

What is claimed is:

1. An apparatus for providing a fail-safe communications standard for a power managed sub-fab, comprising:
 - a sub-fab configured to:
 - operate in a power managed state based upon one or more commands received from a controller;
 - receive a heartbeat signal from the controller; and
 - exit the power managed state and enter a full power operational state in response to failing to receive the heartbeat signal for a specified timeout interval.
2. The apparatus of claim 1, wherein the specified timeout interval is two seconds.
3. The apparatus of any of claims 1-2, wherein the heartbeat signal is a command to enter a low power state.
4. The apparatus of any of claims 1-2, wherein the sub-fab is further configured to re-enter a low power state in response to receiving the heartbeat signal.
5. The apparatus of any of claims 1-2, wherein the heartbeat signal is only sent when the sub-fab is configured to operate in a low power state.
6. A method for providing a fail-safe communications standard for a power managed sub-fab, comprising:
 - operating the sub-fab in a power managed state;
 - determining whether a heartbeat signal has been received within a specified timeout interval; and
 - operating the sub-fab in a full power operational state in response to a failure to receive the heartbeat signal within the specified timeout interval.
7. The method of claim 6, wherein the specified timeout interval is two seconds.

8. The method of any of claims 6-7, wherein the heartbeat signal is a command to enter a low power state.
9. The method of any of claims 6-7, wherein the sub-fab is further configured to re-enter a low power state in response to receiving the heartbeat signal.
10. The method of any of claims 6-7, wherein the heartbeat signal is only sent when the sub-fab is configured to operate in a low power state.
11. A system for providing a fail-safe communications standard for a power managed sub-fab, comprising:
a controller configured to:
 send one or more commands to a sub-fab to configure the sub-fab to operate in one or more power managed states; and
 send a heartbeat signal to the sub-fab to indicate that the sub-fab is still in communication with the controller; and
a sub-fab configured to:
 operate in the one or more power managed states as configured by the controller;
 receive the heartbeat signal from the controller; and
 operate in a full power operational state in response to a failure to receive the heartbeat signal within a specified timeout interval.
12. The system of claim 11, wherein the specified timeout interval is two seconds.
13. The method of any of claims 11-12, wherein the heartbeat signal is a command to enter a low power state.
14. The method of any of claims 11-12, wherein the sub-fab is further configured to re-enter a low power state in response to receiving the heartbeat signal.

15. The method of any of claims 11-12, wherein the heartbeat signal is only sent when the sub-fab is configured to operate in a low power state.

Claims:

1. An invention not claimed in any divisional application.