Zhone IMACS Software FAQ

1. What are some of the causes of disconnect with voice mail systems?

Most issues coming from voice mail systems come from a failure to disconnect when the far end caller (the person leaving the message) hangs up. This can be an issue with any loop start line. To help prevent this issue, the FXS card can be set to lp-fd (loop forward disconnect). This feature will forward a disconnect signal toward the 2 wire side (analog side) of the FXS card. This will only occur if the switch at the other end of the T1 is set to forward the disconnect. This perimeter will vary from switch to switch, but should be at least 650 ms in duration.

Some PBX's and many Key systems will not detect a calling party disconnect, and will only disconnect when the called party disconnects. As you can see, when the called party is a voicemail or IVR system, this can be a problem, as they don't know when to hang up. The internal voicemail or IVR solution to the issue is to begin an internal disconnect process, usually with a lack of activity or sounds (voice or dtmf Keys) starting a process that will eventually drop the call. This does take time, and will tie up a trunk for 30 to 60 seconds depending on when and how silent the line becomes. Clicking and popping will be detected as voice energy, and many CO switches click and pop when the far end hangs up. Other ways Voice Mail or IVR systems disconnect is if they detect dial or howler tones, but again these ways of disconnecting will cause a longer disconnect interval.

Ground start lines are always the best when it comes to disconnecting, but they do cost more: for example, most key systems won't use them and most PBX's require a different module, which does add more expense. If you do use Ground start lines, be sure to ground the Vn+ on the DC connector of the IMAC's system to the same ground bus as the PBX to ensure proper grounding.

2. How do I view bus assignment status on older host versions of IMACS equipment?

Log on with GOD password. Go to the WAN menu Type "Z".

3. How do I troubleshoot RIP on the PM-IOR Card?

Simply telnet or terminal into the PM-IOR Card and type:

add filter rip	(hit enter)
set filter rip 1 permit udp src eq 520	(hit enter)
set console	(hit enter)
ptrace rip	(hit enter)

When done troubleshooting RIP type:

ptrace	(hit enter)
reset console	(hit enter)

4. Can I troubleshoot PPP on the PM-IOR Card?

Yes, simply terminal or telnet into the PM-IOR card and type:

set console	(hit enter)
set debug 0x51	(hit enter)

The PPP negotiation will be displayed to the terminal. When done logging data type:

set debug off	(hit enter)
reset console	(hit enter)

5. What does "On-Hook" mean?

"On-Hook" is an old telephone term, referring to the telephone handset set in its cradle, where the circuit is open. If using loop start signaling and the phone is on-hook then the signaling pattern of the AB bits will be "01" indicating an idle condition.

6. What does "Off-Hook" mean?

"Off-Hook" refers to the state of the telephone handset being removed from the cradle to place or receive a phone call. When the telephone goes off-hook, the subscriber loop is closed, and electrically signals back to the CO that the line is ready for use.

7. How do I look at the signaling bits on the FXS Card?

From the Main Menu arrow down to the FXS Card, and hit enter. Highlight the FXS Port in question and type 't' for test. You will see something like this:

	1	2	3	4	5	6	7	8
TEST	off	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tx ABCD	mon	mon	mon	mon	mon	mon	mon	mon
Rx ABCD	mon	mon	mon	mon	mon	mon	mon	mon
T-R-CNTL	mon	mon	mon	mon	mon	mon	mon	mon
TO USER	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
TO NTWK	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

	1	2	3	4	5	6	7	8
Tx ABCD	0101	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rx ABCD	1111	n/a	n/a	n/a	n/a	n/a	n/a	n/a
T-R-CNTL	RbTg	RbTo	RbTo	RbTo	RbTo	RbTo	RbTo	RbTo
T-R-STAT	off	off	off	off	off	off	off	off
MODE	fxs	fxs	fxs	fxs	fxs	fxs	fxs	fxs
TYPE	loop	loop	loop	loop	loop	loop	loop	loop
STATUS	idle	noWAN	noWAN	noWAN	noWAN	noWAN	noWAN	noWAN

In this example we are looking at the signaling bits on Port 1. So, look at Column 1 and look at rows 7 and 8 'Tx ABCD' and 'Rx ABCD'. These indicate the ABCD bits; hit 'r' to refresh the screen to look at the signaling bits.

8. What type of encoding does the IMACS BRI Cards 826070, 826170 and 826270 use?

2B1Q, which is an encoding mechanism defined with 4 possible voltages (+3, +1, -1, -3). Each pulse represents two bits of information, named a quaternary.

Voltage	Bits
+3	10
+1	11
-1	01
-3	00

9. What is crosstalk?

Crosstalk occurs when signaling from one pair of wires interferes with signaling on another pair. The pairs effected are usually bound together in the same sheath. This occurs because as current flows through wire, an electromagnetic field is created; the stronger the frequency, the stronger the effect. Wire pairs are twisted, so that the opposing fields can cancel each other out. If the pairs are not tightly twisted, then this condition is most likely to occur. The first place to check if your installation is experiencing crosstalk is to check the cabling and verify that the pairs are all tightly twisted.

10. How do I initiate a DTE loopback on the HSU Card?

To initiate a loopback towards the DTE, you will need to arrow down from the Main Menu on the IMACS chassis to the HSU card (hit enter), then select the HSU port that will be used for the loopback. You can see below that in HSU Port #1, that LOCAL LB (Local Loopback) is set towards the DTE (in this case a Cisco 2500 series router connected to HSU Port #1). By default the LOCAL LB parameter is set to OFF, so to initiate the loopback arrow down to the parameter, hit enter, and select DTE, then hit enter again, then hit 's' to save the changes.

	HSU Port #1	HSU Port #2
STATE	actv	stdby
WAN/SRV	w1-1	w1-1
MODE	dce	dce
TS	table	table
RATE	64k	56k
Tx CLOCK	int	int
Tx CLOCK PLRTY	norm	norm
DATA PLRTY	norm	norm
CTS	norm	norm
CTS DELAY	0	0
LOCAL LB	dte	OFF
LB GEN MODE	dds	dds
LB GEN	off	off
LB DET	w/to	w/to
ISDN CONN	no	no

Here you can see the Cisco output when the HSU Port is set to loopback towards the DTE device (the Cisco). The first line of output shows you that the Cisco detects the loop condition. In the case below, the Cisco is configured for Frame Relay encapsulation. You can actually see the Frame Relay LMI enquiries sent are being looped back from the HSU port to the Cisco serial interface and the 'LMI enq recvd' counter increments. Otherwise, if the DTE loopback was not turned on and the frame relay

circuit had not been turned up, you would not see the 'LMI Enq Recvd' counter increment. The output below is from the 'show int serial0' command:

```
Serial0 is up, line protocol is down (looped)
Hardware is HD64570
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec, rely 255/255, load 1/255
Encapsulation FRAME-RELAY IETF, loopback not set, keepalive set (10 sec)
LMI enq sent 23, LMI stat recvd 0, LMI upd recvd 0, DTE LMI down
LMI enq recvd 23, LMI stat sent 0, LMI upd sent 0
LMI DLCI 0 LMI type is ANSI Annex D frame relay DTE
Broadcast queue 0/64, broadcasts sent/dropped 0/0,interface broadcasts 0
Last input 0:00:06, output 0:00:06, output hang never
Last clearing of "show interface" counters never
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
3 packets input, 42 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
24 packets output, 344 bytes, 0 underruns
0 output errors, 0 collisions, 9 interface resets, 0 restarts
0 output buffer failures, 0 output buffers swapped out 0 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up
```

11. How do I configure a PPP connection to a Cisco router using a PM-IOR IMACS Card?

This is a quick sample configuration that supplies the most common configuration and debug commands for this scenario. For complete commands and debugging, you will need to consult the manuals. This configuration assumes numbered interface routing running RIP. Future FAQs will contain unnumbered examples.

PM-IOR Card configuration:

Display	Commands
Command>	set ether0 add 1.1.1.1
Command>	set ether0 netmask 255.255.255.0
Command>	set w1 network hardwire
Command>	set w1 address 2.2.2.1
Command>	set w1 netmask 255.255.255.0
Command>	set w1 modem on
Command>	set w1 protocol ppp
Command>	set w1 rip on
Command>	set mtu 1500
Command>	save all
Command>	reset w1

12. What data rate can the Office Channel Unit-Dataport (OCU-DP) support on a WAN card?

The data from this port will be directed to a WAN port (the options are w1-1 to w4-2). The Rate setting identifies the highest data transmission rate for the current port. Values are 2.4, 4.8, 9.6, 19.2, 56k, 64k, and SW56k (Switched 56 kbps).

13. What data rate can the Office Channel Unit-Dataport (OCU-DP) support on a SERVER

Card?

If serv is chosen, the data will be directed to a port on a Resource card (the options are P1, P2 and P3. P1 is FRS in slot P1, P2 is FRS in slot P2 and P3 is FRS in slot P3. After selecting card, select logical port). The only available rates available when routed to a server are 56K and 64K.

14. How to get T1 error messages?

There are two different levels of T1 errors. The severe error message (red alarm, yellow alarm, blue alarm, and no signaling) is shown on the right upper corner of the configuration window. T1 performance statistics (such as unavailable seconds and bipolar violation error seconds) is under WAN card Perf.

15. Why can't I perform cross connects in IMACS?

IMACS has two different CPU types: BCON and XCON. BCON (880060) does not support cross connect. XCON (8801, 8802, and 8803) support cross connects.

16. How many timeslots can be terminated onto User Cards?

The answer is not a simple one, as not all User Cards are created alike nor are all CPUs. The following explanation will help you to configure solutions that follow the rules.

There are four user card buses, the A, B, C & D buses. Each bus carries 32 64K timeslots of traffic to and from User Cards. Two timeslots on the A bus are used for intra-unit signaling and are not available for User Card traffic.

The 8800 Bus Connect CPU (non-redundant) can access only the A & B User buses. Therefore, the maximum bandwidth available to User Cards when using the 8800 CPU is:

   (2 * 32) - 2 timeslots = 62 timeslots

The 8804 Bus Connect CPU/Redundant Capable can access all four buses, but there are limitations on which user buses can be connected to which WAN cards. In Bus Connect (8800 or 8804 CPU) systems, the WAN card in slot W1 is "connected" to user buses A & B. In Bus Connect Systems using the 8804 and having a second active WAN card, the WAN card in slot W3 is "connected" to user buses C & D.

Now, why do we care which user buses connect to which WAN cards? Remember, we said that all User Cards were not the same? Well, some User Cards have the capability to place traffic onto user buses A & B only. The list below shows which cards are limited to A & B bus only.

8-port, 2 wire E&M/TO	8108
4-port, 4 wire E&M/TO	8115
8-port, 4 wire E&M/TO	8119
4-port, 2 wire FXS/FXSDN/PLAR/DPO-900 Ohm	8124
4-port, 2 wire FXS/FXSDN/PLAR/DPO-600 Ohm	8125
8-port, 2 wire FXS/FXSDN/PLAR/DPO-900 Ohm	8128
8-port, 2 wire FXS/FXSDN/PLAR/DPO-600 Ohm	8129
4-port, 2 wire FXO/FXODN/MRD/DPT-900 Ohm	8134
4-port, 2 wire FXO/FXODN/MRD/DPT-600 Ohm	8135
8-port, 2 wire FXO/FXODN/MRD/DPT-900 Ohm	8138
8-port, 2 wire FXO/FXODN/MRD/DPT-600 Ohm	8139

2-port, V.35 super-rate data	8212
10-port, RS232C sync/async sub-rate data	8220
8-port, sub-rate B7R IP Concentrator Card	8228
8-port, sub-rate FRAD	8230
5-port, OCU-DP (explandable)	8247
4-port, OCU-DP child card for 8247	845

Note that all voice cards are limited to A & B buses only. That is why IMACS supports only 62 voice channels. In addition, there are some data cars in the above list, which are A & B bus only cards. In no case can the total number of timeslots routed to these cards exceed 62 timeslots. Additionally, when used with the 8804 CPU, ports on those cards can be routed only to the first active Wan (W1).

In Cross Connect Systems (8801 or 8802 CPUs), user buses are not permanently "connected" to WAN cards, therefore any user card can be routed to any WAN card. The restrictions with Cross Connect Systems for bandwidth to user cards are: 1) the total bandwidth to all user cards cannot exceed 126 timeslots, and 2) the total bandwidth to all user cards listed in Table 1 cannot exceed 62 timeslots.

17. Will the IMACS support 3rd party SNMP EMS systems?

Zhone publishes the IMACS MIBS along with a description of the traps via our GSS web site. These files are in PC text format. The MIBS are provides free of charge and without consultation services with the understanding that the information may be used to provide a reference point for any third party format and using the traps to report alarms in human readable format and using SNMP GET command to collect performance data and parameter values as defined by the MIB.

Zhone makes continuous efforts to ensure that the published MIBS are syntactically correct. However, it is not possible to satisfy the nuances of all the MIB compilers that are available. Zhone uses the SNMPc v4.0 product available from CastleRock Computing and HP OpenView for PC to verify compliance. If other compilers are used it may be necessary to edit the MIBS text files.

Zhone advises any partner and customer wishing to extensively control and manage the IMACS products to consider using our OnLine EMS product which has the necessary information model built into the software. This information model ensures that any SNMP changes made to the IMACS are checked for accuracy before being sent to the device.

18. How many compression rates can ADPCM provide?

ADPCM in IMACS provides 3 compression rates.

 24kpbs provides 3.6-3.8 MOS (Mean Opinion Score) voice quality
 32kbps provides 4.0-4.3 MOS
 40kpbs provides 4.0-4.3 MOS

19. How can I calculate the IMACS SRU subrate?

Two important facts we need to keep in mind about SRU.

 1. The total bandwidth of SRU is 115.2 kbps.
 2. There are 2 basic types of sub-rate format, DS0A (a) and DS0B (b).

DS0A occupies one entire WAN time slot, one 64K DS0; b-5 means up to 5 subrate time slots per one

WAN TS, b-10 means up to 10 subrate time slots per one WAN TS; b-20 means up to 20 subrate.

Here is the sample configuration for 3 28.8 users.

	1	2	3	
STATE	actv	actv	actv	actv
WAN/SRV	w1-1	w1-1	w1-2	
TS	n/a	n/a	n/a	
Frame	b-5	b-5	a/b-5	
RATE	28.8	28.8	28.8	
SR TS	01	01	01	
INTF	async	async	async	

20. How do I configure FXO for Wink Immediate Start?

If 5E/DMS switch incoming wink immediate, in FXO menu, configure

    mode dpt
    signal dpt

If DTMF phone, set Wink and Wink Delay as below.

Wk DLY	99
Wink	99

If rotary phone, set Wink and Wink Delay as below.

Wk DLY	99
Wink	99

21. Does the IMACS BRI card support BERT testing features?

Yes, you can run end-to-end BERT tests by selecting the BRI Card from the Main Menu, press 't' for test. Then set BERT to the desired test pattern. A few of the options are mark, space, 1:1 and 1:7

Here is a screen capture of a successful end-to-end BERT on BRI Port 1. Notice that BERT is set to mark and that the SYNC status displays 'yes' indicating that the port is receiving and sending the mark test pattern properly end to end.

	1	2	3	4	5	6	7	8
BERT	mark	n/a	n/a	n/a	n/a	n/a	n/a	n/a
DIR	ta	ta	ta	ta	ta	ta	ta	ta
CHAN	B1	B1	B1	B1	B1	B1	B1	B1
SYNC	no	no	no	no	no	no	no	no
BE	*****	*****	*****	*****	*****	*****	*****	*****
ES	*****	*****	*****	*****	*****	*****	*****	*****
SES	*****	*****	*****	*****	*****	*****	*****	*****

CSES	*****	*****	*****	*****	*****	*****	*****	*****
OSS	*****	*****	*****	*****	*****	*****	*****	*****
BER	*****	*****	*****	*****	*****	*****	*****	*****
ELAP	*****	*****	*****	*****	*****	*****	*****	*****
L1-ST	*****	*****	*****	*****	*****	*****	*****	*****
LB ST	*****	*****	*****	*****	*****	*****	*****	*****
SEAL	*****	*****	*****	*****	*****	*****	*****	*****

22. Can I put a local loop back on the E1 CEPT WAN Card?

Yes, while turning up an E1 circuit, wiring and pin-outs may need to be verified due to Red Alarms or any type of carrier group alarm on the IMACS. In the case below the E1 wiring may have been completed and the carrier may claim that the E1 circuit has been turned up. But W1-1 CEPT is showing a Red Alarm:

	CEPT		CEPT	CGA_RED	W1-1
STATE	actv	**STATE**	stdby	NOS	W1-1
MODE	xcon	**MODE**	xcon		
FRAME	crc	**FRAME**	crc		
TS16	cas	**TS16**	cas		
EVEN BIT	norm	**EVEN BIT**	norm		
AIS/ALM	none	**AIS/ALM**	none		
LINE LB	off	**LINE LB**	off		
LOCAL LB	off	**LOCAL LB**	off		
CH LB	off	**CH LB**	off		
LB ADDR	01	**LB ADDR**	01		
LB GEN	off	**LB GEN**	off		
COM/NMS RP	none	**COM/NMS RP**	none		
EER THRHD	10e-4	**EER THRHD**	10e-4		
RDNT RULES	none	**RDNT RULES**	none		
GROUP	none	**GROUP**	none		

Notice above that CEPT Port W1-1 is in a Red Alarm which indicated that we are not receiving framing or any valid signaling. To verify that there is not a problem with the IMACS channel bank put a local loop back up by hitting the arrow key down to the LOCAL LB parameter, hit enter, set the parameter to 'yes', hit enter, then press 's' to save the change.

Now the local loop back is turned on. Notice in the screen capture below that there are no carrier group alarms displayed on the right hand side of the terminal screen. The Red Alarm has cleared on CEPT Port W1-1. This indicates that the local loop back on W1-1 CEPT port works and that the card is working properly. Also note that on W1-1 CEPT that the parameter LOCAL LB is turned on so the transmit pair is being looped back to the receive pair.

	CEPT		CEPT
STATE	actv	**STATE**	stdby
MODE	xcon	**MODE**	xcon
FRAME	crc	**FRAME**	crc
TS16	cas	**TS16**	cas
EVEN BIT	norm	**EVEN BIT**	norm
AIS/ALM	none	**AIS/ALM**	none
LINE LB	off	**LINE LB**	off

LOCAL LB	off	LOCAL LB	off
CH LB	off	CH LB	off
LB ADDR	01	LB ADDR	01
LB GEN	off	LB GEN	off
COM/NMS RP	none	COM/NMS RP	none
EER THRHD	10e-4	EER THRHD	10e-4
RDNT RULES	none	RDNT RULES	none
GROUP	none	GROUP	none

23. How do I check for framing errors and slips on the E1 CEPT IMACS Card?

From the Main Menu arrow down to the 'CEPT + CEPT' card, hit enter, highlight the CEPT E1 port in question, hit 'p' to access the performance statistics. You will see something similar to below: Unit 1 PERFORMANCE.

USER REGISTERS Sec. 098 of 900

	ES	UAS	SES	BES	LOFC	SLIP	DM	STATUS
CUR	0	98	0	0	0	0	2	. N . . . . .
01	0	900	0	0	0	0	15	. N . . . . .
02	0	900	0	0	0	0	15	. N . . . . .
03	4	119	4	0	2	0	3	YNT . . B .
04	0	0	0	0	0	0	0	. . . .
05	0	0	0	0	0	0	0	. . . .
06	0	0	0	0	0	0	0	. . . .
07	0	0	0	0	0	0	0	. . . .
08	0	0	0	0	0	0	0	. . . .
09	0	32	0	0	1	0	1	YNT . . B .
10	-----	-----	-----	-----	-----	-----	-----	. . . .
11	-----	-----	-----	-----	-----	-----	-----	. . . .
12	-----	-----	-----	-----	-----	-----	-----	. . . .
TOTAL	4	1951	4	0	3	0	24	YNT . . B .

STATUS: Y=YEL N=NOS T=Test L=LOS O=OOS B=BPV E=ERR

Notice in the above screen capture that the CEPT E1 port is in bad shape since all of the registers are not clean (all of the registers are not '0'). Remember to hit 'r' to refresh/update the statistics. To clear the registers type 'c' and 'y' to verify the clearing. Look closely at the 'Cur' (Current period) row and look for Errored Seconds, Unavailable Seconds, Severely Errored Seconds, etc. If the registers increment then you are looking at clocking issues, bad wiring or cable pairs, bad carrier equipment or some other undesirable condition in the carrier's network. To test your CEPT port see the FAQ "Local Loop Backs on the CEPT E1 IMACS Card".

24. How can I access Serial # information for a particular IMACS card through the terminal interface?

In this example we are going to access the Serial # information for a CPU Card. From the Main Menu arrow down to the CPU card. Do not hit enter since this will take you to the CPU Card's parameter screen. Hit 'e' and you will see a screen similar to:

	ES	UAS	SES	BES	LOFC	SLIP			DM	STATUS

IMACS1										07-14-00	12:24
Slot C1	Model	8803	CPU	XCON					Serial	04982	
	6cff	8803	4200	0000	0000	0000	0000	0000			
	fe04	0763	0002	0000	0000	0000	0000	0000			

Above you can see that the Serial # is located on the right hand side of the screen. After you are done viewing the information type 'm' which will take you back out to the Main Menu.

25. Can you interchange CPU cards between and IMACS 600, 800, and 900?

Yes, however you will need to re-register the CPU card.

26. Can I remotely communicate with an IMACS using IP without an IPR, FRS, or B7R card?

Yes, IP can be configured on the CPU card and connected to via a nailed DS0 or ESF/FDL.

27. What features does the Foreign Exchange-Station (FXSC) Coin Voice Card support?

The FXS Coin Card can support FXS, Private Line Automatic Ringdown (PLAR), Foreign Exchange Station-Defined Network (FXSDN), Dial-Pulse Originating (DPO), and Wink-start operations. The FXS Coin Card also supports the voice-compression features of an ADPCM card.

28. I can't get the arrow keys to work on my IMACS with Windows 2000 Hyperterminal. It worked fine with Win95/88, and NT 4.0. What am I doing wrong?

Nothing, Microsoft has released a version of Hyperterminal that no longer supports arrow key usage. To resolve this issue, you will have to either upgrade Hyperterminal, or use another console program. There is no way to configure the version of Hyperterminal delivered with Windows 2000 to offer the arrow key functionality.

29. Does the 8871 ADPCM Card Version/Revision display properly?

The hardware revision and firmware version of 8871 ADPCM server cards may not display correctly in an IMACS when viewed from the management console.

Cards with F/W version 1.36 will display version 0.2. This condition is caused by the CPU Host F/W and is present in all Host F/W levels that currently support the ADPCM. It will be corrected in a future Host F/W release.

Additionally, it has been observed that the ADPCM hardware revision number may display as Revision A1 when in fact it has been designated and labeled as A2 by Zhone. This situation is caused by a card revision discrepancy between the ADPCM card manufacturer and Zhone. Corrective action has been identified and Zhone is working with the supplier to correct the disparity.

30. How do I setup the E&M Card for a Tandem Trunk "Back to Back" application?

The figure below depicts a tandem E&M circuit application where the customer requires E&M circuits to be tied "back to back". The application shown is for type 1 signaling. The card in Mux 1 is configured for Normal E&M mode, the card in Mux 2 is configured for Trunk mode. The T, R, T1, R1

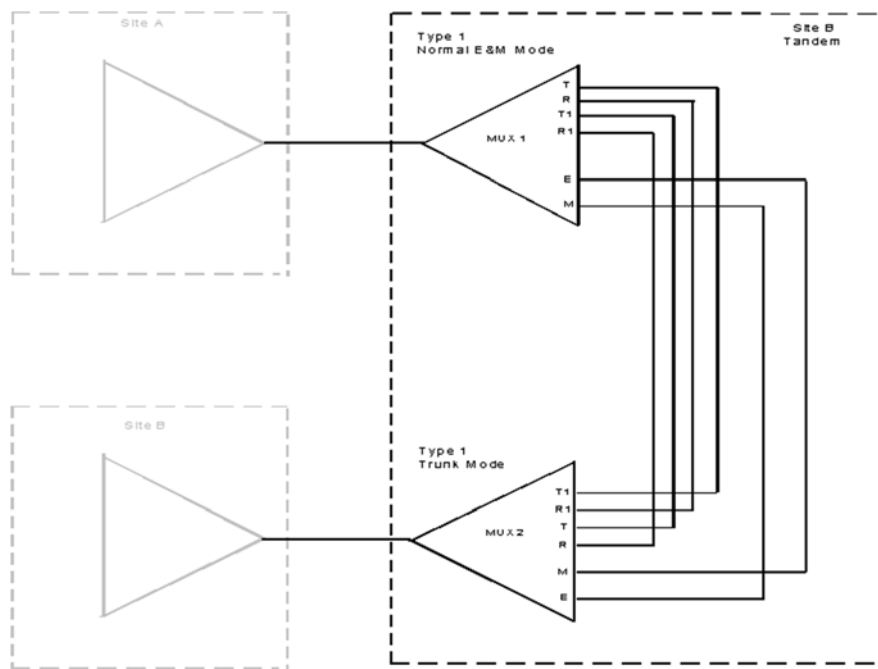and E&M leads are crossed as depicted in the drawing.

E&M Card Switch Settings:

Normal E&M Mode (Mux 1)

S1-INT	S2-GND	S3-GND	S4-All Switches OFF

Trunk mode (Mux 2)

S1-INT	S2-BAT	S3-BAT	S4-All Switches ON

31. What type of personality modules do I want to use with the 8202 HSU Card to convert RS530 to RS232?

A Personality module has been developed for use with the 8202 HSU cards. It has been designated as model 1253. It has the same purpose as the 1252, converting the RS530 output of the 8202 to RS232.

The model 1253 is compatible with ALL current revisions of the 8202. It is mandatory when a revision "B or C" (or later) 8202 is used. The model 1252 is compatible ONLY with revision "A" 8202 HSU Cards. All cables used with the 1252 will also be useable with the 1253.

32. Can I put an 8901 A/C Power Supply and an 8905 A/C to -48VDC Converter in an 8916 Chassis Rev level below "D0"?

No, the combination of an 8901 A/C Power Supply and an 8905 A/C to -48VDC Converter is not compatible with an 8916 Chassis with a Revision level below "D0". This condition does not exist on
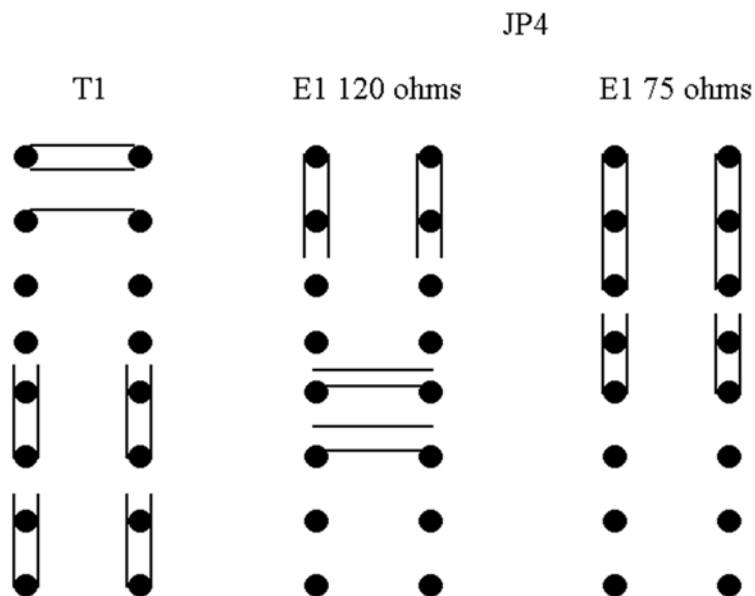
higher revisions or with a 6 digit chassis (example - 891620).

Although the power indicator LED on the 8905 lights, no -48VDC is measurable on the back plane or provided to the Ring Generator Card or User Cards if they are installed.

When an 8916 Revision "D0" or below is present, the 8903 AC to -48DC Converter should be used. Both the 8904 and the 8906 Ring Generators function properly when powered by the 8903.

Additionally, it has been noted that in the 8916 Revision "D0" or lower chassis a jumper may be required across JP2 on the 8906 Ring Generator to insure correct operation. JP2 is located just above the Master/Slave jumper JP1. As with the 8905 the LED will be lit on the unit, but there will not be an output to the system back plane.

33. What are the jumper settings for the 81130 DSX / CEPT (E1) Card?

JP4

T1   E1 120 ohms   E1 75 ohms

34. What are the Output levels for the IMACS & Slimline?

The table illustrates the levels for both CSU and DSX and for all combinations of Frame Format and Line Code.

Output Levels

			CSU			DSX					
			0dB	-7.5dB	-15dB	133	266	399	533	655	CSU
IMACS											
D4	AMI	Volts	5.95	2.28	1.21	5.39	5.96	6.52	6.99	7.52	4.85
		dBm	17	9	3	16	17	18	18	19	15
		dBdsx	0	-8	-14	-1	0	0	2	2	-2

	B8ZS	Volts	5.85	2.29	1.21	5.41	5.98	6.51	6.97	7.52	4.84
		dBm	17	9	3	16	17	18	18	19	15
		dBdsx	0	-8	-14	-1	0	1	2	2	-2
ESF	AMI	Volts	5.92	2.28	1.19	5.42	5.97	6.55	7.00	7.51	4.85
		dBm	17	9	3	16	17	18	18	19	15
		dBdsx	0	-8	-14	-1	0	1	2	2	-2
	B8ZS	Volts	5.90	2.25	1.18	5.40	5.96	6.54	7.00	7.50	4.83
		dBm	17	9	3	16	17	18	18	19	15
		dBdsx	0	-8	-14	-1	0	1	2	2	-2
SLC-96	AMI	Volts	5.92	2.26	1.20	5.42	5.98	6.54	7.02	7.50	4.86
		dBm	17	9	3	16	17	18	18	19	15
		dBdsx	0	-8	-14	-1	0	1	2	2	-2
	B8ZS	Volts	5.90	2.52	1.25	5.41	5.98	6.55	7.02	7.52	4.82
		dBm	17	9	3	16	17	18	18	19	15
		dBdsx	0	-8	-14	-1	0	1	2	2	-2

Note: Reading taken with an HP37702A

Output Levels

			CSU			DSX		
			0dB	-7.5dB	-15dB	0.6dB	1.8dB	3.0dB
IMACS								
D4	AMI	Volts	5.32	2.48	1.21	5.76	7.02	8.07
		dBm	16	9	3	17	18	20
		dBdsx	-1	-8	-14	0	1	3
	B8ZS	Volts	5.36	2.48	1.21	5.75	7.02	8.07
		dBm	16	9	3	17	18	20
		dBdsx	-1	-8	-14	0	1	3
ESF	AMI	Volts	5.35	2.49	1.21	5.76	7.03	7.03
		dBm	16	9	3	17	18	20
		dBdsx	-1	-8	-14	0	1	3
	B8ZS	Volts	5.35	2.48	1.21	5.72	7.01	8.05
		dBm	16	9	3	17	18	20
		dBdsx	-1	-8	-14	0	1	3
SLC-96	AMI	Volts	5.34	2.48	1.21	5.74	7.01	8.06
		dBm	16	9	3	17	18	20
		dBdsx	-1	-8	-14	0	1	3
	B8ZS	Volts	5.34	2.48	1.21	5.76	7.02	8.1
		dBm	16	9	3	17	18	20
		dBdsx	-1	-8	-14	0	1	3

Note: Reading taken with an HP37702A

35. Can you zip an individual card in a system to its default parameters?

Yes

Go to the main menu
Put cursor on desired card

Press the "o" key to "oos" the selected card
Then in quick succession, press keys "y"- "d" - "y" for (yes - delete - yes)

36. Is there any way to zip an IMACS system that is hung up such that I cannot access the software features-including "zip"?

Yes The externally activated "2 pin zip" feature was intended for use on XCON CPU's only but may work on others as well.

Power down the system
Unseat all cards except p/s, CPU and interface cards
Remove the CPU card and remove its daughter board then re-install CPU card
Physically short pins #7 & #8 on the db9 connector on the interface card. Those are the 2 middle pins in the 4 pin row
Leave an active terminal connected to interface term port
Power up the system and watch terminal for zip y/n? message
If successful, power down, remove short, reassemble and reinstall the CPU and attempt to access the system. if accessed re-zip with the software zip function

37. Is there any way to zip an IMACS system that is hung up such that I cannot access the software features-including "zip"?

Yes

Power zip
Depress and hold down the "z" key on terminal while
Power cycle the system
Watch the terminal monitor for "zip y/n"? message

38. What is "ZAP"?

ZAP works identically to zip except that it does not affect TCP/IP addresses ZIP trashes everything. The ZAP feature is not included with all host versions.

39. How do I ZIP an old system?

To ZIP a system with host versions of 2.23 or lower: At the login screen type: space space zip (spell it out). Hit enter key.