CLAIMS

We claim:

1. A router comprising:

an interface to communicate with a power supply source;

a plurality of links to communicate with one or more of processor nodes or external routers, wherein each of the plurality of links includes a plurality of lanes;

a power manager, connected to the plurality of links, to receive a power availability limit with respect to the router;

one or more link utilization managers to determine a link utilization level of each link of the plurality of links of the router, wherein the one or more link utilization managers are to track active lanes in each of the plurality of links to determine the link utilization level;

one or more controllers to dynamically activate or deactivate individual lanes of each of the plurality of links based on the determined link utilization level of each of the plurality of links; and

a lane credit manager to assign lane credits to each active lane, wherein the lane credit manager is to transmit, in response to one or more credit requests, one or more credit notifications to one or more of the plurality of links based on the assigned lane credits; wherein the one or more credit notifications are associated with one or more individual lane activations, and receive one or more credit returns from one or more of the plurality of links, wherein the credit returns are associated with one or more individual lane deactivations.

2. The router of claim 1, wherein all lanes of a link of the plurality of links are to remain active when the link utilization level of the link is greater than a predetermined threshold, and individual lanes of the link are to be deactivated when the link utilization level of the link is below the predetermined threshold.

3. The router of claim 1, wherein the lane credit manager is to determine the lane credits based on the received power availability limit.

4. An apparatus comprising:

a power manager to receive a power availability limit with respect to a router;

one or more link utilization managers to determine a link utilization level of each link of a plurality of links of the router, wherein the one or more link utilization managers are to track active lanes in each of the plurality of links to determine the link utilization level;

one or more controllers to dynamically activate or deactivate individual lanes of each of the plurality of links based on the determined link utilization level of each of the plurality of links; and

a lane credit manager to assign lane credits to each active lane, wherein the lane credit manager is to transmit, in response to one or more credit requests, one or more credit notifications to one or more of the plurality of links based on the assigned lane credits, wherein the one or more credit notifications are associated with one or more individual lane activations and receive one or more credit returns from one or more of the plurality of links, wherein the credit returns are associated with one or more individual lane deactivations.

5. The apparatus of claim 4, wherein all lanes of a link of the plurality of links are to remain active when the link utilization level of the link is greater than a predetermined threshold, and individual lanes of the link are to be deactivated when the link utilization level of the link is below the predetermined threshold.

6. The apparatus of claim 4, wherein the lane credit manager is to determine the lane credits based on the received power availability limit.

7. A method comprising:

receiving a power availability limit with respect to a router;

determining a link utilization level of each link of a plurality of links of the router, wherein determining the link utilization level includes tracking active lanes in each of the plurality of links; and

dynamically activating or deactivating individual lanes of each of the plurality of links based on the determined link utilization level of each of the plurality of links, the method further comprising:

assigning lane credits to each active lane;

transmitting, in response to one or more credit requests, one or more credit notifications to one or more of the plurality of links based on the assigned lane credits, wherein the one or more credit notifications are associated with one or more individual lane activations; and

receiving one or more credit returns from one or more of the plurality of links, wherein the credit returns are associated with one or more individual lane deactivations.

8. The method of claim 7, wherein all lanes of a link of the plurality of links remain active when the link utilization level of the link is greater than a predetermined threshold and

individual lanes of the link are deactivated when the link utilization level of the link is below the predetermined threshold.

9. The method of claim 7, further including determining the lane credits based on the received power availability limit.

10. At least one computer readable storage medium comprising a set of instructions, which when executed by an apparatus, cause the apparatus to:

receive a power availability limit with respect to a router;

determine a link utilization level of each link of a plurality of links of the router, including tracking active lanes in each of the plurality of links to determine the link utilization level; and

dynamically activate or deactivate individual lanes of each of the plurality of links based on the determined link utilization level of each of the plurality of links;

and further cause the apparatus to:

assign lane credits to each active lane;

transmit, in response to one or more credit requests, one or more credit notifications to one or more of the plurality of links based on the assigned lane credits, wherein the one or more credit notifications are associated with one or more individual lane activations; and

receive one or more credit returns from one or more of the plurality of links, wherein the credit returns are associated with one or more individual lane deactivations.

11. The at least one computer readable storage medium of claim 10, wherein all lanes of a link of the plurality of links remain active when the link utilization level of the link is greater than a predetermined threshold and individual lanes of the link are deactivated when the link utilization level of the link is below the predetermined threshold.

12. The at least one computer readable storage medium of claim 10, wherein the instructions, when executed, cause the apparatus to determine the lane credits based on the received power availability limit.