

# The Ribbon Communications SBC 1000™ Session Border Controller



The Ribbon Communications Session Border Controllers (SBCs) help the world's leading enterprises reduce communications costs, enable Unified Communications (UC), and protect their networks against Internet Protocol (IP)-based attacks. Now small businesses and branch offices can enjoy the same industry leading SBC technology in a right-sized appliance designed specifically for their networks. The SBC 1000 Session Border Controller is an advanced SBC independently verified for performance, delivering robust security features and interoperability between disparate networks. The SBC 1000 configurations are designed for ease of deployment and growth. Both session and port expansion can be remotely enabled via a simple license, eliminating the need for a truck-roll and an on-site technician. The Ribbon SBC 1000 also features a wide range of I/O and call capacities as well as built-in survivability for Microsoft® Skype® for Business, BroadSoft™, and other SIP/TDM/FXx clients, so calls go through even if the wide area network (WAN) goes down.

## System Capabilities

### Sessions

- Maximum number of SIP ↔ SIP calls: 192
- Maximum number of TDM/FXx ↔ SIP calls: 144
- Maximum number of total concurrent calls: 192
- Maximum number of transcoded sessions (based upon codec type): 192
- Maximum number of total concurrent calls associated with Survivable Branch Appliance (SBA): 240

### Call Set-Up

- Maximum call set-up rate: 4 cps

### Registrations

- Maximum number of registered users: 600

### Encryption

- Maximum number of TLS sessions: 192
- Maximum number of SRTP sessions: 192

### Business Continuity

- Bypass relays (PRI ↔ PRI, FXS ↔ FXO) for emergency calls (e.g., 911)
- Site survivability for SIP clients through built-in SIP registrar
- PSTN fallback when WAN is down
- Survivable Branch Appliance (SBA) for Skype for Business and Lync®
- Resilient Branch Appliance for Lync survivability over 3G/4G
- Local survivability with BroadWorks
- Multiple SIP trunking service provider support for redundancy
- ITSP E911 Support
- 911 Call Preemption
- Rapid Ethernet Port Fail-over, to maintain in-progress calls in the event of an Ethernet port or switch problem
- Multiple Spanning Tree Protocol, to prevent network routing loops



## Management Capabilities

### Operations, Administration and Management

- Single, secure, web-based GUI with real-time monitoring
- 3 step Configuration Wizard, for quick provisioning between:
  - SIP trunks ↔ SIP phones, ISDN-based PBXs, and SIP-based PBXs such as the Avaya® Aura® Communication Manager and the Cisco® Unified Communications Manager
  - Microsoft Skype for Business ↔ SIP trunks, ISDN trunks, or FXO ports
- REST-based programmatic interface to remotely manage multiple SBC 1000s
- SNMPv2c/v3 for comprehensive network management using third-party management systems
- Configuration backup and restore; Configuration upload from one site to another; Partial configuration import export through REST
- CDR reporting
- Syslogs for troubleshooting, with support for free Ribbon LX syslog server and log parser tool
- Historical Stats and TCAs

### Authentication

- Local user (User name/password)
- Active Directory®
- RADIUS

## Media Services

- G.711, G.722, G.722.2 (AMR-WB), G.723.1 (5.3 kbps, 6.3 kbps), G.726 (32 kbps), G.729A/B (8 kbps), T.38
- Transcoding
- Video
- T.38 with CNG tone detection
- DTMF/RFC4733; Inband DTMF; SIP INFO/RFC-2833
- Voice Activity Detection (VAD)
- G.168 Echo Cancellation with standard 128 ms tail length
- Comfort noise generation and packet loss concealment
- Automatic call type detection – voice, fax or modem
- Music on-hold
- Generate call progress tones – ringback, busy, re-order
- RTP inactivity monitoring (dead call detection)
- RTP pass-through and media bypass
- RTCP/RTCP-XR
- Caller ID support

## Signaling

- Maximum number of signaling groups: 100
- TDM Signaling (ISDN): AT&T 4ESS/5ESS, Nortel DMS-100, Euro ISDN (ETSI 300-102), QSIG, NTT InsNet (Japan), ANSI National ISDN-2 (NI-2)
- TDM Signaling (CAS): T1 CAS (E&M, Loop start); E1 CAS (R2)
- Back-to-Back User Agent (B2BUA)
- SIP (UDP/TCP/TLS) to/from SIP (UDP/TCP/TLS)
- SIP (UDP/TCP/TLS) to/from CAS/PRI/BRI/FXS/FXO
- CAS/PRI/BRI/FXS/FXO to/from CAS/PRI/BRI/FXS/FXO
- SIP Message Manipulation (SMM)
- FXS long loop support (up to 3km)

## Protocol Support

- SNMPv2c, SNMPv3
- NTP
- HTTPS
- RTP/RTCP, SRTP/SRTC
- SIP over UDP, TCP, TLS
- DNS
- IPv4, IPv6, and IPv4/IPv6 interworking
- RIPv2, OSPF as dynamic IP routing protocols
- DHCP server
- DHCP client
- Asynchronous DNS for SIP
- NAT
- Support for Reason Header

## Routing/Policy

- Maximum number of call route entries: 1,000
- Active Directory/LDAP-based call routing
- Routing based on quality metrics
- Least cost routing
- Event-based action set

- On-board call forking (up to eight end points)
- Supplementary services
- Call hold
- Call transfer (blind & assisted)
- Call forward
- Embedded policy/routing engine
- Optional centralized policy/routing via Ribbon Centralized Policy Server (PSX Server) using SIP
- Screening, blocking, routing, presentation, call type filters
- Route prioritization
- Leading digit routing; International routing; URI-based routing
- Digit manipulation (name/number manipulation using regular expression and Active Directory lookup)
- One number fax support (single DID for voice and fax)
- SIP routing
- Based on source and destination IP address
- Fully Qualified Domain Name (FQDN)
- Detect proxy failure and route to alternate paths
- Re-route on failure based on full Cause Code re-routing on T1/E1 trunks
- Lync E911 support; SIP/PIDF-LO passthrough and ELIN Gateway

## Security

- TLS 1.2 for signaling encryption
- Secure RTP (SRTP) for media encryption
- Built-in VoIP firewall
- Microsoft Windows® firewall for Application Solution Module to manage Lync SBA
- Topology hiding; User privacy
- Prevention of Denial-of-Service (DoS) and Distributed DoS (DDoS) attacks
- Dialed Number Identification Service (DNIS), Calling Line Identification (CLID), Call type pre-authentication
- Traffic separation (VLAN interface separation)
- Malformed packet protection
- Access Control Lists (ACLs)
- IPsec VPN tunnel
- NAT/NAPT and port forwarding, NAT traversal
- Duplicate IP detection on ASM/SBA
- 2 GB on-board eUSB memory for secure Active Directory replication

## Quality of Service (QoS)

- Bandwidth management
- Call Admission Control (CAC) (deny excessive calls based on static configuration for bandwidth management)
- P-time mediation for rate limiting
- Per-call statistics
- Diffserv/DSCP marking

## Packet Network Time Source

- Network Time Protocol (NTP) per RFC1708

## Microsoft Skype for Business Support

- Qualified as a Survivable Branch Appliance (SBA) for Microsoft Lync 2010, Lync 2013, and Skype for Business deployments
- Qualified as an Enhanced Gateway for Lync 2013, Lync 2010 & Skype for Business deployments
- Lync 2013 and Lync 2010 qualified for SBC and E-911 ELIN Gateway
- Microsoft Office 365® Exchange Unified Messaging qualified
- Non-Lync SIP client user state reporting (e.g., presence, user busy, etc.) to Lync clients
- Microsoft SCOM support
- Lync Quality of Experience (QoE) monitoring collects call RTP stream data and sends to Lync QoE server
  - Round Trip Delay
  - Jitter (max, mean)
  - Packet Loss (max, mean)
  - Packet Loss Rate (max, mean)
  - Burst (density, gap density)
  - MOS-LQ, MOS-CQ
  - Signal/Noise Level
- Skype for Business SDN API 2.2 support
- Integration with PeterConnects® Attendant, Directory, and Manager/Assistant (for SBA clients)
- Integration with Nectar Unified Communications Management Platform (UCMP)
- Integration with Event Zero UC Commander™ (for SBA clients)

## Server Module

### Memory

- 8 GB of DDR4 with ECC (Error-Correcting Code) CPU
- Intel® Pentium® Processor: Broadwell family, dual core, 4 threads, 2.20 GHz

### Storage

- 256 GB SSD

### Capabilities

- Maximum number of Microsoft Skype for Business/ Lync users associated with the Survivable Branch Appliance: 1000
- Maximum number of concurrent calls deployed as Microsoft Skype for Business/Lync Survivable Branch Appliance: 240
- Validated as interoperable with BroadWorks Release 19.sp1 and compatible with BroadWorks Releases 18.0, 18.sp1, 19.0 SIP interface
- 2 Microsoft Hyper-V® enabled VOSEs (Virtual Operating System Environments) to support hosting of 3rd party applications (Windows Server 2012 R2 only)

### Operating System

- Microsoft Windows Server® 2012 R2, Windows Server 2008 R2

## Additional Hardware Specifications

### Front Panel

- Status Indicators Front Panel LEDs
  - Power
  - Alarm
  - Peer Node
  - Ready
- Dual USB 2.0 interface for main SBC board
- Additional dual USB 2.0 ports for ASM (optional)
- WAN and LAN Interfaces
  - 3 x 10/100/1000 BASE-T Ethernet ports with VLAN support
  - Additional 10/100/1000 BASE-T Ethernet port for ASM (optional)
  - Auto-MDIX
- Physical PSTN Interfaces
  - Up to 2 T1/E1 CAS/PRI digital ports

### Rear Panel

- Physical PSTN Interfaces
  - Up to 2 T1/E1 CAS/PRI digital ports
  - Up to 12 BRI digital ports
  - Up to 24 FXS (Foreign eXchange Station) analog ports
  - Up to 12 globally compliant FXO (Foreign eXchange Office) analog ports, 24 under special arrangement

### Chassis

- 1U, rack mount
- Inches: 17.5" wide x 1.75" high x 12" deep
- Centimeters: 44.4 wide x 4.4 high x 30.5 deep
- 2 GB on-board eUSB

### Chassis Mounting Options

- EIA-standard 19" equipment rack with 2 or 4 posts

### AC Power Option

- Input Voltage: 100-240 VAC nominal, auto-switching, 47-63 Hz
- AC Maximum Input Current: 1.25A at 115 VAC; 0.63A at 230 VAC
- AC Input Voltage Range (Nominal): 100-127 VAC and 200-240 VAC
- Max Power Consumption: 144 W

### Cooling System

- Internal forced convection

### Weight Maximum Fully Populated

- 12.5 lbs. (5.67 kg)

### Environmental

- 5 to 40° C Operating
- -40 to 70° C Storage
- 5 to 85% non-condensing operating humidity

## About Ribbon Communications

Ribbon is a company with two decades of leadership in real-time communications. Built on world class technology and intellectual property, Ribbon delivers intelligent, secure, embedded real-time communications for today's world. The company transforms fixed, mobile and enterprise networks from legacy environments to secure IP and cloud-based architectures, enabling highly productive communications for consumers and businesses. With locations in 28 countries around the globe, Ribbon's innovative, market-leading portfolio empowers service providers and enterprises with rapid service creation in a fully virtualized environment. The company's Kandy Communications Platform as a Service (CPaaS) delivers a comprehensive set of advanced embedded communications capabilities that enables this transformation.

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