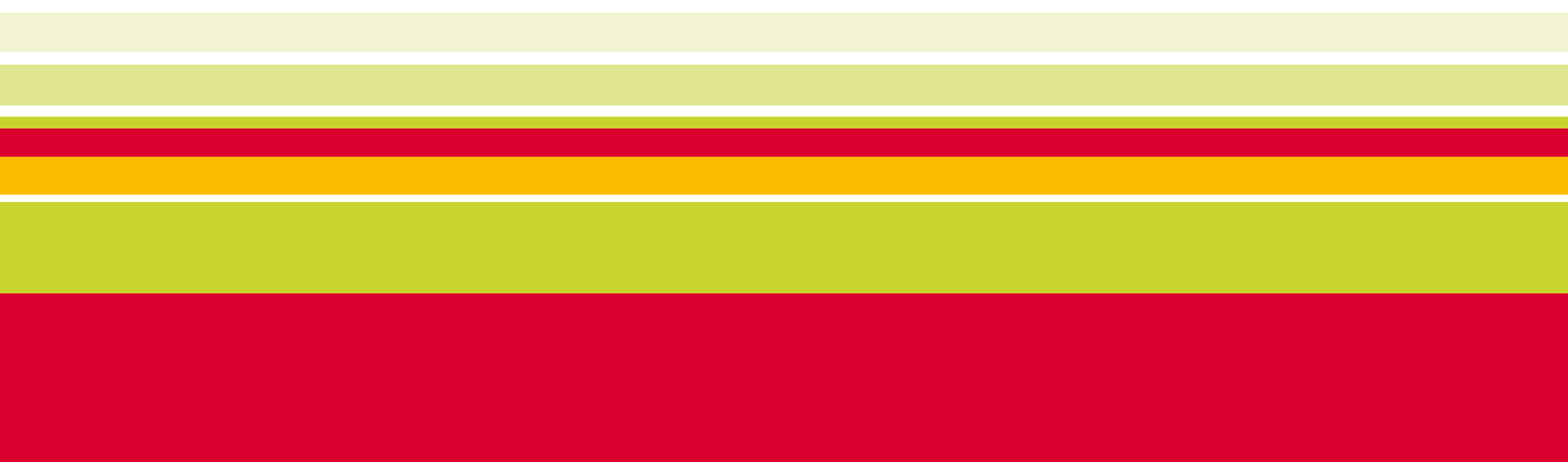


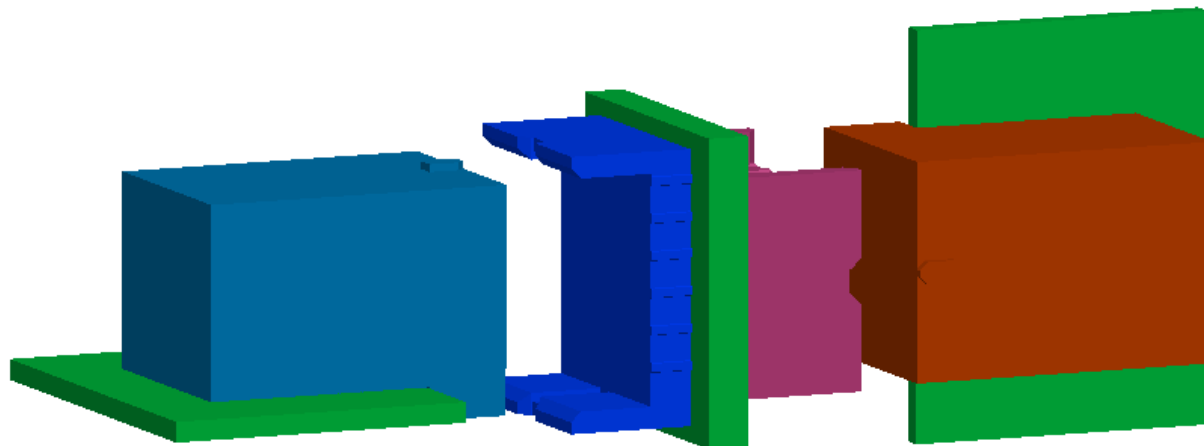


# ***ZipLine™ Orthogonal Routing Guide***

***December 11, 2008***



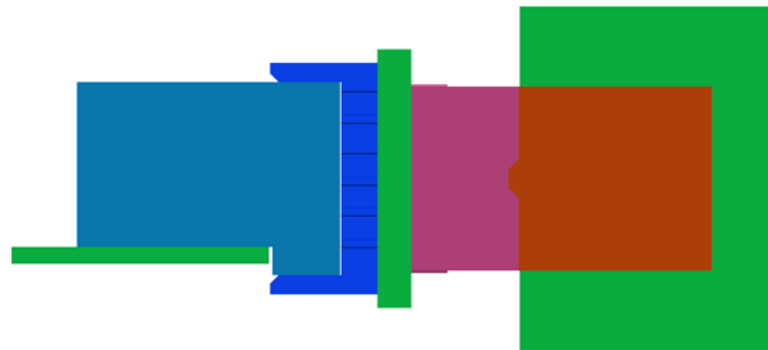
- By sharing Vias within the PCB, the 6-pair x 12-IMLA ZipLine™ Orthogonal Connector allows customers to route 72 differential pairs directly through the Mid-Plane. This:
  - Minimizes board losses,
  - Simplifies the Mid-Plane layout and
  - Doesn't require additional Mid-Plane layers for through routing



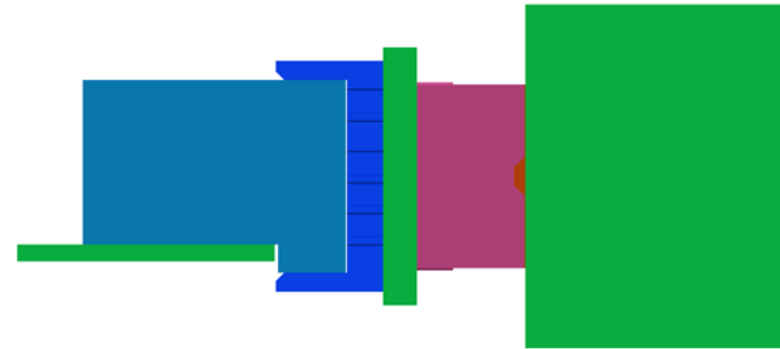
# ZipLine™ Orthogonal Routing:



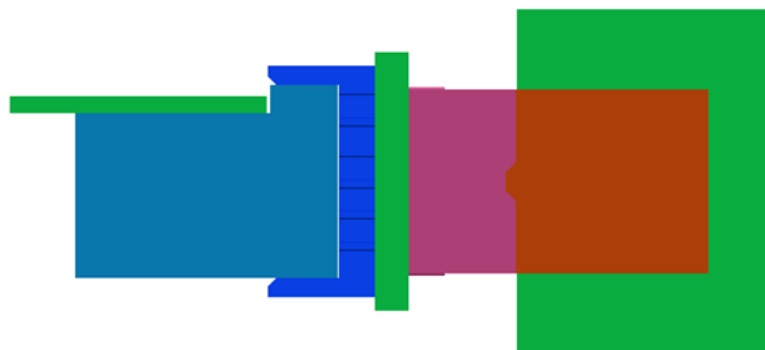
Using the same two Headers and Right Angle Receptacles, ZipLine allows the end user to mate the Daughter Cards to the Mid-Plane in four different configurations.



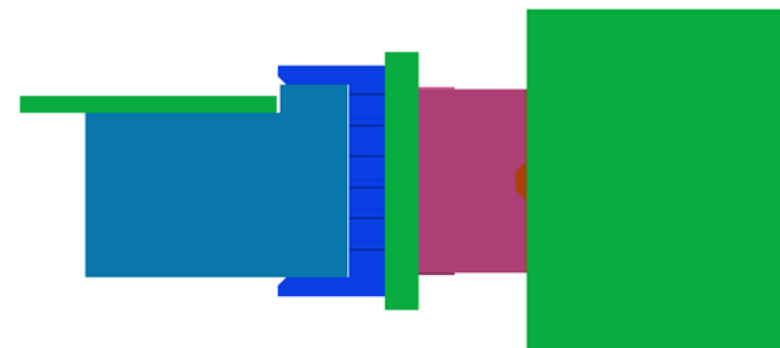
F0R0



F0R180



F180R0

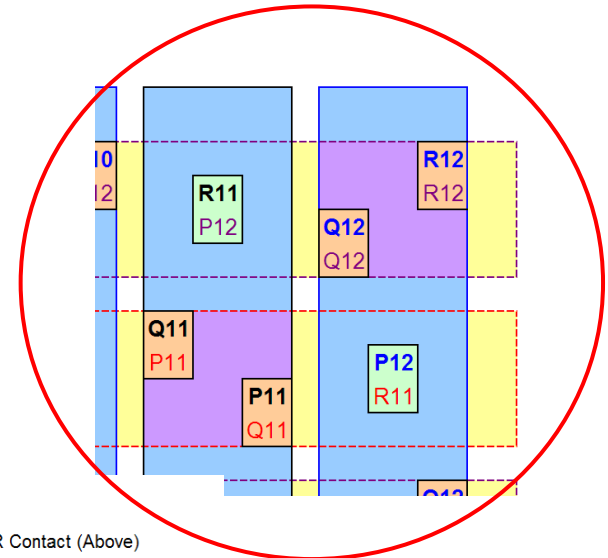
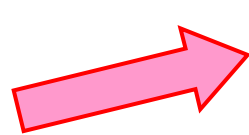
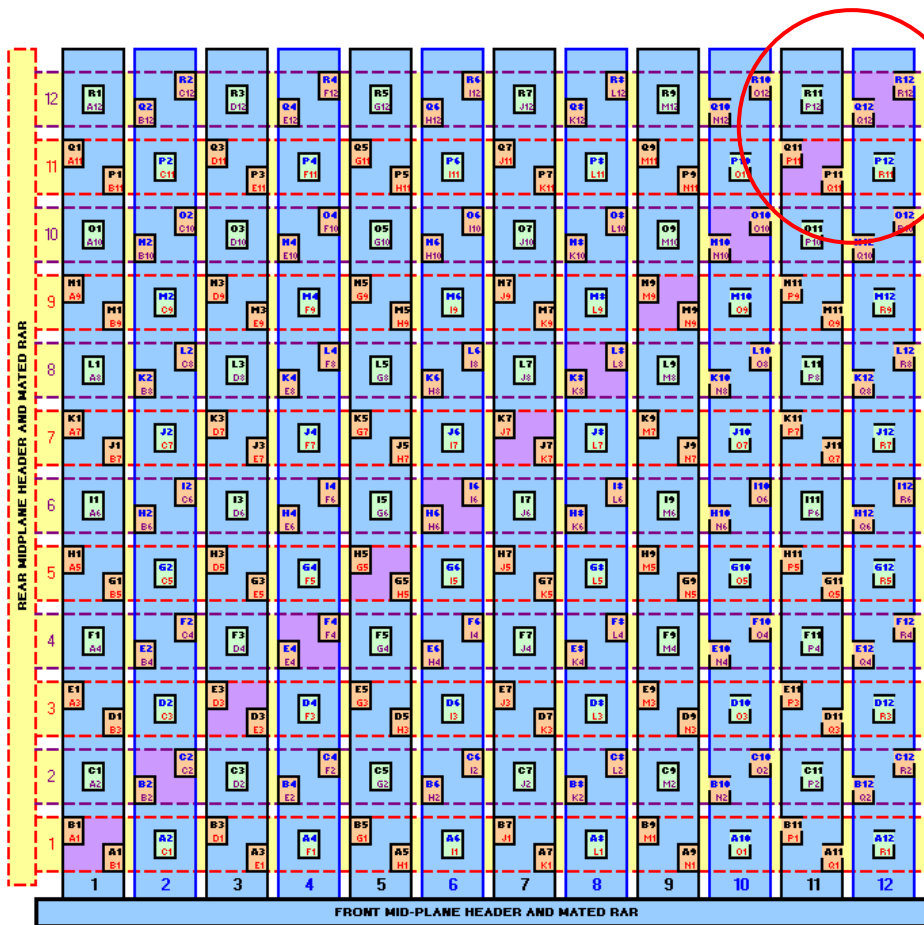


F180R180

# ZipLine™ Orthogonal Routing:



- This document has been developed to assist our customers by providing the following:
  - Visual diagrams of each configuration



Key:

- Q2 → Signal Contacts Shared Via
- B12 → Rear RAR Contact (Below)
- R1 → Ground Contacts Shared Via
- A12 → Like Pair or Mirror Pair
- Blue → Front RAR IMLA
- Yellow → Rear RAR IMLA

- F0 R0 (refer page 6)
- F0 R180 (refer page 8)
- F180 R0

- Followed by, tables that list the PCB contact positions at each board interface; from the front Daughter Card, through the Mid-Plane to the Rear Daughter Card.

**F0 R0**  
(refer page 7)

**F0 R180**  
(refer page 9)

**F180 R0**

**Tabular Listing For F0R0 Daughter Card and Mid-Plane Via Locations**

Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR						
A1	A1	B1	B1	A3	A3	E1	E1	A5	A5	H1	H1	A7	A7	K1	K1	A9	A9	N1	N1	A11	A11	Q1	Q1
B1	B1	A1	A1	B3	B3	D1	D1	B5	B5	G1	G1	B7	B7	J1	J1	B9	B9	M1	M1	B11	B11	P1	P1
C1	C1	A2	A2	C3	C3	D2	D2	C5	C5	G2	G2	C7	C7	J2	J2	C9	C9	M2	M2	C11	C11	P2	P2
D1	D1	B3	B3	D3	D3	E3	E3	D5	D5	H3	H3	D7	D7	K3	K3	D9	D9	N3	N3	D11	D11	Q3	Q3
E1	E1	A3	A3	E3	E3	D3	D3	E5	E5	G3	G3	E7	E7	J3	J3	E9	E9	M3	M3	E11	E11	P3	P3
F1	F1	A4	A4	F3	F3	D4	D4	F5	F5	G4	G4	F7	F7	J4	J4	F9	F9	M4	M4	F11	F11	P4	P4
G1	G1	B5	B5	G3	G3	E5	E5	G5	G5	H5	H5	G7	G7	K5	K5	G9	G9	N5	N5	G11	G11	Q5	Q5
H1	H1	Δ5	Δ5	H3	H3	D5	D5	H5	H5	G5	G5	H7	H7	J5	J5	H9	H9	M5	M5	H11	H11	P5	P5



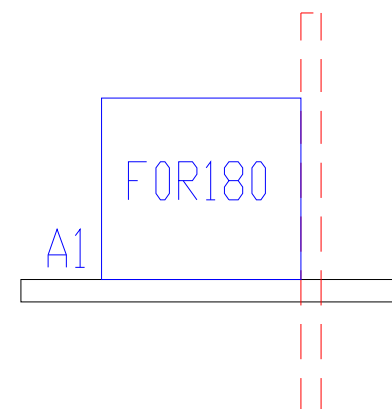
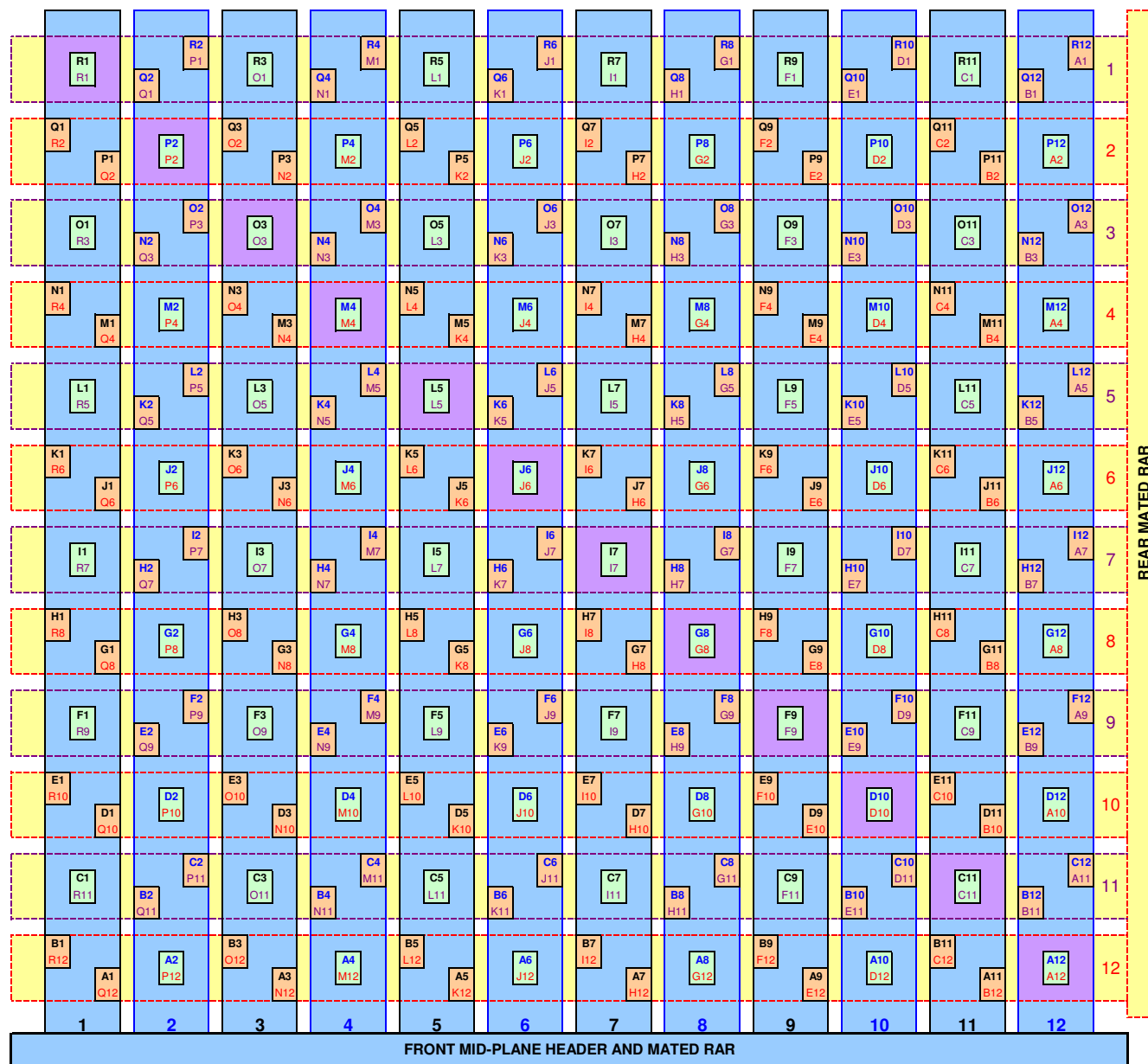
# ZipLine™ Orthogonal Routing (F0 R0 Pin-Out Table):



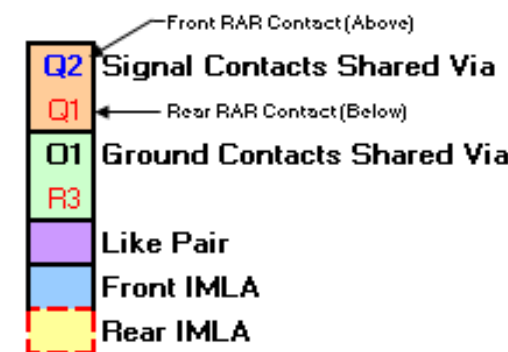
**Tabular Listing For F0R0 Daughter Card and Mid-Plane Via Locations**

Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR						
A1	A1	B1	B1	A3	A3	E1	E1	A5	A5	H1	H1	A7	A7	K1	K1	A9	A9	N1	N1	A11	A11	Q1	Q1
B1	B1	A1	A1	B3	B3	D1	D1	B5	B5	G1	G1	B7	B7	J1	J1	B9	B9	M1	M1	B11	B11	P1	P1
C1	C1	A2	A2	C3	C3	D2	D2	C5	C5	G2	G2	C7	C7	J2	J2	C9	C9	M2	M2	C11	C11	P2	P2
D1	D1	B3	B3	D3	D3	E3	E3	D5	D5	H3	H3	D7	D7	K3	K3	D9	D9	N3	N3	D11	D11	Q3	Q3
E1	E1	A3	A3	E3	E3	D3	D3	E5	E5	G3	G3	E7	E7	J3	J3	E9	E9	M3	M3	E11	E11	P3	P3
F1	F1	A4	A4	F3	F3	D4	D4	F5	F5	G4	G4	F7	F7	J4	J4	F9	F9	M4	M4	F11	F11	P4	P4
G1	G1	B5	B5	G3	G3	E5	E5	G5	G5	H5	H5	G7	G7	K5	K5	G9	G9	N5	N5	G11	G11	Q5	Q5
H1	H1	A5	A5	H3	H3	D5	D5	H5	H5	G5	G5	H7	H7	J5	J5	H9	H9	M5	M5	H11	H11	P5	P5
I1	I1	A6	A6	I3	I3	D6	D6	I5	I5	G6	G6	I7	I7	J6	J6	I9	I9	M6	M6	I11	I11	P6	P6
J1	J1	B7	B7	J3	J3	E7	E7	J5	J5	H7	H7	J7	J7	K7	K7	J9	J9	N7	N7	J11	J11	Q7	Q7
K1	K1	A7	A7	K3	K3	D7	D7	K5	K5	G7	G7	K7	K7	J7	J7	K9	K9	M7	M7	K11	K11	P7	P7
L1	L1	A8	A8	L3	L3	D8	D8	L5	L5	G8	G8	L7	L7	J8	J8	L9	L9	M8	M8	L11	L11	P8	P8
M1	M1	B9	B9	M3	M3	E9	E9	M5	M5	H9	H9	M7	M7	K9	K9	M9	M9	N9	N9	M11	M11	Q9	Q9
N1	N1	A9	A9	N3	N3	D9	D9	N5	N5	G9	G9	N7	N7	J9	J9	N9	N9	M9	M9	N11	N11	P9	P9
O1	O1	A10	A10	O3	O3	D10	D10	O5	O5	G10	G10	O7	O7	J10	J10	O9	O9	M10	M10	O11	O11	P10	P10
P1	P1	B11	B11	P3	P3	E11	E11	P5	P5	H11	H11	P7	P7	K11	K11	P9	P9	N11	N11	P11	P11	Q11	Q11
Q1	Q1	A11	A11	Q3	Q3	D11	D11	Q5	Q5	G11	G11	Q7	Q7	J11	J11	Q9	Q9	M11	M11	Q11	Q11	P11	P11
R1	R1	A12	A12	R3	R3	D12	D12	R5	R5	G12	G12	R7	R7	J12	J12	R9	R9	M12	M12	R11	R11	P12	P12
A2	A2	C1	C1	A4	A4	F1	F1	A6	A6	I1	I1	A8	A8	L1	L1	A10	A10	O1	O1	A12	A12	R1	R1
B2	B2	B2	B2	B4	B4	E2	E2	B6	B6	H2	H2	B8	B8	K2	K2	B10	B10	N2	N2	B12	B12	Q2	Q2
C2	C2	C2	C2	C4	C4	F2	F2	C6	C6	I2	I2	C8	C8	L2	L2	C10	C10	O2	O2	C12	C12	R2	R2
D2	D2	C3	C3	D4	D4	F3	F3	D6	D6	I3	I3	D8	D8	L3	L3	D10	D10	O3	O3	D12	D12	R3	R3
E2	E2	B4	B4	E4	E4	F4	F4	E6	E6	H4	H4	E8	E8	K4	K4	E10	E10	N4	N4	E12	E12	Q4	Q4
F2	F2	C4	C4	F4	F4	F4	F4	F6	F6	I4	I4	F8	F8	L4	L4	F10	F10	O4	O4	F12	F12	R4	R4
G2	G2	C5	C5	G4	G4	F5	F5	G6	G6	I5	I5	G8	G8	L5	L5	G10	G10	O5	O5	G12	G12	R5	R5
H2	H2	B6	B6	H4	H4	E6	E6	H6	H6	H6	H6	H8	H8	K6	K6	H10	H10	N6	N6	H12	H12	Q6	Q6
I2	I2	C6	C6	I4	I4	F6	F6	I6	I6	I6	I6	I8	I8	L6	L6	I10	I10	O6	O6	I12	I12	R6	R6
J2	J2	C7	C7	J4	J4	F7	F7	J6	J6	I7	I7	J8	J8	L7	L7	J10	J10	O7	O7	J12	J12	R7	R7
K2	K2	B8	B8	K4	K4	E8	E8	K6	K6	H8	H8	K8	K8	K8	K8	K10	K10	N8	N8	K12	K12	Q8	Q8
L2	L2	C8	C8	L4	L4	F8	F8	L6	L6	I8	I8	L8	L8	L8	L8	L10	L10	O8	O8	L12	L12	R8	R8
M2	M2	C9	C9	M4	M4	F9	F9	M6	M6	I9	I9	M8	M8	L9	L9	M10	M10	O9	O9	M12	M12	R9	R9
N2	N2	B10	B10	N4	N4	E10	E10	N6	N6	H10	H10	N8	N8	K10	K10	N10	N10	N10	N10	N12	N12	Q10	Q10
O2	O2	C10	C10	O4	O4	F10	F10	O6	O6	I10	I10	O8	O8	L10	L10	O10	O10	O10	O10	O12	O12	R10	R10
P2	P2	C11	C11	P4	P4	F11	F11	P6	P6	I11	I11	P8	P8	L11	L11	P10	P10	O11	O11	P12	P12	R11	R11
Q2	Q2	B12	B12	Q4	Q4	E12	E12	Q6	Q6	H12	H12	Q8	Q8	K12	K12	Q10	Q10	N12	N12	Q12	Q12	Q12	Q12
R2	R2	C12	C12	R4	R4	F12	F12	R6	R6	I12	I12	R8	R8	L12	L12	R10	R10	O12	O12	R12	R12	R12	R12

# ZipLine™ Orthogonal Routing (F0 R180 Layout Configuration):



Key:



Notes:

- 1 PCB hole pattern and Header attachment to PCB same as F0R0, which is specified on customer drawing.
- 2 Rear RARs are mated 180° Relative to Standard (F0R0) Configuration.
- 3 Contact pairs are NOT symmetric about like pair diagonal
- 4 **F11** - Specifies contact position **F** in column **11** (Front) or row **11** (Rear)
- 5 Contact positions identify RAR mating (Daughter Card) contact positions. See F0R0 for header contact positions.

A1 Corner For Front and Rear Mid-Plane Headers is Always in the Lower Left



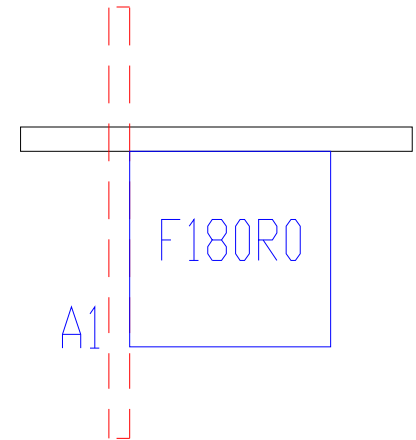
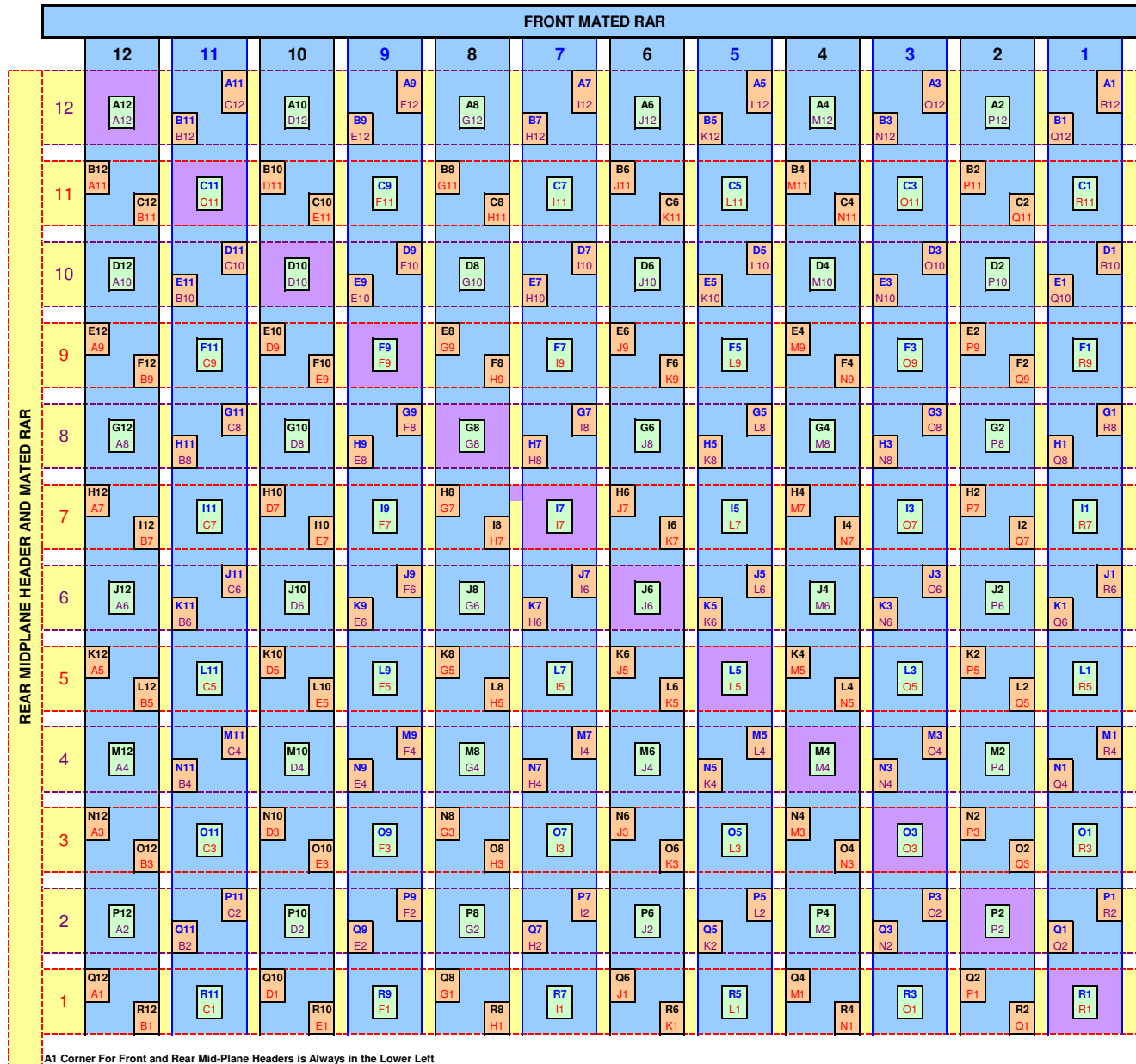
# ZipLine™ Orthogonal Routing (F0 R180 Pin-Out Table):



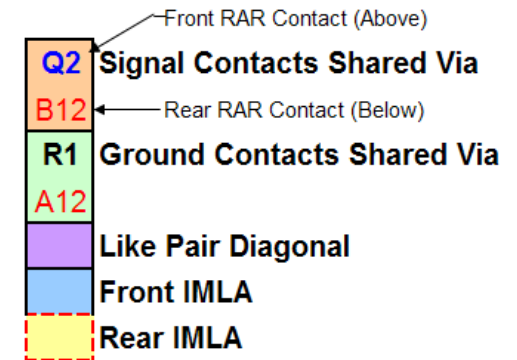
**Tabular Listing For F0R180 Daughter Card and Mid-Plane Via Locations**

Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR						
A1	A1	B1	Q12	A3	A3	E1	N12	A5	A5	H1	K12	A7	A7	K1	H12	A9	A9	N1	E12	A11	A11	Q1	B12
B1	B1	A1	R12	B3	B3	D1	O12	B5	B5	G1	L12	B7	B7	J1	I12	B9	B9	M1	F12	B11	B11	P1	C12
C1	C1	A2	R11	C3	C3	D2	O11	C5	C5	G2	L11	C7	C7	J2	I11	C9	C9	M2	F11	C11	C11	P2	C11
D1	D1	B3	Q10	D3	D3	E3	N10	D5	D5	H3	K10	D7	D7	K3	H10	D9	D9	N3	E10	D11	D11	Q3	B10
E1	E1	A3	R10	E3	E3	D3	O10	E5	E5	G3	L10	E7	E7	J3	I10	E9	E9	M3	F10	E11	E11	P3	C10
F1	F1	A4	R9	F3	F3	D4	O9	F5	F5	G4	L9	F7	F7	J4	I9	F9	F9	M4	F9	F11	F11	P4	C9
G1	G1	B5	Q8	G3	G3	E5	N8	G5	G5	H5	K8	G7	G7	K5	H8	G9	G9	N5	E8	G11	G11	Q5	B8
H1	H1	A5	R8	H3	H3	D5	O8	H5	H5	G5	L8	H7	H7	J5	I8	H9	H9	M5	F8	H11	H11	P5	C8
I1	I1	A6	R7	I3	I3	D6	O7	I5	I5	G6	L7	I7	I7	J6	I7	I9	I9	M6	F7	I11	I11	P6	C7
J1	J1	B7	Q6	J3	J3	E7	N6	J5	J5	H7	K6	J7	J7	K7	H6	J9	J9	N7	E6	J11	J11	Q7	B6
K1	K1	A7	R6	K3	K3	D7	O6	K5	K5	G7	L6	K7	K7	J7	I6	K9	K9	M7	F6	K11	K11	P7	C6
L1	L1	A8	R5	L3	L3	D8	O5	L5	L5	G8	L5	L7	L7	J8	I5	L9	L9	M8	F5	L11	L11	P8	C5
M1	M1	B9	Q4	M3	M3	E9	N4	M5	M5	H9	K4	M7	M7	K9	H4	M9	M9	N9	E4	M11	M11	Q9	B4
N1	N1	A9	R4	N3	N3	D9	O4	N5	N5	G9	L4	N7	N7	J9	I4	N9	N9	M9	F4	N11	N11	P9	C4
O1	O1	A10	R3	O3	O3	D10	O3	O5	O5	G10	L3	O7	O7	J10	I3	O9	O9	M10	F3	O11	O11	P10	C3
P1	P1	B11	Q2	P3	P3	E11	N2	P5	P5	H11	K2	P7	P7	K11	H2	P9	P9	N11	E2	P11	P11	Q11	B2
Q1	Q1	A11	R2	Q3	Q3	D11	O2	Q5	Q5	G11	L2	Q7	Q7	J11	I2	Q9	Q9	M11	F2	Q11	Q11	P11	C2
R1	R1	A12	R1	R3	R3	D12	O1	R5	R5	G12	L1	R7	R7	J12	I1	R9	R9	M12	F1	R11	R11	P12	C1
A2	A2	C1	P12	A4	A4	F1	M12	A6	A6	I1	J12	A8	A8	L1	G12	A10	A10	O1	D12	A12	A12	R1	A12
B2	B2	B2	Q11	B4	B4	E2	N11	B6	B6	H2	K11	B8	B8	K2	H11	B10	B10	N2	E11	B12	B12	Q2	B11
C2	C2	C2	P11	C4	C4	F2	M11	C6	C6	I2	J11	C8	C8	L2	G11	C10	C10	O2	D11	C12	C12	R2	A11
D2	D2	C3	P10	D4	D4	F3	M10	D6	D6	I3	J10	D8	D8	L3	G10	D10	D10	O3	D10	D12	D12	R3	A10
E2	E2	B4	Q9	E4	E4	E4	N9	E6	E6	H4	K9	E8	E8	K4	H9	E10	E10	N4	E9	E12	E12	Q4	B9
F2	F2	C4	P9	F4	F4	F4	M9	F6	F6	I4	J9	F8	F8	L4	G9	F10	F10	O4	D9	F12	F12	R4	A9
G2	G2	C5	P8	G4	G4	F5	M8	G6	G6	I5	J8	G8	G8	L5	G8	G10	G10	O5	D8	G12	G12	R5	A8
H2	H2	B6	Q7	H4	H4	E6	N7	H6	H6	H6	K7	H8	H8	K6	H7	H10	H10	N6	E7	H12	H12	Q6	B7
I2	I2	C6	P7	I4	I4	F6	M7	I6	I6	I6	J7	I8	I8	L6	G7	I10	I10	O6	D7	I12	I12	R6	A7
J2	J2	C7	P6	J4	J4	F7	M6	J6	J6	I7	J6	J8	J8	L7	G6	J10	J10	O7	D6	J12	J12	R7	A6
K2	K2	B8	Q5	K4	K4	E8	N5	K6	K6	H8	K5	K8	K8	K8	H5	K10	K10	N8	E5	K12	K12	Q8	B5
L2	L2	C8	P5	L4	L4	F8	M5	L6	L6	I8	J5	L8	L8	L8	G5	L10	L10	O8	D5	L12	L12	R8	A5
M2	M2	C9	P4	M4	M4	F9	M4	M6	M6	I9	J4	M8	M8	L9	G4	M10	M10	O9	D4	M12	M12	R9	A4
N2	N2	B10	Q3	N4	N4	E10	N3	N6	N6	H10	K3	N8	N8	K10	H3	N10	N10	N10	E3	N12	N12	Q10	B3
O2	O2	C10	P3	O4	O4	F10	M3	O6	O6	I10	J3	O8	O8	L10	G3	O10	O10	O10	D3	O12	O12	R10	A3
P2	P2	C11	P2	P4	P4	F11	M2	P6	P6	I11	J2	P8	P8	L11	G2	P10	P10	O11	D2	P12	P12	R11	A2
Q2	Q2	B12	Q1	Q4	Q4	E12	N1	Q6	Q6	H12	K1	Q8	Q8	K12	H1	Q10	Q10	N12	E1	Q12	Q12	Q12	B1
R2	R2	C12	P1	R4	R4	F12	M1	R6	R6	I12	J1	R8	R8	L12	G1	R10	R10	O12	D1	R12	R12	R12	A1

# ZipLine™ Orthogonal Routing (F180 R0 Layout Configuration):



Key:



Notes:

- 1 PCB hole pattern and Header attachment to PCB same as F0R0, which is specified on customer drawing.
- 2 Front RARs are mated 180° Relative to Standard F0R0 Configuration.
- 3 Contact pairs are NOT symmetric about like pair diagonal
- 4 F11 - Specifies contact position F in column 11 (Front) or row 11 (Rear)
- 5 Contact positions identify RAR mating (Daughter Card) contact positions. See F0R0 for header contact positions.

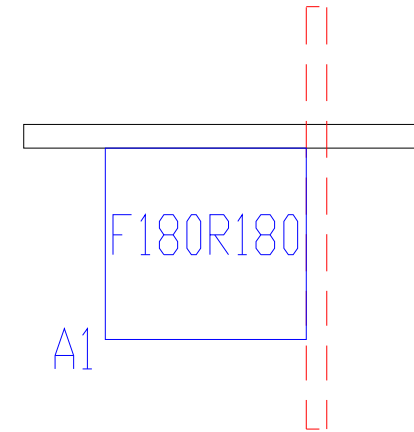
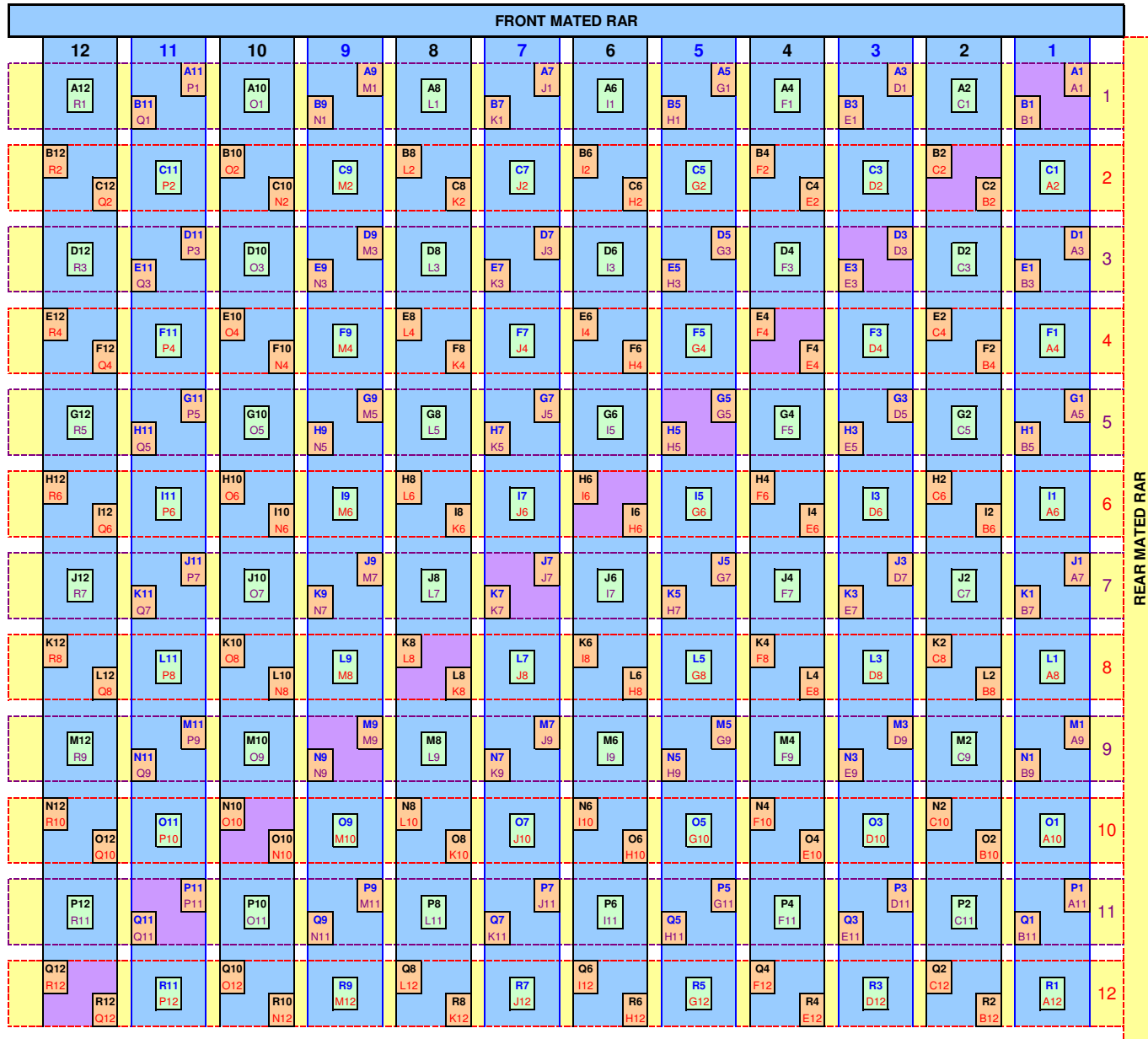
# ZipLine™ Orthogonal Routing (F180 R0 Pin-Out Table):



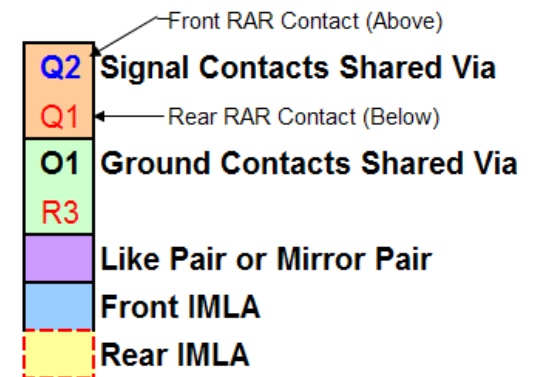
**Tabular Listing For F180R0 Daughter Card and Mid-Plane Via Locations**

Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR						
R12	A1	B1	B1	R10	A3	E1	E1	R8	A5	H1	H1	R6	A7	K1	K1	R4	A9	N1	N1	R2	A11	Q1	Q1
Q12	B1	A1	A1	Q10	B3	D1	D1	Q8	B5	G1	G1	Q6	B7	J1	J1	Q4	B9	M1	M1	Q2	B11	P1	P1
P12	C1	A2	A2	P10	C3	D2	D2	P8	C5	G2	G2	P6	C7	J2	J2	P4	C9	M2	M2	P2	C11	P2	P2
O12	D1	B3	B3	O10	D3	E3	E3	O8	D5	H3	H3	O6	D7	K3	K3	O4	D9	N3	N3	O2	D11	Q3	Q3
N12	E1	A3	A3	N10	E3	D3	D3	N8	E5	G3	G3	N6	E7	J3	J3	N4	E9	M3	M3	N2	E11	P3	P3
M12	F1	A4	A4	M10	F3	D4	D4	M8	F5	G4	G4	M6	F7	J4	J4	M4	F9	M4	M4	M2	F11	P4	P4
L12	G1	B5	B5	L10	G3	E5	E5	L8	G5	H5	H5	L6	G7	K5	K5	L4	G9	N5	N5	L2	G11	Q5	Q5
K12	H1	A5	A5	K10	H3	D5	D5	K8	H5	G5	G5	K6	H7	J5	J5	K4	H9	M5	M5	K2	H11	P5	P5
J12	I1	A6	A6	J10	I3	D6	D6	J8	I5	G6	G6	J6	I7	J6	J6	J4	I9	M6	M6	J2	I11	P6	P6
I12	J1	B7	B7	I10	J3	E7	E7	I8	J5	H7	H7	I6	J7	K7	K7	I4	J9	N7	N7	I2	J11	Q7	Q7
H12	K1	A7	A7	H10	K3	D7	D7	H8	K5	G7	G7	H6	K7	J7	J7	H4	K9	M7	M7	H2	K11	P7	P7
G12	L1	A8	A8	G10	L3	D8	D8	G8	L5	G8	G8	G6	L7	J8	J8	G4	L9	M8	M8	G2	L11	P8	P8
F12	M1	B9	B9	F10	M3	E9	E9	F8	M5	H9	H9	F6	M7	K9	K9	F4	M9	N9	N9	F2	M11	Q9	Q9
E12	N1	A9	A9	E10	N3	D9	D9	E8	N5	G9	G9	E6	N7	J9	J9	E4	N9	M9	M9	E2	N11	P9	P9
D12	O1	A10	A10	D10	O3	D10	D10	D8	O5	G10	G10	D6	O7	J10	J10	D4	O9	M10	M10	D2	O11	P10	P10
C12	P1	B11	B11	C10	P3	E11	E11	C8	P5	H11	H11	C6	P7	K11	K11	C4	P9	N11	N11	C2	P11	Q11	Q11
B12	Q1	A11	A11	B10	Q3	D11	D11	B8	Q5	G11	G11	B6	Q7	J11	J11	B4	Q9	M11	M11	B2	Q11	P11	P11
A12	R1	A12	A12	A10	R3	D12	D12	A8	R5	G12	G12	A6	R7	J12	J12	A4	R9	M12	M12	A2	R11	P12	P12
R11	A2	C1	C1	R9	A4	F1	F1	R7	A6	I1	I1	R5	A8	L1	L1	R3	A10	O1	O1	R1	A12	R1	R1
Q11	B2	B2	B2	Q9	B4	E2	E2	Q7	B6	H2	H2	Q5	B8	K2	K2	Q3	B10	N2	N2	Q1	B12	Q2	Q2
P11	C2	C2	C2	P9	C4	F2	F2	P7	C6	I2	I2	P5	C8	L2	L2	P3	C10	O2	O2	P1	C12	R2	R2
O11	D2	C3	C3	O9	D4	F3	F3	O7	D6	I3	I3	O5	D8	L3	L3	O3	D10	O3	O3	O1	D12	R3	R3
N11	E2	B4	B4	N9	E4	E4	E4	N7	E6	H4	H4	N5	E8	K4	K4	N3	E10	N4	N4	N1	E12	Q4	Q4
M11	F2	C4	C4	M9	F4	F4	F4	M7	F6	I4	I4	M5	F8	L4	L4	M3	F10	O4	O4	M1	F12	R4	R4
L11	G2	C5	C5	L9	G4	F5	F5	L7	G6	I5	I5	L5	G8	L5	L5	L3	G10	O5	O5	L1	G12	R5	R5
K11	H2	B6	B6	K9	H4	E6	E6	K7	H6	H6	H6	K5	H8	K6	K6	K3	H10	N6	N6	K1	H12	Q6	Q6
J11	I2	C6	C6	J9	I4	F6	F6	J7	I6	I6	I6	J5	I8	L6	L6	J3	I10	O6	O6	J1	I12	R6	R6
I11	J2	C7	C7	I9	J4	F7	F7	I7	J6	I7	I7	I5	J8	L7	L7	I3	J10	O7	O7	I1	J12	R7	R7
H11	K2	B8	B8	H9	K4	E8	E8	H7	K6	H8	H8	H5	K8	K8	K8	H3	K10	N8	N8	H1	K12	Q8	Q8
G11	L2	C8	C8	G9	L4	F8	F8	G7	L6	I8	I8	G5	L8	L8	L8	G3	L10	O8	O8	G1	L12	R8	R8
F11	M2	C9	C9	F9	M4	F9	F9	F7	M6	I9	I9	F5	M8	L9	L9	F3	M10	O9	O9	F1	M12	R9	R9
E11	N2	B10	B10	E9	N4	E10	E10	E7	N6	H10	H10	E5	N8	K10	K10	E3	N10	N10	N10	E1	N12	Q10	Q10
D11	O2	C10	C10	D9	O4	F10	F10	D7	O6	I10	I10	D5	O8	L10	L10	D3	O10	O10	O10	D1	O12	R10	R10
C11	P2	C11	C11	C9	P4	F11	F11	C7	P6	I11	I11	C5	P8	L11	L11	C3	P10	O11	O11	C1	P12	R11	R11
B11	Q2	B12	B12	B9	Q4	E12	E12	B7	Q6	H12	H12	B5	Q8	K12	K12	B3	Q10	N12	N12	B1	Q12	Q12	Q12
A11	R2	C12	C12	A9	R4	F12	F12	A7	R6	I12	I12	A5	R8	L12	L12	A3	R10	O12	O12	A1	R12	R12	R12

# ZipLine™ Orthogonal Routing (F180 R180 Layout Configuration):



Key:



Notes:

- 1 PCB hole pattern and Header attachment to PCB same as F0R0, which is specified on customer drawing.
- 2 Front and Rear RARs are mated 180° Relative to Standard (F0R0) Configuration.
- 3 Contact pairs are symmetric about like pair diagonal
- 4 **F11** - Specifies contact position **F** in column **11** (Front) or row **11** (Rear)
- 5 Contact positions identify RAR mating (Daughter Card) contact positions. See F0R0 for header contact positions.

A1 Corner For Front and Rear Mid-Plane Headers is Always in the Lower Left

# ZipLine™ Orthogonal Routing (F180 R180 Pin-Out Table):



**Tabular Listing For F180R180 Daughter Card and Mid-Plane Via Locations**

Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR	Front RAR	Midplane Headers	Rear RAR						
R12	A1	B1	Q12	R10	A3	E1	N12	R8	A5	H1	K12	R6	A7	K1	H12	R4	A9	N1	E12	R2	A11	Q1	B12
Q12	B1	A1	R12	Q10	B3	D1	O12	Q8	B5	G1	L12	Q6	B7	J1	I12	Q4	B9	M1	F12	Q2	B11	P1	C12
P12	C1	A2	R11	P10	C3	D2	O11	P8	C5	G2	L11	P6	C7	J2	I11	P4	C9	M2	F11	P2	C11	P2	C11
O12	D1	B3	Q10	O10	D3	E3	N10	O8	D5	H3	K10	O6	D7	K3	H10	O4	D9	N3	E10	O2	D11	Q3	B10
N12	E1	A3	R10	N10	E3	D3	O10	N8	E5	G3	L10	N6	E7	J3	I10	N4	E9	M3	F10	N2	E11	P3	C10
M12	F1	A4	R9	M10	F3	D4	O9	M8	F5	G4	L9	M6	F7	J4	I9	M4	F9	M4	F9	M2	F11	P4	C9
L12	G1	B5	Q8	L10	G3	E5	N8	L8	G5	H5	K8	L6	G7	K5	H8	L4	G9	N5	E8	L2	G11	Q5	B8
K12	H1	A5	R8	K10	H3	D5	O8	K8	H5	G5	L8	K6	H7	J5	I8	K4	H9	M5	F8	K2	H11	P5	C8
J12	I1	A6	R7	J10	I3	D6	O7	J8	I5	G6	L7	J6	I7	J6	I7	J4	I9	M6	F7	J2	I11	P6	C7
I12	J1	B7	Q6	I10	J3	E7	N6	I8	J5	H7	K6	I6	J7	K7	H6	I4	J9	N7	E6	I2	J11	Q7	B6
H12	K1	A7	R6	H10	K3	D7	O6	H8	K5	G7	L6	H6	K7	J7	I6	H4	K9	M7	F6	H2	K11	P7	C6
G12	L1	A8	R5	G10	L3	D8	O5	G8	L5	G8	L5	G6	L7	J8	I5	G4	L9	M8	F5	G2	L11	P8	C5
F12	M1	B9	Q4	F10	M3	E9	N4	F8	M5	H9	K4	F6	M7	K9	H4	F4	M9	N9	E4	F2	M11	Q9	B4
E12	N1	A9	R4	E10	N3	D9	O4	E8	N5	G9	L4	E6	N7	J9	I4	E4	N9	M9	F4	E2	N11	P9	C4
D12	O1	A10	R3	D10	O3	D10	O3	D8	O5	G10	L3	D6	O7	J10	I3	D4	O9	M10	F3	D2	O11	P10	C3
C12	P1	B11	Q2	C10	P3	E11	N2	C8	P5	H11	K2	C6	P7	K11	H2	C4	P9	N11	E2	C2	P11	Q11	B2
B12	Q1	A11	R2	B10	Q3	D11	O2	B8	Q5	G11	L2	B6	Q7	J11	I2	B4	Q9	M11	F2	B2	Q11	P11	C2
A12	R1	A12	R1	A10	R3	D12	O1	A8	R5	G12	L1	A6	R7	J12	I1	A4	R9	M12	F1	A2	R11	P12	C1
R11	A2	C1	P12	R9	A4	F1	M12	R7	A6	I1	J12	R5	A8	L1	G12	R3	A10	O1	D12	R1	A12	R1	A12
Q11	B2	B2	Q11	Q9	B4	E2	N11	Q7	B6	H2	K11	Q5	B8	K2	H11	Q3	B10	N2	E11	Q1	B12	Q2	B11
P11	C2	C2	P11	P9	C4	F2	M11	P7	C6	I2	J11	P5	C8	L2	G11	P3	C10	O2	D11	P1	C12	R2	A11
O11	D2	C3	P10	O9	D4	F3	M10	O7	D6	I3	J10	O5	D8	L3	G10	O3	D10	O3	D10	O1	D12	R3	A10
N11	E2	B4	Q9	N9	E4	E4	N9	N7	E6	H4	K9	N5	E8	K4	H9	N3	E10	N4	E9	N1	E12	Q4	B9
M11	F2	C4	P9	M9	F4	F4	M9	M7	F6	I4	J9	M5	F8	L4	G9	M3	F10	O4	D9	M1	F12	R4	A9
L11	G2	C5	P8	L9	G4	F5	M8	L7	G6	I5	J8	L5	G8	L5	G8	L3	G10	O5	D8	L1	G12	R5	A8
K11	H2	B6	Q7	K9	H4	E6	N7	K7	H6	H6	K7	K5	H8	K6	H7	K3	H10	N6	E7	K1	H12	Q6	B7
J11	I2	C6	P7	J9	I4	F6	M7	J7	I6	I6	J7	J5	I8	L6	G7	J3	I10	O6	D7	J1	I12	R6	A7
I11	J2	C7	P6	I9	J4	F7	M6	I7	J6	I7	J6	I5	J8	L7	G6	I3	J10	O7	D6	I1	J12	R7	A6
H11	K2	B8	Q5	H9	K4	E8	N5	H7	K6	H8	K5	H5	K8	K8	H5	H3	K10	N8	E5	H1	K12	Q8	B5
G11	L2	C8	P5	G9	L4	F8	M5	G7	L6	I8	J5	G5	L8	L8	G5	G3	L10	O8	D5	G1	L12	R8	A5
F11	M2	C9	P4	F9	M4	F9	M4	F7	M6	I9	J4	F5	M8	L9	G4	F3	M10	O9	D4	F1	M12	R9	A4
E11	N2	B10	Q3	E9	N4	E10	N3	E7	N6	H10	K3	E5	N8	K10	H3	E3	N10	N10	E3	E1	N12	Q10	B3
D11	O2	C10	P3	D9	O4	F10	M3	D7	O6	I10	J3	D5	O8	L10	G3	D3	O10	O10	D3	D1	O12	R10	A3
C11	P2	C11	P2	C9	P4	F11	M2	C7	P6	I11	J2	C5	P8	L11	G2	C3	P10	O11	D2	C1	P12	R11	A2
B11	Q2	B12	Q1	B9	Q4	E12	N1	B7	Q6	H12	K1	B5	Q8	K12	H1	B3	Q10	N12	E1	B1	Q12	Q12	B1
A11	R2	C12	P1	A9	R4	F12	M1	A7	R6	I12	J1	A5	R8	L12	G1	A3	R10	O12	D1	A1	R12	R12	A1

- To further assist you in using ZipLine™ connectors, the following additional documentation is also available through FCI Marketing and Sales:
  - Application Specification: GS-20-094
  - Product Specification: GS-12-452
  - User Guide for Orthogonal Routing: E-3699
    - Includes a table that can be sorted
  - Customer drawings
  - Touchstone files
    - Specific files for each configuration
  - SI test reports

