Huawei and ZTE Used Service Board Micro-Soldering and Capacitor Replacement Logs - Official Technical Overview & Hardware Datasheet

PRODUCT IDENTIFICATION

This document serves as the official technical datasheet and engineering reference for the comprehensive refurbishment and lifecycle extension program targeting used service boards from Huawei and ZTE. This program details the micro-soldering and capacitor replacement logs, ensuring that legacy hardware can be restored to meet carrier-grade operational standards. This process provides a verified alternative to new OEM procurement, delivering guaranteed performance metrics and documented reliability.



CORE INTERNAL TOPOLOGY

The refurbishment process focuses on the critical internal power distribution and signal integrity pathways of the service boards. Micro-soldering techniques are employed to rectify common failure points including fractured BGA (Ball Grid Array) solder joints, damaged SMD (Surface-Mount Device) resistors, and compromised PCB (Printed Circuit Board) traces. Capacitor replacement logs are meticulously maintained to document the removal of aged electrolytic and tantalum capacitors and their replacement with high-reliability, low-ESR (Equivalent Series Resistance) polymer capacitors. This restores the original filtering and decoupling networks, stabilizing voltage rails and reducing power supply noise to within ±1% of original factory specifications.

SWITCHING SUBSYSTEM CAPABILITIES

Post-refurbishment, the service boards demonstrate restored forwarding engine capabilities. The micro-soldering logs confirm the re-establishment of high-speed bus connections, allowing the switching subsystem to achieve line-rate forwarding with negligible packet loss. The capacitor replacement logs validate the stability of the clock generation circuitry, ensuring jitter and wander parameters remain within the stringent limits defined for carrier Ethernet and 5G transport networks. This process effectively rebuilds the core switching matrix integrity.

OPERATIONAL ADVANTAGES

- Cost-Effective Lifecycle Extension: This process offers significant capital expenditure (CAPEX) savings, extending the useful life of legacy hardware by up to 5 years without compromising performance.
- Mitigated Obsolescence: Provides a strategic solution to OEM end-of-life (EOL) announcements, ensuring continued network stability and operation.
- Verified Performance Restoration: Each board is subjected to functional testing post-refurbishment, confirming restoration to original performance thresholds.
- Full Traceability: Comprehensive logs provide full traceability for each repair action, facilitating quality audits and root cause analysis.
- Enhanced Reliability: The use of high-grade replacement components often results in a longer MTBF (Mean Time Between Failures) than the original hardware.

SPECIFICATION MATRIX

The following parameters represent the performance metrics guaranteed for a service board processed through this micro-soldering and capacitor replacement program.

Parameter	Specification
Form Factor	Modular Chassis (Custom per Board Type)
Restored Switching Capacity	Up to 480 Gbps (Board Dependent)
Power Supply	Dual Hot-Swappable Redundant AC/DC (Restored)
Capacitor Replacement Type	Low-ESR Polymer Capacitors (100% New Stock)
Micro-Soldering Repair Types	BGA Reflow, SMD Replacement, Trace Repair
Operating Temperature (Post-Refurb)	0°C to 45°C (NEBS Level 3 Compliant)
Relative Humidity (Non-condensing)	5% to 90%
MTBF (Mean Time Between Failures)	> 500,000 Hours (Projected)
Restored Jitter Performance	< 1 ps RMS (Typical)

REGULATORY COMPLIANCE

All refurbishment processes and the resulting hardware are certified to adhere to the following industry standards and regulatory directives:

- RoHS (Restriction of Hazardous Substances) Compliance: All replacement

components and solder materials are compliant with the latest RoHS directives.

- WEEE (Waste Electrical and Electronic Equipment) Compliance: The process is compliant with WEEE regulations for responsible refurbishment and e-waste reduction.

- NEBS (Network Equipment-Building System) Level 3: Refurbished boards are tested to meet the stringent environmental, safety, and EMC requirements of NEBS Level 3, ensuring suitability for use in telecommunications central offices.

- ETSI (European Telecommunications Standards Institute) Standards: The program adheres to relevant ETSI standards for environmental and performance testing.

