## About AudioCodes

AudioCodes Ltd. (NasdaqGS: AUDC) 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 market leader focused on converged VoIP & data communications and its products are deployed globally in Broadband, Mobile, Enterprise networks and Cable. The company provides a range of innovative, cost-effective products including Media Gateways, Multi-Service Business Routers, Session Border Controllers (SBC), Residential Gateways, IP Phones, Media Servers and Value Added Applications. AudioCodes' underlying technology, VoIPerfectHD™, relies 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 Voice communications.


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AudioCodes CPE & Access Gateway Products

# Mediant™ 1000 MSBR

### Benefits for Service Providers

- A highly integrated device for VoIP, Data, Security & Access forming a single managed point of demarcation
- SIP Mediation enabling SIP Trunking in a variety of IP-PBX environments
- Simplified management & maintenance using a unified management tool
- Service survivability and high availability
- Quality of Experience (QoE) management solution

### Benefits for Businesses Customers

- "All-in-one" box reducing CapEx and OpEx, simplifying maintenance and management
- Smooth connectivity to cloud services
- Enhanced Voice and Data Security based on an embedded Enterprise-Class Session Border Controller and Firewall
- SIP mediation for flexible SIP Trunking service
- Multiple service provider connectivity to optimize tariff rates
- Ready for hosting IP-PBX and office Value Added Services for increased productivity

### Benefits for OEM and Value Added Services developers

- An integrated and compact platform ready for hosting a variety of business applications
- Solving interoperability and integration "pains" with Media Gateways, Media Servers, SBCs, Routers, etc.
- Built-in SIP-controlled media processing resource for advanced voice applications (Conferencing, Streaming, etc.)
- Embedded SIP mediation and transcoding enabling SIP trunking services
- Enhanced Voice and Data Security

### Product Highlights

- A direct evolution of the field-proven and highly interoperable Mediant 1000™ VoIP media gateway
- Enterprise-Class Session Border Controller
- IP-to-IP Protocol normalization and Media transcoding
- Full Data security suite including Firewall, IDS/IPS, VPN & SSL
- Integrated Router
- Advanced Media Processing Module and generic application processor
- Embedded BroadSoft PacketSmart agent for QoE lifecycle management

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# Multi-Service Business Router

The **Mediant™ 1000 MSBR** is an all-in-one multi-service access solution for Service Providers offering managed services and distributed Enterprises. This multi-service business router is designed to provide converged Voice & Data services for business customers at wire speed, while maintaining SLA parameters for superior voice quality.

The Mediant 1000 MSBR is based on AudioCodes' VoIPerfect best-of-breed Media Gateway technology, combined with Enterprise class Session Border Controller, Data & Voice security elements, Data Routing, LAN Switching and WAN Access. These services allow smooth connectivity to cloud services.

### Best-of-Breed Enterprise Class Media Gateway

The Mediant 1000 MSBR 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.

### Data Routing and WAN Access

The Mediant 1000 MSBR offers Data Routing capabilities by providing static routing and dynamic routing protocols such as RIP/OSPF and BGP. In addition, the MSBR supports a selection of WAN interfaces providing flexibility in connecting to Service Providers.

### SBC (Session Border Controller) and Security Services

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

### Quality of Service (QoS) and Quality of Experience (QoE)

AudioCodes Mediant 1000 MSBR 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 MSBR 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 MSBR also supports enhanced IP Quality of Service (QoS), including Ethernet frame tagging (802.1P), IP packet marking (Diffserv), and traffic shaping.

### Branch survivability, security and QoE for cloud services

With support for the integrated Cloud Resilience Package (CRP) and Standalone Survivability (SAS) features, the Mediant 1000 MSBR facilitates local internal calling and PSTN fallback for making and receiving external calls during WAN interruptions, along with advanced security features and quality of experience (QoE) tools.

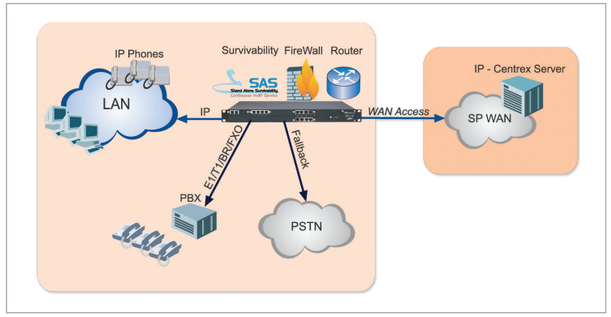
### Value Added Services by an Open Platform for 3rd Party Applications

AudioCodes Mediant 1000 MSBR extends the flexibility of the Multi-Service Business Router 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 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 a more robust and predictable voice performance, as compared to typical software implementations, based on general purpose CPU's.

# Mediant™ 1000 MSBR Multi-Service Business Router

### Mediant 1000 MSBR in Service Provider Networks

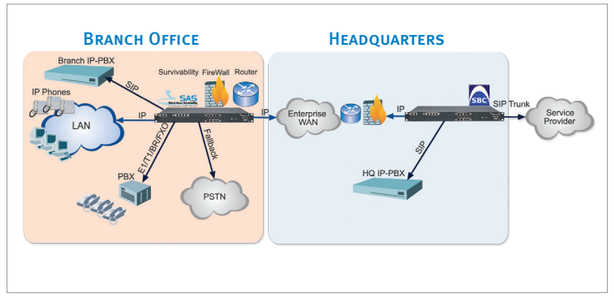
As Enterprises struggle to control their communication operating and equipment costs, outsourcing their Voice and Data infrastructure to a Service Provider is becoming a more attractive option. The Mediant 1000 MSBR offers service providers who are delivering hosted and managed communication services, a clear and easy-to-manage demarcation point, combining Data Routing and Security, WAN Access, integrated Enterrpsie Session Border Controller (E-SBC) and branch survivability.




### Mediant 1000 MSBR in Distributed Enterprise Networks

Enterprises are striving to be more productive, efficient, and responsive to their internal users. The convergence of secured voice services, branch survivability, Data Routing and Security and WAN Access into a branch office's unified platform, enables a high level of protection, cost-optimization and support for the growing communication needs of the Enterprise.

Additionally, the Mediant 1000 MSBR can be utilized at company headquarters, providing a suite of services which include secured SIP Trunking by an Enterprise-class Session Border Controller, a survivable VoIP media gateway and a cost-effective IP-PBX platform.




### Target Applications

- Voice over Broadband (VOBB) and MSOs
- SIP Trunking
- IP Centrex
- Distributed Enterprises

## Specifications

| | |
|---|---|
| **Interfaces** | |
| 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 |
| **Networking Interfaces** | |
| WAN | 10/100/1000Base-T, 1000Base-SX/LX, T1 DSU/CSU*, SHDSL, ADSL2+*, E1 DSU/CSU* |
| LAN | 3 ports 10/100/1000Base-T |
| **OSN Server Platform** | |
| Single Chassis Integration | Embedded, Partner Application Platform for third party services |
| CPU | Intel Pentium M 1.4 GHz, Intel Core 2 Duo |
| Memory | 1G RAM, 2G RAM, 4G RAM |
| Storage | Single/Dual hard disk drives |
| Interfaces | 10/100/1000Base-T, USB, VGA, RS-232 |

*Future Release

| | |
|---|---|
| **Media Processing** | |
| Voice Coders | G.711, G.726, G.727, G.723.1, G.729, GSM FR, MS GSM, iLBC, EG.711, EVRC, QCELP, AMR, GSM EFR, G.722<br>Independent dynamic vocoder selection per channel |
| Echo Cancellation | G.165 and G.168-2002, with 32, 64 or 128 tail length |
| Quality Enhancement | Dynamic programmable jitter buffer, VAD, CNG |
| DTMF/MF Tones | Packetside or PSTN side detection and generation, RFC 2833 compliant DTMF relay<br>Call Progress tones Detection and Generation |
| IP Transport | VoIP (RTP/RTCP) per IETF RFC 3550 and 3551 |
| Fax and Modem Transport | T.38 compliant (real time fax), Automatic bypass to PCM or ADPCM, V.34 |
| **Signaling** | |
| Digital – PSTN Protocols | **CAS**: MF-R1: T1 CAS (E&M, loop start, Feature Group-D, E911CAMA),<br>E1 CAS (R2 MFC), R1.5 numerous protocol and country variants<br>**ISDN PRI**: ETSI/EURO ISDN, ANSI NI2 and other variants (DMS100, 5ESS) QSIG.IUA (SIGTRAN), VN3, VN4, VN6<br>**ISDN BRI:** Support Euro ISDN, VN4/6 or QSIG |
| Analog Signaling | FXS, Caller ID, polarity reversal, metering tones, distinctive ringing, visual message waiting indication, loop start, ground start |
| **Data Routing** | |
| | DHCP/PPPoE/L2TP/PPTP client towards WAN<br>DHCP server towards LAN<br>VLAN<br>Layer 3 routing<br>Internal layer 2 switching<br>Static and dynamic routing (RIP, OSPF, BGP)<br>PPP, HDLC<br>IPv6* |
| **Control & Management** | |
| Control Protocols | SIP-TCP, UDP, TLS and MSCML<br>Cloud Resilience Package or Standalone Survivability for service continuity |
| Operations & Management | AudioCodes' Element Management System<br>Embedded HTTP Web Server, Telnet, SNMP V2/V3, TR-69<br>Remote configuration and software download via TFTP, HTTP, HTTPS, DHCP and BootP, RADIUS, Syslog (for events, alarms and CDRs) |
| **IP/VoIP Quality of Service** | |
| | IEEE 802.1p, TOS, DiffServ<br>IEEE 802.1Q VLAN tagging<br>Shaping, Policing, Queuing, Bandwidth Reservation<br>RTCP-XR Report Publish (RFC 3611) |
| **Security** | |
| Session Border Controller | ▪ SIP Header conversion: • IP to IP Routing translations of SIP, UDP, TCP, TLS<br>• Translation of RTP, SRTP • Support SIP trunk with multi-ITSP (Registrations to ITSPs is invoked independently) • Topology hiding • Call Admission Control • Call Black/White list<br>• Intrusion detection/prevention (NIDS) • Anti SPIT & SPAM mechanisms |
| Data Security | ▪ IPsec, up to 8 links:<br>• ESF – Tunnel mode • Encryption • Authentication • IKE mode – IPsec VPN<br>▪ DoS Protection of: • Fragmented traffic • Malformed Request • Ping of Death • DoS attack<br>• Properly formed request from unauthenticated source • DDoS attack • SYN flood<br>▪ Stateful packet inspection firewall<br>▪ Bad fragment, spoofed connection<br>▪ DMZ Host<br>▪ Port Triggering<br>▪ Packet Filtering<br>▪ Application Layer Gateway<br>▪ SRTP |
| **Hardware Specifications** | |
| Power Supply | 100-240V, 50-60Hz, 1.5A Max, Single (default) or redundant (optional) power supply configurations |
| Physical | 1U high, 19-inch wide |
| **Regulatory Compliance** | |
| Safety and EMC Standards | UL60950-1, FCC 47 CFR part 15 Class B<br>CE Mark (EN55022 Class B, EN60950-1, EN55024, EN300 386, EN61000-3-2/3-3) |
| Telecommunication Standards | TIA/EIA-IS-968, TBR-4, TBR-13 and TBR-21 |
| Environmental Specifications | ETS 300019-2-1 Storage T1.2, ETS 300019-2-2 Transportation T2.3,<br>ETS 300019-2-3 Operating T3.2 |

*Future Release