

NEC

2000IPS

**UPDATE NOTES FOR R6.2 SOFTWARE
AND REMOTE PIM**

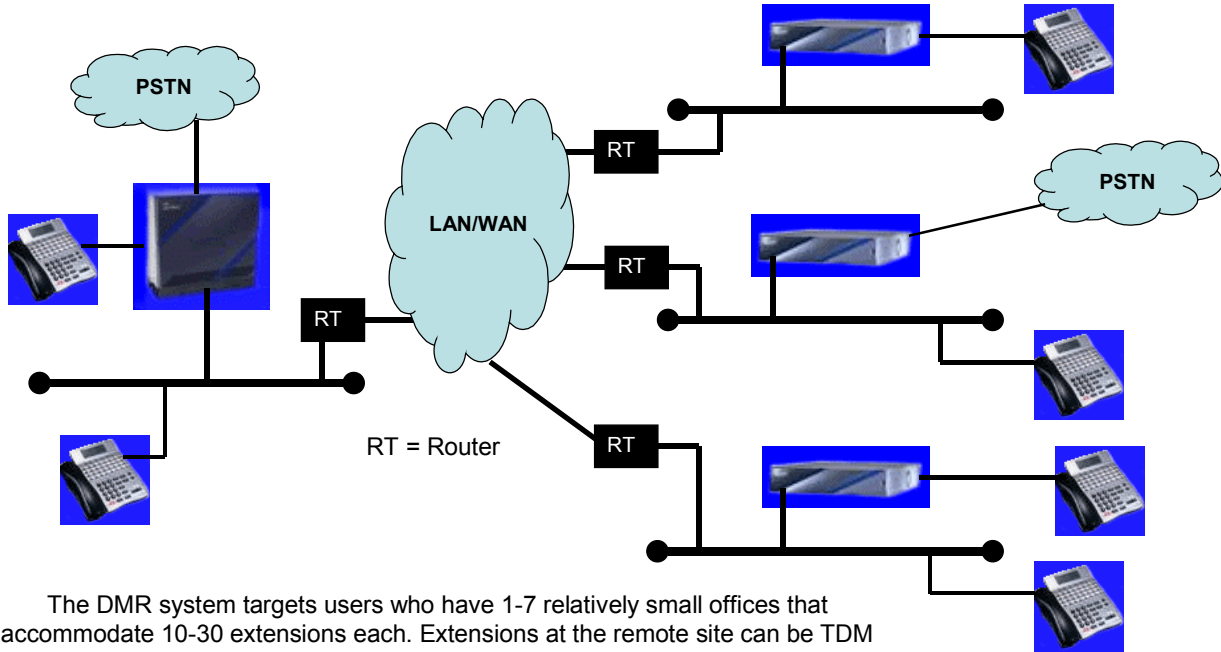


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NEAX 2000 IPS 3200 R6.2 DMR

The major feature release for this software is the availability of the Remote PIM via IP. The initial release of this version will support up to 7 remote sites all utilizing the DM cabinet.



The DMR system targets users who have 1-7 relatively small offices that accommodate 10-30 extensions each. Extensions at the remote site can be TDM or IP logged to that site.

System Outline

The MP at the Main Site (Site 00) controls all processing at the Remote site. The system regards terminals accommodated in both Main and Remote Sites as extensions in the same office. Therefore, the service transparency is superior to CCIS.

The Remote Site can accommodate most terminals and trunks including Dterms, IP Dterms, Single line sets, Analog Trunks, E1 trunks, ISDN.

In the case of connections between Main-Remote, or Remote-Remote, the voice path is connected via Peer-to-Peer or IP-PAD.

If a network failure occurs between the Main and Remote Site, the Remote will invoke a survival mode after a reset and run as a stand alone system. Customer databases from previous software versions can be migrated to the new software with the use of a new conversion command.

Conditions

The total number of terminal/trunks accommodated in a remote site cannot exceed 256.

This is the sum of:

- a. Physical ports (maximum 128, 1 built in FP)
- b. IP ports (maximum 128, 2 IP virtual PIMs) AP ports such as ISDN, CCIS, etc. Note software will not restrict the number of ports assigned.

The total number of ports at the Main and Remote sites must not exceed system capacity. First release 512 + 256. Future release 1512

Ports for FP's must be assigned in groups of 8. If the number assigned is not a multiple of 8 the next lowest denominator is used. E.g. 014 would = 008.

New licence Key for Remote sites must be loaded to the Main site only. Feature can be checked with F88>16>

An IPLA-PAD card is required at the main and each site to allow voice from TDM to TDM over the IP link if required. A new version IPLA-A card is required at the remote location to ensure it detects the changeover from remote to survival mode.

Previous databases from IPS versions 6.1 and lower can be converted to 6.2 via the new CM 00>90>0 in the "Off Line" mode.

Remote site can only utilize the built in PBR (4 circuits) for analog receivers. E.g Analog phones, DID's etc...

Attendant consoles, ISDN extns, CCIS, RS port 1, CFTA conf card, IPTB/4VCTI , PHS and AP00 are not supported on the remote site. The CP31 does not have a built in DK and the DK00 card is not supported in a remote site.

MAT connection can be made to the remote site via RS232 or IP. However changes (set/change/delete) made at the remote site are not reported to the main site. Changes made at the remote site via CAT will update the main site.

System data copy from the main site to all remote sites is performed once a day. All system data at the remote site is over written at that time

MP database download is available at all remote sites.

SNMP is available at the main and all remote sites

CP31 for Remote Sites

- No built in modem
- No built in DAT's.
- No built in DK circuits
- 1 RS port only
- Does not require software licenses loaded. Uses licenses from Main Site.
- Does require firmware. Recommended that Main and Remotes run at same revision.
- Run lamp flashes at 60 IPM in normal operation and 120 IPM in survival mode.
- MAT updates to the CP31 will not update the Main site (CP24) and will be over ridden upon the next daily upload (02:00am) from the Main Site. (CAT mode is OK)
- Data base backup and load can be performed on CP31.

DM Chassis

The DM chassis does not have a ringer for analogue stations. A 4LCAA card must be provided per PIM. If message waiting is required for analogue stations then a 4LCF card must also be provided for those extns.

Recommendations

It is strongly recommended that each site be placed in its own location group to allow for different compressions/padding based on the type of media connecting the remote sites.

It is recommended that each remote site utilize a different tenant number from other sites so that tenant LCR can be invoked, making trunk selection available through one numbering plan.

Different numbering plans at remote sites must not be assigned.

It is recommended that key appearances of stations from other sites not be assigned.

Trunks in a remote site should be in their own route and not be part of a route containing trunks from another remote or the main site.

Before converting 6.1 data to 6.2 ensure a backup to PC / Floppy is performed. If you need to downgrade the system, the only way is to load the original software version and reload the data backup.

New Commands

There are some significant considerations with the release of R6.2 software for the 2000 IPS. It requires some major changes to basic assignments based upon customers needs for current capacities and future growth. The new version also includes a conversion command for databases assigned on previous releases. The major feature release for this software is the availability of the Remote PIM via IP. The implementation, or possible future implementation, of this advanced feature dictates the way basic line/trunk assignments are made upon initial setup of the system. It is necessary to understand these assignments to help avoid a possible "Re-key" of the database when the customer decides to expand or change their configuration. It is also necessary for the technician to recognize these assignments so that if the assignment of a line/trunk is performed it is done so in the correct location (Command 14 NOT Command 10).

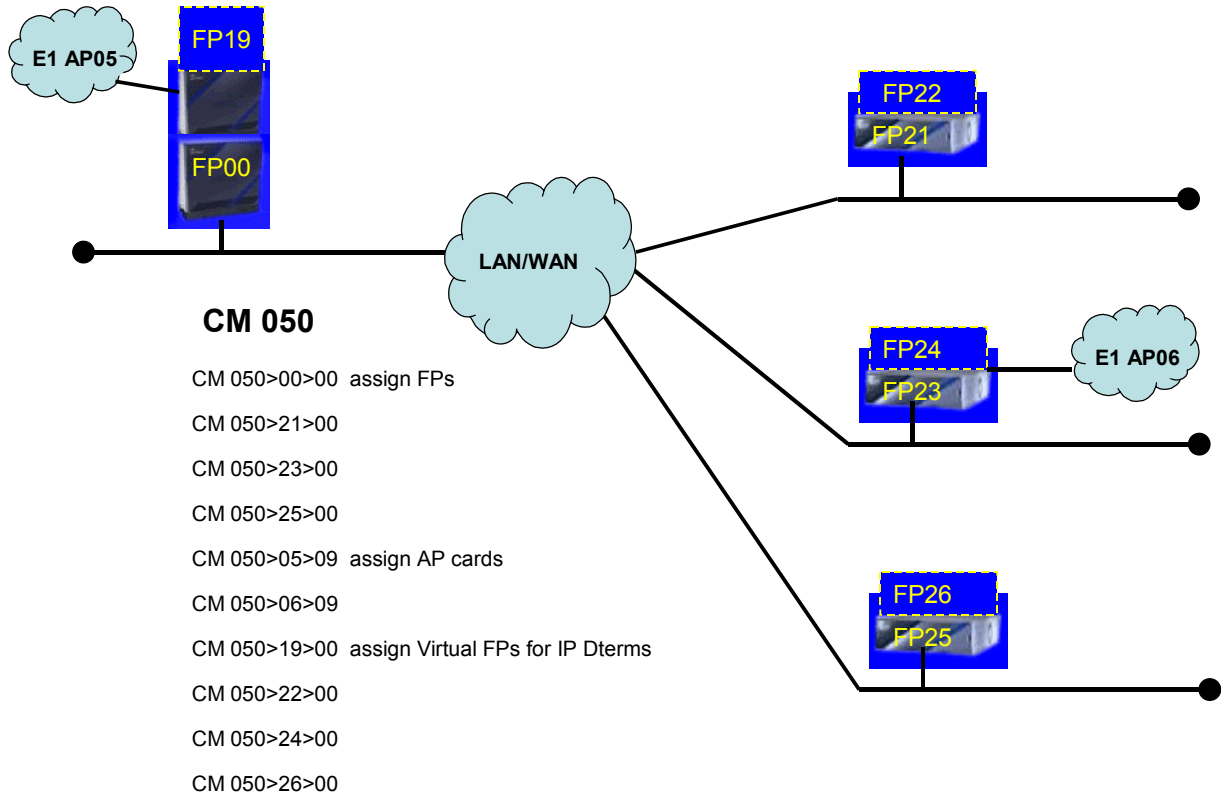
CM	Description	Second Data
00>90	Convert customer data from 6.1 to 6.2	0 = execute (offline)
053>00~31	Assign number of time slots to FP. Must be set in multiples of 8	001~128 (FP00~03 default to 128)
056>00~31	Type of FP	0 = Virtual FP 1 = Remote FP 2 = On board FP (CP24 CPU) 3 = CP15 card (always set 056>00:2)
057>00~31	Type of AP/FP at remote site	0 = Virtual FP 2 = On board FP (CP24 /CP31) 3 = AP card
058>00~31	Site number and PIM controlled by FP	XX ZZ or XX ZZZZ XX = site number, 00= main, 01~15 remote ZZ = PIM 00~15, or 99 for AP card ZZZZ = where 2 PIMS controlled 0001 for PIM0+1
F88>16	Remote PIM Licence	Resides on main system, site 00
0B31~60>00	Set remote CPU IP address 31= site 01	IP address xxx.xxx.xxx.xxx
0B31~60>01	Set CPU subnet	Subnet 255.xxx.xxx.xxx
0B31~60>02	Default gateway	Gateway xxx.xxx.xxx.xxx
0B00>90	Remote Site ID	01~15 Set only at Remote Site (offline)
EC8	Remote site backup	EC8>XX:0, xx = remote site number or 00 for all sites
10	Now obsolete	Use CM 14
14	Now used for all port assignments	14>XX ZZZ XX = FP number ZZZ = timeslot 000~127
1346>stn	Call Forward No Ans timer by station	0 = use E607 / 608, or if not set use 410>100 / 101 1 = use 410>01 / 15
E607>stn	CF no Answer for trunk call	001~120, 4sec increments
E608>stn	CF no answer for internal or assisted call	001~120, 4sec increments
410>100	CF no answer for trunk call	01~30 = 4 ~120 seconds (used if 1346 = 0 and E607 not set)
410>101	CF no answer for internal or assisted call	01~30 = 4 ~120 seconds (used if 1346 = 0 and E608 not set)

IP PAD Programming Summary 6.2 Software

CMD	1st Data	2nd Data	Description
0A00	00	001	Assign location of IPPAD (example = PIM0 LT05)
0A01	00	XXXXXXXXXXXX	IP PAD IP address
0A02	00	XXXXXXXXXXXX	IP PAD Subnet mask
0A03	00	XXXXXXXXXXXX	IP PAD Default Gateway
0A09	00	02	Set IP PAD location number
0A22	00	0	NLP echo cancellation
0A23	00	03	Send Pad (adjust as required)
0A24	00	03	Rec Pad (adjust as required)
0A29	00	53	Voice TOS=5, Control TOS = 3
0A50			Not required with 6.2
0A80	00	0	Provide T.30 fax communication (needs 16VCT card)
14	00032~00063	DD000~DD031	Assign 16VCT ports
		DD032~DD063	DXZZ, X is no longer related to card number
		DD064~DD095	
Locations			
6700	0101	NONE	Location 01~01 calls use G711 (or assign 0 if G729a required.)
6700	0102	0	Location 01~02 calls use Codec list 0
6700	0201	0	
42	100	04	Codec List 0 = G729a
			Codec list must be in the same order at destination site
Firmware			
F85	D001		Card 0.(D101 for LAN interface 1) NEW for 6.2

Note – IPPAD card should not be left on Auto Negotiate. Set the port speed to match the switch speed – rotary sw set to 4 for 100Mbps, 3 for 10Mbps .

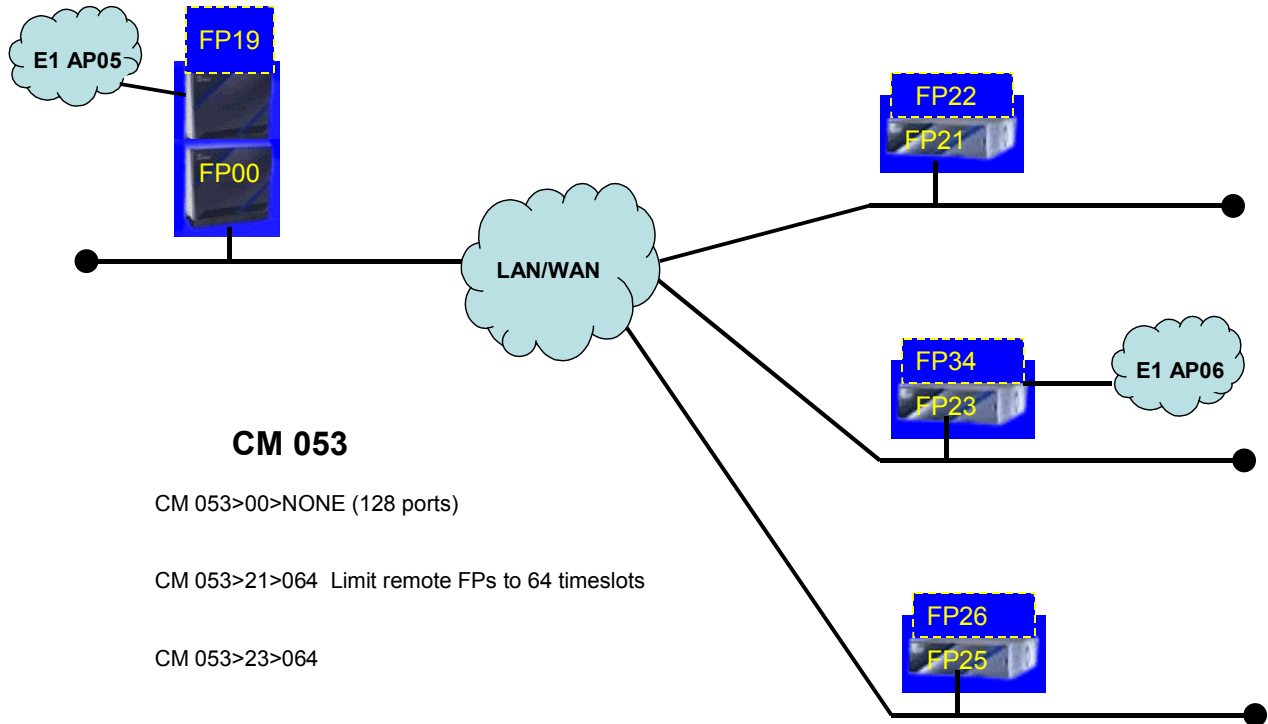
Programming Example CM 050



Firmware Processors and AP cards are assigned as normal with CM 050.

To maintain consistency with previous versions of software we are recommending FP00~03 be reserved for physical FP's at the main site. FP16~19 be used for virtual PIMs at the main site. FP20~31 be used for remote sites.

Programming Example CM 053



CM 053

CM 053>00>NONE (128 ports)

CM 053>21>064 Limit remote FPs to 64 timeslots

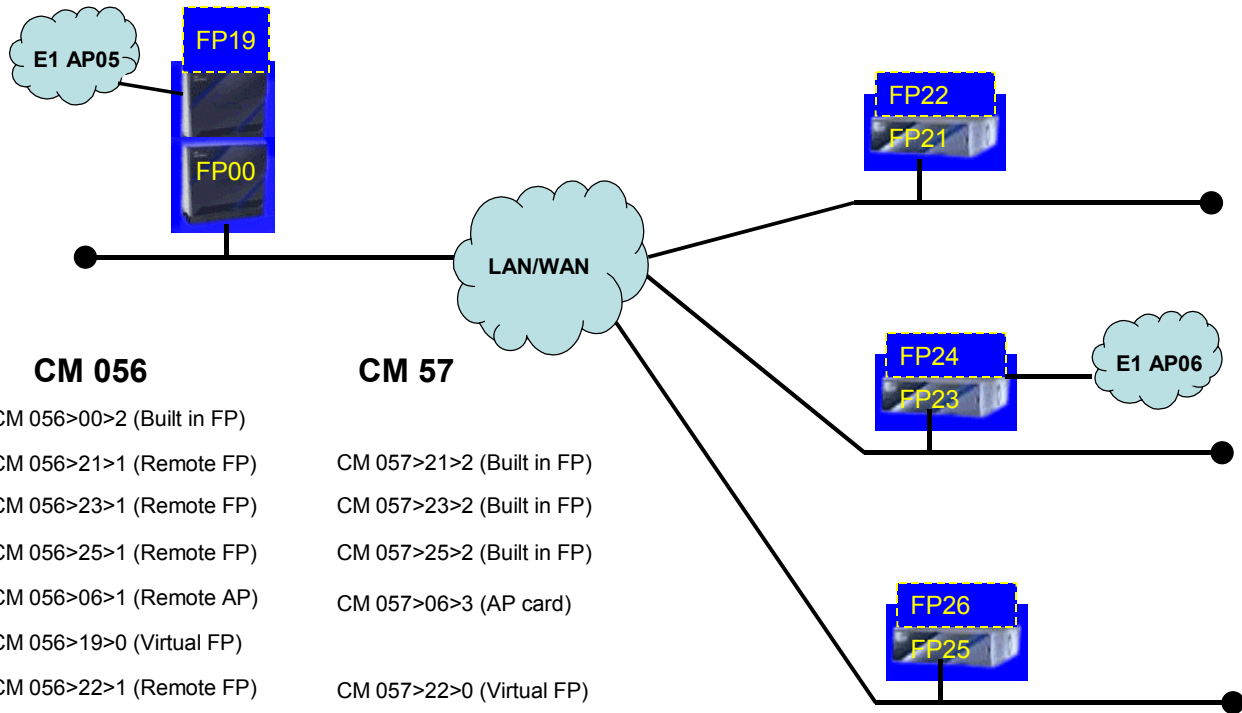
CM 053>23>064

CM 053>25>064

Note: There is a maximum of 2 hardware and 2 Virtual PIMs at each Remote Site.

CM053 limits the number of timeslots allocated to an FP. It is important to note that this does not stop you programming extra ports in CM14 – but they will not function. Total number of LT timeslots cannot exceed 512 for the main and remote sites combined.

Programming Example CM 056 and CM 057



CM 056

CM 056>00>2 (Built in FP)
 CM 056>21>1 (Remote FP)
 CM 056>23>1 (Remote FP)
 CM 056>25>1 (Remote FP)
 CM 056>06>1 (Remote AP)
 CM 056>19>0 (Virtual FP)
 CM 056>22>1 (Remote FP)
 CM 056>24>1 (Remote FP)
 CM 056>26>1 (Remote FP)

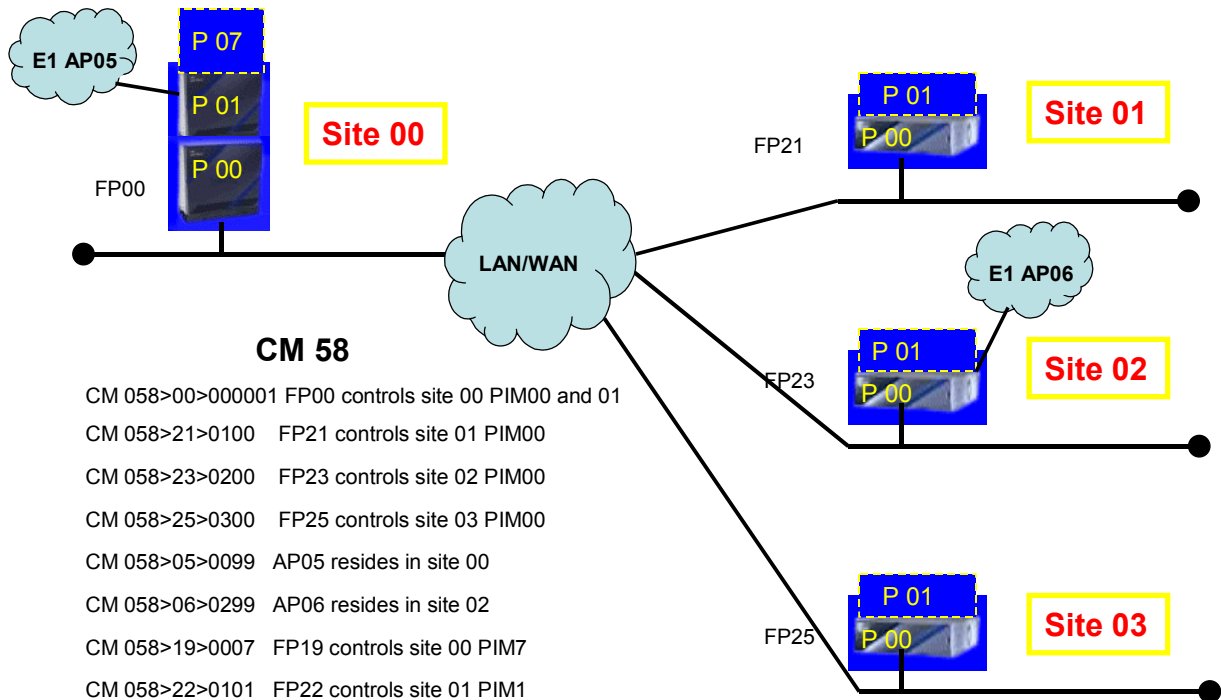
CM 057

CM 057>21>2 (Built in FP)
 CM 057>23>2 (Built in FP)
 CM 057>25>2 (Built in FP)
 CM 057>06>3 (AP card)
 CM 057>22>0 (Virtual FP)
 CM 057>24>0 (Virtual FP)
 CM 057>26>0 (Virtual FP)

If a FP/AP is assigned as a 1 in CM 056 then it must be addressed in CM 057.

CM056 tells the system if the FP/AP is on the main site or not.
 If second data is 1, then you must set 057 .

Programming Example CM 058

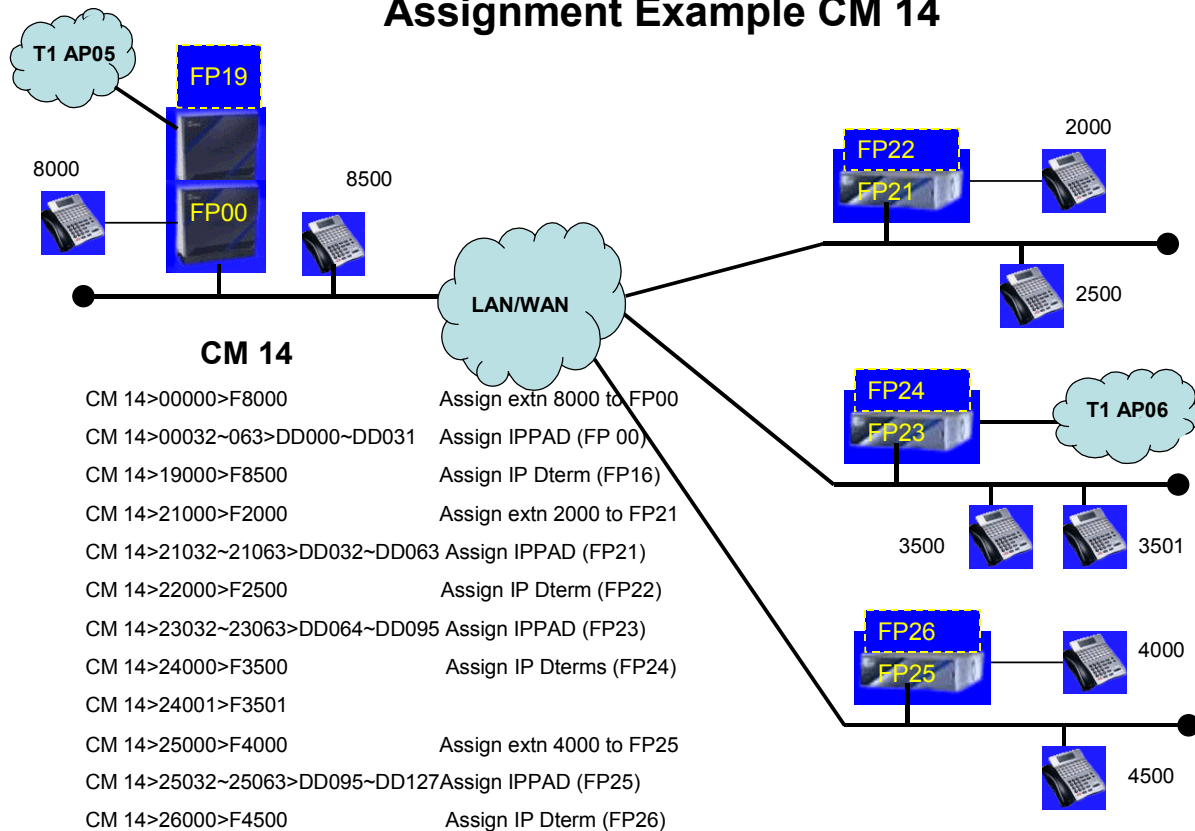


CM 58

CM 058>00>000001 FP00 controls site 00 PIM00 and 01
 CM 058>21>0100 FP21 controls site 01 PIM00
 CM 058>23>0200 FP23 controls site 02 PIM00
 CM 058>25>0300 FP25 controls site 03 PIM00
 CM 058>05>0099 AP05 resides in site 00
 CM 058>06>0299 AP06 resides in site 02
 CM 058>19>0007 FP19 controls site 00 PIM7
 CM 058>22>0101 FP22 controls site 01 PIM1
 CM 058>24>0201 FP24 controls site 02 PIM1
 CM 058>26>0301 FP26 controls site 03 PIM1

CM058 assigns the FP/AP card to the remote site number, and also tells the system how many PIM the FP controls.
 Note the setting for AP cards.

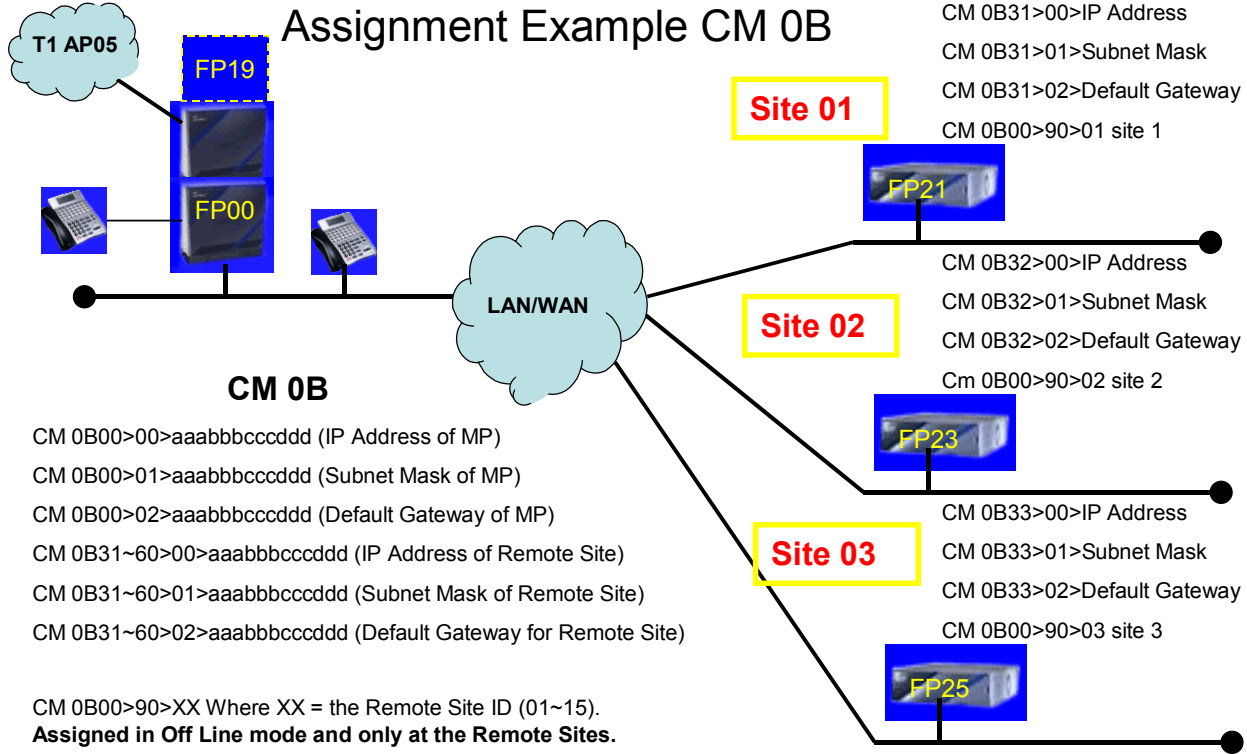
Assignment Example CM 14

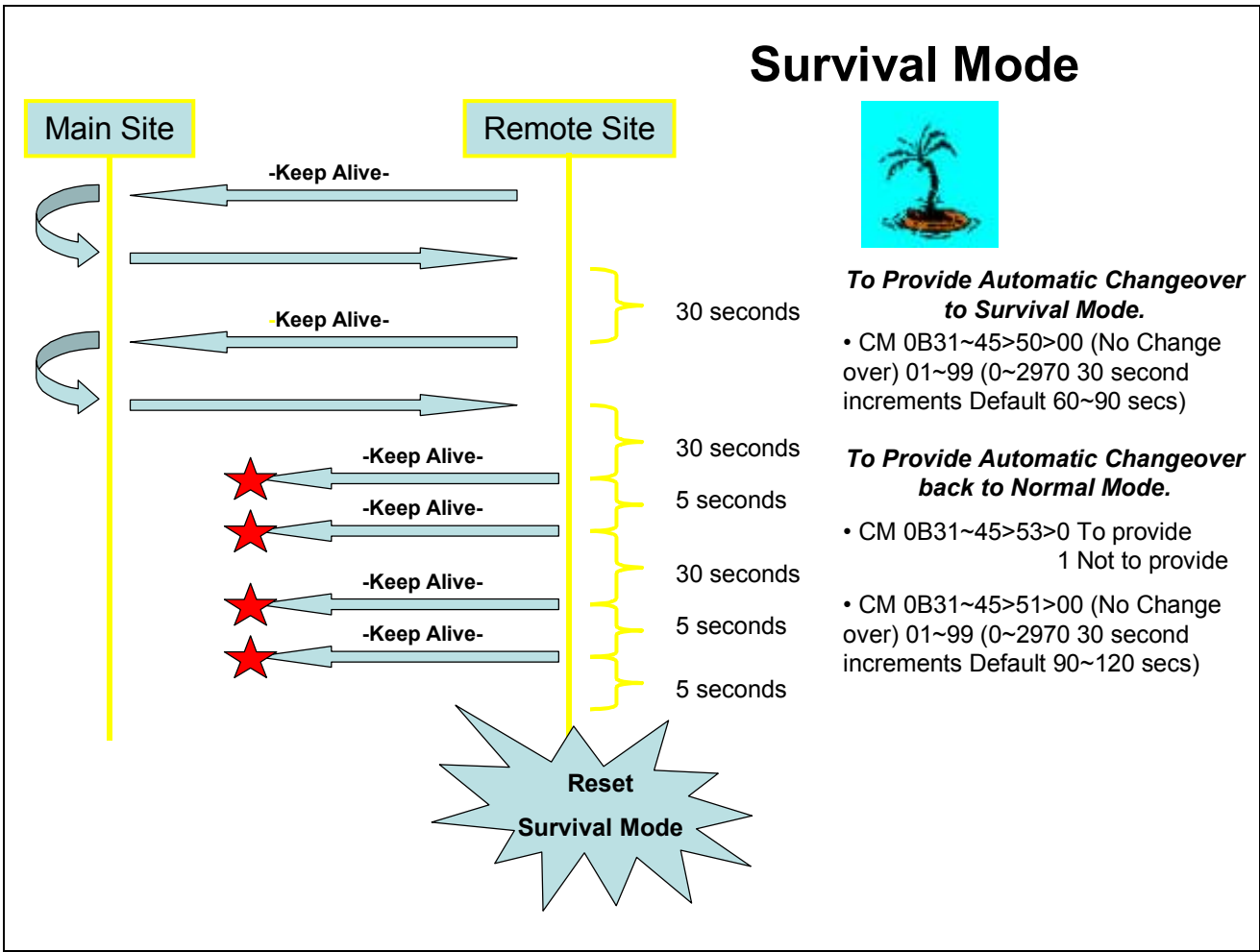


CM 10 can still be used, but it is recommended to use CM14 only.

Note – when adding new extns to the remote PIM there may be no dial tone, back up main site with EC6, then remote site with EC8

Assignment Example CM 0B





Fault type 42 is logged in the fault information when system changes to survival mode.
 Fault type 52 is logged in the fault information when system changes to back to normal mode.

During survival mode it is not possible to make station to station calls between sites. The full PSTN number must be dialled.

Link Down Notification

0B31>52:01 Notify link down after 30sec
 9B0>xxzz:0 xx=01-36 event button. Zz= site to be notified 00-15
 9000>myline,key: F1364-F1399 Event button 01-36.

Bandwidth Requirements

The following chart is a recommendation only. For individual site operation you should consider the actual traffic with a safety rate in case of a burst of calls.

Number of Stations at Remote Site		With VCT (G729a, 8k)		Without VCT (G711, 64k)	
		0.15 erl/Line (3 BHC /Line)	0.30 erl/Line (6 BHC /Line)	0.15 erl/Line (3 BHC /Line)	0.30 erl/Line (6 BHC /Line)
10	Control	4.144 Kbps	4.256 Kbps	4.144 Kbps	4.256 Kbps
	Voice	48 Kbps	64 Kbps	432 Kbps	576 Kbps
20	Control	4.256 Kbps	4.480 Kbps	4.256 Kbps	4.480 Kbps
	Voice	64 Kbps	64 Kbps	576 Kbps	576 Kbps
40	Control	4.480 Kbps	4.928 Kbps	4.480 Kbps	4.928 Kbps
	Voice	64 Kbps	96 Kbps	576 Kbps	864 Kbps
80	Control	4.928 Kbps	5.824 Kbps	4.928 Kbps	5.824 Kbps
	Voice	96 Kbps	128 Kbps	864 Kbps	1152 Kbps
120	Control	5.376 Kbps	6.720 Kbps	5.376 Kbps	6.720 Kbps
	Voice	112 Kbps	144 Kbps	1008 Kbps	1296 Kbps

Network Settings –

TCP/IP network is required between the sites. Closed and bandwidth guaranteed network is preferable, such as IP-VPN(layer 3 VPN) or wide area Ethernet service (layer 2 VPN)

Maximum delay time is 120ms.

Switch ports must be configured for Link Aggregation Control Protocol (LACP) disabled, and Spanning-tree portfast enabled. During startup the remote CPU resets and drops the Ethernet link. If portfast is not set the switch port will not pass data from the main CPU in time and the remote site will not come online.

For CISCO 2950 switch also set these parameters,

1. Hard code the speed and the duplex

```
int fa0/1
speed 100
duplex full
```

2. Disable the Dynamic Trunk Protocol (default is on) on the switch interface and force it to be a normal access port

```
int fa0/1
switchport mode access
switchport nonegotiate
```

3. If they not using VTP then the switch should be put into VTP transparent mode

```
vlan database
vtp transparent
exit
```

If using a Power Patch Panel, disable the option for the ports connected to the CPU and IPPAD.

IPPAD card should be set to 100M fixed (sense sw to 4)

DMR Startup Events –

Monitor the CPU / Ethernet lights

The CPU will upload the configuration from the host – approx 60 sec

The flash ROM will backup

Pause for approx 20 sec

The CPU will reset, link lights drop.

CPU back on line, further up load of data for 20 sec

On board FP comes online – LC and PAD cards operational.

Pros and Cons over CCIS

While the system is running in remote mode there is greater feature transparency –

- Full OAI over all sites
- AD8 softkeys over all sites
- Full BLF over all sites (CCIS BLF is limited to 2 sites)

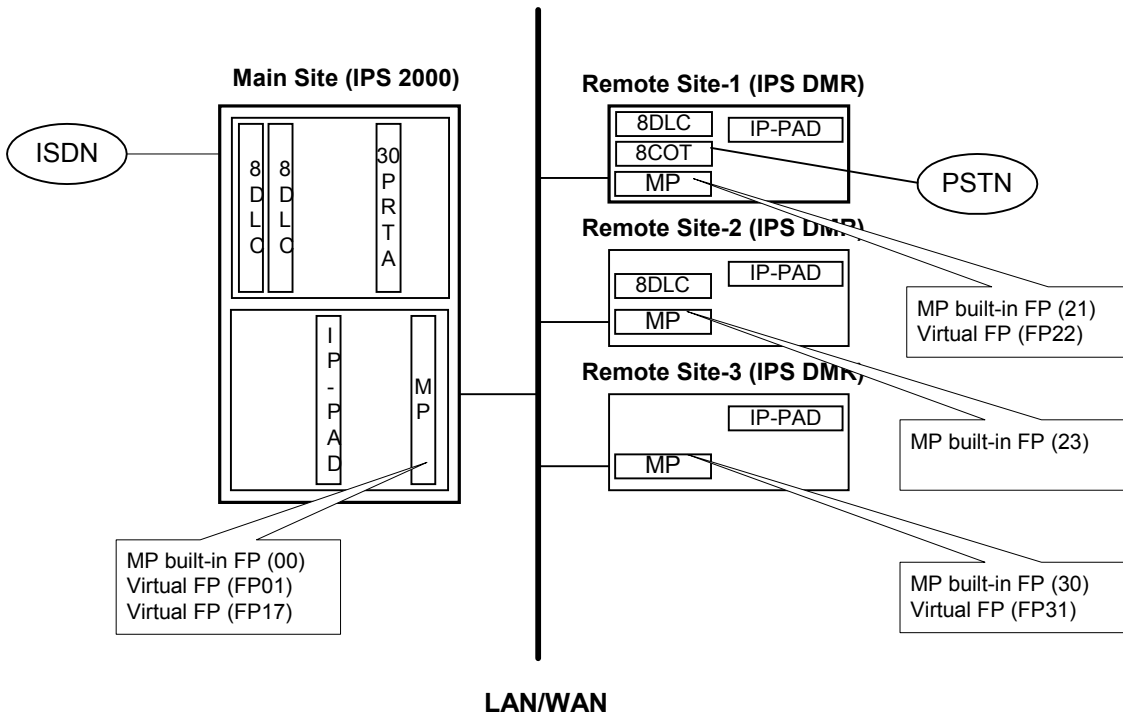
The disadvantage during normal operation is if DDI numbers at the remote site terminate at the host site (over VOIP), and bandwidth limitations apply, the caller will get busy tone – there is no alternative routing. A similar problem exists for desk to desk dialing, there is no LCR overflow to PSTN.

When the network is down and the remote system is in survival mode, extns cannot call extn at the other site. Users must dial the full PSTN number. There is no LCR rerouting available. If DDI numbers at the remote site normally terminate at the host site, callers will get busy tone unless the terminating number is an OAI UCD pilot with backup extns in the remote site.

SIMPLE CONSTRUCTION DATA FOR MAIN SITE AND REMORE SITE

The following tables shows the sample port calculation and office data (CM05) setting for a Remote PIM over IP system.

This system configuration consists of the Main Site and three Remote Sites. It is important to plan the system configuration before setting the system construction data.



[1] Sample Port Calculation

Site	Number of Equipment	Number of L/T port (for MP built-in FP)	Number of AP port	Number of Virtual PIM Port (for Virtual FP)	Total ports		
					LT	Total/site	358
Main Site	Dterm 16 (8DLC X 2) DtermIP 80 IP-PAD 1 30PRTC 1	8(8DLC) x2=16 1(IP-PAD) =32	30 PRTC=30	DtermIP=80	48	158	
Remote Site 01	DtermIP 32 IP-PAD 1 8COT 1 Dterm 8	1(IP-PAD) =32 8(8COT) = 8 8 (8DLC) = 8		DtermIP=32	48	80	
Remote Site 02	Dterm 8 (8DLC) IP-PAD 1	8 (8DLC) = 8 1(IP-PAD) =32			40	40	
Remote Site 03	DtermIP 48 IP-PAD 1	1(IP-PAD) =32		DtermIP=48	32	80	

NOTE: Total number of ports cannot exceed the system capacity.

[2] Sample Data Setting

For Main Site

Command	First Data	Second Data
CM05 Y=0	00: FP No. 00 10: AP No. 10 01: FP No. 01 17: FP No. 17	00: FP 12: PRI 00: FP 00: FP
CM05 Y=3	00: FP No. 00	048 (DLC 16 ports + IP-PAD 32 ports) (max. 128)
CM05 Y=6	00: FP No. 00 10: AP No. 10 01: FP No. 01 17: FP No. 17	2: MP built-in FP 3: AP Card 0: Virtual FP 0: Virtual FP
CM05 Y=8	00: FP No. 00 10: AP No. 10 01: FP No. 01 17: FP No. 17	000001 Accommodated in main site/Controls Physical PIM0, PIM1 NONE: Accommodated in the main site 0002: Accommodated in main site/Controls Virtual PIM2 0003: Accommodated in main site/Controls Virtual PIM3
CM14	00032-00063: Controlled by MP built-in FP00	DDXXX: IP-PAD Channel No.
	00064-00071: Controlled by MP built-in FP00 00072-00079: Controlled by MP built-in FP00	FX-FXXXXXXXXX: Dterm Station No.
	01000-01063: Controlled by Virtual FP 25	FX-FXXXXXXXXX: DtermIP Station No.
	17000-17015: Controlled by Virtual FP 26	FX-FXXXXXXXXX: DtermIP Station No.

For Remote Site - 1

Command	First Data	Second Data
CM05 Y=0	21: FP No. 21 22: FP No. 22	00: FP 00: FP
CM05 Y=3	21: FP No. 21	040 (8COT ports + IP-PAD 32 ports) (max. 064)
CM05 Y=6	21: FP No. 21 22: FP No. 22	1: Remote Site 1: Remote Site
CM05 Y=7	21: FP No. 21 22: FP No. 22	2: MP built-in FP 0: Virtual FP
CM05 Y=8	21: FP No. 21 22: FP No. 22	0100 Accommodated in Remote site-1/Controls Physical PIM0 0101: Accommodated in Remote site-1/Controls Virtual PIM1
CM14	21032-21063: Controlled by MP built-in FP21	DDXXX: IP-PAD Channel No. (DMR slot LT04)
	21000-21007: Controlled by MP built-in FP21	DXXX: COT Trunk No.
	21008-21015: Controlled by MP built-in FP21	FX-FXXXXXXXXX: Dterm Station No.
	22000-22031: Controlled by Virtual FP 22	FX-FXXXXXXXXX: DtermIP Station No.

For Remote Site - 2

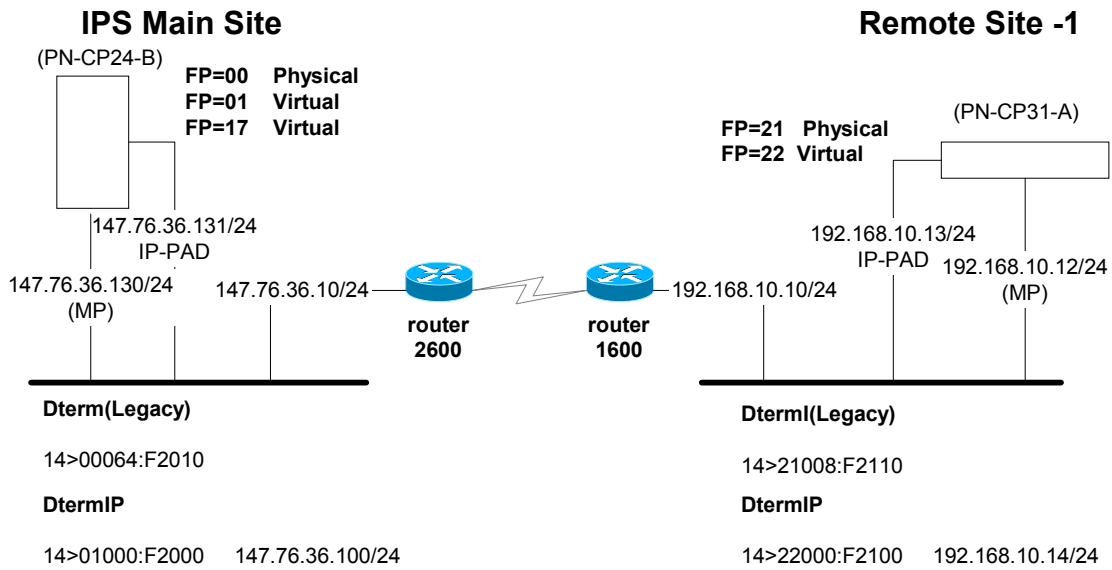
Command	First Data	Second Data
CM05 Y=0	23: FP No. 23	00: FP
CM05 Y=3	23: FP No. 23	040: (8DLC ports + IP-PAD 32 ports) (max. 064)
CM05 Y=6	23: FP No. 23	1: Remote Site
CM05 Y=7	23 :FP No. 23	2: MP built-in FP
CM05 Y=8	23: FP No. 23	0200: Accommodated in Remote site-2/Controls Physical PIM0
CM14	2332-2363: Controlled by MP built-in FP23	DDXXX: IP-PAD Channel No. (DMR slot LT04)
	23000-23007: Controlled by Virtual FP 23	FX-FXXXXXXXXX: Dterm Station No.

For Remote Site - 3

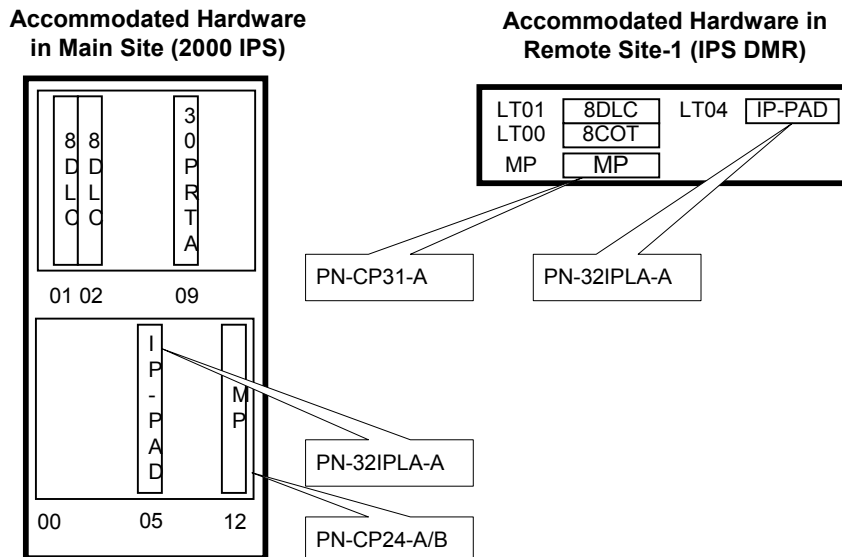
Command	First Data	Second Data
CM05 Y=0	30: FP No. 30 31: FP No. 31	00: FP 00: FP
CM05 Y=3	30: FP No. 30	032: (IP-PAD 32 ports) (max. 064)
CM05 Y=6	30: FP No. 30 31: FP No. 31	1: Remote Site 1: Remote Site
CM05 Y=7	30: FP No. 30 31: FP No. 31	2: MP built-in FP 0: Virtual FP
CM05 Y=8	30: FP No. 30	0300 Accommodated in Remote site-3/Controls Physical PIM0
	31: FP No. 31	0301: Accommodated in Remote site-3/Controls Virtual PIM1
CM14	30032-30063: Controlled by MP built-in FP30	DDXXX: IP-PAD Channel No. (DMR slot LT04)
	31000-31047: Controlled by Virtual FP 31	FX-FXXXXXXXXX: DtermIP Station No.

REMOTE PIM OVER IP SYSTEM CONFIGURATION

The network diagram below is the sample system configuration of the Main Site and the Remote Site-1 from the above tables.



The figure below shows the card location of the Main System and the Remote System.



Programming for the Sample configuration.

Program this at the Main Site MP

The following tables show the required command list and the data setting procedure for the MP card of the sample Main System.

Command List Set to Main Site

Setting Procedure		CM	Y	1 st Data	2 nd Data	Remarks
No.	Contents of Setting					
1	System data memory all clear	00	-	1	CCC	OFF LINE
2	IP address for main site	0B	00	00	147076036130	Main Site
3	Subnet Mask for main site	0B	00	01	255255255000	
4	Default Gate Way address for main site	0B	00	02	147076036010	
5	IP address for Remote Site	0B	31	00	192168010012	Remote Site 01
6	Subnet Mask for Remote Site	0B	31	01	255255255000	
7	Default Gate Way address for Remote Site	0B	31	02	192168010010	
8	FP No. 00 assignment to MP built-in FP in Main Site	05	0	00	00	FP No. 00 assignment to MP built-in FP of Main Site
9		05	8	00	000001	FP No. Controls PIM 0, PM1
10		05	6	00	2	Built-in FP No.00
11		05	3	00	048	No. of ports controlled by FP No.00, (128 max)
12	FP No. 01 assignment to Virtual FP in Main Site	05	0	01	00	FP No. 25 assignment to Virtual FP of Main Site
13		05	8	01	0002	FP No. 25 controls Virtual PIM2 of Main Site
14		05	6	01	0	Virtual FP
15	FP No. 17 assignment to Virtual FP in Main Site	05	0	17	00	FP No. 26 assignment to Virtual FP of Main Site
16		05	8	17	0003	FP No. 26 controls Virtual PIM3 of Main Site
17		05	6	17	0	Virtual FP

Command List Set to Main Site (cont.)

Setting Procedure		CM	Y	1 st Data	2 nd Data	Remarks
No.	Contents of Setting					
18	FP No. 21 assignment to MP built-in Remote Site No. 01	05	0	21	00	FP No. 21 assignment to MP built-in FP of Remote Site
19		05	8	21	0100	FP No. 21 controls PIM0 of Remote Site
20		05	6	21	1	Remote Site
21		05	7	21	2	Built-in FP, FP No.21 for Remote Site
22		05	3	21	040	No. of ports controlled by FP No. 21
23						
24	FP No. 22 assignment to Virtual FP in Remote Site	05	0	22	00	FP No. 22 assignment to Virtual FP of Remote Site
25		05	8	22	0101	FP No. 22 controls Virtual PIM1 of Remote Site No. 01
26		05	6	22	1	Remote Site
27		05	7	22	0	Virtual FP
28	Registration of Dterm in Main Site	14	-	00000	F2010	Station No 2010 Dterm Legacy
29		90	00	2010,01	2010	My Line setting
30		93	-	2010	2010	Prime Line
31	Registration of DtermIP in the Main System	14	-	25000	F2000	Station No.2000 DtermIP
32		90	00	2000,01	2000	My Line setting
33		93	-	2000	2000	Prime Line
34		12	39	2000	00	DtermIP Location No. =00
35	Registration of Dterm in Remote Site	14	-	21008	F2110	Station No. 2110 for Remote Site
36		90	00	2110,01	2110	My Line setting
37		93	-	2110	2110	Prime Line
35	Registration of DtermIP in Remote Site	14	-	22000	F2100	Station No. 2100 for Remote Site
39		90	00	2100,01	2100	My Line setting
40		93	-	2100	2100	Prime Line
41		12	39	2100	00	DtermIP Location No. =00

Command List Set to Main Site (cont.)

Setting Procedure		CM	Y	1 st Data	2 nd Data	Remarks
No.	Contents of Setting					
42	Registration of IP-PAD in the Main Site	0A	00	00	001	FP No. 00 + IP-PAD No.01
43		0A	01	00	147076036131	IP address of IP-PAD
44		0A	02	00	255255255000	Subnet Mask of IP-PAD
45		0A	03	00	147076036010	Default Gateway of IP-PAD
46		0A	09	00	00	IP-PAD Location No. = 00
47		14	-	00032	DD000	IP-PAD Channel No. (032-063)
48		:	:	:	:	
49		14	-	00063	DD031	
50		Registration of IP-PAD in the Remote Site	0A	00	01	211
51	0A		01	01	192168010013	IP address of IP-PAD
52	0A		02	01	255255255000	Subnet Mask of IP-PAD
53	0A		03	01	192168010010	Default Gateway of IP-PAD
54	0A		09	01	00	IP-PAD Location No. = 00
55	14		-	21032	DD032	IP-PAD Channel No. (032-063)
56	:		:	:	:	
57	14		-	21063	DD063	
58	Location Data Assignment	67	00	0000	0	Codec list 0
59		42	-	100	02	CODEC type=G711
60		42	-	110	04	Payload size=40ms
	Registration of ISDN Interface in Main Site	05	0	10	12	AP No./Sense switch=10. PRI=12
		05	6	10	3 (default)	Type of AP/FP in the Main Site (If in Remote site use 2 nd data =1)
		05	7	10	3 (default)	AP Card in Remote Site
		05	8	10	NONE or 0099	NONE= main site (00=site No, 99=AP card)
		<i>NOTE: Program rest of the commands same as before.</i>	-	-	-	-

Setting Procedure		CM	Y	1 st Data	2 nd Data	Remarks
No.	Contents of Setting					
	Registration of COT in Remote Site	14	-	21000	D000	Trunk No. 000
		30	00	000	00	Trunk Route No. 00
		30	02	000	04	Direct-in Termination for I/C CO call
		30	04	000	2110	DIT setting to Stn 2110
		35	00	00	00	C.O. Trunk
		35	01	00	4	DTMF
		35	05	00	0/1	Release signal
	System Data Backup	EC	6	0	0	Data Backup to Flash ROM of MP card

Program this at the Remote Site MP

The following tables show the required command list and the data setting procedure for the MP card of the sample Remote System.

This programming is done on the Remote Site MP. Connect the MATWorX to the MP of the IPS DMR and do the following.

Command List Set to Remote Site

Setting Procedure		CM	Y	1 st Data	2 nd Data	Remarks
No.	Contents of Setting					
1	System data memory all clear	00	-	1	CCC	OFF LINE
2	Remote Site Number	0B	00	90	01	OFF LINE
3	IP address for Main Site	0B	00	00	147076036130	Main site address
4	Subnet Mask for Main Site	0B	00	01	255255255000	
5	Default Gateway for Main Site	0B	00	02	147076036010	
6	IP address for Remote Site	0B	31	00	192168010012	Remote Site 01 (Own site IP address)
7	Subnet Mask for Remote Site	0B	31	01	255255255000	
8	Default Gateway for Remote Site	0B	31	02	192168010010	
9	System Data Backup	EC	6	0	0	Data Backup to Flash ROM on MP card

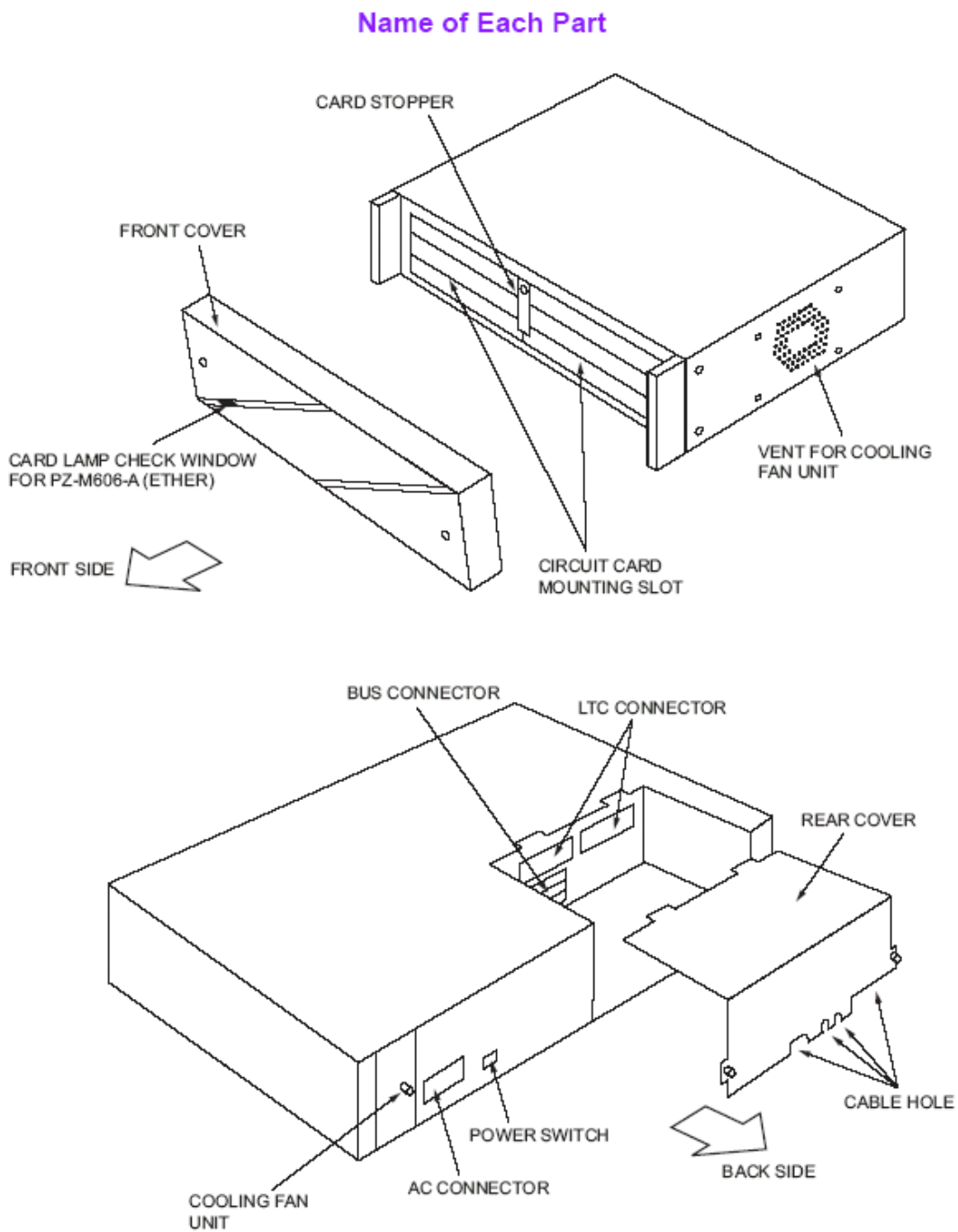
SETTING UP THE SYSTEM

After the office data in the “Programming for the sample configuration” is complete, follow the procedure shown below. (The routers should be already working correctly).

- STEP1: Turn power switch of the Main Site on.
- STEP2: Confirm that the MP in the Main Site is working. Turn the power switch of the Remote Site on.
- The communication between Main Site and Remote Site starts. (The RX/TX lamp on PZ-M606-A card lights on).
- STEP3: Confirm that the office data has been copying from Main Site to Remote Site.
- After 30 seconds, the RUN lamp on MP card at Remote Site flashes at 30 IPM.
- STEP4: Confirm that the office data is backed up in the Flash ROM of the MP card at Remote Site.
- SYSD lamp on the MP card turns on, and the data back up starts. (It takes two minutes to back up the office data).
- STEP5: Confirm that Normal Mode operation starts.
- The MP card in the Remote Site resets itself automatically, and starts Normal Mode operation.

DMR Hardware and Installation.

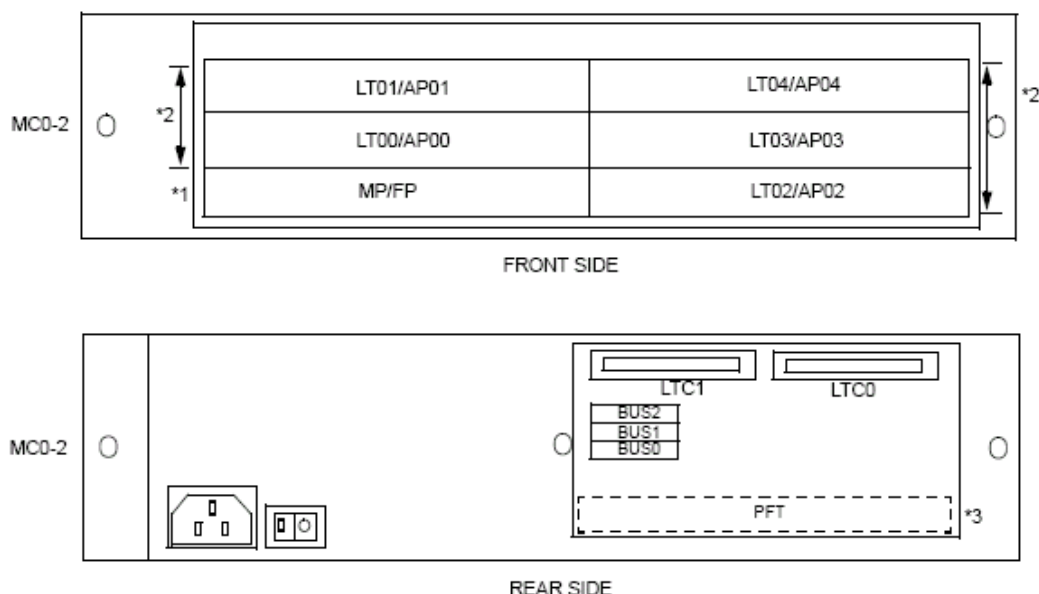
Following figure shows the name of each part.



Maximum 2 PIM (one built-in FP) per remote site.

This section explains the conditions for mounting circuit cards used in the system.

Circuit Card Mounting Slots

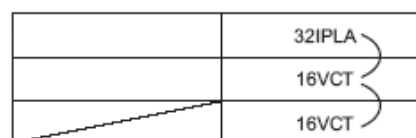
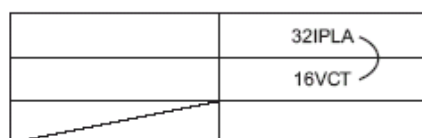


LT00-LT04	: Line/Trunk card mounting slots	MP/FP	: PN-CP24-A/PN-CP24-B/PN-CP31-A/ PN-CP15/PN-CP19 mounting slot
AP00-AP04	: Application Processor card mounting slots	PFT	: PZ-4PFTA mounting position

- *1 PN-CP24-A/PN-CP24-B/PN-CP31-A (MP) card is mounted in the MP/FP slot of MC0. PZ-M606-A (ETHER) card is mounted on the PN-CP24-A/PN-CP24-B/PN-CP31-A (MP) card. PN-CP15/PN-CP19 (FP) card is mounted in the MP/FP slot of MC2 when the system is three-MC configuration. No card is mounted in the MP/FP slot of MC1.
- *2 Either line/trunk cards or application processor cards can be mounted in the LT00/AP00-LT04/AP04 slots of MC0-2.
- *3 PZ-4PFTA card is mounted in the bottom of MC0-2.

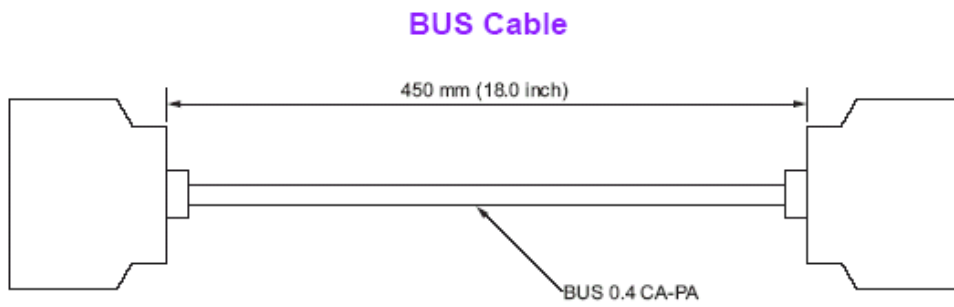
NOTE 1: PN-32IPLA/PN-32IPLA-A (IP-PAD) card is mounted in the LT04 slot of MC0-2. The first 8 ports are provided by LT04 slot and remaining 24 ports are provided by Virtual LT ports. The card is 2-slot width in physically, but it can be mounted in LT04 slot because there is a space above the LT04 slot.

NOTE 2: PN-16VCTA/PN-16VCTA-A (16VCT) card is mounted in the LT02, LT03 slots of MC0-2, next to the IP-PAD card.

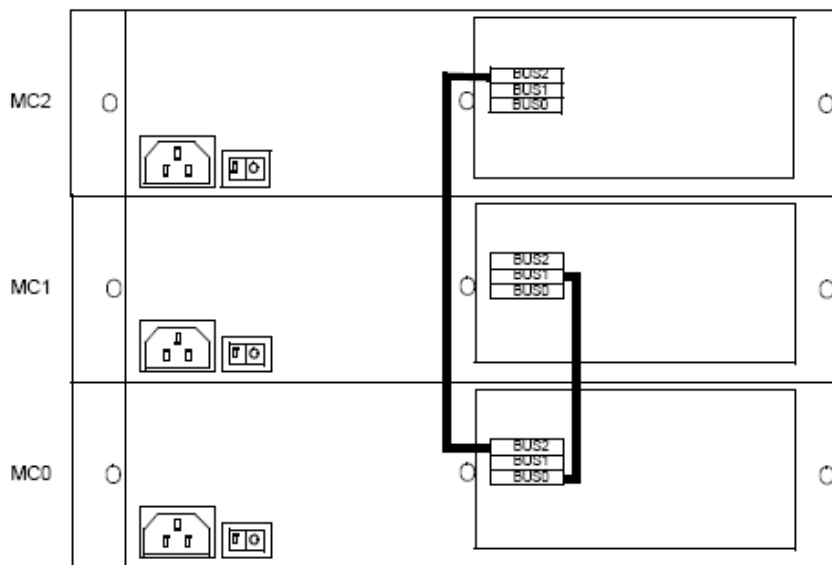


Bus Cable

When the system is a multiple-MC configuration, connect all the BUS Connector to each other using BUS cables, as shown below.



Connection of BUS Cables



Note – this picture shows a DM configuration. Maximum 2 PIM for DMR configuration.

MDF Layout

LTC Connector Pin Arrangement (LEN Assigned by CM14)

- MC0 (LTC0/LTC1)

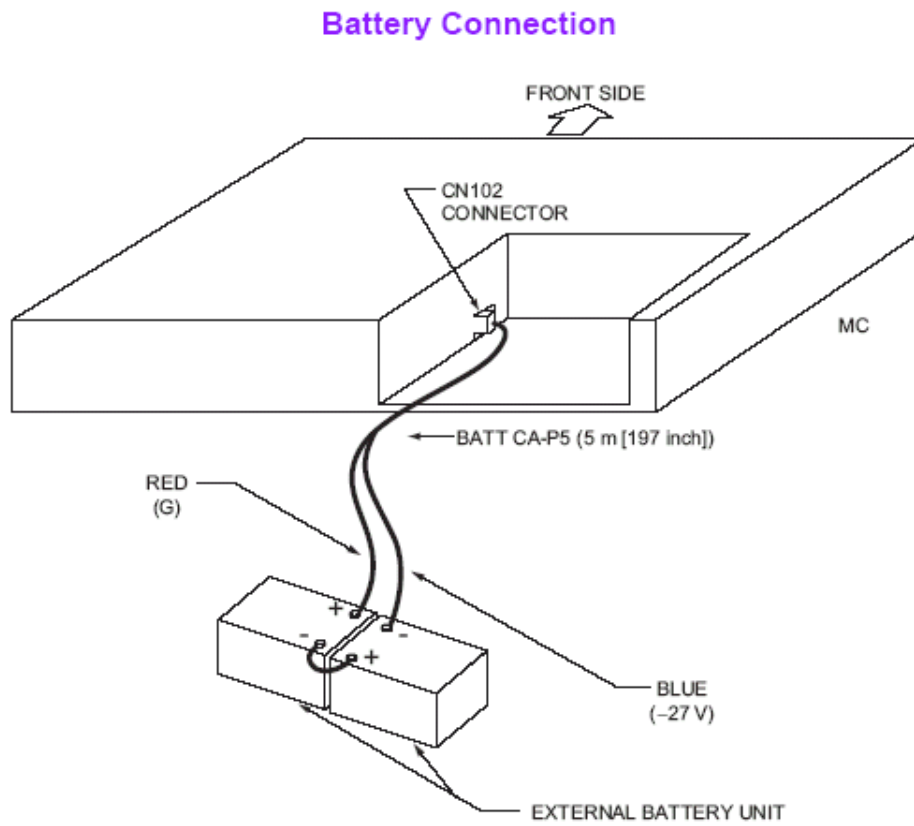
LTC0					LTC1				
1		26		LEN00000	1		26		LEN00024
2		27		00001	2		27		00025
3		28		00002	3		28		00026
4		29		00003	4		29		00027
5		30		00004	5		30		00028
6		31		00005	6		31		00029
7		32		00006	7		32		00030
8		33		00007	8		33		00031
9		34		00008	9		34		00032
10		35		00009	10		35		00033
11		36		00010	11		36		00034
12		37		00011	12		37		00035
13		38		00012	13		38		00036
14		39		00013	14		39		00037
15		40		00014	15		40		00038
16		41		00015	16		41		LEN00039
17		42		00016	17		42		
18		43		00017	18		43		
19		44		00018	19		44		
20		45		00019	20		45		
21		46		00020	21		46		
22		47		00021	22		47		
23		48		00022	23		48		
24		49		LEN00023	24		49		
25	MJ	50	MN		25		50		

- MC1 (LTC0/LTC1)

LTC0					LTC1				
1		26		LEN00064	1		26		LEN00088
2		27		00065	2		27		00089
3		28		00066	3		28		00090
4		29		00067	4		29		00091
5		30		00068	5		30		00092
6		31		00069	6		31		00093
7		32		00070	7		32		00094
8		33		00071	8		33		00095
9		34		00072	9		34		00096
10		35		00073	10		35		00097
11		36		00074	11		36		00098
12		37		00075	12		37		00099
13		38		00076	13		38		00100
14		39		00077	14		39		00101
15		40		00078	15		40		00102
16		41		00079	16		41		LEN00103
17		42		00080	17		42		
18		43		00081	18		43		
19		44		00082	19		44		
20		45		00083	20		45		
21		46		00084	21		46		
22		47		00085	22		47		
23		48		00086	23		48		
24		49		LEN00087	24		49		
25	MJ	50	MN		25		50		

Backup Batteries

Connect BATT CA-P5 to CN102 connector of PZ-PW131 card and the external battery as shown below.



NOTE 1: *The external battery is to be locally provided.*

NOTE 2: *Use a solderless terminal for the end of BATT CA-P5.*

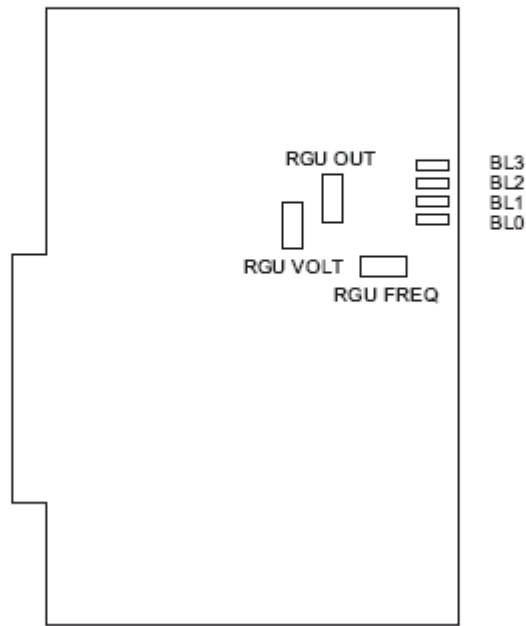
NOTE 3: *When the system is more than two-MC configuration, connect all the BATT CA-P5 to the terminals of the external battery unit together.*

NOTE 4: *Following specifications of small sealed type battery is required for the external battery. When you use the battery that does not suit the following specifications, normal operation of the system and action for the power failure cannot be guaranteed.*

MC CONFIGURATION	POWER FAILURE DURABILITY	BATTERY SPECIFICATION	NUMBER OF BATTERY
1	30 minutes	12 V DC, 2/2.2 Ah (2.2-2.3 V/cell)	2
	3 hours	12 V DC, 7.2 Ah (2.2-2.3 V/cell)	2
2	30 minutes	12 V DC, 7.2 Ah (2.2-2.3 V/cell)	2
	3 hours	12 V DC, 12 Ah (2.2-2.3 V/cell)	2
3	30 minutes	12 V DC, 7.2 Ah (2.2-2.3 V/cell)	2
	3 hours	12 V DC, 24 Ah (2.2-2.3 V/cell)	2

PN-4LCAA (LC)




Locations of Lamps, Switches, and Connectors





Lamp Indications

LAMP NAME	COLOR	FUNCTION
BL0-3	Red	<ul style="list-style-type: none">• Remains lit when the corresponding circuit is in use.• Flashes at 60 IPM when the corresponding circuit is in make-busy state or the system data for this card is not assigned.

Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
RGU OUT (Jumper pin) 	/	UP	Ringer Supply to BWB is ON	
		DOWN	Ringer Supply to BWB is OFF	
RGU VOLT (Jumper pin) 	/	UP	Ringer Voltage: 85 V	
		DOWN	Ringer Voltage: 75 V	
RGU FREQ (Jumper pin) 	/	RIGHT	Ringer Frequency: 25 Hz	
		LEFT	Ringer Frequency: 20 Hz	

The figure in the SWITCH NAME column and the position of  in the SETTING POSITION column indicate the standard setting of the switch. When the switch is not set as shown by the figure and , the setting of the switch varies with the system concerned.

Continued on next page

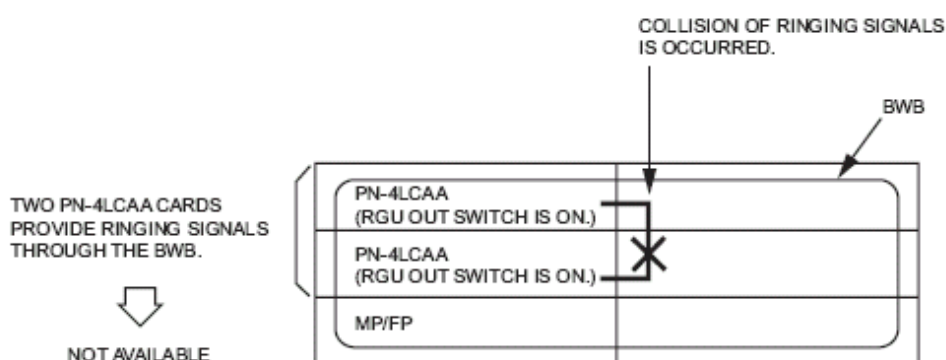
NOTE: PN-4LCAA card provides ringing signal to the station lines connected with PN-4LCAA card itself. By setting the RGU OUT switch to ON (UP position), PN-4LCAA card can also provide ringing signal to the station lines connected with other LC cards through the BWB.

When you mount two or more PN-4LCAA cards in a MC, only one PN-4LCAA card can provide the ringing signal through the BWB. If ringing signals are sent from two or more PN-4LCAA cards through the BWB, it causes collision of ringing signals.

Below shows the example of RGU OUT switch setting when two LC cards are mounted.

RGU OUT Switch Setting of PN-4LCAA Card

- When RGU OUT switches on two PN-4LCAA cards are set to ON



- When RGU OUT switch on one PN-4LCAA card is set to ON

