

Lucent Technologies Bell Labs Innovations

MERLIN LEGEND[®] Communications System Release 6.0

Pocket Reference

555-660-116 Comcode 108136029 Issue 1 February 1998

Copyright © 1998 Lucent Technologies All Rights Reserved Printed in USA

555-660-116 Issue 1 February 1998

Ordering Information

To order copies of this document:

International: 1 317 322-6791 (voice) 1 317 322-6849 (fax)

- Write: BCS Publications Center 2855 North Franklin Road Indianapolis, IN 46219-1385
- Order: Document No. 555-660-116 Comcode: 108136029 Issue 1, February 1998

For assistance when installing or programming the system:

Call: National Service Assistance Center (NSAC) at 1 800 628-2888 or your Lucent Technologies representative

Notice

While reasonable efforts were made to ensure that the information in this document was complete and accurate at the time of printing, Lucent Technologies can assume no responsibility for errors. Changes or corrections to the information in this document may be incorporated into reissues.

Trademarks

MERLIN LEGEND, DEFINITY, 5ESS, ACCUNET, CONVERSANT, DEFINITY, MERLIN MAIL, MERLIN II, MERLIN Identifier, MLX-5, MLX-5D, MLX-10, MLX-10D, MLX-10DP, MLX-20L, MLX-28D, Magic On Hold, MEGACOM, MultiQuest, MERLIN, and SYSTIMAX are registered trademarks, and 4ESS, ProLogix, AUDIX Voice Power, Fax Attendant System, HackerTracker, PassageWay, Picasso, Lucent Technologies Attendant, MERLIN PFC, and TransTalk are trademarks of Lucent Technologies in the U.S. and other countries.

Mirage, StarSet, Supra, and Supra NC are registered trademarks of Plantronics, Inc.

PagePac is a registered trademark, and Powermate and Zonemate are trademarks of DRACON, a division of Harris Corp.

Microsoft is a registered trademark and Windows is a trademark of Microsoft Corporation.

IBM is a registered trademark of International Business Machines, Inc.

CLASS is a service mark of Bellcore.

NORTEL is a registered trademark and DMS a trademark of Northern Telecom.

MCI, Prism, and Vnet are registered trademarks of MCI Communications.

Novell and NetWare are registered trademarks of Novell Corporation.

Contents

<u>1</u>
<u>2</u>
4
<u>7</u>
<u>10</u>
<u>10</u>
<u>12</u>
<u>14</u>
<u>16</u>
<u>20</u>
<u>25</u>
<u>26</u>
<u>28</u>
<u>31</u>
<u>32</u>
<u>32</u>
<u>32</u>
<u>33</u>
<u>38</u>
70

MERLIN LEGEND Communications System Release Pocket Reference 555-660-116	e 6.0	lssue 1 February 1998
Contents		Page vi
Adjunct Summary	76	5
Power Supply Unit Load		
Requirements	<mark>86</mark>	
Unit Load Calculation Rules	<u>86</u>	
Unit Load Rating of System Modul	<u>es 87</u>	
Unit Load Rating of System Trunks Telephones, and Adjuncts	<u>8,</u> 88	
System Feature Availability by Operating Mode	<u>89</u>	
Telephone and Operator Console Features	<u>92</u>	
Reference Documents	<u>106</u>	
Maintenance Error Codes	<u>109</u>	
Technical Addendum	<u>109</u>	
Module/Component History	<u>128</u>	
Telephone LEDs	<u>140</u>	
Wiring Constraints	<u>144</u>	
Installing SPM	<u>145</u>	
Accessing SPM	<u>145</u>	
Technical Support Telephone Numbers	<u>148</u>	

Release 1.1 Enhancements

Refer to *Release 1.1 Notes* for detailed descriptions of Release 1.1 enhancements. Release 1.1 includes all Release 1.0 functionality plus the enhancements described in the following sections.

Language Selection

This selection allows you to program the system for the display of prompts, menus, and messages on MLX display telephones in English, French or Spanish. You can also program the following options in any of these languages, independently of the system language:

- Individual extensions with MLX telephones
- System Programming and Maintenance (SPM)
- System programming reports
- SMDR report headers

 $\mathsf{MLX-10D}^{\textcircled{B}},\,\mathsf{MLX-20L}^{\textcircled{B}},\,\mathsf{and}\,\,\mathsf{MLX-28D}^{\textcircled{B}}$ display telephones and

 $\rm MLX-10^{\circledast}$ nondisplay telephones are available in three separate versions, with factory-set buttons in English, Spanish, or French.

(The MLX-10DP[®] is available in the English version only.) In addition, user and operator guides and telephone tray cards are available in all three languages.

Programming and Maintenance

Programming and maintenance enhancements include the following:

- Additional Inspect capability in system programming
- Editing capability (Backspace selection) in extension programming
- Improvements to system reports
- An access log that records the last 20 times maintenance or system programming has been accessed
- Longer (20-second) gap between ring cycles for programming mode and Forced Idle tone

Operational

System operational enhancements include the following:

- Automatic selection of an SA button when Conference is invoked (Hybrid/PBX mode)
- Prompting through Conference feature on MLX display telephones
- Relocation of the More prompt on the MLX-20L display telephone
- Display of the number saved on a programmed Last Number Dial or Saved Number Dial button when the button is inspected

SPM

SPM enhancements include operation in English, French, or Spanish; faster backup and restore; and automatic on-screen display of reports as they are created with a Browse capability for reading the reports.

Equipment

Additional equipment includes the 8102 and 8110 analog telephones, four headsets, two headset amplifiers, and a transparent protective cover for the MLX-10 and MLX-10D telephones. The 8102 and 8110 telephones are also compatible with Release 1.0.

PF Registration

PF registration number AS5USA-65646-PF-E is assigned by the FCC for operating the MERLIN LEGEND[®] Communications System in Hybrid/PBX mode in the United States. (The PF registration is also applicable to Release 1.0 systems.

Release 2.0 Enhancements

Refer to *Release 2.0 Notes* for detailed descriptions of Release 2.0 and later enhancements. Release 2.0 includes all Release 1.1 functionality plus the enhancements listed below.

Programming

Programming enhancements include the following:

- Extension Copy is a feature that reduces programming time by allowing the use of any extension as a template for programming another extension or block of extensions through centralized telephone programming.
- Integrated Administration provides a single interface through Integrated Solutions III (IS III) for programming entries common to the MERLIN LEGEND Communications System and AUDIX Voice PowerTM.
- Any SPM Version 2.xx (where xx is replaced by numbers) provides a Convert function for use in upgrading the system from Release 1.0 or 1.1 system to Release 2.0 and later format, allowing reuse of existing system programming on the upgraded system.
- Forced Idle reductions keep system interruptions at a minimum. In general, the smallest necessary component is forced idle during programming activities. For example, renumbering a single extension idles only one extension. Only a few systemwide programming activities, such as setting the system mode and system renumbering, idle the entire system.

Operational

System operational enhancements include the following:

- Coverage VMS Off is a feature that prevents incoming outside calls from going to voice mail. (All other coverage remains active as programmed.) The feature is programmed extension by extension, either through extension programming or through centralized telephone programming.
- A Night Service group can be programmed to include either extensions or a calling group as members. However, you should not program both individual extensions and a calling group into the Night Service group because individuals will not have a chance to answer before calling group members do.

Page 2

Issue 2 January 1998

- When AUDIX Voice Power sends a Leave Message notification to an extension, the system identifies the voice mail system as the sender of the message. When the voice mail subscriber uses the Return Call feature, the call goes to any available voice mail port, not just to the specific port that generated the message. This reduces the chance of getting a busy port.
- Coverage receivers can call coverage senders and have the call receive coverage treatment. If a receiver calls a sender for whom he or she is covering, and the sender is busy or unavailable, the call proceeds to other points of coverage. It does not come back to the receiver who originated the call.
- Enhancements to display prompts include automatic posting of a Do Not Disturb message (for MLX display telephones or other multiline telephones, a Posted Message button must be programmed for the Do Not Disturb message to be posted automatically). When a user activates the Do Not Disturb feature, and confirmation messages when a user activates Hold, Privacy, Saved Number Dial, and Transfer.
- Direct Inward Dialing (DID) trunk emulation on a T1 facility provides up to 24 DID channels on a single DS1 interface, instead of requiring 24 separate physical trunks.
- A telephone user can send a timed flash (switchhook flash) on a loop-start trunk call on a System Access (SA) button.

Fax Attendant System™

Fax Attendant is an application for sending and receiving fax messages; its interface is similar to the voice mail interface provided by AUDIX Voice Power. Fax Attendant System, which corresides with AUDIX Voice Power on the IS III platform, provides the following services:

- Fax Call Coverage. Receives and holds messages for subscribers whose fax machines are busy or out of paper. this service also allows a subscriber to have a personal fax number without having a fax machine.
- Fax Mail. Allows subscribers to create and use fax distribution lists, send and receive fax messages, and record personal greetings for incoming fax calls.
- Fax Response. Prompts callers to select and receive faxes from a customer-created menu of choices, using touch-tone responses.

408 GS/LS-MLX Module

The 408 GS/LS-MLX module (Releases 2.0 and higher only) combines four line/trunk jacks for ground-start or loop-start trunks and eight extension jacks for MLX telephones on a single module in the control unit.

Primary Rate Interface (PRI)

Primary Rate Interface (PRI) enhancements include the following:

- Connectivity to the 5ESS[®] Generic 6
- Multiple Incoming calls to directory number
- Call-by-Call Service Selection
- Password handling for FTS2000
- Extension ID as Calling Party Number for Automatic Number ID (ANI)

Maintenance

Maintenance enhancements include the following:

- Clear descriptions of module test failures
- Optional printing of hard copy of error logs
- Display that correlates extension numbers to slot/port and logical ID
- Display of the slots, trunks, and extensions that are maintenance busy
- Internal digital switching element (DSE) loopback test for all modules
- B-channel loopback test for MLX modules
- B-channel line or call service states display
- Error log entries for dual-port RAM errors

Release 2.1 Enhancements

Refer to Release 2.1 Notes for detailed descriptions of Release 2.1 enhancements. Release 2.1 includes all Release 2.0 functionality plus the enhancements listed below.

Operational

System operational enhancements include the following:

- When a call is forwarded to a multiline telephone that has an Auto Dial or DSS button programmed for the forwarding telephone, the green light next to the Auto Dial or DSS button for the forwarding telephone does not flash.
- People answering calls received on Cover buttons are allowed to generate touch tones if their telephones are not outward- or toll-restricted.
- Calls received on personal lines with Do Not Disturb on go immediately to coverage instead of waiting for the coverage delay interval.
- A call put on hold at a Cover button can be added to a conference by someone who has a personal line for the call.
- A call put on hold at a Cover button can be picked up by any person who has a personal line for the call.
- Calls that have been put on hold at a Cover, SA, Shared SA, or Pool button can be picked up by a person who has a personal line button for the call.
- An inside call on hold at an SA button can be picked up and transferred by any person with a Shared SA button corresponding to the button with the held call.
- Calls that are on hold awaiting transfer can be picked up by any user who has a personal line for the call.
- Beginning with Integrated Solution III Version 1.2, the automatic reconciliation program that was run automatically at 3:00 a.m. has been disabled and can be invoked manually from the User Maintenance menu.
- When a telephone is programmed for Forced Account Code entry, account codes do not have to be entered when using a programmed Loudspeaker Paging button. In addition, an SMDR record is not generated for calls made to paging ports.

- When an MLX telephone, other than an MLX-20L, is plugged into an MLX port and the Personal Directory does not contain any entries, the allocation of the Personal Directory resources is released. If there are any entries in the Personal Directory, the Personal Directory allocation and the entries in the Personal Directory are saved in the MLX port.
- SMDR call records for calls made on PRI facilities are more accurate than SMDR call records for calls made on non-PRI facilities. Outgoing calls made on PRI facilities receive "answer supervision." Consequently, SMDR timing for calls made on PRI facilities begins when the call is answered. Timing for calls made on non-PRI facilities begins when dialing is completed. Therefore, an SMDR call record is not generated when a call made on a PRI facility is not answered at the far end.
- The Call Type field and the Called Number field on the SMDR report have been changed for both the Basic and ISDN report formats.
- An 012 port that is programmed as a generic voice messaging interface (VMI) port can transfer an outside call to an outside number.
- In a system where the transfer audible option is programmed for Music On Hold and a music source is provided, outside callers who are transferred to a calling group and are waiting in the queue or who are parked or camped-on hear music while they are waiting. Internal callers never hear music on hold while waiting in the calling group queue or when the are parked, camped-on, or being transferred to another extension.

Installation and Hardware

Installation and hardware enhancements include the following:

- The control unit covers for the MERLIN LEGEND Communications System are the same easy-to-use covers as those for the MERLIN[®] II Communications System.
- A new 012 (T/R) module [apparatus code 517G13 (28) or higher letter] contains a built-in ring generator. The maximum ring equivalency number (REN) supported is 2.2, and the module rings four ports at one time. Bridging of single-line telephones is not supported due to poor transmission quality.
- A new 008 OPT module (labeled "with RING GEN.") contains a built-in ring generator. It rings four ports at a time.
- Ferrite cores for the power supply modules are shipped from the factory to comply with FCC Part 15 requirements.
- 3129-WTWA (touch-tone outdoor telephone equipped with cast aluminum housing and armored handset cord with bell ringers)
- 3129-WRWA (rotary-dial outdoor telephone equipped with cast aluminum housing and armored handset cord with bell ringers)
- 3129-WAWA (auto dial outdoor telephone equipped with cast aluminum housing and armored handset cord with bell ringers)
- 3129-WNWA (nondial, automatic ringing on dedicated circuit for outdoor telephone equipped with cast aluminum housing and armored handset cord with bell ringers)

Equipment and Operations

Equipment and operations enhancements include the following:

- A new release (Version 2.16 of the System Programming and Maintenance (SPM) software to support international use.
- Support of PRI connection to DEFINITY[®] Communications Systems
- MLX-10DP telephone, identical to an MLX -10D, except that it provides a jack for access to the PassageWay Solution and PassageWay Direct Connection Solution application.

Additional Application Packages, Telephones, Adjuncts, and Adapter Enhancements

Additional application packages, adjuncts, and adapter enhancements include the following:

- A Lucent Technologies Digital Announcer Unit, compatible with all call management systems and tip/ring applications currently available for the MERLIN LEGEND Communications System.
- The HackerTracker[™] system software enhancement to the Call Accounting system (CAS) detects abnormal calling activity by allowing monitoring of facilities or authorization code usage.
- A new digital Magic on Hold unit is available in three configurations:
 - Basic Prerecorded Package
 - Personalized Package
 - Custom Production Package
- The MERLIN[®] Identifier application enables people to receive, store, and use information provided by the local telephone company, specifically, the telephone number of a caller in an area where the service is also supported.
- An Off-Premises Range Extender (OPRE) supports offpremises operation with an off-premises extension capability and extended range operation for tip/ring devices as well as variable gain to improve voice transmission levels.
- PagePac[®] Plus Loudspeaker Paging Systems do not require system adapters. The controller provides 8 built-in zones (expandable to 56 zones by using up to 3 16-zone expansion units), group zones, talkback, night bell, operator override, tones, door supervision, microphone input, and system access security codes as standard features.
- PassageWay Solution (Release 1.0) software consisting of four applications that run with Microsoft[®] Windows[™] 3.1 or later and provide an interface between an IBM[®]-compatible personal computer and the MERLIN LEGEND system.
- Four single-line telephones with memory buttons: 710, 715, 725, and 730.
- Four specialty handsets compatible with all MLX telephones and the 3101-series, 3178-NHL, 8102, and 8110 single-line telephones.

Release 3.0 Enhancements

Release 3.0 includes all Release 2.1 functionality plus the enhancements listed below.

Equipment

New hardware includes a variety of components. Additional details are included elsewhere in this book.

 CPU modifications include: A processor running at 16 MHz with a 32-bit wide data bus

1.5 Mbytes of non-volatile (battery-backed) RAM

4.0 Mbytes of Flash ROM

PCMCIA memory card interface

A full-duplex 1200/2400 bps modem

Error/Status code display for maintenance support

- An 800 GS/LS-ID line/trunk module delivers the calling party's telephone number to the customer premises (MLX display telephones only) if the service is subscribed to by the customer and if it is supported by the caller's telephone company.
- Support for:

MDC 9000 (6-line, cordless)

MDW 9000 (6-line, cordless, wireless)

8101 (single-line telephone, desk or wall-mount, data/fax jack, selectable positive disconnect)

2500 YMGL and 2500 MMGL (single-line desk telephones, selectable positive disconnect)

 $\mathsf{Picasso}^{^{\mathsf{TM}}}$ Still-Image telephone (for interactive display of still images)

- Videophone 2500 single-line phone with interactive video display
- Pre-fabricated and pre-drilled backboard

Installation, Upgrade Administration, and Maintenance

These are the new MERLIN LEGEND Communications System capabilities:

- SPM (Release 3.18) conversion of translations from Release 1.0, 1.1, 2.0, and 2.1 to 3.0
- Remote operation at 1200/2400bps
- Advice and feedback administration screens for new Release 3.0 functionality
- PCMCIA Memory Card Interface (a Release 3.0 processor board required) allowing:
 - System software installation
 - System software upgrade
 - 800 GS/LS-ID port module firmware upgrade
 - Integrated backup and restore of translations
 Automatic and manual options for backup and restore are available on the system. Automatic backup can be scheduled weekly or daily to fit the customer's needs.
- Inter-digit dialing timer values are administrable

- Inspection of Lines/Trunks displays only those lines and trunks configured on system rather than all 80 facilities
- Stations and facilities in Maintenance Busy (both manual and automatic) can be identified by the maintenance monitor

User Features

Security

The Remote Access feature allows people at remote locations to enter the system by dialing the number of a line or trunk designated for remote access. The system can be programmed to require the remote user to dial a barrier code (a type of password) after reaching the system. In earlier versions, the system-wide barrier code length is fixed at 4 digits. Release 3.0 allows a system-wide barrier code length ranging from a minimum of 4 digits to a maximum of 11 digits, with a default setting of 7 digits. SMDR records are enhanced to provide information for remote access calls. If the remote access call is received on a facility providing Caller ID information (see below), the SMDR report can help trace the call.

Caller ID

Caller information (telephone number) is furnished to MLX display telephones by an 800 GS/LS-ID module using the LS (loop-start) option. This allows customers to screen calls prior to answering the phone, as well as providing calling party information for use with various applications. This function is available only when the customer subscribes to caller identification service from the local telephone company, if the telephone company supports that service.

Shared System Access (SSA)

A telephone may have up to 27 **Shared SA** buttons to expand extension coverage.

Authorization Codes

The Authorization Code feature allows you to make calls using your calling privileges when you are dialing from an extension other than your own. When you enter your authorization code (ranging from 2 to 11 characters and unique across the system), the privileges and restrictions assigned to your home extension override the current restrictions at the host extension. This includes toll restriction, outward restriction, Facility Restriction Level (FRL), Allowed Lists, Disallowed Lists, Night Service Exclusion List, and Dial Access to Pools. All other functions on the telephone are those of the local telephone, not the home extension.

Authorization codes can also be used for the purposes of call accounting through the SMDR printout. The SMDR account code field can hold the authorization code extension number or the authorization code itself.

Direct Voice Mail

If your company has voice mail, this feature allows you to dial a coworker's voice mailbox directly without ringing that person's extension. Direct Voice Mail is especially useful for transferring calls when a co-worker is not available.

Additional Features

The status of Leave Word Calling (LWC) and Privacy are retained across cold starts.

Caller ID (CLASSSM ICLID and PRI) are available on primary coverage and return from transfer.

Additional Application Packages, Adjuncts, and Adapter Enhancements

PassageWay[™] Direct Connection Solution

PassageWay Direct Connection Solution (Release 2.0) is a Lucent Technologies computer telephone integrated product that links a desktop Windows PC to the MERLIN LEGEND's MLX-10DP, MLX-16DP, MLX-20L, or MLX-28D telephone. The Windows applications are: Lucent Technologies Call (autodial/contact manager), Lucent technologies Buzz (screen-pop applications), Lucent Technologies Set (station programming interface), and Log Viewer (call log application). PassageWay Direct Connection Solution (Release 2.0) is the version supported on MERLIN LEGEND 3.0.

PagePal

PagePal connects several Lucent Technologies and other paging systems to the MERLIN LEGEND Communications System. No other system adapter is necessary for loudspeaker paging.

Fax Attendant 2.1.1

Fax Attendant Release 2.1.1., which co-resides with AUDIX Voice Power on the IS III Release 1.2 platform, provides the same functionality as earlier versions, plus the following enhancements:

- Personal Fax Messaging. Inbound faxes can be stored until the subscriber asks that they be printed, at any fax machine he or she specifies, on company premises or off-site (when the subscriber retrieves fax messages remotely).
- Fax Mail. Allows subscribers to send fax messages, get fax messages, record personal greetings, and program outcalling.
- Fax Broadcast. Provides a simple way to send one fax to as many as 1000 fax numbers.

Call Accounting System (CAS) for Windows

This stand-alone version of CAS takes advantage of the easy-touse graphical environment offered by Microsoft Windows. Through data communications, it also allows one CAS system to serve multiple business sites.

Group Video Conferencing

Group video conferencing is supported over DS1 (Digital Signal Level 1) facilities with PRI. (Video conferencing has been available since Release 2.0.)

Release 3.1 Enhancements

Release 3.1 includes all Release 3.0 functionality plus the toll fraud and security enhancements listed below.

Star Codes

Star codes are dialable codes for services provided by the CO. The user has to contract with the CO to get these codes activated.

With this release, users can now add a star (*) code to Allowed and Disallowed Lists to help prevent toll fraud. The MERLIN LEGEND system checks if the star codes are allowed. If allowed, the system then checks the remaining dialed digits against the calling restrictions.

As a security enhancement, *03 requires a technician to enter a maintenance password to access test procedures.

Second Dial Tone Timer

Users can program a delay period (Second Dial Tone Timer) during which no dialing is allowed. This is useful in cases when the CO sends a second dial tone (such as after a star code); the user may start dialing before getting the second dial tone, creating a risk of toll fraud or misrouted calls. If the timer is programmed and dialing is attempted during the delay, the call is not completed.

Trunk-to-Trunk Transfer

This feature allows or disallows trunk-to-trunk transfer on a perstation basis. The default setting for all stations is restricted (disallowed).

Toll Fraud Defaults

This feature changes these default settings:

- No station or remote access user with a barrier code may dial access to any pool.
- Disallowed List 7 contains numbers most commonly abused for toll fraud: 0, 10, 11, 1809, 1700, 1900, 976, 1ppp976 (p=any number or character), *. Assign this list to extensions as needed.
- VMI ports are maximally restricted. Outward restriction is on and they are assigned to Disallowed List 7.
- FRL settings for VMI ports is 0, for local calls is 2, and for toll calls is 3.

Release 4.0 Enhancements

Release 4.0 includes all Release 3.1 functionality plus the enhancements listed below.

System Functionality

The MERLIN LEGEND Communications System functionality is enhanced to include the following:

- An expanded dial plan supporting up to 200 tip/ring devices.
- National ISDN BRI service support for voice and data connectivity to the CO. Data speeds are 14.4 kbps for analog data and up to 64 kbps for digital data. Release 4.0 supports the IOC Package "S" and Multiline Hunt service configurations.

 Certified 2B-data video/data applications that connect to MLX ports and use NI-1 BRI, PRI, or T1 Switched 56 network interfaces to make outside connections.

NOTE:

The 008 MLX and 408 MLX modules must have firmware vintage other than 29. An earlier or later vintage firmware is supported.

 The use of T1 facilities for digital data transmission of up to 56 kbps per T1 channel.

Equipment

New hardware includes two new modules. They are:

- An 016 module supporting 16 tip/ring devices and four TTRs. All 16 ports can ring simultaneously. The module's ringing frequency (default 20 Hz) can be changed through programming to 25 Hz for those locations that require it.
- An 800 NI-BRI module supporting high-speed data and video transmission.

Maintenance Support

The R4.0 software includes a Provisioning Test tool that technicians can use to verify the operational status of installed NI-1 BRI lines.

User Features

Product Enhancements

The following enhancements are added:

- Delay Call Forwarding. Each user can program a Forwarding Delay setting for calls that are forwarded using Forward, Remote Call Forwarding, or Follow Me. The forwarding delay is the number of times a call rings at the forwarding extension before the call is sent to the receiver. During the delay, the user may screen calls by checking the displayed calling number (if it is available). The delay can be set at 0 to 9 rings. The factory setting for Forwarding Delay is 0 rings (no delay).
- Voice Announce on the QCC. The QCC operator can use the fifth Call Button to announce a call on another user's speakerphone if the destination telephone has a Voice Announce-capable SA button available. QCCs cannot receive Voice Announce calls; they are received as ringing calls. The factory setting for the fifth Call button is Voice Announce disabled.
- Timebased option for overflow on Calling Group. If the Overflow Threshold Time is set to a value between 1-900 seconds, calls that remain in the Calling Group Queue for the set time are sent to the Overflow Receiver. This is in addition to the number of calls that are in the Queue (previously, the only way to send calls to the Overflow Receiver). If the Overflow Threshold Time is set to 0, Overflow by time is off. The factoryset time limit is 0 (overflow by time is off).
- Downloadable Firmware for 016 T/R board and the NI-BRI board. The PCMCIA technology introduced in Release 3.0 continues to support these two new boards in Release 4.0 for installation and upgrade. A Release 3.0 or later processor is required for PCMCIA technology.

Single-Line Telephone Enhancements

The following enhancements are added to the single-line telephones:

- Disable Transfer. Through centralized programming, the system manager can disable the ability to transfer calls by removing all but one SA or ICOM button from the telephone.
- No Transfer Return. When a handset bounces in its cradle, the MERLIN LEGEND system interprets this as a switchhook flash and attempts to transfer a call. This causes unintended ringing at the user's phone. In Release 4.0, a flash followed by an onhook state when a dial tone is present causes the call to be disconnected.
- Forward Disconnect. All ports on 012 and 016 modules now send forward disconnect to all devices connected to them when forward disconnect is received from the CO. This is a nonadministrable operation.

System Security

Greater system security is achieved by requiring a 7-digit maintenance password when using SPM to perform remote administration via the Remote Access Feature.

Release 4.1 Enhancements

Release 4.1 includes all Release 4.0 functionality plus the enhancements listed below. There are no hardware changes in Release 4.1.

- Coverage Timers Programmed for Individual Extensions Beginning with Release 4.1, coverage timers, which control the duration of the delay before calls are sent to each level of coverage, are changed as follows:
 - The Group Coverage Ring Delay (1-9 rings) is programmed on individual extensions and replaces the Coverage Delay Interval programmed system-wide in previous releases.
 - The Primary Cover Ring Delay (1-6 rings) and Secondary Cover Ring Delay (1-6 rings) programmed on individual extensions replace the Delay Ring Interval programmed system-wide in previous releases.

These enhancements allow the system manager to customize coverage call delivery to match individual extensions' call-handling requirements.

Night Service Coverage Control

Beginning with Release 4.1, a system manager can enable the Night Service Coverage Control option to automatically control the status of telephones programmed with Coverage VMS (Voice Mail System) Off buttons according to Night Service status.

When Coverage Control is enabled and the MERLIN LEGEND Communications System is put into Night Service, all programmed Coverage VMS Off buttons are automatically turned off (LED is off) and all eligible outside calls are sent to the assigned voice messaging system calling group with normal ringing delay. When Night Service is deactivated during the day, all programmed Coverage VMS Off buttons are automatically turned on (LED is on) and voice mail coverage is disabled for outside calls.

Users can override the Coverage VMS Off button status at any time by pressing the programmed Coverage VMS Off button to turn the LED on or off.

Night Service Group Line Assignment

Beginning with Release 4.1, a system manager can assign lines to Night Service groups to control handling of after-hours calls received on individual lines. This capability replaces the automatic assignment to Night Service groups of only those lines that ring on the Night Service operator console. An outside line must be assigned to a Night Service group to receive Night Service treatment.

With this enhancement, Night Service can be activated and deactivated on lines that do not appear on operator consoles (for example, personal lines), and lines appearing at operator positions can be excluded from Night Service.

Forward on Busy

Beginning with Release 4.1, the Forward, Follow Me, and Remote Call Forward features are enhanced to remove the requirement that a call be ringing at an extension before it can be forwarded. With the Forward on Busy enhancement, a call to a station with no available SA (System Access) or ICOM (Intercom) buttons is forwarded immediately to the programmed destination, preventing the caller from hearing a busy signal from the intended call recipient's extension.

Maintenance Testing for BRI Facilities That Are Part of Multiline Hunt Groups (MLHGs)

Beginning with Release 4.1, the NI-1 BRI (National Integrated Services Digital Network-1 Basic Rate Interface) Provisioning Test Tool is enhanced to include testing for BRI facilities that are part of Multiline Hunt Groups (MLHGs).

The NI-1 BRI Provisioning Test Tool is used by Lucent Technologies maintenance personnel on MERLIN LEGEND Communications Systems that include a 800 NI-BRI module. The tool is used during system installation and maintenance to test the functionality of the BRI lines and report analyzed results.

Issue 2

Januarv 1998

Page 14

Release 4.2 Enhancements

Release 4.2 includes all Release 4.1 functionality plus the enhancements listed below. There are no hardware changes or Release 4.2.

 Additional Network Switch interface and Services Options for ISDN Primary Rate Interface (PRI)

Release 4.2 of the system supports connectivity to MCI[®] or local exchange carrier (LEC) PRI services and to the following central office switch types (in addition to the 4ESS[™] and 5ESS switch types that are currently available for AT&T Switched Network Services):

- Nortel[®] DMS[™]-100 Generic BCS 36 for local exchange carrier services
- Nortel DMS-250 Generic MC107 serving the MCI network
- Digital Switch Corporation DEX600E Generic 500-39.30 serving the MCI network

Beginning with Release 4.2, the following MCI PRI and local exchange carrier (LEC) PRI services (along with the AT&T Switched Network Services) can be connected to users of the MERLIN LEGEND Communications System:

- MCI Toll Services for DMS-250 or DEX600E switch type:
 - MCI Prism[®] service for domestic outgoing long-distance and international voice calls; for domestic outgoing 56kbps restricted, 64-kbps unrestricted, and 64-kbps restricted circuit-switched data calls
 - MCI VNet[®] service for incoming and outgoing domestic and voice calls; for 56-kbps restricted, 64-kbps restricted, and 64-kbps unrestricted circuit-switched data calls
 - MCI 800 for domestic, toll-free, incoming voice calls
 - MCI 900 service numbers
- Local Exchange Carrier Services for DMS-100 switch type:
 - DMS Virtual Private Network service for calls between the MERLIN LEGEND Communications System and another communications system (such as another MERLIN LEGEND Communications System)
 - DMS INWATS (Inward Wide Area Telephone Service) for domestic, toll-free, incoming voice calls
 - DMS OUTWATS (Outward Wide Area Telephone Service) for domestic, outgoing, long-distance voice calls
 - DMS FX (foreign exchange) to provide local call rating for calls from the local exchange to the area serviced by the foreign exchange.
 - DMS Tie Trunk to provide private exchange call rating for calls placed on a dedicated central office facility between the MERLIN LEGEND Communications System and another communications system (such as another MERLIN LEGEND Communications System)

Page 15

- Improvements to Station Message Detail Recording (SMDR) and Support for MERLIN LEGEND Reporter Application The SMDR feature is enhanced to provide more details about calling group agent activities and help system managers assess the effectiveness of call centers, in terms of both agent performance and the adequacy of facilities to handle inbound calls. These improvements apply to calling groups that are programmed as Auto Login or Auto Logout type:
 - TALK Field. For Auto Login and Auto Logout calling groups, the TALK field records the amount of time a calling group agent spends on a call.
 - DUR. (DURATION) Field. Call timing begins when a call arrives at the MERLIN LEGEND Communications System and not after a preset number of seconds. This allows the system manager to determine how long a caller waited for an agent's attention.
 - Coding of Calls on Reports. An asterisk (*) appears in the call record when:
 - A call is not answered by an Auto Login or Auto Logout calling group agent and is abandoned while waiting for an agent.
 - b. The call is answered by someone not a member of an Auto Login or Auto Logout calling group.

An exclamation point (!) signals that an Auto Login or Auto Logout agent handled a call that was answered by someone who was not a member of that Auto Login or Auto Logout with Overflow group. An ampersand (&) in the call record indicates that the group's overflow receiver answered the call.

- MERLIN LEGEND Reporter. MERLIN LEGEND Reporter provides basic call accounting system reports for all incoming calls to Auto Login or Auto Logout type calling groups. MERLIN LEGEND Reporter assists in determining the effectiveness of calling group agents, assessing the level of service provided to callers, and ascertaining whether adequate incoming phone lines and agents are available to handle peak call load. The following reports are provided:
 - Organization Detail Report
 - Organization Summary and Trends Report
 - Selection Detail Report
 - Account Code Report
 - Traffic Report
 - Extension Summary Report
 - Data Report
 - Talk and Queue Time Distribution Report
 - Time of Day Report
 - ICLID Call Distribution Report
 - Facility Grade of Service Report

Maintenance Enhancements

- Change to Permanent Error Alarm

Beginning with Release 4.2, the most recent permanent error alarm is not shown on the System Error Log menu screen but is available as an option from that screen. For details, refer to the Maintenance section of the technician guide, Installation, Programming and Maintenance.

- Enhanced Extension Information Report

Beginning with Release 4.2, the Extension Information Report includes the Extension Status (ESS) and supervisory mode for each extension.

Release 5.0 Enhancements

Release 5.0 includes all Release 4.2 functionality plus the enhancements listed below.

Computer Telephony Integration (CTI)

Beginning with Release 5.0, a Passage/Way® Telephony Services CTI link from the MERLIN LEGEND Communications System to a LAN server running Novel® NetWare® software allows Lucent Technologies-certified telephony applications to control MLX and analog multiline telephone (BIS only) operations that are monitored by the applications. The physical connection for the CTI link is an MLX port on a 008 MLX or 408 MLX module on the MERLIN LEGEND Communications System control unit and an ISDN link interface card plugged into the customer's server. The feature is available for Hybrid/PBX mode systems only.

System Requirements for CTI link

Refer to Chapter 2 of the Network Manager's Guide for detailed installation instructions.

The following equipment and software are required:

- An Intel i386, Intel i486, or Pentium class computer with at least 16 megabytes of RAM. Additional memory may be needed if additional applications will be running on the server machine.
- NetWare Version 4.10 or Version 3.12
- 5 megabytes of disk space available on the SYS (system) volume
- Telephony Services for NetWare software, Releases 2.21 or later, installed
- An Eicon/G. Diehl SCOM card for the CTI link
- A free 8- or 16-bit ISA slot for the Eicon/G. Diehl SCOM card
- System software Release 5.0 or later installed on the MERLIN LEGEND Communications system
- The MERLIN LEGEND configured in Hybrid/PBX mode
- An MLX port board (using firmware Version 28 or later, except Version 29) installed in the MERLIN LEGEND

NOTE:

The 008 MLX and 408 MLX modules must have firmware vintage other than 29. If the module has firmware 29, administering a CTI link on the module is prevented. An earlier or later vintage firmware is supported.

- If the MERLIN LEGEND switch has only one MLX port board, you also need System Programming and Maintenance (SPM) software, Version 5.01, to administer the CTI link
- One port on the MLX board is used for the CTI link. This port cannot be a potential operator port (2, 3, 4, 6, 7, and 8 must be available) or a console programming port
- For a NetWare 3.12 installation, ensure that either NWSNUT.NLM, Version 4.11 or later, and TUI.NLM, Version 1.04 or later, is obtained from Novell and installed in the SYS:\SYSTEM directory

NOTE:

To obtain these NLMs from Novell, access either the Novell web site (http://www.novell.com) or the Novell FTP site (ftp.novell.com). First, download IPXRT4.EXE and follow the directions in the associated readme file. Then, download NWSNUT.NLM and TUI.NLM.

- Basic Call Control. A CTI link application on a user's computer can assume basic call control of the user's analog multiline or MLX telephone's SA buttons. Basic call control includes:
 - Answering calls arriving on an SA button
 - Making calls from an SA button
 - Hanging up calls
 - Hold and retrieving a call on hold at the user's extension
 - Conference calls from a DLC or QCC operator

NOTE:

Transfer and 3-way conference, when handled through a CTI link application, provide the original caller's calling number information or other information to the transfer receiver or new conference participant, if the user has screen-pop capability.

Screen Pop. Screen pop occurs when the calling number, called number, or other user-defined identifier (such as an account code that a voice-response unit prompts the caller to dial) is used to display a screen associated with the calling party. For example, Caller ID services can be used to support screen pop on a system that includes a CTI link; using the calling party number as a database key code, information about a caller automatically appears on the user's computer screen when the call arrives at the extension. Depending on the application, screen pop may be available for calls that arrive on line buttons other than SA buttons and/or are answered manually at the telephone rather than by the application.

Screen pop can occur on incoming calls from the following sources:

- Calling group distribution
- ISDN PRI Routing by Dial Plan
- An extension on the MERLIN LEGEND Communications System

Remote Access

NOTE:

In the case of remote access calls, the only information that the application can collect about the caller is the remote telephone number.

- A transfer of a call that was answered by a voice response unit
- A transfer, redirection, or conference of a call that was answered at a DLC or at a QCC

NOTES:

DLCs (Direct-Line Consoles) may use CTI applications. If they do, they perform the same way as other extensions. A DLC assigned to use a CTI link application is a monitored DLC. When a DLC is used as a regular operator console and not assigned as a CTI link extension, it is nonmonitored.

Calls to a QCC non-monitored DLC do not initiate screen pop at the operator position., but when an operator directs a call to an extension using a CTI application, caller information does initiate screen pop.

Calls transferred from Cover buttons on non-monitored DLCs do not initiate screen pop at the destination extension.

HotLine Feature. The Release 5.0 HotLine feature is designed for retail sales, catalogue sales, and other types of businesses and organizations. It is available in all three modes of system operation. The feature allows a system manager to program a single-line telephone extension as a HotLine. When a user lifts the handset at the HotLine extension, the telephone automatically dials the inside extension or outside telephone number programmed as the first Personal Speed Dial number (code 01) for the extension. At HotLine extensions, calls cannot be transferred, put on hold, or conferenced.

Personal Speed Dial codes can be programmed at the extension prior to HotLine assignment (a system programming function). Alternatively, a Personal Speed Dial code can be programmed from the single-line telephone after HotLine operation is assigned. However, because of security considerations, this is a one-time opportunity. Once the Personal Speed Dial number is programmed, any changes to it or any other extension programming must be performed using centralized telephone programming.

Any type of inside or outside line that is normally available to a single-line telephone can be assigned to a HotLine extension. Generally, the HotLine telephone does not receive calls, and its line should be set to No Ring.

SECURITY ALERT:

A HotLine single-line telephone accesses a loop-start line, the line should provide and be programmed for Reliable Disconnect. If it is not, a caller may be able to stay on the line after the initial call and access an outside line.

- Call Center Enhancements. Release 5.0 and later systems include Group Calling features that enhance call center operations.
 - Most Idle Hunt Type. In addition to the Circular (factory setting) and Linear hunt types supported in earlier releases, a third hunt type distributes calling group calls in an order based on which agent has waited the longest since transferring or hanging up on an incoming calling group call. For some applications, this hunt type is more efficient than the circular type because it takes into account the varying duration of calls. The system distributes calls based on when an agent last completed a call, not on when he or she last received one. This hunting method ignores non-calling group calls. For example, if an agent transfers a call that arrived on a line not assigned to the calling group, the calling group member's most-idle status is unaffected.
 - Secondary Delay Announcement Device. The system manager can designate an extension for an optional secondary delay announcement device in addition to the single device for each group that is available in Release 4.2 and earlier systems. One device is the primary device and operates in the same fashion as a single delay announcement device, playing once, as soon as it is available, for the caller who has waited the longest for a calling group agent. If a secondary announcement device is used, it can be set to repeat or play only once for each caller, the factory setting. The system manager programs the time (0-900 seconds) between announcements. This setting controls both the interval between primary and secondary announcement and the interval between repetitions of the secondary announcement if it is set to repeat.

The primary and secondary announcement options, when used together, allow an initial message to play for callers, followed by a repeating announcement that, for example, urges callers to stay on the line and wait for a calling group member.

— Enhanced Calls-in-Queue Alarm Thresholds. Three Callsin-Queue Alarm thresholds can be set to more clearly indicate the real-time status of the queue according to the behavior of programmed Calls-in-Queue Alarm buttons. In earlier releases, only one Calls-in-Queue Alarm Threshold setting is available to activate the LEDs at programmed Calls-in-Queue Alarm buttons for a calling group.

Using all three levels, the system manager sets Threshold 1 to the lowest value, Threshold 2 to a middle value, and Threshold 3 to the highest value. A Calls-in-Queue Alarm button indicates the severity of the alarm conditions in the following ways:

- If the number of waiting calls is less than the value programmed for Threshold 1 or drops below that level, the LED is unlit.
- If the number of waiting calls is greater than the Threshold 1 value but less than the Threshold 2 value, the LED winks.

- If the number of waiting calls is greater than the Threshold 2 value but less than the Threshold 3 value, the LED flashes.
- If the number of waiting calls is greater than the highest value, Threshold 3, the LED lights steadily.

NOTE:

A DSS (Direction Station Selector) button that is used as a Calls-in-Queue Alarm button can only indicate two threshold levels, either by flashing or by lighting steadily. If a calling group must use this type of Calls-in-Queue Alarm button, only two threshold levels should be programmed.

If all three thresholds are set to the same value, the result is one threshold only. If two values are the same, then the result is two alarm levels. The factory setting is one call for all three thresholds.

An external alert only signals when the number of calls in the queue exceeds the programmed Threshold 3 value.

 MLX-5 and MLX-5D Telephones. The MLX-5 nondisplay and the MLX-5D display telephones are compatible with all system releases. The display telephone includes a 2-line by 24-character display, and both telephones come with 5 line buttons.

Release 6.0 Enhancements

Release 6.0 includes all Release 5.0 functionality, plus the enhancements listed below.

Private Networks

In Hybrid/PBX mode systems only, MERLIN LEGEND Communications Systems can be networked with one another or with DEFINITY[®] Enterprise Communications Server (ECS) and ProLogit[™] Communications Systems in private networks. In previous releases, this functionality is available using tie lines, but users handle calls between networked switches as outside calls. In this release, dialing the pool access code is not necessary for a call going from one networked switch to another. Also, delay-start tie trunks or T1 trunks administered as PRI can act as *tandem trunks* to connect networked systems.

Available for Hybrid/PBX mode systems, the private network features of the MERLIN LEGEND Communications System Release 6.0 provide the following advantages for geographically dispersed organizational sites:

Intersystem Calling. In a private network, users on one local system can call extensions on other systems in the network. Release 6.0 can support 2-, 3-, 4-, or 5-digit dial plans. They dial these extensions as inside calls. To implement this function, the system manager programs the extension ranges of remote networked switches to create a non-local dial plan. This programming does not actually affect numbering on the remote system. To correctly set up systems for transparent calling among non-local dial plan extensions, the system manager assigns networking tie and/ or PRI tandem trunks to pools. Then he or she programs as many as 20 patterns, associates with routes, Facility

Restriction Levels (FRLs), digit absorption, and digit prepending. This allows ARS-like routing of non-local dial plan calls. In addition, system managers can control whether calling name, calling number, or both are shown at MLX display telephone for incoming calls across PRI tandem trunks.

- Toll Savings. Private networked trunks may allow you to realize significant cost savings on long-distance and toll calls by performing tandem switching in the following two ways:
 - Callers on a local system, or individuals dialing in to remote access at a local system, can reach the public switched telephone network (PSTN) via outside trunks connected to other systems in a private network, avoiding toll charges or decreasing the cost of toll calls. No special dialing is required. For example, an organization might have a main office in Boston and a subsidiary office in New Jersey, connected by networked private tandem trunks between two systems. A user in the New Jersey office who wishes to make an outside call to the 617 area code (Boston) can do so through a line/trunk connected to the system in Boston. For example, he or she might dial, 916175551211. The local ARS tables would route this call over the private network trunks and use the ARS tables of the remote system in Boston to route this call. The system managers at each end of a private network set up ARS and Remote Access features to implement this functionality.
 - In addition, local organizations or incoming DID calls use private networked trunks to make intersystem calls between networked systems, which may be geographically distant from one another, also resulting in toll savings.
- Service Cost Savings. In addition to toll call saving, there are two ways that organizations can save on service costs incurred from telecommunications providers that provide public switched telephone network access:
 - You order a point to point T1 facility from a service provider, then use system programming to set it up for PRI signalling. As necessary, a service provider can provide amplification on the T1 facility, but does not supply switching services.
 - You can tailor your use of PRI B-channels with drop-andinsert equipment that allows fractional use of B-channels for dedicated data/video communications between systems at speeds greater than 64kbps per channel or 128 kbps for 2B data, while keeping the remaining B-channels for PRI voice traffic. The PRI D-channel must remain active.
 - You can tailor use of T1 channels to support both T1emulated tandem tie service and T1 Switched 56 service for data communications at 56 kbps per channel, allowing 2B data transfers at 112 kbps. You can also use drop-andinsert equipment to provide fractional T1 use.

Issue 2 January 1998

– Voice Mail and Auto Attendant. Networked systems should have their own local voice mail and/or auto attendant applications as well as their own external alerts and Music On Hold sources. However, a single auto attendant can transfer calls throughout the network. It can answer only those calls that arrive on the PSTN facilities of the system where it is connected.

Although many features are available using tie trunks for network connectivity, PRI tandem trunks provide greatly enhanced features and faster call setup. For this reason, PRI is recommended over tie functionality in private networks.

Group Calling Enhancements

Release 6.0 and later systems include Group Calling features that enhance group calling operations.

- Queue Control

The system manager can control the maximum number of calls allowed in the primary calling group queue for calls that arrive on certain facilities often assigned to calling groups. When the number of the calls in queue reaches the programmed maximum, subsequent callers receive a busy signal.

Queue control applies to calls received on the following types of facilities:

- DID (Direct Inward Dialing)
- PRI facilities programmed for dial-plan routing
- All calls transferred from a VMI (voice messaging interface) port
- Dial-in Tie

Queue control also applies to internal calls to a DGC group and calls to a calling group through the QCC.

Internal calls that dial #D or #BDD and are directed to a calling group administered as Position-Busy Backup are eligible for queue control. Calls that come in on a trunk assigned to the Queued Call Console (QCC) are not eligible for queue control if the call is directed to a calling group designated as Position-Busy Backup.

Remote-access calls to a calling group, coverage calls directed to a calling group, calls directed to calling group through QCC Position-Busy backup, and all other outside calls are not eligible for queue control.

– Prompt-Based Overflow

System managers can activate the Prompt-Based Overflow option. This option allows callers waiting in queue and listening to a delay announcement to press the *#* key in order to reach the overflow receiver for the group, which may be the QCC queue or another calling group (including a calling group assigned for a voice mail system).

All three overflow distribution options—based on the number of calls, the time a caller has waited, and according to the caller's prompt—may be used at one time. In this case, timebased and number-of-calls based options take precedence over overflow distribution based on the caller's prompt.

When prompt-based overflow distribution is used, an extra TTR must be provided for each delay announcement device assigned to the associated calling group. The delay announcement informs the caller of the # key option to exit the queue and leave rather than waiting for an agent. If no TTR is available when a calling group call arrives, the call is not sent to a delay announcement extension.

Centrex Transfer via Remote Call Forwarding Centrex Transfer via Remote Call Forwarding can be used in all system modes of operation to send outside calls to a remote telephone number or another Centrex station. In this context, the term *outside calls* refers to calls from outside the communications system, which may originate at extensions in the Centrex system but not connected to the local MERLIN LEGEND Communications System.

An outside call that uses this feature is defined as a call that arrives on an analog Centrex loop-start line at the MERLIN LEGEND Communications System. It may arrive directly or be transferred without consultation or without transfer supervision (in the case of an automated attendant). The forwarding call to the outside number is made on the same line/trunk on which the call arrived, conserving system facilities. The following considerations and rules apply:

- Only outside Centrex calls are forwarded using this feature.
- The system must be equipped with analog loop-start Centrex lines and *all* loop-start lines in the system must be Centrex facilities. Loop-start lines do not have to provide reliable disconnect for use by the Centrex Transfer via Remote Call Forwarding feature.
- To transfer calls outside the Centrex system, the organization must subscribe to a Centrex trunk-to-trunk transfer feature.

Activating Centrex Transfer via Remote Call Forwarding is just like activating regular Remote Call Forwarding and requires that Remote Call Forwarding be enabled for the extension. However, the user dials ***** instead of a dial-out code, and a Pause character may be required after the *****. The Centrex service provider determines whether the Pause is needed.

Pause cannot be originated from a single-line telephone or a remote access user. A multiline telephone user in the local system must enter an authorization code to activate the feature.

A remote access user may activate the feature without using an authorization code. Barrier code requirements do apply, however.

Issue 2

Authorization Codes and Remote Call Forwarding

In Release 6.0 and later Key or Hybrid/PBX mode systems, forwarding features, including Centrex Transfer via Remote Call Forwarding, but excluding Follow Me, can be activated or deactivated at a multiline telephone by entering the authorization code for the extension from which calls are to be forwarded. The user enters the authorization code, then activates or deactivates the forwarding feature in the normal fashion. This is especially useful for a single-line telephone user who must include a Pause character in a Centrex Transfer via Remote Call Forwarding dialing sequence, because the character cannot be dialed at a single-line telephone. It is also useful when activating Call Forwarding or Remote Call Forwarding at phantom stations, or via remote access (e.g. from another switch in the network). No other features can be used by entering an authorization code in this fashion.

Design Benefits

Design Benefits

Modular components allow easy, cost-effective growth in both size and function. For upgrades from the MERLIN LEGEND Communications System, all wiring and analog MERLIN system telephones can be reused. For upgrades from the MERLIN II Communications System, certain trunk and extension modules can also be reused. The modules are 800, 400, 400EM, 012, 008, and 408.

Menu-driven system programming maintains the customer's command of business operations.

Built-in 1200/2400-bps modem allows fast access to the system by customers, Lucent Technologies personnel, or authorized dealers from a remote location for system programming and maintenance.

Flexible mode of operation saves upgrade costs by allowing system configuration in one of three modes: Hybrid/PBX, Key, and Behind Switch. (The default setting on the 3.0 processor board is Hybrid/PBX.)

Connectivity to other systems in the Behind Switch mode optimizes existing resources by allowing the system to work as part of another MERLIN LEGEND Communications System, System 25, System 75, System 85, DEFINITY 75/85, or other communications system. The control unit can connect to another system's control unit via either an off-premises telephone (OPT) line or an analog or digital tie trunk.

Digital 2.048-MHz bus supplies a 64-kbps channel on each of the 216 time slots.

68EC020 Motorola CPU running at 16 MHz with zero wait states provides fast system performance.

Memory data retention saves time by ensuring that system and extension programming information is retained for 5 days, depending on the system configuration, in case of power failure or system shutdown.

Integrated voice and data capabilities allow users to talk while transmitting data at speeds up to 64 kbps.

DS1 interface can be configured for connection of either T1 or PRI for basic call control with the 4ESS or 5ESS PRI service specifications.

Basic Rate interface (BRI) S/T protocol supports premier digital multiline (MLX) telephones with superior display capabilities and supports the ISDN terminal adapter Data Module for the connection of adjuncts.

Environmental Specifications

Environmental Specifications

The control unit requires a regulated environment and can be located in any room or closet that is temperature-controlled and clean. Do not mount the control unit where it will be exposed to direct sunlight.

In addition, the control unit should not be co-located with air conditioning or ventilation units, compressors, fans and blowers, heaters, arc welders, or other machinery that produces electrical interference.

The control unit is mounted on a Lucent Technologies pre-drilled backboard.

Once installed, it is important to keep the control unit site clear of hazards, such as stacked paper or boxes, that block ventilation. Installing any machinery in the vicinity of the control unit should be avoided. If any pollution-producing work (such as sanding or spray painting) is to be done in the area, care should be taken to protect the unit.

The following table gives the environmental specifications for the control unit.

Control Unit

Fully loaded basic carrier

Weight:	45 lb. (20.4 kg)			
Dimensions:	14 in. wide x 23 in. high x 12 in. deep			
	(35.6 cm x 58.4 cm x 30.5 cm)			
Fully loaded 2-carrier system (basic carrier plus 1 expansion carrier)				
Weight:	90 lb. (40.8 kg)			
Dimensions:	25 in. wide x 23 in. high x 12 in. deep			
	(63.5 cm x 58.4 cm x 30.5 cm)			
Fully loaded 3-carrier system (basic carrier plus 2 expansion carriers)				
Weight:	135 lb. (61.2 kg)			
Dimensions:	37 in. wide x 23 in. high x 12 in. deep			
	(94 cm x 58.4 cm x 30.5 cm)			

Mean Time Between Failures

(mean/average time the system is expected to operate before any type of failure occurs)

2.4 years

For a system configured with 24 trunks and 50 stations (extensions)

Issue 2 January 1998

Environmental Specifications

Backboard Mounting Hardware Requirements

This refers to the types of wall construction to which the backboard will be attached

Type of material	Mounting Hardwa
Wood surface	Wood screws
Concrete surface, brick, cinder block	Masonry anchors
Plaster, plasterboard	Toggle bolts
Sheet-metal surface	Sheet-metal screws

Hardware has a combined pullout force of 650 lb. (294.8 kg). When mounting to sheet-metal walls, attach to structural members.

Location

Within 5 ft. (1.5 m) of dedicated AC power outlet (1 plug per carrier) Within 1000 cable ft. (304.8 m) of telephones

Heat Dissipation

Fully loaded basic carrier	500 Btu/hr	(35 cal/sec)	
Fully loaded 2-carrier system	1000 Btu/hr	(70 cal/sec)	
(basic carrier with one expansion carrier)			
Fully loaded 3-carrier system	1500 Btu/hr	(105 cal/sec)	
(basic carrier plus two expansion carriers)			

Power Requirements

Basic carrier	117 VAC	60 Hz -15% to 10%	5.4A
2-carrier	117 VAC	60 Hz -15% to 10%	10.8A
3-carrier	117 VAC	60 Hz -15% to 10%	16.2A

Temperature/Humidity Range

40°-104°F (4°-40°C)

20%-80% relative humidity

Ventilation Clearances

1 in. (2.5 cm) on right and left sides

Radio Frequency Interference, Tolerance

1.0 V/m

Electromagnetic Interference (EMI)

To reduce electromagnetic interference emissions (possible interference problems with handheld telephones), check the date of manufacture of the CPU (517A27) units. If they were manufactured before April 1993, replace them with a later version.

Issue 2 January 1998

Page 27

Mounting Hardware

Power and Grounding

Page 28

A CAUTION:

- For the control unit, do not use an AC outlet that is controlled by a wall switch or some other switch.
- Use an approved ground (AC receptacle for 3-prong plug).
- Do not install the control unit outdoors.
- Do not place the control unit near extreme heat (furnaces, heaters, attics, or direct sunlight).
- Do not expose the control unit to devices that generate electrical interference (such as arc welders or motors).
- Do not place anything on top of carriers.
- Do not install the control unit under any device that may drip fluid, such as an air conditioner.
- Each auxiliary power unit requires one outlet.
- Do not expose the control unit to moisture, corrosive gases, dust, chemicals, spray paint, or similar materials.

Power and Grounding

Proper power and grounding are essential for correct and safe functioning of the system.

Power Specifications

The system control unit plugs into a 117-VAC outlet. To avoid accidental disconnection of the system, this outlet should not be controlled by a wall switch.

Each carrier unit requires its own power supply. Each power supply requires a maximum current of 5.4 amps. Therefore, if expansion carrier units are added to the system, extra AC outlets may be needed.

Grounding Requirements

Proper grounding of the installation site protects the system against the following:

- Lightning
- Power surges
- Power crosses on outside lines/trunks
- Electrostatic discharge (ESD)

The local telephone company is responsible for providing protection of outside lines/trunks at the entrance to the site. The protection should consist of the following:

- Carbon blocks or gas discharge tubes connected to an approved ground
- Adequate bonding of the outside line/trunk protector ground and the power company ground

A WARNING:

An improper ground can result in equipment failures and service outages. Verify that the AC power uses an approved ground for its primary ground, that all voltage-limiting devices are grounded to an approved ground, and that the ground is one of the approved grounds listed below.

Power and Grounding

The following is a list of approved grounds, starting with the most preferred:

Building steel

 Acceptable water pipe, must be a metal, underground water pipe at least 1/2-in. (30.4 cm) in diameter, and in direct contact with the earth for at least 10 ft. (3 m).

- It must be electrically continuous so that the protector ground is connected. (Check for insulated joints, plastic pipe, and plastic water meters that might interrupt electrical continuity.)
- A metallic underground water pipe must be supplemented by the metal frame of the building, a concrete-encased ground, or a ground ring.
- Other local metal underground systems or local underground structures such as tanks and piping systems
- Rod and pipe electrodes, a 5/8-in. (1.6-cm) solid rod or 3/4-in. (1.9-cm) conduit or pipe electrode driven to a minimum depth of 8 ft. (244 cm)
- Plate electrode, a minimum of 2 square ft. (61 square cm) of metallic surface exposed to the exterior soil
- Concrete-encased ground, which must be an electrode, consisting of one of the following:
 - At least 20 ft. (6.1 m) of one or more steel reinforcing rods, each being at least 0.5-in. (1.27 cm) in diameter
 - 20 ft. (6.1 m) of bare copper conductor not smaller than #4 AWG, encased in 2 in. (5 cm) of concrete. This electrode must be located within and near the bottom of a concrete foundation or roofing that is in direct contact with the earth.
 - Ground ring, consisting of at least 20 ft. (6.1 m) of bare copper conductor not smaller than #2 AWG, encircling the building. The ground ring must be in direct contact with the earth and buried at least 2.5 ft. (77 cm) below the earth's surface.

A WARNING:

Do not use a metal underground gas piping system. This is a safety risk.

For most power surges, the following standard grounding requirements provide adequate lightning and surge protection:

- Properly wired/grounded/bonded outside line protectors
- Properly wired/grounded AC outlet
- Properly grounded single-point ground bar
- Properly wired connection between single-point ground and power supplies

Power and Grounding

Additional Power Surge Protection

The 391A1 power supply has built-in AC line protection. This builtin protection handles almost all situations.

Occasionally, additional protection may be needed if the customer is located in a heavy lightning area. A 147A surge protector can be connected to the system to limit surges from the AC lines and outside lines. One 147A protector provides protection for four outside lines. Up to three 146A protectors can be added to the 147A to provide protection for a maximum of 16 outside lines. For more than 16 lines, additional 147A protectors are required.

NOTE:

The 147A protector is usually not needed with the 391A1 power supply. It may be needed with the older 391A power supply module in heavy lightning areas.

Complete installation instructions are provided with the protectors.

Page 31

Control Unit Interfaces

Interface	Applications	Signaling Channel Rate	Audio/ Data Rate
BRI S/T [*]		16 kbps (D 64 kbps (B	ý
	ISDN Terminal Adapter	64 kbps (B) and (D))
DS1	Control unit to the following services: T1 Emulated tie trunk Emulated DID Emulated loop-start Emulated ground-start PRI services ACCUNET [®] switched digital service MEGACOM [®] WATS MEGACOM [®] WATS MEGACOM [®] WATS MEGACOM [®] WATS MEGACOM [®] WATS MUtiQuest [®] 900 number services Connectivity to 5ESS Generic 6/7/8/FTS 2000 Multiple incoming calls to directory number Call-by-Call Service Selection Password handling for FTS2000 SID-ANI as Calling Party Number	64 kbps	
RS-232-0	Control unit to PC connected to system programming port	2400 bps or 1200 bps	2400 bps or 1200 bps
	Control unit to Lucent Technologies model 572 printer, PC with CAS, or CAT connected to RS-232-C port	1200 bps	1200 bps
ATL	Control unit to analog multiline telephone	40kHz	300– 3400 Hz
Tip/Ring	Control unit to single-line telephone, modem, fax, OPT, or voice mail system		

* Call handling derived from CCITT recommendation Q.931.

Network Interface Requirements

Page 32

Network Interface Requirements

Line/Trunk Type	Facility Interface Code	Network Interface
Loop-start	02LS2	RJ11C, RJ14C, RJ21X
Ground-start	02G S2	RJ11C, RJ14C, RJ21X
DID	02RV2-T	RJ11C, RJ14C, RJ21X
OPT	OL13C	RJ11C, RJ14C
Tie	TL31M	RJ2GX
T1	04DU9-B 04DU9-C	RJ48C/X
PRI	04DU9-BN (D4 with AMI)	RJ48C/X
	04DU9-DN (D4 with B8ZS)	
	04DU9-IKN (ESF with AMI)	
	04DU9-ISN (ESF and B8ZS)	
BRI	02B1Q	RJ11C, RJ14C, RJ21

FCC Registration

Registration Number	REN	Туре
AS593M-72682-MF-E	1.5A	Multi-function
AS593M-72914-KF-E	1.5A	Key only
AS5USA-65646-PF-E	1.5A	Hybrid/PBX

DOC Registration

DOC Certification No.	CSA Certification No.	Load No.
230-4095A	LR-56260	6

Hardware and Software Capacities

You can configure the system as a stand-alone unit or as part of a private network. Maximum system capacities are as follows:

- Up to 108 simultaneous two-party conversations IMPORTANT: If more than 108 conversations are in progress at the same time, blocking can occur.
- Up to 80 line/trunk jacks, including loop-start, ground-start, DID, and tie
- Up to 255 extension endpoints that support a combination of the following:
 - Up to 255 physical extension jacks for tip/ring telephones and adjuncts
 - Up to 127 logical digital data ports (through ISDN terminal adapters connected to jacks on the MLX module) providing RS-232 connections to data terminals and personal computers
- System call-handling capability of 3888 hundred call seconds per hour (ccs/hr)
- Up to three 100D DS1 modules, maximum two per carrier
- Up to five 800 NI-BRI modules, maximum three per carrier (Release 4.0 and later)
- One CTI link when operating in Hybrid/PBX mode

The system has a total capacity of 280 jacks (80 outside lines/ trunks plus 200 extensions); however, each MLX module extension jack supports two logical endpoints (extension devices that can operate simultaneously and independently of each other). For example, an MLX telephone with a Multi-Function Module (MFM) plugs into one extension jack, but the jack supports both the telephone and the equipment (for example, a fax or an answering machine) connected to the MFM.

Similarly, although the 100D module has only one jack, it can serve up to 24 endpoints (emulated lines/trunks or PRI lines/trunks). Thus, you can configure the system to connect up to 80 lines/trunks and 255 extension endpoints-a total of 335 endpoints.

The following table, **Table of Hardware and Software Capacities**, lists the hardware and software capacities of the system. Constraining Factors appear with a checkmark (\checkmark) and are explained at the end of the table.

Issue 2 January 1998

Hardware and Software

Page 34

Table of Hardware and Software Capacities

	Limit	Constraining Factor
Account Codes		
Digits per code	16	
Authorization Codes	255	
Digits per code	11	
Allowed/Disallowed Lists		
Number of lists	8	
Entries per list	10	
Digits per entry	7	
Automatic Route Selection (ARS)		
Number of ARS tables	16	
Subpatterns per table	2	
Routes per subpattern	6	
Entries per table	100	
Entries across all tables	1600	
Default tables	4	
Callback calls in queue	64	
Calling Groups		
Number of groups	32	
Members per group	20	1
Total agents and supervisors	200	
Total supervisors	8	
Groups per member	1	
Delay announcements per system	32	
Primary delay announcements per group	10	
Secondary delay announcements per group	1	
Groups per delay announcement	32	
External alerts per group	1	
Coverage groups per group	1	
Carriers	3	
Line/trunk and extension module slots per basic carrier	5	1
Line/trunk and extension module slots per expansion carrier	6	
Maximum slots available for line/trunk and extension modules	17	
Coverage Groups		
Number of groups	30	
Senders per group	255	1
Groups per sender	1	
Receiver buttons per group	8	
Groups per QCC receiver	30	

Table of Hardware and Software Capacities (continued)

Hardware and Software

	Limit C	onstrainin Factor
CTI Link	1	1
Direct Inward Dialing		
Number of blocks	2	
Number of trunks	80	
Data Hunt Groups		
Number of groups	32	
Members per group	20	
Groups per member	1	
Directories		
System Directory	1	
Listings	130	
Extension Directory	1	
Listings	200	
Personal Directory (MLX-20L only)	48	
Listings	50	
100D Module (maximum 2 per carrier)	3	
800 NI-BRI Module	5	
(maximum 3 per carrier)		
Endpoints (devices)	255	
Extensions		
Total physical jacks	200	
Total endpoints	255	
Fax machines with Message Waiting	16	1
Lines/Trunks	80	
Night Service		
Groups	8	
Members per group	255	
Calling groups per group	1	
Groups per member	8	
Emergency Allowed List entries	10	
System Operating Consoles		
Direct-line consoles (DLCs)		
MLX-20L or MLX-28D	8	1
BIS-22D, BIS-34D, or MERLIN II Sys-		
tem Display Consoles	8	1
QCCs	4	1
DSSs	16	1
Combination of DLCs plus QCCs	8	
Number of consoles per module	2	
Park codes (number of codes)	8	
Personal Lines	64	

Table of Hardware and Software Capacities (continued)

Hardware and Software

	Limit C	Constraining Factor
Pool Buttons	64	
Ports (not simultaneously)		
Total extensions (dialable)	280	
Voice and Data (physical pools)	200	
Voice Announce to Busy extensions	127	
Voice-Mail interface (VMI)	20	1
ISDN Terminal Adapter	127	
Paging	3	
Delay announcements	32	
Remote Access		
Number of barrier codes	16	
Digits per code, systemwide	4–11	
Shared System Access Buttons		
Number of buttons per principal extension		
	27	
Speed Dial		
Personal Speed Dial		1
Entries per telephone	24	
Entries per system	1200	
Digits per entry	28	
System Speed Dial		
Entries per system	130	
Digits per entry	40	
System Programming Equipment		1
MLX-20L	1	
RS-232 jack for PC with SPM	1	
Modem (built in processor module)	1	
Telephones (not simultaneously)		
Analog multiline		
Without Voice Announce to Busy	136	1
With Voice Announce to Busy	68	1
MLX-20L	48	1
All other MLX telephones		
(with/without ISDN terminal adapter/	107	,
MFM) Single line	127	× /
Single-line	200	× /
Power failure transfer	20	/ / /
Traffic (100 call seconds/hr/system)	3888	<u> </u>
Two-party conversations	108	✓
Voice-messaging systems	24	

Hardware and Software

Page 37

Constraining Factors

This section describes the constraining factors that limit the capabilities supplied in the table above.

Calling Groups

Members of groups. QCCs cannot be members of calling groups because the QCC position is set up as a system operator and has its own queue that is different from the group's queue.

Carriers

The first slot of the basic carrier is used for the processor module.

Coverage Groups

Senders per group. QCCs cannot be senders because they do not have coverage available and use Position-Busy instead.

CTI Link

One CTI link is supported in Hybrid/PBX mode only.

Fax machines with Message-Waiting

The system can support more than 16 fax machines, but those in excess of 16 cannot use fax message-waiting indication.

System Operator Consoles

DLCs. Two consoles are allowed for each MLX or analog module, with a maximum of eight per system. Up to two DSSs can be attached to an MLX operator console, and one is built into the MERLIN II System Display Console.

QCCs. Two consoles are allowed for each MLX module with a maximum of four per system.

Ports (not simultaneously)

Voice-Mail interface. Although the system software supports up to 24 VMI ports, all the VMI ports must be in the same calling group, and the maximum number of extension in a calling group is 20.

Speed Dial

Personal Speed Dial. Single-line and 5- or 10-button telephones.

System Programming Equipment

Remote access overrides on-site programming except during backup or restore.

Telephones (not simultaneously)

Analog multiline with/without Voice Announce to Busy. 17 slots x 8 ports/board.

MLX-20L. RAM limit and the total includes the MLX-20L telephone used for system programming.

All other MLX telephones. RAM limit. An MFM and a ISDN terminal adapter cannot be connected to the same telephone (including the MLX-20L) at the same time.

Single-line. RAM limit

Power failure transfer. 1 for each 4 LS/GS line/trunk jacks.

Traffic (100 call seconds/hr/system)

Assumes 20 percent internal traffic.

Two-party conversations

216 time slots.

Ordering Codes

Ordering Codes

Component	PEC	Comcode	App. Code
Control Unit			
MERLIN LEGEND R6 Control Unit	6140-CU6		
Power Supply Module		107184848	391A3
Translation Card		107779878	10A2
SPM-DOS		108096132	
R6.0 Processor		108111824	517K33
Backplane/Basic Housing			
and Carrier		108059304	403J Wall
CU Cover (Attribute: COV01)		106905953	18A
Empty Module (Attribute: MDL01)		107005720	
Customer Ref. CD-ROM*		108136136	555-660-800
R6.0 Customer Ref. Paper			
Manuals [†] (Attribute: DOC51)		108168444	555-660-100
R6.0 Network Ref. Paper			
Manual (Attribute: NRD01)		108136011	555-660-150
MERLIN LEGEND Upgrade—			
M II to R6	6141-115A		
Translation Card		107779878	10A2
SPM-DOS		108096132	
SPM–UNIX for IS		108096140	
R6.0 Processor		108111824	517K33
Customer Ref. CD-ROM*		108136136	555-660-800
R6.0 Customer Ref. Paper			
Manuals† (Attribute: DOC51)		108168444	555-660-100
R6.0 Network Ref. Paper			
Manual (Attribute: NRD01)		108136011	555-660-150
MERLIN LEGEND Upgrade—			
R1/R2 to R6	6141-116A		
Translation Card		107779878	10A2
SPM-DOS		108096132	
SPM–UNIX for IS		108096140	
R6.0 Processor		108111824	
Customer Ref. CD-ROM*		108136136	555-660-800
R6.0 Customer Ref. Paper			
Manuals† (Attribute: DOC51)		108168444	555-660-100
R6.0 Network Ref. Paper		100120011	EEE 000 4E0
Manual (Attribute: NRD01)		108136011	555-660-150
MERLIN LEGEND Upgrade—	0444 4474		
R3/R4/R5 to R6	6141-117A	400444000	4004
Forced Install Card (Attr: FRC01)		108111832	10G1
SPM-DOS		108096132	
SPM-UNIX for IS		108096140	
Customer Ref. CD-ROM*		108136136	555-660-800
R6.0 Customer Ref. Paper		100160444	EEE 660 100
Manuals† (Attribute: DOC51)		108168444	555-660-100
R6.0 Network Ref. Paper Manual (Attribute: NRD01)		108136011	555-660-150
		100100011	000-100

* The R6.0 Customer Reference CD-ROM contains *Feature Reference*, System Programming, System Manager's Guide, and Network Reference.

† The R6.0 Customer Reference Manuals package contains Feature Reference, System Programming, and System Manager's Guide.

Ordering Codes

Ordering Codes (continued)

MERLIN LEGEND MLX/012 T/R Bundle 6140-P6C Power Supply 107184848 391A3 Translation Card 107779878 10A2 SPM-DOS 108096132 R6.0 Processor 108111824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod. (QTY: 2) 107044851 517B29 012 T/R Module w/Ring Gen. 107989584 517J13 (28 Customer Ref. CD-ROM 108136136 555-660-80 R6.0 Customer Ref. Paper Manuals ¹ (Attribute: DOC51) 108168444 555-660-10 R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-10 MERLIN LEGEND MLX/ATL Bundle 6140-P6D 6140-P6D Power Supply 107184848 391A3 555-660-10 Translation Card 107778878 10A2 59H–DOS SPM-DOS 108096132 10A2 59H–303 10A2 SPM-DOS 108096132 10A2 517K33 38ackplane 10020593	le
Bundle 6140-P6C Power Supply 107184848 391A3 Translation Card 107779878 10A2 SPM-DOS 108096132 8 R6.0 Processor 108111824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 1060905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod. (QTY: 2) 107044851 517B29 012 T/R Module w/Ring Gen. 107989584 517J13 (28 Customer Ref. CD-ROM 108168444 555-660-40 R6.0 Customer Ref. Paper Manuals ⁺ (Attribute: DOC51) 108168444 555-660-10 R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-10 R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-10 R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-10 R6.0 Processor 10811824 517K33 391A3 Translation Card 107779878 10A2 597-660-10 SPM-DOS 108096132 1082 <td></td>	
Power Supply 107184848 391A3 Translation Card 107778878 10A2 SPM-DOS 108096132 17K33 R6.0 Processor 108111824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod. (QTY: 2) 107044851 517B29 012 T/R Module w/Ring Gen. 107989584 517J13 (28 Customer Ref. CD-ROM 108136136 555-660-10 R6.0 Customer Ref. Paper Manuals ⁺ (Attribute: DOC51) 108168444 555-660-10 Manuals (Attribute: NRD01) 108136011 555-660-10 Menuals * (Attribute: NRD01) 108136011 555-660-10 Power Supply 107184848 391A3 Translation Card 107779878 10A2 SPM-DOS 108096132 517	
Translation Card 107779878 10A2 SPM-DOS 108096132 108096132 R6.0 Processor 108111824 517K33 Backplane 10809533 18A CU Cover (Attribute: COV01) 106095953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod. (QTY: 2) 107044851 517B29 012 T/R Module w/Ring Gen. 107898544 517J13 (28 Customer Ref. CD-ROM 108136136 555-660-10 R6.0 Customer Ref. Paper Manuals [†] (Attribute: DOC51) 108168444 555-660-10 R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-10 Menuals [†] (Attribute: NRD01) 108136011 555-660-10 R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-10 R6.0 Network Ref. Paper 107184848 391A3 Translation Card 107779878 10A2 SPM-DOS 108096132 R6.0 Processor 108111824 517K33 Backplane 10811824 517K33 Backplane 1080593304 1331 Wall CU Cover (At	
SPM-DOS 108096132 R6.0 Processor 108111824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod. (QTY: 2) 107044851 517B29 012 T/R Module w/Ring Gen. 107989584 517J13 (28 Customer Ref. CD-ROM 108136136 555-660-80 R6.0 Customer Ref. Paper Manuals ¹ (Attribute: DOC51) 108168444 555-660-16 MERLIN LEGEND MLX/ATL Bundle 6140-P6D 6140-P6D Power Supply 107184848 391A3 17ranslation Card 107779878 10A2 SPM-DOS 108096132 108096132 517K33 Backplane 108159304 403J Wall CU Cover (Attribute: COV01) 106905953 18A 517K33 Backplane 108096533 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 105351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80 <td></td>	
R6.0 Processor 108111824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod. (QTY: 2) 107044851 517B29 012 T/R Module w/Ring Gen. 107989584 517J13 (28 Customer Ref. CD-ROM 108168444 555-660-40 R6.0 Customer Ref. Paper Manuals ¹ (Attribute: DOC51) 108168444 555-660-10 R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-10 R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-10 Power Supply 107184848 391A3 17ranslation Card 107779878 10A2 SPM-DOS 108096132 R6.0 Processor 108111824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 10744851 517B29 008 ATL Module 105351092 517B3 55-660-80	
Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod. (QTY: 2) 107044851 517B29 012 T/R Module w/Ring Gen. 107989584 517J13 (28 Customer Ref. CD-ROM 108136136 555-660-80 R6.0 Customer Ref. Paper manuals ⁺ (Attribute: DOC51) 108168444 555-660-10 R6.0 Network Ref. Paper manual (Attribute: NRD01) 108136011 555-660-10 MERLIN LEGEND MLX/ATL Bundle 6140-P6D 55-660-10 Power Supply 107184848 391A3 Translation Card 107778878 10A2 SPM-DOS 108096132 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 10744851 517B29 08A ATL Module 105351092 517B3 55-660-80 608	
CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod. (QTY: 2) 107044851 517B29 012 T/R Module w/Ring Gen. 107989584 517J13 (28) Customer Ref. CD-ROM 108136136 555-660-80 R6.0 Customer Ref. Paper 108136131 555-660-10 R6.0 Network Ref. Paper Manuals [†] (Attribute: NRD01) 108136011 555-660-10 R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-10 MERLIN LEGEND MLX/ATL Bundle 6140-P6D 10779878 10A2 SPM-DOS 108096132 108096132 1082 1082 R6.0 Processor 10811824 517K33 1082 1083 Backplane 108059304 4033 Wall 102 10705720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 106351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80 680 680 680	
Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod. (QTY: 2) 107044851 517B29 012 T/R Module w/Ring Gen. 107989584 517J13 (28 Customer Ref. CD-ROM 108136136 555-660-80 R6.0 Customer Ref. Paper 108136131 555-660-10 Manuals [†] (Attribute: DOC51) 108136011 555-660-10 R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-10 MERLIN LEGEND MLX/ATL Bundle 6140-P6D 107184848 391A3 Translation Card 107718878 10A2 SPM-DOS 108096132 R6.0 Processor 10811824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A 17829 008 ATL Module 10705720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 105351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80 680	
408 GS/LS/MLX Mod. (QTY: 2) 107044851 517B29 012 T/R Module w/Ring Gen. 107989584 517J13 (28 Customer Ref. CD-ROM 10813613 555-660-80 R6.0 Customer Ref. Paper 108168444 555-660-10 Manuals [†] (Attribute: DOC51) 108168444 555-660-10 R6.0 Network Ref. Paper 108136011 555-660-10 Manual (Attribute: NRD01) 108136011 555-660-10 MERLIN LEGEND MLX/ATL Bundle 6140-P6D Power Supply 107184848 391A3 Translation Card 107779878 10A2 SPM-DOS 108096132 108096132 R6.0 Processor 10811824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 108361302 555-660-80 55-660-80	
012 T/R Module w/Ring Gen. 107989584 517J13 (28 Customer Ref. CD-ROM 108136136 555-660-80 R6.0 Customer Ref. Paper 108168444 555-660-10 Manuals [†] (Attribute: DOC51) 108168444 555-660-10 R6.0 Network Ref. Paper 108136011 555-660-10 Manual (Attribute: NRD01) 108168444 555-660-10 MERLIN LEGEND MLX/ATL 108136011 555-660-10 Bundle 6140-P6D 108096132 Power Supply 107184848 391A3 Translation Card 107779878 10A2 SPM-DOS 108096132 108096132 R6.0 Processor 10811824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 10744851 517E29 008 ATL Module 108361302 555-660-80 555-660-80 008 Coll S/MLX Mod (QTY: 2) 10744851 555-660-80 008 ATL Module 108316136 555-660-	
Customer Ref. CD-ROM 108136136 555-660-80 R6.0 Customer Ref. Paper 108168444 555-660-10 Manuals [†] (Attribute: DOC51) 108168444 555-660-10 R6.0 Network Ref. Paper 108136101 555-660-10 Manual (Attribute: NRD01) 108136011 555-660-10 MERLIN LEGEND MLX/ATL 108136011 555-660-10 Bundle 6140-P6D 107184848 391A3 Translation Card 107779878 10A2 SPM-DOS 108096132 17K33 Backplane 108111824 517K33 Backplane 108059533 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 10744851 517E39 08A SL Module 08351092 517B3 555-660-80 084 GS/LS/MLX Mod (QTY: 2) 107044851 555-660-80 084 GS/LS/MLX Mod UPY: 2) 107044851 555-660-80 084 GS/LS/MLX Mod UPY: 2) 107044851 555-660-80)
R6.0 Customer Ref. Paper Manuals [†] (Attribute: DOC51) 108168444 555-660-10 R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-10 MERLIN LEGEND MLX/ATL Bundle 6140-P6D 555-660-10 Power Supply 107184848 391A3 Translation Card 10779878 10A2 SPM-DOS 108096132 108096132 R6.0 Processor 10811824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 1063361092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80	·
Manuals [†] (Attribute: DOC51) 108168444 555-660-10 R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-10 Bundle 6140-P6D 555-660-10 Power Supply 107184848 391A3 Translation Card 107779878 10A2 SPM-DOS 108096132 86.0 Processor 10811824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517E39 008 ATL Module 10836102 555-660-80 555-660-80	0
R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-15 MERLIN LEGEND MLX/ATL Bundle 6140-P6D 555-660-15 Power Supply 107184848 391A3 Translation Card 107779878 10A2 SPM-DOS 108096132 108096132 R6.0 Processor 108159304 403J Wall CU Cover (Attribute: COV01) 106095953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 108361302 555-660-80 555-660-80	0
Manual (Attribute: NRD01) 108136011 555-660-15 MERLIN LEGEND MLX/ATL Bundle 6140-P6D 575-660-15 Power Supply 107184848 391A3 Translation Card 107779878 10A2 SPM—DOS 108096132 17K333 Backplane 108111824 517K33 Backplane 108059533 18A CU Cover (Attribute: COV01) 106095953 18A Empty Module (Attr: MDL01) 107005720 17B29 408 GS/LS/MLX Mod (QTY: 2) 10535102 517B3 08A TL Module 10535102 555-660-80 Customer Ref. CD-ROM* 108136136 555-660-80	
MERLIN LEGEND MLX/ATL 6140-P6D Power Supply 107184848 391A3 Translation Card 107779878 10A2 SPM-DOS 108096132 108096132 R6.0 Processor 108111824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 105351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80	0
Bundle 6140-P6D Power Supply 107184848 391A3 Translation Card 107779878 10A2 SPM-DOS 108096132 108096132 R6.0 Processor 10811824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005700 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 105351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80	
Translation Card 107779878 10A2 SPM-DOS 108096132 108096132 R6.0 Processor 108111824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY:2) 107044851 517B29 008 ATL Module 105351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80	
Translation Card 107779878 10A2 SPM-DOS 108096132 108096132 R6.0 Processor 108111824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY:2) 107044851 517B29 008 ATL Module 105351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80	
R6.0 Processor 108111824 517K33 Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 105351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80	
Backplane 108059304 403J Wall CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 105351092 517B3 555-660-80 Customer Ref. CD-ROM* 108136136 555-660-80	
CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 105351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80	
CU Cover (Attribute: COV01) 106905953 18A Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 105351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80	
Empty Module (Attr: MDL01) 107005720 408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 105351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80	
408 GS/LS/MLX Mod (QTY: 2) 107044851 517B29 008 ATL Module 105351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80	
008 ATL Module 105351092 517B3 Customer Ref. CD-ROM* 108136136 555-660-80	
	0
R6.0 Customer Ref. Paper	
Manuals† (Attribute: DOC51) 108168444 555-660-10	0
R6.0 Network Ref. Paper	
Manual (Attribute: NRD01) 108136011 555-660-15	0
MERLIN LEGEND 016/ATL/MLX	
Bundle 6140-P6F	
Power Supply 107184848 391A3	
Translation Card 107779878 10A2	
SPM-DOS 108096132	
R6.0 Processor 108111824 517K33	
Backplane 108059304 403J Wall	
CU Cover (Attribute: COV01) 106905953 18A	
Empty Module (Attr: MDL01) 107005720	
408 GS/LS/MLX Module 107044851 517B29	
408 GS/LS/ATL Module 107091407 517D26	
016 T/R Module 107856551 517C34	
Customer Ref. CD-ROM* 108136136 555-660-80	0
R6.0 Customer Ref. Paper Manuals† (Attribute: DOC51) 108168444 555-660-10	0
R6.0 Network Ref. Paper Manual (Attribute: NRD01) 108136011 555-660-15	0

* The R6.0 Customer Reference CD-ROM contains *Feature Reference*, System Programming, System Manager's Guide, and Network Reference.

† The R6.0 Customer Reference Manuals package contains Feature Reference, System Programming, and System Manager's Guide.

January 1998

Page 39

Issue 2

Ordering Codes

Page 40

Ordering Codes (continued)

Component	PEC	Comcode	App. Code
MERLIN LEGEND 016/MLX Bundle	6140-P6G		
Power Supply		107184848	391A3
Translation Card		107779878	10A2
SPM-DOS		108096132	
R6.0 Processor		108111824	517K33
Backplane		108059304	403J Wall
CU Cover (Attribute: COV01)		106905953	18A
Empty Module (Attr: MDL01)		107005720	
408 GS/LS/MLX Module		107044851	517B29
016 T/R Module		107856551	517C34
Customer Ref. CD-ROM*		108136136	555-660-800
R6.0 Customer Ref. Paper			
Manuals [†] (Attribute: DOC51)		108168444	555-660-100
R6.0 Network Ref. Paper			
Manual (Attribute: NRD01)		108136011	555-660-150
MERLIN LEGEND DS1 CSU	6140-P6I		
Bundle			
Power Supply		107184848	391A3
Translation Card		107779878	10A2
SPM-DOS		108096132	
R6.0 Processor		108111824	517K33
Backplane		108059304	403J Wall
CU Cover (Attribute: COV01)		106905953	18A
Empty Module (Attr: MDL01)		107005720	
T1 ESF CSU		107564510	
DS1 Module		107533853	517E15
DB15-D515 Screw Slide Latch		107369324	
CJ48M-RJ48M Cable		107369274	
Customer Ref. CD-ROM*		108136136	555-660-800
R6.0 Customer Ref. Paper			
Manuals† (Attribute: DOC51)		108168444	555-660-100
R6.0 Network Ref. Paper Manual (Attribute: NRD01)		108136011	555-660-150

* The R6.0 Customer Reference CD-ROM contains Feature Reference, System Programming, System Manager's Guide and Network Reference

 System Programming, System Manager's Guide, and Network Reference.
 The R6.0 Customer Reference Manuals package contains Feature Reference, System Programming, and System Manager's Guide.

Ordering Codes

Ordering Codes (continued)

Ordering Codes (continued)			
Component	PEC	Comcode	App. Code
MERLIN LEGEND DS1 DSU/CSU	6140-P6J		
Bundle			
Power Supply		107184848	391A3
Translation Card		107779878	10A2
SPM-DOS		108096132	
R6.0 Processor		108111824	517K33
Backplane		108059304	403J Wall
CU Cover (Attribute: COV01)		106905953	18A
Empty Module (Attr: MDL01)		107005720	
T1 DSU/CSU		107563983	
DS1 Module		107533853	517E15
DB15-D515 Screw Slide Latch		107369324	
CJ48M-RJ48M Cable		107369274	
CA Assembly DR		107369340	
MTG-DR Bracket		107369803	
Customer Ref. CD-ROM*		108136136	555-660-800
R6.0 Customer Ref. Paper			
Manuals [†] (Attribute: DOC51)		108168444	555-660-100
R6.0 Network Ref. Paper			
Manual (Attribute: NRD01)		108136011	555-660-150
MERLIN LEGEND 012 to 016 T/R			
Trade-in Package (Inactive)			
016 T/R Module		107533887	517A34
R6.0 Customer Ref. Paper		400400444	555 000 400
Manuals†		108168444	555-660-100
MERLIN LEGEND MLX/ATL/012			
Package	6140-P3E		
R3.1 Processor		107752693	
Backplane		107007114	
Power Supply		107184848	
Translation Card		107245243	
408 GS/LS/MLX Module		107044851	517B29
012 T/R Module w/Ring Gen.		107438939	517H13
408 GS/LS/ATL Module		107044877	517C26
R6.0 Customer Ref. Paper			
Manuals†		108168444	555-660-100
MERLIN LEGEND Control Unit	6140-CU3		
Power Supply		107184848	391A3
R3.1 Processor		107752693	517D33
Translation Card		107245243	10A1
Backplane		107007114	403G
R3.0 Customer Ref. Manuals*		107713679	

* The R6.0 Customer Reference CD-ROM contains Feature Reference, System Programming, System Manager's Guide, and Network Reference.

† The R6.0 Customer Reference Manuals package contains Feature Reference, System Programming, and System Manager's Guide.

Issue 2 January 1998

Issue 2 January 1998

Ordering Codes

Page 42

Ordering Codes (continued)			
Component	PEC	Comcode	App. Code
MERLIN LEGEND Upgrade—			
R1/R2 to R3 (Inactive)			
R3.1 Processor		107752693	517D33
Translation Card		107245243	10A1
SPM—UNIX		107741266	
SPM—DOS		107741258	
R3.0 Customer Ref. Manuals		107713679	
MERLIN LEGEND Upgrade—			
M II to R3 (Inactive)			
R3.1 Processor		107752693	517D33
Blank Backup (Translation)			
Card		107245243	10A1
Kit of Parts (Cover Labels and			
Ferrite Cores)		107005027	D182764
R3.0 Customer Ref. Manuals		107713679	
MERLIN LEGEND R3 to R3.1 Upgrade (Inactive)			
Forced Installation Card		107752677	10B2
Doc Release Notes		107747479	TOBE
		101141410	
Blank PCMCIA Backup/Restore Card	61501	107245243	10A1
·		107243243	
Expansion Unit	61490		
Expansion Wall Mount with			
Top/Front Cover		107007122	
Power Supply Module		107184848	
Top \ Front Cover (Choose One)		106905953	18A
Cov99 [*] (No Covers)			
Cov01 (One Top/One Front)			
Cov02 (Two Top/Two Front)			
Empty Module (Choose One)		107005720	19A
MOD90* (No Module)			
MOD01 (One Module)			
Kit of Parts (Cover Labels and			
Ferrite Cores. Not in PEC		107005007	B 40070 4
61490)		107005027	D182764
Plastic Backboard Hardware			
Template		847009206	
Backboard (31.5" x 27")		847007523	
Shipping Container		847087376	
Shipping Tray		847087392	
Shipping Insert (pair)		847087384	
Network X-Conn: RJ-21X		403613003	
Station X-Conn: BR2580-66 Block		405464777	

* Default

Ordering Codes

Ordering Codes (continued)

Component	PEC	Comcode	App. Code
Line/Trunk and Extensi			
008 (ATL)	61485	105351092	517B3
008 OPT + Ring Generator	61479	107321192	517D28A
012(T/R)	61487	107438939	517H13
012 (T/R) + Ring Generator	61494	107989584	517J13
016(T/R) with 4 TTRs	61507	107824948	517B34
100D(DS1)	61491	105512438	517C15
800 NI-BRI	61510	107731127	517A35
400EM (tie trunk)	61492	105311401	517A14
400 GS/LS/TTR	61483	107044869	517C18
408 GS/LS	61481	107091407	517D26
408 GS/LS-MLX	61493	107044851	517B29
800 DID with 2 TTRs	61488	107731986	517E20
800 GS/LS	61484	107091381	517C19
800 GS/LS-ID ICL with 4	61502	106975584	517A31
TTRs	01302	1009/3304	317431
Vintage Line/Trunk and	Extension	Modules	
408 LS/ATL	61482	105512495	517C1
Inactive Vintage Line/Trunk	and Extensi	on Modules	
008 MLX		105628010	517A21
400 (with TTRs)		105408892	517B12
800 LS		105351100	517B4
Telephones			
MLX Telephones			
MLX-5 [©]			
English (black)	3156-0BB	107894719	7712D05D-003
English (white)	3156-0BW	107894727	7712D05D-264
MLX-5D [©]			
	2450 000	107894735	7712D06D-003
English (black)	3156-0DB		
English (white) MLX-10	3156-0DW	107894743	7712D06D-264
	2450.020	107108722	7712D01D-003
English (black)	3156-02B		
English (white)	3156-02W	107108748	7712D01D-264
French (black)	3156-F2I	107108797	7712D01D(29)-003
French (white)	3156-F2I	107108789	7712D01D(29)-264
Spanish (black)	3156-S2I	107108755	7712D01D(22)-003
Spanish (white) MLX-10D	3156-S2I	107108771	7712D01D(22)-264
	0450.000	407400070	77400000 000
English (black)	3156-03B	107108870	7712D02D-003
English (white)	3156-03W	107108888	7712D02D-264
French (black)	3156-F3I	107108938	7712D02D(29)-003
French (white)	3156-F3I	107108920	7712D02D(29)-264
Spanish (black)	3156-S3I	107108904	7712D02D(22)-003
Spanish (white)	3156-S3I	107108912	7712D02D(22)-264
MLX-10DP			
English (black)	3156-06B	107108946	7712D04D-003
English (white)	3156-06W	107108953	7712D04D-264

Issue 2 January 1998

Issue 2 January 1998

Ordering Codes

Ordering Codes (continued)

Hungarian (white)

Page 44

Component	PEC	Comcode	App. Code
Telephones (continued)	1		
MLX Telephones (continued	d)		
MLX-16DP [©]			
English (black)	3156-07B	106922271	7715D01D-003
English (white)			7715D01D-264
Spanish (black)	3156-S7I		7715D01D(22)-003
Spanish (white)	3156-S7I		7715D01D(22)-264
French (black	3156-F7I		7715D01D(29)-003
French (white)	3156-F7I		7715D01D(29)-264
East. Europe (black)			7715D01D(30)-003
East. Europe (white)	3156-EE7		7715D01D(30)-264
MLX-20L			
English (black)	3156-05B	107108979	7713D01D-003
English (white)			7713D01D-264
French (black)	3156-F5I		7713D01D(29)-003
French (white)	3156-F5I		7713D01D(29)-264
Spanish (black)	3156-S5I		7713D01D(22)-003
Spanish (white)	3156-S5I		7713D01D(22)-264
MLX-28D	0.00 00.		
English (black)	3156-04B	107115800	713D02D-003
English (white)			713D02D-264
French (black)	3156-F4I		7713D02D(29)-003
French (white)	3156-F4I		7713D02D(29)-264
Spanish (black)	3156-S4I		7713D02D(22)-003
Spanish (white)	3156-S4I		7713D02D(22)-264
MLX Secure Telephones	0100 041	100010001	11100020(22) 204
MLX-10DS			
English (black)	3156-035	107185076	7712D02D1-003
MLX-28DS	0100 000	101100010	111200201 000
English (black)	3156-04S	107185050	7713D02D1-003
MLX-20LS	0.000.0.0		
English (black)	3156-058	107185068	7713D01D1-003
Fiber Interface Card	0.000000	101 100000	
with Ring Generator	61393	406981217	93030.2 FIB INT PRN
Chassis with Power	01000	400001211	
Supply, Blank Cover	6139-SES	406981225	93030.8C MINI
800 LS Card	61394		903030.3 2 WIRE PRN
Inactive MLX Telephones	01004	400001241	
MLX-5			
French (black)		107926834	7712D05D(29)-003
French (white)			7712D05D(29)-264
Spanish (black)			7712D05D(22)-003
Spanish (white)			7712D05D(22)-005
Hungarian (black)			7712D05D(30)-003
Hungarian (white)			7712D05D(30)-264
MLX-5D		101 020000	11120000(00)-204
French (black)		107026801	7712D06D(29)-003
French (white)			7712D06D(29)-003 7712D06D(29)-264
Spanish (black)			7712D06D(29)-264
Spanish (white)			7712D06D(22)-003
Hungarian (black)			7712D06D(22)-264 7712D06D(30)-003
Hungarian (black)		10/920933	11120000(30)-003

107926941 7712D06D(30)-264

Ordering Codes

Ordering Codes (continued)

Component	PEC	Comcode	App. Code	
Telephones (continued)				
Analog Multiline Telep	hones (black))		
BIS-10	3165-10B	107137671	7313HO1C-003	
BIS-22	3166-22B	107137689	7314HO1C-003	
BIS-22D	3166-DSB	107623449	7315HO1F-003	
BIS-34D	3167-DSB	107635476	7317HO1F-003	
Inactive Analog Multili	ne Telephone	s (black)		
MLC-5		105515332	7312HO1C-003	
5-Button		105217426	Z7302H01D-003	
10-Button		106641079	Z7303H01D-003	
10-Button HFAI		106641053	Z7309H01C-003	
34-Button Deluxe		106641046	Z7305H02D-003	
34-Button BIS		106641087	Z7305H03D-003	
34-Button		106641061	Z7305H01B-003	
34-Button BIS/DIS		106641095	Z7305H04C-003	
MERLIN PFC™ (ATL)		106681562	SET COMM 50A	
PFC paper		406956367		
Single-Line Telephone	S			
8110M Analog Voice	3193-001			
Black		107535841	8110A01D-003 811	
Kit (4 Black Sets)		107538399	8110A01D-003	
White		107535858	8110A01D-264 811	
Kit (4 White Sets)		107538401	8110A01D-264	
8102M Analog Voice	3192-001			
Black		107538357	8102A01C-003 810	
Kit (4 Black Sets)		107538373	8102A01C-003	
White		107538365	8102A01C-264 810	
Kit (4 White Sets)		107538381	8102A01C-264	
8101 Analog Voice	3192-101			
Black		107730475	8101A01-B003	
White		107730483	8101A01-B264	
2500 YMGL	3101-KFD			
Black		107005043	2500YMGL-003	
Misty cream		107005050	2500YMGL-215	
2500 YMGM				
Black		107732422	2500YMGM-003	
Misty cream		107732430	2500YMGM-215	
2500 MMGL	3101-KBD			
Black		107023236	2500MMGL-003	
Misty cream		107023277	2500MMGL-215	

Ord	de	ring	Cod	les
			-	

Ordering Codes (continued	\		
Ordering Codes (continued		Comord	Ann Cada
Component	PEC	Comcode	App. Code
Telephones (continued)			
Single-Line Telephones (contin			
Inactive Single-Line Telephone	es		
2500 YMGK			
(message waiting, recall,			
touch-tone, desk)		405400570	05001/10/2000
Black			2500YMGK-003
Misty cream 2500 MMGK		105480560	2500YMGK-215
(recall, touch-tone, desk)			
Black		105414130	2500MMGK-003
Misty cream			2500MMGK-215
2500 MMGJ			200000000000000000000000000000000000000
(touch-tone, desk)			
Black		105414155	2500MMGJ-003
Misty cream		105414148	2500MMGJ-215
2554 MMGJ			
(touch-tone, wall)			
Black		105480081	2554MMGJ-003
Misty cream		105480032	2554MMGJ-215
500 MM			
(rotary, desk)			
Black		103870234	
lvory		103870226	
Beige		103870267	500MM-60
554 BMPA			
(rotary, wall) Black		103823498	554BMPA-3
lvory		103823498	
		100020000	004000 77 00
Wireless Telephones			
MDW 9030P TransTalk [™]			
Wireless Telephone Set			
(standalone product shipped w/power pack)			
Black	3204-05B	107017022	7815H01A-003
MDW 9030P TransTalk [™]			
Wireless Telephone Set			
(sets for use with wireless			
carrier assembly)			
Black	3204-W5B	107077455	7815H02A-003
TransTalk Wireless			
Carrier Assembly	3204-CR2	107073330	117A1
Headset	3122-042		
Headpiece		407713718	
QD Cord		407714401	
Headset (packaged with	0400 040		
an adapter)	3122-043	407700700	
Headpiece QD Cord		407720739 407714401	
Battery Pack		407714401	
Black	32045	107733107	
Extended Life Battery	32049	107733115	
Carrying Case (Holster)	32090	848026092	
54.17.1.9 6456 (11010101)	22000	5.0020002	

Ordering Codes	(continued)
-----------------------	-------------

Component	PEC	Comcode	App. Code		
Telephones (continued)					
Inactive Cordless/Wireless Telephones					
Model 5405		106440472	CS6300U30A-2292		
Model 5455		106440464	CS6300U29A-2292		
MDC 9000 Business					
Cordless Telephone					
Set					
White		107304982	7311H11B-264		
Black		107304974	7311H11B-003		
Battery Pack for MDW 9010					
White		106760812			
Black		106760804			
Special-Purpose Telephones					
Explosive Atmosphere					
Telephones					
2520B					
	3129-ETW	103873030	2520B-3		
Inactive Special Purpose Tel	ephones				
520B					
Rotary, Desk		103873048			
Rotary Outdoor WL		105727444			
Touch-tone Outdoor WL		105725386			
Non-Dial Outdoor WL		105725402			
Auto-Dial Outdoor WL		105725394	526 AMACADL		
Consoles					
DSS					
	3156-DCB	106902463			
5 ()	3156-DCW	106902489			
	3156-SDI	107013294			
	3156-SDI	107013302	604B1(22)-264		
Inactive Consoles			701011014 000		
MERLIN II		105229744	7318H01A-003		
System Display Console					

Ordering Codes

Page 48

Ordering Codes (continued)			
Component	PEC	Comcode	App. Code
	120	Conicode	App. Code
Applications			
SPM Version 2.16–DOS	61495	107259905	
SPM Version 2.16–UNIX	61496	107259913	
SPM Version 3.18–DOS	61495	107259905	
SPM Version 3.18–UNIX SPM Version 4.15–DOS	61496	107259913 107886608	
SPM Version 4.15–DOS	61508 61509	107886624	
SPM Version 5.15–DOS	61515	107000024	
SPM Version 5.15–DOS	61515	1080077782	
SPM Version 6.15–DOS	61526	108096132	
SPM Version 6.15–UNIX	61527A	108096140	
Call Accounting System (CAS)	0102171		
CAS for Windows			
50-station	1202-651		
Custom Rate Table (mandatory)	1202-031		
Turnkey Installation Service (2 day)			
Parallel Printer (optional)	12002		
dot matrix	69769		
Parallel Printer Cable	69641	846943298	
Serial Printer	4200-572		
Parallel Printer	4200-570		
Hacker/Tracker	12014	406806166	PCCB6201
Fax/Modem SW		407046317	92193WP
UNIX CAS (All Sets)	1201-U14A	407243187	ISIII CAS 250
UNIX CAS Upgrade			
(250-500)	1201-U15A	406898254	UN/CAS UPGR
UNIX HackerTracker	1201-U13A	406898270	SFTW-ISIII
CAS Terminal			
150 Stations	1202-710		
400 Stations	1202-705		
Application Startup Support (1 day)	12057		
Custom Rate Tables	12059		
MERLIN LEGEND Reporter			
Single Site, 50 stations	1201-011		
Single Site, 200 stations	1201-012		
Inactive CAS			
CAS Plus V3.1.1			
Bundle, Model 300			
(does not include a printer)			
Custom Rate Table			
CAS Plus V3 Bundle			
w/80-col. Parallel Printer			
CAS Plus V3 Bundle			
w/132-col. Parallel Printer		400000044	
CAS Plus V3 Software		406362244	
Rate Table			
CAS Plus V3 Update (SW)		406158444	
CAS Plus upgrade		406025916	
CAS V3 Hacker Tracker		406774513	3399EA
(MS-DOS)			
UNIX CAS Rate Tables		406140764	3.5 SW ATT MTS

* Consult Lucent Technologies for other area-specific information.

Ordering Codes

Ordering Codes (continued)

*	Consult Lucent	Technologies	for other	area-specific information.
---	----------------	--------------	-----------	----------------------------

AVP 2.1.1 Software LEGEND/IVR Switch Integration Software

Component	PEC	Comcode	App. Code
Applications (continued)		
Call Accounting Terminal	(CAT)		
CAT BASIC/B (LEGEND)	3600-010		
Printer		406716464	PRNTR-ML182-R2
Processor			PROCR-36001-C1
CAT + LEGEND/H	3600-024		
Printer			PRNTR-ML182-R2
Processor		406478818	PROCR-37000-C6-HQU
CAT + LEGEND/B	3600-023		
Printer		406716464	
Processor		406478800	PROCR-37000-C6-BQU
CAT Basic Rate Table [*]			
(Update Chip)	36014A	406669739	
CAT/B Rate Table*			
(update)	36023A	406478792	
CAT/H Rate Table*			
(update)	36024A	406478784	
Call Management System			
(CMS)	1207-100		
5		107004988	
3		107004970	
MII/ML CMS Alerter	83010		
Block Connector		105164859	104A-246
Power Supply		405331711	KS22911L2 120VAC
CONVERSANT INTRO (In	active)		
MAP5 Tower/AVP/			
LEGEND Bundle			
(no Script Builder)			
MAP5 500MB			
Hard Drive			
8 MB RAM			
(QTY: 1) IVP 4 Board			
(4 ports) Color Monitor			
Keyboard			
9-25 pin Adapter Applications Printer			
321P/Printer cable			
9600 bps modem			
(Qty: 2) D8W cords (Qty: 2) 250 MB Tapes			
Surge protector			
CONVERSANT INTRO			
3.1.1			
Basic speech			
(male/female)			
IVP Platform Software			

Page 49

Issue 2 January 1998

DEFINITY ECS	Release 6	
System Descri	ption Pocket Reference	555-230-211

Issue 2 January 1998

Ordering Codes

Ordering Codes (continued)			
Component	PEC	Comcode	App. Code
Applications (continued)			
CONVERSANT INTRO (Inactive)	(continued)		
MAP5 Tower/AVP/			
LEGEND bundle			
(with Script Builder)			
(Qty:2) IVP 4 Boards (8 ports)			
The remaining components are			
the same as PEC 4201-410			
Telephony Services Netware for			
MERLIN LEGEND	8320-500		
PassageWay Telephony			
Services R2.21D for Netware		407556364	
(core/clients) PassageWay Telephony		407556564	
Services R2.21D for Netware			
(250+user license)		407465558	
PassageWay Telephony			
Services Netware Driver for			
MERLIN LEGEND		108027368	
EICON ISDN Board for MERLIN			
LEGEND PassageWay			
Telephony Services		407556364	
PassageWay™ Direct Connect		407214782	
(R2)	8302-500		
PassageWay upgrade R1 to R2	8302-520A	407189802	
PassageWay R2 and			
Commence 2.1	8302-522		
PassageWay Software		407214782	
Commence Software		407528512	

Ordering Codes

Ordoring	Codoc	(continu

Ordering Codes (continued)			
Component	PEC	Comcode	App. Code
Applications (continued)			
PassageWay™ Direct Connect	(R2) (continue	ed)	
PassageWay R2 and	()		
Commence Startup	8302-523		
PassageWay Software		407214782	
Commence Startup Software		407160043	
PassageWay R2 and			
OnTime 1.54	8302-524		
PassageWay Software		407214782	
OnTime Software		407127349	
Fast Call Software	8330-191	407344928	
Fast Call and Passage Way			
Direct Connect	8302-521		
Commence 2.1	8330-201	407160027	
Commence Startup	8330-202	407160043	
OnTime 1.54	8330-301	407127349	
Lucent Technologies Attendant	6125-ATT		
Hardware		406899054	
Documentation		106431265	
MERLIN LEGEND Mail Voice M	essaging Sys	tem	
2-port	7107-302		
4-port	7107-304		
6-port	7107-306		
Upgrade 2-port to 4-port	7107-311A		
Upgrade 2-port to 6-port	7107-312A		
Upgrade 4-port to 6-port	7107-313A		
MERLIN MAIL Voice Messaging	3		
System for the MERLIN			
LEGEND Communications			
System (Release 3)			
2-port	6107-400		
MERLIN MAIL unit		407241926	
modem		407002427	
4-port	6107-401		
MERLIN MAIL unit		407536739	
modem		407002427	
6-port	6107-402		
MERLIN MAIL unit		407241942	
modem		407002427	
Release 3 Upgrade			
2-port to 4-port	6107-404A	407241934	
modem		407002427	
2-port to 6-port	6107-405A		
modem		407002427	
4-port to 6-port	6107-406A		
modem		407002427	

DEFINITY ECS Release 6 System Description Pock

Ordering Codes

Issue 2 January 1998

em	Description	Pocket	Reference	555-230-211

0			
Ordering Codes (continued)			
Component	PEC	Comcode	App. Code
Applications (continued)			
MERLIN MAIL Voice Messaging			
(continued)			
2-port line card (R2)			
(upgrade from 2 to 4 for MERLIN MAIL releases prior			
to V7.4)	6107-007A	407108521	
2-port line card			
(upgrade from 2 to 4 for			
MERLIN MAIL releases V7.4			
or later)	6107-008A	407072115	
MERLIN Identifier (for MERLIN LEGEND R2.x)			
Inactive MERLIN MAIL Voice Me	essaging		
MERLIN MAIL Voice Messaging	Joouging		
System for the MERLIN			
LEGEND Communications			
System (Release 2)			
2-port			
MERLIN MAIL unit		407161355	
Remote maintenance device		407002427	
MERLIN MAIL Multi-Lingual Admin. Guide (585-320-742)		107074932	
User's Quick Reference		10/0/4952	
(585-320-741)		107074924	
4-port			
MERLIN MAIL unit		407161363	
Remote maintenance device		407002427	
MERLIN MAIL Multi-Lingual			
Admin. Guide (585-320-742)		107074932	
User's Quick Reference (585-320-741)		107074924	
Intuity Voice System		101011021	
4-port	7055-004		
6-port	7055-006		
8-port	7055-008		
10-port	7055-010		
12-port	7055-012		
Administration	6128-KBD	406891556	
Controller Assembly with PC			
Administration	6128-PCA	406891564	
DISCONTINUED			
Controller Assembly with			
Display Keyboard			
Display Assembly with Wall-		406891572	
Mounting Call Alert Software		406891572 406891721	
Bracket Assembly, ATL		70031721	
Telephone Mounting		406891937	
Fixture, Display Wallmount		406891929	
PC Administration Adapter Kit		406960930	

Ordering Codes

Ordering Codes (continued)

Component	PEC Comcode	App. Code
Applications (continued)		
Discontinued (continued)		
Printer Adapter Kit	406960948	
Printer Port to PC Adapter Kit	406960955	
Installation and System		
Administration Manual	406891713	
Quick Reference Card for		
MERLIN Identifier Users	406891705	
Display Unit	406891663	
Keyboard 101	406891655	
Controller with Mounting Panel	406891648	
Cable, Serial RS-232, Controller		
to PC	406891903	
MERLIN LEGEND R5.0 TSAPI Offers		
In all R5.0 PECs where paper		
and CD-ROM are options, add		
attributes:		
Paper (attribute: doc51)		
CD-ROM (attribute: doc52) default		
MERLIN LEGEND R5.0		
Documentation		
End-user CD-ROM	108136136	
Internal CD-ROM (Lucent	100130130	
Technologies Associates only)	108007964	
MERLIN LEGEND TSAPI Solution 8320		
PassageWay Telephony		
Services		
R2.21D for NetWare		
(Core/Clients)	407556364	
PassageWay Telephony		
Services		
R2.21D for NetWare -250+User		
License	407465558	
Legend Driver Software	108027368	
EICON Card	407556364	
CCOM Application (PhoneLine)		
(does not include Professional Services)		
5 Users License		
10 Users License		
25 Users License		
50 Users License		

Issue 2 January 1998

DEFINITY ECS Release 6 System Description Pocket R	eference	555-230-211	Jai	lssue 2 nuary 1998
Ordering Codes				Page 54
Ordering Codes (continued)				
Component	PEC	Comcode	App. Code	
Applications (continued)				
MERLIN LEGEND R5.0 TSAPI Offers (continued)				
Q.SYS Application (PhoneWare)				
(does not include Professional Services)				
5 Users License				
10 Users License				
25 Users License				
50 Users License				

CALLWARE Application (Phonetastic)

Services) 5 Users License Phonetastic Admin Guide

User Guide Application (core) 10 Users License Phonetastic Admin Guide

User Guide Application (core) 25 Users License Phonetastic Admin Guide User Guide Application (core) 50 Users License Phonetastic Admin Guide

User Guide Application (core) 100 Users License Phonetastic Admin Guide

User Guide Application (core) Professional Services Offers 1 Application 2 Applications Custom Contract

(does not include Professional

Ordering Codes

Ordering	Codes ((continued)
ordening	Coues ((continueu)

Component	PEC	Comcode	App. Code
Applications (continued)			
MERLIN LEGEND Enhanced Service Center			
12-port System	61516		
2.5GB Blank Tape (QTY: 3)		407557073	
Color Monitor		406504571	
Snap-on Ferrite (QTY: 4)		407616846	
Keyboard		407681907	
UnixWare Base Sftwr Tape 5P		ED5P91260 G-18	
Map 5P TOWER		J1P260F1 L-1	
V6.0 Map5P New System			
Install & Maint Doc		J1P260F1 L-AG	
Base System Boot Sftwr		J1P260TH1 L-1	
Intuity Bkp/Res Util		J1P260TH1 L136	
ENH Sft Tech Bkp/Res		J1P260TH1 L137	
Intuity Unix Mang Scn Pkg		J1P260TH1 L138	
Oracle for W95, NT, 3.1		108007758	
Data Collection Pkg		J1P260TH1 L-28	
Veritas Sftwr		J1P260TH1 L3	
Generic Soft Tape		J1P260TH1 L4	
Configuration Data Pkg		J1P260TH1 L5	
Hardware Res		J1P260TH1 L7	
Intuity Conversant VIS V6.0 Set-Update+		J1P260TH1 L-76	
Tip/Ring Board Driver		J1P260TH1 L-88	
Feat Test Script Pkg		J1P260TH1 L9	
Call Bridge Appl Pkg		J1P260TH1 L-90	
UnixWare 1.1.2 Enhance Set		J1P260TH1 L-90	
CA Assy-84000		407265529	
		601419666	
Analog Adap Kit 885A (QTY:2) IVC6 Card (AYC10) (QTY:2)		106406580	
25 ft Tel Cord (QTY:4)		103623195	
3 ft Tel Mtg Cord (QTY:4)		ED5P20830 G-16	
BUS Cable		J1P260F1 L8	
		J1P260TH1 L-70	
Analog Switch Interface US RMB/Modem		J1P260AA1 L-10	
RMB Software Utilities-Boot		107087280	
RMB Utilities		J1P260TH1 L-73	
8-Port Serial Card and Cable			
Terranova Software		J1P260AA1 L-34	
		107087280	
Terranova Connector (QTY:2)		100700000	
DW8 Cord 14 ft (QTY:2)		103786802	
Passage Direct Connect		407796861	
MERLIN ESC Software		407799857	
RMB Integr Sftwr V1.0		J1P260TH1 L-80	

Ordering Codes

A	A B B B	/ /· •
Orderind	Codes	(continued)

Component	PEC	Comcode	App. Code
Applications (continued)			
MERLIN LEGEND Enhanced			
Service Center (continued)			
18-port System	61517		
2.5GB Blank Tape		407557073	
Color Monitor		406504571	
Snap-on Ferrite (QTY: 6)		407616846	
Keyboard		407681907	
UnixWare Base Sftwr Tape 5P		ED5P91260 G-18	
Map 5P TOWER		J1P260F1 L-1	
V6.0 Map5P New System			
Install & Maint Doc		J1P260F1 L-AG	
Base System Boot Sftwr		J1P260TH1 L-1	
Intuity Bkp/Res Util		J1P260TH1 L136	
ENH Sft Tech Bkp/Res		J1P260TH1 L137	
Intuity Unix Mang Scn Pkg		J1P260TH1 L138	
Oracle for W95, NT, 3.1		108007758	
Data Collection Pkg		J1P260TH1 L-28	
Veritas Sftwr		J1P260TH1L3	
Generic Soft Tape		J1P260TH1 L4	
Configuration Data Pkg		J1P260TH1 L5	
Hardware Res		J1P260TH1L7	
Intuity Conversant VIS V6.0		JTF 2001111 L7	
Set-Update+		J1P260TH1 L-76	
Tip/Ring Board Driver		J1P260TH1 L-88	
Feat Test Script Pkg		J1P260TH1 L9	
Call Bridge Appl Pkg		J1P260TH1 L-90	
UnixWare 1.1.2 Enhance Set		J1P260TH1 L-94	
CA Assy-84000		407265529	
Analog Adap Kit 885A (QTY:3)		601419666	
IVC6 Card (AYC10) (QTY:3)		106406580	
25 ft Tel Cord (QTY:6)		103623195	
3 ft Tel Mtg Cord (QTY:6)		ED5P20830 G-16	
BUS Cable		J1P260F1 L8	
Analog Switch Interface US		J1P260TH1 L-70	
RMB/Modem		J1P260AA1 L-10	
RMB Software Utilities-Boot		107087280	
RMB Utilities		J1P260TH1 L-73	
8-Port Serial Card and Cable			
8-Port Serial Card and Cable Terranova Software		J1P260AA1 L-34	
		107087280	
Terranova Connector (QTY:2)		400700000	
DW8 Cord 14 ft (QTY:2)		103786802	
Passage Direct Connect		407796861	
MERLIN ESC Software		407799857	
RMB Integr Sftwr V1.0		J1P260TH1 L-80	

Ordering Codes

U	ue	iiig	COU	162	

lss	sue 2
January	1998

Ordering Codes (continued)			
Component	PEC	Comcode	App. Code
Applications (continued)			
MERLIN LEGEND Enhanced Service Center (continued)			
Optional Equipment			
Supervisor Terminal	1335-WIN	107087280	
Printer and Cable	4200-570	406637314	
Readerboard	5340-WB4/A		
Readerboard Master Kit	5340-KIT/A		
Readerboard Standalone (within 50 ft)	5340-SKT/A		
Wireless Keyboard for Readerboard	5340-905/A		
Right to Use Readerboard Software	61518	407799782	
Mandatory Turnkey Install			
(Sftwr)	61519	407799808	
Incremental Training (1 Day)	61520	407799790	
Incremental Training (2 Days)	61521	407799816	
MLX-28D	3156-04B	107115800	
016 T/R with 4 TTRs	61507	107533887	
Serial Card		407788439	
Cable		407789080	
CTI Applications			
Group Phoneware			
5 Seats	6156-205		
10 Seats	6156-210		
25 Seats	6156-225		
50 Seats	6156-250		
Phonetastic			
5 User Right-to-Use	6156-305		
10 User Right-to-Use	6156-310		
25 User Right-to-Use	6156-325		
50 User Right-to-Use	6156-350		
100 User Right-to-Use	6156-400		
Phoneline			
5 Users	6156-105		
10 Users	6156-110		
25 Users	6156-125		
50 Users	6156-150		

Ordering Codes

Page 58

Ordering Codes (continued)			
Component	PEC	Comcode	App. Code
System Adjuncts and Adap	ters		
Auxiliary Power Unit 9024	61416	406467142	9024
Channel service units (CSUs)			
T1 CSU (3150 CSU)	21581	107087546	
T1 ESF CSU Standalone		107063828	21581-00001
115VAC in line Transformer		406942284	
Converter Cable		107083711	3100-F1-560
RJ48M to RJ48M Unshielded			
Twisted Pair Cable (T1)			3110-F1-500
3160-DSU			3160-A1-DSU
3164-DSU	2151-DP4	107115792	3164-A1-DSU-
he and he			CSU
Inactive		40700000	04504 00004
T1 ESF CSU Standalone 115VAC in line Transformer			21581-00001
Converter Cable		406942284	3100-F1-560
RJ48M to RJ48M Unshielded		10/063/11	3100-F 1-560
Twisted Pair Cable (T1)		106011660	3110-F1-500
Optional Equipment:		400941009	3110-F1-300
Unshielded TW Pair Cable (T1)			
Canada		107063703	3100-F1-510
Straight-Thru Cable PC Serial		101000100	010011010
Port		406941542	3100-F1-550
Straight-Thru Cable		100011012	010011000
Terminal/Printer		406941534	3100-F1-540
Modular DC Voltage Adapter			3100-F1-250
Wall Mount Kit		406941674	3100-F1-400
Cables for Mounting			
25' D4BU-29 Cord		106472921	ASSY-4400-F1-
			533
2' D4BU-29 Cord		106472905	ASSY-4400-F1- 530
Dial Back Modem FLD		106842271	ASSY-3400-F2- 201
Dial Back Modem FAC		106842289	ASSY-3400-G2- 201
Dial Back Modem NFLD		106842305	ASSY-4000-F2- 201
Dial Back Modem NFAC		106842297	ASSY-4000-G2- 201
Prism MUX Field		106842313	ASSY-3400-F2- 200

Issue 2 January 1998

Ordering Codes

Ordering Codes (continued)			
Component	PEC	Comcode	App. Code
System Adjuncts and Ad	dapters (co	ontinued)	
Optional Equipment:			
Peripheral Interface	62515	105179303	KIT PRTS-D181558
Async. Data Unit, Receptacle	2169-004	103963971	Z3A2
RS232 Connector/Cord		105388474	CORD M8AJ-87
Async, Data Unit, Plug	2169-001	103963971	Z3A2
RS232 Connector/Cord		105388466	CORD M8AK-87
Aux Power (2 required)	21691		
Transformer (2012-D)		102599354	TRNSF-2012D-49
Adapter (248B)		102802113	ADPTR-248B-50
Cord		102937620	CORD-D6AP-87
Adapter (400B)		104152558	ADPTR-400B2
Electrostatic discharge/			
(ESD) suppression kits			
D-181574		105179329	D181574
D-181589		105201891	D181589
D-181590		105201909	
D-181591		105201917	D181591
D-181593		105201933	D181593
EMI filter		103965208	Z200A
In-Range Out-of-Building			
-146E (IROB) unit			
Analog multiline*	8310-013	407568161	343B
IROB unit-MLX*	8310-013	407568161	505A ASSY 0A WD
Fuse block 505A for IROB			
(8 fuse blocks per box)		406610337	
2 IROBs	8310-020		
4 IROBs	8310-021		
6 IROBs	8310-022		
8 IROBs	8310-023		

* Any multiline off-premises telephone must have an appropriate IROB protector both at the control unit location and at the off-premises location.

Ordering Codes

Page 60

Ordering Codes (continued)			
Component	PEC	Comcode	App. Code
System Adjuncts and Ad	apters (con	tinued)	
Off-Premises Range Unit	2302-OPT	107531337	122A-215
Digital Magic on Hold®			
Basic Prerecorded			
Package	3128-020		
Digital Deck		407464684	
Cassette		407166941	DMOH-02 GENERIC
Personalized Recording			
Package	3128-030		
Digital Deck		407464684	
Cassette		406876664	
Custom Production			PERSONALIZE
Package (Std. Tape			
program)	3128-040		
Digital Deck		407464684	DMOH1 DIGITAL
Cassette		406876680	DMOH-05 SIN F/CUST
Standalone Single			
Custom Production			
Package	31284	405135344	INDIV
Standalone Package of 3			
Custom Productions	31283	406876649	DMOH-03
Standalone Package of 4			
Custom Productions	31280	405126632	M4 FOUR
Duplicate of a Custom			
Production (for			
Second Location)	31289	405127945	D-IP/EM DUB IND MSTR
Re-License of Music	31288	405127879	D24 24 DUB
Digital Announcer Unit	3119-001		
(one minute)			
Announcer		407344365	
Recorder		406659342	
Cassette		406769455	CSTT-DMOH5

Issue 2 January 1998

Ordering Codes

Ordering Codes (continued)

Component	PEC	Comcode	App. Code
System Adjuncts and A	dapters (cor	ntinued)	
Digital Announcer Unit	3119-003		
(three minute)			
Announcer		407344357	
Recorder		406659342	
Cassette		406659359	
Four Channel System			
(1-minute recording per			
channel)	3119-141	407716638	
Four Additional Channels			
(1-minute recording per			
channel)	3119-041		
Four Channel System			
(1-minute recording per			
channel, remote			
recording capability)	3271-141	407038512	ADP02/A
Eight Channel System			
(1-minute recording per			
channel, remote			
recording capability)	3271-241	407079003	
Eight Channel System			
(2-minutes recording per			
channel, remote			
recording capability)	3271-142	407556232	
Package of 12 Headset			
Prong Adapters	3122-012		
Package of 12 Headset			
Modular Adapters (for			
MLX sets)	3122-024		
Package of 12 Supra Noise			
Canceling Headpieces	3122-155		
Modem 2224G	2224-CEO	105659965	2224C-L1 D/2
(limited availability)			
Music Coupler	61398	406143925	ASSY-K23395 L3
PagePac Plus			
PagePac Plus Controller	5323-100	406914598	UNIT-22051-000
PagePac Plus Controller			
with Power	5325-105		
PagePac Plus 16 Zone	5335-100	406914614	UNIT-22051-016
D20 PagePac Plus			
Amplicenter	5328-020	406915280	UNIT-22051-020
D100 PagePac Plus			
Amplicenter	5328-100	406915264	UNIT-22051-100

Issue 2 January 1998

Ordering Codes

Page 62

Ordering Codes (continued)			
Component	PEC	Comcode	App. Code
System Adjuncts and A	dapters (co	ontinued)	
D300 PagePac Plus			
Amplicenter	5328-300	406915330	UNIT-22051-300
Universal 70V Door Spkr.	5330-230	406914630	UNIT-22050-070
SMDR Printers			
AP Printer			
(80-column)	4200-570	406637314	ML182
Lucent Technologies 571 Parallel Printer		406516989	571-MCII 6FT
(132-column)	4200-571	406712067	ML321P
AP CAT Printer (serial)	4200-572	406716464	571-MCII 6FT
Uninterruptible Power Supply		406716464	ML182-R2
500 VA (15 min) (inactive)		105610141	515005C111
Reserve (1 hr) (inactive)		105610174	0053150
PagePal Interface	5335-700	407120716	
Audio Visual Paging			
215C Message Center	5332-100		
4120C Message Center	5332-150		
Connector Kit	5332-900		
Wireless Keyboard	5332-905		
Alpha Net Plus Software	5332-910		
R2485 Repeater	5332-915		
Lucent Technologies People Finder Plus			
2-Watt	5338-001		
Pagers (Numeric)			
Renegade	5338-101		
Pagers (Alphanumeric)			
Memo Express	5338-201		
AlphaMate 250 Message			
Entry Unit	5338-900		
Pagers (Hybrid)			
KeyNote Voice and Numeric Pager	5338-401		

Issue 2 January 1998

Ordering Codes

Ordering Codes (continued)

Component	PEC	Comcode	App. Code
System Adjuncts and A	dapters (c	ontinued)	
External Alerts			
Loud external ringer	31016	407105691	RINGER-L1AMP-49
E1CM-type	310191		
Gray		102872934	RINGER-E1CM-49
lvory		102917952	RINGER-E1CM-50
E1CM ringer and parts	61211		D-181233
290A adapter		102992252	290A ADPTR
Ringer		407105683	E1CM-49
Mounting plate		102988466	1049A
Cord		103938494	CORD-D4CH-87-25
Supplemental Alerts			
Universal Alert	5580-001		
Network Interface Alert Bell	61211	407105683	RINGER-E1CM-49
Alert Horn	5580-021	406207217	THET4-1
Alert Strobe	5580-041	403319197	AT-WHL LK
Inactive System Adjuncts a	nd Adapters	5	
ExpressRoute 1000 Data Uni	t	107651796	
V.35 Cable		107651275	
7500B data module		105657639	7500B-L1
Stand-alone power supply		405509852	WP90110L7
Multiple mounting		105441166	Z77A
7500A upgrade kit		105688501	D182208
Ring generator unit		105213201	129B RING GEN
Universal Paging		405891698	KIT-UPAM
Access Module (UPAM)			
TAM-B		405899972	D181900
PRS-48		405742735	D181900
WMT-1A		405891680	D181900
Zonemate [™] 9			
Dialer unit		404057911	
Control unit		405024134	CNTL 22050-020
Zonemate 39			
Dialer unit		404057929	
Control unit		405024134	CNTL-22050-020C
Lucent Technologies			
People Finder			
4-Watt			
Power Amplifier Kit			

Telephone Adjuncts and Adapters Adoptor

C

General Purpose Adapte	1			
(GPA) (analog)	2301-GPA	103977997	Z1C	
Multi-Function Module (digital)	3156-MFM	105746474	540A1	
Supplemental Alert Adap (SAA)	ter 2301-SSA	105031199	ADPTR-856A	
MLX-10/ MLX-10D cover		406648469		
MLX Telephone Power	2404-010			
Supply				
MSP1 Power Supply		406743419	WP92464L1	
7' Cord		103786778		

Issue 2 January 1998

Ordering Codes

Ordering Codes (continued)

Component	PEC	Comcode	App. Code
			App. Code
Telephone Adjuncts an	d Adapters	(continuea)	
Analog Multiline Phone Power	62510	105105514	D181522
48V Power Supply		405331711	KS22911L2
Modular Power Cord		102937620	D6AP-87
Z400F Adapter		103942850	Z400F
Single-line telephones			
Speakerphone	3131-004I	103786786	D8W-87 7FT
Black		106270325	MOD-CS201A-003
Misty cream		106270333	MOD-CS201A-215
S202A Speakerphone	3152-008		
Black		105721088	TEL-S202A-003
Misty cream		105721096	TEL-S202A-215
Message-Waiting Indicator	3152-004	103966396	Z34A
Polycom Speakerphones			
Standard	3127-STD	407428697	
Sound Station EX	3127-EXP	407428739	
Lapel Microphone	3127-MIC	407428432	
Lucent Analog Premier EX			
without Microphone	3127-APE	407795251	
with Microphone	3127-APX	407795269	
Inactive Single-line Telepho	ones		
Program, Pause, and			
Auto Dial button conceal			
kit for 8100-series			Kit-D 182363
telephones		106248370	Analog
4A Speakerphone			4A
Power unit		102139938	
Block connector		102434925	BLK CON-82B-49
Adapter for single-line			
telephone		102813888	ADPTR-223C
Adapter for multiline			
telephone		102949013	
Transmitter (black)		103971891	TRMR-680AF-03
Transmitter (ivory)		103971909	TRMR-680AF-50
Loudspeakers			
Black		103873873	
lvory		103873881	
Green		103873899	
Beige		103873907	
White		103873964	
S201 Speakerphone		103786786	
Black		106192651	
Misty cream		106192693	MOD-S201AP-215
CS201 Conference			
S203A Speakerphone			100 0000 · · · ·
Black		106058340	
Misty cream		106508365	MOD-S203A-215
Hands-Free Unit (HFU)		103814356	MOD-S102A

Issue 2 January 1998

Ordering Codes

Ordering Codes (continued)				
Component	PEC	Comcode	App. C	
Telephone Adjuncts a	nd Adapt	ers (continu	ied)	
Headsets and Adapters				
StarSet® Headset	3122-030	406445627	KS23822L3	
Mirage [®] Headset	3122-050	406445783	KS23822L4	
Supra [®] Monaural Headset	3122-040	406445791		
Supra NC [®] Monaural Headset w/Noise Canceling	3122-055	406445809		

Supra Binaural Headset Supra NC Binaural Headset	3122-045	406976076	
w/Noise Canceling	3122-060	406445817	
Headset Adapter (inactive)		105752042	ADPTR-502C-003
500A Headset Adapter (inactive)		106690043	Adapter EL-500A-265
		405331711	Pwr Sup-KS2291 1L2
		102479904	Cord-D4BU-29 Std 7FT
		104152558	Adapter-40082
Modular Amplifier	3122-020	406741900	KS23822L2
Plug Prong Amplifier	3122-010	406445601	KS23822L1

MLX Telephones—Miscellaneous Add-Ons/Replacement Parts

Handsets and Cords	
Handset Hook (black)	845544998
Handset Hook (white)	845545003
Handset (black)	106050065 K2S1-003
Handset (white)	106053408 K2S1-264
Handset, amplified hearing 31052	
Black	105581896 K6S2-003
White	106248248 K6S2-264
Misty cream*	105581904 K6S2-215
Noise Canceling Handset 31056	
Black	406712463 KS23843L7
White	406712471 KS23843L8
Misty cream*	406712489 KS23843L9
High-Noise Canceling	
Handset 31057	
Black	406712497 KS23843L10
White	406712505 KS23843L11
Misty cream*	406712513 KS23843L12
Amplified Speech Handset 31054	
Black	406712406 KS23843L1
White	406712414 KS23843L2
Misty cream*	406712422 KS23843L3

Default

Issue 2 January 1998

App. Code

Ordering Codes

Ordering Codes (continued)			
Component	PEC	Comcode	App. Code
MLX Telephones—Miscellaneous Add-Ons/ Replacement Parts (continued)			
	eu)		
Handsets and Cords (continued) Push-to-Talk Handset	04055		
Push-to-Taik Handset Black	31055	400740400	KS23843L4
White			KS23843L4 KS23843L5
Misty cream*			KS23843L6
Push-to-Listen Handset	31053	406712455	K523843L0
Black	31055	406382344	K862 002
White		406382369	
Misty cream*		406382369	
Handset cord, 9' (2.74 m), black			H4DU-003 9 FT
Handset cord, 9' (2.74 m), black Handset cord, 9' (2.74 m), white			H4DU-264 9'BULK
Handset cord, 9 (2.74 m), white Handset cord, 12' (3.66 m), black			H4DU-204 9 BOLK H4DU-3 12FT IP
Handset cord, 12 (3.66 m), white			H4DU-26412'IP
Handset cord, 25' (7.62 m), black			H4DU-3 25'
DSS line cord, 2' (61 cm)			CORD D8AC-87
Desk Stands and User Trays		100107343	CORD DOAC-07
Stand (large, black)		846320851	STAND-LARGE BL
Stand (large, white)			STAND-LARGE WH
Stand (small, black)			STAND-SMALL BL
Stand (small, white)			STAND-SMALL WH
User tray (black)			USER TRAY DWR B
User tray (white)			USER TRAY DWR W
Designation (Button Assignment) Cards and Covers			
	•		•
Card [*] —MLX-10, MLX-10D, MLX-1			
MLX-16DP, MLX-20L, MLX-28	D	847355559	
Card set-DSS†			KIT-D182464
Card covers-DSS (black) [†]		106448731	KIT-D182462 PRT
Card covers-DSS (white)†		106448749	KIT-D182463 PRT
Card set-QCC [‡]		106561673	KIT-D182562 PRT
Card covers**MLX-10,			
MLX-10D, MLX-20L		106448681	KIT-D182457 PRT
Card covers**-MLX-16DP			KIT-D182846 PRT
Card covers**—MLX-28D		106//8600	KIT-D182458 PRT
Card covers		106448699	KII-D182458 PK I

* 10 sheets per package

† Includes both top and bottom cards or covers

** 8 cards per s... ** 4 per package 8 cards per kit (four sets)

DEFINITY ECS Release 6 System Description Pocket Reference *555-230-211*

Ordering Codes

Ordering Codes (continued)

Component	PEC	Comcode	App. Code
Analog Multiline Telephone Replacement Parts	es—Mi	scellaneou	s Add-Ons/
Desk Stands and Wall Mounts			
Adjustable desk stand, 10-button (inactive)		103746855	11A
Adjustable desk stand, 34-button (inactive)		103746863	11C
Fixed desk stand, 5- & 10-button (inactive)		103746848	10A
Desk stand/wall mount 14A,			
BIS-10		103804290	14A-003
Desk stand/wall mount 14B,			
BIS-22		103964458	Z14B-003
Desk stand/wall mount 14C,			
BIS-34		103979837	14C-003
Fixed desk stand and wall		40000 4000	4.4.5
mount, 5-button (inactive)		103804290	
Kit of parts		103995882	
Wall mount, 10-button (inactive)		103747846	
Kit of parts		103995882	
Wall mount, 34-button (inactive) Kit of parts		103747853 103995882	
Faceplates		103993662	D-101230
BIS-10		105202196	KIT PRTS-D-181582
BIS-10 BIS-22		105336986	KIT PRTS-D-181382
BIS-22D		105550900	
BIS-34 and BIS-34D		105203194	
Button Label Sheets		105205154	KITT KTO-D-101303
BIS-10		105336978	KIT PRTS-D-181785
BIS-22			KIT PRTS-D-181784
BIS-22D		105690770	
BIS-34 and BIS-34D		105336956	KIT PRTS-D-181783

Issue 2 January 1998

Page 67

DEFINITY ECS Release 6 System Description Pocket Reference 555-230-211

Issue 2 January 1998

Ordering Codes

Page 68

Ordering Codes (continued)					
Component	PEC	Comcode	App. Code		
Analog Multiline Telephones—Miscellaneous Add-Ons/ Replacement Parts (continued)					
Button Label Sheets (contin	nued)				
Display console (FM1)					
(includes one faceplate)		105299754	KIT PRTS-D-181727		
Display console (FM2 & R3)					
(includes one faceplate)		105486252			
Single-Line Telephones					
Ground-Start Button	31021	405792839	Key-KS23566L1		
Wiring Kits					
Interconnect Wiring Kit					
110AB1-100JP12		104409396			
110A1 trough		104407960			
D-Rings		842139248			
D8W cords		103786802			
Parts list					
SYSTIMAX [®]					
MERLIN Wiring Kit	3103-MER	106393671			
110A1 trough (5)		104407960			
110AB1-100JP12					
modular block (2)		104409960			
110AB1-100 FT punch		400000045			
down block (1) D-Rings (6)		103823845 842139248			
Patch cords 12 cords,		042139240			
4-pair, 5' (1.5 m)		846619989			
D8W cords		040010000			
24 cords, 14' (4.3 m)		103786802			
Template		846613933			
Instruction sheet		846613941			
Parts List		846623924			
CAT 3 Standard 4-Pair Wire	2782-004				
CAT 3 Additional 4-Pair Run	2783-MU3				
CAT 5 Standard 4-Pair Wire	2782-CT5				
CAT 5 Additional 4-Pair Run	2782-MU5				

Ordering Codes

Page 69

NOTES

DEFINITY ECS Release 6	
System Description Pocket Reference	555-230-211

Page 70

Control Unit Modules

Module	Trunk Type	Extension Type
Processor	N/A	N/A
Power supply	N/A	N/A
008	N/A	Analog multiline telephone; Call Management System; analog data via a modem
008 MLX	N/A	MLX telephone; digital data device (such as the ISDN terminal adapter) CTI link connected to Passageway Telephony services for NetWare
008 OPT	N/A	On-premises or off-premises single-line telephone

Page 71

Specifications

Highlights: 68EC020 processor at 16 MHz, built-in 1200/2400-bps modem; built-in diagnostics; Hybrid/PBX, Key, or Behind Switch mode option; 1.5 MB RAM backup for 4 days; PCMCIA interface

Ports: Three RS-232-C ports. One for debugging (plugged to prevent access), one for SMDR, and one for system administration

Power input: 117 VAC

Power output: +5 VDC (10 A), -5 VDC (2.50 A), -48 VDC (2.05 A) Capacity: 54 unit loads

Capacity: 8 analog extensions

Signaling: Analog multiline telephone protocol (40 kbps)

Loop range: 1000 feet (305 m), in-building or in-range out-of-building (with analog IROB protectors) only

Capacity: 8 digital extensions, each with 1 or 2 endpoints (each endpoint assigned a separate extension number), including these extension types:

CTI link (only one per system)

- digital voice only
- digital voice with Voice Announce to Busy
- digital voice and digital data (via ISDN terminal adapter)
- digital voice and analog data
- digital data only (ISDN Terminal Adapter)

Signaling: BRI S/T protocol (two 64-kbps B channels, one 16-kbps D channel) on a passive bus

Power: 48 VDC phantom power to telephone, 48 VDC over a separate pair (7–8) to an operator console with a DSS

Loop range: 3000 feet (914 m), in-building or in-range out-of-building (with MLX IROB protectors) service only

Capacity: 8 T/R extensions² on 2-way voice transmission path with support for telephones with message-waiting LEDs; built-in ring generator; 2 TTRs Notice to Telephone Company: Meets FCC Class C

Ringing current: 75-Vrms, 20-Hz trapezoidal ringing superimposed on -48 VDC.

REN: ≤ 1.0 per port

Disconnect signal: 900 ms (T/R short for answering machines, G3 fax, etc.) **Switchhook flash detection:** 300–1200 ms

Loop resistance: Serves 2-wire loops to 1300 ohms, including extensions dB loss[†]: 3dB (factory setting), 0dB if all calls are to another OPT station.

- * The system recognizes the OPT module as an 012 module having 12 ports. However, the OPT module has only 8 jacks. Therefore, each installed OPT module decreases the system's capacity by 4 ports.
- If one OPT station calls another OPT station, the loss values of the two OPT stations are added resulting in transmission levels that are too low. 008 OPT modules (517D28) may be hardware configured to 0dB loss, however this should only be done if all or the majority of calls from the OPT stations are to other OPT stations. Setting the loss value to 0dB violates EIA-464-A-1 specifications. Contact Tier 4 before modifying the loss value settings of 008 OPT modules.

Page 72

Control Unit Modules (continued)
------------------------	------------

Module	Trunk Type	Extension Type
012 (T/R) + Ring Genera- tor	N/A	Single-line telephone; AT&T Attendant; MERLIN MAIL Voice Messaging System; T/R adjunct (such as an answering or fax machine); analog data device (such as a modem)
016 (T/R)	N/A	Single-line telephone; AT&T Attendant, MERLIN MAIL Voice Messaging System; T/R adjunct (such as an answering or fax machine); analog data device (such as a modem)
100D	T1 or PRI	N/A
800 NI-BRI	T1 NI-BRI interface	Certified video applications
400 [*]	Loop-start and TTR	Power failure transfer (PFT) telephone
400EM	Tie trunk	N/A
400 GS/LS/TTR	Loop-start or ground-start and TTR	PFT telephone (button needed for ground-start PFT telephone)

Although these MERLIN II modules are supported, the 400 GS/LS, the 408 GS/LS, and the 408 GS/LS-MLX are the recommended modules.

Specifications

Capacity: 12 T/R extensions on 2-way voice transmission path with support for telephones with message-waiting LEDs; 2 TTRs; built-in ring generator Power: 21-VDC. 600-ohm battery source Ringing current: 105-Vrms. 30-Hz sinusoidal ringing superimposed on -48 VDC **REN**: ≤ 4.0 per port Disconnect signal: 900 ms (T/R short for answering machines, G3 fax, etc.) Switchhook flash detection: 300-1200 ms Capacity: 16 T/R extensions on 2-way voice transmission path with support for telephones with message-waiting LEDs; 4 TTRs; built-in ring generator Power: 40-VDC, 600-ohm battery source Ringing current: 105-Vrms. 30-Hz sinusoidal ringing superimposed on -48 VDC REN: ≥ 4.0 per port Disconnect signal: 900 ms (T/R short for answering machines, G3 fax, etc.) Switchhook flash detection: 300-1200 ms Capacity: 24 trunks for voice and analog data or 23 trunks for voice and data with 1 channel used for signaling Mode: Multiplexes 24 or 23 trunks into 1 facility and demultiplexes 1 facility into 23 or 24 trunks Speed: Up to 64 kbps Signaling: DS1 over 4-wire; T1 uses robbed-bit or common-channel, PRI uses 23 B+D Capacity: Eight modular jacks each supporting one Digital Subscriber Line Mode: National ISDN 1 Speed: Up to 64 kbps Signaling: ISDN Basic Rate 2B+D Capacity: 4 trunks, 4 TTRS, 1 PFT telephone Signaling: Loop-start Capacity: 4 tie lines Method of completion: Automatic start, immediate-start, wink-start, or delay-dial-start Signaling: E&M type 1S, type 1C, type 5 Capacity: 4 trunks, 4 TTRs, 1 PFT telephone Signaling: Loop-start or ground-start, optioned per port

Control Unit Modules (continued)

Page 74

Module	Trunk Type	Extension Type
408*	Loop-start	Analog multiline telephone; Call Management System; PFT telephone
408 GS/LS	Loop-start or ground-start	Analog multiline telephone; Call Management System; PFT telephone
408 GS/LS-MLX	Loop-start or ground-start	MLX telephone; digital data device (such as ISDN Terminal Adapter)
		CTI link connected to Passageway Telephony services for NetWare
800 [†]	Loop-start	PFT telephone
800 DID	Direct Inward Dialing	N/A
800 GS/LS	Loop-start or ground-start	PFT telephone; button needed for ground-start PFT
800 GS/LS-ID	Loop-start or ground-start	Calling number identification on MLX display telephones. Calling number identification is not available on ground-start trunks

 Although these MERLIN II modules are supported, the 400 GS/LS, the 40 GS/LS, and the 408 GS/LS-MLX are the recommended modules.

† Although this MERLIN II module is supported, the 800 GS/LS is the recommended module.

Page 75

Specifications

Capacity: 4 trunks, 8 extensions, 1 PFT telephone Extension signaling: Analog multiline telephone (40 kbps) Trunk signaling: Loop-start trunk, analog voice Loop range: 1000 feet (305 m), in-building or in-range out-of-building (with analog IROB protectors) only Capacity: 4 trunks, 8 extensions, 1 PFT telephone Extension signaling: Analog multiline telephone (40 kbps) Trunk signaling: Loop-start or ground-start trunk (optional per port); voice Loop range: 1000 feet (305 m), in-building or in-range out-of-building (with analog IROB protectors) only Capacity: 4 trunks, 8 digital extensions, 1 PFT telephone, 1 CTI link Extension signaling: BRI S/T protocol (two 64-kbps B channels, one 16-kbps D channel) on a passive bus Trunk signaling: Loop-start or ground-start trunk (optional per port), analog voice Loop range: 3000 feet (914 m), in-building or in-range out-of-building (with MLX IROB protectors) only Capacity: 8 trunks, 2 PFT telephones Signaling: Loop-start Capacity: 8 trunks, 2 TTRs Transmission: Incoming calls only: 2-way (1-pair) fixed impedance to DID trunks; no outgoing calls Signaling: Loop-reverse battery: wink-start or immediate-start: accepts touch-tone dialing Capacity: 8 trunks, 2 PFT telephones Signaling: Loop-start or ground-start Capacity: 8 lines/trunks, 2 PFT telephones, 2 TTRs

Signaling: Loop-start or ground-start

Protocol: Requires calling number identification service from central office

Page 76

Adjunct Summary

Equipment Type	Specifications	Lucent Technologies Products
Alerts (AC)*	 Any audible or visual alert that operates on 20-30 Hz ringing signals Associated with a specific extension (supplemental alert) or works on a programmed trunk port (external alert) 	External Ringer—Loud External Ringer
Alerts (DC)	 Any audible or visual alert that operates on 48-VDC ringing signals Associated with a specific extension (supplemental alert) or works on a programmed trunk port (external alert) 	Alert bell Alert horn Alert strobe Alert chime Alert deluxe horn Alert switch
Answer/ record machine*	 Industry-standard machine Low ringer equivalence (less than 0.15 or (4.0[†] total REN for T/R port) Ability to recognize 600-ms disconnect signal or other means of automatic disconnect (such as voice reset disconnect timer, fixed recording time) 	Model 1300 answering machine Model 1531 Remote Answering System telephone

* Cannot be connected to a QCC.

† latest 012 T/R Module (517H13)

Page 77

Interface				
LS or GS/LS	T/R	MFM	GPA	SAA
Line/ Trunk Jack	012/016 Extension Jack	MLX Extension Jack	Analog Extension Jack	Analog Extension Jack
	1	1	1	
1		1		1
	1	1	1	1

* Requires Universal Paging Access Module (UPAM) to provide 48 VDC.

Page 78

Adjunct Summary (continued

Equipment Type	Specifications	Lucent Technologies Products
Cordless Telephone	 Must have touch-tone dialing capability when connected via MFM; rotary or touch-tone dialing can be used on T/R port. Single line 	5650 Cordless Telephone 5481 Cordless Telephone 5552 Cordless Telephone
Credit Card Verification Terminal*	 Must have touch-tone dialing capability when connected via MFM; rotary or touch-tone dialing can be used on T/R port 	N/A
Dial Dictation*	 A device that requires contact closure can be used on LS/GS line jack only with UPAM 	N/A
Direct Station Selector	 A maximum of 2 DSSs can be connected to an operator console. A 329A power unit must be added to an operator console having 2 DSSs. Connects to DSS jack on operator console 	

* Cannot be connected to a QCC.

Page 79

	Interface				
LS or	т/п		CDA	644	
GS/LS	T/R	MFM	GPA	SAA	
Line/ Trunk	012/016 Extension	MLX Extension	Analog Extension	Analog Extension	
Jack	Jack	Jack	Jack	Jack	
Jack	Jack	Jack	Jack	Jack	
	1	1	1		
	~	~			
1	1	1	1		
v	v	v	v		

Page 80

Adjunct Summary (continued

Equipment Type	Specifications	Lucent Technologies Products
Fax [*]	 Must have touch-tone dialing capability when connected via MFM; rotary or touch tone dialing can be used on T/R port. Industry-standard analog interface. 	
Group Calling Delay Announcement*	 Industry-standard announcement device Must provide automatic disconnect Each calling group can have its own announcement (maximum 32). A device can provide delay announcement for more than one group. 	Model 1330 Answering Machine Digital Announcement Unit
Hands-Free Unit	 For use with analog multiline telephones Connects directly to telephone 	5202A
Headset for analog multiline telephone	N/A	Starset Mirage Supra Supra NC

* Cannot be connected to a QCC.

Page 81

Interface						
LS or GS/LS	T/R	MFM	GPA	SAA		
Line/ Trunk Jack	012/016 Extension Jack	MLX Extension Jack	Analog Extension Jack	Analog Extension Jack		
	✓ can also use 008 OPT Extension Jack	1				
	~	~	~			

Page 82

Adjunct Summary (continued

Equipment Type	Specification	Lucent Technologies Products
Headset for MLX telephone	N/A	Starset Mirage Supra Supra NC
Headset Adapter	 Connects directly to telephone OTHER jack. 	
Loudspeaker Paging	 External paging system using DTMF signaling connected to LS or GS line jack CPE paging systems require an interface unit; if CPE has 2-wire input, the PagePal interface (5335-700) can be used. 	PagePac Plus Amplicenters D20, D100, D300 PagePac Plus Controller PagePac 6 PagePac 6 Plus
Message Waiting Indicator	 For single-line telephones Connects directly to telephone 	Z34A (PEC 3 1032)
Modem	 If the modem supports touch- tone dialing via the associated data terminal, the keyboard can be used for dialing. If the modem does not support touch-tone dialing, an associated basic (single-line) telephone can be used for dialing. 	

Page 83

Interface						
LS or GS/LS	T/R	MFM	GPA	SAA		
Line/ Trunk	012/016 Extension	MLX Extension	Analog Extension	Analog Extension		
Jack	Jack	Jack	Jack	Jack		
1						
✓.	1	1	1			

* For 2224G Modem only.

Page 84

Adjunct Summary (continued

Equipment Type	Specifications	Lucent Technologies Products
Music-on-Hold*	 Any FCC-registered 8-ohm music source or recorded announcement device 	Magic on Hold
Speakerphone	 Connect directly to telephone For single-line telephones only 	4A [†] (PEC 3120-02W) 203A (PEC 3131-008)
SMDR Printer	 Connects to upper RS-232-C jack on processor module Must be located within 50 feet (15 m) of control unit or use ADU to extend distance 	475 Printer 476 Printer 572 Printer

If you use equipment that rebroadcasts music or other copyrighted materials, you may be required to obtain a copyright license from and pay license fees to a third party such as the American Society of Composers, Artists, and Producers (ASCAP) or Broadcast Music Incorporated (BMI). Or you can purchase a Magic on Hold system, which does not require you to obtain such a license, from Lucent Technologies or an authorized dealer.

† Requires 2500SM telephone.

Page 85

Interface					
LS or GS/LS	T/R	MFM	GPA	SAA	
Line/	012/016	MLX	Analog	Analog	
Trunk	Extension	Extension	Extension	Extension	
Jack	Jack	Jack	Jack	Jack	
✓.					
	\checkmark^{\dagger}				

* Music Coupler required (PEC 61398).

† As of Release 4.0

Page 86

Power Supply Unit Load Requirements

Unit Load Calculation Rules

Mode	Installed Modules	Calculation
Hybrid/PBX, Modified Key, or	6*	Not required
Behind Switch		
Square Key or	4 or fewer †	Not required
Behind Switch		
Square Key or Behind Switch	5 or more	 Use the "Unit Load Rating of System Modules" table and instructions below to determine the estimated unit loads (ULs): If the ULs < 75 and the 391A3 power supply is used, then no calculation is required. If a 391A1 or 391A2 power supply is used and the ULs > 54, then an auxiliary power supply is needed <u>or</u> replace the power supply with a 391A3. If ULs > 75, reconfigure the system so that the total ULs do not exceed 75 per carrier.

* The 391A1 and 391A2 power supply units generally support 6 modules of any type in Hybrid/PBX mode. However, if all 6 carrier slots meet the following conditions, the unit load total may exceed 54 and auxiliary power may be required:

Only MLX or analog multiline station modules are installed.

More than 45 MLX-20L or 34-button analog multiline telephones are installed.

The 391A3 power supply has a maximum rating of 75 unit loads. Use this power supply in place of a 391A1 or 391A2 on systems where unit loads will exceed 54.

- Auxiliary Power Units cannot be used with the 391A3 power supply.
- † The 391A1 power supply unit generally supports 4 modules of any type in Square Key mode.

Power Supply Unit Load

Page 87

Power Supply Unit Load Requirements (continued)

Unit Load Rating of System Modules

Module	Unit Load	Module	Unit Load
008	12.0	408 GS/LS	12.0
008 MLX	13.5	408 GS/LS-MLX	12.0
008 OPT	8.0	408 (LS)	12.0
012 T/R	7.2*	800 GS/LS	0.0
016 T/R	12.8	800 GS/LS-ID	0.0
100D (DS1)	0.0	800 (LS) [†]	0.0
400 GS/LS/TTR	0.0	800 DID	8.0
400 (LS)*	0.0	800 NI-BRI	0.0
400EM	8.0	Processor	0.0

* 012 modules older than 517H13 may have a unit load up to 8.4.

† This is a MERLIN II loop-start-only module that can be used in the MERLIN LEGEND Communications System.

Power Supply Unit Load

Page 88

Power Supply Unit Load Requirements (continued)

Unit Load Rating of System Trunks, Telephones, and Adjuncts

Network Access Trunks [*]	Unit Load
DID	1.0
DS1	0.0
GS/LS	0.0
GS/LS Tie	0.0 1.4
	1.4
Telephones MLX-5, MLX-5D	.9
,	.9 1.2
MLX-10, MLX-10D, and MLX-10DP MLX-16DP	1.2
MLX-28D MLX-20L	1.7 1.6
BIS-10	1.1
BIS-22 and BIS-22D	1.3
BIS-34 and BIS-34D	1.5
MLC-5	0.0
MDC 9000	0.0
MDW 9000	0.0
5-Button	0.8
10-Button Basic	1.1
10-Button HFAI	1.2
34-Button Basic	1.1
34-Button DLX	1.7
34-Button BIS	1.4
34-Button BIS/DIS	1.4
Single-line telephone	0.7
Optional Equipment	
EICON board (CTI link interface in NetWare server)	0.0
DSS console [†]	0.9
MFM [‡]	1.3
General Purpose Adapter	1.0
Hands Free Unit	1.0
Headset adapter	1.0

Unit loads are computed per trunk.

† Up to two DSS consoles (one DSS per MLX-28D or MLX-20L) can be powered from each control unit carrier. For example, a 3-carrier system can have 6 system operator positions, each with one DSS powered from the control unit.

‡ The MFM is powered by an individual wall power unit located at the station.

System Feature Availability by

Page 89

System Feature Availability by Operating Mode

	Mode		
Feature	РВХ	Key	Behind Switch
Account Code Entry	1	<i>✓</i>	1
Authorization Codes	1	1	1
Automatic Maintenance Busy	1	<i>✓</i>	1
Automatic Route Selection	1		
Callback	1	1	1
Calling Restrictions	1	<i>✓</i>	1
Centrex Transfer via Remote Call Forwarding	1	~	1
Coverage	1	<i>✓</i>	1
Coverage VMS Off	1	<i>✓</i>	1
CTI Link	1		
Delayed Ring interval	1	<i>✓</i>	1
Direct Inward Dialing	1		
Direct-Line Console options	1	<i>✓</i>	1
Direct Voice Mail	1	1	
Directory	1	<i>✓</i>	1
Extension Status	1	<i>✓</i>	1
Forced Account Code Entry	1	<i>✓</i>	1
Group Calling (DGC)	1	1	1
Headset Status	1	1	1
Hold disconnect	1	1	1
Inside dial tone	1	1	1
Labeling	1	1	✓
Language selection	1	✓	✓
Loudspeaker Paging	1	1	1
Microphone Disable	1	1	1
Night Service	1	1	✓

System Feature Availability by

Page 90

System Feature Availability by Operating Mode (continued)

	Mode		
Feature	РВХ	Key	Behind Switch
Paging groups	1	1	1
Park	1	~	1
Pickup groups	1	>	1
Pools (trunk groups)	1		
Queued Call Console options	1		
Recall interval	1	1	1
Reminder Cancel	1	~	1
Remote Access	1	>	1
Remote Call Forward	1	>	1
Station Message Detail Recording	1	>	1
System Numbering	1	1	1
System Restart	1	>	1
System Speed Dial	1	>	1
Tandem Trunking	1	>	1
Toll Туре	1	>	1
Touch-tone or rotary signaling	1	1	 Image: A second s
Transfer options	1	1	 Image: A second s
Uniform Dial Plan (UDP)	1		
Voice Announce to Busy	1	1	1

System Feature Availability by

Page 91

NOTES

Page 92

K Key mode P Hybrid/PBX mode B Behind Switch mode

Telephone and Operator Console Features

Feature	Program Code		Feature Code
Account Code Entry	*82	82 + code	
Alarm [†]	*759		
Authorization Code	*80	80+ code	
Auto Answer All	*754		
Auto Answer Intercom	*753		
Auto Dial			
Inside (ext., group, zone)	*22 + ext. no.		
Outside	*리 + <i>tel. no.</i>		
Automatic Line Selection			
Enter	*14		
Exit	**]4		
Barge-In ^{* †}	*58		
Callback			
Automatic			
On	*15		
Off	**15		
Selective	*55	55	
Cancel selective		*55(single	-line sets only)

* Centralized telephone programming only.

† System operator-only feature.

MLX- 5D, 10D	MLX- 16DP,28D	MLX- 20L	Single- Line	MLX- 5, -10	Analog Multiline [*]
KPB	KPB	KPB	KP	KPB	KPB
	KPB	KPB			KPB
KPB	KPB	KPB	KP	KPB	KPB
					KPB
					KPB
KPB	KPB	KPB		KPB	KPB
KPB	KPB	KPB		KPB	KPB
KPB	KPB	KPB		KPB	KPB
KPB	KPB	KPB	KP	KPB	KPB

* Includes the MDW 9000, MDC 9000, and MLC-5 telephones.

Page 94

Telephone and Operator Console

Features, (continued)

Feature	Program Code	Feature Code
Call Waiting		
On	*11	
Off	**11	
Call Waiting Pickup		87
Camp-On	*57	57
Conference	*772	772
Coverage		
Receiver buttons		
Group	*42 + <i>ext. no.</i>	
Primary	*4□ + ext. no.	
Secondary	*41 + ext. no.	
Sender buttons		
Cover inside & outside calls	*4B	
Cover outside calls only	**48	
Coverage Off	*49	
Coverage VMS Off	*4 6	
Data Status	*83 + ext. no.	
Direct Voice Mail	*56	56+ <i>ext. no.</i>
Directory		
System Directory	(system programmir	ng)
Extension Directory	(display only)	
Personal Directory	(display only)	
Do Not Disturb	*47	
Drop	*773	773

Page 95

MLX- 5D, 10D	MLX- 16DP,28D	MLX- 20L	Single- Line	MLX- 5, -10	Analog Multiline [*]
KPB	KPB	KPB	KPB	KPB	KPB
KPB	KPB	KPB		KPB	KPB
В	В	В		В	В
КРВ	КРВ	KPB	КРВ КРВ КРВ КРВ	KPB	КРВ
KPB	KPB	KPB		KPB	KPB
KP	KP	KP	KP	KP	KP
КРВ КРВ	KPB KPB	KPB KPB KPB			
KPB	KPB	KPB		KPB	KPB
В	В	В		В	В

* Includes the MDW 9000, MDC 9000, and MLC-5 telephones.

Page 96

Telephone and Operator Console Features, (*continued*)

	Program	Feature
Feature	Code	Code
Extension Status		
Direct-Line Console*		
Status Off	*760	760 + DSS button
Status 1	*761	761 + DSS button
Status 2	*762	762 + DSS button
Telephones		
(rooms or agents)		
Status Off		*44
Status 1	*45	45
Status 2	*44	44
Feature button	*20	
Forward and Follow Me		
Activate		
Forward (inside)	*33	33 + ext. no.
Remote Call Forward	*33	33 + tot. no. + #
Follow Me		34 + ext. no.
Cancel		
At originating extension		33 + own ext. no.
At destination extension		
Cancel one		*34 + ext no.
Cancel all		*34*
Group Calling		
In-Queue Alarm button	*22 + calling	
	group ext. no.	
Calling group supervisor	5 1 1	
Enter supervisor mode*		32 + Hold
Exit supervisor mode*		32 + <i>Drop</i>
Available (ES Status 2)	*762	762 + DSS button
Unavailable (ES Status Off)	*760	760 + DSS button
Calling group members	* 1 L L	
Sign in (Available)	*44	44
Sign in (Available) Sign out (Unavailable)	*11	44 *44
After-call work state	*45	45
	*43	43
(CMS only)		

* System operator-only feature.

Page 97

MLX- 5D, 10D	MLX- 16DP,28D	MLX- 20L	Single- Line	MLX- 5, -10	Analog Multiline [*]
	KPB	KPB			KPB
КРВ	KPB	KPB	KPB	КРВ	KPB
					KPB
KPB	KPB	KPB	KPB	KPB	KPB

KPB	KPB		KPB	KPB
KPB	KPB			KPB
KPB	KPB	KPB	КРВ	КРВ
	KPB	KPB KPB	КРВ КРВ	КРВ КРВ

* Includes the MDW 9000, MDC 9000, and MLC-5 telephones.

Page 98

Telephone and Operator Console Features, (*continued*)

Feature	Program Code	Feature Code
Group Page Auto Dial button	*22 + group	
	ext. no.	
Headset		
Auto Answer	*780	
Hang Up	*781	
Mute (Headset/Handset)	*783	
Status	*782	
Hold		771
Hold Release		**
Intercom buttons		
Assign buttons*		
ICOM (Default Ring)	*16	
ICOM Originate Only	*18	
Change type		
Ring	**19	
Voice	*17	
Language		
English		790
French		791
Spanish		792
Last Number Dial	*84	러
Messaging		
Leave Message		
After calling	*25	25
Without calling		53 + ext. no.
Cancel message left		*53 + <i>ext. no.</i>
Message LED off	* 54	54
Posted Message	*751	
Send/Remove Message [†]	*38	38 + <i>ext. no.</i>

* Centralized telephone programming only.

† System operator-only feature.

Page 99

MLX- 5D, 10D	MLX- 16DP,28D	MLX- 20L	Single- Line	MLX- 5, -10	Analog Multiline [*]
KPB	KPB	KPB		KPB	KPB
КРВ	КРВ	KPB		КРВ	
В	В	В		В	В
В	В	В	В	В	В
ΚB	КB	ΚB		КB	КB
			КВ КВ		
КРВ	KPB	KPB		KPB	
KPB	KPB	KPB	ΚP	KPB	KPB
KPB	KPB	KPB	KPB	KPB	KPB
KPB	KPB	KPB	KPB	KPB	KPB
KPB	KPB	KPB	KPB	KPB	KPB
KPB	KPB	KPB		KPB	KPB
KPB	KPB	KPB		KPB	KPB
	KPB	KPB			KPB

* Includes the MDW 9000, MDC 9000, and MLC-5 telephones.

Page 100

Telephone and Operator Console

Features, (continued)

Feature	Program Code	Feature Code
Messaging (continued)		
Receiving messages	*26	26
Delete Message*	*58	28
Next Message*	*27	27
Return Call*	*29	29
Scroll*		
Night Service [†]	*37	39
Notify		
Send	*757 + <i>ext. no</i> .	
Receive	*758 + <i>ext. no.</i>	
Park	*86	
Park Zone Auto Dial [†]	*22 + Park Zone	
Personal Speed Dial	# + (Ol - 24) + *己	01 -24
	+ tel no. + #	
Personalized Ringing	*32 + <i>ring</i> (1=8)	
Pickup		
General use	*7	
Specific line or ext.	*□ + line no./ext.	∃ + line no./ext.
Group	*88	88
Position Busy [†]	*750	
Privacy		
On	*31	31
Off		*31
Recall	*775	775

* Display telephones only. Programming and feature codes are used with analog multiline telephones only; MLX telephones use display.

† System operator-only feature.

Page 101

MLX- 5D, 10D	MLX- 16DP,28D	MLX- 20L	Single- Line	MLX- 5, -10	Analog Multiline [*]
KPB	KPB	KPB			KPB
KPB	KPB	KPB			KPB
KPB	KPB	KPB			KPB
					KPB
	KPB	KPB			KPB
KPB	KPB	KPB		KPB	KPB
KPB	KPB	KPB	ΚP	KPB	KPB
	KPB	KPB			KPB
KPB			ΚP	KPB	KPB
KPB	KPB	KPB		KPB	KPB
KPB	KPB	KPB	ΚP	KPB	KPB
		Р			
KPB	KPB	KPB	ΚP	KPB	KPB
KPB	KPB	KPB		KPB	KPB

* Includes the MDW 9000, MDC 9000, and MLC-5 telephones.

Page 102

Telephone and Operator Console Features, (*continued*)

Feature	Program Code	Feature Code
Reminder Service		
Set	*81	₽1 + time [*]
Operator Set [†]		리 + ext. no. + time [*]
Cancel	**81	*81
Operator Cancel [†]		*8⊒ + <i>ext. no.</i> †
Missed [†]	*752	
Ringing/Idle Line Preference		
On	*343	
Off	*344	
Ringing Options		
Individual lines		
Immediate ring	*37	
Delay ring	*36	
No ring	*35	
All lines		
Immediate Ring	*347	
Delay Ring	*346	
No Ring	*345	
Abbreviated Ring		
On	*34l	
Off	*342	
Send Ring (Shared SA)		
On	*15	
Off	**15	

* English only: time is 12-hour (0100-1259) + 2(A) or 7(P). French and Spanish: time is 24-hour (0000–2359).

† System operator-only feature.

MLX- 5D, 10D	MLX- 16DP,28D	MLX- 20L	Single- Line	MLX- 5, -10	Analog Multiline [*]
КРВ	КРВ	КРВ	КРВ	КРВ	КРВ
KPB	KPB	KPB		KPB	KPB
КРВ	KPB	КРВ		КРВ	KPB
Ρ	Ρ	Ρ	Ρ	Ρ	Р

* Includes the MDW 9000, MDC 9000, and MLC-5 telephones.

Telephone and Operator Console Features, (continued)

Feature	Program Code	Feature Code
Saved Number Dial*	*85	
Send/Remove Message [†]	*38	38 + ext. no.
Signaling	*召 + ext. no.	
System Access buttons		
Assign buttons [*] SA (default Ring) SA Originate Only Shared SA Change type (SA or Shared SA) Ring Voice	*16 *18 *17 + primary ext. no. **19 *19	
System Speed Dial	*24 + <i>code</i> (600-729)	600-729
Transfer	*774	774
Voice Announce		
On	*10	
Off	**]0	

Centralized telephone programming only.
 System operator-only feature.

MLX- 5D, 10D	MLX- 16DP,28D	MLX- 20L	Single- Line	MLX- 5, -10	Analog Multiline [*]
KPB	KPB	KPB		KPB	KPB
	KPB	KPB			KPB
KPB	KPB	KPB		KPB	KPB
Р	Р	Р		Р	Р
			Р		
			Р		
			Р		
KPB	KPB	KPB	ΚΡ	KPB	KPB
В	В	В		В	В
KPB	KPB	KPB		KPB	KPB

* Includes the MDW 9000, MDC 9000, and MLC-5 telephones.

January 1998

Issue 2

Reference Documents				
Document				
Number	Title			
	System Documents			
555-660-100	Customer Documentation Package [*]			
555-660-110	Feature Reference			
555-660-111	System Programming			
555-660-112	System Planning			
555-660-113	System Planning Forms			
555-660-116	Pocket Reference			
555-660-118	System Manager's Guide			
555-660-150	Network Reference			
555-660-800	Customer Reference CD-ROM [†]			
	Telephone User Support			
555-660-120	Analog Multiline Telephones User's Guide			
555-660-122	MLX Display Telephones User's Guide			
555-660-124	MLX-5 and MLX-10 Nondisplay Telephone Us-			
FFF 000 400	er's Guide			
555-660-126	Single-Line Telephones User's Guide			
555-660-138	MDC and MDW Telephones User's Guide			
555-630-150	MLX-5D, MLX-10D and MLX-10DP Telephone Tray Cards (6 cards)			
555-630-151	MLX-5 and MLX-10 (non-display) Telephone			
FFF 000 4F0	Tray Cards (6 cards)			
555-630-152	MLX-28D and MLX-20L Telephone Tray Cards (5 cards)			
555-630-155	MLX-16DP Telephone Tray Cards (5 cards)			
	System Operator Support			
555-660-132	Analog Direct-Line Consoles Operator's Guide			
555-660-134	MLX Direct-Line Consoles Operator's Guide			

⁵⁵⁵⁻⁶⁶⁰⁻¹³⁶ MLX Queued Call Console Operator's Guide

^{*} The Customer Documentation Package consists of the paper versions of the System Manager's Guide, Feature Reference, and System Programming.

[†] The Customer Reference CD-ROM contains the System Manager's Guide, Feature Reference, System Programming, and Network Reference.

Reference Documents

Page 107

Reference Documents, (continued

	, (,
Document Number	Title
555-660-130 555-640-105	Miscellaneous User Support Calling Group Supervisor's Guide Data and Video Reference
555-660-140	Documentation for Qualified Technicians Installation, Programming, & Maintenance (IP&M) Binder [consists of Installation, System Programming & Maintenance (SPM), Mainte- nance and Troubleshooting, Programming
555-660-801	Summary] Reference Documents CD-ROM
555-025-600	Toll Fraud Security BCS Products Security Handbook

Within the continental United States, these documents can be ordered from the Lucent Technologies Customer Information Center by calling 1 800 457-1235.

Reference Documents

Page 108

NOTES

Page 109

Technical Addendum

Maintenance Error Codes

Error Code	Description	Action
0001	TIME OUT COLD START: System programming OK.	No action required; however, if problem persists, troubleshoot the processor.
5000	POWER UP WARM START: System programming OK.	No action required; however, if problem persists, troubleshoot the processor.
0003	SOFTWARE COLD START: System programming OK.	If problem persists, troubleshoot the processor.
0004	SOFTWARE WARM START: System programming OK.	If problem persists, troubleshoot the processor.
0005	Reset - DIAGNOSTIC SWI	TCH:
0006	INCOMPLETE COLD START: System cold-started while restart in progress.	If problem persists, troubleshoot the processor.
7000	SANITY TIMEOUT RESET: Faulty software, module, carrier, or processor sanity timer.	Check module and/or processor.
0008	MAX_RESET_COUNT EXCEEDED: System cold-started because of too many warm starts.	If problem persists, troubleshoot the processor.
0009	FRIGID START: System restarted and initialized to defaults; also logged after System Erase.	If processor was removed while in use, system may perform frigid start because of loss of system programming. Restore system as described in <i>System Programming and</i> <i>Maintenance (SPM)</i> .

Page 110

Technical Addendum

Error Code	Description	Action
000A	POWER UP COLD START: RAM failure in processor; system programming OK.	If problem persists, check processor.
000B	CARD INSERTED/REMOVED:	None.
000C	SLOT STREAM CNT EXCEEDED: Slot generated excessive interrupts.	If problem persists, check module.
000⊅	FMWR NOT IN STANDBY MODE: Module firmware not in standby mode.	lf problem persists, check module.
000E	COMMAND BUFFER FULL:	If problem persists, check processor and module.
000F	TASK RUNNING TOO LONG	None; if problem persists, check processor.
0010	INVALID SLOT INTERRUPT: Cannot determine module responsible for interrupt.	Check modules and replace if necessary; if problem persists, check processor.
0011	STACK 0VERFL0W: Processor problem.	Check processor.
0012	INVALID RESET FLAG: Processor problem.	Check processor.
0013	DUART STREAMING INT: Processor problem.	Check processor.
0014	PROCESSOR ERR INTERRUPT: Processor problem.	Check processor.
0015	MODULE MISMATCH: Module inserted into wrong slot.	Change system programming for proper module or install proper module.

Page 111

Technical Addendum

Error Code	Description	Action
0076	POWER UP COLD START: Module dual port RAM failure; system programming OK.	If problem persists, check module for slot indicated.
7100	REAL TIME CLOCK FAULT: Date and/or time incorrect or unreadable.	If problem persists, replace processor module.
0018	RTC COLD START: This error is not displayed.	
0019	RESET TIME & DATE: System cold-starts because real-time clock chip is not working correctly.	If problem persists, replace processor module.
0401	ABK CARD NOT INSERTED: PCMCIA memory card for translation is not inserted.	Insert a translation card or an unformatted card.
0402	ABK INCORRECT CARD TYPE: PCMCIA memory card for non-translation is inserted.	Remove current card and insert a translation card or an unformatted card.
0403	ABK CARD WRITE- PROTECTED: Translation card has write- protected switch on.	Turn write-protection switch to off. If problem persists, try another card. If still not working, replace processor module.
0404	ABK EXTENSION BUSY: A station is in program, administration, or maintenance mode.	Wait until station changes mode.

Technical Addendum

Error Code	Description	Action
0405	ABK FAULTY CARD: Unknown cause of a bad card.	Reset card and retry. If problem persists, try another card. If still not working, replace processor module.
0 &0 J and 1 < C 0 7 and 5 & 0 J	CTI LINK DELETED: A board renumber or slot restore moved the CTI link to an unacceptable port and the system has removed the link.	Check that the following are true: 1. The system is in Hybrid/ PBX mode. 2. The link is on an 008 MLX or 408 MLX board. 3. The MLX board firmware vintage is not 29. 4. The extension is not an operator position. 5. An MLX telephone is not connected to that port. 6. Board renumber has not moved the MLX extension to the system programming port.
0C07	NO I-VMS PORT IN SERV: VMS machine may be down.	None
2020	DID INTERDIGIT TIME OUT: Noisy line or CO problem.	None; if problem persists, check DID line and inform CO if necessary.
0003	ALL TTRS UNAVAILABLE: The system needed to use a Touchtone Receiver but one was not available for any and all reasons including: in use, not physically present, and out of service.	Check to see if additional TTRs can be added to the system.
TCOT	P00L M-BUSY EXCEEDS 50%: More than half the trunks in pool are busy.	Check trunk.

Maintenance Error Codes (continued)

Page 113

Technical Addendum

Error Description Action Code 1005 DPR TEST NOT Slot did not complete COMPLETED: initializing. 1CO3 FW UPGRADE ATTEMPT: No action required. 1/10/14 FW UPGRADE COMPLETE No action required. 1/0 1 TNVALTD FMM 29 Replace 008 or 408 MLX DETECTED: module with one of another Incompatibility problem; firmware vintage. Retire specified video endpoint or permanent alarm manually. UDM is connected to an 008 or 408 MLX module with firmware of vintage 0x29. 1006 BAD BOARDS IN SYSTEM: Replace 008 or 408 MLX At least one incompatibility module with one of another problem of type HER firmware vintage. Retire 0x1C05 detected. Turns on permanent alarm manually. red LED on processor. 1007 See error code 0801 201 TL ACCESS VIOLATION: Check facility provisioning and re-administer channels T1 services (channelsfor voice or data. Ensure that voice/data) administered incorrectly. T1 data facilities are accessed from data terminals only (such as UDMs or desktop video systems) and that T1 voice facilities are accessed from telephones only (such as MLX telephones). Bearer Capabilitv 20.22 Verify that the ARS or UDP Incompatibility: routing tables route a data A 64 kbps clear-channel call to a DS1 facility. Check data call was routed to a the DS1 Type administration facility that does not have item for the specified facility. sufficient bandwidth to If the administered value is handle the call T1. the caller must initiate a 56 kbps call. Check the DS1 Suppression administration item for the specified facility. If the administered value is AMI-ZCS, the caller must initiate a 56 kbps call.

Technical Addendum

Error Code	Description	Action
3001	ALARM TABLE FULL: Error logs are full; turns on processor LED.	Correct indicated errors, and then remove entries from the transient system error log. If problem persists, cold-start the system. SysProgram→System→ Restart
4401	USER REQUESTED SYS ERASE: Logged after System Erase. If System Erase is successful, this error is removed immediately.	If error remains in transient log, repeat System Erase. If problem persists, check processor.
4402	USER REØST UPGRD/INSTALL:	None.
4001	POOL EMPTY: The system needed to use a trunk in a pool but no trunks were physically present in the pool, i.e., all of the boards were removed from the system.	Replace boards.
402	POOL BUSY: The system needed to use a trunk in a pool. Trunks are physically present; however, none are idle and available for use, i.e., they may be in use or out of service.	
4003	POOL BUSY & /OR OOS: The system needed to use a trunk in a pool. Trunks are physically present, some may be busy but some are idle. However, the idle trunks are not in service.	Restore if out of service.
5801	See error code	
601	DS1 LOSS OF SIGNAL ALARM: Service on link has been lost.	Usually no action. Check T1 facility. If problem persists, contact NSAC Tier III.

Page 115

Technical Addendum

Error Code	Description	Action
PC05	DS1 BLUE ALARM: All 1s being received; service on link has been lost.	Usually no action. Check T1 facility. If problem persists, contact NSAC Tier III.
603	DS1 RED ALARM: Invalid framing information on incoming signal; service on link has been lost.	Usually no action. Check T1 facility. If problem persists, contact NSAC Tier III.
601	DS1 YELLOW ALARM: Far end of network interface has lost frame synchronization; service on link has been lost.	Usually no action. Check T1 facility. If problem persists, contact NSAC Tier III.
605	DS1 LOSS OF MULTIFRAME: Service on link has been lost.	Usually no action. Check T1 facility. If problem persists, contact NSAC Tier III.
LCOL	DSL REMOTE MULTIFRAME: Far end of network interface is experiencing loss of multiframe; service on link has been lost.	Usually no action. Check T1 facility. If problem persists, contact NSAC Tier III.
607	DSL MAJOR ALARM: Average bit error rate exceeds 10E-3; service on link has been lost.	Usually no action. Check T1 facility. If problem persists, contact NSAC Tier III. Maintenance \rightarrow Slot \rightarrow Error Events \rightarrow Current hr
PC09	DS1 MIN0R ALARM: Average bit error rate exceeds 10E-6.	Usually no action. Check T1 facility. If problem persists, contact NSAC Tier III. Maintenance \rightarrow Slot \rightarrow Error Events \rightarrow Current hr
609	DS1 MISFRAME ALARM: Misframe count reached 18.	Usually no action. Check T1 facility. If problem persists, contact NSAC Tier III. Maintenance \rightarrow Slot \rightarrow Error Events \rightarrow Current hr

Page 116

Technical Addendum

Error Code	Description	Action
LC0A	DS1 SLIP ALARM: Slip count reached 88.	Usually no action. Check T1 facility. If problem persists, contact NSAC Tier III. Maintenance→Slot→ Error Events→ Current hr
LCOB	HARDWARE INOPERATIVE: Hardware not operating properly. If this is the only 100D module or 800 NI-BRI module, or if this is the designated clock module, its TDM bus clock generator was not activated.	A Busy-Out/Restore or Reset/Restore may clear problem. If problem persists, contact NSAC Tier III.
FCDC	BRI L0SS 0F SYNC: Service on link has been lost.	Usually none; check BRI facility. If problem persists, contact NSAC Tier III.
PCDD	BRI SLIPS > &&: Slip count > 88. Service on link is still operative.	Usually none; check BRI facility. If problem persists, contact NSAC Tier III.
LCOE	BRI NET REQUESTED CCRCs: Outgoing signal to the network does not have valid framing information. Service on link is still operative.	Usually none; link should return to normal once test is completed. If problem persists, contact NSAC Tier III.
6CDF	BRI NET DEACTIVATE: Layer 1 of the link is down. Service on link has been lost.	Usually none; link should return to normal once test is completed. If problem persists, contact NSAC Tier III.
PC10	BRI NET INV 2B+⊅ LB ACT: Service on link has been lost.	Usually none; link should return to normal once test is completed. If problem persists, contact NSAC Tier III.

Page 117

Technical Addendum

Error Code	Description	Action
FCJJ	BRI NET INV BL LB ACT: Service on link has been lost.	Usually none; link should return to normal once test is completed. If problem persists, contact NSAC Tier III.
PC75	BRI NET INV B2 LB ACT: Service on link has been lost.	Usually none; link should return to normal once test is completed. If problem persists, contact NSAC Tier III.
PC13	BRI NET INV IL LB ACT: Service on link has been lost.	Usually none; link should return to normal once test is completed. If problem persists, contact NSAC Tier III.
6014	BRI NET INV &M LB ACT: Service on link has been lost.	Usually none; link should return to normal once test is completed. If problem persists, contact NSAC Tier III.
7001	PRI SVC AUDIT TIMEQUT:	Check PRI facility and report to service provider; otherwise, no action is needed. If problem persists, contact NSAC Tier III.
7002	PRI SVC STATE INCONSIST:	Check PRI facility and report to service provider; otherwise, no action is needed. If problem persists, contact NSAC Tier III.
70 03	PRI D-CHNL INOPERATIVE:	Check PRI facility and report to service provider; otherwise, no action is needed. If problem persists, contact NSAC Tier III.

Technical Addendum

Error Code	Description	Action
7004	PRI B-CHNL NOT RELEASED:	Check PRI facility and report to service provider; otherwise, no action is needed. If problem persists, contact NSAC Tier III.
7005	PRI B-CH GROUP INCONSIST:	Check PRI facility and report to service provider; otherwise, no action is needed. If problem persists, contact NSAC Tier III.
7006	PRI PR0T0C0L MISMATCH: A mismatch in the protocol being supplied versus the protocol expected by MERLIN LEGEND.	Inform the service provider to change the administration for this circuit. After the service provider restarts the circuit, verify that all alarms for this slot
		are cleared.
7401	TRK UPLINK MESSAGE ERR0R: Communication problems between processor and modules; unrecognized message from module to processor.	Test trunk with single-line telephone. If problem is not in trunk, replace module with one known to work. If problem is not seen with known working module, replace the module and restart.

Maintenance Error Codes (continued)

Page 119

Technical Addendum

Error Description Action Code 7402 LOOP CONTROL BIT NOT Test trunk with single-line SET: telephone. If problem is No loop current on outgoing not in trunk, replace call. If error occurs four times module with one known consecutively, and if to work. If problem is not automatic maintenanceseen with known working busy is enabled with less module, replace the module and restart than 50% maintenance busy, trunk is busied-out automatically. 7403 NO LOOP CURRENT. Test trunk with single-line Communication problems telephone. If problem is between module and CO. not in trunk, replace No loop current. If error module with one known to work. If problem is not occurs four times consecutively, and if seen with known working automatic maintenancemodule, replace the module and restart. busy is enabled with less than 50% maintenance busy, trunk is busied-out automatically. 7404 STUCK RINGING: Test trunk with single-line Communication problems telephone. If problem is between module and CO. If not in trunk, replace error occurs two times module with one known consecutively, trunk is to work. If problem is not busied-out automatically seen with known working whether or not automatic module, replace the maintenance-busy is module and restart. enabled. 7801 NOT IN NORMAL OP MODE: Reset board. If problem Module not in normal persists, check module. Maintenance→Slot→ operation mode; reported in background module check. Slot Number→Reset 7802 SANITY INT NOT Reset board. If problem GENERATE D: persists, check module. Applies only to modules with extension jacks.

Page 120

Technical Addendum

Error Code	Description	Action
7803	N0 PORT BOARDS AVAILABLE: Modules not present.	None; delete entry from transient log.
7804	INVALID SANITY RESPONSE: Sanity test received invalid responses; applies only to modules with extension jacks.	Reset board. If problem persists, check module.
7805	INVALID SLOT NUMBER: Rare; software could not process an event detection because slot number was invalid.	None; if problem persists, restart system.
7806	NOT IN STANDBY MODE: Reported during cold start or background check.	Reset board. If problem persists, check module.
7807	SELF TEST NOT COMPLETED: Reported during cold start.	Reset board. If problem persists, check module.
7808	TEST RESULT REGISTER BAD: A module or processor error during test run.	Reset board. If problem persists, check module.
7809	TEST STATUS REGISTER BAD: A module or processor error during test run.	Reset board. If problem persists, check module.
780A	DPR TEST NOT COMPLETED: Reported during cold start.	If problem persists, check module.
780C	RAM TEST FAILURE: Memory failed RAM test; turns on processor LED.	If problem persists, replace processor.

Page 121

Technical Addendum

Error Code	Description	Action
780D	UPPER R0M FAILURE: Memory failed ROM test; turns on processor LED.	If problem persists, replace processor.
780E	LOWER ROM FAILURE: Memory failed ROM test; turns on processor LED.	If problem persists, replace processor.
8401	MISCELLANEOUS ERROR: Not reported.	None.
8402	LINK TOO SHORT: Outbound dialing problems on tie trunks. Wink from the far end of network interface is less than 100 ms, the minimum for delay-dial or wink-start tie trunks. Tie trunk waits for valid signal.	Check far end of network. Check for faulty cable. Replace module.
8403	NO EXTERNAL RELEASE: Communication problems between module and CO. Far end has not disconnected within 4 minutes. If error occurs twice consecutively, trunk is busied-out automatically whether or not automatic maintenance-busy is enabled.	Check far end of network interface. Check for faulty cable.
8404	ON HOOK BEFORE WINK: Outbound dialing problems on tie trunks. Far end of network interface went on- hook before handshake was completed (for delay- dial or wink-start tie trunk).	If problem persists, check tie trunk configuration. Check far end. Check for faulty cable. Replace module.

Technical Addendum

Error Code	Description	Action
8405	ON HOOK BEFORE READY: Outbound dialing problems on tie trunks. Far end of network interface went on- hook before guard time elapsed (for delay-dial or wink-start tie trunk).	Check far end of network interface. Check wink start and for faulty cable. Check far end of network. Replace module.
8406	INTERDIGIT TOO SHORT: Inbound dialing problems on tie and DID trunks.	Check far end of network interface. Check for faulty cable. Replace module.
8407	BAD UPDATE: Communication problems between processor and modules; module may need to be replaced.	Turn processor off and then on. Repeat system programming procedure. If problem persists, contact NSAC Tier III.
8408	ROTARY RATE > 12PPS: Inbound dialing problems on tie and DID trunks.	Check far end of network interface. Check for faulty cable. Replace module.
8409	R0TARY RATE < BPPS: Inbound dialing problems on tie and DID trunks.	Check far end of network interface. Check for faulty cable. Replace module.
840A	BAD DOUNLINK MESSAGE: Communication problems between processor and modules; module received an unrecognized message from processor.	Turn processor off and then on. Repeat system programming procedure. If problem persists, replace module.
840B	NO LOOP CURRENT: Communication problems between module and CO; no loop current. If error occurs four times consecutively and if automatic maintenance- busy is enabled and maintenance-busy limit is less than 50%, trunk is busied-out automatically.	Replace module with similar module and test. If problem is resolved, replace bad module. If problem persists, reinstall old module and test trunk.

Page 123

Technical Addendum

Error Code	Description	Action
840C	STUCK RINGING: Communication problems between module and CO; no loop current. If error occurs four times consecutively and if automatic maintenance- busy is enabled and maintenance-busy limit is less than 50%, trunk is busied-out automatically.	Replace module with similar module and test. If problem is resolved, replace bad module. If problem persists, reinstall old module and test trunk.
840⊅	INCORRECT FIRMWARE STATE: If error occurs four times consecutively and if automatic maintenance- busy is enabled and maintenance-busy limit is less than 50%, trunk is busied-out automatically.	Turn power off for at least one second, and then turn it on. Repeat system programming procedure. If problem persists, replace module.
840E	UPLINK MESSAGE ERROR: Communication problems between processor and modules. Module received unrecognized message from processor.	Turn processor off and then on. Repeat system programming procedure. If problem persists, replace module.
840F	LOST IDLE MESSAGE ERROR: The loop start trunk lost an idle message during glare timing.	The system has taken corrective action. If problem persists, contact NSAC Tier III.
ACOL	SLOTS NOT EQUAL: Module that occupies indicated slot does not match slot information contained in PC or PCMCIA card backup file.	Check slot descriptions in backup file against actual system modules that occupy slots. After mismatch is corrected, restore.
9801	MCARD WRITE ERROR: Write to memory card is unsuccessful or too slow.	Reset card and try again. If problem persists, replace card and try again. If problem continues, replace processor module.

Technical Addendum

Error Code	Description	Action
9802	MCARD ERASE ERROR: Erasure of memory card is unsuccessful or too slow.	Reset card and try again. If problem persists, replace card and try again. If problem continues, replace processor module.
9803	MCARD 12-V0LT ERR0R: The memory card voltage is incorrect.	Reset card and try again. If problem persists, replace card and try again. If problem continues, replace processor module.
9001	NW REJECTS SPID: Service on link has been lost.	Check administered line. Modify if required, or call CO to correct.
903	LINK ESTABLISHMENT FAIL: Service on link has been lost.	Check that line is securely connected to port and that LEDs on module show proper operation. If card appears to work properly, line may not have been activated by CO.
9004	Nຟ N0T RESP0ND T0 SETUP: Service on link has been lost.	Network not responding to LEGEND messages. Contact CO.
9005	NW NOT RESPOND TO RELEASE: Service on link has been lost.	Network not responding to LEGEND messages. Contact CO.
907	ENDPOINT UNINIT (L2/L3): Service on link is uninitialized.	If this lasts more than three minutes, replug the DSL. If the error remains, contact CO.

Maintenance Error Codes (continued)

Page 125

Technical Addendum

reload the PBX driver.

Error Description Action Code 9008 PROTOCOL ERROR: Verify line provisioning. If Service on link may be correct. contact NSAC affected. Tier III. A401 CTI LINK BROADCAST If several of these occur: RESET: 1. Check that the system Occurs during a broadcast is in Hybrid/PBX mode. reset. 2. Validate the wiring and the connections 3. Press the Restart Button (see the procedure "Restart" in Chapter 4 of Maintenance and Troubleshooting). 4. Call the TSO's **Telephony Services** Maintenance Group (800 242-2121) for the procedures to unload and reload the PBX driver. CTI LINK HIDDEN A801 If several of these occur, RESET: and the client application has "slow" response time: Occurs during a hidden reset. 1. Validate the wiring and the connections. 2. Press the Restart Button (see the procedure "Restart" in Chapter 4 of Maintenance and Troubleshooting). 3. Call the TSO's **Telephony Services** Maintenance Group (800 242-2121) for the procedures to unload and

Page 126

NOTES

Page 127

NOTES

Technical Addendum

Module/Component History

Module/ Component	PEC	Comcode	Apparatus Code
Backplane			
Basic		106388614	403E
		107007114	403G
Expansion	61490	106388630	403F
	61450	107007122	403H
Power Supply			
120 V		105743801	391A1
		106257199	391A2
		107184848	391A3
220 V		106678931	391B1
		107184855	391B2
Auxiliary	61416	406467142	90240-3
Processor			
R1.0/2.0		106215155	517A27
Secure		107096869	517A27-F
Hong Kong		107221434	517A27(16)
Czech		107628133	517A27(34)
520011			5Er (61)

Page 129

Technical Addendum

Release Used In	HW Vint	FW Vint	Notes
All			Used in control units 6140-CU1, 6140-CU2, 6140-CU3, 6140-INT, 6140-220, 6140-CUL, 6140-P3C, 6140-P3D, 6140-P3E, 6140-P4D, 6140-P4F and 6140-SEC
All All non-US All US			Used in control units 6140-CU1, 6140-CU2, 6140-CU3, 6140-INT, 6140-P3C, 6140-P3D, 6140-P3C, 6140-P3D, 6140-P3E, 6140-P4D, 6140-P4F and 6140-SEC Used in control unit 6140-220 and in expansion units 61450 and 61497 No longer available
1.0, 2.0, 1.1, 2.1, 1.2i, 1.3i, 1.4i	00		Used in control units 6140-CU2, 6140-INT, 6140-INT, and 6140-220
2.0, 2.1	05		For Federal Systems; used in control unit 6140-SEC
1.2i, 1.3i, 1.4i 1.2i, 1.3i, 1.4i	01		For Hong Kong For Czech Republic

Technical Addendum

Module/Component History (continued)

Module/ Component	PEC	Comcode	Apparatus Code
Processor (cont'd)			
R3.0		107040438	517A33
		107438921	517B33
		107430921	517655
R3.1		107752693	517D33
R3.1		107752693	517D33
R4.0		107743403	517C33
Feature Module			
R1.0		106064660	517A25
		106656739	517B25
		106729031	517C25
		106729031	517025
		106767767	517C25B
		106743008	517D25
		106743016	517E25
			_

DEFINITY ECS Release 6 System Description Pocket Reference 555-230-211

Technical Addendum

Page 131

Technical Addendum

Release Used In	HW Vint	FW Vint	Notes
3.0	01		ML R3.0 or later; no FM used; used in control units 6140-CU3, 6140-P3C, 6140-P3D, 6140-P3E, 6141-U3LA, 6141-103A
	02		ML R3.0 or later; no FM used; higher temperature reliability; no watch point registers; used in control units 6140-CU3, 6140-P3C, 6140-P3D, 6140-P3E, 6141-U3LA, 6141-103A
3.1	02		Used in control units 6140-CU3, 6140-P3C, 6140-P3D, 6140-P3E, 6141-U3LA, 6141-103A
4.0	02		Used in control units 6140-CU3, 6140-P3C, 6140-P3D, 6140-P3E, 6141-U3LA, 6141-103A
1.0		*	GA version
1.0		SW [*] = 1.0 V14.7	See QPPCN 244 MT.
1.0		SW = 1.0 V14.9	See QPPCNs 244MTS1 and 251MT.
1.0		SW = 1.0 VEAL (14.10)	See QPPCN 254MT.
1.1			GA version
1.1		SW = 1.1 V5.2	See QPPCN 260MT.

* SW = software

Technical Addendum

Module/Component History (continued)

Module/ Component	PEC	Comcode	Apparatus Code
Feature Module (cont'd)			
R1.1		106825888	517F25
		106999873	517F25B
		106999899	517F25C
R2.0		106874738	517G25
		106874746	517H25
R2.1		106874753	517J25
		107526352	517J25B
NI-BRI (R2.B)		106999824	517K25
		107499170	517K25B
R1.2i		106796949	517A30
R1.3i		106875750	517B30(28)
		106875768	517C30
R1.4i		107252728	517D30
PCMCIA Card			
Backup/Restore	61501	107245243	10A1
R3.0 SW Upgrade		107245250	10B1
R3.0 Forced Install		107245268	10C1
P2 1 SW/Llbgrode		107655201 107752743	10C2 10B2
R3.1 SW Upgrade			
R3.1 Forced Install	64500	107752677	10C3
R4.0 SW Upgrade	61506	107741274	10D1
R4.0 Forced Install		107741241	10E1

Page 133

Technical Addendum

Release Used In	HW Vint	FW Vint Notes	
1.1		SW = 1.1 V5.3	See QPPCN 266MT.
1.1		SW = 1.1 V7.3	See QPPCN 292MT.
1.1		SW = 1.1 V7.7	See QPPCN 308MT.
2.0		SW = 2.0 V8.2	See QPPCN 279MT.
2.0		SW = 2.0 V8.3	See QPPCN 290MT.
2.1		SW = 4.0	See QPPCN 307MT.
2.1		SW = 4.9	See QPPCN 406MT
NI-BRI (2.B)		SW = 9.2	Pre-GA
NI-BRI (2.B)		SW = 9.6	GA version
1.2i			
1.3i			
1.3i		SW = 8.0	GA version
1.4i			Included in 6141-INT and 6141-220
3.0 and higher			Translation card for R3; also included as part of processor PEC
3.0			Contains R3V10.3
3.0			R3V10.0 R3V10.3
3.1			Contains R3.1V2.0
3.1			Contains R3.1V2.0
4.0			Contains R4.0V9.0
4.0			Contains R4.0V9.0

Technical Addendum

Module/Component History (continued)

Module/ Component	PEC	Comcode	Apparatus Code
008 ATL	61385	103983508	517A3
	61485	105351092	517B3
008 MLX	61486	105628010	517A21
008 OPT			
Without Ring Generator		106387525	517A28
	61489	106933187	517B28
		106980162	517C28
		107009821	517C28B
With Ring Generator		106995269	517D28
	61479		
		107321192	517D28A
012 TR			
Without Ring Generator		105249023 105461545	517A13 517B13
	61387 or 61487	105512412	517C13
		106397631	517D13
		106553779	517E13
		106767379	517F13
With Ring Generator		106933773	517G13
	61494 or 61459	107108698	517G13(28)
		107438939	517H13
Ring Generator	61388	105213201	129B
	61498	106741788	129C

Page 135

Technical Addendum

Release Used In	HW Vint	FW Vint	Notes
All	0.1	0.B	
	0.1	0.B	Reduced package; no telephone user's guide
	0.4	1.1	
	0.4	1.3	
	05		
All	02	11	
	03	12	Fixes ring patterns and ring trip
	03	14	Eliminates flash during hang-up
	03	15	Eliminates flash during answer
All	04	16	Built-in ring generator
	05	16	
	05	17	
	05	18	Enhances ringing on long loops
All	01 01		REN >5 Enhanced battery feed protection
	01	08	Forward disconnect added; need for Voice Mail
	01	08	Improve performance of inductive ringers
	01	08	Meets EIA transmission standards for use with MEGACOM® services
	01	70	
All	02	32	Built-in ring generator; REN <+1
	03	33	REN increased to 2.4
	04	34	REN increased to = 4.0
All			Required for 517A13—517F13

Technical Addendum

Module/Component History (continued)

016 TR 61507 107824948 517B34 100D (DS1)/T-1 61491 107538887 517A15 105461560 517B15 105461560 517B15 400 EM TIE 61492 105311401 517A14 400 (w/TTRs) 61379 105408892 517B12 400 GS/LS/TTR 61483 105627988 517A18 107044869 517C18 517B12 400 LS 61384 103983490 517A2 400 LS 61384 103983490 517B12 400 LS 61481 106819238 517B12(28) 400 LS 61481 106064678 517B12(28) 400 LS/TTR 61481 106064678 517B12(28) 408 GS/LS/ATL 61481 106064678 517B26 107044877 517C26 107044851 517B29 408 LS/ATL 61482 103983482 517A1 105351076 517B1 517C1 800 NI-BRI 61503 107025793 517A32 800 NI-BRI	Module/ Component	PEC	Comcode	Apparatus Code
105461560 517B15 105512438 517C15 400 EM TIE 61492 8303-200 105311401 400 (w/TTRs) 61379 400 GS/LS/TTR 61483 1056228044 517B12 400 LS 61384 105351084 517B12 400 LS 61482 1005351084 517B2 400 LS/TTR 61452 105351084 517B2 400 LS/TTR 61452 106819238 517C12(28) 408 GS/LS/ATL 61481 106064678 107044851 517B26 107044877 517C26 408 GS/LS MLX 61493 106698590 517B29 107044851 517B29 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 105512495 517C1 517B1 408 LS/ATL 61482 103983482 517A1 105512495 517C1 517B1	016 TR	61507	107824948	517B34
105512438 517C15 517E15 400 EM TIE 61492 8303-200 105311401 517A14 400 (w/TTRs) 61379 105408892 517B12 400 GS/LS/TTR 61483 105627988 517A18 100 LS 61384 105351084 517B12 400 LS 61384 103983490 517A2 105351084 517B2 106319238 517B12(28) 400 LS/TTR Int'l (DTD) 61452 106819238 517C12(28) 408 GS/LS/ATL 61481 106064678 517A26 107044851 517B26 107044877 517C26 408 GS/LS MLX 61493 106698590 517A29 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 105351076 517B1 517C1 800 NI-BRI 61503 107025793 517A32	100D (DS1)/T-1	61491	107538887	517A15
400 EM TIE 61492 8303-200 105311401 517E15 400 (w/TTRs) 61379 105408892 517B12 400 GS/LS/TTR 61483 105627988 517A18 100 GS/LS/TTR 61483 105628044 517B18 107044869 517C18 517A18 400 LS 61384 103983490 517A2 105351084 517B2 105351084 517B2 400 LS/TTR Int'l (DTD) 61452 106819238 517C12(28) 408 GS/LS/ATL 61481 106064678 517A26 107044877 517C26 107044877 517C26 408 GS/LS MLX 61493 106698590 517A29 107044851 517B29 517A1 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 105512495 517C1 517B1 800 NI-BRI 61503 107025793 517A32			105461560	517B15
400 EM TIE 61492 8303-200 105311401 517A14 400 (w/TTRs) 61379 105408892 517B12 400 GS/LS/TTR 61483 105627988 517A18 100 GS/LS/TTR 61483 105627988 517A18 100 GS/LS/TTR 61483 105628044 517B18 107044869 517C18 517A2 517A2 400 LS 61384 103983490 517A2 105351084 517B2 517B12(28) 517B12(28) 400 LS/TTR 61452 106819238 517C12(28) 408 GS/LS/ATL 61481 106064678 517A26 107044877 517C26 107044851 517B29 408 GS/LS MLX 61493 106698590 517A29 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 105512495 517C1 517C1 800 NI-BRI 61503 107025793 517A32			105512438	517C15
8303-200 400 (w/TTRs) 61379 105408892 517B12 400 GS/LS/TTR 61483 105627988 517A18 105628044 517B18 517C18 400 LS 61384 103983490 517A2 400 LS 61452 106819238 517B12(28) 400 LS/TTR 61452 106819238 517B12(28) 400 LS/TTR 61452 106819238 517C12(28) 408 GS/LS/ATL 61481 106064678 517B26 107044877 517C26 107044877 517C26 408 GS/LS MLX 61493 106698590 517A29 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 800 NI-BRI 61503 107025793 517A32				517E15
400 GS/LS/TTR 61483 105627988 517A18 400 GS/LS/TTR 61483 105628044 517B18 107044869 517C18 400 LS 61384 103983490 517A2 105351084 517B12 400 LS 61452 106819238 517C12(28) 400 LS/TTR Int'l (DTD) 61452 106819238 517C12(28) 408 GS/LS/ATL 61481 106064678 517B26 107044877 517C26 107044877 517C26 408 GS/LS MLX 61493 106698590 517A29 408 LS/ATL 61482 103983482 517A1 105351076 517B1 517C1 800 NI-BRI 61503 107025793 517A32	400 EM TIE	••••=	105311401	517A14
105628044 517B18 105628044 517B18 107044869 517C18 400 LS 61384 103983490 517A2 105351084 517B2 400 LS/TTR Int'l (DTD) 61452 106819238 517B12(28) 408 GS/LS/ATL 61481 106064678 517A26 107044877 517C26 106939366 517B26 408 GS/LS MLX 61493 106698590 517A29 408 GS/LS MLX 61482 103983482 517B29 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 800 NI-BRI 61503 107025793 517A32	400 (w/TTRs)	61379	105408892	517B12
105628044 517B18 105628044 517B18 107044869 517C18 400 LS 61384 103983490 517A2 105351084 517B2 400 LS/TTR Int'l (DTD) 61452 106819238 517B12(28) 408 GS/LS/ATL 61481 106064678 517A26 107044877 517C26 106939366 517B26 408 GS/LS MLX 61493 106698590 517A29 408 GS/LS MLX 61482 103983482 517B29 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 800 NI-BRI 61503 107025793 517A32				
107044869 517C18 400 LS 61384 103983490 517A2 105351084 517B2 400 LS/TTR Int'l (DTD) 61452 106819238 517B12(28) 408 GS/LS/ATL 61481 106064678 517A26 1063939366 517B26 107044877 517C26 408 GS/LS MLX 61493 106698590 517A29 408 GS/LS MLX 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 800 NI-BRI 61503 107025793 517A32	400 GS/LS/TTR	61483		
400 LS 61384 103983490 517A2 400 LS/TTR Int'I (DTD) 61452 106819238 517B12(28) 400 LS/TTR Int'I (DTD) 61452 106819238 517C12(28) 408 GS/LS/ATL 61481 106064678 517A26 408 GS/LS/ATL 61481 106084678 517A26 408 GS/LS MLX 61493 106698590 517A29 408 GS/LS MLX 61493 106698590 517A29 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 800 NI-BRI 61503 107025793 517A32			105628044	517B18
105351084 517B2 400 LS/TTR Int'l (DTD) 61452 106819238 517B12(28) 408 GS/LS/ATL 61481 106064678 517A26 408 GS/LS/ATL 61481 1060939366 517B26 107744877 517C26 107044877 517C26 408 GS/LS MLX 61493 106698590 517A29 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 800 NI-BRI 61503 107025793 517A32			107044869	517C18
400 LS/TTR Int'l (DTD) 61452 106819238 517B12(28) 408 GS/LS/ATL 61481 106064678 517A26 408 GS/LS/ATL 61481 1060939366 517B26 107744877 517C26 107044877 517C26 408 GS/LS MLX 61493 106698590 517B29 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 800 NI-BRI 61503 107025793 517A32	400 LS	61384	103983490	517A2
Int'l (DTD) 107732018 517C12(28) 408 GS/LS/ATL 61481 106064678 517A26 106939366 517B26 107044877 517C26 408 GS/LS MLX 61493 106698590 517A29 408 GS/LS MLX 61493 106698590 517A29 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517A1 800 NI-BRI 61503 107025793 517A32			105351084	517B2
408 GS/LS/ATL 61481 106064678 517A26 106939366 517B26 107044877 517C26 408 GS/LS MLX 61493 106698590 517A29 408 GS/LS MLX 61493 106698590 517A29 408 LS/ATL 61482 103983482 517A1 408 LS/ATL 61482 103983482 517B1 105512495 517C1 800 NI-BRI 61503 107025793 517A32		61452	106819238	517B12(28)
106939366 517B26 107044877 517C26 408 GS/LS MLX 61493 106698590 517A29 107044851 517B29 517B29 408 LS/ATL 61482 103983482 517A1 105351076 517B1 517C1 800 NI-BRI 61503 107025793 517A32			107732018	517C12(28)
107044877 517C26 408 GS/LS MLX 61493 106698590 517A29 107044851 517B29 107044851 517B29 408 LS/ATL 61482 103983482 517A1 105351076 517B1 517C1 800 NI-BRI 61503 107025793 517A32	408 GS/LS/ATL	61481	106064678	517A26
408 GS/LS MLX 61493 106698590 517A29 107044851 517B29 408 LS/ATL 61482 103983482 517A1 105351076 517B1 105512495 517C1 800 NI-BRI 61503 107025793 517A32			106939366	517B26
408 LS/ATL 61482 103983482 517B29 408 LS/ATL 61482 103983482 517A1 105351076 517B1 517C1 800 NI-BRI 61503 107025793 517A32			107044877	517C26
408 LS/ATL 61482 103983482 517A1 105351076 517B1 517C1 800 NI-BRI 61503 107025793 517A32	408 GS/LS MLX	61493	106698590	517A29
105351076 517B1 105512495 517C1 800 NI-BRI 61503 107025793 517A32			107044851	517B29
105512495 517C1 800 NI-BRI 61503 107025793 517A32	408 LS/ATL	61482	103983482	517A1
800 NI-BRI 61503 107025793 517A32			105351076	517B1
			105512495	517C1
800 NI-BRI 61510 107731127 517A35	800 NI-BRI	61503	107025793	517A32
	800 NI-BRI	61510	107731127	517A35

Page 137

Technical Addendum

Release Used In	HW Vint	FW Vint	Notes
4.0, 1.4i			
All			Tie trunk only
			LS, GS, DID, and PRI emulation added
			Meets BC interoperability specs
			Improved EMI performance
All			
All	01	0.B	Lightning protection added; starting in 1996, replaced by 517C12(28)
All U.S.	03	1.1	
	03	1.2	Sleeping TTR fix
	03	1.3	Phantom ringback fix
			No lightning protection; 146 protector required
			Lightning protection added
1.2i, 1.3i, 1.4i			
			Includes LG80 crosstalk fix
All U.S.	04	11	
	04	12	Reduces clicking on third carrier
	04	13	Phantom ringback fix
All US 2.0 or later			
		28	Cost-reduced version; current production
		29	Withdrawn from production
All	01	0.B	No lightning protection; 146A protector required
	01	0.B	Protection added
	01	0.B	Reduced packing; no telephone user's guide
NI-BRI (2.B)	00	70	Supports 5ESS® Custom
4.0			Supports ISDN 1 standard

Technical Addendum

Module/Component History (continued)

Module/ Component	PEC	Comcode	Apparatus Code
800 DID	61488	105628002	517A20
		105628077	517B20
		106936644	517C20
		106995251	517D20
800 GS/LS	61484	105627996	517A19
		105628069	517B19
800 GS/LS ICLID	61502	106975584	517A31
800 LS	61384	103983516	517A4
		105351100	517B4
800 LS Int'l	61451	106819220	517B4(28)
800 LS Int'l (DTD/PPM)	61458	107074726	517C4(28)
		107252736	517D4(28)
E1			
75 Ohm	61454	106825896	517C15(28)
			517E15(28)
120 Ohm	61457	107100133	517D15(28)
		107533861	517F15(28)
MFC 6-Channel	61456	106825904	517C16(28)

Page 139

Technical Addendum

Release Used In	HW Vint	FW Vint	Notes
All	01	11	
	02	01	Fixes DID call misrouting
	03	12	Eliminates false error messages
	04	17	Cost-reduced version
All US	03	1.1	
	03	1.2	Phantom ringback fix
3.0 or later			
All	0.1	0.B	No lightning protection; 146A protection required
	0.1	0.B	Introduces dual solid-state relays on lower board
1.2i, 1.3i	0.2	0.CD	
1.3i, 1.4i	02	E4	
			PFT polarity fix
1.3i, 1.4i			
			EMI improvement
1.3i, 1.4i			
			EMI improvement
1.3i, 1.4i			

Page 140

Technical Addendum

Telephone LEDs

MLX-20L Console

System Program-					
ming		LED Status			
Menu		Green LED		Red LED	
Option	Option	ON	OFF	ON	OFF
Lines Trunks	Tie Lines				
	Inmode	Incoming tie line is touch-tone	Incoming tie line is rotary dial*		
	Outmode	Outgoing tie line is touch-tone	Outgoing tie line is rotary dial*		
	Dialtone	Remote dial tone [*]	Local dial tone		
Lines Trunks	TT/LS Disc				
	Outmode	Line/trunk is touch- tone*	Line/trunk is rotary dial		
Lines Trunks	Pools			Trunk is in pool	Trunk is not in pool
Lines Trunks	Toll Type	Must dial 1 + area code*	1 + dialing is not needed		
Lines Trunks	Hold Disconc	Long— 450 ms*	Short— 50 ms		
Lines Trunks	LS-ID Delay	LS-ID Delay is on	off*		
Exten- sions	Lines Trunks	Line/trunk or pool is assigned to button	Line/trunk or pool is not assigned to button	Trunk is assigned to a pool	

Page 141

Technical Addendum

Telephone LEDs (continued)

DSS Console

System Program- ming						
Menu	Option	Red LED Status				
Option Exten-	Account	Forced	Forced	FLASHING		
sions	(FACE)	Account	Account			
510115	(17(0))	Code Entry	Code Entry			
		assigned	not assigned*			
Exten-	BIS/HFAI	Telephone	not abbighted			
sions	BIO/TH / A	has				
510115		BIS/HFAI				
		capability				
		(factory				
		setting for				
		analog				
		multiline				
		telephone)				
Exten-	Call	Telephone is	Telephone is			
sions	Pickup	assigned to	not assigned			
	-	Call Pickup	to Call Pickup			
		Group	Group*			
Exten-	VoiceSignI	Voice	Voice			
sions		Announce to	Announce to			
		busy	Busy not			
		assigned	assigned*			
Exten-	Ext	Extension	Extension	Extension		
sions	status	Status	Status not	Status		
		assigned	assigned	can be		
				assigned		
Exten-	Group	Telephone is	Telephone is			
sions	Page	in group	not in group*			
Exten-	Group	Telephone is	Telephone is			
sions	Cover	in coverage	not in			
		group	coverage			
			group*			

Page 142

Technical Addendum

Telephone LEDs (continued)

DSS Console (continued)

System Program- ming					
Menu		Red LED Status			
Option	Option	ON	OFF	FLASHING	
Exten- sions	Group Calling Members	Telephone is assigned to group	Telephone is not assigned to group		
Exten- sions	Mic Disable	Telephone microphone is disabled	Telephone microphone is enabled		
Exten- sions	Remote Frwd	Telephone can transfer calls to a remote telephone number	Telephone cannot transfer calls to a remote telephone number*		
Night Service	Group Assign	Telephone is in group	Telephone is not in group*		
Night Service	Exclude List	Telephone is excluded	Telephone is not excluded*		
Aux Equip	Msg Waiting	Station is a fax message- waiting station	Station is not a fax message- waiting station		
Aux Equip	Fax Extension	Extension is a fax machine	Extension is not a fax machine		
Tables	AllowTo	Allowed List assigned to telephone	Allowed List is not assigned to telephone*		

Page 143

Technical Addendum

Telephone LEDs (continued)

DSS Console (continued)

System Program- ming				
Menu	Ontion		ed LED State	FLASHING
Option Tables	Option DisallowTo	Disallowed	Disallowed	FLASHING
		list assigned to telephone	list is not assigned to telephone [*]	
Data	Voice/Data	Voice/data pair	Not voice/ data pair*	
Operator	Direct Trunk Queued Call	Operator position	Other	Can be assigned as operator position
Operator	Queued Call Message Center	Message Center position	Other	Can be assigned as Message Center
Operator	In Queue Alert	Position receives In-Queue alert	Other	Position can receive In-Queue alert
	Call Types— Dial 0, LDN Unassigned, DID, Grp Coverage	Position receives call type	Other	Position can receive call type

Page 144

Technical Addendum

Wiring Constraints

System Wiring

- System within 5 ft. of dedicated AC power outlet.
- System within 25 ft. of the network interface. Otherwise, use an Off-Premises Range Extender (OPRE).
- System within 1000 cable ft. (304.8 m) of telephones.
- Ground wire for the power supply cannot be over 10 ft.
- If the SMDR printer is over 50 ft. from the control unit, use an Asynchronous Data unit (ADU).
- Back-to-back connection of the DS1 facility with another system's facility is possible when the cable distance is less than 1300 ft.

Telephone Wiring

- Maximum cord length from an MLX telephone to a 7500B data module is 80 ft. (24 m).
- The total length of cords between the KS22911-L2 or 406743419 power supply and the MLX telephone cannot be more than 50 ft.
- Do not replace the 2-ft. D8AC cord (packaged with the DSS) with a longer cord.
- The radio base of the MDW 9000 cordless telephone must be at least 3 ft. from the control unit.

Page 145

Technical Addendum

Installing SPM

Follow these steps to install System Programming and Maintenance (SPM) onto the hard drive of a computer:

- 1. Insert the SPM diskette into the computer.
- 2. At the C: prompt, type MKDIR SPM and press ENTER.
- 3. Type *cdlspm* and press ENTER.
- Type *a:install* and press ENTER to install the program from the diskette.
- After the installation is complete, type *spm* and press ENTER to display the SPM Welcome screen.

Accessing SPM

Direct Local Connection

Follow these steps to access SPM when you are directly connected to the system via the administration jack on the processor module:

- 1. Set up the physical connection between your laptop or PC and the control unit.
- Type *spm* and press **ENTER** to display the SPM Welcome screen.
- 3. Press any key to display the SPM Main Menu.

Local Modem Connection

Follow these steps to access SPM when you are connected on-site via a modem:

- 1. Set up the physical connections between the PC and a 012 module on the control unit.
- Type *spm* and press **ENTER** to display the SPM Welcome screen.
- Press ENTER to display a blank screen on which you can enter modem commands. (You may have to press ENTER several times.)
- 4. Dial ATDT *10.
- 5. Type the SPM password to display the SPM Main Menu.

Page 146

Technical Addendum

Remote Modem Connection

Follow these steps to access SPM when you connected off-site via a modem:

- Type spm and press ENTER to display the SPM Welcome screen.
- Press ENTER to display a blank screen on which you can enter modem commands. (You may have to press ENTER several times.)
- 3. If your system has activated the Remote Access feature, type the following:

a.ATDT

- b. Remote access telephone number
- c. Barrier code (if existing) preceded by a "W."
- d.*ຟ∗].*D
- 4. If your system does not have the Remote Access feature activated, do the following:
 - a. Place a voice call to the system on the line to which the modem is connected by using the main telephone number.
 - b. Have the operator transfer you to the modem (by pressing Transfer, dialing *10, and hanging up the telephone).
 - c. To put the modem on line, type *ATHL* or *ATHL0*, depending on the type of modem. (In ATH10, the last "digit" is the alphabet letter "O," not zero.)
 - d. Press ENTER, and hang up the telephone.
- 5. Type the SPM password to display the SPM Main Menu.

Page 147

Technical Addendum

When Calling NSAC

Do the following before you call Tier III for troubleshooting:

- Check and recreate the problem.
- Connect your laptop or PC so you are ready.
- Know the software version of your system (Dial *15 on an Intercom button).
- Write down the errors in the Error Logs.
- Know the configuration of the system operator console (DLC or QCC).
- Know the type of tie lines (emulated or not, wink-start, etc.).

QPPCNs on the NSAC Bulletin Board

Follow these steps to review QPPCNs on the NSAC bulletin board:

- 1. Dial 800-241-3375.
- 2. At the first screen, select "F" for File Section.
- 3. At the next screen, select "N" for Non-Tier III Tips.
- 4. At the next screen, select "8" for QPPCNs.

Available Publications

Tier III Tips *SCAN*^{*} (Sales Competitive Analysis Newsletter) Hotwire* Hotsheet* Hot News and Views*

^{*} Published by Sales and Design Support Center (SDSC)

Page 148

Technical Addendum

Technical Support Telephone Numbers

Product or Service	Comments	Telephone Number
Lucent Technologies Equipment		
NSAC Tech Support	PARTNER, MERLIN, VINTAGE, CLASSIC	800-552-3293
TSC Tech Support	DEFINITY	800-248-1234
Network Systems (RTAC)	DACS, SLC, ESS, DDM	800-225-7822
Network Systems	ISDN Sets (6500/7500)	800-225-4672
Network Engineering Group	MERLIN LEGEND private networking	888-297-4700
AT&T Paradyne	CSU, DSU, MUX, Hubs, Routers	800-237-0016
Long Distance		
Over Local Lines/Trunks		
AT&T		800-222-3000
MCI		800-444-2222
SPRINT		800-877-4646
T1 Service		
AT&T	800/MEGACOM/ISDN	800-222-1000
AT&T	Data	800-325-1230
MCI		800-444-8722
SPRINT		800-877-5045 or 6277
To identify your long distance carrier		700-555-4141
To identify the telephone # you are calling from		10732-1-404- 988-9664

Page 149

Technical Addendum

Technical Support Telephone Numbers (continued)

Product or Service	Comments	Telephone Number
Other GBCS Support		
NSAC QPPCN Coordinator	Small Business Products	303-843-5204
TSC QPPCN Coordinator	Large Business Products	800-248-1234
GBCS Publications Fulfillment Center	Documentation on all GBCS products	800-457-1235
NSAC Bulletin Board	On-line technical/ product information	800-241-3375
TIER III TIPS publication	Sue Williams Publication Manager	303-843-5921
Tech Quarterly publication	Production Editor	303-850-8898
Comcode Hotline	PEC/Comcode/Part Cross-Reference	800-654-5832

Page 150

DEFINITY ECS Release 6 System Description Pocket Reference 555-230-211

Issue 2 January 1998

Technical Addendum

Page 151

Feedback Form MERLIN LEGEND 6.0 Pocket Reference Order No.: 555-660-116

Please fax your comments to: 732-957-4562

As necessary, fax the actual pages of the Addendum with your comments marked on it.

1. What sections of the addendum are especially helpful?

2. What sections of the addendum are unnecessary?

3. What additional information would you like to see?

4. Additional Comments:

If we may contact you, please complete the following:	
Name:	
Telephone Number:	
Address:	
Date:	

Page 152

Page 153

Page 154