



Cisco 3640 Series Gateway-PBX Interoperability: Siemens Hicom 330E PBX with BRI QSIG Signaling

This document describes the interoperability and configuration of a Cisco 3640 voice gateway with a Siemens Hicom 330E PBX using BRI QSIG signaling. It includes the following sections:

- System Components
- Configuration Tasks
- Caveats

System Components

PBX Model	Siemens Hicom 330E
PBX Release	Version 3.1
Telephony Signaling	BRI QSIG
Voice Gateway	Cisco 3640
Gateway Release	IOS™ 12.2(1)T
VoX Protocol	H.323

Configuration Tasks

See the following sections for configuration tasks for this feature:

- Set Up
- Siemens Hicom PBX Configuration
- Cisco 3640 Gateway Configuration

Set Up

This section includes the following information:

- Connectivity Diagrams
- Set Up Notes

Connectivity Diagrams

Figure 1: *Test Configuration*

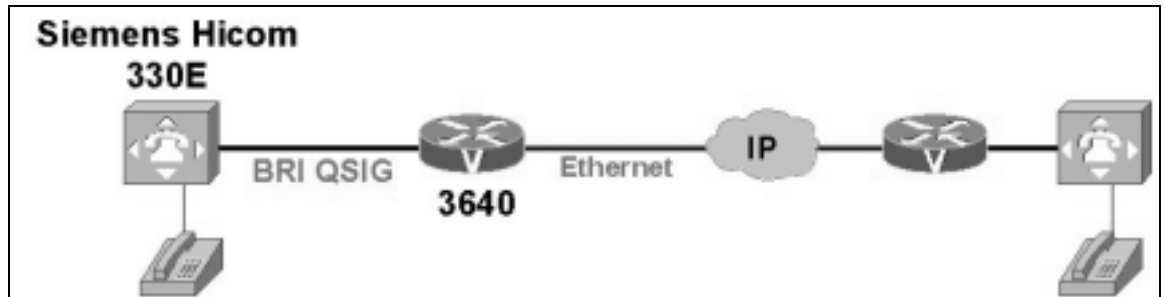


Figure 1 represents the configuration used for testing. A Siemens Hicom 330E PBX connected to a Cisco 3640 voice gateway via a BRI QSIG connection.

Set Up Notes

- The Cisco 3640 gateway with ISDN switch type setting of **primary-qsig** or **basic-qsig** supports both protocol sides by using the **isdn protocol-emulate network/user** command.
- Configuring the Siemens operation to be Master (or Network) side sets the Layers 2 & 3 protocol side setting to master as well. Therefore, the Cisco 3640 gateway should be set to Slave protocol side by issuing the command: **isdn protocol-emulate user**.
- Similarly, if the Siemens operation is set for Slave (or user) side, layers 2 & 3 protocol side are set for slave side. The Cisco 3640 gateway is set to Master protocol side by issuing the command: **isdn protocol-emulate network**.
- The Siemens PBX automatically changes its RJ48C pinouts accordingly when changed from “Master” side to “Slave” side. Therefore, a crossover cable to swap the transmit and receive pins is not necessary when the Cisco 3640 router is changed from a TE device to an NT device.
- To configure Layer 1 operation for the Cisco 3640 BRI voice port as clock master (NT) or clock slave (TE), the **isdn layer1-emulate {user | network}** command is used. The default setting is user.
- The layer 1 configuration in the Siemens Hicom 300E PBX is assigned to the device type S0CONN via parameter SMD (BRI). For Master side operation, the Siemens was configured so that the applicable fields under the <cha-tdcsu command are as follows:

Master = Y
SMD = Y
PRI = 0

For slave side operation:
Master = N

SMD = N
 PRI = 11 (number other than 0)

Siemens Hicom PBX Configuration

TRUNK CONFIGURATION:

For Master side configuration

<dis-tdcsu

PEN1 = 1-1-85-2;

DIS-TDCSU:1-1-85-2;

H500: AMO TDCSU STARTED

```

+-----DIGITAL TRUNK (FORMAT=L)-----+
|          DEV = S0CONN          PEN = 1-01-085-2          |
+-----+-----+-----+-----+-----+-----+-----+
|  COTNO   = 4          COPNO   = 4          DPLN     = 0          |
|  ITR     = 0          COS     = 3          LCOSV    = 31         |
|  LCOSD   = 31         CCT     =           DESTNO   = 99         |
|  PROTVAR = ECMA1     SEGMENT = 1          TCHARG   = N          |
|  SUPPRESS = 0        DGTPR   =           CHIMAP   = N          |
|  ISDNCC  =           ISDNAC  =           ISDNLC   =           |
|  ISDNIP  =           ISDNNP  =           |
|  PNPL2C  =           PNPL1C  =           PNPLC    =           |
|  PNPL2P  =           PNPL1P  =           PNPAC    =           |
|  TRACOUNT = 31       SATCOUNT = MANY     NNO      = 1   -1   -999 |
|  ALARMNO = 0         FIDX    = 1          CARRIER  = 1          |
|  ZONE    = EMPTY     COTX    = 4          FWDX     = 1          |
|  DOMTYPE =           DOMAINNO =          TPROFNO  =           |
|  INIGHT  =           UUSCCX  = 16        UUSCCY   = 8          |
+-----+-----+-----+-----+-----+-----+-----+
|  INS     = y          TGRP    = 40        SRCHMODE  = CIR         |
|  MASTER  = y          SMD     = y          CNTRNR   = 0          |
|  BCNEG   = N          |
+-----+-----+-----+-----+-----+-----+
    
```

AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 2

AMO-TDCSU-95 DIGITAL TRUNKS

DISPLAY COMPLETED;

For Slave side configuration

<dis-tdcsu

PEN1 = 1-1-85-2;

DIS-TDCSU:1-1-85-2;
H500: AMO TDCSU STARTED

```

+----- DIGITAL TRUNK (FORMAT=L) -----+
|
|          DEV = S0CONN                      PEN = 1-01-085-2
|
+-----+
|
|  COTNO   = 4          COPNO   = 4          DPLN    = 0
|  ITR     = 0          COS     = 3          LCOSV   = 31
|  LCOSD   = 31        CCT     =           DESTNO  = 99
|  PROTVAR = ECMA1     SEGMENT = 1          TCHARG  = N
|  SUPPRESS = 0        DGTPR  =           CHIMAP  = N
|  ISDNCC  =           ISDNAC  =           ISDNLC  =
|  ISDNIP  =           ISDNNP  =
|  PNPL2C  =           PNPL1C  =           PNPLC   =
|  PNPL2P  =           PNPL1P  =           PNPAC   =
|  TRACOUNT = 31       SATCOUNT = MANY     NNO     = 1  -1  -999
|  ALARMNO  = 0        FIDX    = 1          CARRIER = 1
|  ZONE     = EMPTY    COTX    = 4          FWDX    = 1
|  DOMTYPE  =           DOMAINNO =          TPROFNO =
|  INIGHT   =           UUSCCX  = 16       UUSCCY  = 8
|
+-----+
|  INS     = N          TGRP    = 40        SRCHMODE = CIR
|  MASTER  = N          SMD     = N         CNTRNR  = 0
|  BCNEG   = N
|
+-----+

```

AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 2

AMO-TDCSU-95 DIGITAL TRUNKS

DISPLAY COMPLETED;

<dis-buend

TGRP = 40
 FORMAT = 1
 DIS-BUEND:40,L;
 H500: AMO BUEND STARTED

```

+-----+-----+-----+-----+-----+-----+-----+-----+
| TGRP NUMBER : 40   TGRP NAME  : BRI MASTER      MAXIMUM NO.  : 4   |
| SUBGROUP NO. : 13   DEVICE TYPE : S0CONN        TRACENO      : 0   |
| RESERVED     : N    SEARCH MODE : CIRCULAR      ACD THRESHOLD : *   |
| NUMBER OF ASSOCIATED ROUTES      : 1            PRIORITY     : 2   |
| THE FOLLOWING TRUNKS (LTG-LTU-SLOT-CCT) HAVE BEEN ALLOCATED: |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1- 1- 85-2  B-CHL: 1 | 1- 1- 85-2  B-CHL: 2 | 1- 1- 85-3  B-CHL: 1 |
| 1- 1- 85-3  B-CHL: 2 |           :           |           :           |
+-----+-----+-----+-----+-----+-----+-----+
    
```

AMO-BUEND-95 TRUNK GROUP

DISPLAY COMPLETED;

<dis-refta

TYPE = circuit

PEN = 1-1-85-2;

DIS-REFTA:CIRCUIT,1-1-85-2;

H500: AMO REFTA STARTED

```

+-----+-----+-----+-----+-----+-----+-----+-----+
| R E F E R E N C E   C L O C K   C I R C U I T S |
+-----+-----+-----+-----+-----+-----+-----+-----+
| PEN          | MODULE | DEVICE | PRI | ERROR | BLOCK | SUPP. | READY |
|              |        |        |    |       |       |       | BUT  |
|              |        |        |    |       |       |       | ASYN. |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1- 1- 85- 2 | STMD   | S0CONN | 11 | 45032 | N     |       | N     |
+-----+-----+-----+-----+-----+-----+-----+-----+
    
```

AMO-REFTA-95 REFERENCE CLOCK TABLE

DISPLAY COMPLETED;

ROUTE CONFIGURATION

```

<dis-richt
MODE = ?
MODE          : ADDRESS-MODE OF THE ROUTE CHARACTERISTIC : REQUIRED
CONDITIONAL   POSSIBLE VALUES : ALL          ALL
PM            PHONE MAIL          INFO        SERVICE INFORMATIONS
LRTE         LCR ROUTE NUMBER      CD         CODE MODE = all
DIS-RICT:ALL; H500: AMO RICHT STARTED
+-----+
| LRTE = 1      NAME = CENTRAL OFFICE          SRVC = ALL
| DNNO = 1 -1  -999 DESTNO = 99
| ROUTOPT = NO   REROUT = YES  PLB = NO      FWDBL = NO
| MFV: CNV=FIX   DSP=WITHOUT TEXT=          PULS=PP300
| ROUTENO =     6 BUGS = LIN                MAINGROUP = 6
| INFO =
+-----+
| TGRP = 30    LDAT      ANALOG TRUNKS        SUBGROUP = 3
+-----+
| LRTE = 31     NAME = E&M                    SRVC = VCE
| DNNO = 1 -1  -999 DESTNO = 99
| ROUTOPT = NO   REROUT = YES  PLB = NO      FWDBL = NO
| MFV: CNV=FIX   DSP=WITHOUT TEXT=          PULS=PP300
| ROUTENO =     5 BUGS = LIN                MAINGROUP = 5
| INFO =
+-----+
| TGRP = 31    LDAT      E&M WINK             SUBGROUP = 6
+-----+
| LRTE = 37     NAME = PRI TEST                SRVC = ALL
| DNNO = 1 -1  -999
| ROUTOPT = NO   REROUT = YES  PLB = NO      FWDBL = NO
| MFV: CNV=FIX   DSP=WITHOUT TEXT=          PULS=PP300
| ROUTENO =     4 BUGS = LIN                MAINGROUP = 4
| INFO =
+-----+
| TGRP = 37    LDAT      PRI                  SUBGROUP = 10
| TGRP = 38    LDAT      QSIG                 SUBGROUP = 9
+-----+
| LRTE = 39     NAME = BRISLAVE                SRVC = ALL
| DNNO = 1 -1  -1
| ROUTOPT = NO   REROUT = YES  PLB = NO      FWDBL = NO
| MFV: CNV=WITHOUT DSP=WITHOUT TEXT=        PULS=
| ROUTENO =     7 BUGS = LIN                MAINGROUP = 7
| INFO =
+-----+
| TGRP = 39          BRI                      SUBGROUP = 8
+-----+
| LRTE = 40     NAME = BRI TRUNK                SRVC = ALL
| DNNO = 1 -1  -999 DESTNO = 99
| ROUTOPT = NO   REROUT = YES  PLB = NO      FWDBL = NO
| MFV: CNV=FIX   DSP=WITHOUT TEXT=          PULS=PP300
| ROUTENO =     3 BUGS = LIN                MAINGROUP = 3
| INFO =
+-----+
| TGRP = 40    LDAT      BRI MASTER           SUBGROUP = 13
+-----+
+-----+
AMO-RICT-187      TRUNK ROUTING
DISPLAY COMPLETED;

```

BOARD CONFIGURATION

<dis-bcsu

TYPE = tbl
 LTG = 1
 LTU = 1
 SLOT = 85
 DIS-BCSU:TBL,1,1,85;

H500: AMO BCSU STARTED

ADDRESS : LTG 1 LTU 1

PEN	ASSIGNED MODULE	MODULE TYPE	FCT ID	HWY BDL	INSERTED MODULE	STATE	HW-INFO	MODULE STATUS
85	Q2163-X	STMD2	1	A	Q2163-X	1	-09 -	READY

AMO-BCSU -95 BOARD CONFIGURATION, SWITCHING UNIT

DISPLAY COMPLETED;

STATION PHONE CONFIGURATION

<dis-sbcusu

STNO = 5000

TYPE = all

DIS-SBCSU:5000,TERMDATA;

H500: AMO SBCSU STARTED

```

----- USER DATA -----
STNO   =5000   OPT     =OPTI   COS1    =7     DPLN    =0     SPDI    =Y
MAINO  =5000   CONN    =DIR    COS2    =7     ITR     =0     SPDC1   =0
PEN    = 1- 1- 79- 1   LCOSV1  =31    COSX    =0     SPDC2   =1
INS    =Y      STD     =3     LCOSV2  =31    SERVID  =0     CBKBMAX=5
                SECR    =N     LCOSD1  =31    DSSTNA  =N     RCBKB   =N
SSTNO  =N     DIGNODIS=N   LCOSD2  =31    DSSTNB  =Y     RCBKNA  =N
TRACE  =N     HFREE   =     ASYNCT  =500   PERMACT=     CBKNAMB=Y
ALARMNO =0    HMUSIC  =0     API     =N     TEXTSEL=ENGLISH
EXTBUS =     REP     =0     OPTICOM=N   OPTISPA:0   DLAUT   =
CALLOG =NONE  IDCR    =N     OPTICA  =0   OPTIS0A:0   DLMAN   =
                HEADSET =N     OPTIDA  =0   OPTIABA:0   PRIO    =
                HSKEY   =NORMAL  ATMADDR=     VPI     =
                DFSVCANA=     TFAGRP  =     PATTERN=   VCI     =
DVCFIG =OPTISET TSI    =1     SOPTIDX=     SPROT    =
                DOPTIDX=     DPROT    =
                FOPTIDX=     FPROT    =
                TOPTIDX=     TPROT    =
                VOPTIDX=     VPROT    =
----- ACTIVATION IDENTIFIERS FOR FEATURES -----
FWDS   :N     FWDT   :N     FWDV   :N     FWDF   :N     FWDD   :N
HTOS   :N     HTOT   :N     HTOV   :N     HTOF   :N     HTOD   :N
    
```

```

DND      :N      VCP      :Y      CWT      :N      TCLOGIN:N
----- FEATURES AND GROUP MEMBERSHIPS -----
ESSTN    :
PUGR     :      HUNTING GROUP : N
KEYSYS   :N      NIGHT OPTION : N      ASSOCIATED STN : N
----- SUBSCRIBER ATTRIBUTES (AMO SDAT) -----
NONE
-----
AMO-SBCSU-95      STATION AND S0-BUS CONFIGURATION OF SWITCHING UNIT

DISPLAY COMPLETED
    
```

LEAST COST ROUTING CONFIGURATION

```

<dis-ldat
TYPE = ?
TYPE          : DISPLAY TYPE CHARACTERISTIC : OPTIONAL
POSSIBLE VALUES : LCR          ONLY LROUTES FOR LCR          NWLCR          ONLY LROUTES WITH
CLOSED NUMBERING BY LCR          ALL          ALL TYPE = lcr
ROUTE = ;
DIS-LDAT:LCR,; H500: AMO LDAT STARTED
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| LROUTE = 1  LDPLN      NAME = CENTRAL OFFICE      SERVICE = ALL  |
| TYPE = LCR          DNNO OF ROUTE = 1 -1 -999  |
| SERVICE INFO =  |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| LRTEL | LVAL | TGRP | ODR | LAUTH | SCHEDULE | CARRIER | BAND | |
|        |      |      |     |      | ABCDEFGH | ZONE     | WPTH | LATTR |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | 1 | 30 | 1 | 1 | ***** | 1 | EMPTY | 1 | NONE |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| LROUTE = 31  LDPLN      NAME = E&M      SERVICE = VCE  |
| TYPE = LCR          DNNO OF ROUTE = 1 -1 -999  |
| SERVICE INFO =  |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| LRTEL | LVAL | TGRP | ODR | LAUTH | SCHEDULE | CARRIER | BAND | |
|        |      |      |     |      | ABCDEFGH | ZONE     | WPTH | LATTR |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | 1 | 31 | 1 | 1 | ***** | 1 | EMPTY | 1 | NONE |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| LROUTE = 37  LDPLN      NAME = PRI TEST      SERVICE = ALL  |
| TYPE = LCR          DNNO OF ROUTE = 1 -1 -999  |
| SERVICE INFO =  |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| LRTEL | LVAL | TGRP | ODR | LAUTH | SCHEDULE | CARRIER | BAND | |
|        |      |      |     |      | ABCDEFGH | ZONE     | WPTH | LATTR |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | 1 | 37 | 1 | 1 | ***** | 1 | EMPTY | 1 | NONE |
| 2 | 1 | 38 | 1 | 1 | ***** | 1 | EMPTY | 1 | NONE |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| LROUTE = 40  LDPLN      NAME = BRI TRUNK      SERVICE = ALL  |
| TYPE = LCR          DNNO OF ROUTE = 1 -1 -999  |
| SERVICE INFO =  |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| LRTEL | LVAL | TGRP | ODR | LAUTH | SCHEDULE | CARRIER | BAND | |
|        |      |      |     |      | ABCDEFGH | ZONE     | WPTH | LATTR |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | 1 | 40 | 1 | 1 | ***** | 1 | EMPTY | 1 | NONE |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
AMO-LDAT -187      LCR-DIRECTIONS
DISPLAY COMPLETED;
    
```


CLASS OF SERVICE

<dis-cot

COTNO = 4;

DIS-COT:4;

H500: AMO COT STARTED

COT: 4 INFO: 4:Q931 EXTERNAL

DEVICE: INDEP SOURCE: DB

PARAMETER:

PRIORITY FOR AC WILL BE DETERMINED FROM MESSAGE	PRI
RECALL IF USER HANGS UP IN CONSULTATION CALL	RCL
TRUNK CALL TRANSFER	XFER
TRUNK SIGNALING ANSWER	ANS
CHANGEOVER FROM HOLD TO RING TONE	CHRT
KNOCKING OVERRIDE POSSIBLE	KNOR
CALL EXTEND FOR BUSY, RING OR CALL STATE	CEBC
NETWORKWIDE AUTOMATIC CALLBACK ON BUSY	CBBN
NETWORKWIDE AUTOMATIC CALLBACK ON FREE	CBFN
DON'T RELEASE CALL TO BUSY HUNT GROUP	BSHT
SEND NO NODE NUMBER TO PARTNER	LWNC
INCOMING CIRCUIT FROM SYSTEM WITHOUT LCR	NLCR
TSC-SIGNALING FOR NETWORKWIDE FEATURES (MANDATORY)	TSCS
INCOMING CDR BY ZONE OR FROM LINE	ICZL
INCOMING CIRCUIT FROM SYSTEM WITHOUT LCR (DATA)	NLRD
AOC PER CALL (AUTOMATIC OR ON REQUEST), MAND. CORNET-NQ	AOCC
CONTROLLED TRUNK AND LINE SELECTION	CTLS
NO TONE	NTON

AMO-COT -95 CLASS OF TRUNK FOR CALL PROCESSING

DISPLAY COMPLETED;

<dis-cop

COPNO = 4;

DIS-COP:4;

H500: AMO COP STARTED

COP: 4 INFO: 4:Q931

DEVICE: INDEP SOURCE: DB

PARAMETER:

SPECIAL MODE	SFRM
REGISTRATION OF LAYER 3 ADVISORIES	L3AR

AMO-COP -95 CLASS OF PARAMETER FOR DEVICE HANDLER

DISPLAY COMPLETED;

```
<dis-cossu
TYPE = cos
COS = 3
FORMAT = 1;
DIS-COSSU: COS,3,L;
H500: AMO COSSU STARTED
```

COS	VOICE	FAX	TTX	VTX	DTE
3	>3: STANDARD - FWDBSY				
	TA	NOCO	NOCO	NOCO	TA
	TSUID	NOTIE	NOTIE	NOTIE	TNOTCR
	TNOTCR				BASIC
	CDRINT				MSN
	CDRS				CDRINT
	CDRC				MULTRA
	COSXCD				
	VCE				
	DATA				
	FWDNWK				
	MSN				
	FWDBSY				
	FWDEXT				

AMO-COSSU-95 CLASSES OF SERVICE, SWITCHING UNIT

DISPLAY COMPLETED;

```
<dis-cossu
TYPE = cos
COS = 7;
DIS-COSSU: COS,7;
H500: AMO COSSU STARTED
```

COS	VOICE	FAX	TTX	VTX	DTE
7	>7: STANDARD/FWDNWK - NOANSA&FWDBSY				
	TA	NOCO	NOCO	NOCO	TA
	TSUID	NOTIE	NOTIE	NOTIE	TNOTCR
	TNOTCR				BASIC
	CDRINT				MSN
	CDRS				CDRINT
	CDRC				MULTRA
	COSXCD				
	VCE				
	DATA				
	NOANSA				
	FWDNWK				
	MSN				
	FWDBSY				
	FWDECA				
	FWDEXT				

AMO-COSSU-95 CLASSES OF SERVICE, SWITCHING UNIT

DISPLAY COMPLETED;

SYSTEM INFORMATION

```

<dis-dbc
  VERBOSE = ?
  VERBOSE      : LIST OF ACTIVE DB SUBSYSTEMS CHARACTERISTIC : OPTIONAL
  POSSIBLE VALUES : Y      YES      N      NO VERBOSE = y
  DIS-DBC:Y; H500:  AMO DBC   STARTED

```

```

+-----+
| SYSTEM CLASSIFICATION : SYSTEM 80      (H80  )
| HARDWARE ASSEMBLY    : EXTENDED COMPACT CXE (CXE  )
| DEVELOPMENT LINE     : EUROPE DEVELOPMENT (H300)
| OPERATING MODE       : SIMPLEX
| RESTART TYPE         : SYM
| HW-ARCHITECTURE      : 330E
| HW-ARCHITECTURE TYPE : 4
|
| 'NO OF' HW VALUES
|   LTG'S      : 1   LTU'S      : 4   LOG.LINES : 8000   MTS BD /GSN: 1
|   SIUP'S/LTU: 4   TMD24'S PER LTU: 4   PHYS.PORTS: 2688   HWY /MTS BD: 64
|   HDLC /DCL : 5   PBC /DCL  : 1   PBC'S      : 17
| LOG. SIU LINES      : 26
| LOG. CONF LINES     : 35
| LOG. DCL LINES      : 36
| DB DIMENSIONING-NAME : 350EMSTD      CONF-TABLE VERSION: 1
| DB SUSY'S:
| SWITCH NUMBER : L31900Q2999A00001
| DB
| SYSTEM_ID      : PKP091000
+-----+

```

Cisco 3640 Gateway Configuration

The following is the configuration of the 3640 gateway connected to the Siemens Hicom 330E PBX BRI QSIG interface.

Cisco 3640 Voice Gateway Version Information

```
3640_A#sho ver
Cisco Internetwork Operating System Software
IOS (tm) 3600 Software (C3640-JS-M), Version 12.2(1), RELEASE SOFTWARE (fc2)
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Fri 27-Apr-01 05:00 by cmong
Image text-base: 0x60008950, data-base: 0x61492000

ROM: System Bootstrap, Version 11.1(7)AX [kuong (7)AX], EARLY DEPLOYMENT RELEASE SOFTWARE (fc2)

3640_A uptime is 3 hours, 4 minutes
System returned to ROM by power-on
System image file is "flash:c3640-js-mz.122-1"

cisco 3640 (R4700) processor (revision 0x00) with 59392K/6144K bytes of memory.
Processor board ID 05247801
R4700 CPU at 100Mhz, Implementation 33, Rev 1.0
Channelized E1, Version 1.0.
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).
TN3270 Emulation software.
Primary Rate ISDN software, Version 1.1.
Basic Rate ISDN software, Version 1.1.
2 Ethernet/IEEE 802.3 interface(s)
31 Serial network interface(s)
2 ISDN Basic Rate interface(s)
2 Channelized E1/PRI port(s)
2 Voice FXS interface(s)
4 Voice NT or TE BRI interface(s)
DRAM configuration is 64 bits wide with parity disabled.
125K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash (Read/Write)
```

Cisco 3640 Voice Gateway Sample Configuration

```
3640_A#sho run
Building configuration...

Current configuration : 2107 bytes
!
version 12.2
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
no service dhcp
!
hostname 3640_A
!
boot system flash
logging rate-limit console 10 except errors
!
voice-card 1
!
ip subnet-zero
!
!
no ip finger
no ip domain-lookup
ip host whiz 171.69.1.162
```

```
ip host dirt 171.69.1.129
ip host danube 171.69.17.14
!
no ip dhcp-client network-discovery
isdn switch-type primary-qsig
call rsvp-sync
cns event-service server
!
!
!
!
!
!
!
controller E1 1/0
shutdown
framing NO-CRC4
ds0-group 1 timeslots 1 type r2-analog r2-compelled
cas-custom 1
!
controller E1 1/1
shutdown
pri-group timeslots 1-31
!
!
interface Tunnell
no ip address
!
interface Ethernet0/0
ip address 100.100.100.1 255.255.255.0
no ip mroute-cache
half-duplex
no cdp enable
!
interface Ethernet0/1
ip address 171.69.231.23 255.255.255.0
no ip mroute-cache
half-duplex
no cdp enable
!
interface Serial1/1:15
no ip address
no logging event link-status
shutdown
isdn switch-type primary-qsig
isdn overlap-receiving
isdn incoming-voice voice
isdn T203 30000
isdn T310 60000
isdn bchan-number-order ascending
no cdp enable
!
interface BRI3/0
no ip address
no ip mroute-cache
isdn switch-type basic-qsig
isdn protocol-emulate network
isdn twait-disable
isdn incoming-voice voice
isdn T310 40000
isdn skipsend-idverify
!
interface BRI3/1
no ip address
isdn switch-type basic-qsig
!
ip kerberos source-interface any
ip classless
no ip http server
!
no cdp run
!
```

```
!  
voice-port 1/0:1  
!  
voice-port 1/1:15  
!  
voice-port 2/0/0  
!  
voice-port 2/0/1  
!  
voice-port 3/0/0  
  compand-type a-law  
!  
voice-port 3/0/1  
!  
dial-peer cor custom  
!  
!  
!  
dial-peer voice 3 voip  
  destination-pattern 2...  
  session target ipv4:100.100.100.2  
!  
dial-peer voice 16 pots  
  destination-pattern 5...  
  direct-inward-dial  
  port 3/0/0  
  prefix 5  
!  
dial-peer voice 8 pots  
  destination-pattern 6000  
  port 2/0/0  
!  
dial-peer voice 9 voip  
  destination-pattern 9000  
  session target ipv4:100.100.100.2  
!  
!  
line con 0  
  transport input none  
line aux 0  
line vty 0 4  
  no login  
!  
end
```

Caveats

- The Siemens Hicom 330E PBX does not support Overlap Sending/Receiving.