

Data Sheet

1FINITY L120 Lambda Blade

Expansion WSS blade for optical hub and increased ROADM add/drop capacity

1FINITY™ L120 Blade at a Glance

- Optical switch with twin 12 × 9 WSS
- Expands ROADM up to eight degrees (8D) and 48 add/drop clients
- Optimized for 100G and above wavelengths

Product Overview

The L120 is an expansion WSS for building ROADM nodes beyond four degrees when added to an optical system consisting of L100 and L110 blades. The L120 blade has 16 connections to the L100 ROADM-on-a-blade and 16 connections to the L110 1 × 16 add-drop PIUs. Management of the L120 can be done individually or as part of a network element using the L100 and L110 blades. Fujitsu-specific application interfaces (APIs) and open APIs are supported.

ROADM Configurations

Large ROADM configurations using the L120 provide up to eight optical degrees (8D) of ROADM support. Coupler/splitter plug-in units (PIUs) from the L110 are connected to the L120 via the L100 ROADM-on-a-blade, allowing for higher channel add/drop counts, as well as connecting additional L100 blades together into an optical hub. The dual 1 × 16 PIU of the L110 is used in this configuration, delivering all the channels into the L120 for further degree routing. The L120 has 3 MPO connectors, providing up to 12 connections: one to each of the L100 blades and one to each of the 1 × 16 PIUs in the L110.



1FINITY L100 Series Overview

The 1FINITY L100 Series, Fujitsu's disaggregated optical layer, provides flexible ROADM functionality that easily accommodates rapid bandwidth growth. The series features compact, 1RU globally compliant enclosures and a functionally modular design. These blades provide the building blocks for an open, simple, scalable physical ROADM architecture.

Blades in the Series

The series currently consists of three types of blades:

- **The L100** – A twin 1 × 9 wavelength selectable switch (WSS) ROADM-on-a-blade
- **The L110** – An optical channel management blade for coupler/splitter plug-in units supporting channel add/drop
- **The L120** – An expansion WSS for nodes beyond four degrees

L100 series blades can be deployed in combination with other 1FINITY blades, including the L200 Inline Amplifier and L300 2-degree ROADM, in addition to blades in the Switch and Transport Series.

Equipped to handle any provider's SLA requirements, L100 series blades incorporate dual-feed, fixed DC power supplies and robust, field-replaceable fans. Blades are compatible with various physical installation environments, including 19" or 23" standard racks (two- or four-post), as well as the 1FINITY Housing.

For ROADM Nodes Up to Eight Degrees

Supported Solutions and Applications

Applications and solutions supported by the L120 blade incorporate certified and tested performance characteristics, in addition to SDN provisioning and management and optical design tool functions. The L120 can be deployed in either new or existing optical networks by pairing with it the L100 and L110 blades to create a ROADM node between four and eight degrees:

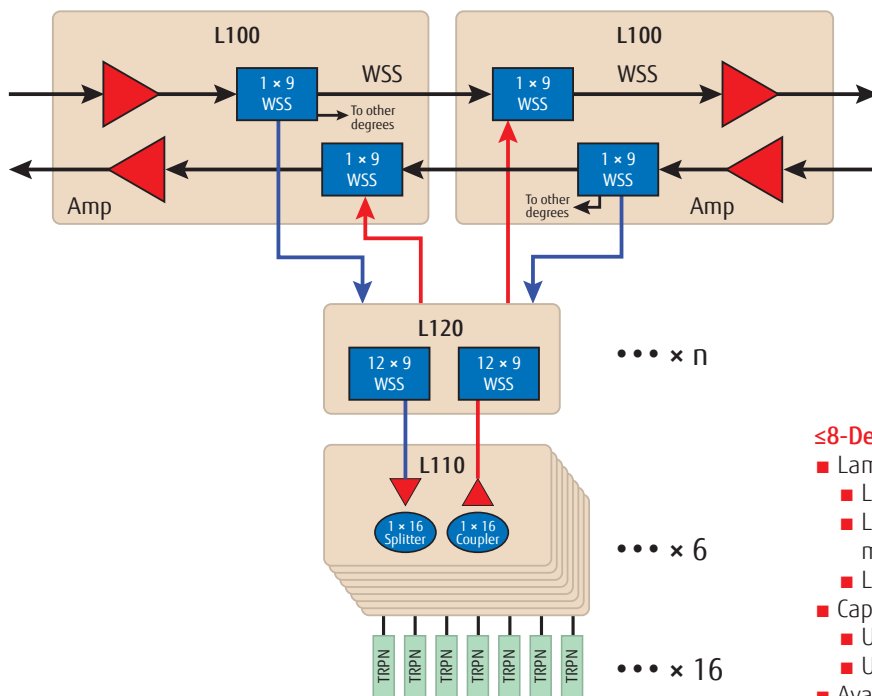
- In greenfield scenarios, a ROADM node of this type can be connected with 1FINITY Transport blades to provide an agile 200G network.
- In brownfield scenarios, a ROADM node of this type can be added as a spur to a FLASHWAVE 9500® multihaul ROADM ring to create a hybrid 10G/100G network that extends the life of the existing equipment and protects capital investment.

Open ROADM Applications

The L120 is also approved for deployment under the Open ROADM Multi-Source Agreement (MSA) that defines interoperability specifications among different vendors, thus enabling optical layer flexibility and software control.

SDN Management and Control

1FINITY L100 series blades are supported by the Fujitsu Virtuora® software platform, including Virtuora Planning and Design; Virtuora Network Management; Virtuora WDM Control Applications; and Virtuora NC (network controller).



Deg	# of A/D
1	96
2	192
3	288
4	364
5	480
6	384
7	288
8	192



≤8-Degree CD-ROADM Node

- Lambda blades
 - L100: One ROADM-on-a-blade per degree up to 8 degrees
 - L110: One or more dual 1 × 16 channel add/drop management blades
 - L120: One or more twin 12 × 9 WSSs
- Capabilities:
 - Up to 8-degree support
 - Up to 480 clients
- Available in release R3.2

≤8-degree CD-ROADM node configuration with transponders (TPR)

Technical Specifications

Base System		Operating Environment	
System Configuration	1RU ROADM-on-a-blade with twin WSS	Operating Temperature	+5 to +40 °C
Local Management Port (LMP)	1 × 10/100 Mbps Ethernet RJ-45	Operating Humidity	5% to 85%
Management Port (LCN)	4 × GbE SFP (T, SX, LX, EX, ZX)	Power	
Front LEDs	System Status, Severity, Port	Power Supply	Dual-feed, fixed DC power supply
Fans	3 replaceable fans	120 V AC	No
Power Supply	Dual-feed, fixed DC power supply	-48 V DC	-40V DC to -57V DC
Software OS	Linux	Power Consumption	180 W
Line Interface		Regulatory and Compliance	
Line Ports per Blade	1 Network, 1 OSC	FCC	FCC Part 15, Class A
Line Rates	100 Gbps, 200 Gbps, Future 400 Gbps	NEBS	NEBS Level 3
Tx Wavelength	1528.77–1566.72 nm	UL/CSA	UL/CSA 60950-1
Rx Wavelength	1528.77–1566.72 nm	CE	CE
Performance Monitoring		RoHS	RoHS
Service PMs	24-hour, 15-min	CISPR	CISPR 24, CISPR 32
Thresholds and TCA	Support (user assignable)	ETSI	EN 300-019, EN 300-132, EN 300-753, EN 300-386
Management		WEEE	WEEE
Virtuora NC	Yes	RCM	RCM
Web GUI	Yes	CDRH	FDA CDRH
CLI	Yes	ROADM Capacity and Functions	
NETCONF / YANG	Yes	Configuration	<ul style="list-style-type: none"> Colorless, Directionless (CD) ROADM Colorless 8-channel ROADM option
SNMP	SNMP v2, v3	ROADM degrees	<ul style="list-style-type: none"> Up to 4 degrees with L110 4–8 degrees with L110 and L120
Communications	SSH, SFTP, FTP, Telnet, HTTP, HTTPS	Topology	Point-to-point, linear, ring, mesh
Timing	NTP	Wavelengths	100G, 200G, future 400G and above
In Band Mgmt	OSC (1511 nm)	Wavelengths Range	1528.77–1566.72 nm
OSMINE Support	CLEI	Maximum Number of Channels per Degree	96 (50 GHz ITU-T fixed grid) 128 (37.5 GHz flex-grid)
Physical Characteristics		Maximum System Capacity	25.6 Tbps (200G × 128 channels) per degree
Blade Physical Dimensions (H × W × D)	1.75" × 19" × 17.72" (44.45 × 483 × 450 mm) W = 19" or 23" with mounting rails D < 23.6" (600 mm) with fiber management	Span Loss	0–35 dB
Rack Compatibility	19" and 23", 2- and 4-post	Optical Supervisory Channel (OSC)	OC-3, 100 Mbps Ethernet, GbE
Supported in Housing	Yes	<div style="border: 1px solid black; padding: 5px;"> <p>LASER SAFETY CLASSIFICATION & CAUTION Compliant with IEC/EN 60825-1, -2 laser standards</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p>CLASS 1M CAUTION Invisible laser radiation Do not view directly with optical instruments Class 1M laser product</p> <p>HAZARD LEVEL 1M CAUTION Hazard level 1M laser radiation Do not view directly with non-attenuating optical instruments</p> </div>	
Weight	Blade: 17.86 lbs (8.10 kg)		

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