



1442543F2-OPC

ADTRAN® 1442543F2 Compatible TAA 1G/10GBase-N2/C+ SFP+ OLT Transceiver (SMF, 1577nmTx/1270nmRx and 1490nmTx/1310nmRx, 20km, SC, -40 to 85C)

Features

- Hot Pluggable SFP+
- 3.3V DC Power Supply
- 4 Lambda
- SC receptacle optical connector
- 2x10 SFP+ Electrical Interface
- ITU-T G.9807.1 Class N1/N2 compliant
- ITU-T G.987.2 Class N1/N2a compliant
- ITU-T G.984.2 Class B+/C+ compliant
- Industrial Temperature -40 to 85 Celsius
- RoHS compliant and Lead Free



Applications:

- PON
- Access and Enterprise

Product Description

This ADTRAN® 1442543F2 Compatible TAA Compliant SFP+ OLT transceiver provides 1G/10GBase-N2/C+ throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1577nmTx/1270nmRx and 1490nmTx/1310nmRx via a SC connector. It can operate at temperatures between -40 and 85C. It is built to meet or exceed ADTRAN® standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. 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.

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

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage	VCC3	0	3.6	V
Storage Ambient Temperature	T _{stg}	-40	+85	°C
Operating Case Temperature	T _c	-40	+85	°C
Relative Humidity Storage	RH _s	5	90	%
Relative Humidity Operating	RH _o	5	85	%

Note:

Exceeding the Absolute Maximum Ratings may cause irreversible damage to the device. The device is not intended to be operated under the condition of simultaneous Absolute Maximum Ratings, a condition which may cause irreversible damage to the device.

Absolute Maximum Ratings: Control Function Logic Levels

Parameter	Symbol	Min.	Max.	Unit	Notes
Tx_DISABLE	Tx_Dis	0	V _{CC3} +0.5	V	LVTTL
Burst Mode SIGNAL Detect	Rx_SD	0	V _{CC3} +0.5	V	LVTTL
Rx_Reset	Rx_Reset	0	V _{CC3} +0.5	V	1
Digital Rx_RSSI_Trigger Input	TRI	0	V _{CC3} +0.5	V	1
I ² C Serial Data	SDA	0	V _{CC3} +0.5	V	2
I ² C Serial Clock	SCL	0	V _{CC3} +0.5	V	1

Notes:

1. Signal Ended LVTTL input
2. Single Ended LVTTL I/O

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	V _{CC3}	3.135	3.30	3.465	V	
Power Supply Current	I _{CC3}		750		mA	
Power Consumption	P			3.5	W	
Transmitter						
Tx Differential Input Impedence	Z _{IN}	90	100	110	Ω	
10Gb/s Tx Differential Input Amplitude	V _{IN10}	120		800	mV	
2.5Gb/s Tx Differential Input Amplitude	V _{IN1}	120		800	mV	
Tx_Dis = HIGH (Transmitter OFF / DISABLED)	V _{TDH}	0.7*V _{CC3}		V _{CC3}	V	1
Tx_Dis = LOW (Transmitter ON / ENABLED)	V _{TDL}	0		0.8	V	1
Receiver						
Rx Differential Output Impedence	Z _{OUT}	90	100	110	Ω	
10Gb/s Rx_Data Differential Output Voltage Amplitude	V _{OUT10}	300		850	mV	LVCML
10Gb/s Output HIGH Voltage	V _{OH10}	V _{CC3} -20	V _{CC3} -5	V _{CC3}	mV	LVCML
10Gb/s Output LOW Voltage	V _{OL10}	V _{CC3} -400	V _{CC3} -350	V _{CC3} -300	mV	LVCML
1.25Gb/s Rx_Data Differential Output Voltage Amplitude	V _{OUT1}	600		1600	mV	LVPECL
1.25Gb/s Output HIGH Voltage	V _{OH1}	V _{CC3} -1085	V _{CC3} -955	V _{CC3} -880	mV	LVPECL
1.25Gb/s Output LOW Voltage	V _{OL1}	V _{CC3} -1850	V _{CC3} -1705	V _{CC3} -1555	mV	LVPECL
Rx_SD = HIGH (Receiver ON)	V _{OH}	2.0		V _{CC3}	V	2
Rx_SD = LOW (Receiver OFF)	V _{OL}	0		0.8	V	2
Ratesel/Reset=HIGH	V _{IH}	1.9		V _{CC3}	V	3
Ratesel/Reset=Middle	V _{IM}	1.2		1.6	V	3
Ratesel/Reset=LOW	V _{IL}	0		0.9	V	3
TRI=HIGH	V _{IH}	0.7*V _{CC3}		V _{CC3}	V	1
TRI=LOW	V _{IL}	0		0.8	V	1

Notes:

1. LVTTL (Control INPUT)
2. LVTTL (Monitor OUTPUT)
3. Tri-level (Control INPUT)

9.95328Gb/s Transmitter Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Laser Type		1577nm CW EML				
Downstream Signal Rate		9.95328			Gb/s	
Average Launch Power	P_{OUT10}	4		7	dBm	
Optical Center Wavelength	λ_{10}	1575		1580	nm	
Spectral Width	$\Delta\lambda_{10}$			1.0	nm	
Side Mode Suppression Ratio	$SMSR_{10}$	30			dB	
Extinction Ratio	ER_{10}	8.2			dB	
Output Eye Diagram	Compliant with ITU-T G.987.2 & ITU-T G.9807.1					

2.48832Gb/s Transmitter Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Laser Type		1490nm CW DFB Laser				
Downstream Signal Rate		2.48832			Gb/s	
Average Launch Power	P_{OUT2}	3		7	dBm	
Optical Rise and Fall Time	T_r / T_f			200	ps	20% to 80%
Optical Center Wavelength	λ_1	1480	1490	1500	nm	
Spectral Width	$\Delta\lambda_1$			1.0	nm	
Side Mode Suppression Ratio	$SMSR_1$	30			dB	
Extinction Ratio	ER_1	8.2			dB	
Output Eye Diagram	Compliant with ITU-T G.984.2					

9.95328/2.48832Gb/s Receiver Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Receiver Type		1270nm APD/TIA Receiver				
Upstream Signal Rate		9.95328/2.48832			Gb/s	
Optical Center Wavelength	λ	1260	1270	1280	nm	
XGS-PON Receiver Sensitivity	P_{IN}			-28	dBm	1
XG-PON Receiver Sensitivity	P_{IN}			-29.5	dBm	2
XGS-PON Receiver Optical Overload	$P_{IN}(SAT)$	-7			dBm	3
XG-PON Receiver Optical Overload	$P_{IN}(SAT)$	-9			dBm	3
Damaged Input Optical Power	P_d			-5	dBm	
Rx_SD Assert	P_A	-45		-29.5	dBm	
Rx_SD De Assert	P_D	-45		-29.5	dBm	
Rx_SD Hysteresis	PHy	0		7	dBm	

Notes:

1. BER@ 10^{-3} *: Test Condition: PRBS: $2^{31}-1$, ER=8.2 dB
2. BER@ 10^{-4} *: Test Condition: PRBS: $2^{23}-1$, ER=8.2 dB
3. Test Condition: BER@ 10^{-10} , PRBS $2^{23}-1$, ER=10dB

1.24416Gb/s Receiver Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Receiver Type		1310nm Burst APD/TIA Receiver				
Upstream Signal Rate		1.24416			Gb/s	
Optical Center Wavelength	λ	1290	1310	1330	nm	
Receiver Sensitivity	P_{IN}			-30	dBm	1
Receiver Optical Overload	$P_{IN}(SAT)$	-7			dBm	
Damaged Input Optical Power	P_d			-5	dBm	
Receiver Settling Time	Trx			51.2	ns	
Rx_SD Assert	P_A	-45		-30	dBm	
Rx_SD De Assert	P_D	-45		-30	dBm	
Rx_SD Hysteresis	PHy	0		7	dB	

Notes:

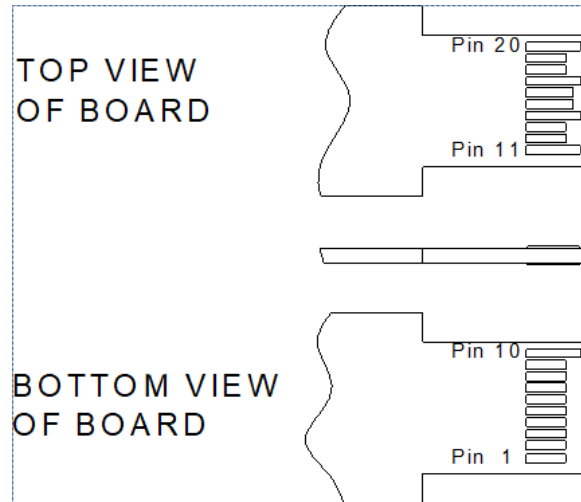
1. Test Condition: BER@ 10^{-10} , PRBS $2^{23}-1$, ER=10dB

Pin Descriptions

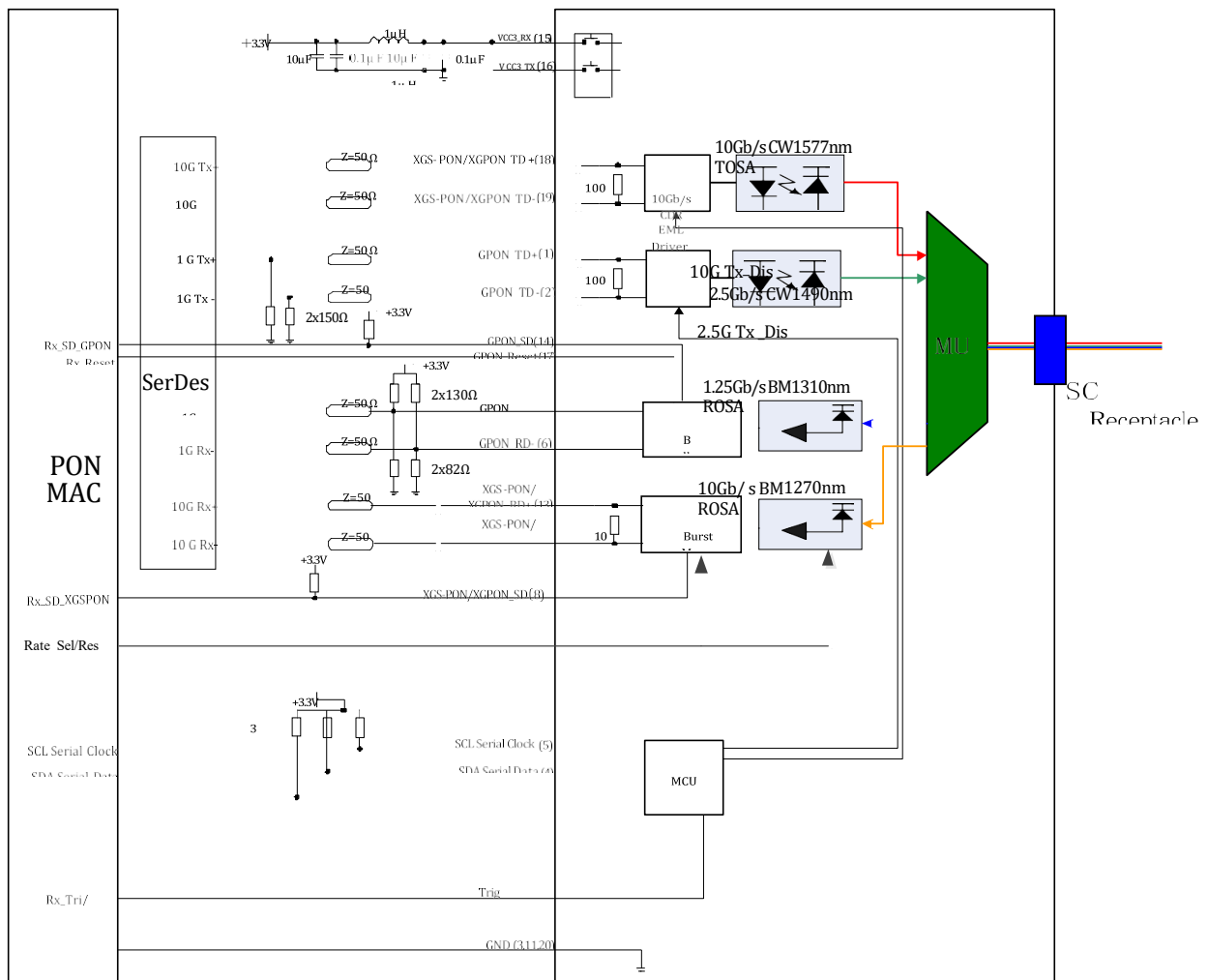
Pin	Symbol	Name/Descriptions	Ref.
1	GPON_TD+	Transmit Non-Inverted 2.48832Gb/s Data Input; AC coupled inside the module.	
2	GPON_TD-	Transmit Inverted 2.48832Gb/s Data Input; AC coupled inside the module.	
3	GND	Module Ground.	
4	SDA	2-Wire Serial Interface Data Line, with the pull-up resistance: 4.7kΩ~10kΩ.	
5	SCL	2-Wire Serial Interface Clock, with the pull-up resistance: 4.7kΩ~10kΩ.	
6	GPON_RD-	Receive Burst Mode Inverted 1.2488Gb/s Data Output; DC coupled inside the module.	1
7	Ratesel/Reset	Three-level input combining “Rate Select” and “Reset” information. Set high level to reset TIA/LA. Middle level indicates 2.5G data rate. Low level indicates 10G data rate.	
8	XGS-PON_SD	Receiver Signal Detect Indicator for XGS-PON/XGPON Receiver, when Low, indicates insufficient optical input power to the module; when High, means in normal.	
9	Trig/Txdis	Two signals multiplex, which selected by the register. Receiver signal strength indication trigger for Digital RSSI. As TXdisable, when Low level, the transceiver port work in normal; when High level, both 10Gb/s and 2.5Gb/s are disabled.	
10	GPON_RD+	Receive Burst Mode Non-Inverted 1.2488Gb/s Data Output; DC coupled inside the module.	1
11	GND	Module Ground.	
12	XGS-PON_RD-	Receive Burst Mode Inverted 9.953 or 2.48832Gb/s Data Output. DC coupled inside the module.	
13	XGS-PON_RD+	Receive Burst Mode Non-Inverted 9.953 or 2.48832Gb/s Data Output. DC coupled inside the module.	
14	GPON_SD	Receiver Signal Detect Indicator for G-PON Receiver. When Low, indicates insufficient optical input power to the module. When High, means in normal.	
15	VCC3_RX	+3.3V power supply for RX. Tolerance: 3.3V±5%.	
16	VCC3_TX	+3.3V power supply for TX. Tolerance: 3.3V±5%.	
17	GPON_Reset	Burst Mode Receiver Reset for GPON Receiver. When HIGH, indicates the receiver is OFF/being reset.	
18	XGS-PON_TD+	Transmit Non-Inverted 9.95328Gb/s Data Input; AC coupled inside the module.	
19	XGS-PON/_TD-	Transmit Inverted 9.95328Gb/s Data Input; AC coupled inside the module.	
20	GND	Module Ground.	

Notes:

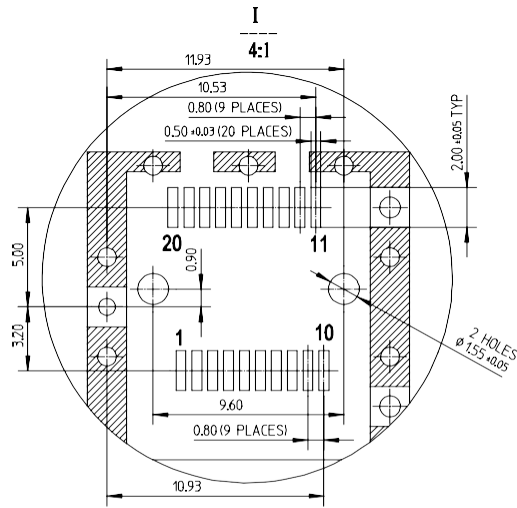
1. When GPON_RD+/- set as LVPECL, and the module without the pull-down resistances. The differential signal amplitude must be satisfied with the Electrical Characteristics.



Electrical Interface

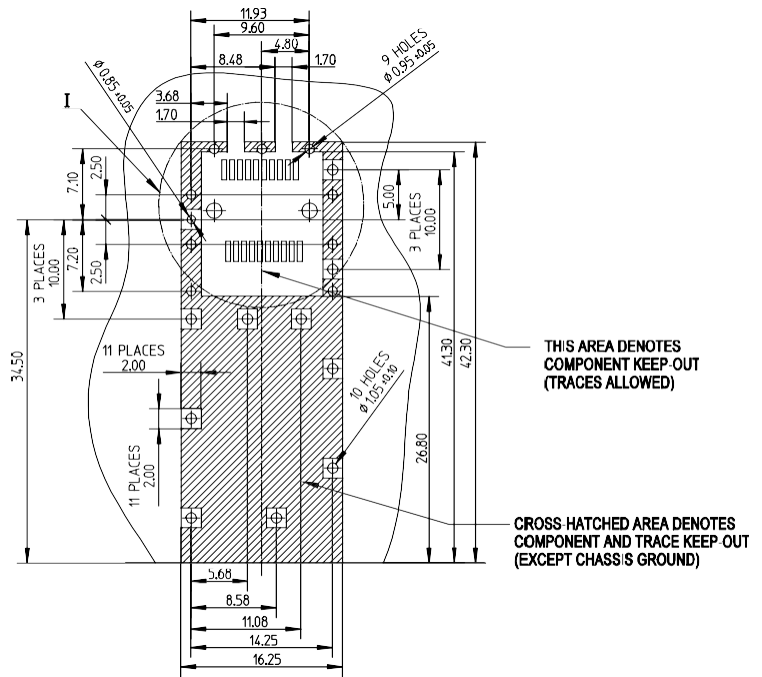


SFP+ Connector Dimensions

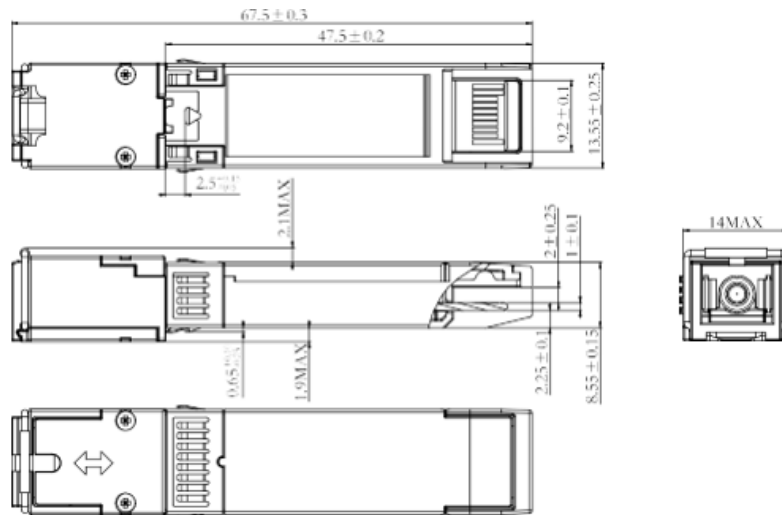


Notes:

1. Datum and basic dimensions established by customer
2. Pads and vias are chassis ground, 11 places
3. Thru holes, plating optional



Mechanical Specifications

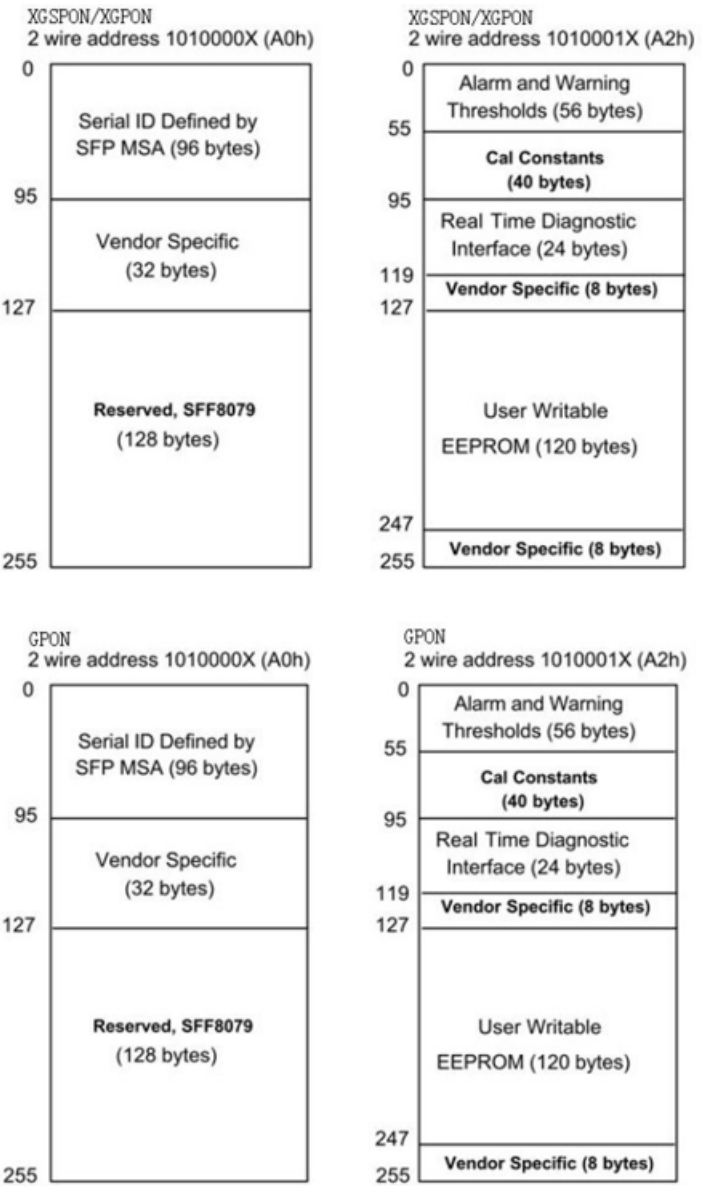


NOTES:

1. TOLERANCE: ± 0.1MM;
2. OTHERS ACCORDING WITH SFP-8074I/SFP-8432 OR CUSTOMER SPEC;
3. LIGHT PORT ACCORDING WITH FIBER CONNECTOR SPEC.

EEPROM Information

EEPROM memory map specific data field description is as below:



OptioConnect

Innovation for the Future of High-Speed Networking

Who We Are

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

What We Do

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

Smarter Networks by Design

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

Our Team

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

Our Mission

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

Let's Connect

Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.

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