

Serial ATA Trace Routing Guidelines

Parameter	Trace Routing
Transfer Rate	3.0 GBit/s
Maximum signal line length (coupled traces)	7.0 inches on PCB (COM Express Module and Carrier Board. The length of the SATA cable is specified between 0 and 40 inches)
Signal length used on COM Express Module (including the COM Express Carrier Board connector)	2 inches
Signal length available for the COM Express Carrier Board	3 inches
Differential Impedance	100 Ω +/-20%
Single-ended Impedance	55 Ω +/-15%
Trace width (W)	5mils (microstrip routing) (*)
Spacing between differential pairs (intra-pair) (S)	7mils (microstrip routing) (*)
Spacing between RX and TX 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)	Max. 5mils
Length matching between RX and TX pairs (inter-pair)	No strict electrical requirements. Keep difference within a 3.0 inch delta to minimize latency. Do not serpentine to meet trace length guidelines for the RX and TX path.
Spacing from edge of plane	Min. 40mils
Via Usage	Try to minimize number of vias
AC Coupling capacitors	The AC coupling capacitors for the TX and RX lines are incorporated on the COM Express Module.