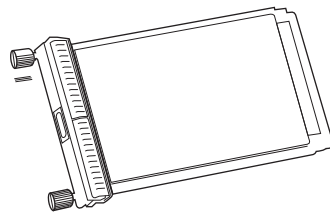# 100G Transceiver Cheat Sheet

100G Transceiver Cheat Sheet

The main differences between 100G form factors are size and power consumption.
A smaller form factor leads to an increase in port density and a lower power consumption.

CFP

The first 100G transceiver form factor, CFP's are larger modules, and were based originally on 10 lanes of 10G. CFP devices consume more power, but this allows longer transmission distances.
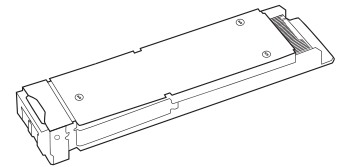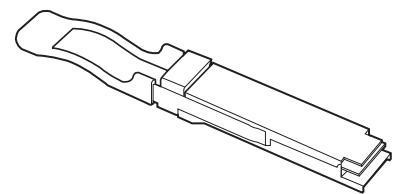
CFP4

Further improvements were made to the CFP module, including reductions in power consumption as well as size.
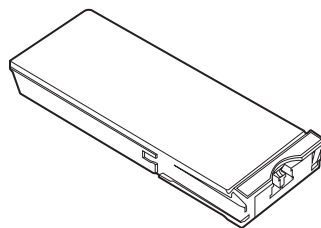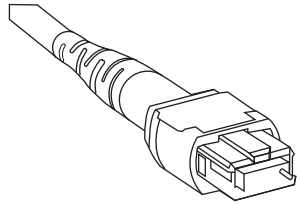
CFP2

The successor to the original CFP module, this boasts a higher port density and many transmission options.

QSFP28

The QSFP28 is similar to the QSFP+ pushed by the datacentres. It is the smallest form factor with the lowest power consumption for 100G applications.

ProLabs
Unlock your connectivity

Device Types, Fibre Medium and Reach

MPO 24/12

Many individual fibre strands, for short reach interconnects.

Optical standard

		Reach
100GBASE-SR10		100M (OM4)
100GBASE-SR4		100M (OM4)
100GBASE-eSR4		300M (OM4)
100GBASE-PSM4		500M (SM Fibre)

Ribbon fibre (MPO-12 / MPO-24)

INTERFACE	REACH	FORM FACTOR	CONNECTOR	MEDIA	WAVELENGTH	NOTES
100GBASE-SR10	300M	CFP/CFP2	MPO 24	MMF	850nm	
100GBASE-SR4	100M	QSFP28/CFP2/CFP4	MPO 12	MMF	850nm	FEC on host board
100GBASE-eSR4	300M	QSFP28	MPO 12	MMF	850nm	
PSM4	500M	QSFP28	MPO 12	SMF	1310nm	
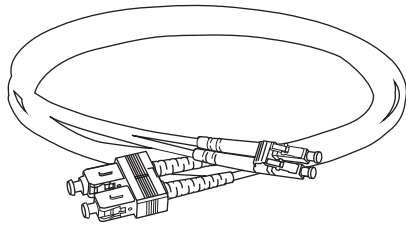
Duplex LC

A fibre for each direction of transmission - in one connector.

Optical standard

Reach

100GBASE-SWDM4	100M (OM4)
100GBASE-CWDM4	2KM (SM fibre, with FEC)
100GBASE-CLR4	2KM (SM fibre, without FEC)
100GBASE-LR4L	2KM (SM fibre)
100GBASE-LR4	10KM (SM fibre)
100GBASE-eCWDM4	10KM (SM fibre)
100GBASE-ER4L	25KM (SM fibre)
100GBASE-ER4	40KM (SM fibre)
Coherent	80KM (SM fibre)

LAN-WDM
1295/1300/1304/1309nm

CWDM4
1271/1291/1311/1331nm
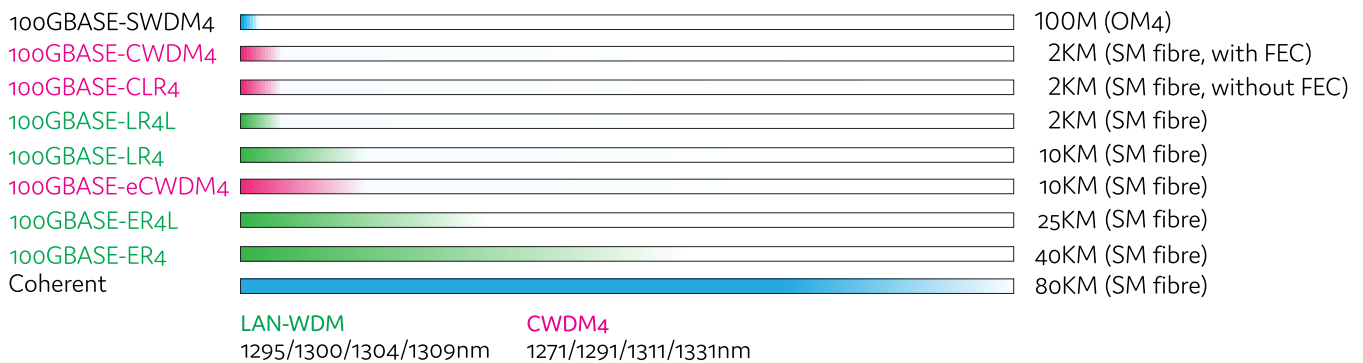
INTERFACE	REACH	FORM FACTOR	CONNECTOR	MEDIA	WAVELENGTH	NOTES
SWDM4	100M	QSFP28	Duplex LC	MMF	SWDM4	
CWDM4	2KM	QSFP28	Duplex LC	SMF	CWDM4	FEC on host board
CLR4	2KM	QSFP28	Duplex LC	SMF	CWDM4	
100GBASE-LR4L	2KM	QSFP28	Duplex LC	SMF	LAN-WDM	
eCWDM4	10KM	QSFP28	Duplex LC	SMF	CWDM4	FEC on host board
100GBASE-LR4	10KM	QSFP28/CFP2/CFP4	Duplex LC	SMF	LAN-WDM	
100GBASE-ER4L	25KM	QSFP28	Duplex LC	SMF	LAN-WDM	40 KM with FEC on host board
100GBASE-ER4	40KM	CFP/CFP2	Duplex LC	SMF	LAN-WDM	
Coherent	80KM	CFP/CFP2	Duplex LC	SMF		

QSFP28 CWDM4 requires a FEC (Forward Error Correction) on the host-board. For low latency application, the QSFP28 CLR4 is similar to the QSFP28 CWDM4 but does not require a FEC.

The FEC (Forward Error Correction) enables longer distance/higher optical budget link by using an error-correcting code methodology. Present on host-board side, it's introducing a slight latency (<100ns).

Unlock your
connectivity