

# AudioCodes Enterprise Session Border Controller (E-SBC) Products

## Mediant™ 1000 Enterprise Session Border Controller (E-SBC)



### ABOUT AUDIOCODES

AudioCodes Ltd. (NasdaqGS: AUCD) designs, develops and sells advanced Voice over IP (VoIP) and converged VoIP and Data networking products and applications to Service Providers and Enterprises. AudioCodes is a VoIP technology leader focused on VoIP communications, applications and networking elements, and its products are deployed globally in Broadband, Mobile, Cable, and Enterprise networks. The company provides a range of innovative, cost-effective products including Media Gateways, Multi-Service Business Gateways, Residential Gateways, IP Phones, Media Servers, Session Border Controllers (SBC), Security Gateways and Value Added Applications. AudioCodes underlying technology, VolPerfectHD™, relies primarily on AudioCodes leadership in DSP, voice coding and voice processing technologies. AudioCodes High Definition (HD) VoIP technologies and products provide enhanced intelligibility, and a better end user communication experience in emerging Voice networks.

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- A highly integrated device for VoIP, Data, Security & Access, forming a single managed point of demarcation
- Based on three core foundations: Perimeter Defense, Mediation and Service Assurance
- Standards-based solution with proven interoperability
- Software license scalability up to 150 secured SBC VoIP sessions.
- Encryption for communication privacy and prevention of eavesdropping
- Transparent communication for mobile users
- Survivability with PSTN Failover
- IP-to-IP protocol normalization and media transcoding
- Proven Voice Quality superiority
- Media Processing for Transcoding, Gain Control, DTMF/FAX, etc.
- Extensive filtering and admittance policies
- Embedded BroadSoft PacketSmart agent for QoE lifecycle management

**AudioCodes' Mediant 1000™** Enterprise Session Border Controller (E-SBC) is a member of AudioCodes family of Enterprise Session Border Controllers, enabling connectivity and security between enterprises and Service Providers' VoIP networks.

The Mediant 1000 E-SBC provides Perimeter Defense as a way of protecting companies from malicious VoIP attacks; mediation for allowing the connection of any PBX and/or IP-PBX to any Service Provider; and Service Assurance for service quality and manageability. Designed as a cost effective appliance, the Mediant 1000 E-SBC is based on AudioCodes' Mediant 1000 Multi-Service Business Gateway (MSBG), which combines AudioCodes' field-proven VoIP and network services with a native host processor, allowing the creation of purpose-built, multi-service appliances with integrated quality of service, SLA monitoring, security and manageability. The native implementation of SBC functions on the Mediant 1000 Multi-Service Business Gateway provides a host of additional capabilities that are not possible with standalone SBC appliances, such as VoIP mediation, PSTN Access, data routing, WAN access, data security, survivability, and third party value-added services applications. This enables enterprises to utilize the advantages of converged networks and eliminate the need for standalone appliances.

### WHY ENTERPRISE SESSION BORDER CONTROLLERS?

Session Border Controllers were traditionally deployed at the border of service provider core networks. Both Enterprises and Service Providers have now realized the essential need of enterprise-based session border controllers, located at the customer premises for addressing the security, mediation and SLA requirements of the Enterprise. The Mediant 3000 E-SBC provides an open and flexible architecture for all Enterprise deployments, acting as the demarcation point between an Enterprise and a SIP Trunking provider, an enterprise and a hosted Unified Communication service provider or an enterprise and other organizations for direct VoIP calling.

### ENTERPRISE SESSION BORDER CONTROLLER AND SECURITY SERVICES

AudioCodes' Mediant 1000 E-SBC is designed as a secured VoIP and data platform. Enhanced Media Gateway security features include encryption schemes, such as SRTP for media, TLS for SIP control, and IPSec for management. A fully featured Enterprise-class Session Border Controller provides a secured voice network deployment, based on the embedded Back-to-Back User Agent (B2BUA). Data Security functions include an integrated Stateful Firewall, IDS/IPS, and SSL for remote user access and site to site VPN.

### INTEGRATED PSTN CONNECTIVITY

The Mediant 1000 E-SBC is based on a highly interoperable Media Gateway, which supports a mix of 1-4 E1/T1/J1 Spans, 4-20 BRI lines and 4-24 Analog FXS/FXO interfaces. Enhanced dialing plans and voice routing capabilities along with SIP to SIP mediation, allow Enterprise customers to enjoy the benefits of SIP Trunking services and IP-based Unified Communications, as well as flexible PSTN and legacy PBX connectivity.

### LAN, DATA ROUTING AND WAN ACCESS

The Mediant 1000 E-SBC offers data routing capabilities by providing static routing and dynamic routing protocols such as RIP/OSPF and BGP. In addition, the Mediant 1000 E-SBC supports a selection of WAN interfaces such as 10/100/1000Base-T, 1000Base-SX/LX, T1 DSU/CSU, SHDSL, ADSL2+ and E1 DSU/CSU, providing extensive flexibility in connecting to Service Providers networks.



# Mediant™ 1000 Enterprise Session Border Controller (E-SBC)

## VAST MEDIATION CAPABILITIES AND PROVEN INTEROPERABILITY

In a world of growing choices of voice coders and SIP flavors, enterprises and services providers alike must ensure interoperability for successful integration and service delivery. The Mediant 1000 E-SBC, with its extensive media processing capabilities, supports a wide range of voice coders with the ability of transcoding between narrowband and wideband voice coders, including SIP normalization, fax handling, gain control and numerous additional media processing features.

As a direct evolution of the field-proven and highly interoperable Mediant family of VoIP media gateway, the Mediant 1000 E-SBC provides unparalleled interoperability, enabling mediation between an extensive list of IP and TDM PBXs and SIP Trunking providers.

## QUALITY OF SERVICE (QoS) AND QUALITY OF EXPERIENCE (QoE)

AudioCodes Mediant 1000 E-SBC supports enhanced IP Quality of Service (QoS) enforcement and Quality of Experience (QoE) Monitoring. Leveraging a BroadSoft PacketSmart embedded agent - a SaaS-based lifecycle management solution, the Mediant 1000 E-SBC enables service providers and multi-site enterprises to assess networks, certify VoIP deployments, and measure, monitor, track, and help optimize the QoE of their VoIP services. The PacketSmart solution is either offered as a public cloud service or within the customer's data center in a private cloud deployment. AudioCodes' Mediant 1000 E-SBC also supports enhanced IP Quality of Service (QoS), including Ethernet frame tagging (802.1P), IP packet marking (Diffserv), and traffic shaping.

## SURVIVABILITY SERVICES

Customers served by a centralized, SIP-based IP Centrex server or branch offices of distributed enterprises may face service discontinuities in case of WAN failure. The integrated SAS (Stand Alone Survivability) feature of the Mediant 1000 E-SBC enables internal office communication between SIP clients (e.g. IP Phones), along with PSTN fallback, in case of disconnection from the centralized IP Centrex server or IP-PBX.

## VALUE-ADDED SERVICES BY AN OPEN PLATFORM FOR 3RD-PARTY APPLICATIONS

AudioCodes' Mediant 1000 E-SBC extends the flexibility of a standalone SBC with the built-in Open Solution Network (OSN) server option (based on an Intel processor). Independent Software Vendors and OEM customers can utilize this integrated, general purpose server to host their own applications (e.g., IP-PBX, IVR, Call Center, Conferencing, and more). In addition, an advanced, on-board DSP Resource Farm enables the implementation of narrowband as well as wideband/High Definition VoIP (HDVoIP) media processing services, such as announcements, recording, IVR, conferencing and transcoding, all controlled by standard protocols (e.g., SIP and MSCML). Utilizing AudioCodes dedicated DSP resources enables robust and predictable voice performance, as compared to typical software implementations, based on general purpose CPU's.

## APPLICATIONS

### SIP TRUNKING SOLUTION

Using the Mediant 1000 E-SBC, enterprise customers can seamlessly migrate from legacy PSTN connectivity to cost-effective SIP Trunking Services. The Mediant 1000 E-SBC provides security, session mediation and service level assurance services, connecting the enterprise to multiple SIP Trunking providers, while maintaining interoperability and manageability.

### CONTACT CENTER SOLUTION

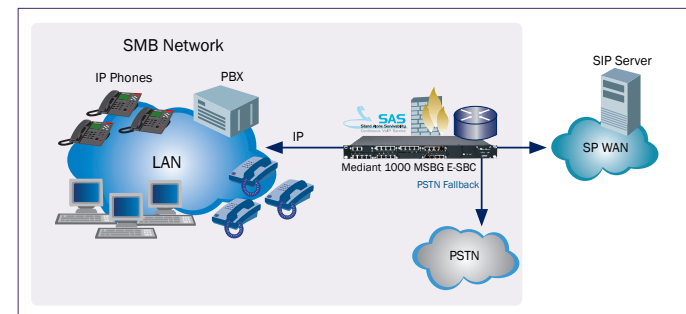
Contact Centers place the SIP Application Server in the LAN, with SIP User Agents deployed remotely across the WAN. The Mediant 1000 E-SBC monitors these User Agents, and resolves any NAT traversal issues they might face. In addition, with its vast media processing features such as Voice Activity Detection, Answering Machine, Call Progress Tone, and DTMF detections, the Mediant 1000 E-SBC provides support for outbound calling campaigns, utilizing the same hardware resources.

## HOSTED CENTREX SOLUTION

IP Centrex solutions rely on VoIP technology, whose implementation may present significant challenges, especially to businesses without prior VoIP experience. One of the challenges is service continuity during WAN outages. The Mediant 1000 E-SBC, with its Stand Alone Survivability feature, is able to monitor registrations to the SIP Proxy, so that if connectivity is lost the Mediant 1000 E-SBC can continue to serve in both internal and external calling capacities.

## MEDIANT 1000 E-SBC AS A DEMARCATION POINT FOR SERVICE PROVIDERS

As medium Enterprises strive to control their communication operating and equipment costs, outsourcing Voice and Data infrastructure to a Service Provider is becoming an attractive option. The Mediant 1000 E-SBC offers Service Providers, who are delivering hosted and managed communication services, a clear and easy-to-manage demarcation point, combining Secured VoIP, Data Routing and Data Security, WAN Access, Mediation Services, and Service Level Assurance.



## MEDIANT 1000 E-SBC IN ENTERPRISE NETWORKS

Medium Enterprises are motivated to become more productive, efficient, and responsive to their internal users. The convergence of secured voice services, Stand Alone Survivability, Data Routing and Security, WAN Access, Mediation Services and Service Level Assurance, ensures a high level of investment protection, cost-optimization and support for the growing communication needs of the Enterprise.

## BENEFITS FOR SERVICE PROVIDERS

- A highly integrated device for VoIP, Data, Security & Access, forming a single managed point of demarcation
- Extensive interoperability and partnerships that extend across multiple vendor devices and protocol implementations
- Enhanced SIP Mediation capabilities, which enable SIP Trunking in a variety of TDM-PBX and IP-PBX customer environments
- Simplified management & maintenance using a unified management tool
- Assuring standalone survivability at the customer premises during WAN outage
- Quality of Experience (QoE) lifecycle management solution

## BENEFITS FOR BUSINESS CUSTOMERS

- A highly integrated device for secured SIP Trunking and PSTN access, forming a single and managed point of demarcation for VoIP networks
- An integrated VoIP Media Gateway and E-SBC, reducing CAPEX and OPEX, eliminating the need to purchase and deploy different devices and simplifying maintenance and management
- Future-proof solution with the ability to support various SIP Trunking and UC applications
- Multiple service provider connectivity to optimize tariff rates
- Local survivability and PSTN Failover upon WAN network connectivity failures

## SPECIFICATIONS

|   |   |
|---|---|
| <b>Capacities</b>   |   |
| Max Sessions  | Up to 150   |
| Transcoding Sessions  | Up to 60  |
| <b>Interfaces</b>   |   |
| PSTN Modularity and Capacity  | Voice interface: the Mediant 1000 is equipped with 6 Slots for hosting voice processing and PSTN termination modules (up to 120 TDM-VoIP channels per Gateway)  |
| Digital Module  | 1, 2 or 4 E1/T1/J1 spans per module using RJ-48c connectors with an option of PSTN Fallback   |
| Analog Module   | 4 ports FXO or FXS per module using RJ-11 connectors, ground start and loop start   |
| BRI Module  | 4 BRI ports (8 calls) per module, network S/T interfaces. NT or TE termination  |
| Media Processing Module   | Support Media processing options of up to 60 Conferencing legs (3 way or N-way), play, record to IP or PSTN   |
| <b>Networking Interfaces</b>  |   |
| WAN   | 10/100/1000Base-T, 1000Base-SX/LX, T1 DSU/CSU, SHDSL*, ADSL2+*, E1 DSU/CSU*   |
| LAN   | 3 ports 10/100/1000Base-T   |
| <b>OSN Server Platform</b>  |   |
| Single Chassis Integration  | Embedded, Partner Application Platform for third party services   |
| CPU   | Multiple options  |
| Memory  | 1G RAM or 2G RAM  |
| Storage   | Single/Dual hard disk drives  |
| Interfaces  | 10/100/1000Base-T, USB, VGA, RS-232 Security  |
| <b>Security</b>   |   |
| Access Control  | White/Black Lists, Denial of Service protection   |
| VoIP Firewall and deep packet inspection  | RTP pinhole management according to SIP offer/answer model. Service theft protection by preventing rogue RTP*   |
| Encryption and Authentication   | TLS, SRTP, HTTPS, SSH, IPsec, IKE, SNMPv3, Client Side Authentication, RADIUS   |
| Privacy   | Topology Hiding, User Privacy   |
| Traffic Separation  | Physical or VLAN Interface Separation (Media/OAM/Control)   |
| <b>Interoperability</b>   |   |
| SIP   | Standalone SIP B2BUA, Netann (RFC4240), MSCML (RFC5022) or RFC 4117 transcoding device control<br>Full SIP transparency, mature & broadly deployed SIP stack  |
| ITSP and PBX support  | Interoperable with many SIP trunk Service Providers and PBX vendors   |
| Transport Mediation   | SIP over UDP to SIP over TCP or SIP over TLS, IPv4 to IPv6*, RTP to SRTP  |
| Header Manipulation   | Programmable header manipulation. Ability to add/modify/delete headers  |
| URI and Number manipulations  | URI User and Host name manipulations. Ingress & Egress Digit Manipulation   |
| Hybrid PSTN mode  | Connect to TDM PBXs or PRI/CAS trunks for least-cost routing or fallback. Also useful for gradual enterprise migration to SIP. Support for analog and T1/E1/J1  |
| Transcoding and Vocoders  | Coder normalization, including: transcoding, coder enforcement and re-prioritization. Extensive vocoder support:<br>Wireline: G.711a/mu, G.723.1, G.726, G.727, G.729A/B/E, EG.711, Wireless: GSM-FR, GSM-EFR, MS-GSM, AMR, iLBC, EVRC, QCELP, Wideband: G.722, AMR-WB* |
| Signal Conversion   | DTMF/RFC2833, Inband/T.38 Fax, Packet-time Conversion   |
| NAT   | Local and Far-End NAT Traversal for support of remote workers   |
| Signal Detection  | Fixed & Dynamic Gain Control, DTMF/RFC2833, Packet-time conversion  |
| <b>Voice Quality and SLA</b>  |   |
| Call Admission Control  | Deny excessive calls based on session establishment rate, number of connections and number of registrations (per SIP trunk or routing domain)   |
| Packet marking  | 802.1p/Q VLAN tagging, DiffServ, TOS  |
| Intelligent Voice Prioritization  | Multiple queues for granular prioritization of VoIP over other non-real time traffic types, Integrated Queuing and scheduling schemes (Strict Priority, Class based queuing, fairness)  |
| Stand Alone Survivability   | Maintain local calls in the event of WAN failure. Outbound calls use PSTN Fallback for external connectivity (including E911)   |
| Impairment Mitigation   | Packet Loss Concealment, Dynamic Programmable Jitter Buffer, Silence Suppression/Comfort Noise Generation, RTP redundancy, broken connection detection  |
| Gain control  | Fixed & dynamic voice gain control  |
| Media Anchoring   | Hair-pinning of local calls to avoid unnecessary media delays and bandwidth consumption   |
| Integrated BroadSoft PacketSmart™ SLA Monitoring and VoIP Troubleshooting* (Optional) | Full QoS Monitoring (Jitter, Packet Loss, Delay and MOS), full lifecycle management and troubleshooting   |
| <b>SIP Routing</b>  |   |
| Routing Methods   | Request URL, Source/Destination IP Address, Fully Qualified Domain Name, ENUM*  |
| Alternative Routing and load balancing  | Detect proxy failures and route to alternative proxies. Load balance across a pool of proxies   |
| <b>Data Routing (Optional)</b>  |   |
|   | DHCP/PPPoE/L2TP/PPTP client towards WAN; DHCP server towards LAN, VLAN, Layer 3 routing, Internal layer 2 switching, Static and dynamic routing (RIP1, RIP2, OSPF, BGP)   |
| <b>Physical / Environmental</b>   |   |
| Enclosure   | 1U chassis  |
| Dimensions  | 1U x 320mm x 345mm (HxWxD)  |
| Weight  | Approx. 5.95lb (2.7kg) loaded with OSN  |
| Power   | 100-240 V AC power feeds  |
| <b>Regulatory Compliance</b>  |   |
| Telecommunications  | TIA/EIA-IS-968 (FXO, T1) interface, ETSI ES203 021 (FXO interface), TBR-4 (ISDN over E1 interface), TBR13/13 (E1 lines)   |
| TBR-3 (BRI interface)   |   |
| Safety and EMC  | IEC60950-1, UL60950-1, FCC Part 15 Class A, EN55022 Class A, EN55024, EN300 386   |
| Environmental   | Storage: ETS300019-2-1 class T1.2<br>Transportation: ETS300019-2-2 class T2.3<br>Operating: ETS300019-2-3   |

\*Roadmap