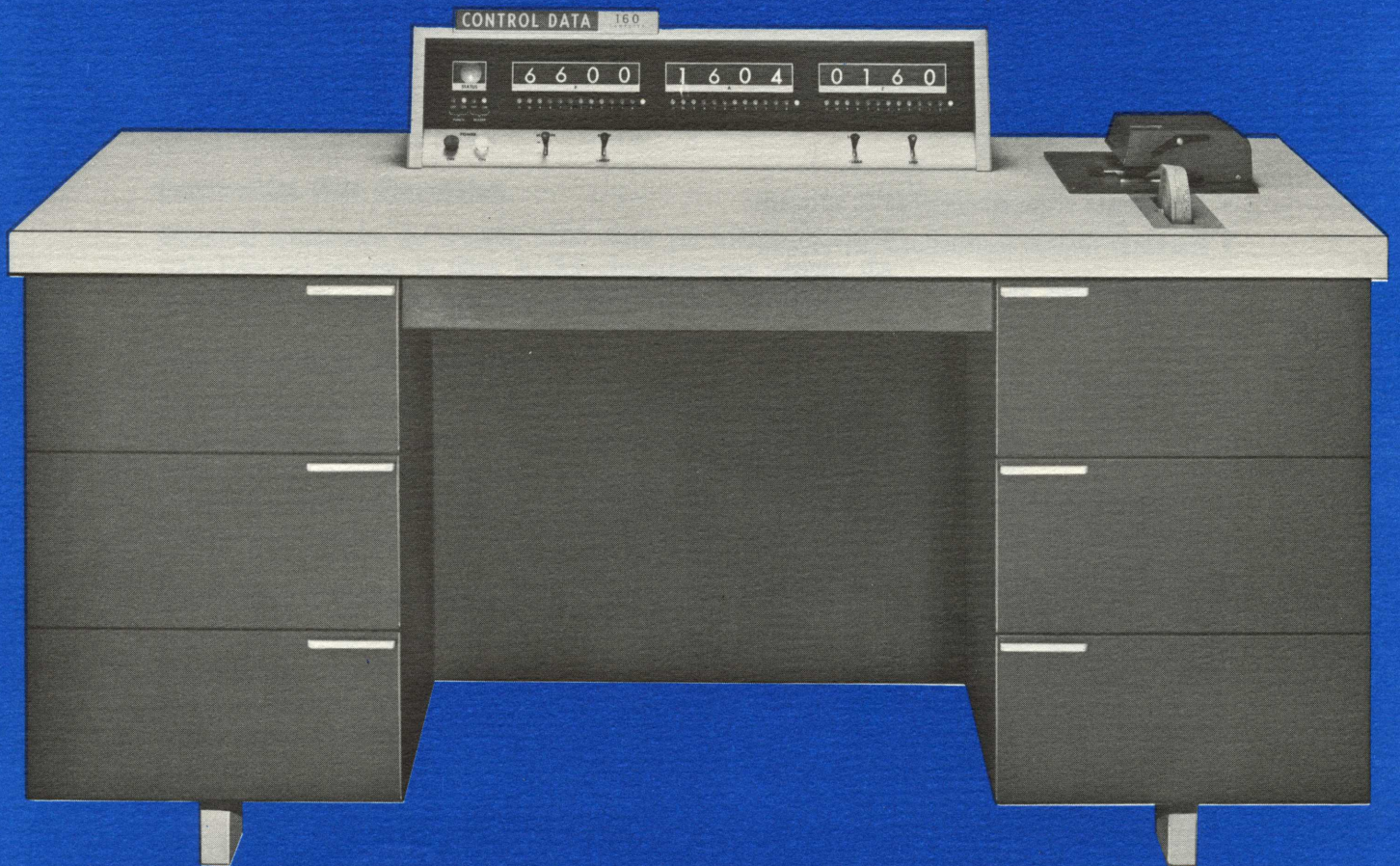


RECEIVED

SEP 11 1961

L. Wheaton Smith

CONTROL DATA 160 COMPUTER



CONTROL DATA 160 COMPUTER

The Control Data 160 Computer is the most versatile general-purpose digital computer in the low price field. Designed for high-speed computing power and flexibility for handling input-output data, the 160 provides capabilities superior to those found in many larger computers in use today.

Full advantage of the speed and versatility of the low cost 160 Computer is realized through a large repertoire of instructions, comprehensive programming system, and provisions for handling a variety of input-output equipment.

Summary of Characteristics

- Low cost
- High-speed, general-purpose digital computer:
 - Storage cycle time: 6.4 microseconds
 - Basic add time: 12.8 microseconds
 - Average execution time: 15 microseconds
- 4096 words of magnetic core storage
- Large repertoire of instructions
- High reliability
- Low power requirement: 115V, 12 amps
- Executes 60,000 instructions per second
- Transmits data at rate of 150,000 characters per second



Control Data 160 Computer

TYPICAL APPLICATION AREAS

A general-purpose computer, the 160 can be used in an almost unlimited number of applications in such areas as:

Real-Time Applications

The 160 Computer exchanges data with external devices at any rate up to 75,000 words per second. This fact, plus an average command execution time of 15 microseconds, makes the 160 an ideal computer for real-time applications.

Off-Line Data Conversion

As an off-line data processor, the 160 Computer has the capability of controlling a variety of peripheral equipment. Control Data service routines permit: 1) card-to-magnetic tape, 2) magnetic tape-to-card, 3) paper tape-to-magnetic tape, 4) magnetic tape-to-paper tape, 5) magnetic tape-to-printer, and 6) plotter output operations.

Scientific Data Processing

Problems of a scientific nature are efficiently and speedily solved by the 160 Computer utilizing the 33-bit floating point package. Multiple precision subroutines perform arithmetic with operands expressed to 6, 12, 18, 24 . . . 6n binary digit expression.

Commercial Data Processing

Including accessories for reading 1300 cards per minute, printing 1000 lines per minute, or filing 30,000 characters per second, the 160 Computer is also an excellent commercial data processor.

Data Acquisition and Reduction

The input-output circuitry of the 160 Computer permits direct communication with analog-to-digital conversion equipment. Subsequent to transmission the data can be converted, reduced, or formatted by a stored program; and if desirable, written on magnetic tape for later analysis.

Engineering Problem Solving

The 160 Computer is ideally suited for general engineering use. Programming can be in symbolic assembly, calculational interpreter, or algebraic compiler language. In addition, console operation is extremely straightforward; and paper tape input-output is high speed.

Communications and Telemetry Systems

Being a high-speed, parallel processor with decision-making powers, the 160 Computer can be employed as the principle element in communication and control networks. Proven reliability found in the 160 is a prerequisite for such applications.

Control Data's Satellite Computer System

The desk-size 160 Computer is also used in Control Data's Satellite Computer System, along with the 1604 Computer and the 1607 Magnetic Tape System. A new dimension of computer power is added to the versatility and speed of the 160 when it is used as a Satellite to the large-scale 1604 Computer.

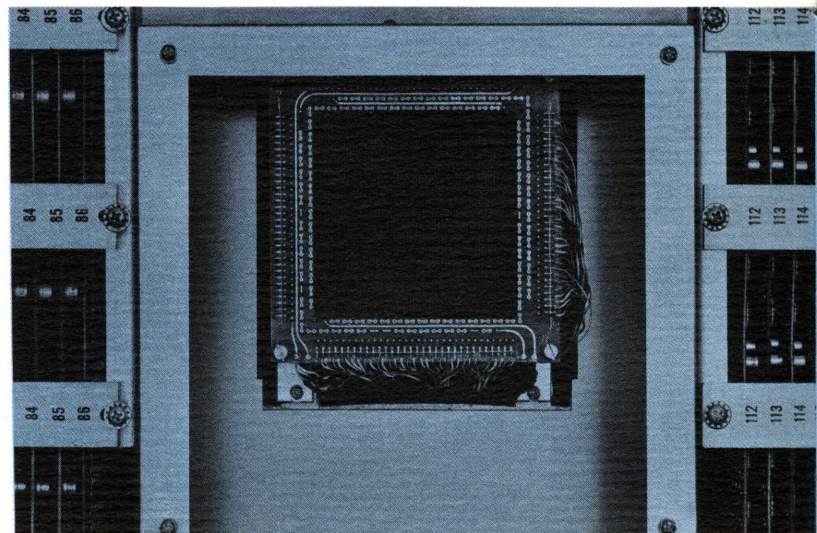
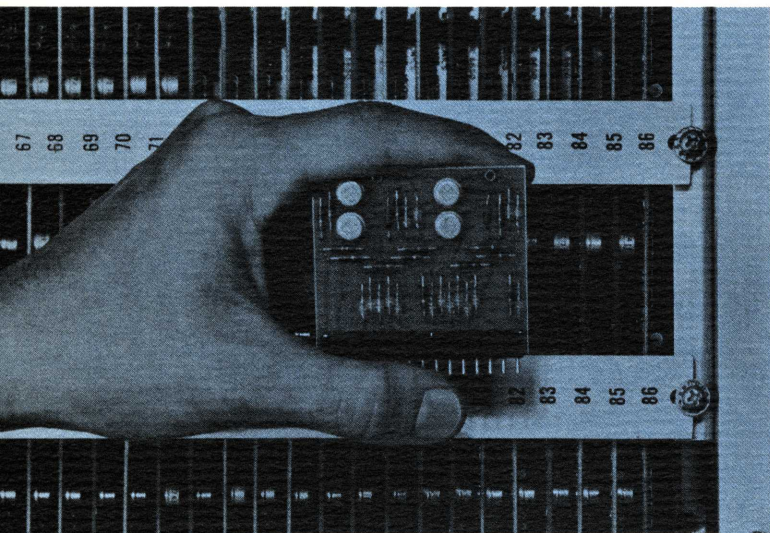
HIGH-SPEED MEMORY

The 160 Computer employs a high-speed parallel mode of operation. Controlled by an internally stored program located in the high-speed memory, the 160 is one of the fastest solid-state computers in the low price field... as indicated by the following speeds:

- Storage cycle time: 6.4 microseconds
- Basic add time: 12.8 microseconds
- Average execution time: 15 microseconds

HIGH-SPEED CIRCUITRY

The 160 Computer—including all circuitry, 4096 words of magnetic core storage, and controls—is contained in a cabinet the size of an ordinary office desk. Included in this cabinet as standard input-output equipment are Control Data's 350 Paper Tape Reader and the BRPE-11 Teletype Paper Tape Punch.



A high degree of circuit standardization has been achieved in the 160 Computer . . . there being only two power supply voltages. The printed-circuit cards used in the 160 are the same as those employed in Control Data's 1604 Computer, one of the fastest and most powerful large-scale computing systems on the market today.

CONSOLE DISPLAY

The 160 Computer control console shown below consists of a panel which displays the contents of the P, A, and Z registers in octal notation. Push buttons are available for manual entry of information into these registers.

160 PROGRAMMING SYSTEM

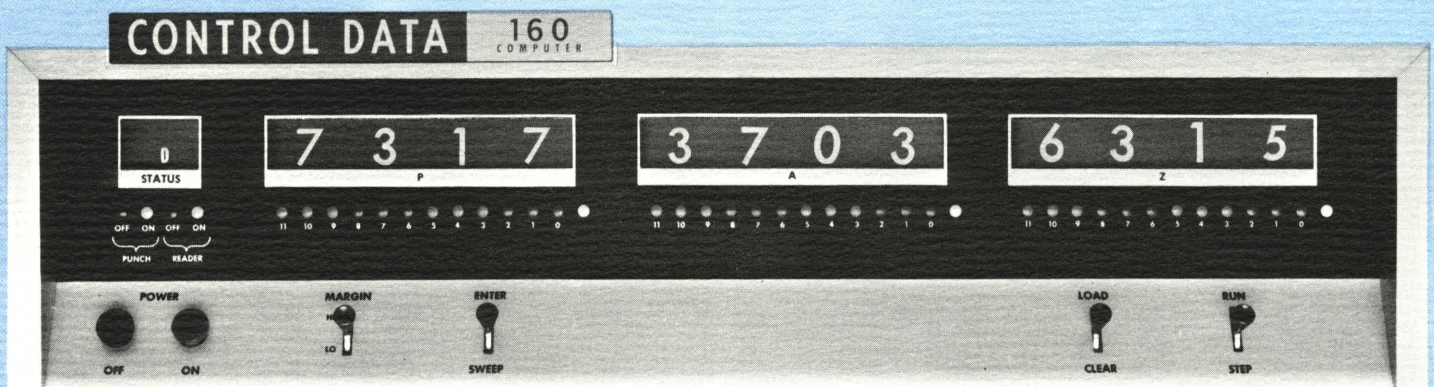
With the 160 Computer, Control Data provides a comprehensive package of programming aids for different applications. These consist of System and Service Programs, Interpretive Systems, Compilers, Assemblers, Commercial Programs, and General Scientific Programs.

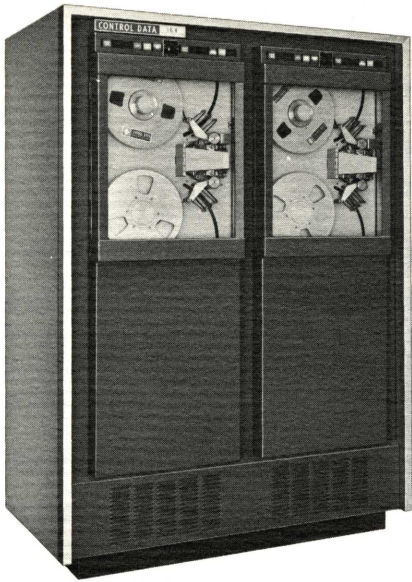
RELIABILITY

The 160 is already a field-proven computer. Among the other applications today being run on the 160 are those requiring real-time, on-line capabilities. In these applications the 160's are being operated over extended periods of time with an exceptionally high degree of reliability.

SYSTEM EXPANDIBILITY

The 160 System can be expanded from the basic computer with paper tape input-output to a full-scale data processing system. The peripheral equipment available for use with the 160 is shown on the following pages.





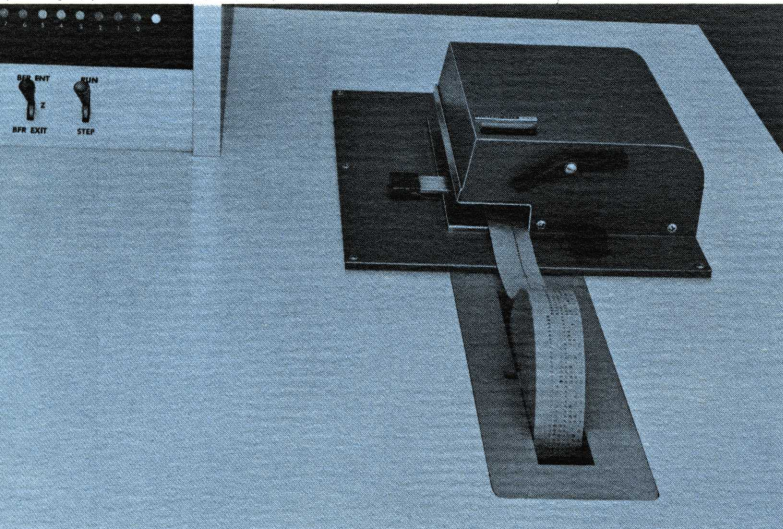
Control Data 164 Magnetic Tape System

The **163 or 164 Magnetic Tape Systems** with a 30KC and 15KC character transfer rate, respectively. Recording density is 200 characters per inch; data format can be either binary or binary-coded decimal. Up to 20 handlers can be used with each 160 Computer.

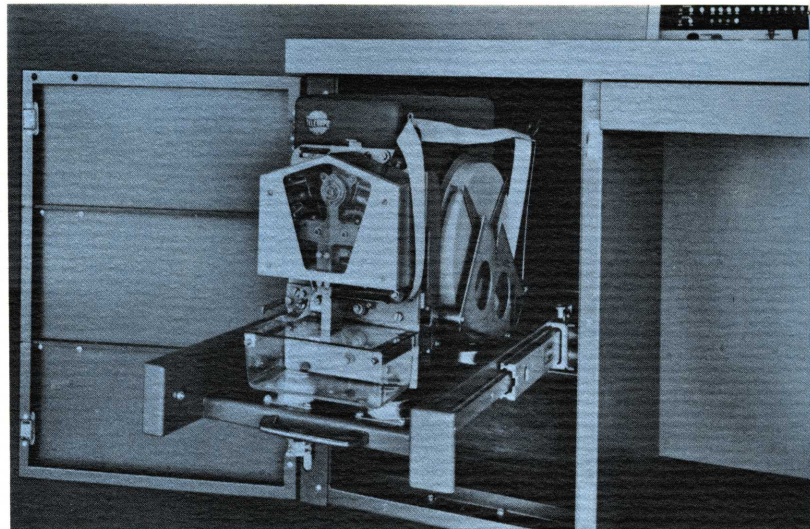
The **161 Typewriter Unit** includes electric typewriter, controls and power supply.

The **1610 Card Read and Punch System** provides card input-output at a reading rate of 1300 cards per minute and a punch rate of 100 cards per minute. A slower card read-punch system is also available.

The **350 Paper Tape Reader** with which punched paper tape is read at the rate of 350 characters per second. Standard equipment on the 160 Computer.



Control Data 350 Paper Tape Reader



BRPE-11 Paper Tape Punch

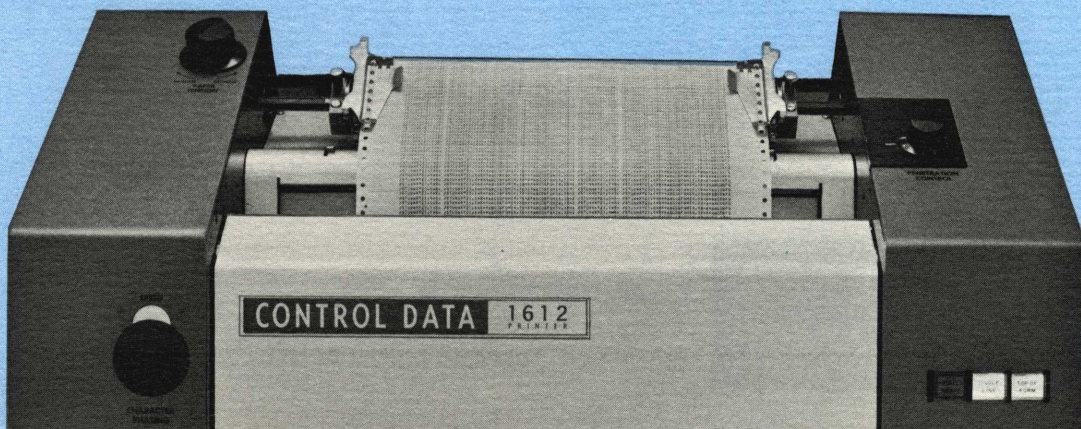


Control Data 161 Typewriter Unit

The **Model BRPE-11 Teletype Paper Tape Punch** permits punched paper tape output at the rate of 110 characters per second. Standard equipment on the 160 Computer.

The **166 Line Printer** is a low cost printer with an operational speed of 150 lines per minute. The rotating drum contains up to 120 print positions, with up to 64 characters in each position. Paper motion is under control of a photo-electrically read punched paper loop, using standard 5- to 8-channel paper tape. Either single line advance or programmed skip at 4800 lines per minute can be selected.

The **1612 Line Printer** is a high-speed printer with a maximum operational speed of 1000 lines per minute. The rotating drum contains 120 print positions with 64 characters in each position. Paper speed is 1500 inches per minute. Line spacing is 6 lines per inch; character spacing 10 characters per inch. Vertical format control is provided by 8-level pre-punched paper or polyester tape.



Control Data 1612 Line Printer



COMPUTER DIVISION

501 PARK AVENUE, MINNEAPOLIS 15, MINNESOTA