Overview

The CX-UA 55x series is the culmination of Memotec's years of providing RAN optimization technologies into mobile operator networks. Our new "Any-G" RAN optimization appliance is the quintessential one-stop RAN optimization solution which can satisfy mobile operator requirements for the years to come.

The series brings together the best attributes of Memotec's separate RAN optimization technologies into a powerful and efficient 1U rack low cost unit, to be located at the remote sites, serving legacy TDM based as well as IP based radios, 2G, 3G and 4G/LTE. Designed for Telcos, the CX-UA55x meets all the requirements that Mobile Operators expect from devices located in tough conditions within remote shelters: reliability, sturdiness, extended temperature range, serviceability, including details that matter like galvanized steel chassis to avoid the effects of corrosion.

Typical Users

- Telecom Operators
- Mobile Operators
- Satellite Service Providers

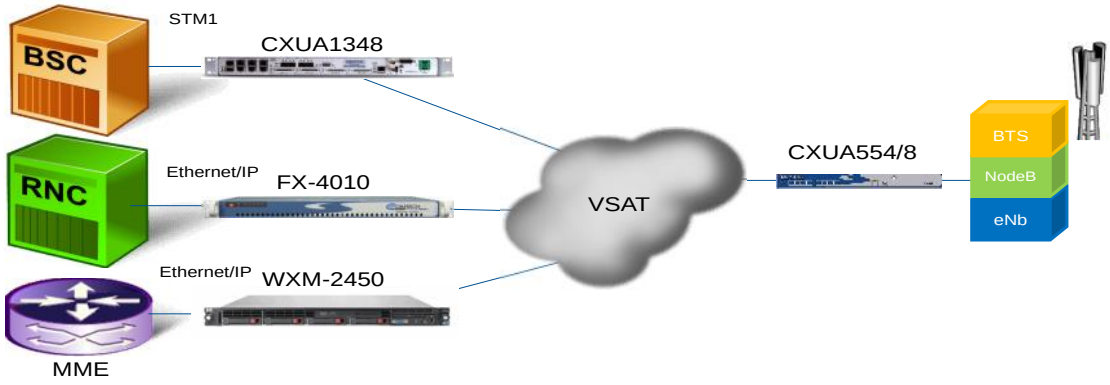
Common Applications

- Cellular Backhaul
- Mobile Cellular Tower Applications
- Universal Service Obligations Enabler

The CX-UA 55x interoperates with Memotec's powerful hub side high capacity solutions including:

- the CX-UA 1348 STM-1 2G TDM Abis optimization and IP media converter (serving up to 64 remote sites),
- the FX4010c 2G/3G IP base stations traffic optimizer, and,
- the WX-2450 4G LTE performance optimization appliance,

in order to provide the industry's most powerful "Any-G" RAN optimization solution.



The CX-UA 55x offers:

- 4 or 8 E1s to support 2G Abis optimization (CX-UA 554 and 558 respectively).
- 4 GE ports to connect to IP attached devices (2G IP BTS, 3G NodeB, 4G LTE eNb)
- Sophisticated 3GPP compliant clock synchronization options (in line, external, GPS, TDM and IP)
- Choice of IP/Ethernet (Layer 2 switched or Layer 3 routed) WAN, or TDM WAN (nxE1 bundle – up to 8 ports), regardless of input services connectivity and type (TDM or IP)
- Optional 4G LTE co-processor to optimize and accelerate S1 interface.
- Optional IEEE 1588 Packet Timing Protocol support with integral GPS and OCXO.
- Choice of power options ranging single AC and DC power supplies to hot swap redundant AC or DC power supplies.
- Unique E1 and Ethernet "fail to wire" bypass providing interface continuity in case of catastrophic equipment failure.

Mobile Optimization features include:

- 2G TDM Abis optimization (50%) and IP media conversion.
- Any E1 TDM to IP transparent media conversion with compression (Propriatary cPWE – "compressed Pseudo Wire"- feature)
- 2G AbisoIP and 3G IuboIP optimization (Protocol headers and payload compression, packet aggregation) up to 50%;
- Optional 4G/LTE processing removing satellite latency negative effects and bandwidth limitation, and globally improving user QoE, as well as optimization (using transparent byte caching technology: up to 60% savings on non-encrypted traffic)
- Statistical multiplexing of the different mobile services (2G, 3G, 4G) through one single shared media;
- Service differentiations and user fairness through sophisticated QoS and bandwidth shaping mechanism (including DPI based application-level QoS for 4G/LTE user traffic)

The Memotec's CX-UA 55x is the solution for deploying Mobile services over satellite backhaul, addressing the different issues mobile operators or satellite service providers commonly face with such deployment, and making it simple. For instance, synchronization: whether using an IP satellite network to connect an E1 TDM BTS, or connecting new IP radios relying on IP Packet Timing Protocol (PTP a.k.a IEEE 1588) clock synchronization is an issue over VSAT network, that is taken care of by the CX-UA 55x. Thanks to its embedded 3GPP compliant IEEE 1588 Grandmaster feature, a CX-UA 55x enables Mobile Operator to connect up to 16 IP radios at a remote VSAT location using PTP, including 4G/LTE radios, thus eliminating the use of outdoor GPS clock system at each radio or costly 3rd party standalone GrandMaster devices at remote sites. The Memotec CX-UA also addresses the issues of jitter – critical for 2G and 3G services, data in particular-, interface mediation (TDM to IP), etc…

Specifications

Interfaces

- Digital E1: unframed, fractional, channelized, voice, data, TDM
- E1 line type : CEPT (PRI), G.703/G.704 with or without CRC4 & MF\
- E1 encoding: HDB3, AMI, NRZ, NRZi, 120 Ohms
- NFAS, AIS and RDI bits/alarm relay
- T1/E1 alarms: red, yellow, near/far end LOS, AIS, LOF, LOMF, test, loop
- Ethernet: 10/100/1000 Mbps, RJ-45 (electrical and optical)
- RS-232 serial craft interface

Standards

- T1/E1 Interface: ITU-T G.703, G.704, G.706, G.732, G.733, G.823, G.824
- IP Interworking: ITU-T G.799.1/Y.1451.1, Y.1452, Y.1453
- Ethernet interface: IEEE 802.1, 802.3, 802.3u

Capacity

	CX-UA 554	CX-UA 558
E1 Ports (bearers or trunk)	4	8
GE Ethernet Ports (RJ45 electrical)	4	4
Number of E1 Abis TDM or cPWE processing	4	8
2G / 3G IP radios processing capacity	10 Mbps	10Mbps
4G/LTE processing capacity (acceleration)	50 Mbps	100 Mbps
Nb of supported concurrent accelerated TCP sessions	2500	5000
1588 Grandmaster clients (Mode 3 – One step IPv4 Unicast)	16 slaves	16 slaves

Notes:

1. E1 Abis/Ater optimization and TDM Pseudowire is compatible with CX-UA 1348 hub side STM1 solution which can support up to 48 E1s or 63 VC12 connectivity on an STM1 connection to remote 2G BTS.
2. IP header compression and packet aggregation is compatible with FX4010c which can support up to 700Mbps of throughput per FX4010c.
3. 4G LTE optimization is compatible with the WX2450 optimization appliance which can support up to 300Mbps and 30,000 TCP sessions per system. The WX2450 can be operated in cluster mode to provide up to 1 Gb/s of capacity
4. All IP traffic values are given as cumulated IN+OUT measured traffic (LAN side).

Synchronization

- ETSI PDH ITU-T G.823/G.824 and ETSI SDH SEC / ITU-T G.823 clock synchronisation compliant
- 8 KHz, 1.544 MHz, 2.048 MHz, 10 MHz (BITS) and 1544 Kbps or 2048 Kbps G.703 clock reference output
- Better than Stratum 3 TCXO local clock reference (250 ppb 24 hours holdover over temperature range)
- Optional: better than Stratum 2 OCXO local clock reference
- Optional internal GPS clock reference
- User defined synchronization priority scheme
- SynchE
- IEEE1588v2 Grandmaster support
- IEEE1588v2 Slave – accepts IEEE1588v2 polls and provides clock to attached E1s

Physical

- Dimensions: Standard 19" rack 1RU high chassis (height x width x depth) 1.70" x 16.5" x 12.1"
- Weight chassis: 2.2 kg (5.5 lbs)
- Input power: standard DC -40 to -60 (optional: 90-264 VAC power and/or redundant AC or DC power available)
- Consumption: 40 to 80W depending on model and configuration
- MTBF > 20 Years

Environmental

- Operating temp: 0° to 65° Celsius
- Storage temp: -40° to +80° Celsius
- Operating humidity: 0 to 95% non-condensing
- Altitude: 4000 m

Approvals

- Safety: CSA/UL 60950-1, IEC/EN 60950-1
- EMC-Emission Class A: FCC Part 15, ICES-003, EN 55022:2010
- EMC – Immunity : EN 55024:2010

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