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(12) **United States Patent**
Chu

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(54) **COMPUTER SYSTEM INCLUDING CPU OR PERIPHERAL BRIDGE DIRECTLY CONNECTED TO A LOW VOLTAGE DIFFERENTIAL SIGNAL CHANNEL THAT COMMUNICATES SERIAL BITS OF A PERIPHERAL COMPONENT INTERCONNECT BUS TRANSACTION IN OPPOSITE DIRECTIONS**

(58) **Field of Classification Search**
USPC 710/305-317, 104-110, 62-64, 72-74
See application file for complete search history.

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Primary Examiner — Raymond Phan

(74) *Attorney, Agent, or Firm* — Cooley LLP

(57) **ABSTRACT**

A computer system has a computer with an integrated central processing unit and graphics subsystem in a single chip. The graphics subsystem directly couples to a unidirectional differential signal channel to output digital video data. A connector is configurable for external peripheral communication. A first Low Voltage Differential Signal (LVDS) channel directly couples to the connector. The first LVDS channel has two unidirectional, differential signal pairs transmitting data in opposite directions to convey Universal Serial Bus (USB) protocol data for external peripheral communication. The unidirectional different signal channel conveys Transition Minimized Differential Signaling (TMDS) signals as digital video data.

22 Claims, 35 Drawing Sheets

(71) Applicant: **Acqis LLC**, McKinney, TX (US)

(72) Inventor: **William W. Y. Chu**, Los Altos, CA (US)

(73) Assignee: **Acqis LLC**, McKinney, TX (US)

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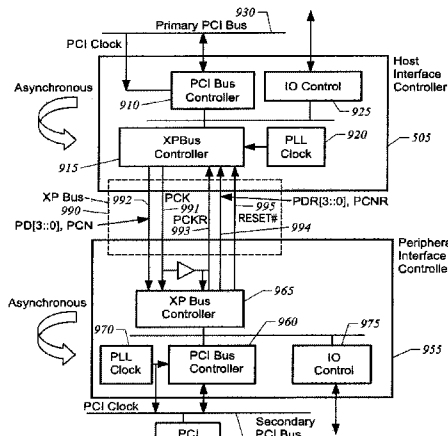
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