Wavelength service customers are dispersed over larger geographic areas than ever before. They demand an unpredictable mix of voice, data and video at competitive prices. Consequently, carriers are under pressure to deliver advanced services beyond the typical reach of metro optics or available fiber, while aggressively managing expenses. To succeed, service providers must extend DWDM and CWDM services with infrastructure that adapts to emerging bandwidth and access-backhaul demands.

**Reduced Complexity, Extended Reach**

The FLASHWAVE® 7120 optical edge platform greatly reduces the operational complexity of adding incremental bandwidth and functionality. It combines multiplexing, amplification, signal conditioning and performance monitoring in a powerful, customized solution that is easy to deploy in metro and metro access networks. The platform meets optical transport, conditioning and extension requirements with a small footprint.

The FLASHWAVE 7120 system operates as a standalone system or as an extension of an existing transport infrastructure. It provides simplicity and efficiency in a compact and flexible platform that addresses multiple network challenges, including:

- Optical metro edge networking
- Wavelength service delivery
- Fiber relief
- Optical reach extension

**Trusted to Deliver**

Fujitsu is a trusted business partner of major carriers in North America. For more than 20 years, we’ve set the standard for performance, reliability and carrier-grade quality. The FLASHWAVE 7120 platform is an ideal solution for national and local carriers, wireless service providers, research and education, utility companies and enterprise customers.
The unique FLASHWAVE 7120 photonic layer solution combines the reliability and management of traditional optical transport systems with flexibility and cost-efficiency.

Its comprehensive suite of passive and active modules permits highly flexible customization. This facilitates control of capital outlay by mixing and matching components for unique requirements and immediate equipment needs. As a result, you reach more customers at a lower cost.

**Options for Different Network Requirements**

Services can be directly interfaced into the FLASHWAVE 7120 platform through its full suite of muxponders and transponders. The system’s compact, 2RU shelf supports:

▶ Full suite of muxponders and transponders including:
  • Dual transponders
  • High-density muxponders
  • Tunable optics
  • SFP/XFP-based client and network options
  • Digital wrapper support
▶ Optimized signal conditioning and amplification
▶ DWDM and CWDM filters
▶ Single controller with integrated communications (OSC) for point-to-point or ring applications
▶ Active and passive-only applications
▶ 4-shelf (8RU) stacking for a full 32 x 10G channel configuration with in-service channel additions

**Multiservice Overlay Support**

By combining multiprotocol/SONET connectivity with OTN and packet-based transport, the platform is ideal for multiservice overlay installations that facilitate data, storage and legacy network convergence. The FLASHWAVE 7120 system supports up to 20 multiservice channels in a compact 2RU chassis. It utilizes existing fiber without requiring changes to SONET connectivity. A multiprotocol muxponder provides a high-density interface to a wide range of protocols used in enterprise and service provider networks to maximize DWDM systems with 10 Gbps wavelengths.
The FLASHWAVE 7120 platform delivers cost-optimized amplification, signal conditioning and optical/electrical switching. It offers easy scalability in addition to advanced optical technologies such as full-band tunables and OTN transport. The platform also offers simplified operations, administration and provisioning with software download and remote memory backup/restore.

**Manageable Flexibility**

The FLASHWAVE 7120 architecture scales so that service slots from multiple shelves can be managed from a single CPU and Target Identifier (TID). The NETSMART® 500 craft user interface and NETSMART 1500 Element Management System (EMS), via simple smart launch, allow the FLASHWAVE 7120 platform to be managed under the same OSS as other Fujitsu optical transport products. Transaction Language 1 (TL1) and Simple Network Management Protocol (SNMP) support enable the platform to integrate into existing operating procedures and third-party management systems.

**Reduce Demand on Your Infrastructure**

When combined with multiple narrowband wavelengths from the FLASHWAVE 4500 Multiservice Provisioning Platform (MSPP) or FLASHWAVE 7500 Extension System, the resulting single DWDM signal reduces the demand on your fiber infrastructure.

**Key Technical Advantages**

By combining multiplexing, amplification, signal conditioning, optical add/drop and performance monitoring, the FLASHWAVE 7120 system delivers several technical advantages.
Optical Extension and Fiber Relief

The FLASHWAVE 7120 platform offers flexible and powerful optical capabilities for cost-effective, small-footprint extension of wavelength services and access service backhaul:

- IP-DSLAM and WiMAX backhaul
- Legacy service CWDM and DWDM overlay
- Regeneration or MSPP/ADM site elimination
- Access fiber relief
- Transparent network interconnection with OC-192/STM-64 or OTN digital wrapper

Wavelength Service Delivery

The FLASHWAVE 7120 platform provides advanced optical technologies for WDM (DWDM and CWDM) and multiservice customer needs:

- Managed Ethernet private-line service delivery
- Ethernet business service delivery (E-LAN, E-TREE)
- DSL backhaul
- Sub-wavelength wholesale Ethernet interconnection
- Managed private-line service delivery
- Ethernet, Storage Area Networks, SONET and SDH

Enterprise and Dedicated Customer Carrier Networks

Exceptional entry price, small footprint, remote management and SNMP make this CPE-capable system perfect for dedicated network installations:

- PON
- IPTV distribution
- 10 Gbps Ethernet rings
- Interoffice router connectivity
- High-capacity LAN extension/routes and switch connectivity
- Data center interconnect for business continuity and disaster recovery
- Hub and spoke LAN extension with up to 10 Gigabit Ethernet multiplexing at remote locations

A Flexible Mix of Advanced Optical Technologies
Fujitsu offers a broad selection of professional services to assist at every stage in a network’s evolution and operation. From planning through deployment and ongoing maintenance to future enhancements, Fujitsu Network Life Cycle Services are available whenever needed. Our comprehensive range of services includes network and system design, training, customized deployment, craft interface software, migration planning and more. Your Fujitsu sales representative can guide you in selecting the right service options for your business.

Popular planning and deployment services for the FLASHWAVE 7120 managed wavelength platform include:

- **Fiber Characterization and Test** – Comprehensive verification and analysis of your installed fiber to improve current network performance, prepare you for new growth and identify potential faults and issues.
- **Design Services for DWDM Networks** – Our professional design staff works with you to prepare a complete, custom roadmap for success.
- **Turn-Up and Test** – We provide a range of options from on-site configuration and simple turn-up to rigorous, long-term testing.

### Service Support Packages for Ongoing Maintenance

If you’re looking for a complete professional maintenance solution, Fujitsu service support packages have the right combination of flexibility and comprehensive assurance. Choose the level and types of service you need to supplement your own resources. Our service support packages keep your network running smoothly, provide critical care and protect the longevity of your investment.

### Network Operations Center

With a full range of vendor-independent network fault and performance monitoring features, the Fujitsu Network Operations Center (NOC) offers guaranteed, round-the-clock system protection. Our reliable NOC facility is available as a primary or supplemental operations resource. This service not only helps you control costs and maintain high levels of customer satisfaction, it also provides trustworthy, reliable after-hours and emergency coverage.
FEATURES AND SPECIFICATIONS

Architectures
- Point-to-Point (Terminal)
- Linear Optical Add/Drop
- Ring

Maximum Number of Plug-In Modules
- FLASHWAVE 7120 Shelf 23 (Passive or Active)
- FLASHWAVE 7120 Passive Shelf 2 (Passive only)
* Note: Up to 4 shelves as a single TID

Operations
- TL1 over Telnet and RS-232
- SNMP traps
- NETSMART 712 craft interface support
- NETSMART 500 craft interface support (smart launch)
- NETSMART 1500 EMS support (smart launch)
- Interoperable with Fujitsu transmission products
- Software download and remote memory backup/restore
- Telcordia™ OSMINE compliant
- NEBS Level 3 compliant

Optical Components
Single-Channel/Sub-Band Amplification
- Single-channel/Sub-Band Booster Amplifier (SBA)
- Single-channel/Sub-Band Pre-Amplifier (SPA)

DWDM Amplification
- Optical Booster Amplifier (OBA)
- Optical Line Amplifier with Mid-stage access (OLAM)
- Optical Pre-Amplifier (OPA)

Signal Conditioning
- DCM 30, 40, 60, 80 km
- LC, SC connectors
- Noise Filter

Transponders/Muxponders
- Dual-density, multiprotocol 2.5G transponder
- Dual-density, multiprotocol 10G OTN transponder
- 2:1 GigE muxponder
- 4:1 multiprotocol 2.5G OTN muxponder
- 10:1 multiprotocol 10G OTN muxponder
- 12/24-port packet switching interfaces

WDM Filters
- CWDM 4-channel filters (4/8/12/16 channels)
- DWDM 8-channel filters (8/16/24/32 channels)
- CWDM OADM 1 channel
- DWDM OADM 1, 2 and 4 channels
- CWDM + DWDM Splitter/combiner

Management and Monitoring
- Integrated OSC/shelf controller (SCP)
- In-band OTN GCC
- Power monitoring options

Operating Environment
- Temperature –20 to +65 °C (–4 to +149 °F)
- Humidity 5 to 90% (non-condensing)

Physical Characteristics
FLASHWAVE 7120 Shelf
- Dimensions (H x W x D) 3.5 x 17.5 x 11” (89 x 444 x 278 mm)
- Weight (fully loaded) 16.5 lb (7.5 kg)
- Power input Dual –48 V DC
- Power consumption 30 W
- Heat dissipation 102 BTU/hr
- Mounting options 19 or 23” rack mount
- Slots 6 slots

FLASHWAVE 7120 Passive Shelf
- Dimensions (H x W x D) 1.73 x 17.3 x 11” (44 x 440 x 278 mm)
- Weight (fully loaded) 9.1 lb (4.1 kg)
- Power input None
- Power consumption 0 W
- Heat dissipation 0 BTU/hr
- Mounting options 19 or 23” rack mount

FLASHWAVE 7120 Shelf