

# Cisco TelePresence Codec C90

The Cisco TelePresence® portfolio creates an immersive, in-person experience over the network - empowering you to collaborate with others like never before. Through a powerful combination of technologies and design that allows you and remote participants to feel as if you are all in the same room, the Cisco TelePresence portfolio has the potential to provide great productivity benefits and transform your business. Many organizations are already using it to manage costs, make decisions faster, improve customer intimacy, scale scarce resources, and speed products to market.

**Figure 1.** Cisco TelePresence Codec C90



## Product Overview

The Cisco TelePresence Codec C90 is one of the most powerful, flexible telepresence and collaboration engine available delivering up to 1080p60<sup>1</sup> end-to-end high definition (HD) video, HD collaboration, and HD embedded conference capability with Cisco TelePresence MultiSite (MultiSite) technology. With more inputs and outputs than ever before, the integration possibilities are endless.

## Cisco TelePresence Codec C90 Features

Table 1 summarizes the key features for the Cisco TelePresence Codec C90.

**Table 1.** Cisco TelePresence Codec C90 Feature Summary

Feature Summary	
<b>Design features</b>	<ul style="list-style-type: none"> <li>• One of the most powerful and feature-rich codecs available with the ultimate in video and audio quality</li> <li>• 2 rack unit (2RU) high, rack-mountable, with rack mounting solution included</li> <li>• Professional grade connectors</li> <li>• Unmatched quality and flexibility</li> <li>• Standards-compliant 1080p solution-compatible with standards-based video without losing features</li> </ul>
<b>Application features</b>	<ul style="list-style-type: none"> <li>• 1080p30 HD embedded MultiSite technology with Individual transcoding</li> <li>• Collaborate on virtually anything with 5 simultaneous video inputs</li> <li>• HD Collaboration with 1080p30 and WUXGA<sup>2</sup></li> <li>• One button to push (OBTP) to start a meeting</li> <li>• Limitless integration possibilities</li> <li>• Ideal for immersive telepresence and collaboration studios, boardrooms, auditoriums, education and telemedicine applications</li> </ul>

Feature Summary	
<b>Performance features</b>	<ul style="list-style-type: none"> <li>• Optimal definition up to 1080p60</li> <li>• H.323/SIP up to 6 Mbps point-to-point; up to 10Mbps total MultiSite bandwidth</li> <li>• Connect up to 12 HD sources and eight microphones directly into the interface</li> <li>• Full duplex audio with high-quality stereo sound</li> <li>• Full application programming interfaces (APIs)</li> <li>• Ability to take advantage of Cisco® TelePresence Total Solution Management, transcoded HD MultiSite, recording and streaming, Multiway, and firewall traversal</li> <li>• Cisco TelePresence ClearPath packet loss protection technology for optimal experience</li> <li>• Cisco Unified Communications Manager native support (requires Cisco Unified Communications Manager Version 8.6 or higher)</li> </ul>

## Product Capabilities

Table 2 lists the product capability specifications for the Cisco TelePresence Codec C90.

**Table 1.** Product Specifications

Specification	Description
<b>Unit delivered complete with:</b>	<ul style="list-style-type: none"> <li>• Videoconferencing codec, wireless remote control, rackmounting rails, LAN cable, and power cable</li> </ul>
<b>Bandwidth</b>	<ul style="list-style-type: none"> <li>• H.323/SIP up to 6 Mbps point-to-point</li> <li>• Up to 10 Mbps total MultiSite bandwidth</li> </ul>
<b>Firewall traversal</b>	<ul style="list-style-type: none"> <li>• Cisco TelePresence Expressway technology</li> <li>• H.460.18 and H.460.19 Firewall Traversal</li> </ul>
<b>Video standards</b>	<ul style="list-style-type: none"> <li>• H.261, H.263, H.263+, and H.264</li> </ul>
<b>Video features</b>	<ul style="list-style-type: none"> <li>• Native 16:9 Widescreen</li> <li>• Advanced screen layouts</li> <li>• Intelligent video management</li> <li>• Local auto layout</li> <li>• Nine embedded individual video compositors - one for every output and one for every encoder</li> </ul>
<b>Video inputs (13 inputs)</b>	<p><b>Four HDMI Inputs: Supported Formats:</b></p> <ul style="list-style-type: none"> <li>• 1920 x 1080@60 and 59.94 Hz (1080p60)</li> <li>• 1920 x 1080@50 Hz (1080p50)</li> <li>• 1920 x 1080@30, 29.97 Hz (1080p30)</li> <li>• 1920 x 1080@25 Hz (1080p25)</li> <li>• 1920 x 1080@24 and 23.97 Hz (1080p24)</li> <li>• 1280 x 720@60 and 59.94 Hz (720p60)</li> <li>• 1280 x 720@50 Hz (720p50)</li> <li>• 720 x 480@60 and 59.94 Hz (480p60)</li> <li>• 640 x 480@60 Hz (480p60)</li> <li>• 1600 x 1200@50 and 60 Hz (UXGA)</li> <li>• 1280 x 1024@60 and 75 Hz (SXGA)</li> <li>• 1024 x 768@60, 70, 75 and 85 Hz (XGA)</li> <li>• 800 x 600@56, 60, 72, 75 and 85 Hz (SVGA)</li> <li>• 1920 x 1200@50 and 60 Hz (WUXGA)</li> <li>• 1680 x 1050@60 Hz (WSXGA+)</li> <li>• 1440 X 900@60 Hz (WXGA+)</li> <li>• 1280 x 768@60 Hz (WXGA)</li> </ul> <p><b>Four HD-SDI Inputs: Supported Formats:</b></p> <ul style="list-style-type: none"> <li>• 1920 x 1080@30 Hz (1080p30)</li> <li>• 1920 x 1080@25 Hz (1080p25)</li> <li>• 1280 x 720@60 Hz (720p60)</li> <li>• 1280 x 720@50 Hz (720p50)</li> <li>• 1280 x 720@30 Hz (720p30)</li> <li>• 1280 x 720@25 Hz (720p25)</li> </ul>

Specification	Description
	<p><b>Two DVI-I Inputs: Supported Formats:</b></p> <p>Analog (VGA):</p> <ul style="list-style-type: none"> <li>• 1920 x 1080@60 Hz (1080p)</li> <li>• 1280 x 720@60 Hz (720p)</li> <li>• 1600 x 1200@60 Hz (UXGA)</li> <li>• 1280 x 1024@60 and 75 Hz (SXGA)</li> <li>• 1280 x 960@60 Hz</li> <li>• 1024 x 768@60, 70, 75 and 85 Hz (XGA)</li> <li>• 1920 x 1200@50 Hz (WUXGA)</li> <li>• 1680 x 1050@60 Hz (WSXGA+)</li> <li>• 1440 x 900@60 Hz (WXGA+)</li> <li>• 1280 x 800@60 Hz (WXGA)</li> <li>• 1280 x 768@60 Hz (WXGA)</li> </ul> <p>Analog (YPbPr):</p> <ul style="list-style-type: none"> <li>• 1920 x 1080@60 Hz (1080p60)</li> <li>• 1920 x 1080@50 Hz (1080p50)</li> <li>• 1920 x 1080@30 Hz (1080p30)</li> <li>• 1920 x 1080@25 Hz (1080p25)</li> <li>• 1280 x 720@60 Hz (720p60)</li> <li>• 1280 x 720@50 Hz (720p50)</li> <li>• 1280 x 720@30 Hz (720p30)</li> <li>• 720 x 576@50 Hz (576p50)</li> <li>• 720 x 480@60 Hz (w480p60)</li> </ul> <p>Digital (DVI-D):</p> <ul style="list-style-type: none"> <li>• Same as HDMI, reference above</li> </ul> <p><b>TwoYPBPR Inputs (BNC Connectors), Supported Formats:</b></p> <ul style="list-style-type: none"> <li>• Same as DVI-I, Analog (YPbPr), ref. above</li> </ul> <p><b>OneS-VIDEO/Composite Input (BNC Connectors):</b></p> <ul style="list-style-type: none"> <li>• PAL/NTSC</li> <li>• Extended Display Identification Data (EDID)</li> </ul>
<p><b>Video outputs (five outputs)</b></p>	<p><b>Two HDMI Outputs, Two DVI-I Outputs: Supported Formats:</b></p> <ul style="list-style-type: none"> <li>• 1920 x 1080@60 Hz (1080p60)</li> <li>• 1920 x 1080@50 Hz (1080p50)</li> <li>• 1280 x 720@60 Hz (720p60)</li> <li>• 1280 x 720@50 Hz (720p50)</li> <li>• 1600 x 1200@60 Hz (UXGA)</li> <li>• 1280 x 1024@60 Hz (SXGA)</li> <li>• 1024 x 768@60 Hz (XGA)</li> <li>• 800 x 600@60 Hz (SVGA)</li> <li>• 640 x 480@60 Hz (VGA)</li> <li>• 1920 x 1200@60Hz (WUXGA)</li> <li>• 1360 x 768@60 Hz</li> <li>• 1366 x 768@60 Hz</li> <li>• 1280 x 768@60 Hz (WXGA)</li> <li>• PAL/NTSC</li> <li>• VESA Monitor Power Management</li> <li>• Extended Display Identification Data (EDID)</li> </ul> <p><b>One Composite Output (BNC Connector): Supported Formats:</b></p> <ul style="list-style-type: none"> <li>• PAL/NTSC</li> <li>• VESA Monitor Power Management</li> </ul>

Specification	Description
<b>Live video resolutions (encode and decode)</b>	<ul style="list-style-type: none"> <li>• 176 x 144@30 frames per second (fps) (QCIF)</li> <li>• 352 x 288@30 fps (CIF)</li> <li>• 512 x 288@30 fps (w288p)</li> <li>• 576 x 448@30 fps (448p)</li> <li>• 768 x 448@30 fps (w448p)</li> <li>• 704 x 576@30 fps (4CIF)</li> <li>• 1024 x 576@30 fps (w576p)</li> <li>• 1280 x 720@30 fps (720p30)</li> <li>• 1920 x 1080@30 fps (1080p30)<sup>2</sup></li> <li>• 640 x 480@30 fps (VGA)</li> <li>• 800 x 600@30 fps (SVGA)</li> <li>• 1024 x 768@30 fps (XGA)</li> <li>• 1280 x 1024@30 fps (SXGA)</li> <li>• 1280 x 768@30 fps (WXGA)</li> <li>• 1440 x 900@30 fps (WXGA+)</li> <li>• 1680 x 1050@30 fps (WSXGA+)</li> <li>• 1600 x 1200@30 fps (UXGA)<sup>2</sup></li> <li>• 1920 x 1200@25 fps (WUXGA)<sup>2</sup></li> <li>• 512 x 288@60 fps (w288p60)</li> <li>• 768 x 448@60 fps (w448p60)</li> <li>• 1024 x 576@60 fps (w576p60)</li> <li>• 1280 x 720@60 fps (720p60)<sup>2</sup></li> <li>• 1920 x 1080@60 fps (1080p60)<sup>2</sup></li> <li>• 720p30 from 768kbps</li> <li>• 720p60 from 1152kbps</li> <li>• 1080p30 from 1472kbps</li> <li>• 1080p60 from 2560kbps</li> </ul>
<b>Audio standards</b>	<ul style="list-style-type: none"> <li>• G.711, G.722, G.722.1, and 64 kbps &amp; 128 kbps MPEG4 AAC-LD, AAC-LD Stereo</li> </ul>
<b>Audio features</b>	<ul style="list-style-type: none"> <li>• CD-Quality 20KHz Mono and Stereo</li> <li>• Eight separate acoustic echo cancellers</li> <li>• Eight port audio mixer</li> <li>• Automatic Gain Control (AGC)</li> <li>• Automatic noise reduction</li> <li>• Active lip synchronization</li> </ul>
<b>Audio inputs (14 inputs)</b>	<ul style="list-style-type: none"> <li>• Eight microphones, 48V phantom powered, XLR connector each with separate echo cancellers and noise reduction, and all microphones can be set for balanced line level</li> <li>• Two RCA/Phono, Line Level: Stereo PC input</li> <li>• Two RCA/Phono, Line Level: Stereo auxiliary/DVD input</li> <li>• Two HDMI, digital: Stereo PC/DVD inputs</li> </ul>
<b>Audio outputs (eight outputs)</b>	<ul style="list-style-type: none"> <li>• Two XLR, balanced line level, and stereo main audio</li> <li>• Two RCA/Phono, line level, and stereo main audio, configurable to S/PDIF</li> <li>• Two RCA/Phono, line level, and stereo to recording device</li> <li>• One HDMI, digital, and stereo main audio</li> <li>• One HDMI, digital, and stereo to recording device</li> </ul>
<b>Dual stream</b>	<ul style="list-style-type: none"> <li>• H.239 (H.323) dual stream</li> <li>• BFCP (SIP) dual stream</li> <li>• Available in MultiSite from any site</li> <li>• Support for resolutions up to 1080p30/WUXGA, independent of main stream resolution</li> </ul>
<b>MultiPoint support</b>	<ul style="list-style-type: none"> <li>• Four-way embedded SIP/H.323 MultiPoint, reference MultiSite</li> <li>• Cisco TelePresence Multiway support (requires Cisco TelePresence Video Communication Server [Cisco VCS] and TelePresence MCU)</li> <li>• Ability to natively join multipoint conferences hosted on Cisco TelePresence Multipoint Switch (CTMS)</li> </ul>

Specification	Description
<b>MultiSite features (embedded MultiPoint)</b>	<ul style="list-style-type: none"> <li>• Four way 1080p30 High Definition SIP/H.323 MultiSite</li> <li>• Full individual audio and video transcoding</li> <li>• Individual layouts in MultiSite CP (takes out self view)</li> <li>• H.323/SIP/VoIP in the same conference</li> <li>• Support for Presentation (H.239/BFCP) from any participant at resolutions up to 1080p30/WUXGA</li> <li>• Best Impression (Automatic CP Layouts)</li> <li>• H.264, Encryption, Dual Stream from any site</li> <li>• IP Downspeeding</li> <li>• Dial in and dial out</li> <li>• Additional telephone call (no license required)</li> <li>• Conference rates up to 10 Mbps</li> </ul>
<b>Protocols</b>	<ul style="list-style-type: none"> <li>• H.323</li> <li>• SIP</li> <li>• ISDN (requires Cisco TelePresence ISDN Link)</li> </ul>
<b>Embedded encryption</b>	<ul style="list-style-type: none"> <li>• H.323/SIP point-to-point and multipoint calls</li> <li>• Standards-based: H.235-v3 and Advanced Encryption Standard (AES)</li> <li>• Automatic key generation and exchange</li> <li>• Supported in Dual Stream &amp; and MultiSite</li> </ul>
<b>IP network features</b>	<ul style="list-style-type: none"> <li>• DNS lookup for service configuration</li> <li>• Differentiated Services quality of service (QoS)</li> <li>• IP adaptive bandwidth management (including flow control)</li> <li>• Auto gatekeeper discovery</li> <li>• Dynamic playout and lip-sync buffering</li> <li>• H.245 DTMF tones in H.323</li> <li>• Date and Time support via NTP</li> <li>• Packet Loss based downspeeding</li> <li>• URI Dialing</li> <li>• TCP/IP</li> <li>• DHCP</li> <li>• 802.1x Network Authentication</li> <li>• 802.1Q Virtual LAN</li> <li>• 802.1p (QoS and class of service [COS])</li> <li>• ClearPath</li> <li>• Medianet: Mediatrace and Metadata</li> </ul>
<b>Cisco Unified Communications Manager (requires Cisco Unified Communications Manager Version 8.6 or later)</b>	<ul style="list-style-type: none"> <li>• Native registration with Cisco Unified Communications Manager</li> <li>• Basic Cisco Unified Communication Manager Provisioning</li> <li>• Firmware upgrade from Cisco Unified Communications Manager</li> <li>• Cisco Discovery Protocol and DHCP option 150 support</li> <li>• Basic telephony features such as hold/resume/transfer and Corporate Directory lookup</li> </ul>
<b>IPv6 network support</b>	<ul style="list-style-type: none"> <li>• Single call stack support for both H323 and SIP</li> <li>• Dual-stack IPv4 and IPv6 for DHCP, Secure Shell (SSH), HTTP, Secure HTTP (HTTPS), DNS, and Differentiated Services (DiffServ)</li> <li>• Support for both static and autoconfiguration (stateless address auto configuration)</li> </ul>
<b>Security features</b>	<ul style="list-style-type: none"> <li>• Management through HTTPS and SSH</li> <li>• IP administration password</li> <li>• Menu administration password</li> <li>• Disable IP services</li> <li>• Network settings protection</li> </ul>
<b>Network interfaces</b>	<ul style="list-style-type: none"> <li>• Two separate LAN/Ethernet (RJ-45) 10/100/1000 Mbit</li> </ul>
<b>Other interfaces</b>	<ul style="list-style-type: none"> <li>• USB host for future usage</li> <li>• USB device for future usage</li> <li>• GPIO<sup>2</sup></li> </ul>

Specification	Description
<b>Cisco TelePresence PrecisionHD Camera (1080p)</b>	<ul style="list-style-type: none"> <li>• 1/3" inch CMOS</li> <li>• 12x zoom</li> <li>• +15/-25° tilt and +/- 90° pan</li> <li>• 43.5° vertical field of view</li> <li>• 72° horizontal field of view</li> <li>• Focus distance 0.3m-infinity</li> <li>• 1920 x 1080 pixels progressive @ 60fps</li> <li>• Other formats supported (configurable through Dip-switch): <ul style="list-style-type: none"> <li>◦ 1920x1080@60fps (HDMI only)</li> <li>◦ 1920x1080@50fps (HDMI only)</li> <li>◦ 1920x1080@30fps</li> <li>◦ 1920x1080@25fps</li> <li>◦ 1280x720@60fps</li> <li>◦ 1280x720@50fps</li> <li>◦ 1280x720@30fps</li> <li>◦ 1280x720@25fps</li> </ul> </li> <li>• Automatic or manual focus, brightness, and whitebalance</li> <li>• Far-end camera control</li> <li>• Daisy-chain support (Visca protocol camera)</li> <li>• Dual HDMI and HD-SDI outputs</li> <li>• Upside-down mounting with automatic flipping of picture</li> </ul>
<b>System management</b>	<ul style="list-style-type: none"> <li>• Support for the Cisco TelePresence Management Suite</li> <li>• Total management via embedded SNMP, Telnet, SSH, XML, and SOAP</li> <li>• Remote software upload: via web server, SCP, HTTP, and HTTPS</li> <li>• One RS-232 for local control and diagnostics</li> <li>• Remote control and on-screen menu system</li> </ul>
<b>Directory services</b>	<ul style="list-style-type: none"> <li>• Support for local directories (My Contacts)</li> <li>• Corporate Directory</li> <li>• Unlimited entries using server directory supporting LDAP and H.350 (requires Cisco TelePresence Management Suite)</li> <li>• Unlimited number for Corporate directory (through Cisco TelePresence Management Suite)</li> <li>• 200 number local directory</li> <li>• Received calls</li> <li>• Placed calls</li> <li>• Missed calls with date and time</li> </ul>
<b>Power</b>	<ul style="list-style-type: none"> <li>• Auto-sensing power supply</li> <li>• 100-240 VAC, 50/60 Hz</li> <li>• 175 watts maximum for codec and main camera</li> </ul>
<b>Operating temperature and humidity</b>	<ul style="list-style-type: none"> <li>• 0 to 35° (32 to 95°F) ambient temperature</li> <li>• 10 to 90% relative humidity (RH)</li> </ul>
<b>Storage and transport temperature</b>	<ul style="list-style-type: none"> <li>• -20 to 60°C -4 to 140°F at RH 10-90% (non-condensing )</li> </ul>
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>• Length: 17.36 in. (44.1 cm)</li> <li>• Height: 3.67 in. (9.3 cm)</li> <li>• Depth: 11.8 in. (30 cm)</li> <li>• Weight: 11.22 lbs (5.1 kg)</li> </ul>

<sup>1</sup> C90 Codec purchased after January 31, 2011 support 1080p60

<sup>2</sup> Requires option

## Regulatory Compliance

- Directive 2006/95/EC (Low Voltage Directive) - Standard EN 60950-1
- Directive 2004/108/EC (EMC Directive) - Standard EN 55022, Class A - Standard EN 55024 - Standard EN 61000-3-2/-3-3
- Approved according to UL 60950-1 and CSA 60950-1-07
- Complies with FCC15B Class A

## Ordering Information

Table 3 gives ordering information for the Cisco TelePresence Codec C90

**Table 2.** Ordering Information

Product Name	Part Number	Compliance Model Number
<b>Cisco TelePresence Codec C90</b>	CTS-C90-K9	TTC6-09
Codec C90 - Natural Presenter Package, Rack Mount Kit, Remote Control, HDMI and Power Cables		
<b>Ordering Options for the Cisco TelePresence Codec C90</b>		
<b>Codec C90 Premium Resolution Option</b>	LIC-C90-PR	
<b>Codec C90 Multi Site Option</b>	LIC-C90-MS	

## Service and Support

Cisco and our partners provide a broad portfolio of intelligent, personalized services and support that can help you realize the full value of your Cisco TelePresence investment by increasing business agility and network availability. This portfolio of services accelerates business innovation through a network-based collaboration platform that enables businesses to collaborate anywhere, anytime. For more information about these services, visit:

<http://www.cisco.com/go/telepresenceservices>.

## For More Information

For more information about the Cisco TelePresence Codec C90, visit <http://www.cisco.com/go/telepresence> or contact your local Cisco account representative or authorized Cisco partner. Product specifications are estimates and subject to change without notice.



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