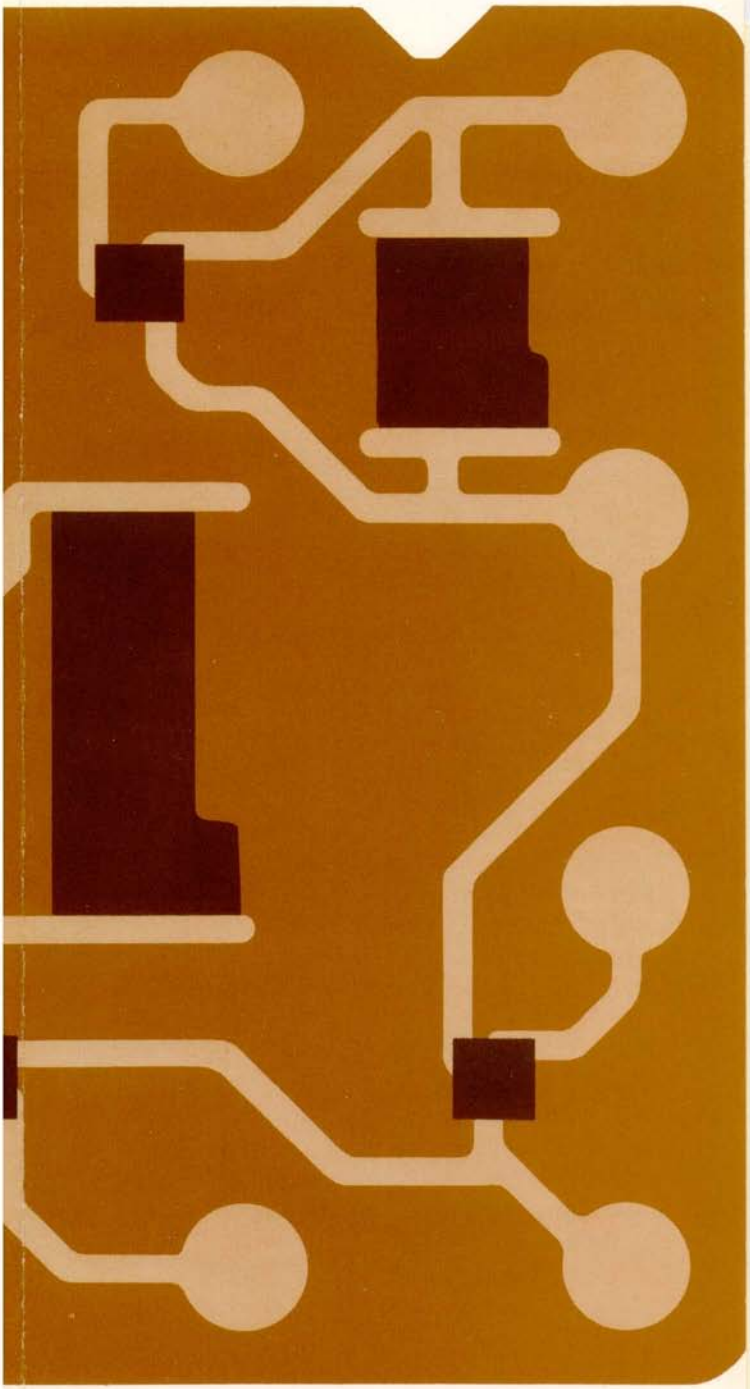
IBM 1800
Data Acquisition and Control System



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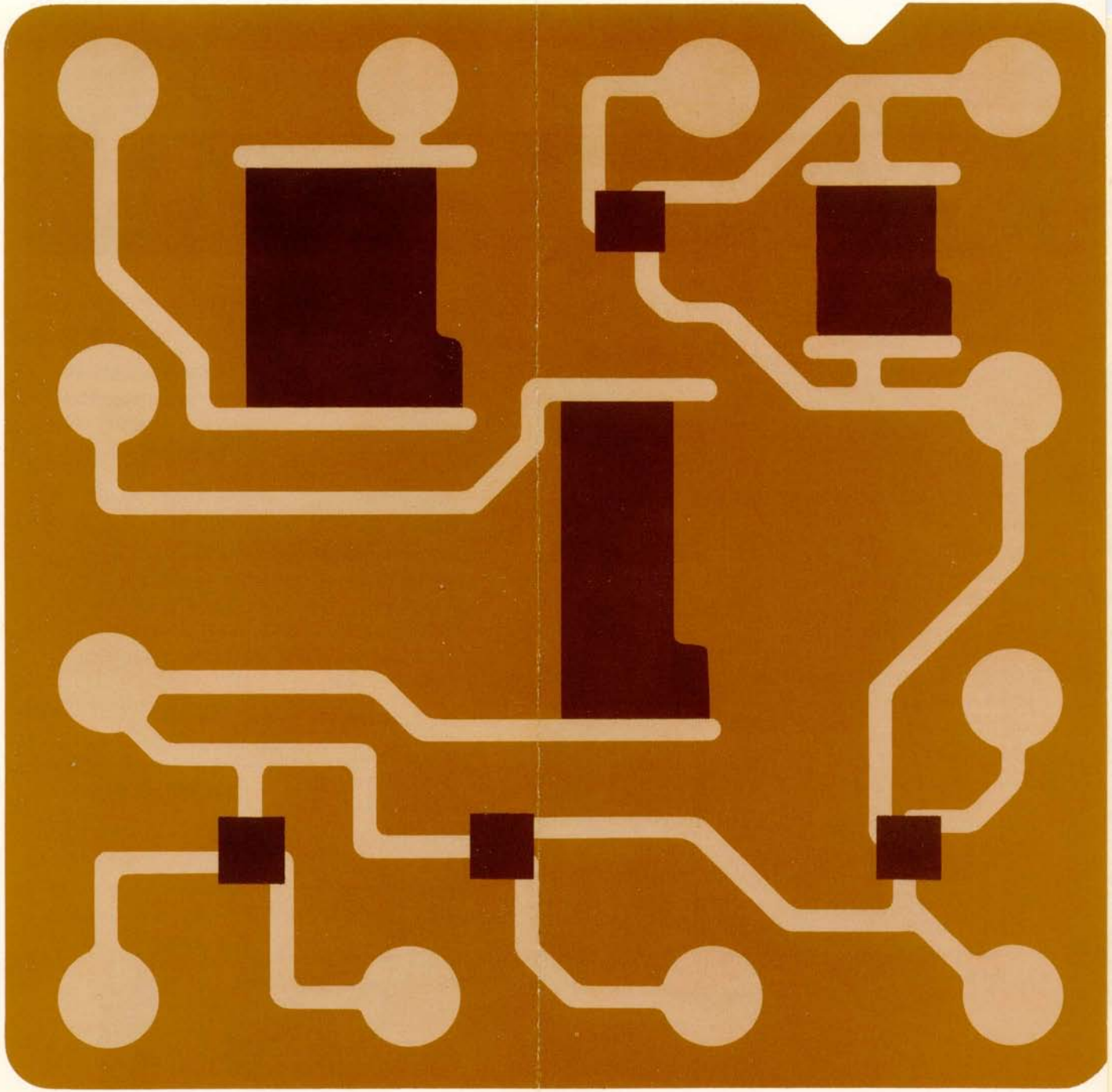

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Field Engineering Division
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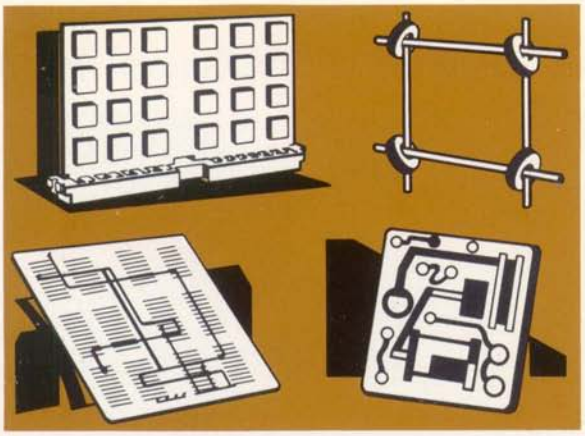


1801 or 1802 Processor–Controller

Core Storage

- 2 μsec or 4 μsec cycle
- 4-, 8-, 16-, or 32-thousand words
- 16-bit data word

Checking and Storage Protect

- Parity bit — Maintains odd parity for each storage and I/O word.
- Storage Protect bit — Specifies a "read only" word. An attempt to store new data at a storage protected position causes a program interrupt.

Programming Features

- Index Registers
- Indirect Addressing
- Interrupt
- Interval Timers

I/O Control

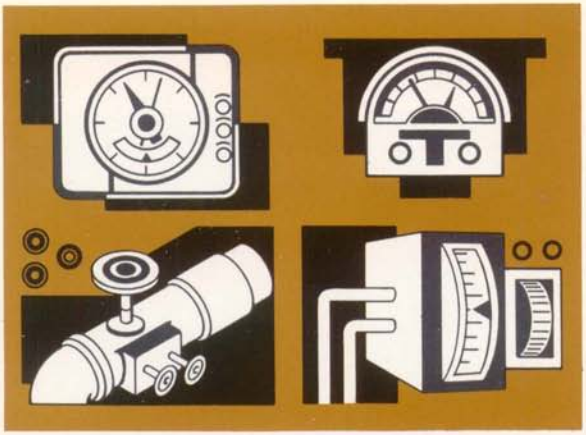
- Data Channel Control — A single I/O command transfers a block of data at a rate determined by the I/O device. The main program is affected only by a cycle delay to read or store data.
- Direct Program Control — Data is transferred one word at a time at a rate determined by the program.

Basic Areas of Application

- Process Control — The IBM 1800 provides for a complete range of process control, from operator guidance through supervisory operation.
- High-Speed Data Acquisition — The 1800 system collects both analog and digital data. Multiplexers allow either random or sequential sampling of terminal points. Digital values may be recorded on magnetic tape or in disk storage for subsequent analysis.

Service Features

- Solid Logic Technology (SLT).
- A versatile service unit for static and dynamic testing is provided.
- Fault-location diagnostic programs aid in rapid isolation of system failures.



Process I/O Equipment

Analog Input

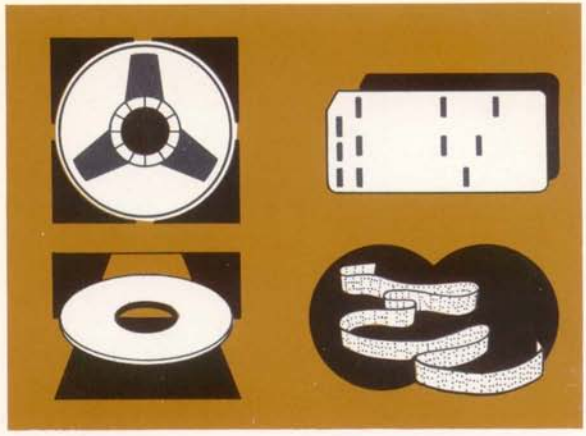
- Analog-Digital Converter — System conversion rates from 9000 to 25,000 points per second per ADC.
- Multiplexer-Relay — 100 samples per second for high-level or low-level signals; up to 1024 points.
- Multiplexer-Solid State — High-level single-ended signals; up to 256 points. Allows ADC to operate at maximum system conversion rates.
- Comparator — Hardware digital range checking.
- Signal Conditioning Elements — Standard matching circuits including current-to-voltage conversion.

Digital Input

- Pulse Count
- Contact Sense
- Voltage Sense
- Interrupt

Analog/Digital Output

- Electronic "Contact" Operate
- Pulse Output
- High-Speed Register Output
- Digital-Analog Converters



Data Processing I/O Equipment

Output Printers

- 1816 Printer-Keyboard
- 1053 Printer
- 1443 Printer

Paper Tape I/O

- 1054 Paper Tape Reader
- 1055 Paper Tape Punch

Punched Card I/O

- 1442 Card Read Punch

Plotter

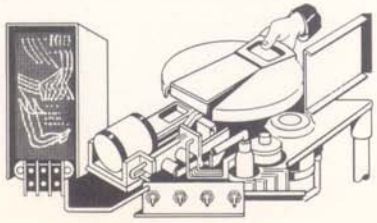
- 1627 Plotter

Magnetic Tape I/O

- 2401 or 2402 Magnetic Tape Unit — The Tape Adapter Unit is included in the 1802 Processor-Controller.

Disk Storage

- 2310 Disk Storage Drive — A new disk storage device that uses a single interchangeable disk and two read-write heads. Storage capacity: 512,000 words. Word rate: 35,000 per second.



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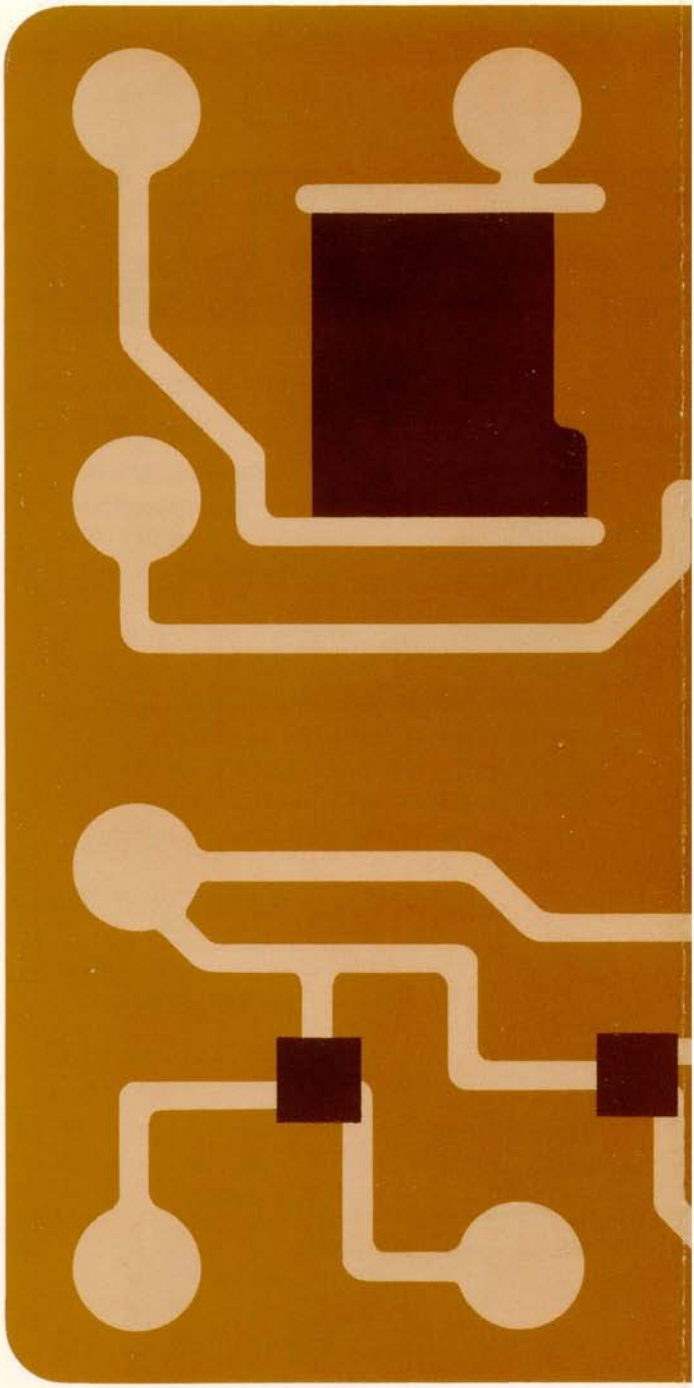

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