



Proposed Module Concepts

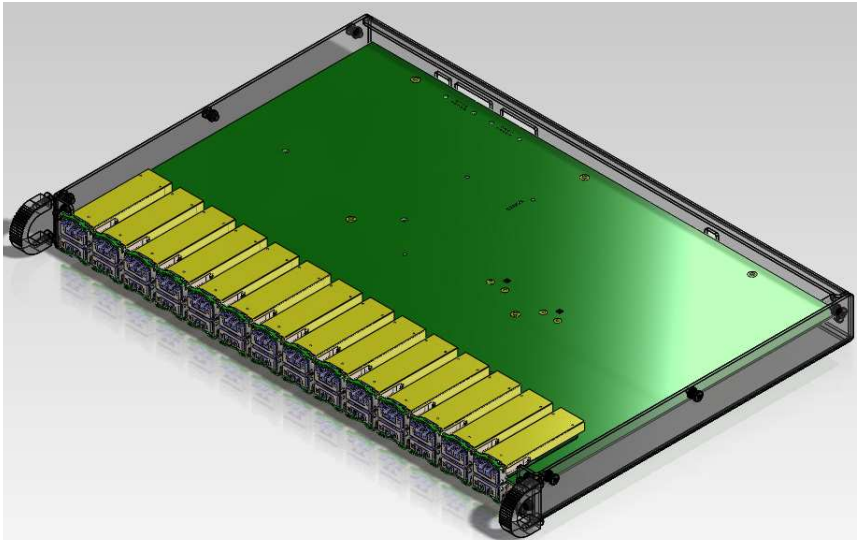
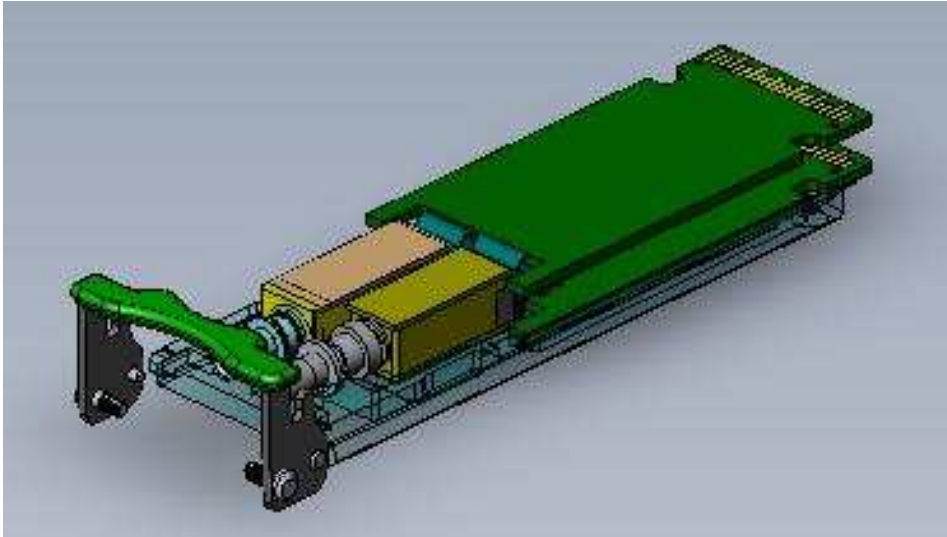
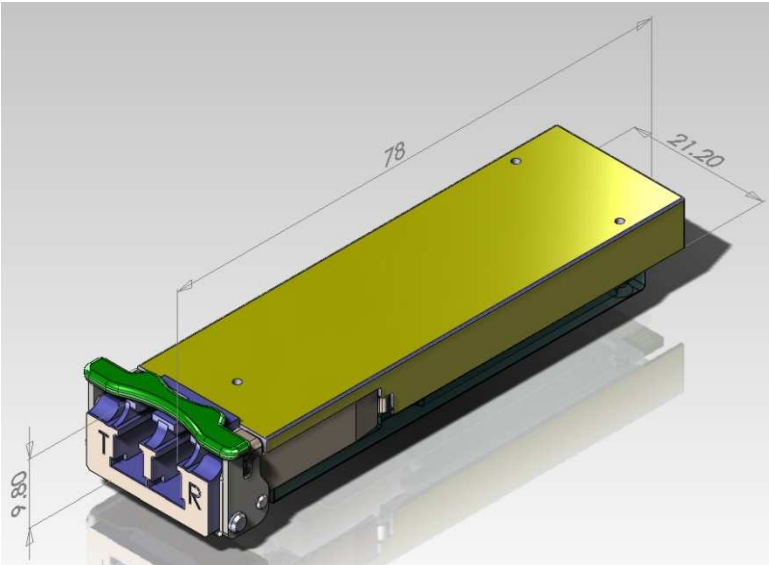
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10x10 MSA Meeting 25 Jan 2011

Outline

- Option 1 – CXP2
 - Module dimensions
 - Electrical signal connections
 - Pros & Cons
- Option 2 – “XXP” (10x10 Pluggable)
 - Module dimensions
 - Electrical signal connections
 - Pros & Cons

CXP2 Module Dimensions



28 modules per
19" card

CXP2 Electrical Signals

Infiniband 12x10Gb/s

Bottom side			Top Side		
I/O #	Name	Contact Length	Contact Length	Name	I/O #
Receiver – Top Card					
C1	GND			GND	D1
C2	Rx1p			Rx1p	D2
C3	Rx1n			Rx1n	D3
C4	GND			GND	D4
C5	Rx3p			Rx3p	D5
C6	Rx3n			Rx3n	D6
C7	GND			GND	D7
C8	Rx5p			Rx4p	D8
C9	Rx5n			Rx4n	D9
C10	GND			GND	D10
C11	Rx7p			Rx5p	D11
C12	Rx7n			Rx5n	D12
C13	GND			GND	D13
C14	Rx9p			Rx3p	D14
C15	Rx9n			Rx3n	D15
C16	GND			GND	D16
C17	Rx11p			Rx10p	D17
C18	Rx11n			Rx10n	D18
C19	GND			GND	D19
C20	PRSN_T_L			Vcc3.3-Rx	D20
C21	Int_LReset_L			Vcc12-Rx	D21
Transmitter – Bottom Card					
A1	GND			GND	B1
A2	Tx1p			Tx1p	B2
A3	Tx1n			Tx1n	B3
A4	GND			GND	B4
A5	Tx3p			Tx2p	B5
A6	Tx3n			Tx2n	B6
A7	GND			GND	B7
A8	Tx5p			Tx4p	B8
A9	Tx5n			Tx4n	B9
A10	GND			GND	B10
A11	Tx7p			Tx6p	B11
A12	Tx7n			Tx6n	B12
A13	GND			GND	B13
A14	Tx9p			Tx8p	B14
A15	Tx9n			Tx8n	B15
A16	GND			GND	B16
A17	Tx11p			Tx10p	B17
A18	Tx11n			Tx10n	B18
A19	GND			GND	B19
A20	SCL			Vcc3.3-Tx	B20
A21	SDA			Vcc12-Tx	B21

100GBASE-CR10

Tx lane	MDI connector contact	Tx lane	MDI connector contact	Rx lane	MDI connector contact	Rx lane	MDI connector contact
signal gnd	A1	signal gnd	B1	signal gnd	C1	signal gnd	D1
SL0-p>	A2		B2	DL0-p>	C2		D2
SL0-n>	A3		B3	DL0-n>	C3		D3
signal gnd	A4	signal gnd	B4	signal gnd	C4	signal gnd	D4
SL2-p>	A5	SL1-p>	B5	DL2-p>	C5	DL1-p>	D5
SL2-n>	A6	SL1-n>	B6	DL2-n>	C6	DL1-n>	D6
signal gnd	A7	signal gnd	B7	signal gnd	C7	signal gnd	D7
SL4-p>	A8	SL3-p>	B8	DL4-p>	C8	DL3-p>	D8
SL4-n>	A9	SL3-n>	B9	DL4-n>	C9	DL3-n>	D9
signal gnd	A10	signal gnd	B10	signal gnd	C10	signal gnd	D10
SL5-p>	A11	SL5-p>	B11	DL6-p>	C11	DL5-p>	D11
SL5-n>	A12	SL5-n>	B12	DL6-n>	C12	DL5-n>	D12
signal gnd	A13	signal gnd	B13	signal gnd	C13	signal gnd	D13
SL8-p>	A14	SL7-p>	B14	DL8-p>	C14	DL7-p>	D14
SL8-n>	A15	SL7-n>	B15	DL8-n>	C15	DL7-n>	D15
signal gnd	A16	signal gnd	B16	signal gnd	C16	signal gnd	D16
	A17	SL9-p>	B17		C17	DL9-p>	D17
	A18	SL9-n>	B18		C18	DL9-n>	D18
signal gnd	A19	signal gnd	B19	signal gnd	C19	signal gnd	D19

NOTE—Although the 100GBASE-CR10 MDI supports 84 connections only the transmitter and receiver contact assignments are specified.

Spare pins for +3.3V?

CXP2 Pros and Cons

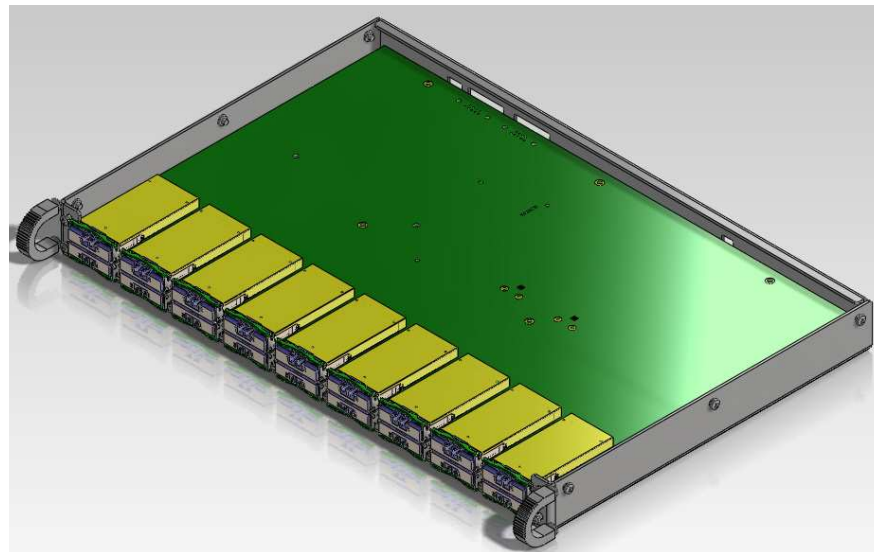
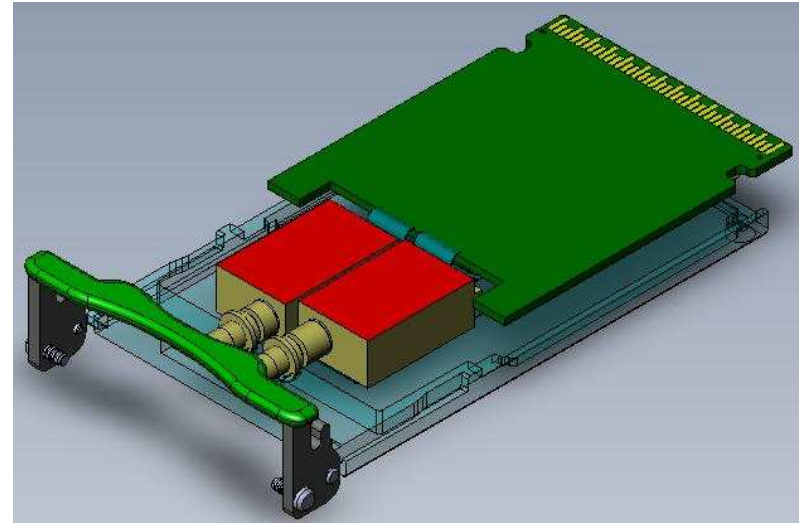
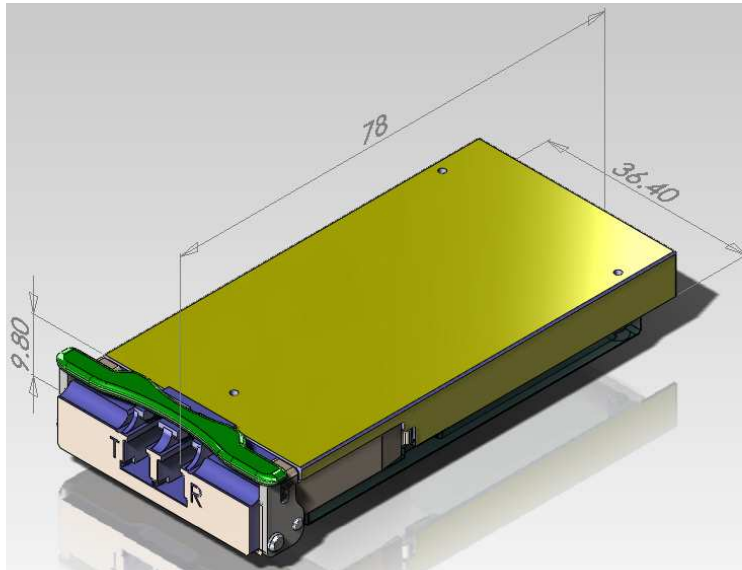
■ PROS

- Narrow width enables high faceplate density
- Connector available now

■ CONS

- Narrow width makes 10:1 CWDM TOSA & ROSA very challenging
- Extended cage needed

XXP Module Dimensions



18 modules per
19" card

XXP Electrical Signals

	Top		Bottom
80	GND	1	GND
79	Tx0n	2	Tx1n
78	Tx0p	3	Tx1p
77	GND	4	GND
76	Tx2n	5	Tx3n
75	Tx2p	6	Tx3p
74	GND	7	GND
73	Tx4n	8	Tx5n
72	Tx4p	9	Tx5p
71	GND	10	GND
70	Tx6n	11	Tx7n
69	Tx6p	12	Tx7p
68	GND	13	GND
67	Tx8n	14	Tx9n
66	Tx8p	15	Tx9p
65	GND	16	GND
64	LPMoDe	17	ModselL
63	3.3V_GND	18	ResetL
62	3.3V	19	3.3V_GND
61	3.3V	20	3.3V
60	3.3V	21	3.3V
59	3.3V_GND	22	3.3V_GND
58	IntL	23	SCL
57	ModPrsL	24	SDA
56	GND	25	GND
55	Rx9p	26	Rx8p
54	Rx9n	27	Rx8n
53	GND	28	GND
52	Rx7p	29	Rx6p
51	Rx7n	30	Rx6n
50	GND	31	GND
49	Rx5p	32	Rx4p
48	Rx5n	33	Rx4n
47	GND	34	GND
46	Rx3p	35	Rx2p
45	Rx3n	36	Rx2n
44	GND	37	GND
43	Rx1p	38	Rx0p
42	Rx1n	39	Rx0n
41	GND	40	GND

- Similar to QSFP+ layout
 - 2 extra +3.3V supply pins
 - Max Icc = 2500 mA total
 - Max Power \approx 8.2 W

XXP Pros and Cons

■ PROS

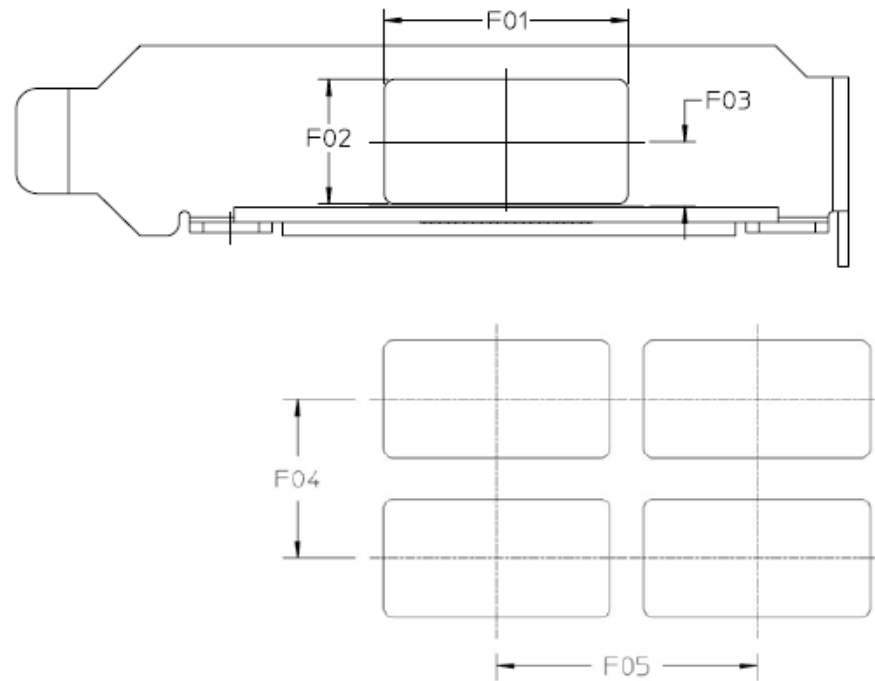
- Much higher faceplate density than CFP
- Top side surface area in close contact with all heat generating components
- Width available for 10:1 TOSA & ROSA

■ CONS

- Lower faceplate density than CXP2
- New cage needed
- 80 pin version of QSFP+ connector needed

- Backup slides

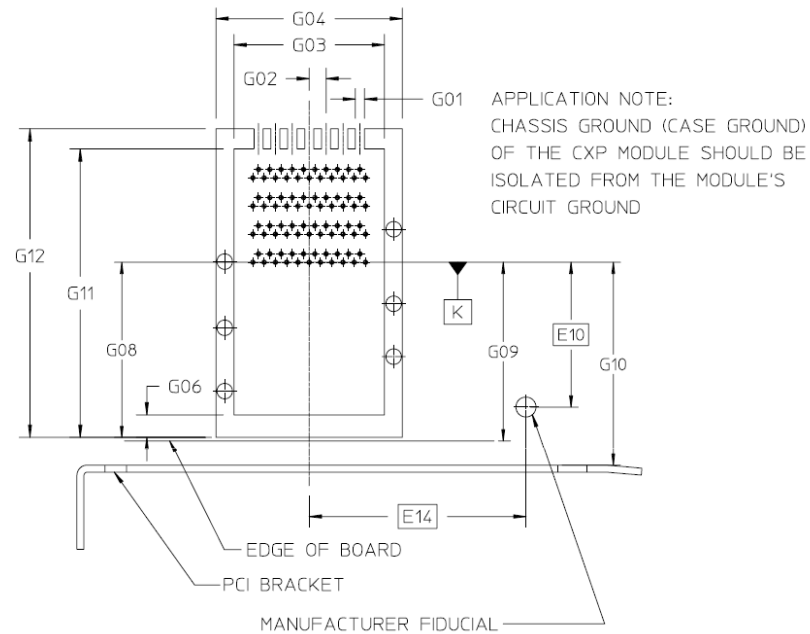
CXP Faceplate Density



	Description	Dim.	Tol.		Description	Dim.	Tol.
F01	Cutout Length	23.50	0.05	F04	Vertical Pitch	16.50	Min
F02	Cutout Height	12.10	0.05	F05	Horizontal Pitch (individual receptacles)	27.00	Min
F03	Cutout Location from PCB Surface	6.29	0.05				

Figure 15 Panel Cutout - Shown in example application, Low Profile PCIe card

CXP PCB Area



	Description	Dim.	Tol.		Description	Dim.	Tol.
G01	Ground Pad Alley Width	1.30	0.10	G07	Connector Datum to Manufacturer Fiducial	Basic	N/A
G02	Ground Pad Alley Spacing	2.40	0.10	G08	Connector Datum to Front Pad Edge	24.88	0.10
G03	Ground Pad Inner Width	21.40	0.10	G09	Connector Datum to Card Edge	25.38	Ref
G04	Ground Pad Width	26.49	0.10	G10	Connector Datum to Bezel	28.96	0.25
G05	Pad Center to Manufacturer Fiducial	Basic	N/A	G11	Ground Pad Edge to Inside Pad Edge	40.99	0.10
G06	Ground Pad Width	3.21	0.10	G12	Ground Pad Length	43.84	0.10

Figure 14 Ground Pad - Shown in example application, Low Profile PCIe card

QSFP+ (XFP) Faceplate Density

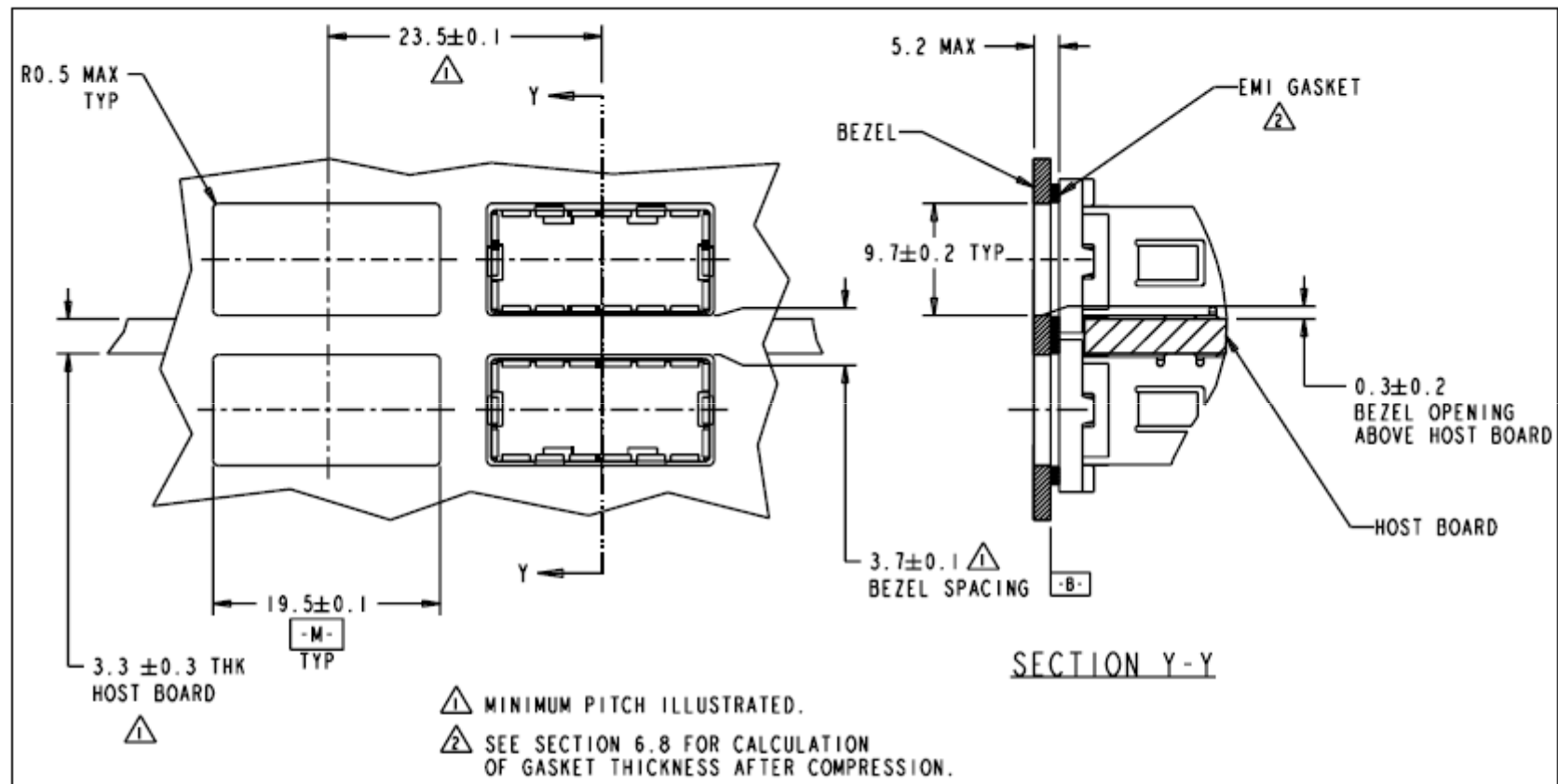


Figure 38 Recommended Double Side Mounting Bezel Design

