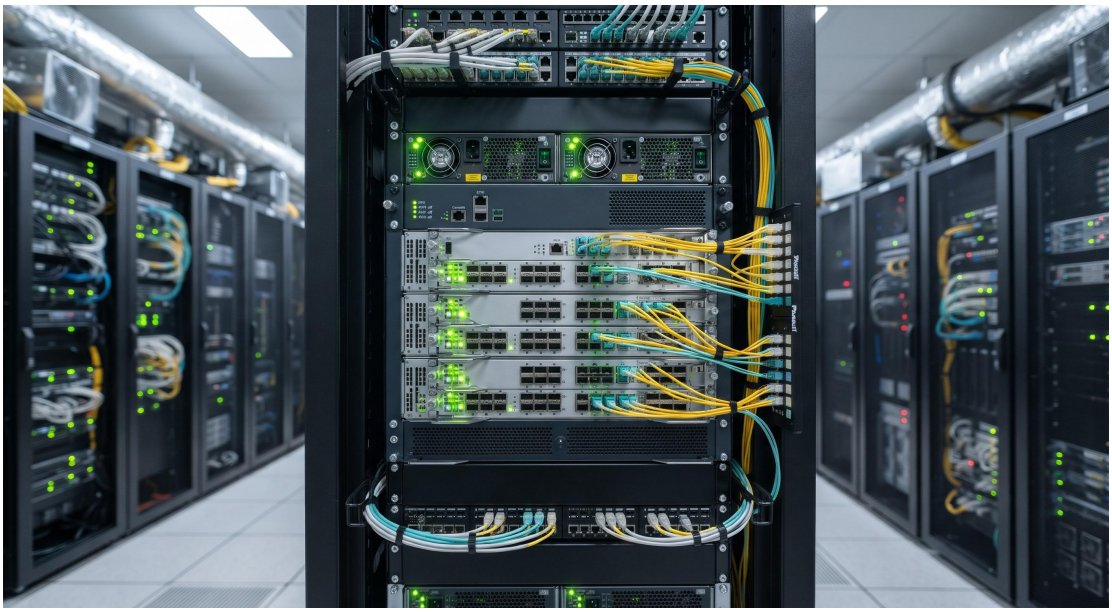
NetEngine 8000 M8 Router Service Line Card Interface Allocations - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

The Huawei NetEngine 8000 M8 is a 3U compact, high-density universal service router engineered for carrier-grade access and aggregation in the 5G and cloud era. As a critical element of Huawei's all-scenario intelligent routing portfolio, the M8 platform integrates distributed hardware forwarding, a non-blocking switching fabric, and a cell-based load-sharing architecture to deliver up to 2.4 Tbit/s of switching capacity within a mere 220 mm depth chassis . This document provides a definitive technical overview of the service line card interface allocations, transceiver compatibility, and hardware architecture required for precise deployment engineering. The platform's eight service slots support a diverse spectrum of physical interfaces — from 400GE high-speed uplinks down to E1/CPOS legacy access—enabling a single platform to serve private line, mobile backhaul, DC gateway, and BNG scenarios concurrently .



HARDWARE ARCHITECTURE & SILICON

The NetEngine 8000 M8 chassis features a modular architecture centered on a passive backplane with integrated control and switching fabric redundancy. Two main processing units (MPUs) operate in a 1:1 active-standby configuration, while the switching fabric is integrated directly into the MPU design, eliminating separate fabric slot dependencies and ensuring deterministic low-latency forwarding . The eight service line card slots are provisioned to accept a comprehensive array of Physical Interface Cards (PICs) and flexible line cards, each engineered to leverage the router's programmable Network Processor (NP) architecture. This NP-based design ensures future-proof evolution, supporting emerging protocols and encapsulation formats through software updates without requiring hardware replacement .

Interface allocation across the line card slots is non-blocking by design. The backplane provides dedicated high-speed serial channels to each slot, enabling line-rate packet processing across all populated interfaces simultaneously. For high-density deployments, the M8 supports a maximum forwarding performance of 54,000 Mpps, ensuring that even when fully populated with 100GE or 25GE line cards, the system maintains wire-speed throughput for all packet sizes . The hardware also incorporates MACsec capabilities on select line cards, providing line-rate Layer 2 encryption for secure backhaul and government private line applications .

KEY FEATURES & ROUTING LOGIC

- Flexible Interface Mix: Supports a full range of service interfaces including 400GE, 100GE, 50GE, 40GE, 25GE, 10GE, GE, FE, E1, CPOS, and POS within the same chassis, allowing operators to tailor the interface allocation to specific site requirements .
- Compact High-Density Design: The 3U form factor with 220 mm depth enables installation in space-constrained cabinets, reducing floor space requirements by more than 20% compared to industry average for equivalent capacity .
- SRv6 and FlexE Ready: Native support for Segment Routing over IPv6 (SRv6) and Flexible Ethernet (FlexE) network slicing enables simplified protocol stacks

and guaranteed SLA enforcement across shared infrastructure .

- Redundant Hardware Architecture: 1:1 MPU redundancy, 1+1 power supply redundancy (AC or DC), and 1+1 fan tray redundancy ensure carrier-grade availability exceeding 99.999% .

- Deterministic IP and DRE: Supports Deterministic IP (DIP) for bounded latency forwarding and Data Redundancy Elimination (DRE) for WAN link bandwidth optimization .

COMPLIANCE & STANDARDS

The NetEngine 8000 M8 is designed to meet stringent carrier and enterprise networking standards. The platform supports MEF CE 2.0 compliance for Carrier Ethernet services, IEEE 802.1Q, 802.1ad, and 802.1ah for VLAN stacking and bridging, and IEEE 802.3 series physical layer specifications across all supported interface speeds. Security compliance includes MACsec per IEEE 802.1AE on supported line cards. The router is engineered to operate within the temperature ranges specified for both DC (-40°C to 65°C) and AC (-20°C to 55°C) power configurations, ensuring deployment flexibility in varied environmental conditions .

TECHNICAL SPECIFICATIONS

The following table summarizes the core hardware and interface allocation parameters for the NetEngine 8000 M8 chassis and associated service line cards.

Parameter	Specification
Form Factor	3U modular chassis, 442 mm × 220 mm × 132.6 mm
Service Slots	8 line card slots
Switching Capacity	Up to 2.4 Tbit/s (dependent on MPU model)
Forwarding Performance	54,000 Mpps
Interface Types Supported	400GE / 100GE / 50GE / 40GE / 25GE / 10GE / GE / FE / E1 / CPOS / POS
MPU Redundancy	2 × MPU, 1:1 active-standby
Power Supply	2 × hot-swappable, 1+1 redundant (AC or DC)
Fan Trays	2 × hot-swappable, 1+1 redundant
MACsec Support	Yes, on select line cards (IEEE 802.1AE)
FlexE Support	Yes, on select line cards and MPUs
Operating Temperature (DC)	-40°C to 65°C
Operating Temperature (AC)	-20°C to 55°C
Typical Power Consumption	Approximately 484.3 W

ORDERING SKU INFORMATION

Chassis configurations are available in both AC and DC variants with integrated power and fan assemblies. Representative chassis ordering SKUs include CR8BM8BKPAC1 (AC integrated chassis with 2 × AC power and fan box) and CR8BM8BKPDC1 (DC integrated chassis with 2 × DC power and fan box) . Line card SKUs vary by interface type and capacity; operators should consult the Huawei Hardware Center for precise PIC part numbers matching their specific interface density and feature requirements (e.g., MACsec, FlexE support).

