

Refurbished CISCO AS5400HPX Datasheet

CISCO > UNIFIED-COMMUNICATIONS

Cisco AS5400 Series Universal Gateways

Codec Support: Cisco AS5400XM Universal Gateway with the Universal Port Feature Card

DSP Feature Card	Codecs
Cisco AS5400XM Voice/Universal Port Feature Card (AS5XM-VUFC-108NP and AS5XM-VUFC-60NP)	G.711 mu-law G.711 a-law Fax pass-through Modem pass-through Clear channel codec G.723.1 5.3K, 6.3K G.726 16K, 24K, 32K G.729ab, G729a Global System for Mobile Communications - Full-Rate (GSM-FR) T.38 Fax Relay
Maximum channel capacity per universal port feature card for all codec types	60 per AS5XM-VUFC-60NP 108 per AS5XM-VUFC-108NP

SBC Features

Voice

Protocols	H.323 and SIP
Protocol and signal interworking	H.323 to H.323 (including Cisco Unified CallManager) H.323 to SIP (including Cisco Unified CallManager) SIP to SIP (including Cisco Unified CallManager)
Media support	RTP and Real-Time Control Protocol (RTCP)
Media modes	Media flow-through Media flow-around
Transport mode	TCP UDP TCP-to-UDP interworking
Fax support	T.38 Fax Relay T.38 Digit Relay Modem pass-through Fax pass-through Cisco Fax Relay
DTMF	H.245 Alphanumeric H.245 Signal RFC 2833 SIP Notify Interworking capabilities: H.323 to SIP
Supplementary services	Call hold, call transfer, and call forward for H.323 networks using H.450 and transparent passing of Empty Capability Set (ECS) capabilities
CAC	RSVP Maximum number of calls per trunk CAC based on IP circuits
QoS	IP Precedence and differentiated-services-code-point (DSCP) marking
Network hiding	IP network privacy and topology hiding IP network security boundary Intelligent IP address translation for call media and signaling

Number translation	Number translation rules for VoIP numbers ENUM support for E.164 number mapping into Domain Name System (DNS)
Security	IP Security (IPsec) SRTP TLS
Authentication, authorization, and accounting (AAA)	AAA with RADIUS
Voice media applications	Tool Command Language (TCL) scripts support for application customization Voice Extensible Markup Language (VoiceXML) script support for application customization
Billing	Standard call detail records (CDRs) for accurate billing
Lawful Intercept	Provide replicated packets to third-party mediation device
Session performance	1000 concurrent calls with 2000 sessions in flow-through mode

Hardware Features and Benefits of Cisco AS5400XM Universal Gateway

Up to 22 T1, 18 E1, or CT3 (550) Voice or Fax Sessions Up to 16 T1/E1 or CT3 (550) Remote-Access Sessions

Up to 22 T1, 18 E1, or CT3 (550) Voice or Fax Sessions Up to 16 T1/E1 or CT3 (550) Remote-Access Sessions	Offers superior density in a compact form factor that is easy to deploy
Multiple egress interface types	Provides two 10/100/1000BASE-T Ethernet LAN connections Provides two 8-MB serial connections Provides trunk feature cards Offers stackable design-low initial cost Offers a universal port solution in one product
High-density packet voice/fax feature card and DSP module	Offers expanded codec and feature support for new, innovative services Helps enable higher-density configurations Improves price and performance for intelligent packet voice services
Universal port DSPs	Provides flexibility in deploying services-voice, fax, dialup, and ISDN termination Allows service providers to deliver universal services on any port at any time
Built-in resiliency	Provides hot-swappable cards and spare DSPs Offers redundant power supply option Offers three redundant backhaul methods Provides thermal management and environmental monitoring Provides fourfield-replaceable fan assembly with N+1 redundant fans in a tray Improves network and service availability, reducing time and money lost because of outages

Cisco AS5400XM Universal Gateway System Data

Processor	750-MHz RISC processor
Memory	512-MB synchronous dynamic RAM (SDRAM) (default), up to 1024 MB 128-MB Compact Flash memory (system and boot flash memory) 256-KB secondary cache
Feature card slots	Seven slots PCI slot for future expansion
Egress ports	Two 10/100/1000BASE-T Gigabit Ethernet ports Two 8-Mbps serial ports T1/E1 DS-1 trunk feature cards CT3 trunk feature cards

Cisco AS5400XM Universal Gateway Chassis Data

Dimensions (H x W x D)	3.5 x 17.5 x 18.25 in. (2RU) (8.89 x 44.45 x 46.36 cm)
Weight	35 lb (fully loaded CT3 configuration) (15.8 kg)
Normal operating conditions	32 to 104°F (0 to 40°C) -200 to 10,000 ft elevation (-61 to 3048m) 5 to 95 percent humidity, noncondensing

Cisco AS5400XM Universal Gateway Power Supply Data

Input Description	Input Specifications
Input power	150W to 350W (maximum)
Input voltage (AC unit)	95 to 260 VAC
Input current (AC unit)	3A (maximum @ 120VAC), <2A (typical)
Input frequency (AC unit)	47 to 63 Hz
Input voltage (DC unit)	40 to 70 VDC telco standards, positive ground
Input current (DC unit)	7.2A (maximum with NP108 based voice) 3.75A (maximum with AS5x-FC based voice)

Overview of Protocols and Features of Cisco AS5400XM Universal Gateway

Protocols	
LAN protocols	IP IPX AppleTalk DECnet ARA NetBEUI Bridging HSRP 802.1Q
WAN protocols	Frame Relay PPP HDLC (leased line)
Routing protocols	Routing Information Protocol (RIP) and RIPv2 OSPF IGRP EIGRP BGPv4 IS-IS AppleTalk EIGRP IPX-EIGRP Next Hop Resolution Protocol (NHRP) AppleTalk Update-Based Routing Protocol (AURP)
QoS protocols	IP Precedence RSVP WFQ WRED MMP fragmentation and interleaving 802.1P
Access protocols	PPP Serial Line Internet Protocol (SLIP) TCP Clear IPXCP ATCP ARA NBFCP NetBIOS over TCP/IP NetBEUI over PPP Protocol translation (PPP, SLIP, ARA, X.25, TCP, local-area transport [LAT], and Telnet) XRemote
Bandwidth optimization	Multilink PPP (MLPPP) TCP/IP header compression Bandwidth Allocation Control Protocol (BACP)
Voice codecs and fax protocols	G.711 mu-law, G.711 a-law, G.729 a, G.729 ab, G.726 16K, 24K, 32K, G.728, G-Clear Adaptive Multirate: AMR-NB 4.75K, 5.15K, 5.9K, 6.7K, 7.4K, 7.95K, 10.2K, 12.2K, SID
Voice codecs and fax protocols High-density packet voice/fax DSPs	G.711 mu-law, G.711 a-law, G.729 a, G.729 ab, G.726 16K, 24K, 32K, G.728, G-Clear Adaptive Multirate: AMR-NB 4.75K, 5.15K, 5.9K, 6.7K, 7.4K, 7.95K, 10.2K, 12.2K, SID G.723.1 5.3K, 6.3K, G.723.1A 5.3K, 6.3K, ILBC T.38 Real-Time Fax Relay Super Group 3 fax interoperability Cisco Real-Time Fax Relay Fax detection Fax pass-through

	T.37 Store and Forward Fax Modem Relay, modem pass-through RFC 2833, H245 and Inband DTMF Relay and SIP NOTIFY and SUBSCRIBE Media Authentication and Encryption using Secure RTP (H.323)
Voice compression and fax protocols Universal DSPs	G.711, G.723.1 (5.3 and 6.3 KB), G.726, G.729ab, G729a, G-Clear, and GSM-FR T.38 Real-Time Fax Relay T.37 Fax Store and Forward Fax pass-through Modem pass-through Fax detection RFC 2833, H245 and Inband DTMF Relay and SIP NOTIFY and SUBSCRIBE
DSP voice features	G.711, G.723.1 (5.3-KB and 6.3-KB), G.726, G.729ab, G729a, G-Clear, and GSM-FREcho cancellation, programmable up to 64 ms Transparent transcoding between a-law and mu-law encoding VAD, silence suppression, and comfort-noise generation Fixed and adaptive jitter buffering Call progress tone detection and generation-Dial tone, busy, ring-back, congestion, and reorder tones with local country variants DTMF, multifrequency, and Continuity Testing (COT) Per DS-1 modification of IP-side attenuation
Voice signaling protocols	H.323v4, SIP, MGCP 1.0, TGCP 1.0, VoiceXML, RTSP, and ESMTTP Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0, at modulations V.33, V.17, V.29, V.27ter, and V.21Open Settlements Protocol (OSP) Media Recording Control Protocol (MRCP) TTS servers ASR servers
SS7	Integrated SLT functions for MTP1 and MTP2 layer termination IUA and RUDP backhaul of SS7 messages
Network security	RADIUS or TACACS+, PAP or CHAP authentication, and local user and password database DNIS, CLID, and call-type preauthentication Inbound and outbound traffic filtering (including IP, IPX, AppleTalk, and bridged traffic) Network Address Translation (NAT) and dynamic access lists SNMPv2 and SNMPv3 Secure Shell (SSH) Protocol Version 2 H.235 Media Authentication and Encryption using SRTP Secure SIP signaling using TLS
Virtual private networking	IP Security (IPsec) and policy enforcement (RADIUS or TACACS+) L2TP, Layer 2 Forwarding (L2F), and generic-routing-encapsulation (GRE) tunnels ACL-based security and intrusion detection QoS features (committed access rate, Random Early Detection, IP Precedence, and policy-based routing)
CT1	RBS; Loop Start, Immediate Start, and Wink Start protocols Feature Group B and Feature Group D with operator services
CEI	CAS, E1 R1, E1 R2, leased line, Frame Relay, G.703, and G.704
ISDN protocols supported	Synchronous-mode PPP, V.120, and V.110 at rates up to 38,400 bps User-side PRI switch types: NTT, NI, 4ESS, 5ESS, DMS100, NET5, and TS014 Non-Facility Associated Signaling (NFAS) with backup D channel User-side NFAS switch types: NTT, NI, 4ESS, and DMS100 Network-side PRI switch types: NTT, NI, and NET5 Network-side NFAS not supported DoVBS Partial Q.SIG support
Modem protocols supported	V.90 or V.92 standard supporting rates of 56,000 to 28,000 in 1,333-bps increments V.92 Modem on Hold and Quick Connect V.44 compression supporting increased throughput by more than 100 percent for Internet browsing K56Flex at 56,000 to 32,000 in 2000-bps increments ITU-T V.34 Annex 12 at 33,600 and 31,200 bps ITU-T V.34 at 28,800, 26,400, 24,000, 21,600, 19,200, 16,800, 14,400, 12,000, 9,600, 7,200, 4,800, or 2,400 bps V.32bis 14,400, 12,000, 9,600, 7,200, and 4,800; V.32 9,600 and 4,800; V.22bis 2,400 and 1,200; V.21 300; Bell 103, 300; V.22 1,200; and V.23 1,200/75 ITU-T V.42 (including Microcom Networking Protocol [MNP] 2-4 and Link Access Procedure for Modems [LAPM]) error correction ITU-T V.42bis (1,000 nodes) and MNP 5 data compression Asynchronous-mode PPP
Wireless protocols	V.110 and V.120
TDM clocking	Ability to synchronize clock with any T1 or E1 channel Ability to synchronize clock with external Building Integrated Timing Supply (BITS) clock (Stratum 4E- compliant)

Full Cisco IOS Software support	IP Plus and Enterprise Plus feature sets, including Triple Data Encryption Standard (3DES) and Lawful Intercept images
Console and auxiliary ports	Asynchronous serial (RJ-45)

Cisco AS5400XM Universal Gateway Call-Capacity Table

Voice Call Capacities	
Direct inward dialing (DID)	550
Calls using TCL IVR	550
Voicemail	480
VoiceXML	192 with DSPs and trunk interfaces 200 with DTMF interaction only; no ASR/TTS, no trunk cards, and no DSPs
Dial Call Capacity	
Asynchronous-mode PPP, synchronous-mode PPP, MLPPP, and TCP Clear	550 DS-0s in use
Microsoft Point-to-Point Compression (MPPC)	460 asynchronous and 360 synchronous

Cisco AS5400XM Universal Gateway Compliance Data

Certification	Requirements
NEBS certification	Telcordia SR-3580 GR-1089-CORE, Issue 2 GR-63-CORE, Issue 1 Level 3 certification based on usage and critical nature of equipment All equipment Common Language Equipment Identifier (CLEI) coded Available in TIRKS database
Safety certifications	UL 1950, third edition CSA 950, third edition EN 60950, with Amendments 1, 2, 3, and 4 IEC 60950 AS/NZS 3260 TS 001
Electromagnetic Emissions and Immunity Compliance	EN 55022B (CISPR22) EN 300386 NZS/AS3548 Class A VCCI B FCC 47CR15 Class A
BITS Clock	Stratum Layer 4E-compliant

Cisco AS5400XM Universal Gateway Environmental Specifications

Heat Dissipation	1190 Btu/hr (maximum); 525 Btu/hr (typical)
AC Power Cable Supplied with AC Systems	Redundant power supply: 18 AWG, 15-amp IEC 320 Type C5 standard cable
DC Power Cable Required for DC Systems	12-14 AWG stranded copper wire
Storage Temperature	-40 to 185°F (-40 to 85°C)
Acoustics	55 dBA maximum; sound pressure level at 1m
Humidity	5 to 95 percent, noncondensing
Altitude	-200 to 10,000 ft (-60 to 3,050m)
Reliability (at 104°F [40°C], 120 VAC and -48 VDC, 140W)	165,000 hours MTBF per chassis

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