Cisco IP Phone 6800 Series

The Cisco® IP Phone 6800 Series is a cost-effective, high-fidelity voice communications portfolio designed to improve your organization's person-to-person communications while reducing your operating costs on approved Unified-Communications-as-a-Service (UCaaS) platforms.

The 6800 Series combines an attractive, new ergonomic design with "always-on" reliability and secure encrypted communications. The phones deliver advanced IP telephony features and wideband audio capabilities with an easy-to-use, full-featured voice communications experience.

The Cisco IP Phone 6800 Series introduces three phone models (and an optional Key Expansion Module) to the Cisco Multiplatform Phone (MPP) portfolio (Figure 1):

- Cisco IP Phone 6821 with Multiplatform Firmware, supporting two SIP registrations
- Cisco IP Phone 6841 with Multiplatform Firmware, supporting four SIP registrations
- Cisco IP Phone 6851 with Multiplatform Firmware, supporting four SIP registrations
  Only the 6851 supports the Key Expansion Module (KEM).

Figure 1.   Cisco IP Phone 6800 Series: 6821 (left), 6841 (middle), and 6851 with optional KEM (right)

Cisco IP Phone 6800 Series product overview

The line buttons on each model are fully programmable. You can set up line buttons to support either SIP registrations, or call features, such as speed dialing. You can also boost productivity by handling multiple calls for each SIP registration, using the multiple-calls-per-line appearance feature. Tricolor LEDs on the line buttons support the calling features and make the phone simple to use.

Fixed function buttons on the 6800 series phones give you one-touch access to service, messaging, directory, hold/resume, transfer, and conference features. A full-duplex speakerphone lets you set up clear multiparty conferences for flexible, productive collaboration. There are fewer fixed function buttons available on the 6821 than on the 6841 and 6851 (see Table 1 for details).

The Cisco IP Phone 6800 Series maintains the same usability standards and standards for a context-sensitive user experience as the Cisco IP Phone 7800 Series. The 6821 IP phone has a 2.5-inch (240x120-pixel) grayscale display with white backlighting for easy reading. The 6841 and 6851 IP phones each have a high-resolution 3.5-inch (396x162-pixel) grayscale display with white backlighting. Localized language support is available for global users. See Table 6 for a list of available languages.

The 6800 Series is also energy-efficient and eco-friendly, to support green initiatives. The 6821 and 6851 support Power over Ethernet (PoE) Class 2. The 6821, 6841, and 6851 are Energy Star certified. The 6841 and 6851 support a power-save option that reduces power consumption during off-hours, saving costs by increasing energy efficiency.

The 6800 Series is ideal for businesses that want to update their phone systems from traditional analog or digital-based systems to an IP communications system with supported multiplatform call control systems.

Cisco IP Phone 6800 Key Expansion Module product overview

The Cisco IP Phone 6800 Key Expansion Module (KEM) extends the capabilities of the Cisco IP Phone 6851 with additional buttons. This module adds 14 physical buttons along with access to 14 additional buttons via the page buttons, for a total of 28 additional buttons. The KEM supports the Programmable Line Key (PLK) function, but does not support any SIP registrations. Calls may be monitored and answered using the PLK function, but calls may not initiated from the KEM. The 6851 IP phone supports one KEM only.

The 6800 KEM comes with a foot stand and cable to connect it directly to the base device in a traditional side-by-side configuration (Figure 2).

Figure 2.   Cisco IP Phone 6800 Key Expansion Module

Cisco IP Phone 6800 Series features and benefits

Table 1 lists the features and benefits of the Cisco IP Phone 6800 Series.

Table 1. Cisco IP Phone 6800 Series features and benefits

Feature	Benefits
Hardware features	
Ergonomic design	• An easy-to-use interface that provides a traditional telephony-like user experience.
Graphical display	• 6821: White backlit, grayscale, 2.5-in. (6.4-cm) 240 x 120-pixel display. • 6841 and 6851: White backlit, grayscale, 3.5-in. (9-cm) 396 x 162-pixel display. • Scrollable access to calling features and text-based XML applications.
Handset	• 6821: Narrowband audio handset connected through an RJ-9 port. • 6841 and 6851: Ship with a narrowband audio handset connected through an RJ-9 port. An optional wideband audio handset is sold separately for these models only. • All 6800 series handsets are Hearing-Aid-Compatible (HAC) and meet Federal Communications Commission (FCC) loudness requirements for the Americans with Disabilities Act (ADA). You can meet Section 508 loudness requirements by using industry-standard inline handset amplifiers such as Walker Equipment W-10 or CE-100 amplifiers. The dial pad on all 6800 series models is also ADA-compliant. • The 6800 series handsets produce a magnetic field that attracts small metallic objects such as pins and staples. To avoid possible injuries, do not keep small metallic objects close to the handset.
Headset	• The analog headset jack is a wideband-capable RJ-9 audio port for the 6821, 6841, and 6851 models.
Backlit indicator	• 6821: Backlit line buttons and a message waiting indicator; uses icons on the LCD to indicate activation of the headset, mute, and select buttons. • 6841 and 6851: Backlit indicators on the audio path buttons (handset, headset, and speakerphone), select, line, and message waiting buttons.
Volume control	• A volume-control toggle provides easy decibel-level adjustments of the handset, monitor speaker, and ringer.
Full-duplex speakerphone	• A full-duplex speakerphone gives you flexibility in placing and receiving calls. For added security, the Audible Dual-Tone Multi-frequency (DTMF) tones are masked when the speakerphone mode is used.
Single-position foot stand	• The foot stand holds the phone in a single position, making the display easy to view and the buttons easy to use while sitting down. You can remove the foot stand for wall mounting. There are mounting holes located on the back of the phone.
Wall-mountable	• 6821: Can be mounted directly to the wall using woodscrews and anchors for drywall. • 6841 and 6851: Can be wall-mounted using the optional 6800 Series wall-mount kit (sold separately).
Electronic hook switch	• 6851 only: Electronic hookswitch headset support via its auxiliary port.
Keys	• The 6821, 6841, and 6851 have: ◦ Lines ◦ Soft keys ◦ Two-way navigation and select ◦ Service ◦ Standard key pads ◦ Volume control toggle ◦ Speakerphone, headset, and mute • Additionally, the 6841 and 6851 have: ◦ Hold/resume, transfer, and conference ◦ Messaging, Directory
Ethernet cables	• The 6821, 6841, and 6851 support the following Ethernet cables: ◦ Category 3, 5, 5e, and 6 for 10-Mbps cables with 4 pairs ◦ Category 5, 5e, and 6 for 100-Mbps cables with 4 pairs • Additionally, the 6841 and 6851 support: ◦ Category 3, 5, 5e, and 6 for 1000-Mbps cables with 4 pairs

Feature	Benefits
Power features	
IEEE PoE Class 2	• The 6821 and 6851 support IEEE 802.3af PoE (Class 2); power consumption does not exceed 6.49W. • The 6841 supports wall power only through an included, regional power adapter.
Power adapter with country clips	• 6800 Series regional power adapters are available for powering the 6821, 6841, and 6851 when used in non-PoE deployments.
Cisco power injector	• The 6851 is compatible with the Cisco Unified IP Phone Power Injector (CP-PWR-INJ), and with the Cisco Aironet® Power Injector (AIR-PWRINJ5=).

Cisco IP Phone 6800 Key Expansion Module features and benefits

Table 2 lists the features and benefits of the Cisco IP Phone 6800 Key Expansion Module.

Table 2.   Cisco IP Phone 6800 Key Expansion Module features and benefits

KEM feature	Benefits
Illuminated buttons	
Off (dark)	Button is not configured
Green, steady	Configured correctly and is in the idle state
Red, steady	In use and has an active call on it or has a parked call
Amber, flashing	A configuration error has occurred for this button
Illuminated page buttons	
Off (dark)	Page not in focus
Green, steady	Page in focus
Amber, flashing	Page not in focus, with one or more alerting or on-hold calls present on page
Hardware and power-saving features	
Graphical display	Two 3.5-in (9-cm) grayscale backlit LCD displays, 160 x 270 resolution
Directory number and feature buttons	The module has 14 physical buttons (28 using page keys)
Page buttons	Use the 2 page buttons to access each page of 14 buttons and provide phone status
Power save mode	When the Cisco IP Phone 6851 is placed in power save mode, the 6800 KEM is also placed in power save mode. Pressing the select button while the phone and KEM are in power save mode will restart both the phone and the KEM

Supported features

Table 3 lists the features supported in the multiplatform phone firmware.

Table 3.   Features supported in the multiplatform phone firmware

Feature	Detail
Audio	• Codecs: G.711 (A-law and μ-law), G.722.2, G.722, G.729 (a, b, ab), ILBC, iSAC, OPUS • DTMF: In-band, out-of-band (RFC 2833), and SIP INFO • MOS Score Reporting (Telchemy)
Network	• MAC address (IEEE 802.3) • SIP protocol support (RFC 3261 and companion RFCs) • IPv4 (RFC 791) • IPV6 (RFC 2460): System Interoperability Testing Required • DNS: A record (RFC 1706), SRV record (RFC 2782) • Dynamic Host Configuration Protocol (DHCP) (RFC 2131) • Simple Network Time Protocol (SNTP) (RFC 2030) • Network Address Translation (NAT) traversal, serial tunnel (STUN) • User Datagram Protocol (UDP) and TCP

Feature	Detail
	• Link Layer Discovery Protocol (LLDP) • Cisco Discovery Protocol • TR.69 provisioning: System Interoperability Testing Required
Security	• Certificates • Image authentication • File authentication • 802.1X authentication • Transport Layer Security (TLS) • Media encryption via Secure Real-Time Transport Protocol (SRTP) with Advanced Encryption Standard (AES-128 or AES-256) • Signaling encryption using TLS with AES-128 or AES-256 • Encrypted configuration files • Digest authentication • Password login • HTTPs secure provisioning • Mandatory/Optional Secure call
Applications	• Cisco XML Services Interface (XSI) • Cisco UC-One Presence
Call control and audio features	• Busy Lamp Field (BLF)[1] • Call back on busy • Call blocking – anonymous and selective • Call conferencing – hosted (N-party)[1] • Call conferencing – local 3-way • Call forwarding – unconditional, no answer, on busy • Call hold • Call pickup – selective and group1 • Call park and unpark[1] • Call transfer – attended or blind • Call waiting • Caller ID name and number and outbound caller ID blocking • Caller ID mapping for incoming calls • Configurable dial/numbering plan support with inter-digit timers – per line • Configurable supplementary services soft keys • Distinctive ringing based on calling and called number • Do not disturb • Extension mobility/hot-desking[1] • Group paging[1] • Hoteling[1] • Intercom[1] • Individual volume setting per audio path (headset, handset, or speaker) • Multicast paging • Music on hold[1] • Outbound caller ID blocking • Visual Voice Message Waiting Indicator (VMWI) • Shared/bridge line appearance[1] • Supplementary services feature activation codes

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[1] Feature requires support by the registered multiplatform call control system.

Feature	Detail
Directory	• Local phonebook • XML/Lightweight Directory Access Protocol (LDAP) remote directory • Broadsoft directory • Intelligent search • Call history • Reverse address lookup in all directories
Management	• Configuration: Browser, phone, auto-provision • Auto-provision via TFTP, HTTP, or HTTPs for mass deployment • Packet capture, Problem Reporting Tool (PRT) and upload of PRT

Platform support

Table 4 lists the platforms supported by the multiplatform phone firmware.

Table 4.   Supported platforms

Platforms supported	Certifications
Asterisk	Interoperability Tested – Release (1.8+)
Broadsoft Broadworks	Interoperability Tested and Certified – Releases 19sp1, 20sp1, 21sp1, 22sp1
Broadcloud	Interoperability Tested and Certified
Centile	6821: Support with Centile is road mapped. 6841 and 6851: Interoperability Tested and Certified – Release Istra SP 9.2
Metaswitch	Interoperability Tested and Certified – Release 9.3 Interoperability Tested – Release 9.4 for 6821

Session border controller support

Table 5 lists the session border controllers supported by the multiplatform phone firmware.

Table 5.   Supported session border controllers

Session border controllers
EdgeMarc
Metaswitch Perimeter
Oracle/Acme
Sonus 5100

Licensing

All Cisco IP Phone 6800 Series models are covered by the Cisco End User License Agreement at
https://www.cisco.com/go/eula.

Product specifications

Table 6 lists the features and specifications of the Cisco IP Phone 6800 Series.

Table 6. Features and specifications

Features	Specifications
Signaling protocol support	Session Initiation Protocol (SIP)
Full lines supported	6821: 2 lines (SIP registrations) 6841: 4 lines (SIP registrations) 6851: 4 lines (SIP registrations)
Language support	• Bulgarian • Chinese (Simplified) • Chinese (Traditional, Hong Kong) • Croatian • Czech • Danish • Dutch • English (American) • English (United Kingdom) • Finnish • French (France) • German • Hungarian • Italian • Japanese • Korean • Norwegian • Polish • Portuguese (Portugal) • Spanish (Spain) • Slovak • Swedish • Slovenian • Turkish
Multiple ring tones	• The phones support user-adjustable ring tones
Quality-of-Service (QoS) options	• The phone supports Cisco Discovery Protocol and 802.1Q/p standards, and can be configured with an 801.1Q VLAN header containing the VLAN ID overrides configured by the admin VLAN ID
Security	• Certificates • Image authentication • Device authentication • File authentication • Signaling authentication • Media encryption using SRTP with Advanced Encryption Standard (AES)-128 • Signaling authentication • Media encryption using SRTP with Advanced Encryption Standard AES-128 or AES-256 • Signaling encryption using TLS with AES-128 or AES-256 • Encrypted configuration files • 802.1X authentication • Cryptography
Configuration options	• The user can configure the IP address assignment statically or through the DHCP client
Physical dimensions (HxWxD)	• 6821: 8.2 x 6.7 x 1.5 in. (207 x 171 x 37.5) (excluding foot stand) • 6841: 8.2 x 8.1 x 1.3 in. (207 x 206 x 33 mm) (excluding foot stand) • 6851: 8.2 x 10.4 x 1.3 in. (207 x 265 x 33 mm) (excluding foot stand) • 6800 Key Expansion Module: 8.15 x 4.45 x 1.65 in. (207 x 113 x 42 mm)

Features	Specifications
Weight	• 6821: 16 oz. (456 g) (excluding foot stand, handset, and package), 18 oz. (512 g) (including foot stand, excluding handset and package) • 6841: 22 oz. (615 g) (excluding foot stand, handset, and package), 24 oz. (682 g) (including foot stand, excluding handset and package) • 6851: 22 oz. (615 g) (excluding foot stand, handset, and package), 24 oz. (682 g) (including foot stand, excluding handset and package) • 6800 Key Expansion Module: 11.5 oz. (320 g)
Display	• 6821: 2.5 in. (6.4 cm), 240 x 120 pixels • 6841 and 6851: 3.5 in. (9 cm), 396 x 162 pixels • 6800 Key Expansion Module: Two 3.5-in (9-cm) grayscale backlit LCD displays, 160 x 270 resolution
Ethernet switch	• 6821: A 10/100BASE-T Ethernet connection through two RJ-45 ports; one for the LAN connection and the other for a downstream Ethernet device connection such as a PC • 6841 and 6851: A 10/100/1000BASE-T Ethernet connection through two RJ-45 ports; one for the LAN connection and the other for a downstream Ethernet device connection such as a PC
Phone and KEM casing composition	• Polycarbonate Acrylonitrile Butadiene Styrene (ABS) textured plastic
Power requirements	• 6821, 6851: Interoperable IEEE 802.3af PoE (Class 2) devices. 5V DC is required; they can be supplied locally at the desktop using one of the optional AC-to-DC country-specific power supplies (such as the CP-6800-PWR-NA= for North America). • 6841: Must be powered with the supplied 5V DC country-specific power supply (such as the CP-6800-PWR-NA= for North America), which is included with the phone. • 6800 Key Expansion Module: No local power supply. The KEM receives power from the attached 6851 IP phone. The attached 6851 IP phone may be powered via PoE or the 6800 (5V) power adapter.
Operational temperature	• 32° to 104°F (0° to 40°C)
Nonoperational temperature shock	• 14° to 140°F (-10° to 60°C)
Humidity	• Operating 10% to 90%, noncondensing • Non-operating 10% to 95%, noncondensing

Certification and compliance for 6821	• Regulatory compliance:
	  ◦ CE Markings per directives 2014/30/EU and 2014/35/EU
	• Safety:
	  ◦ UL 60950 Second Edition
	  ◦ CAN/CSA-C22.2 No. 60950 Second Edition
	  ◦ EN 60950 Second Edition (including A11 and A12)
	  ◦ IEC 60950 Second Edition (including A11 and A12)
	  ◦ AS/NZS 60950
	• EMC – Emissions
	  ◦ 47CFR Part 15 (CFR 47) Class B
	  ◦ AS/NZS CISPR32:2015 Class B
	  ◦ CISPR 32: 2015_COR1:2016 Class B
	  ◦ EN55032: 2015+AC:2016
	  ◦ ICES003 Class B
	  ◦ EN61000-3-2:2014 and IEC 61000-3-2:2014
	  ◦ EN61000-3-3:2013 and IEC61000-3-3:2013
	  ◦ VCCI Class B
	• EMC – Immunity
	  ◦ EN55024
	  ◦ CISPR24
	  ◦ Armadillo Light
	• Telecom
	  ◦ FCC Part 68 HAC
	  ◦ CS-03-HAC
	  ◦ AS/ACIF S004
	  ◦ AS/ACIF S040
	  ◦ NZ PTC 220
	  ◦ Industry standards: TIA 810

Features	Specifications
	• Industry standards: IEEE 802.3 Ethernet, IEEE 802.3af

Certification and compliance for 6841, 6851	• Regulatory compliance:
	  ◦ CE Markings per directives 2004/108/EC and 2014/30/EU
	• Safety:
	  ◦ UL 60950 Second Edition
	  ◦ CAN/CSA-C22.2 No. 60950 Second Edition
	  ◦ EN 60950 Second Edition (including A11 & A12)
	  ◦ IEC 60950 Second Edition (including A11 & A12)
	  ◦ AS/NZS 60950
	• EMC – Emissions
	  ◦ 47CFR Part 15 (CFR 47) Class B
	  ◦ AS/NZS CISPR32:2015 Class B
	  ◦ CISPR 32: 2015_COR1:2016 Class B
	  ◦ EN55032: 2015+AC:2016
	  ◦ ICES003 Class B
	  ◦ EN61000-3-2:2014 and IEC 61000-3-2:2014
	  ◦ EN61000-3-3:2013 and IEC61000-3-3:2013
	• EMC – Immunity
	  ◦ EN55024
	  ◦ CISPR24
	  ◦ Armadillo Light
	• Telecom
	  ◦ FCC Part 68 HAC
	  ◦ CS-03-HAC
	  ◦ AS/ACIF S004
	  ◦ AS/ACIF S040
	  ◦ NZ PTC 220
	  ◦ Industry standards: TIA 810 and TIA 920
	• Industry standards: IEEE 802.3 Ethernet, IEEE 802.3af (for CP-6851 only)

Ordering information

Table 7 gives ordering information for the phones and their accessories. All of the 6800 MPP phones support Remote Configuration (RC). It is no longer necessary to order specific "RC" SKUs to use the RC function.

Table 7.   Ordering information

Part number	Product description
CP-6821-3PCC-K9=	Cisco IP Phone 6821
CP-6821-3PW-K9	Cisco IP Phone 6821 with power adapter. The NA or AU clips are options under this SKU
CP-6841-3PW-NA-K9=	Cisco IP Phone 6841 with power adapter for North America
CP-6841-3PW-CE-K9=	Cisco IP Phone 6841 with power adapter for Europe
CP-6841-3PW-UK-K9=	Cisco IP Phone 6841 with power adapter for the United Kingdom
CP-6841-3PW-AU-K9=	Cisco IP Phone 6841 with power adapter for Australia/New Zealand
CP-6851-3PCC-K9=	Cisco IP Phone 6851
CP-6851-3PW-NA-K9=	Cisco IP Phone 6851 with power adapter for North America
CP-6851-3PW-CE-K9=	Cisco IP Phone 6851 with power adapter for Europe
CP-6851-3PW-UK-K9=	Cisco IP Phone 6851 with power adapter for the United Kingdom
CP-6851-3PW-AU-K9=	Cisco IP Phone 6851 with power adapter for Australia/New Zealand
CP-68KEM-3PCC=	Optional Cisco IP 6800 Key Expansion Module
CP-6800-WMK=	Spare Wall Mount Kit for IP Phone 6800 Series

Part number	Product description
CP-6800-PWR-NA=	Cisco IP Phone 6800 power adapter for North America
CP-6800-PWR-CE=	Cisco IP Phone 6800 power adapter for Europe
CP-6800-PWR-UK=	Cisco IP Phone 6800 power adapter for the United Kingdom
CP-6800-PWR-AU=	Cisco IP Phone 6800 power adapter for Australia and New Zealand
CP-6821-HS=	Handset for Cisco IP Phone 6821
CP-DX-HS-NB=	Spare Narrowband Handset for Cisco IP Phone 6841, 6851
CP-DX-HS=	Optional Wideband Handset for Cisco IP Phone 6841, 6851
CP-7800-HS-CORD=	Spare Handset Cord for Cisco IP Phone 6800 Series

Warranty

The Cisco IP Phone 6800 Series is covered by a one-year limited hardware warranty.

https://www.cisco.com/go/warranty.

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More information

For additional details on the Cisco IP Phone 6800 Series, go to
[https://www.cisco.com/c/en/us/products/collaboration-endpoints/ip-phone-6800-series/index.html]

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