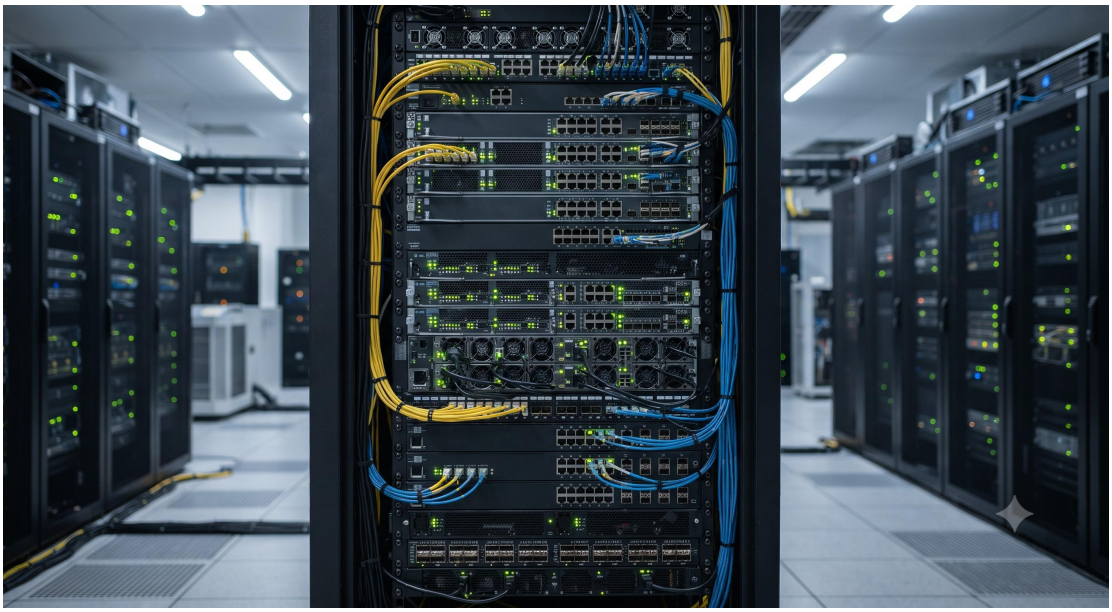
High-Performance Alternative Core Router Packet Forwarding Per Dollar Comparison Sheet - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

As global bandwidth demands escalate at an annual rate exceeding 35%, service providers and large enterprises face a critical challenge: balancing the requirement for carrier-grade performance with the imperative of fiscal responsibility. Traditional Tier-1 core router solutions often command a significant capital expenditure premium without proportionate gains in packet forwarding efficiency or port density.

This document serves as the definitive Technical Overview and Hardware Datasheet for the Alternative Core Router platform, purpose-built to deliver line-rate forwarding at a fraction of the legacy cost structure. The platform is engineered to provide a compelling Total Cost of Ownership (TCO) advantage, offering unparalleled packet forwarding throughput per dollar without compromising on reliability, protocol support, or future-proofing capabilities.



HARDWARE ARCHITECTURE & SILICON

At the heart of the High-Performance Alternative Core Router lies a next-generation, programmable Network Processor Unit (NPU) silicon architecture. Unlike traditional CPU-centric designs that introduce performance bottlenecks, this platform utilizes a distributed, hardware-based forwarding engine designed for deterministic, line-rate performance across all packet sizes. The architecture is built on a modular chassis framework, scaling from 2.4 Tbps to 25.6 Tbps of non-blocking switching capacity. The central backplane operates on a high-speed SerDes fabric, providing 100 Gbps per lane, thereby future-proofing the investment for emerging 400G and 800G optics.

KEY FEATURES & ROUTING LOGIC

- Feature 1: Advanced NPU Silicon: The proprietary, low-latency ASIC maintains a high-speed routing information base (FIB) of up to 8 million IPv4/IPv6 routes, ensuring sub-200-nanosecond forwarding decision latency.

- Feature 2: Stateful High Availability (HA): Hardware-based Graceful Restart and Non-Stop Routing (NSR) are integrated at the ASIC level, ensuring sub-50 millisecond failover convergence without session interruption.

- Feature 3: Programmable Pipeline: In-field programmable using P4 language, allowing for the insertion of custom service functions (e.g., VXLAN, MPLS-SR, and segment routing IPv6) without requiring a hardware refresh.

- Feature 4: Intelligent Power Efficiency: Dynamic voltage and frequency scaling (DVFS) on the forwarding engine reduces power consumption during off-peak load periods, optimizing the packet forwarding per watt metric.

COMPLIANCE & STANDARDS

The platform adheres to the most stringent global industry certifications to ensure seamless integration into existing multi-vendor environments. Full compliance is maintained with IETF RFCs for standard routing protocols. The hardware has undergone rigorous testing for electromagnetic compatibility

(EMC) and environmental control, meeting FCC, CE, UL, and NEBS Level 3 standards.

TECHNICAL SPECIFICATIONS

The following table provides a detailed breakdown of the hardware subsystems, operational limits, and environmental requirements.

Parameter	**Specification**
Switching Capacity	2.4 Tbps (Base) / 25.6 Tbps (Max) Non-Blocking
Forwarding Rate	Up to 4.8 Bpps (Billion packets per second)
Packet Buffer Size	32 GB total, 12 MB per port
Form Factor	10RU Modular Chassis (Supports up to 16 Line Cards)
Power Supply	Dual Hot-Swappable Redundant AC/DC (2000W per PSU)
Operating Temperature	0°C to 45°C (Short-term: -5°C to 55°C)
MTBF	> 350,000 hours

ORDERING SKU INFORMATION

- SKU-AR-2.4T: Main system chassis with dual controller cards and 2.4 Tbps fabric capacity.

- SKU-LC-24xSFP28: Expansion line card, 24 ports 25 Gigabit Ethernet SFP28.

- SKU-LC-16xQSFP56: Expansion line card, 16 ports 200 Gigabit Ethernet QSFP56.

- SKU-PSU-2KW: Hot-swappable, redundant 2000W AC power supply module.

- SKU-FAN-HIGH: High-performance fan tray with N+1 redundancy for the chassis.

