Lucent Technologies
Bell Labs Innovations

UCS 1000

R4.6

System Description

585-313-222
Comcode 108688391
August 2000
Issue 1

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An "outside party" is anyone who is not a corporate employee, agent, subcontractor, or working on your company's behalf. Whereas, a "malicious party" is anyone (including someone who may be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent.

Such intrusions may be either to/through synchronous (time-multiplexed and/or circuit-based) or asynchronous (character-, message-, or packet-based) equipment or interfaces for reasons of:

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- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there may be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company (including, but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs).

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This equipment is registered with the FCC in accordance with Part 68 of the FCC Rules. It is identified by an FCC registration number. For the CWB2/CYD2, this number is AS5USA-27438-XD-E; registration for the CWB10/CYD10 is pending at the time of this publication.

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

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- A busy tone is received
- A reorder tone is received

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This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of Industry Canada.

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- EMC Directive 89/336/EEC
- Low-Voltage Directive 73/23/EEC

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Acknowledgment

This document was prepared by Product Documentation Development, Lucent Technologies, Columbus, OH.

Contents

About This Book

Overview

The *UCS 1000 R4.6 System Description*, 585-313-222, answers basic questions about the UCS 1000 R4.6 and its use. It provides a technical description of the system hardware, software, features, and feature packages, including requirements, specifications, and capacity information. This document is designed to supplement all other documents in the UCS 1000 R4.6 set. A brief description of each document in the set is included in Appendix A, Documentation Guide. Always refer to the appropriate document for specific information on planning, installing, operating, administering, or maintaining the system.

Intended Audiences

The target audience for the *UCS 1000 R4.6 System Description* includes marketing, sales, technical support, and development personnel, or anyone who is looking for basic information about the functionality or content of the platform. Primary audiences are most interested in answering questions about the product and its features, such as “What is it?” and “How does it work?” Secondary audiences for this document include training and development organizations that would be interested in answering questions about system support and service.

Release History

This document is the first release for the UCS 1000 R4.6. The previous release of this product was UCS 1000 R4.2.

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  Example 1: Enter **display card 15** at the `enter command:` prompt.

  Example 2: Type **yes** or **no** in the `Change immediate?:` field.

- Command variables are shown in ***bold proportional italic*** type when they are part of what you must type in, for example:

  Type **restore card *card_number***, where ***card_number*** is the number of the card you want to restore, such as 5.

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Indicates the presence of a hazard that if not avoided ***can*** or ***will*** cause minor personal injury or property damage, including loss of data.

WARNING:
Indicates the presence of a hazard that if not avoided *can* cause death or severe personal injury.

DANGER:
Indicates the presence of a hazard that if not avoided *will* cause death or severe personal injury.

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Please mention the name and order number of this book, *UCS 1000 R4.6 System Description*, 585-313-222.

1 Introduction to the UCS 1000 R4.6

Overview

This chapter provides a high-level description of the UCS 1000 R4.6 for those seeking a quick summary of the hardware and software in the system. It serves as a road map for Chapters 2 through 5, which give in-depth descriptions of the components outlined here. Each of the main sections below lists the chapter that documents that area, followed by a brief overview of the primary components.

About the System

The UCS 1000 R4.6, at its most basic level, is a high-performance computer consisting of controlling hardware, a UnixWare operating system, and middleware that handles call processing and media services, as well as standard operations, administration, and maintenance. The system is designed to support the speech-processing hardware and software that is used to develop an automated voice-response system.

Typically, the system is used to enhance the functionality of telecommunication switches and services operated by local and long-distance telephone companies. It is engineered to be a platform for an interactive media-processing system that meets central-office telecommunications standards.

Hardware

Chapter Reference

See Chapter 2, Hardware , for complete information on system hardware components.

Hardware Overview

The UCS 1000 R4.6 is a CompactPCI unit with the types of hardware described below. The system is typically mounted in a 5ESS or IMA-CA equipment rack or a 19-inch commercial rack.

- Standard hardware — Standard hardware is the hardware provided with the base system, which includes the following main components:
  - ~ CompactPCI backplane with 16 slots
  - ~ Two-card CPU complex that includes two integrated Ethernet LAN controllers, a diskette drive, and a RAID (level 5) controller PCI Mezzanine card (PMC)
  - ~ Standard SCSI peripheral devices:
    - 3-6 18-GB SCA hard-disk drives (minimum of 3 to support RAID)
    - 1 4-GB cartridge-tape drive
    - 1 40x CD-ROM drive
  - ~ Telecom alarm module (TAM)

- Optional hardware — Optional hardware is not required for the platform to operate but can be essential for many applications. Optional hardware is ordered in addition to the standard hardware. Main optional hardware components include:
  - ~ Quad series of digital network-interface circuit cards: CWB10/CYD10, CWB11/CYD10, and CWB12/CYD12
  - ~ E1/T1 digital network-interface circuit cards: CWB2/CYD2
  - ~ Speech and signal processing circuit cards: LSPS II (6UB5) and SSP (CWB1)
  - ~ Proxy Text-to-Speech server circuit card
  - ~ Asynchronous 8-port circuit card
  - ~ A third Ethernet LAN controller (a PMC)
  - ~ Optional peripheral equipment:
    - monitor, keyboard, and mouse (supplied together)
    - printer and mode (can be connected, but are not supplied with the system)

Software

Chapter Reference

See Chapter 3, Software , for a complete list of standard and optional software packages for the system.

Software Overview

The system comes with standard software, the software required for basic operation. Additional, optional software is ordered and purchased according to need.

- Standard software — The following software is required for the system to operate and is included with the system.
  - ~ UnixWare 7 operating system software
  - ~ Base system software
- Optional software — Optional software is not required for the system to operate, though one or more packages may be required for your applications to operate. These software packages are ordered according to need and are purchased in addition to the base system.
  - ~ Optional sytem software — Includes such packages as speech-processing software and Primary Rate Interface (PRI) software.
  - ~ ORACLE Relational Database Management System (RMDBS) 8 software — Some systems require a database management system. Although optional, the ORACLE RMDBS is the supported package for

all systems using a database.

In addition to the base ORACLE software, you can also purchase ORACLE development tools packages.

Features

Chapter Reference

See Chapter 4, Features , for a detailed description of system features.

Features Overview

A *feature* is software and/or hardware that is part of the standard equipment you receive when you purchase the base system. Depending on your needs, you can order additional software and hardware, called *feature packages*, to complete or enhance your system. See Feature Packages below for an overview of feature packages.

Examples of features include:

- Open interfaces and architecture, such as CompactPCI hardware, Ultra Wide SCSI, UnixWare, TCP/IP, and IRAPI
- Intelligent monitoring and alarm system (Telecom Alarm Module)
- Hardware RAID
- Basic voice-response functions and speech capabilities
- Telephony interfaces (when used in combination with the correct feature packages)

Feature Packages

Chapter Reference

See Chapter 5, Feature Packages , for a complete description of system feature packages.

Feature Packages Overview

A *feature package* is software and/or hardware that is used to enhance the operation or capacities of the base system. Feature packages are not required for the base system to function and are purchased separately when you want capabilities beyond what the base system provides.

Examples of feature packages include:

- Speech recognition and processing packages, such as WholeWord, FlexWord, and Text-to-Speech
- Protocol packages, such as Primary Rate Interface (PRI) and T1 E&M protocol
- Asynchronous Host Interface Toolkit, a tool for developing applications that access host computers via an asynchronous data communication interface

2 Hardware

Overview

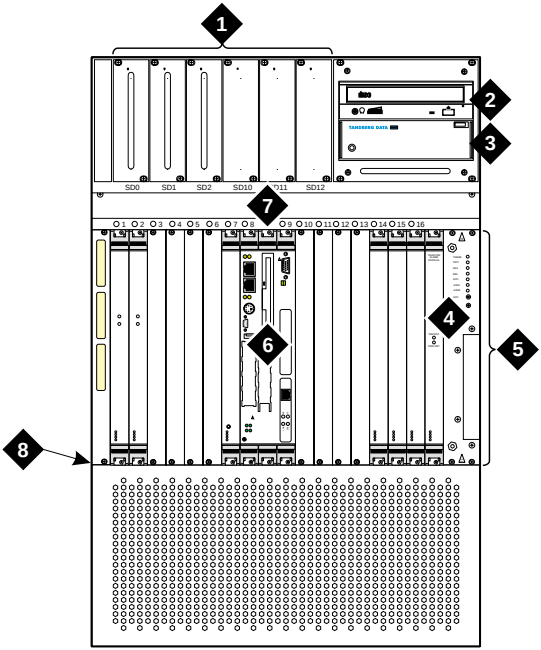
This chapter describes the UCS 1000 R4.6 hardware, including platform capacities, and supported and orderable devices for the following:

- Standard System Hardware — all hardware provided with the base system
- Optional System Hardware — supplemental hardware that generally is not required for the basic platform to run but might be required by your applications; includes telephony-interface and speech-processing circuit cards

Views of the System

Figure 1 on page 8 shows a front view of the system and Figure 2 on page 9 shows a back view.

Figure 1. Front View of the System



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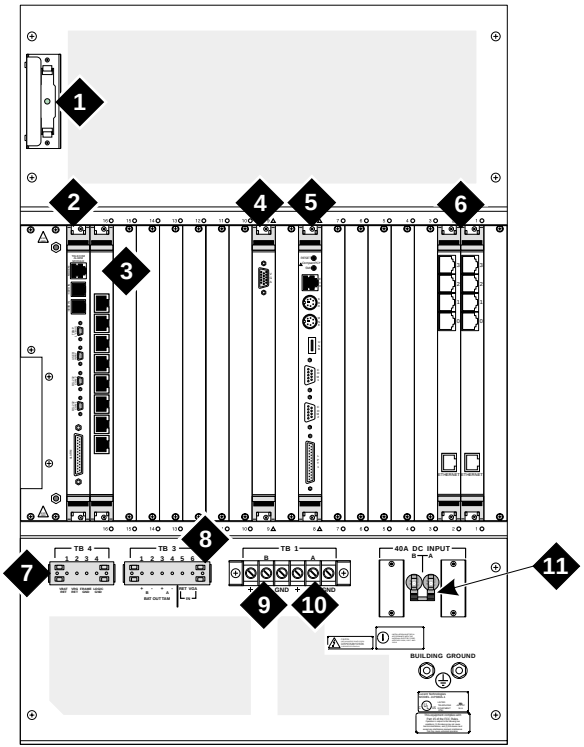
1. Hard disk drive media bay
2. CD-ROM drive media bay
3. Cartridge tape drive media bay
4. TAM and alarm panel
5. Circuit card area
6. CPU complex (includes diskette drive)
7. Upper fan tray
8. Lower fan tray with filter panel

Figure 2. Back View of the System



scpcbck1 LJK 053100

1. External SCSI terminator
2. TAM rear I/O transition card
3. 8-port asynchronous rear I/O transition card)
4. IOB companion rear I/O transition card
5. SBC rear I/O transition card
6. CYD10 rear I/O transition card
7. Four-position terminal strip (Do not connect)
8. Six-position terminal strip
9. Incoming DC power source B connection
10. Incoming DC power source A connection
11. DC input A and B power switches

Standard System Hardware

The UCS 1000 R4.6 is a CompactPCI chassis that can be mounted in a 5ESS or IMA-CA equipment rack, or a 19-inch commercial rack.

UCS 1000 R4.6 standard hardware (hardware that is required for the basic system to operate) includes the following components, each of which is described in detail in the sections that follow.

- CompactPCI Backplane — 16 slots for circuit cards and one custom slot occupied by the Telecom Alarm Module
- Midplane — Provides plug-in connections between rear input/output (I/O) circuit cards and the CPU complex and SCA-SCSI backplane, and eliminates need for cables to rear I/O circuit cards
- Media Bays — Six 3.5-inch SCA hard-disk drive positions and two 5.25-inch half-height drive positions
- Standard Circuit Cards — CPU complex and Telecom Alarm Module (TAM), and associated rear I/O circuit cards
- Standard Buses — CompactPCI, Computer Telephony (CT), and SCSI buses
- Standard Peripheral Devices — SCA hard-disks (three to six), cartridge-tape drive, CD-ROM drive, and diskette drive, plus an external SCSI connector

- Cooling Fan Trays — two trays with a total of eight cooling fans
- Power Supplies — dual redundant 500W DC output

CompactPCI Backplane

Backplane Slots

The CompactPCI backplane provides circuit-card mounting positions called *slots*. The backplane has 16 CompactPCI slots of 6U height, plus an additional slot where the Telecom Alarm Module (TAM) is installed. Of the 16 CompactPCI slots, slots 8 and 9 are occupied by the CPU board set (see CPU Complex on page 13 for description). The 14 remaining CompactPCI slots are available for digital network-interface cards, speech-processing cards, and an 8-port asynchronous card.

Rear I/O Slots

The rear panel of the CompactPCI backplane contains slots for rear input/output (I/O) transition cards. The slots on the rear of the backplane correspond in number to the slots on the front of the backplane. Circuit cards having rear I/O will have an associated rear I/O transition card that plugs into the rear of the backplane. Some circuit cards, such as the E1/T1 telephony cards, have only rear I/O.

Buses

The CompactPCI backplane contains the CompactPCI bus segments and the Computer Telephony (CT) bus. See Standard Buses on page 19 for details on these buses and the standard SCSI bus.

Midplane

The midplane provides plug-in connections between the rear I/O circuit cards for the CPU complex and the Compact PCI backplane. The rear I/O circuit cards then can communicate with the CPU complex and SCA-SCSI backplane without requiring cables to the rear I/O circuit cards. Without cables, rear I/O circuit cards are easier to install or replace.

Media Bays

The media bay is located at the top of the system and contains eight positions:

- Six 3.5-inch Single Connector Architecture (SCA) SCSI hard-disk positions — devices plug into a SCA-SCSI backplane
- Two 5.25-inch half-height drive positions — devices use discrete SCSI and power cabling

See Standard Peripheral Devices on page 20 for descriptions of the different SCSI-format devices.

Standard Circuit Cards

Standard circuit cards are provided with the base system. The system provides a central processing unit (a two-card set) and a Telecom Alarm system module, both of which are described below. In the server, all circuit cards are of 6U height (10.5 in.) and are mounted vertically in the card cage area with face plates on the front. Input/output (I/O) circuit cards can have front I/O but most often use rear I/O transition cards.

To achieve speech-processing functionality, your system will need additional circuit cards, such as telephony-interface cards and speech-processing cards. These cards are described in Optional Circuit Cards on page 24.

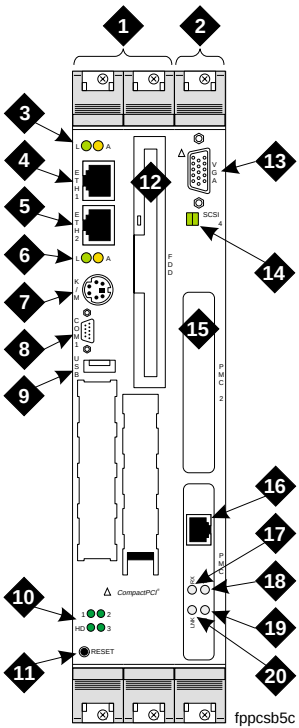
CPU Complex

The processor for the system is one unit (the *CPU complex*) consisting of the two connected 6U cards listed below. The two cards share a single faceplate and are inserted or removed as one card. The CPU complex occupies slots 8 and 9 in the CompactPCI backplane.

- Single Board Computing (SBC) circuit card — slot 8, double width
  - ~ Processor operating at 500-MHz
  - ~ 512 Mbytes of RAM
  - ~ 512 KB of level 2 cache
- I/O Companion card (IOB) — slot 9, single width

Figure 3 on page 14 shows the faceplate of the CPU complex.

Figure 3. Faceplate of the CPU Complex



1. SBC circuit card
2. IOB companion card
3. Network connection and activity indicator LEDs
4. Ethernet connection 1
5. Ethernet connection 2
6. Network connection and activity indicator LEDs
7. Mouse/Keyboard connection
8. COM1 connection
9. USB connection
10. Hard disk drive access indicator LED
11. Rest switch push button
12. Diskette drive
13. VGA monitor connection
14. SCSI access indicator LEDs
15. RAID controller PMC
16. Ethernet connection 3
17. Network connection activity (receiving) LED
18. Network connection activity (transmitting) LED

Table 1 describes the main components that reside in the two cards of the CPU complex. All components of the CPU complex have front access. Components having rear I/O are indicated.

Table 1. CPU Complex Components

SBC Circuit Card	I/O Companion Card
Diskette drive	SVGA Video controller module
Two 10/100Mbit Ethernet LAN controllers, integrated on SBC card (rear I/O) See Ethernet LAN Controllers on page 17 for details.	Optional10/100Mbit Ethernet LAN PMC (front I/O cabled to the rear) See Ethernet LAN Controllers on page 17 for details.
Keyboard and mouse connector (front I/O has shared connectors; rear I/O has separate connectors)	RAID controller PMC
USB connector (front or rear I/O)	
Line printer (LPT) port (front or rear I/O)	

1 of 2

Table 1. CPU Complex Components

SBC Circuit Card	I/O Companion Card
COM1 serial port (front or rear I/O)	
COM2 serial port — not available for use; connected internally to the Telecom Alarm Module. See Telecom Alarm Module on page 18 for details.	

2 of 2

RAID Controller

The system provides a RAID (redundant array of independent disks) PMC to ensure that system services are not lost when a hard-disk drive fails. This feature is implemented at level 5 and supports "hot swapping", which means you can replace a failed drive and restore data to the new drive while the system remains in full operation. For more information, see Hardware RAID on page 68 in Chapter 4, Features .

Ethernet LAN Controllers

An Ethernet LAN connection allows for communication with other systems. The system provides two integrated Ethernet LAN controllers on the SBC circuit card of the CPU complex. A third, optional Ethernet LAN controller, a PMC (PCI Mezzanine Card), can be installed on the I/O Companion card of the CPU complex. Table 2 describes characteristics of each.

Table 2. Ethernet LAN Controllers

Integrated LAN Controllers (2)	Optional LAN Controller
Integrated on SBC card of CPU complex	PMC on I/O Companion card of CPU complex
Rear I/O	Front I/O cabled to rear
Autosensing 10/100 Mbps BASE-T	Autosensing 10/100 Mbps BASE-T
RJ-45 twisted pair connector	RJ-45 twisted pair connector (Earlier versions used a special cable and coupler to connect to an RJ-45 cable.)

The Ethernet LAN controller can be programmed with software and provides the physical interface for the TCP/IP software that is part of the UnixWare operating system. For more information on TCP/IP, see Data Network Interfaces on page 67 in Chapter 4, Features.

Telecom Alarm Module

The Telecom Alarm Module (TAM) provides an intelligent monitoring and alarm system with visual and audible alarms. Visual indicators are displayed on the alarm indicator panel. The TAM resides in a customized 17th slot in the card cage area and generates alarms when the following conditions occur:

- high-temperature thresholds for the chassis are exceeded
- input voltage thresholds are not within specified range
- power supply output voltages are not within specified range
- chassis fan tray or power-supply fan fails
- watchdog timer function for the CPU complex expires, indicating the system software is not functioning

CAUTION:

The TAM connects internally to the COM2 serial port. Note that because the connection occurs inside the chassis, the external port appears to be available. Do not make connections to the external COM2—doing so will interrupt the watchdog timer communication to the CPU and might cause a system reboot.

For more information on the TAM, see System Alarms on page 64 in Chapter 4, Features.

Standard Buses

The system has two CompactPCI bus segments, one Computer Telephony (CT) bus, and one SCSI bus.

CompactPCI Bus Segments

The CompactPCI bus segments serve as the interface for the CompactPCI circuit cards. The system has two separate 8-slot, 32-bit CompactPCI bus segments. One segment consists of system slot 8 and the seven peripheral slots to the left, and the other segment consists of system slot 9 and the seven peripheral slots to its right. This bus is contained in the backplane.

CT Bus

The Computer Telephony (CT) Bus is a type of TDM bus that is used by the cards involved in speech processing (SSP, LSPS II, E1/T1, and Quads) when they send digitized speech to other cards in the system. The CT Bus ranges from slots 1 through 16 and is contained in the backplane. This bus complies with the ECTF (Enterprise Computer Telephony Forum) H.110 standard, the hardware specification for implementing a CT bus for CompactPCI.

SCSI Bus

The SCSI bus is the interface from the RAID controller to the SCSI devices, such as a hard-disk drive or tape drive. The system uses a Wide SCSI bus that runs at the rate of 10 MHz, 20 MB per second, for those devices that support it. The six hard-disk drives use Single Connector Architecture (SCA)

connectivity and plug into the SCA-SCSI backplane. The cartridge tape and CD-ROM drives connect to a SCSI bus ribbon cable.

Standard Peripheral Devices

The system comes with the following peripheral devices. Each is described in the sections that follow. For descriptions of peripheral devices that are not required for the platform to run (such as a monitor and keyboard), see Optional Peripheral Equipment on page 35.

- Hard Disk Drives
- Cartridge Tape Drive
- CD-ROM Drive
- Diskette Drive (located on the CPU complex)

The system has an external SCSI connector for external SCSI devices. For guidelines and restrictions on using the external connector, see Adding External SCSI Devices on page 22.

Hard Disk Drives

The hard-disk drive provides storage and random access to large amounts of data for the system, including the operating system, application software, speech data, and database tables. The system comes with a minimum of three 18-GB Single Connector Architecture (SCA) SCSI 3.5-inch hard-disk

drives and can support up to six SCA-SCSI hard-disk drives. Note that the hardware RAID feature requires a minimum of three hard-disk drives.

All hard-disk drives connect to the SCSI bus and input-power by plugging into the SCA-SCSI backplane (instead of using cables), making them easy to install or replace. The hard-disk drives are located in the media bay at the top of the server.

Cartridge Tape Drive

A cartridge-tape drive is used to back up and restore files using a tape cartridge, thereby eliminating the need to restore and back up files using diskettes.

The system has one 5.25-inch, 4-GB SCSI cartridge-tape drive. This unit is a half-height peripheral located at the top of the system. It uses cables to connect to the SCSI bus and input power.

CD-ROM Drive

The read-only CD-ROM drive is used to load system software. The system has one 5.25-inch, SCSI CD-ROM drive. The drive speed is 40x. This unit is a half-height peripheral located at the top of the system. It uses cables to connect to the SCSI bus and input power.

Diskette Drive

The diskette drive is used to load and back up system software. The system has a single 3.5-inch diskette drive. This unit is located on the SBC card of the CPU complex (slot 8) and uses standard 3.5-inch, 1.44-Mbyte, high-density diskettes.

Adding External SCSI Devices

An external SCSI connector provides access to the SCSI bus for an external SCSI device. The external SCSI connector is a standard 68-pin Ultra Wide SCSI connector and is located on the back of the chassis.

Note: If the SCSI connector is not being used, an active termination must be plugged in to terminate the SCSI bus. A SCSI terminator is provided with all UCS 1000 R4.6.

The system supports a maximum of 16 internal/external devices on the SCSI bus. The RAID controller, CD-ROM drive, and tape drive use 3 of the positions, and the hard-disk drives use from 3 to 6 of the positions. Therefore, from 9 to 12 positions will be open for SCSI devices supported by UnixWare, depending on the number of hard-disk drives installed. Be aware, however, of the following restrictions involved in connecting an external SCSI device:

- External cables must be Wide, and Ultra Wide SCSI restricts cable length to one meter.
- If you use the external SCSI connector, Mylex RAID controller transfer speed settings must be changed to a value slower than 10 MHz, 20 MB per second. A suggested speed is 5 MHz, 10 MB per second.
- The last device on the SCSI bus must be terminated with a Wide terminator.

Cooling Fan Trays

The system contains two redundant, hot-swappable cooling fan trays. One tray is located above the card cage and has five fans. The second tray is located below the card cage and has three fans.

Power Supplies

The system has dual redundant, hot-pluggable power supplies that produce 500W of output power from -48V DC input. Each power supply has its own cooling fan.

Optional System Hardware

Optional hardware is ordered in addition to the base system, but it can be required for many important features and functions. The circuit cards that provide network connections and speech-processing capabilities, for example, are optional hardware. This section describes the following optional hardware:

- Optional Circuit Cards — Digital network-interface (Quad series and the E1/T1), speech-processing (LSPS II, SSP, Quad series, and PTTS server), asynchronous 8-port, and Ethernet LAN PMC.
- Optional Peripheral Equipment — monitor, keyboard, mouse, printer, and modem

Optional Circuit Cards

Optional circuit cards are used to provide interfaces for such features as the public switched telephone network (PSTN), LAN/WAN communications, and speech-processing capabilities. For more information on software associated with the following circuit cards, see Chapter 4, Features and Chapter 5, Feature Packages.

This section describes the following circuit cards:

- Digital Network-Interface Circuit Cards:
  - ~ Quad series
    - CWB10 (T1) with rear I/O transition card CYD10
    - CWB11 (E1) also uses rear I/O transition card CYD10
    - CWB12 (E1) with rear I/O transition card CYD12
  - ~ E1/T1 (CWB2) with rear I/O transition card CYD2

- Speech-Processing Circuit Cards — LSPS II (6UB5), SSP (CWB1), and Quad series (CWB10, CWB11, CWB12)
- PTTS Server Circuit Card
- Asynchronous 8-Port Circuit Card
- Ethernet LAN PMC — A third LAN controller, a PMC, is optional on the I/O Companion card of the CPU complex; this PMC is described with the integrated Ethernet LAN controller in Ethernet LAN Controllers on page 17.

Digital Network-Interface Circuit Cards

Digital network-interface circuit cards provide the telephony interface to the system. All digital network-interface circuit cards connect to the CT bus.

Each of the circuit cards has a rear I/O transition card. The circuit cards plug into the front of the CompactPCI backplane, and the rear I/O transition circuit card plugs into the corresponding slot of the rear of the backplane.

The system uses the following circuit cards, described in more detail in Table 3 on page 26.

- E1/T1 — Can be used for both T1-rate and E1-rate services
- Quad series — Three circuit cards, each of which has up to four network connections. CWB10/CYD10 has up to four connections (spans) for T1-rate services, and CWB11/CYD10 and CWB12/CYD12 each have up to four connections (spans) for E1-rate services.

Table 3. Digital Network-Interface Circuit Cards

Circuit Card		Rear I/O Trans. Card	Description
E1/T1	CWB2	CYD2	Both T1 and E1 modes, with RJ48C connectors
Quad series	CWB10	CYD10	T1 mode with RJ48C connectors, 100 Ohm
	CWB11	CYD10	E1 mode with RJ48C connectors, 120 Ohm
	CWB12	CYD12	E1 mode with coaxial connectors, 75 Ohm

Maximums and Capacities

The system has 14 CompactPCI slots that can be used for digital network-interface circuit cards. However, with the E1/T1 (CWB2) circuit card, at least one speech processing card (SSP or LSPS II) is required to play and code speech for the channels. The Quad circuit cards can play and code speech for the channels on the Quad card and do not require an additional speech-processing circuit card for play and code. (See Speech-Processing Circuit Cards on page 27 for more information on play and code on the Quad circuit card.)

Note: The Quad circuit card cannot play or code speech for channels on an E1/T1 circuit card.

At the T1-rate, the circuit cards provide a 24-channel digital interface between a telephone switch and the system. A T1 digital circuit carries information at a rate of 1.544 Mbps. At the E1 rate, the circuit cards provide a 32-channel digital interface (30 voice channels and 2 signaling and framing channels) between the switch and the system. An E1 digital circuit carries information at a rate of 2.048 Mbps. Using the E1 rate significantly improves system connectivity and reduces the number of circuit cards required to support multiple channels.

Speech-Processing Circuit Cards

The speech-processing circuit cards provide processing power for the various speech-technology features. The system supports the following types of high-performance circuit cards to process speech:

Note: All circuit cards support play and code, but the SSP and LSPS II support slightly different additional functions.

- SSP (speech and signal processing) — supports play and code, WholeWord, FlexWord, echo cancellation, Text-to-Speech (TTS), FAX, and CCA
- LSPS II (Lucent speech processing solutions) — supports play and code, WholeWord, FlexWord, echo cancellation, and TTS; also offers advanced speech-processing options, such as more finely tuned TTS and subword recognition for very large vocabularies

- Quad series — supports play and code functions only (For descriptions of the Quad E1 and Quad T1 circuit cards, see Digital Network-Interface Circuit Cards on page 25.)

LSPS II and SSP Circuit Cards

All LSPS II and SSP circuit cards connect to the CT bus. The LSPS II and SSP cards do not require external I/O and so have no corresponding rear I/O transition cards. The speech-processing circuit cards do not connect directly to the telephone network and must be used with at least one digital network-interface circuit card.

A system can contain both LSPS II cards and SSP cards. However, speech files and custom grammars developed with one type of speech-processing circuit card cannot be used with the other type. A speech-processing function, such as Text-to-Speech or FlexWord, must be assigned to only one type of card, either LSPS II or SSP, but not to both. For example, if Text-to-Speech functions are assigned to an LSPS II card, Text-to-Speech functions cannot be assigned to an SSP card. Likewise, if Whole Word and FlexWord functions are assigned to an SSP card, they cannot also be assigned to an LSPS II card.

Quad Circuit Cards

The channels on Quad T1 and Quad E1 circuit cards can perform their own code and play functions without an SSP or LSPS II circuit card. Channels on Quad circuit cards have two modes, *talk* and *tdm*. Talk mode is the default mode, and when a Quad channel is in talk mode, code and play functions are automatically performed by the Quad channel.

When in tdm mode, the Quad channel will pass the code and play functions to an SSP or LSPS II circuit card. Quad circuit cards and SSP circuit cards both support the same coding formats, and speech coded on one type of card can be played back on the other. Note, however, that LSPS II circuit cards support different coding formats than do Quad circuit cards. (See Table 5 on page 31 for supported formats.) Speech that is coded on a LSPS II circuit card cannot be played back on a Quad circuit card channel. For this reason, if the code and play functions are assigned to the LSPS II circuit card, in general, it is best to keep all Quad channels in the same mode.

For information on changing the channel mode on Quad circuit cards, see Chapter 3, "Voice System Administration," of *UCS 1000 R4.6 Administration*, 585-313-509.)

Capacities for Speech-Processing Circuit Cards

Table 4 shows the maximum number of circuit cards a single system can support.

Table 4. Circuit Card Maximums

Circuit Card	Maximum Number per system
SSP	10
LSPS II	10
Quad	14

Table 5 on page 31 shows speech-processing circuit-card channel capacities. Many factors influence channel counts at a given time, and the numbers provided here are approximate. Channel counts are also affected by rapidly improving technology; see future release notes for updates.

Unless otherwise indicated, the channel counts shown below are based on the condition that the entire circuit card is dedicated to the specified feature. The size of wordlists also affects channel counts. Numbers for the SSP circuit card reflect wordlists containing a combined total of up to 2000 words. The LSPS II circuit card can process larger grammars with up to 10,000 words, but the channel count will decrease. The LSPS II circuit card should be tuned according to the size of grammar you are using. See *UCS 1000 R4.6 Speech Development, Processing, and Recognition*, 585-313-223, for more information.

Table 5. Speech Processing Circuit Card Channel Capacities

Feature	LSPS II	SSP	Quad
FlexWord speech recognition	24 — varies with size of wordlists* (14 with Text-to-Speech assigned to same card)	15 without barge-in 12 with play and barge-in in use	—
WholeWord speech recognition	30 (18 with Text-to-Speech assigned to same card)	15 without barge-in 12 with play and barge-in in use	—
Echo cancellation†	64 — Does not reduce capacities of other functions	60 — Reduces capacities of other functions	—
Play/code in 64-Kbps PCM	64/64 — Level of one does not affect the other. Combined maximum would be 128.	120/120 — Level of one affects the other inversely. Combined maximum cannot exceed 120.	120/120 — A channel can only perform one or the other; play and code cannot be mixed on a channel

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Table 5. Speech Processing Circuit Card Channel Capacities

Feature	LSPS II	SSP	Quad
Play/code in 32-Kbps OKI ADPCM	64/64 — Level of one does not affect the other. Combined maximum would be 128.	—	—
Play/code in 16- or 32-Kbps ADPCM	—	120/120 — Level of one affects the other inversely. Combined maximum cannot exceed 120.	120/120 — A channel can only perform one or the other; play and code cannot be mixed on a channel
Play/code in 16-Kbps CELP	—	120/60 — Level of one affects the other inversely. Combined maximum cannot exceed 120.	120/106 — A channel can only perform one or the other; play and code cannot be mixed on a channel
Text-to-Speech	64 (20 with FlexWord and/or WholeWord assigned to same card)	60	—

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Table 5. Speech Processing Circuit Card Channel Capacities

Feature	LSPS II	SSP	Quad
Call Classification Analysis (CCA)	—	24	—
FAX	—	90	—

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* This value assumes a typical grammar with most wordlists containing around 50 words and some larger ones containing around 500 words. For larger wordlists containing 2000 words, about 15 channels would be supported; for smaller wordlists with under 50 words, about 32.

† On an LSPS II circuit card, echo cancellation and coding cannot both be turned on at the same time. If echo cancellation is on while coding, only silence is recorded.

PTTS Server Circuit Card

The Proxy Text-to-Speech (PTTS) server circuit card handles the coding for Text-to-Speech (converting the text to synthesized speech) that would otherwise be done by the SSP or LSPS II circuit card. The PTTS server allows for high-volume Text-to-Speech and languages not supported on the SSP or LSPS II circuit card.

The PTTS server circuit card is a single-board 500-MHz computer with 256 MB of memory. It has two LAN connections located in the rear I/O transition card. The PTTS server generates data in 64-Kbps PCM to be played by an SSP or Quad (in talk mode) circuit card. The system supports up to six PTTS server circuit cards, each of which takes up one slot.

The server plugs into the UCS 1000 R4.6 CT backplane and uses it as a power source, but it does not communicate through the CT bus. Communication between the PTTS server and speech processing or telephony circuit cards is through the LAN connections. The LANs support 10/100 Mbps, but a speed of 100 Mbps is strongly recommended.

For more information on PTTS, including supported languages, see Proxy Text-to-Speech on page 96 and the *Proxy Text-to-Speech (PTTS) User Guide*, 585-350-115.

Asynchronous 8-Port Circuit Card

The asynchronous 8-port circuit card provides eight additional serial data connections on the system. These connections can be used to support asynchronous host computer links, multiple serial printers, on-site and remote monitoring systems, or extra modems.

Ethernet LAN PMC

Two integrated Ethernet LAN controllers are standard on the SBC circuit card of the CPU complex. A third, optional Ethernet LAN controller, a PMC, can be installed on the I/O Companion card of the CPU complex. All are described in the section Ethernet LAN Controllers on page 17.

Optional Peripheral Equipment

The peripheral equipment described in this section is not an exhaustive list of all devices that can be used with the system. If you have equipment that you would like to use, discuss its compatibility with a Lucent Technologies representative.

For details on peripheral connections to your system, see *UCS 1000 R4.6 New System Installation*, 585-313-153.

In some cases, Lucent Technologies does not provide or recommend a particular model or brand of each device when ordering. Customers must inform their sales representative about the desired peripheral equipment during the planning of a new system. This section describes the following types of optional peripheral equipment:

- Monitor, Keyboard, and Mouse (supplied together)
- Printer
- Modem

Monitor, Keyboard, and Mouse

You can connect a color monitor to any system if you would like a visual user interface. When you purchase a monitor, a standard 104-key keyboard and a PS2 mouse are provided.

Note: Note that the system can be operated and administered without a mouse. However, a mouse is required to install the ORACLE database management package.

Printer

A printer is not offered with the system, but one can be connected if you would like to print hard copies of system screens and reports. The system supports printers that have UnixWare drivers and use parallel ports.

Modem

An external modem is not offered with the system, but one can be connected to allow administrators, operators, or remotely located technical support personnel to initiate commands and remotely monitor the system for installation and maintenance purposes. A modem is also used if asynchronous communication with another machine or device is needed. In such cases, a modem is only used if the device is located too far away from the system to use a null-modem. The system supports modems that have UnixWare drivers and use standard ports.

3 Software

Overview

A number of software packages are included when you purchase the UCS 1000 R4.6, referred to here as standard or *base software*. Optional feature packages are also available and can be implemented with some combination of optional hardware and software. This chapter lists the base and optional software available for the system.

Table 6 on page 38 lists the main software types and shows the delivery media for each. Details for each are given in the sections that follow.

Note: To see a list of what software is installed in your system, use the **pkginfo | pg** command. The **pkginfo** command is described in full in Appendix A, “Summary of Commands,” in *UCS 1000 R4.6 Administration*, 585-313-509.

Table 6. Overview of Software

Software	Media	Notes
UnixWare	Three boot diskettes and one CD-ROM	See UnixWare Operating System Software on page 39. Additional UnixWare software is included as part of the base system software.
Base system	Base CD-ROM	Includes base software, optional software, and some UnixWare operating system software. See Base System Software on page 39.
Quickstart	One boot diskette	Included as part of the base system software.
ORACLE RDBMS	ORACLE Base CD-ROM	ORACLE Relational Database Management System (RDBMS) 8 for systems needing a database management system. See ORACLE RDBMS Software on page 43.
	Optional for ORACLE: ORACLE Developer 2000	An ORACLE development tools package that you can purchase in addition to the RDBMS.

UnixWare Operating System Software

The UnixWare 7.1 operating system is the software platform upon which all of the system software runs, including feature packages and applications. Use the UnixWare boot diskettes to load the UnixWare operating system.

Additional software relating to the UnixWare operating system is included on the base system software CD-ROM, such as files including peripheral and networking utilities, software programming packages, and electronic documentation. The driver for the Ethernet LAN controller is also included.

Base System Software

The Base System CD-ROM contains the UCS 1000 R4.6 base and optional software, as well as additional UnixWare software. Base and optional software is listed below.

Base Software

The base software acts as a foundation for the rest of the system and provides an environment for the execution of the application software running on the platform. It contains all major software utilities and subsystems related to processes, maintenance, and operations and is required for the platform to operate.

Note: All base software packages are licensed on a per-machine basis.

Base software packages are as follows:

- ASP Driver Package
- Utilities Package
- Runtime Processing Package
- Maintenance Package
- Logger/Alerter Package
- AUDIX Logger Package
- Backup/Restore Utilities
- Telecom Alarms Package
- Platform LINCS Tuning Package
- T1/E1 Board Driver
- EEPROM Driver
- Administration Screens Package
- Transaction State Machine Package
- Call Data Handling Package
- License Modification Package
- Hardware RAID Integration

- Global Array Manager
- Unix Management Screens Package

The Quickstart package is also included with the base software; it comes on a separate boot diskette.

Optional Software

Optional software is ordered according to need and is purchased in addition to the purchase of the base UCS 1000 R4.6 software. Generally, optional software is not required for the system to operate. However, one or more optional packages may be required for your applications to operate.

Optional software packages are listed below. Most of the software packages listed are directly related to a feature package.

- Call Bridge Application Package
- Call Classification Analysis Package
- Call Data Handler Package
- Data Collection Toolkit
- E1 CAS R2 MFC Interface Package – Mexico
- Equinox SST Loadable STREAMS Device Driver (EISA/ISA/MCA/PCI/CPCI)
- FAX package
- Feature Test Script Package

- FlexWord Recognition Base
- FlexWord Recognition — UK English
- FlexWord Recognition — US English
- LSPS Set:
  - LSPS Speech Driver
  - LSPS Speech RealTime Environment (RTE)
  - Low-level LSPS API
  - LSPS Software Development Kit (includes documentation)
  - LSPS Diagnostics
  - LSPS II Integration Package
  - LSPS Automatic Speech Recognition for North American English
  - LSPS Text-to-Speech Module for North American English
- LSPS Automatic Speech Recognition for UK English (not part of LSPS Set)
- ISDN Primary Rate Interface Package
- Advanced PRI Package
- SNMP Emanate Agent
- T1 E&M Interface Package
- Text to Speech Package

- Proxy Text-to-Speech Package
- Whole Word ASR Base
- WholeWord Recognition — UK English
- WholeWord Recognition — US English

ORACLE RDBMS Software

Many systems using the UCS 1000 R4.6 will require database management software. The ORACLE Relational Database Management System (RDBMS) 8 software package allows a user to establish and maintain a local ORACLE RDBMS on the system.

The base ORACLE software comes on its own CD-ROM. You can also purchase the ORACLE development tools, which are delivered on an additional CD-ROM.

Base ORACLE Software

The base ORACLE software is delivered on the ORACLE 8i Enterprise Edition CD-ROM. (The ORACLE Integration package is delivered on a separate floppy disk.) These packages are required for the operation of the ORACLE database on the UCS 1000 R4.6 system.

This CD-ROM also includes other ORACLE software packages. These additional packages are not required for the operation of the ORACLE database on the UCS 1000 R4.6 system and thus may not be covered under

the same licensing agreement. Customers must purchase additional licenses directly from ORACLE if they want to use these packages. Note also that these packages are not certified for use with the UCS 1000 R4.6 system and thus are not supported by Lucent Technologies. Furthermore, customers must be aware that the use of these uncertified packages could exceed the resources of the UCS 1000 R4.6 system or adversely compete with other voice system features for resources.

Table 7 lists the contents of the ORACLE Enterprise CD-ROM and identifies licensing requirements for each package:

Table 7. Contents of the ORACLE 8i Enterprise Edition CD-ROM

Package Name	Licensed for UCS 1000 R4.6?
ORACLE 8i Server	
~ ORACLE 8i Enterprise Edition	Yes
ORACLE Utilities	
~ SQL*Plus	Yes
~ ORACLE Jserver Enterprise Edition	No
~ ORACLE interMedia	Yes

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Table 7. Contents of the ORACLE 8i Enterprise Edition CD-ROM

Package Name	Licensed for UCS 1000 R4.6?
~ ORACLE Spatial	No
~ ORACLE Time Series	No
~ ORACLE Visual Information Retrieval	No
~ ORACLE Advanced Security Export Edition	No
~ ORACLE Partitioning	No
~ ORACLE Programmer	Yes
ORACLE 8i Client	
~ ORACLE Advanced Security	No
~ ORACLE Programmer	Yes
~ ORACLE interMedia Client	Yes
~ ORACLE Visual Information Retrieval Client	No

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ORACLE Development Tools

In addition to the ORACLE RDBMS package, you can purchase the optional ORACLE development tools. These tools are delivered on the following CD-ROMs:

- ORACLE Developer 2000 — Contains the following packages:
  - ~ Developer
  - ~ Reports
  - ~ Procedure Builder

Call Data Handling

The Call Data Handling (CDH) software package allows for CDH data storage and is included with the standard system software. CDH data can be discarded if it is not needed. For storing this data, the system offers the following options:

- Store CDH data in the ORACLE database — Requires that the ORACLE RDBMS package be installed on the system.
- Store CDH data in UnixWare files — Does not require the ORACLE RDBMS package, although this option is still available to systems with ORACLE installed. See Chapter 6, “Database Administration,” in *UCS 1000 R4.6 Administration*, 585-313-509, for more information on storing CDH data in UnixWare files.

4 Features

Overview

A *feature* is software and/or hardware that is part of the standard equipment you receive when you purchase the base system. Depending on your needs, you can order additional software and hardware, called *feature packages*, to complete or enhance your system. This chapter explains the standard features of the system. See Chapter 5, Feature Packages , for details on feature packages.

- Open Interfaces and Architecture
- User Interfaces
- Application Development Options
- Voice Response Functions
- Speech Capabilities
- System Status and Monitoring
- System Alarms
- Data Network Interfaces

- Hardware RAID
- Telephony Interfaces
- Terminal Emulation
- Database Environment

Open Interfaces and Architecture

The move to more open systems in the computer and telecommunications industries is growing as standardization of hardware and software increases. Standardization makes for quicker system engineering and allows new technologies to be more easily incorporated. As used here, the term *open* means adherence to a set of industry standards or specifications that promotes interoperability, which is the ability for diverse platforms, interfaces, and software to work together smoothly. When formal standards do not exist, *open* here means general interoperability. The UCS 1000 R4.6 uses a number of open hardware devices, interfaces, and software; this section describes some of the main ones.

CompactPCI

CompactPCI is a high-performance platform composed of many components based on industry standards. The PCI Industrial Computer Manufacturers Group (PICMG) develops specifications for PCI-based systems for industrial and telecommunications applications. The UCS 1000 R4.6 complies with the following PICMG standards:

- PICMG 2.0 CompactPCI Specification R2.1 (for the system and cards)
- PICMG 2.5 CompactPCI Computer Telephony Specification R1.0
- PICMG 2.1 CompactPCI Hot Swap Specification R1.0

PCI Plug and Play BIOS

The system BIOS supports PCI (Peripheral Component Interconnect) Plug and Play, which allows for circuit cards to be configured automatically when the system is started. Automatic configuration saves time and helps prevent configuration errors. The BIOS is compliant with the PCI Special Interest Group (SIG) PCI 2.1 specification. PCI SIG fosters development and sponsors specifications for PCI architecture.

Wide SCSI

The hard-disk drives in the system use Wide Small Computer System Interface (SCSI), a high-speed hardware interface for connecting peripheral devices. Wide SCSI provides fast data transfer at the rate of 10 MHz, 20 MB per second. The disk drives also use Single Connector Architecture (SCA)—the drives plug directly into the backplane, eliminating cables and making for easy replacement. See Chapter 2, Hardware , for specific information on the SCSI devices in the system.

10/100 Base T Ethernet

The Ethernet interface used by the UCS 1000 R4.6 is compliant with the Institute of Electrical and Electronic Engineers (IEEE) 802.3 Carrier Sense Multiple Access with Collision Detection (CSMA/CD) standard for LAN protocol, now a popular, world-wide networking standard. The transmission rates of 10 Mbps and 100 Mbps are supported.

TCP/IP

Transmission Control Protocol/Internet Protocol (TCP/IP) is one of the most widely accepted networking protocols for communicating across different kinds of hardware and operating systems. Very reliable, TCP/IP is one of the main software networking components of the UnixWare operating system and is used often with Ethernet LANs. TCP/IP is the de facto standard for data communications for the Internet.

ECTF H.110 CT Bus

The Enterprise Computer Telephony Forum (ECTF) is an organization dedicated to fostering Computer Telephony (CT) interoperability and publishing standards and agreements. The CT bus used in the UCS 1000 R4.6 is compliant with the ECTF H.110 standard, which is a hardware specification for implementing a CT bus for CompactPCI. This version of the CT Bus offers greater fault tolerance and minimizes speech-processing disruption through redundant clocking and hot-swap capabilities.

T1 E&M

T1 E&M is a trunking arrangement where either side can initiate actions. It is a common and reliable connection between switches and networks, computer telephony systems, or other switches. The system uses robbed bit signaling and preserves high voice quality. T1 is a standard digital transmission link in the United States. T1 E&M is an optional feature package. For more information, see T1 E&M Protocol on page 93 in Chapter 5, Feature Packages.

PRI

Primary Rate Interface (PRI) is an ISDN (Integrated Services Digital Network) configuration that functions like an enhanced T-1 circuit. ISDN is an international telecommunications standard for voice, video, and data transmission over digital lines. The UCS 1000 R4.6 supports AT&T PRI (TR41459), Nortel PRI (NIS A211-1), Telcordia National ISDN basic call control, and ETSI E1 PRA (Primary Rate Access). With PRI, the system can communicate with Lucent any private branch exchanges (PBXs) or switches that support the protocols above. PRI is offered as an optional feature package. For more information, see Primary Rate Interface on page 81 in Chapter 5, Feature Packages.

UnixWare

UnixWare provides the power and flexibility of the UNIX operating system with its multi-tasking, multiple-user capabilities. Customers and developers can easily tailor their system with UnixWare interfaces. At the highest level, it provides system administration capabilities, shell interfaces, programming development environments, and networking interfaces, all of which allow for customization.

Network File System (NFS)

Network File System (NFS), along with TCP/IP, is one of the primary software networking components of UnixWare. It allows data to be shared over a wide variety of machines, operating systems, and networks, and is a good example of interoperability.

IRAPI

Intuity Response Application Programming Interface (IRAPI) is a C-language interface for developing system applications for speech-processing and telephony functions. IRAPI is a Lucent Technologies API that communicates with UnixWare, the ORACLE RDBMS, and other applications. Application developers who know C-language programming can easily develop custom APIs. See Application Development Options on page 54 for more information on IRAPI.

ORACLE RDBMS

The ORACLE Relational Database Management System (RDBMS) is a popular database system that is supported by a wide variety of platforms. It includes SQL (Standard Query Language) software to take advantage of SQL's extensive querying and processing capabilities, and you can purchase ORACLE development tools (optional) for producing reports and developing screen-based applications.

ORACLE RDBMS is an optional feature package for the UCS 1000 R4.6. However, it is the supported feature package if your system is going to use a database management system. See ORACLE RDBMS on page 78 in Chapter 5, Feature Packages for more information.

User Interfaces

The UCS 1000 R4.6 provides a screen user interface and a command-line user interface.

Screen Interfaces

The screen user interface is invoked by using the **cvis_menu** command or **sysadm** command. These commands take users into a series of menus and screens from which they can perform various system operations, such as adding users, running reports, and so forth.

Command-Line Interfaces

The command-line user interface is initiated from the system's UnixWare prompt. Though most operations can be accomplished through the **cvis_menu** screens, you can invoke operations from the command line. Valid and supported commands are documented in *UCS 1000 R4.6 Administration*, 585-313-509.

Application Development Options

Automated transactions are known as *applications*. Each application is designed and developed to meet a specific customer's need. An application *script* is a set of instructions written for the system that informs it how to carry out the automated transaction. Scripts define the flow of the call and determine what the caller hears and how the caller responds to the system.

In the standard UCS 1000 R4.6 software, the following mechanisms are provided for developing applications:

- TAS Script (Transaction Assembler Script)
- IRAPI (Intuity Response Application Programming Interface)

TAS Script

Transaction Assembler Script (TAS), formerly called Native Script, is an assembly-type instruction language. A sequence of instruction calls run within the generic TSM software that manages the low-level interactions required to operate the system. At any time, TAS can be used to assemble, load, change, or replace a script without affecting the other scripts running on TSM or other IRAPI programs running the system.

For more information on TAS script, see *UCS 1000 R4.6 Application Development with Advanced Methods*, 585-313-225.

IRAPI

Intuity Response Application Programming Interface (IRAPI) is a C-language interface used to develop system applications that can be directly integrated with the other features of the UnixWare system. IRAPI gives users the capabilities offered by the system script language—the ability to play and code phrases, collect touch-tone digits, answer incoming calls, generate outgoing calls, and so forth—from a C-language program.

The Resource Manager (RM) manages the resources and the Application Dispatch (AD) process controls the dispatching of applications with some help from the IRAPI library.

For more information on IRAPI, see *UCS 1000 R4.6 Application Development with Advanced Methods*, 585-313-225.

Voice Response Functions

The UCS 1000 R4.6 provides many voice-response functions as standard features. Most of these functions are accomplished with a script instruction. Some of the most commonly used functions include:

- Answering the line (answer function)
- Speaking to the caller (announce function), playing phrases and values in succession
- Connecting the caller to background music or prerecorded speech that has been installed on the system (background function)

- Disconnecting the system from the caller (disconnect function)
- Making calls (originate function), having the system place calls, as in surveys

You can purchase additional packages to extend your voice-response capabilities. For example, the Text-to-Speech feature package is an optional software package that converts ASCII text into spoken, computer-generated prompts and announcements; it is used to read and speak lines of text. Other feature packages include Call Bridge Application, which allows for third-party connections, and Call Classification Analysis, which provides a way to classify the disposition of a call (such as busy or no-answer) and then respond accordingly. Also available are different speech-recognition packages. All of these feature packages are described in more detail in Chapter 5, Feature Packages.

Speech Capabilities

The speech played during a call is the system's main interaction with the caller and is an important part of any application. All speech to be played as part of an application resides as UnixWare files in a mounted UnixWare file system.

Note: Speech developed for use with the LSPS II speech-processing circuit card cannot be used with the SSP circuit card, and vice versa.

There are several methods for developing speech:

- Record a professional speaker
- Purchase a custom speech package from Lucent Technologies (supported by SSP circuit card only)
- Share or import speech already recorded for another application (for the same type of speech-processing circuit card)
- Use the Text-to-Speech optional feature package. For more information on Text-to-Speech, see Chapter 5, Feature Packages .

Coding and Storage

Once speech is recorded, it must be encoded and digitized into an acceptable format. Lucent Technologies can develop custom speech packages for your system (only for use with SSP card).

Digitized speech phrases are stored as digital data. The system then assigns a phrase number and stores the phrases in talkfiles. (Note that certain talkfile numbers are reserved for various optional features.) By default, talkfiles are stored in specific places on the system. Systems that have more than 72 telephone network connections can use a second hard-disk drive (non-RAID) for speech storage.

For more information on developing speech and on talkfiles and their location, see *UCS 1000 R4.6 Speech Development, Processing, and Recognition*, 585-313-223.

Speech Channel Capacities

The default coding method used for recording speech for the SSP circuit card and the Quad circuit cards is adaptive differential pulse code modulation (ADPCM), using a sampling rate of 32 Kbps. The default coding method for the LSPS II circuit card is OKI ADPCM with a sampling rate of 32 Kbps.

Table 8 on page 59 shows the playback and coding channel capacity for each speech-processing circuit card for the various code types. All playback numbers are for single-speed playback.

Table 8. Speech Channel Capacities per Speech Processing Circuit Card

Coding Type	SSP Play/Code	LSPS II Play/Code	Quad Play/Code
CELP 16 Kbps	120/60 — Level of one affects the other inversely. Combined maximum cannot exceed 120.	—	120/106 — A channel can only perform one or the other; play and code cannot be mixed on a channel
ADPCM 16/32 Kbps (32 is default for SSP and Quad)	120/120 — Level of one affects the other inversely. Combined maximum cannot exceed 120.	—	120/120 — A channel can only perform one or the other; play and code cannot be mixed on a channel

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Table 8. Speech Channel Capacities per Speech Processing Circuit Card

Coding Type	SSP Play/Code	LSPS II Play/Code	Quad Play/Code
OKI ADPCM 32 Kbps (default for LSPS II card)	—	64/64 — Level of one does not affect the other. Combined maximum would be 128.	—
PCM (Mu-law) 64 Kbps	120/120 — Level of one affects the other inversely. Combined maximum cannot exceed 120.	64/64 — Level of one does not affect the other. Combined maximum would be 128.	120/120 — A channel can only perform one or the other; play and code cannot be mixed on a channel

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Proxy Text-to-Speech (PTTS)

The default coding method for the PTTS server circuit card is PCM (Mu-law) 64 Kbps. Up to 120 simultaneous channels are supported for coding with a LAN speed of 100 Mbps. General channel maximums for the supported languages are:

- UK English — 17
- US English — 24

- French — 24
- German — 23
- Italian — 26
- Spanish — 26

Note: Performance is affected by speeding up playback and by the talk-off feature.

Speech Storage Capacities

The amount of space allocated for storing speech can vary, depending on your needs and your system. One speech block consists of 8KB. The number of seconds per block depends on the coding rate of the speech-encoding method that you use.

Note: There is wasted space whenever a speech phrase does not fill a block. For example, enhanced basic speech is stored on an SSP circuit card at 32-Kbit ADPCM, with 2 seconds of speech per block. If a phrase is less than 2 seconds, the remaining space within that speech block is not available for other use.

Table 9 on page 62 shows the hours of speech stored in 1 GB of space on the speech file system.

Table 9. Speech Storage Capacities

Coding Method	Each G-byte allocated (128,000 speech blocks)
16 Kbit CELP/ADPCM (4 sec. per block)	~145 hours
32 Kbit ADPCM (2 sec. per block) (default for SSP and Quad card)	~ 72 hours
32 Kbit OKI ADPCM (2 sec. per block) (default for LSPS II card)	~ 72 hours
64 Kbit PCM (Mu-law) (1 sec. per block)	~ 36 hours

System Status and Monitoring

The system is set up with several mechanisms to help customers troubleshoot and correct problems with the system. This section highlights some of those mechanisms.

For more information on these commands, and related menus and screens, see *UCS 1000 R4.6 Administration*, 585-313-509.

Diagnostics

The diagnose procedure is used to perform diagnostics on Quad, E1/T1, SSP, and LSPS II circuit cards or the CT bus. To fully diagnose the system hardware, diagnose all the circuit cards and the bus.

Diagnose is accomplished through the Configuration Management menu or the **diagnose card** and **diagnose bus** commands.

System Monitor

System monitor is used to verify that each incoming telephone trunk and its associated Quad or E1/T1 circuit card is functioning properly. You may display the Voice Channel and Host Session Monitors through the System Monitor menus.

System monitor is accomplished through the System Monitor menus or the **sysmon** command.

Trace

Tracing capabilities allow you to trace the actions of a specified process or channel. The trace capability is one way to view how a call is being handled and therefore is a useful tool when troubleshooting problems in an application.

Trace is accomplished through the Command Menu Trace Service menu or the **trace** command.

Local System Status and Alerting

The system uses messages to alert you to problems, potential problems, or a change in the status of the system. These message are collected in the Message Log Report and can be displayed to a screen using the Message Log Report Screen. Through the use of this Message Log Report, a customer

or technician can detect, report, and fix problems as quickly as possible to minimize disruption to normal service. (For the procedure to run the Message Log Report, see *UCS 1000 R4.6 Administration*, 585-313-509.)

System Alarms

The Telecommunication Alarm Module (TAM) provides an intelligent monitoring and alarm system for the UCS 1000 R4.6 hardware resources and operating system. Like most central-office telecommunications equipment, the TAM separates system maintenance and alarm messages into three classes: CRITICAL, MAJOR, and MINOR. A programmer can classify each system message into one of these three classes and can trigger a separate alarm corresponding to each alarm class. The TAM offers both visual and audible alarms. Visual indicators of an alarm are displayed on the alarm panel. Alarm information is sent over the COM2 serial port.

CAUTION:
The TAM connects internally to the COM2 serial port. Note that because the connection occurs inside the chassis, the external port appears to be available. Do not make other connections to the COM2—doing so will interrupt the watchdog timer communication to the CPU and might cause a system reboot.

The resources that the TAM monitors are described in the next sections.

Internal Chassis Temperatures

Two sensors monitor the temperature of the air entering and exiting the chassis. Table 10 shows the default first and second thresholds for high temperatures. If the temperature exceeds the first threshold, the TAM is set to generate a MAJOR alarm. A CRITICAL alarm is generated if the temperature continues to rise and exceeds the second threshold.

Table 10. Temperature Thresholds

Sensor	First Threshold and Alarm Status	Second Threshold and Alarm Status
Air Inlet	38C — MAJOR	49C — CRITICAL
Air Outlet	46C — MAJOR	60C — CRITICAL

Input Voltage Levels

The input voltage levels are monitored according to the default low and high levels given in Table 11. A CRITICAL alarm is generated if the voltage level falls below the low threshold or exceeds the high threshold.

Table 11. Input Voltage Level Thresholds

Input Voltage Sensor	Low Threshold	High Threshold
-48VA	-36.0V	-72.0V
-48VB	-36.0V	-72.0V

Power Supplies

Sensors monitor the state of the two power supplies and the voltage levels for the four power supply outputs.

If a power supply is detected as missing or not functioning, a MAJOR alarm is generated.

Voltage levels for the four power supply outputs are monitored according to the levels given in Table 12 on page 66. A CRITICAL alarm is generated if a voltage level falls below the low threshold or exceeds the high threshold.

Table 12. Power Supply Output Voltage Thresholds

Output Voltage Sensor	Low Threshold	High Threshold
+3.3V	+3.069V	+3.531V
+5V	+4.65V	+5.35V
+12V	+11.2V	+12.84V
-12V	-11.2V	-12.84V

Cooling Fans

The TAM monitors operation of the ten cooling fans in the system, as listed below. If a sensor detects that a fan has stopped running, the TAM generates a MAJOR alarm.

- Power supply fans (2)
- Upper-tray cooling fans (5)
- Lower-tray cooling fans (3)

CPU Status

A watchdog timer is set to monitor the operation of the central processing unit (CPU), with a refresh rate of 210 seconds. If the watchdog timer expires, indicating the UnixWare operating system has failed, a CRITICAL alarm is generated and the system is rebooted.

Data Network Interfaces

The UCS 1000 R4.6 supports the Transmission Control Protocol/Internet Protocol (TCP/IP) data network communication interface, through base and optional software and hardware.

TCP/IP is a process-to-process protocol. TCP/IP within the system provides high-speed data transmission over a 10/100Mbit Ethernet local area network (LAN). The system provides two integrated Ethernet LAN controllers on the CPU complex. A third Ethernet LAN controller (a PMC) is optional. The Ethernet Driver package is part of the base software.

Hardware RAID

This feature uses Hardware RAID (redundant array of independent disks), level 5, to prevent the data loss and work disruption that can occur when a hard-disk drive fails. Data and parity information are stored across multiple hard-disk drives (striping) so that should a hard-disk drive fail, data can be reconstructed completely from the remaining drives. For example, if there are three hard disk drives in a group, the data is separated into 64 KByte blocks with block 1 of the data stored on SCSI drive 1, block 2 on SCSI drive 2, block 3 on SCSI disk drive 3, block 4 on SCSI disk drive 1, and so forth. Striping provides data redundancy while using much less storage space than that required by disk mirroring.

This feature also provides "hot-swap" capabilities, which means that system operators can replace a hard-disk drive while the system remains in full operation. When a hard-disk drive fails, a message is sent to the system operator, who can then remove the failed drive, install a new drive, and rebuild the data on the new drive, all without interrupting the system.

Hardware RAID is implemented with a PCI RAID controller PMC and associated RAID software and requires at least three SCSI hard-disk drives.

Telephony Interfaces

The system connects to the public switched telephone network (PSTN) to communicate with external callers. This interface to the PSTN uses a digital connection to send information to callers. In some system applications, it also connects to private data networks so it can access host computer databases for information to complete certain types of calls.

The system supports asynchronous private data network interfaces. These interfaces provide connections from the system to other computing devices such as remote monitoring systems, as well as host computer databases.

Digital network-interfaces are established with the Quad (CWB10, CWB11, and CWB12) and E1/T1 (CWB2) circuit cards and their rear I/O transition card (CYD10, CYD12, and CYD2). Supported protocols for the E1/T1 circuit card are T1 E&M, E1 CAS, and Primary Rate Interface (PRI). Supported

protocol for the Quad circuit cards is PRI. For descriptions of these packages, see Chapter 5. Feature Packages .

In a digital configuration, the system provides connectivity through an E1/T1 circuit to digital network facilities such as a central office switch. E1/T1 connections also provide dialed number identification service (DNIS) information for automation of incoming calls for customers with multiple 800 or 900 numbers. If your system has PRI, E1/T1 connections also provide automatic number identification (ANI).

See *UCS 1000 R4.6 Communication Development*, 585-313-224, for more information on digital interfaces. For more information on digital connection switch settings, see *UCS 1000 R4.6 Administration*, 585-313-509.

Terminal Emulation

The following terminal types are supported for administrative screens under the UnixWare operating system:

- AT386 (console)
- 4410 (Terranova or PROCOMM PLUS emulations)
- 513 (Terranova emulation)
- 4425
- 715 BCT, 605

- Sun terminal
- Sun shell tool

Database Environment

The UCS 1000 R4.6 uses the ORACLE Relational Database Management System (RDBMS) 8 software to provide a database system and management tools. However, because not all systems require database functionality, the ORACLE RDBMS is an optional, rather than standard, feature of the system.

Although ORACLE RDBMS is optional, it is the supported feature package if your system is going to need a database management system. ORACLE RDBMS is described in Chapter 5, Feature Packages.

Call Data Handler

The Call Data Handler (CDH) software package allows for CDH data storage and is included with the standard system software. CDH data can be discarded if it is not needed. For storing this data, the system offers the following options:

- Store CDH data in the ORACLE database — Requires that the ORACLE RDBMS package be installed on the system.

- Store CDH data in UnixWare files — Does not require the ORACLE RDBMS package, although this option is still available to systems with ORACLE installed. See Chapter 6, “Database Administration,” in *UCS 1000 R4.6 Administration*, 585-313-509, for more information on storing CDH data in UnixWare files.

5 Feature Packages

Overview

A *feature package* is software and/or hardware used to enhance the operation or capacities of the base system. Feature packages are not required for the basic system to function and are not supplied with the base system. Feature packages are purchased separately from the base software.

This chapter describes each feature package available with the UCS 1000 R4.6 and provides software and hardware requirements. Note that the software and hardware requirements assume that the base software and hardware required for the platform to run are already installed. Feature packages are presented in alphabetical order.

- ORACLE RDBMS
- Primary Rate Interface
- Speech Recognition Packages
  - ~ WholeWord Speech Recognition
  - ~ FlexWord Speech Recognition
- T1 E&M Protocol
- Text-to-Speech
- Proxy Text-to-Speech

Call Bridge Application

The Call Bridge Application feature package allows an application to place an outbound call to a third party and maintain the connection while the caller interacts with the third party. When the third party hangs up, the script continues with the next action step. The call bridge feature is used most often when call transfer is not available on the private branch exchange or central office.

Call Classification Analysis

The Call Classification Analysis (CCA) feature package allows application developers to classify the disposition of originated and transferred calls. Some of the dispositions include busy, answered, ring no-answer, and reorder. CCA provides *intelligent transfer*, a type of call transfer where the application dials the third-party number to start the transfer and then listens to the call progress signals to determine if the line is busy, ringing, or has been answered. CCA has a rudimentary voice-energy detector for identifying answered calls.

Hardware Requirements

At least one SSP circuit card and one Quad or E1/T1 circuit card must be installed and operational. The LSPS II speech-processing circuit card does not support CCA.

Data Collection Toolkit

The Data Collection Toolkit feature package provides support for collecting speech samples by authorized Lucent Technologies affiliates who then build custom speech recognition models for the collected data. This data is also forwarded and archived at Lucent Technologies for future speech modeling. Such data collection and development is key for producing and refining WholeWord speech recognition vocabularies. This is because developing a

vocabulary for WholeWord speech recognition requires a large number of speech samples for each utterance or word. Because of the need for extremely uniform and accurate sample-taking, this package is only used by Lucent or Lucent development partners to collect speech samples.

Hardware Requirements

At least one SSP circuit card and one Quad or E1/T1 circuit card must be installed and operational. The LSPS II speech-processing circuit card does not support Dial Pulse Recognition.

E1 CAS Protocol

The E1 channel associated signaling (CAS) protocol feature package works with the E1/T1 (CWB2) circuit card and provides E1 signaling types. This protocol is used with the DEFINITY switch and is compatible with CAS protocols in Mexico.

For more information on the E1 CAS protocol, see *UCS 1000 R4.6 Communication Development*, 585-313-224.

Hardware Requirement

At least one E1/T1 (CWB2) circuit card must be installed and operational. Note that the Quad circuit cards do not support the E1 CAS protocol feature package.

FAX

With the FAX feature package, you can send and receive faxes. IRAPI commands are used to control the process.

For more information on the FAX feature package, see *UCS 1000 R4.6 Administration*, 585-313-509. For information on using IRAPI for FAX, see *UCS 1000 R4.6 Application Development with Advanced Methods*, 585-313-225.

Hardware Requirement

At least one SSP (CWB1) circuit card must be installed and operational. Note that the LSPS II circuit card does not support the FAX feature package.

LSPS Set

The LSPS Set feature package includes the software necessary to use the LSPS II speech-processing circuit card for speech playback and coding, automatic speech recognition (WholeWord and FlexWord), Text-to-Speech, and Proxy Text-to-Speech. The package is installed as a set and includes the Software Development Kit (SDK). The SDK contains the header files and libraries for the LSPS application program interface (API), code examples, and tools to assist with code development and testing.

See also Speech Recognition Packages on page 86 in this chapter for information on the speech-processing capabilities of the LSPS II circuit card.

Other Languages

The LSPS Automatic Speech Recognition for UK English package is not part of the LSPS Set, but can be purchased and used in place of the LSPS Automatic Speech Recognition for North American English package.

Documentation

The LSPS Software Development Kit comes with its own documentation. The SDK documentation resides on the system at **/usr/lsps/doc/pdf/sdk.pdf**

Hardware Requirement

At least one LSPS II circuit card and one Quad or E1/T1 circuit card must be installed and operational.

ORACLE RDBMS

The ORACLE Relational Database Management (RDBMS) System 8i software package allows a UCS 1000 R4.6 user to establish and maintain a local ORACLE RDBMS on the system. This package is the supported package for systems that need a database management system. It includes optional ORACLE SQL*NET TCP/IP software for establishing remote database connectivity.

The CDH software package can be used to store call data with or without the ORACLE RDBMS package. If the CDH software is installed with ORACLE, the report data can be stored in the ORACLE data base or in UnixWare flat files. If the CDH software is installed without ORACLE, the report data is stored in UnixWare flat files. See Chapter 6, “Database Administration,” in *UCS 1000 R4.6 Administration*, 585-313-509, for additional information.

In addition to the ORACLE RDBMS package, you can purchase the optional development tools package, described in ORACLE Development Tools below.

For complete information on the delivery media for the different ORACLE packages, see ORACLE RDBMS Software on page 43 in Chapter 3, Software.

ORACLE Development Tools

The ORACLE Development 2000 package contains the following packages:

- Developer
- Reports
- Procedure Builder

See the ORACLE installation or vendor-provided installation documents for the specific requirements and installation procedures. ORACLE maintains a list of ORACLE development partners (third-party vendors). Contact ORACLE directly for more information at (800) 542-1170.

ORACLE Reports

ORACLE RDBMS reports make it possible to create a compiled list of system statistics, including the number of calls made to the system, transfer attempts, or call information for a specific day. The Reports Administration screen gives you access to system reports, including system call classification reports, call data detail reports, call data summary reports,

message log reports, and traffic reports. The system enables you to tailor each report to your needs and specifications.

Table 13 shows storage capacities for system reports.

Note: These capacities assume that the database has been sized properly for call volume and call data events.

Table 13. Storage Capacities for Reports

Report	Maximum Storage Capacity
Call Data Detail Report	7 days of data (data is sorted from the current day plus data from 7 previous days, then summarized)
Call Classification Report	365 days of data
Call Data Summary Report	7 days of data
Traffic Summary Report	7 days of data
Event Log Messages	500–20 Kbps messages (compressed)

Primary Rate Interface

The Primary Rate Interface (PRI) feature package allows the system to communicate directly with a Lucent Technologies or AT&T private branch exchange or switch using the AT&T ISDN Primary Rate Interface, Nortel PRI, Telcordia National ISDN-PRI, and ETSI PRA (Primary Rate Access), as well as other PBXs and switches. The ISDN PRI is a digital interface and only supports E1 or T1 line usage.

Supported Switches

The ISDN PRI package can be used with the following switches:

- 4ESS
- 5ESS — Note that 5ESS does not support Non-Facility Associated Signaling (NFAS) for AT&T PRI.
- DEFINITY — G3i, System 85, and System 75 (not used by the UCS 1000 R4.6)
- Phase 1 or Phase 2 Service Node Controller
- ISDN Network Controller
- Nortel DMS-100
- Other switches, to be determined

PRI Versions

Two PRI feature packages can be used with the system:

Note: A separate PRI package is no longer required for PRI types other than AT&T PRI.

- ISDN Primary Rate Interface package

  This version of PRI supports ISDN-PRI at both the E1 and T1 rate and supports the Quad circuit cards (CWB10, CWB11, CWB12) and the E1/T1 circuit card (CWB2). It supports ISDN-PRI interfaces at the TAS Script, IRAPI, and General Purpose PRI library levels. When assigning PRI to circuit cards, the administrator can select the PRI type: AT&T, ETSI, National, National BCAS, or Nortel. This package includes these PRI types; no separate packages are required.

- Advanced PRI package

  This version requires the preceding ISDN Primary Rate Interface version and provides a developer's toolkit for more advanced PRI services.

  This package includes a developer's guide and sample applications that show how to go beyond the built-in features of the ISDN Primary Rate Interface version. Also included are sample applications that extend the IRAPI library to receive or send additional Information Elements (IEs), exchange additional information messages with the switch, and use the General Purpose PRI library to more flexibly exchange messages with the switch. Note that this package only needs to be installed on developer machines; it does not need to be installed on customer machines that are running General Purpose PRI applications.

Due to the potential for signaling errors or fraud, and the development expertise required, this package is limited to Lucent Technologies or others with a need for this level of control. Development organizations within these companies may use the Advanced PRI version to develop other add-on applications that meet specific customer needs.

Hardware and Software Requirements

- At least one Quad or E1/T1 circuit card must be installed and operational.
- At least one LSPS II or SSP circuit card is required for speech coding or playback with E1/ T1 circuit cards.
- Intuity ISDN Primary Rate Interface package — The Advanced PRI package is optional, but it requires the ISDN PRI package.

Documentation

Documentation for the PRI feature package is a separate document that is included with the package.

PRI Interface Capacities

Table 14 on page 84 shows primary rate interface capacities.

Note that AT&T PRI on 5ESS requires a separate D-channel for each T1 (for example, for E1/T1 circuit cards, 13 23B+D can be used).

Table 14. Primary Rate Interface Capacities

Component	Maximum Number for E1/T1	Maximum Number for Quads	Comments
Data channels per system	13	56	E1/T1: One per card. Up to 13 23B+D interfaces are supported Quad: Four per card. Up to 56 23B+D interfaces are supported.

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Table 14. Primary Rate Interface Capacities

Component	Maximum Number for E1/T1	Maximum Number for Quads	Comments
Supported voice channels per system at the T1 rate	311	1342	E1/T1: 311 B-channels are supported when using 1 D-channel. 299 B-channels are supported when using 13 23B+D interfaces. Quad: 1342 B-channels are provided by 2 D-channels supporting 671 B-channels each. 1288 B-channels are provided by 56 23B+D interface. All maximums depend on the capability of the switch. Not all switches support all PRI configurations.
Supported voice channels per system at the E1 rate	390	1680	E1/T1: From 1 to 13 30B+D interfaces are supported. Quad: From 1 to 56 30B+D interfaces are supported.

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For more information on ISDN PRI, see *UCS 1000 R4.6 Communication Development*, 585-313-224. For more information about Advanced PRI, consult a Lucent Technologies sales representative.

Speech Recognition Packages

Speech recognition packages allow the system to recognize and respond to spoken responses from the caller. For those who want to accommodate callers using a rotary telephone, speech recognition packages provide a way to interact with applications without requiring touch-tone input. Applications using speech recognition can differ greatly. Two methods of providing this capability are offered:

- WholeWord Speech Recognition — based on comparing entire spoken words
- FlexWord Speech Recognition — based on comparing phonemes (units of sound)

Both WholeWord and FlexWord can be added on a channels per system basis.

Speech-recognition packages require speech-processing circuit cards. The UCS 1000 R4.6 offers two speech-recognition circuit cards, the SSP and the LSPS II. Although the two types of circuit cards use different speech-recognition software packages (see Hardware and Software Requirements

on page 88), the SSP software and the LSPS II software both supply the features of WholeWord and FlexWord.

Note: Speech recognition functions cannot be shared across the two types of speech-processing circuit cards (SSP and LSPS II); all speech-recognition functions must be assigned either to the LSPS II card or to the SSP card, but not to both.

WholeWord Speech Recognition

WholeWord speech recognition provides a *whole word* method of recognition by comparing an entire spoken word with a statistical model of the same word spoken by thousands of different people.

WholeWord speech recognition is well suited to tasks where the required input is digits or “yes” and “no” responses. WholeWord custom vocabulary packages are also available. If you have special words, such as “checking” or “savings,” that need to be recognized, Lucent Technologies can develop the software to recognize those requested words. Lucent Technologies collects speech samples of the requested words and creates statistical models of each word.

If you require a larger customized vocabulary, FlexWord speech recognition may be more appropriate. See FlexWord Speech Recognition below for more information on FlexWord. Both WholeWord and FlexWord input can be used in the same application.

All WholeWord speech recognition language packages support connected digit recognition and barge-in.

Available Languages

Standard vocabularies for WholeWord are available in the following languages:

- US English — SSP, LSPS II, and Quad circuit cards
- UK English — LSPS II circuit card only

Hardware and Software Requirements

SSP Circuit Card Requirements

- At least one SSP circuit card and one Quad or E1/T1 circuit card, installed and operational
- WholeWord ASR Base feature package
- WholeWord Recognition feature package — US English

LSPS II Circuit Card Requirements

- At least one LSPS II circuit card and one Quad or E1/T1 circuit card, installed and operational
- LSPS Set

WholeWord Capacities

Table 15 lists WholeWord speech recognition capacities.

Table 15. WholeWord Speech Recognition Capacities

Item	Maximum Number
Channels of simultaneous speech recognition per speech processing card	Dedicated to WholeWord: • SSP — 15 without barge-in 12 with play and barge-in in use • LSPS II — 30
Connected digits recognized (using standard recognition types)	Application dependent; recognition accuracy improves significantly if fixed length is used. • SSP — 15 • LSPS II — 30

For more information on WholeWord speech recognition capacities, see *UCS 1000 R4.6 Speech Development, Processing, and Recognition*, 585-313-223.

FlexWord Speech Recognition

FlexWord speech recognition provides a different method of constructing and recognizing speech vocabularies than does WholeWord. The FlexWord speech recognition package relies on phonemic recognition.

The English language is made of approximately 40 phonemes. These phonemes are units of sound that, when strung together in particular orders, form recognizable words. The word “sales,” for example, consists of four phonemes: “s-A-l-z.” The FlexWord speech recognition package operates on this principle so that custom vocabularies can be created much more easily and cheaply than if done with WholeWord technologies.

Because FlexWord vocabularies are much easier and less time consuming to construct, customers have a cost-effective method of designing large, customized vocabularies.

The system also incorporates FlexWord technology improvements, namely, word spotting and phrase screening, into the FlexWord Speech Recognition package. Word spotting provides the ability to search past extraneous speech input during recognition. Phrase screening provides the ability to reject speech that is outside the FlexWord vocabulary.

Available Languages

FlexWord speech recognition is available in the following languages:

- US English — SSP and LSPS II circuit cards
- UK English — LSPS II circuit card only

FlexWord Toolkit

The FlexWord Toolkit feature package provides enhancements to the FlexWord recognition feature and enables customers to define application-specific vocabularies. For more information, see LSPS Set on page 77 in this chapter. Note that FlexWord Toolkit is available for use only with the SSP circuit card.

Hardware and Software Requirements

SSP Circuit Card Requirements

- At least one SSP circuit card and one Quad or E1/T1 circuit card, installed and operational
- FlexWord Recognition Base feature package
- FlexWord Recognition feature package — US English

LSPS II Circuit Card Requirements

- At least one LSPS II circuit card and one Quad or E1/T1 circuit card, installed and operational
- LSPS Set

FlexWord Capacities

Table 16 lists FlexWord speech recognition capacities.

Table 16. FlexWord Speech Recognition Capacities

Item	Maximum Number
Words in a wordlist	500 is the recommended maximum; however, the SSP circuit card can accommodate up to 2000 words. The LSPS II card is tunable and can process larger wordlists with up to 10,000 words. Note that performance is affected with larger wordlists.
Wordlists	200
Channels of simultaneous speech recognition per card	Approximate counts when card is dedicated to FlexWord and is using wordlists with under 500 words: • SSP — 15 without barge-in 12 with play and barge-in in use • LSPS II — 24 (32 with most wordlists having under 50 words; 15 for wordlists having around 2000 words)

For more information on the FlexWord speech recognition feature package, and on tuning the LSPS II circuit card, see *UCS 1000 R4.6 Speech Development, Processing, and Recognition*, 585-313-223.

T1 E&M Protocol

The T1 E&M protocol feature package supports the E1/T1 (CWB2) circuit card and provides T1 signaling types and the following three addressing types:

- DTMF (dual tone multi-frequency)
- MF (multi-frequency)
- Dial pulse

For more information on this feature and other features that use the T1 E&M protocol, see *UCS 1000 R4.6 Communication Development*, 585-313-224.

Hardware Requirement

This package requires that at least one E1/T1 circuit card be installed and operational. Future releases will support this protocol on the Quad T1 circuit card.

Text-to-Speech

The Text-to-Speech (TTS) feature package allows you to include speech in an application using ASCII text as input. The text is converted to synthesized speech via speech-processing circuit cards, either the SSP circuit card (CWB1) or the LSPS II circuit card (6UB5). Speech is available in U.S. English, spoken in a male voice; the Text-to-Speech package for the LSPS II circuit card also offers female voice. The text can be used for text retrieved

from a database or host, or for prompts, and can be spoken in an application with synthesized speech.

TTS is an alternative to using prerecorded phrases for voice response. It can be essential in some applications that must speak dynamic text (for example, names and addresses) and that have large amounts of speakable text (for example, electronic news). Without TTS, these types of applications can require many hours of recording and much disk space. These applications can also use TTS for static text for consistency.

The TTS technology can distinguish between different classes of text, such as zip codes and telephone numbers, and will pronounce the text string in the appropriate spoken format. When constructing speech, parameters such as pitch and duration are adjusted to make the outcome sound more natural. In addition, the ASCII text is preprocessed to expand abbreviations. For example, “Dr.” would be expanded to “doctor” or “drive,” depending on the context.

Note: TTS functions cannot be shared across the two types of speech-processing circuit cards (SSP and LSPS II); all TTS functions must be assigned either to the LSPS II card or to the SSP card, but not to both. Special ASCII control codes used for one type of card might not work with the other type of card.

Text-to-Speech can be added on a channels per system basis. For more information on this feature package, see *UCS 1000 R4.6 Speech Development, Processing, and Recognition*, 585-313-223.

For applications with a high demand for TTS, the Proxy Text-to-Speech feature package is available. For more information on this feature package, see Proxy Text-to-Speech on page 96.

Hardware and Software Requirements

SSP Circuit Card Requirements

- At least one SSP circuit card and one Quad or E1/T1 circuit card, installed and operational
- Text-to-Speech package

LSPS II Circuit Card Requirements

- At least one LSPS II circuit card and one Quad or E1/T1 circuit card, installed and operational
- LSPS Set (includes the LSPS Text-to-Speech Module for North American English)

Capacities

The maximum number of concurrent instances of TTS on one dedicated speech-processing circuit card:

- one SSP card — 60
- one LSPS II card — 64 (20 with FlexWord and/or WholeWord assigned to the same card)

Proxy Text-to-Speech

Proxy Text-to-Speech (PTTS) is a form of Text-to-Speech technology in which the task of converting the text to synthesized speech is handled by the PTTS server circuit card. PTTS is used In applications where the demand for TTS is very high or where a language is needed that is not supported on the SSP or LSPS II circuit card.

The current release of the PTTS feature supports Microsoft Speech Application Programming Interface (SAPI) compliant languages, which include:

- UK English
- US English
- French
- Castillian Spanish
- German
- Italian

For more information on the PTTS feature package, see the *Proxy Text-to-Speech (PTTS) User Guide*, 585-350-115.

For more information on the standard TTS feature package, see Text-to-Speech on page 93 and *UCS 1000 R4.6 Speech Development, Processing, and Recognition*, 585-313-223.

Hardware and Software Requirements

Circuit Card Requirements

- PTTS server circuit card, installed and operational
- At least one SSP circuit card, installed and operational, if using the E1/T1 (CWB2) circuit card

  OR

  at least one Quad circuit card, in talk mode, installed and operational
- Proxy Text-to-Speech Software Packages, for both the UCS 1000 R4.6 system and for the PTTS server (See *Proxy Text-to-Speech (PTTS) User Guide*, 585-350-115 for complete information on the software packages involved.)

6 Requirements and Specifications

Overview

This chapter provides information on the requirements and specifications that each UCS 1000 R4.6 system requires for proper operation:

- Platform Specifications — Power requirements, space requirements, and environmental considerations
- Telephony Interface Specifications — General telephony specifications and specifications for T1 E&M, E1 CAS, and ISDN-PRI type configurations
- Data Communications Specifications — General specifications for asynchronous connections

Platform Specifications

This section presents the power and space requirements for the UCS 1000 R4.6 (model J1P380A-1) and provides temperature and humidity guidelines.

Power Requirements

Note the following power requirements for the UCS 1000 R4.6:

- Each system, modem (optional), and printer (optional) should be located near a power source.
- Communication cables must be kept separate from power cables. Installation of communication and power cables must be in accordance with National Electrical Codes (NEC) and country-specific requirements.

Table 17 shows the power that must be available for each system.

Table 17. Power Requirements

Attribute	UCS 1000 R4.6
Voltage	-48 Volts DC
Current	16 Amps DC
Maximum power output	500W
Heat dissipation	2700 BTU/hr

Table 18 shows the power that must be available for each optional monitor.

Table 18. Power Requirements for Optional Monitor

Attribute	Monitor
Voltage	90–264 Volts AC auto sensing
Frequency	50–60 Hertz (Hz)
Phase	Single
Power consumption	80 Watts maximum
Input cords	NEMA 5-15P
Unit input receptacles	IEC-320 inlet

Space Requirements

Table 19 shows the dimensions of the UCS 1000 R4.6:

Table 19. Space Requirements for UCS 1000 R4.6

Height	Width	Depth
66.7 cm (26.25 in.)	43.8 cm (17.25 in.)	42.5 cm (16.75 in.) plus 5 cm (2 in.) for SCSI terminator guard on back of server

Weight

The weight of the system will vary according to the components installed, ranging from approximately 99 lbs to 113 lbs. For example, a system weighs approximately 99 lbs (44.91 kg) when equipped with all standard hardware (includes three hard-disk drives), one Quad circuit card with a companion rear I/O card, and two speech processing circuit cards.

Environmental Considerations

Locate each system in an area that follows the temperature and humidity requirements shown in Table 20.

Table 20. Temperature and Humidity Requirements

Condition	Operating State	Nonoperating State
Temperature	+10 to +38°C (+50 to+100°F) +10 to +54°C short-term (96 hours)	-40 to +60°C (-40 to+140°F)
Relative humidity	20 to 55%, 20 to 80% short-term	5 to 95%, noncondensing

Telephony Interface Specifications

The UCS 1000 R4.6 supports up to 300 code and play voice channels and up to 1680 channels for bridging applications.

Note: If your system is going to use more than 896 channels, the system must be configured for dynamic timeslot allocation.

Table 21 through Table 24 on page 118 show the various digital interface specifications for all E1/T1 protocols.

General Specifications

Table 21. Digital Telephony Interface General Specifications

Attribute	E1/T1 Circuit Card CWB2/CYD2	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 CWB12/CYD12
Trunk types	T1 E&M, ISDN-PRI, E1 CAS	ISDN-PRI
Physical connector	RJ-48C	T1 (CWB10) — RJ-48C E1 (CWB11) — RJ-48C E1 (CWB12) — coax

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Table 21. Digital Telephony Interface General Specifications

Attribute	E1/T1 Circuit Card CWB2/CYD2	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 CWB12/CYD12
Line impedance	T1 — 100 Ohm E1 — 120 Ohm (modular) E1 — 75 Ohm (coax)	T1 (CWB10) — 100 Ohm E1 (CWB11) — 120 Ohm (modular) E1 (CWB12) — 75 Ohm (coax)
FCC registration	AS5USA-27438-XD-E	(Registration pending at time of publication of this document)
Safety approval	T1: UL 1950 type approval for US markets; CSA 22.2 type approval for Canadian markets E1: EN 60950 type approval for European markets; AS3260 and TS-001 for Australia/New Zealand markets	T1: UL 1950 type approval for US markets; CSA 22.2 type approval for Canadian markets E1: EN 60950 type approval for European markets; AS3260 and TS-001 for Australia/New Zealand markets
Clock rate	T1: 1.544 Mb/seconds +/- 32 ppm E1: 2.048 Mb/seconds +/- 32 ppm	T1: 1.544 Mb/seconds +/- 32 ppm E1: 2.048 Mb/seconds +/- 32 ppm
Pulse width	T1: 323 (nominal) ns	T1: 323 (nominal) ns

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Table 21. Digital Telephony Interface General Specifications

Attribute	E1/T1 Circuit Card CWB2/CYD2	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 CWB12/CYD12
Electrical compliance	T1: ANSI T1.403, T1.408 E1: CCITT G.703, ETSI CTR12/13	T1: ANSI T1.403, T1.408 E1: CCITT G.703, ETSI CTR12/13
Clock/timing/jitter compliance	T1: AT&T TR62411, Stratum 4 enhanced E1: ETSI CTR12/13	T1: AT&T TR62411, Stratum 4 enhanced E1: ETSI CTR12/13
Framing	T1: D4, ESF E1: CEPT G.704	T1: D4, ESF E1: CEPT G.704
Line coding/zero suppression	T1: AMI/ZCS, AMI/B8ZS E1: AMI/HDB3	T1: AMI/ZCS, AMI/B8ZS E1: AMI/HDB3
Signal level	3.0V nominal peak to peak up to 655 feet (A CSU is required if the distance to the DS-X is greater than 655 feet.)	3.0V nominal peak to peak up to 655 feet (A CSU is required if the distance to the DS-X is greater than 655 feet.)
Remotely initiated loopback	via CSU only	via CSU only
		3 of 10

Table 21. Digital Telephony Interface General Specifications

Attribute	E1/T1 Circuit Card CWB2/CYD2	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 CWB12/CYD12
Recommended CSU type	Paradyne, Verilink 551VST List 2, or equivalent. (A CSU is required for long haul connections, wet loop connections, or to provide power line and/or other types of primary protection.)	Paradyne, Verilink 551VST List 2, or equivalent. (A CSU is required for long haul connections, wet loop connections, or to provide power line and/or other types of primary protection.)
		4 of 10

Table 21. Digital Telephony Interface General Specifications

Attribute	E1/T1 Circuit Card CWB2/CYD2	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 CWB12/CYD12
Input gain		
~ DS-1 to CTBus, non-bridging	0dB nominal*	0dB nominal*
~ DS-1 to CTBus, bridge to analog port	0dB	0dB
~ DS-1 to CTBus, bridge to digital port	0dB	0dB
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Table 21. Digital Telephony Interface General Specifications

Attribute	E1/T1 Circuit Card CWB2/CYD2	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 CWB12/CYD12
Output gain		
~ CTBus to DS-1, non-bridging	0dB	0dB
~ CTBus to DS-1, bridge to analog port	+3dB nominal*	+3dB nominal*
~ CTBus to DS-1, bridge to digital port	0dB nominal*	0dB nominal*
DTMF generation		
~ Power level	-8 dBm per tone nominal*	-8 dBm per tone nominal*
~ Timing	100 msec on, 60 msec off nominal*	100 msec on, 60 msec off nominal*

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Table 21. Digital Telephony Interface General Specifications

Attribute	E1/T1 Circuit Card CWB2/CYD2	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 CWB12/CYD12
DTMF detection		
~ Power levels, frequency deviation, twist, duration	Complies with Telcordia LSSGR section 6* with the exception that the minimum DTMF detection time is greater than the LSSGR specification under certain circumstances.	Complies with Telcordia LSSGR section 6* with the exception that the minimum DTMF detection time is greater than the LSSGR specification under certain circumstances.
~ Number of DTMF receivers	T1: 24 E1: 30	T1: 24 E1: 30
MF generation		
~ Power level	-8dBm per tone nominal*	-8dBm per tone nominal*
~ Timing	70mS ON, 70mS OFF nominal*	70mS ON, 70mS OFF nominal*
~ KP timing	100mS ON, 70mS OFF nominal*	100mS ON, 70mS OFF nominal*

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Table 21. Digital Telephony Interface General Specifications

Attribute	E1/T1 Circuit Card CWB2/CYD2	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 CWB12/CYD12
MF detection		
~ Power levels, frequency deviation, twist, duration	Nominally comply with Telcordia LSSGR section 6*	Nominally comply with Telcordia LSSGR section 6*
~ Number of MF receivers	T1: 24 E1: 30	T1: 24 E1: 30
		8 of 10

Table 21. Digital Telephony Interface General Specifications

Attribute	E1/T1 Circuit Card CWB2/CYD2	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 CWB12/CYD12
Call progress tone generation		
~ Power level	-20dBm per tone nominal*	-20dBm per tone nominal*
~ Cadence timing	• Busy tone — 0.5 sec on, 0.5 sec off nominal* • Ring tone — 2 sec on, 4 sec off nominal* • Reorder tone — .250 sec on, .250 sec off nominal*	• Busy tone — 0.5 sec on, 0.5 sec off nominal* • Ring tone — 2 sec on, 4 sec off nominal* • Reorder tone — .250 sec on, .250 sec off nominal*
Dial pulse generation timing	60mS ON, 40mS OFF, 650mS interdigit time nominal*	60mS ON, 40mS OFF, 650mS interdigit time nominal*

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Table 21. Digital Telephony Interface General Specifications

Attribute	E1/T1 Circuit Card CWB2/CYD2	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 CWB12/CYD12
Supported protocols	• AT&T T1 ISDN-PRI • Nortel NIS A211- ISDN PRI • Telcordia national ISDN-PRI • ETSI PRA • T1 E&M • E1 CAS	• AT&T T1 ISDN-PRI • Nortel NIS A211- ISDN PRI • Telcordia national ISDN-PRI • ETSI PRA
		10 of 10

* Can be tuned through digital switch interface packages.

Specifications for T1 E&M

Note: The T1 E&M protocol is supported only on the E1/T1 (CWB2) digital network-interface circuit card.

Table 22. T1 Telephony Interface Specifications for T1 E&M Type Configurations

Attribute	Specifications for CWB2/CYD2 Circuit Cards
DS-1 framing	D4
DS-1 line coding	AMI-ZCS
Protocol	Robbed-bit (A-bit only) 4-wire E&M
Alerting in/out	Wink/wink
Wink generation	230 mS nominal (tunable:* 20–2500 msec)
Wink detection range	100–350 mS
Addressing (outgoing)	DTMF (touch tone) or MF, 15-digit maximum

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Table 22. T1 Telephony Interface Specifications for T1 E&M Type Configurations

Attribute	Specifications for CWB2/CYD2 Circuit Cards
Addressing (incoming)	DTMF (touch tone) or MF, 16-digit maximum
~ DNIS digits	Will wait for up to 15 digits nominally*. Can also be configured to not wait for DNIS digits.
~ Initial digit timer	Will wait for up to 4 seconds for first digit. Can also be configured to not wait for digits.
~ Interdigital timer	Will wait for up to 2 seconds between digits.
ANI capacity	Not supported
Transfer capability	Not supported

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* Can be tuned through digital switch interface packages.

Specifications for ISDN-PRI

Note: The ISDN-PRI protocol is supported on the E1/T1 and Quad digital network-interface circuit cards.

Table 23. Digital Telephony Interface Specifications for ISDN-PRI Type Configurations

Attribute	E1/T1 Circuit Card (CWB2/CYD2)	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 and CWB12/CYD12
DS-1 framing	T1: D4 or ESF (recommended) E1: CEPT G.704	T1: D4 or ESF (recommended) E1: CEPT G.704
DS-1 line coding	T1: ~ ZCS (D4 framing only) ~ B8ZS (ESF framing only) E1: HDB3	T1: ~ ZCS (D4 framing only) ~ B8ZS (ESF framing only) E1: HDB3

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Table 23. Digital Telephony Interface Specifications for ISDN-PRI Type Configurations

Attribute	E1/T1 Circuit Card (CWB2/CYD2)	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 and CWB12/CYD12
B-channel capacities	Without NFAS*: T1: 23 B+D per card E1: 30 B+D per card T1 with NFAS: 47B+D, 71B+D, 95B+D, and so forth in increments of 24, up to 311B+D when 13 T1 cards are used. Not all switches support all configurations	Without NFAS*: T1: 23 B+D per card E1: 30 B+D per card T1 with NFAS: 47B+D, 71B+D, 95B+D, and so forth in increments of 24, up to 671B+D (up to 2 NFAS groups of 671 B+D when 14 T1 cards are used) Not all switches support all configurations

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Table 23. Digital Telephony Interface Specifications for ISDN-PRI Type Configurations

Attribute	E1/T1 Circuit Card (CWB2/CYD2)	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 and CWB12/CYD12
D-channel capacities	Multiple D-channels are supported up to the maximum number of E1/T1 cards (13 D-channels for 13 cards at T1 or E1 rate)	Multiple D-channels are supported up to the maximum number of T1 cards (56 D-channels for 14 T1 or E1 cards) Without NFAS, 4 D-channels per card With NFAS, 1 D-channel can support up to 7 Quad cards. Up to two NFAS groups of 671 B+D, subject to call handling capacity of the system.
DNIS capacity	T1 and E1: 0–15 digits	T1 and E1: 0–15 digits
ANI capacity	T1 and E1: 0–15 digits	T1 and E1: 0–15 digits
		3 of 4

Table 23. Digital Telephony Interface Specifications for ISDN-PRI Type Configurations

Attribute	E1/T1 Circuit Card (CWB2/CYD2)	Quad Circuit Cards T1: CWB10/CYD10 E1: CWB11/CYD10 and CWB12/CYD12
D-channel backup	Not supported	Not supported
Transfer capability	Not supported	Not supported
		4 of 4

* Non-Facility-Associated Signaling

For additional information on telephony interfaces, see *UCS 1000 R4.6 Communication Development*, 585-313-224.

Specifications for E1 CAS

Note: The E1 CAS protocol is supported only on the E1/T1 (CWB2) digital network-interface circuit card.

Table 24. Digital Telephony Interface Specifications for E1 CAS

Attribute		
Line signaling	System R2	Compatible with ITU Q.421
Register signaling	Multifrequency-compelled signaling (supports forward groups I, II, III and backward groups A, B, C)	Compatible with ITU Q.440
Called number (DNIS)	Maximum number of 16 digits received	Expected number of DNIS digits is settable by the user

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Table 24. Digital Telephony Interface Specifications for E1 CAS

Attribute		
Calling number (ANI)	Maximum number of 16 digits received or translated	Can be programmed to request/ignore ANI from network Can be programmed to send originating ANI if requested by the network on a per-system or a per-call basis
Protocol variations	Table driven line and register signaling	Supports country-specific variations of ITU Q.421 and Q.440

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For additional information on E1 CAS, see Chapter 3, “Digital Telephony Interfaces,” in *UCS 1000 R4.6 Communication Development*, 585-313-224.

Data Communications Specifications

Table 25 details the data communications characteristics for the UCS 1000 R4.6.

Table 25. Data Communications Characteristics

Attribute	Asynchronous Specifications
Ports	1 (up to 9 with asynchronous 8-port circuit card)
Ports available for host communication	1 (COM1) — The Telecom Alarm is connected internally to the second port (COM2) which precludes it from external use. See System Alarms on page 64 in Chapter 4, Features , for details.
Simultaneous host sessions (LUs)	N/A
Mode	Full duplex
Protocols	Xon/Xoff
Data rates	To 28.8 Kbps
Interface	EIA-232C

A Documentation Guide

Overview

The System Description document is designed to supplement all other documents in the UCS 1000 R4.6 document set. This appendix provides a list of the documentation that supports the UCS 1000 R4.6. Documentation covers the areas of installation and maintenance, administration, alarms and log messages, application design and development, speech and communication development, and software tools.

- Documentation Set Listing on page 122 — Lists each of the documents in the UCS 1000 R4.6 set, including its document number.
- Documentation Set Descriptions on page 124 — Describes the content of the documents and provides the current issue numbers.

Documentation Set Listing

Each document in the UCS 1000 R4.6 set is listed in Table 26. See the section Documentation Set Descriptions on page 124 for a more detailed description of each document.

Table 26. Supporting Documents for UCS 1000 R4.6

Title	Document Number	Comcode
UCS 1000 R4.6 System Description	585-313-222	108688391
UCS 1000 R4.6 New System Installation	585-313-153	108688359
UCS 1000 R4.6 Administration	585-313-509	108688375
UCS 1000 R4.6 Maintenance	585-313-154	108688367
UCS 1000 R4.6 System Reference	585-313-221	108688383
UCS 1000 R4.6 Speech Development, Processing, and Recognition	585-313-223	108762063
UCS 1000 R4.6 Communication Development	585-313-224	108762071
UCS 1000 R4.6 Application Development with Advanced Methods	585-313-225	108762030

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Table 26. Supporting Documents for UCS 1000 R4.6

Title	Document Number	Comcode
UCS 1000 R4.6 Documentation on CD-ROM	585-313-817	108762022
Proxy Text-to-Speech (PTTS) User Guide See also *Web Site Documentation*	585-350-115	N/A
ORACLE Product Documentation Library	N/A	108717695
UnixWare documentation: see *Web Site Documentation*	N/A	N/A

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Web Site Documentation

UnixWare Documentation

For documentation for UnixWare, access the SCO Product Documentation Library at this Web site: **http://www.sco.com/documentation**

Proxy Text-to-Speech

The *Proxy Text-to-Speech (PTTS) User Guide* is also available from this Web site: **http://glsdocs.lucent.com**

The access code is (enter all letters in lower case): **g7nps**

Documentation Set Descriptions

System Description *UCS 1000 R4.6 System Description*

Document number 585-313-222
Issue 1
August 2000

Provides a technical description of the UCS 1000 R4.6. Includes information on hardware, software, features, and feature packages, as well as technical requirements and specifications. The appendix contains a documentation guide.

This document is intended primarily for sales, marketing, and technical support, or anyone looking for basic information about the functionality of the system. Other audiences include training and development.

Installation *UCS 1000 R4.6 New System Installation*

Document number 585-313-153
Issue 1
August 2000

Describes procedures to unpack and install a UCS 1000 R4.6 (that has been assembled loaded, and tested at the factory), connect peripherals, make cable connections, and perform initial administration and acceptance testing of the system. Appendices include troubleshooting procedures, pinouts, and a system installation checklist.

This document is intended primarily for on-site technical personnel who are responsible for installing the system and performing initial administration and acceptance testing.

Administration *UCS 1000 R4.6 Administration*

Document number 585-313-509
Issue 1
August 2000

Provides the procedures needed to perform full system administration for the UnixWare operating system, the voice system, feature packages, switch interfaces, databases, peripherals, and common operations. The appendix contains a summary of commands

This document is intended primarily for system administrators. Other audiences include field support and helpline personnel.

Maintenance

UCS 1000 R4.6 Maintenance

Document number 585-313-154
Issue 1
August 2000

Provides a single source of information and procedures needed to maintain a UCS 1000 R4.6. Topics include getting inside the computer, installing or replacing circuit cards, replacing the hard disk drive and other components, and installing software (base system, UCS 1000 R4.6, ORACLE, LSPS II, and feature packages). Appendices include information on component ordering numbers, how to build a system, and disaster recovery.

This document is intended primarily for the personnel responsible for installing the system and performing routine and scheduled maintenance. This book is also useful to the system administrator who wants to troubleshoot the system.

Troubleshooting, Alarms, and Common Procedures

UCS 1000 R4.6 System Reference

Document number 585-313-221
Issue 1
August 2000

Provides information on basic troubleshooting procedures for the most common system problems. Also provides diagnostic procedures, common system procedures, as well as a list of system alarms and messages.

This document is intended primarily for the on-site service technician and system administrators. Other audiences include technical support organizations and helpline personnel.

Application Design and Development

UCS 1000 R4.6 Speech Development, Processing, and Recognition

Document number 585-313-223
Issue 1
August 2000

Provides information on developing and editing speech, recognizing speech input, including WholeWord speech recognition, FlexWord speech recognition, and Dial Pulse Recognition, and how to put it all together. Appendices include information on speech file formats, advanced Text-to-Speech features, and recognition post-processing.

Serves as a reference for those who develop applications for the system using speech development features.

UCS 1000 R4.6 Application Development with Advanced Methods

Document number 585-313-2254
Issue 1
August 2000

Serves as a reference for those who develop applications for the system using the TSM script level language and/or C-language. Provides information about application design and structure, TAS script instructions, data interface processes, IRAPI programming, and the message logger. Appendices include sample applications, a summary of TAS script instructions, and C-library functions.

This book is intended primarily for those who write application scripts. Other audiences include development, sales and service support, and training.

Speech and Communication Development

UCS 1000 R4.6 Communication Development

Document number 585-313-224
Issue 1
August 2000

Provides information on digital telephony interfaces, call classification analysis, network communications, and network connectivity alarms. An appendix contains transmission level adjustment information.

This document is intended primarily for application developers who are responsible for establishing the communication interface between the caller, administrators, and the system. Other audiences include field support, technical support, and helpline personnel.

Database Management

ORACLE Product Documentation Library, Release 1.0.1

Comcode: 108717695

- *Oracle8 Server Concepts*
- *Oracle8 Server Administrator's Guide*
- *Server Application Developer's Guide*
- *Server SQL Reference Manual*
- *Server Utilities Guide*
- *Server Messages*
- *Server Reference*
- *PL/SQL User's Guide and Reference, 2.3*
- *Programmer's Guide to the Oracle Call Interfaces*
- *Programmer's Guide to the Oracle Pro*C/C++ Precompiler*
- *Programmer's Guide to Oracle Precompilers*
- *SQL*Plus User's Guide and Reference*

- *Oracle Network Manager Administrator's Guide, 2.3*
- *Oracle Network Product Troubleshooting Guide, 2.3*
- *Understanding SQL*Net, 2.3*

Numerics

23B+D

23 bearer (communication) and 1 data (signaling) channel on a T1 PRI circuit card.

30B+D

30 bearer (communication) and 1 data (signaling) channel (plus framing channel 0) on an E1 PRI circuit card.

47B+D

47 bearer (communication) and 1 data (signaling) channel on two T1 PRI circuit cards.

4ESS®

A large Lucent central office switch used to route calls through the telephone network.

5ESS®

A Lucent electronic switching machine used to route calls through the telephone network or private branch exchange.

A

AC

alternating current

ACD

automatic call distributor

AD

application dispatch

AD-API

application dispatch application programming interface

adaptive differential pulse code modulation

A means of encoding analog voice signals into digital signals by adaptively predicting future encoded voice signals. This adaptive modulation method reduces the number of bits required to encode voice. See also PTTS.

adjunct products

Products (for example, the Adjunct/Switch Application Interface) that the system administers via cut-through access to the inherent management capabilities of the product itself; this is in opposition to the ability of the system to administer the switch directly.

ADPCM

adaptive differential pulse code modulation

ADU

asynchronous data unit

advanced speech recognition

A speech recognition ability that allows the system to understand WholeWord and FlexWord™ inputs from callers.

affiliate

A business organization that Lucent controls or with which Lucent is in partnership.

AGL

application generation language

ALERT

System alerter process

alerter

A system process that responds to patterns of events logged by the “logdaemon” process.

American National Standards Institute

(ANSI) A private non-profit organization that develops and publishes voluntary standards for various industries in the United States.

American Standard Code for Information Interchange

A standard code for data representation that represents alphanumeric characters as binary numbers. The code includes 128 upper- and lowercase letters, numerals, and special characters. Each alphanumeric and special character has an ASCII code (binary) equivalent that is 1 byte long.

analog

An analog signal, such as voice or music, that varies in a continuous manner. An analog signal may be contrasted with a digital signal, which represents only discrete states.

ANI

automatic number identification

ANSI

American National Standards Institute

announcement

A message the system plays to the caller to provide information. The caller is not asked to give a response. Compare to prompt.

API

Application programming interface

application

The automated transaction (interactions) among the caller, the voice response system, and any databases or host computers required for your business.

application administration

The component of the system that provides access to the applications currently available on your system and helps you to manage and administer them.

application verification

A process in which the system verifies that all the components needed by an application are complete.

ASCII

American Standard Code for Information Interchange

ASI

analog switch integration

ASR

advanced speech recognition

asynchronous communication

A method of data transmission in which bits or characters are sent at irregular intervals and spaced by start and stop bits rather than by time. Compare to synchronous communication.

asynchronous data unit

An electronic communications device that allows computer systems to communicate over asynchronous lines more than 50 feet (15 m) in length.

automatic call distributor

That part of a telephone system that recognizes and answers incoming calls and completes these calls based on a set of instructions contained in a database. The ACD can send the call to an operator or group of operators as soon as the operator has completed a previous call or after the system has played a message to the caller.

automatic number identification

A method of identifying the calling party by automatically receiving a string of digits that identifies the calling station of a particular customer.

B

back up

The preservation of the information in a file in a different location, so that the data is not lost in the event of hardware or system failure.

backing up an application

Using a utility that makes an archive copy of a completed application or an interim copy of an application in progress. The back-up copy can be restored to the system if the on-line version is damaged, or if you make revisions and want to go back to the previous version.

barge-in

A capability provided by WholeWord and FlexWord speech recognition and Dial Pulse Recognition (DPR) that allows callers to speak or enter their responses during the prompt and have those responses recognized (similar to the Speak with Interrupt capability). See also echo cancellation.

batch file

A file containing one or more lines, each of which is a command executable by the UNIX shell.

BB

bulletin board

blind transfer protocol

A protocol in which a call is completed as soon as the extension is dialed, without having to wait to see if the telephone is busy or if the caller answered.

bps

bits per second

BRDG

call bridging process

bridging

The process of connecting one telephone network connection to another over the system TDM bus. Bridging decreases the processing load on the system since an active bridge does not require speech processing, database access, host activity, etc., for the transaction.

bundle

In the context of the Enhanced File Transfer package, this term is used to denote a single file, a group of files (package), or a combination of both.

byte

A unit of storage in the computer. On many systems, a byte is 8 bits (binary digits), which is the equivalent of one character of text.

C

call classification analysis

A process that enables application designers to use information available within the system to classify the disposition of originated and transferred calls. CCA is an optional feature package.

call data event

A parameter that specifies a list of variables that are appended to a call data record at the end of each call.

call data handler process

A software process that accumulates generic call statistics and application events.

called party number

The number dialed by the person making a telephone call. Telephone switching equipment can use this number to selectively route an incoming call to a particular department or agent.

caller

The party who calls for a service, gets connected to the system, and interacts with it. As the system can also make outbound calls for service, the caller can also be the person who responds to those outbound calls.

call flow

See transaction.

call progress tones

Standard telephony sounds that indicate the status of the call. These sounds include busy, fast busy, ringback, reorder, etc.

card cage

An area within a hardware platform that contains and secures all of the standard and optional circuit cards used in the system.

cartridge tape drive

A high-capacity data storage/retrieval device that can be used to transfer large amounts of information onto high-density magnetic cartridge tape based on a predetermined format. This tape can be removed from the system and stored as a backup, or used on another system.

CAS

channel associated signalling

caution

An admonishment or advisory statement used in the system documentation to alert the user to the possibility of a service interruption or a loss of data.

CCA

call classification analysis

CDH

call data handler process

CELP

code excited linear prediction

central office

An office or location in which large telecommunication devices such as telephone switches and network access facilities are maintained. These locations follow strict installation and operation requirements.

central processing unit

See processor.

CGEN

Voice system general message class

channel

See port.

channel associated signaling

A type of signaling that can be used on E1 circuit cards. It occurs on channel 16.

circuit card upgrade

A new circuit card that replaces an existing card in the platform. Usually the replacement is an updated version of the original circuit card to replace technology made obsolete by industry trends or a new system release.

cluster controller

A bisynchronous interface that provides a means of handling remote communication processing.

CO

central office

code excited linear prediction

A means of encoding analog voice signals into digital signals that provides excellent quality with use of minimum disk space.

command

An instruction or request the user issues to the system software to make the system perform a particular function. An entire command consists of the command name and options.

configuration

The arrangement of the software and hardware of a computer system or network. The system configuration includes either a standard or custom processor, peripheral equipment (for example, printers and modems), and software applications. Configuration also refers to the way the switch network is set up; that is, the types of products that are in the network and how those products communicate.

configuration management

The component of the system that allows you to manage the current configuration of voice channels, host sessions, and database connections, assign scripts to run on specific voice channels or host sessions, assign functionality to SSP and E1/T1 circuit cards, and perform various maintenance functions.

connect and disconnect (C and D) tones

DTMF tones that inform the system when the attendant has been connected (C) and when the caller has been disconnected (D).

connected digits

A sequence of digits that the system can process as a group, rather than requiring the caller to enter the digits one at a time.

controller circuit card

A circuit card used on a computer system that controls its basic functionality and makes the system operational. These circuit cards are used to control magnetic peripherals, video monitors, and basic system communications.

copying an application

A utility in which information from a source application is directed into the destination application.

coresidency

The ability of two products or services to operate and interact with each other on a single hardware platform.

CPE

customer provided equipment or customer premise equipment

CPN

called party number

CPT

call progress tones

CPU

central processing unit

CPU Complex

The processor for the UCS 1000 R4.6 consisting of a single-board computing circuit card and an I/O companion board (SBC/IOB). The CPU complex is also used in other compactPCI platforms.

crash

An interactive utility for examining the operating system core and for determining if system parameters are being exceeded.

CSU

channel service unit

custom speech

Unique words or phrases to be used in system voice prompts that Lucent Technologies custom records on a per-customer basis.

custom vocabulary

A specialized package of unique words or phrases created on a per-customer basis and used by WholeWord or FlexWord speech recognition.

CVS

converse vector step

D

danger

An admonishment or advisory statement used in system documentation to alert the user to the possibility of personal injury or death.

data interface process

A software process that communicates with Script Builder applications.

database

A structured set of files, records, or tables.

database field

A field used to extract values from a local database and form the structure upon which a database is built.

database record

The information in a database for a person, product, event, etc. The database record is made up of individual fields for each information item.

database table

A structure, made up of columns and rows, that holds information in a database. Database tables provide a means of storing information that changes too often to "hard-code," or store permanently, in the transaction outline.

dB

decibel

DB

database

DBC

database checking process

DBMS

database management system

DC

direct current

DCE

data communications equipment

DCP

digital communications protocol

debug

The process of locating and correcting errors in computer programs; also referred to as troubleshooting.

default

The way a computer performs a task in the absence of other instructions.

default owner

The owner of a channel when no process takes ownership of that channel. The default owner holds all idle, in-service channels. In terms of the IRAPI, this is typically the Application Dispatch process.

diagnose

The process of performing diagnostics on a bus or on Tip/Ring, E1/T1, or SSP circuit cards.

dial ahead

The ability to collect and process touch-tone inputs in sequence, even when they are received before the prompts.

dial pulse recognition

A method of recognizing caller pulse inputs from a rotary telephone.

dialed number identification service

A service that allows incoming calls to contain information about the telephone number for which it is destined.

dial through

A capability provided by touch-tone and dial pulse recognition that allows callers to enter their responses during the prompt and have those responses recognized (similar to the Speak with Interrupt capability). See also barge-in and echo cancellation.

DIO

disk input and output process

DIP

data interface process

directory

A type of file used to group and organize other files or directories.

DMA

direct memory address

DNIS

dialed number identification service

DPR

dial pulse recognition

DSP

digital signal processor

DTE

data terminal equipment

DTMF

dual tone multi-frequency

DTR

data terminal ready

dual tone multi-frequency

A touch-tone sound that is an audio signal including two different frequencies. *DTMF feedback* is the process of the “switch” providing this information to the system. *DTMF muting* is the process of ignoring these tones (which might be simulated by human speech) when they are not needed for the application.

dump space

An area of the disk that is fixed in size and should equal the amount of RAM on the system. The operating system “dumps” an image of core memory when the system crashes. The dump can be fetched after rebooting to help in analyzing the cause of the crash.

E

E&M

Ear and Mouth

E1 / T1

Digital telephony interfaces, commonly called *trunks*. E1 is an international standard at 2.048 Mbps. T1 is a North American standard at 1.544 Mbps.

Ear and Mouth

A common T1 trunking protocol for connection between two “switches.”

EBCDIC

Extended Binary Coded Decimal Interexchange Code

echo cancellation

The process of making the channel quiet enough so that the system can hear and recognize WholeWord, FlexWord, and dial pulse inputs during the prompt. See also barge-in.

editor system

A system that allows speech phrases to be displayed and edited by a user.

EIA

Electronic Industries Association

EISA

Extended Industry Standard Architecture

EMI

electromagnetic interference

Enhanced Basic Speech

Pre-recorded speech available from Lucent Technologies in several languages. Sometimes called standard speech.

error message

A message on the screen indicating that something is wrong with a possible suggestion of how to correct it.

ESD

electrostatic discharge

ESS

electronic switching system

EST

Enhanced Software Technologies, Inc.

ET

error tracker

ETSI

European Telecommunications Standards Institute

Ethernet

A name for a local area network that follows IEEE standard 802.3. Supported implementations are 10BaseT and/or 100BaseT.

European Telecommunications Standards Institute

(ETSI) The European counterpart to ANSI (American National Standards Institute). Develops and publishes telecommunications standards.

event

The notification given to an application when some condition occurs that is generally not encountered in normal operation.

EXTA

external alarms feature message class

external actions

Specific predefined system tasks that Script Builder can call or *invoke* to interact with other products or services. When an external action is invoked, the systems displays a form that provides choices in each field for the application developer to select. Examples are Call_Bridge, Make_Call, SP_Allocate, SR_Prompt, etc. In Voice@Work, external actions are treated as external functions.

external functions

Specific predefined (or customer-created) system tasks that Voice@Work or Script Builder can call or *invoke* to interact with other products or services. The function allows the application developer to enter the argument(s) for the function to act on. Examples are concat, getarg, length, substring, etc. See also external actions.

F

FCC

Federal Communications Commission

FDD

floppy disk drive

feature

A function or capability of a product or an application within the system.

feature package

An optional package that may contain both hardware and software resources to provide additional functionality to a standard system.

feature_tst script package

A standard system software program that allows a user to perform self-tests of critical hardware and software functionality.

FEP

front end processor

field

See database field.

FIFO

first-in-first-out processing order

file

A collection of data treated as a basic unit of storage.

file transfer

An option that allows you to transfer files interactively or directly to and from UNIX using the file transfer system (FTS).

filename

Alphabetic characters used to identify a particular file.

FlexWord speech recognition

A type of speech recognition based on subword technology that recognizes phonemes or parts of words in a specific language. See also subword technology.

foos

facility out-of-service state

FTS

file transfer process message class

function key

A key, labeled F1 through F8, on your keyboard to which the system software gives special properties for manipulating the user interface.

G

GEN

PRISM logger and alerter general message class

grammar

The inputs that a recognizer can match (identify) from a caller.

GUI

graphical user interface

H

hard disk drive

A high-capacity data storage/retrieval device that is located inside a computer platform. A hard disk drive stores data on nonremovable high-density magnetic media based on a predetermined format for retrieval by the system at a later date.

hardware

The physical components of a computer system. The central processing unit, disks, tape, and floppy drives, etc., are all hardware.

hardware upgrade

Replacement of one or more fundamental platform hardware components (for example, the CPU or hard disk drive), while the existing platform and other existing optional circuit cards remain.

HDD

hard disk drive

hwoos

hardware out-of-service state

Hz

Hertz

IBM

International Business Machines

iCk or ICK

The system integrity checking process.

ID

identification

IDE

integrated disk electronics

idle channel

A channel that either has no owner or is owned by its default owner and is onhook.

IE

information element

IEEE

Institute of Electrical and Electronic Engineers

IND$FILE

The standard SNA file transfer utility that runs as an application under CICS, TSO, and CMS. IND$FILE is independent of link-level protocols such as BISYNC and SDLC.

independent software vendor

A company that has an agreement with Lucent Technologies to develop software to work with the system to provide additional features required by customers.

indexed table

A table that, unlike a nonindexed table, can be searched via a field name that has been indexed.

industry standard architecture

A PC bus standard that allows processors and other circuit cards to communicate with each other.

INIT

voice system initialization message class

initialize

To start up the system for the first time.

inserv

in-service state

Integrated Services Digital Network

A network that provides end-to-end digital connectivity to support a wide range of voice and data services.

intelligent CCA

Monitoring the line after dialing is complete to determine whether a busy, reorder (fast busy), or other failure has been encountered. It also recognizes when the extension is answered or if the extension is not answered after a specified number of rings. The monitoring capabilities are dependent on the network interface circuit card and protocol used.

interface

The access point of a system. With respect to the system, the interface is designed to provide you with easy access to the software capabilities.

interrupt

The termination of voice and/or telephony functions when some condition occurs.

Intuity Response Application Programming Interface

A library of commands that provide a standard development interface for voice-telephony applications.

IOB

I/O companion card to the SBC. This is part of the CPU Complex.

IPC

interprocess communication

IPC

intelligent ports card (IPC-900)

IRAPI

Intuity Response Application Programming Interface

IRQ

interrupt request

ISA

industry standard architecture

ISDN

Integrated Services Digital Network

ISV

independent software vendor

ITAC

International Technical Assistance Center

K

Kbps

kilobytes per second

Kbyte

kilobyte

keyboard mapping

In emulation mode, this feature enables the keyboard to send 3270 keyboard codes to the host according to a configuration table set up during installation.

keyword spotting

A capability provided by WholeWord speech recognition that allows the system to recognize a single word in the middle of an entire phrase spoken by a caller in response to a prompt.

L

LAN

local area network

LDB

local database

LED

light-emitting diode

library states

The state information about channel activities maintained by the IRAPI.

LIFO

last-in-first-out processing order

line side E1

A digital method of interfacing a system to a PBX or “switch” using E1-related hardware and software.

line side T1

A digital method of interfacing a system to a PBX or “switch” using T1-related hardware and software.

listfile

An ASCII catalog that lists the contents of one or more talkfiles. Each application script is typically associated with a separate listfile. The listfile maps speech phrase strings used by application scripts into speech phrase numbers.

local area network

A data communications network in a limited geographical area. The LAN provides communications between computers and peripherals.

local database

A database residing on the system.

LOG

System logger process message class

logical unit

A type of SNA Network Addressable Unit.

logdaemon

A UNIX system information and error logging process.

logger

See logdaemon.

logging on/off

Entering or exiting the system software.

LSE1

line side E1

LSPS II

Lucent speech processing solutions II circuit card (6UB5)

LST1

line side T1

LU

logical unit

Lucent speech processing solutions II circuit card (6UB5)

A high-performance speech processing circuit card capable of simultaneous support for various speech technologies. In addition to the basic speech-processing features, The LSPS II circuit card provides enhanced Text-to-Speech capabilities and subword recognition for large vocabularies.

M

magnetic peripherals

Data storage devices that use magnetic media to store information. Such devices include hard disk drives, floppy disk drives, and cartridge tape drives.

main screen

The system screen from which you are able to enter either the System Administration or Voice System Administration menu.

maintenance process

A software process that runs temporary diagnostics and maintains the state of circuit cards and channels.

manoos

manually out-of-service state

masked event

An event that an application can ignore (that is, the application can request not to be informed of the event).

master

A circuit card that provides clock information to the TDM bus.

Mbps

megabits per second

MByte

megabyte

megabyte

A unit of memory equal to 1,048,576 bytes (1024 x 1024). It is often rounded to one million.

menu

Options presented to a user on a computer screen or with voice prompts.

MF

multifrequency

MHz

megahertz

ms

millisecond

msec

millisecond

MS-DOS

A personal computer disk operating system developed by the Microsoft Corporation.

MTC

maintenance process

multifrequency

Dual tone digit signalling (similar to DTMF), used for trunk addressing between network switches or by network operators.

multithreaded application

A single process/application that controls several channels. Each thread of the application is managed explicitly. Typically this means state information for each thread is maintained and the state of the application on each channel is tracked.

N

NCP

Network Control Program

NEBS

Network Equipment Building Standards

NEMA

National Electrical Manufacturers Association

netoos

network out-of-service state

non-facility associated signalling

NFS

network file sharing

NM-API

Network Management - Application Programming Interface

NMVT

network management vector transport

nonex

nonexistent state

nonindexed table

A table that can be searched only in a sequential manner and not via a field name.

nonmasked event

An event that must be sent to the application. Generally, an event is nonmaskable if the application would likely encounter state transition errors by trying to it.

null value

An entry containing no value. A field containing a null value is normally displayed as blank and is different from a field containing a value of zero.

O

OEM

original equipment manufacturer

on-line help

Messages or information that appear on the user's screen when a function key (usually F1) is pressed.

option

An argument used in a command line to modify program output by modifying the execution of a command. When you do not specify any options, the command executes according to its default options.

ORACLE

A company that produces relational database management software. It is also used as a generic term that identifies a database residing on a local or remote system that is created and maintained using an ORACLE RDBMS product.

P

PBX

private branch exchange

PC

personal computer

PCB

printed circuit board

PCI

peripheral component interconnect

PCI Mezzanine Card

A PCI module, such as a LAN or RAID controller, that connects to the CPU Complex IOB companion card.

PCM

PTTS

PEC

price element code

peripheral (device)

Equipment such as printers or terminals that is in addition to the basic processor.

peripheral component interconnect

A newer, higher speed PC bus that is gradually displacing ISA for many components.

permanent process

A process that starts and initializes itself before it is needed by a caller.

phoneme

A single basic sound of a particular spoken language. For example, the English language contains 40 phonemes that represent all basic sounds used with the language. The English word “one” can be represented with three phonemes, “w” - “uh” - “n.” Phonemes vary between languages because of guttural and nasal inflections and syllable constructs.

phrase filtering (screening)

The rejection of unrecognized speech. The WholeWord and FlexWord speech recognition packages can be programmed to reprompt the caller if the system does not recognize a spoken response.

phrase tag

A string of up to 50 characters that identifies the contents of a speech phrase used by an application script.

platform migration

See platform upgrade.

platform upgrade

The process of replacing the existing platform with a new platform.

pluggable

A term usually used with speech technologies, in particular standard speech, to indicate that a basic algorithmic technique has been implemented to accept one or more sets of parameters that tailors the algorithm to perform in one or more languages.

PMC

PCI Mezzanine Card

poll

A message sent from a central controller to an individual station on a multipoint network inviting that station to send if it has any traffic.

polling

A network arrangement whereby a central computer asks each remote location whether it wants to send information. This arrangement enables each user or remote data terminal to transmit and receive information on shared facilities.

port

A connection or link between two devices that allows information to travel to a desired location. See telephone network connection.

PRA

Primary Rate Access

Primary Rate Access

The ETSI equivalent of ISDN PRI (Primary Rate Interface).

PRI

Primary Rate Interface

Primary Rate Interface

An ISDN term for connections over E1 or T1 facilities that are usually treated as trunks.

private branch exchange

A private switching system, either manual or automatic, usually serving an organization, such as a business or government agency, and usually located on the customer's premises.

processor

In system documentation, the computer on which UnixWare and system software runs. In general, the part of the computer system that processes the data. Also known as the central processing unit.

prompt

A message played to a caller that gives the caller a choice of selections in a menu and asks for a response. Compare to ANSI.

Proxy Text-to-Speech

The capability to do Text-to-Speech processing using one or more auxiliary computers that are connected to the system in a client/server configuration. PTTS is an alternative to the standard Text-to-Speech feature and is used in applications where the demand is very high or where a language is needed that is not supported on the speech processing circuit cards.

pseudo driver

A driver that does not control any hardware.

PSTN

public switch telephone network

PTTS

Proxy Text-to-Speech

pulse code modulation

A digital modulation method of encoding voice signals into digital signals. See also adaptive differential pulse code modulation.

Q

Quad circuit card (CWB10, CWB11, or CWB12)

A series of three digital network-interface circuit cards, each of which can be configured to support up to four E1 or T1 connections (or spans):

- Quad T1 (CWB10, with CYD10 rear I/O transition card, RJ48C connectors)
- Quad E1 (CWB11, with CYD10 rear I/O transition card, RJ48C connectors)
- Quad E1 (CWB12, with CYD12 rear I/O transition card, coaxial connectors)

R

RAID

redundant array of independent disks

RAID Array

An assembly of disk drives configured to provide some level of RAID functionality

RAM

random access memory

RDMBS

ORACLE relational database management system

RECOG

speech recognition feature message class

recognition type

The type of input the recognizer can understand. Available types include touch-tone, dial pulse, and Advanced Speech Recognition (ASR), which includes WholeWord and FlexWord speech recognition.

recognizer

The part of the system that compares caller input to a grammar in order to correctly match (identify) the caller input.

record

See database record.

recovery

The process of using copies of the system software to reconstruct files that have been lost or damaged. See also restore.

remote database

Information stored on a system other than your current system that can be accessed by your current system.

REN

ringer equivalence number

reports administration

The component of a system that provides access to system reports, including call classification, call data detail, call data summary, message log, and traffic reports.

restore

The process of recovering lost or damaged files by retrieving them from available back-up tapes or from another disk device. See also “recovery.”

restore application

A utility that replaces a damaged application or restores an older version of an application.

reuse

The concept of using a component from a source system in a target system after a software upgrade or platform migration.

RFS

remote file sharing

RM

resource manager

roll back

To cancel changes to a database since the point at which changes were last committed.

rollback segment

A portion of the database that records actions that should be undone under certain circumstances. Rollback segments are used to provide transaction rollback, read consistency, and recovery.

RTS

request to send

S

SCA

single connector architecture

SBC

A single-board computing circuit card used in the UCS 1000 R4.6. It is part of the CPU complex.

screen pop

A method of delivering a screen of information to a telephone operator at the same time a telephone call is delivered. This is accomplished by a complex chain of tasks that include identifying the calling party number, using that information to access a local or remote ORACLE database, and pulling a “form” full of information from the database using an ORACLE database utility package.

script

The set of instructions for the system to follow during a transaction.

Script Builder

An optional software package that provides a menu-oriented interface designed to assist in the development of custom voice response applications on the system (see also Voice@Work).

SCSI

small computer system interface

SDN

software defined network

shared database table

A database table that is used in more than one application.

shared speech

Speech that is a part of more than one application.

shared speech pools

A parameter that allows the user of a voice application to share speech components with other applications.

SID

station identification

single-threaded application

An application that runs on a single voice channel.

slave

A circuit card that depends on the TDM bus for clock information.

SLIP

serial line interface protocol

small computer system interface

A disk drive control technology in which a single SCSI adapter circuit card plugged into a PC slot is capable of controlling as many as seven different hard disks, optical disks, tape drives, etc.

SNA

systems network architecture

SNMP

simple network management protocol

software

The set or sets of programs that instruct the computer hardware to perform a task or series of tasks — for example, UnixWare software and the system software.

software upgrade

The installation of a new version of software in which the existing platform and circuit cards are retained.

source system

The system from which you are upgrading (that is, your system as it exists *before* you upgrade).

span

A network-interface connection on an E1/T1 (CWB2), Quad T1(CWB10) or Quad E1 (CWB11 and CWB12) circuit card. Each Quad circuit card has from one to four spans (0, 1, 2, 3). An E1/T1 circuit card has one span (0).

speech and signal processor circuit card (CWB1)

A high-performance signal processing circuit card capable of simultaneous support for various speech technologies.

speech energy

The amount of energy in an audio signal. Literally translated, it is the output level of the sound in every phonetic utterance.

speech envelope

The linear representation of voltage on a line. It reflects the sound wave amplitude at different intervals of time. This envelope can be plotted on a graph to represent the oscillation of an audio signal between the positive and negative extremes.

speech file

A file containing an encoded speech phrase.

speech filesystem

A collection of several talkfiles. The filesystem is organized into 16-Kbyte blocks for efficient management and retrieval of talkfiles.

speech modeling

The process of creating WholeWord speech recognition algorithms by collecting thousands of different speech samples of a single word and comparing them all to obtain a statistical average of the word. This average is then used by a WholeWord speech recognition program to recognize a single spoken word.

speech space

An area that contains all digitized speech used for playback in the applications loaded on the system.

speech phrase

A continuous speech segment encoded into a digital string.

speech recognition

The ability of the system to understand input from callers.

SPIP

signal processor interface process

SPPLIB

speech processing library

SQL

structured query language

SR

speech recognition

SSP

speech and signal processor circuit card (CWB1)

standard speech

The speech package available in several languages containing simple words and phrases produced by Lucent Technologies for use with the system. This package includes digits, numbers, days of the week, and months, each spoken with initial, medial, and falling inflection. The speech is in digitized files stored on the hard disk to be used in voice prompts and messages to the caller. This feature is also called Enhanced Basic Speech.

standard vocabulary

A standard package of simple word speech models provided by Lucent Technologies and used for WholeWord speech recognition. These phrases include the digits “zero” through “nine,” “yes,” “no,” and “oh,” or the equivalent words in a specific local language.

string

A contiguous sequence of characters treated as a unit. Strings are normally bounded by white spaces, tabs, or a character designated as a separator. A string value is a specified group of characters symbolized by a variable.

structured query language

A standard data programming language used with data storage and data query applications.

subword technology

A method of speech recognition used in FlexWord recognition that recognizes phonemes or parts of words. Compare to WholeWord speech recognition.

switch

A software and hardware device that controls and directs voice and data traffic. A customer-based switch is known as a private branch exchange.

switch hook

The device at the top of most telephones that is depressed when the handset is resting in the cradle (in other words, is *on hook*). The device is raised when the handset is picked up (in other words, when the telephone is *off hook*).

switch hook flash

A signaling technique in which the signal is originated by momentarily depressing the “switch hook.”

switch interface administration

The component of the system that enables you to define the interaction between the system and switches by allowing you to establish and modify switch interface parameters and protocol options for both analog and digital interfaces.

switch network

Two or more interconnected telephone switching systems.

synchronous communication

A method of data transmission in which bits or characters are sent at regular time intervals, rather than being spaced by start and stop bits. Compare to asynchronous communication.

SYS

UNIX system calls message class

sysgen

system generation

system administrator

The person assigned the responsibility of monitoring all system software processing, performing daily system operations and preventive maintenance, and troubleshooting errors as required.

system architecture

The manner in which the system software is structured.

system message

An event or alarm generated by either the system or end-user process.

system monitor

A component of the system that tests to verify that each incoming telephone line and its associated Tip/Ring or T1 circuit card is functional. Through the “System Monitor” component, you are able to see displays of the Voice Channel and Host Session Monitors.

T

T1

A digital transmission link with a capacity of 1.544 Mbps.

table

See database table.

talkfile

An ASCII file that contains the speech phrase tags and phrase tag numbers for all the phrases of a specific application. The speech phrases are organized and stored in groups. Each talkfile can contain up to 65,535 phrases, and the speech filesystem can contain multiple talkfiles.

talkoff

The process of a caller interrupting a prompt, so the prompt message stops playing.

TAM

telecom alarm module

target system

The system to which you are upgrading (that is, your system as you expect it to exist *after* you upgrade).

TAS

transaction assembler script

TCP/IP

transmission control protocol/internet protocol

TDM

time division multiplexing

telecom alarm module

An intelligent alarm module that provides critical, major, and minor alarm indicators.

telephone network connection

The point at which a telephone network connection terminates on a system. Supported telephone connections are Tip/Ring, T1, and E1.

Text-to-Speech

An optional feature that allows an application to play US English speech directly from ASCII text by converting that text to synthesized speech. The text can be used for prompts or for text retrieved from a database or host, and can be spoken in an application with prerecorded speech.

ThickNet

A 10-mm (10BASE5) coaxial cable used to provide interLAN communications.

ThinNet

A 5-mm (10BASE2) coaxial cable used to provide interLAN communications.

time-division multiplex

A method of serving a number of simultaneous channels over a common transmission path by assigning the transmission path sequentially to the channels, with each assignment being for a discrete time interval.

Tip/Ring

Analog telecommunications using four-wire media.

token ring

A ring type of local area network that allows any station in the network to communicate with any other station.

trace

A command that can be used to monitor the execution of a script.

traffic

The flow of information or messages through a communications network for voice, data, or audio services.

transaction

The interactions (exchanges) between the caller and the voice response system. A transaction can involve one or more telephone network connections and voice responses from the system. It can also involve one or more of the system optional features, such as speech recognition, 3270 host interface, FAX Actions, etc.

transaction assembler script

The computer program code that controls the application operating on the voice response system. The code can be produced from Voice@Work, Script Builder, or by writing directly in TAS code.

transaction state machine process

A multi-channel IRAPI application that runs applications controlled by TAS script code.

transient process

A process that is created dynamically only when needed.

troubleshooting

The process of locating and correcting errors in computer programs. This process is also referred to as debugging.

TSO

time share operation

TSM

transaction state machine process

TTS

Text-to-Speech

TWIP

T1 interface process

U

UCS

Unified Communications Server

UK

United Kingdom

US

United States of America

UNIX Operating System

A multiuser, multitasking computer operating system originally developed by Lucent Technologies.

UNIX shell

The command language that provides a user interface to the UNIX operating system.

upgrade scenario

The particular combination of current hardware, software, application and target hardware, software, applications, etc.

usability

A measurement of how easy an application is for callers to use. The measurement is made by making observations and by asking questions. An application should have high usability to be successful.

USOC

universal service ordering code

UVL

unified voice library

V

VDC

video display controller

vi editor

A screen editor used to create and change electronic files.

virtual channel

A channel that is not associated with an interface to the telephone network (Tip/Ring, T1, LSE1/LST1, or PRI). Virtual channels are intended to run “data-only” applications which do not interact with callers but may interact with DIPs. Voice or network functions (for example, coding or playing speech, call answer, origination, or transfer) will not work on a virtual channel. Virtual channel applications can be initiated only by a “virtual seizure” request to TSM from a DIP.

vocabulary

A collection of words that the system is able to recognize using either WholeWord or FlexWord speech recognition.

vocabulary activation

The set of active vocabularies that define the words and wordlists known to the FlexWord recognizer.

vocabulary loading

The process of copying the vocabulary from the system where it was developed and adding it to the target system.

Voice@Work

An optional software package that provides a graphical interface to assist in development of voice response applications on the system (see also Script Builder).

voice channel

A channel that is associated with an interface to the telephone network (T1, E1, or PRI). Any system application can run on a voice channel. Voice channel applications can be initiated by being assigned to particular voice channels or dialed numbers to handle incoming calls or by a “soft seizure” request to TSM from a DIP or the **soft_szr** command.

voice processing co-marketer

A company licensed to purchase voice processing equipment to market and sell based on their own marketing strategies.

voice response output process

A software process that transfers digitized speech between system hardware (for example, Tip/Ring and SSP circuit cards) and data storage devices (for example, hard disk, etc.)

voice response unit

A computer connected to a telephone network that can play messages to callers, recognize caller inputs, access and update a databases, and transfer and monitor calls.

voice system administration

The means by which you are able to administer both voice-related aspects of the system.

VPC

voice processing co-marketer

VROP

voice response output process

VRU

voice response unit

W

warning

An admonishment or advisory statement used in system documentation to alert the user to the possibility of equipment damage.

watchdog timer

An timer that activates a TAM alarm when CPU activity is not received within the 30-second threshold.

WholeWord speech recognition

An optional feature package based on whole-word technology that can recognize the numbers one through zero, “yes”, and “no” (the key words). This feature is reliable, regardless of the individual speaker. This feature can identify the key words when spoken in phrases with other words. A string of key words, called *connected digits*,

can be recognized. During the prompt announcement, the caller can speak or use touch tones (or dial pulses, if available). See also whole-word technology.

whole-word technology

The ability to recognize an entire word, rather than just the phoneme or a part of a word. Compare to “subword technology.”

wink signal

An interruption of current to a busy lamp indicating that there is a line on hold.

word

A unique utterance understood by the recognizer.

wordlist

A set of words available for FlexWord recognition by an application during a Prompt & Collect action step.

word spotting

The ability to search through extraneous speech during a recognition.

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