QCDOC Partitioning Choices

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QCDOC Motherboard is 2 x 2 x 2 x 2 x 2 x 2 processor mesh

12,288 node QCDOC is 2 x 2 x 2 x 2l x 2m x 2n processor mesh

Four cabling choices for motherboards:

	l	m	n
A	4	4	12
B	2	6	16
C	4	6	8
D	3	8	8

Choice A yields a 2 x 2 x 2 x 8 x 8 x 24 machine.

Direction	Size
0	24
1	8
2	8
3	2
4	2
5	2

Consider the 1−3 hyperplanes, which contain 16 nodes. These can be switched to a periodic group of 10 nodes and another of 6 nodes. Similarly, the 2−4 plane can give 10 nodes and 6 nodes.
Thus we can make a partitions with (T,X,Y,Z) = (24,10,10,2), (24,6,10,2), (24,10,6,2), (24,6,6,2)
We could further rearrange partitions. For example the (24,6,10,2) could be a (24,6,6,2) and a (24,6,4,2)
A 96 x 40 x 40 x 40 lattice on the 24 x 10 x 10 x 2 partition (4800 nodes) has a local volume of 4 x 4 x 4 x 20

Combining the 3,4 and 5 directions into a single dimension gives a (24,8,8,8) machine which has a local volume of (4,6,6,6) for a 96 x 48 x 48 x 48 lattice