

## Compact ROADM for Mid-Size Applications

The FLASHWAVE® 7500 Small System is designed for small- to medium-sized metro Reconfigurable Optical Add Drop Multiplexer (ROADM) networks requiring from 1 to 16 wavelengths. With the integrated transponder slots on the core shelf, the FLASHWAVE 7500 Small System provides a small size, low cost option for metro Dense Wavelength Division Multiplexing (DWDM) deployments.

Optical Line Cards (OLCs), or Transponders, are available to support a wide array of client side services, including Gigabit Ethernet, traditional SONET, Storage Area Networking (SAN), Video On Demand (VOD) transport and transparent wavelength services.

## Common DWDM Product Family

The FLASHWAVE 7500 Small System is part of the FLASHWAVE 7500 metro DWDM family that provides DWDM solutions for any application or network configuration.

The FLASHWAVE 7500 product family comprises three configurations:

- The FLASHWAVE 7500 Core ROADM System (40-channel)
- The FLASHWAVE 7500 Small ROADM System (16-channel)
- The FLASHWAVE 7500 Extension System

One product family, with three great options, ensures you have the optimized solution for every application. Common transponder units across the entire FLASHWAVE 7500 product family reduce engineering and sparing costs. Common software, with a familiar look and feel for all operations, ensures your technicians only need to be trained once to operate and maintain all FLASHWAVE 7500 platforms.

## Flexibility and Service Velocity

The FLASHWAVE 7500 Small System provides the flexibility you need to meet changing network service and traffic patterns. The FLASHWAVE 7500 ROADM switch fabric (1 to 16 channels) allows any number of wavelengths to be dropped at any node. Wavelengths can be software provisioned across a network in minutes, rather than the weeks required on typical first-generation metro DWDM systems.

## Modular Design

With the modular design, the FLASHWAVE 7500 Small System provides cost-effective DWDM solutions over a comprehensive selection of applications. For example, the ROADM switch units are modular and are only installed when required by the application. Similarly, point-to-point applications can be deployed without the ROADM switch module, providing a low cost Fixed Optical Add/Drop Mux (FOADM) option with access to all wavelengths.

In addition to the modular units, the FLASHWAVE 7500 Small System incorporates four transponder slots on the main OADM shelf and up to eight transponder slots for FOADM configurations. Initially, most applications will only require a single shelf. As additional services are required, FLASHWAVE 7500 Small System OLC shelves, supporting 14 transponders each, can be added without interrupting network operations. Direct connection of narrowband optics, sometimes referred to as alien wavelengths, are also supported.

## Comprehensive Services Support

The FLASHWAVE 7500 Small System supports a comprehensive set of client services over multi-functional OLCs. Each OLC provides Performance Monitoring (PM) of the incoming signal, converts the signal to a specific narrowband wavelength using tunable optics, and provides communication to remote equipment for Operation, Administration, Maintenance and Provisioning (OAM&P) purposes. High-density Gigabit Ethernet signals are transported using a muxponder card that multiplexes eight Gigabit Ethernet signals onto a single wavelength.

## Simple Management and Administration

End-to-end network management and operations is provided by our NETSMART® 1500 Element Management System (EMS). The NETSMART 1500 EMS lowers costs by consolidating and automating operations, such as provisioning, alarm monitoring, visibility, control, remote software upgrades and database backups. The Graphical User Interface (GUI) is easy-to-use, intuitive and provides simple point-and-click-operation. The NETSMART 1500 EMS supports all Fujitsu FLM and FLASHWAVE SONET and WDM products.

With the FLASHWAVE 7500 Small System, you can invest in your Fujitsu metro DWDM network once and reap the benefits for years to come.



- Modular Design
- 1 to 16 Channels
- Self-Tuning
- Common Transponders
- FLASHWAVE 7500 Family

## Features and Specifications

### Architectures

- Point-to-Point
- Linear Add/Drop
- Optical Ring

### Capacity

- 1–16 wavelengths (future: 1–32 wavelengths)
- ROADM – Optical Switch Fabric
- FOADM – Optional Fixed OADM

### Interfaces

#### Local/Client Interfaces

- 1310 nm Single-Mode Fiber (SMF) for all modules
- 1550 nm SMF for all modules
- Wideband 1260–1600 nm receivers on all modules

#### Remote/Network Interface

- 16 wavelength DWDM for SMF

### Performance Monitoring and Alarms

- Optical Power
- SONET
- Gigabit Ethernet
- Remote equipment inventory

### Service Modules

Fast Ethernet	Multi-Rate Optical Line Card 100 Mbps–2.5 Gbps
ESCON	
D1/SDI Video	
OC-3/3c/UNI/STM-1	
OC-12/12c/UNI/STM-4	
Fibre Channel/FICON	
HDTV	8:1 Muxponder
Gigabit Ethernet	4:1 Muxponder
OC-48/48c/UNI/STM-16	10 G Ethernet Optical Line Card
10 Gigabit Ethernet (LAN PHY)	10 G TDM Optical Line Card
10 Gigabit Ethernet (WAN PHY)	
OC-192/STM-64 (with FEC)	

### Operations

- TL1 over TCP/IP, TL1 over OSI
- Simple Network Management Protocol (SNMP)
- Software download and remote memory backup/restore
- Optical Supervisory Channel (OSC) with 10 Mbps user channel
- Remote OAM&P
- GUI via NETSMART® 1500 EMS and NETSMART 500 craft system for local and remote node access
- NEBS Level 3 compliant

### Optical Span Lengths

- Point-to-point Up to 20 km
- Point-to-point with EDFA Up to 100 km
- Ring circumference Up to 400 km
- Ring circumference with ILAs Up to 600 km
- Distances supported for all service types from 100 Mbps to 10 Gbps

### Power Consumption/Heat Dissipation

- OADM shelf (typical) 240 W (820 BTU/hr)
- OLC shelf (full) 440 W (1500 BTU/hr)

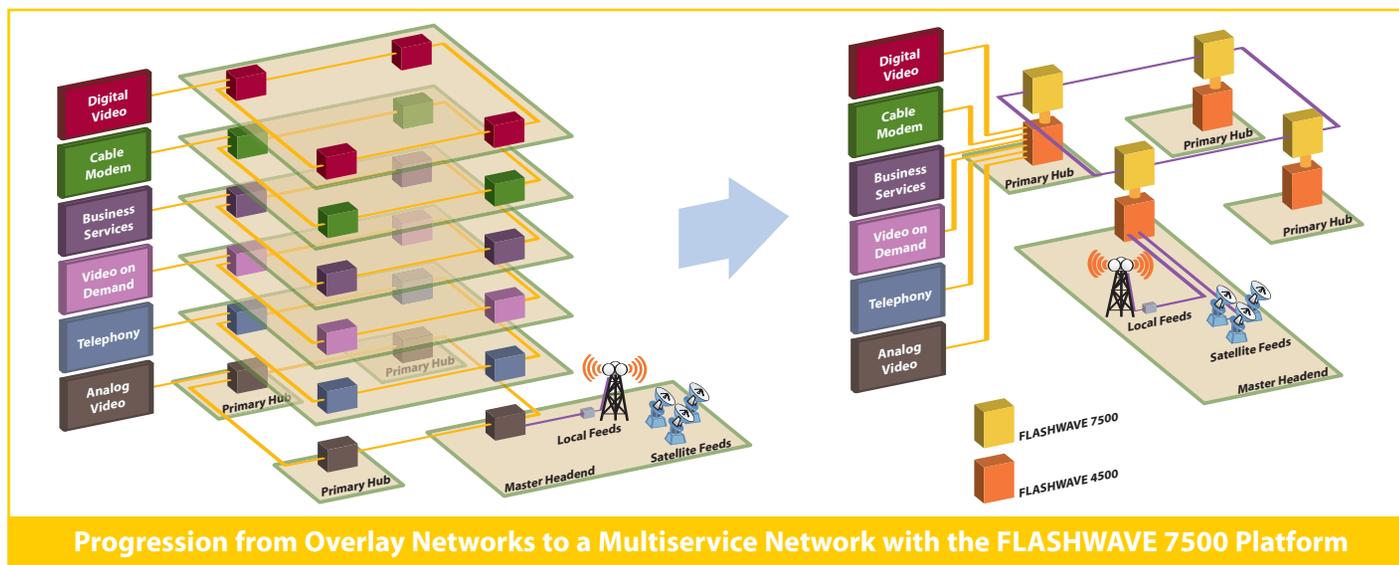
### Operating Environment

- Temperature 0 to 50° C (32 to 122° F)
- Humidity 5% to 95% (non-condensing)

### Physical Characteristics

- Dimensions (H x W x D) 22.5 x 18.5 x 11" (571 x 470 x 279 mm)
- Weight <160 lb (73 kg)
- Power Input –48 V DC
- Integrated redundant power supply

Features and Specifications subject to change without notice.



### Fujitsu Network Communications Inc.

2801 Telecom Parkway, Richardson, TX 75082

Tel: 800.777.FAST Fax: 972.479.6900

us.fujitsu.com/telecom

© Copyright 2004 Fujitsu Network Communications Inc. All rights reserved. NETSMART® and FLASHWAVE® (and design)™ are trademarks of Fujitsu Network Communications Inc. (USA). FUJITSU (and design)® and THE POSSIBILITIES ARE INFINITE are trademarks of Fujitsu Limited.