No. 201

133 COMPUTER SYSTEM

The 133 Computer is the newest addition to The Bunker-Ramo Corporation's product line of ultra-reliable, militarized, computing and information processing systems. The 133 is a digital computer that incorporates all the features of the highly successful 130 Computer—simplicity of operation, ruggedness, ease of maintenance—plus such refinements as a three-fold increase in operating speed, and ability to accept and transmit data at far higher rates than before.

This powerful new computer is compatible with the input-output specifications of the Naval Tactical Data System besides offering, at no extra cost, optional higher speed I/O channels for use in non-NTDS applications. The 133 Computer is fully compatible with the 130: it has the same extensive line of pheripheral devices and will operate with any 130 program, provided minor changes are made to allow for I/O timing differences.

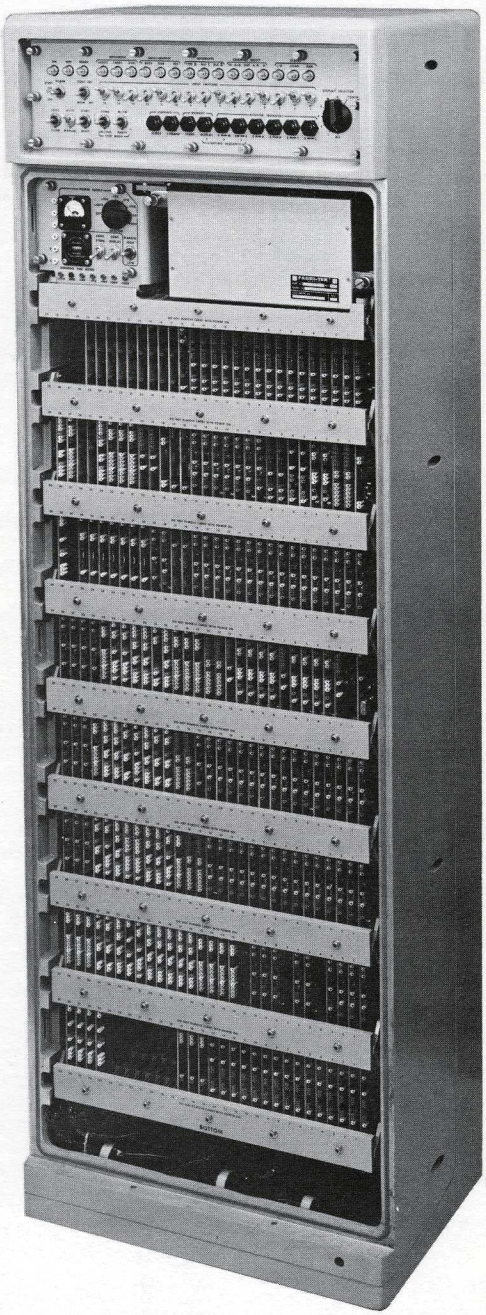
Other outstanding characteristics of the 133:

HIGH SPEED: Operation is synchronous with clock pulses occurring every microsecond. Most commands are executed in four to six microseconds. Any word in memory can be read and regenerated in two microseconds.

LARGE MEMORY: Random access core memory; 15-bit words; 8192 or optional 16,384 word capacity; 16,384 word buffered extended memory available.

FAST, FLEXIBLE INPUT-OUTPUT: I/O operations are controlled through a multi-level priority interrupt system. Data transfers take place on A, B, and C channels. Normally, A and B channels are NTDS compatible and allow 30-bit parallel word transfers at 43,500 words/sec input, 33,000 words/sec output. At no extra cost, they may be set up according to CP-667 Computer specifications—250,000 words/sec and 143,000 words/sec, input and output.

Channel C, over which standard peripheral devices transmit, will accept input at 52,600 words/sec, and output at 55,000 words/sec. Channel C words consist of 15 bits transmitted in parallel.



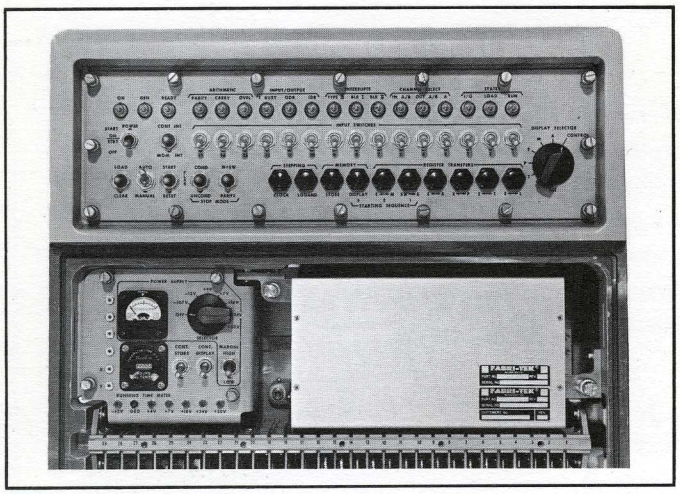
133 Computer with front door removed to show compact layout

RUGGED: All circuitry is conservatively designed using solid state silicon components for high reliability. The computer is so constructed that it can operate in a 0-50° C temperature range, will tolerate poor input power control, and will withstand extreme shock and vibration. RF interference is eliminated.

COMPACT: 64 inches high, 21½ inches wide, 17½ inches deep.

CONVENIENT: Operating controls, maintenance controls, and all internal components accessible from the front.

FULLY SUPPORTED: Optimum performance on a continuing basis is made possible through Company supported programs for spares, documentation, training, maintenance, and software.



Control and Maintenance Panels

COMPUTER ORGANIZATION

TYPE	Binary, digital, stored logic, stored program
WORD LENGTH	Variable in multiples of 15 bits
COMMAND STRUCTURE	82 microcommands, single or multiple operations per instruction, direct and indirect addressing
MEMORY	8192 or 16,384 word elements, random access core, expandable to 32,768 words
SPEEDS	1 μsec clock, 2 μsec memory read-write cycle
INPUT-OUTPUT TRANSFERS	30-bit words, parallel transfer, A and B: 43.5 K words/sec input (optional 250 K wds/sec) 33.0 K words/sec output (optional 143 K wds/sec) 15-bit words, parallel transfer, C: 52.6 K words/sec input 55.5 K words/sec output
INTERRUPTS	17 external interrupt lines to control asynchronous data transfers. 3 lines each on A and B channels, 11 lines on C. Multi-level priority interrupt system, 6 microsecond reaction time.
EXECUTION SPEEDS	
Add	4 μsec
Multiply	19 μsec
Divide	19 μsec
Branch	4 μsec or 6 μsec
Block, Match, Move, and Sort	6 μsec plus 4 μsec per word

OTHER STANDARD FEATURES

Variable length multiply and divide
Direct and indirect addressing
Six program-controlled registers
Parity check on all words in memory
Full complement of manual controls on operator and maintenance panels
Automatic program protection in event of power failure
No extensive installation site preparation

SOFTWARE

Programs provided with the computer include: FORTRAN Compiler, Symbolic Assembler, SWIFT Interpreter, Subroutine Library, Matrix Package, Floating Point Package, I/O Utility Routines, Diagnostic Routines, MASS 7090 Simulator and Assembler.

AUXILIARY COMPONENTS

143 Paper Tape System Controller
152 Paper Tape Reader; 5-8 level tape at 300 characters per second
161 Paper Tape Punch; 5-8 level tape at 60 characters per second
185 I/O Typewriter; 10 characters per second
141 Paper Tape I/O System; reader, reeler, punch, and controller in a single 133 type cabinet with Selectric I/O typewriter. System has bi-directional tape read and more programmed controls than 143 System.
192 Magnetic Tape Controller; accommodates 4 tape units
170 Magnetic Tape Units; switch controlled 200 or 556 characters per inch density; 15,000 or 41,700 characters per second transfer rate; IBM Model 729 compatible
171 Magnetic Drum Unit; 65,536 words
282 Line Printer; 300 lines per minute; 120 characters per line
256 Card Reader; 200 cards per minute; Hollerith or binary data
197 Data Line Synchronizer; buffer unit for phone line data transmission
186 Send-Receive Set; Teletype I/O; prints, punches, and reads tape 10 characters per second

PHYSICAL

DIMENSIONS	64" high x 21½" wide x 17½" deep
WEIGHT	600 lbs
POWER	120/208 volts, 60 cycles, 3-phase, 1500 watts Internally mounted motor-alternator

For more information contact: Director of Marketing
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