**Key Benefits**

- Single platform for SDH, Layer 2 switching, and WDM functionalities with GMPLS/ASON ready for future upgrade
- High-density and flexible subrack architecture with as many as 34 x STM-64 or 136 x STM-16 with direct E1 up to 504 x E1 and Ethernet interfaces in single shelf
- All-in-one-box solution to satisfy network and service demands from STM-64, STM-16, STM-4, STM-1, STM-1E, E3, DS3, and E1, to Fast Ethernet, Gigabit Ethernet, and 10 Gigabit Ethernet.
- Reliable network supported by traffic protection schemes such as 1+1/1:N MSP, SNCP and 2-fiber MS-SPRing for SDH layer, as well as and Rapid Spanning Tree Protocol (RSTP) for Ethernet layer
- Next-generation SDH functionality such as General Framing Protocol (GFP), Virtual Concatenations (VCAT), and Link Capacity Adjustment Scheme (LCAS) functions for dynamic bandwidth allocation, adjustments, and protection
- Non-blocking, large-capacity switching matrix that’s optimal for metro aggregation as well as core networks; 340G for high-order VC and 40G for low-order VC
- Small Form-factor Pluggable (SFP) interfaces to deliver optical rate and parameter flexibility on a per-port basis

**Ethernet Transport Features**

- Data service applications such as EPL (Ethernet Private Line), EVPL (Ethernet Virtual Private Line), EPLAN (Ethernet Private LAN), and EVPLAN (Ethernet Virtual Private LAN)
- Layer 2 processing to reduce the bandwidth requirements, and therefore enable cost-effective data transport over the SDH infrastructure
- VLANs or double-tagged VLANs to enable 802.1p QoS/CoS, as well as segregation of traffic flows, and thereby increase security without sacrificing bandwidth efficiency or network flexibility
- Advanced Resilient Packet Ring (RPR) technology to provide high-reliable and efficient data transport with QoS control

**Management Features**

- Speedy operation and maintenance through local craft terminal FLEXR L
- Network element and sub-network-based management system FLEXR C R3, to enable seamless management of all SDH, PDH, and Ethernet layers

The FLASHWAVE 4570 is an STM-64 MSPP optimized for Metro Aggregation and Core network applications.

Typical node configurations are:

- 2 x STM-64, 8 x STM-1e(1:N), 1 x 10GE (Transparent), 8 x GE (Transparent), 8 x STM-4, 504 x E1, 2GE + 12FE (RPR), 2 x STM-16 subtending rings in single shelf configuration
- Multiple STM-N with direct E1, FE, GE, and 10GE

**High-Capacity Metro Core Solution**

Fujitsu’s FLASHWAVE 4x70 Multi-Service Provisioning Platform (MSPP) series provides telecommunication carriers and service providers with a powerful solution to survive their fiercely competitive industry.

Integrating reliable and intelligent SDH functionality and efficient Ethernet aggregation and switching into a compact body, the FLASHWAVE 4x70 MSPP enables both traditional voice-based services and increasingly diverse data services to be delivered over a unified optical network.

Enriched with next-generation SDH functionality, the FLASHWAVE 4x70 MSPP allows carriers to not only simplify their network, but also to efficiently, flexibly, and dynamically use network bandwidth with a simple management procedure. In this way, the FLASHWAVE 4x70 MSPP helps to satisfy the growing end-user’s demand in an increasing variety of broadband services at a substantially reduced cost.
Technical Specifications

Applications
- Terminal multiplexer
- Linear add-drop multiplexer
- Ring add-drop multiplexer
- DXC

Traffic Interfaces
- STM-64 (L-64.2, S-64.2, SR-1)
- STM-16 (L-16.2, L-16.1, S-16.1, narrowband)
- STM-4 (V-4.2, L-4.2, L-4.1, S-4.1)
- STM-1 (V-1.2, L-1.2, L-1.1, S-1.1, electrical)
- E3/DS3
- E1 (75 ohms/120 ohms)
- GE (1000Base-T, GE-ZX, GE-E, GE-LX, GE-SX, transparent or L2 switching)
- FE (10/100Base-TX, transparent or L2 switching)
- 10GE
- Optical amplifier: Post-amp (13 dBm, 15 dBm, 18 dBm output), pre-amp (20 dB gain)

Cross-Connect
- HO capacity: 340 Gbps (2176 x 2176 VC-4)
- LO capacity: 40 Gbps (16218 x 16218 VC-12)
- Connection: Unidirectional, bidirectional, broadcast, drop and continue, loopback

Network Protection
- 1+1 and 1:N (N=1 to 14) MSP at STM-1, STM-4, STM-16, and STM-64
- 2-fiber MS-SPRing at STM-4, STM-16, and STM-64
- SNCP/I and SNCP/N for VC-12, VC-3, VC-4, VC-4-4c and VC-4-16c
- GMPLS/ASON ready (Future release)
- 802.17 RPR

Hardware Protection
- STM-1E card: 1:N (N=1 to 4)
- E3/DS3 card: 1:N (N=1 to 4)
- E1 card: 1:N (N=1 to 4)
- HOCC/LOCC cards: 1+1

Mapping
- G.7041/Y.1303 GFP-F / GFP-T
- G.7042 LCAS: VC-12, VC-3, VC-4
- G.707 VCAT: VC-12, VC-3, VC-4

Synchronization
- Internal clock: Stratum 3 clock
- Timing Source: External clock (2 Mbps, 2 MHz), SDH line, E1
- Operation: Free-running, hold-over, locked-mode
- Priority and quality (SSM) synchronization algorithms

Ethernet Feature
- Layer 2 forwarding at wire-speed
- Layer 2 switching and aggregation
- 802.1Q VLAN and stackable VLAN
- 802.3x flow control
- MAC Address self-learning
- Layer 2 multicast (static provisioned or IGMP snooping)
- Rate-limiting per port and/or VLAN
- 802.1p QoS/CoS per port and/or VLAN
- 802.1w Rapid Spanning Tree Protocol (RSTP)
- 802.17 Resilient Packet Ring (RPR)

Power
- Input voltage: -48 VDC
- Power consumption: approx. 1200 W

Mechanical Specifications
- Sub-rack size: 500W x1068H x 278D mm
- Installation: Standard ETSI rack

Environment
- Operating temperature: -5 to 45 ºC
- Start-up temperature: 0 to 45 ºC

Management
- Local provisioning and maintenance by FLEXR L local craft terminal
- Remote centralized management at both element and network level by FLEXR C R3 Sub-Network Management (SNM)
- SNMPv3 standard MIB

Specifications are subject to change without notice. For the latest detailed information, please contact your nearest local Fujitsu representative.
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