CLAIM LISTING FOR BOHM '708

Number and Letter Designations for the Claims and Limitations (e.g., number "1a" and shorthand label "a device")	Claims and Limitations
1a a device	1. A USB multi-host device comprising:
1b ports	first and second upstream ports configured to couple to corresponding first and second hosts;
1c a function	a USB function block; and
1d a controller	a multi-host device controller coupling the USB function block to the first and second upstream ports,
1e concurrence	wherein the multi-host device controller is configured to establish concurrent respective USB connections between the USB function block and the first and second upstream ports, to allow the corresponding first and second hosts to:
1f simultaneous enumeration	simultaneously enumerate and configure the USB multi-host device;
1g simultaneous access	simultaneously access the USB multi-host device; and
1h alternating access	alternately access the USB function block without reconfiguring and/or re-enumerating the USB multi-host device before each access.
2 buffering	2. The USB multi-host device of claim 1, further comprising a first endpoint buffer coupled between the first upstream port and the multi-host device controller, and a second endpoint buffer coupled between the second upstream port and the multi-host device controller.
3a a device	3. A USB multi-host device comprising:
3b a function	a USB function block; and

3c a controller	a multi-host device controller coupling the USB function block to a first host and a second host, wherein the multi-host device controller is configured to establish a first USB connection between the first host and the USB function block and a second USB connection between the second host and the USB function block,
3d concurrence	wherein the first USB connection and the second USB connection are concurrent, to allow the first host and the second host to:
3e simultaneous access	simultaneously access the USB multi-host device; and
3f alternating access	alternately access the USB function block, without either one of the first and second hosts reconfiguring the USB multi-host device each time a different one of the first host and the second host is given access to the USB function block.
4 keeping enumeration	4. The USB multi-host device of claim 3, wherein the multi-host USB device is not re-enumerated by either the first host or the second host each time the first host and the second host alternate accessing the USB function block.
5 ports	5. The USB multi-host device of claim 3, further comprising a first upstream port coupled between the first host and the multi-host device controller, and a second upstream port coupled between the second host and the multi-host device controller.
6 buffering	6. The USB multi-host device of claim 5, further comprising a first endpoint buffer coupled between first upstream port and the multi-host device controller, and a second endpoint buffer coupled between the second upstream port and the multi-host device controller.
7a a device	7. A USB device comprising:
7b a function	a USB function block; and
7c a controller	a multi-host device controller configured to couple the USB function block to a plurality of hosts, wherein the multi-host device controller is operable to establish concurrent respective USB connections between the USB function block and the plurality of hosts,

7d simultaneous enumeration	to allow the plurality of hosts to: simultaneously enumerate and configure the USB device;
7e simultaneous access	simultaneously access the USB device; and
7e alternating access	alternately access the USB function block, without any of the plurality of hosts reconfiguring the USB device each time a different one of the plurality of hosts is given access to the USB function block.
8a simultaneous receipt	8. The USB device of claim 7, wherein the multi-host device controller is operable to simultaneously receive respective host requests from the plurality of hosts,
8b request ordering	wherein the multi-host device controller is operable to internally determine which of the respective host requests to service immediately.
9 Interleaving	9. The USB device of claim 8, wherein the multi-host device controller is operable to interleave the respective host requests.
10 not-ready packets	10. The USB device of claim 8, wherein the multi-host device controller is operable to send not-ready packets in a USB specific manner to hosts whose request was not immediately serviced.
11a simultaneous access	11. The USB device of claim 7, wherein the multi-host device controller comprises an internal arbitration mechanism configured to permit the plurality of hosts to simultaneously request access to the USB function block
11b interleaving	by interleaving host access requests and/or
11c request ordering	by using a common request/grant structure; wherein the common request/grant structure comprises one of the plurality of hosts being granted access to the USB function block while remaining ones of the plurality of hosts are not considered for access to the USB function block until the one of the plurality of hosts has completed accessing the USB function block.
12 configuration by device type	12. The USB device of claim 11, wherein the arbitration mechanism is configured according to a specific USB device type comprised in the USB function block.
13	13. The USB device of claim 7, wherein a bandwidth from

reducing bandwidth	the USB function block to each respective one of the plurality of hosts is reduced to allow each respective one of the plurality of hosts equal access to the USB function block.
14 keeping bandwidth	14. The USB device of claim 13, wherein the bandwidth is not reduced if it exceeds a bandwidth of the respective one of the plurality of hosts.
15 ports	15. The USB device of claim 7, further comprising a respective upstream port coupled between the multi-host device controller and each of the plurality of hosts.
16 buffering	16. The USB device of claim 15, further comprising a respective buffer coupled between each respective upstream port and the multi-host device controller.
17a keeping enumeration	17. The USB device of claim 7, wherein the multi-host device controller is configured to maintain respective dedicated address, configuration, and response information for each of the plurality of hosts.
18a a method	18. A method for sharing a USB device between multiple hosts, the method comprising:.
18b concurrence	establishing concurrent respective USB connections between a plurality of hosts and a shared USB function comprised in the USB device;
18c simultaneous enumeration	two or more of the multiple hosts simultaneously enumerating and configuring the USB device;
18d receiving requests	receiving respective access requests to the shared USB function from the two or more of the plurality of hosts; and
18e request processing	processing the respective access requests,
18f alternating access	to allow the two or more of the plurality of hosts to alternately access the shared USB function without any of the two or more of the plurality of hosts reconfiguring the USB device each time the USB function is accessed in response to a respective access request from a different one of the two or more of the plurality of hosts.
19 request ordering	19. The method of claim 18, wherein said processing comprises determining which of the respective access requests to service immediately, and servicing that

	respective access request.
20 request ordering	20. The method of claim 19, wherein said processing comprises holding off access to the shared USB function by those respective access requests that are not immediately serviced, until the shared USB function is no longer accessed by a given one of the two or more of the plurality of hosts from which the serviced respective access request was received.
21 Interleaving	21. The method of claim 18, wherein said processing comprises interleaving accesses requested by the respective access requests to the shared USB function.
22 keeping enumeration	22. The method of claim 18, further comprising maintaining respective dedicated address, configuration, and response information for each of the plurality of hosts.
23a a device	23. A USB device comprising:
23b a function	a shared USB function block; and
23c a controller	a controller configured to establish concurrent respective USB connections between the shared USB function block and two or more USB hosts, to allow the two or more USB hosts to simultaneously configure the USB device for the shared USB function;
23d simultaneous access	wherein the controller is configured to receive and respond to simultaneous respective USB access requests sent by the two or more USB hosts for accessing the shared USB function.
24 keeping enumeration	24. The USB device of claim 23, wherein in establishing the concurrent respective USB connections between the shared USB function block and the two or more USB hosts, the controller is operable to maintain respective dedicated address, configuration and response information for each of the two or more USB hosts.
25a interface circuits	25. The USB device of claim 23, wherein the controller comprises: a respective USB interface circuit for each of the two or more USB hosts, wherein each respective USB interface circuit enables the USB device to transmit and/or receive data over a USB bus; and
25b	a respective endpoint buffer for each of the two or more

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