The new SPERRY Distributed Communications Processor/10 (DCP/10) system is a small, versatile and cost-effective system designed to provide intelligent network communications in a wide variety of applications for both large and small users.

The DCP/10 is the entry level member of the DCP family and can be used in the same network as the DCP/20 and DCP/40.

It is based on a unified family of hardware and software that uses the same Communications Processor Architecture (CPA) and Telcon communications software available for the DCP/20 and DCP/40.

Optimized for the less demanding communications environments, the DCP/10 is a front-end processor for smaller Series 1100 host computer systems. It can also function as a low-cost network processor and as a remote concentrator. It is capable of simultaneously supporting transaction processing, time-sharing, remote job entry and distributed processing applications.

The system is low in cost, small in size and easy to install. Step-by-step instructions are provided for unpacking the system, connecting communications equipments (other than host-related interfaces), connecting the line module interfaces to the peripherals and verifying hardware operation.

The Telcon system's extensive communications capabilities include interfaces to both circuit (X.21) and packet (X.25) public data networks.

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The processor is based on advanced NMOS, very large scale integration technology. It incorporates highly advanced techniques that assure the accurate, secure transmission of all data.

Memory for the DCP/10 is an integrated circuit, error correcting storage system of 512K bytes.

If your plans include data processing within a telecommunications environment, the SPERRY DCP/10 Telcon system is for you. Contact your local Sperry office for further details.

More About the DCP/10

The DCP/10 provides network control handling a wide range of data transmission rates and multiple terminal types. It can be tailored to fit your data processing and data transmission needs, is modular, and is able to grow as your needs dictate.

The DCP/10 hardware consists of three main components: a processor; local storage; and communications line modules. These components come in a 19-inch enclosure that can either be mounted in an existing communications cabinet or can be delivered in a cabinet tailored for the DCP/10.

Available peripherals include mass storage disk subsystems, including the 8409 disk subsystem, and flexible diskette subsystems. Host interface modules are also available.

The DCP/10 accommodates asynchronous, synchronous and wideband transmissions at speeds up to 64KB per second. It provides support for the Universal Data Link Control procedure as well as a full range of character-oriented communications protocols.

Telcon network control software resides in all DCP/10 front end, network and remote processors and performs routing and processing within the network. This includes: host interfaces; network management; internetwork control; line termination and handling; statistics; error control; on-line diagnostics; status monitoring; command processing; system synchronization and others.

The DCP/10 is controlled in two ways:
□ by microinstructions that operate at a high-speed cycle time of 250 nanoseconds (ns).
□ by a repertoire of programming instructions executed in local storage.

There are approximately 385 programming instructions for general message processing as well as a full range of input/output activities including:
□ Reception and transmission of data
□ Polling and calling for data from remote terminals
□ Allocating buffers for temporary storage of input and output messages
□ Checking messages for errors and requesting retransmission when necessary
□ Reporting operational status of the communications lines
□ Maintaining traffic and error statistics.

DCP/10

PHYSICAL CHARACTERISTICS

Basic Enclosure:
Width: 19 inches (48 cm)
Height: 16 inches (40 cm)
Depth: 28 inches (71 cm)
Weight: 75 lbs (34 kg)

DCP/10 Cabinet
Width: 23 inches (50 cm)
Height: 37.5 inches (95 cm)
Depth: 31 inches (79 cm)

POWER REQUIREMENTS

Nominal voltages: 100, 120, 220,
   240 volts
Nominal frequency: 50 or 60 Hz
Phase: Single phase—2 wire plus
   safety ground
Power: .54 kva—Approximate
   power consumption

ENVIRONMENTAL
CHARACTERISTICS

Nominal working range:
Temperature: 54°F—90°F
             12°C—32°C
Humidity: 20% to 80%

The Processor and Storage

The processor is a microprogrammable device that has direct access to local storage. Specific program tasks are accomplished by software routines executed within microprocessor-based arithmetic logic units and registers.

The processor performs both generalized communications processing as well as input/output processing functions. The I/O processing functions provide programmed control for up to 8 data paths. These may be a combination of serial lines to remote equipment, channels to peripheral devices, or channel connections to on-site Series 1100 host systems.

Processor

FUNCTIONAL
CHARACTERISTICS

Instruction Repertoire: 300
   communications instructions
Input/output instructions: 85
Microprogrammed: 16-bit
   microinstruction
Microcycle time: 250ns
General registers: 32
Input/output ports: 8 for full/half
   duplex serial or parallel line
   modules.

Storage

FUNCTIONAL
CHARACTERISTICS

Capacity: 512 bytes
Integrity: all single bit errors are
   corrected and all double bit
   errors are detected. All errors
   are automatically logged.
Word length: 16 bits plus 2 parity
   bits at the interface; 16 bits plus
   6 error correcting bits internally.
Speed: read cycle = 1 micro
            second
            full word write
            cycle = 750 ns

Data Security Design

The DCP/10 processing components are designed to meet the demand for security and privacy in electronic data handling.
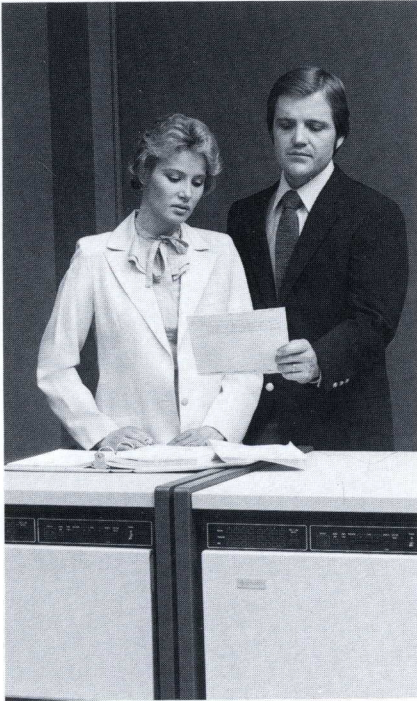
A wide range of protective mechanisms at both the software and hardware levels safeguard the DCP/10 data from error, unwarranted intrusions and inadvertent modification. These mechanisms include privileged instructions and virtual addressing techniques as well as advanced methods unique to the DCP/10.

The protective mechanisms used by the DCP/10 include:
- Dual ALUs with result comparison within the processor
- Byte parity checking on data buses and internal registers
- Error logging of microcontroller failure and errors
- Storage protection to control access rights to local storage
- Levels of privilege to reserve instructions in executive software
- Architectural designs that confine and isolate programs and data within protected environments
- Error detection and recovery procedures to protect data from inadvertent alteration
- Autorecovery and autorestart procedures for recovery from power interrupts or other system failures

The DCP/10 is dedicated at all levels to preserving privacy and security for electronic data transfer.

Communications Line Modules
Microprogrammable line modules operate the 8 communications ports supported by the input/output processing function. Each port requires one line module, capable of handling full-duplex or half-duplex communications. All communication line modules terminate one line per port except the multi-line asynchronous line module that multiplexes four circuits onto one port.

In addition to providing a hardware interface, a line module performs communications functions for each line in a system.

Line module functions include:
- Character assembly/disassembly
- Character parity and block check sequence generation and checking
- Data buffering
- Control character recognition
- Line timing and asynchronous clocking
- Automatic data rate detection

FUNCTIONAL CHARACTERISTICS

Electrical Interfaces
The following electrical interfaces are supported for line speeds up to 64K bps:
- RS232C (V.24, V.28)
- V.35
- Auto Dial (US RS366)
- Auto Dial (Japan NTT
- RS 449
- Bell 303
- X.21

Parallel Line Modules
These modules provide the hardware interface between peripheral subsystems or host processors and the DCP/10. Two parallel modules are provided:
- The host word channel module, which provides full duplex, 32-bit interface to a SPERRY Series 1100 host word channel.
- The byte I/O line module, which provides an 8-bit interface to the 8409 disk subsystem and freestanding flexible disk subsystem.

8409 Disk Subsystem
This subsystem is a freestanding, medium performance mass storage device offered for those communications environments
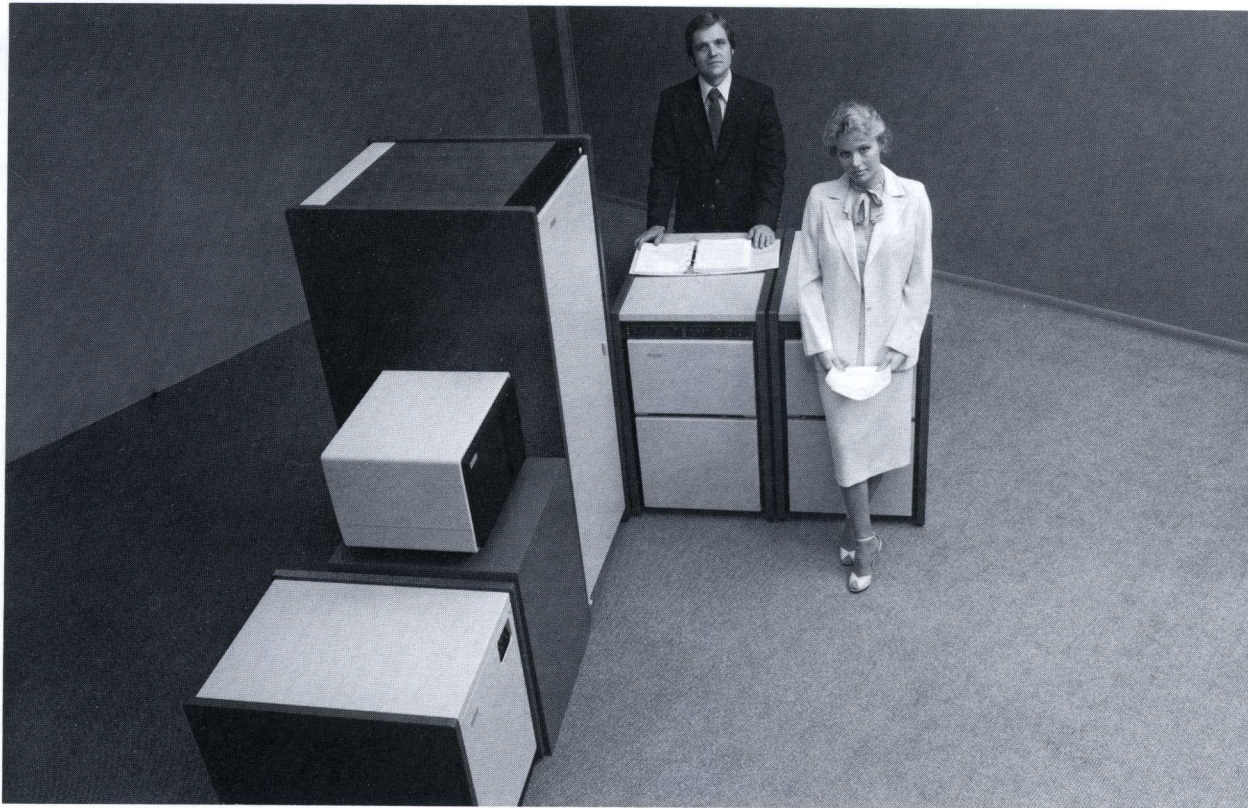
where extensive capability is required. It can be used as storage for Telcon system files, network data base files and distributed data processing applications.

The subsystem can be ordered with one or two disk drive assemblies. Each supports up to 14.25 megabytes of storage.

PHYSICAL CHARACTERISTICS

Height: 31 inches (79 cm)
Width: 23 inches (58 cm)
Depth: 29 inches (74 cm)
Weight (with two drives): 256 lbs (71 kg)

FUNCTIONAL CHARACTERISTICS

Capacity per unit: 4.75 or 14.25
Speed: 3600 RPM
Transfer rate: 5 megabits per second

Access time
Track to track: 12ms
Average stroke: 45ms
Average latency: 8.3ms

Flexible Disk Subsystem

The SPERRY Flexible Disk Subsystem is a low-cost mass storage peripheral that is available for use on the DCP/10. It is a cost-effective storage device for those systems not requiring the high-performance cartridge disk subsystem. It provides storage for the Telcon software, including the operating system and diagnostic programs. It also provides storage for logging network operation statistics as well as for configuration files.

The basic configuration of the flexible disk subsystem contains one disk drive and can be expanded to contain two in the same unit.

The following applies to a single drive.

PHYSICAL CHARACTERISTICS
Width: 20 inches (51 cm)
Height: 9 inches (23 cm)
Depth: 17 inches (43 cm)
Weight: 45 to 60 lbs (20 to 27 kg), depending on the number of drives

FUNCTIONAL CHARACTERISTICS

Storage available: 1 megabyte
Number of tracks: 77 data tracks

Access time
Track to track seek time: 3 ms
Head load time: 70 ms
Head load and seek time: can overlap with setting time at 50 ms
Average latency: 88.33 ms
Flexible disk rotational speed: 360 RPM

Transfer rate
31.25 KB/sec.

POWER REQUIREMENT

Nominal voltage: 100, 120, 200, 240 volts
Nominal frequency: 50 and 60 Hz

Integrated Flexible Disk Subsystem

The integrated flexible disk subsystem provides microcode load capability for the DCP/10. Each system includes a single flexible disk drive that is contained within the DCP/10 cabinet and used for the microprogram load.

The basic configuration of the flexible disk subsystem contains one disk drive.

FUNCTIONAL CHARACTERISTICS

Storage available: 256 KB
Number of tracks: 77 data tracks
Track format: 26 sectors at 128
  bytes/sector

Access time
Track to track seek time: 10 ms
Head load time: 50 ms
Head load and seek time: can
  overlap with setting time at
  10 ms
Average latency: 83 ms
Flexible disk rotational speed:
  360 RPM ± 2%

Transfer rate
31.25 KB/sec.

Remote Control Module

The remote control module provides the means to control the DCP/10 in an unattended, remote environment. It provides control of power, system program load and start/stop operations for as many as *four* processors. Control commands are transmitted to the remote control module via serial communications circuits.

Line Switch Module

The line switch module is designed to support unattended operation of the communications subsystem. It permits switching communications lines and peripherals subsystems between DCP/10s. Switching control may be effected in three ways: manually; under remote program control; and under local program control. Under the control of the Telcon software, the line switch module enhances the operation of redundant configurations in both local and unattended modes.

Summary

The SPERRY DCP/10 Telcon system is a hardware/software product that easily handles the diverse needs of today's network users. It provides a modular architecture that protects the investment of the long-term user. This product incorporates constantly improving technology and permits expansion free from constraints on growth and utilization.

This product was designed and developed in compliance with the SPERRY Distributed Communications Architecture.

For today's telecommunications market, the DCP/10 offers significant price/performance, technological superiority and ease of migration.

Telcon System

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                    ┌─────────────────┐
                    │ Host            │
                    │ Processor       │
                    └─────────────────┘
                    ┌─────────────────┐
          ┌─────────│ Distributed     │─────────┐
          │         │ Communications  │         │
          │         │ Processor/10    │         │
          │         └─────────────────┘         │
          │              │                      │
          │         ┌──────────┐                │
          │         │          │                │
          │         │          │                │
          │         └──────────┘                │
          │          Terminals                  │
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Host Processor

Distributed Communications Processor/10

Terminals

Multi-plexer

Distributed Communications Processor/10

Distributed Communications Processor/10

Multi-plexer

Terminals

Terminals

Terminals

Terminals

Terminals

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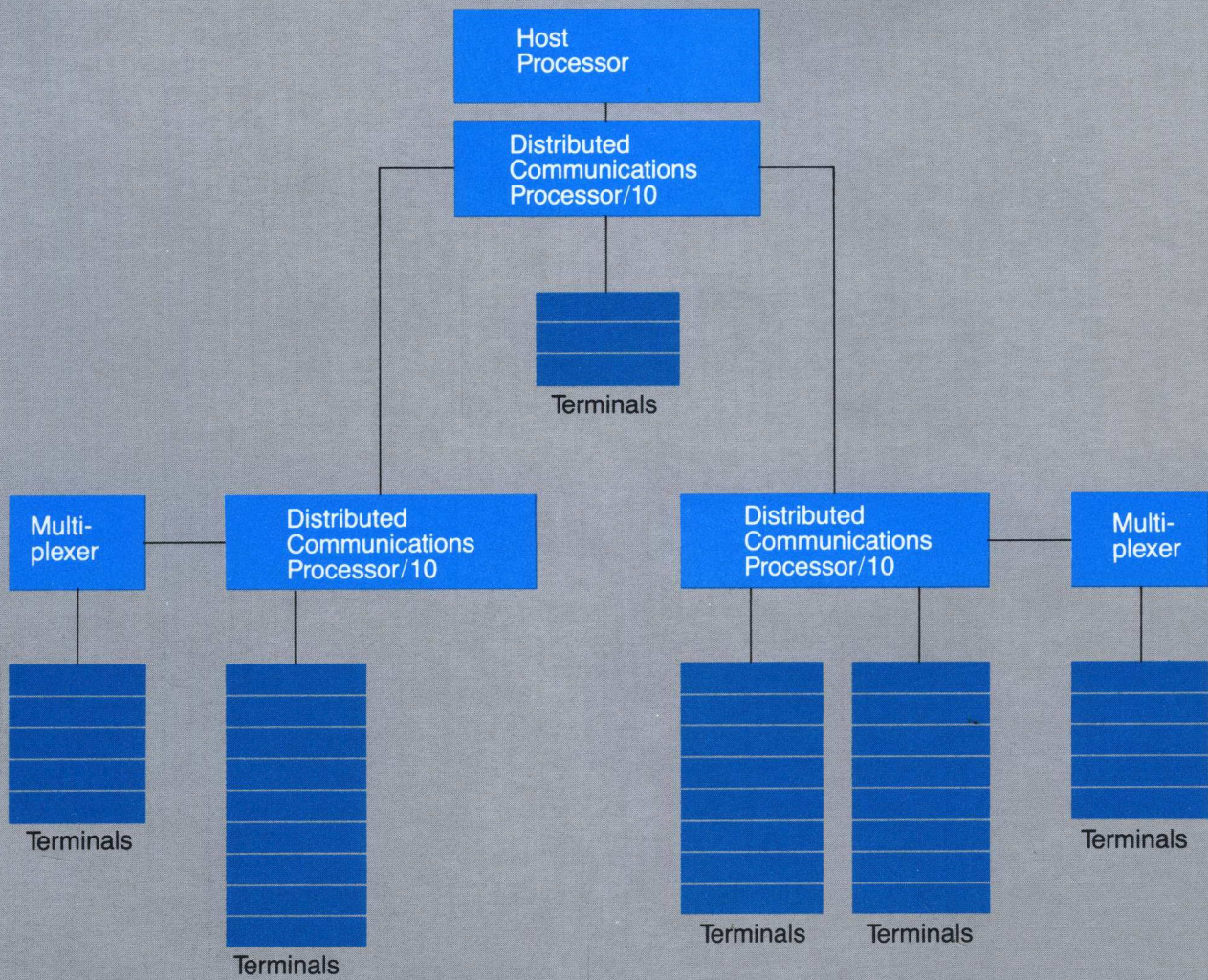
We understand how important it is to listen.