The Other Computer Company strikes again: RESPONSE/2000

The Other Computer Company:

Honeywell

Series 2000: A response to medium-scale users across the board.

Series 2000 – a new high-performance family of cost-effective medium-scale systems. Full compatibility is assured for Series 200 users. Attractive compatibility and conversion aids are provided for others.

OS/2000 – a new operating system offering dynamically scheduled batch and communications processing with up to 15 job functions handled concurrently. Page 4.

DATANET™ 2000 – a new front-end processor to off-load the CP of its communications overhead and maximize Series 2000 information throughput. Complete communications control software is provided between OS/2000, DATANET 2000, and the communications network. Page 6.

Terminals – an advanced 700 Series of CRT terminals to capitalize on the distributive power of Series 2000 and DATANET 2000.

Peripherals – a full peripheral complement with special emphasis on disk drive flexibility and performance.

Response – a continuing commitment by Honeywell to provide a complete product and service offering that can respond to user needs for the Seventies.

A medium-scale family of five

Model 2040 - an easy way to move into a medium-sized system. Series 2000 hardware and software plus the lean price structure of Model 2040 make this model the perfect introduction to a new world of multiprogramming and communications.

Model 2050 - for those who want fast upgrade payoff. With twice the internal transfer capability and twice the memory of the 2040, Model 2050 is excellent for multijob operations with data communications.

Model 2060 - with more memory and I/O capacity than the 2050, Model 2060 can help you build solid multi-partition access capabilities with data base file structures.

Model 2070 - doubles the I/O capacity of the 2060. It's the big medium system for advanced communications networks that require a lot of peripheral capacity, interactive data base processing, and high job throughput.

Model 2088 - a dual-processor with large system performance at medium system prices. It offers high internal transfer speed, 1M character memory, vast peripheral resources, and the Mod 4 High Up-Time real-time operating system for critical data communications and processor-shared file activities.

CRT console for improved operation

The Type 220-8 Visual Information Control Console offers interactive message transfer, status display, and better operator control of any medium-scale Series 200/2000 system. A solid-state full data keyboard with numeric pad is used for data and parameter entry. An adjacent control panel provides hardware system control functions. Screen size is 1920 characters (24 x 80 matrix). You can add another display screen, a serial printer, and a remote 23" display monitor. The console, keyboard, and display are arranged in a free-standing desk-like configuration.

Check 280 on reader service cord.

Disk peripherals for better data access

High performance, large capacity, removable disk pack drives are featured peripherals with Series 2000. Types 275, 277, and 279 drives offer two or three

SERIES 2000 MODELS	2040	2050	2060	2070	2088
Memory (K = 1,024 char.)	49 to 131K	98 to 262K	131 to 512K	131 to 512K	512K to 1 mil.
Cycle Time	1.6 μs/ char	1.6 μs/ 2 char	1.14 μs/ 2 char	1 μs/ 4 char	.75 μs/ 4 char (each processor)
I/O Channels (all variable speed)	12	12	16	16	32
Peripheral Address Assignments	32	32	48	80	192
Operating Systems	Mod 1, OS/2000, Mod 4				Mod 4 High Up-Time System
Other Features					
Interactive CRT Console (1920 char. screen)	Opt.	Opt.	Opt.	Std.	Std.
Floating Pt. Hardware	Opt.	Opt.	Opt.	Std.	Std.
Typical System Rental Range and Purchase Range	6-13K 240-520K	12-17K 480-680K	16-24K 640-960K	22-40K 880K-1.6M	37-70K 1.5-2.8M
	(281)	(282)	(283)	(284)	(285)

Check circled reader service card numbers above for information on specific models

Series 2000 Model 2060

spindles per control, expandable to eight per control. The control on Type 277 and 279 drives buffers data independent of the CP for more efficient I/O and peripheral operation. Fast access times and high data transfer rates make these devices especially well suited to Series 2000.

Check 286 on reader service card.

DISK Specifications/Devices	Type 275	Type 277	Type 279
Seek Time (ms) Min.	20	10	10
Ave.	57	34	30
Max.	120	60	55
Latency (ms)	12.5	12.5	8.3
Ave. I/O Rate	208,000	714,000	1,074,000
Disks/Spindle	11	11	12
Min. Spindles/Control	2	3	2
Capacity/Spindle	18.4M	64M	133.3M
Max. Capacity/Control	147.2M	512M	1.06B

CRT Specifications/Devices	Type 765	Type 775	Type 785
Transmission Mode	asynchronous	synchronous	synchronous
Speed (bits per second)	1200	2000/2400	2000/2400
Display Capacity	1012	1012	2024
(lines x characters)	22 x 46	22 x 46	22 x 92
No. of Units per Control	1-20	1-20	1-20

Visual improvements in CRT's

Models 765, 775, and 785 of the 700 Series offer single, dual, or clustered CRT keyboard/display capabilities. All models feature solid-state keyboard and multiple-key depression without error. Models 775 and 785 include an adding-machine-like numeric pad for data entry. All models include vertical and horizontal line drawing, automatic tabbing, message flashing, and data entry repeat capabilities.

Check 287 on reader service card.

A responsive operating system: OS/2000

As many as 10 job operations plus five data transcription routines can be processed concurrently under OS, 2000. Jobs in multiple variable partitions (MVP) with hardware protection are scheduled by a Job Scheduler which fits in any available 8K area of memory. Partitions are shuffled dynamically within memory to accommodate larger jobs, and no recompilation of programs is required to insure their ability to reside in a given area of memory. (See figure below.)

The Input Reader, scheduled within a partition, processes job control information and stores resource information on disk. The Job Scheduler acts on this information to schedule a job according to memory and peripheral resources required and scheduling priorities assigned. Peripheral resources are allocated from a device-pool to ensure dynamic device reassignment.

To accommodate an urgent priority job, a roll-out/roll-in capability will roll an active job out of memory onto a disk, then roll it back into memory upon completion of the urgent job.

Beyond scheduling priorities, a user-selectable dispatching priority scheme governs the amount of processor time received by jobs and allows for maximum system control and throughput. Linear dispatching, "round robin" dispatching, or combinations of the two can be selected.

Complete flexibility in input and output media is available. Dynamic device reassignment lets the user defer selection of print and punch media until execution time. Added facilities for data transcription offer efficient access to print and punch files while concurrently processing batch jobs, data base demands, and communications transactions.

Data communications control. An OS/2000 Communications Controller provides the software link with either the DATANET 2000 communications processor or the Type 286 Multiline Communications Controller.

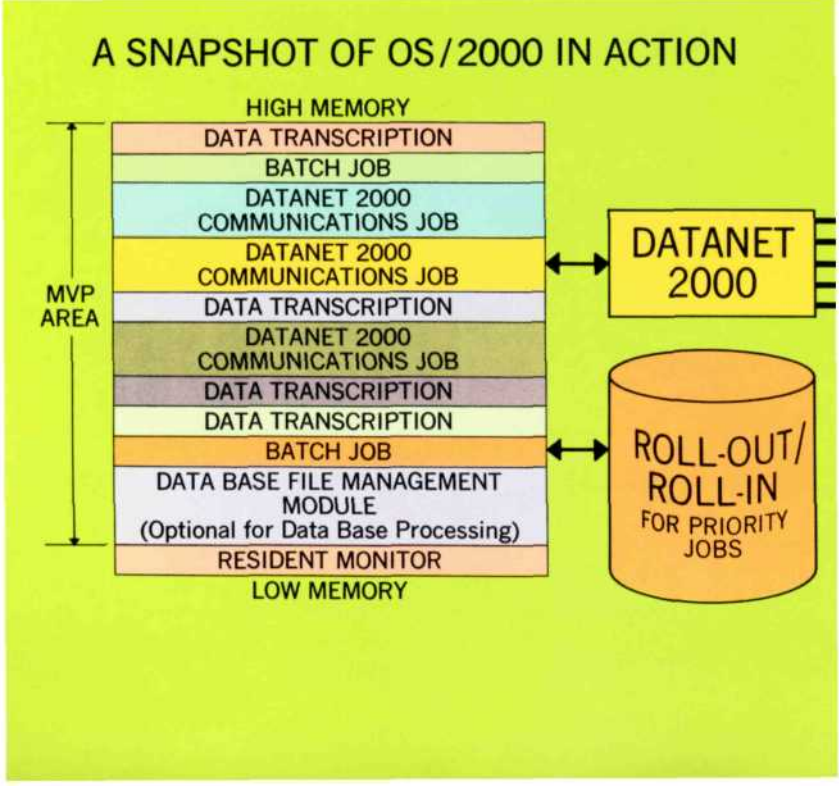
For DATANET 2000, the link provides the means for sending data to a symbolic terminal and retrieving data from symbolic queues. Software resident in DATANET 2000 removes line control, message handling, and queuing and routing functions from the central processor. With the Type 286, the OS/2000 Communications Controller controls overall communications activity and flow of data.

Data base management. Once all user data is consolidated in one data base file, the Data Base File Management module of OS/2000 acts as the interface between user programs and the base. The data base eliminates data, program, and file redundancies, since it uses only one set of data accessed by any job partition or remote communication device.

Multiple paths for data access are provided through stored data descriptions, multi-indexing, chaining, and linking capabilities in the module. The flexibility of access and use is given a high degree of privacy and protection with a system of security keys to prohibit unauthorized access. A chronological transaction file records all activities updating the data base. Thus, if the base were damaged logically, this file could be used to reconstitute the damaged portions.

Easywriter. Easywriter is a simplified data description language and processor that enables information requests to be written in English keywords and common arithmetic symbols. Non-programmers can apply Easywriter language to interrogate and to generate reports from standard disk and tape files. A self-teaching form is provided to guide the beginner through basic report formatting. Extended capabilities can then be mastered as needed. Easywriter requests can be initiated via normal system input or remote terminals.

Full ANS COBOL compilation in 32K. The OS/2000 COBOL Compiler requires only



Operator control with OS/2000 and the Type 220-8 CRT Console.

32K of memory to compile all elements of the COBOL language as defined by ANSI in USA Standard COBOL X3.23-1968, except Report Writer. These language elements include the table handling facility, rerun facility, and sort facility. In addition, to enhance OS/2000 communications capability, the COBOL compiler supports a subset of the CODASYL COBOL communications facility. User communications programs can issue COBOL SEND, RECEIVE, and IF MESSAGE statements.

A Call/Cancel facility allows a program to be separated into more manageable parts, so each part can be handled in the language most appropriate (e.g., COBOL, Fortran, Easycoder Assembler); all parts are then regrouped at execution time. A debugging facility allows the user to set up a debugging algorithm providing access to pertinent information in a source-language orientation.

Dynamic status reporting. This feature provides immediate or deferred display of vital system status information on jobs now running, jobs queued to run, print/punch output queued for transcription, system resources, and memory maps.

Job accounting. System resources for each job are accounted for and logged on disk as follows:

1. Account identity
2. Job and program names
3. Date
4. Start time, end time, and elapsed time
   CP time (on selected processors)
5. Amount of memory used
6. No. of various devices used
7. No. of input cards
8. No. of output cards
9. No. of lines printed
10. Job termination status

Recovery/Restart. Extensive facilities for recovery and restart include restoring memory partitions according to checkpoint images and repositioning and restoring selected tape and disk files. The user has complete control over the frequency of recording recovery information.

Honeywell compatibility. OS/2000 is fully compatible with Honeywell's proven and effective OS/200 operating system.

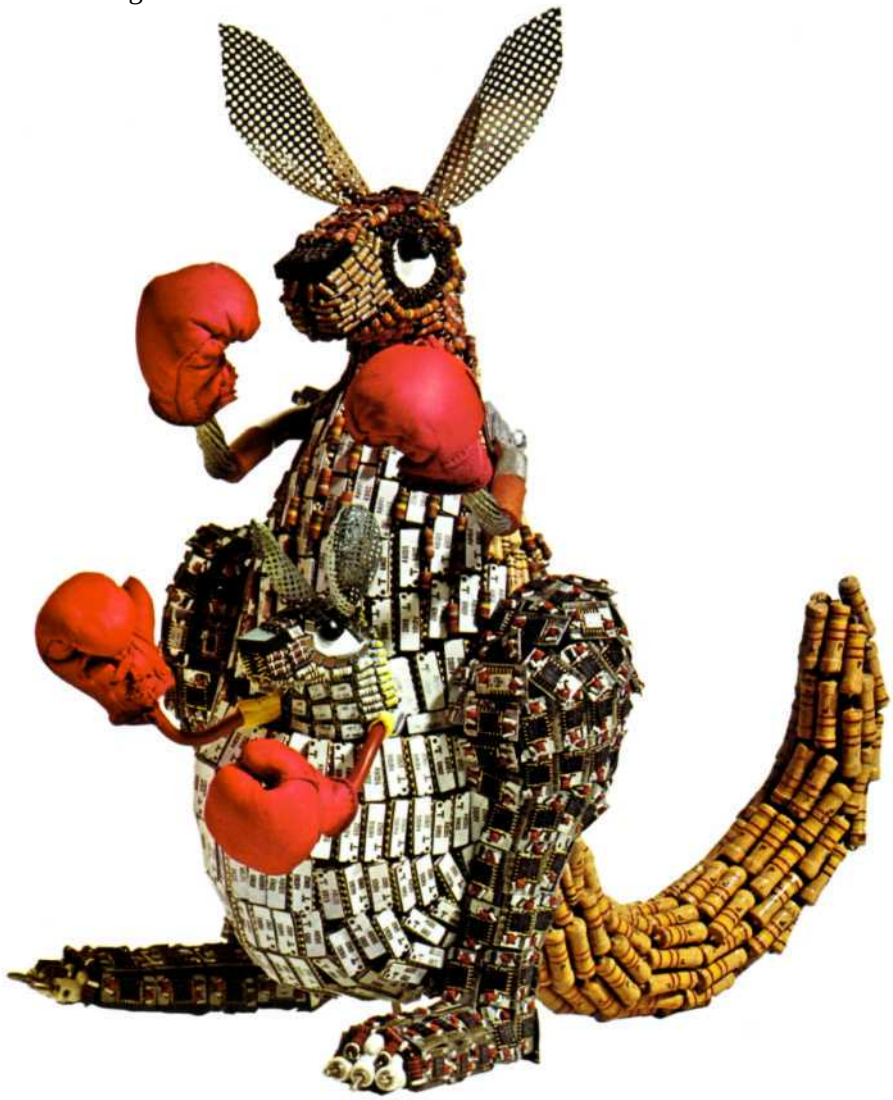
The popular Mod 1 compatibility features of OS/200 are also included in OS/2000. Most programs written for Honeywell's Mod 1 Operating System can run without change under OS/2000.

The benefits of OS/2000 design integration are also available with medium-scale Series 200 systems starting with Model 1015.

Competitive compatibility. Higher-level language compatibility is offered in COBOL, Fortran, and RPG. And I/O compatibility is provided with 9-track tape peripherals. Whether you're currently using IBM, Burroughs, Univac/RCA, or NCR equipment, informative guidelines and a range of conversion aids are provided in the following areas:

- Language Translators (COBOL, Fortran, RPG)
- Data File Transcribers
- Utilities (card, print, and tape)

Simulators are available for IBM 1400's and 7000's, Burroughs 100/200/300/500 series, and Univac 1004. And we have a Conversion Technology Center to act as a focal point for the distribution of all aids in converting to Series 2000. Check 288 on reader service card.



Responsive data communications: DATANET 2000

The sophistication and productivity of large-scale data communications comes to the medium-scale user through the distributive power of DATANET 2000.

Communications benefits:

• Throughput - off-loading of the CP with front-end control of communications functions increases computing capacity and information throughput. Network operation through DATANET 2000 can accommodate more activity faster.

• Power - a fast, self-contained programmable miniprocessor expedites data handling while multiplexing up to 120 lines.

• Flexibility - front-end processing (FEP) software can support a vast range of data communications terminal and line requirements.

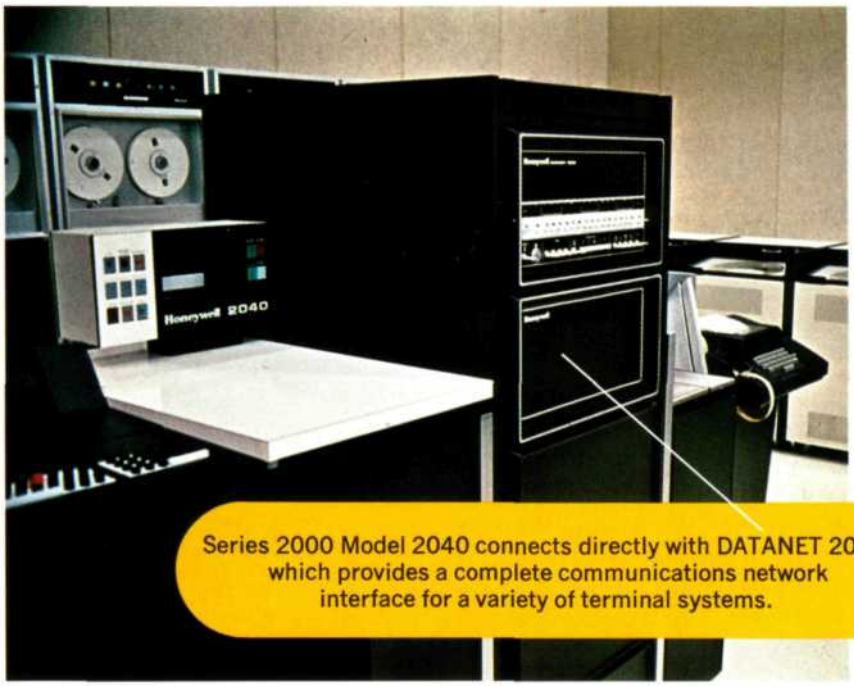
• Simplicity - the burden of communications control rests with DATANET software routines for such tasks as monitoring, conversion, and transmission. User SEND/RECEIVE statements in COBOL initiate transmission.

• Reliability - solid-state big-board technology with loop-back testing and longitudinal and cyclical redundancy checks ensure high up-time and data integrity.

• Efficiency - You can stabilize data processing costs because DATANET 2000 brings large-scale data communications to you without the cost of a large-scale mainframe.

A communications package

Information processing using data communications can offer tremendous payoffs with the right combination of system elements. It is essential that the hardware and software elements of the system be integrated and controlled. DATANET 2000 offers this approach with an advanced miniprocessor for network and CP interface that comes complete with software to integrate and control the overall system.



Series 2000 Model 2040 connects directly with DATANET 2000 which provides a complete communications network interface for a variety of terminal systems.

The DATANET 2000 has a memory processing unit and I/O facility of its own. Its extremely fast cycle time of 385 nanoseconds per byte coupled with a set of 75 instructions provide effective data handling, control, computing, byte-handling, logical, shift, and I/O operations. A basic memory of 24K 8-bit characters is expandable in 8K increments up to 65K with an optional 512K characters of storage on a high-speed fixed-head disk.

High-speed CP interface is via an 83KC read/write channel directly connected to the Series 200 or Series 2000 mainframe. To interface the network, a basic communications controller provides multiplexing for up to eight lines operating at up to 10,800 bits per second. Line control is expandable in 2-line groups up to a maximum of 120 lines.

DATANET 2000 software provides the crucial controlling and interfacing that put the system in motion. Off-loading the information processor, the FEP's resident monitor performs the code translation, queuing, polling, and error handling normally included as CP overhead. These activities are performed by FEP hardware and software so that only message content is forwarded to the CP. Data transmission commands to the FEP interrupt routines take the form of Series 2000 COBOL SEND and RECEIVE procedure calls.

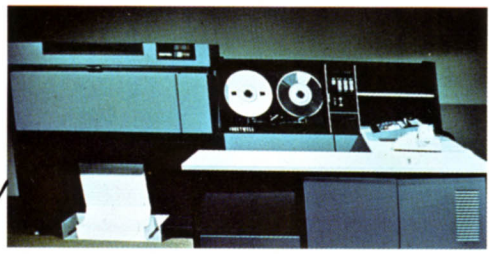
Standard FEP interrupt routines handle incoming and outgoing data and maintain message queues in memory or on the optional fixed-head disk. Errors are handled by FEP software. Communications system initialization and loading, linkage to the CP, and operator intervention capabilities are also functions of the FEP software.

Honeywell has been installing data communications systems for years. Our DATANET 2000 concept offers an extremely simplified, low-cost way to increase your information processing capability dramatically. We've made it easy for you to have DATANET processing regardless of the terminals you are now using.

DATANET 2000 can interface most popular teleprinter and voice-grade terminals including

- Teletypewriter Models 33 and 35
- Honeywell 700 Series CRT's
- Honeywell Type 2440 Remote Transmission Terminals
- IBM 1050's
- IBM BSC-oriented equipment

Check 289 on reader service card.

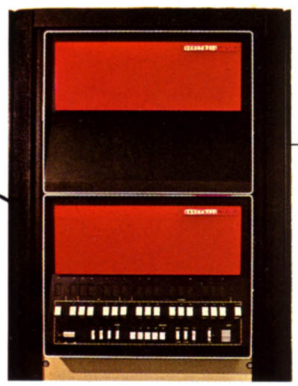


Honeywell's KeyNet key-to-tape data entry/communications terminals come with varied attachments such as a line printer, adding machine, and automatic program loading feature.

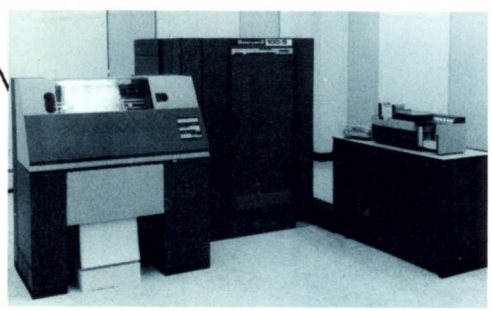
Communicates at 2000 bits per second.

Rental Range – $237-317. per month

Check 290 on reader service card.



Honeywell's family of minicomputers provides high-speed computation and I/O for a variety of communications and control applications.



Our Model 5 remote batch terminal offers 4 to 12K bytes of memory and a variety of card, print, tape and disk peripherals.

Communications speeds can vary from teleprinter-grade to 10,800 bits per second. Rental Range – $838-2,700. per month.

Check 291 on reader service card.

Our Model 58 can serve as a satellite system for transaction or batch activities supported by 5 to 10K bytes of memory, card equipment line printers and disks (up to 11.5M bytes of storage).

Communicates at 2000/24000 bits per second.

Rental Range – $848-2,400. per month.

Check 292 on reader service card.

Minicomputer systems for communications and control

Honeywell can expand your computer into an information network. All it takes is a self-contained, functional minicomputer system working with your mainframe. Honeywell minicomputer systems provide reliable, high-speed communications and control capability that you can use in a variety of ways to meet your specific applications:

Production Line Control – Minicomputer systems sense real-time operating control data directly from critical points on a production line to provide control information for the line as well as corollary data to affected departments. Result – improved productivity, real-time control, and better data distribution.

Inventory Control – Inventory transactions are recorded by remote CRT terminals and concentrated onto fewer high-speed lines for transmission to a master inventory data base for updating. Result – real-time monitoring and display of inventory status.

Reservation Systems – Multiple minicomputer systems collect data from CRT terminals operating at low speeds then concentrate and edit the data for high-speed transmission to the mainframe-resident reservation scheduler. Result – worldwide reservation verification instantaneously at reduced line costs.

Credit Verification – Credit information is collected from terminals via minicomputer systems for forwarding to a mainframe for processing. Result – a significant reduction in communications line costs.

Sales Order Processing – Sales information is accumulated by a minicomputer system serving several sales offices. Sales information is sorted by product and orders are transmitted to a warehouse for processing. Hierarchies of minicomputer systems then consolidate data from sales regions for centralized management reporting. Result – faster order cycles, improved inventory control, and timely sales analysis.

Program Development – Minicomputer systems with card and disk peripherals are placed at strategic remote locations for program testing and debugging. Allows pretesting on site before remote batch entry to mainframe. Result – increased programmer and mainframe productivity.

Over the years, Honeywell has installed minicomputer systems for all types of companies, and we've developed the communications and control software to help in just about any application you have in mind. And our minicomputer systems can communicate in binary synchronous mode, so you'll find them right at home working with IBM 360/370 systems.

Check 293 on reader service card.

Another measure of response from The Other Computer Company

Industry-specific application packages

Response /2000 relates specifically to the user's business environment. Honeywell's industry-specific system designs and pre-coded packages for various industries have capitalized on this approach and enjoyed wide acceptance. Series 2000 adds even more meaning to our proven approach.

Manufacturing. Honeywell's Factor, a management information system for manufacturers, adds several new dimensions with Series 2000. Manufacturing applications available reach into important areas such as management sciences, numerical control, production scheduling, and inventory control. Many of these tools can now be tied together in a data communications and data base environment for increased efficiency and productivity.

Check 294 on reader service card.

Banking. Series 2000 and OS, 2000 support a full array of peripherals and terminals for banks including extensive MICR capabilities and an advanced 700 Series of high-performance CRT devices. Honeywell's long list of banking packages plus the data communications and Central Information File (CIF) capabilities available with Series 2000 can significantly increase your bank's information processing capacity.

Check 295 on reader service card.

Health Care. Honeywell's total involvement in the health care industry resulted in the Hospital Computer Sharing System (HCSS). HCSS handles complete patient administration and accounting functions for one or more hospitals. Series 2000 and DATANET 2000 add a new dimension of data communications productivity to such a system.

Check 296 on reader service card.

Distribution. Honeywell application systems for distribution control center on MI.DIS, a system design for total control of all distribution functions. MI.DIS offers many subsystems such as PROFIT II, for total inventory control, and Vehicle Scheduling, for fleet control. Response/2000 broadens the MI.DIS concept with data base and data communications techniques.

Check 297 on reader service card.

Real-time service network

Honeywell has built a solid reputation on the ability and responsiveness of its team of field engineering representatives. In over 200 field offices in the United States, over 3,000 field engineers apply themselves in installing and maintaining as many as 550 different product line items.

Each field engineer reflects a complete background of education, training and experience. Such individual capability is complemented by a sophisticated real-time service information network with:

ALERT - a system that notifies field engineering management of any problems not resolved within a predetermined time. So, additional resources can be coordinated to solve the problem quickly.

RAMP - a reliability assurance maintenance program for computing the preventive maintenance needs of each product and then developing a schedule that takes into consideration customer constraints. The result is efficient preventive maintenance and better systems availability.

FIRM - a centralized inventory ordering and control system to ensure sufficient inventory levels at all field locations.

The success and capability of this service arm of Honeywell is demonstrated by the demand for our specialized force of engineers who maintain the equipment of many smaller manufacturers in the computer industry.

Check 298 on reader service card.

A Computer Company you can believe in

Honeywell has a history of success stories, not the least of which is our recent acquisition of General Electric's computer operations. This merger made Honeywell Information Systems a powerful international organization with nearly 12,000 computer systems installed worldwide, over 10,000 field support people, and almost 50,000 employees overall.

We offer products in all industry categories from printer ribbons to huge Series 6000 multidimensional processing networks. Our vast software and applications systems resources are proven user benefits that come to you without additional charge. Our business and industry services such as time-sharing, remote batch processing, contract programming, and computer time are offered worldwide.

Basic customer education programs are available at no extra charge through Honeywell field education centers throughout the country. Tuition-based education courses are offered to the general public through Honeywell's Institute of Information Sciences, with education centers in Boston, New York, Chicago, Detroit, Atlanta, and Los Angeles.

Check 299 on reader service card.

Honeywell Information Systems has grown, because we have learned that our growth depends on our ability to be responsive to you. Response/2000 is committed to this concept.

For more information about any product or service, check the reader service card or just drop a note to Honeywell Information Systems (MS 061), 200 Smith St., Waltham, Mass. 02154.

Respond