NEC

NDA-24293
ISSUE 2
STOCK # 152017

NEAX®2000 IVS²
INTEGRATED VOICE SERVER

General Description

SEPTEMBER, 2000

NEC America, Inc.

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Printed in the U.S.A

NEAX2000 IVS^2 General Description

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Regulatory Information

Regulatory Requirements

The Federal Communications Commission (FCC) has established rules that permit the PBX to be directly connected to the telephone network. A jack is provided on party lines or coin lines.

The telephone company may make changes in its technical operations and procedures. If such changes affect the compatibility or use of the PBX, the telephone company must provide adequate notice of the changes.

This equipment complies with the requirements in Part 15 of FCC Rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct this interference.

FCC Part 15 Requirements

In compliance with FCC Part 15 Rules, the following statement is provided:

Warning: *This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.*

FCC Part 68 Registration

Company Notification

Before installing the PBX to the telephone network, the telephone company must be provided with the following:

- Your telephone number
- The FCC registration numbers:

	JAPAN	USA
PBX	AY5JPN-20542-PF-E	AY5USA-21582-PF-E
Hybrid	AY5JPN-20543-MF-E	AY5USA-21583-MF-E
Key System	AY5JPN-20586-KF-E	AY5USA-21584-KF-E

The Ringer Equivalence Number is 1.6B; the required USOC jacks are RJ21X, RJ2EX, RJ2GX, and RJ49C.

Note: *Limitations on features exist if the system is registered as a KF system. Refer to Features and Specifications for details.*

Service Requirements

In the event of equipment malfunction, all repairs will be performed by NEC or an authorized distributor. It is the responsibility of users requiring service to report the need for service to NEC or to one of their authorized distributors.

If trouble is experienced with this equipment, please contact NEC America, Inc., at 800-TEAM NEC (800-832-6632) for repair and/or warranty information. If the trouble is causing harm to the telephone network, the telephone company may request that you remove the equipment from the network until the problem is resolved.

If the equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that affect the operation of the equipment. If this happens, the telephone company will provide advance notice so that you can make necessary modifications in order to maintain uninterrupted service.

NO REPAIRS CAN BE DONE BY THE CUSTOMER.

Location of FCC Compliance Labels

Labels stating the NEAX2000 IVS^2 FCC registration number and compliance with FCC Parts 15 and 68 are attached on the inside of the system's front cover. Label examples are as follows:

"This equipment complies with the requirements in Part 15 of FCC Rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct the interference."	NEAX2000 IVS^2 Complies With Part 68 FCC Rules FCC Registration Numbers: Ringer Equivalence: 1.6B NEC America, Inc. MADE IN USA

FCC Requirements for Private Line Operations

In order to connect this system to the private line network, provide the telephone company with:

- The quantities and USOC numbers of the required jacks (See the following table.)
- The sequence in which the trunks are to be connected
- The facility interface codes by position
- The Ringer Equivalence Number or service order code, as applicable, by position

MFG'S PORT ID	FACILITY INTERFACE CODE	NETWORK JACKS	SERVICE ORDER CODE
PN-4COTB	02LS2	RJ21X	
PN-4COTB	02GS2	RJ21X	
PN-4COTG	02LS2	RJ21X	
PN-4COTG	02ES2	RJ21X	
PN-AUCA	02RV2-T	RJ21X	
PN-4DITB	02RV2-T	RJ21X	
PZ-8PFTA	02LS2	RJ21X	
PN-8COTQ	02LS2	RJ21X	
PN-8COTS	02LS2	RJ21X	
PN-8COTS	02GS2	RJ21X	
PN-AUCA	0L13A, 0L13B, 0L13C	RJ21X	9.0F
PN-20DTA	TL11M	RJ2EX	9.0F
PN-20DTA	TL31M	RJ2GX	9.0F
PN-24DTA	04DU9-BN	N/A	6.0P
PN-24DTA	04DU9-DN	N/A	6.0P
PN-24DTA	04DU9-1KN	N/A	6.0P
PN-24DTA	04DU9-ISN	N/A	6.0P

MFG'S PORT ID	FACILITY INTERFACE CODE	NETWORK JACKS	SERVICE ORDER CODE
PN-24DTA	04DU9-IZN	N/A	6.0P
PN-BRTA	02IS5	RJ49C	6.0Y
PN-DAIA	04DU9-BN	N/A	6.0N
PN-DAIA	04DU9-DN	N/A	6.0N
PN-DAIA	04DU9-1KN	N/A	6.0N
PN-DAIA	04DU9-1SN	N/A	6.0N
PN-DAIA	04DU9-1ZN	N/A	6.0N
PN-DAIA	04DU9-BN	N/A	6.0N
PN-DAIB	04DU9-BN	N/A	6.0N
PN-DAIB	04DU9-DN	N/A	6.0N
PN-DAIB	04DU9-1KN	N/A	6.0N
PN-DAIB	04DU9-1SN	N/A	6.0N
PN-DAIB	04DU9-1ZN	N/A	6.0N
PN-24PRT-A	05DU9-BN	N/A	6.0P
PN-24PRT-A	04DU9-BN	N/A	6.0P
PN-24PRT-A	04DU9-1KN	N/A	6.0P
PN-24PRT-A	04DU9-1SN	N/A	6.0P
PN-24PRT-A	04DU9-1ZN	N/A	6.0P
PN-24CCT-A	04DU9-BN	N/A	6.0P
PN-24CCT-A	04DU9-DN	N/A	6.0P
PN-24CCT-A	04DU9-1KN	N/A	6.0P
PN-24CCT-A	04DU9-1SN	N/A	6.0P
PN-24CCT-A	04DU9-1ZN	N/A	6.0P
PN-24DTA-C	04DU9-BN	N/A	6.0P
PN-24DTA-C	04DU9-DN	N/A	6.0P
PN-24DTA-C	04DU9-1KN	N/A	6.0P
PN-24DTA-C	04DU9-1SN	N/A	6.0P
PN-24DTA-C	04DU9-1ZN	N/A	6.0P
PN-2BRTC	02IS5	N/A	6.0Y

Direct-Inward Dialing (DID) Calls

Allowing this equipment to be operated in such a manner as to not provide for proper answer supervision is a violation of Part 68 of the FCC's rules.

PROPER ANSWER SUPERVISION IS WHEN:

a.) This equipment returns answer supervision to the PSTN when DID calls are:

- Answered by the called station
- Answered by the attendant
- Routed to a recorded announcement that can be administered by the CPE user
- Routed to a dial prompt

b.) This equipment returns answer supervision on all DID calls forwarded to the PSTN.

- Permissible exceptions are:
- A call is unanswered
- A busy tone is received
- A reorder tone is received

EQUAL ACCESS REQUIREMENTS

This equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

Caution: *The use of a monitoring, recording or listening devices to eavesdrop, monitor or record telephone conversations or other sound activities, whether or not contemporaneous with its transmission, may be illegal in certain circumstances under federal or state laws. Legal advice should be sought prior to implementing any practice that monitors or records any telephone conversation. Some federal and state laws require some form of notification to all parties to the telephone conversation, such as using a beep tone or other notification methods or require the consent of all parties to the telephone conversation, prior to monitoring or recording a telephone conversation. Some of these laws incorporate strict penalties.*

Regulatory Information On Single-line Analog Telephones

NEC single-line telephones comply with Part 68 of FCC Rules. On the bottom of the equipment is a label that states, among other information, the FCC registration number and ringer equivalence number (REN) for the equipment. If requested, this information should be provided to the telephone company.

The equipment uses the following USOC jacks: RJ11C.

The equipment should be used only behind a PBX or KTS. The REN is used to determine the number of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all, areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area.

Hearing Aid Compatibility

The D^{term} terminals provided for the NEAX2000 IVS^2 are hearing aid compatible. FCC rules prohibit the use of non-hearing aid compatible telephones.

NEC-type single-line telephone sets used in conjunction with the NEAX2000 IVS^2 are hearing aid compatible. If other than NEC-type single-line telephone sets are to be used with this system, ensure that these are hearing aid compatible.

Industry Canada CS-03

Certification number: 140 5976 A

Load Number of the equipment: 1.0

NOTICE: The Industry Canada label identifies certified equipment. The certification means that the equipment meets certain telecommunications network protective operational and safety requirements. The department does not guarantee the equipment will operate to the user's satisfaction.

Before installing the equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions might not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or installations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request that the user disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This protection may be particularly important in rural areas.

Caution: *Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.*

NOTICE: The Load Number assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the load numbers of all the devices does not exceed 100.

Safety Certifications

This equipment has been listed by Underwriters Laboratories and found to comply with all the applicable requirements of the standard for telephone equipment U.L. 1459. This equipment complies with Canadian Standards Association's standard C 22.2 No. 225.

Safety Considerations

When using telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury. Precautions include the following:

- Never install telephone wiring during a lightning storm.
- Never install a telephone jack in a wet location, unless the jack is specifically designed for wet locations.
- Never touch an uninsulated telephone wire or terminal, unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

Note: *More detailed precautions are included in this manual.*

Safety Instructions

1. Never install telephone wiring during a lightning storm.
2. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
3. Never touch un-insulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
4. Use caution when installing or modifying telephone lines.
5. Read and understand all instructions.
6. Follow all warnings and instructions marked on the product.
7. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
8. Do not use this product near water, for example, under water pipes near a bathtub, sink, or laundry tub, in a wet basement, or near a swimming pool.
9. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
10. Slots and openings in the cabinet and the back or bottom are provided for ventilation, to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
11. This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power source available, consult with your local power company.
12. This product is normally connected with a three-wire grounding type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug. SAFETY INSTRUCTIONS
13. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.
14. Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.
15. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
16. To reduce the risk of electric shock, do not disassemble this product, but take it to a qualified serviceman when some service or repair work is required. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock when the appliance is subsequently used.

17. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    a.) When the power supply cord or plug is damaged or frayed.
    b.) If liquid has been spilled into the product.
    c.) If the product has been exposed to rain or water.
    d.) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
    e.) If the product has been dropped or the cabinet has been damaged.
    f.) If the product exhibits a distinct change in performance.
18. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
19. Do not use the telephone to report a gas leak in the vicinity of the leak.

Chapter 1 Introduction

This manual provides an overview of the NEAX2000 IVS^2 (Integrated Voice Server^2) stored program control digital electronic PBX. An introduction to the technical characteristics is included, along with a description of available system applications.

System Overview

The NEAX2000 IVS^2 is a full-featured PBX providing a rich feature set of both Key and PBX features. It is positioned to provide a more cost effective solution for the small to medium size business, hotel property or networked environment. This system allows users to purchase just the station and trunk capacity that they need, yet expand that capacity by simply adding modules to accommodate added demand. The modular design of the NEAX2000 IVS^2 allows the system to grow from 24 to 512 stations. Hardware modularity results in one of the most reliable, flexible, and powerful systems available.

The NEAX2000 IVS^2 is a microprocessor-based, stored-program-controlled, digital communication system using the Pulse Code Modulation (PCM) technique. The system is comprised of central equipment cabinets and telephones located throughout the installation site. The central equipment cabinet is composed of Port Interface Modules (PIMs). One to Eight PIMs may be installed, depending on the requirements of the individual customer. The PIMs are designed for modular growth, stack mounting (4 PIMs high), and quick interconnection. Each PIM provides 64 ports. The universal port design minimizes the hardware required for a system, and provides greater flexibility in the number and types of devices that can be installed.

The NEAX2000 IVS^2 is based on a universal port concept. A total of 768 ports can be equipped, a maximum of 512 stations/analog trunks plus 256 Virtual extensions. These ports support D^{term} Series III/E, Electra Elite, D^{term} Cordless, and D^{term} PSII (Wireless) Multiline Terminals, single line telephones, outside lines, and other circuits and devices. While port assignment is flexible, the maximum capacities for each device are as follows:

DEVICES	WITHOUT MEM-MODULE	WITH MEM-MODULE
Analog + Digital + Trunks + Wireless lines	384	768
DID Number Conversions	500	1000
IP Trunks	1 (16 IP CH)	8 (128 IP CH)
Analog lines	256	512
Digital lines	256	512
Analog + Digital + Wireless lines	256	512
Virtual lines	256	512
Virtual + Digital lines	512	768
Wireless PS lines	128	256
ISDN-BRI lines	64	128
Data lines	64	128
Call Forward Outside	240	496
Auth/Forced/DISA ID Code	1000	3000 (on MP)
Message Reminder	512	1024
Name Display (My-Line + Virtual)	256	512
Station Speed Dial	4000	10,000
Built-In SMDR (Standalone)	256	1280
Digital Trunks (T1)	240 ch	240 ch
ISDN PRI	192 ch	192 ch
CCIS #7	192 ch	192 ch

Feature Overview

The Primary design objective of our NEAX2000 IVS^2 is to offer affordable communications and features designed to enhance your company's performance. A comprehensive feature package is provided including both business and Hotel/Motel features.

- Business – concentrates on call processing to streamline daily business communication operations.
- Hotel/Motel – designed to provide your administration station with the most effective features for optimum guest service. Guest stations are offered features to provide them with optimum hospitality.

Throughout the use of the NEAX2000 IVS^2 features, your company can control costs, enhance productivity, save time, and take advantage of flexible resources.

The NEAX2000 IVS^2 employs techniques such as resident system programming and maintenance (both online and remote). These techniques ensure the installation and maintenance is quick and efficient.

Cost control is served by features such as:
Account Codes, Forced Account Codes, Direct Inward System Access (DISA), Least Cost Routing (LCR), Route Advance, Station Message Detail Recording (SMDR), Code Restriction, Elapsed Call Timer, Periodic Time Indication Tone, Off-Premises Extensions, and Tandem Switching of E&M Tie Lines.

Productivity is served by features such as:
Incoming Call Identification (transfers, DIT, DID, DDD, FX, WATS and internal calls), Authorization Code, Automated Attendant, Camp-On, Group Listening, Hands-free Answerback, Call Park, Do Not Disturb, Callback, Call Forward, Call Pickup, Conference, Data, Return Message Schedule Display, Timed Reminder, Trunk Queuing, and Set Relocation.

Time saving is served by features such as:
Speed Dial, Save and Repeat, Callback Message, Last Number Redial, Answer Key, Ringing Line Pickup, VoiceMail Integration, Broker's Call, Step Call, Trunk to Trunk Transfer, Timed Queue, Boss/Secretary Calling, Intercoms, Remote Maintenance, Voice Mail Soft-Keys and Dial by Name.

Flexibility is served by the universal port concept, which allows a high variable trunk to station ratio, *Flexible Line Key Assignment, Flexible Ringing Assignment, Direct Trunk Appearance, as well as Flexible Numbering Plan*. The variety of telephones (detailed in Section 3) also adds to the system's flexibility.

Hardware Architecture

The NEAX2000 IVS^2 employs the latest advancements in Large Scale Integration (LSI) circuits and component manufacturing techniques to create a highly reliable and serviceable communications system.

The NEAX2000 IVS^2 architecture consists of three major functional components: Distributed Controller, Digital Switching Network, and Port Interface.

1. **Distributed Controller**
   The Distributed Controller is composed of distributed multiprocessing units, generic memory, database instructions, system interface, and interface ports for system maintenance and administration.
2. **Digital Switching Network**
   The Digital Switching Network consists of a non-blocking digital time division switch, allowing all ports to be used simultaneously.
3. **Port Interface**
   The Port Interface provides access to the public and private network for various types of terminal devices, including digital and analog telephones, data terminals, computers and subsystems such as Voice Mail Systems, Data Switch Networks, and related communication and information services.

Hardware Modularity

The NEAX2000 IVS^2 continues with the modular design employing interface modules in groups of 64 ports. The system allows users to purchase just the station and trunk capacity that they need, yet expand that capacity by simply adding modules to accommodate added demand. The modular design of the NEAX2000 IVS^2 allows the system to grow from 24 to 512 ports. Hardware modularity results in one of the most reliable, flexible, and powerful systems available.

Flexible Interface Port

The IVS^2 uses a Universal Port architecture that has the flexibility to accommodate station terminals, trunks, and adjunct processors. This universal digital back plane allows the NEAX2000 IVS^2 to maximize slot space utilization and lower expansion costs.

Cabling

As more and more computers and communications devices use twisted-pair technology, the use of today's cabling systems continues to rise. This is of special concern when the customers' needs require that the cabling system be expanded where facilities are close to their capacity. The NEAX2000 IVS^2 provides solutions that significantly reduce overall cabling requirements.

The D^{term} Series III and Series E digital telephones offer cost-effective use of cabling systems by requiring only a single twisted pair. This new technology provides the power and function of the previous D^{term} telephones with 50% less cabling.

Software Architecture

The NEAX2000 IVS^2 software design is as advanced as its hardware. It ensures that your system will support the evolving applications and have the reliability needed to take your organization into the future.

Fusion of RAM and ROM Programs

The NEAX2000 IVS^2 incorporates the flexibility of Random Access Memory (RAM) for Office Data Memory, and Flash ROM which contains the operating system. This fusion of divergent memory technologies results in high performance 32-bit processing reliability in system operation as well as fast recovery time in case of system power loss. This unique configuration provides improved efficiency for updates to the generic program by floppy disk, and simplifies upgrades for system features and capabilities throughout its life.

Application Processors

The processing architecture of the NEAX2000 IVS^2 allows the system to be configured with Application Processors that provide processing capacity for a specific application or multiple applications. These EPROM-based processors support applications such as:

- Open Applications Interface (OAI) which connects to outboard computing devices to support a wide range of host computer-supported features.
- ACD Processor for call center applications.
- Hotel Processor for Hospitality applications.
  This same processor is used for SMDR for call accounting, and Message Center Interface (MCI)

Feature Packages

The NEAX2000 IVS^2 introduces a new software and hardware approach, which is designed with modularity in mind. This approach allows customers a greater degree of cost control for new installations and for upgrades.

Feature Package Designations

The NEAX2000 IVS^2 basic operation requires Basic Business/HM Software. In addition to the Basic Software there are several Feature Packages, each for Business or Hotel applications. Their applications and feature package numbers are listed below:

DESCRIPTION	DESCRIPTION
24 Port Basic System Package • ICS VS PIMF (UA) • ICS VS Base/Top-UB • SPN-CP14 MP (UA)	Business/Hotel/Motel Features and Generic 2000 Load for 24 Ports. 1 per System required, supports 1 T1/E1 interface
48 Port System Software - 2000 Series (FD)	Basic Business/Hotel/Motel Features and Generic 2000 Load for 48 Ports. Provides support for 48 LT Ports, 5 T1s, ISDN, 3 Remote PIMs, 5 ISDN-PRI DCHs, 48ISDN-BRI Trunk Spans, 128 BRI Station Ports
EXPANSION KEY (FD)	Parent Part Number that includes selected Capacity Options below
LT PORTS (48 to 128)	Expands LT Port Capacity from 48 Ports to 128 Ports
LT PORTS (48 to 256)	Expands LT Port Capacity from 48 Ports to 256 Ports
LT PORTS (48 to 512)	Expands LT Port Capacity from 48 Ports to 512 Ports
LT PORTS (128 to 256)	Expands LT Port Capacity from 128 Ports to 256 Ports
LT PORTS (128 to 512)	Expands LT Port Capacity from 128 Ports to 512 Ports
LT PORTS (256 to 512)	Expands LT Port Capacity from 256 Ports to 512 Ports
DTI SPANS (5 to 11)	Expands DTI Capacity from 5-Spans to 10.5-Spans
REMOTE PIMs (3 to 6)	Expands Remote PIM capacity from 3 to 6 Remote PIMs
ISDN-DCH LINK (5 to 8)	Expands ISDN-DCH capacity from 5 to 8 D-Channels (PRI/DCHQ/DCH-QSIG
CCIS LINK (0 to 1)	Expands CCIS CCH capacity from 0-Links to 1-Link
CCIS LINK (0 to 4)	Expands CCIS CCH capacity from 0-Links to 4-Links
CCIS LINK (0 to 8)	Expands CCIS CCH capacity from 0-Links to 8-Links
CCIS LINK (1 to 4)	Expands CCIS CCH capacity from 1-Link to 4-Links
CCIS LINK (1 to 8)	Expands CCIS CCH capacity from 1-Link to 8-Links
CCIS LINK (4 to 8)	Expands CCIS CCH capacity from 4-Links to 8-Links
Ext. FCCS LINK (0 to 1)	Expands FCCS Link capacity from 0-Links to 1-Link
WIRELESS DEMO	Provides Capacity support for 2-ZTs & 4-PSs
WIRELESS	Provides Capacity support for 128-ZTs & 255-PSs
IPT x 1	Expands IP Trunk capacity from 0 to 1 (max. 16 channels)
IPT x 2	Expands IP Trunk capacity from 0 to 2 (max. 32 channels)
IPT x 4	Expands IP Trunk capacity to 4 IPT (max 64 channels)
IPT x 8	Expands IP Trunk capacity to 8 IPT (max 128 channels)

Software Licensing

Each system is accompanied by an NEC Customer Software License Agreement. This agreement grants the customer a non-exclusive license to use the software (including any related documentation and any upgrades and enhancements to the system software) for the useful life of the system solely to operate and maintain the system purchased under the agreement.

Integration

In addition to the application processors manufactured by NEC, the NEAX2000 IVS^2 also delivers an open architecture for integration with other manufacturers' application processors. This integration is supported by interface processors and specifications for communicating with computing devices such as network and facilities management, call center applications, call accounting, property management, voice mail, and management information systems for ACD reports and monitoring, as well as maintenance access terminals.

Advantages

The NEAX2000 IVS^2 provides a unique set of advantages to users who seek an advanced information system that is both flexible and dependable. Through the use of state-of-the-art computer controlled telecommunications technology, NEC is able to provide the following advantages:

1. Full-Featured System - NEAX2000 IVS^2 station users have access to more than 300 service features that enhance user productivity, reduce operating costs, and improve communication efficiency. In addition, the control, network and interface positions of the NEAX2000 IVS^2 can accommodate features, services and sub-systems as required by specific applications.
2. Network Integration - The NEAX2000 IVS^2 offers business, industries, hospitals and hotel/motels the ability to access an extensive array of information processing and management services by serving as the central controller of an integrated information network. The NEAX2000 IVS^2 reflects the philosophy of NEC Corporation to integrate C&C technology, and can provide many voice and non-voice services.

3. Flexible Line Size-Innovative Modular hardware and software design allows the NEAX2000 IVS^2 to efficiently serve from 24 ports up to 512 ports. Modularity gives the system the ability to expand from its minimum configuration to its maximum capacity as the need arises. This unique expansion capability allows the system to grow in a cost affective manner as the user requirements expand. Your initial system investment is protected through growth capability.
4. Energy Saving and Space Savings - Through employment of state-of-the-art technology in the system circuitry design, NEC has been able to reduce power consumption. As a result, the current consumption of the system has been reduced to 50% of that of any conventional electronic PBX systems. This energy saving oriented system design allows for the use of much smaller capacity main power equipment and air conditioning equipment. In parallel with the energy savings, the space requirement for the system has been reduced to one third when compared with that of a conventional electronic PBX system.
5. Building Block Configuration - In a conventional switching system, various kinds of equipment are mounted in a cabinet group and are connected to each other by use of connecting cables. The NEAX2000 IVS^2, however, uses a building block modular design. When installing the system, the required blocks are placed on top of each other in a building block formation and interconnected by round bus cables.
6. Flexible Interface Ports - The NEAX2000 IVS^2 employs a Universal Port architecture that has the flexibility to accommodate station terminal equipment, trunks and adjunct processors. This universality allows the NEAX2000 IVS^2 to maximize slot space use and lower expansion costs.
7. High Reliability - The NEAX2000 IVS^2 is designed and manufactured to provide the highest level of system reliability. The NEAX2000 IVS^2 is designed with such features as: remote maintenance, distributed call processing, error-correcting memory, battery backup, and automatic system alarm indications to ensure unsurpassed reliability. Only the finest components have been used. In addition, through the employment of LSI and custom LSI and VLSI technology, the number of component parts has been greatly reduced, thus lessening possible failures and insuring continuous operation.
8. Intelligent Attendant Console - The NEAX2000 IVS^2 attendant console, SN716 Desk Console, is a compact, desktop unit equipped with non-locking keys, Light Emitting Diodes, and a 4 x 40 character Liquid Crystal Display.

The LED's provide continuous information relative to the status of calls in progress. The display provides station and trunk identification, class of service and the number of calls waiting. The LCD changes with different call states and instructs the user which Multifunction keys are available for each state. Keys such as Busy Verify, DND Override, etc. only appear when needed. The Multi-function Keys reduce the number of different buttons and greatly simply operation.

9. Intelligent Digital Multifunction Terminal - In addition to supporting conventional station equipment, the NEAX2000 IVS^2 can be equipped with the D^{term} series digital electronic multifunction terminals. The D^{term} terminals are intelligent microprocessor controlled terminals, which enhance the feature capabilities offered by the system and provide the service of conventional key telephones over 1-pair wiring. The D^{term} instrument may be equipped with an interface adapter to allow simultaneous voice and data switching, without compromising the voice communication system.

10. Ease of Installation - Because the NEAX2000 IVS^2 uses pre-assembled modules and plug-in type circuits packs, it is easy to install. Wiring connections, both internal and external, are made through simple-to-use standard plug-ended cables. In addition, with each unit and system having been fully factory tested prior to shipment, potential obstacles to easy installation have been held to a minimum.

11. Ease of Maintenance - Because the system is constructed with first quality components, reliability is high and operation is trouble free. However, should a minor fault occur, the self diagnostic programs will detect the fault, and automatically make the needed corrections. If the problem is beyond the internal correction capabilities of the system, the self diagnostic programs will automatically print the nature of the fault and the involved unit is identified on the man-machine interface equipment. The faulty plug-in unit can then be quickly replaced with little or no interruption of service.

12. Flexible Numbering Plan - The NEAX2000 IVS^2 provides flexible numbering assignment to meet all forms of network integration service.

13. Future Capabilities - Because the NEAX2000 IVS^2 uses a stored program control, performance enhancements and new features can be easily incorporated by simple changes in software. The NEAX2000 IVS^2 can be upgraded by using the most current software release and, when necessary, additional hardware. This means that the system will not become obsolete.

14. Cost Controls - With telecommunications costs growing, it is becoming increasingly important to control them. The NEAX2000 IVS^2 makes it possible for you to get a firm grasp on telecommunications costs. Through the use of such features as least cost routing, class of service and detail call recording, cost reduction and control are possible.

Hardware Design

The NEAX2000 IVS^2 hardware is designed to meet the following parameters:

- Flexibility
- Capacity
- Reliability
- Optimum space use
- Minimal environmental requirements
- Ease of installation and maintenance

A unique modular design is employed throughout the NEAX2000 IVS^2. As additional equipment modules are required, they are stacked on top of each other, rather than mounting the equipment in conventional frames or cabinets. This innovative method reduces installation time, avoids the use of bulky frames and provides for manageable future expansion, virtually eliminating the possibility of outgrowing your NEAX2000 IVS^2.

Chapter 2 System Configuration

The NEAX2000 IVS^2 consists of 1 to 8 Port Interface Modules (PIMs), each PIM will support up to 64 interface ports to give a maximum capacity of 512 ports per system. The PIMs are all the same with a universal back plane, which accommodates station ports, trunk ports, I/O processors, and power supply boards. Each PIM measures 16.9 inches across by 16.4 inches high by 8.8 inches deep (includes front cover). This compact frame allows the system to be mounted on a wall, in a 19 inch rack, on a desk/bench, or bolted to the floor.

PIM units contain the following components.

1. Line/Trunk Interface Slots

   Line and trunk interface slots house the digital and analog interface cards. The NEAX2000 IVS^2 uses the PIM-F.

   - The PIM-F has 15 slots. 12 slots (LT00-LT11) each can be used for either LT or AP cards. 1 dedicated slot (MP12) for MP or FP, 1 dedicated slot (PFT) for Power Failure Transfer card, and 1 dedicated slot (VM) for voice mail card. 8 port Line/Trunk cards can be mounted in LT00 to LT07 slots. 4 port Line/Trunk cards can be mounted in LT00 to LT10 slots. LT11 slot is available for 4 port Line/Trunk cards only when the system is configured with two or less PIMs.

2. Power Supply Board

   Each PIM is equipped with a Main Power Supply card (PZ-PW121) which converts AC120V/240V (50Hz/60Hz) to -27V DC (4.4A), +5V (7.2A), CR (38mA), +90V (80MA).

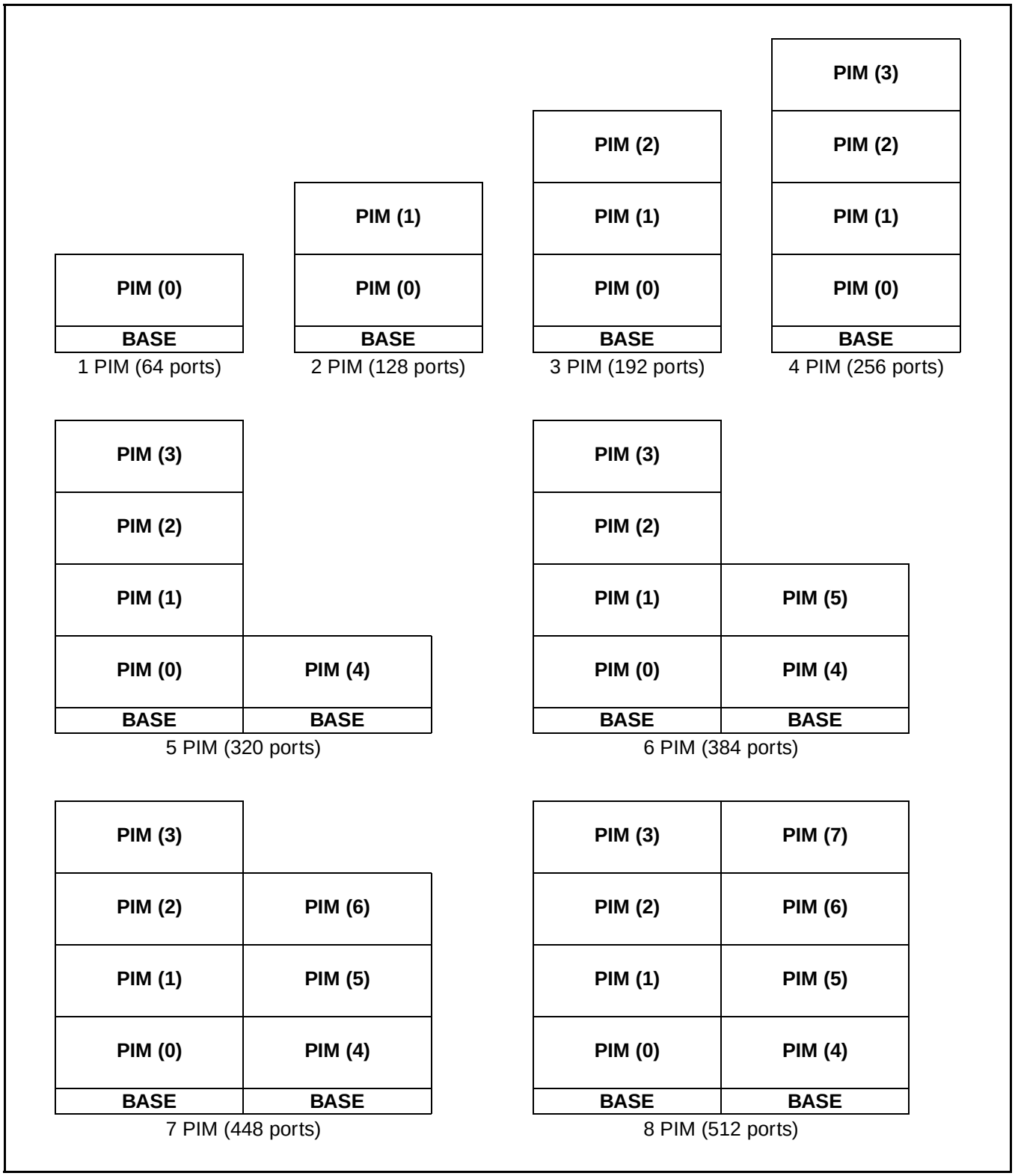
3. Application Processor (AP) and Common Control Slots

   Application processor cards use AP slots in each PIM. The number of available AP slots depends on the PIM number and which common control cards are needed for that PIM. The PIM-F has up to 12 AP slots. AP Slots are used to house the processor boards for SMDR, OAI, T1, ISDN, CCIS, and others. Common control cards such as the CPU, Bus cards, and local processors occupy only a set number of AP slots.

4. Power Failure Transfer (PFT)

   Two methods are used to provide Power Failure Transfer: (1) Using the designated circuit card (PZ-8PFTB) which mounts in PFT slot of each PIM to provide up to 64 trunk to station switch over points and (2) Utilizing the front edge cable and connecting between 4COT card and AUC card.

Module Configuration



Installation Methods

The NEAX2000 IVS^2 provides three installation methods as follows:

- Floor Standing Installation
- Wall Mounting Installation
- 19-inch Rack Mounting Installation

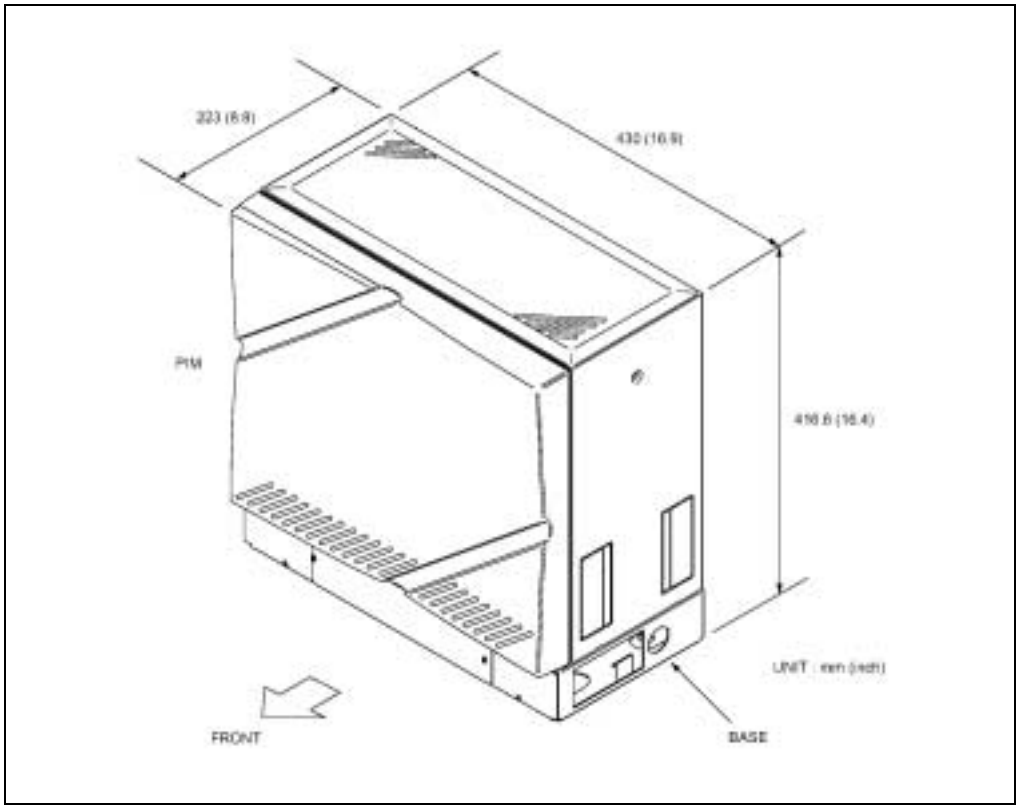


Figure 2-1 Floor Standing Installation

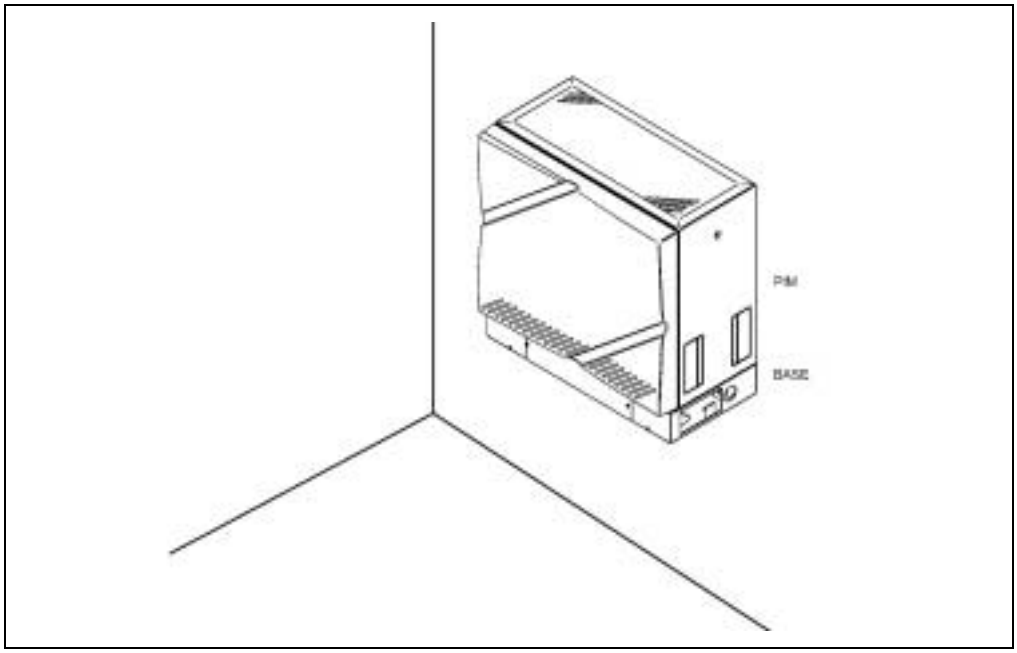


Figure 2-2 Wall-Mounting Installation

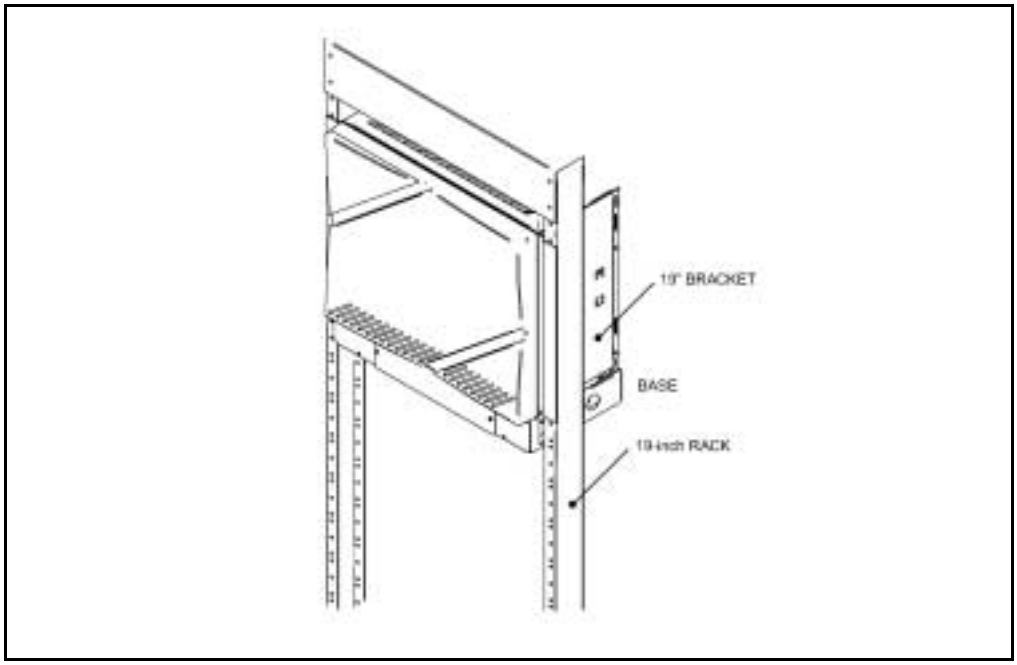


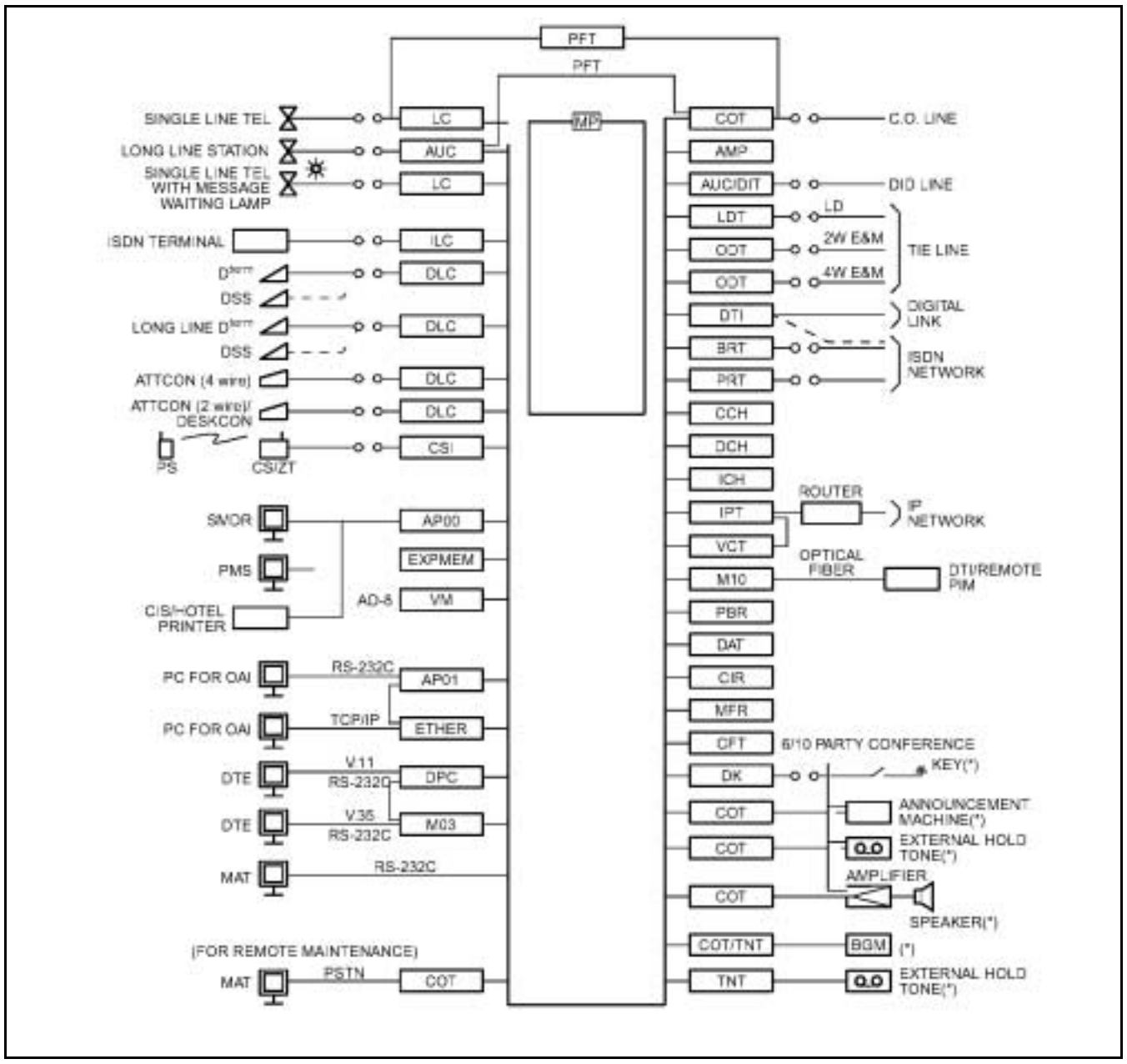
Figure 2-3 Rack Mounting Installation

Technical Terms

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
AMP	Amplifier Trunk Card	KEY	External Key
AP00	SMDR/Hotel Application Card	LC	Line Circuit Card (for Single Line Telephone)
AP01	OAI Interface Card	LDT	LD Trunk Card
AUC	Analog Universal Circuit Card (Long Line Circuit, DID Trunk)	M03	V.35 DTE Interface Card
BGM	External Music Source for D^{term} Back Ground Music Service	M10	Optical Interface Card
BRT	Basic Rate Interface Trunk Card	MAT	Maintenance Administration Terminal
CCH	Common Channel Handler Card	MDF	Main Distribution Frame
CFT	6/10 Party Conference Trunk Card	MEM	Main Memory
CIS	Call Information System	MFR	MF Receiver/ MFC Receiver/Sender Card
CIR	CALLER ID Receiver Trunk Card	MLDT	Melody Trunk
COT	C.O. Trunk Card	MODEM	Modem
CSI	CS/ZT Interface Card	MP	Main Processor Card
CS/ZT	Cell Station (For Australia/Others) Zone Transceiver (For North America/ Latin America)	PFT	Power Failure Transfer
DAT	Digital Announcement Trunk Card	PMS	Property Management System
DCH	D-channel Handler Card	OAI	Open Application Interface
DIT	DID Trunk Card	ODT	OD Trunk Card (2/4 wire E&M)
DK	External Relay/Key Interface Card	PBR	PB Receiver Card
DLC	Digital Line Circuit Card (for D^{term}, ATTCON, DESKCON)	PBSND	PB Sender
DPC	Data Port Controller Card	PLO	Phase Locked Oscillator
DSS	DSS Console	PS	Personal Station
DTE	Data Terminal Equipment	PRT	ISDN Primary Rate Interface Trunk Card
DTI	Digital Trunk Interface Card	SMDR	Station Message Detail Recording
DTG	Digital Tone Generator	TDSW	Time Division Switch
ETHER	Ethernet Control Card	TNT	Tone/Music Source Interface Card
EXPMEM	Memory Expansion Card	VCT	CODEC Card
ICH	ISDN-channel Handler Card	VM	Voice Mail Card
ILC	ISDN Line Circuit Card	16CFT	16 Circuit Four Party Conference Trunk
IPT	IP Trunk Card	KEY	External Key

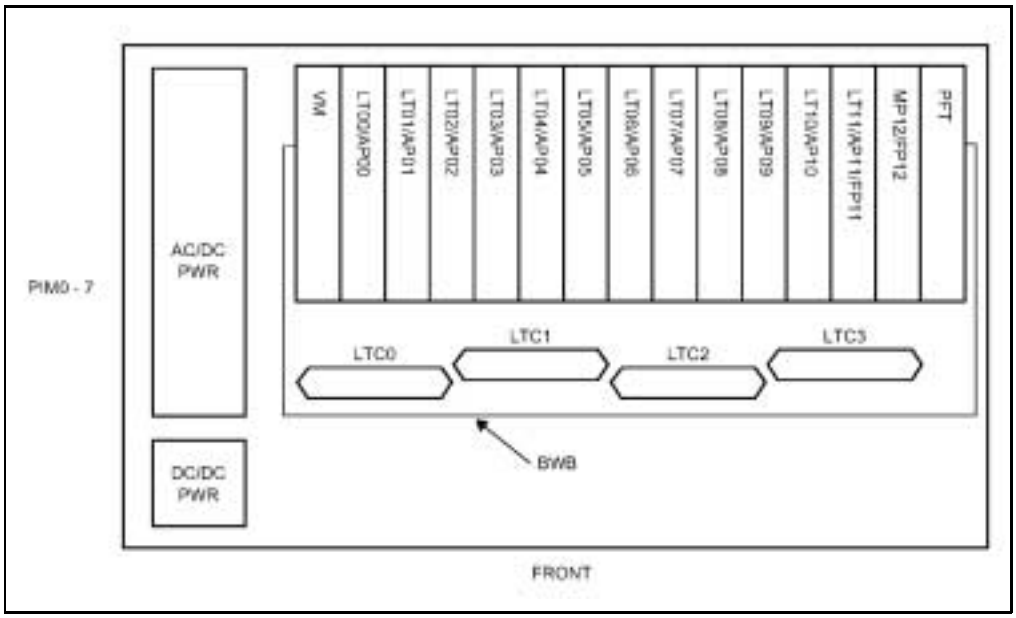
Trunking Diagram

This figure shows a typical trunking diagram of the NEAX2000 IVS^2 system.



Layout of PIM (SN1480 PIMF)

The NEAX2000 IVS^2 consists of Port Interface Modules (PIMs) which contain lines, trunks, interfaces, switching circuitry, control processors and power equipment. The following diagrams show the physical layout of elements within the PIM.



LT00-LT11: Line/Trunk card mounting slots System Capacity for Line/Trunk Card Max. 64 ports per PIM Max. 512 ports per system	VM: PZ-VM00-M mounting slot
AP00-AP11: Application Processor card mounting slots System Capacity for Application Processor Card Max. 24 cards per system Max. 256 ports per system	PFT: PZ-8PFTB mounting slot
MP: PN-CP14 mounting slot	AC/DC PWR: PZ-PW121 mounting slot
FP: PN-CP15 mounting slots	DC/DC PWR: PZ PW122 mounting slot

Control Card Mounting Conditions

1. PN-CP14 (MP)
   Mount the PN-CP14 card in the MP slot (Slot 12) of PIM0.
2. PN-CP15 (FP)
   When the system is configured with three PIMs or more, mount one PN-CP15 card in the FP slot, PIM 0: Slot 11 and PIM 2, 4, 6: Slot 12. When the system is configured with one or two PIMs, the PN-CP15 card does not need to be mounted.

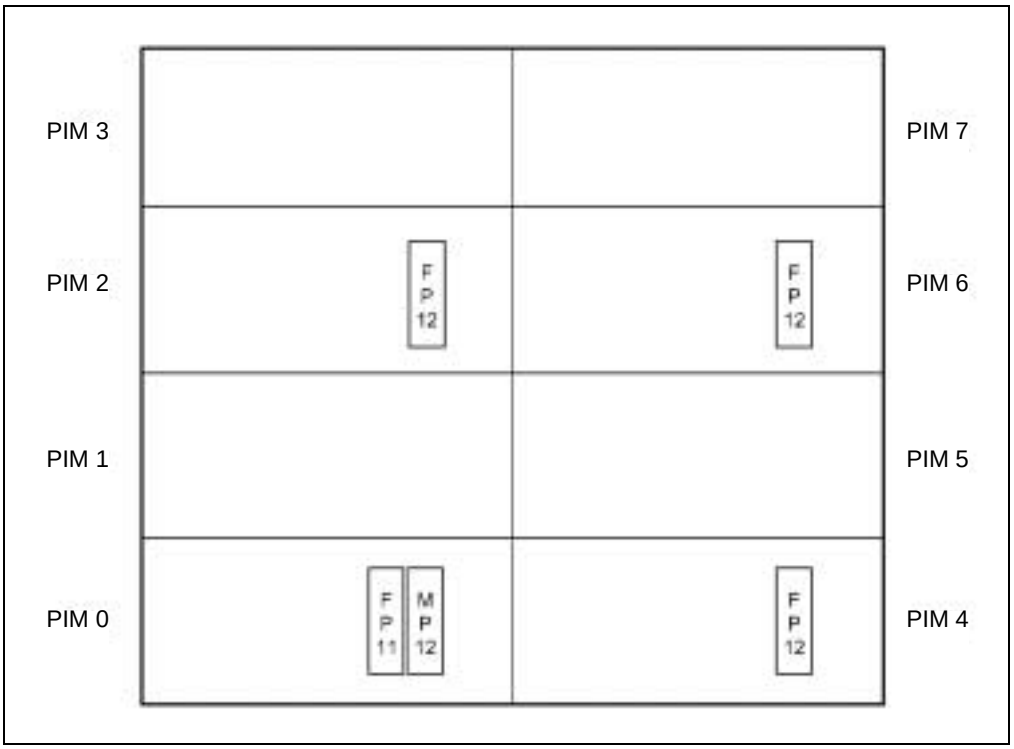


Figure 2-4 MP/FP Card Mounting Slots

Chapter 3 Terminals

The NEAX2000 IVS^2 can accommodate both D^{term} Series III and D^{term} Series E terminals to provide a variety of desktop solutions. In addition to the D^{term} Series III/E terminals, the SN716 DESKCON is used for the Attendant Answering Position.

D^{term} Series III

The D^{term} Series III terminals are intelligent, microprocessor-controlled, multi-function telephones that enhance the feature capabilities offered by the system. They provide access to sophisticated features, beyond those of conventional key telephones, over one-pair wiring.

Advantages of D^{term} Series III

In physical operation, as well as functionally, the D^{term} Series III terminals assure effortless, comfortable handling.

- **Call Indicator Lamp**
  When a call comes in, a small but highly visible light on the corner of the terminal flashes. Because the light can be seen from every direction, it helps assure that the user won't miss important calls.
- **Electronic Volume Control**
  A single set of control keys for adjusting LCD contrast, speaker/receiver volume, and ringer volume is located on the front panel of the terminal. These universal keys increase operational efficiency and eliminate the need to have a number of different volume control keys.
- **Tilt-Up Legs**
  The terminal adjusts to the user's operating environment. Information on the LCD screen is easy to see, and key operations are more comfortable.
- **Programmable Line Keys and Dedicated Feature Keys**
  D^{term} Series III terminals offer 8- or 16-line keys with dual-color LEDs for line status indication. Line keys are flexible for line, trunk or feature access. This flexibility allows the terminal to fit the user's individual needs. Call screening functions between executives and secretaries, call pickup to another station, message waiting indication of voice mail and fax arrival indication can all be programmed on the line keys of the terminal.

- **40-Character Display**
  For better call handling, the D^term Series III terminals with 16 line keys feature an easy-to-read, 20-character, 2-line LCD screen. The LCD screen provides information on calling number with name, call back message, return schedule messages, dialed digit information, service feature indications, called station status, and elapsed call time.
- **Hands-free Operation**
  D^term Series III terminals offer hands-free operation as a standard feature. The built-in microphone and speaker let users keep their hands available for work while speaking on the phone.

Dedicated Feature Keys

- ANSWER: Answers any incoming ringing call
- CONFERENCE: Simplifies access to Three-way Calling
- DOWN/UP: Controls speaker/handset volume, display contrast, ringer volume
- FUNCTION: Provides special functions (ex; MIC-ON/OFF, COT gain control)
- HOLD: Provides Exclusive and Non-Exclusive Hold of line appearances
- LAST NUMBER REDIAL/SPEED CALLING-STATION: Provides for Stack Dial or Speed Calling-Station
- RECALL: Terminates a call in progress and immediately seizes dial tone (Line Reconnect – Same Line)
- SPEAKER: Controls the built-in speaker which can be used for Hands-free Dialing/Monitoring and Voice Call
- TRANSFER: Facilitates Call Transfer, Consultation Hold and Call Splitting

D^term Series III Accessories

- **DSS/BLF Console**
  The D^term Series III can be equipped with a DSS/BLF Console. This provides 48 Direct Station Selection keys which allow the user to call another station with one touch key operation. Also, it shows the busy status of the stations assigned on each DSS key by LED lamp indication.

  The DSS/BLF Console requires an extra interface to the PABX and an AC-DC Adapter.

- **Data Adapter**
  For the data user, D^term III terminals can be used to transmit digital information at speeds up to 19.2 kbps (asynchronous or synchronous) by adding the Data Adapter.
- **Long Line Adapter**
  The Long Line Adapter provides a cable length (max. 4000 feet/1200 m) between the Main System and a D^term III terminal.
- **Wall Mount Unit**
  The Wall Mount Unit allows a D^term III to be conveniently mounted vertically when desk space is not available.
- **Ancillary Devices Adapter**
  The Ancillary Devices Adapter provides D^term III terminals with a connection for a head set or External Hands-free Unit or provides a recording jack.
- **Analog Port Adapter**
  The Analog Port Adapter provides a D^term III terminal with a connection for a PC with a modem.
- **Analog Port Adapter with Ringing**
  The Analog Port Adapter with Ringing provides D^term III terminals with a connection for a facsimile, cordless telephone, etc. The D^term Series III family of terminals is shown following. These multiline Digital Terminals are available in soft white (SW) or in black.

D^term Series III Terminals

The following illustrations show the features and accessories of the D^term systems.

- 2 dedicated functions keys
- 8 additional programmable feature keys
- call/message indicator

Figure 3-1 D^term S IIID SLT (ETJ-1DT-1) - Single Line Digital Instrument

- 8 dedicated function keys
- hands-free operation
- call/message indicator
- tilt leg

Figure 3-2 D^term 8 (ETJ-8-1) - 8 Button Digital Instrument without LCD Display

- 8 dedicated function keys
- 8 line/feature access keys
- 40 character, 2 lines LCD display
- call/message indicator
- tilt leg

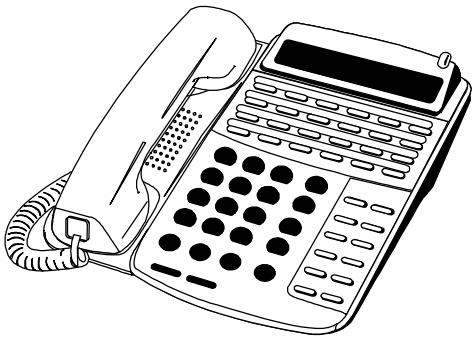
Figure 3-3 D^term 8IS (ETJ-8IS-1)

- 8 dedicated function keys
- 16 line/feature access keys
- 40 character, 2 lines LCD display
- hands-free operation
- call/message indicator
- tilt leg

Figure 3-4 D^term 16DC (ETJ-16DC-1)

- 8 dedicated function keys
- 16 line/feature access keys
- 40 character, 2 lines LCD display
- 20 additional programmable feature keys
- hands-free operation
- call/message indicator
- tilt leg

Figure 3-5 D^term 16DD (ETJ-16DD-I)



- 8 dedicated function keys
- 24 line/feature access keys
- 40 character, 2 lines LCD display
- 12 additional programmable feature keys
- hands-free operation
- call/message indicator
- tilt leg

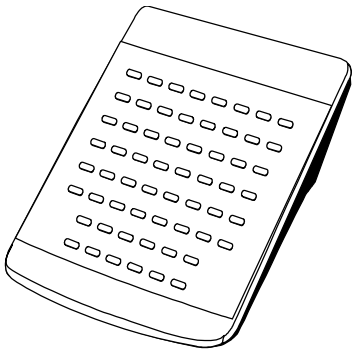
Figure 3-6 D^term 24DS (ETJ-24DS-1)

- 2 dedicated function keys
- call/message indicator

Figure 3-7 D^term Series IIIA (ETJ-1-1) - Single Line Analog Telephone

- 2 dedicated function keys
- 8 additional programmable feature keys
- call/message indicator

Figure 3-8 D^term Series IIIH (ETJ-1HM) - Single Line Analog Telephone with 8 Speed Dial Keys



- 48/60 Direct Station Selector/Busy Lamp Field
- Add-On Module for D^term Series III

Figure 3-9 EDW-48-2 DSS/BLF

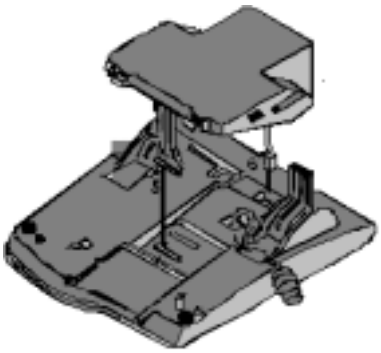


Figure 3-10 Typical D^term III Adapters - ADA-J, APA-J, APR-J, LLA-J and CTA-J

Line Conditions of Each D^term Series III Terminal

The cable length between the DLC card and terminal varies depending on the type of terminal. This table shows the line conditions of each D^term and DSS/BLF Console.

Table 3-1 Line Conditions of Each D^term Series III Terminal

TERMINAL TYPE	CARD TYPE	CABLE LENGTH* (CABLE 0.5ϕ/24 AWG)	REMARKS
D^term Series III (8 button)	PN-8DLCL/8DLCP (STANDARD)	984 ft. (300 m)	Note 1
	PN-4DLCM/4DLCQ (STANDARD)	984 ft. (300 m) [3937 ft. (1200 m)]	
	PN-2DLCB/2DLCN (LONG)	2788 ft. (850 m) [3937 ft. (1200 m)]	
D^term Series III (16 button)	PN-8DLCL/8DLCP (STANDARD)	492 ft. (150 m)	Note 1
	PN-4DLCM/4DLCQ (STANDARD)	492 ft. (150 m) [3937 ft. (1200 m)]	
	PN-2DLCB/2DLCN (LONG)	2788 ft. (850 m) [3937 ft. (1200 m)]	
D^term Series III (24 button)	PN-8DLCL/8DLCP (STANDARD)	492 ft. (150 m)	Note 1
	PN-4DLCM/4DLCQ (STANDARD)	492 ft. (150 m) [3937 ft. (1200 m)]	
	PN-2DLCB/2DLCN (LONG)	2788 ft. (850 m) [3937 ft. (1200 m)]	
DSS/BLF Console Note 2	PN-8DLCL/8DLCP (STANDARD)	984 ft. (300 m)	Note 1
	PN-4DLCM/4DLCQ (STANDARD)	984 ft. (300 m)	
	PN-2DLCB/2DLCN (LONG)	2788 ft. (850 m)	

*The value in brackets [ ] shows the cable length when local power is supplied.

Note 1: *When using PN-8DLCL or PN-8DLCP card, the long-line function is not available, even if D^term is equipped with Long Line Adapter.*

Note 2: *The DSS/BLF Console requires local AC/DC power supply.*

D^term Series E

The D^term Series E line of telephone terminals is strategically designed to provide ergonomically form and user-friendly functions. With advanced digital circuitry, the D^term Series E terminals consist of six distinct models to meet users' diverse telephone terminal needs. The new D^term Series E family of terminals offers adjustable display and non-display units with menu-driven soft key operation, allowing users to program terminals at the desktop. The display units are equipped with large LCD panels, which can carry 24 characters via three lines of display. Each terminal offers full duplex speaker phone operation for two-way conversation. Standard features include headset jacks, wall mount units and adjustable base units.

Features

- Built-in LLA function
- Four Local Soft Key Controls (Detail functions are depending on PBX.)
- Large Message Waiting LED
- 24 Character, 3 line LCD
- Tilt & Detachable LCD Unit
- Adjustable legs
- Built-in Wall Mount Unit
- Built-in Headset Jack connector
- Speed Dial/DSS Buttons
- Programmable Line Keys with 2 color LED
- Eight dedicated function keys (Feature, Recall, Conf, Redial, Hold, Transfer, Answer, & Speaker)
- Built-in Half Duplex Handsfree unit
- Optional: Full Duplex HFU (consist of HFU-U Unit, External Microphone Unit and AC adapter)
- Snap-in Options available:
- Ancillary Device Adapter (ADA-U)
    - Analog Port Adapter (APA-U)
    - Analog Port Adapter with Ringing (APR-U) External Wallmount Unit (WMU-U)
    - AC Adapter Unit (ACA-U)
    - CTI Adapter (CTA-U)
    - External Handsfree Unit, includes an External Microphone (HFU-U)
    - Directory Designation Card Holder (DCU-U)

D^term Series E Terminals

The following illustrations shows the D^term Series E family of terminals.

This digital Multiline Terminal is equipped with 8 programmable line keys (each with a two-color LED), built-in speakerphone, ADA compatibility, and a large LED to indicate incoming calls and messages.

This terminal comes in two colors: black (BK) and white (WH).

Figure 3-11 DTP-8-1

This digital Multiline Terminal is equipped with 8 programmable line keys (each with a two-color LED), built-in speakerphone, ADA compatibility, and a large LED to indicate incoming calls and messages.

This terminal is also equipped with a 24-character, 3-line, adjustable Liquid Crystal Display (LCD). It also provides four soft keys.

This terminal comes in two colors: black (BK) and white (WH).

Figure 3-12 DTP-8D-1

This digital Multiline Terminal is equipped with 16 programmable line keys (each with a two-color LED), a built-in speakerphone, ADA compatibility, and a large LED to indicate incoming calls and messages.

This terminal is also equipped with a 24-character, 3-line, adjustable Liquid Crystal Display (LCD). It also provides four soft keys.

This terminal comes in two colors: black (BK) and white (WH).

Figure 3-13 DTP-16D-1

This digital Multiline Terminal is equipped with 32 programmable line keys (each with a two-color LED), a built-in speakerphone, ADA compatibility, and a large LED to indicate incoming calls and messages.

This terminal is also equipped with a 24-character, 3-line, adjustable Liquid Crystal Display (LCD). It also provides four soft keys.

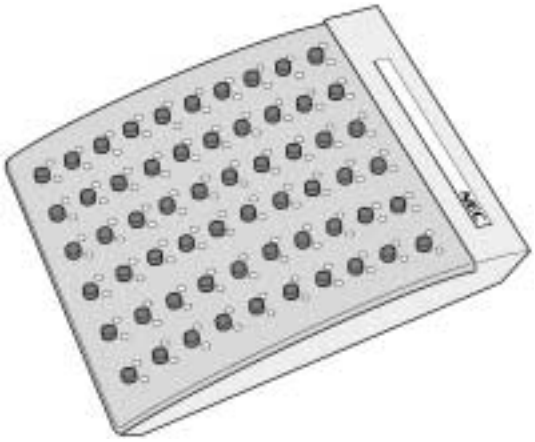
This terminal comes in two colors: black (BK) and white (WH).

Figure 3-14 DTP-32D-1

This digital terminal has 2 Flexible line/Feature Access keys, 8 dedicated Function Keys, Handsfree Speakerphone Operation (Half Duplex), Large Call/Message indicator and optional Wall Mount Unit (730112). This terminal has no built-in LLA.

This terminal comes in White (WH) only.

Figure 3-15 DTP-2DT-1 (WH) TEL



This Console is equipped with 60 programmable line keys (each with a two-color LED). These keys can be programmed as Direct Station keys, function keys, or outside line keys. It interfaces to the NEAX1000 system via existing 4DLC cards and the new 8DLCH card and uses single pair cabling.

This console comes in two colors: Black (BK) and Ivory White (WH).

Figure 3-16 DCU-60-1 Console

Line Conditions of Each D^term Series E Terminal

The cable length between the DLC card and terminal varies depending on the type of terminal. This table shows the line conditions of each D^term and DSS/BLF Console.

Table 3-2 Line Conditions of Each D^term Series E Terminal

TERMINAL TYPE	CARD TYPE	CABLE LENGTH* (CABLE 0.5ϕ/24 AWG)	REMARKS
D^term Series E (8 button)	PN-8DLCL/8DLCP (STANDARD)	984 ft. (300 m)	Note 1
	PN-4DLCM/4DLCQ (STANDARD)	984 ft. (300 m) [3937 ft. (1200 m)]	
	PN-2DLCB/2DLCN (LONG)	2788 ft. (850 m) [3937 ft. (1200 m)]	
D^term Series E (16 button)	PN-8DLCL/8DLCP (STANDARD)	656 ft. (200 m)	Note 1
	PN-4DLCM/4DLCQ (STANDARD)	656 ft. (200 m) [3937 ft. (1200 m)]	
	PN-2DLCB/2DLCN (LONG)	2788 ft. (850 m) [3937 ft. (1200 m)]	
D^term Series E (32 button)	PN-8DLCL/8DLCP (STANDARD)	656 ft. (200 m)	Note 1
	PN-4DLCM/4DLCQ (STANDARD)	656 ft. (200 m) [3937 ft. (1200 m)]	
	PN-2DLCB/2DLCN (LONG)	2788 ft. (850 m) [3937 ft. (1200 m)]	
DSS/BLF Console Note 2	PN-8DLCL/8DLCP (STANDARD)	984 ft. (300 m)	Note 1
	PN-4DLCM/4DLCQ (STANDARD)	984 ft. (300 m)	
	PN-2DLCB/2DLCN (LONG)	2788 ft. (850 m)	

*The value in brackets [ ] shows the cable length when local power is supplied.

Note 1: *When using PN-8DLCL or PN-8DLCP card, the long line function is not available, even if D^term is equipped with Long Line Adapter.*

Note 2: *The DSS/BLF Console requires local AC/DC power supply.*

SN716 DESKCON

The SN716 Desk Console has an ergonomic design and provides full access to all PBX Console features. It connects to the NEAX2000 IVS^2 using the same circuit cards as the D^{term} Series E and Series III terminals. The SN716 Desk Console has ATT Interface (ATI) to connect to the PBX. This interface is 6-core Modular Jack; inner 1 pair for signal and outer 2 pairs are for power supply.

The SN716 Desk Console operates on a switched-loop basis with a maximum of 6 Attendant loops terminating at each console on the associated Interface card. The Attendant uses these loops for answering, originating, holding, extending, and reentering calls. When Attendant loop release is used, the number of loops is effectively increased to a maximum of 12 for each console.

The NEAX2000 IVS^2 supports a maximum of eight SN716 DESK Consoles.

Figure 3-17 SN716 DESKCON

SN716 DESKCON Features

- Character LCD (4x40 characters)
- LCD designation strips
- Software-controlled LCD loop key
- Full access to PBX features
- Headset connectivity
- Recorder connectivity

Line Conditions of the SN716 DESKCON

The cable length between the DLC card and terminal varies depending on the type of terminal. Table 3-1 shows the line conditions of the Attendant Console.

Table 3-1 Line Conditions of the SN716 DESKCON

TERMINAL TYPE	CARD TYPE	CABLE LENGTH* (CABLE 0.5 ϕ/24 AWG)	REMARKS
SN716 DESKCON	PN-8DLCL/8DLCP And PN-PW00 or AC Adapter	1000 ft. (304 m)	
	PN-4DLCM/4DLCQ and PN-PW00 or AC Adapter	1500 ft. (457 m)	

Chapter 4 Equipment Description

Modules

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
IVS VS PIMF (UA)	PIM	Port Interface Module (PIM)
ICS VS BASE (UA)	BASE/TOP ASSEM	Base/Top Cover Assembly
ICS VS BATT (UA)	BATTM	Battery Module for housing PIM or CS (ZT) backup batteries

Installation Hardware

EQUIPMENT NAME	FUNCTION
HANGER ASSEM (B)	Wall Hanger Assembly
MOUNTING BRACKET	Safety Mounting Bracket
19" RACK BRACKET (A)	19-inch Rack Mounting Bracket Type A
19" RACK BRACKET (B)	19-inch Rack Mounting Bracket Type B
I/F BRACKET ASSEM	Inter Frame Bracket Assembly
BASE TRAY ASSEM	Base Tray Assembly

Common Control

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-CP14	MP	Main Processor & BUS interface for PIM 0 to PIM 1
PN-CP15	FP	Firmware Processor & BUS interface for PIM Expansion
PZ-M537	EXPMEM	Memory Expansion Card for MP/AP00 Card
PN-PW00	EXTPWR	Power Supply card for DESKCON
PZ-PW121	AC/DC PWR	Main Power Supply card
PZ-PW122	DC/DC PWR	Power Supply card for Cell Station (Zone Transceiver)

Analog C.O. Trunk

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-4COTB	COT	4-line Central Office Trunk Card (Ground Start Trunk)
PN-4COTG	COT	4-line Central Office Trunk Card (Loop Start trunk)
PN-8COTS	COT	8-line Central Office Trunk Card (Ground Start Trunk)
PN-8COTQ	COT	8-line Central Office Trunk Card (Loop Start Trunk)

Analog DID Trunk

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-AUCA	AUC	2-line Analog Long Line Circuit Card provided with Power Failure Transfer (PFT) Function, or 2-line Direct Inward Dialing Trunk Card
PN-4DITB	DIT	4-line Direct Inward Dialing Trunk Card

Analog Tie Line Trunk

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-2ODTA	ODT	2-line Out Band Dialing Trunk Card

Analog Station

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-4LCD-A	LC	4-Line Analog Line Circuit Card for Single Line Telephones
PN-8LCAA	LC	8-line Analog Line Circuit Card for Single Line Telephones
PN-AUCA	AUC	2-line Analog Long Line Circuit Card provided with Power Failure Transfer (PFT) Function, or 2-line Direct Inward Dialing Trunk Card

Digital Station

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-2DLCB/ PN-2DLCN	DLC	2-line Digital Long Line Circuit Card for D^{term} Series E/III, Elite, Electra Pro, DSS Console, DESKCON
PN-4DLCM	DLC	4-line Digital Line Circuit Card for D^{term} Series E/III, Elite, Electra Pro, DSS Console, DESKCON
PN-4DLCQ	DLC	4-line Digital Line Circuit Card for D^{term} Series E/III, DSS Console, DESKCON
PN-8DLCP	DLC	8-line Digital Line Circuit Card for D^{term} Series E/III, DSS Console, DESKCON

Digital Trunk

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-24DTA-C	DTI	Digital Trunk Interface (23B+D, 1.5 Mbps) Card (T1)
PN-30DTC-A	DTI	Digital Trunk Interface (2 Mbps) Card (E1)

Data

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-2DPCB	DPC	2-line Data Port Controller Card for 48K, 64 Kbps, V110, V11
SPN-V35	ADP	V.35 Data Terminal Equipment Interface Card

CCIS

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-24DTA-C	DTI	Digital Trunk Interface (23B+D, 1.5 Mbps) Card (T1)
PN-SC00	CCH	Common Channel Handler Card
PN-30DTC-A	DTI	Digital Trunk Interface (2 Mbps) Card (E1)

ISDN/ECCIS

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-BRTA	BRT	1-line Basic Rate (2B+D) Interface Trunk card
PN-2BRTC	BRT	2-line Basic Rate (2B+D) Interface Trunk card
PN-2ILCA	ILC	2-line BRI Station card
PN-SC03	8ICH	BRI (station), one 8ICH needed for every four 2ILCA cards
PN-24DTA-C	DTI	Digital Trunk Interface (23B+D, 1.5Mbps) Card (T1)
PN-24PRTA	PRT	ISDN Primary Rate (23B+D) Interface Card (Built-in D-Channel)
PN-SC01	DCH	D-channel Handler Card
SPN-SC01	QSIG	QSIG Protocol Handler

IP Trunk

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-IPTA	IPT	IP Trunk Interface card (16 ch)
PN-4VCTH	VCT	4-channel CODEC Card for IP Trunk

Registers

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-8RSTA	PBR	8-line PB Receiver Card
PN-4RSTB	MFR	4-line MF Receiver, MFC Receiver/Sender Card
PN-4RSTC	CIR	4-line Caller ID Receiver Trunk Card
PN-4RSTB-911	MFR	4-line Register Sender for 911

Miscellaneous Trunk

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-DK00	DK	8-circuit External Relay Control/External Key Scan Card
PN-CFTA	CFT	6/10 Party Conference Trunk Card
PN-CFTB	CFT	6 Party Conference Trunk Card
PN-2DATA	DAT	2-line Digital Announcement Trunk Card
PN-4DATC	DAT	4-line Digital Announcement Trunk Card
PZ-8PFTB	PFT	8-line Power Failure Transfer Card
PN-TNTA	TNT	2-line Tone/Music Source Interface Card
PN-2AMPA	AMP	2-line Amplifier Trunk Card
PN-CFTB	CFT	6/10 Party Conference Trunk Card

System I/O, OAI, ACD

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-AP00-B	MRC	Provides four RS-232C ports, and is used for SMDR, Hotel Printer, CIS, PMS, MCI, CS report functions.
SPN-AP01	IP	Provides one RS-232C port and one Ethernet interface port. Used for OAI function, ID code expansion.
PN-CC01	ETHER	Ethernet Control Card

Voice Mail

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PZ-VM00-M	VM	4-port Voice Mail Card (NEAXMail AD-8)
PZ-VM01	VM	4-port Voice Mail Extension Card

Wireless

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-2CSIA	CSI	2-line Zone Transceiver Interface Card
PN-SC03-A	CSH	CS (ZT) Handler Card
PN-AP00-A	DBM	Data Base Module Card for WCS Roaming function One card per WCS system.
SPN-SC01	DCH-Q	Q931 Protocol Handler for Wireless Roaming

Remote PIM

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-DAIA	DAI	Digital Trunk Interface (23B+D, 1.5Mbps) Card for Remote PIM
PN-DAIB	DAI	Digital Trunk Interface (23B+D, 1.5Mbps) Card for Remote PIM
PN-DAIC	DAI	Digital Trunk Interface (23B+D, 1.5Mbps) Channel Expansion Card for Remote PIM
PN-DAID*	DAI	Digital Trunk Interface (2Mbps) Card for Remote PIM
PN-DAIE*	DAI	Digital Trunk Interface (2Mbps) Card for Remote PIM
PN-DAIF*	DAI	Digital Trunk Interface (2Mbps) Channel Expansion Card

*These cards are subject to availability.

Optical Interface

EQUIPMENT NAME	FUNCTIONAL NAME	FUNCTION
PN-M10	M10	Optical Interface Card Provides internal optical modem to T1/E1 network or Remote PIM

Chapter 5 Feature Description

Account Code

This feature, when used with Station Message Detail Recording (SMDR), allows station users and Attendants to enter a cost accounting or client billing code (up to 16 digits) into the system.

Add-On Module

This feature allows the Add-On Module to be combined with a Multiline Terminal when there are insufficient line or trunk keys provided at the Multiline Terminal. When the EDW-48-2 unit keys are programmed as line/trunk keys, the additional 25 lines/trunks and the existing lines/trunks set for the Multiline Terminal can be accessed directly (maximum of 49 lines/trunks). The station speed dialing function can be assigned for all keys on the EDW-48-2 unit. Also, one of the last 3 keys can be used as a Day/Night change key.

Alarm Indications

Faults are indicated by the Major/Minor (MJ/MN) lamps located on the AC/DC Power Supply and, optionally, an external alarm display unit. Station Application not applicable.

Alphanumeric Display

The ETJ-16DC-1 Multiline Terminals are each equipped with a 2-line, 20-character Liquid Crystal Display (LCD). These displays are used to provide alphanumeric information including clock/calendar and call processing information.

Station Application All Multiline Terminals with an LCD display.

Analog Port Adapter

This feature allows an APR-J or APA-J unit combined with a Multiline Terminal to connect to an analog terminal such as an analog telephone, Modem, and PC with built-in Modem. There are two communication modes for the terminal connected via the Analog Port Adapter as shown below:

1. Single Port Mode
   A Multiline Terminal and an analog terminal share the same port. In this mode, the Multiline Terminal and the analog terminal cannot be used simultaneously.
2. Dual Port Mode
   A Multiline Terminal and an analog terminal use different ports. In this mode, the Multiline Terminal and the analog terminal can be used simultaneously.

Announcement Service

This feature allows station users to record messages on Digital Announcement Trunk (DAT) cards. When a station user dials the feature access code for this feature, the user receives the corresponding message from the system.

Answer Key

An Answer Key is provided on all Multiline Terminals. The Answer Key can be used to answer incoming calls on outside lines, and primary or secondary extensions. When the Answer Key is used to answer an incoming call with a call in progress, the first party is placed on hold and the second party is connected. If the Answer Key is depressed while in a three-party call, the user can alternate between each party and a Broker's Call is established.

Attendant Assisted Calling

This feature allows a station user to ask an Attendant for assistance in originating a call. Three methods are available: non-delay, delay, and passing dial tone.

Attendant Camp-on

This feature permits the Attendant to hold an incoming call in a special mode when the desired station for the transfer is busy. The Attendant sends a Camp-On tone to the busy station. When that station becomes idle, it is automatically alerted and connected to the waiting party.

Attendant Console

SN716 DESKCON

The Attendant Console (SN716 DESKCON) operates on a switched-loop basis with a maximum of 6 Attendant loops terminating at each console on the associated Interface card. The Attendant uses these loops for answering, originating, holding, extending, and reentering calls. When Attendant loop release is used, the number of loops is effectively increased to a maximum of 12 for each console.

Attendant Called/Calling Name Display

This feature provides a display of the calling/called party's name on the Attendant Console LCD for Attendant Called/Calling Name Display. On attendant-to-station calls, the LCD display the name assigned to the primary extension of the station. On attendant-to-trunk calls, the LCD displays the name assigned to the trunk route of the trunk.

Attendant Called/Calling Number

This feature provides a display of the station number and station name on the Attendant Console during an Attendant-to-station connection. During an Attendant-to-trunk connection, the same display shows the trunk route designation and a trunk identification code (4 digits).

Attendant Call Selection

This feature allows assignment of keys on the Attendant Console to particular types of trunk routes (such as WATS or FX) and particular types of service calls (such as Attendant recalls, intercept calls, etc.). LEDs indicate the type of incoming call and pressing the associated key allows the Attendant to answer the calls in any order.

Attendant Console Lockout - Password

This feature allows the Attendant Console to be set into a lockout mode. This disables the console from originating or receiving calls and setting or resetting service features. To return the Console to its manual operating condition a password is required.

Attendant Do Not Disturb Setup And Cancel

The Attendant has the ability to enter and remove individual stations from Do Not Disturb (DND). Additionally, the Attendant can set one preassigned group of stations into, or out of, Do Not Disturb.

Attendant Interposition Calling/Transfer

This feature allows any Attendant to directly converse with another Attendant and also allows Attendants to transfer calls from their console to another Attendant's console in systems where Multiple Console Operation has been provided.

Attendant Lamp Check

This function is used to check the status of keys, lamps, and LCDs mounted on the Attendant Console to verify that various operations of the Attendant Console are functioning normally. The check is done by a preset procedure.

Attendant Listed Directory Number

This feature provides a display of the Listed Directory Number on the Attendant Console when the operator has answered a Listed Directory Number call.

Attendant Loop Release

This feature allows an Attendant Console loop to become available for a second call as soon as the Attendant has directed the first call to a station, even if that station does not answer.

Attendant Programming

This function is allowed only for the Attendant Console (SN610) and is used to execute DISA code set up, speed dial programming, and system clock set up operations.

Attendant Training Jacks

The Attendant Console can be equipped with two headset/handset jacks using an optional adapter. Two jacks are equipped on the adapter and can be used for training new operators.

Audible Indication Control

This feature allows the Attendant to adjust the volume of audible indications received at the Attendant Console.

Call Processing Indication

This feature provides visual indications of all calls being processed or awaiting processing at the Attendant Console.

Call Queuing

This feature provides the Attendant the ability to handle a series of exchange network calls in the order of their arrival, (first in, first out) thereby eliminating unnecessary delays.

Call Splitting

This feature allows the Attendant to confer privately with one party on an Attendant handled connection without the other party overhearing.

Call Waiting Display

This feature provides a visual indication to the Attendant when one or more calls are waiting to be answered.

Common Route Indial

This feature allows assignment of incoming DID calls to different Attendant Call Selection keys based on the last 4 digits dialed into the system. Up to eight individual Listed Directory Numbers can be assigned in system programming. When an incoming call to any of these trunks is received, an Attendant Call Selection key will flash and the LCD display will indicate the Listed Directory Number associated with that trunk route.

Dialed Number Identification Service (DNIS)

This feature provides a display of the company name on the Attendant Console when the Attendant has answered a Listed Directory Number or a Tie Line call.

Incoming Call Identification

Incoming calls are identified by various means. Refer to Attendant Called/Calling Number, Attendant Call Selection, Attendant Source Key, Attendant Listed Directory Number and Common Route Indial Features and Specifications.

Individual Trunk Access

The Attendant Console is provided with the ability to access each individual trunk by dialing an associated identification code. This allows detection of faulty trunks during regular testing or after complaints. The Customer Administration Terminal (CAT) or Maintenance Administration Terminal (MAT) has the capability to then busy out the trunk until repair is made.

Multi-Function Key

This feature allows the top row of keys on the Attendant Console to perform and display multiple functions in accordance with the status of call processing.

Multiple Console Operation

This feature allows more than one Attendant Console to operate within the same system.

Pushbutton Calling - Attendant Only

This feature permits an operator to place all calls over Dual-Tone, Multi-Frequency (DTMF) lines from the pushbutton keypad on the Attendant Console.

Serial Call

This feature is activated by the Attendant when an incoming calling party wishes to speak with more than one internal party. When the internal station subsequently disconnects from the Central Office line call, the Central Office party automatically rings back to the same Attendant.

Time Display

This feature provides a digital time display on the Attendant Console (SN610) LCD.

Trunk Group Busy Display

A visual indication is supplied to the Attendant when all trunks in a particular trunk group are busy.

Unsupervised Trunk-to-Trunk Transfer By Attendant

This feature allows an Attendant to transfer an incoming or outgoing call on one trunk to an outgoing trunk and exit the connection before the called party answers.

Attendant Delay Announcement

This feature provides an announcement, via a Digital Announcement Trunk Card, to external calls that are not answered by the attendant within a predetermined time.

Attendant Lockout

This feature denies an Attendant the ability to reenter an established trunk or station connection without being recalled by that station after the call is put in consultation hold.

Attendant Overflow

When an incoming call, which has terminated from a trunk to the Attendant Console, remains unanswered after a predetermined time period, this feature provides a change to Night Service for that particular trunk.

Attendant Override

This feature permits an Attendant to enter a busy connection (station or trunk) using the Attendant Console. When this feature is activated, a warning tone is sent to the connected parties after which, they are connected with the Attendant in a three-way bridge.

Authorization Code

An Authorization Code is a numerical code which will temporarily change a station's Class of Service to a Class of Service assigned to that Authorization Code. This new Class of Service allows access to trunks, dialing patterns, and/or features that would otherwise be restricted.

Automated Attendant

This feature allows the system to answer incoming trunk calls. The system will supply a message and/or dial tone to the caller. The caller can then dial the desired extension number and be directed to that station.

Automatic Call Distribution (ACD)

The Automatic Call Distribution (ACD) feature permits incoming calls to terminate to a prearranged group of stations. Calls are distributed in the order of arrival to idle terminals within the group, based on which terminal has been idle the longest period of time. Stations may log on/log off from the ACD group. Supervisor stations may monitor conversations of agents.

Busy In/Busy Out - ACD

This feature allows an agent in an ACD group to log their station onto or off of the group. This allows the system to control whether a call directed to the pilot number of the ACD group goes to that station or not. This prevents incoming calls from being directed to stations at which no agent is available.

Call Waiting Indication - ACD

This feature provides a visual indication when an incoming call to an ACD group is placed in queue, due to an "all agents busy" condition. On external relay controlled indicator or an LED on a Multiline Terminal can be used to provide Call Waiting Indication.

Delay Announcement - ACD

This feature allows the system to provide a recorded announcement to an incoming caller placed in queue to an ACD group. A single announcement, or two separate announcements, can be provided.

Hunt Past No Answer - ACD

This feature allows calls targeted at an ACD group to hunt past an agent's station, after a no answer condition, if the agent forgets to log off of the group and the agent is unable (or not available) to answer the call.

Immediate Overflow - ACD

This feature allows a call directed to an ACD group to immediately overflow to another ACD group, upon encountering an "all agents busy" condition.

Priority Queuing - ACD

This feature allows the system to prioritize incoming calls by trunk route and on a per station basis, when the call enters an ACD queue. When a call is considered as a priority, it is placed at the beginning of the queue.

Queue Size Control - ACD

On incoming DID/Tie line calls, the system can be assigned a threshold which limits the number of calls in queue. When the queue size threshold is exceeded, incoming callers are connected to busy tone.

Silent Monitor - ACD

This feature provides the ACD group supervisor with the ability to monitor a call to an ACD agent. The silent monitor function gives no indication (as an option) to either the agent or the calling party.

Automatic Call Distribution with Management Information System (MIS)

The Automatic Call Distribution (ACD) with Management Information System (MIS) feature provides a management information system to be used in conjunction with the built-in ACD features of the system. The MIS incorporates a supervisor's terminal for real-time monitoring of agent activity, amber and red alarms, and hard-copy summary reports.

Automatic Camp-on

An incoming Direct Inward Termination (DIT) call which has been terminated to a busy station can be Camped-On automatically. When the busy station becomes idle, the station is automatically called and connected to the camped on incoming trunk call.

Automatic Number Identification (ANI)

This feature receives the calling subscriber's number automatically sent from T1 network using MF signaling and displays the calling number on the LCD of a Multiline Terminal and an Attendant Console.

Automatic Recall

This feature works as a timed reminder. When a call remains on Hold, Camp-On or ringing unanswered for a fixed interval after being transferred, the station that initiated the hold, transfer, or Camp-On is automatically alerted. Station Application All stations.

Automatic Wake-up

This feature allows the system to be programmed to automatically call guest rooms or administration stations at specified times. Upon answering, the guest is connected to a recorded announcement or music source. A printout of unanswered or blocked Automatic Wake-Up attempts for each guest room is provided using the Hotel/Motel printer.

Background Music

Background Music can be provided on a dial-up basis over Multiline Terminal speakers. Incoming voice announcements, ringing and recalls override Background Music. Up to 10 music programs can be offered.

Boss / Secretary Calling

A secretary with a Multiline Terminal can use an appearance of the boss' extension to screen calls for that extension, and announce and/or transfer calls to that extension. Additionally, the secretary can call the boss during a busy condition and send a Message Waiting Indication to the boss' station.

Broker's Call

This feature allows a Multiline Terminal or Single Line Telephone user to alternate between two parties, talking to one party while the other party remains on Hold on the same line. The Multiline Terminal user uses the TRF or ANS key to alternate between the two parties. The Single Line Telephone user uses the Hold feature to alternate between the two parties.

Call Back

This feature allows a calling party to set an automatic Call Back when a busy or no answer condition is encountered. When the busy station becomes idle, the station that set the Call Back will be called. In case of Call Back no answer, the Call Back to the setting station is initiated immediately after the called station goes on hook after making a call or accessing a feature.

Call Forwarding

Call Forwarding allows calls directed to a station to be routed to another station, an Attendant, an outside number or voice mail equipment. The types of Call Forwarding provided are:

- Call Forwarding - All Calls
- Call Forwarding - Busy Line
- Call Forwarding - No Answer
- Call Forwarding - Destination
- Multiple Call Forwarding - All Calls
- Multiple Call Forwarding - Busy Line
- Multiple Call Forwarding - No Answer
- Split Call Forwarding - All Calls
- Split Call Forwarding - Busy Line
- Split Call Forwarding - No Answer
- Attendant Call Forwarding Setup and Cancel
- Call Forwarding - Override
- Group Diversion

Attendant Call Forwarding Set-up and Cancel

All of the various types of Call Forwarding can be set up or canceled from both Attendant Consoles.

Call Forwarding - All Calls

This feature allows all calls directed to a particular extension to be rerouted to an alternate destination, regardless of the busy or idle status of the extension. Call Forwarding - All Calls can be set by an Attendant Console, the individual station user, a Multiline Terminal with a secondary appearance of the station's extension, or from another station (which can program itself to be the destination of the rerouting).

Call Forwarding - Busy Line

This feature permits a call to a busy extension to be routed to a pre-designated station, Attendant Console, or voice mail equipment. Call Forwarding - Busy Line can be set or canceled by an Attendant Console, the individual station user, or a Multiline Terminal with a secondary appearance of the station's extension.

Call Forwarding - No Answer

This feature reroutes calls to extensions which do not answer. These calls can be rerouted to another station, an Attendant Console or voice mail equipment. Call Forwarding - No Answer can be set by the individual station user, an Attendant Console, or by a Multiline Terminal with a secondary appearance of the station's extension.

Call Forwarding - Destination

This feature allows a station (A) user to set Call Forwarding - All Calls from another station (B) within the system, to the user's station (A).

Multiple Call Forwarding - All Calls

When a forwarded call is rerouted to a station that has also set a Call Forward, the call can be forwarded to another station. A call can be forwarded up to a maximum of five times, as specified in system programming.

Multiple Call Forwarding - Busy Line

This feature permits a call to a busy station to be forwarded, multiple times, to a pre-designated idle station.

Multiple Call Forwarding - No Answer

This feature permits a call to an unanswered station, the ability to be forwarded multiple times to a pre-designated station that does not have Call Forwarding - No Answer set or to the Attendant Console.

Split Call Forwarding - All Calls

This feature allows all internal and external calls to a busy extension to be rerouted to different destinations individually, regardless of the busy or idle status of the extension.

Split Call Forwarding - Busy Line

This feature allows internal and external calls to a busy extension to be rerouted to separate destinations. Destinations may be an internal station, Attendant Console, or voice mail.

Split Call Forwarding - No Answer

This feature allows internal and external calls, to extensions that do not answer, to be rerouted to separate destinations individually.

Call Forwarding - Override

This feature allows the call forward destination station to call the station which set call forward. The call forward setting will be ignored.

Group Diversion

This feature allows all calls terminated to an extension that are not answered within a predetermined time to be forwarded to a pre-designated station.

Call Park

This feature enables a station user or attendant to place a call into pre-designated Call Park locations. The station user or attendant is then free to process other calls. This feature is available system wide and for individual tenants.

Call Park - System

When a call is parked by Call Park-System, the call can be retrieved from Call Park by any station in the system.

Call Park - Tenant

When a call is parked by Call Park - Tenant, the call can be retrieved from Call Park-Tenant by any station within the tenant from which the call was originally parked.

Call Pickup

This feature enables a station user to answer any call directed to another station, to a station within the user's own Call Pickup Group, or to a station within a different Call Pickup Group. Three Call Pickup methods are available: Call Pickup - Direct, Call Pickup - Group, and Call Pickup - Designated Group.

Call Pickup - Direct

This method permits a station user to pickup a call to any other station in the system by dialing a specific Call Pickup feature access code and the number of the called extension.

Call Pickup - Group

This method permits a station user to answer any calls directed to other extensions in their preset pickup group by dialing a Call Pickup - Group feature access code.

Call Pickup - Designated Group

This method permits a station user to answer an incoming call directed to another group by dialing the Call Pick-up - Designated Group feature access code and any station within the group to which the ringing station belongs.

Call Redirect

Without answering incoming calls or held calls that terminate to the line keys of a Multiline Terminal, the calls can be transferred to a pre-programmed station or Voice Mail System. Two transferring destination number can be designated per tenant, in system data programming. This feature can be used together with the Caller ID Display feature.

Call Transfer

This feature permits a station user to transfer a call to another station in the system directly, or with assistance from the attendant.

Call Transfer - All Calls

This feature permits a station user to transfer incoming or outgoing calls to another station within the system without attendant assistance.

Call Transfer - Attendant

This feature permits a station user, while connected to an internal or outside call, to signal the Attendant and have the Attendant transfer the call to another station within the system or to an outside connection.

Caller ID Class

This feature receives the calling subscriber’s name and number sent from a public network using a MODEM signal and displays the name or number on an LCD of a Multiline Terminal and Attendant Console.

Caller ID Display

Without answering incoming calls or held calls which terminate to the line keys of a Multiline Terminal, the calling party's information can be confirmed by the indications on the LCD. The following information is indicated according to the kind of the calls.

Camp-on

This feature provides selected stations or outside calls with Camp-On capability to a busy internal station. Two Camp-On methods are provided. The call waiting method allows a station or an outside party to camp itself on to a busy station. The transfer method allows a transferred outside call to be camped-on to a busy station.

Centrex Compatibility

A combination of features allows full integration of the NEAX2000 IVS^2 with Centrex service.

Check In / Check Out

When this feature is activated, the following operations occur:

- Check In
  - Room Cutoff is cleared.
- Check Out
  - Room Status printout is supplied.
  - Do Not Disturb is reset.
  - Room Cutoff is set.
  - Message Waiting is reset.
  - Automatic Wake Up is cleared.

Class of Service

This feature permits all stations to be assigned a Class of Service in accordance with the degree of system use desired. The Class of Service is used to assign restrictions for trunk access and feature access.

Code Restriction

This feature allows the NEAX2000 IVS^2 to be programmed to restrict outgoing calls according to specific area and/or Central Office codes. This restriction is controlled on the basis of a three-digit area code or six-digit area and office code numbering plan.

Conference (Three/Four Party)

This feature provides a station user the ability to add-on another party (trunk or station) to a call already in progress. Single Line Telephone users can add up to one additional party and Multiline Terminal users can add up to two additional parties.

Conference (Six/Ten Party)

This feature permits a station user or Attendant (conference leader) to establish a Conference among as many as six or ten parties (including the Conference leader).

Consecutive Speed Dialing

For Speed Dialing, all digits are registered as a Speed Dialing Code. In the case of Consecutive Speed Dialing, the common portion of the number is registered as a speed calling code, and the remaining digits of each number are dialed by each individual calling station or by using a Station Speed Dial key on a Multiline Terminal.

Consultation Hold

This feature permits a station user to hold any incoming or outgoing CO call, tie line call, or any intra-office call while originating a call to another station user within the system.

Customer Administration Terminal (CAT)

In addition to the Maintenance Administration Terminal (MAT), programming of the NEAX2000 IVS^2 can be done from selected Multiline Terminals with LCD. The designated Multiline Terminals can be placed in program mode, and system data can then be changed. To prevent unauthorized changes, password levels are assigned, providing authorization for access to certain areas of programming and denying access to others.

Data Line Security

This feature allows line circuits that are used for data transmission to be protected from interruptions such as Attendant Camp-On, Executive Override, and Attendant Override.

Delayed Ringing

This feature enables trunks and station lines to ring immediately at the terminating station, but also, after a programmable period of time has elapsed, to ring at secondary Multiline Terminals with that trunk or line appearance.

Diagnostics

To assist maintenance personnel, the NEAX2000 IVS^2 provides diagnostic capabilities such as fault code generation, device status information and alarm information recording which can be accessed from the Maintenance Administration Terminal (MAT) or Customer Administration Terminal (CAT).

Dial By Name

This feature allows a Multiline Terminal user to search for a desired number by name. The number and name are registered in the system and they are shown on Multiline Terminal LCD. The Multiline Terminal user can search for the desired number by name using up or down soft keys. When the Multiline Terminal user finds the desired number, the call can be originated by pressing the Line/Trunk key or going off hook.

Dial Conversion

The system can be assigned to use rotary Dial Pulse (DP) or Dual Tone Multi-frequency (DTMF) trunks and stations. This feature provides for the repeating of digits dialed by the station user onto the C.O. trunks.

Direct Data Entry

This feature allows a maid or other hotel personnel to enter numeric data to the Property Management System (PMS), using the guest room station for entry through dial operation. The same numerical data can be output to a Hotel/Motel Printer by system data programming.

Direct Digital Interface

This service feature provides the capability to connect trunks from the NEAX2000 IVS^2 directly to T1 carrier links using either a private or public network.

Direct Inward Dialing (DID)

This feature provides for incoming calls from the exchange network (except FX or WATS) to reach any station within the system without attendant assistance.

DID Call Waiting

This feature allows an incoming call on a DID trunk or a tie line to automatically be Camped-On to the destination station if the destination station is busy.

DID Digit Conversion

This feature allows the NEAX2000 IVS^2 to convert the digits received from the serving C.O. to valid station numbers when the C.O. numbering plan differs from the desired station numbering plan.

Direct Inward System Access (DISA)

This feature allows an outside caller to access the system using an exchange network connection without Attendant or station assistance. The outside user may originate calls over any or all of the system's facilities such as WATS, FX, Tie Line or CCSA. The outside user can also directly call stations and access miscellaneous trunks for such features as dictation access.

Direct Inward Termination (DIT)

This feature automatically routes incoming network exchange calls directly to a pre-selected station without Attendant assistance. The call can then be processed by the called party. Three-party Conference, Call Transfer, etc., are handled in the same manner as any normal trunk call.

Direct Outward Dialing (DOD)

This feature permits any station user the ability to gain access to the exchange network by dialing an access code and receiving new dial tone. The user may then proceed to dial the desired exchange network number.

Direct Station Selection/Busy Lamp Field (DSS/BLF) Console

This feature allows an EDW-48-2A unit associated with a Multiline Terminal to be used as a Direct Station Selection/Busy Lamp Field (DSS/BLF) Console. When the buttons on the EDW-48-2A unit are programmed for Direct Station Selection (DSS) buttons, up to 60 stations can be directly accessed in addition to those already appearing on the Multiline Terminal. Busy status for each station is indicated by a red LED associated with each button. In addition, the DSS console can provide the following functions:

- Message Waiting - Set/Cancel/Status Display
- Do Not Disturb - Set/Cancel/Status Display
- Automatic Wake Up No Answer - Status Display/Cancel
- Agent Busy Out - UCD - Status Display
- Line Lockout - Status Display
- Room Cutoff - Set/Cancel/Status

Busy Out Status Console

This feature allows an EDW-48-2A unit associated with a Multiline Terminal to be used as a Busy Out Status Console. This feature is activated by use of a Function Mode key on a DSS/BLF Console. Busy Out Status for each station is indicated by a red LED associated with each button.

Do Not Disturb Console

This feature allows an EDW-48-2A unit associated with a Multiline Terminal to be used as a Do Not Disturb (DND) Console. This feature is activated by the use of a Function Mode key on a DSS/BLF Console. DND set status for each station is indicated by a green LED associated with each button. In addition, the Multiline Terminal user can set/cancel the DND status of other stations using the DND Console.

Message Waiting Console

This feature allows an EDW-48-2A unit associated with a Multiline Terminal to be used as a Message Waiting (MW) Console. This feature is activated by the use of a Function Mode key on a DSS/BLF Console. The Message Waiting status for each station is indicated by a green LED associated with each button. In addition, the Multiline Terminal user can set/reset MW status using the MW Console.

Room Cutoff Console

This feature allows an EDW-48-2A unit associated with a Multiline Terminal to be used as a Room Cutoff Console. This feature is activated by the use of a Function Mode key on a DSS/BLF Console. The Room Cutoff status for each station is indicated by a green LED associated with each button. In addition, the Multiline Terminal user can set/cancel Room Cutoff to another station using the Room Cutoff Console.

Wake Up No Answer Console

This feature allows an EDW-48-2A unit associated with a Multiline Terminal to be used as a Wake Up No Answer (WU) Console. This feature is activated by a function mode key on a DSS/BLF Console. The No Answer status for each station is indicated by a flashing green LED associated with each button.

Distinctive Ringing

This feature provides Distinctive Ringing patterns to the station so that the station user can distinguish between internal and external incoming calls. This feature also enables the LED associated with the line key of the Multiline Terminal to flash in two colors according to the kind of incoming call.

Do Not Disturb

This feature restricts incoming calls to a station and can be set by an individual station or from the Attendant Console. Placing a station in Do Not Disturb (DND) does not prevent a station from originating a voice or data call or from receiving a data call. This feature also allows a station to ensure privacy from telephone interruptions while on an outgoing call. Additionally, the Attendant Console can place a group of stations in the Do Not Disturb condition.

Do Not Disturb - Hotel/Motel

This feature allows the Attendant Console(s), Hotel/Motel Front Desk Instrument(s), guest stations or Property Management System (PMS) terminal(s) to place individual stations into Do Not Disturb. Calls can be placed from stations set in DND.

Do Not Disturb-System

This feature simultaneously restricts incoming calls to a pre-assigned group of stations by operation from the Hotel/ Motel Front Desk Instrument(s). Attendant Console(s) and Hotel/Motel Front Desk Instruments can use the DND OVR key to override this Do Not Disturb setting.

Elapsed Call Timer

This feature provides a display of the elapsed time while a Multiline Terminal with LCD is connected to any trunk.

Enhanced 911

This feature allows the PBX to transmit a caller’s emergency service identification information to an Enhanced 911 Emergency system.

Executive Calling

This feature allows a station to be assigned a VIP class. This provides special ringing to a called station when that station is idle, and automatic sending of three tone bursts to a called station when that station is busy, provided the call was originated from a station assigned as VIP class.

Executive Override

This feature allows selected users to override a busy condition on a called station. A warning tone is transmitted to both stations in the busy call before the busy condition is overridden, and a three-party Conference is then established.

External Paging with Meet-Me

This feature allows a station user or attendant dial-access to local voice paging equipment and connects both parties automatically after the paged party has answered the page by dialing an access code.

Fax Arrival Indicator

When a call from a C.O. line (Direct-Inward-Termination, Direct-Inward-Dialing, Automated Attendant), station or tie line has terminated to a facsimile machine, a related lamp on a pre-designated Multiline Terminal is caused to light, indicating reception of a facsimile call.

Feature Activation from Secondary Extension

This feature allows the Multiline Terminal user to access an appearance of another extension and program certain features from that extension.

Flexible Line Key Assignment

Multiline Terminals can have any desired line-key assignment. This feature permits assignments to be tailored to each individual's needs. (The terminal's primary extension line appearance is the only line key that cannot be reassigned.)

Flexible Numbering Plan

The NEAX2000 IVS^2 has a Flexible Numbering Plan. All access codes and station numbers and can be assigned in system programming. Refer also to the Single Digit Dialing Features and Specifications, which further increases the flexibility of the system.

Flexible Ringing Assignment

This feature allows lines on Multiline Terminals to be individually programmed to ring or not ring.

Forced Account Code

This feature forces the user to enter an Account Code (up to 8 or 10 digits) for all outgoing calls. The Account Code must be dialed before dialing the outgoing number. Calls are processed only when the dialed Account Codes are valid.

Group Call

Automatic Conference (6/10 Party)

This feature allows a Multiline Terminal user or single line telephone user within the system to establish a conference among as many as six or ten parties. From a Multiline Terminal /Single Line Telephone, a maximum of 9 stations can be paged simultaneously plus the originator. The stations are assigned to the simultaneous paging groups as participants by the system data beforehand.

2 Way Calling

This feature allows a Multiline Terminal/Single Line Telephone to page a maximum of fifteen parties simultaneously including the originator. After one of paged parties answers, the paging becomes the 2 Way Calling between the originator and the first answered party, automatically stops paging other parties. The stations are assigned to the simultaneous paging groups as participants by the system data beforehand.

Group Listening

When a Multiline Terminal user makes a call using the handset, pressing the SPKR key will allow others to listen through the built-in speaker of the Multiline Terminal. The user may continue talking on the handset at the same time.

Hands-free Answerback

This feature allows the station user to answer a voice call without lifting the handset.

Hands-free Dialing and Monitoring

This feature allows the station user to dial or monitor a call without lifting the handset.

Hold

This feature permits a user to Hold a call in progress. After Hold has been set, the station user can make or answer new calls.

Call Hold

This feature permits a user to Hold a call in progress by sending a hookflash and dialing the Call Hold feature access code, or by pressing the Call Hold key. This line can then be used for originating another call or returning to a previously held call.

Dual Hold

This feature permits a station user who is placed on Hold by another station to place that station on Hold also.

Exclusive Hold

This feature allows a Multiline Terminal user to place a call on Hold and to exclude all other station users from retrieving the held call.

Non-exclusive Hold

This feature allows a Multiline Terminal user to place a call on Hold that may be retrieved by any station that has an appearance of the held line.

Hotel/Motel Attendant Console

The Attendant Console can be programmed to function as a Hotel/Motel Attendant Console. In addition to the business features and functions of the Attendant, the Hotel/Motel Attendant Console can set Room Cutoff (individual and group), Automatic Wake Up, Message Waiting, and Do Not Disturb (individual and group).

Hotel/Motel Front Desk Instrument

A Multiline Terminal with LCD can be programmed to function as a Hotel/Motel (H/M) Front Desk Instrument. This can be used to set and cancel standard H/M features such as Message Waiting, Do Not Disturb, Automatic Wake Up, and Room Cutoff.

Hotline - Inside/Outside

This feature causes the terminal to place a call to another station or to an outside party automatically when the user selects the Hotline extension.

House Phone

This feature allows selected stations to reach the Attendant simply by going off-hook.

Individual Attendant Access

This feature permits a user to call a specific Attendant by dialing an Attendant call code.

Intercept Announcement

This feature provides the automatic interception of Direct Inward Dialing (DID) and Tie Line calls which cannot be completed due to unassigned station or level. The caller hears a recorded Intercept Announcement that informs the caller that an inoperative number was reached, and may supply the number for information.

Intercom

Three types of Intercoms are available: Manual Intercom, Automatic Intercom, and Dial Intercom. Each type of Intercom provides access to a small group of Multiline Terminals with simplified calling methods.

Manual Intercom

The Manual Intercom groups have up to six Multiline Terminals sharing a common signal path. Users can call other members of the Manual Intercom group by pressing a Manual Intercom key; each press sends a tone burst over the speakers of all the terminals in the group. When another user answers the call, a speech path is activated.

Automatic Intercom

Automatic Intercom provides a path for Voice Announcement Calls with Handsfree Answerback between two Multiline Terminals using a line key. Private conversations can be held by using the Multiline Terminal handsets. The Busy/Idle status of the associated Multiline Terminal is displayed on the Automatic Intercom line key LED.

Dial Intercom

Dial Intercom comprises up to 10 Multiline Terminals which can call each other using a dedicated Dial Intercom line key with abbreviated dialing. Dial Intercom calls can be Voice Announce with Handsfree Answerback or ringing calls.

Internal Tone/Voice Signaling

Multiline Terminals can signal incoming internal calls by Voice Announcement or by ringing according to the programmed mode (Voice first or Ring first) of the called terminal. The caller can dial the digit 1 to change from Voice Announcement to Ring Tone or vice versa. The Multiline Terminal assigned this feature can program the following two modes:

- Voice Mode:
  allows an incoming call to terminate with Voice Announcement.
- Tone Mode:
  allows an incoming call to terminate with ringing.

Internal Zone Paging with Meet-Me

This feature allows the Attendant Console and system users to page over the built-in speakers of the Multiline Terminals within the assigned zone or all zones.

Last Number Redial

This feature allows users to redial the last station-to-station or outside number they dialed using a feature access key or a feature access code. This is useful when the called station is busy or does not answer.

Least Cost Routing - 3/6 Digit

This service feature allows the NEAX2000 IVS^2 to be programmed to route outgoing calls over the most economical facility (WATS, FX, DDD). Based on the individual area code and office code dialed (6-digit analysis), the system examines the programmed tables and uses the trunk in the order specified.

Line Lockout

This feature automatically releases a station from the common equipment if the station remains off-hook for longer than a programmed interval before dialing. Howler tone may be programmed to be sent to the station in Line Lockout.

Line Pre-selection

This feature provides the station user with two ways to select an idle, held, recalling, or ringing line before going off-hook.

Maid Status

This feature allows the Hotel/Motel (H/M) Front Desk Instrument, Property Management System (PMS) terminal, or guest room station (using special access code) to register the condition of each guest room.

Maintenance Administration Terminal (MAT)

The Maintenance Administration Terminal (MAT) is a Personal Computer (PC) used for programming and maintenance of the NEAX2000 IVS^2. The MAT can provide a Maintenance Printout, Peg Count information and fault message output. Additionally, the MAT can be used to Remove and Restore to Service any station in the system and can read or save system data from disks. The MAT can assign the Key Data for the Attendant Console.

Message Center Interface (MCI)

This feature provides an interface with a customer supplied Voice Mail System (VMS) which can send Message Waiting lamp control data to the NEAX2000 IVS^2.

Message Registration

This feature provides output from the system to a call accounting system using an RS-232C connector. This allows the Hotel/Motel clerk to retrieve the information needed to charge for local and toll calls.

Message Reminder

This feature allows a user or Attendant to turn on the message waiting (MW) lamp of a Single Line Telephone, or the Message Reminder (MSG) LED of a Multiline Terminal (if assigned).

Message Waiting

This feature allows the Attendant Console, Hotel/Motel (H/M) Front Desk Instrument, administrative station, or Property Management System (PMS) terminal to light a lamp (on an uninterrupted or interrupted basis) on a Single Line Telephone or Multiline Terminal to indicate a message is waiting.

In addition to the lamp indication control, this feature also provides the Voice Message Waiting service that an originating station user can set to Message Waiting with a prerecorded message by using the Digital Announcement Trunk card (PN-2DATA).

Miscellaneous Trunk Access

This feature allows the connection of various types of external facilities. In addition to Loop and Ground Start Trunks, the following can also be interfaced with the NEAX2000 IVS^2: CCSA Lines Code Calling Equipment, Dictation Equipment, Foreign Exchange (FX) Lines, Radio Paging Equipment, and Wide Area Telephone Service (WATS) lines. Refer to separate features, Direct Inward Dialing (DID), and Tie Line Access for more applications of Miscellaneous Trunk Access.

CCSA Access

This feature allows connection to or from a Common Control Switching Arrangement (CCSA) network. A CCSA network is a special, privately-leased network constructed for one customer's exclusive use that replaces or augments the public switched network services.

Code Calling Equipment Access

Code Calling Equipment consists of external paging units and external dialers requiring dial access from the NEAX2000 IVS^2.

Dictation Equipment Access

This feature permits dial access to customer provided Dictation Equipment, and in some instances allows them to maintain telephone dial control of normal dictation system features.

Foreign Exchange (FX) Access

An FX line is a line that is extended and terminated at a distant Central Office. With this feature, outgoing calls over the FX line become a local call at the distant C.O.

Radio Paging Equipment Access

This feature provides station users dial access to Radio Paging Equipment, and to selectively tone - or voice/ tone-alert individuals carrying pocket paging devices. The paged party (when on premises) can be connected to the paging party by going to the nearest station and dialing an answer back code.

Wide Area Telephone Service (WATS) Access

This feature allows any station user direct dial access to outgoing WATS lines.

Multiline Terminal Attendant Position

A Multiline Terminal with LCD can be programmed to function similar to an Attendant position. This Attendant position has limited access to Attendant related features and functions and can be substituted where an Attendant is required but an Attendant Console is not necessary. When an EDW-48-2A unit is associated with this Attendant Multiline Terminal enhanced operation is available.

Music on Hold

This feature plays music when a line is placed on hold. Music is provided by a circuit board memory chip or a local music source, such as a CD player or a radio.

Nailed-down Connection - Data

This feature provides a fixed connection between two internal Data Adapters or an internal Data Adapter and an external Data Communication Device.

Night Service

This feature provides a variety of methods for handling incoming calls when the system is in night mode. These include:

- Attendant Night Transfer
- Call Rerouting
- Day/Night Mode Change by Attendant Console
- Day/Night Mode Change by Station Dialing
- Night Connection-Fixed
- Night Connection-Flexible
- Trunk Answer Any Station

Attendant Night Transfer

When the Attendant Console is in Night Service, any operator directed calls (dial 0 calls) are automatically routed to a preprogrammed station. Priority Calls and Off-Hook Alarms which terminate to an Attendant are also routed by this feature.

Call Rerouting

This feature provides flexible reroute capabilities for a variety of calls when the system is in night mode.

Day / Night Mode Change by Attendant Console

This feature provides activation of DAY/NIGHT Mode Change by depressing a predetermined key from the Attendant Console.

Day / Night Mode Change by Station Dialing

This feature allows selected stations to activate a change from day mode to night mode by dialing a special code.

Night Connection - Fixed

This feature allows incoming calls normally terminated to the Attendant to reroute to a predetermined station when the system is placed in Night Service.

Night Connection - Flexible

This feature provides incoming calls normally terminated to the fixed night station to be Call Forwarded to another station.

Trunk Answer Any Station (TAS)

This feature allows any station, other than one with incoming restrictions, to answer incoming calls when the system is in the night mode. When this feature is activated, incoming exchange network calls will activate a common alert signal at the customer premises. By dialing a specified code, any station may answer the call and then extend it to any other station by means of the Call Transfer feature.

Off-hook Alarm

This feature allows a station user to call the Attendant, or a pre-designated station, by simply staying off-hook for a preprogrammed period of time. The calling number is automatically displayed at the Attendant Console, or the pre-designated station if equipped with an LCD.

Off-Premises Extensions

This feature allows the connection of a single line telephone in an off-premises location. The connection to the Off-Premises Extension can be through direct copper or through the local telephone company.

Open Application Interface (OAI)

Provides a computer-to-PBX interface, allowing a computer to control the function of the NEAX2000 IVS^2. The NEAX2000 IVS^2 can be customized to accommodate most customer applications. Application software can be provided by NECAM, an outside software house, or a customer.

Pad Lock

This feature temporarily restricts telephones from making unauthorized calls by dialing special access code when station users are away from their seats.

Periodic Time Indication Tone

This feature provides a periodic tone to the station user who has made an outgoing call. This feature can be allowed or denied for each station.

Pooled Line Access

A line key can be assigned to access Pooled Lines. Each line key will allow incoming, outgoing, or both-way access to a trunk route.

Power Failure Transfer

This feature provides for specified trunks to be automatically connected to designated Single Line Telephones in the event of AC power loss. It is normally used when the system is not equipped with reserve power.

Priority Call

This feature allows the Attendant to answer a call before other calls, at the Attendant's discretion.

Privacy

This feature restricts Multiline Terminal users from depressing a busy line button and entering a conversation unless permitted by the Multiline Terminal user currently on that line button or if the line button is assigned for Direct Privacy Release.

Direct Privacy Release

This feature allows a station user with a secondary appearance of another extension in the system to access that extension when it is being used by someone else. This feature allows for a simplified method for establishing a conference. In addition, this feature can be used to emulate PC dialing, where a single line extension connected to a PC can appear on a Multiline Terminal and be accessed by the Multiline Terminal user after the PC is completed dialing.

Manual Privacy Release

This feature allows a Multiline Terminal user to enter a conversation on a busy line button if the Multiline Terminal user already in the conversation allows them by releasing Privacy.

Private Lines

Only a C.O. trunk assigned to that specific station is seized when a station user originates an outgoing C.O. call or when an incoming C.O. call is terminated at the station designated by Direct-In-Termination. In this manner, stations and C.O. trunks are to be associated on a 1-to-1 basis.

Property Management System Interface

The NEAX2000 IVS^2 provides a data interface to a locally provided Property Management System (PMS). This enables communication between the NEAX2000 IVS^2 and the PMS in order to provide computer control of Hotel/ Motel features.

Proprietary Multiline Terminal

There are two Multiline Terminals available which can be used with the NEAX2000 IVS^2.

- ETJ-8-1: 8 line keys.
- ETJ-16DC-1: 16 line keys with a Liquid Crystal
- Display (LCD).

Automatic Idle Return

This feature returns a station to the idle state after 3 seconds of reorder tone is received due to the distant end disconnecting.

Called Station Status Display

This feature provides a display on the status of a called station on the LCD of the calling Multiline Terminal.

Calling Name and Number Display

This feature provides a display on the LCD of the Multiline Terminal receiving a call, indicating the station number or trunk number of the incoming call.

Dynamic Dial Pad

This feature allows to make an outgoing call at first hand by pressing a ten key of Multiline Terminal, without pressing a Speaker key or going off-hook.

Handsfree Unit

The built-in Handsfree Unit enables full Handsfree operation for both internal and external calls (No optional Handsfree Unit is required).

I-Hold / I-Use Indication

Multiline Terminals provide indication of which line keys have been placed on Hold, or are in use by that Multiline Terminal. The LED associated with the line key will give the appropriate indication.

Microphone Control

All Multiline Terminals are equipped with a Microphone Control button with an associated LED.

Multiple Line Operation

This feature allows for the appearance of multiple lines on the Flexible Line Keys and feature keys of all Multiline Terminals.

Mute Key

This feature allows the distant extension user, of a station user that presses a mute key during conversation, not to hear the station user's voice though the station user can hear the distant extension user's voice. By pressing the mute key again, the mute status returns to original conversation.

Off-Hook Voice Announcement

This feature provides a secondary voice path to the Multiline Terminal with an APR-J or APA-J unit. This allows the station to receive a voice call through the speaker while on a handset call on the Primary Extension, a secondary extension, or a Direct Trunk Line Appearance.

Prime Line Pickup

This feature allows a Multiline Terminal user to go off hook and originate a call from the line assigned as the Prime Line without depressing the associated line key.

Recall Key

Each Multiline Terminal is equipped with a Recall Key that is used to generate a hookflash to access features provided by the outside exchange, or to abandon a call while retaining the line for origination of another call.

Relay Control Function Key

This feature provides a Multiline Terminal with the ability to activate/deactivate relays (on a PN-DK00) to control external devices.

Ring Frequency Control

The ring frequency of the Multiline Terminal can be controlled on a station basis in system programming (four frequencies are available) or by use of a function key on the Multiline Terminal.

Ringing Line Pickup

This feature provides the ability to answer any call ringing into a Multiline Terminal by just lifting the handset.

Soft Keys

According to the status of the Multiline Terminal, function keys (Soft Keys) are displayed in the third line on the LCD. If the status of Multiline Terminal changes, the Soft Keys will change automatically. Also if the Help key is pressed, explanation of indicated Soft Keys are shown on the LCD.

Volume Control

Multiline Terminals are equipped with common Volume Control keys for:

- Built-in Speaker / Handset Receiver Volume.
- Ring Volume.
- C.O. Transmission Level.
- LCD contrast.
- Ring Tone Frequency

The Volume Control keys are located on the lower front side of Multiline Terminals (UP and DOWN).

Q-SIG Circuit Switched Basic Call - ETSI Version

This feature provides a tie-line connection between NEAX2000 IVS^2 and the other Q-SIG PBX using the ISDN protocol in conformity with ETS 300 172 standardized by ETSI (European Telecommunications Standards Institute).

Remote Hold

This feature allows a Multiline Terminal user to hold it on the line button of transferred terminal, by pressing the Hold key.

Remote PIM

When the system has two or more PIMs, the PIMs can be installed separately by T1 digital interface. A maximum of 3 PIMs can be installed apart at the remote site.

Reserve Power

This feature provides backup power from a 24V battery source in the event of a commercial power failure.

Resident System Program

This feature provides the installers a simple procedure to have the system generate system data according to the system hardware configuration, thereby providing immediate operation and shorter programming time. When activated, the system scans hardware configuration (such as line/trunk card slot location) and assigns system data (such as extension numbers, trunk numbers, etc.) according to a predetermined generic program assignment.

Return Message Schedule Display

This feature permits any station user to register his Return Schedule from his phone when he leaves his desk or the premises, and have the Return Schedule displayed on a calling Multiline Terminal with a Liquid Crystal Display (LCD) during his absence.

Room Cutoff

This feature allows the Attendant Console, Hotel/Motel (H/M) Front Desk Instrument, or Property Management System (PMS) terminal, or guest room telephones using a special access code, to temporarily restrict guest room telephones from making unauthorized calls when guests are away from their room, and when rooms are in Check Out status.

Room Status

This feature provides the Hotel/Motel (H/M) Front Desk Instrument with a visual display of the guest's room status. A supplementary print out (individual and summary) can be provided.

Route Advance

This feature automatically routes outgoing calls over alternate facilities when the first choice trunk group is busy. Users select the first choice route by dialing the corresponding access code, and the equipment then advances through alternate trunk groups only if the first choice is busy.

Save and Repeat

This feature allows a Multiline Terminal to save a specific dialed number and then redial that number at a later time.

Security Alarm

This feature provides an indication on the Attendant Console when a contact closure occurs.

Set Relocation

This feature enables two stations to be moved from one location to another without reprogramming station data at MAT.

Single Digit Dialing

This feature provides the station user the ability to dial single digit codes to access certain features while still allowing the same digit dialed to be used as the first digit of guest room station numbers.

Software Line Appearance (Virtual Extensions)

This feature permits assignment of circuits which do not physically exist, to be used as secondary extensions on Multiline Terminals. There are 256 software lines that can be assigned to line keys and used as desired.

Stack Dial

This feature enables a Multiline Terminal or an Attendant Console to remember the numbers dialed in the preceding five calls, including the last number dialed. The stack dial numbers are sequentially displayed on the LCD display, thus allowing the station user to make an outgoing call by selecting the desired dialed number from the display.

Station Hunting

Three Station Hunting arrangements are available. Station Hunting - Circular processes the call no matter which station in the hunt group is called. Station Hunting - Terminal initiates a hunt only when the pilot number of a hunt group is called. Station Hunting - Secretarial is initiated when a busy secretarial station in a Station Hunting - Circular group or Station Hunting - Terminal group is reached.

Station Hunting - Circular

When a busy station in a hunt group is called, this feature permits the call to be processed automatically through the hunt group in a preprogrammed order from that station's position within the hunt group.

Station Hunting - Terminal

When a pilot number is dialed and that number is busy, sequential Station Hunting will be initiated. However, if a number other than the pilot number is dialed and that number is busy, busy tone will be provided rather than initiate Station Hunting.

Station Hunting - Secretarial

This feature allows assignments to be given to members of Terminal and Circular Hunting groups to reroute calls (when their hunting group is all busy) to a back-up hunting group.

Station Message Detail Recording (SMDR)

This feature provides a call record for outgoing station-to-trunk calls and incoming trunk-to-station calls (including Data Call). This facilitates cost control by identifying trunk use and misuse by individual stations. Station Message Detail Recording (SMDR) enables call billing to customers and clients, and provides a means for checking local telephone bills.

Station Speed Dialing

This feature allows a station user to dial frequently called numbers by dialing an access code and an abbreviated code, or by depressing a feature key or line key assigned for Station Speed Dialing capability.

Step Call

This feature allows the Attendant or station user, after calling a busy station, to call an idle station by simply dialing an additional digit. This feature will operate only if the number of the idle station is identical to that of the busy station in all respects, except the last digit.

Supervisory Control of Peripheral Equipment

When various types of peripheral equipment (such as facsimiles, dictation equipment, Voice Mail, etc.) are connected to the line circuits of the NEAX2000 IVS^2, this feature allows the loop of the line circuit concerned to open for a programmable interval, and send a release signal to the peripheral equipment when the calling party disconnects.

System Speed Dialing

This feature provides all users the ability to dial frequently called numbers using an abbreviated call code.

System Traffic

The NEAX2000 IVS^2 is the stored program controlled digital electronic PABX employing PCM time division switching technique. Single stage time division switching is employed for all configurations of NEAX2000 IVS^2 up to its maximum line and trunk configuration. Traffic capacity is expressed in Busy Hour Call Attempts (BHCA). This value is the number of call attempts that can be generated in the busiest hour of the day.

Tenant Service

This feature provides for more than one organization (tenant) to share the same NEAX2000 IVS^2 system. Through system programming, each organization may be restricted to its own Central Office trunks, Attendant Consoles and extension group. In addition, incoming calls are directed to the specific tenant.

Tie Lines

This feature allows any station user dial access or direct access to an E&M Tie Line.

Tie Line Tandem Switching

This feature allows trunk-to-trunk connections through the NEAX2000 IVS^2 without the need for any Attendant assistance or control. The major use of this feature is in association with a dial tandem tie line network to allow tie line connections and incoming tie line calls automatic access to, and completion of, local Central Office calls.

Timed Queue

When a user originates an outgoing trunk call and the called party is busy or does not answer, the caller can set the Timed Queue feature. When this feature is set, the trunk seizure is repeated and the number is redialed after a predetermined time interval.

Timed Reminder

This feature allows the system to be programmed to automatically call stations at specified times. Upon answering, the station is connected to a recorded announcement or music source.

Trunk - Direct Appearances

This feature allows Multiline Terminal users the ability to access a CO line or E&M Tie Line without dialing an access code. For this feature, trunks must be assigned to the line keys on the Multiline Terminal. Incoming calls on CO lines can be answered on the appropriate trunk line appearance.

Trunk Queuing - Outgoing

This allows a station user, upon encountering a busy signal on a trunk, to dial a feature access code and enter a first-in, first-out queue. As soon as an outgoing trunk becomes available, stations in the queue will be called back on a first-in, first-out basis.

Trunk-to-Trunk Connection

This feature provides any station user with the ability to conference together two outside trunk calls and abandon the connection without dropping the Trunk-to-Trunk Connection.

Uniform Call Distribution (UCD)

The Uniform Call Distribution (UCD) feature permits incoming calls to terminate to a prearranged group of stations. Calls are distributed in the order of arrival to idle terminals within the group, based on which terminal has been idle the longest period of time. Stations may log on/log off from the UCD group. Supervisor stations may monitor conversations of agents.

Busy In/Busy Out-UCD

This feature allows an agent in a UCD group to log their station onto or off of the group. This allows the system to control whether a call directed to the pilot number of the UCD group goes to that station or not. This prevents incoming calls from being directed to stations at which no agent is available.

Call Waiting Indication-UCD

This feature provides a visual indication when an incoming call to a UCD group is placed in queue, due to an “all agents busy” condition. An external relay controlled indicator or an LED on a Multiline Terminal can be used to provide Call Waiting Indication.

Delay Announcement-UCD

This feature allows the system to provide a recorded announcement to an incoming caller placed in queue to a UCD group. A single announcement, or two separate announcements, can be provided.

Hunt Past No Answer-UCD

This feature allows calls targeted at a UCD group to hunt past an agents station, after a no answer condition, if the agent forgets to log off of the group and the agent is unable (or not available) to answer the call.

Immediate Overflow-UCD

This feature allows a call directed to a UCD group to immediately overflow to another UCD group, upon encountering an “all agents busy” condition.

Priority Queuing-UCD

This feature allows the system to prioritize incoming calls by trunk route and on a per station basis, when the call enters a UCD queue. When a call is a considered as priority it is placed at the beginning of the queue.

Queue Size Control-UCD

On incoming DID/Tie line calls, the system can be assigned a threshold that limits the number of calls in queue. When the queue size threshold is exceeded, incoming callers are connected to busy tone.

Silent Monitor-UCD

This feature provides the UCD group supervisor with the ability to monitor a call to a UCD agent. The silent monitor function gives no indication (as an option) to either the agent or the calling party.

Uniform Numbering Plan (UNP) -Voice and Data

In the numbering plan for a network to be configured through the use of Tie Lines, a Uniform Numbering Plan (UNP) is employed. When UNP is employed, a station user from any PBX within the network can call a desired party by using a uniform dialing method based on the UNP.

Variable Timing Parameters

This feature gives the IVS the versatility to change timing duration using the Maintenance Administration Terminal (MAT) or the Customer Administration Terminal (CAT). All timing parameters are set initially in the Resident System Program. These timing parameters can be changed according to the customer's requirements.

Voice Guide

This feature provides a station user with an announcement that informs:

1. The result of the operation when the station user set or canceled the service feature, instead of service set tone.
2. Which service has been set to the station; such as, Call Forwarding - All Calls, Do Not Disturb or Message Waiting, when the station goes off-hook, instead of special dial tone.

Voice Mail Integration

This feature is used to interface the NEAX2000 IVS^2 with a locally provided stand-alone type Voice Mail System (VMS). The VMS, connected to the NEAX2000 IVS^2 single line circuit (LC), is controlled by sending/receiving DTMF signals using this LC.

The VMS's voice mail feature can be used by accessing this VMS directly from an extension. If a station sets its call forwarding destination to the VMS, calls to this station are connected to the VMS, and the messages can be registered according to the VMS instruction. In addition, the Message Waiting lamp of the station can be turned on automatically by the VMS.

Voice Mail Private Password

Voice Mail Password can be prevented from displaying in LCD of Multiline Terminals when connected to the Voice Mail System.

Voice Mail Transfer

This feature has two functions that provide streamlined transfer access to voice mail.

1. One touch access to VMS: When an Attendant transfers an external call to a station, and if the station is busy or unanswered, the Attendant can transfer the call to a VMS by dialing “9” or by pressing a function key provided for this feature.
2. Transferring Camp-On call to VMS: When an Attendant sets Camp-On to a busy destination station for an external call, and if the destination station does not answer by predetermined time, the call can be automatically transferred to a VMS.

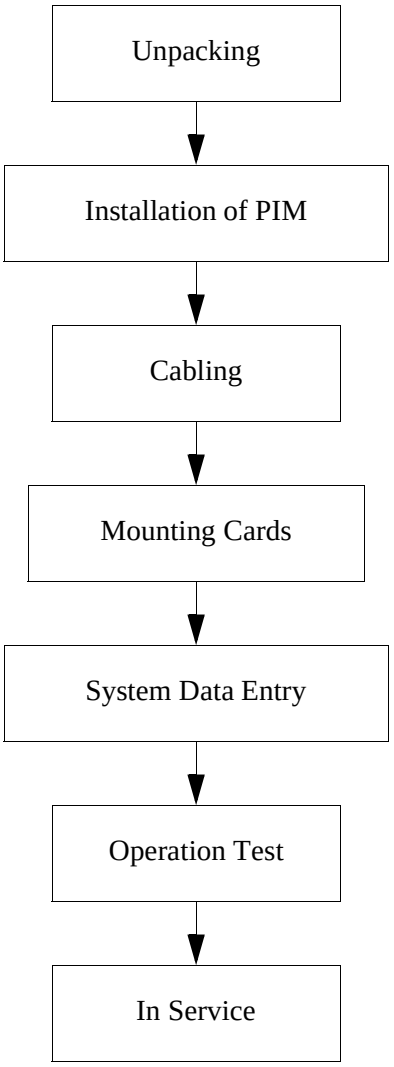
Whisper Page

This feature allows a secretary to interrupt the boss in a private way. By pressing a feature key or dialing an Access Code, the secretary station can voice override the conversation between the boss and another party (station or trunk). When the conversation is interrupted, the boss can hear the secretary but the other party is unaware of the Voice Override.

Chapter 6 Installation Procedure

Installation Steps

The installation of the NEAX2000 IVS^2 is performed according to the following steps.



Cabling inside the unit, between the switching equipment and the MDF, can all be done by plug-and-jack connections, while printed circuit cards can easily be plugged into the edge connectors.

On all installations, a special provision for plug-and-jack connections completely eliminates possible errors in wiring. This allows the installation to be done easily and smoothly.

Items to be Provided at Site

The following items are required for correct operation.

a.) Adequate space accommodation

b.) Adequate ventilation

c.) Commercial AC power

Dimensions and Weight

1. Dimensions: 16.9 in. x 8.8 in. x 14 in. (43 cm x 22.3 cm x 35.6 cm)
2. Weight (: Weight varies depending on the system configuration)
   PIM: Approx. 41 lbs. (18.5 kg)/PIM (including PWR and 19 Cards)

Heat Dissipation

Table 6-1 Specifications for Heat Dissipation

PIM NO.	MAX. AC POWER CONSUMPTION (W/H)*	MAX BTU (BTU/H)
1	360	1226
2	720	2452
3	1080	3678
4	1440	4904
5	1800	6130
6	2160	7356
7	2520	8582
8	2880	9805

Chapter 7 Maintenance

Trouble Reporting and Diagnosis

The urgency of a fault is indicated by the MJ/MN lamp provided on the Power Card and optional external alarm indicator. Details of the alarm indications are shown in Table 7-1.

Faulty plug-in cards are quickly replaced with a spare providing minimum disruption of service and no loss of system memory.

Table 7-1 Fault Detection Items

ITEM	DESCRIPTION	ALARM INDICATION POWER CARD/EXTERNAL ALARM INDICATOR (OPTION)		REMARKS
		MJ	MN	
1	Reset Initial	Available	Available	Indication of MJ or MN alarms is software-controlled on a per fault basis.
2	Data Transmission Error between MP and FP/AP	Available	Available	
3	FP/AP Card Down	Available	Available	
4	Digital Interface Fault	Available	Available	
5	BUS Card Fault	Available	Available	
6	D^{term} Line Fault	Available	Available	
7	Station Line Fault	Available	Available	
8	D-channel Circuit Down	Available	Available	
9	Common Channel Down	Available	Available	
10	Number of lockout station exceeds a predetermined value	Not Available	Available	
11	SMDR Memory overflow	Available	Available	
12	AC Power Down	Available	Available	
13	DC Output Down	Available	Available	
14	Fuse Blown	Available	Available	

System Administration

System data, which varies from installation to installation and which is subject to continual change during service, is readily entered or changed from the D^{term} or MAT (Maintenance Administration Terminal).

The system data can be downloaded to, or uploaded from, a floppy disk in the MAT computer.

Remote Maintenance

Access to the NEAX2000 IVS^2, for the purpose of system diagnosis, status reporting, and database reconfiguration, can be performed from remote locations (e.g., Maintenance Centers, Technical Assistance Service Centers, etc.). By taking advantage of the built-in modem on the NEAX2000 IVS^2 CPU, the following maintenance administration functions can be accomplished by a remotely located MAT via a modem over a central office network or a tie line network.

- System Data Correction/Upload/Download
- MP/FP Software Upgrade
- Control of Battery Disconnection
- Display of Line/Trunk Connections
- Detection of open or short circuit in the line cables for both analog and D^{term} telephones
- Fault Message Display

Chapter 8 System Performance

Operating Conditions

Ambient Temperature: 32°F ~ 104°F (0°C ~ 40°C)

Relative Humidity: 90% max (non-condensing)

Transmission Characteristics

a.) Cross Talk Attenuation: More than 70 dB at 1000 Hz

b.) Idle Circuit Noise: Less than -65 dBm

c.) Insertion Loss (relative to 1KHz-10 dBm):

- Station-to-Station - Typical 6 dB
- Station-to-Trunk - Typical 0.5 dB
- Trunk-to-Trunk - Typical 0.5 dB at 0 dB PAD control

d.) Longitudinal Balance
Trunk Side: Better than 58 dB

e.) PCM Characteristics:

- Line Rate - 1.544 Mbps
- µ-Law
- Meets North America TI-04 Standards

f.) Return Loss: More than 15 dB (300 ~ 3,400 Hz)

- Line Impedance: Station: 600 Ω
  Trunk: 600 or 900 Ω

g.) Leakage Resistance: More than 20,000 Ω

Rotary Dial Pulse and DTMF Signaling

1. Receiving Conditions:

   Dial Speed: 9 ~ 11 pps

   Break Ratio: 55 ~ 77% (10 pps)

   Minimum Interdigital Pause: 192 ms

   Switch Hook Flash: Detection: 310 ~ 1610 ms

2. Sending Conditions

   Dial Speed: 10 pps (±0.8 pps)
   Break Ratio: 67 ± 3%
   Minimum Interdigital Pause: 800 ms

3. DTMF Signaling
   Frequency Combinations

HIGH/LOW	1209 HZ	1336 HZ	1477 HZ
697 Hz	1	2	3
770 Hz	4	5	6
852 Hz	7	8	9
941 Hz	*	0	#

1. Receiving Conditions
   (Measured at Receiver Input)

   Signal Duration: More than 40 ms
   Interdigital Pause: More than 40 ms
   Signal Level: 0 ~ -25 dBm

2. Sending Conditions

   Signal Duration: More than 64 ms
   Inter-digital Pause: More than 64 ms
   Signal Level: Low Frequency: -10 dBm
   High Frequency: -9 dBm

Audible Tones and Ringing Signal

Audible Tones

Table 8-1 Specifications of Audible Tone

TONE	FREQUENCY	INTERRUPTION
Dial Tone (DT)	350 Hz mixed with 440 Hz	Continuous
Special Dial Tone (SDT)	350 Hz mixed with 440 Hz	0.125 sec. ON, 0.125 sec. OFF
Busy Tone (BT)	480 Hz mixed with 620 Hz	0.5 sec. ON, 0.5 sec. OFF
Reorder Tone (ROT)	480 Hz mixed with 620 Hz	2.5 sec. ON, 0.25 sec. OFF
Howler Tone (HWT)	2,400 Hz interrupted by 16 Hz	Continuous
Service Set Tone (SST)	350 Hz mixed with 440 Hz	Continuous
Ring Back Tone (RBT)	440 Hz mixed with 480 Hz	1 sec. ON, 3 sec. OFF
Hold Tone (HDT)	480 Hz mixed with 620 Hz	0.25 sec. ON, 0.25 sec. OFF 0.25 sec. ON, 1.25 sec. OFF
Second Dial Tone	440 Hz mixed with 480 Hz	0.25 sec. ON, 0.25 sec. OFF 0.25 sec. ON, 1.25 sec. OFF
Call Waiting Ring Back Tone	440 Hz mixed with 480 Hz	1 sec. ON, 1 sec. OFF

Ringing Signal

Frequency: 20 Hz (Nominal)

Signal Voltage: 75 Vrms (Nominal)

Interruption:

- 2 sec. ON,
  4 sec. OFF (for external call)
- 1 sec. ON and
  2 sec. OFF (for internal call)

Built-In Modem on MP Card

MODEM: 33.6 kbps

BHCA (Busy Hour Call Attempts)

The BHCA of the NEAX2000 IVS^2 is shown below.

MAIN PROCESSOR	WITHOUT FP (1 PIM)	ONE FP (1~2 PIM)	TWO FP (3~4 PIM)	THREE FP (5~6 PIM)	FOUR FP (7~8 PIM)
Business or Hotel/Motel without ACD/OAI	2000	2500	5000	7000	8000
Business or Hotel/Motel with ACD/OAI	1000	2000	4000	5000	5500