Nokia 1830 PSS-4, PSS-8, PSS-16, PSS-32 and Nokia 1830 PSI-L platforms

The Nokia 1830 Photonic Service Switch (PSS) and Nokia 1830 Photonic Service Interconnect – Line (PSI-L) portfolios consist of platforms optimized for varying optical network deployment environments ranging from interconnecting data centers to efficiently scaling large metro, regional and longhaul multi-layer, multiservice optical networks.

Overview

This data sheet discusses the 1830 PSS-4, PSS-8, PSS 16, PSS-32 and PSI-L. Each platform leverages common software, hardware, management and control of offer seamless operations across the portfolio.

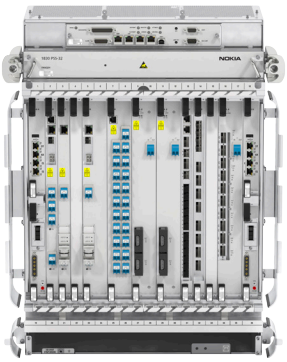
The 1830 PSS portfolio also includes the PSS-36, PSS-64, PSS-8x, PSS-12x and PSS-24x, which are discussed in separate data sheets.

The 1830 PSS-4, PSS-8, PSS-16, PSS-32 and 1830 PSI-L optical networking platforms support multiple transport applications, including:

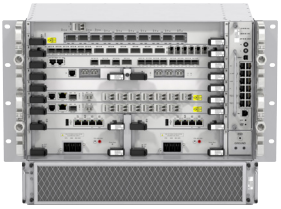
- Multiservice metro transport and aggregation
- Optical core/longhaul deployments
- Data center interconnect (DCI)
- Packet/OTN switching
- General-purpose ROADM metro, regional, longhaul and sub-sea core networks.

The broad range of platform choices ensures that operators can optimize the platform type to their specific applications. The platforms support the latest generation of Colorless, Directionless, Contentionless, Flexgrid (CDC-F) and Colorless, Flexgrid (C-F) reconfigurable optical add drop


Nokia 1830 PSS-4


Nokia 1830 PSS-32


Nokia 1830 PSS-8


Nokia 1830 PSS-16


Nokia 1830 PSI-L

multiplexer (ROADM) architectures. This support enables operators to build agile and scalable networks that can accelerate the delivery of mobile, video, business, wavelength, Ethernet, DCI and cloud services.

The wide array of platform choices, transponders and aggregation interfaces enables the 1830 platforms to operate as industry-leading metro packet optical aggregation platforms supporting sub-10G to 400G client services and also to operate as regional core optical networking applications for transporting high-capacity wavelength division multiplexing (WDM) traffic up to 600G line rates.

From access to metro aggregation to core networks, the Nokia 1830 platforms ensure that operator networks have the intelligence, flexibility and capacity to deliver today's modern, high-capacity services.

Features

- Flexible platforms that address a wide range of transport applications
- Integrated photonic, OTN and packet networking technologies
- Agile support to meet unpredictable traffic demands

Benefits

- Reduce TCO through flexible platforms and integrated technologies
- Maximize revenue opportunities by enabling fast deployment of differentiated services
- Deliver environmentally friendly multiservice transport

Detailed features

- Efficient sub-10G, 10G, 100G and 400G client services support and service aggregation
- Massive dense wavelength division multiplexing (DWDM) network capacity and optical reach, supporting both C- and C+L-band ROADM systems along with 100G to 600G coherent DWDM line rates
- Integrated Probabilistic Constellation Shaping (PCS) ensures optimized capacity at reach for any optical path
- 400G wavelength distances of +2,000 km over terrestrial networks and +4,000 km over sub-sea networks
- Industry-leading spectral efficiency and fiber capacity
- Eliminate the need to regenerate at landing sites by simplifying the interconnection of sub-sea and terrestrial systems
- Deliver reliable, high-density, environmentally friendly multiservice transport
  - Redundant control, power and timing to support high-availability networks
  - Multiservice packet/OTN switching
  - Large-scale 1G to 400G services transport
  - High-capacity, slot-to-slot interconnectivity, supporting pay-as-you-grow packet/OTN networking or mate-to-mate interface card protection
  - High-density, small-footprint platforms with low power consumption
- Efficient and reliable multi-layer networking
  - Efficient bandwidth management capabilities at the 100G and sub-100G levels
  - Carrier Ethernet and Multiprotocol Label Switching – Transport Profile (MPLS-TP) services and networking
  - Compact, single card per degree, and integrated 9-, 20-, and 32-port integrated ROADM (iROADM) cards for improved deployment simplicity, performance density and power consumption
  - Advanced ROADM solutions based on C-F and CDC-F technologies for optimized scale and agility
  - C- plus L-band (C+L) systems to double fiber capacity
  - IP/optical integration via Generalized Multiprotocol Label Switching (GMPLS) user-network interface (UNI)

- Support for ITU-T G.8262 SyncE for frequency synchronization distribution and IEEE 1588v2 packet-based time/phase synchronization distribution
- Ultra-fast wavelength multi-layer protection and restoration

Technologies

Nokia PSE coherent DSP and optics

- Latest generation of Nokia Photonic Service Engine (PSE) coherent digital signal processing (DSP) and optics
- Support for multi-baud rate/modulation formats, ensuring maximum capacity support over any optical path
- Integrated, second-generation PCS for improved performance to near Shannon limit
- Support for +600G wavelength capacities
- Support for client services from 10G to 400G
- Next-generation soft decision forward error correction (SD-FEC)
- Adaptable to a wide range of fiber impairments for operation over extreme distances and challenging fiber environments

OTN switching

- Card-based and multi-card distributed switching
- Seamless, single network element (NE) management and control with the PSS-interoperable 1830 PSS-36, PSS-64, PSS-8x, PSS-12x and PSS-24x high-capacity switching platforms

Wavelength routing

- Coherent-optimized C-F and CDC-F solutions enable dynamic reconfigurable networking to maximize network capacity and efficiency
- Wide array of iROADM cards available to provide flexibility to match ROADM size to the applications
- iROADMV (4-port) for lower cost, compact metro applications
- C+L-band option doubles fiber capacity

Embedded multi-layer capability

- Multi-layer multi-region networking support, including coordinated multi-layer protection and restoration
- GMPLS UNI support for IP/optical integration

Integrated packet transport

- MEF-certified packet interface cards that support the Nokia Service Router - Operating System
- IEEE 1588v2 time/phase synchronization support
- Enables a fully managed, end-to-end packet solution with a common service, operations and management model across the optical and Ethernet/IP/MPLS portfolios

Management

- Nokia Network Services Platform (NSP)
- Network Functions Manager for Transport (NFM-T) module

Software-defined networking (SDN)

- Centralized, multi-layer control via Nokia NSP

Network design and planning

- Integrated network planning tools for optimized multi-layer network planning/deployment

Network applications

Optical and packet transport and aggregation for:

- Business services
- Mobile and broadband backhaul
- Multicast video
- Secure DCI
- Cloud services
- Multiservice transport

Product descriptions

1830 PSS-4

The 1830 PSS-4 extends the 1830 PSS portfolio to the customer premises. Its cost-effective small footprint, low power consumption and extended temperature operation design give it the deployment flexibility for many applications, including:

- Cost-effective multiplexing of any bit rate services and transport over OTU1, OTU2 and OTU4
- Terminal, fixed optical add/drop multiplexer (FOADM) or inline amplifier (ILA) applications
- Optical DCI for large enterprises and managed service providers, both for private and community clouds, that is
  - Cost effective
  - High capacity
  - Highly secure
  - Multiprotocol-capable
  - Low latency
  - Resilient.

1830 PSS-8 and PSS-16[1]

The 1830 PSS-8 and PSS-16 support extensive multilayer packet optical transport features in metro optimized platforms. OTN and packet service aggregation is achieved by using a pay-as-you-grow distributed switching fabric that scales as the number of services and service rates increase. Support for extensive multi-layer packet optical transport features together with their compact and low-power architecture design allow for maximum network operational efficiency and deployment flexibility in metro aggregation and transport applications.

1830 PSS-32 and PSS-16[1]

The mid-size 1830 PSS-16 shelf and the 1830 PSS-32 shelf are ideal for optical transport applications over metro, regional or longhaul networks where additional slots are needed to support larger ROADM degree nodes, add/drop modules and transponders.

- Multiple degree CDC-F wavelength routing and photonic switching
- Large-scale wavelength 100G to 600G transponder/muxponder transport

1830 PSI-L

The 1830 PSI-L is a new data center-optimized shelf for use with existing 1830 units, including iROADM cards, Raman amplifier cards and CDC add/drop units.

Available in both 8-slot and 4-slot versions, the PSI-L offers operators another shelf option in addition to the existing1830 PSS-4, PSS-8, PSS-16 and PSS-32 shelves.

The PSI-L shelves offer front-to-back airflow, AC or DC power, and the flexibility to mount in data center racks or cabinets as well as in traditional 19-in, 23-in and ETSI telco racks.

The PSI-L supports dual-shelf equipment controllers (i.e. shelf processors), redundant power supplies and redundant fans, all of which are field replaceable.

Related Nokia products

- 1830 PSS- 8x, PSS-12x and PSS-24x packet/OTN switching devices
- Network Services Platform
- Network Functions Manager for Transport
- 1390 Network Planning Tool
- 1830 Engineering and Planning Tool
- Network Services Platform IP/Optical SDN controller

1 References to the PSS-16 in this document refer to the PSS-16 version 2 chassis. Please refer to release notes and user documentation for earlier PSS-16 chassis specifications and capabilities.

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Technical specifications

Specifications	1830 PSS-4	1830 PSS-8	1830 PSS-16*	1830 PSS-32	1830 PSI-L
Interface card slots (full height)	2	4	8	16	8
Dimensions (height/width/ depth)	88 mm (3.46 in) 440 mm (17.32 in) 289.75 mm (11.41 in)	133 mm (5.2 in) 438 mm (17.2 in) 259 mm (10.2 in)	**DC version:** 355 mm (14.0 in) 440 mm (17.3 in) 292 mm (11.5 in) **AC/DC version:** 355 mm (15.75 in) 440 mm (17.3 in) 292 mm (11.5 in)	622 mm (24.5 in) 439 mm(17.2 in) 279 mm (11.0 in)	222 mm (8.75 in) 440 mm (17.3 in) 435 mm (17.1 in)
Weight	3.318 kg (7.3 lb), 4.366 kg (9.6 lb) with complete shelf kit	7.2 kg (15.9 lb)	**DC version:** 10.55 kg (23.25 lb) **AC version:** 13.10 kg (28.87 lb)	15.77 kg (34.77 lb)	15.4 kg (34.0 lb)
Packet/OTN fabric options	Card based	Distributed fabric	Distributed fabric	Card based	Not applicable
Controller card slots	1 unprotected	2 protected	2 protected	2 protected	2 protected
Power modules	Redundant	Redundant	Redundant	Redundant	Redundant
Power options	-48V DC or +24V DC 110/220V AC	48V DC, 110/220V AC	**DC version:** 48V DC **AC version:** 48V DC, 110/220V AC	48V DC	48V DC, 110/220V AC
Typical power requirements	220 W	480 W	900 W	1100 W	325 W
Operating temperature	-40 °C to +65 °C (-40 °F to +149 °F) for outside plant deployments	**Normal:** 5 °C to +40 °C (41 °F to 104 °F) **Short-term:** -5 °C to+50 °C (23 °F to +122 °F)	**Normal:** 5 °C to +40 °C (41 °F to 104 °F) **Short-term:** -5 °C to+50 °C (23 °F to +122 °F)	**Normal:** 5 °C to +40 °C (41 °F to 104 °F) **Short-term:** -5 °C to+50 °C (23 °F to +122 °F)	**Normal:** 5 °C to +40 °C (41 °F to 104 °F) **Short-term:** -5 °C to+50 °C (23 °F to +122 °F)
Humidity	CO environment: • 85% long term • 95% short term Outside environment: • 100% long term	5% to 85% non-condensing	5% to 85% non-condensing	5% to 85% non-condensing	5% to 85%
Multi-shelf management	Up to 8 1830 PSS-4 shelves	Up to 24 1830 PSS shelves per NE	Up to 24 1830 PSS shelves per NE	Up to 24 1830 PSS shelves per NE	Up to 31 shelves per NE

* References to PSS-16 in this document are to the PSS-16 version 2 chassis. Please refer to release notes and user documentation for earlier PSS-16 chassis specifications and capabilities.

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About Nokia

We create the technology to connect the world. Only Nokia offers a comprehensive portfolio of network equipment, software, services and licensing opportunities across the globe. With our commitment to innovation, driven by the award-winning Nokia Bell Labs, we are a leader in the development and deployment of 5G networks.

Our communications service provider customers support more than 6.4 billion subscriptions with our radio networks, and our enterprise customers have deployed over 1,300 industrial networks worldwide. Adhering to the highest ethical standards, we transform how people live, work and communicate. For our latest updates, please visit us online www.nokia.com and follow us on Twitter @nokia.

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