

Communication Server 1000

At the core of the Virtual Enterprise

Technical Brief



**Communication
Server 1000E**

Nortel Networks Communication Server 1000 (CS 1000) is a full-featured IP-distributed communications system that delivers the benefits of network convergence and collaborative communications to today's increasingly "Virtual" Enterprise environments.

CS 1000 is a highly scalable communications platform with built-in reliability and survivability that can be distributed across IP LAN and WAN infrastructures. Core system components include three primary elements:

- **CS 1000 Call Server** provides reliable call and connection management service. It controls the system software and is capable of supporting up to 15,000 IP clients per server, as well as supporting geographically redundant configurations to ensure business continuity.
- **Signaling Server** performs important call control services such as registration of IP terminals, IP address translation and bandwidth control. It streamlines the network dialing plan and simplifies the scalability and management of CS 1000 networks.
- **Enterprise Media Gateways** support a complete range of analog and digital line and trunk interfaces across LAN or WAN infrastructures.

CS 1000 supports a broad portfolio of business-critical applications including unified messaging, centralized management, web-based contact center applications, SIP-based multimedia services and over 600 world-class telephony features designed to keep your enterprise competitive. As anytime, anywhere business communications becomes the norm, CS 1000 delivers service ubiquity through a diverse portfolio of adaptive IP client devices as well as analog and digital telephones.

	CS 1000S	CS 1000M	CS 1000E
Call Server			
Call Server Capacity	1,000 IP users	15,000 IP users	15,000 IP users
Port Capacity	1,248	16,500	16,500
Operating System	VxWorks 5.4 from WindRiver Systems Inc.		
CPU/Memory	M 68040 Call Processor; 48 MB Flash; 32 MB DRAM	Redundant CP PII Call Processor; Flash not required; 256 MB DRAM	
Mass Storage Media	Flash ROM Integrated with CPU software delivery via PCMCIA card	Redundant Multimedia Disk Unit with one 3.5" 1.44 MB floppy disk drive; One 6 GB hard disk drive with CD-ROM	
Traffic CCS at P.01 GoS	5,000 CCS	75,000 CCS	75,000 CCS
Busy Hour Call Completions*	20,000 BHCC TDM calls 240,000 BHCC IP calls	315,000 BHCC TDM calls 240,000 BHCC IP calls	315,000 BHCC TDM calls 240,000 BHCC IP calls
* BHCC ratings are nominal only; actual capacity is dependent on site configuration and application features.			
Maximum Number of IP Telephones	1,000	15,000	15,000
Maximum Number of Digital Telephones	480	16,000	3,000
Maximum Number of Analog Telephones	480	16,000	3,000
Call Control APIs Supported	TAPI	TAPI	TAPI
Software Features	Over 650 features including: 6 Party Conference (62 Party Conference with Integrated Conference Bridge), Attendant Recall, Automatic Busy Redial, Call Duration Display Timer, Call Forward (9 types), Call Join, Call Park, Call Transfer, Call Waiting, Calling Line Identification, Calling Party Name Display, Charge Account Codes, Controlled Class of Service, DID Route Control, Flash, Hold, Hunting (6 types), IP Call Recording, Malicious Call Trace, NAT Traversal, Network Virtual Office Login, Override Position Busy, Personal Directory, Redial List and Callers List, Remote Message Waiting, Ring Again, Trunk Route Optimization – Call Modification.		
Signaling Server			
Memory	Typically 512 MB DRAM. Applications such as Personal Directory, Redial List and Caller List for > 10,000 IP users require 1 GB DRAM		
Network Routing Server (NRS)	2,000 endpoints 10,000 number plan entries 100,000 calls per hour		
Terminal Proxy Server	1,000 IP users	5,000 IP users per Signaling Server. Up to 5 Signaling Servers are supported per system for capacity and redundancy.	
IP Peer H.323 Trunks	1,200 per Signaling Server, up to 6,000		
SIP Trunks	1,800 per Signaling Server, up to 9,000		
Trunking			
Supported Trunks	Virtual Trunks with IP Peer Networking Digital: DTI, ISDN-PRI, ISDN-BRI Analog: Loop and Ground Start CO, FX, WATS, 2 or 4 wire E&M, 4 wire DX, DID, TIE, RAN Paging		

Network Signaling protocols

H.323v4, MCDN, SIP, LDAP, QSig, QSS, in band and DPNSS

Telephones
IP Telephones and Clients

IP Telephones: IP Phones 2001, 2002 and 2004, WLAN Handsets 2210 and 2211
Clients: IP Softphone 2050, Mobile Voice Client 2050

Digital Telephones

M3901, M3902, M3903, M3904, M3905, M2006, M2008, M2008HF, M2616, M2216ACD

IP Phone Powering Options

802.3af Power over LAN, Power over LAN Hub and local AC adapter

Attendant Services Compatibility

Attendant PC Console and M2250 Attendant Console

Applications
IP Remote Services

Survivable Remote Gateway: 5-80 survivable IP users
Enterprise Media Gateway 1000B supports up to 400 survivable IP users
Remote Gateway 9150 supports up to 32 survivable Digital Telephones
Remote Gateway 9115 supports 1 survivable Digital Telephone

Unified Messaging – CallPilot

CallPilot IPE 201i: 200 hours, 40 channels; Voice prompt supported in six languages; three-language for speech recognition. Up to 2200 mailboxes can be provisioned.
CallPilot Tower 703t: 1200 hours, 96 channels; up to 7,000 mailboxes can be provisioned.
CallPilot Rackmount 1002rp: 2400 hours, 96 channels; up to 7,000 mailboxes can be provisioned.

Symposium Express Call Center

SECCs can be configured for up to 300 agents with up to 175 actively logged on (subject to capacity analysis). Busy-hour capacity is 5,000 CPH (configuration dependent).

Symposium Call Center Server

Configurable up to 3,000 agents with up to 175 actively logged on (subject to capacity analysis).
 Busy-hour capacity: 5,000 calls per hour (configuration dependent)

Configurable up to 3,000 agents with up to 2,200 actively logged on (subject to capacity analysis).
 Busy-hour capacity: 31,500 calls per hour (configuration dependent)

Interactive Voice Response

VPS/is: Configurable to 4 T1/E1 spans (96/120 ports) on a single system. With clustering, max capacity of VPS/is systems is 15,000 ports. Actual VPS/is capacity realized is configuration dependent (i.e., dependent upon call server and trunk ports available).

Media Processing Server 100 (MPS): Configurable to 2 T1/E1 spans (48/60 ports) on a single system. Maximum capacity with clustering of (96/120) ports. Actual MPS 100 capacity realized is configuration dependent (i.e., dependent upon call server and trunk ports available).

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Media Processing Server 500: Configurable to 8 T1/E1 spans (192/240 ports) in a single system. Multiple systems can be networked together for additional capacity.

Media Processing Server 1000: Configurable to 64 T1/E1 spans (1,536/1,920) ports in a single cabinet. Multiple cabinets can be networked together to increase capacity to 384 T1/E1 spans (9,216/11,520) ports in a Managed Cluster. Multiple MPS 1000 Managed Clusters can be networked together for additional capacity. Actual MPS 1000 capacity realized is configuration dependent.

Multimedia Communication Server (MCS) 5100

Transforms the way users communicate. Provides multimedia and collaborative applications that enhance communications, making users more productive and enabling the virtual enterprise.

Micro System: 50 to 250 users, non-redundant. Supports video calling, instant messaging, chat, directories, in and out logs, whiteboarding, file sharing, Web push and co-browse, Personal Agent – call screening, IM and call routing and click-to-call.

The micro system supports a single multi-application Media Application Server (MAS), for optional services such as Ad hoc and Meet Me Conferencing, Presence, recorded announcements and music on hold.

Enterprise System: 250 to 10,000 users, non-redundant or redundant. Up to 60,000 users, non-redundant or redundant. Supports video calling, instant messaging, chat, directories, in and out logs, whiteboarding, file sharing, Web push and co-browse, Personal Agent – call screening, IM and call routing, and click-to-call.

Supports multiple media application servers (MAS) for optional applications, including Ad hoc and Meet Me Conferencing, Video Collaboration, Presence, IM Chat, recorded announcements and music on hold.

Integrated Applications

Integrated Conference Bridge: Capacity per card – up to 10 simultaneous 3-party conference calls, a conference with up to 32 participants or any combination thereof. 24 and 32 port configurations and the dual card 42, 50 and 62 port configurations supported. Ten languages supported. Netscape Communicator 4.01 or later browser and Microsoft Internet Explorer 4.5 or later are supported.

Integrated Recorded Announcement: Small (5 channel), Medium (6 channel) and Large (10 Channel) configurations available supporting up to 20, 36 or 40 concurrent calls per card. With RAN Broadcast software option, number of concurrent calls equals 136, 152 and 242 per card, respectively. Eight minutes of voice or music memory standard; expandable up to 5 hours. Netscape Communicator 3.0 or later and Microsoft Internet Explorer 3.0 or later are supported.

Integrated Call Director: 8 port/50 user expandable to 100 users, 16 port/100 user expandable to 150 users, 24 port/150 user expandable to 200 users and 32 port/200 user expandable to 300 users are the configurations available. Twelve languages supported. Netscape Communicator 4.01 or later and Microsoft Internet Explorer 4.5 or later are supported.

Hospitality Voice Services: 2, 4 and 8 port configurations available. 2 port configuration supports up to 200 rooms; 4 port up to 500 rooms; 8 port up to 1000 rooms. Maximum of one IVS card per system. Netscape Communicator 4.01 or later and Microsoft Internet Explorer 4.5 or later are supported.

Integrated Call Assistant: 5 to 32 port configurations available. Up to 32 ports supported on X11 RLS 22 or later. Netscape Communicator 4.01 or later and Microsoft Internet Explorer 4.5 or later are supported.

Flash Card Option: Maximum of 16 voice greetings and menus, 8 call screening tables, 1000 database name capacity, 14 predefined menus. American English supported.

Hard Drive Option: Maximum of 32 voice greetings and menus, 32 call screening tables, 10,000 database name capacity, 22 predefined menus, 3000 personal verification recordings. Eight languages supported.

Wireless

Hardware: WLAN Handsets 2210 & 2211

WLAN IP Telephony Manager 2245

WLAN Application Gateway 2246: optional SVP WLAN Infrastructure

Media Card (or software upgraded IP Line card) and Signaling Server
(same requirements as for IP Phone 2004)

128 users per IP line card; 5,000 IP users per Signaling Server

Software: CS 1000 Rls 4.0

Management – Optivity Telephony Manager 2.2

Windows 2000 Server, Windows XP Professional and Windows 2000 professional clients; Web management support with Netscape Navigator 4.5 or later and MS Internet Explorer 5.x and later; HP OpenView and Optivity NMS integration; supports up to 128,000 sets; up to 2.5 million call records per costing configuration; alarm queue can hold up to 1,360 traps (3.7 hours worth of alarms). LDAP integration with Netscape, Microsoft Exchange, Novell NDS and Microsoft Active Directories.

	CS 1000S	CS 1000M	CS 1000E
Systems Capabilities			
Standards Supported	H.323v4, SIP, 802.1p/q, DiffServ, 802.3af, 802.11a/b/g, SNMP, DHCP, RTP, RTCP, VPIM plus the following SIP RFCs: 2976, 3261, 3262, 3263, 3264, 3265, 3311, 3323, 3326 and 3515 with MCS 5100 Multimedia Communication Server.		
Survivable Elements	Call Server, Media Gateway, Enterprise Media Gateway 1000B, Survivable Remote Gateway	Enterprise Media Gateway 1000B, Survivable Remote Gateway	
Redundancy options	Call Server (standard), Signaling Server (Gatekeeper, H323 Gateway Proxy and Terminal Proxy Server)		
Environmental			
Input Voltage	AC: 110-240V, 50/60 Hz DC: -40 to -56.6 V	AC: 110-240V, 50/60 Hz DC: -40 to -56.6 V	
Operating Environment	Ambient Temperature: Recommended: 15-30 degrees Celsius (59-86 degrees Fahrenheit) – Absolute 0-45 degrees Celsius (32-113 degrees Fahrenheit) – Relative Humidity (%) without condensation: Recommended: 20%-55% – Absolute: 10%-95%		
Power Consumption	Call Server: 55 watts Enterprise Media Gateway: 136 watts Enterprise Media Gateway Expansion: 120 watts Heat (BTU/hr): 1700	Core Network: Network Module: IPE Module:	Power (watts) Heat (BTU/hr) 360 1230 270 820 460 1160
Dimensions	<p>Call Server: Width: 17.3 in. (439 mm) Depth: 12.8 in. (326 mm) Height: 3.5 in. (89.1 mm)</p> <p>Signaling Server: Width: 17.5 in. (445.8 mm) Depth: 22.5 in. (573.2 mm) Height: 1.75 in. (44.6 mm)</p> <p>Media Gateway Width: 17.3 in. (439 mm) Depth: 12.8 in. (326 mm) Height: 8.4 in. (214 mm)</p>	<p>Pedestal/Module/Top Cap: Width: 32 in. (812 mm)/32 in. (812 mm)/32 in. (812 mm) Depth: 26 in. (660 mm)/22 in. (559 mm)/22 in. (559 mm) Height: 10 in. (254 mm)/17 in. (432 mm)/4 in. (101 mm)</p> <p>Signaling Server: Width: 17.5 in. (445.8 mm) Depth: 22.5 in. (573.2 mm) Height: 1.75 in. (44.6 mm)</p>	

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Nortel Networks is an industry leader and innovator focused on transforming how the world communicates and exchanges information. The company is supplying its service provider and enterprise customers with communications technology and infrastructure to enable value-added IP data, voice and multimedia services spanning Wireless Networks, Wireline Networks, Enterprise Networks and Optical Networks. As a global company, Nortel Networks does business in more than 150 countries. More information about Nortel Networks can be found on the Web at:

www.nortelnetworks.com

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