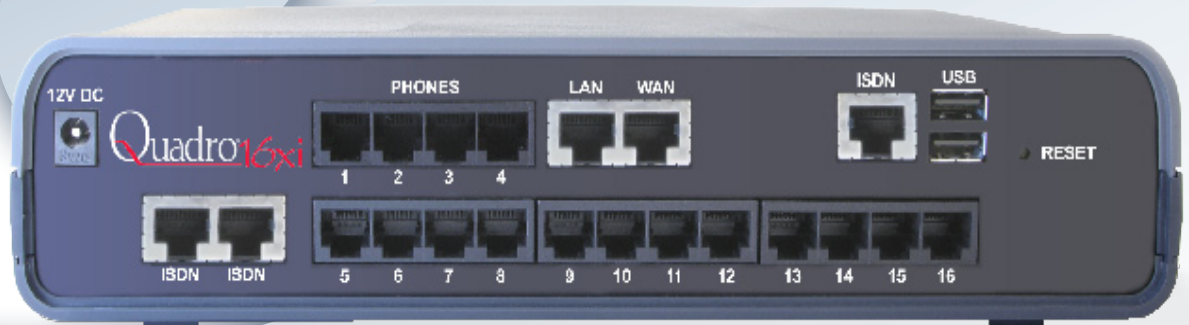


# Quadro<sup>®</sup>16xi

THE GLOBAL PHONE NETWORK IN A BOX



## Quadro16xi: The IP PBX with 3 ISDN Ports, 16 FXS Ports and up to 50 IP Phones

The Quadro16xi is the fully-featured ISDN IP PBX for enhanced small businesses. Connected by three ISDN lines to the PSTN and over 10Base-T Ethernet to the Internet, the Quadro16xi allows to make up to 20 calls in parallel.

Besides 16 FXS phones, 50 fully-featured SIP phones may be attached to Quadro16xi's LAN port. In addition, all extensions assigned to a line may be mirrored and act as remote IP extensions. Wherever you are, calls will reach you, and you will be able to make calls as if you were in your office.

### Fully-Featured IP PBX

The Quadro16xi offers the same multitude of features as the Quadro16x: extensive PBX functionality, integrated voicemail, cost saving call routing functionality, IP routing, SIP call signaling and much more.

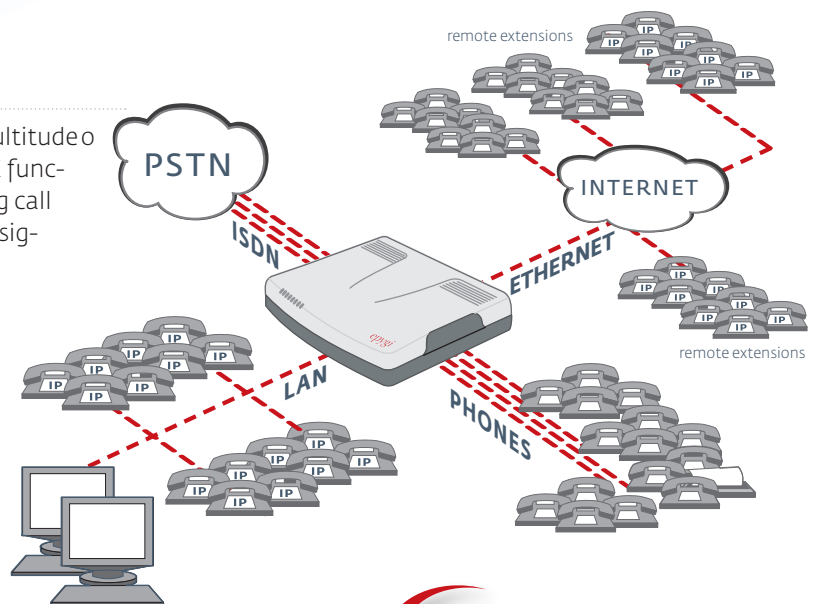
### Integrated Internet Access Router

The Quadro16xi IP PBX embodies a fully-fledged Internet access router with firewall security, including IDS, NAT, policy and service based filtering as well as stateful inspection. An extensive IPSec VPN functionality with DES, 3DES and

AES encryption makes an additional contribution to data security.

### VoIP Carriers

As all Quadro IP PBXs, Quadro16xi is easily applicable for VoIP Carriers as well as small businesses. For VoIP carriers, a special wizard has been implemented that facilitates the configuration of Quadro16xi to work according to individual requirements.



## Telephony

### Voice Features

Voice Coding G.711, G.723 (5.3, 6.3 kbit/s), G.726 (16, 24, 32, 40 Kbps), G.729A, iLBC (13, 33 kbit/s, 15.2 kbit/s); (ITU-T: G.711, G.723.1 Annex A, G.726, G.729 Annex A; RFC 3951: iLBC; IETF: ITU-T Q.23, Q.24, Bellcore GR.506, GR.181; ITU-T G.168-2000, 2002; ETSI 300659\_1,2,3)  
NAT traversal (both manually and STUN)  
VAD, CNG, G.168 echo cancellation

### Bandwidth Requirements

Per call WAN bandwidth requirements for the following codecs (non-encrypted/VPN encrypted):

G.711a/G.711u	20 msec	84 kbps/105 kbps
G.726-16	20 msec	37 kbps/59 kbps
G.726-24	20 msec	45 kbps/65 kbps
G.726-32	20 msec	52 kbps/74 kbps
G.726-40	20 msec	60 kbps/80 kbps
G.729a	20 msec	29 kbps/49 kbps
G.723	30 msec	21 kbps/34 kbps
iLBC	30 msec	27 kbps/41 kbps

### PBX Features

Call blocking, Forwarding, Holding, Transferring  
Call relay, Call waiting, Caller ID Detection  
Voice mail  
Call park, Pickup, Paging, Intercom  
Multilevel auto attendant with Interactive Voice Response (IVR) and VoiceXMLv2 support  
Voice mail with SMS notification  
Distinctive ringing  
Speed dialing  
Many extension ringing  
Receptionist  
Call hunting, Hiding Caller ID  
Automated Call back from Auto Attendant  
Hold music  
Call statistics  
Do Not Disturb service  
Unified messaging  
3-way conferencing  
Hotline service  
T.38 fax, fax relay and clear channel fax  
Unified Fax Messaging  
Busy auto-redial  
Directory assistance  
Dial plans (call routing)  
Time of day dialing  
Call Queue

### Call Signaling

SIP on the WAN and LAN side (RFCs: 3261, 3263, 3265, 3311, 3323, 3324, 3325, 3428, 3515, 3578, 3581, 3725, 3891, 3892, 3842, 3856, 3863, 4028, 4235)  
SDP (RFC 2327)  
RTP (RFCs: 1889, 1890, 2833, 3389, 3550, 3551, 3555, draft-ietf-avt-rfc2833bis-05, draft-ietf-avt-rtp-ilbc-05),  
in band and out of band signaling support  
RTP Proxy  
Fax over IP (ITU-T: T4, T30, T38, V17, V21, V27 ter, V29)

### POTS Signaling

Loop start  
FSK and DTMF Caller ID support

### ISDN Signaling

ITU-T: Q.921, Q.931, Q.951; ETSI ETS300 102;  
NTT INS64 for Japan

## Connectivity

### Extensions

Up to 70 extensions including FXS phones LAN IP  
Phones remote and virtual extensions  
All extensions can be registered on several SIP servers

### LAN IP Phones

18 SIP phones by default;  
32 additional SIP phones may be added with feature keys  
Remote IP extensions may be enabled for all SIP phones

### System Capacity

20 simultaneous VoIP calls with external parties  
Unlimited station to station calling for IP Phones  
Unlimited station to station calling for Analog Phones  
6 simultaneous ISDN calls with external parties  
Up to 4 simultaneous calls through a VPN

### Premise Connections

16 short-loop FXS ports (RJ11)  
1 Ethernet 10/100BASE-T port (RJ45)  
1 USB master connection

### Uplink Connection

3 ISDN ports to the Central Office (RJ45)  
1 Ethernet 10BASE-T (RJ45)  
(Other Quadro IP PBX models offer also FXO, ADSL or C.SHDSL uplink connectivity. Please refer to the corresponding Technical Data Sheets.)

### USB Expansion

USB memory sticks for additional voice mail storage

### Billing

Radius Client (RFCs: 2865, 2866)

## Internet

STUN/NAT traversal (RFC 3489)  
IPSecVPN with DES, 3DES and AES encryption in tunnel mode (RFCs: 2402, 2406, 2409). Manual and automatic IKE key support  
PPTP/VPN  
L2TP/VPN  
Firewall security via:  
Intrusion Detection System  
NAT (Network Address Translation)  
Policy and service-based filtering  
Stateful inspection firewall  
DHCP server on the LAN side  
DHCP client on the WAN side  
DNS server with forwarding functionality  
SNTP (Simple Network Time Protocol) server/client for computer clock synchronization  
PPPoE connection to the ISP with PAP/(MS)CHAP authentication  
IP DIFFSERV for QoS  
Mail client to send voice messages as e-mail attachments (.wav) and system notifications  
DNS (DYNDNS) support with third party  
Port forwarding  
Port translation

## System

### Management

Multilingual WEB interface accessible from LAN and WAN (HTTP/HTTPS), the WAN management access can be switched off  
Password control  
Remote diagnostics and software upgrade  
Auto-provisioning  
VoIP Carrier Wizard  
Download/restore configuration  
Legible and editable configuration files  
Auto-configuration of IP phones via TFTP  
SNMP Monitoring  
Third Party Call Control XML RPC  
Reset button with factory reset option  
Custom Language Pack

### Diagnostics/Testing

LEDs: Busy, Info, Fault, USB, LAN, WAN, Line 1, Line 2  
IP Call Quality Rating  
Remote testing and VoIP diagnostics  
Power-up diagnostics

## Environmental

### Physical Dimensions

Desktop devices, wall-mountable:  
Measurements: 10.04" x 8.27" x 2.4"  
(25.5 x 21.0 x 6.1 cm)  
Weight: 30 ounces (850 g)

Rack-mountable devices:  
Measurements: 19" x 7.56" x 1.77"  
(48.0 x 19.2 x 4.5 cm)  
Weight: 9.2 lbs. (4.18 kg)

### Conditions

41°F - 104°F (5°C - 40°C) operating temperature  
41°F - 140°F (5°C - 60°C) storage temperature  
5% - 90% non-condensing humidity

### Power Supply

Input 100 - 240 VAC; 50/60 Hz; 0.5A  
Output 12.0VDC; 3.5A



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