

Cisco 7200 Series Router-PBX Interoperability: Siemens Hicom 330E and PA-VXC-2TE1+ Card with E1 ISDN PRI QSIG

This document describes the interoperability and configuration of a Cisco 7200 series router with a Siemens Hicom 330E with E1 ISDN PRI QSIG signaling. It includes the following sections:

- System Components
- Configuration Tasks
- Caveats

System Components

PBX Model	Siemens Hicom 300 E
PBX Release	Version 3.1
Telephony Signaling	E1 QSIG
Voice Gateway	Cisco 7200 series router
Gateway Release	12.2(1)
VoX Protocol	H.323

Configuration Tasks

See the following sections for configuration tasks for this feature:

- Set Up
- Siemens Hicom 330E PBX Configuration
- Call Manager Configuration

Set Up

This section includes the following information:

- Connectivity Diagrams
- Set Up Notes

Connectivity Diagrams

Figure 1: Test Configuration

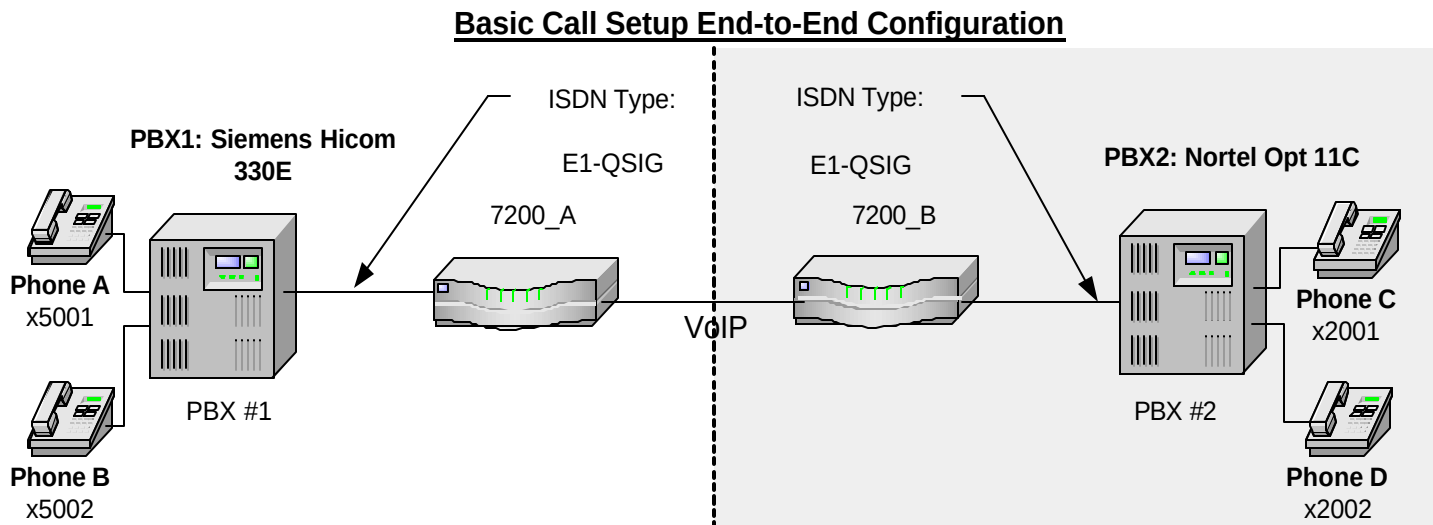


Figure 1 represents the configuration used for testing: a Siemens Hicom 330E PBX is connected through an E1 ISDN PRI QSIG link to a Cisco 7200 series router.

Set Up Notes

The Cisco 7200 router with ISDN switch type setting of **primary-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 7200_A router 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 and 3 on the protocol side are set for slave side. The Cisco 7200 series router is set to Master protocol side by issuing the command: **isdn protocol-emulate network**.

The layer 1 configuration in the Siemens Hicom 330E PBX is assigned to the device type S2CONN through parameter "LWPAR" (Loadware Parameters). For Master side operation, the Siemens Hicom 330E is configured so that the LWPAR field under the <cha-tdcsu> command is:

LWPAR = 4

The applicable fields under LWPAR = 4 <cha-lwpar> are as follows:

MASTER = Y

SMD = Y

For slave side operation:

LWPAR = 1

The applicable fields under LWPAR = 1 <cha-lwpar> are as follows:

MASTER = N

SMD = N

Siemens Hicom 330E PBX Configuration

Use the following information to configure the Siemens Hicom 330E PBX:

- Siemens Hicom 330E PBX Version Information
- Siemens Hicom 330E PBX Sample Configuration

Siemens Hicom 330E PBX Version Information

- Hardware: 330E.

Siemens Hicom 330E PBX Sample Configuration

Use the following examples to configure the Siemens Hicom 330E PBX:

- Trunk Configuration
- Route Configuration
- Board Configuration
- Least Cost Routing Configuration
- Class Of Service
- System Information

Trunk Configuration

For Master side configuration:

```
<dis-tdcsu
```

```
PEN1 = 1-1-73-0;
DIS-TDCSU:1-1-73-0;
H500: AMO TDCSU STARTED
```

```
+----- DIGITAL TRUNK (FORMAT=L) -----+
|          DEV = S2CONN          PEN = 1-01-073-0          |
+-----+-----+-----+
| COTNO   = 4          COPNO   = 4          DPLN     = 0          |
| ITR      = 0          COS     = 32         LCOSV    = 31         |
| LCOSD    = 31        CCT     = qsig       DESTNO   = 99         |
| PROTVAR  = ECMA1     SEGMENT = 1          TCHARG   = N          |
| SUPPRESS = 0          DGTPR   =           CHIMAP   = N          |
| ISDNCC   =           ISDNAC  =           ISDNLC   =           |
| ISDNIP   =           ISDNP   =           PNPLC    =           |
| PNPL2C   =           PNPL1C  =           PNPAC    =           |
| PNPL2P   =           PNPL1P  =           NNO      = 1   -1   -999 |
| TRACOUNT = 31        SATCOUNT = MANY     CARRIER = 1          |
| ALARMNO  = 2          FIDX    = 1          |
+-----+-----+-----+
```

ZONE	=	EMPTY	COTX	=	4	FWDX	=	10
DOMTYPE	=		DOMAINNO	=		TPROFNO	=	
INIGHT	=							
CCHDL	=		UUSCCX	=	16	UUSCCY	=	8
TGRP	=	37	SRCHMODE	=	CIR	BCNEG	=	N
BCGR	=	1	INS	=	Y	LWPAR	=	4
LWPP	=	0	LWLT	=	0	LWPS	=	0
LWR1	=	0	LWR2	=	0			
BCHAN	=	1 && 30						

AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 30

AMO-TDCSU-82 DIGITAL TRUNKS

DISPLAY COMPLETED;

For Slave side configuration:

<dis-tdcsu

PEN1 = 1-1-73-0;
DIS-TDCSU:1-1-73-0;
H500: AMO TDCSU STARTED

DIGITAL TRUNK (FORMAT=L)								
DEV = S2CONN			PEN = 1-01-073-0					
COTNO	=	4	COPNO	=	4	DPLN	=	0
ITR	=	0	COS	=	32	LCOSV	=	31
LCOSD	=	31	CCT	=	qsig	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	=	2	FIDX	=	1	CARRIER	=	1
ZONE	=	EMPTY	COTX	=	4	FWDX	=	10
DOMTYPE	=		DOMAINNO	=		TPROFNO	=	
INIGHT	=							
CCHDL	=		UUSCCX	=	16	UUSCCY	=	8
TGRP	=	37	SRCHMODE	=	CIR	BCNEG	=	N
BCGR	=	1	INS	=	Y	LWPAR	=	1
LWPP	=	0	LWLT	=	0	LWPS	=	0
LWR1	=	0	LWR2	=	0			
BCHAN	=	1 && 30						

AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 30

AMO-TDCSU-82 DIGITAL TRUNKS

DISPLAY COMPLETED;

<dis-lwpar;

DIS-LWPAR;
H500: AMO LWPAR STARTED

+-----+

```

+-----+
| LOADWARE PARAMETERS      CIRCUIT TYPE: DIUS2  SOURCE:DB    BLOCK:    1 |
+-----+
| LNTYPE  = COPPER          VERSION  = S2           QUAL    = ON      |
| MASTER  = N               DCHAN1   = 16           DCHAN2   = 0      |
| PATTERN = D5H             QUAL1    = 10 SEC.       QUAL2    = 10 MIN. |
| SMD     = N               PERMACT  = Y            FCBAB   = DFH      |
| CDG     = N               FIXEDTEI = 0            CNTRNR  = 255   |
| TEIVERIF = N              CRC4REP  = N             |
| DEV     = INDEP           |
| INFO    = 1:COPPER-DERIVE CLOCK FROM LINE(I421) |
+-----+

```

```

+-----+
| LOADWARE PARAMETERS      CIRCUIT TYPE: DIUS2  SOURCE:DB    BLOCK:    4 |
+-----+
| LNTYPE  = COPPER          VERSION  = S2           QUAL    = ON      |
| MASTER  = Y               DCHAN1   = 16           DCHAN2   = 0      |
| PATTERN = D5H             QUAL1    = 10 SEC.       QUAL2    = 10 MIN. |
| SMD     = Y               PERMACT  = Y            FCBAB   = DFH      |
| CDG     = Y               FIXEDTEI = 0            CNTRNR  = 255   |
| TEIVERIF = N              CRC4REP  = N             |
| DEV     = INDEP           |
| INFO    = 4:COPPER-MASTER CLOCK(DPNSS A-END) |
+-----+

```

<dis-buend

```

TGRP = 37
FORMAT = l;
DIS-BUEND:37,L;
H500: AMO BUEND STARTED

```

```

+-----+
| TGRP NUMBER : 37  TGRP NAME : qsig  MAXIMUM NO. : 30 |
| SUBGROUP NO.: 10  DEVICE TYPE : S2CONN  TRACENO : 0 |
| RESERVED : N  SEARCH MODE : CIRCULAR  ACD THRESHOLD : * |
| NUMBER OF ASSOCIATED ROUTES : 1  PRIORITY : 1 |
| THE FOLLOWING TRUNKS (LTG-LTU-SLOT-CCT) HAVE BEEN ALLOCATED: |
+-----+
| 1- 1- 73-0 B-CHL: 1 | 1- 1- 73-0 B-CHL: 2 | 1- 1- 73-0 B-CHL: 3 |
| 1- 1- 73-0 B-CHL: 4 | 1- 1- 73-0 B-CHL: 5 | 1- 1- 73-0 B-CHL: 6 |
| 1- 1- 73-0 B-CHL: 7 | 1- 1- 73-0 B-CHL: 8 | 1- 1- 73-0 B-CHL: 9 |
| 1- 1- 73-0 B-CHL: 10 | 1- 1- 73-0 B-CHL: 11 | 1- 1- 73-0 B-CHL: 12 |
| 1- 1- 73-0 B-CHL: 13 | 1- 1- 73-0 B-CHL: 14 | 1- 1- 73-0 B-CHL: 15 |
| 1- 1- 73-0 B-CHL: 16 | 1- 1- 73-0 B-CHL: 17 | 1- 1- 73-0 B-CHL: 18 |
| 1- 1- 73-0 B-CHL: 19 | 1- 1- 73-0 B-CHL: 20 | 1- 1- 73-0 B-CHL: 21 |
| 1- 1- 73-0 B-CHL: 22 | 1- 1- 73-0 B-CHL: 23 | 1- 1- 73-0 B-CHL: 24 |
| 1- 1- 73-0 B-CHL: 25 | 1- 1- 73-0 B-CHL: 26 | 1- 1- 73-0 B-CHL: 27 |
| 1- 1- 73-0 B-CHL: 28 | 1- 1- 73-0 B-CHL: 29 | 1- 1- 73-0 B-CHL: 30 |
+-----+

```

AMO-BUEND-82 TRUNK GROUP

DISPLAY COMPLETED;

<dis-refta

```

TYPE = circuit
PEN = 1-1-73-0;
DIS-REFTA:CIRCUIT,1-1-73-0;
H500: AMO REFTA STARTED

```

```

+-----+
| REFERENCE CLOCK CIRCUITS |
+-----+
| PEN | MODULE | DEVICE | PRI | ERROR | BLOCK | SUPP. | READY |
+-----+

```

								BUT ASYN.
1- 1- 73- 0	DIU-N2	S2CONN	11	11023	N	X	N	

AMO-REFTA-82 REFERENCE CLOCK TABLE

DISPLAY COMPLETED;

Route Configuration

<dis-richt

MODE = all
DIS-RICT:ALL;
H500: AMO RICHT STARTED

```

+--
+-----+
| LRTE = 37      NAME = 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-RICHT-82 TRUNK ROUTING

DISPLAY COMPLETED;

Board Configuration

<dis-bcsu

TYPE = tbl
LTG = 1
LTU = 1
SLOT = 73
DIS-BCSU:TBL,1,1,73;
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
73	Q2196-X	DIU-N2	1	A	Q2196-X	1	-04 -	READY

AMO-BCSU -82 BOARD CONFIGURATION, SWITCHING UNIT

DISPLAY COMPLETED;

Station Phone Configuration

<dis-sbcsu

STNO = 5000

TYPE = all

DIS-SBCSU:5000,TERMDATA;

H500: AMO SBCSU STARTED

```

----- USER DATA -----
STNO   =5000   OPT   =OPTI   COS1   =7   DPLN   =0   SPDI   =Y
MAIN0   =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   CBKBMX =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  PRI0   =
          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
LROUTE = ;
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 ABCDEFGH	CARRIER ZONE	BAND WIDTH	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 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 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 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
 RECALL IF USER HANGS UP IN CONSULTATION CALL
 TRUNK CALL TRANSFER
 TRUNK SIGNALING ANSWER
 CHANGEOVER FROM HOLD TO RING TONE
 KNOCKING OVERRIDE POSSIBLE
 CALL EXTEND FOR BUSY, RING OR CALL STATE
 NETWORKWIDE AUTOMATIC CALLBACK ON BUSY
 NETWORKWIDE AUTOMATIC CALLBACK ON FREE
 DON'T RELEASE CALL TO BUSY HUNT GROUP
 SEND NO NODE NUMBER TO PARTNER
 INCOMING CIRCUIT FROM SYSTEM WITHOUT LCR
 TSC-SIGNALING FOR NETWORKWIDE FEATURES (MANDATORY)
 INCOMING CDR BY ZONE OR FROM LINE
 INCOMING CIRCUIT FROM SYSTEM WITHOUT LCR (DATA)
 AOC PER CALL (AUTOMATICAL OR ON REQUEST), MAND. CORNET-NQ
 CONTROLLED TRUNK AND LINE SELECTION
 NO TONE

PRI
 RCL
 XFER
 ANS
 CHRT
 KNOR
 CEBC
 CBBN
 CBFN
 BSHT
 LWNC
 NLCR
 TSCS
 ICZL
 NLRD
 AOCC
 CTLS
 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
 REGISTRATION OF LAYER 3 ADVISORIES

SFRM
 L3AR

AMO-COP -95 CLASS OF PARAMETER FOR DEVICE HANDLER

DISPLAY COMPLETED;

<dis-cossu

TYPE = cos
 COS = 32;
 DIS-COSSU:COS,32;
 H500: AMO COSSU STARTED

COS	VOICE	FAX	TTX	VTX	DTE
32	>32:TRUNKS TA TNOTCR	NOCO NOTIE	NOCO NOTIE	NOCO NOTIE	TA TNOTCR BASIC MSN CDRINT MULTRA

AMO-COSSU-82 CLASSES OF SERVICE, SWITCHING UNIT

DISPLAY COMPLETED;

```
<dis -cosu
```

```
TYPE = lcos
LCOS = 31;
DIS-COSSU:LCOS,31;
H500: AMO COSSU STARTED
```

THE LCR CLASSMARKS ARE CONTAINED IN THE FOLLOWING LCOS:

```
+-----+-----+-----+-----+-----+-----+
|LCOS|          LCOVS          |          LCOSD          |
|    |12345678901234567890123456789012|12345678901234567890123456789012|
|    |>SERVICE INFORMATION    |                                |
+-----+-----+-----+-----+-----+-----+
| 31 |                                |XX|                                |XX|
+-----+-----+-----+-----+-----+-----+
```

AMO-COSSU-82 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
+-----+-----+-----+-----+-----+-----+
```

AMO-DBC -210 DATABASE CONFIGURATION

DISPLAY COMPLETED;

Cisco 7200 Series Router Configuration

The following is the configuration of the Cisco 7200 series router connected to the Siemens Hicom 330E PBX ISDN PRI interface:

- Cisco 7200 Series Router Version Information
- Cisco 7200 Series Router Sample Configuration

Cisco 7200 Series Router Version Information

- Cisco IOS™ (C7200-JS-M), Version 12.2(1).
- Cisco 7206VXR (NPE300) processor (revision D) with 122880K/40960K bytes of memory.

Router# **show version**

```
Cisco Internetwork Operating System Software
IOS (tm) 7200 Software (C7200-JS-M), Version 12.2(1), RELEASE SOFTWARE (fc2)
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Thu 26-Apr-01 22:10 by cmong
Image text-base: 0x60008960, data-base: 0x616B0000
```

ROM: System Bootstrap, Version 12.0(19990210:195103) [12.0XE 105], DEVELOPMENT SOFTWARE

```
VXR1 uptime is 30 minutes
System returned to ROM by power-on
System image file is "slot0:c7200-js-mz.122-1"
```

```
cisco 7206VXR (NPE300) processor (revision D) with 122880K/40960K bytes of memory.
Processor board ID 16075926
R7000 CPU at 262Mhz, Implementation 39, Rev 1.0, 256KB L2, 2048KB L3 Cache
6 slot VXR midplane, Version 2.0
```

```
Last reset from power-on
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.
Channelized E1, Version 1.0.
4 Ethernet/IEEE 802.3 interface(s)
1 FastEthernet/IEEE 802.3 interface(s)
31 Serial network interface(s)
2 Channelized E1/PRI port(s)
1 Voice resource(s)
125K bytes of non-volatile configuration memory.
```

```
4096K bytes of Flash internal SIMM (Sector size 256K).
Configuration register is 0x0
```

Cisco 7200 Series Router Sample Configuration

The following is a sample configuration of the Cisco 7200 series router directly connected to Siemens Hicom 330E PBX ISDN PRI interface.

Router# **show run**

Building configuration...

```
Current configuration : 1413 bytes
!
version 12.2
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
```

```
no service password-encryption
!
hostname VXR1
!
card type e1 1
logging rate-limit console 10 except errors
!
frame-clock-select 1 E1 1/0
dspint DSPfarm1/0
!
ip subnet-zero
!
!
no ip finger
!
no ip dhcp-client network-discovery
isdn switch-type primary-qsig
call rsvp-sync
!
!
!
!
!
!
controller E1 1/0
pri-group timeslots 1-31
!
controller no logging event link-status
isdn switch-type primary-qsig
isdn protocol-emulate network
isdn incoming-voice voice
no isdn T309-enable
isdn T310 60000
no cdp enable
!
interface Ethernet6/0
ip address dhcp
duplex half
!
interface Ethernet6/1
no ip address
shutdown
duplex half
!
interface Ethernet6/2
no ip address
shutdown
duplex half
!
interface Ethernet6/3
no ip address
shutdown
duplex half
!
ip kerberos source-interface any
ip classless
no ip http server
!
!
!
voice-port 1/0:15
!
dial-peer voice 1 pots
destination-pattern 5...
direct-inward-dial
port 1/0:15
prefix 5
!
dial-peer voice 2 voip
destination-pattern 2...
session target ipv4:18.0.0.2
```

```

!
!
gatekeeper
shutdown
!
!
line con 0
transport input none
line aux 0
line vty 0 4
login
line vty 5 15
login
!
end

```

Cisco 7200 Series Router Sample Diagnostics

The following is a sample diagnostics of the Cisco 7200 series router connected to Siemens Hicom 330E PBX ISDN PRI interface.

Router# **show diag**

```

Slot 0:
Fast-ethernet on C7200 I/O card with MII or RJ45 Port adapter, 1 port
Port adapter is analyzed
Port adapter insertion time 00:30:32 ago
EEPROM contents at hardware discovery:
Hardware revision 2.1                      Board revision B0
Serial number 15788289                    Part number 73-4092-03
Test history 0x0                          RMA number 00-00-00
EEPROM format version 1
EEPROM contents (hex):
0x20: 01 83 02 01 00 F0 E9 01 49 0F FC 03 00 00 00 00
0x30: 58 00 00 00 00 04 16 00 00 00 FF FF FF FF FF FF

```

```

Slot 1:
VXC-2TE1+ Port adapter, 2 ports
Port adapter is analyzed
Port adapter insertion time 00:30:31 ago
EEPROM contents at hardware discovery:
Hardware Revision      : 0.2
PCB Serial Number     : MIC05012P67
Part Number           : 73-5340-03
Board Revision        : A0
RMA Test History      : 00
RMA Number            : 0-0-0-0
RMA History           : 00
Deviation Number      : 0-0
Product Number        : PA-VXC-2T1E1+
Top Assy. Part Number : 8034-08469-01
EEPROM format version 4
EEPROM contents (hex):
0x00: 04 FF 40 02 11 41 00 02 C1 8B 4D 49 43 30 35 30
0x10: 31 32 50 36 37 82 49 14 DC 03 42 41 30 03 00 81
0x20: 00 00 00 00 04 00 80 00 00 00 00 CB 94 50 41 2D
0x30: 56 58 43 2D 32 54 31 45 31 2B 20 20 20 20 20 20
0x40: 20 C0 46 1F 62 00 21 15 01 FF FF FF FF FF FF FF
0x50: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

```

```

Slot 6:
Ethernet Port adapter, 4 ports
Port adapter is analyzed
Port adapter insertion time 00:30:32 ago
EEPROM contents at hardware discovery:
Hardware revision 1.14                      Board revision A0
Serial number 11530208                    Part number 73-1556-08

```

```
Test history      0x0      RMA number      00-00-00
EEPROM format version 1
EEPROM contents (hex):
  0x20: 01 02 01 0E 00 AF EF E0 49 06 14 08 00 00 00 00
  0x30: 50 00 00 00 99 01 16 00 FF FF FF FF FF FF FF FF
```

```
Router# clear counters
Clear "show interface" counters on all interfaces [confirm]
Router#
00:30:48: %CLEAR-5-COUNTERS: Clear counter on all interfaces by console
Router#
Router# show controllers e1 1/0
E1 1/0 is up.
  Applique type is Channelized E1 - balanced
  No alarms detected.
  alarm-trigger is not set
  Framing is CRC4, Line Code is HDB3, Clock Source is Line.
  International Bit: 1, National Bits: 11111
  Active xconns: 0
  Data in current interval (17 seconds elapsed):
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Router#
```

Caveats

- To assure that Calling Name delivery and presentation is supported on both sides, the Siemens is configured for ECMA1 type of supplementary services.