

Product Specification

XENPAK-SFP+ 10G Adapter



1. Features

- Compatible with XENPAK MSA Rev.2.0b
- Case Temperature Range:
- Standard: 0°C +70°C
- Duplex SC connector
- Hot pluggable 70 pin connector with XAUI electrical interface
- Management and control via MDIO 2 wire interface
- Complaint with the EU RoHS 6 Environmental Requirements

2. Applications

- 10G Ethernet

3. Product Description

The XENPAK-SFP+ a 10 Gigabit Ethernet XENPAK port into a 10 Gigabit Ethernet SFP+ port. With the converter module, customers have the flexibility to use the 10 Gigabit X2 interface port of a switch with X2 modules or SFP+ modules. This flexibility is critical when the specific type of interface is not available in one or the other form factor or when customers want to use the same form factor for interfaces across multiple platforms deployed in their network. It is a highly integrated, serial optical transponder module for high speed, 10Gbit/s data transmission applications. The module is fully compliant to IEEE 802.3ae standard for Ethernet, making it ideally suited for 10GbE datacom (rack to rack, client interconnection) applications. The transponder operates within a wide case temperature range of 0°C to +70°C and offers optimum heat dissipation and excellent electromagnetic shielding which enables high port densities for 10GbE systems. A 70 pin electrical connector and a duplex SC connector optical interface assure that connectivity is compliant to the X2 and XENPAK MSA.

4. SFP+ transceiver modules that can be plugged into the Converter Module

Product Name	Product Description
SR	850nm MM 10G SFP+
LR	1310nm SM 10G SFP+ 10KM
ER	1550nm SM 10G SFP+ 40KM
ZR	1550nm SM 10G SFP+ 70KM
CWDM	CWDM SFP8 10G
DWDM	CWDM SFP+ 10G

5. Recommended Operating Conditions

Feature	Standard	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL STD 883G Method 3015.7	Class 1C (>1000V)
Electrostatic Discharge to the Enclosure	EN 55024:1998+A1+A2 IEC61000 4 2 GR 1089 CORE	Compliant with standards
Electromagnetic Interference (EMI)	FCC Part 15 Class B EN55022:2006 CISPR 22B :2006 VCCI Class B	Compliant with standards Noise frequency range: 30MHz to 6GHz. Good system EMI design practice required to achieve Class B margins. System margins are dependent on customer host board and chassis design.
Immunity	EN 55024:1998+A1+A2 IEC 61000 4 3	Compliant with standards. 1KHz sine wave, 80% AM, from 80MHz to 1GHz. No effect on transmitter/receiver performance is detectable between these limits.
RoHS6	RoHS6 2002/95/EC 4.1&4.2 2005/747/EC 5&7&13	Compliant with standards ^[1]

Notes:

- [1] For update of the equipments and strict control of raw materials, A-Gear has the ability to supply the customized products since Jan 1, 2007, which meet the requirements of RoHS6 (Restrictions on use of certain Hazardous Substances) of European Union.
In light of item 5 in RoHS exemption list of RoHS Directive 2002/95/EC, Item 5: Lead in glass of cathode ray tubes, electronic components and fluorescent tubes. In light of item 13 in RoHS exemption list of RoHS Directive

2005/747/EC, Item13: Lead and cadmium in optical and filter glass. The three exemptions are being concerned for A-Gear's transceivers, because A-Gear's transceivers use glass, which may contain Pb, for components such as lenses, windows, isolators, and other electronic components.

6. Electro Static Discharge (ESD)

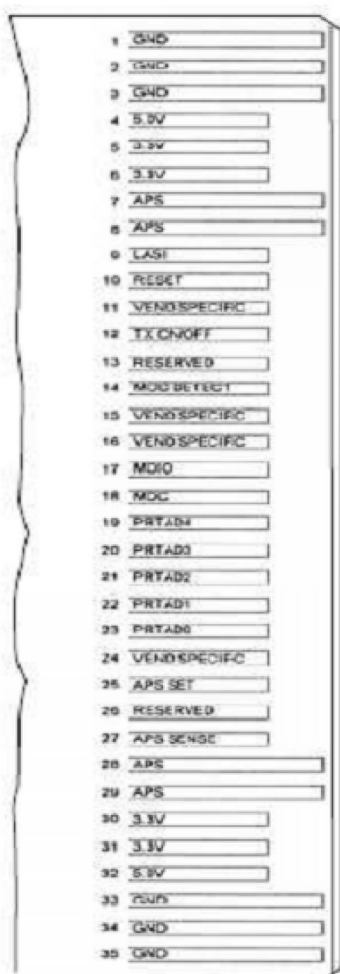
The maximum electrostatic charge based on a human body model and the conditions as outlined below is:

Parameter	Symbol	Min.	Typical	Max.	Unit
Static	Discharge	Voltage	MIL	STD	883 ^[1]

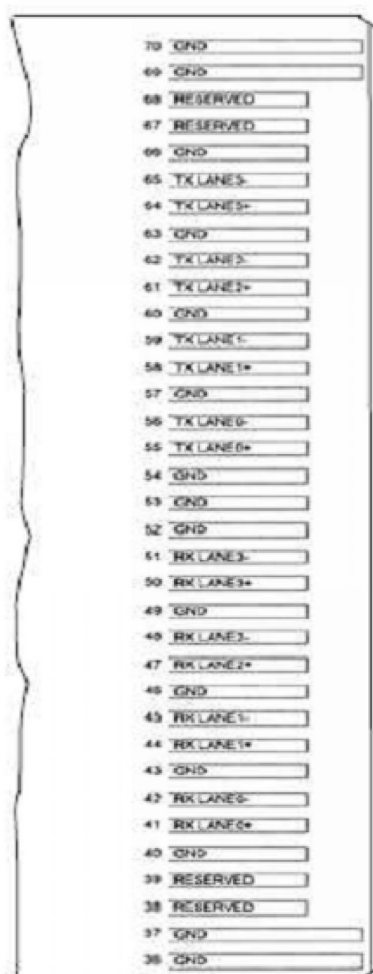
Notes:

[1] Method

7. Electrical Pin Definition



Top view -Top side



Top view -Bottom row

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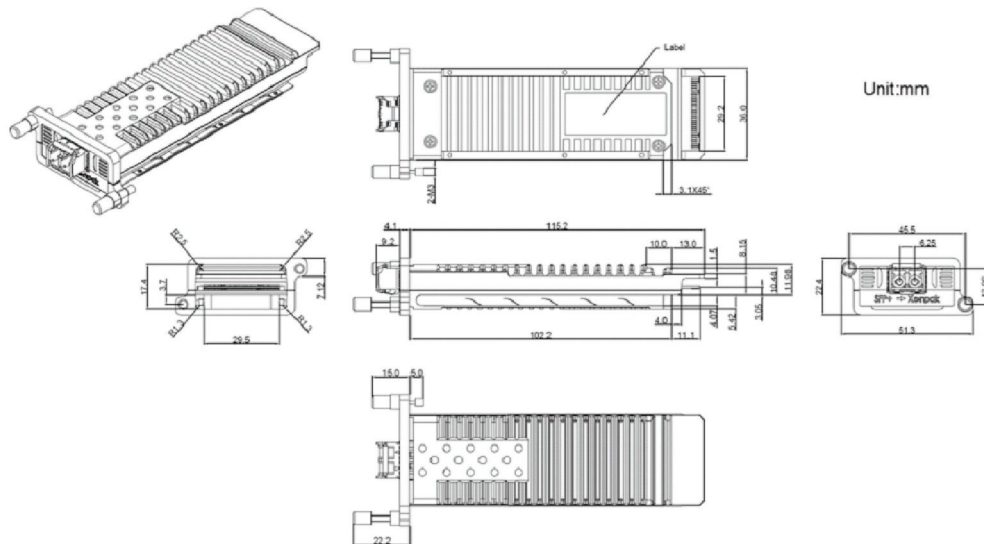
Pin	Logic	Symbol	Name/Description
5, 6, 30, 31		3.3V	Power Supply of Optical Receiver and Transmitter and Control Circuits ^[2]
4, 32		5.0V	Power Supply of Optical Receiver Frontend ^[2]
7, 8, 28, 29		APS	Adaptive Power Supply, Supply of PHY XS and PCS Layer Devices ^[2]
27		APS SENSE	APS Sense Output for APS Control Circuit
25		APS SET	Feedback Input for APS, Input of APS Setting Resistor
1, 2, 3, 33, 34, 35, 36, 37, 40, 43, 46, 49, 52, 53, 54, 57, 60, 63, 66, 69, 70		GND	Common Electrical Ground ^[1]
9	1.2V CMOS Open Drain Output	LASI	Link Alarm Status Interrupt, low active, Open Drain Output Supposed to operate with 10KL 22KL pull upon host. Logic High: Normal Operation Logic Low: Link Alarm is indicated
18		MDC	Management Clock Input ^[3]
17		MDIO	Management Data ^[3]
14		MOD DETECT	1kL to Ground for APS Circuit Environment
23	1.2V CMOS Input	PRTADO	Port Address Bit 0 (Low = 0), internally pulled up by 18kL
22	1.2V CMOS Input	PRTAD1	Port Address Bit 1 (Low = 0), internally pulled up by 18kL
21	1.2V CMOS Input	PRTAD2	Port Address Bit 2 (Low = 0), internally pulled up by 18kL
20	1.2V CMOS Input	PRTAD3	Port Address Bit 3 (Low = 0), internally pulled up by 18kL
19	1.2V CMOS Input	PRTAD4	Port Address Bit 4 (Low = 0), internally pulled up by 18kL

Pin	Logic	Symbol	Name/Description
13, 38, 39, 67, 68		RESERVED	Reserved by MSA, internally not connected
26		RESERVED	Reserved for Avalanche Photodiode use, internally not connected ^[5]
10	1.2V CMOS Input	RESET	Low active Reset Input 10KL pull up on Transceiver Logic high = Normal Operation Logic Low = Reset asserted
12	1.2V CMOS Input	TX ON/OFF	High active Transmitter Enable Input 10KL pull up on Transceiver Logic high = Transmitter active (normal Operation) And Register Bit 1.9.0 set to low as well Logic Low = shut down of Transmitter
11, 15, 16, 24		VENDSPECIFIC	Vendor Specific Pin,. for proper operation leave unconnected ^[5]
41		RX LANE0+	Module XAUI Output Lane 0+ ^[4]
42		RX LANE0	Module XAUI Output Lane 0 ^[4]
44		RX LANE1+	Module XAUI Output Lane 1+ ^[4]
45		RX LANE 1 -	Module XAUI Output Lane 1 - ^[4]
47		RX LANE2+	Module XAUI Output Lane 2+ ^[4]
48		RX LANE2-	Module XAUI Output Lane 2 ^[4]
50		RX LANE3+	Module XAUI Output Lane 3+ ^[4]
51		RX LANE3-	Module XAUI Output Lane 3 ^[4]
55		TX LANE0+	Module XAUI Input Lane 0+ ^[4]
56		TX LANE0-	Module XAUI Input Lane 0 ^[4]
58		TX LANE1+	Module XAUI Input Lane 1+ ^[4]
59		TX LANE1-	Module XAUI Input Lane 1 ^[4]
61		TX LANE2+	Module XAUI Input Lane 2+ ^[4]
62		TX LANE2-	Module XAUI Input Lane 2 ^[4]
64		TX LANE3+	Module XAUI Input Lane 3+ ^[4]
65		TX LANE3-	Module XAUI Input Lane 3 ^[4]

Notes:

- [1] Ground connections are common for TX and RX.
- [2] Each connector contact is rated at 0.5A.
- [3] MDIO and MDC timing must comply with IEEE 802.3ae clause 45.3.
- [4] XAUI output characteristics comply with IEEE 802.3ae clause 47.
- [5] Transceivers will be MSA compliant when no signals are present on the vendor specific pins.

8. Mechanical Specifications



8.1. Thermal Management

The transponder is designed for an operation within a case temperature range between 0 to +70°C at an altitude of < 3km. The built in heatsink provides an optimized thermal performance. The user needs to guarantee per system design not to exceed this temperature range. It has to be considered that in case of usage of multiple modules on a single hostboard that there is a temperature rise among the modules hosted side by side. Airflow direction and air speed needs to be chosen accordingly. For further information it is referred to the MSA document.

Notice

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