Jericho2 & Ramon Cell Based DDC

Jericho2 & Ramon

Broadcom's Jericho2 and Ramon cell-based fabric routing platform provides deterministic routing capabilities for cloud and 5G network operators.

Traditional deployments use a proprietary chassis to provide CLOS connectivity between the line cards and fabric, these can be expensive and typically run proprietary Network Operating Systems (NOS) resulting in high costs and vendor lock in.

Increasingly, cloud and 5G network operators are looking to Distributed, Disaggregated Chassis to replace traditional proprietary chassis in order to enable standards based hardware, choice in NOS and to avoid vendor lock in.

Traditional Chassis → Distributed, Disaggregated Chassis
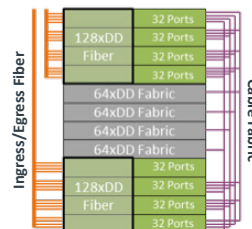
Solving the DDC CLOS Challenge

A chassis uses a backplane to build a CLOS network. A DDC uses standards-based 400G cables to build a CLOS network – but legacy interconnect solutions don't deliver. Optics power is too high for this application – resulting in a CLOS fabric that consumes almost as much power as the Jericho2 hardware. But what about DACs?

DACs : Broken Connectors and Broken Dreams

DACs promise a low power and low cost solution to DDC CLOS Connectivity, but at 400G DACs have gotten too fat and to stiff to reliably route at these densities. The result is broken connectors, intermittent signal integrity issues at failed rollouts.

HiWire LP CLOS AECs

Introducing HiWire LP CLOS AECs – specifically designed for DDC applications – with 75% less power than optics and 75% less volume than DACs.

www.credosemi.com/hiwire
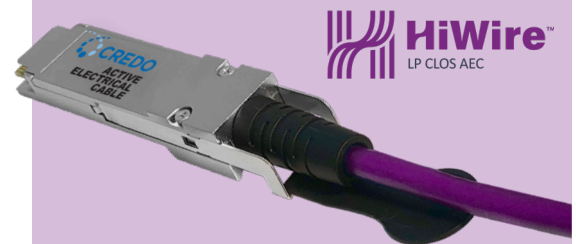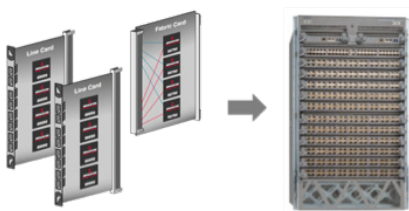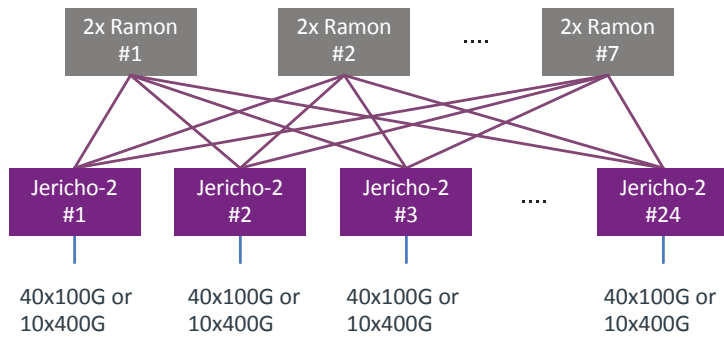
HiWire LP CLOS AEC

Credo HiWire LP CLOS Active Electrical Cables (AEC) are specifically designed for high density in-rack or HPC rack-to-rack interconnect to support CLOS architectures.

With 75% less power than optical solutions and 75% less volume than DACs, these AECs enable CLOS cabling densities up to 500 cables per rack.

Key Parameters

Lengths	0.5m – 3.0m	
	0.2m granularity	
Cu Gauge	32 AWG	
Cable Diameter	6.8mm	
Modulation	PAM4 ⇌ PAM4	
Connectors	**A-Side**	**B-Side**
	QSFP56-DD	QSFP56-DD
Link Speeds	28G / 56G	
Power	4.5W per end	
BER	Pre-FEC BER $1e^{-8}$	
	Post-FEC BER < 10^{-15}	

96Tb Jericho2 / Ramon Medium Cluster Case Study

Item	Power	Qty	Ext Power
Jericho2	450W	24	10.8kW
2U Ramon	550W	7	3.9kW
400G DR4	11W → 9W	240	2.6kW → 2.2kW
		Total	16.8kW → 16.4kW

CLOS Options

Item	Power	Qty	Ext Power
AOC	2x11W	312	6.8kW
HiWire LP CLOS AEC	**2x4.5W**	**312**	**2.8kW**

Fiber   HiWire LP CLOS AEC

HPC Routing Saves Power and Cost

Rack-to-rack routing in traditional data centers involves routing all rack-to-rack cables via the tray that is suspended above the racks.

At 400G speeds, distance is the enemy – it means more power, more latency, more weight and more cost – thus the High Performance Computing (HPC) market pioneered lateral routing – minimizing cable lengths by routing laterally across racks rather than to the tray.

HPC routing is the future of the DDC market – it reduces CLOS cable lengths by 50%, CLOS power by 35-40% and CLOS cost by over 50%.

HPC Routing allows for easier maintenance and supports in-situ switch swapping. In short, HPC routing it is the future of DDC.

Jericho2 & Ramon Cluster Size	Routing Style	HiWire LP CLOS AEC Fabric			Total System Power
		Cable Length	Cable Mass	Cable Power	
Small – 16Tb	Single Rack	52m	18kg	0.2kW	2.8kW
Medium – 96Tb	HPC Routing	605m	143kg	2.8kW	18.2kW
Large – 192Tb	HPC Routing	1,564m	326kg	5.6kW	36.3kW

For more information please visit **www.credosemi.com/hiwire** or email **hiwire@credosemi.com**.