

## IB single-plane topology

A complete M-Cell assembly consists of four compute racks. Each rack contains 4x physical IRUs - Independent rack units. Using one dual socket node per one blade slot leads to 8 logical IRUs. Each rack contains 4x2 SGI ICE X IB Premium Blades.

The SGI ICE X IB Premium Blade provides the first level of interconnection via dual 36-port Mellanox FDR InfiniBand ASIC switch with connections as follows:

- 9 ports from each switch chip connect to the unified backplane, to connect the 18 compute node slots
- 3 ports on each chip provide connectivity between the chips
- 24 ports from each switch chip connect to the external bulkhead, for a total of 48

### IB single-plane topology - ICEX Mcell

Each colour in each physical IRU represents one dual-switch ASIC switch.

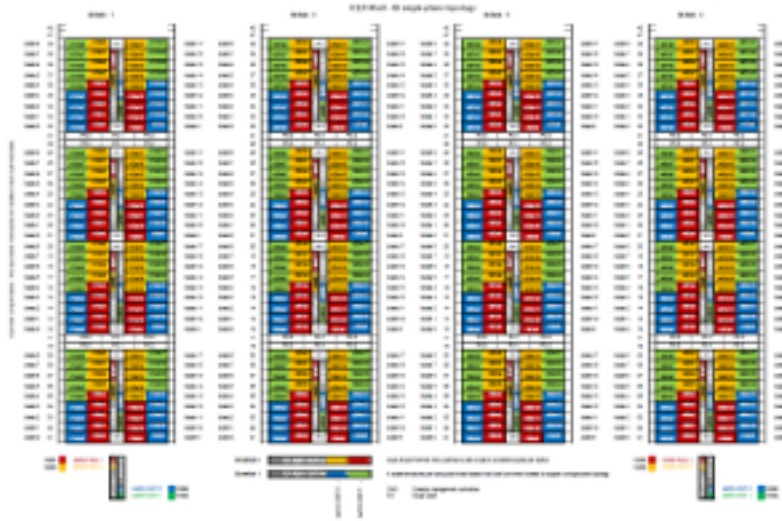
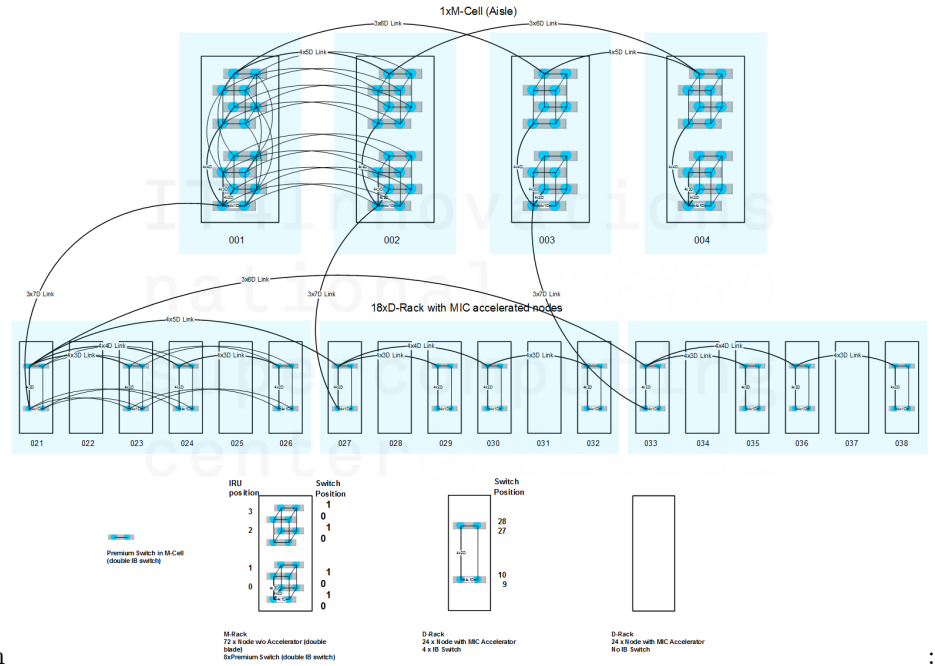


Figure 1:

## IB single-plane topology - Accelerated nodes

Each of the 3 inter-connected D racks are equivalent to one half of Mcell rack.  
 18x D rack with MIC accelerated nodes [r21-r38] are equivalent to 3 Mcell racks  
 as shown in a diagram 7D Enhanced Hypercube.



As shown in a diagram

- Racks 21, 22, 23, 24, 25, 26 are equivalent to one Mcell rack.
- Racks 27, 28, 29, 30, 31, 32 are equivalent to one Mcell rack.
- Racks 33, 34, 35, 36, 37, 38 are equivalent to one Mcell rack.

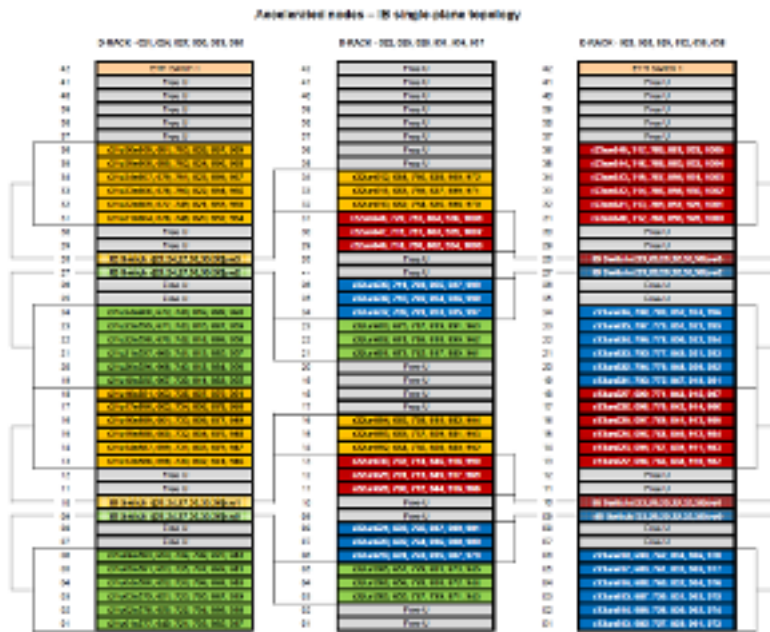


Figure 2: