GENERAL ELECTRIC

DATANET-355*

COMMUNICATIONS PROCESSOR

Information Systems

Equipment Specifications

The DATANET-355 is a stored-program communications processor designed to match large volume communications needs with the 3-dimensional GE-600 information system.

The DATANET-355 is directly connected to a GE-600 memory port to permit the transfer of data and control information between the systems at memory speed.

With the DATANET-355, a GE-600 system has a responsive, centralized information facility providing the capacity to meet high-volume communication requirements.

CIRCUITRY

The DATANET-355 features total intergrated-circuit logic construction.

STORAGE

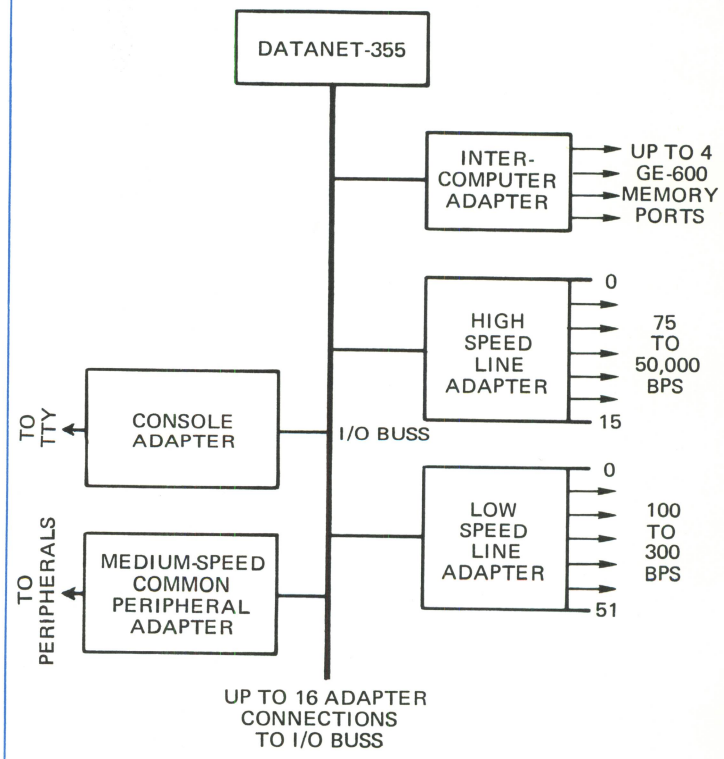
- Ferrite coincident-current core storage
- 1 microsecond cycle time
- Variable word size: 6,9,18, or 36 bits
- Data words of different lengths can be mixed and fully packed in storage
- All word lengths are individually addressable
- Store size is 16K or 32K 18-bit words (1K = 1024 words)

PROCESSOR

The DATANET-355 is a interrupt-driven, binary processor which operates as a stored-program adapter. Its 96 instruction set includes:

- Fixed-point arithmetic operations
- Boolean functions
- Shifting
- Comparing
- Data movement
- It has an 18-bit single address instruction, 3 index registers, and multi-level indirect addressing

SYSTEM CONFIGURATION



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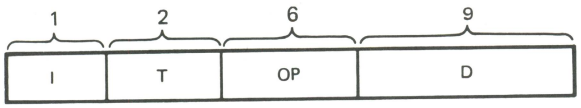
INPUT/OUTPUT MULTIPLEXER

The DATANET-355 Input/output Multiplexer is buss oriented and is designed to simplify real-time concurrent servicing of local and remote devices. It can handle up to 16 I/O connections with a total transfer rate of 500,000 words per second (6, 9, 18, or 36 bit length).

The input/output multiplexer operates independently of the processor and has 16 levels of priority interrupt with 16 sublevels per level, all maskable. It can service a variety of terminals connected to high and low speed line adapters.

GENERAL INSTRUCTION FORMAT

BITS:



I – Indirect Bit (1 bit), on (=1) effective address is computed from indirect word

T – Tag Field (2 bits), used to specify address modifications using one of three index registers or the instruction counter

OP– Operation Code (6 bits)

D – Displacement Field (9 bits)

BASIC INSTRUCTION TIMES

Transfer	1 μ second
Load or Store (any word size)	2 μ seconds
Add or subtract	2 μ seconds
Multiply (18 bits by 18 bits)	7 μ seconds
Divide (36 bits by 18 bits)	8 μ seconds
Multiply (36 bits by 36 bits)	21 μ seconds
Divide (72 bits by 36 bits)	22 μ seconds

REGISTERS

Address Register	18 bits
Data Buffer Register	36 bits (from memory)
Operation Code Register	6 bits
Arithmetic Counter	6 bits
AQ Register	36 bits
Instruction Counter	15 bits
Index Register (3)	18 bits
I/O Channel Selector	6 bits
Indicator Register	8 bits

INTERCOMPUTER ADAPTER (ICA)

The ICA provides the link between the input/output buss of the DATANET-355 and from one to four memory ports on the GE-600 system. The ICA transfers data and control information between the two systems. In normal data transfer activities, the ICA acts as an agent of the DATANET-355 which controls all detailed transactions. The GE-600 exercises command control over the ICA, and can initiate a program load into the DATANET-355 or interrupt its processing.

The ability of the DATANET-355 through its ICA to respond to GE-600 system interrupts enables the DATANET-355 to assume mainframe input/output functions if required.

HIGH SPEED LINE ADAPTER

The High Speed Line Adapter is a multi-line communication controller which can connect to up to 16 low, medium or high-speed data communications lines. It can service a varity of communications terminals or subsystems intended for remote operation at speeds up to 50,000 bps.

It can handle both synchronous and asynchronous character-oriented communications operating at various transmission rates with a variety of bit orders, character sets, message formats, auxiliary signaling techniques and control procedures. Each line can be used in simplex, half-duplex or full-duplex mode, two or four wire operation. Individual high speed line adapter subchannels will normally service any terminal that can transmit/receive character-oriented bit-synchronous messages with information codes not exceeding 8 bits. Each subchannel is character-buffered. One or two adapters can be configured per DATANET-355.

LOW SPEED LINE ADAPTER

The Low Speed Line Adapter can operate up to 52, 26 or 17 low-speed terminals, operating at speeds of 110, 134.5/150, or 300 bps respectively. Terminals with different transmission speeds can be mixed on a single LSLA. Terminal type capabilities include Teletype models 33, 35 and 37, IBM 2741, DATANET-730 and the TermiNet† 300 data communication printer. From one to six Low Speed Line Adapters can be configured in a single DATANET-355 system. A maximum of 200 terminals is allowed. Code levels: ASCII or EBCDIC.

POWER REQUIREMENTS

208/120 V, 3 phase, 4 wire 60 HERTZ 2.2 KVA

PROCESSOR PHYSICAL SPECIFICATIONS

Weight:	1,000 lbs.
Dimensions:	Height: 76"
	Length: 74"
	Depth: 28"

AIR CONDITIONING

3400 BTU/HOUR No external air flow is required.

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†TermiNet – Trade-mark of the General Electric Company.

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