

USB Trace Routing Guidelines

Parameter	Trace Routing
Transfer rate / Port	480 MBit/s
Maximum signal line length (coupled traces)	Max. 17.0 inches
Signal length used on COM Express Module (including the COM Express connector)	3.0 inches
Signal length allowance for the COM Express Carrier Board	14.0 inches
Differential Impedance	90 Ω +/-15%
Single-ended Impedance	45 Ω +/-10%
Trace width (W)	5mils (microstrip routing) (*)
Spacing between differential pairs (intra-pair) (S)	6mils (microstrip routing) (*)
Spacing between pairs-to-pairs (inter-pair) (s)	Min. 20mils
Spacing between differential pairs and high-speed periodic signals	Min. 50mils
Spacing between differential pairs and low-speed non periodic signals	Min. 20mils
Length matching between differential pairs (intra-pair)	150mils
Reference plane	GND referenced preferred
Spacing from edge of plane	Min. 40mils
Via Usage	Try to minimize number of vias