

The UCM6100 Series IP PBX Buyer's Guide

What SMBs Need to Know for
Unifying Voice, Video, Data
and Mobility Applications




Grandstream
Innovative IP Voice & Video

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VoIP Benefits

- **Reduces operating costs**
- **Access to wide range of advanced features and applications**
- **Increases productivity**
- **Provides reliable communications with local and remote workers and customers**
- **Improves business decision making**
- **Offers infrastructure scalability as business needs change**
- **Provides a platform for customizing and unifying voice, video, data and mobility features across worldwide office locations**
- **Simplified maintenance and administration**
- **Affords the opportunity to deliver better service**

Introduction

Information is the lifeblood of an organization. Effective communication by conveying information back and forth is critical for both internal and external channels. An organization's business communications systems is a central component for delivering clear, concise verbal and non-verbal messages among employees as well as product and service information to partners and customers.

Communications technology has advanced greatly from decades ago when most leading-edge voice solutions were proprietary and targeted at larger enterprises that could afford them. Today, VoIP business systems have allowed smaller businesses to gain access to big business features and applications, and Grandstream is helping to facilitate that effort. IP PBXs are built based on industry open SIP standards to ensure network- and enterprise-side product and service interoperability. Interoperability gives SMBs the confidence that the solutions they customize for their business, and choose to invest in, will work together.

For telecom/IT resellers and SMB 'do it yourselves' who have decided to install an on-site business IP PBX with SIP Trunking, this buyer's guide will share information on the features and applications available on Grandstream's UCM6100 series IP PBX appliance. An easy-to-install, easy-to-manage, affordable VoIP system with no licensing fees, the UCM6100 series IP PBX targets smaller businesses wanting an entre' to unifying voice, data, video and mobility applications.

A Step in the Direction of Unifying Communications

When on-premise IP-based PBXs were introduced, it opened up a whole new marketplace for SMBs to gain access to sophisticated features and applications once only in reach of large enterprises. In contrast to its predecessors, IP PBXs today are designed to increase efficiency by unifying communications of single and multi-location businesses by offering:

- **Greater degree of flexibility; ease of use**
- **Simple procurement; easier purchasing process**
- **No-hassle set-up, maintenance and administration**
- **Access to greater selection of features**
- **Ability to configure and customize features and applications**
- **System scalability as business grows/changes**
- **Financial affordability regardless of business size**



Telecom/IT resellers and SMB end users can easily configure and affordably customize business applications like video conferencing, IVR, fax, auto attendant, call routing, video surveillance, etc. to improve customer service, productivity and profitability.

- Platform for unifying and integrating business applications like email, video conferencing, IVR (Interactive Voice Response), etc. to improve customer service and productivity
- Smaller physical design; reduced footprint at business location

Many of the VoIP systems available include the most important and sought after features like IVR, auto attendant, call reporting, etc., but have been designed and priced for larger organizations with heavier call volume needs. These larger systems most often require additional licensing fees on top of the initial purchase price for features like IVR and auto attendant. Recurring fees are not to be ignored either. In an effort to aid the transition of SMBs to VoIP services, Grandstream has developed an SMB-targeted, feature-rich, affordable IP PBX for organizations wanting an on-premise solution. It's easy-to-install, maintain and requires no yearly operating expenses for additional licensing or recurring fees. When the system is purchased, all the vast inherent features and applications are available and ready to be used to help achieve business goals.

Grandstream UCM6100 series IP PBX Appliance

Grandstream's UCM6100 series is an open source, licensing-free SMB IP PBX appliance for delivering secure and reliable voice, video, data and mobility apps. Powered by an advanced hardware platform based on Asterisk®, the UCM6100 series helps smaller organizations to affordably use VoIP to increase productivity, provide better customer service, unify communications on a single platform and save money on communications costs. Open source systems ensure compliancy to SIP-based protocols meaning the IP PBX can work with a range of desktop SIP endpoints (IP phones, video cameras, etc.) as well as popular service providers, SIP trunk providers and other SIP hardware. Open source solutions also provide flexibility to easily develop and customize applications to fit business integration, interoperability and communications needs.





UCM6100 Series Model Options

The UCM6100 series IP PBX supports up to 500 users. Based on anticipated call volume/business industry/line size requirements, there are four (4) model sizes to choose from:

Model Types	# of Concurrent Calls
UCM6102 (2 FXO ports)	30
UCM6104 (4 FXO ports)	45
UCM6108 (8 FXO ports)	60
UCM6116 (16 FXO ports)	60

Out-of-the-box, the UCM6100 series IP PBX comes fully equipped with robust hardware and software features required for a sophisticated phone system solution.

Product Highlights

- A standalone Asterisk Open Source IP PBX appliance that supports up to 300 users, 500 extensions and 60 concurrent calls
- Two (2) year manufacturer warranty
- No licensing/recurring fees for features like IVR, call routing etc.
- Free lifetime firmware updates
- Auto discovery and registration of SIP endpoints (phones, cameras etc.)
- Zero configuration provisioning via the intuitive Web UI
- Remote maintenance and administration
- Broad SIP interoperability with popular service providers, SIP trunk providers and other SIP hardware, including **GXP IP Phones** and **GXV IP Multimedia Phones** and **Video Cameras**.

Technical Highlights

- Two (2) analog FXS ports (with lifeline capability in case of power outages)
- Up to 50 SIP Trunk Options
- Gigabit Ethernet Ports(s) with integrated PoE, USB, SD
- 4 Gigabit Flash Memory
- Integrated NAT Router with QoS (6102 model only)
- Line echo cancellation
- Multi-language support
- Advanced security protection to safeguard account and en-

Building a Premise-based VoIP Solution

1. **Purchase an IP PBX - Grandstream UCM6100 series IP PBX Appliance**
2. **Select an ITSP – Determine number of SIP Trunks required based on number of extensions**
3. **Determine if an optional VoIP Gateway to connect to existing PSTN lines is needed**
4. **High Speed Internet – LAN required for distributing VoIP lines to various parts of office**
5. **Determine whether a network border element is required for added security**
6. **Purchase SIP Endpoints – IP phones, videophones, video cameras etc.**



“SMBs are increasingly aware that IP communications is the only road to fully take advantage of various forms of communications applications and UC technologies. IP and open IP standards, such as Asterisk Open Source and SIP, allow businesses to interoperate with a larger array of third-party applications and solutions to foster a true unified multi-media, multi-party, and multi-device communications environment for better productivity and end user experience. The availability of cost-effective and feature-rich single server solutions, such as Grandstream’s UCM6100 series IP PBX appliance, facilitates the decision of many SMBs to migrate to IP communications, while providing a get-started solution for UC implementations.”

Alaa Saayed

Sr. Industry Analyst and ICT Team Leader
Unified Communications, Frost & Sullivan

crypt calls - built in firewall, with SRTP/TLS encryption, 802.1X network security and HTTPS Web UI

For a complete list of technical specifications including interfaces, security, voice/video capabilities, signaling and control, and physical and product features etc., refer to the [UCM6100 series product data sheet](#).

What Sets the UCM6100 series IP PBX Apart?

Enterprise-grade Features Catered to SMBs

Smaller organizations have the same communications needs as larger enterprises. Often entry-level IP PBXs for smaller businesses include popular calling features like Caller ID, Call Hold, Call Forward, voicemail, etc., but require additional license fees for more advanced features like auto attendant and IVR. IVR capability comes standard with any UCM6100 series model and is not that sold as add-on module as with other vendor offerings. This provides a significant savings of up to several thousands of dollars.

The UCM6100 series has a large 4 Gigabit Flash memory to accommodate features and storage of voice mails, auto attendant, IVR, music on hold, call recordings, etc.

No Licensing or Recurring Fees/Includes Lifetime Firmware Updates

Most IP PBX vendors charge annual license fees for advanced features like IVR. These additional fees are often the determining factor on whether an SMB can afford an on-site PBX. The UCM6100 series has no licensing or recurring fees - a key differentiating factor against other marketplace solutions. All hardware, software features and functions are included. When Grandstream releases firmware updates for the UCM6100 series, those updates are available at no charge for the life of the system.

Auto Discovery of SIP Endpoints & Zero-Configuration Provisioning

Installation and set-up of the UCM6100 series IP PBX is handled with a few clicks of the mouse and minimal manual operation. With no advanced technology degree required, this plug and play phone system incorporates Auto Discovery of SIP endpoints (ATAs, videophones, IP phones, video cameras etc.) that once the device is connected, the system automatically registers the device. Zero-configuration provisioning means adding phones or office locations after initial installation is simply handled using the intuitive Web user Interface (UI). For ongoing maintenance and administration, those duties can be handled either internally by staff members or remotely by a systems integrator partner without having to physically visit the office location.



Video Calling and Physical Surveillance Applications

Save time, improve decision-making and reduce travel expenses with real-time video calling. As easy as making a phone call, use a desktop videophone to communicate visually with your customers and employees. For physical security applications, the UCM6100 series integrates and registers any SIP-compliant door access or video surveillance camera for a comprehensive surveillance solution that sends alerts and can be monitored from anywhere.

Mobility Features

As businesses add mobility-based applications for further productivity gains, the UCM6100 series starts SMBs on that journey. Grandstream's IP PBX appliance adds several mobility-based features to help businesses with single or multi-locations around the globe to take that initial step. Not all SMBs require a comprehensive set of mobility features at the onset. To help small businesses get started, the UCM6100 series supports extension dialing over worldwide locations and can register a user's smartphone or laptop as an extension on the PBX so that device can make and receive calls wherever the user goes. Users can access important business files remotely; such as call recordings, call detail records (CDR) and voicemail and fax through email forwarding. The UCM6100 series also allows SMBs to monitor their physical business location through live video feeds and receive alerts/notifications from their surveillance cameras on nearly any device that has an Internet connection.

Low Capital Investment and Ongoing Operating Costs

Purchasing an on-site IP PBX can be a more cost-effective solution over time. While the initial investment may be slightly higher than a hosted VoIP solution, factoring the yearly recurring costs of a hosted solution is something that an on-site solution does not require. As a business grows and adds users or applications like video surveillance, all that is required is the purchase of SIP phones and cameras. Overall, using an IP PBX with SIP Trunking helps to reduce monthly phone bills, especially long distance charges, by allowing businesses to connect with lower cost VoIP providers.

Model Types	Retail Price US\$
UCM6102 (2 FXO ports)	\$399.00
UCM6104 (4 FXO ports)	\$499.00
UCM6108 (8 FXO ports)	\$949.00
UCM6116 (16 FXO ports)	\$1,799.00



UCM6100 Series – Voice, Data, Video and Mobility Apps

Cost, ease of installation and maintenance, feature content and custom application ability are key factors for determining whether or not an IP PBX is a good organizational fit. This section describes the features and functions of the Grandstream VoIP appliance. Specifically, it will convey what voice, data, video and mobility features are built-in and how businesses can customize the system to help unify communications for improved presence, company image and customer support. [For video demonstrations of the IP PBX application features and functions, click here.](#)

Benefits of UCM6100 series IP PBX Appliance

- **Multiple office peering**
- **Ability to use SIP trunks and Analog (PSTN) trunks**
- **Video surveillance integration**
- **Fast, easy installation and remote management using Web UI**
- **Auto-detection provisioning**
- **Advanced SIP security protocols**
- **Fax inclusion**
- **Multiple locations on a shared network**
- **Advanced call-routing features built-in**

Voice

Secure, clear, and reliable
Conferencing
Comprehensive Codec Support
Endless Customizable
Voice features

Mobility

Softphone apps
Monitor your business
Connect Multiple Offices

Data

Phonebook files
CDR
Codec Transcoding
System Backup
Call Recording
Voicemail/fax to email

Video

Face to face video calls
Video Surveillance Integration
SIP Video
Video Codec Support

Voice Features

To help improve communications, productivity and customer service, the UCM6100 series IP PBX includes a host of the most popular voice features that can be customized by an organization for the most impact. The UCM6100 series uniquely includes several features, for no additional licensing fee, that are often considered optional with other marketplace solutions. These 'add-on' features are highly desired by businesses yet are cost-prohibitive for some SMBs. Auto attendant and IVR are two popular ones. Auto attendant, for example, offers a professional image for an SMB and helps them to appear larger than they are to the outside world. With professional greetings and the ability to route calls immediately to specific departments this helps to aid call distribution and provide faster service.

The voice features of the UCM6100 series includes:

- **Call Routing**
- **Auto Attendant**
- **IVR**

- Call Forwarding
- Call Retrieval
- Music on Hold
- Call Transfer
- Voicemail
- Ring Group/Hunt Group
- 3-way conferencing (5 conference bridges available which each bridge supporting up to 32 attendees per bridge)
- Call Queue
- Call Recording – Calls are saved onto internal memory and can be accessed, played and downloaded remotely from Web UI
- Call Park
- Message Waiting Indication (MWI)
- Busy Lamp Field (BLF)
- Intercom/Paging
- Click to Dial
- Multi-Language Support
- Call Hold
- Do Not Disturb (DND)
- Remote extension dialing

Voice codecs vary around the world; therefore, the UCM6100 series is equipped to support all major voice codecs. This is extremely important for today's globally dispersed, multiple office locations business environment. The UCM6100 series supports the following codecs:

- G.711
- G.722 (HD audio)
- G.723.1
- G.726
- G.729
- iLBC
- GSM
- PCMU
- PCMA
- GSM
- ADPCM
- LPC10



“We’re very impressed with the performance of Grandstream’s UCM6100 series IP PBX appliance. The new solutions-based IP PBX contains a comprehensive feature set that is very easy to setup and manage -- allowing resellers and IT staff more flexibility with their time. Unique and beneficial features are the LDAP phone book integration, advanced IVR, call-routing options and troubleshooting tools. These are rarely found in such compact IP PBX appliances. With no licensing or recurring costs, we feel it’s one of the most affordable and effective IP PBXs available.”

Thiago Lima
IT Consultant with Brazilian-based TDSiS

Data Features

One of the main advantages of an IP PBX is the ability to converge voice and data networks. The UCM6100 series provides businesses with many popular data capabilities, including:

- **Fax Support**
- **Integrated phonebook files and services** - corporate phone books are available across all locations domestic and international; LDAP files synced with the PBX rather than the phones
- **Call Detail Reporting** – monitor user calling habits; view phone usage broken down by line, date, time, etc.
- **Call Recording**
- **Voicemail/Fax to email forwarding**
 - Voicemail to email forwarding (.WAV) files*
 - Fax to email forwarding (.PDF Files)*
- **System Backup**
 - Never lose unique configuration settings and files*
 - Backup to external SD card or internal Flash storage*
 - Backup to user’s network server*
 - Create specific backup times*
- **Codec transcoding**

Video Features

Video conferencing and video surveillance applications are experiencing widespread adoption within businesses of all sizes. Once cost-restricted to larger enterprises that purchased expensive, large-scale teleconferencing systems for videoconferencing and employed a separate network for video surveillance monitoring, businesses can easily implement SIP-based endpoint devices (phones and video cameras) to add these apps on the VoIP network along with voice and data.

Video Calling/Video Conferencing

Having a face-to-face, real-time videoconference with a colleague, partner or customer is as easy as dialing the desktop phone. From conducting meetings and training sessions to collaborating with remote employees to cutting down on travel expenses, video calling is a great way for SMBs to be more productive as well as save time and money. For a low-cost, video calling/video conferencing solution, businesses can connect any SIP-based desktop videophone to the UCM6100 series. Grandstream’s award-winning GXV3140 and GXV3175 IP Multimedia Phones are two options to consider for visual communications as well as accessing Web applications, social media sites and more from the desktop phone.

Video Surveillance

The UCM6100 series helps to lower the cost and complexity of adding video surveillance and monitoring applications for SMBs. For asset protection to monitoring facilities from anywhere in the world, any SIP-based door phone or video camera can be connected to the IP PBX. The system automatically registers a SIP camera(s) to the IP PBX (like any SIP Phone) so businesses can view, monitor and receive alerts from any IP camera in the network, regardless of its worldwide location.

A provider of assorted SIP-enabled endpoints, Grandstream has developed an extensive line of IP video cameras for a variety of business applications. From indoor and outdoor applications to night-time infrared and desktop cube cameras, Grandstream's GXV IP video cameras can seamlessly integrate with the UCM6100 series for a low cost surveillance solution. With the purchase of any Grandstream camera, businesses are given, at no charge, the GSurf Pro video management software that controls up to 36 cameras simultaneously.

Video surveillance capabilities includes:

- **Create a comprehensive solution to view, monitor and receive alerts from IP cameras**

- **Register IP cameras to the PBX**

Make video calls to IP cameras to view live feeds

Speak through cameras with 2-way audio & video (i.e. door entry application)

IP cameras can be set to automatically call the video phone when alert is triggered

Receive alerts from anywhere in the world

- **Supports all major video codecs**

H.263

H.263p

H.264



Mobility Features

Most businesses have road warriors who spend time out of the office and remote workers at home or at office locations located outside the corporate headquarters. The UCM6100 series IP PBX offers mobility features that help SMBs to get started in the world of unifying communications. Using an Internet connection, employees can connect with the UCM6100 series at the corporate office from any location in the world.

Key mobility features include:

- **Access business files from anywhere in the world**
 - Call recordings accessible remotely from Web UI*
 - Voicemail to email - Listen to your voicemail (.WAV) while traveling*
 - Fax to email - Receive faxes as (.PDF) on smartphone*
- **Road warriors can make and receive calls on smartphones and laptops using compatible smartphone app**
 - Compatible with SIP smartphone & computer applications, including Counterpath Bria*
 - The extension is now associated with the user, not a place (the extension goes wherever they go)*
 - Supports both video and audio calls*
- **Real-time business surveillance monitoring from anywhere in the world, manage system remotely**
 - View live video feeds and receive alerts from IP video cameras on any device (desktop videophone, video management system) with an Internet connection*
 - Grandstream GXV IP cameras uniquely offer 2-way audio capability*
- **Mobile VoIP support with digital wireless telephones (DECT phones)**
 - Grandstream's DP715 wireless phone can be used as an extension of a desktop phone within 150 feet indoors and up to 900 feet outdoors of the base station for added flexibility*



“Over the past decade, Grandstream has grown its brand by supplying network building, affordable and feature-rich SIP products. The addition of the UCM6100 reaffirms our commitment to be a complete SIP business communications provider.”

Conclusion

Selecting an IP PBX is a business decision that is vital to an organization’s communications and productivity level. IP PBXs have evolved making it more affordable for SMBs to take advantage of the same productivity and customer service-enhancing features available to larger enterprises with more call volume and number of employees.

Grandstream’s UCM6100 series IP PBX appliance has taken affordability even further. To help close the decision-making gap for SMBs that feel more suited for a self-hosted, customized VoIP solution, the UCM6100 series eliminates hefty licensing fees typical of other IP PBX market solutions. The IP PBX is ideal for smaller organizations because its simplicity and ease of management requires no on-site IT personnel. The system can be managed remotely, all hardware and software comes standard, lifetime firmware updates are included and its compact size requires minimal dedicated physical footprint.

Combine all these attributes with extreme affordability and an extensive list of enterprise-grade voice, video, data and mobility features and it truly is an ideal solution for SMBs.

Grandstream Networks

A Complete SIP Business Communications Provider

A supporter of all things IP, Grandstream Networks believes that every business is unique and that ‘no size fits all.’ From its inception selling ATA’s to customers wanting to migrate to IP while using their older analog telephones, Grandstream has consistently worked to introduce products to help businesses, of all sizes, around the globe implement VoIP solutions that positively impact productivity and the bottom-line. A decade later, Grandstream has expanded its product set from ATAs to also include SIP-based telephones used in a variety of on-premise or hosted environments to IP Multimedia Phones for desktop video calling and Internet applications to IP video surveillance cameras for physical security monitoring. Grandstream helps bring the business value of VoIP to the desktop.

Appendix A: Questions to Ask When Purchasing an IP PBX

When shopping for an IP PBX, consider asking these key questions to brand sales representative(s):

- What is the procurement process? Can the IP PBX be purchased directly online through a distributor? Does a reseller need to purchase and install the system?
- What is the installation process? How many steps does it take to get the IP PBX up and running? How much of the process is automatic versus manual?
- When adds, moves and changes are required based on business fluctuations, what is the provisioning process for making those changes with endpoint devices and features?
- When firmware updates are available from the manufacturer, what is the process for being notified and for completing the updates?
- What voice and video codecs are supported?
- How many lines, stations and concurrent calls are supported?
- What location considerations need to be addressed when installing the VoIP system? Is the system rack mounted, desktop or wall mounted? How many systems can be daisy-chained for increased capacity?
- Does ongoing maintenance and administration of the IP PBX and its devices require outside assistance from a reseller partner or can it be done internally?
- Are system updates handled on-site or can updates be done remotely?
- How easy and descriptive is the web user interface?

- If new business locations are added throughout the world, does that require a new IP PBX at that site? What hardware/software is required to get the new location up and running?
- How scalable is the system?
- Are there online videos available from the IP PBX vendor to explain the set-up, maintenance and features of the VoIP system?
- What are the warranty terms?
- How does the IP PBX support feature and application customization?
- What third party products (SIP endpoints, SIP trunk providers, etc.) have been tested with the IP PBX? Is this vendor proved to have wide interoperability with other IP solutions in the industry?
- Does the vendor have certifications from key service providers assuring the IP PBX is interoperable with their network offerings?
- What independent review sites have provided a written assessment of the IP PBX?
- How long has the vendor been in the marketplace? What other IP solutions do they provide?
- What are the get-started costs associated with purchasing the IP PBX? What features are included in the base price? Are there licensing fees for features like IVR? Are there any other recurring costs to consider? Are firmware updates included at no charge?
- What is the system recovery process in the event of a power outage?
- What customer service options are available with questions?
- What security protocols are available with the IP PBX?