



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: 1714525

Procurement Type: Central Purchase Order

Vendor ID: 000000223571

Legal Name: ADVANTAGE TECHNOLOGY LLC

Alias/DBA:

Total Bid: \$39,767.00

Response Date: 06/24/2025

Response Time: 10:42

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: 0231

SO Doc ID: OOT2500000031

Published Date: 7/2/25

Close Date: 7/9/25

Close Time: 13:30

Status: Closed

Solicitation Description: Addendum No 3 Core Switch for Capitol Complex Data Center

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: 1714525
Solicitation Description: Addendum No 3 Core Switch for Capitol Complex Data Center
Proc Type: Central Purchase Order

Solicitation Closes	Solicitation Response	Version
2025-07-09 13:30	SR 0231 ESR06242500000007764	1

VENDOR
000000223571
ADVANTAGE TECHNOLOGY LLC

Solicitation Number: CRFQ 0231 OOT2500000031
Total Bid: 39767
Response Date: 2025-06-24
Response Time: 10:42:11
Comments:

FOR INFORMATION CONTACT THE BUYER
Toby L Welch
(304) 558-8802
toby.l.welch@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 Nexus 9300 Series switch,N9K-C93108TC-FX3 or equal	2.00000	EA	11108.000000	22216.00

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments:

Extended Description:

Quantity of 2 Cisco Nexus 9300 Series switch,N9K-C93108TC-FX3 or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	Cisco Nexus 9300 Series switch,N9K-C93180YC-FX3 or equal	1.00000	EA	10475.000000	10475.00

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments:

Extended Description:

Quantity of 1 Cisco Nexus 9300 Series switch,N9K-C93180YC-FX3 or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	100GBASE QSFP Active Optical Cable, 10m, QSFP-100G-AOC or eq	4.00000	EA	250.000000	1000.00

Comm Code	Manufacturer	Specification	Model #
26121609			

Commodity Line Comments:

Extended Description:

Quantity of 4 100GBASE QSFP Active Optical Cable, 10m, QSFP-100G-AOC or equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
4	4 pack of QSFP-100G-SR1.2, model 100GQSFP-SR1.2-4==, or eq	2.00000	EA	616.000000	1232.00

Comm Code	Manufacturer	Specification	Model #
43222600			

Commodity Line Comments:

Extended Description:

4 pack of QSFP-100G-SR1.2, model 100GQSFP-SR1.2-4==, (or Equal)

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
5	SNTC-8X5XNBD for Nexus 9300 48p 1/10/25G, 6p 40/100G, MAC	1.00000	EA	1158.000000	1158.00

Comm Code	Manufacturer	Specification	Model #
81111803			

Commodity Line Comments:

Extended Description:

SNTC-8X5XNBD for Nexus 9300 48p 1/10/25G, 6p 40/100G, MAC, (or Equal)

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
6	SNTC-8X5XNBD Nexus 9300 with 48p 100M/ 1/10GT 6p 40	2.00000	EA	1158.000000	2316.00

Comm Code	Manufacturer	Specification	Model #
81111803			

Commodity Line Comments:

Extended Description:

SNTC-8X5XNBD Nexus 9300 with 48p 100M/1/10GT 6p 40, (or Equal)

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
7	SNTC-8X5XNBD for Nexus 9300 48p 1/10/25G, 6p 40/100G, MAC	1.00000	EA	1370.000000	1370.00

Comm Code	Manufacturer	Specification	Model #
81111803			

Commodity Line Comments:

Extended Description:

SNTC-8X5XNBD for Nexus 9300 48p 1/10/25G, 6p 40/100G, MAC, (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: 1714525

Doc Description: Core Switch for Capitol Complex Data Center (OT25225)

Reason for Modification:

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2025-06-12	2025-06-25 13:30	CRFQ 0231 OOT2500000031	1

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 : USA

Zip : 25301

Principal Contact : James Stewart, Sales Engineer

Vendor Contact Phone: 304-941-4272

Extension:

FOR INFORMATION CONTACT THE BUYER

Toby L Welch
(304) 558-8802
toby.l.welch@wv.gov

Vendor
Signature X

James Stewart

FEIN# 74-3077314

DATE 06.24.2025

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

ADDITIONAL INFORMATION

The West Virginia Purchasing Division is soliciting bids on behalf of West Virginia Office of Technology (WVOT) to establish a one-time purchase contract for the purchase of networking infrastructure equipment for the use in the Capitol Complex Data Center on Agency owned systems per the specifications and terms and conditions as attached hereto.

INVOICE TO				SHIP TO			
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV US				WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV US			

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Cisco Nexus 9300 Series switch,N9K-C93108TC-FX3 or equal	2.00000	EA	\$11,108.00ea /	\$22,216.00

Comm Code	Manufacturer	Specification	Model #
43222612			

Extended Description:

Quantity of 2 Cisco Nexus 9300 Series switch,N9K-C93108TC-FX3 or equal

INVOICE TO				SHIP TO			
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV US				WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV US			

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	Cisco Nexus 9300 Series switch,N9K-C93180YC-FX3 or equal	1.00000	EA	\$10,475.00ea /	\$10,475.00

Comm Code	Manufacturer	Specification	Model #
43222612			

Extended Description:

Quantity of 1 Cisco Nexus 9300 Series switch,N9K-C93180YC-FX3 or equal

INVOICE TO			SHIP TO		
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV US			WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	100GBASE QSFP Active Optical Cable, 10m, QSFP-100G-AOC or eq	4.00000	EA	\$250.00ea / \$1,000.00	

Comm Code	Manufacturer	Specification	Model #
26121609			

Extended Description:

Quantity of 4 100GBASE QSFP Active Optical Cable, 10m, QSFP-100G-AOC or equal

INVOICE TO			SHIP TO		
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV US			WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
4	4 pack of QSFP-100G-SR1.2, model 100GQSFP-SR1.2-4==, or eq	2.00000	EA	\$616.00ea / \$1,232.00	

Comm Code	Manufacturer	Specification	Model #
43222600			

Extended Description:

4 pack of QSFP-100G-SR1.2, model 100GQSFP-SR1.2-4==, (or Equal)

INVOICE TO				SHIP TO			
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV US				WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV US			

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
5	SNTC-8X5XNBD for Nexus 9300 48p 1/10/25G, 6p 40/100G, MAC	1.00000	EA	\$1,158.00ea / \$1,158.00	

Comm Code	Manufacturer	Specification	Model #
81111803			

Extended Description:

SNTC-8X5XNBD for Nexus 9300 48p 1/10/25G, 6p 40/100G, MAC, (or Equal)

INVOICE TO				SHIP TO			
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV US				WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV US			

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
6	SNTC-8X5XNBD Nexus 9300 with 48p 100M/ 1/10GT 6p 40	2.00000	EA	\$1,158.00ea / \$2,316.00	

Comm Code	Manufacturer	Specification	Model #
81111803			

Extended Description:

SNTC-8X5XNBD Nexus 9300 with 48p 100M/1/10GT 6p 40, (or Equal)

INVOICE TO				SHIP TO			
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV US				WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV US			

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
7	SNTC-8X5XNBD for Nexus 9300 48p 1/10/25G, 6p 40/100G, MAC	1.00000	EA	\$1,370.00ea / \$1,370.00	

Comm Code	Manufacturer	Specification	Model #
81111803			

Extended Description:

SNTC-8X5XNBD for Nexus 9300 48p 1/10/25G, 6p 40/100G, MAC, (or Equal)

SCHEDULE OF EVENTS

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
1	Questions are due by 3:00 p.m.	2025-06-18

	Document Phase	Document Description	Page 6
OOT2500000031	Final	Core Switch for Capitol Complex Data Center (OT25225)	

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

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

(Printed Name and Title)

950 Kanawha Blvd East Ste 100 Charleston, WV 25301

(Address)

304-973-9537 / NA

(Phone Number) / (Fax Number)

jstewart@advantage.tech

(E-mail address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation 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 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 this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; 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.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law.

Advantage Technology

(Company)



(Signature of Authorized Representative)

James Stewart, Sales Engineer

(Printed Name and Title of Authorized Representative)

06.25.2025

(Date)

304-973-9537 / NA

(Phone Number) (Fax Number)

Revised 8/24/2023

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 exceeds 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: 06.25.2025

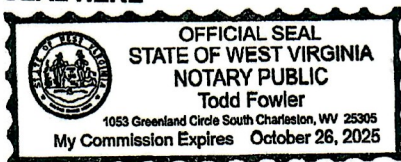
State of West Virginia

County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 25th day of June, 2025.

My Commission expires October 26, 2025

AFFIX SEAL HERE



NOTARY PUBLIC

[Signature]

Purchasing Affidavit (Revised 03/09/2019)



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

06/10/2025

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 Mountain State Insurance Agency 1206 Kanawha Blvd. E. Suite 100 Charleston WV 25301-2949	CONTACT NAME: Jennifer Drake PHONE (A/C, No, Ext): (304) 720-2000 FAX (A/C, No): (304) 720-2002 E-MAIL ADDRESS: jdrake@mountainstateinsurance.com																					
INSURED Advantage Technology, LLC 950 Kanawha Blvd. E Charleston WV 25301	<table><tr><th colspan="2">INSURER(S) AFFORDING COVERAGE</th><th>NAIC #</th></tr><tr><td>INSURER A:</td><td>Charter Oak Fire Ins Co</td><td>25615</td></tr><tr><td>INSURER B:</td><td>St. Paul Protective Insurance Company</td><td>19224</td></tr><tr><td>INSURER C:</td><td>Travelers Property Casualty of America</td><td>25674</td></tr><tr><td>INSURER D:</td><td>Farmington Casualty Company</td><td>41483</td></tr><tr><td>INSURER E:</td><td></td><td></td></tr><tr><td>INSURER F:</td><td></td><td></td></tr></table>	INSURER(S) AFFORDING COVERAGE		NAIC #	INSURER A:	Charter Oak Fire Ins Co	25615	INSURER B:	St. Paul Protective Insurance Company	19224	INSURER C:	Travelers Property Casualty of America	25674	INSURER D:	Farmington Casualty Company	41483	INSURER E:			INSURER F:		
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INSURER C:	Travelers Property Casualty of America	25674																				
INSURER D:	Farmington Casualty Company	41483																				
INSURER E:																						
INSURER F:																						

COVERAGES**CERTIFICATE NUMBER:** 24 25 Liab**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	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			ZLP16P96504	11/01/2024	11/01/2025	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
B	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY			BA9X277890	11/01/2024	11/01/2025	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
C	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$			CUPA1368310	11/01/2024	11/01/2025	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000 \$
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input type="checkbox"/>	N/A	UBA1367872	11/01/2024	11/01/2025	<input checked="" type="checkbox"/> PER STATUTE <input checked="" type="checkbox"/> OTHER WV Code 23-4-2 E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
C	Professional Liability Cyber Liability			ZPL91N85217	11/01/2024	11/01/2025	General Aggregate \$2,000,000 Each Occurrence \$2,000,000 Technology Errors and \$2,000,000

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

CERTIFICATE HOLDER**CANCELLATION**

Department of Administration Office of Technology
1900 Kanawha Blvd E
Bldg 5 10th Floor
Charleston WV 25305

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

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QSFP-100G-AOC10M-AO

Cisco® QSFP-100G-AOC10M Compatible TAA Compliant 100GBase-AOC QSFP28 Active Optical Cable (850nm, MMF, 10m)

Features

- QSFP28 MSA compliant
- Supports 103.1Gbps aggregate bit rate
- Four independent full-duplex channels
- 4x25G electrical interface (OIF CEI-28G-VSR)
- Single 3.3V power supply
- Operating case temperature: 0 to 70 Celsius
- RoHS Compliant and Lead Free
- Maximum power consumption 2.5W each terminal



Applications

- InfiniBand EDR
- 100GBase Ethernet

Product Description

This is a Cisco® QSFP-100G-AOC10M Compatible 100GBase-AOC QSFP28 to QSFP28 active optical cable that operates over active fiber with a maximum reach of 10m. It has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. We stand behind the quality of our products and proudly offer a limited lifetime warranty. This cable is TAA (Trade Agreements Act) compliant and is built to comply with MSA (Multi-Source Agreement) standards.

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."



General Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Storage Temperature	Tstg	-40		85	°C
Operating Case Temperature	Tc	0		70	
Power Supply Voltage	Vcc	-0.5		3.6	V
Relative Humidity (Non-Condensing)	RH	0		85	%

Electrical Characteristics

Parameter	Test Point	Min.	Typ.	Max.	Unit	Notes
Power Consumption				2.5	W	1
Supply Current	Icc			757	mA	1
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Data Rate Per Lane			25.78125		Gbps	
Data Rate Accuracy		-100		100	ppm	
Control Input Voltage - High		2		Vcc	V	
Control Input Voltage - Low		0		0.8	V	
Transmitter (Per Lane)						
Overload Differential Voltage	TP1a	900			mV	
Common-Mode Voltage (Vcm)	TP1	-350		2825	mV	2
Differential Termination Resistance Mismatch	TP1			10	%	At 1MHz
Differential Return Loss (SDD11)	TP1			See CEI-28G0VSR Equation 13-19	dB	
Common-Mode to Differential Conversion and Differential to Common-Mode Conversion	TP1			See CEI-28G-VSR Equation 13-20	dB	
Stressed Input Test	TP1a	See CEI-28G-VSR Section 13.3.11.2.1				
Receiver (Per Lane)						
Differential Voltage (Pk-Pk)	TP4			900	mV	
Common-Mode Voltage (Vcm)	TP4	-350		2850	mV	2
Common-Mode Noise (RMS)	TP4			17.5	mV	
Differential Termination Resistance Mismatch	TP4			10	%	At 1MHz

Differential Return Loss (SDD22)	TP4			See CEI-28G-VSR Equation 13-19	dB	
Common-Mode to Differential Conversion and Differential to Common-Mode Conversion (SCC22)	TP4			-2	dB	3
Transition Time (20-80%)	TP4	9.5			ps	
Vertical Eye Closure (VEC)	TP4			5.5	dB	
Eye Width at 10^{-15} Probability (EW15)	TP4	0.57			UI	
Eye Height at 10^{-15} Probability (EH15)	TP4	0.57			UI	

Notes:

1. Per terminal.
2. Vcm is generated by the host. Specification includes the effects of ground offset voltage.
3. From 250MHz to 30GHz.

Pin Descriptions

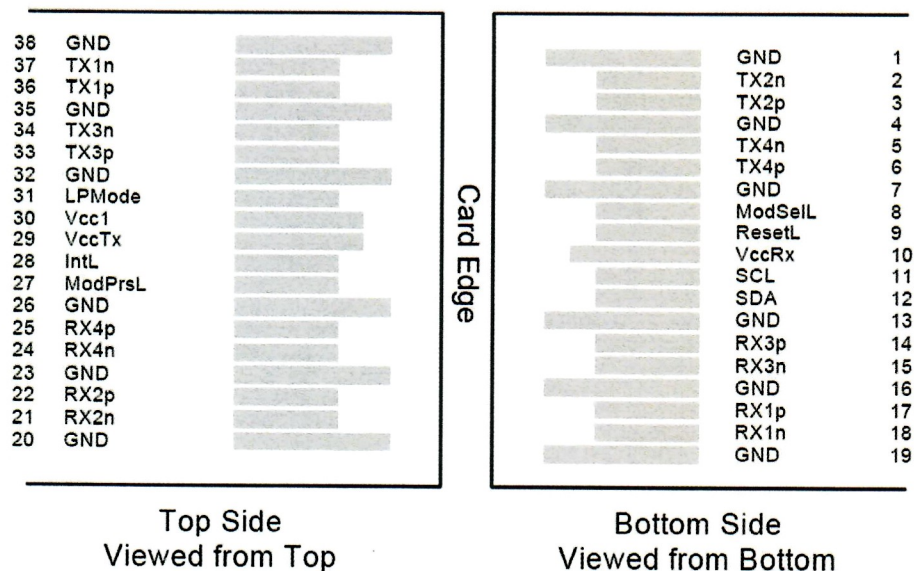
Pin	Logic	Symbol	Name/Description	Notes
1		GND	Module Ground.	1
2	CML-I	Tx2-	Transmitter Inverted Data Input.	
3	CML-I	Tx2+	Transmitter Non-Inverted Data Input.	
4		GND	Module Ground.	1
5	CML-I	Tx4-	Transmitter Inverted Data Input.	
6	CML-I	Tx4+	Transmitter Non-Inverted Data Input.	
7		GND	Module Ground.	1
8	LVTTL-I	ModSelL	Module Select.	2
9	LVTTL-I	ResetL	Module Reset.	2
10		VccRx	+3.3V Receiver Power Supply.	
11	LVC MOS-I	SCL	2-Wire Serial Interface Clock.	2
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data.	2
13		GND	Module Ground.	1
14	CML-O	Rx3+	Receiver Non-Inverted Data Output.	
15	CML-O	Rx3-	Receiver Inverted Data Output.	
16		GND	Module Ground.	1
17	CML-O	Rx1+	Receiver Non-Inverted Data Output.	
18	CML-O	Rx1-	Receiver Inverted Data Output.	
19		GND	Module Ground.	1
20		GND	Module Ground.	1

21	CML-O	Rx2-	Receiver Inverted Data Output.	
22	CML-O	Rx2+	Receiver Non-Inverted Data Output.	
23		GND	Module Ground.	1
24	CML-O	Rx4-	Receiver Inverted Data Output.	
25	CML-O	Rx4+	Receiver Non-Inverted Data Output.	
26		GND	Module Ground.	1
27	LVTTL-O	ModPrsL	Module Present. Internally pulled down to the GND.	
28	LVTTL-O	IntL	Interrupt output should be pulled up on the host board.	2
29		VccTx	+3.3V Transmitter Power Supply.	
30		Vcc1	+3.3V Power Supply.	
31	LVTTL-I	LPMode	Low-Power Mode.	2
32		GND	Module Ground.	1
33	CML-I	Tx3+	Transmitter Non-Inverted Data Input.	
34	CML-I	Tx3-	Transmitter Inverted Data Input.	
35		GND	Module Ground.	1
36	CML-I	Tx1+	Transmitter Non-Inverted Data Input.	
37	CML-I	Tx1-	Transmitter Inverted Data Input.	
38		GND	Module Ground.	1

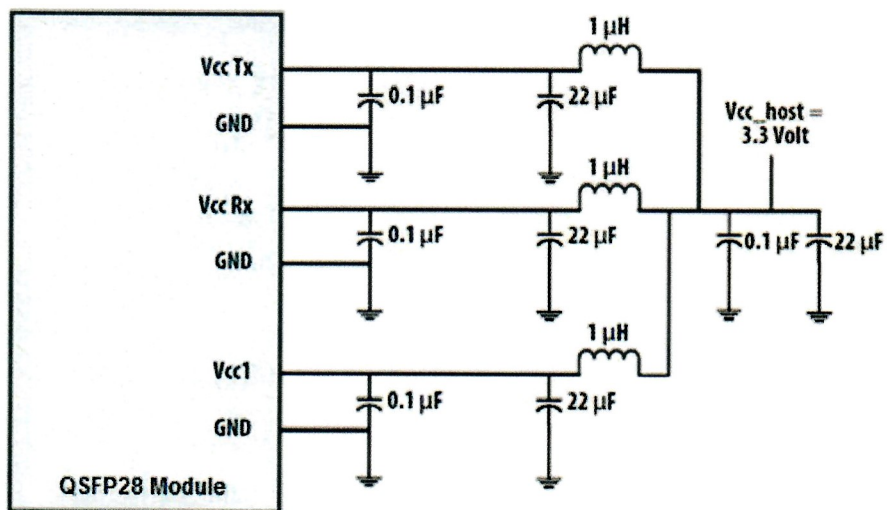
Notes:

1. The module circuit ground is isolated from the module chassis ground within the module.
2. Open collector. Should be pulled up with 4.7kΩ to 10kΩ on the host board to a voltage between 3.15V and 3.6V.

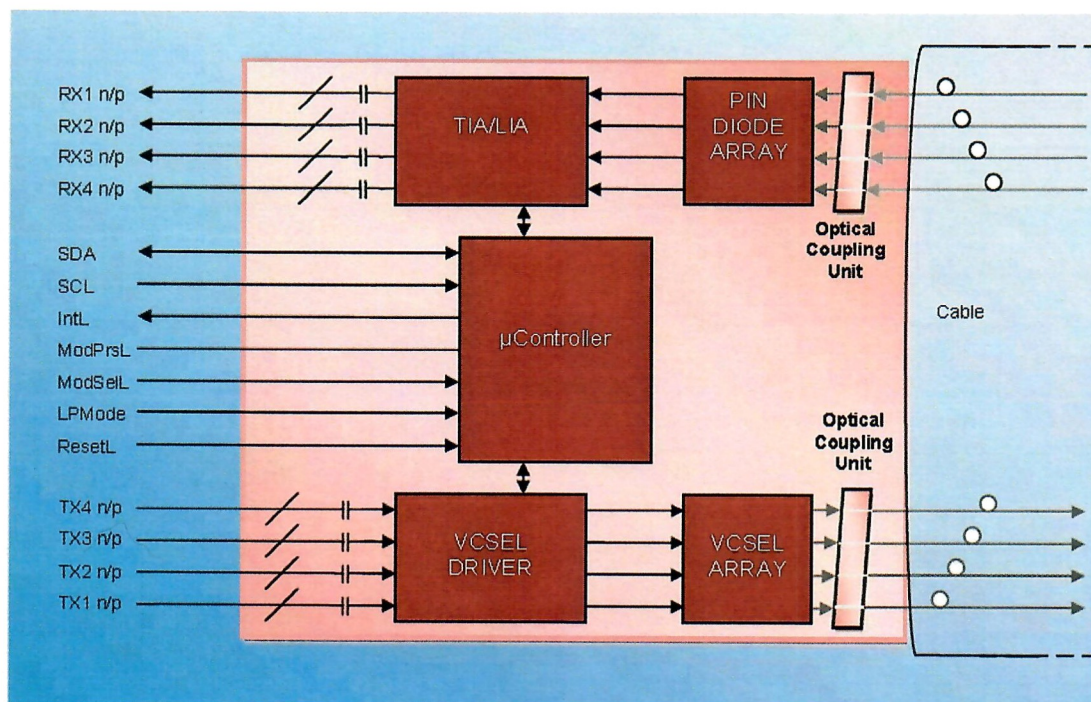
Electrical Pin-Out Details



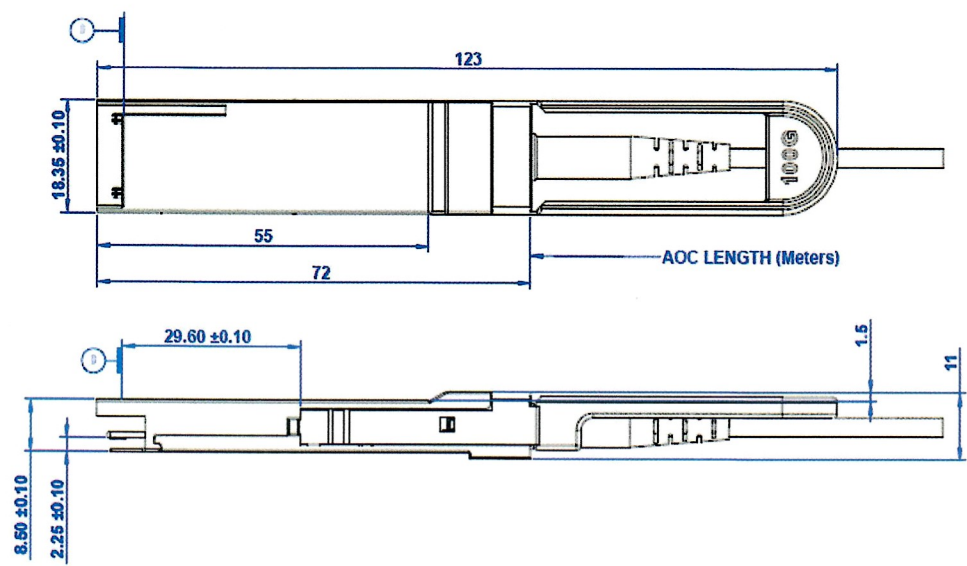
Recommended Power Supply Filter



Block Diagram



Mechanical Specifications



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 ingrained 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.



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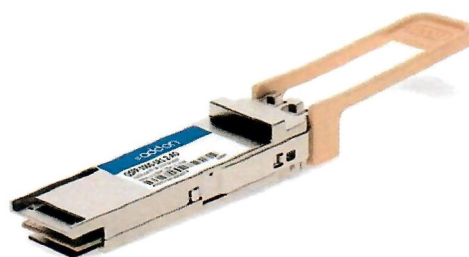
Telephone: +44 1285 842070

QSFP-100G-SR1.2-AO

Cisco® Compatible TAA 100GBase-BX SR QSFP28 Transceiver (MMF, 844nm to 918nm, 100m, LC, DOM)

Features

- QSFP28 MSA compliant
- Supports KP4 FEC @ 100G data rate
- Supports 100GE aggregate bit rates
- Up to 100m OM4 MMF transmission
- Operating case temperature: 10 to 70 C @ 100G
- Two independent full-duplex channels
- Maximum power consumption 4W
- Single 3.3V power supply
- RoHS compliant and lead-free
- LC optical connector



Applications

- 100GBase Ethernet

Product Description

This Cisco® QSFP28 transceiver provides 100GBase-BX SR throughput up to 100m over OM4 multi-mode fiber (MMF) using a wavelength of 844nm to 918nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Cisco® 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."



Absolute Maximum Ratings

Parameter		Symbol	Min.	Max.	Unit	Notes
Maximum Supply Voltage		V _{CC}	-0.5	3.6	V	
Storage Temperature		T _S	-40	85	°C	
Operating Case Temperature		T _{OP}	10	70	°C	
Operating Relative Humidity		RH	0	85	%	
Damage Threshold		TH _d	5		dBm	
Data Rate Accuracy			-100	100	ppm	
Pre-FEC Bit Error Ratio					2.4x10 ⁻⁴	
Post-FEC Bit Error Ratio					1x10 ⁻¹²	1
Link Distance	OM3	D1		70	m	2
	OM4	D2		100	m	2
	OM5	D3		150	m	2

Notes:

1. FEC provided by host system.
2. FEC required on host system to support maximum distance.

Electrical Characteristics

Parameter	Test Point	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Control Input Voltage High		2		Vcc	V	
Control Input Voltage Low		0		0.8	V	
Power Consumption				4	W	
Supply Current	Icc			1.21	A	
Transmitter						
Overload Differential Voltage pk-pk	TP1a	900			mV	
Common Mode Voltage (Vcm)	TP1	-350		2850	mV	1
Differential Termination Resistance Mismatch	TP1			10	%	At 1MHz
Differential Return Loss (SDD11)	TP1			See CEI-28G-VSR Equation 13-19	dB	
Common Mode to Differential conversion and Differential to Common Mode conversion (SDC11, SCD11)	TP1			See CEI-28G-VSR Equation 13-20	dB	
Stresses Input Test	TP1a	See CEI-28G-VSR Section 13.3.11.2.1				
Receiver						
Differential Voltage, pk-pk	TP4			900	mV	
Common Mode Voltage (Vcm)	TP4	-350		2850	mV	1
Common Mode Noise, RMS	TP4			17.5	mV	
Differential Termination Resistance Mismatch	TP4			10	%	At 1MHz
Differential Return Loss (SDD22)	TP4			See CEI-28G-VSR Equation 13-19	dB	
Common Mode to Differential conversion and Differential to Common Mode conversion (SDC22, SCD22)	TP4			See CEI-28G-VSR Equation 13-21	dB	
Common Mode Return Loss (SCC22)	TP4			-2	dB	2
Transition Time, 20 to 80%	TP4	9.5			ps	
Vertical Eye Closure (VEC)	TP4			5.5	dB	
Eye Width at 10 ⁻¹⁵ probability (EW15)	TP4	0.57			UI	
Eye Height at 10 ⁻¹⁵ probability (EH15)	TP4	228			mV	

Notes:

1. Vcm is generated by the host. Specification includes effects of ground offset voltage.
2. From 250MHz to 30GHz

Optical Characteristics

Parameter	Symbol	KP4 FEC Mode			Unit	Notes
		Min.	Typ.	Max.		
Transmitter						
Center Wavelength Line0	λ_C	844		863	nm	
Center Wavelength Line1	λ_C	900		918	nm	
RMS Spectral Width	$\Delta\lambda_{rms}$			λ_1 : 0.6 λ_2 : 0.65	nm	
Average Launch Power, each Lane	P _{AVG}	-6.2		4	dBm	1
Optical Modulation Amplitude (OMA), each Lane	P _{OMA}	-4.2		3	dBm	
Launch power in OMA minus TDP, each lane		-5.6			dBm	
TDECQ, each lane				4.5	dBm	
Extinction Ratio	ER	3.0			dB	
Transmitter transition time, each lane (max)				31	ps	
RIN12 OMA				-128	dB/Hz	
Optical Return Loss Tolerance	TOL			12	dB	
Average Launch Power OFF Transmitter, each Lane	P _{off}			-30	dBm	
Encircled Flux		$\geq 86\%$ at 19 μm $\leq 30\%$ at 4.5 μm				2
Signaling rate, each lane		26.5625± 100ppm			Gbps	
Receiver						
Center Wavelength Lane0	λ_C	844	850	863	nm	
Center Wavelength Lane1	λ_C	900	910	918	nm	
Damage Threshold, each Lane	TH _d	5			dBm	3
Average Receive Power, each lane		-8.2			dBm	4
Average power at receiver input, each lane (overload)				4	dBm	
Receiver Reflectance	R _R			-12	dB	
Stressed receiver sensitivity in OMA, Lane2				-3.5	dBm	5
Receiver sensitivity (OMA outer), each lane				Max(-6.6, SECQ-8) as per IEEE cl 150	dBm	
LOS Assert	LOSA	-30		-14.2	dBm	
LOS Deassert	LOSD			-11.2	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

1. Even if the mTDEC < 0.9 db, the OMA (min) must exceed this value.
2. If measured into type A1a.2 50um fiber in accordance with IEC 61280-1-4.
3. The receiver shall be able to tolerate, without damage, continuous exposure to a modulated optical input signal having this power level on one lane. The receiver does not have to operate correctly at this input power.

4. Average receive power, each lane (min) is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.
5. Measured with conformance test signal at TP3 as per the following:

Stressed eye closure (SECq), each lane	4.5	dB
OMA of each aggressor, each lane	3	dBm

Pin Descriptions

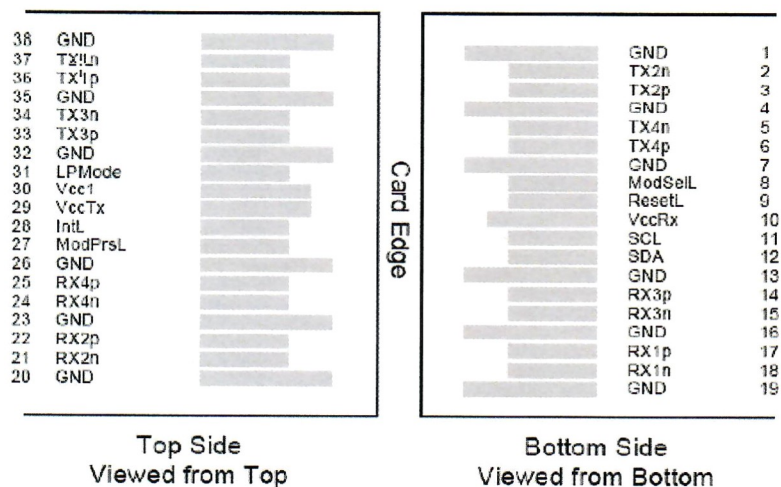
Pin	Logic	Symbol	Name/Descriptions	Notes
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	1
8	LVTLL-I	ModSelL	Module Select	
9	LVTLL-I	ResetL	Module Reset	
10		VccRx	+3.3V Power Supply Receiver	2
11	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data	
13		GND	Ground	
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	1
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	

29		VccTx	+3.3 V Power Supply transmitter	2
30		Vcc1	+3.3 V Power Supply	2
31	LVTTTL-I	LPMode	Low Power Mode	
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	1

Notes:

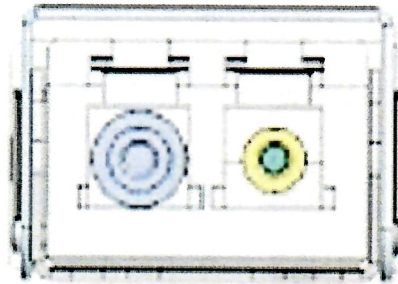
1. GND is the symbol for signal and supply (power) common for the QSFP28 module. All are common within the QSFP28 module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.
2. VccRx, Vcc1 and VccTx are the receiver and transmitter power supplies and shall be applied concurrently. Recommended host board power supply filtering is shown in Figure 4 below. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the QSFP28 transceiver module in any combination. The connector pins are each rated for a maximum current of 1000mA.

Electrical Pin-Out Details

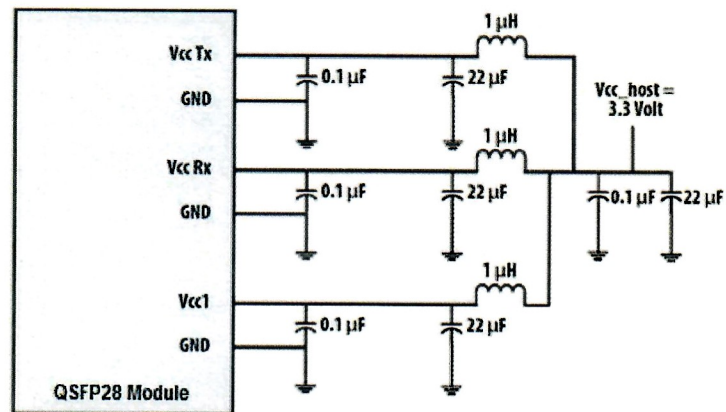


Optical Interface Lanes and Assignments

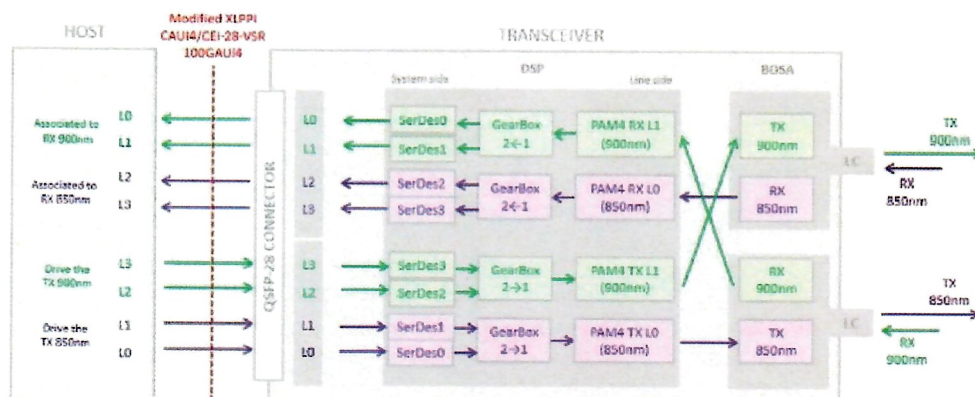
The orientation of the multi-mode fiber facets of the optical connector



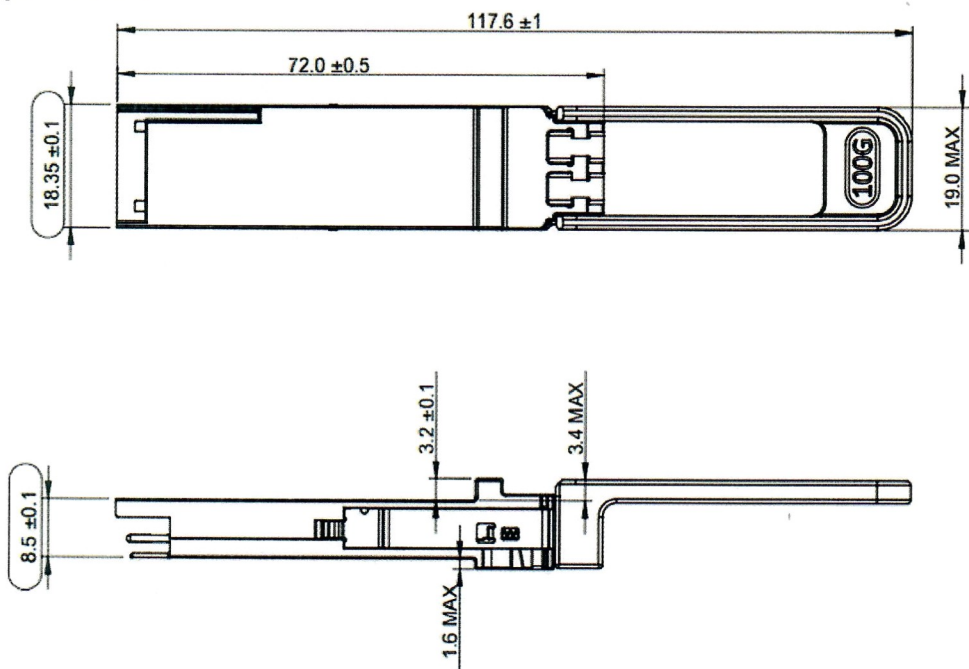
Recommended Power Supply Filter



Transceiver Block Diagram



Mechanical Specifications



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