



## Enterprise-Grade IP PBX System for Small and Medium Businesses

- SIP Proxy, Registrar and Redirect Server (RFC 3261)
- DSP Supporting Rich Call Features and Codec Transcoding
- Optional Trunking Interfaces Supporting FXO, FXS, ISDN-BRI, T1, E1 and SIP Trunks
- Voice Mail with E-mail Forwarding
- Firewall-transparent Softphone and Web Phone
- Upgradeable N-way Meet-Me Conference
- Web-based Management for System and Personal Configurations
- Auto-provisioning
- ZyXEL SmartExpand Stackable Mechanism



IP PBX

X6004

### Benefits

#### Stable Telephony Services

ZyXEL X6004 uses IP PBX DSP to prevent unpredictable service break-offs. Smart Expand allows users to stack many X6004 to gain in capacity and system availability.

#### Premium Voice Quality

Dedicated DSP resource and QoS mechanism guarantee premium voice quality and performance. With wideband CODEC, ZyXEL VoIP solution provides excellent voice quality.

#### Excellent Mobility and Productivity

The X6004's soft phone and personal web phone enable the road warriors with complete telephony service as working in office. Firewall transparent VoIP communications ensures the best portability.

#### Easy Management

The intuitive web-based management, wizard program and centralized dashboard ease the administration hassle. Besides, auto provisioning minimize the effort of deploying all sorts of ZyXEL IP phones, ATAs and VoIP gateways.

#### Expandable Design Protects Customer Investments

Modular design of trunk interfaces, features, and DSP ensure incremental investment to fit growing needs. The X6004 can also work as a trunk gateway as well to construct a multi-site VoIP service environment with other X6004s.

#### Seamless Integration with Telco, ITSP Services, and Legacy PBX

The X6004 supports the versatile trunking expansions, including FXO, FXS, ISDN, T1 and E1. The users can easily fit into all sort of telephony environment. Furthermore, standard SIP trunks and trusted peers make the X6004 seamlessly integrated with ITSP services.

#### Value-added Services Enrich VoIP Applications in Enterprise

With click-to-talk call center, 64-line meet-me conference and video conference, the X6004 enables the brand new working style through converged and unified communications. Leveraging Microsoft Office Exchange Server, the X6004 makes E-mail and VoIP as a complete UC application.

# Specifications

## System Specifications

### Standard Protocols

- SIP Proxy, SIP Registrar and SIP Redirect Server (RFC 3261)
- SIP Outbound Proxy Server
- SDP (RFC 2327), RTP (RFC 1889), RTCP (RFC 1890)

### Basic Call Services

- Caller ID
- Call Waiting
- Call Hold and Retrieve
- Call Park and Retrieve
- Call Pickup (Group/Direct)
- Call Forward (No Answer, Busy, Unconditional)
- Do Not Disturb (DND)
- Call Transfer
- Call Back on Busy
- Distinctive Ringing: 12 Kinds of Ring Tones for 3 Types of Calls
- Intercom
- Call Detail Record (CDR) Database
- Phonebook:
  - Automatically Synchronized with LDAP Server
  - Locally Manipulated Phonebook
- Cross-subnet Group Paging
- Music-On-Hold
- SIP Presence

### Outbound Call Handling

- Call Emergency
- Least Cost Route (LCR)
- Group Control
- Call Access Code
- Call Screening
- SIP Trunks and Trusted Peer for ITSP Services

### Incoming Call Handling

- Call Blocking
- Hunt Group:
  - Ring Algorithm: Ring All, Round Robin, Least Recent, Fewest Calls, and Random
- Direct Inward Dialing (DID/DDI)
- Night Service:
  - Auto-attendant
  - Call Forwarding
  - Hunt Group

### Voice Mail and Auto Attendant

- 10 x 10 x 10 Auto Attendant (AA) Profiles and Interactive Voice Response (IVR)
- Voice Mail (VM) with E-Mail Forwarding
- Message Waiting Indicator (RFC 3842)

### Advanced

- Meet Me Conference: Support Up to 64 Lines per Conference (with optional 64-CH DSP expansion module)
- Click to Dial: Contact in Personal Web Portal
- Personal IVR
- Firewall Transparent Web Phone and Soft Phone
- Compact Click-to-Talk Call Center
- PC-based Attendant Console
- SIP Surveillance

### Codec/DSP

- Voice Codec and Support DSP Trans-coding:
  - G.711a/μ
  - G.729a/b
  - G.726 (32 Kbps)
  - G.723.1 (5.3 Kbps)
- Wideband Voice Codec Pass-through:
  - G.722
  - G.722.2 AMR-WB
- Video Codec Pass-through:
  - H.261
  - H.263
  - H.264
  - MPEG-4 SP/ASP
- G.168 Echo Cancellation
- G.711 PCM Fax/Modem Detection and Pass-through
- Voice Activity Detection (VAD)
- Comfort Noise Generation (CNG)
- Dynamic Jitter Buffer
- DTMF Detection and Generation
- DTMF Relay:
  - In-Band
  - RFC 2833
  - SIP Info
- Auto Gain Control (AGC)

### Management

- Web-based Management for System and Personal Configuration
- ZyXEL SmartExpand Dashboard

- Intuitive Wizard for IP PBX Administration
- Group-oriented Authority Management
- Quality of Service: IPTOS and DiffServ
- DSP Channel Allocation
- Sys Log
- Auto Provision
- myZyXEL.com Online Service Subscription
- E-mail Notification:
  - CDR Rotation & Alert
  - System Log Rotation & Alert
- Multi-lingual Web GUI and Voice Prompts

### Reliability

- Full Redundancy: Active-Active and Active-Standby
- Backup Power Module (BPM)
- FXO Lifeline

### Flexibility and Scalability

- ZyXEL SmartExpand Mechanism
- Optional Trunking Expansion Modules:
  - 4-port FXO
  - 4-port FXS
  - 2-port FXO and 2-port FXS with Lifeline
  - 1-port ISDN PRI (T1/E1 configurable)
  - 4-port ISDN BRI/ST (NT/TE configurable)
- Optional DSP Expansion Modules: 16, 32, and 64 Channels
- Optional Advanced Media Storage
- Detachable Slide-in Fan Module
- Detachable Power Module

### System Capacity

- Max. Extensions: 128
- Max. Voice Mail:
  - Without Advanced Media Storage: 90 Minutes
  - With Advanced Media Storage: 1,000 Hours (Optional)
- ZyXEL SmartExpand Up to 5 Units

### Trunk Compliance

- ISDN PRI (T1/E1):
  - Alcatel-Lucent, Avaya, Siemens, and Nortel PBXs
- SIP Trunk:
  - Nokia Siemens, Nortel, Broadsoft, and Huawei Soft Switches

## Hardware Specifications

- Embedded Network Processor
- Memory 256 MB SDRAM
- Built-in 32 DSP Voice Channels
- Storage:
  - Default 256 MB Flash
  - Advanced Media Storage Expansion Slot: 1
- Network:
  - WAN: 10/100M Auto MDI/MDIX, Ethernet: 1
  - LAN: 10/100M Auto MDI/MDIX, Ethernet: 1
- Trunking Expansion Slots: 4
- DSP Expansion Slots: 2
- DB9 RS-232 Port for Console Configuration: 1
- Restore Factory Defaults/Reboot Button
- LED Status Indicators: SYSTEM, ALARM, HDD and POWER
- Power:
  - Full-Range 75 W PSU (100 ~ 240 V/50 ~ 60 Hz)
  - Detachable Power Module
  - BPM Socket: 1 (ZyXEL BPS, 120 W 12 V DC)
  - Max. Operational Power Consumption: 40 W
- Slide-in Fan Module Slot: 1

## Physical Specifications

- Dimensions: 437 (W) x 310 (D) x 66 (H) mm
- Weight: 5.6 Kg (without expansion)

## Environmental Specifications

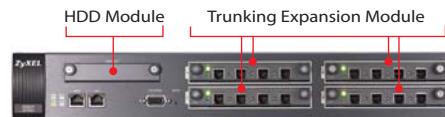
- Operating Temperature: 0°C ~ 40°C
- Operating Humidity: 20% ~ 95% RH
- Storage Temperature: -30°C ~ 60°C
- Storage Humidity: 20% ~ 95% RH

## Component List

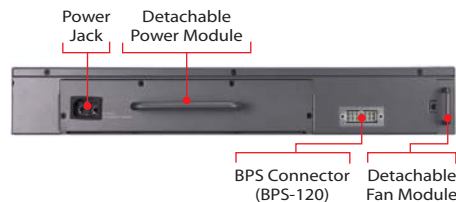
- System: X6004
- Trunking Expansion Modules:
  - M6FO4
  - M6FS4
  - M6FO2FS4
  - M6BRI4
  - M6T1E1
- DSP Expansion Modules:
  - M6D16
  - M6D32
  - M6D64
- Advanced Media Storage Modules:
  - M6AMS

## A Quick Look at X6004

### X6004 Hardware View (Front)



### X6004 Hardware View (Rear)



### M6FO4

- ZyXEL IPPBX Outbound Trunk
- Interface Type: Foreign eXchange Office (FXO)
- Signaling Formats: Ground Start and Loop Start
- Address Signaling Formats: In-band DTMF
- Physical Connector: RJ-11
- Number of Connectors: 4
- Dimensions: 119 (W) x 152 (D) x 18 (H) mm
- Weight: 107.6 g



### M6FS4

- ZyXEL IPPBX Analog Phone Interface
- Interface Type: Foreign eXchange Station (FXS)
- Signaling Formats: Loop Start
- Address Signaling formats: In-band DTMF
- REN: 5 per port
- Physical Connector: RJ-11
- Number of Connectors: 4
- Dimensions: 119 (W) x 152 (D) x 18 (H) mm
- Weight: 121.6 g



### M6FO2FS2

- ZyXEL IPPBX Outbound Trunk and Analog Phone Interface with Lifeline
- Interface Type: Foreign eXchange Office (FXO) and Foreign eXchange Station (FXS)
- Signaling Formats:
  - FXO: Ground Start and Loop Start
  - FXS: Loop Start
- Address Signaling Formats: In-band DTMF
- FXS REN: 5 per port
- Physical Connector: RJ-11
- Number of Connectors:
  - FXO: 2
  - FXS: 2
- Dimensions: 119 (W) x 152 (D) x 18 (H) mm
- Weight: 126.6 g



### M6BRI4

- ZyXEL IPPBX Outbound Trunk
- Per-port Configurable Mode: NT (Network Termination) and TE (Terminal Equipment)
- Protocol: I.430
- Switch Type: 5ESS (US), DMS100 (US), NI1 (US), NET3 (Europe), INS64 (Japan), AUS (Australia)
- Supplementary Services: CLIP, DDI, and MSN
- Interface Type: ISDN BRI S/T
- Physical Connector: RJ-48
- Number of Connectors: 4
- Dimensions: 119 (W) x 152 (D) x 18 (H) mm
- Weight: 161.4 g



#### M6T1E1

- ZyXEL IPPBX Outbound Trunk
- Configurable Mode: NT (Network Termination) and TE (Terminal Equipment)
- Protocol: I.431, Q.921, Q.931, and Q.SIG
- Switch Type: 4ESS (US), 5ESS (US), DMS (US), NI2 (US), NET5 (Europe), INS (Japan), AUS (Australia), Q.SIG
- Supplementary Services: CLIP and DDI
- Interface Type: T1/E1
- Physical Connector: RJ-48
- Number of Connectors: 1
- Dimensions: 119 (W) x 152 (D) x 18 (H) mm
- Weight: 108.2 g



#### M6D16/32/64

- ZyXEL IP-PBX DSP Expansion Module
- Complete VoIP Processing from TDM to Ethernet
- Packet Processing:
  - QoS Pre-router
  - VoIP: RTP/UDP/IP/Ethernet
  - RTCP
  - DTMF: RFC2833
- G.165/G.168 Echo Cancellation with Echo Path Change Detection
- Voice Codecs: G.711 u/A law, G.726, G.729A/B, and G.723.1
- Number of Channel: 16/32/64
- Dimensions: 59 (W) x 64 (D) x 5 (H) mm
- Weight: 16.2 g



#### M6AMS

- ZyXEL IP-PBX Advanced Media Storage Module
- 2.5" SATA HDD: 80 GB
- Added-On Feature:
  - Voice Mail: 1,000 Hr
  - Call Recording: 100 Hr
  - CDR Database: 20M records
  - IVR: 100 Hr
- Dimensions: 94 (W) x 155 (D) x 18 (H) mm
- Weight: 189.2 g



For more product information, visit us on the web at [www.ZyXEL.com](http://www.ZyXEL.com)



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