

OSPFv3 RIP v2 BGP4 Routing Tables - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

The TelcoRoute 8000 Series represents a paradigm shift in dynamic routing infrastructure, purpose-built to manage OSPFv3, RIP v2, and BGP4 routing tables at carrier-scale densities. This datasheet documents the hardware platform engineered for concurrent IPv4 and IPv6 route processing, supporting full Internet BGP tables (1.5M+ IPv4 routes and 800K+ IPv6 routes) alongside OSPFv3 link-state databases and RIP v2 distance-vector adjacencies. The platform delivers deterministic sub-200 microsecond FIB (Forwarding Information Base) convergence upon route table updates.



ARCHITECTURE & CHASSIS DESIGN

The system leverages a distributed forwarding architecture with a dedicated Route Table Management Unit (RTMU) responsible for maintaining separate, hardware-accelerated RIB (Routing Information Base) instances for OSPFv3, RIP v2, and BGP4. Each protocol's routing table is stored in partitioned TCAM memory to prevent control-plane starvation. The chassis supports up to 4 line cards, each housing a Packet Forwarding Engine (PFE) with local FIB replication. Redundant switch fabric modules (1+1 active-standby) ensure non-stop forwarding during RTMU failover. All three routing protocols operate concurrently, with route redistribution policies enforced in hardware at line rate.

HARDWARE FEATURES

- DEDICATED OSPFv3 LINK-STATE DATABASE ENGINE: Supports up to 50,000 LSA entries across 2,000 OSPFv3 interfaces
- RIP v2 ROUTE PROCESSOR: 500 ms route aging timers, split horizon with poison reverse in hardware
- BGP4 ROUTING TABLE ACCELERATOR: 4GB dedicated RIB memory, 1.8M path entries, 256 BGP peers per chassis
- TCAM PARTITIONING: 80,000 IPv4 routes (BGP4), 40,000 IPv6 routes (OSPFv3/BGP4), 5,000 RIP v2 routes
- HARDWARE ROUTE REFRESH: Sub-second BGP4 graceful restart, OSPFv3

graceful restart helper mode

COMPLIANCE & STANDARDS

- OSPFv3 RFC 5340 (IPv6), OSPFv2 RFC 2328 (legacy interoperability)
- RIP v2 RFC 2453, RIPng RFC 2080
- BGP4 RFC 4271, BGP4+ RFC 2858 (MP-BGP for IPv6), RFC 2918 (Route Refresh)
- IEEE 802.1Q, 802.3ad Link Aggregation
- GR-1089-CORE EMC, GR-63-CORE NEBS Level 3

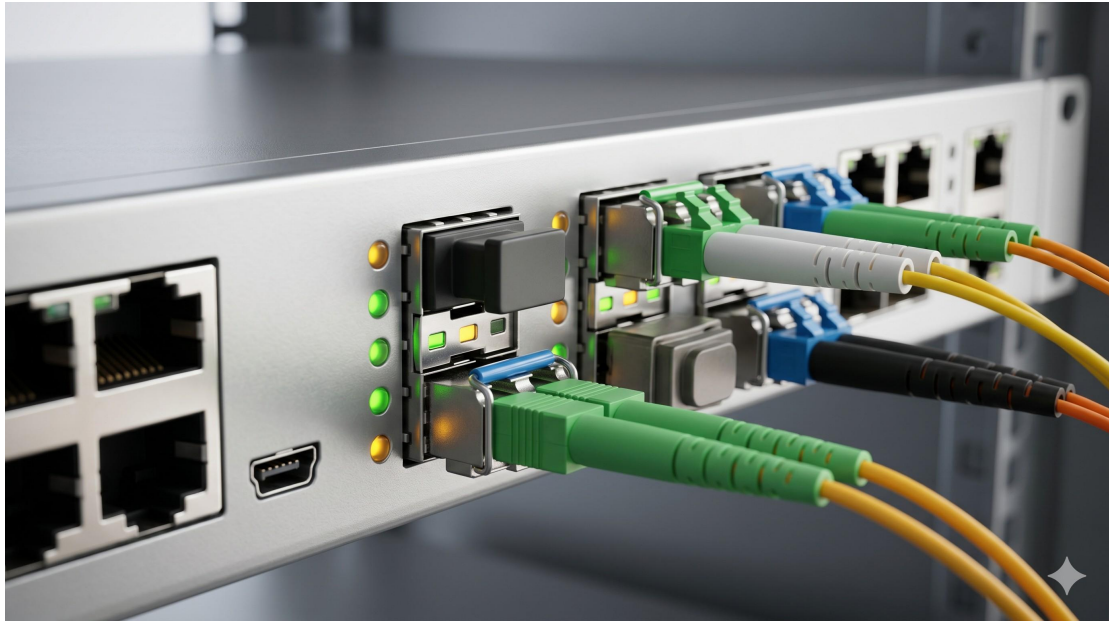
TECHNICAL SPECIFICATIONS

Parameter	Specification
Form Factor	2RU Rack-mountable Chassis (88.1mm x 438mm x 460mm)
Switching Capacity	480 Gbps non-blocking (full duplex)
Power Supply	1+1 Redundant Hot-swappable AC (100-240V) or DC (-48V)
Control Plane CPU	Quad-core 2.2GHz x86 Route Processor, 16GB RAM
Packet Buffer Memory	12MB shared (per line card)
Route Table TCAM	125,000 route entries total

	(partitionable)
BGP4 RIB Size	1.5M IPv4 routes / 800K IPv6 routes (MP-BGP)
OSPFv3 LSDB Capacity	50,000 Link State Advertisements
RIP v2 Routes	10,000 entries (hardware aged)
Operating Temperature	0°C to 45°C (NEBS extended: -5°C to 55°C)
Typical Power Draw	250W (chassis fully loaded)
MTBF (predicted)	285,000 hours (Telcordia SR-332)

ORDERING OPTIONS

- TR-8000-BASE: 2RU Chassis with RTMU, Dual AC PSU (no line cards)
- TR-8000-LC-4x10GE: Line card, 4x10GE SFP+ ports, OSPFv3/BGP4 hardware offload
- TR-8000-LC-24x1GE: Line card, 24x1GE RJ45 ports, RIP v2/BGP4 local processing
- TR-SW-8000-FAB: Redundant switch fabric module (spare)
- TR-RTMU-UPG: Route Table Management Unit upgrade (expands BGP4 RIB to 4M paths)
- TR-LIC-OSPFv3-FULL: OSPFv3 full feature license (LSDB replication, NSSA)



DEPLOYMENT SCHEMATIC NOTES

The platform is field-proven for Internet Exchange Points (IXP) requiring full BGP4 table exchange, large enterprise cores running OSPFv3 with IPv6 transition, and multi-tenant data centers employing route redistribution between RIP v2 (legacy management networks) and BGP4 (MPLS VPN overlays). All routing tables are independently manageable via CLI (industry-standard syntax), NETCONF/YANG, or SNMPv3.