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Grover

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[54] METHOD AND APPARATUS FOR CLOCK DISTRIBUTION AND FOR DISTRIBUTED CLOCK SYNCHRONIZATION

[75] Inventor: Wayne D. Grover, Edmonton, Canada

[73] Assignee: Alberta Telecommunications Research Centre, Canada

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[58] Field of Search 375/36, 38, 106, 107, 375/118, 10; 455/27, 49, 51; 328/55, 58, 72; 370/108; 371/1; 307/262, 511

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Primary Examiner—Stephen Chin

Attorney, Agent, or Firm—Hayes, Soloway, Hennessey, Grossman & Hage

[57] ABSTRACT

A method and apparatus of phase synchronizing a plurality of spatially distributed application modules having synchronizing clocks requiring synchronization, each application module being connected, at a predetermined site nearest the module, to an outgoing path and, at a corresponding site nearest the module, a return path of a pulse reference path, the method comprising the steps of injecting reference pulses at a predetermined frequency into an injection site of the reference path such that the pulses travel along the outgoing path to a remote site and return to the injection site along the return path; determining, for each application module, the time interval for each pulse to travel from the predetermined site to the corresponding site associated with the application module; monitoring, for each application module, the elapsed time interval for each pulse to travel between the predetermined and corresponding sites associated with the application module; producing, for each application module, a local phase reference signal when the elapsed time interval is one-half a last determined one of the time intervals; and synchronizing the clock of each application module with the local phase reference signal.

54 Claims, 12 Drawing Sheets

