The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.

Header 1

List View

General Information | Contact | Default Values | Discount | Document Information | Clarification Request

Procurement Folder: 1298398
Procurement Type: Central Purchase Order
Vendor ID: 000000223571
Legal Name: ADVANTAGE TECHNOLOGY LLC
Alias/DBA: RICHARD WILBUR III
Total Bid: $525,326.84
Response Date: 10/21/2023
Response Time: 10:53
Responded By User ID: advjstewart
First Name: James
Last Name: Stewart
Email: jstewart@advantage.tech
Phone: 304-342-0796

SO Doc Code: CRFQ
SO Dept: 0803
SO Doc ID: DOT2400000021
Published Date: 10/12/23
Close Date: 10/24/23
Close Time: 13:30
Status: Closed
Solicitation Description: ADDENDUM NO_1 WVDOT Networking Equipment (81240012)
Total of Header Attachments: 1
Total of All Attachments: 1

Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Solicitation Response

Proc Folder:	1298398
Solicitation Description:	ADDENDUM NO_1 WVDOT Networking Equipment (81240012)
Proc Type:	Central Purchase Order

Solicitation Closes	Solicitation Response	Version
2023-10-24 13:30	SR 0803 ESR10212300000001915	1

VENDOR

000000223571
ADVANTAGE TECHNOLOGY LLC

Solicitation Number: CRFQ 0803 DOT2400000021

Total Bid: 525326.8399999999674037098884 **Response Date:** 2023-10-21 **Response Time:** 10:53:34

Comments:

FOR INFORMATION CONTACT THE BUYER
John W Estep
304-558-2566
john.w.estep@wv.gov

Vendor
Signature X **FEIN#** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Cisco ISR 1101 4 Ports GE Ethernet WAN Router or equal	1.00000	EA	1889.820000	1889.82

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments:

Extended Description:

3.1.1 Cisco ISR 1101 4 Ports GE Ethernet WAN Router, part CP1101-4P or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	Extr Ntwk 16x10/100/1000Base-T Ethernet Switch POE+ or equal	10.00000	EA	1758.800000	17588.00

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments:

Extended Description:

3.2.1 Extreme Networks 16x10/100/1000Base-T Ethernet Switch POE+, part 5320-16P-4XE or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	Extr Ntwk 24x10/100/1000Base-T Ethernet Switch POE+ or equal	10.00000	EA	1936.940000	19369.40

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments:

Extended Description:

3.2.2 Extreme Networks
24x10/100/1000Base-T Ethernet Switch POE+, part 5320-24P-8XE or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
4	Extr Ntwk 48x10/100/1000Base-T Ethernet Switch POE+ or equal	10.00000	EA	3219.990000	32199.90

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments:

Extended Description:

3.2.3 Extreme Networks
48x10/100/1000Base-T Ethernet Switch POE+, part 5320-48P-8XE or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
5	Extreme Networks 5420M Universal Switch - 24 Port or equal	1.00000	EA	2642.250000	2642.25

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments:

Extended Description:

3.2.4 Extreme Networks 5420M Universal Switch - 24 Port, part 5420M-24W-4YE or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
6	Extreme Networks 5420M Universal Switch - 48 Port or equal	65.00000	EA	4200.070000	273004.55

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments:

Extended Description:

3.2.5 Extreme Networks 5420M Universal Switch - 48 Port, part 5420M-48W-4YE or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
7	Extr Ntwk 5420M Univ Switch 48 Port (16 POE 90W) or equal	8.00000	EA	5450.020000	43600.16

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments:

Extended Description:

3.2.6 Extreme Networks 5420M Universal Switch - 48 Port (16 POE 90W Multi-rate/32 POW 30W), part 5420M-16W-32P-4YE or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
8	Networks Power Cord, 15A, USA,NEMA 5-15, IEC320-C15 or equal	54.00000	EA	16.790000	906.66

Comm Code	Manufacturer	Specification	Model #
43222500			

Commodity Line Comments:

Extended Description:

3.3.1 Networks Power Cord, 15A, USA, NEMA 5-15, IEC320-C15, part 10099 or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
9	Proline- pwr ext cable- IEC 60320 C15 to IEC 60320 C14 or eq	104.00000	EA	17.420000	1811.68

Comm Code	Manufacturer	Specification	Model #
43222500			

Commodity Line Comments:

Extended Description:

3.3.2 Proline - power extension cable - IEC 60320 C15 to IEC 60320 C14 - 6 ft, part PRO-C142C1514AWG6FT or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
10	Extreme Switching Power Supply - AC - 920 Watt or equal	148.00000	EA	669.900000	99145.20

Comm Code	Manufacturer	Specification	Model #
43222500			

Commodity Line Comments:

Extended Description:

3.3.3 Extreme Switching Power Supply - AC - 920 Watt, part XN-ACPWR-920W or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
11	Extreme Networks 20GBase direct attach cable- 0.5 m or equal	64.00000	EA	186.480000	11934.72

Comm Code	Manufacturer	Specification	Model #
26121609			

Commodity Line Comments:

Extended Description:

3.3.4 Extreme Networks 20GBase direct attach cable - 0.5 m, part 20G-DACP-SFPDDZ5M or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
12	Extreme Networks 20GBase direct attach cable- 3 m or equal	12.00000	EA	312.900000	3754.80

Comm Code	Manufacturer	Specification	Model #
26121609			

Commodity Line Comments:

Extended Description:

3.3.5 Extreme Networks 20GBase direct attach cable - 3 m, part 20G-DACP-SFPDD3M or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
13	Extreme Networks 20GBase direct attach cable- 1 m or equal	2.00000	EA	205.800000	411.60

Comm Code	Manufacturer	Specification	Model #
26121609			

Commodity Line Comments:

Extended Description:

3.3.6 Extreme Networks 20GBase direct attach cable - 1 m, part 20G-DACP-SFPDD1M or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
14	Extreme Networks - SFP+ transceiver module- 10 GigE or equal	24.00000	EA	339.580000	8149.92

Comm Code	Manufacturer	Specification	Model #
43222500			

Commodity Line Comments:

Extended Description:

3.3.7 Extreme Networks - SFP+ transceiver module - 10 GigE, part 10301 or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
15	Ext Ntwrk 10302 Compatible 10GBASE-LR SFP+ Transceiver or eq	16.00000	EA	514.520000	8232.32

Comm Code	Manufacturer	Specification	Model #
43222500			

Commodity Line Comments:

Extended Description:

3.3.8 Extreme Networks 10302 Compatible 10GBASE-LR SFP+ Transceiver Module, part 10302 or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
16	Ext Ntwk 10051H Compatible 1000BASE-SX SFP Transceiver or eq	5.00000	EA	80.280000	401.40

Comm Code	Manufacturer	Specification	Model #
43222500			

Commodity Line Comments:

Extended Description:

3.3.9 Extreme Networks 10051H Compatible 1000BASE-SX SFP Transceiver Module, part 10051H or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
17	Ext Ntwk 10052H Compatible 1000BASE-LX SFP Transceiver or eq	3.00000	EA	94.820000	284.46

Comm Code	Manufacturer	Specification	Model #
43222500			

Commodity Line Comments:

Extended Description:

3.3.10 Extreme Networks 10052H Compatible 1000BASE-LX SFP Transceiver Module, part 10052H or equal

Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Request for Quote
Info Technology

Proc Folder: 1298398 **Doc Description:** ADDENDUM NO_1 WVDOT Networking Equipment (81240012) **Proc Type:** Central Purchase Order			**Reason for Modification:** ADDENDUM NO_1 Bid Opening Moves to 10/243/2023
Date Issued	**Solicitation Closes**	**Solicitation No**	**Version**
2023-10-12	2023-10-24 13:30	CRFQ 0803 DOT2400000021	2

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Customer Code: 000000223571
Vendor Name : Advantage Technology
Address :
Street : 950 Kanawha Blvd East Ste 100
City : Charleston
State : WV **Country :** United States **Zip :** 25301
Principal Contact : James Stewart
Vendor Contact Phone: 304-941-4272 **Extension:**

FOR INFORMATION CONTACT THE BUYER
John W Estep
304-558-2566
john.w.estep@wv.gov

Vendor Signature X James Stewart **FEIN#** 74-3077314 **DATE** 10.21.2023

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION
ADDENDUM NO_1 Addendum No_1 issued to publish and distribute the attached information to the Vendor Community REQUEST FOR QUOTATION: The West Virginia Purchasing Division is soliciting bids on behalf of the Department of Transportation for a one-time purchase of Networking equipment - Routers, Switches and various components. Per the Bid Requirements, Specifications, Terms and Conditions attached to this solicitation.

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Cisco ISR 1101 4 Ports GE Ethernet WAN Router or equal	1.00000	EA	$1,889.82ea	$1,889.82

Comm Code	Manufacturer	Specification	Model #
43222609			

Extended Description:
3.1.1 Cisco ISR 1101 4 Ports GE Ethernet WAN Router, part CP1101-4P or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	Extr Ntwk 16x10/100/1000Base-T Ethernet Switch POE+ or equal	10.00000	EA	$1,758.80ea	$17,588.00

Comm Code	Manufacturer	Specification	Model #
43222612			

Extended Description:
3.2.1 Extreme Networks 16x10/100/1000Base-T Ethernet Switch POE+, part 5320-16P-4XE or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	Extr Ntwk 24x10/100/1000Base-T Ethernet Switch POE+ or equal	10.00000	EA	$1,936.94ea	$19,369.40

Comm Code	Manufacturer	Specification	Model #
43222612			

Extended Description:
3.2.2 Extreme Networks
24x10/100/1000Base-T Ethernet Switch POE+, part 5320-24P-8XE or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
4	Extr Ntwk 48x10/100/1000Base-T Ethernet Switch POE+ or equal	10.00000	EA	$3,219.99ea	$32,199.90

Comm Code	Manufacturer	Specification	Model #
43222612			

Extended Description:
3.2.3 Extreme Networks
48x10/100/1000Base-T Ethernet Switch POE+, part 5320-48P-8XE or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
5	Extreme Networks 5420M Universal Switch - 24 Port or equal	1.00000	EA	$2,642.25ea	$2,642.25

Comm Code	Manufacturer	Specification	Model #
43222612			

Extended Description:
3.2.4 Extreme Networks 5420M Universal Switch - 24 Port, part 5420M-24W-4YE or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
6	Extreme Networks 5420M Universal Switch - 48 Port or equal	65.00000	EA	$4,200.07ea	$273,004.55

Comm Code	Manufacturer	Specification	Model #
43222612			

Extended Description:
3.2.5 Extreme Networks 5420M Universal Switch - 48 Port, part 5420M-48W-4YE or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
7	Extr Ntwk 5420M Univ Switch 48 Port (16 POE 90W) or equal	8.00000	EA	$5,450.02ea	$43,600.16

Comm Code	Manufacturer	Specification	Model #
43222612			

Extended Description:
3.2.6 Extreme Networks 5420M Universal Switch - 48 Port (16 POE 90W Multi-rate/32 POW 30W), part 5420M-16W-32P-4YE or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
8	Networks Power Cord, 15A, USA,NEMA 5-15, IEC320-C15 or equal	54.00000	EA	$16.79ea	$906.66

Comm Code	Manufacturer	Specification	Model #
43222500			

Extended Description:
3.3.1 Networks Power Cord, 15A, USA, NEMA 5-15, IEC320-C15, part 10099 or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
9	Proline- pwr ext cable- IEC 60320 C15 to IEC 60320 C14 or eq	104.00000	EA	$17.42ea	$1,811.68

Comm Code	Manufacturer	Specification	Model #
43222500			

Extended Description:
3.3.2 Proline - power extension cable - IEC 60320 C15 to IEC 60320 C14 - 6 ft, part PRO-C142C1514AWG6FT or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
10	Extreme Switching Power Supply - AC - 920 Watt or equal	148.00000	EA	$669.90ea	$99,145.20

Comm Code	Manufacturer	Specification	Model #
43222500			

Extended Description:
3.3.3 Extreme Switching Power Supply - AC - 920 Watt, part XN-ACPWR-920W or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
11	Extreme Networks 20GBase direct attach cable- 0.5 m or equal	64.00000	EA	$186.48ea	$11,934.72

Comm Code	Manufacturer	Specification	Model #
26121609			

Extended Description:
3.3.4 Extreme Networks 20GBase direct attach cable - 0.5 m, part 20G-DACP-SFPDDZ5M or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
12	Extreme Networks 20GBase direct attach cable- 3 m or equal	12.00000	EA	$312.90ea	$3,754.80

Comm Code	Manufacturer	Specification	Model #
26121609			

Extended Description:
3.3.5 Extreme Networks 20GBase direct attach cable - 3 m, part 20G-DACP-SFPDD3M or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
13	Extreme Networks 20GBase direct attach cable- 1 m or equal	2.00000	EA	$205.80ea	$411.60

Comm Code	Manufacturer	Specification	Model #
26121609			

Extended Description:
3.3.6 Extreme Networks 20GBase direct attach cable - 1 m, part 20G-DACP-SFPDD1M or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
14	Extreme Networks - SFP+ transceiver module- 10 GigE or equal	24.00000	EA	$339.58ea	$8,149.92

Comm Code	Manufacturer	Specification	Model #
43222500			

Extended Description:
3.3.7 Extreme Networks - SFP+ transceiver module - 10 GigE, part 10301 or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
15	Ext Ntwrk 10302 Compatible 10GBASE-LR SFP + Transceiver or eq	16.00000	EA	$514.52ea	$8,232.32

Comm Code	Manufacturer	Specification	Model #
43222500			

Extended Description:
3.3.8 Extreme Networks 10302 Compatible 10GBASE-LR SFP+ Transceiver Module, part 10302 or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
16	Ext Ntwk 10051H Compatible 1000BASE-SX SFP Transceiver or eq	5.00000	EA	$80.28ea	$401.40

Comm Code	Manufacturer	Specification	Model #
43222500			

Extended Description:
3.3.9 Extreme Networks 10051H Compatible 1000BASE-SX SFP Transceiver Module, part 10051H or equal

INVOICE TO	SHIP TO
DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US	DEPT. OF TRANSPORTATION 1900 KANAWHA BLVD E, BLD. 5 RM-720 CHARLESTON WV US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
17	Ext Ntwk 10052H Compatible 1000BASE-LX SFP Transceiver or eq	3.00000	EA	$94.82ea	$284.46

Comm Code	Manufacturer	Specification	Model #
43222500			

Extended Description:

3.3.10 Extreme Networks 10052H Compatible 1000BASE-LX SFP Transceiver Module, part 10052H or equal

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Tech Questions due by 10:00am	2023-10-06

	Document Phase	Document Description	Page 11
DOT2400000021	Final	ADDENDUM NO_1 WVDOT Networking Equipment (81240012)	Total: $525,326.84

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

EXHIBIT A - PRICING PAGE

LOCATION - BUILDING 5, ROOM A-720 CHARLESTON, WV 25305

Specifications Reference	Contract Item Number	Description	Part Number or Equal	Quantity	Unit Cost	Extended Price Total
3.1.1	#1	Cisco ISR 1101 4 Ports GE Ethernet WAN Router or equal	C1101-4P or equal	1	$1,889.82	$1,889.82
3.2.1	#2	Extreme Networks 16x10/100/1000Base-T Ethernet Switch POE+ or equal	5320-16P-4XE or equal	10	$1,758.80	$17,588.00
3.2.2	#3	Extreme Networks 24x10/100/1000Base-T Ethernet Switch POE+ or equal	5320-24P-8XE or equal	10	$1,936.94	$19,369.40
3.2.3	#4	Extreme Networks 48x10/100/1000Base-T Ethernet Switch POE+ or equal	5320-48P-8XE or equal	10	$3,219.99	$32,199.90
3.2.4	#5	Extreme Networks 5420M Universal Switch - 24 Port or equal	5420M-24W-4YE or equal	1	$2,642.25	$2,642.25
3.2.5	#6	Extreme Networks 5420M Universal Switch - 48 Port or equal	5420M-48W-4YE or equal	65	$4,200.07	$273,004.55
3.2.6	#7	Extreme Networks 5420M Universal Switch – 48 Port (16 POE 90W Multi-rate/32 POW 30W) or equal	5420M-16W-32P-4YE or equal	8	$5,450.02	$43,600.16
3.3.1	#8	Networks Power Cord, 15A, USA, NEMA 5-15, IEC320-C15 or equal	10099 or equal	54	$16.79	$906.66
3.3.2	#9	Proline - power extension cable - IEC 60320 C15 to IEC 60320 C14 - 6 ft or equal	PRO-C142C1514AWG6FT or equal	104	$17.42	$1,811.68
3.3.3	#10	Extreme Switching Power Supply - AC - 920 Watt or equal	XN-ACPWR-920W or equal	148	$669.90	$99,145.20
3.3.4	#11	Extreme Networks 20GBase direct attach cable - 0.5 m or equal	20G-DACP-SFPDDZ5M or equal	64	$186.48	$11,934.72
3.3.5	#12	Extreme Networks 20GBase direct attach cable - 3 m or equal	20G-DACP-SFPDD3M or equal	12	$312.90	$3,754.80
3.3.6	#13	Extreme Networks 20GBase direct attach cable - 1 m or equal	20G-DACP-SFPDD1M or equal	2	$205.80	$411.60
3.3.7	#14	Extreme Networks - SFP+ transceiver module - 10 GigE or equal	10301 or equal	24	$339.58	$8,149.92
3.3.8	#15	Extreme Networks 10302 Compatible 10GBASE-LR SFP+ Transceiver Module or equal	10302 or equal	16	$514.52	$8,232.32
3.3.9	#16	Extreme Networks 10051H Compatible 1000BASE-SX SFP Transceiver Module or equal	10051H or equal	5	$80.28	$401.40
3.3.10	#17	Extreme Networks 10052H Compatible 1000BASE-LX SFP Transceiver Module or equal	10052H or equal	3	$94.82	$284.46
						$525,326.84

The Pricing Pages contain a list of the Contract Items and quantities to be purchased.
Unit Costs must include pricing for the specified Contract Item # and its mandatory components as detailed in Exhibit B Specifications.

James Stewart

Vendor Signature

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFQ DOT2400000021

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[X]	Addendum No. 1	[ ]	Addendum No. 6
[ ]	Addendum No. 2	[ ]	Addendum No. 7
[ ]	Addendum No. 3	[ ]	Addendum No. 8
[ ]	Addendum No. 4	[ ]	Addendum No. 9
[ ]	Addendum No. 5	[ ]	Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Advantage Technology
Company

James Stewart
Authorized Signature

10.21.2023
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 10/02/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Jennifer Drake
Mountain State Insurance Agency 1206 Kanawha Blvd. E. Suite 100 Charleston WV 25301-2949	PHONE (A/C, No, Ext): (304) 720-2000 FAX (A/C, No): (304) 720-2002 E-MAIL ADDRESS: jdrake@mountainstateinsurance.com

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Advantage Technology, LLC & Aridea, LLC, DBA: Aridea Solutions 950 Kanawha Blvd. E Charleston WV 25301	INSURER A: Great Northern Insurance Company	20303
	INSURER B: Federal Insurance Company	20281
	INSURER C: Indemnity	12777
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** 22 23 Liability **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☒ POLICY ☐ PRO-JECT ☐ LOC OTHER:			36060996	11/01/2022	11/01/2023	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 1,000,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			73617949	11/01/2022	11/01/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
B	X UMBRELLA LIAB ☐ OCCUR EXCESS LIAB ☐ CLAIMS-MADE DED RETENTION $			78192586	11/01/2022	11/01/2023	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N ☐ If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		71764043	11/01/2022	11/01/2023	X PER STATUTE X OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	WV code 23-4-2 $ 1,000,000 $ 1,000,000 $ 1,000,000
D	Cyber Liability			D95688615	11/01/2022	11/01/2023	Aggregate Limit Deductible	2,000,000 50,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

West Virginia Department of Transportation
1900 Kanawha Blvd E
Bldg 5 Rm 720
Charleston WV 25305

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

STATE OF WEST VIRGINIA

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

ALL CONTRACTS: Under W. Va. Code §15A-3-14, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Advantage Technology

Authorized Signature: James Stewart Date: 10.09.2023

State of West Virginia

County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 9th day of October, 2023.

My Commission expires October 26, 2025.

AFFIX SEAL HERE

OFFICIAL SEAL
STATE OF WEST VIRGINIA
NOTARY PUBLIC
Todd Fowler
1053 Greenland Circle South Charleston, WV 25305
My Commission Expires October 26, 2025

NOTARY PUBLIC

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

James Stewart Sales Engineer
(Name, Title)

James Stewart, Sales Engineer
(Printed Name and Title)

950 Kanawha Blvd East Ste 100., Charleston, WV 25301
(Address)

304-941-4272
(Phone Number) / (Fax Number)

jstewart@advantage.tech
(Email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration..

Advantage Technology
(Company)

James Stewart Sales Engineer
(Authorized Signature) (Representative Name, Title)

James Stewart, Sales Engineer
(Printed Name and Title of Authorized Representative) (Date)

10.09.2023
(Date)

304-941-4272
(Phone Number) (Fax Number)

jstewart@advantage.tech
(Email Address)

9. **Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

Contract Manager: James Stewart, Sales Engineer

Telephone Number: 304-941-4272

Fax Number: 304-720-1423

Email Address: jstewart@advantage.tech

10301-AO

Extreme Networks® 10301 Compatible TAA Compliant 10GBase-SR SFP+ Transceiver (MMF, 850nm, 300m, LC, DOM)

Features

- SFF-8432 and SFF-8472 Compliance
- VCSEL transmitter and PIN receiver
- Duplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- Multi-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free

Applications

- 8x/10x Fibre Channel
- 10GBase-SR Ethernet
- Access, Datacenter and Enterprise
- Mobile Fronthaul CPRI/OBSAI

Product Description

This Extreme Networks® 10301 compatible SFP+ transceiver provides 10GBase-SR throughput up to 300m over multi-mode fiber (MMF) using a wavelength of 850nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Extreme Networks® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

AddOn's transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."

TAA COMPLIANT

Rev. 091521

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5	4.0	V
Storage Temperature	TS	-40	85	°C
Operating Case Temperature	Tc	0	70	°C
Operating Humidity	RH	5	85	%
Receiver Power	R_{MAX}		-1	dBm
Maximum Bitrate	B_{max}		11.3	Gbps

Electrical Characteristics (TOP=25°C, Vcc=3.3Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.15	3.30	3.43	V	
Power Supply Current	Icc			303	mA	
Power Consumption	P_{DISS}			1	W	
Transmitter						
Differential data input swing	Vin,pp	120		850	mV	
Input differential impedance	Zin	80	100	120	Ω	
Receiver						
Differential data output swing	Vout, pp	300		850	mV	
Output differential impedance	Zin	80	100	120	Ω	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Optical Power (average)	P_{AVE}	-7.3		-1.2	dBm	1
Optical Modulation amplitude (OMA)	P_{OMA}	-1.5			dBm	2
Optical Extinction Ratio	ER	3			dB	
Optical Wavelength	Tλ	840	850	860	nm	
Insertion loss	IL		2			
Receiver						
Receiver Sensitivity (average)	R_{AVE}			-9.9	dBm	3
Receiver Sensitivity (OMA)	R_{OMA}			-11.1		2
Receiver overload	P_{max}	-1			dBm	4
Receiver wavelength	Rλ	840		860	nm	

Notes:

1. Coupled into a Multi-mode fibre
2. Per IEEE 802.3ae specification
3. Average power, back-to-back, @10.31Gbps, BER 1E-12, PRBS 231-1.
4. Exceeding the Receiver overload can physically damage the module. Please use appropriate attenuation.

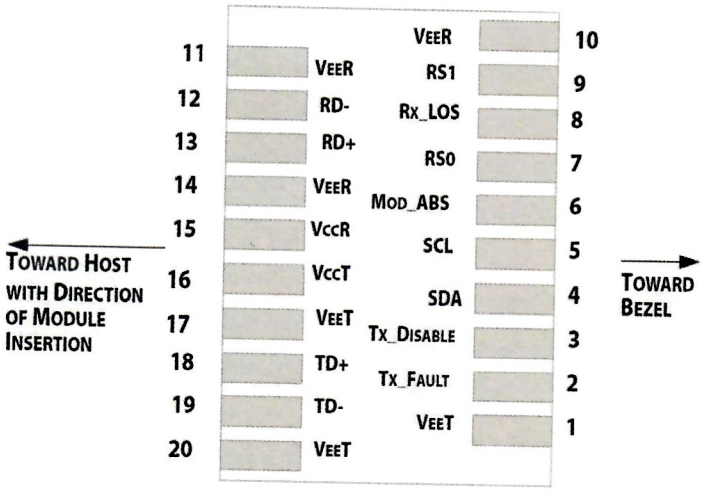
Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	TX Fault	Transmitter Fault. LVTTL-O	2
3	TX Disable	Transmitter Disable. Laser output disabled on high or open. LVTT-I.	3
4	SDA	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O.	
5	SCL	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I.	
6	MOD_ABS	Module Absent, Connect to VeeT or VeeR in Module.	4
7	RS0	Rate Select 0. Not used	5
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation. LVTTL-O.	2
9	RS1	Rate Select 1. Not used	5
10	VeeR	Receiver Ground (Common with Transmitter Ground).	1
11	VeeR	Receiver Ground (Common with Transmitter Ground).	1
12	RD-	Receiver Inverted DATA out. AC Coupled. CML-O.	
13	RD+	Receiver Non-inverted DATA out. AC Coupled. CML-O.	
14	VeeR	Receiver Ground (Common with Transmitter Ground).	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground (Common with Receiver Ground).	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled. CML-I.	
19	TD-	Transmitter Inverted DATA in. AC Coupled. CML-O.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

Notes:

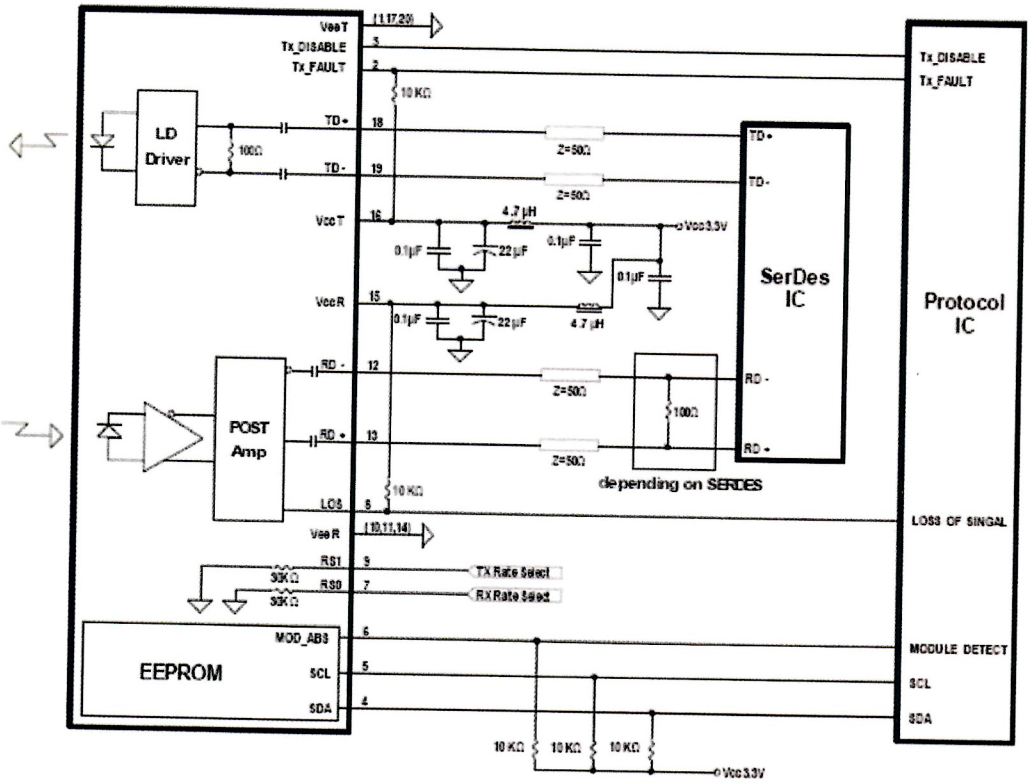
1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Vcc_Host with resister in the range 4.7KΩ to 10KΩ. Pull ups can be connected to one or several power supplies, however the host board design shall ensure that no module contract has voltage exceeding module VccT/R +0.5.V.
3. Tx_Disable is an input contact with a 4.7KΩ to 10KΩ pull-up resistor to VccT inside module.

4. Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to Vcc_Host with a resistor in the range from 4.7KΩ to 10KΩ. Mod_ABS is asserted "High" when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431



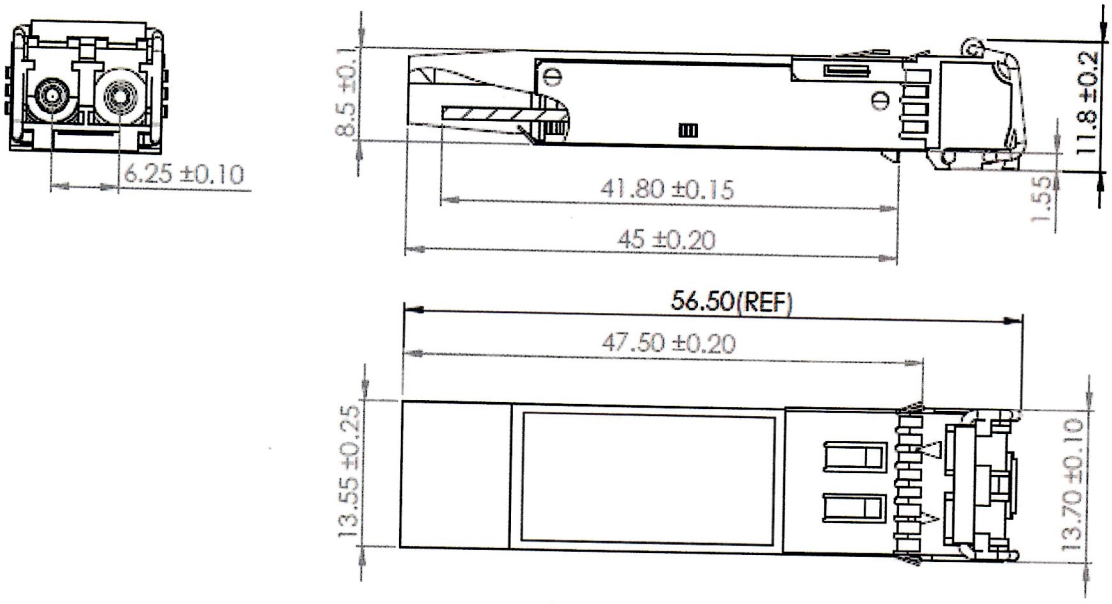
Pin-out of connector Block on Host board

Recommended Circuit Schematic



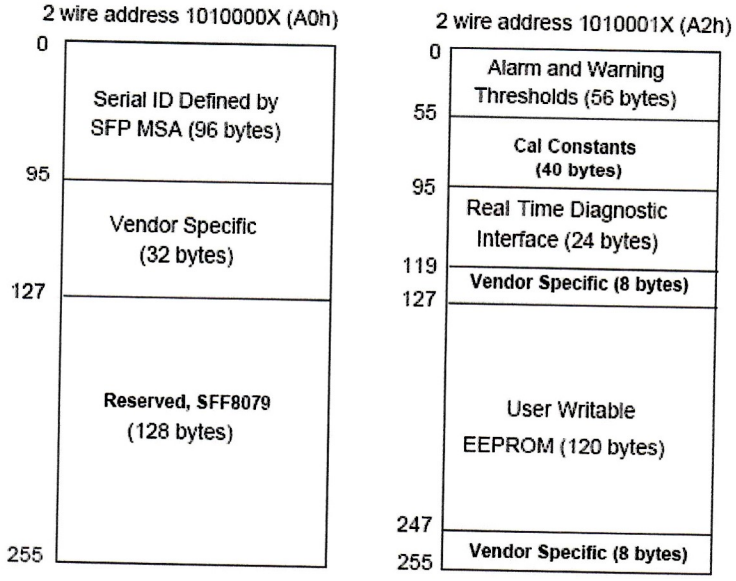
Mechanical Specifications

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).



EEPROM Information

EEPROM memory map specific data field description is as below:



About AddOn Networks

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is in engrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications from ranging from NEBS Level 3 to ISO 9001:2005 with every new development while maintaining the signature reliability of its products.

U.S. Headquarters

Email: sales@addonnetworks.com

Telephone: +1 877.292.1701

Fax: 949.266.9273

Europe Headquarters

Email: salessupportemea@addonnetworks.com

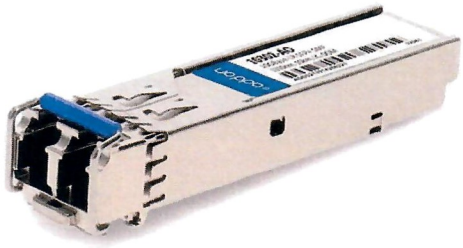
Telephone: +44 1285 842070

10302-AO

Extreme Networks® 10302 Compatible TAA Compliant 10GBase-LR SFP+ Transceiver (SMF, 1310nm, 10km, LC, DOM)

Features

- SFF-8432 and SFF-8472 Compliance
- Uncooled DFB transmitter and PIN receiver
- Duplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



Applications

- 8x/10x Fibre Channel
- 10GBase-LR Ethernet
- Access, Datacenter and Enterprise
- Mobile Fronthaul CPRI/OBSAI

Product Description

This Extreme Networks® 10302 compatible SFP+ transceiver provides 10GBase-LR throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1310nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Extreme Networks® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

AddOn's transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."

TAA COMPLIANT

Rev. 092623

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5	4.0	V
Storage Temperature	TS	-40	85	°C
Operating Case Temperature	Tc	0	70	°C
Operating Humidity	RH	5	85	%
Receiver Power	R_{MAX}		0.5	dBm
Maximum Bitrate	B_{max}		11.3	Gbps

Electrical Characteristics (TOP=25°C, Vcc=3.3Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.15	3.30	3.43	V	
Power Supply Current	Icc			303	mA	
Power Consumption	P_{DISS}			1	W	
Transmitter						
Differential data input swing	Vin,pp	120		850	mV	
Input differential impedance	Zin	80	100	120	Ω	
Receiver						
Differential data output swing	Vout, pp	300		850	mV	
Output differential impedance	Zin	80	100	120	Ω	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Optical Power (average)	P_{AVE}	-8.2		0.5	dBm	1
Optical Modulation amplitude (OMA)	POMA	-5.2			dBm	
Optical Extinction Ratio	ER	3.5			dB	
Optical Wavelength	Tλ	1260	1310	1355	nm	
Insertion loss	IL		0.6			
Receiver						
Receiver Sensitivity (average)	R_{AVE}			-14.4	dBm	3
Receiver Sensitivity (OMA)	R_{OMA}			-12.6		2
Receiver overload	P_{max}	0.5			dBm	4
Receiver wavelength	Rλ	1260		1565	nm	

Notes:

1. Coupled into a Single-mode fibre
2. Per IEEE 802.3ae specification
3. Average power, back-to-back, @10.31Gbps, BER $1E^{-12}$, PRBS 2^{31}-1.
4. Exceeding the Receiver overload can physically damage the module. Please use appropriate attenuation.

Pin Descriptions

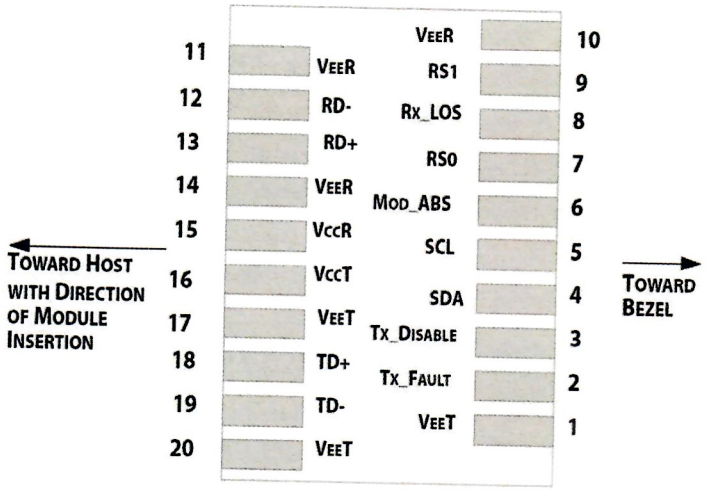
Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	TX Fault	Transmitter Fault. LVTTL-O	2
3	TX Disable	Transmitter Disable. Laser output disabled on high or open. LVTT-I.	3
4	SDA	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O.	
5	SCL	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I.	
6	MOD_ABS	Module Absent, Connect to VeeT or VeeR in Module.	4
7	RS0	Rate Select 0. Not used	5
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation. LVTTL-O.	2
9	RS1	Rate Select 1. Not used	5
10	VeeR	Receiver Ground (Common with Transmitter Ground).	1
11	VeeR	Receiver Ground (Common with Transmitter Ground).	1
12	RD-	Receiver Inverted DATA out. AC Coupled. CML-O.	
13	RD+	Receiver Non-inverted DATA out. AC Coupled. CML-O.	
14	VeeR	Receiver Ground (Common with Transmitter Ground).	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground (Common with Receiver Ground).	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled. CML-I.	
19	TD-	Transmitter Inverted DATA in. AC Coupled. CML-O.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

Notes:

1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Vcc_Host with resister in the range 4.7KΩ to 10KΩ. Pull ups can be connected to one or several power supplies, however the host board design shall ensure that no module contract has voltage exceeding module VccT/R +0.5.V.
3. Tx_Disable is an input contact with a 4.7KΩ to 10KΩ pull-up resistor to VccT inside module.
4. Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to

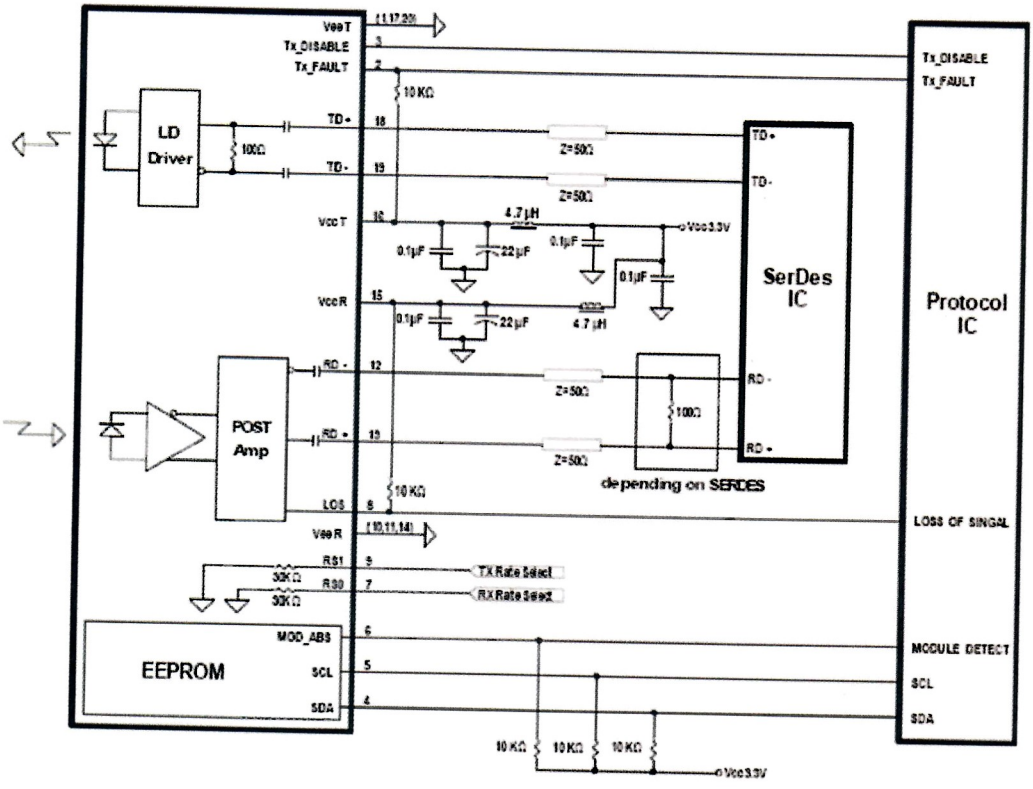
Vcc_Host with a resistor in the range from 4.7KΩ to 10KΩ. Mod_ABS is asserted "High" when the SFP+ module is physically absent from a host slot.

5. Internally pulled down per SFF-8431



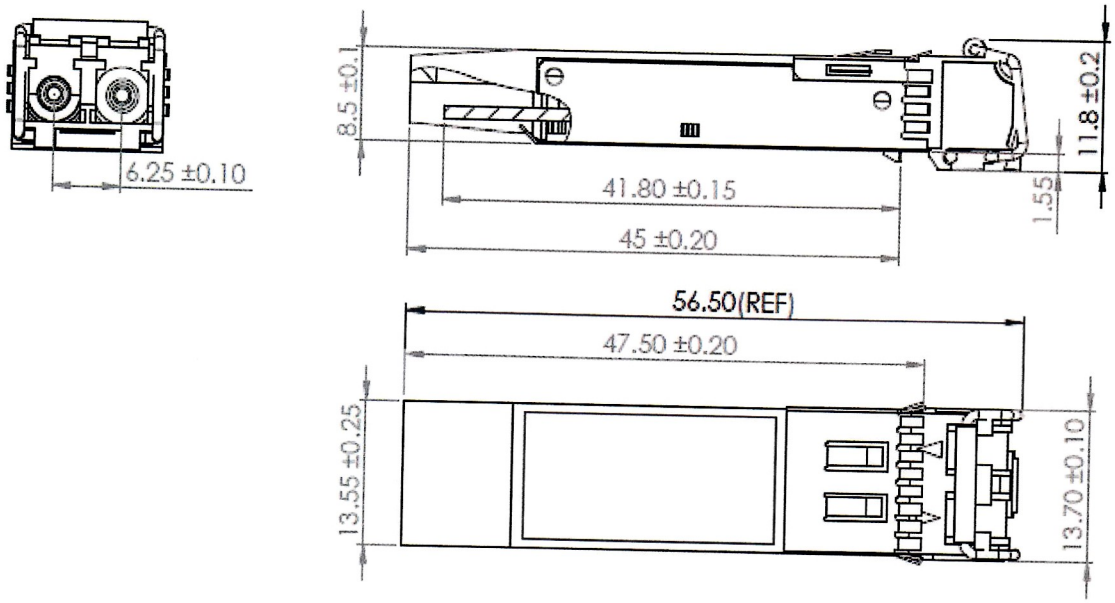
Pin-out of connector Block on Host board

Recommended Circuit Schematic



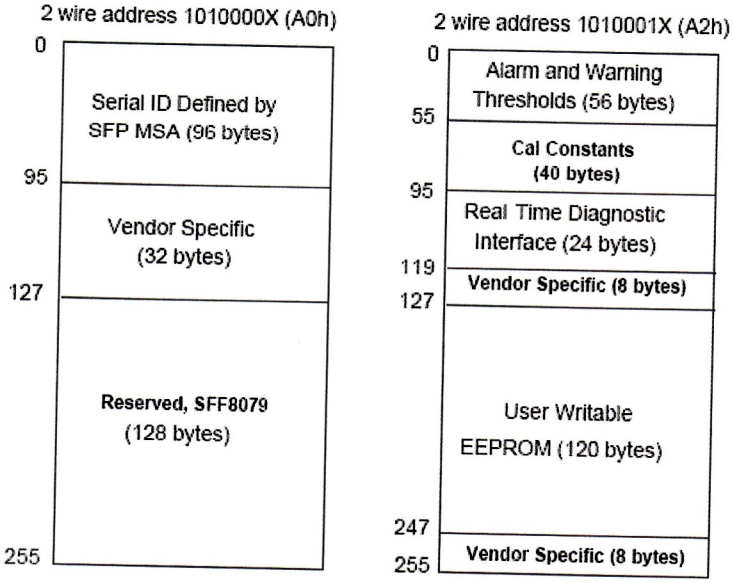
Mechanical Specifications

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).



EEPROM Information

EEPROM memory map specific data field description is as below:



About AddOn Networks

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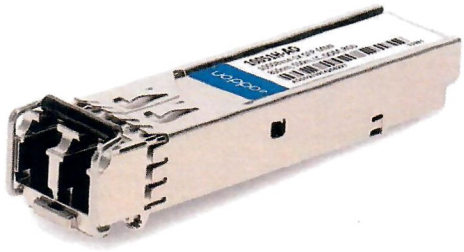
10051H-AO

Extreme Networks® 10051H Compatible TAA 1000Base-SX SFP Transceiver (MMF, 850nm, 550m, LC, DOM, -40 to 85C)

Features

- INF-8074 and SFF-8472 Compliance
- Duplex LC Connector
- Industrial Temperature -40 to 85 Celsius
- Multi-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



Applications

- 1x Fibre Channel
- 1000Base-SX Ethernet
- Access and Enterprise

Product Description

This Extreme Networks® 10051H compatible SFP transceiver provides 1000Base-SX throughput up to 550m over multi-mode fiber (MMF) using a wavelength of 850nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Extreme Networks® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

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TAA COMPLIANT

Rev. 022823

Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883 Method 3015.
- ESD to the Duplex LC Receptacle: compatible with IEC 61000-4-2.
- Immunity compatible with IEC 61000-4-3.
- EMI compatible with FCC Part 15 Class B EN55022 Class B (CISPR 22B) VCCI Class B.
- Laser Eye Safety compatible with FDA 21CFR 1040.10 and 1040.11 EN60950, EN (IEC) 60825-1,2.
- RoHs compliant with 2002/95/EC 4.1&4.2 2005/747/EC.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	Vcc	-0.5		4.0	V
Storage Temperature	TS	-40		85	°C
Case Operating Temperature	Tc	-40		85	°C
Operating Humidity	RH	5		95	%
Data Rate (Gigabit Ethernet)			1.25		Gbps
Data Rate (Fibre Channel)			1.063		Gbps
50/125µm MMF	L			550	m

Electrical Characteristics (TOP=25°C, Vcc=3.3V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.13	3.30	3.47	V	
Power Supply Current	Icc			250	mA	
Transmitter						
Input differential impedance	Rin		100		Ω	1
Single ended data input swing	Vin, pp	250		1200	mV	
TX Disable-High		Vcc-1.3		Vcc	V	
TX Disable-Low		Vee		Vee+0.8	V	
TX Fault-High		Vcc-0.5		Vcc	V	
TX Fault-Low		Vee		Vee+0.5	V	
Receiver						
Single ended data output swing	Vout, pp	300	400	800	mV	2
Data output rise time	tr			175	ps	3
Data output fall time	tf			175	ps	3
LOS-High		Vcc-0.5		Vcc	V	
LOS-Low		Vee		Vee+0.5	V	

Notes:

1. AC coupled.
2. Into 100 ohm differential termination.

3. 20% - 80%

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Average Output Power	PO	-9		-4	dBm	1
Optical Wavelength	λ	830	850	860	nm	
Spectral Width	σ			0.85	nm	
Optical Rise/Fall Time	tr/tf			260	ps	2
Total Jitter	TJ			200	ps	
Optical Extinction Ratio	ER	9			dB	
Receiver						
Receiver Sensitivity	RSENS			-18	dBm	3,4
Maximum Received Power	RX_{MAX}	0			dBm	
Centre Wavelength	λC	770		860	nm	
LOS De-Assert	LOSD			-26	dBm	
LOS Assert	LOSA	-40			dBm	
LOS Hysteresis		0.5		5	dB	

Notes:

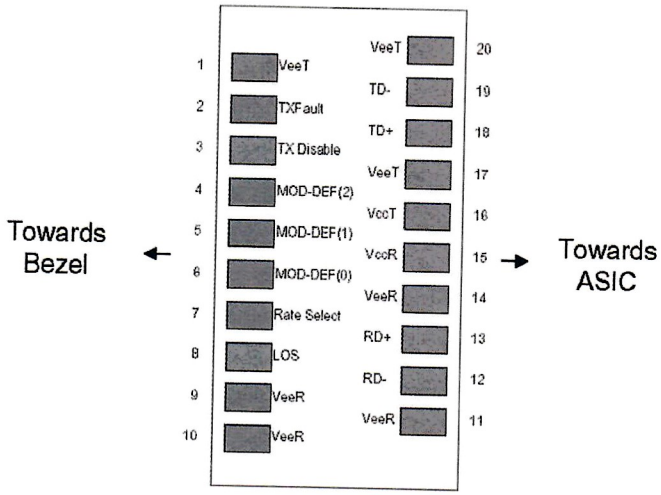
1. Class 1 Laser Safety.
2. Unfiltered, 20%-80%. Complies with GE and 1x FC eye masks when filtered.
3. Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
4. Measured with PRBS 2^7-1 at 10^{-10} BER.

Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground)	1
2	TX Fault	Transmitter Fault.	
3	TX Disable	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD DEF (2)	Module Definition 2. Data line for Serial ID.	3
5	MOD_DEF (1)	Module Definition 1. Clock line for Serial ID.	3
6	MOD_DEF (0)	Module Definition 0. Grounded within the module.	3
7	Rate Select	No connection required.	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	4
9	VeeR	Receiver Ground (Common with Transmitter Ground)	1
10	VeeR	Receiver Ground (Common with Transmitter Ground)	1
11	VeeR	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out. AC Coupled.	
13	RD+	Receiver Non-inverted DATA out. AC Coupled.	
14	VeeR	Receiver Ground (Common with Transmitter Ground)	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VeeT	Transmitter Ground (Common with Receiver Ground)	1

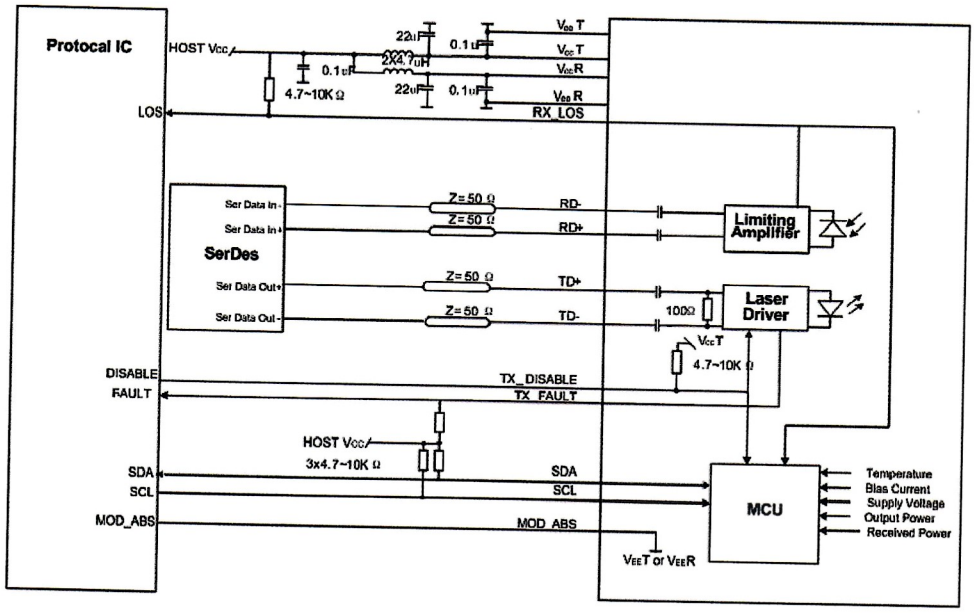
Notes:

1. Circuit ground is internally isolated from chassis ground.
2. Laser output disabled on TX Disable >2.0V or open, enabled on TX Disable <0.8V.
3. Should be pulled up with 4.7k-10kohms on host board to a voltage between 2.0V and 3.6V. MOD_DEF (0) pulls line low to indicate module is plugged in.
4. LOS is open collector output. Should be pulled up with 4.7k-10kohms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.



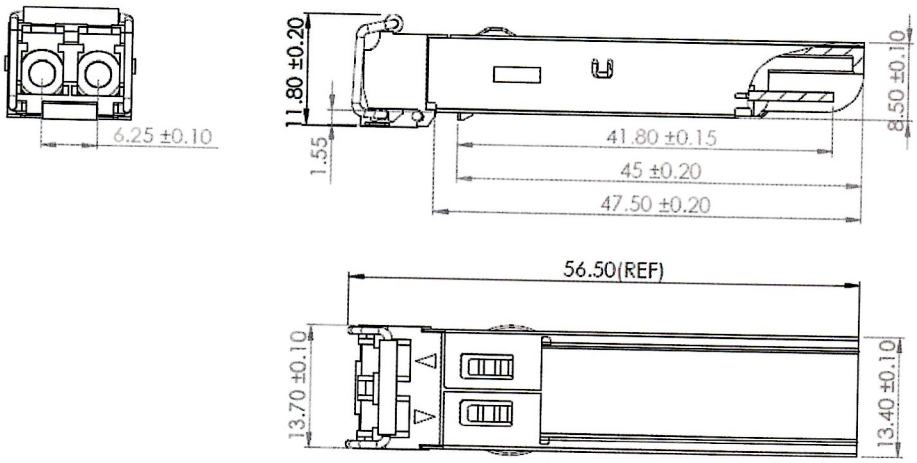
Pin-out of connector Block on Host board

Recommend Circuit Schematic



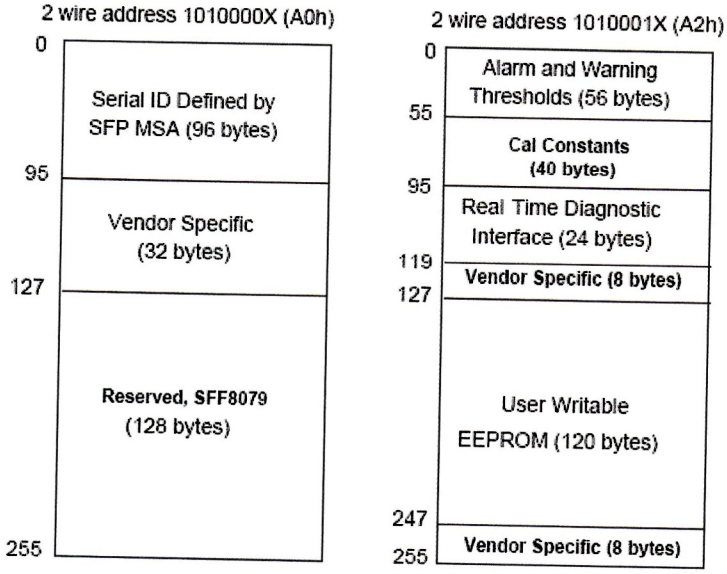
Mechanical Specifications

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).



EEPROM Information

EEPROM memory map specific data field description is as below:



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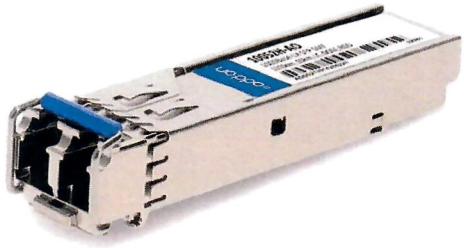
10052H-AO

Extreme Networks® 10052H Compatible TAA 1000Base-LX SFP Transceiver (SMF, 1310nm, 10km, LC, DOM, -40 to 85C)

Features

- INF-8074 and SFF-8472 Compliance
- Duplex LC Connector
- Industrial Temperature -40 to 85 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



Applications

- 1x Fibre Channel
- 1000Base-LX Ethernet
- Access and Enterprise

Product Description

This Extreme Networks® 10052H compatible SFP transceiver provides 1000Base-LX throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1310nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Extreme Networks® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

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TAA COMPLIANT

Rev. 080923

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5	4.0	V
Storage Temperature	TS	-40	85	°C
Operating Case Temperature	Tc	-40	85	°C
Operating Humidity	RH	5	85	%
Receiver Power	R_{MAX}		0	dBm
Maximum Bitrate	B_{max}		1.25	Gbps

Electrical Characteristics (TOP=25°C, Vcc=3.3Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.15	3.30	3.43	V	
Power Supply Current	Icc			303	mA	
Power Consumption	P_{DISS}			1	W	
Transmitter						
Differential data input swing	Vin,pp	120		850	mV	
Input differential impedance	Zin	80	100	120	Ω	
Receiver						
Differential data output swing	Vout, pp	300		850	mV	
Output differential impedance	Zin	80	100	120	Ω	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Optical Power (average)	P_{AVE}	-9.5		-3	dBm	1
Optical Extinction Ratio	ER	9			dB	
Optical Wavelength	Tλ	1270	1310	1355	nm	
Insertion loss	IL		0.6			
Receiver						
Receiver Sensitivity (average)	R_{AVE}			-24	dBm	3
Receiver overload	P_{max}	0			dBm	4
Receiver wavelength	Rλ	1260		1565	nm	

Notes:

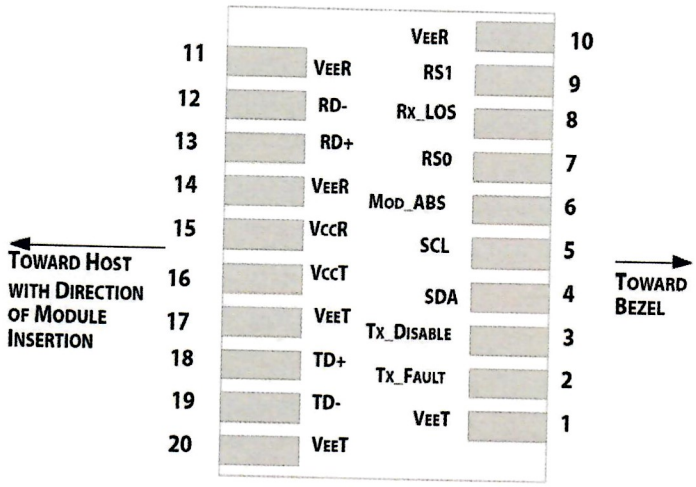
1. Coupled into a Single-mode fibre
2. Per IEEE 802.3ah specification
3. Average power, back-to-back, @1.25Gbps, BER 1E-12, PRBS 2^{31}-1.
4. Exceeding the Receiver overload can physically damage the module. Please use appropriate attenuation.

Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	TX Fault	Transmitter Fault. LVTTL-O	2
3	TX Disable	Transmitter Disable. Laser output disabled on high or open. LVTT-I.	3
4	SDA	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O.	
5	SCL	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I.	
6	MOD_ABS	Module Absent, Connect to VeeT or VeeR in Module.	4
7	RS0	Rate Select 0. Not used	5
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation. LVTTL-O.	2
9	RS1	Rate Select 1. Not used	5
10	VeeR	Receiver Ground (Common with Transmitter Ground).	1
11	VeeR	Receiver Ground (Common with Transmitter Ground).	1
12	RD-	Receiver Inverted DATA out. AC Coupled. CML-O.	
13	RD+	Receiver Non-inverted DATA out. AC Coupled. CML-O.	
14	VeeR	Receiver Ground (Common with Transmitter Ground).	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground (Common with Receiver Ground).	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled. CML-I.	
19	TD-	Transmitter Inverted DATA in. AC Coupled. CML-O.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

Notes:

1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Vcc_Host with resister in the range 4.7KΩ to 10KΩ. Pull ups can be connected to one or several power supplies, however the host board design shall ensure that no module contract has voltage exceeding module VccT/R +0.5.V.
3. Tx_Disable is an input contact with a 4.7KΩ to 10KΩ pull-up resistor to VccT inside module.
4. Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to Vcc_Host with a resistor in the range from 4.7KΩ to 10KΩ. Mod_ABS is asserted "High" when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431



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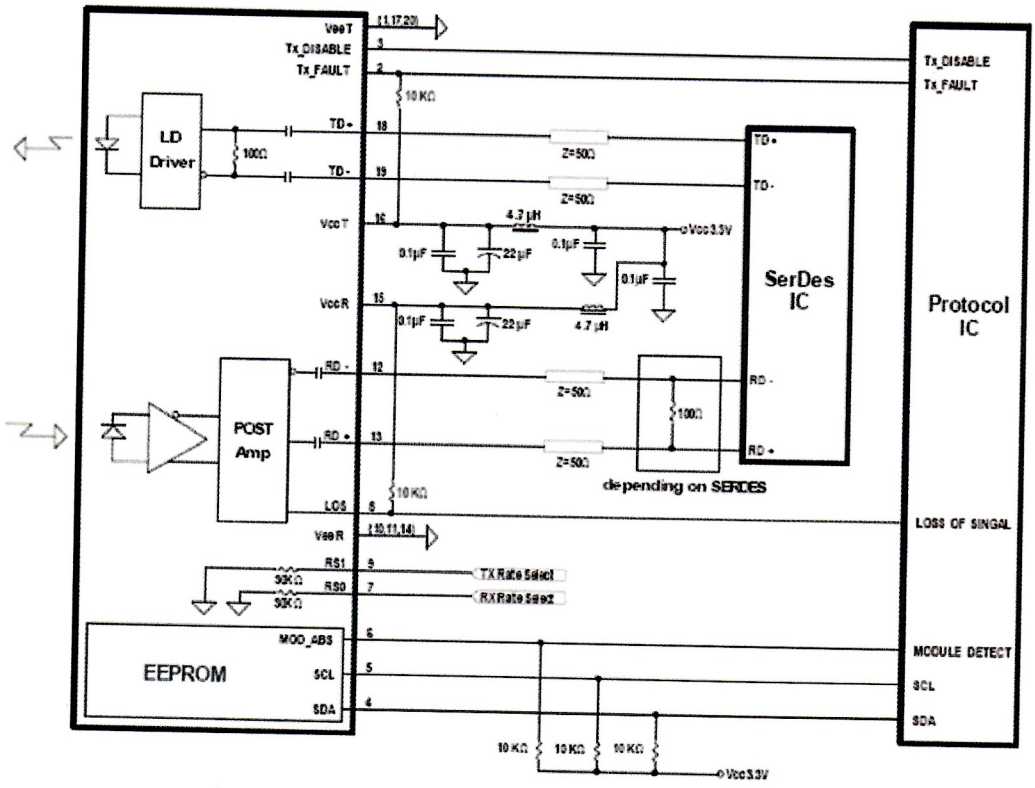

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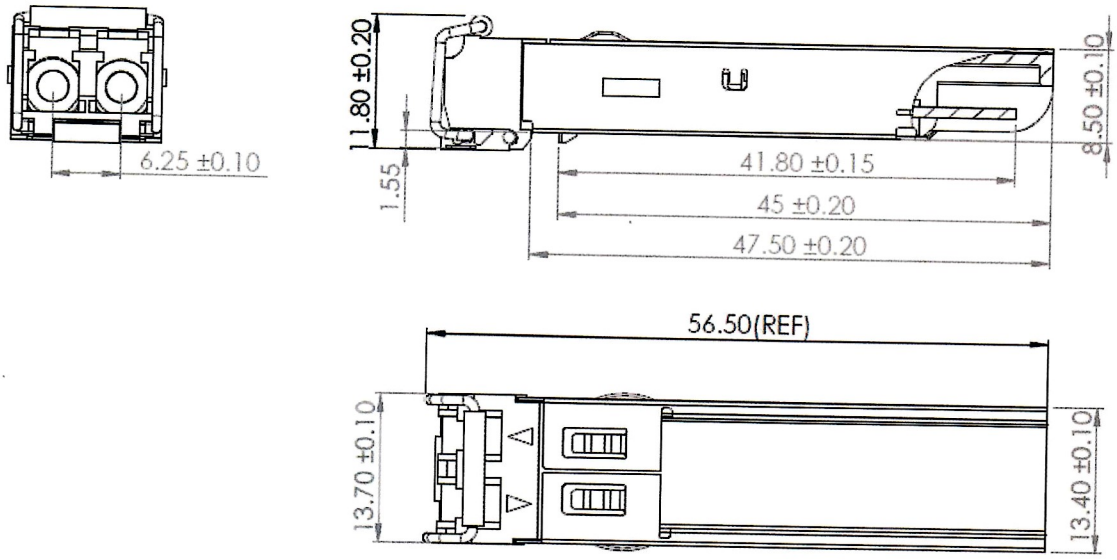

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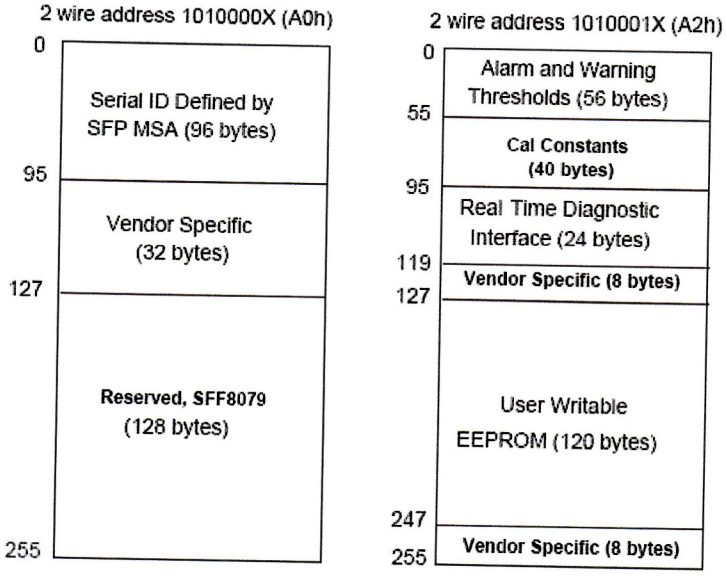

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