

31000 | 34000
32000 | 36000
33000 | 38000

CONTROL DATA® 3000 SERIES: TOTAL TECHNICAL EXCELLENCE NOW! HARDWARE/SOFTWARE/PERSONNEL

CONTROL DATA
CORPORATION

In the race for computing speed, it is at times easy to overlook several basic factors that contribute to overall data processing efficiency and economy.

Do not expect this from Control Data Corporation. The *total system concept* is always our foremost consideration.

True, speed is important. It can be the single, most important reason for purchasing a system and is an area in which Control Data takes a back seat to no competition. However, there's too much money involved to ignore expandability for future growth . . . compatibility that makes sense . . . lower costs-per-computation . . . lower initial costs . . . dependability . . . I/O and computation capability . . . all of the elements which, when combined with speed, maximize return on your investment.

Careful blends of the foregoing to match individual requirements are basic in every Control Data system, and are characterized by the technical excellence of hardware/software and personnel that has reserved a place for Control Data in the worldwide market.

This ability to blend specific elements to individual requirements is readily evident in the CONTROL DATA 3000 Series, comprised of two groups:

1. The CONTROL DATA 3100, 3200 and 3300 Medium-Scale Systems
2. The CONTROL DATA 3400, 3600 and 3800 Large-Scale Systems

Their similarities and differences, reviewed in this folder, are important to you. You will find within them, the capability to tailor a system to any data processing job . . . scientific, industrial or commercial . . . no matter how simple or sophisticated. Moreover, that capability is available now. For more information, or an on-the-spot demonstration, contact your nearest Control Data office.

THREE OUTSTANDING FEATURES IN THE 3000 SERIES OF COMPUTER SYSTEMS

... in the Medium-Scale CONTROL DATA 3100, 3200 and 3300 Systems

□ Variety of storage capacity choices from 4,096 to 131,072 24-bit words.

□ Storage cycle times range from 75 microseconds to 1.8 microseconds.

□ Choice of four processors: Basic, General, Scientific and Data Processing.

□ Complete programming facilities towards compatibility with the most popular FORTRAN and COBOL languages.

□ Complete selection of peripheral equipment.

□ Identical I/O format and interface, component circuitry and floating-point data format with entire 3000 Series.

... in the Large-Scale CONTROL DATA 3400, 3500 and 3600 Systems

□ Variety of storage capacity choices from 16,384 to 262,144 48-bit words.

□ Storage cycle times range from 1.5 microseconds to 6 microseconds.

□ Many available combinations of control, computation and communications modules to meet specific requirements.

□ Most powerful programming package available.

□ New drum storage subsystem and polynomial evaluator (algorithm facility) increases speed, job stacking and monitoring.

□ Complete selection of peripheral equipment.

□ Identical I/O format and interface, component circuitry and floating-point data format with entire 3000 Series.

Further performance increases, adaptability to your processing needs and other benefits are now coming in the CONTROL DATA 3300 and 3600 now in the final stages of development.

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3800088

CHECK THESE OUTSTANDING FEATURES IN THE 3000 SERIES OF COMPUTER SYSTEMS

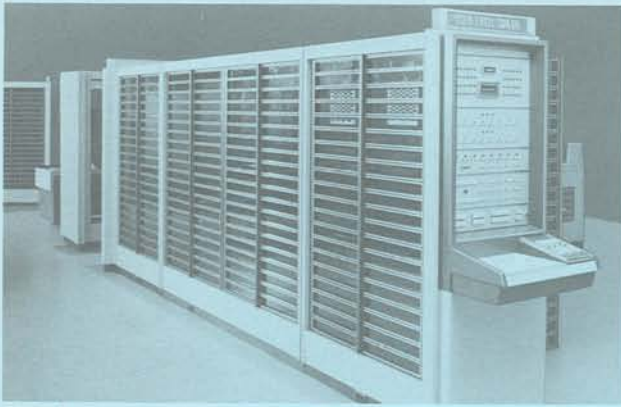
... in the Medium-Scale CONTROL DATA 3100, 3200 and 3300 Systems

- ▣ Variety of storage capacity choices from 4,096 to 131,072 24-bit words.
- ▣ Storage cycle time ranges from 1.75 microseconds to .8 microseconds.
- ▣ Choice of four processors: Basic, General, Scientific and Data Processing.
- ▣ Complete programming package upwards compatible with large-scale group in FORTRAN and COBOL languages.
- ▣ Complete selection of peripheral equipment.
- ▣ Identical I/O format and interface, component circuitry and floating-point data format with entire 3000 Series.

... in the Large-Scale CONTROL DATA 3400, 3600 and 3800 Systems

- ▣ Variety of storage capacity choices from 16,384 to 262,144 48-bit words.
- ▣ Storage cycle time ranges from 1.5 microseconds to .8 microseconds.
- ▣ Many available combinations of control, computation and communications modules to meet exacting specifications.
- ▣ Most powerful programming package available.
- ▣ New drum storage subsystem and polynomial evaluator (algorithm facility) increases speed, job stacking and monitoring.
- ▣ Complete selection of peripheral equipment.
- ▣ Identical I/O format and interface, component circuitry and floating-point data format with entire 3000 Series.

Further performance increases, adaptability to your processing needs and other benefits are forthcoming in the CONTROL DATA 3300 and 3800 now in the final stages of development.



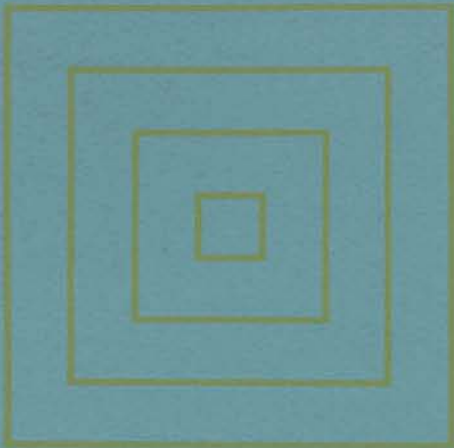
3100



3200



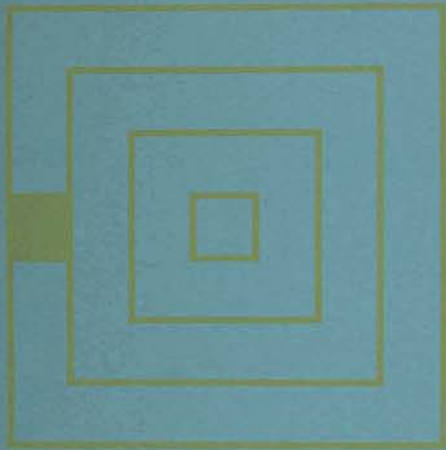
3300



COMPATIBILITY . . . WHERE IT COUNTS

Every data processing job requires individual considerations. Although each will have its share of similarities with overall processing techniques, there are always existent those differences that can prove certain levels of compatibility unnecessary and impractical.

The compatibility characteristic of the CONTROL DATA 3000 Series is not only practical, but economical as well. Compatibility within the series is available where it counts . . . in those areas of hardware and software selection that can be made to maximize overall similarities in processing techniques. At the same time, to help you meet individual requirements, a wide variety of choices in storage capacity, computation and communication equipment plus software, etc. are available, so that you may select a system with maximum economy and efficiency. At Control Data, you are the difference in computing systems. Your individual requirements can take total advantage of a practical approach to computer system compatibility, as follows:



PERIPHERAL EQUIPMENT

All Control Data Peripherals are operable with any of the systems within the 3000 Series, with a full line of magnetic tape transports, line printers, card readers, paper tape units, plotters, mass storage and other devices to choose from. This total compatibility is practical, when selecting peripheral equipment. The peripheral equipment you buy now can be used as systems are expanded or become more sophisticated. You may buy only those units needed immediately, and purchase others to meet requirements as they occur in the future.



COMMUNICATION MODULES, DATA CHANNELS AND PERIPHERAL CONTROLLERS

A wide variety of communication modules, data channels and peripheral controllers are available as standard equipment in the 3000 Series. Magnetic tape transport controllers alone range in performance from single-channel devices capable of handling four magnetic tape transports to units, including four-channel access, handling up to 16 tape transports with data transfer rates of up to 120,000 characters per second. Every consideration has been taken to allow you to buy the most economical communications equipment for your specific application, easily, with no serious design problems.

DEFINE YOUR REQUIREMENTS . . . INDUSTRIAL, SCIENTIFIC OR COMMERCIAL

We meet your requirements easily, exactly with maximum efficiency and economy. Because of the advanced technology of Control Data design, including high-speed circuitry and logic, common to the entire 3000 Series, we have extensive, standard hardware options to choose from such as the following:

- Scientific, commercial or general-purpose processors, plus combinations of same.
- Storage choices from 4,096 to 262,144 words; in increments of 4,096; 8,192; 16,384 and 32,768 words.
- Decimal-binary arithmetic capability, including fixed/floating-point arithmetic.
- A 24-bit or 48-bit instruction-word option.
- Optional drum storage subsystem with capacities of up to 4,194,304 characters and transfer rates of up to 2,000,000 characters per second.

CONTROL DATA 3000 SERIES SOFTWARE

Several advantages, not available elsewhere, are yours, because of the design of the 3000 Series Software. Both groups within the 3000 Series have their own programming packages . . . the most powerful and comprehensive available today.

Included in each group are an automatic monitor and control system, symbolic assemblers, compilers for programs written in FORTRAN and COBOL, plus utility routines including SORT/MERGE functions and a simulator package for converting from other systems to a Control Data System. Problems can be stated in terms related to English, mathematics or symbolic language.

Each software package, within the 3000 Series, is upward compatible within its own product group, avoiding the necessity for an extremely complex set of information formats, electrical recording media, information transfer channels and peripheral device control to provide capability for future growth. In addition, compilers are compatible, with minimum change, throughout the 3000 Series. And, the machine-dependent language used for the programs provides ample protection against costly program changes should computer design change.

Overall, the Control Data Software Packages are designed to complement hardware modularity and expandability for minimum complexity and restrictions, and maximum processing capability and efficiency . . . areas in which compatibility becomes most evident and beneficial.

EASY EXPANDABILITY . . . MEETS EVERY NEED

A common type of building block (modularity), a common form of logic representation and program compatibility, characteristic of the CONTROL DATA 3000 Series, eases expansion to meet future growth requirements at reasonable cost. A 3000 Series Computer System may be expanded in three ways.

1. Expansion of Capability within a System

Additional storage modules are available for all systems, incremented to each system's individual requirements. Communication modules (data channels) and controllers, accommodating a wide variety of peripheral equipment, can be added with surprising ease and economy. All may be purchased as you need them. You pay only for your need . . . at any time.

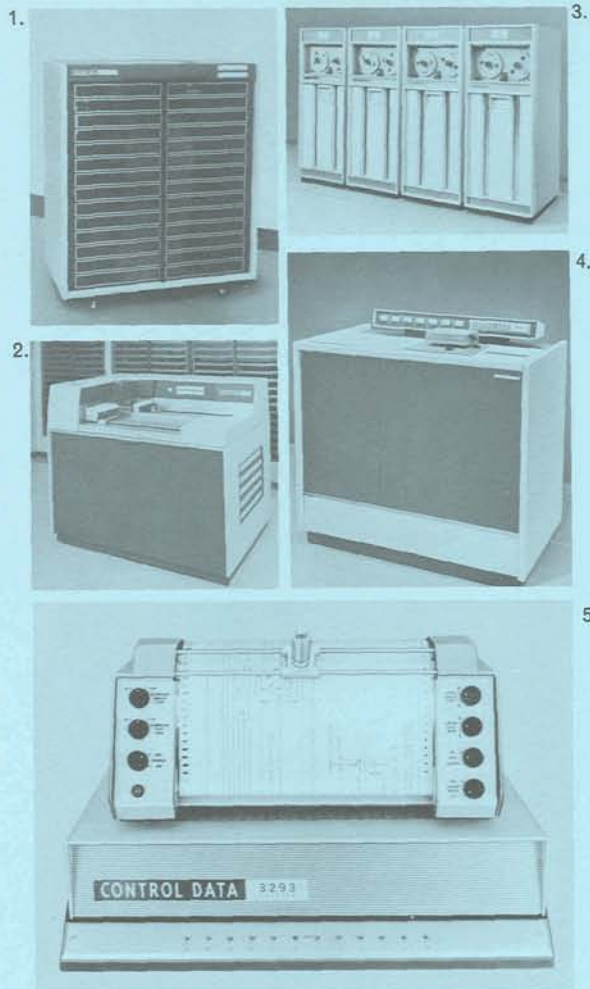
2. Expansion to a Larger System

No extensive reprogramming, personnel training or unnecessary investment in additional peripheral equipment is required when replacing one Control Data System with a larger system within the 3000 Series Product Groups. The same programs may be used. You may continue using the same peripheral equipment, adding only those units you need to take advantage of the expanded system.

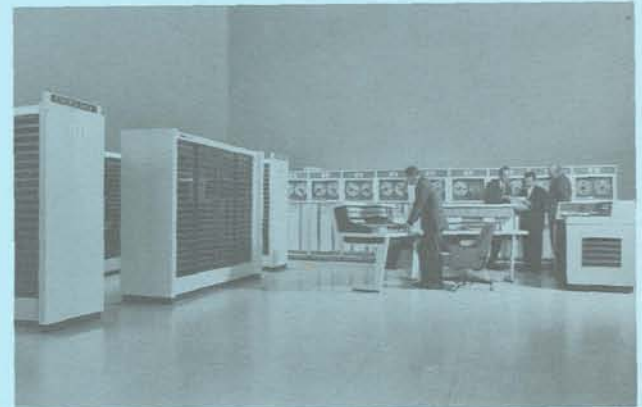
3. Expansion to a Multiple-Computer Complex

Satellite® Systems, using Control Data equipment, are nothing new to Control Data. All of the computers in the 3000 Series are capable of communication with one another. Actual installations are now in operation where a large-scale Control Data System is used to monitor several medium-scale systems. And, in another installation two large-scale Control Data Systems are used together for simulation processing, with one system available to back-up another in cases where reliability control is a major factor. This intercommunication advantage provides you with a diversity of combinations to handle extremely sophisticated processing jobs . . . now and far into the future.

**PERIPHERALS . . .
COMPLETE SELECTION
OF I/O DEVICES**



3400



3600



3800

An identical input/output format and interface for the entire 3000 Series permits the use of the following peripheral equipment for any of the individual systems:

1. **CONTROL DATA Line Printers** provide speeds of up to 1000 lpm output. 136 characters per line and print checking are available on some models.
2. **CONTROL DATA Card Readers** read punched cards photoelectrically at speeds up to 1,200 (80-column) and 1,600 (51-column) cards per minute. With an optional feature added, either columnar data or Hollerith data (converted to BCD) can be read directly into a line printer for off-line card-to-printer or card-to-tape conversion.
3. **CONTROL DATA Tape Transports** are available with speeds up to 150" per second, capacities of 200 or 556 bits per inch and a 30 or 83.4 kc transfer rate.
4. **CONTROL DATA Card Punches** can handle up to 250 (80-column) cards per minute. A post-punch read station is included to facilitate complete card checking.
5. **CONTROL DATA Plotters** permit direct on-line communication with the computer with a drum and carriage speed of 300 steps per second and a pen speed of 10 operations (5 up and 5 down) per second.

CONTROL DATA Disk Files offer extremely reliable and efficient storage of large-volume data. The maximum data rate ranges from 120,000 to 220,000 characters per second, nearly doubling system throughput by providing overlap of positioning time.

CONTROL DATA Storage Drums can increase throughput speed in some systems by as much as 70%. Maximum capacity storage is 4,194,304 characters with maximum transfer rates of 2,000,000 characters per second.

DEPENDABILITY . . . THE RESULT OF TOTAL TECHNICAL EXCELLENCE

In the last analysis, the proof of any computing system is that it should work as promised. You must be able to depend upon delivery of a system that meets your data processing requirements. To achieve this dependability requires total technical excellence of hardware/software and the personnel responsible for same.

The Control Data reputation for technical excellence is known throughout the world. A computing system for an entire continent attests to this fact. Responsible for that technical excellence are the people involved . . . the professionals and specialists who design, manufacture and prove the performance of a Control Data System.

You can depend on Control Data analysts for the realistic approach to your data processing needs. They know commercial problems . . . adding greater efficiency than ever before to such jobs as inventory, management simulation, operations research, market forecasting, etc. for any size operation . . . small, medium, nationwide or worldwide.

They can provide a powerful tool for solving scientific/engineering problems, control processing setups, communications networks and many more advanced techniques.

From design to manufacture to final performance, Control Data personnel assigned to your system will give the same careful attention to the project as though they were employees of your own organization. This is a Control Data maxim, and is never ignored, since the end result is always a total system characterized by technical excellence.



For a demonstration of, or more information on superior Control Data benefits . . . available now . . . contact our nearest office. A complete list is included on the back cover of this folder.

CONTROL DATA SALES OFFICES

ALAMOGORDO • ALBUQUERQUE • ATLANTA • BILLINGS • BOSTON • CAPE
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8100 34th AVE. SO., MINNEAPOLIS, MINN. 55440

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