

Claims

What is claimed is:

1. An apparatus for retimer presence detection, comprising:
at least one retimer;
control associated with the retimer to assert at least one bit of a presence message during link initialization to announce the retimer's presence
2. The apparatus of claim 1, wherein the at least one retimer declares an index and is accessible via the index.
3. The apparatus of claim 1, wherein the control is to assert the at least one bit of the presence message based on a bubble algorithm.
4. The apparatus of claim 1, wherein the at least one retimer is to synchronize and regenerate deteriorated signals from a receiving port to a transmitting port.
5. The apparatus of claim 1, wherein the at least one retimer is configurable and discoverable.
6. A system for retimer presence detection and indexing, comprising:
a first port;
a second port;
a plurality of retimers, wherein a link including a retimer of the plurality of retimers is to connect the first port and the second port and logic is to enable the plurality of retimers to announce their presence by asserting a bit of a presence message during link initialization and to declare an index based on the presence message.

7. The system of claim 6, wherein each retimer of the plurality of retimers declares an index and is accessible via the index.

8. The system of claim 6, wherein each retimer of the plurality of retimers is to synchronize and regenerate deteriorated signals from a receiving port to a transmitting port.

9. A method of retimer presence and detection, comprising:
initializing a link between a first port and a second port, wherein a plurality of retimers are located between the first port and the second port;
sending a presence message between the first port and the second port, wherein logic is to enable the plurality of retimers to announce their presence by asserting a bit of a presence message during link initialization and to declare an index based on the presence message.

10. The method of claim 9, wherein the logic is based on a bubble algorithm, and each retimer asserts the bit of the presence message before forwarding the presence message along the link.

11. The method of claim 9, wherein the presence message is combined with a defined message.

12. The method of claim 9, wherein the presence message is an LFPS Based Pulse-width modulation Message (LBPM).

13. An apparatus for retimer presence detection, comprising:
at least one retimer, wherein the retimer includes a means to announce the retimer's presence during link initialization.

14. The apparatus of claim 13, wherein the means to announce the retimer's presence asserts a bit of a presence message.

15. The apparatus of claim 13, wherein the means to announce the retimer's presence declares an index and is accessible via the index.

16. The apparatus of claim 13, wherein the at least one retimer is to support multiple protocols.

17. The apparatus of claim 13, comprising a plurality of retimers, wherein a first retimer is a component of a host, a second retimer is a component of a device, and two retimers are situated at each end of a cable that is to connect the host and the device.

18. A tangible, non-transitory, computer-readable medium comprising code to direct a processor to:

initialize a link between a first port and a second port, wherein a plurality of retimers are located between the first port and the second port;
send a presence message between the first port and the second port, wherein logic is to enable the plurality of retimers to announce their presence by asserting a bit of a presence message during link initialization and to declare an index based on the presence message.

19. The non-transitory, computer-readable medium of claim 18, wherein the logic is based on a bubble algorithm, and each retimer asserts the bit of the presence message before forwarding the presence message along the link.

20. The non-transitory, computer-readable medium of claim 18, wherein the presence message is combined with a defined message.

21. The non-transitory, computer-readable medium of claim 18, wherein the link is an active cable.

22. An apparatus comprising:
a retimer for a high speed serial interconnect, the retimer including but not limited to:
a receiver to receive a message that is to include a particular field;
a control to update the particular field with a retimer value to announce a presence of the retimer inband; and
a transmitter to transmit a message to include the particular field.
23. The apparatus of claim 22, wherein updating the particular field includes a logical shift of at least one bit of the particular field.
24. The apparatus of claim 22, wherein the transmitter is coupled to an upstream device.
25. The apparatus of claim 24, wherein the upstream device includes a control to:
determine a number of retimers along the high speed serial interconnect, the number of retimers based on the retimer value; and
perform retimer access based on the retimer's relative indexing with respect to the number of retimers.

Claims

What is claimed is:

1. An apparatus for retimer presence detection, comprising:
at least one retimer;
control associated with the retimer to assert at least one bit of a
presence message during link initialization to announce the
retimer's presence.
2. The apparatus of claim 1, wherein the at least one retimer declares an
index and is accessible via the index.
3. The apparatus of claim 1, wherein the control is to assert the at least one
bit of the presence message based on a bubble algorithm.
4. The apparatus of claim 1, wherein the at least one retimer is to
synchronize and regenerate deteriorated signals from a receiving port to a
transmitting port.
5. The apparatus of claim 1, wherein the at least one retimer is configurable
and discoverable.
6. The apparatus of claim 1, wherein the at least one retimer is to support
multiple protocols.
7. The apparatus of claim 1, wherein the at least one retimer is to control
acquisition and transmission of received signals.
8. The apparatus of claim 1, wherein the at least one retimer is a USB 3.1
retimer.

9. A system for retimer presence detection and indexing, comprising:
a first port;
a second port;
a plurality of retimers, wherein a link including a retimer of the plurality of retimers is to connect the first port and the second port and logic is to enable the plurality of retimers to announce their presence by asserting a bit of a presence message during link initialization and to declare an index based on the presence message.
10. The system of claim 9, wherein the each retimer of the plurality of retimers declares an index and is accessible via the index.
11. The system of claim 9, wherein the logic is based on a bubble algorithm.
12. The system of claim 9, wherein each retimer of the plurality of retimers is to synchronize and regenerate deteriorated signals from a receiving port to a transmitting port.
13. The system of claim 9, wherein the presence message is an LFPS Based Pulse-width modulation Message (LBPM).
14. The system of claim 9, wherein the plurality of retimers are to support multiple protocols.
15. The system of claim 9, wherein the plurality of retimers are to declare an index and to announce their presence by asserting a bit of a presence message during link initialization from the first port to the second port, and vice versa.

16. The system of claim 9, wherein the link is an active cable.
17. The system of claim 9, wherein the plurality of retimers are USB 3.1 retimers.
18. The system of claim 9, wherein the algorithm is to determine the link configuration.
19. A tangible, non-transitory, computer-readable medium comprising code to direct a processor to:
 - initialize a link between a first port and a second port, wherein a plurality of retimers are located between the first port and the second port;
 - send a presence message between the first port and the second port, wherein an logic is to enable the plurality of retimers to announce their presence by asserting a bit of a presence message during link initialization and to declare an index based on the presence message.
20. The non-transitory, computer-readable medium of claim 19, wherein the logic is based on a bubble algorithm, and each retimer asserts the bit of the presence message before forwarding the presence message along the link.
21. The non-transitory, computer-readable medium of claim 19, wherein the presence message is combined with a defined message.
22. The non-transitory, computer-readable medium of claim 19, wherein the link is an active cable.
23. The non-transitory, computer-readable medium of claim 19, wherein the presence message is an LBPM.
24. The non-transitory, computer-readable medium of claim 19, wherein the first port and the second port each support multiple protocols.
25. The non-transitory, computer-readable medium of claim 19, wherein the first port and the second port are USB 3.1 ports.

26. An apparatus comprising:

a retimer for a high speed serial interconnect, the retimer including but not limited to:

a receiver to receive a message that is to include a particular field;

a control to update the particular field with a retimer value to announce a presence of the retimer inband; and

a transmitter to transmit a message to include the particular field.

27. The apparatus of claim 26, wherein the control is to update the particular field based on a bubble algorithm

28. The apparatus of claim 26, wherein updating the particular field includes asserting a bit of the particular field.

29. The apparatus of claim 26, wherein updating the particular field includes a logical shift of at least one bit of the particular field.

30. The apparatus of claim 26, wherein the transmitter is coupled to an upstream device.

31. The apparatus of claim 30, wherein the upstream device includes a control to:

determine a number of retimers along the high speed serial interconnect, the number of retimers based on the retimer value; and

perform retimer access based on the retimer's relative indexing with respect to the number of retimers.