X2S00000100D – SFP+ to X2 Converter
10G-BaseX / Data Transparent

For your product safety, please read the following information carefully before any manipulation of the transceiver:

ESD
This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.

LASER SAFETY (only applicable when one SFP+ transceiver is inserted)
This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.

1. Overview

X2S00000100D is a high performance SFP+ to X2 converter allowing SFP+ transceivers to be used in X2-based host platforms. The data channels are totally transparent. The SFP+ to X2 converter has an internal EEPROM which can be read by the host platform. Once the X2 converter has been programmed for a specific platform, it will be possible to plug any type of generic SFP+ transceiver. The SFP+ Digital Diagnostics Monitoring information is read by the X2 converter and is subsequently made accessible to the host platform.

This transceiver module is compliant with the Small Form-factor Pluggable (X2) Multisource Agreement (MSA) and hot pluggable. Always contact Skylane Optics commercial agents for compatibility with different equipment platforms.

2. Features

- X2 Multi-Source Agreement 1.0B compliant
- Hot pluggable
- 4×3.125Gbps XAUI Electrical Interface
- MSA SFP+ input cage inside the converter
- 10G-BaseX operation in host systems
- Operating temperature range 0°C to 70°C
- Low power dissipation (<2W)
- EEPROM access, management and control via MDIO 2-wire interface according to XENPAK MSA 3.0
- Fully transparent Data Channels
- Accepts all Skylane Optics SFP+ Transceivers
- Digital Diagnostics Monitoring (DDM)

Figure 1. SFP+ to X2 Converter
(non-binding illustration)

3. Applications

- 10GBASE-ZR
- 10GBASE-ER
- 10GBASE-LR
- 10GBASE-SR

4. Technical parameters

4.1. Recommended Operating Conditions					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Notes**
Operating Temperature	0		70	°C	
Relative Humidity	5		95	%	Non condensing

5. Converter Electrical Pad Layout

		GND		70
1	GND	GND		69
2	GND	RESERVED		68
3	GND	RESERVED		67
4	5.0V	GND		66
5	3.3V	TX LANE3-		65
6	3.3V	TX LANE3+		64
7	APS	GND		63
8	APS	TX LANE2-		62
9	LASI	TX LANE2+		61
10	RESET	GND		60
11	VEND SPECIFIC	TX LANE1-		59
12	TX ON/OFF	TX LANE1+		58
13	RESERVED	GND		57
14	MOD DETECT	TX LANE0-		56
15	VEND SPECIFIC	TX LANE0+		55
16	VEND SPECIFIC	GND		54
17	MDIO	GND		53
18	MDC	GND		52
19	PRTAD4	RX LANE3-		51
20	PRTAD3	RX LANE3+		50
21	PRTAD2	GND		49
22	PRTAD1	RX LANE2-		48
23	PRTAD0	RX LANE2+		47
24	VEND SPECIFIC	GND		46
25	APS SET	RX LANE1-		45
26	RESERVED	RX LANE1+		44
27	APS SENSE	GND		43
28	APS	RX LANE0-		42
29	APS	RX LANE0+		41
30	3.3V	GND		40
31	3.3V	RESERVED		39
32	5.0V	RESERVED		38
33	GND	GND		37
34	GND	GND		36
35	GND			

Toward Bezel →

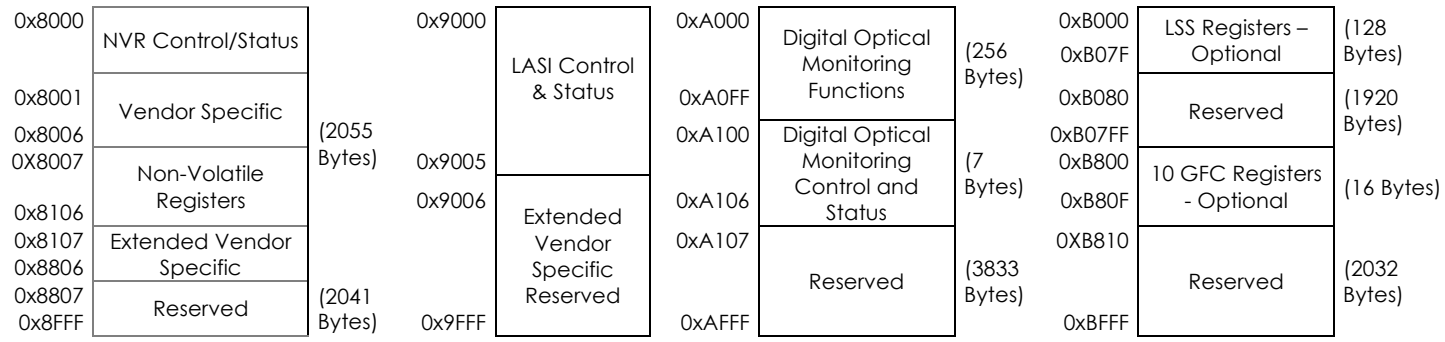
Figure 2. Converter Electrical Pad Layout

6. Pin Functions Definitions

Pin Number	Name	Function	Pin Number	Name	Function
1	GND	Ground	36	GND	Ground
2	GND	Ground	37	GND	Ground
3	GND	Ground	38	RESERVED	Not Used
4	5.0V	5V Power Supply	39	RESERVED	Not Used
5	3.3V	3.3V Power Supply	40	GND	Ground
6	3.3V	3.3V Power Supply	41	RX LANE0+	Module XAUI Output Lane 0+
7	APS	Adaptive Power Supply	42	RX LANE0-	Module XAUI Output Lane 0-
8	APS	Adaptive Power Supply	43	GND	Ground
9	LASI	Link Alarm Status Interrupt (10-22k pull up on host)	44	RX LANE1+	Module XAUI Output Lane 1+
10	RESET	TX OFF when MDIO RESET	45	RX LANE1-	Module XAUI Output Lane 1-
11	VEND SPECIFIC	Not Used	46	GND	Ground
12	TX ON/OFF	Transmitter ON/OFF	47	RX LANE2+	Module XAUI Output Lane 2+
13	RESERVED	Not Used	48	RX LANE2-	Module XAUI Output Lane 2-
14	MOD DETECT	Pull low inside module through 1k	49	GND	Ground
15	VEND SPECIFIC	Not Used	50	RX LANE3+	Module XAUI Output Lane 3+
16	VEND SPECIFIC	Not Used	51	RX LANE3-	Module XAUI Output Lane 3-
17	MDIO	Management Data I/O	52	GND	Ground
18	MDC	Management Data Clock	53	GND	Ground
19	PRTAD4	Port Address Bit 4 (Low=0)	54	GND	Ground
20	PRTAD3	Port Address Bit 3 (Low=0)	55	TX LANE0+	Module XAUI Input Lane 0+
21	PRTAD2	Port Address Bit 2 (Low=0)	56	TX LANE0-	Module XAUI Input Lane 0-
22	PRTAD1	Port Address Bit 1 (Low=0)	57	GND	Ground
23	PRTAD0	Port Address Bit 0 (Low=0)	58	TX LANE1+	Module XAUI Input Lane 1+
24	VEND SPECIFIC	Not Used	59	TX LANE1-	Module XAUI Input Lane 1-
25	APS SET	Feedback output for APS	60	GND	Ground
26	RESERVED	Reserved for Avalanche Photodiode use.	61	TX LANE2+	Module XAUI Input Lane 2+
27	APS SENSE	APS Sense Connection	62	TX LANE2-	Module XAUI Input Lane 2-
28	APS	Adaptive Power Supply	63	GND	Ground
29	APS	Adaptive Power Supply	64	TX LANE3+	Module XAUI Input Lane 3+
30	3.3V	3.3V Power Supply	65	TX LANE3-	Module XAUI Input Lane 3-
31	3.3V	3.3V Power Supply	66	GND	Ground
32	5.0V	5V Power Supply	67	RESERVED	Not Used
33	GND	Ground	68	RESERVED	Not Used
34	GND	Ground	69	GND	Ground
35	GND	Ground	70	GND	Ground

7. EEPROM

X2 Register Set Overview



8. Ordering information

Part Number	Description
X2S00000100D	SFP+ to X2 converter, protocols: 10x Gigabit Ethernet, 0°C to 70°C

Skylane Optics® supplies a broad range of optical transceivers. Our engineers work closely with our customers to find the best solutions for every application. We are committed to provide high quality products and services to our customers.

For questions on this product please contact:
support@skylaneoptics.com