



# Honeywell microSystem 6/10 Professional Business System

## ■ PROFILE

**Operating Systems** • Honeywell GCOS 6 MOD 400 Release 3.0; Digital Research CP/M-86; Microsoft MS-DOS

**Data Management** • none available from Honeywell

**Communications/Networks** • asynchronous communications, VIP7300 and VIP7700 emulation; BSC 3270 emulation; Honeywell RNP and DSA network interface; IBM BSC and SNA network interface

**Languages** • Advanced COBOL; Advanced BASIC; Advanced Assembler; BASIC Interpreter and Compiler; Pascal Compiler; CBASIC-86; GWBASIC

**Models** • CPX9808 desktop system with 1 diskette drive; CPX9809 desktop system with dual diskette drives; CPX9810 floorstanding unit with hard disk drive

**CPU** • Honeywell's proprietary 16-bit microprocessor; 16-bit Intel 8086 microprocessor optional

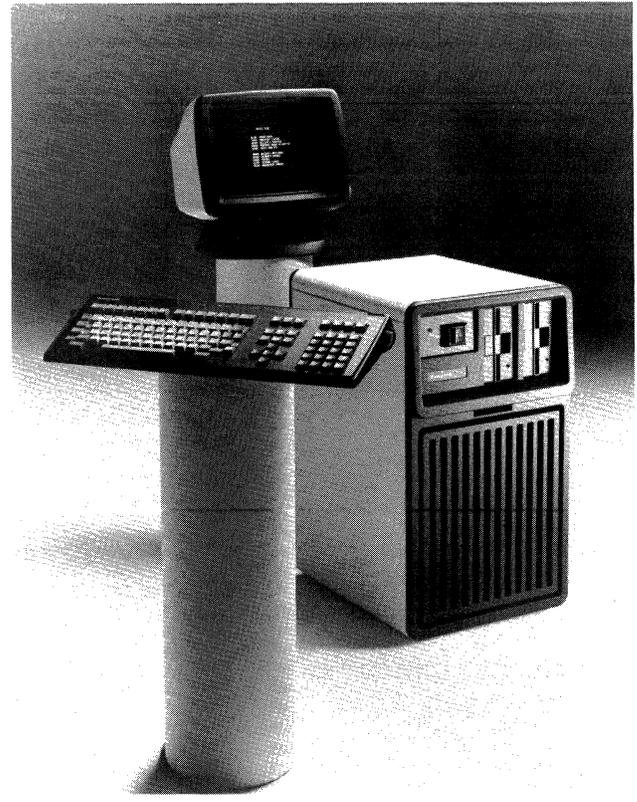
**Memory** • 128K bytes or 512K bytes of RAM

**Chassis Slots** • 3 open slots available

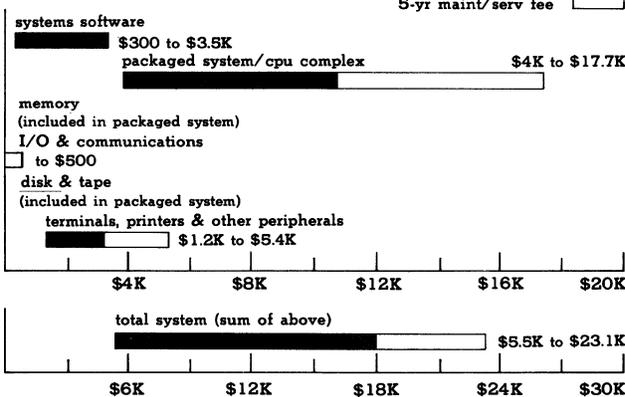
**Ports** • 2 asynchronous ports standard; 1 optional synchronous port

**Mass Storage** • 650K bytes to 1.3M bytes of diskette storage; 20M bytes of Winchester hard disk storage

**Terminals/Workstations** • CPX9808 and CPX9809 desktop units are single-user systems; CPX9810 floorstanding unit will support 1 additional terminal



## PURCHASE PRICE RANGE



**HONEYWELL MICROSYSTEM 6/10 PURCHASE PRICING** bar graphs illustrate price ranges for small to large systems, with solid bars reflecting software/hardware purchase pricing, and open bars reflecting 5-year service/maintenance fees associated with large system • **SMALL SYSTEM** is based on CPX9808 microSystem 6/10 packaged system (includes operating system CPU, 128K-byte RAM, 2 asynchronous serial ports, CRT, and keyboard) and the following options: BASIC language systems software, 1 80-column and 100-cps dot-matrix printer • **LARGE SYSTEM** is based on CPX9810 microSystem 6/10 packaged system (includes MOD 400 operating system, CPU, 512K-byte RAM, 2 asynchronous ports, workstation extension kit, 640K-byte diskette, 20M-byte hard disk, CRT, and keyboard) and the following options: COBOL and BASIC languages, DSA network software, word processing, electronic spreadsheet, and other systems software; Intel 8086 processor; synchronous communications interface; and a 35-cps letter-quality printer.

**Printers** • dot-matrix and letter-quality printers available from Honeywell

**First Delivery** • May 1983

**Systems Delivered** • Honeywell proprietary information

**Comparable Systems** • Burroughs B 20, Data General Desktop Generation, and IBM PC, PC/XT, XT/370

**Vendor** • Honeywell Information Systems, Inc; 200 Smith Street, Waltham, MA 02154 • 617-895-6000

**Canada** • Honeywell Limited; 155 Gordon Baker Road, Willowdale, ONT M2H 3N7 • 416-499-6111

**Distribution** • through Honeywell direct sales and service offices; through resellers for turnkey systems

## ■ ANALYSIS

With the announcements of its first micros, Honeywell brings to market systems which are fully compatible with the Honeywell line of DPS 6 minicomputers and which are associated with extensive networking capabilities. Designated the microSystem 6/10 and microSystem 6/20, these products are targeted towards Fortune 1000 companies and large organizations who are looking for the best of 2 worlds—individual processing power within



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departments but with better management and control. Because of the differences in hardware architecture and peripherals, the microSystem 6/20 will be covered in a different report.

The operating system used by the microSystem 6/10 is the latest version of the GCOS 6 MOD 400 which runs on Honeywell's DPS 6 and Level 6 minicomputers. For users who wish to utilize industry-standard personal computer software, Honeywell provides an optional Intel 8086 processor board which includes both the MS-DOS and CP/M-86 operating systems plus GW Basic.

In addition to promoting the 6/10 as a standalone system, Honeywell is also targeting environments that are building distributed data processing networks. The microSystem 6/10 is capable of serving as an interactive and RJE end point in Honeywell RNP and DSA networks as well as in IBM BSC and SNA networks. In these environments, 6/10 users can utilize files downloaded from the host system as well as enter data into a central Honeywell or IBM database.

The system features self-diagnostic routines for isolating the source of equipment failure. It is constructed with customer-replaceable components for simple installation and maintenance. According to Honeywell, any component can be replaced by the user in 5 minutes.

In many ways, the microSystem 6/10 is comparable with the Burroughs B 20 Series Model 21, the Data General Desktop Generation Models 10 and 10/SP, and the IBM PC, PC/XT, and XT/370. All units are designed to function standalone or in distributed networks supporting their own proprietary networking environment. Additionally, the microSystem 6/10 and the Burroughs B 21 will also support IBM's SNA and BSC protocols.

All units except the IBM PC and PC/XT utilize their own proprietary operating systems in addition to running under MS-DOS and/or CP/M-86. Furthermore, the 6/10, the DG models, and the XT/370 are all upward compatible with either their mini or mainframe family members. On a price comparison basis, the Microsystem 6/10 costs less than both the IBM units and the Burroughs B 21 systems, and has more sophisticated communications capabilities than the DG systems.

### □ Strengths

Honeywell's decision to make its micro upward compatible with its DPS 6 product line shows far-sightedness on Honeywell's part. By doing so, they have implemented a sophisticated level of communications and networking facilities on a micro system that few micros presently offer but are slowly migrating towards.

Not only was Honeywell looking to the future when it designed the microSystem 6/10 but also to the present—and the impact of industry-standard software. By offering a personal computing option supporting both MS-DOS and CP/M-86 operating systems, Honeywell has ensured that the 6/10 will not be locked into software products just for the MOD 400.

Other interesting features of the 6/10 are its ability to accept files downloaded from a host system and the use of

membrane-capacitance technology instead of mechanical switches underneath the keys on the keyboard for better reliability.

### □ Limitations

System expandability is the biggest limitation of the microSystem 6/10. A maximum memory of 512K bytes is relatively small for a 16-bit system, and for the 6/10 this limitation has an even greater impact. Because of the system's DPS 6 compatibility, all DPS 6 software should run on the 6/10. However, it doesn't; the constraining factor is the memory size. Some of the programs are just too big for 512K to handle.

### ■ SOFTWARE

#### □ Terms & Support

**Terms** • available for a one-time charge license fee.

**Support** • Honeywell provides assistance during startup and for routine operation of the software; includes 24-hour-per-day telephone access to Honeywell's National Response Center and workday access to the Technical Assistance Center at no charge.

#### □ Software Overview

The microSystem 6/10 is capable of running both Honeywell DPS 6 minicomputer software and MS-DOS and CP/M-86 microcomputer software. The system is heavily endowed with sophisticated communications products which bring the 6/10 into Honeywell's Distributed Systems Architecture (DSA) network environment as well as IBM's SNA world.

#### □ Operating Systems

**SMS9000/SMS9500 MOD 400 Executive & Utilities** • diskette/disk versions • menu-driven system supporting multitasking, real-time, or data communications applications in one or more online streams • supports COBOL, FORTRAN, Pascal, RPG, BASIC, and assembler programming languages • allow access to sequential, relative, random, and indexed sequential files on various device types • features time slicing; mail facility; symbolic debugger; batch and interactive program development; checkpoint/restart capability; code sharing via reentrant programs; buffer pooling; file recovery; and support of communication protocols and program products interfacing with Honeywell hosts, IBM hosts, and DPS 6/Level 6 systems • includes over 150 utilities; most interesting are PRIME-INDEX for priming the index; REORG-INDEX for reorganizing an index sequential file using a single command; and UNSP for automatically monitoring queues • included with systems.

**MS-DOS** • general-purpose 16-bit operating system supports single-user, single-tasking, interactive, and batch processing • consists of a program interface, disk file manager, and character I/O handler • utilities include a translator for 8080 and Z80 code, a linker, and a library routine • requires 32K-byte main memory • developed by Microsoft, Inc • included with Personal Computing Option.

**CP/M-86** • general-purpose single-user operating system • supports interactive and batch processing; provides compatibility at a source-language level with CP/M-80 software base • consists of 3 modules: Command Console Processor (CCP) intercepts, interprets, and executes user commands; Basic Disk Operating System (BDOS) performs fundamental system services including file management, Basic Input/Output System (BIOS) serves as interface between CCP/BDOS and hardware using system-dependent input/output device handlers • utilities include: PIP for file transfer, reformatting, and concatenation; ED for creation and modification of ASCII files; ASM-86 for assembly of 8088/8086 programs; DDT-86 for program testing and debugging; SUBMIT for batch submission of multiple parameterized, prototype commands; STAT for alteration and display of I/O device and file status; GENCMD for processing object files in standard Intel hexadecimal format; LMCMD for



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processing object files in standard Intel executable binary format  
 • requires 56K-byte main memory • developed by Digital Research • included with Personal Computing Option.

### □ Utilities

**Sort/Merge Facility** • supports up to 16 sort key fields; sequence based on either ascending or descending sequence by key; ASCII or numeric fields; and exits for user processing of input and output records • can also be called from COBOL, FORTRAN, or assembly language programs.

SMU9000 • for dual diskette-based CPX9809: \_\_\_\_\_  
**\$100 lcns**

SMU9501 • for hard disk-based CPX9810: \_\_\_\_\_  
**100**

**SMU9504 Screen Editor** • full-screen, interactive text editor for creating, modifying, and maintaining files and application source programs:

\_\_\_\_\_ **100**

### □ Data Management

**Data Entry Facility II (DEF II)** • provides forms-mode, source data entry capability with validation and editing functions • includes modules for data entry, data validation and editing, forms development, tables development, file printing, supervisory functions, file recovery/restoration, search, and modify (record/field), and utilities • facilities are available for user to create, modify, delete, print, or view forms • users can develop verification and extraction tables to control the data entry function • user develop application programs with COBOL.

SMC9007 • for dual diskette-based CPX9809 system: \_\_\_\_\_  
**\$400 lcns**

SMC9510 • for hard disk-based CPX9810 system: \_\_\_\_\_  
**500**

### □ Transaction Management

**SMS9502 Transaction Control Language (TCL) Facility** • allows users to execute multiple transactional-type applications concurrently; new transaction-oriented applications can also be developed • included are 3 basic types of programs, a TCL compiler for program development, a single runtime TCL Processor which initiates processor and terminal(s) in the system for a transaction and then turns control to the next transaction when the first is completed, and multiple transaction descriptions which call on TCL (transaction control language) statements to supply the system with data on the required data files, screen forms, and application programs and their sequence needed by a transaction for hard disk-based CPX9810 system only:

\_\_\_\_\_ **\$200 lcns**

### □ Communications/Networks

In addition to operating as a standalone system, the microSystem 6/10 can act as a 3270 or VIP terminal as well as serve as an end point in DSA, SNA, or BSC networks.

**File Transfer Facility** • enables 2-way transmission of files between microSystem 6/10 and DPS 6 Level 6 and DPS 8 systems • requires 512K-byte memory.

SMC9008 • for dual diskette-based CPX9809 system: \_\_\_\_\_  
**\$375 lcns**

SMC9501 • for hard disk-based CPX9810 system: \_\_\_\_\_  
**375**

**SMC9000 VIP7300 Terminal Emulator** • emulates Honeywell VIP7300 Series of asynchronous terminals • requires 512K-byte memory • for dual diskette-based CPX9809:

\_\_\_\_\_ **150**

**SMC9001 VIP7700 Terminal Emulator** • emulates Honeywell VIP7700 Series of synchronous terminals • requires 512K-byte memory • for dual diskette-based CPX9809:

\_\_\_\_\_ **150**

**SMC9004 TTY Emulator** • provides access to networks requiring TTY-type devices • requires 512K-byte memory • for dual diskette-based CPX9809: \_\_\_\_\_  
**60**

### Honeywell Distributed Systems Architecture (DSA)

Provides overall framework for Honeywell's distributed systems and communications products • conforms to the reference model of the International Standards Organization (ISO) open system architecture; supports X.25 packet-switched and X.21 circuit-switched network interface protocols • available for the hard disk-based CPX9810 only • supports DSA full satellite routing capabilities.

**SMC9518 DSA Basic Network Services** • provides basic DSA communications management and interface services • provides transport control which handles end-to-end control during transmission; network control which handles routing logic, including X.25 public data network interface; link control which manages data transmission over a link between 2 entities (standard protocol for link control is High-Level Data Link Control (HDLC) as defined by International Standards Organization (ISO)); and physical control interface between terminals and processors • is the software prerequisite for all other packages within the DSA Distributed System Satellite Network:

\_\_\_\_\_ **\$750 lcns**

**SMC9519 DSA Remote Batch Facility** • enables microSystem 6/10 to perform remote job entry to a DPS 6 or DPS 8 host:

\_\_\_\_\_ **350**

**SMC9520 DSA Application Interface Facility** • enables application on microSystem 6/10 to communicate directly with applications on DPS 6 Level 6 or DPS 8 systems:

\_\_\_\_\_ **50**

**SMC9522 DSA Electronic Mail Facility** • enables microSystem 6/10 operators to send and receive messages from operators of other 6/10, DPS 6/Level 6 or DPS 8 systems:

\_\_\_\_\_ **400**

**SMC9523 DSA Network Operator Interface** • provides access to the network for administration and control:

\_\_\_\_\_ **100**

**SMC9527 DSA Local Message Facility** • enables user-written COBOL applications to communicate with each other using higher level (session control) layers:

\_\_\_\_\_ **50**

**External Network Interfaces** • group of separately available software packages, each providing an interface to a specific external network • all require SMC9518 • packages include SMC9528 Telenet (USA); SMC9529 Tymnet (USA); and SMC9536 Uninet (USA) • each network interface individually priced:

\_\_\_\_\_ **300**

**SMC9537 RNP/6 LHDLC (Logical High-Level Data Link Control) Basic Software** • provides an interface between the modules and the communications lines that allow RNP/6 nodes to communicate with various network processors connected to large systems and other RNP/6 systems • bit-oriented, synchronous; permits half- or full-duplex, multileaving transmission over dial-up or dedicated lines • prerequisite for other RNP/6 programs:

\_\_\_\_\_ **250**

**SMC9538 RNP/6 Remote Concentration Facility (RCF)** • enables 6/10 to function as a terminal concentrator in multifunction situations • prioritizes access to processing and communications resources according to real-time requirements • serves to off-load host Front-End Processor:

\_\_\_\_\_ **350**

**SMC9539 DNP/6 Remote File Facility (RFF)** • transmits files between remote 6/10 and various network processors connected

*LCNS: one-time license fee. Prices effective as of April 1983.*



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to host systems; files can also be transmitted between RNP/6 nodes • supports full-duplex transmission, multiple simultaneous file transfers, multileaving with batch/job entries, and concentration of communication traffic • operates in a multifunctional environment providing continuous terminal operations and concurrent execution of application programs:

150

**SMC9540 RNP/6 Remote Batch Facility (RBF)** • for transmitting batch jobs from a remote 6/10 to various network processors connected to a host • supports multileaving of several data streams simultaneously • supports use of both sides of full-duplex communications link, providing multiple job input and output concurrently; can be multiplexed over half-duplex facilities:

350

**SMC9541 RNP/6 Application Transport Interface** • for application-to-application communications between host and satellites or satellites and satellites • consists of a set of standard micros and subroutines for performing communications functions and a set of runtime subroutines that can be called from Advanced COBOL or Advanced Assembler languages:

50

**SMC9542 RNP/6 Electronic Mail Facility** • for distribution of messages:

400

## IBM SNA Support

IBM SNA support is available for the hard disk-based CPX9810 system only.

**SMC9506 SNA Transport Facility** • provides SNA protocol services for SNA Interactive and RJE Facilities • features include locally attached or remote, dialed or leased, and point-to-point or multipoint communications facilities; multiple links per host; multiple hosts; concurrent attachment to BSC or SNA networks • prerequisite for SNA facilities listed below:

\$250 lens

**SMC9507 SNA Interactive Terminal Facility** • enables 6/10 systems to connect into a SNA network, appearing to the host as IBM 3277/78 display stations attached to IBM 3274 Model 1C controller:

350

**SMC9508 Remote Job Entry (RJE) Facility** • enables 6/10 systems to appear to a host and SNA network as an IBM 3777-3 terminal:

350

**SMC9509 File Transmission-6** • for transmitting databases, word processing documents and print files from an IBM host to Honeywell satellites:

150

## IBM BSC Support

**SMC9006 BSC 3270 Standalone Emulator** • emulates IBM 3270 terminal • requires single diskette drive:

\$150 lens

**SMC9543 BSC Transport Facility** • for transmitting character data files between 6/10 and IBM host systems using BSC 2780 or 3780 protocols; does not support transmission of files with binary data or packed decimal fields • prerequisite for BSC software listed below • for hard disk-based CPX9810 only:

200

**SMC9503 HASP Multileaving Facility** • allow 6/10 to operate as remote multileaving workstation communicating with IBM 370 host:

375

**SMC9504 2780/3780 Workstation Facility** • enables 6/10 to perform remote job entry by appearing as an IBM 2780 or 3780 workstation:

375

**SMC9505 Programmable Facility/3271** • meant to emulate

3270 connection to IBM 370 host • primarily for development of new applications:

350

## □ Program Development/Languages

**SML9500 Advanced COBOL** • implements ANSI X3.23-74 specifications (without Report Writer or Data Communications module included) with extensions; provides LEVEL 4 (high) of the Federal Information Processing Standards (FIPS) and certification by the Federal Compiler Testing Center (FCTC) • extensions include reentrant object programs, additional data types, optional listings, interspersed diagnostics, diagnostic severity control, and object code suppression • runs under MOD 400:

\$700 lens

**SMC9501 Advanced FORTRAN** • implements ANSI X3.9-1977 specifications • extensions include free-form source input; additional data types which are fixed and double fixed, fractional and double fractional, and double integer (32-bit integer precision); tasking subroutines; date and time subroutines; bit manipulation functions; and include statements • supports calls from and to programs written in other languages • generates optimized reentrant object code • utilizes the hardware Scientific Instruction Power (SIP) or the software (SIP) Simulator for compilation as well as object code execution • runs under MOD 400:

500

**SML9502 BASIC Interpreter Compiler** • multiuser language processor used to interactively develop and execute BASIC programs • features include extensive string manipulation support; mathematical functions; double-precision floating-point operations; matrix facilities; and debugging facilities • operates in 4 modes which are Command, Execution, Compile, and Immediate (when compiler is used as a calculator) • can interface with other modules written in BASIC or other languages as well as interfacing with GCOS 6 software • runs under MOD 400:

300

**SML9503 Pascal Compiler** • complies with International Standards Organization (ISO) specifications • produces reentrant object code programs • includes an online debugger, source formatter, cross-reference listing; error diagnosis and correction, and program execution monitoring • runs under MOD 400:

350

**SML9504 Advanced Assembler/Macro Preprocessor** • reentrant assembler; reentrant object code optional; includes microinstruction facility which handles combinations of actual system instructions and assembler pseudo-instructions; pseudo-instructions for control of the assembler; and scientific and commercial instruction sets • process mnemonic op codes, symbolic names, constants, and expressions • addressing techniques include program counter-relative; indirect program counter-relative; direct stack frame relative; push/pop stack frame-relative; and program counter-relative with displacement, indexed; runs under MOD 400:

100

**SML1000 CBASIC-86** • compiles source code file created by a text editor or word processor into an intermediate file composed as pseudo-code (p-code) instructions • runtime monitor interprets the p-code directives and performs the operation • features extended precision decimal arithmetic, expanded file processing, comprehensive string processing, assembly code interface, debugging capabilities, and cross-reference lister • requires 64K-byte RAM • runs under CP/M-86:

300

**SML3000 GW BASIC** • implementation of BASIC-86; emphasis is on business graphics support • allows users to call machine language subroutines, merge multiple programs, and transfer control to certain program lines • creates circles and lines; paints the screen • runs under MS-DOS • bundled with Personal Computing Option.

## □ Applications Packages

**SMH9500 OAS Document Processing** • includes document/



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word processing, indexing, calendar, calculator, and supervisory or system administration function • provides for global search and replace; column move; pagination; forms fill-in; footnote control; section numbering; sorting; and background processing:

\$500 lcnr

**SMD9500 OAS Records Processing** • for establishing office-level document databases and user-designed forms to create, maintain or access the database documents • creates master lists, sublists, form documents, and selective processing subsets:

300

**SMU9502 OAS Document Transfer** • for sending documents between OAS systems and non-OAS systems using Honeywell's DSA or IBM's SNA or BSC • requires SMC9518 or SMC9537 and 9539:

150

**SMH9501 OAS InfoCalc** • electronic spreadsheet • each workbook may contain up to 100 worksheets of 60 rows x 40 columns • features create/edit option; print option; index option; create word processing document option:

250

### ■ HARDWARE

#### □ Terms & Support

**Terms** • available for purchase only • 90-day warranty on parts and labor.

**Support** • programs can range from customer self-maintenance to demand, on-site service with maintenance costs ranging anywhere from 6 percent to 14 percent of the list purchase price • Honeywell National Response Center is available 24 hours per day for users who wish to report equipment failures; during normal working hours, users can be switched to the Technical Assistance Center (TAC) for remote diagnostics and to discuss any hardware or software questions.

#### □ Physical Specifications (H x W x D); Weight

**CPU** • 6 x 20.5 x 15 inches; 45 pounds (desktop) • 26 x 15 x 18.8 inches; 124 pounds (floor unit).

**Display** • 12 x 13 x 13 inches; 15 pounds.

**Keyboards** • 2 x 21 x 7 inches; 6.5 pounds.

#### □ Systems Overview & Configurability

The microSystem 6/10 incorporates a Honeywell 16-bit microprocessor that is fully compatible with the firm's DPS 6 line of minicomputers. It is available in 3 configurations which differ in their disk storage and memory capacity. The 2 diskette-based models come in desktop enclosures while the hard disk-based version is contained within a floorstanding unit which can also support a second workstation. Memory is either 128K bytes or 512K bytes.

The diskette subsystem consists of 1 or 2 5.25-inch double-sided, double-density 650K-byte drives. These drives are the same as those used in the DPS 6 systems and DPS 6-based Office Automation Systems. The hard disk drive is an 8-inch Winchester 20M-byte fixed disk subsystem.

The system monitor is detached from the unit and is designed with tilt and swivel capabilities. It has a 12-inch green phosphor screen that displays 24 lines of 80 characters plus a 25th status line. The character generator, which can contain a table of up to 256 symbols, is loaded via diskette. The detached, low-profile keyboard has an adjustable tilt and connects to the monitor via a 5-foot coiled cord. Its entire character set can be programmed for different character configurations and it uses interchangeable templates for customizing the keyboard to a particular application. The electronics within the keyboard is based on membrane-capacitance technology.

The microSystem 6/10 comes with a serial printer port that will support 1 of 3 Honeywell printers. Its standard asynchronous communications port can attach a communications line, or, in the case of the hard disk system, a second workstation. Three option

slots are available for a 384K-byte memory expansion card; a synchronous communications option; and either a Personal Computing Option which contains a 16-bit Intel 8086 microprocessor or an integrated synchronous modem.

The synchronous communications option allows interfacing to Honeywell RNP or DSA networks as well as to IBM BSC or SNA networks.

Maximum configurability is stated below; minimum configurations are discussed under Packaged Systems.

**System Maximums** • 512K bytes of RAM, 20M-byte hard disk, 640K-byte diskette drive, Personal Computing Option, 2 asynchronous ports, and 1 synchronous port.

#### □ Packaged Systems

**CPX9808 microSystem 6/10** • desktop unit with 16-bit processor, 128K bytes of RAM, 650K-byte diskette drive, CRT, keyboard, and 2 asynchronous serial ports:

\$3,995 prch \$595/\$400/\$215 maint

**CPX9809 microSystem 6/10** • same as CPX9808 except with 512K bytes of RAM, 2 diskette drives, and MOD 400 operating system:

5,495 755/515/285

**CPX9810 microSystem 6/10** • floorstanding unit with 16-bit processor, 512K bytes of RAM, 20M-byte hard disk, 640K-byte diskette drive, CRT, keyboard, workstation extension kit, 2 asynchronous serial ports, and MOD 400 operating system:

9,995 1,365/945/545

**CPK9800 Upgrade Kit** • to upgrade CPX9808 to CPX9809:

1,895 160/115/70

**CPK9801 Upgrade Kit** • to upgrade CPX9808 or CPX9809 to CPX9810 • requires 512K bytes of RAM and Workstation Extension Kit:

7,795 735/520/315

#### □ CPU

The microSystem 6/10 utilizes a Honeywell 16-bit LSI 6 microprocessor as the main CPU. A separate processor control I/O operations and provides functional compatibility with DPS 6 peripherals. The system can be expanded to include an Intel 8086 microprocessor for running industry-standard micro software.

**Honeywell LSI 6 Processor** • 16-bit microprocessor with memory management unit and real-time clock • DPS 6 instruction set • 64 priority levels.

**Intel 8086 Processor Option** • 16-bit data bus interface, 16-bit internal architecture; direct addressing to 1M-byte memory • 16-bit register set with symmetrical operations, 24 operand addressing modes; 8-bit and 16-bit signed and unsigned arithmetic with binary and decimal operands • software compatible with 8088 • comes packaged with MS-DOS, CP/M-86, GW BASIC • requires 1 expansion slot; cannot coexist with DCD9801 integrated modem:

\$875 prch NC/NC/NC maint

#### □ Memory

**Standard Memory** • 128K bytes of parity checking RAM with CPX9808; 512K bytes with CPX9809.

**CPC9802 Memory Expansion** • to expand CPX9808 from 128K bytes to 512K bytes:

\$1,200 prch NC/NC/NC maint

#### □ I/O & Communications

The system's I/O processor supports 3 communications ports: 2

**PRCH:** purchase price; includes 90-day warranty. **MAINT:** annual fee for on-site/dispatch/mail-in options. **NA:** information not available. **NC:** no charge. Prices effective as of April 1983.



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asynchronous ports and 1 optional synchronous port. Three option slots are available: 1 for memory expansion; another for the synchronous communications option; and the third for either the Personal Computing Option or a modem.

**Printer Port** • asynchronous RS-232C interface • included with system.

**Auxiliary Communications Port** • asynchronous RS-232C or RS-422 interface; 4,000-foot direct-connect capability with RS-422 interface • for second workstation or external asynchronous device • included with system.

**DCM9806 Synchronous Interface** • RS-232C interface; half- or full-duplex • supports HDLC; Honeywell's PVE, RNP, LHDLC; IBM's SDLC, BSC, SNA • includes 25-foot modem cable:

\$500 prch	NC/NC/NC maint
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**DCD9801 Integrated Synchronous Modem** • 2400 baud; auto-call; AT&T compatible • cannot coexist with CPF9801 Personal Computing Option:

1,000	NC/NC/NC
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**VCW2625 Direct Connect Cable** • 50-foot, RS-422A cable to DPS 6:

50	NC/NC/NC
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### Mass Storage

**Integral Diskette Drives** • 5.25-inch double-sided, double-density; 650K-byte formatted capacity • 31K-byte-per-second transfer rate; 160-millisecond average seek time; 100-millisecond average latency time • 1 included with CPX9808 and CPX9810; 2 included with CPX9809.

**DIU9801/02 Diskette Drive** • second 650K-byte drive for CPX9808/CPX9810:

\$800 prch	\$160/\$115/\$70 maint	
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**Integral Hard Disk Drive** • 8-inch nonremovable Winchester disk • 19.5M-byte formatted capacity; 800K-bps transfer rate; 50-millisecond average access time; 8.33-millisecond average latency time • included with CPX9810.

### Terminals/Workstations

The diskette-based models of the microSystem 6/10 are single-user systems which include a monitor and keyboard. The disk-based floorstanding unit provides the same monitor and keyboard but has the added capability of attaching a second workstation. Four models are available as the second workstation.

**Display** • 12-inch green phosphor, non-glare screen with adjustable base for tilting • displays 24 lines x 80 characters; 25th status line; 7x9 character matrix; available with underline and block cursor plus blinking versions of both; character generator contains up to 256 symbols and is loaded via diskette • included with system.

**Keyboard** • detached, low-profile keyboard with adjustable tilt • includes numeric keypad, separate cursor control set; color-coded keys; software-loadable character set; interchangeable templates • included with system.

**DKF9806 Workstation Extension Kit** • includes video base and extender cable for placing monitor and keyboard up to 15

feet from the system unit:

\$200 prch	NC/NC/NC maint
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**VIP7202 Second Workstation** • VIP7201 with a standard keyboard • 12-inch green phosphor screen displays 24 lines x 80 characters; 26 displayable graphic symbols • detached keyboard contains numeric keypad and cursor control keys; 7 dual function keys • interface via RS-232C or RS-422 at speeds up to 19,200 bps:

830	200/140/80
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**VIP7381 Second Workstation** • VIP7301 with a standard keyboard • 12-inch green phosphor screen displays 24 lines x 80 characters; 25th status line; contiguous, vertical, horizontal graphics for forms and charts • detached conversational keyboard contains 96 keys, color coded; n-key rollover, numeric keypad, and separate cursor control block • interface via RS-422 or optional RS-232C:

1,900	222/155/90
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**VIP7383 Second Workstation** • VIP7303 with OAS keyboard • 12-inch green phosphor screen displays 24 lines x 80 characters; 25th status line not used when operating with OAS software • detached word processing keyboard contains 91 keys; 14 function keys; generates 127 ASCII codes • interface via RS-422 or optional RS-232C:

1,900	222/155/90
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**VIP7387 Second Workstation** • VIP7307 with data-entry keyboard • 12-inch green phosphor screen displays 24 lines x 80 characters; 25th status line under DEF-II software; fully addressable cursor • detached keyboard contains 94 keys; 12 dual function keys, n-key rollover, dedicated keys for DEF-II software • interface via RS-422 or optional RS-232C:

1,900	222/155/90
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### Printers

**PRU7072 Dot-Matrix Printer** • 80 columns, 100 cps:

\$1,195 prch	\$222/\$175/\$125 maint
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**PRU7077 Dot-Matrix Printer** • 132 columns, 100 cps:

1,495	278/205/135
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**PRU7017 Letter-Quality Printer** • 136/163 columns at 10/12 cpi; 6/8 lpi; 35 cps bidirectional; 16-inch friction platen • RS-232C interface:

3,200	444/352/240
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**PRF9616 Forms Tractor** • for PRU7017 letter-quality printer:

400	44/30/18
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**PRF0006 Sheet Feeder Adapter** • for PRU7017 letter-quality printer:

200	NA/NA/NA
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**PRF1005 Dual Tray Sheet Feed** • for PRU7017 letter-quality printer; requires PRF0006:

1,800	366/260/155
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**CBL9817 Printer Sharing Switch** • for 2 microSystem 6/10s:

500	34/24/15
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• END



# Honeywell microSystem 6/20 Multistation Office System

## ■ PROFILE

**Operating Systems** • Honeywell GCOS 6 MOD 400 Release 3.0

**Data Management** • DM6 IDS/II database management system; INFO6 file management system; TOTAL 6 database management system

**Communications/Networks** • Honeywell RNP and DSA networks; IBM BSC and SNA protocols; file transfer facilities

**Languages** • intermediate, reentrant, runtime, and advanced COBOL; advanced FORTRAN; BASIC interpreter and compiler; Pascal compiler; advanced assembler; RPG II; Interactive RPG II

**Models** • 1 model—CPX9102—available with various options

**CPU** • Honeywell's proprietary 16-bit microprocessor

**Memory** • 512K bytes expandable to 1M bytes

**Chassis Slots** • 2 memory and 1 I/O expansion slots

**Ports** • 5 RS-422 ports included with system

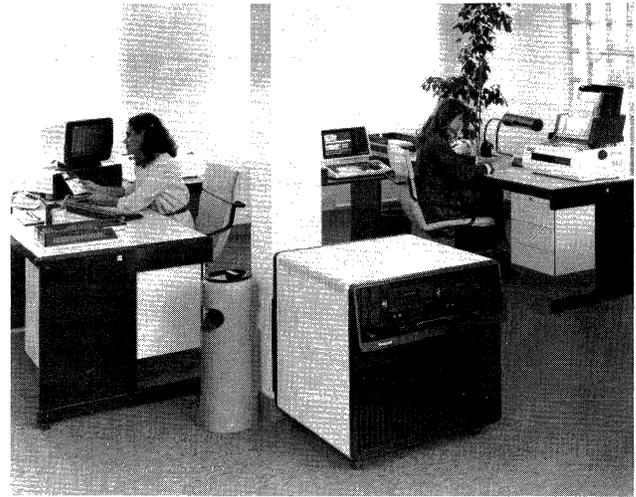
**Mass Storage** • 650K-byte diskette storage; 40M bytes or 80M bytes of hard disk storage

**Terminals/Workstations** • maximum of 4 per system

**Printers** • 100-cps and 400-cps dot-matrix printers; 35-cps and 55-cps letter-quality printers available from Honeywell

**First Delivery** • September 1983

**Systems Delivered** • Honeywell proprietary information



**Comparable Systems** • Altos 16-bit systems; Alpha Micro AM-1000; Burroughs B 20 Model 22; CIE Systems 680/30; CompuPro 16-bit systems; Cromemco System One; Data General Desktop Generation Models 20 and 30; Nabu 1600; Onyx C8002A; Sage IV; Wicat System 155

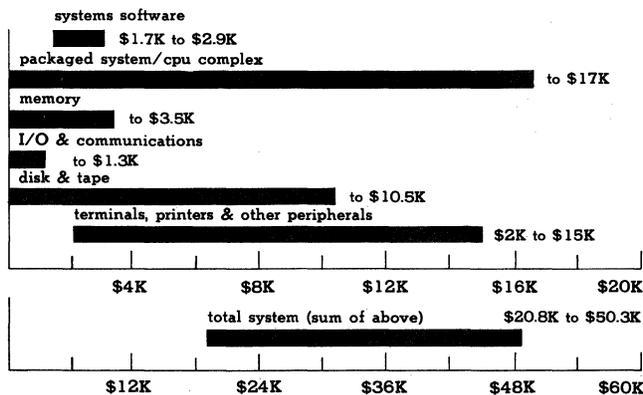
**Vendor** • Honeywell Information Systems, Inc; 200 Smith Street, Waltham, MA 02154 • 617-895-6000

**Canada** • Honeywell Limited; 155 Gordan Baker Road, Willowdale, ONT M2H 3N7 • 416-499-6111

**Distribution** • through Honeywell direct sales and service offices

## PURCHASE PRICE RANGE

hardware & software



**MICROSYSTEM 6/20 PURCHASE PRICING** bar graphs illustrate price ranges for small to large systems, with solid bars reflecting software/hardware purchase pricing, and open bars reflecting 5-year service/maintenance fees associated with large system. **SMALL SYSTEM** is based on microSystem 6/20 packaged system (includes CPU, 512K-byte main memory, 40M-byte hard disk, 650K-byte diskette drive, 5 RS-422 ports, 1 communication expansion slot) and the following options: integrated executive systems software package; terminal with standard keyboard and cable; 80-column, 100-cps dot-matrix printer. **LARGE SYSTEM** is based on microSystem 6/20 packaged system (includes CPU, 512K-byte main memory, 40M-byte hard disk, 650K-byte diskette drive, 5 RS-422 ports, 1 communication expansion slot) and the following options: office automation system expanded package systems software; 512K-byte memory add-on; synchronous/asynchronous controller and 2 ports, 25-foot modem cable; second 40M-byte hard disk and power supply; 4 multifunction terminals; 1 55-cps letter-quality printer with forms tractor.

## ■ ANALYSIS

Following on the heels of its microSystem 6/10 announcement in April, Honeywell recently closed the gap between its new entry-level system and its multiuser DPS 6 mini systems by introducing 2 new family members. The microSystem 6/20, which is the next level up from the microSystem 6/10, was designed to be employed as a departmental office system typically supporting up to 4 users. The next level system, the DPS 6/40, typically will support between 4 and 18 users and is targeted more towards environments with heavier data processing and communications environments. (Information on this system will be incorporated in the DPS 6 report in our Computer Systems service.) Like the 6/10, these 2 models are hardware and software compatible with the DPS 6 product line.

The 6/20's use of the GCOS 6 MOD 400 operating system enables it to communicate with any DPS 6 model as well as the new microSystem 6/10. Its distributed processing features can be targeted in 2 directions: having the 6/20 function as an end point serving 4 workstations in a Honeywell DSA or RNP network as well



## Honeywell microSystem 6/20 Multistation Office System

as in an IBM SNA or BSC environment; or having it act as a master station in a cluster environment with 4 microSystem 6/10s attached to it.

Of the 16-bit multiuser micro systems that are comparable with the microSystem 6/20, some offer more hard disk storage, others more memory. Some can handle more users but do not have any communications capabilities. Overall, as far as price, features, storage and memory expansion, and performance are concerned, the microSystem 6/20 is positioned roughly in the middle of its competition. Where it is unique is in its upward-compatibility with the Honeywell minicomputer family. The only other micros currently on the market that can support the same software and peripherals as 16-bit and 32-bit minis are the Data General Desktop Generation and the DEC professional 300.

Because the microSystem 6/20 system is rich in networking capabilities, the closest comparable micro is the Burroughs B 22, the more powerful member of the B 20 Series. Both the Honeywell 6/20 and the Burroughs B 22 were designed to function standalone or in distributed networks; to utilize their own proprietary operating systems; to support IBM SNA and BSC protocols; and to employ other members of their micro families as workstations in a multiuser environment. Additionally, both systems will allow a user to transfer files between their micro workstations in a loosely coupled cluster environment as well as transfer files to a remote or local host. In choosing between these 2 vendors' systems, a user would have to decide which trade-offs to make. For example, the B 22 supports more users, the 6/20 more software. The B 22 comes with an integrated display and keyboard, while the 6/20 offers a user a choice of several different types of terminals.

### Strengths

The major appeal of the microSystem 6/20 is its ability to utilize the same software that is common to the larger DPS 6 systems. For companies that are constantly expanding, this should prove to be a prime consideration in their decision to purchase a multiuser micro system. At some point in the future, when the demand for a more powerful system is warranted, the need for software conversions and operator retraining will not be an issue. The user can move up to a DPS 6 mini and use the same software.

This concept also works in reverse. For those Honeywell shops who are looking to incorporate micros in some of their departments or branch offices, there won't be an added expense of buying new software nor will there be any compatibility problems. In either case, whether migrating up or down the Honeywell product line, the transition should be a smooth one.

### Limitations

Some multiuser micros come up short on memory allocation per user. This shouldn't be a problem on the 6/20 when it is used for transaction processing or modest batch tasks. However, for larger batch operations or for supporting some of the larger MOD 400 applications, 1M bytes of memory on a 4-user system could prove to be insufficient.

The 6/20's lack of the personal computing option that is available on its sister product, the 6/10, is also a drawback to the system. Without this feature, the 6/20 cannot run MS-DOS- or CP/M-86-compatible software.

### SOFTWARE

#### Terms & Support

**Terms** • some software available for an annual license fee; other software available for initial license fee • with annual license fee primary price includes support; secondary price licenses the copying and use of the packages on designated secondary sites that receive their support through a primary site • with initial license fees there is a charge for annual support.

**Support** • Honeywell provides assistance during startup and for routine operation of the software; includes 24-hour-per-day telephone access to Honeywell's National Response Center and workday access to the Technical Assistance Center at no charge.

#### Software Overview

The microSystem 6/10 runs under a scaled-down version of Honeywell's MOD 400 operating system, the same operating system that Honeywell employs for its DPS 6 minicomputer family. This means that most of the software products written for the DPS 6 will also run on the 6/20 (subject to memory restrictions). Included in this proliferation of software products are support for Honeywell's DSA network and IBM's SNA environment.

#### Packaged Software

The following integrated software packages are preconfigured applications, including standard CLM command sequences. They are shipped on a microSystem 6/20 removable disk pack and are ready for immediate execution. The price is for annual license fee.

#### Office Automation Integrated Packages

**SMS1061 Office Automation System (OAS) Basic Package** • supports up to 4 word processing workstations and a letter-quality printer in a freestanding environment • includes MOD 400 Release 3.0 Executive; MOD 400 Utilities; User Productivity Facility; OAS Document Processing:

\$2,510/\$1,880 lens

**SMS1071 Office Automation System (OAS) Expanded Package** • same as SMS1061 except also includes OAS Records Processing:

2,885/2,165

#### Data Entry Integrated Packages

**SMS1021 Data Entry Development System Package—HIS Communications** • for developing data entry screens for execution in centralized or distributed environments • includes MOD 400 Release 3.0 Executive; MOD 400 Utilities; User Productivity Facility; DEF-II Data Entry Facility; Sort/Merge Utility; Advanced COBOL; HIS Communications and File Transfer Facility:

\$3,150/\$2,365 lens

**SMS1031 Data Entry Development System Package—IBM Communications** • same as SMS1021 except includes BSC Transport Facility and HASP Multileaving Facility instead of HIS Communications and File Transfer Facility:

3,260/2,365

**SMS1041 Data Entry Execute-Only System Package—HIS**

*LCNS: either initial license fee which is a one-time charge or annual license fee. Each software listing will specify which type of fee it is. Two prices signify primary/secondary licenses. Annual support is included with primary annual license fee at no additional charge. Prices effective as of July 1983.*



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**Communications** • for executing data entry applications in centralized or distributed environments • includes MOD 400 Release 3.0 Executive; MOD 400 Utilities; User Productivity Facility; DEF-II Data Entry Facility; Sort/Merge Utility; HIS Communications and File Transfer Facility:

2,125/1,595

**SMS1051 Data Entry Execute-Only System Package—IBM Communications** • same as SMS1041 except includes BSC Transport Facility and HASP Multileaving Facility instead of HIS Communications and File Transfer Facility:

2,235/1,680

### Integrated Executive System Package

**SMS1081 MOD 400 Load & Run System—HIS Communications** • for utilizing MOD 400 immediately without first configuring the system • includes MOD 400 Release 3.0 Executive; MOD 400 Utilities; User Productivity Facility; Sort/Merge Utility; HIS Communications and File Transfer Facility:

\$1,780/\$1,335 lcms

**SMS1091 MOD 400 Load & Run System—IBM Communications** • same as SMS1081 except includes BSC Transport Facility and HASP Multileaving Facility instead of HIS Communications and File Transfer Facility:

1,890/1,420

### □ Operating Systems

**SMS1411 MOD 400 Release 3.0 Executive & Utilities** • menu-driven system supporting multitasking, real-time, or data communications applications in 1 or more online streams • supports COBOL, FORTRAN, Pascal, RPG, BASIC, and assembler programming languages • allows access to sequential, relative, random, and indexed sequential files on various device types • features time slicing; mail facility; symbolic debugger; batch and interactive program development; checkpoint/restart capability; code sharing via reentrant programs; buffer pooling; file recovery; and support of communication protocols and program products interfacing with Honeywell hosts, IBM hosts, and DPS 6/Level 6 systems • includes over 150 utilities; most interesting are PRIME-INDEX for priming the index; REORG-INDEX for reorganizing an index sequential file using a single command; and UNSP for automatically monitoring queues • price is annual license fee:

\$1,375/\$1,030 lcms

### □ Utilities

**SHF1091 Sort/Merge Facility** • supports up to 16 sort key fields; sequence based on either ascending or descending sequence by key; ASCII or numeric fields; and exits for user processing of input and output records • can also be called from COBOL, FORTRAN, or assembly language programs • price is for annual license fee:

\$170/\$130 lcms

**SHP1141 Screen Editor** • full-screen, interactive, text editing facility for creating, modifying, and maintaining files and application source programs • features include: text manipulation directives; full-screen viewing; automatic line renumbering after deleting or adding lines; full user control of tab setting including automatic tab setting to conform to standard language format rules; extensive use of function and labeled keys; and text regions up to 256 characters wide • price is for annual license fee:

100/75

**STS1911 TPS 6 Screenwrite** • for writing programs; defining and initializing screen formats; processing screen messages; and accessing the integrated file system • used with TPS 6 Transaction Processing System • price is for annual license fee:

460/345

**SHU9581 Interactive RPG II Screen Format Generator** • defines screen displays and application control of formats • dynamically positions 1 or multiple formats at various screen positions and can change and control the accenting in any format

field • price is for initial license fee (one-time charge):

1,100/825

**SHU9601 RPG II IBM System/34 OCL Runtime Facility** • consists of 2 units: an input processor which is used to accept System/34-compatible OCL source code, process substitution parameters and conditional statements, and creates an OCL job stream; and an OCL statement processor which is used to control workstation and OCL file requirements • price is for initial license fee (one-time charge):

550/410

**SHU9591 RPG II Source Entry Utility** • screen editor for the interactive development and maintenance of the RPG II and Screen Format Generator programs • for creating and updating source programs, screen specifications, OCL, and Execution Control Language (ECL) • price is for initial license fee:

1,100/825

**SHV9011 RPG II IBM System/34 File Conversion Utility** • menu-driven utility for transporting data files, RPG programs, screen specifications, and procedures from the IBM System/34 to the 6/20 and converting the data into a format acceptable to the Honeywell system • price is for initial license fee (one-time charge):

825/620

### □ Data Management

**Data Management 6 Integrated Data Store/II (DM6 IDS/II)** • a subset of the CODASYL database management system • consists of host language, schema, subschema, device/media control language (DMCL), data manipulation (DML), privacy and security administration, and utilities • database can be accessed via COBOL or assembler language using system macros • schema nonprocedural language used to define database structure and access methods for storage and retrieval of records • subschema, written in data definition language (DDL) controls the user's views of the data and limits functions available to users to preserve integrity of database • DMCL permits users to manage memory space by specifying such things as page size, number of database keys per page, area sizes, and database size • DML is logical extension of COBOL to access database • the File System's Access Control Lists protect all or parts of the database from unauthorized use and unauthorized level of access • utilities include save/restore, copy file, copy volume, and file dump • database can include up to 4.29 billion records • 2 versions offered: one includes program development as well as runtime services; and the other contains the runtime services only • price is annual license fee.

**SHD1161 DM6 IDS/II** • includes program development:

\$2,410/\$1,810 lcms

**SHD1171 DM6 IDS/II Runtime Service** • runtime services for Integrated Data Store:

1,320/990

**SHD9181 DM6 Interactive Query Facility (DM6 IQF)** • terminal-oriented query and report writing facility; also provides data dictionary and security features • English-like commands entered in either form or command mode • supports IDS/II database • 3 execution modes: interactive, report, and assistance • price is for initial license fee (one-time charge):

3,080

**SHD9081 INFO 6** • complete online data entry, inquiry, update, report writing, and computational file management system • can be run concurrently with any other application including itself • multiple access to single data file; first access has read/write privileges and next-in restricted to read-only • access protection down to item level • error messages are both audio and visual to guide user; beeper on terminal warns operator that an error has occurred • price is for initial license fee (one-time charge):

5,000

**SHD9071 TOTAL 6** • based on Cincom TOTAL • network structured; modular design • provides data independence from applications; eliminates data redundancy • offers data integrity



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and security by preventing destruction of files and records by application programs and preventing unauthorized file access • includes "before image" logging to disk or tape for file recovery in case of system failure • allows file sharing at the record level; sequences updates to the same record • provides both single-entry and variable-entry data sets • up to 2,500 different record types within a variable-entry data set • includes Database Definition Language (DBDL) and Data Manipulation Language (DML) accessed by calls from COBOL, FORTRAN, and assembler statements • modules include Database Definition Utility (DBGEN), Database Format Utility (DBFMT), Database Management System (TOTAL), DML Runtime Interface (DATBAS), and Database Descriptors (DBMOD) for each data set used • price is for initial license fee (one-time charge):

12,705

**SHC1491 Data Entry Facility II (DEF II)** • provides forms mode, source data entry capability with validation and editing functions • includes modules for data entry, data validation and editing, forms development, tables development, file printing, supervisory functions, file recovery/restoration, search, and modify (record/field), and utilities • facilities are available for user to create, modify, delete, print, or view forms • users can develop verification and extraction tables to control the data entry function • users develop application programs with COBOL • price is for annual license fee:

345/260

### □ Transaction Management

**STS1901 TPS 6 Transaction Processing System** • includes a transaction monitor; integrated database; restart/recovery facility; terminal management capability; application and development aids (e.g., trace and debug); and supporting features (e.g., printer spooler) • serves as a standalone TPS operating concurrently with other GCOS 6 applications; can also be used as a 2-level TPS communicating with other 6/20s • the disk-resident file management subsystem handles key files and detail files; data in a key file can be accessed directly by key; data files can be accessed only by following a logical chain from a key file; files can be deleted, modified, or mixed with other files; files can be either extendable or non-extendable; applications can access the GCOS 6 indexed, indexed sequential, and relative files • application programs are written to run under TPS in the Screenwrite language or COBOL or both; most customers use both • requires TPS Screenwrite Translator or COBOL compiler to generate application module • lock-out feature at the record level limits access to a record to 1 terminal at a time • price is for annual license fee:

\$1,290/\$965 lcms

**STS1941 TPS 6 Query/Report Writer (QR6)** • non-procedural, query and report writing facility for non-data processing personnel; provides for ad hoc access to the TPS 6 database • menu-driven; table-driven; query-by-example to give users a relational view of the database • price is for annual license fee:

635/475

**SHS1201 Transaction Control Language (TCL) Facility** • allows users to execute multiple transaction-type applications concurrently; new transaction-oriented applications can also be developed • included are 3 basic types of programs, a TCL compiler for program development, a single runtime TCL Processor which initiates processor and terminal(s) in the system for a transaction and then turns control to the next transaction when the first is completed, and multiple transaction descriptions which call on TCL (transaction control language) statements to supply the system with data on the required data files, screen forms, and application programs and their sequence needed by a transaction • price is for annual license fee:

80/60

**SHD1141 DM6 Transaction Processor (DM6 TP)** • provides concurrent processing of message mode and/or forms mode transactions; designed to run concurrently with users engaged in non-transaction processing operations • provides automatic management of files, resources, terminals, and system privacy •

supports concurrent access to IDS/II database files and other user-specified files • consists of 5 elements: generation facility; object time package; user-written transaction processing routines; runtime administration function; and an optional forms definition facility • price is for annual license fee:

1,500/1,125

**SHD1151 DM6 TP Runtime Service** • runtime service only of DM6 TP • controls the processing of transactions and coordinates the receipt and delivery of messages for an application communicating with a larger number of terminals:

950/710

### □ Communications/Networks

The microSystem 6/20 can operate as a freestanding unit capable of communicating with any DPS 6 system as well as operate as an end point in a Honeywell or IBM network.

**SMC1111 Honeywell Communications/File Transfer Facility** • for transmitting files between 6/20s or DPS 6/Level 6, DPS 7, DPS 8, Level 66, Level 64, or Level 62 computers • supports various file types including binary or ASCII, fixed relative, sequential, index sequential, and UFAS and GFRC (Level 66) • polled VIP emulator (PVE) allows the connection of a 6/20 to a dedicated switched, synchronous, half-duplex, communications link which is operated according to the polled VIP protocol at speeds of 2000, 2400, 4800, or 9600 bps • scheduled to be available second quarter 1984 • price is for annual license fee:

\$40/\$30 lcms

### Honeywell Distributed Systems Architecture (DSA)

DSA provides an overall framework for Honeywell's distributed systems and communications products. It conforms to the reference model of the International Standards Organization (ISO) open system architecture and supports X.25 packet-switched and X.21 circuit-switched network interface protocols. DSA will be available on the 6/20 during the second quarter 1984. Prices for all packages are annual license fees.

**SMC2301 DSA Basic Network Services** • provides basic DSA communications management and interface services • provides transport control which handles end-to-end control during transmission; network control which handles routing logic, including X.25 public data network interface; link control which manages data transmission over a link between 2 entities (standard protocol for link control is High-Level Data Link Control (HDLC) as defined by International Standards Organization (ISO)); and physical control interface between terminals and processors • is the software prerequisite for all other packages within the DSA Distributed System Satellite Network:

\$435/\$330 lcms

**SHC2311 DSA Remote Batch Facility** • enables microSystem 6/10 to perform remote job entry to a DPS 6 or DPS 8 host:

195/145

**SHC2331 DSA Application Interface Facility** • allows users to write their own programs incorporating communications within a DSA network • utilizes standard COBOL communications verbs and complies with ANSI X3.23-1974 standards:

85/65

**SHC2391 DSA Local Message Facility** • enables user-written COBOL applications to communicate with each other using higher level (session control) layers • can also be used on standalone 6/20 which is not connected to DSA network:

55/40

**SHC2341 DSA Terminal Presentation Facility** • allows a VIP7300 connected to a 6/20 node to emulate the block mode/forms mode of a VIP7800:

130/95

**SHC2351 DSA Electronic Mail Facility** • enables microSystem 6/20 operators to send and receive messages from operators of other 6/10, 6/20, DPS 6/Level 6 or DPS 8 systems:

250/190

**SHC2361 DSA Network Operator Interface** • provides access



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to the network for administration and control:

65/45

**SHC2381 DSA Network Control Facility** • for centralizing administrative and control functions on the network:

550/415

**SHC2371 DSA Log File Facility** • consists of 3 elements: administrative storage facility for creating log files of network event records; log file editor for printing contents of log file records; and log file accounting for detecting connections using the records and log file:

125/95

**SHC2111 TPS 6 Distributed Processing Facility** • executes in conjunction with TPS 6 and offers 2-level transaction processing:

70/50

**External Network Interfaces** • group of separately available software packages, each providing an interface to a specific external network • all require SHC2301 packages include SHC2171 Italtac (Italy); SHC2181 Uninet (USA); SHC2191 Infoswitch (Canada); SHC2031 Telenet (USA); SHC2041 Tymnet (USA); SHC2051 Datapac (Canada); SHC2081 Austpac (Australia); and SHC2091 UK-PSS (UK) • each network interface individually priced:

1,040/780

### GCOS 6 Remote Network Processor/6 (RNP/6)

RNP/6 provides networking facilities and transport mechanisms for linking processors in a distributed environment. It enables the microSystem 6/20 to function as a remote node to DPS 88, DPS 8, 66/DPS; or DPS 6; to communicate directly with another 6/20; or to be connected to a Datnet 8 network processor for transition to Honeywell's DSA. RNP/6 will be available on the 6/20 during the second quarter 1984. Prices for all programs are annual license fee.

**SMC2611 RNP/6 LHDLC (Logical High-Level Data Link Control) Basic Software** • provides an interface between the modules and the communications lines that allow RNP/6 nodes to communicate with various network processors connected to large systems and other RNP/6 systems • bit-oriented, synchronous; permits half- or full-duplex multileaving transmission over dial-up or dedicated lines • prerequisite for other RNP/6 programs:

\$165/\$125 lcms

**SHC2641 RNP/6 Remote Concentration Facility (RCF)** • enables 6/20 to function as a terminal concentrator in multifunction situations • prioritizes access to processing and communications resources according to real-time requirements • serves to off-load host Front-End Processor:

135/100

**SHC2621 RNP/6 Remote File Facility (RFF)** • transmits files between remote 6/10 and various network processors connected to host systems; files can also be transmitted between RNP/6 nodes • supports full-duplex transmission, multiple simultaneous file transfers, multileaving with batch/job entries, and concentration of communication traffic • operates in a multifunctional environment providing continuous terminal operations and concurrent execution of application programs:

135/100

**SHC2631 RNP/6 Remote Batch Facility (RBF)** • for transmitting batch jobs from a remote 6/20 to various network processors connected to a host • supports multileaving of several data streams simultaneously • supports use of both sides of full-duplex communications link, providing multiple job input and output concurrently; can be multiplexed over half-duplex facilities:

195/145

**SHC2651 RNP/6 Application Transport Interface** • for application-to-application communications between host and satellites or satellites and satellites • consists of a set of standard micros and subroutines for performing communications functions and a set of runtime subroutines that can be called from

Advanced COBOL or Advanced Assembler languages:

85/65

**SHC2701 RNP/6 Electronic Mail Facility** • for distribution of messages:

250/190

### IBM SNA Support

IBM SNA support will be available for the microSystem 6/20 during the second quarter of 1984. All prices are for annual license fees.

**SMC1921 SNA Transport Facility** • provides SNA protocol services for SNA Interactive and RJE Facilities • features include locally attached or remote, dialed or leased, and point-to-point or multipoint communications facilities; multiple links per host; multiple hosts; concurrent attachment to BSC or SNA networks • prerequisite for SNA facilities listed below:

\$160/\$120 lcms

**SHC1941 SNA Interactive Terminal Facility** • enables 6/20 systems to connect into a SNA network, appearing to the host as IBM 3277/78 display stations attached to IBM 3274 Model 1C controller:

130/95

**SHC1961 Remote Job Entry (RJE) Facility** • enables 6/20 systems to appear to a host and SNA network as IBM 3777-3 terminals:

195/145

**SHC2261 File Transmission-6** • for transmitting databases, word processing documents, and print files between an IBM host and Honeywell satellites • resides on the remote system; works in conjunction with the File Transmission-Host program:

40/30

**SHC1901 File Transmission-Host** • for transmitting files between an IBM host and Honeywell satellites • resides on host system; works in conjunction with File Transmission-6 program:

2,435

### IBM BSC Support

IBM BSC support will be available on the microSystem 6/20 during the second quarter of 1984. Prices are for annual license fee.

**SMC1091 BSC Transport Facility** • for transmitting character data files between 6/20 and IBM host systems using BSC 2780 or 3780 protocols; does not support transmission of files with binary data or packed decimal fields • prerequisite for BSC software listed below:

\$40/\$30 lcms

**SHC1261 HASP Multileaving Facility** • allows 6/20 to operate as remote multileaving workstation communicating with IBM 370 host:

110/85

**SHC1221 2780/3780 Workstation Facility** • enables 6/20 to perform remote job entry by appearing as an IBM 2780 or 3780 workstation:

110/85

**SHC1241 Programmable Facility/3271** • meant to emulate 3270 connection to IBM 370 host • primarily for development of new applications:

130/95

### □ Program Development/Languages

**SHL1331 Advanced COBOL** • implements ANSI X3.23-74 specifications (without Report Writer or Data Communications module included) with extensions; provides Level 4 (high) of the Federal Information Processing Standards (FIPS) and certification by the Federal Compiler Testing Center (FCTC) • extensions include reentrant object programs, additional data types, optional listings, interspersed diagnostics, diagnostic severity control, and object code suppression • price is for annual license fee:

\$1,025/\$770 lcms



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**SHL1491 Reentrant COBOL** • price is for annual license fee:  
1,025/770

**SHL1251 Intermediate COBOL** • based on ANSI X3.23-74 specifications • programs generated by the compiler are reentrant • supports packed decimal (COMP) and 32-bit signed binary (COMP-2) data types, callable Sort/Merge utility • interfaces with IDS/II database management routines and generates transaction processing routines (TPRs) that define user applications to run within the Transaction Driver System (TDS) • price is for annual license fee:  
850/635

**STS1921 TPS6 COBOL Runtime Library** • for use with TPS6 Transaction Processing System • price is for annual license fee:  
120/90

**SHL1271 Advanced FORTRAN** • implements ANSI X3.9-1977 specifications • extensions include free-form source input; additional data types which are fixed and double fixed, fractional and double fractional, and double integer (32-bit integer precision); tasking subroutines; date and time subroutines; bit manipulation functions; and includes statements • supports calls from and to programs written in other languages • generates optimized reentrant object code • utilizes the hardware Scientific Instruction Power (SIP) or the software (SIP) Simulator for compilation as well as object code execution • price is for annual license fee:  
540/405

**BASIC** • multiuser language processor used to interactively develop and execute BASIC programs • features include extensive string manipulation support; mathematical functions; double-precision floating-point operations; matrix facilities; and debugging facilities • operates in 4 modes which are Command, Execution, Compile, and Immediate (when compiler is used as a calculator) • can interface with other modules written in BASIC or other languages as well as interfacing with GCOS 6 software.

**SHL1301 BASIC Interpreter** • price is for annual license fee:  
220/165

**SHL1311 BASIC Interpreter/Compiler** • price is for annual license fee:  
430/325

**SHL9501 Pascal Compiler** • complies with International Standards Organization (ISO) specifications • produces reentrant object code programs • includes an online debugger, source formatter, cross-reference listing; error diagnosis and correction, and program execution monitoring • price is for initial license fee (one-time charge):  
2,420/1,815

**SHL1411 Advanced Assembler** • reentrant assembler; reentrant object code optional; includes microinstruction facility which handles combinations of actual system instructions and assembler pseudo-instructions; pseudo-instructions for control of the assembler; and scientific and commercial instruction sets • process mnemonic op codes, symbolic names, constants, and expressions • addressing techniques include program counter-relative; indirect program counter-relative; direct stack frame-relative; push/pop stack frame-relative; and program counter-relative with displacement, indexed • price is for annual license fee:  
320/240

**SHL1261 RPG II** • for writing application programs to produce reports • supports a subset of RPG II offered on IBM System/3 and System/32 • features coded, fixed-format specification forms; fixed logic cycle; static and dynamic table handling; access to standard data management facilities by object programs; linkage of external routines written in RPG, COBOL, FORTRAN, or BASIC • price is for annual license fee:  
565/425

**Interactive RPG II System** • allows applications written for the IBM System/34 to be transported to the microSystem 6/20; also provides a degree of compatibility with IBM System/3 and System/32 • all prices are for initial license fees.

**SHL9521 Interactive RPG II Compiler** • transforms source code into object format • supports data structures; array handling; compile and object time tables and arrays; look-ahead fields; also supports sequential, indexed, and random file organizations:  
1,650/1,240

**SHL9531 Interactive RPG II Runtime Interpreter** • translates the instructions generated by the RPG II compiler into native 6/20 instructions • permits a 6/20 display station to operate as an IBM System/34 workstation:  
770/580

### Applications Packages

**SHH1011 OAS Document Processing** • includes document/word processing, indexing, calendar, calculator, and supervisory or system administration function • provides for global search and replace; column move; pagination; forms fill-in; footnote control; section numbering; sorting; and background processing • price is for annual license fee:  
\$940/\$705 lcms

**SHD1201 OAS Records Processing** • for establishing office-level document databases and user-designed forms to create, maintain, or access the database documents • creates master lists, sublists, form documents, and selective processing subsets • price is for annual license fee:  
375/285

**SHU1621 OAS Document Transfer** • for sending documents between OAS systems and non-OAS systems using Honeywell's DSA or IBM's SNA or BSC • requires SMC2301 or SMC2611 and SMC2621 • price is for annual license fee:  
100/75

### Other Facilities

**SHP1131 User Productivity Facility** • for helping users learn and run applications and utilities on the GCOS 6 operating system • provides tailored menus, forms, and help files to guide users through system capabilities • software tools allow users to add their own applications to the menu structure and modify the Facility for their installation • price is for annual license fee:  
\$195/\$145 lcms

### ■ HARDWARE

#### Terms & Support

**Terms** • available for purchase only • 90-day warranty on parts and labor.

**Support** • programs can range from customer self-maintenance to demand, on-site service with maintenance costs ranging anywhere from 6 percent to 14 percent of the list purchase price • Honeywell National Response Center is available 24 hours per day for users who wish to report equipment failures; during normal working hours, users can be switched to the Technical Assistance Center (TAC) for remote diagnostics and to discuss any hardware or software questions.

#### Physical Specifications (H x W x D); Weight

**CPU** • 30 x 28.6 x 28.9 inches; 274 pounds (system cabinet).

**Display** • various terminals are available for use with this system.

**Keyboard** • not applicable.

#### Systems Overview & Configurability

The microSystem 6/20 is a multistation office system capable of supporting up to 4 users and a printer. It is housed in a 30-inch high floorstanding cabinet whose parts consist of an operator's control panel, a 650K-byte diskette drive, a 40M-byte cartridge disk unit, a system power supply, and the basic system electronics. The heart of the system is a 16-bit LSI 6 microprocessor with 512K bytes of error correcting memory.

For users who want more than 512K, the system provides 2 memory expansion slots which will accommodate 256K-byte boards to extend memory to 1M byte. The system's disk/diskette controller handles both the floppy drive and the 40M-byte



## Honeywell microSystem 6/20 Multistation Office System

cartridge disk. Additionally, it will support another 40M-byte cartridge drive. However, if a second cartridge drive is added, a second power supply must also be added. A workstation/printer controller for handling 5 RS-422 ports and an I/O expansion slot for accommodating either an optional dual-line communications controller or an optional network controller round out the system features.

Honeywell offers the user a choice of data entry, multifunction, and word processing VIP workstations for attachment to the 6/20. The new microSystem 6/10 personal computer workstation can also be configured with the system. In the area of communications, Honeywell provides a dual-line communications controller which supports 2 RS-232C ports using BSC, PVE, or TTY protocols, and a networking controller which supports 1 synchronous RS-232C ports using HDLC or SDLC protocol. This latter option will not be available until mid 1984.

The 6/20 operates on a standard 120-volt outlet. The operator panel provides pushbutton control for automatic system startup, memory-to-diskette information transfer, and disk-to-disk copying.

Maximum configurability is stated below; minimum configurations are discussed under Packaged Systems.

**System Maximums** • 1M-byte memory; 80M-byte hard disk storage; 650K-byte diskette drive; 5 RS-422 ports for workstations and/or printers; and 1 communications port.

### □ Packaged Systems

**CPX9102 microSystem 6/20** • floorstanding unit with 16-bit processor, 512K-byte memory, 40M-byte cartridge disk, 650K-byte diskette drive, 5 RS-422 ports, and 1 communications expansion slot:

\$17,000 prch    \$1,450/\$1,165/\$815 maint

### □ CPU

The microSystem 6/20 incorporates a Honeywell 16-bit LSI 6 microprocessor with bidirectional bus architecture for CPU-I/O controller interfacing in a multitasking environment.

**Honeywell LSI 6 Processor** • 16-bit microprocessor with 16-bit data path; DPS 6 instruction set; memory management unit • short address format/long address format; 2M-byte direct addressing range • 64 priority levels.

### □ Memory

**Standard Memory** • 512K-byte RAM with error detection and correction • 2-byte parallel access mode • n-channel MOS in 64K chips.

**CMM9030** • 256K-byte memory expansion • maximum of 2 per system:

\$1,750 prch    \$125/\$100/\$70 maint

The 6/20 provides a workstation/printer controller for handling up to 5 workstations and/or printers in any combination plus an I/O expansion slot for supporting either a dual-line communications controller or a networking controller.

**Workstation/Printer Controller** • controls up to 5 RS-422 interfaces; RS-422 ports can adapt to RS-232C devices • included with the system.

**DCC9010 Dual-Line Communications Controller** • supports 2 RS-232C lines; asynchronous or synchronous; 9600 bps; BSC, PVE, or TTY protocols • auto-dial and modem cable for first line included:

1,250            138/107/77

**CBL9611** • 25-foot modem cable for second line or for auto-dial:

80                NC/NC/NC

**DCC9050 Networking Controller** • supports 1 synchronous RS-232C port; 19.2K bps; HDLC/SDLC protocols • includes modem cable • available second quarter 1984:

2,200            198/154/110

**DRK9010** • RS-422 to RS-232C interface converter:

200              22/16/10

### □ Mass Storage

**Integral Cartridge Disk Drive** • 8-inch rigid disk; 20M-byte fixed, 20M-byte removable • 1.2M-bps transfer rate; 43.55-millisecond average access time; 8.55-millisecond average latency time; 35-millisecond average seek time • included with system.

**CDU9652** • second 40M-byte cartridge disk • requires PSS9050:

\$9,500 prch    \$525/\$410/\$290 maint

**PSS9050** • auxiliary power supply for second disk:

1,000            100/80/50

**Integral Diskette Drive** • 5.25-inch, double-sided, double-density; 655K-byte formatted • 31.25K bps; 132-millisecond average seek time; 100-millisecond average latency time • included with system.

### □ Terminals/Workstations

The 6/20 can support up to 4 terminals or workstations including Honeywell's microSystem 6/10 personal computer.

**VIP7201 Workstation** • 12-inch green phosphor screen displays 24 lines x 80 characters; 26 displayable graphic symbols • detached keyboard contains numeric keypad and cursor control keys; 7 dual function keys • interface via RS-422 at speeds up to 19,200 bps:

\$795 prch    \$200/\$140/\$80 maint

**VCW2604 Cable** • 25-foot RS-422 direct-connect cable; for VIP7201:

50                NA/NA/NA

**VIP7300 Series** • 12-inch green phosphor screen displays 24 lines x 80 characters; 25th status line; 120 displayable symbols; horizontal and vertical graphics; asynchronous, full-duplex, up to 9600 bps • various detached keyboards • include 25-foot RS-422 direct-connect cable:

1,900            222/155/90

VIP7301 • standard conversational keyboard • 96 keys; n-key rollover, numeric keypad, separate cursor control block.

VIP7303 • word processing keyboard • 91 keys; 14 function keys, generates 127 ASCII codes • displays 25th status line not used.

VIP7305 • multifunction keyboard • interchangeable overlays • 113 keys; ANSI 4.23 layout; 12 function keys; n-key rollover; numeric keypad; separate cursor control block.

VIP7307 • data entry keyboard • 94 keys; 12 function keys, n-key rollover, dedicated keys for DEF-II software, separate numeric keypad.

**VIP7823 Workstation** • 12-inch green phosphor screen with screen save feature; displays 24 lines x 80 characters, 25th status line; 72-line vertical scrolling; buffered printer adapter • detached multifunction keyboard • interchangeable overlays; ANSI 4.23 layout • 113 keys; 12 function keys • includes 25-foot RS-422 cable:

2,350            250/180/115

**CPX9809 microSystem 6/10** • desktop personal computer with 16-bit microprocessor; 512K-byte RAM; dual 650K-byte diskette drives; CRT; keyboard; 2 asynchronous serial ports, MOD 400 operating system • requires VCW2625 cable; SMC9000 VIP7300 terminal emulator software:

5,495            755/515/285

**VCW2625** • direct-connect cable • 50-foot, RS-422 cable:

50                NA/NA/NA

*PRCH: purchase price, includes 90-day warranty. MAINT: annual fee for on-site/dispatch/mail-in options. NA: information not available. NC: no charge. Prices effective as of July 1983.*



## Honeywell microSystem 6/20 Multistation Office System

□ **Printers**

**PRU7070 Dot-Matrix Printer** • 80 columns; 100 cps bidirectional; 9x7 matrix • 3- to 15-inch forms width • includes RS-422 25-foot cable:

                    \$1,195 prch          \$222/\$175/\$125 maint                    

**PRU7075 Dot-Matrix Printer** • same as PRU7070 except 132 columns:

                    1,495                    278/205/135                    

**PRU7270 Dot-Matrix Printer** • 132 columns; 400 cps bidirectional; 7x7 matrix • 3- to 15-inch forms width; prints original and up to 4 copies • 96 international ASCII; 7 national character sets • includes RS-422 25-foot cable:

                    3,450                    450/350/250                    

**PRU7006 Letter-Quality Printer** • 55-cps bidirectional word processing printer; removable thimble; 136/160 columns at 10/12 cpi; 6/8 lpi • 16-inch friction platen • includes RS-232C

50-foot cable:

                    5,300                    655/NA/NA                    

**PRU7007 Letter-Quality Printer** • same as PRU7006 except 35 cps:

                    2,450                    444/NA/NA                    

**PRF1004/9616 Forms Tractor** • for 55/35 cps LQP:

                    400                    44/30/18                    

**PRF0005/0006 Sheet Fed Adapter Plate** • for 55/35 cps LQP:

                    200                    NA/NA/NA                    

**PRF1005 Dual-Tray Sheet Feeder** • for either 55 or 35 cps LQP:

                    1,800                    366/260/155                    

• **END**