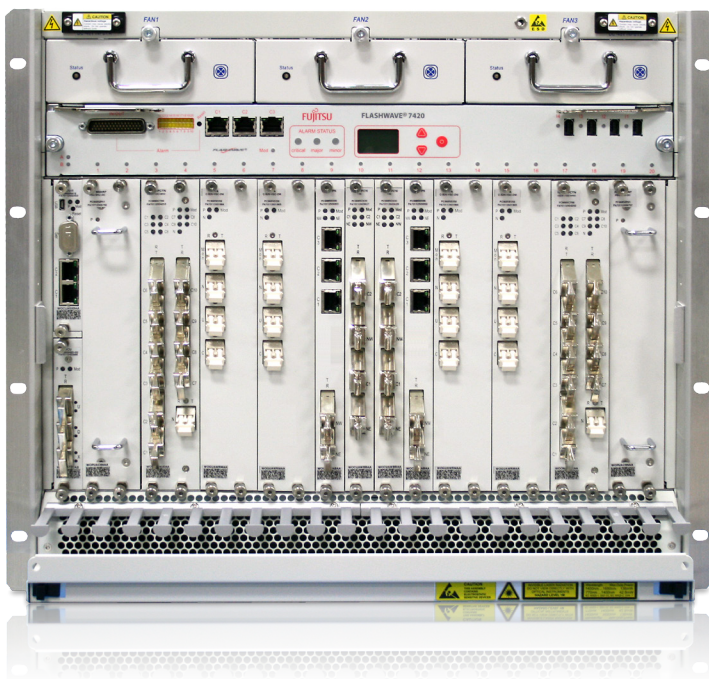


FLASHWAVE® 7420 Metro/Enterprise WDM Platform



The FLASHWAVE 7420 system combines optical, Ethernet, and certified storage solutions in a scalable DWDM-based transport solution. Engineered for low-latency networks, the platform supports demanding applications such as high-performance computing and Storage Area Networks (SANs).

FLASHWAVE® 7420

Metro/Enterprise WDM Platform

Scalable Optical Transport

Metro optical transport networks are increasingly defined by the unpredictable convergence of voice, data and video technologies. They are shaped by accelerating service demands and shifting business models that aim to reduce overall OPEX. To succeed, metro service providers and enterprises need extremely flexible and scalable infrastructure equipment that adapts to emerging bandwidth demands.

Optimized for Local/Competitive Carriers, Large Enterprises and Data Centers

The Fujitsu FLASHWAVE® 7420 WDM platform is optimized for competitive and independent exchange carriers, as well as large enterprises and research and education network providers. The platform allows seamless capacity growth in existing networks for high-speed voice, video, data and storage services and applications. It offers a broad mix of wavelength services, as well as a cost-effective and scalable WDM entry point. Overall, the FLASHWAVE 7420 platform reduces risk and maximizes revenue across every network dimension.

Flexible Mix of Wavelength Services

The hardware design of the FLASHWAVE 7420 platform, coupled with the benefits of WDM technology, enables the system to support point-to-point, linear add/drop and ring topologies across fixed and reconfigurable networks. The platform takes full advantage of the latest optical technologies, including ROADM and 100G transport, to

increase bandwidth, improve optical performance and support numerous protocols and applications. A full suite of optical amplifiers and signal conditioning units enable the creation of networks tailored to individual customers. Combined with existing support for an optical supervisory channel (OSC) and an embedded communications channel (ECC), the FLASHWAVE 7420 platform offers complete operation and service provisioning capabilities from any node on the network.

Carriers select the FLASHWAVE 7420 system to meet their metro and enterprise services and transport needs, including managed and unmanaged wavelength services, as well as entire dedicated enterprise networks. It enables service providers to deliver a highly adaptable mix of legacy, data, storage and OTN wavelength services. The platform is:

- **Flexible** enough to deploy a broad and profitable mix of wavelength services over an optimized transport network
- **Scalable** for low start-up costs, with seamless ability to add new services incrementally
- **Configurable** with FOADM, large FOADM and 2D ROADM deployment options



Optimized for Metro Networks

Support for Broadcast Applications

The FLASHWAVE 7420 platform is ideal for cost-effective triple play services, including simultaneous delivery of high-bandwidth Internet connectivity to support applications like VOD and peer-to-peer gaming. The platform's unique port ADM capability allows sub-wavelength access. This reduces capital outlay, while supporting drop-and-continue routing for broadcast applications. With port ADM and TDM functioning on the same interface, the FLASHWAVE 7420 system supports multiple Gigabit Ethernet (GbE) circuits on a single wavelength. Some circuits can support video broadcast applications while others support standard point-to-point connectivity, either with or without protection. This allows the platform to be deployed from the metro core to the access edge while meeting the diverse demands of corporate, enterprise, government and residential applications.

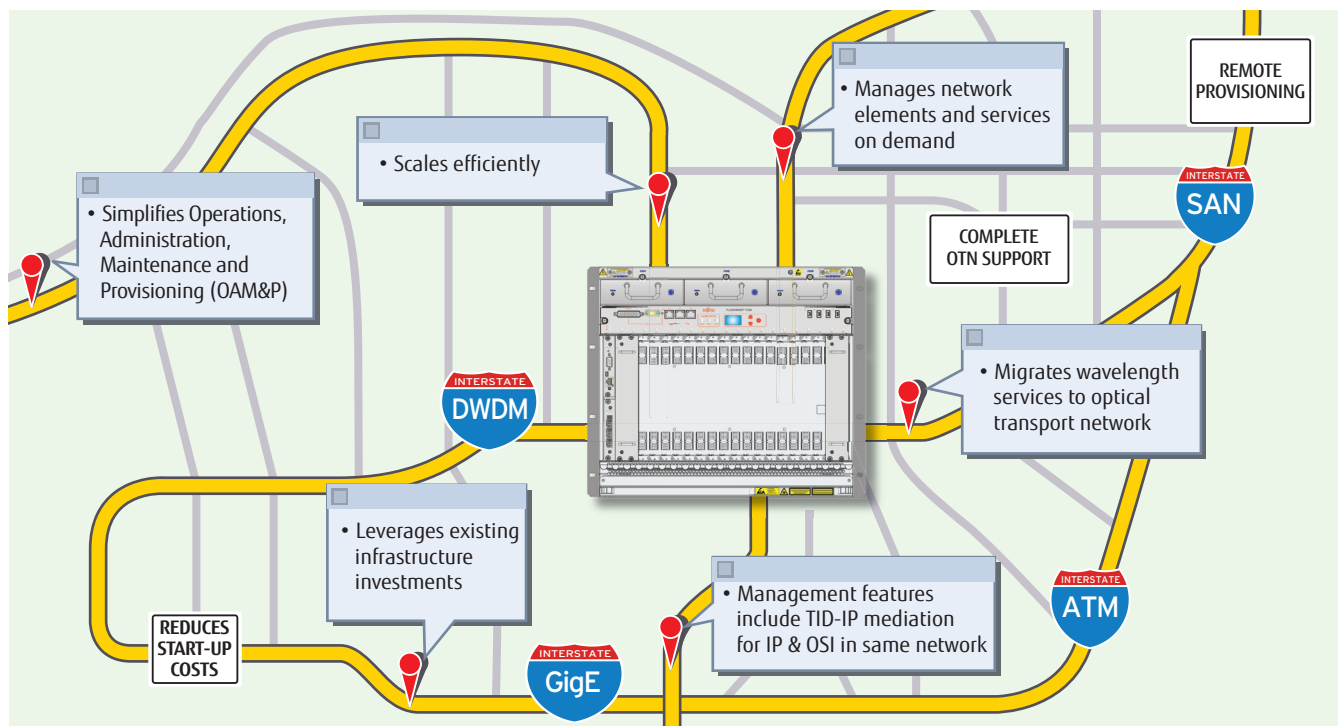
Manageable Flexibility, Many Protocols

The modular architecture of the FLASHWAVE 7420 system comprises a rack-mountable shelf and hot-swappable modules. The result is high density and efficiency across numerous protocols including Ethernet, SONET/SDH, G.709 OTN, ATM, video and all common SAN protocols. Protocols up to 100 Gbps (OTU4) are supported.

Key Technical Advantages and Network Benefits

The feature-rich FLASHWAVE 7420 platform lets carriers profitably deploy broadband optical services over a shared, survivable infrastructure. Features include:

- **Advanced optical technologies** with full-band tunable optics, small form-factor pluggable optics, chromatic dispersion compensation, cost-optimized amplification and optical switching
- **Efficient multiplexing** for SONET/SDH, Ethernet, storage and OTN protocols
- **Integrated** signal conditioning and amplification optimized through network design
- **Compact** WDM transport with multiple fiber and reconfigurability options
- **High density** with GbE add/drop multiplexing for per-node subwavelength access



FLASHWAVE® 7420

Metro/Enterprise WDM Platform

Critical Network Applications

Metro Networks

The FLASHWAVE 7420 system is ideal for cost-effective Ethernet over SONET, drop-and-continue routing and pay-as-you-grow bandwidth scalability for local and competitive carriers' core networks.

Gigabit Ethernet

The platform offers several efficient options for aggregating GbE traffic onto wavelengths depending on the overall bandwidth needs. This makes it ideal for providing GbE connectivity from edge routers or DSLAMs to core routers.

Enterprise Networks

The FLASHWAVE 7420 platform provides new revenue-generating opportunities with combined GbE and certified, low-latency Storage Area Network (SAN) services on a single platform.

Dedicated Customer Carrier Solutions

The platform enables flexible delivery of high-density wavelength services, Ethernet transport and SAN services.

Enterprise Wavelength Services

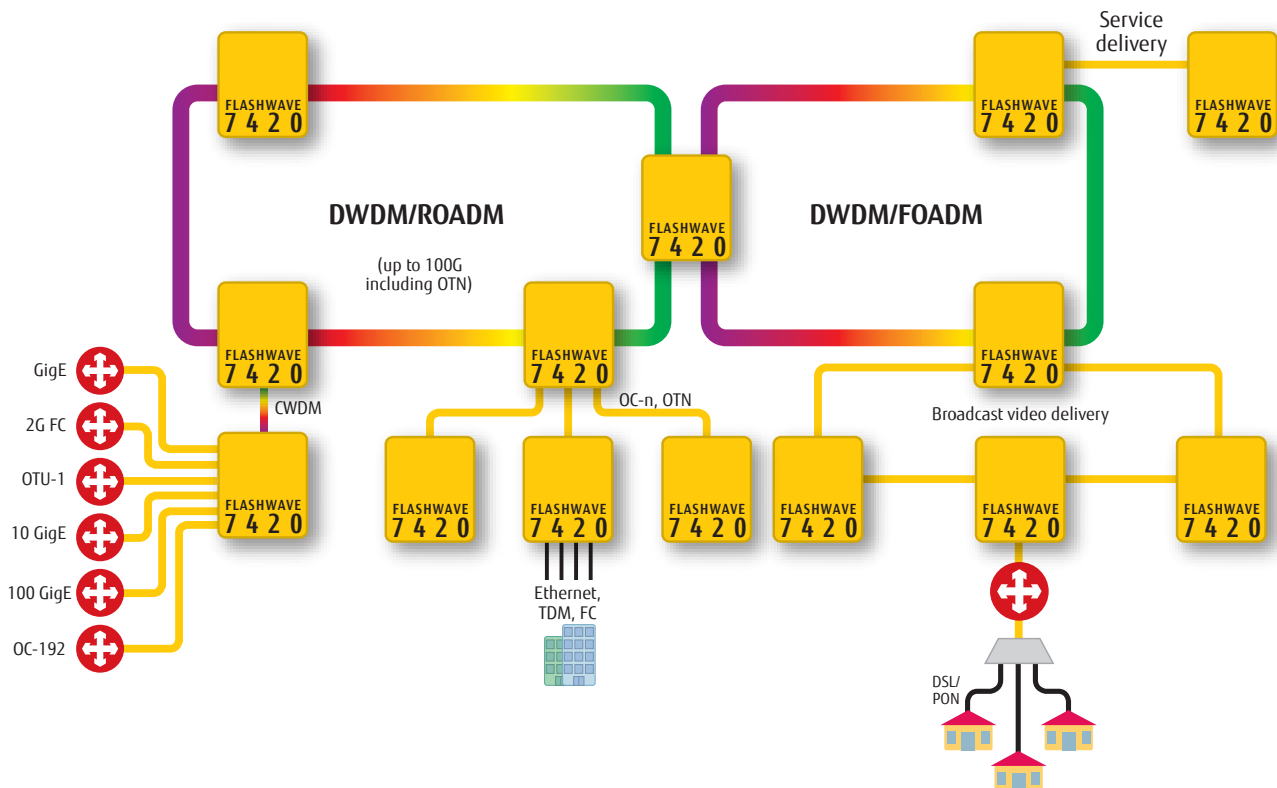
Transparent provisioning of multiple GbE services per wavelength helps drive down the cost of access WDM solutions.

High Capacity Optical Transport

The FLASHWAVE 7420 system scalable bandwidth deployment for high-speed voice, video, data and storage services via SONET or Ethernet over DWDM (and CWDM).

Safeguarding of Critical Data

The network encryption solution is optimized for data center interconnection applications by providing a transparent wire-speed service using the AES algorithm for securing private information.



Multiservice metro/access WDM solutions

FLASHWAVE® 7420 Metro/Enterprise WDM Platform

Network Services

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 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 7420 Managed Wavelength Platform include:

- **Fiber characterization** – Comprehensive verification and analysis of your installed fiber maximizes current and future network performance.
- **Design services for WDM networks** – Powerful network planning tools and our professional design staff prepares your roadmap for success.
- **Turn-up and test** – Ensures that your new equipment is turned up, comprehensively tested and operating per product specifications after physical installation is complete.

Fujitsu Maintenance and Support Program

For a complete professional maintenance solution, the Fujitsu Maintenance and Support Program has the right combination of flexibility and comprehensive assurance. Choose the level and types of service you need to supplement your own resources. The Maintenance and Support Program helps keep your network running smoothly, provides critical care and protects 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 and reliable after-hours and emergency coverage.



FLASHWAVE® 7420

Metro/Enterprise WDM Platform

Features and Specifications

Architectures	<ul style="list-style-type: none"> Point-to-point Linear add/drop Ring 	Optical span length	<table border="1"> <tr> <td>Point-to-point</td> <td>Up to 200 km maximum (45 dB)</td> </tr> <tr> <td>Ring circumference</td> <td>Up to 1000 km maximum</td> </tr> </table>	Point-to-point	Up to 200 km maximum (45 dB)	Ring circumference	Up to 1000 km maximum		
Point-to-point	Up to 200 km maximum (45 dB)								
Ring circumference	Up to 1000 km maximum								
WDM options	<ul style="list-style-type: none"> CWDM FOADM DWDM 4-channel increments to 32 total channels FOADM DWDM 40-channel FOADM DWDM 40/80-channel 2D ROADM DWDM 40/80-channel 8D ROADM 	Optics	<ul style="list-style-type: none"> Pluggable interfaces on both client and network ports for 850 nm, 1310 nm, 1550 nm, CWDM and DWDM C-band support (32/40 fixed, 40 reconfigurable) DWDM channel spacing (50/100 GHz) per ITU-T G.694.1 CWDM according to G.694.2 Laser classes 1 & 1M supported for many applications Full-band tunable optics for long-reach 10/40/100G DWDM transport 						
Services	<ul style="list-style-type: none"> Ethernet 10, 100 and 1000 Mbps 10/100 GbE WAN PHY, 10/100 GbE LAN PHY SAN ESCON Fibre Channel (1, 2, 4, 8 and 10 Gbps) FICON (1 and 2 Gbps) 	Operations	<ul style="list-style-type: none"> TL1 and SNMP 10Base-T and RS-232 Software download and remote memory backup/restore Embedded Web-based GUI craft interface, smart launch from NETSMART® 500 Element Manager and native NETSMART 1500 Management System support 						
SONET/SDH	<ul style="list-style-type: none"> OC-3, OC-12, OC-48, OC-192, OC-768 STM-1, STM-4, STM-16, STM-64, STM-256 G.709 OTU-1, OTU-2, OTU-3, OTU-4 ATM (155, 622 and 2488 Mbps) FDDI Video Independent (8 Mbps to 2.7 Gbps) 	Power consumption/ heat dissipation	1250 W (4265 BTU/hr)						
Amplifiers	<ul style="list-style-type: none"> RAMAN for extended spans (up to 1800 km) Single/double-stage EDFA, C-band, with variable gain and booster-optimized options Group-level EDFA (4 channels), C-band 	Operating environment	<table border="1"> <tr> <td>Temperature</td> <td>5 to 45° C (41 to 113° F)</td> </tr> <tr> <td>Humidity</td> <td>5 to 95% (non-condensing)</td> </tr> </table>	Temperature	5 to 45° C (41 to 113° F)	Humidity	5 to 95% (non-condensing)		
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Channel cards	<ul style="list-style-type: none"> High-Performance CORE <ul style="list-style-type: none"> Core dual 2.7G and single 10/40/100 Gbps transponders Core 4:1 SONET/SDH and 10:1 multiprotocol muxponders Full SONET/STS, Ethernet/GFP, OTN/G.709 support Full C-band tunable lasers on 10/40/100G optics Core dual 10G transponder Metro Access <ul style="list-style-type: none"> Access dual 2.5G/10G/100G transponders Access 2:1 SONET/SDH, 2:1 data, 4:1 data, 10:1 data muxponders Enterprise 5-port universal data center trans/muxponder for low latency storage applications (SAN) with AES encryption Layer 2 Ethernet Packet transport modules (G.8031 support) 	Physical characteristics (9U shelf) Requires NCU-II	<table border="1"> <tr> <td>Dimensions (H x W x D)</td> <td>15.71 x 19 x 10.86" (399 x 483 x 276 mm)</td> </tr> <tr> <td>Weight</td> <td><36 lb (<17 kg)</td> </tr> <tr> <td>Power Input</td> <td>-36 to -72 V DC</td> </tr> </table>	Dimensions (H x W x D)	15.71 x 19 x 10.86" (399 x 483 x 276 mm)	Weight	<36 lb (<17 kg)	Power Input	-36 to -72 V DC
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		Physical characteristics (1U shelf)	<table border="1"> <tr> <td>Dimensions (H x W x D)</td> <td>1.72 x 17.56 x 8.82" 44 x 446 x 224 mm</td> </tr> <tr> <td>Weight</td> <td><6.2 lb (<3 kg)</td> </tr> <tr> <td>Power Input</td> <td>-36 to -72 V DC or 100/220 V AC</td> </tr> </table>	Dimensions (H x W x D)	1.72 x 17.56 x 8.82" 44 x 446 x 224 mm	Weight	<6.2 lb (<3 kg)	Power Input	-36 to -72 V DC or 100/220 V AC
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