



## Photonic Fabric (PXC)

### Key Benefits

Non-blocking matrix switch from 32x32 up to 384x384

Can be deployed in CLOS configurations

Single Mode Fiber

Ultra-Low insertion loss  
.05db to 1.9db

Ultra-Low Port to Port latency ~15ns

Dark fiber all-band single mode connectivity

Maximum circuit switch setup time ~25ms

Protocol and bit-rate agnostic (Future Proof)

Power Consumption 25-75w

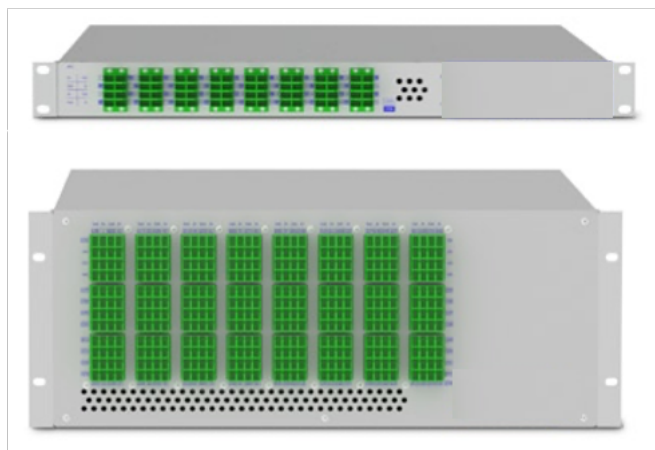
Switch Lifetime >10<sup>9</sup> cycles

Hot Swappable Dual Redundant 100-240 VAC 50/60 hz power supplies

Drut's Photonic fabric is a collection of optics, single-mode fiber, and an all-optical, ultra-low latency active switch (PXC). To make ordering and configuration easier, we bundled these three components around a fixed fabric size. For very large designs or designs requiring outsized cable lengths, we will provide a customized quote.

### Active Photonic Switch (PXC)

At the heart of Drut's Photonic fabric is an active, ultra low-latency all optical switch. This switch starts with 32x32 ports and scales to 384x384. A large radix scale fabric can be built by using multiple PXC's. Each PXC has exceptionally low optical loss, compact size, and low power requirements



### FIC Cabling and Pluggable Optics

To make the building of photonic fabric easier, Drut provides the single mode cabling and optics with each order. Large designs will require some level of custom engineering work, but most customer designs can be satisfied with standard 3-5-7M cables and choice of NxQSFP28 optics from 25G to 100G. All of this is provided in the form of a Drut Photonic Fabric Kit.

## Ordering Information Photonic Fabric (PXC)

Product: Drut Photonic Fabric Kits  
Code: DRT-HW-PXC-Fabric-32P  
Description: 32 Port PXC Fabric

Product: Drut Photonic Fabric Kits  
Code: DRT-HW-PXC-Fabric-48P  
Description: 48 Port PXC Fabric

Product: Drut Photonic Fabric Kits  
Code: DRT-HW-PXC-Fabric-64P  
Description: 64 Port PXC Fabric

Product: Drut Photonic Fabric Kits  
Code: DRT-HW-PXC-Fabric-96P  
Description: 96 Port PXC Fabric

Product: Drut Photonic Fabric Kits  
Code: DRT-HW-PXC-Fabric-144P  
Description: 144 Port PXC Fabric

Product: Drut Photonic Fabric Kits  
Code: DRT-HW-PXC-Fabric-384P  
Description: 384 Port PXC Fabric

## Architecture Advantages

Deploying an all photonic direct connect architecture from Drut Technologies provides several important advantages:

- **Direct Connect:** No spine layer interconnect to add latency and engineer
- **Security:** Resources are directly connected with each other to create a defined machine and this machine's resources can be locked to prevent them from being used by other machines and users.
- **Locality:** Drut's Photonic fabric is extensible throughout large data centers solving the physical rack locality challenges.
- **Ease of Scale Out:** By disaggregating the elements of the server cluster, it allows users to independently upgrade components.
- **Density:** Small, highly dense clusters can be built in a rack or two or three. These photonic clusters are well suited addressing workloads where a single server with 8-16-32 GPUs are a perfect fit.

## PXC Specifications

Typical Insertion Loss	0.5dB
Maximum Insertion Loss	1.0dB
Wavelength Range	1260-1675nm
Max Setup Time	25ms
Switch Lifetime	>10 <sup>9</sup> Cycles
Operating Temperature	+10°C to +40°C
Dimensions	1RU to 4RU
Power Consumption	25-75W