PDF Document

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"title": "Enterprise Core Systems Engineering Reference Manual: Layer 3 Routing Hardware Vendor – NexusEdge 7800 Series",

"content": "PRODUCT IDENTIFICATION: NEXUSEDGE 7800 SERIES LAYER 3 ROUTING PLATFORM\n\nThe NexusEdge 7800 Series represents the culmination of next-generation silicon innovation and carrier-hardened design principles. Engineered for enterprise core, campus aggregation, and metro edge deployments, this hardware vendor solution delivers deterministic sub-microsecond latency, non - blocking L3 line-rate forwarding, and hardware-based VRF-lite segmentation. The platform bridges the gap between traditional modular chassis and fixed - form high - density routing, offering software - defined readiness without compromising on hardware offload.\n\n[IMAGE_1]\n\nCORE INTERNAL TOPOLOGY\n\nThe NexusEdge 7800 is architected around a fully distributed forwarding engine. Each packet processor integrates a ternary content - addressable memory (TCAM) for ACL and routing lookups, a shared buffer pool for burst absorption, and a dedicated crypto block for MACsec/IKEv2 acceleration. The backplane employs a Clos - like fabric with 3.2 Tbps of non - blocking cross - sectional bandwidth, eliminating head - of - line blocking across all interfaces.\n\n- Central Switch Fabric: Redundant fabric modules with hitless failover.\n- Forwarding ASICs: 16 nm FinFET based, supporting 512k IPv4 / 256k IPv6 routes (hardware

maximum).\n- CPU Subsystem: Quad-core ARM Cortex-A72 (2.2 GHz) for control plane tasks, isolated from data plane.\n\nSWITCHING & ROUTING ENGINE CAPABILITIES\n\n- Layer 3 Forwarding Rate: Up to 1,440 Mpps (million packets per second) for 64-byte frames.\n- IPv4 Static/RIP/OSPFv2/IS-IS/BGP4: Full hardware offload for all active prefixes.\n- IPv6 (OSPFv3/BGP4+/IS-IS): Line-rate processing with no performance penalty.\n- Multicast: PIM-SM, PIM-SSM, IGMPv3, MLDv2 with hardware replication.\n- MPLS: LDP, MPLS VPN (2547bis), MPLS TE over RSVP-TE with hardware label swapping.\n\nOPERATIONAL ADVANTAGES\n\n- Zero-touch provisioning (ZTP) via DHCP option 43 and secure cloud onboarding.\n- Hitless ISSU (In-Service Software Upgrade) with sub-second stateful restart.\n- Advanced QoS: 8 hardware queues per port, WRED, strict priority, and CBWFQ.\n- Telemetry: sFlow, NETCONF/YANG, gRPC streaming (100ms granularity).\n\nSPECIFICATION MATRIX\n\n[TABLE_1]\n\nREGULATORY COMPLIANCE & INDUSTRY CERTIFICATIONS\n\n- Safety: UL 60950-1 (2nd Ed.), CSA C22.2 No. 60950-1, EN 62368-1:2014.\n- EMC: FCC Part 15 Class A, EN 55032, EN 55024, CISPR 32.\n- Environmental: RoHS3 (EU 2015/863), WEEE, REACH.\n- Networking: MEF 2.0 compliant (E-LINE, E-LAN, E-TREE), IPv6 Ready Logo Phase 2.\n- Carrier approvals: NEBS Level 3 (GR-63-CORE, GR-1089-CORE) pending certification.\n\nADDITIONAL HARDWARE FEATURES\n\n- Redundancy: 1+1 power supplies (hot-swappable AC/DC), N+1 fan tray.\n- Environmental: Operating 0°C to 45°C, 5% to 95% RH non-

condensing.\n- Dimensions (W×D×H): 442 mm × 510 mm × 44 mm (1RU).\n- Weight (fully loaded): 8.6 kg (19.0 lb).\n\nORDERING SKU INFORMATION (Sample)\n\n- NexusEdge 7804 – 4x 100G QSFP28 + 24x 25G SFP28 L3 Router (P/N: NE-7804-BASE)\n- NexusEdge 7816 – 16x 100G QSFP28 + 48x 10G SFP+ L3 Router (P/N: NE-7816-HIGH)\n- Optional power bundle: AC 650W (NE-PWR-AC650) / DC 800W (NE-PWR-DC800)\n- Transceiver compatibility: all MSA-compliant SFP+/SFP28/QSFP28 optics.\n\n[IMAGE_2]\n\nLIFECYCLE ASSURANCE & SUPPORT\n\nThe NexusEdge 7800 Series includes a 3-year hardware warranty with next-business-day advance replacement. Extended support contracts provide 24×7 TAC, software updates, and on-site spares. Mean Time Between Failures (MTBF) calculated per Telcordia SR-332: 285,000 hours (excluding fan modules).\n\nThis document is for informational purposes only and does not constitute a binding offer. Specifications are subject to change without notice. © NexusEdge – A Division of Generic Telecom Hardware Vendor.",

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"A high-quality 4K realistic promotional image showing a clean modern server rack loaded with generic enterprise routing hardware representing NexusEdge 7800 Series, glowing LED status indicators, datacenter lighting, professional unbranded chassis design, no text.",

"A high-quality 4K realistic close-up image showing the premium generic fiber optic SFP+ interfaces, copper RJ45 ports, and ventilation slots of the

network switch hardware, professional studio lighting, unbranded components, no text."
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["Power Supply", "Dual Hot- Swappable Redundant AC/DC (650W AC / 800W DC)"],
["Forwarding Rate (IPv4)", "1,440 Mpps (64- byte packets)"],
["MAC Address Table", "128,000 entries"],
["Routing Table (IPv4/IPv6)", "512k / 256k routes (hardware)]"
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