Nokia 1830 Photonic Service Interconnect — Modular

The 1830 Photonic Services Interconnect – Modular (PSI-M) provides flexible, modular and scalable optical networking solutions for data center interconnect (DCI) applications.

The Nokia 1830 PSI-M is a high-capacity, modular, optical networking platform, optimized for DCI applications over metro, regional and long-haul distances. As the software industry has transitioned to data center-based applications, the shift has created a tremendous need for optical networks and bandwidth to interconnect data centers, as well as connect local data caching sites to their respective metro point-of-presence locations. The 1830 PSI-M architecture allows carriers to configure the interfaces and capacities needed for each application – the ultimate pay-as-you-go modularity.

Benefits

• Compact size and blade-optimized form factor
• Modular (4) sleds allow flexible I/O configurations
• Simple plug-and-play operations with auto-discovery/auto-provisioning saves time and operations costs
• Available with AC or DC power supplies, allowing deployment in any location
• Integrates with the Nokia 1830 PSS -8, -16, and -32 platforms, providing a wide array of optical transport solutions from simple, low-cost terminal nodes to advanced CDC-F ROADM's

Applications

• Optimized for metro, regional and long-haul DCI applications
• Local data center expansion, where new data center facilities are added in the same metro
• Local data caching to metro point of presence
• Data center to data center interconnections over long-haul or ultra-long-haul distances
• General purpose access, metro, regional WDM optical networks
Product description

The Nokia 1830 PSI-M provides easy-to-use, cost-efficient, small-sized optical transport for 100GE, 400GE, and OTU4 client services. With its modular architecture, additional capacity and client interfaces can be added, as needed. The 1830 PSI-M is based on the new Nokia PSE-3 digital signal processor and advanced coherent optics. The 1830 PSI-M supports four sleds or I/O interface modules. Each sled incorporates both client optics and WDM line optics, functioning as an entire muxponder per sled. The DA2C4 sled occupies a single slot while the DFC12 occupies two slots.

The DA2C4 sled supports 4 x 100G client interfaces and two CFP2-ACO WDM line interfaces. The WDM line interfaces are multi-modulation and can be provisioned for 100G QPSK or 200G 16QAM per wavelength. The flexibility to provision each network interface allows carriers to optimize system capacity to each optical route — whether metro, regional or long haul. Data security is supported through the DA2C4E sled, providing AES-256 encryption of the line ODU4 payload.

The double slot DFC12 sled supports 12 x 100G QSFP28 client ports and two WDM line interfaces capable of 100–600 Gb/s capacity each. The line interfaces are multi-modulation and can be provisioned for 64QAM, 16QAM/QPSK with Probabilistic Constellation Shaping (PCS) to optimize reach and capacity. Data security is supported on the DFC12E through AES-256 encryption of the line ODU4 payload.

The 1830 PSI-M includes embedded dual controllers, and dual power supplies for redundancy, along with modular fans, all of which are field-replaceable. Both AC and DC modular power supplies are available.

Nokia compatible line systems

The 1830 PSI-M is compatible with the Nokia 1830 PSS-32, PSS-16, and PSS-8 transport line systems, including fixed terminal nodes to the latest generation of advanced CDC-F ROADMs.
Table 1. PSI-M versions

<table>
<thead>
<tr>
<th>Unit name</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSI-M Kit</td>
<td>3KC81770AA</td>
<td>PSI-M Kit, without power supplies – order separately</td>
</tr>
<tr>
<td>DFC12E</td>
<td>3KC81801AA</td>
<td>1.2 Tb high-performance sled with line encryption</td>
</tr>
<tr>
<td>DA2C4</td>
<td>3KC81741AA</td>
<td>100G/200G metro sled</td>
</tr>
<tr>
<td>DA2C4E</td>
<td>3KC81868AA</td>
<td>100G/200G metro sled with line encryption</td>
</tr>
</tbody>
</table>

Technical specifications

Base unit
- 1RU
- 4 modular slots
- Redundant controllers
- Redundant AC or DC power supplies (ordered separately)
- Optional high-voltage DC supplies
- Modular fan units
- Front-to-back air flow

Management interfaces
- Front: 2 x RJ-45 (1 LAN, 1 serial)
- Rear: 2 x RJ-45, USB

Management
- CLI, SNMP, WebUI
- NETCONF/YANG models
- Streaming telemetry
- IPv4/IPv6

Operational features
- Nokia Commissioning Expert
- In-band (GCC0) management

Operating environment
- Temperature: 0°C to 40°C (32°F to 104°F)
- Humidity: 5% to 85%

Power consumption
- 140 W

Physical
- Height: 44 mm (1.73 in)
- Width: 483 mm (19.02 in)
- Depth: 600 mm (23.62 in)
- Weight: 10.5 kg (23.15 lb)

Sled: single slot DA2C4/DA2C4E

Line port
- 2 x CFP2-ACO WDM line ports

Line port modulation
- 100G QPSK, 200G 16QAM

FEC options
- Nokia SD-FEC (25%)
- HD staircase FEC

Client ports
- 4 x 100GE/OTU4
- 4 x QSFP28

Power
- 100 W

Encryption
- AES-256 line encryption of ODU4 payload through DA2C4E module

Management
- LLDP snooping; L1/L2 topology discovery through SNMP/NMS

Sled: double slot DFC12E

Line port
- 2 x line ports, 100G–600G capacity per port

Line port modulation
- Flexible, QPSK – 64QAM with Probabilistic Constellation Shaping (PCS)

Client ports
- 12 x 100G QSFP28 pluggable supporting 100GBASE-LR4/SR4/CWDM4/eCWDM4

Client rates
- 100GE, OTU4

Power consumption
- 300 W, typical (2 x 600G carriers)

Encryption
- AES-256 encryption of ODU4 payload
- GCM authentication
- 1830 SMS Encryption Key Manager
### Compliance

<table>
<thead>
<tr>
<th>Category</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telcordia NEBS</td>
<td>• GR-3160-CORE&lt;br&gt;• GR-1089-CORE</td>
</tr>
<tr>
<td>Safety</td>
<td>• EN 60950-1&lt;br&gt;• IEC 60950-1&lt;br&gt;• AS/NZS 60950.1&lt;br&gt;• CSA/UL 60950-1 2nd Ed NRTL&lt;br&gt;• FDA CDRH 21-CFR 1040&lt;br&gt;• IEC/EN 60825</td>
</tr>
<tr>
<td>EMC emission</td>
<td>• ICES-003 Class A&lt;br&gt;• FCC Part 15 Class A&lt;br&gt;• EN 55022 Class A&lt;br&gt;• CISPR 22 Class A&lt;br&gt;• VCCI Class A&lt;br&gt;• IEC/EN 61000-3</td>
</tr>
<tr>
<td>EMC immunity</td>
<td>• EN 300 386&lt;br&gt;• EN 55024&lt;br&gt;• IEC/EN 61000-4</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>• ROHS6&lt;br&gt;• CE Mark</td>
</tr>
</tbody>
</table>

### About Nokia

We create the technology to connect the world. Powered by the research and innovation of Nokia Bell Labs, we serve communications service providers, governments, large enterprises and consumers, with the industry’s most complete, end-to-end portfolio of products, services and licensing.

From the enabling infrastructure for 5G and the Internet of Things, to emerging applications in digital health, we are shaping the future of technology to transform the human experience. [networks.nokia.com](http://networks.nokia.com)

Nokia operates a policy of ongoing development and has made all reasonable efforts to ensure that the content of this document is adequate and free of material errors and omissions. Nokia assumes no responsibility for any inaccuracies in this document and reserves the right to change, modify, transfer, or otherwise revise this publication without notice.

Nokia is a registered trademark of Nokia Corporation. Other product and company names mentioned herein may be trademarks or trade names of their respective owners.

© 2020 Nokia

Nokia Oyj
Karakaari 7
FI-02610 Espoo, Finland
Tel. +358 (0) 10 44 88 000

Document code: SR2001040762EN (January) CID201662