WHITE PAPER

PARALLEL OPTICS ON DUPLEX

More than half the 40G-QSFP+ transceivers sold worldwide, most of which are used in switches, are operated in the so-called “port breakout-configuration”, which confers many benefits in data centres. At the same time, however, it is worth bearing some important aspects in mind.

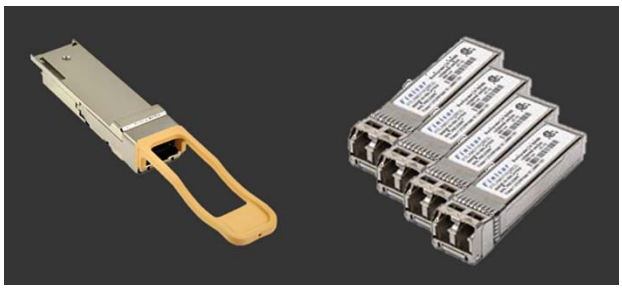
The term “port breakout configuration” denotes the separation of an SR4 channel into four SR channels. If the 40G transceiver is appropriately programmed, a 40G Ethernet signal can be split into four 10G Ethernet signals. In this configuration *one* SR4 port becomes *four* high-density SR ports.

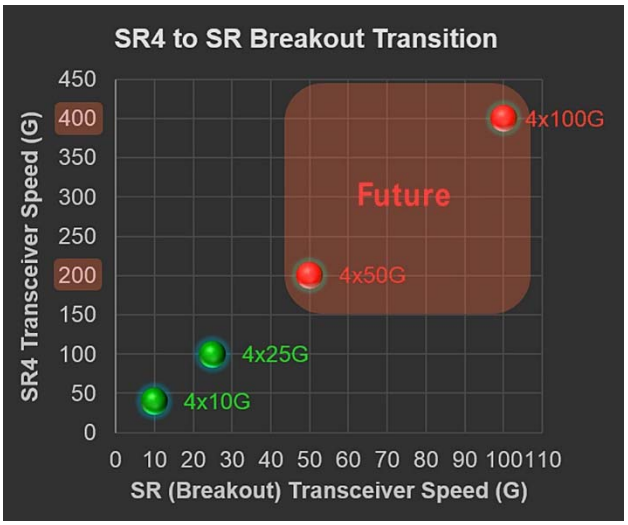
Advantages of the port breakout configuration

This operating mode is very popular, particularly for fibre optic connections between various switch layers as well as between switches and blade servers, because splitting a parallel optic signal (SR4) into four duplex signals (SR) right away provides several advantages:

- 3 times the port density (SR4 port)
- 50% less power consumption (SR4 port)
- Port cost 30% down (SR4 port)

This configuration is currently possible with 40G and 100G SR4 transceivers. The port breakout configuration will also be possible with 200G and 400G transceivers in the near future.



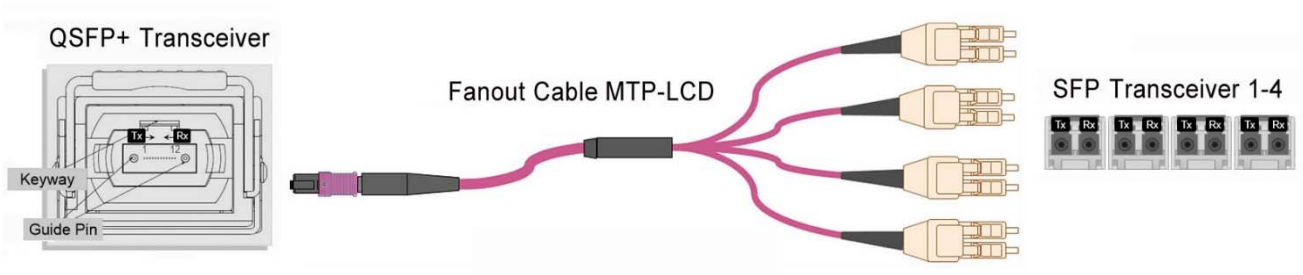


Selecting transceivers

Experience has shown that not everything which is standardised works smoothly together. The first important thing is to select suitable transceivers for this application. The safest approach is only to connect transceivers originating from the same manufacturer – and, of course, to install models which also support the port breakout configuration (for example to avoid overloading).

What connectivity is needed?

Application-specific fanout cables inside the same racks or between adjacent racks, for example the high-performance MTP-LCD 8-fibre fanout cables from the "Datwyler Data Centre Solution” range, are a good way of obtaining standard-compliant connectivity between



transmitters and receivers. These cables are used to connect the eight fibres of the QSFP+ transceivers (switch) to the four SFP+ transceivers (switch or server) by means of a defined connectivity method (picture above).

For permanent cabling links Datwyler provides a solution with FO-DCS plug-in modules. With a speed converter plug-in module at one end and a converter plug-in module at the other end of a 24-fibre link, three 40G or 100G transceivers (SR4), for example, can simply and securely be connected to three times four 10G or 25G transceivers (SR). The connectivity of the speed converter plug-in modules splits each of the three incoming parallel optic links into four duplex links (picture below).