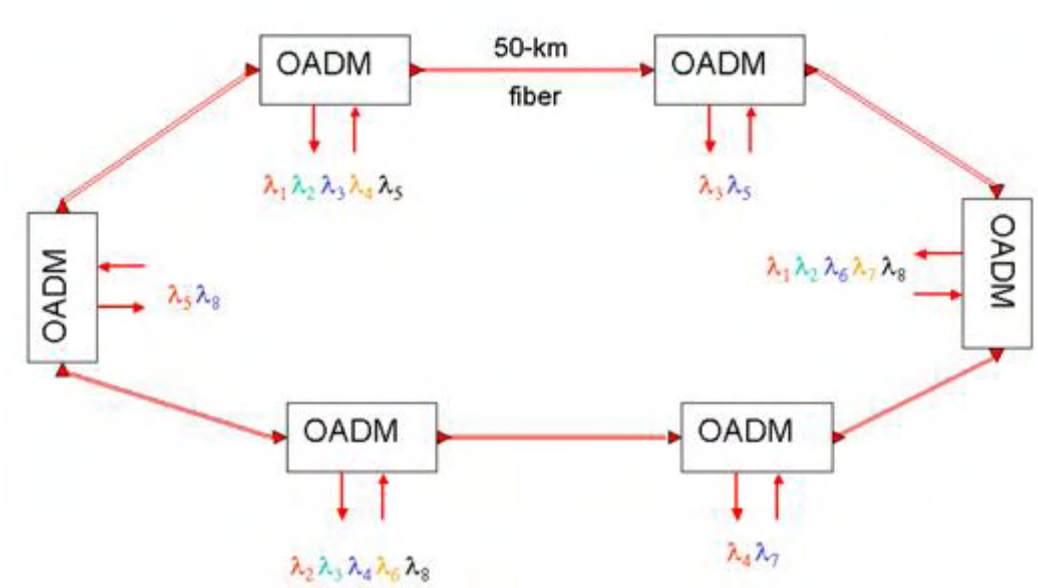
DWDM Ring with OADM (Optical Add-Drop Multiplexer) Nodes

Tool Used: OptSim

This example demonstrates an OptSim design for DWDM ring with Optical Add-Drop Multiplexers (OADM). The configuration of DWDM ring is in the figure below:



The DWDM ring consists of six nodes and six fiber spans. Total number of wavelengths used is eight, with 3 head-end nodes adding/dropping five channels at the time and 3 serial OADM nodes adding/dropping two channels.

Figure below demonstrates an equivalent design of the OC-192 ring configuration in OptSim:

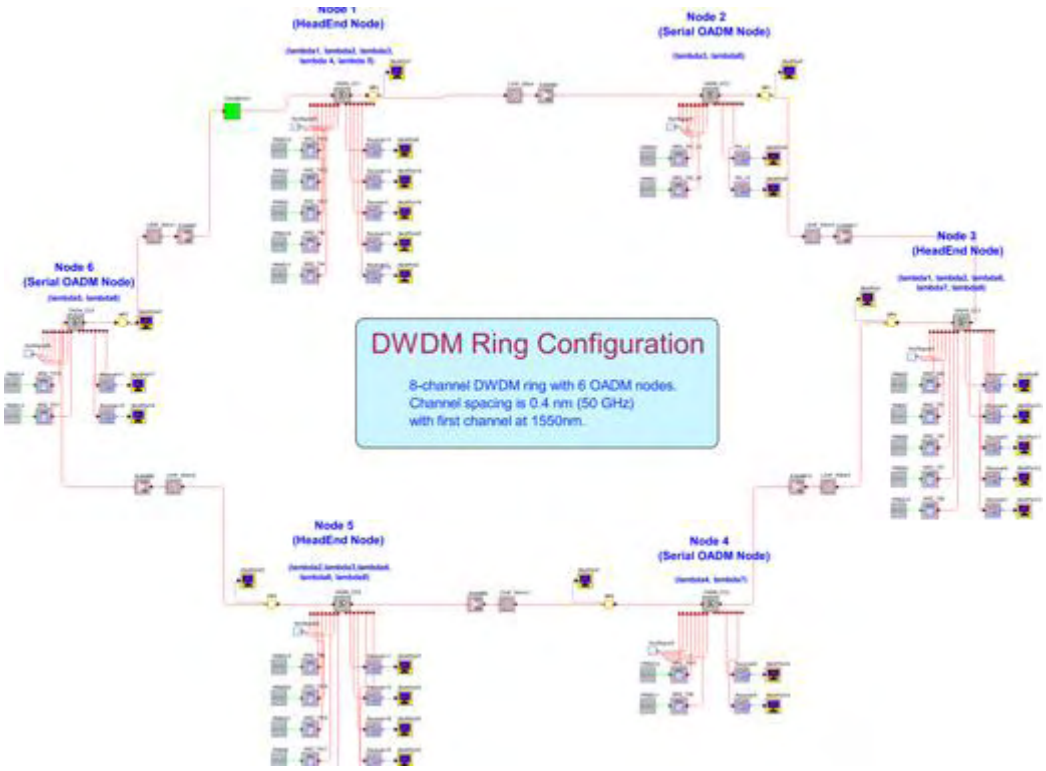
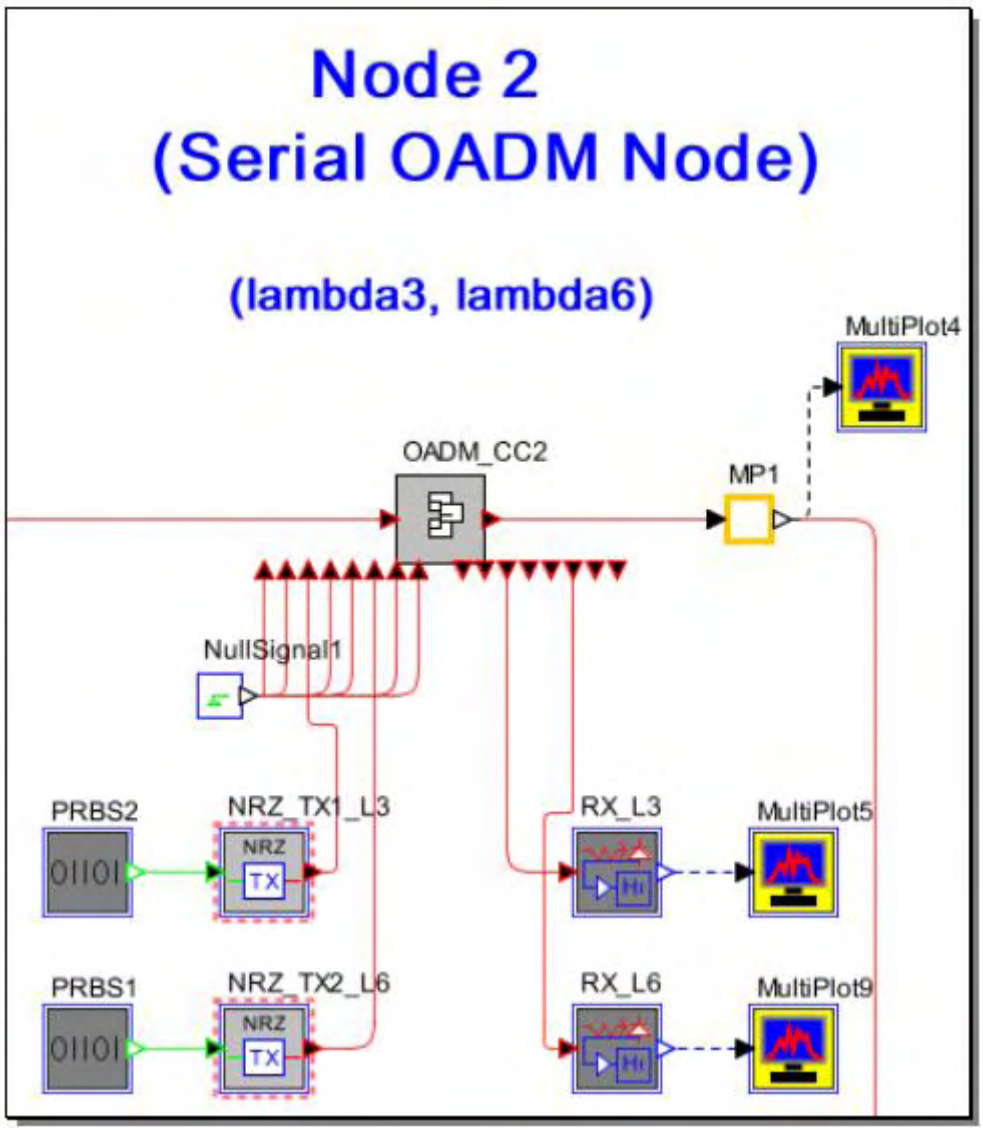


Figure below shows more details of OADM node on the example of serial OADM with 2 wavelengths adding/dropping:



The The OADM compound component (CC) block (see figure below) consists of one 1x8 Demultiplexer, 8x1 Multiplxer, and 8 optical switches. The input from transport interface (Input1) is demultiplexed into 8 wavelengths and each of them goes to a switch with corresponding input from client interface (Input2-Input9). The switch can be in either bar or cross state (is set by the switching array value). One output from the switch goes back to clients interface out ports (Output2-Output9) and the other output is being multiplexed with 7 other outputs and then sent to transport interface output (Output1).

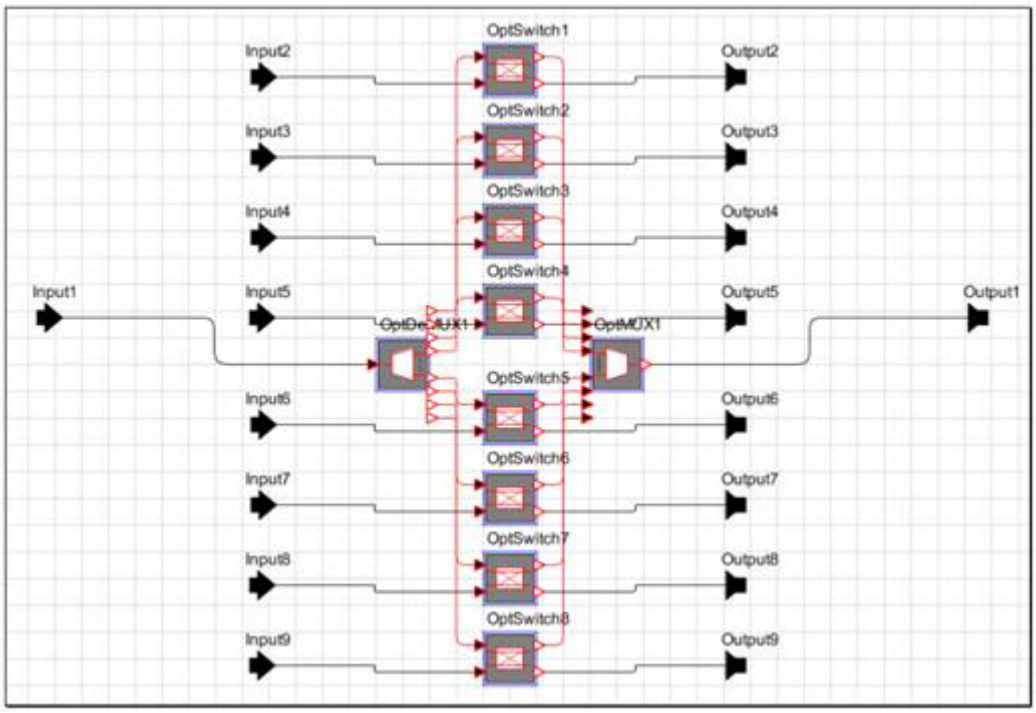
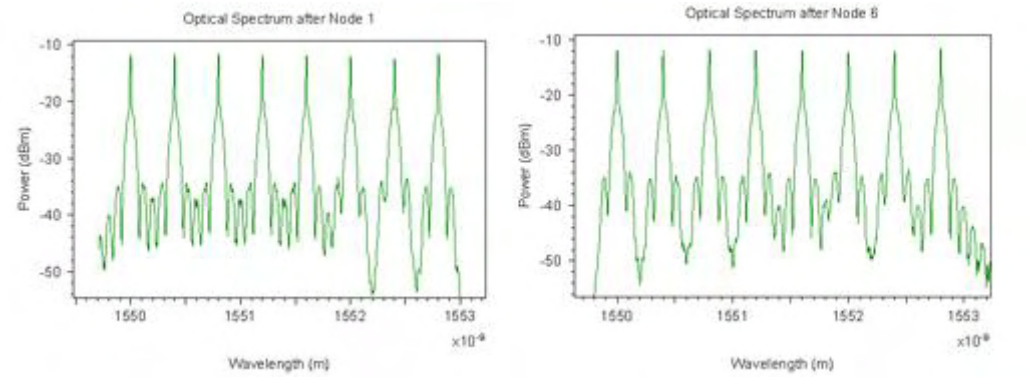


Figure below shows optical spectrum after two of nodes: (a) Node 1, and (b) Node 6.



The figure 6 shows a few examples of eye diagrams for dropped channels at (a) Node 1, wavelengh 3 and (b) Node 6, wavelength 8.