

Claims

What is claimed is:

1. A system for sharing a power delivery controller, comprising:
a plurality of ports; and
a power delivery controller communicatively coupled to the plurality of ports,
and the power delivery controller is to:
 send a first message to a particular port of the plurality of ports;
 and
 remain connected to the particular port and enable power
 delivery to the particular port in response to a particular
 return message from the port.
2. The system of claim 1, wherein the plurality of ports is connected to a
cable.
3. The system of claim 1, wherein the plurality of ports is connected to a
plurality of devices.
4. The system of claim 1, wherein the return message is a GoodCRC
message.
5. The system of claim 1, wherein the return message is a Request
message.
6. A method for sharing a power delivery controller, comprising:
polling a plurality of Universal Serial Bus (USB) ports;
sending a first message to each port of the plurality of USB ports; and
coupling to a port of the plurality of ports in response to a return message
from the port, wherein power is delivered to the port.

7. The method of claim 6, wherein the plurality of ports is a group of ports connected to a plurality of cables.

8. The method of claim 6, comprising establishing back charging using an unpowered module associated with each USB port.

9. The method of claim 8, wherein the unpowered module is to emulate a minimal portion of a Universal Serial Bus Power Delivery controller to support dead battery operation.

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

- send a first message to a particular port of a plurality of ports; and
- couple to the particular port of the plurality of ports in response to a return message from the port;
- deliver power to the particular port.

11. The computer-readable medium of claim 10, wherein the processor is a power delivery controller.

12. The computer-readable medium of claim 11, wherein the power delivery controller is to send a message to the plurality of ports, and couple with a port in response to a device requesting power at the port.

13. An apparatus, comprising:

- a means to send a first message to a plurality of ports, wherein the first message is sent to a particular port of the plurality of ports, and in response to the first message a return message is sent from the particular port to the means to send the first message to the plurality of ports; and
- a means to deliver power to the particular port in response to the return message.

14. The apparatus of claim 13, wherein the means to send the first message to the plurality of ports is a power delivery controller.
15. An apparatus for sharing a power delivery controller, comprising:
a power delivery controller communicatively coupled to a Universal Serial Bus port, wherein the USB port corresponds to an unpowered module and the unpowered module is to:
 receive a small voltage from a device to restore power delivery communications capability of a system in response to no voltage being detected; and
 output a bit stream to the device using the small voltage until the system is ready to resume normal power delivery communications.
16. The apparatus of claim 15, wherein the bit stream is output to the device from the unpowered module until a battery of the system is charged.
17. The apparatus of claim 16, wherein the bit stream is a repeating bit pattern.
18. A method for backing charging, comprising;
receiving a small voltage at an unpowered module from a device to restore power delivery communications capability of a system in response to no voltage being detected; and
outputting a bit stream to the device from the unpowered module using the small voltage until the system is ready to resume normal power delivery communications.
19. The method of claim 18, wherein the unpowered module is to emulate a minimal portion of a power delivery controller to support a dead battery operation.

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

- receive a small voltage at an unpowered module from a device to restore power delivery communications capability of a system in response to no voltage being detected; and
- output a bit stream to the device from the unpowered module using the small voltage until the system is ready to resume normal power delivery communications.

21. The computer readable medium of claim 20, wherein the device is to send the small voltage on a V_{bus} to restore power delivery communications capability.

22. An apparatus for back-charging, comprising:

- a means to receive a small voltage from a device to restore power delivery communications capability of a system in response to no voltage being detected and
- output a bit stream to the device using the small voltage until the system is ready to resume normal power delivery communications.

23. The apparatus of claim 22, wherein the device sends the small voltage on a V_{bus} to restore power delivery communications capability.

24. A device for receiving power, wherein when the device is connected to a system including a single power delivery controller, the device is to:

- receive a first message from the power delivery controller;
- request power from the power delivery controller in response to the first message;
- connect to the power delivery controller to receive power; and
- send a second message to the power delivery controller to disconnect from the power delivery controller.

25. The device of claim 24, wherein the first message is a capabilities message or a ping.

CLAIMS

What is claimed is:

1. A system for sharing a power delivery controller, comprising:
a plurality of ports; and
a power delivery controller communicatively coupled to the plurality of ports,
and the power delivery controller is to:
send a first message to a particular port of the plurality of ports; and
remain connected to the particular port and enable power delivery to the
particular port in response to a particular return message from the port.
2. The system of claim 1, wherein the plurality of ports is connected to a
cable.
3. The system of claim 1, wherein the plurality of ports is connected to a
plurality of devices.
4. The system of claim 1, wherein the return message is a GoodCRC
message.
5. The system of claim 1; wherein the return message is a Request
message.
6. The system of claim 1, comprising a plurality of dead battery (DB)
modules corresponding to each of the plurality of ports, wherein each DB module is
to enable charging of the system.
7. The system of claim 6, wherein the DB modules are to emulate a
minimal portion of a USB PD controller to support dead battery operation.
8. The system of claim 1, wherein a second power delivery controller is
communicatively coupled to the plurality of ports, and the power delivery controller or
the second power delivery controller are connected to the particular port.

9. A method for sharing a power delivery controller, comprising:
polling a plurality of Universal Serial Bus (USB) ports;
sending a first message to each port of the plurality of USB ports; and
coupling to a port of the plurality of ports in response to a return message
from the port, wherein power is delivered to the port.
10. The method of claim 9, wherein the plurality of ports is a group of ports
connected to a plurality of cables.
11. The method of claim 9, wherein the plurality of ports is a group of ports
connected to a device plurality of devices.
12. The method of claim 9, wherein the return message is a GoodCRC
message.
13. The method of claim 9; wherein the return message is a Request
message.
14. A tangible, non-transitory, computer-readable medium comprising code
to direct a processor to:
send a first message to a particular port of a plurality of ports; and
couple to the particular port of the plurality of ports in response to a return
message from the port;
deliver power to the particular port.
15. The computer-readable medium of claim 14, wherein the processor is a
power delivery controller.
16. The computer-readable medium of claim 14, wherein the processor is a
power delivery controller and the power delivery controller is to send a message to
the plurality of ports, and couple with a port in response to a device requesting power
at the port.

17. The computer-readable medium of claim 14, wherein the plurality of ports is a group of ports connected to a plurality of cables.

18. The computer-readable medium of claim 14, wherein the plurality of ports is a group of ports connected to a plurality of devices.

19. The computer-readable medium of claim 14, wherein the return message is a GoodCRC message.

20. The computer-readable medium of claim 14; wherein the return message is a Request message.

21. An apparatus for sharing a power delivery controller, comprising:
a power delivery controller communicatively coupled to a Universal Serial Bus port, wherein the USB port corresponds to an unpowered module and the unpowered module is to:

receive a small voltage from a device to restore power delivery communications capability of a system in response to no voltage being detected; and

output a bit stream to the device using the small voltage until the system is ready to resume normal power delivery communications.

22. The apparatus of claim 21, wherein the bit stream is output to the device from the unpowered module until a battery of the system is charged.

23. The apparatus of claim 21, wherein the bit stream is a repeating bit pattern.

24. The apparatus of claim 21, wherein the unpowered module is to emulate a minimal portion of the power delivery controller to support a dead battery operation.

25. The apparatus of claim 21, wherein the unpowered module is to emulate a minimal portion of the power delivery controller to support a dead battery operation, and the minimal portion is a twenty-three megahertz source used to generate the bit stream.