized independently.

