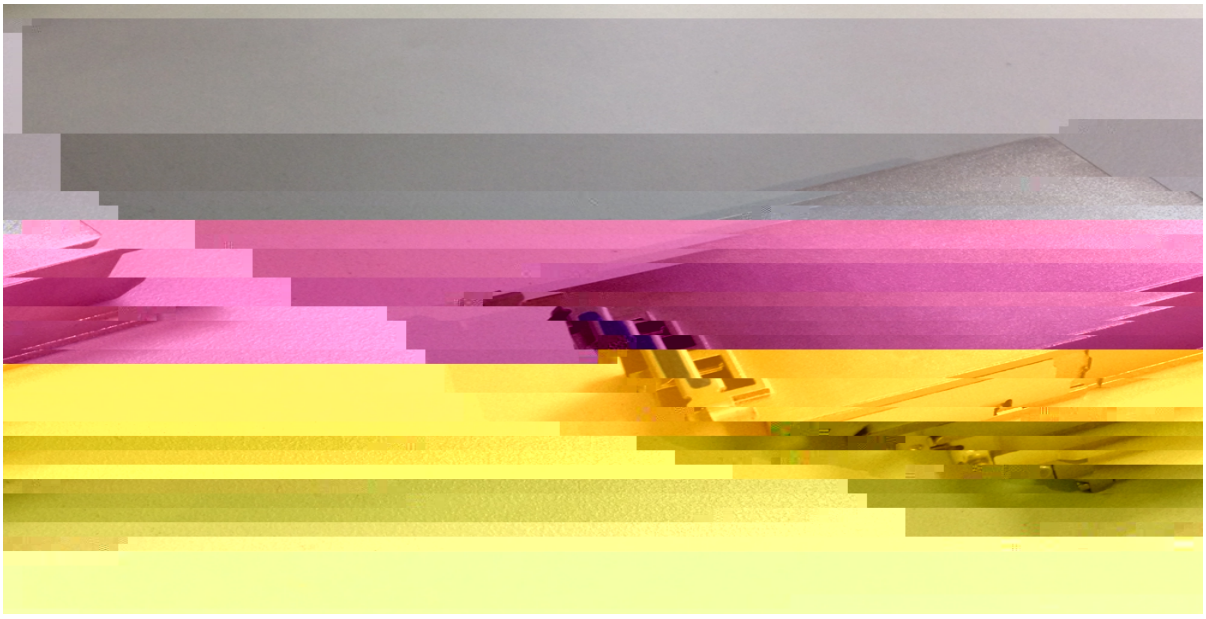
100Gb/s CFP4 Optical Transceiver



Features

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Application

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Standards

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Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max

I H -		1.2 IH	-	0.84	1.5	
I -		1.2 I	-	-0.3	0.36	
I C		1.2II	A	-100	+100	
H -		1.2 H	-	1.0	1.5	
-		1.2	-	-0.3	0.2	
H C		1.2I H	A		-4	
C		1.2I	A	+4		
I C		C	F		10	
C						
E （100G E）		G	-	25.78125		
E （ 4）				27.95249		
F	λ1		1294.53	1295.56	1296.59	
	λ2		1299.02	1300.05	1301.09	
	λ3		1303.54	1304.58	1305.63	
	λ4		1308.09	1309.14	1310.19	
		B	30	-		
A		B	-	10.5		
A E (100G E)		B	-4.3	+4.5	2	
A E (4)			-2.5	+2.9		
A E	A	B	-1.3	4.5	3	
D E (100G E)	D	B		2.2		
(4)				1.5		
A E E (100G E)	E E	B B	- 4	-30		

A E		
A	B	-12
D -	B -19	
H	B	0.2

Note1. CF
.

Note2. A , ( )
. A ;
,

Note3. E D <1 B, A( )

Note4.

Note5. , ,

Note6. , ( ) 100GBA E-E 4
100BA E-E 4 100BA E- 4

Note7. A , ( )
. A ; ,

Note8. (A), ( )

Note9. B 2^{31}-1 BE =10^{-5}. BE 4
FEC .

Note10. 3 BE =10^{-12}

Note11. :
1.8 B; 2 0.3 I; 9
0.47 I.

Hardware Control Pins

CF - ,
: H C

H C

#		D	I/		H		- /
11	DI (G C)	D	I	3.3 - C	D	E	- 1
14	D		I	3.3 - C		E	- 1
16	D	(I)	I	3.3 - C	E		-D 2

Note1: - (4.7 10) CF
Note2: -D (4.7 10) CF

Hardware Alarm Pins

CF : H A

H A

#		D	I/		H		- /
15	D AB	A		3.3 - C	A		-D 1
12	(G A)			3.3 - C			

Note1: -D (<100) CF . -

Management Interface Pins(MDIO)

CF , DI . CF
DI : I

I

#		D	I/		H		- /

13 18	G B A DI	G A	I	3.3 - C		A	

D I					A DI & . DI

C C

I		80	100	120	Ω	
F					H	1/8
D -	- DIFF	400		1200	-	D
C D C		40		60	%	

CFP Register Allocation

CF A					
A H	E A H	A	A	D B	D
0000	7FFF	/A	32768	/A	IEEE 802.3
8000	807F		128	8	CF - 1.B ID
8080	80FF		128	8	CF - 2.E ID
8100	817F		128	8	CF - 3.
8180	81FF		128	8	CF - 4
8200	83FF		4 128		

CFP NVR1

CF - 1

H A		A	B		C (HE)	B
				B ID I		
8000	1		7 0	I	12	/A
8001	1		7 0	E I	E4	/A
8002	1		7 0	C C	07	/A
8003	1		7 0	E A C	01	/A

:F A I		
H -		
F -		
D D		
D D C 1		
D D C 2		
E		
H - -		
- -		
H		
H		
- -		
H - -		
E 2		
C		
C		
F B -		
DI		
CF CF 2/4 E I		
CF - 1 C		

'Warning Threshold Registers

	C (HE)	B
B ID I		
H A		
H		
A		

809A	2		7 0	A 1 H		
809C	2		7 0	A 1		
809E	2		7 0	A 1 A		
80A0	2		7 0	A 2 H A		
80A2	2		7 0	A 2 H		
80A4	2		7 0	A 2		
80A6	2		7 0	A 2 A		
80A8	2		7 0	B C H A		
80AA	2		7 0	B C H		
80AC	2		7 0	B C		
80AE	2		7 0	B C A		
80B0	2		7 0	H A		
80B2	2		7 0	H		
80B4	2		7 0			
80B6	2		7 0	A		
80B8	2		7 0	H A		
80BA	2		7 0	H		
80BC	2		7 0			
80BE	2		7 0	A		
80C0	2		7 0	H A		
80C2	2		7 0	H		
80C4	2		7 0			
80C6	2		7 0	A		
80C8	55		7 0			
80FF	1		7 0	CF - 2 C		

CFP NVR3

Network Lane BOL Measurement Registers

H A		A	B		C (HE)	B
				B ID I		
8100	32		7 0	0 15		
8120	32		7 0	0 15		
8140	32		7 0	E 0 15		
8160	32		7 0			

				0 15		

CFP NVR4

H A		A	B		C (HE)	B
B ID I						
8180	1		7 0	CF - 3 C		
8181	127		7 1			

CFP VR1

H A		A	B		C (HE)	B
C /						
A000	2		15 0			
A002	2		15 0			
A004	1			**NVR Access Control**		
			8 6			
			4			
			3 2	C		
			15 9			
			5	C		
			1 0	E C		
A005	1			**PRG_CNTL3 Function Select**		
			15 8			
			7 0	F C		
A006	1			**PRG_CNTL2 Function Select**		
			15 8			
			7 0	F C		
A007	1			**PRG_CNTL1 Function Select**		
			15 8			
			7 0	F C		
A008	1			**PRG_ALRM3 Source Select**		
			15 8			
			7 0	A C		
A009	1			**PRG_ALRM2 Source Select**		
			15 8			
			7 0	A C		
A00A	1			**PRG_ALRM1 Source Select**		
			15 8			
			7 0	A C		
A00B	1			B -/ -D		
			15 3			
			2 0	B / -D		
A00C	4					
C						
A010	1			**Module General Control**		
		/ C/ H	15			
			14			
			13	D		
			12	G C 3 C		

			11	G C 2 C		
			10	G C 1 C		
			9	G B A		
			8 6			
			5	DI		
			4	D		
			3	G C 3		
			2	G C 2		
			1	G C 1		
			0			
A011	1			**Netwowk Lane TX Control**		
			15			
			14	B G E		
			13	B 1		
			12	B 0		
			11	D - E		
			10	FIF		
			9	FIF A		
			8			
			7 5	C C		
			4			
			3 1	(10G)		
			0	C		
A012	1			**Network Lane RXControl**		
			15	A D -		
			14	B C E		
			13	B 1		
			12	B 0		
			11	C C		
			10	-		
			9	FIF A		
			8			
			7 5	C C		
			4	FIF		
			3 1			

			14	B C E		
			13	B 1		
			12	B 0		
			11			
			10	H - E		
			9			
			8			
			7	B G E		
			6	B 1		
			5	B 0		
			4 0			
A015	1					
A016	1			**Module State**		
			15 9			
			8	H - -		
			7	- -		
			6	F		
			5			
			4	- -		
			3	-		
			2	H - -		

			6	6 A		
			5	5 A		
			4	4 A		
			3	3 A		
			2	2 A		
			1	1 A		
			0	0 A		
A01A	1			**Network Lane Fault and Status Summary**		
			15	15 F		
			14	14 F		
			13	13 F		
			12	12 F		
			11	11 F		
			10	10 F		
			9	9 F		
			8	8 F		
			7	7 F		
			6	6 F		
			5	5 F		
			4	4 F		
			3	3 F		
			2	2 F		
			1	1 F		
			0	0 F		
A01B	1			**Host Lane Fault and Status Summary**		
			15	15 F		
			14	14 F		
			13	13 F		
			12	12 F		
			11	11 F		
			10	10 F		

			9	9 F		
			8	8 F		
			7	7 F		
			6	6 F		
			5	5 F		
			4	4 F		
			3	3 F		
			2	2 F		
			1	1 F		
			0	0 F		
A01C	1					
FA						
A01D	1			**Module General Status**		
			15			
			14			
			13	H I		

12 11

			1	A B		
			0	A B A		
A020	1			**Module Alarms and Warnings 2**		
			15 8			
			7	A 1 H A		
			6	A 1 H		
			5	A 1		
			4	A 1 A		
			3	A 2 H A		
			2	A 2 H		
			1	A 2		
			0	A 2 A		
A021	1					
A022	1			**Module State Latch**		
			15 9			
		RO/LH/COR	8	H - -		
		RO/LH/COR	7	-		

		/ H/C	4	- A		
		/ H/C	3	A B H A		
		/ H/C	2	A B H		
		/ H/C	1	A B		
		/ H/C	0	A B A		
A026	1			**Module Alarms and Warnings 2 latch**		
			15 8			
		/ H/C	7	A 1 H A		
		/ H/C	6	A 1 H		
		/ H/C	5	A 1		

			0			
A02B	1			A 1 E		
			15 12			
			11	H A E		
			10	H E		
			9	E		
			8	A E		
			7	- H A E		
			6	- H E		
			5	- E		
			4	- A E		
			3	A B H A E		
			2	A B H E		
			1	A B E		
			0	A B A E		
A02C	1			**Module Alarms and Warnings Enable**		
			15 8			
			7	A 1 H A E		
			6	A 1 H E		
			5	A 1 E		
			4	A 1 A E		
			3	A 2 H A E		
			2	A 2 H E		
			1	A 2 E		
			0	A 2 A E		

A02D

CFP Network Lane VR1

Network Lane VR1

- 1						
H A		A	B		C (HE)	B
Network Lane FAWS Registers						
A200	16			**Network Lane n Alarm and Warning**		
			15	B H A		
			14	B H		

			14	F E		
			13	A D F E		
			12 8			
			7	F E		
			6	E		
			5			
			4	E		
			3	E		
			2	FIF E		
			1 0			
A260	32					

CFP Network Lane VR2

Network Lane VR2

- 1						
H A		A	B		C (HE)	B
Network Lane Control Registers						
A280	16			**Network Lane n FEC Controls**		
			15 8	A		
			7 0	A A		
A290	16		15 0	B E C		
			15 10	E		

A410	16			**Host Lane m Fault and Status Latch**		
			15 2			
		/ H/C	1	FIF E		
		/ H/C	0	H		
Host Lane FAWS Enable Registers						
A420	16			**Host Lane m Fault and Status Enable**		
			15 2			
			1	FIF E E		
			0	H E		
Host Lane Digital PRBS Registe						
A430	16			**Host Lane m PRBS TX Error Count**		
			15 10	E		
			9 0			
Host Lane Control Registers						
A440	16			**Host Lane m Control**		
			15 4			
			3 0	/D -		
A450	48					

Pin Description

CF 4 56 B .

. B 1 28

. F .

Figure : CFP4 Pin Map Orientation

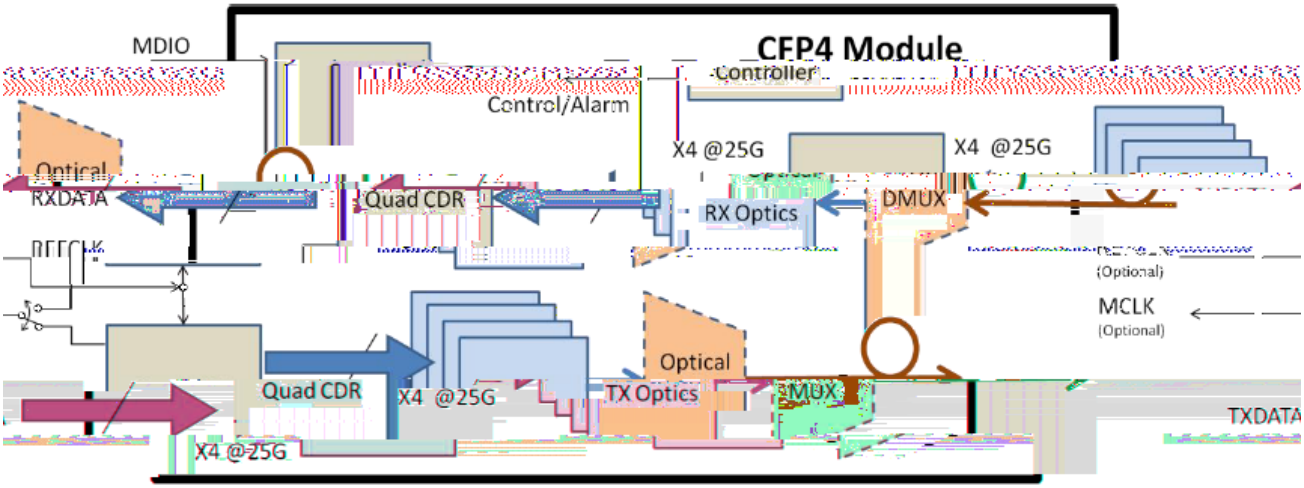
52	2	5	3.3	52	1
51	2	6	3.3	51	1
50	G D	7	3.3 G D	50	G D
49	1	8	3.3 G D	49	2
48	1	9	- D I A	48	2
47	G D	10	- D I B	47	G D
46	0	11	DI (G C 1)	46	3
45	0	12	(G A 1)	45	3
44	G D	13	G B A	44	G D
43	EFC	14	D	43	EFC
42	EFC	15	D AB	42	EFC
41	G D	16	D	41	G D
40	3	17	DC	40	3
39	3	18	DI	39	3
38	G D	19	AD 0	38	G D
37	2	20	AD 1	37	2
36	2	21	AD 2	36	2
35	G D	22	- D I C	35	G D
34	1	23	- D I D	34	1
33	1	24	- D I E	33	1
32	G D	25	G D	32	G D
31	0	26	C	31	0
30	0	27	C	30	0
29	G D	28	G D	29	G D

Table: Pin description

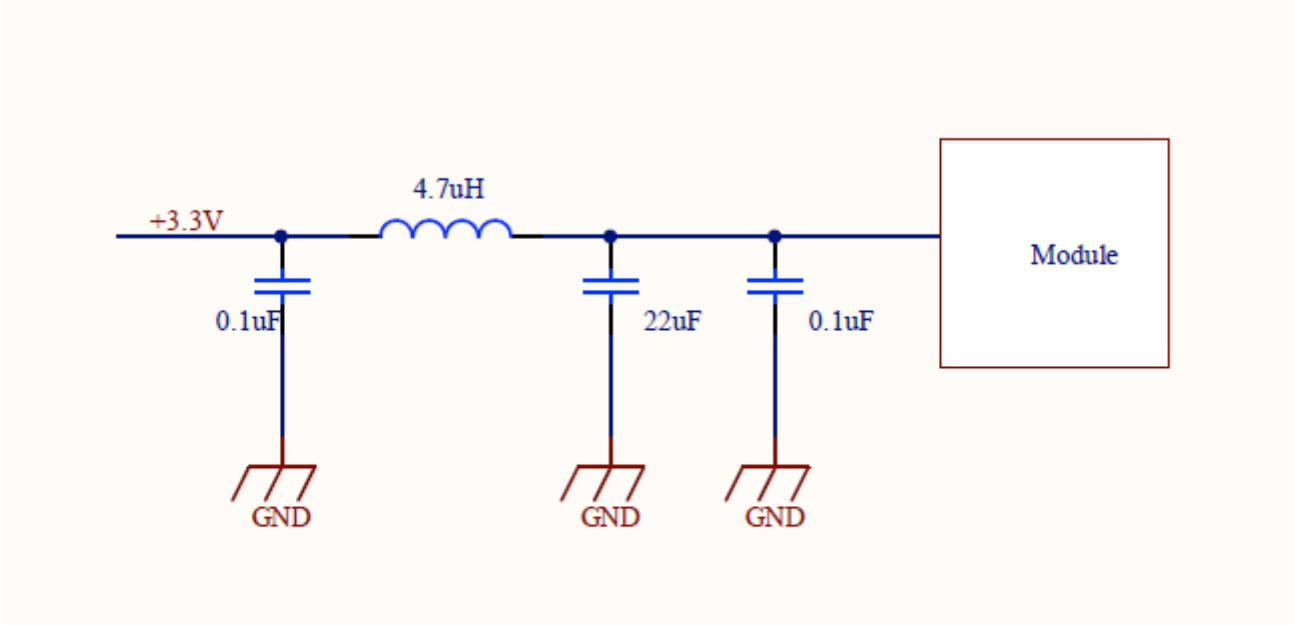
PIN#	Name	I/O	Logic	Description
1	3.3 G D			

8	3.3 G D			3.3 - G ,
9	- D I A	I/		- I/ . D C
10	- D I B			

Block diagram



Required Host Board Components



	CD H 21-CF 1040 C 1
	- -G
	CE

Ordering Information

Part No	Specifications	Application Code
	D	
290-701 CF 4	103.125/111.8 G C 1310 A E A DFB- D -2.5 +2.9 B I <-8.6 B 0 70 C 10 DD 100G E/ 4	