

# CX-UA1100 Series

Optimization and Compression for Improved Backhaul Efficiency

- Increase revenue by expanding the capacity of existing networks without forklift upgrades.
- Extend service coverage leveraging legacy transmission infrastructure.
- Expand network capacity for Mobile Broadband new services.
- Facilitate evolution to IP-RAN, reducing migrations costs
- Maximize ROI time frames – often measured in just months.



STRATEGIC OR TACTICAL UTILIZATION OF OPTIMIZATION TECHNOLOGIES ACROSS LEGACY TDM 2G OR 3G RADIO ACCESS NETWORKS ENSURES A CONTROLLED AND EFFICIENT TRANSITION TO 3G/4G IP-RAN. THE SOLUTION ALSO MAXIMIZES PRECIOUS CAPEX BUDGETS WHILE SAFE-GUARDING EXISTING REVENUE STREAMS AND ENABLES EARLY DEPLOYMENT OF MOBILE BROADBAND SERVICES.

Memotec's CX-UA1100 Series is a modular cellular backhaul platform delivering 2G/3G Radio Access Network (RAN) aggregation and traffic optimization.

Deployed at the BSC/RNC hub locations and aggregation points across the RAN, the CX-UA1100 Series enables mobile operators to optimize and aggregate traffic, and free up capacity to allow for quick deployment of new services over their existing network, without costly upgrades, and at a lower cost.

**Comprised of 3 product variants, all enclosed in a 1U rack chassis with optional system 1+1 redundancy, the CX-UA1100 Series includes:**

- Access Gateway: supports up to 32 x E1s; (platforms CX-UA1116 and CX-UA1132)
- Aggregation Node: supports up to 48 E1s and processing capacity up to 64 E1s/VC12s Abis/lub; (platforms CX-UA1200, CX-UA1216 and CX-UA1248)
- Hub Node: supports processing capacity up to 96 VC12s Abis/lub; Support of E1s connectivity (48 ports); (platforms CX-UA1300 and CX-UA1348 (Available upon request))

All platforms support:

- 8 GE ports (2 available as optical);
- 2 STM-1 ports channelized (126 VC12s) with APS 1+1 protection;
- E1/VC12 cross-connect between all interfaces;
- 3G/4G Data or IP/Ethernet traffic compression up to 400Mbps (200 Mbps for the Access Gateway and Aggregation Node Series);
- Sophisticated clock synchronization capabilities (Line clocks, External clock, IEEE1588, SynchE);

Memotec's CX-UA1100 Series can optimize and aggregate traffic from every type of base station (BTS) available today (2G GSM and CDMA, 3G UMTS/CDMA, 3G/4G IP-RAN), and convert the BTS interface to either Ethernet or TDM backhaul.

Traffic can be aggregated and pushed to the most efficient bearer link available, be it E1, Ethernet (for migration to IP-RAN) or STM-1, or a combination of all of the above (Virtual trunk bundle)

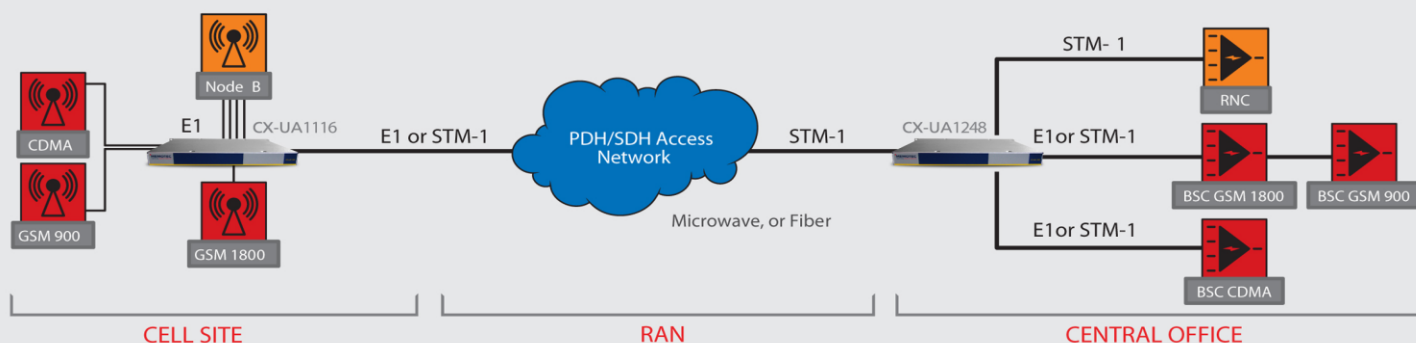
## A FLEXIBLE MIGRATION PATH

Today, the CX-UA1100 series provides the means to efficiently aggregate and optimize 2G/3G/4G traffic over existing SDH/PDH infra-structure, saving BIG CAPEX to Mobile Operators.

The same CX-UA1100 equipment provides also a smooth and seamless migration of 2G or 3G traffic to the IP-RAN and Ethernet backhaul network.

With support for IP/MPLS protocols, Carrier Ethernet interfaces as well as E1 and STM-1 connectivity, the CX-UA1100 is an investment that will accelerate the rollout of Mobile Broadband services and provide benefits for the life of the deployment.

## 3G Aggregation and Abis Payload Optimization



## INTERFACES

<b>Digital E1</b>	unframed, fractional, channelized TDM	<b>Synchronous Ethernet</b>	100/1000 Mb/s, RJ 45 or SFP plug-in module
<b>E1 line type</b>	G.703/G.704 with or without CRC4 & MF	<b>STM-1 SDH channelized VC12 interface (63 VC12s), with APS 1+1 protection, SFP connector</b>	
<b>E1 encoding</b>	HDB3, AMI, NRZ, NRZI, 75 or 120 Ohms	<b>RS232 Serial craft interface</b>	
<b>NFAS, AIS and RDI bits/alarm relay</b>		External USB port configuration and data storage key	
<b>E1 Balanced 120 Ohms or unbalanced 75 Ohms with adaptation cables (VHDCI connector)</b>		External clock input and output (BNC) with optional GPS/GLONASS clock antenna feed;	

E1 interfaces may be used as either trunk, connecting to NodeB, CDMA or GSM BTS, or bearer, connecting to the RAN transmission network.

**Synchronous Ethernet interfaces are available to support IP RAN or IP/Ethernet based transmission equipment.**

**STM-1 optical/electrical interfaces are available as option in lieu of E1s if the E1 ports are already aggregated via ADM (freeing up E1 port capacity for trunk or bearer support).**

**E1, STM-1 and Ethernet interfaces can be combined as one virtual trunk bundle, with load-sharing and link protection between the different interfaces;**

Platforms	E1 Port	E1/VC12 cPWE	E1/VC12 Abis/Ater	E1/VC12 ATM IMA (Option)	E1/VC12 MLPPP	IP/Data Compression	CXPress Module	STM-1 Option	Power Consumption Base	Max.
<b>CX-UA 1116</b>	16	Up to 32	Up to 32	up to 48	8	Up to 200 Mbps	No	Yes (2+2)	34	46
<b>CX-UA 1132</b>	32	Up to 32	Up to 32	up to 48	8	Up to 200 Mbps	No	Yes (2+2)	38	50
<b>CX-UA 1200</b>	0	Up to 64	Up to 64	up to 48	16	Up to 200 Mbps	Yes (1)	Inc. (2+2)	42	50
<b>CX-UA 1216</b>	16	Up to 64	Up to 64	up to 48	16	Up to 200 Mbps	Yes (1)	Yes (2+2)	36	54
<b>CX-UA 1248</b>	48	Up to 64	Up to 64	up to 48	16	Up to 200 Mbps	Yes (1)	Yes (2+2)	42	62
<b>CX-UA 1300</b>	0	Up to 96	Up to 96	up to 96	64	Up to 400 Mbps	Yes (2)	Inc. (2+2)	50	62
<b>CX-UA 1348*</b>	48	Up to 96	Up to 96	up to 96	64	Up to 400 Mbps	Yes (2)	Inc. (2+2)	62	74

(\*) Note: Available on request only;

All platforms are equipped with 8 ports GE interface (6 electrical RJ45 and 2 with SFPs), USB port, RS232 craft interface, External clock input and output (BNC)

All platforms are available with a choice of AC (model AC) or DC power (Model DC) supply, dual feeds. DC power supply can be ordered as redundant on option

All platforms are available with 1+1 redundancy as option (need to order extra interconnect cables)

### FEATURES AND CAPABILITIES

#### IP/Ethernet

- Electrical and optical Synchronous Ethernet
- Ethernet bridging [support of 802.1p/q VLANs]
- Ethernet bundling (802.3ad)
- Carrier Ethernet interface OAM (\*)
- IP static routing
- Option: UDP/IP header compression
- Option: IP/Data traffic payload lossless compression

#### Multi-service Compressed Pseudowire (cPWE)

- ATM E1/VC12 pseudowire (with support for IMA)
- HDLC pseudowire
- VLAN pseudowire
- TDM compressed pseudowire (proprietary CESoP)
- Option: ATM/IMA E1/VC12 statistical multiplexing and cell compression processing

#### Abis

- Supports GSM FR, EFR, HR and AMR codecs
- Transparent GSM codec speech frame forwarding
- IDLE and silence suppression
- HDLC signaling frame extraction and forwarding
- Dynamic Abis map interface auto-configuration
- TRX channels usage real-time monitoring
- Signaling/Voice/Data traffic prioritization

#### TDM

- Non-blocking VC12 drop and insert support between E1 and STM-1 interfaces
- APS 1+1 on STM-1 SDH interfaces
- E1 alarms: red, yellow, near/far end LOS, LOF, AIS, RDI
- E1 interface test loop (L1, L2, L3)

#### WAN Trunking

- E1/VC 12 trunking (MLPPP with proprietary IP header compression)
- MPLS protocol (\*)
- Ethernet trunking (802.3ad)
- Virtual trunk bundling (Ethernet and E1 or VC12 mix)
- Port protection
- Support QoS (ToS/DiffServ) and Traffic prioritization

#### MANAGEMENT

- Operator GUI Node Manager (EMS), with configuration, alarm status and real time performance monitoring;
- CLI interface with ASCII script file generation;
- Open standard SNMP NMS platform, including:
  - SNMP alarms trap forwarding (Northbound interface),
  - Network map status display,
  - Alarm Management, and,
  - 24 hours /15mn bucket performance monitoring graphical display with up to 30 days history;
- Operate on standard Windows PC or Server rack mount platform;
- Abis and Bearer interfaces detailed alarms and dedicated performance monitoring KPIs
- Secured in-band node management (IP based)
- Secured remote software upgrade with fallback mode

#### SYNCHRONIZATION

- ETSI PDH ITU-T G.823/G.824 and ETSI SDH SEC / ITU-T G.813/G.825 clock synchronization compliant
- Nx8KHz, 10MHz, 2.048 MHz, and 2.048 Mbps G.703 external clock reference input
- 8 KHz, 2.048 MHz, and 2.048 Mbps G.703 clock reference output
- Line synchronization (STM-1, or E1 interface, and Ethernet SynchE), multiple input choice with automatic protection and up to 3 clock domains (model dependant)
- Optional IEEE1588 module synchronization (\*)
- Optional GPS/GLONASS synchronization (\*)

#### ENVIRONMENTAL

- Input power: DC -40V to -60V DC
- Input power AC: 90-264 VAC with 47-63 Hz
- Operating temp: 0° to 50° Celsius
- Storage temp: -40° to +80° Celsius
- Operating humidity: 0 to 95% non-condensing
- Dimension: 1U rack mount chassis 1.70"H 17"W 12.08"D (4.32cm H 43.20cm W 30.68cm D)

#### APPROVALS

- Safety: EN 60950 - 1 [2006 ] and A11
- EMC: EN 55022 [2006] and A1, EN 55024 [1998] and A1, A2

#### PATENTS

- Chinese Patent no: ZL 03821660.4
- United States Patent no: 7,072,296 & 7,720,094 & 7,929,907
- European Patent Application no: 03767118.7

(\*) Future release: check roadmap