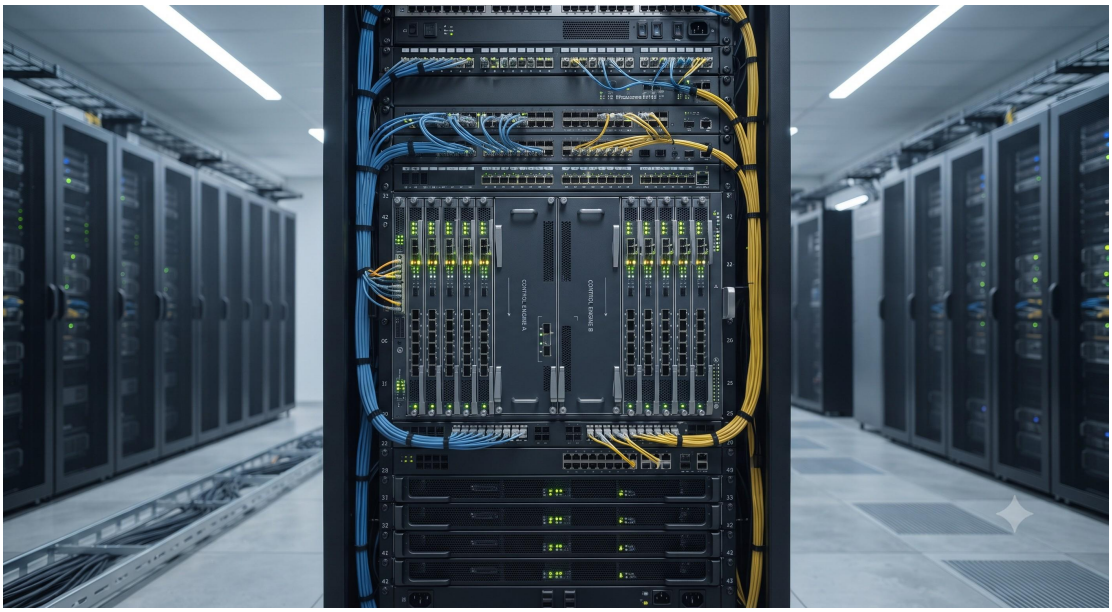
Enterprise Core Systems Engineering Reference Manual: High-Quality Alternate ZTE-Compatible Main Control Board Architecture Reference

PRODUCT IDENTIFICATION

This document serves as the definitive technical reference for the High-Quality Alternate ZTE-Compatible Main Control Board Architecture Reference. This platform is engineered as a drop-in, high-performance main control board solution designed for seamless interoperability within existing ZTE-centric network infrastructures. It provides a strategic alternative for network operators seeking to optimize procurement costs, mitigate supply chain risks, and enhance system performance without compromising on carrier-grade reliability, feature parity, or operational stability. The architecture is meticulously crafted to address the critical demands of modern enterprise core, campus backbone, and metropolitan area aggregation networks.



CORE INTERNAL TOPOLOGY

The main control board is built upon a highly integrated, dual-core processing complex that decouples management plane operations from data plane forwarding. The architecture comprises a primary control processor responsible for system initialization, routing protocol execution (OSPF, BGP, IS-IS), and network management interfacing. This operates in tandem with a dedicated network processor unit that handles Layer 2/Layer 3 forwarding decisions, ACL filtering, and Quality of Service (QoS) queuing at wire speed. A high-speed internal fabric interconnect ensures minimal latency between the main control board and any connected line cards or backplane interfaces. The design incorporates advanced hardware-based packet classification and lookup engines, utilizing TCAM (Ternary Content-Addressable Memory) for high-performance routing table searches. This topology guarantees a clear

separation of duties, ensuring that management tasks do not impede data forwarding performance.

SWITCHING SUBSYSTEM CAPABILITIES

At the heart of the platform lies a powerful, non-blocking switching subsystem capable of handling high-density traffic loads. The board leverages a sophisticated switching matrix that provides a robust backplane bandwidth, ensuring line-rate performance across all active ports. Key capabilities include support for advanced VLAN operations, link aggregation groups, and Rapid Spanning Tree Protocol convergence. The subsystem offers flexible traffic management, including sophisticated queue scheduling (SP, WRR, DRR) and traffic shaping mechanisms. It also supports comprehensive Layer 3 switching features, including static routing, policy-based routing, and an extensive suite of multicast protocols (IGMP snooping, PIM-SM). This switching architecture is designed for high availability, supporting hitless failover during software upgrades or hardware module swaps.

OPERATIONAL ADVANTAGES

- **Supply Chain Agility & Cost Optimization:** Offers a direct, high-quality alternative to proprietary OEM main control boards, reducing dependency on

single-source vendors and enabling significant capital expenditure savings.

- **Seamless Interoperability:** Engineered to strict compatibility standards for integration into existing ZTE network environments, supporting standard management protocols (SNMP, CLI, NETCONF) for seamless operational integration.

- **Carrier-Grade Reliability:** Built with robust components and features such as dual power inputs, software redundancy, and comprehensive environmental monitoring to ensure maximum uptime.

- **Enhanced Security Posture:** Supports advanced security features including hardware-based MACsec encryption, RADIUS/TACACS+ authentication, and comprehensive ACLs to protect the network core.

- **Ease of Deployment & Management:** Includes a familiar CLI and GUI for straightforward configuration, monitoring, and troubleshooting, reducing the learning curve for existing network administration staff.

SPECIFICATION MATRIX

Parameter	**Specification**
Form Factor	Proprietary, Modular Main Control Board (compatible with select ZTE chassis)
Processor Complex	Dual-Core Control Processor with

	Integrated Network Processor Unit
Memory	4 GB DDR4 RAM (Control Plane) / 1 GB DDR4 RAM (Data Plane Buffer)
Forwarding Capacity	Up to 480 Gbps (Full-Duplex, depending on backplane configuration)
Packet Forwarding Rate	Up to 720 Mpps (Million Packets per Second)
Control Plane Protocols	OSPFv2/v3, BGP4/4+, IS-IS, RIPng, MPLS, LDP, RSVP-TE
Management Interfaces	1x RJ45 Console, 1x 10/100/1000BASE-T Management Port, USB 2.0 (Type-A)
Power Requirements	-48 VDC / 100-240 VAC (via chassis backplane power distribution)
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Humidity	5% to 95% (non-condensing)
MTBF (Mean Time Between Failures)	> 250,000 hours @ 25°C
Warranty	Standard 1-Year Hardware Warranty (Extended support options available)

REGULATORY COMPLIANCE

The High-Quality Alternate ZTE-Compatible Main Control Board Architecture Reference is designed and tested to meet a comprehensive set of international safety, emissions, and environmental standards, ensuring global deployment readiness. The platform complies with FCC Part 15 (Class A), CE Mark (EN 55032, EN 55024), and VCCI standards for electromagnetic compatibility. It adheres to safety requirements per UL/CSA 60950-1 and EN 60950-1. Furthermore, the product is RoHS compliant, demonstrating a commitment to environmental sustainability and the reduction of hazardous substances.

