

1500 Hardware

1551 Fast Serial Printer

1500
1500



High quality print
Choice of speeds
Flexible in operation

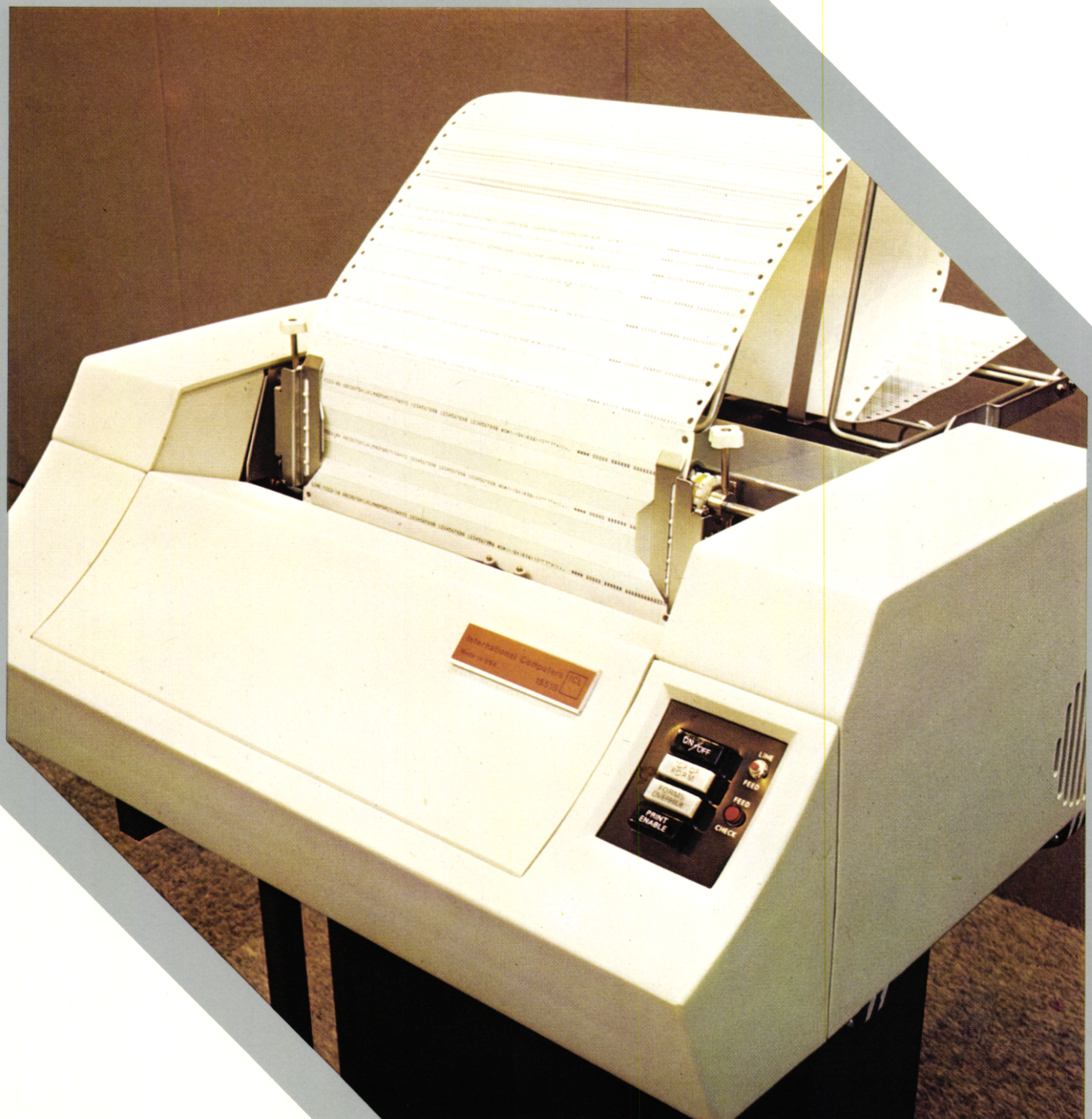
The ICL 1551 is a fast matrix printer that enables the 1500 Transaction System to print on one to four part fan-folded paper.

Two models of this printer are available: the 1551S (165 characters per second/60 lines per minute) and the 1551D (330 characters per second/125 lines per minute).

Characters are printed in a 7×9 dot matrix for exceptional clarity.

The print line can consist of up to 132 characters (print positions) with horizontal spacing of 10 characters per inch and vertical spacing of 6 lines per inch.

The 1551 easily adjusts to accommodate various sizes and





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1551 Fast Serial Printer

thicknesses of forms and for the horizontal and vertical location of the print line on the paper.

The 2-channel Vertical Format Unit (VFU) connected to the paper feeding mechanism provides fast, accurate advance of the paper to the predefined print line.

If paper is torn or feeds improperly, printing stops and an indicator light warns the operator. An "out of-paper" condition will also cause this light to come on.

These printers can be placed in an office environment up to 500 metres (1500 feet) cable length away from the ICL 1500 Transaction System.

Specification

Form size (sprocket feed)
Width : 10 cm to 38 cm (4 inches to 14.875 inches)
Length : 9 cm to 43 cm (3.5 inches to 17 inches)

Paper advance speed
4 inches per second

Operating environment
Temperature (°C) 16 min. 35 max.
(°F) 60 min. 95 max.
Relative humidity (non condensing)
5% min. 90% max.

Electrical requirements
115V ac, 50/60 Hz
230V ac, 50/60 Hz
Current consumption : less than 4 amperes

Physical description
Width : 70 cm (27 $\frac{3}{4}$ inches)
Depth : 51 cm (20 inches)
Height : 93 cm (36 $\frac{3}{4}$ inches)
Weight : 130 kgs (285 lb)

Character sets
A variety of different language character sets is available.

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1500 Hardware 1502 Transaction System



Data capture at source

Communications

Remote job entry

The ICL 1502 is a powerful programmable system specifically designed to handle transactions in a distributed environment. It offers the facilities of the 1501, but has a larger video screen and gives you working space on a desk-like unit.

Data is validated on entry by transaction programs loaded from cartridge tape. And although the 1502 operates autonomously, it

links to a variety of mainframe computers and can operate as a remote job entry system.

The 1502 is an attractive item of office equipment, uses little power and is easily installed in an office environment. The wide range of computer facilities offered by the ICL 1502 make it an ideal solution to many transaction handling problems.



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1502 Transaction System

The 1502 may also be used as a clustered terminal when connected to a 1503.

Technical description

The ICL 1502 Transaction System includes an input keyboard, a large 1920 character video display screen, two tape cartridge drives, a semiconductor memory of 8 or 16K bytes and a powerful processor.

Every 1502 has a serial I/O interface that can address up to 63 peripherals. Each peripheral can be located up to 500 metres (1500 feet) from the system, although the cable length can be extended with the Model 1537 Booster/Isolator.

The transaction oriented 1502 is controlled by transaction control programs held on tape cartridges. To switch from one application to another is a simple matter of loading another program.

ICL communications software enables the 1502 to communicate with a mainframe computer or with other 1500 systems.

Data recorded by the 1502 can be transmitted to or received by the system either with an operator present or without, and by day or by night.

Available communications emulators include:
IBM 2780, 3780, 2968, 360/20
Honeywell Bull GE100
Univac U1004
CDC UT200

A teletype simulator is also available for start/stop transmission.

Specification

Processor:
45 instruction types plus I/O
3 to 6 ms instruction cycle time
1 accumulator
7 index registers per 2K of memory
16 member instruction address stack
1 stack pointer
Hardware bootstrap loader

Input/output interfaces:
Serial interface
Up to 63 addressable peripherals
Data transfer rate: 60K bytes/sec

Cable type: 93-ohm coaxial cable
Cable length: up to 500 metres (1500 feet)

Parallel interface used with internal communication adaptor

Communications:
Model 1534 Asynchronous Communications Adaptor at up to 1800 bps.
Model 1535 Synchronous Communications Adaptor at up to 9600 bps.

Memory:
Monolithic semiconductor
8 or 16K bytes — 9 bits per byte (8 data bits plus 1 check bit)
300 nanosecond memory cycle time
Random access read/write
Non-destructive read out

Electrical requirements:
115 V ac, 50/60 Hz, 3.5 amps
230 V ac, 50/60 Hz, 1.8 amps

Keyboard:
Keypunch or typewriter
53-key format (other formats available)
13-key numeric pad
Hall effect keys
N-key rollover
Audible cue

Video display (cathode ray tube):
80 characters per line
24 lines with interleave capability
5 × 10 dot matrix character

Mini-cartridge drive:
Automatic tape threading
Servo control (reel to reel) for precise tape movement
Precise tape guiding system
Read/write transfer rate—2000 bytes/sec.
Recording technique—1600 bpi. phase encoded
Read/write speed—10 ips
Search/rewind speed—40 ips
Read after write, CRC, phase check
Write protect

Operating environment:
Temperature (°C) 16 min. 35 max.
(°F) 60 min. 95 max.
Relative humidity (non-condensing)
20% min. 80% max.

Physical description:
Width: 132 cm (52 inches)
Depth: 76 cm (30 inches)
Height: 91 cm (36 inches)
Weight: 113 kgs. (250 lb)

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1500 Hardware 1503 Transaction System



- ☐ Powerful disc system
- ☐ Multiple file access
- ☐ Local database capability
- ☐ Range of models
- ☐ Distributed processing capability
- ☐ Communications



1500 Hardware

1503 Transaction System

The ICL 1503 models are powerful disc-based small computer systems designed for transaction processing and communications in a distributed environment. The 1503 offers all the wide facilities of the 1500 range, but is enhanced by an extensive potential for disc handling, a large video display, and the enclosure of considerable power in a desk-like unit.

As well as managing transaction entry, validation, and processing, the ICL 1503 models can address over 60 peripherals and manage a common database for a network of 1500 systems – distributing information to 1501s or 1502s wherever you need them. Security can be ensured by excluding specified systems from specific files.

The ICL 1503 range is attractive equipment, uses little power, is simple to operate, and can be installed in an office environment. The extremely wide range of facilities offered by the 1503 range make it an ideal solution to problems with transaction and distributed processing.

Technical description

The 1503 Transaction Systems include an input keyboard, a 1920 or 256 character display unit, two tape cartridge drives, 32K bytes of semiconductor memory, a disc controller, one to four disc drives, and a powerful processor. The system provides ample disc storage from 2.5 to 20 million characters.

Every ICL 1503 has a serial I/O interface that can address up to 63 individually addressable peripherals. Each peripheral can be located up to 350 metres (1000 feet) from the system, although the cable length can be extended with the Model 1537 Booster Isolator.

One 1503 can support typically sixteen 1500 systems – with each 1501 and/or 1502 system able to access any of the disc files held by the master 1503. Used in combination with the wide range of 1500 peripherals, this capability lets you put computer intelligence wherever your staff need it. Naturally the 1503 can also operate in stand-alone mode.

ICL communications software enables the 1503 to communicate with a central computer or with other ICL 1500 systems.

Available communications emulators include:
IBM 2780, 3780, 2968, 360/20
Honeywell Bull GE100
Univac U1004
CDC UT200

A teletype simulator is also available for start/stop transmission.

Specification

Processor:
45 instruction types plus I/O
3 to 6 ms instruction cycle time
1 accumulator
7 index registers per 2K of memory
16 member instruction address stack
1 stack pointer
Hardware bootstrap loader

Input/output interfaces:
Serial interface
Up to 63 addressable peripherals
Data transfer rate: 60K bytes/sec
Cable type: 93-ohm coaxial cable
Cable length: up to 350 metres (1000 feet)
Parallel interface used with internal communication adaptor

Memory:
Monolithic semiconductor
32K bytes – 9 bits per byte
(8 data bits plus 1 checkbit)
300 nanosecond memory cycle time
Random access read/write
Non-destructive read-out

Communications:
Model 1534 Asynchronous Communications Adaptor at up to 1800 bps.

Model 1539 Synchronous Communications Adaptor at up to 9600 bps.

Electrical requirements:
115 V ac, 50/60 Hz, 3.5 amps.
230 V ac, 50/60 Hz, 1.8 amps.

Keyboard:
Keypunch or typewriter
13-key numeric pad
Hall effect keys
N-key rollover
Audible cue

Video display (cathode ray tube):
1920 characters
80 characters per line
24 lines with interleave capability
5 × 10 dot matrix character
Option: VDU for 1503 cluster controller
256 characters
32 characters per line
8 lines with interleave capability

Mini-cartridge drive:
Automatic tape threading
Servo control (reel to reel) for precise tape movement
Read/write transfer rate – 2000 bytes/sec.
Recording technique – 1600 bpi. phase encoded
Read/write speed – 10 ips
Search/rewind speed – 40 ips
Read after write, CRC, phase check

Physical description:
Width: 132 cm (52 inches)
Depth: 76 cm (30 inches)
Height: 106 cm (40 inches)
Weight: 182 kgs. (400 lb)

1503 Models

1503-40 has 2.5 million bytes of fixed disc storage.
Average access: 60 m/sec.
1503-41 has 5.0 million bytes of fixed disc storage to a maximum of 4 drives (20 Mb).
Average access: 60 m/sec.
1503-43 has 2.5 Mb of fixed disc storage and 2.5 Mb of exchangeable disc storage (FEDS) to a maximum of 4 drives (20 Mb).
Average access: 60 m/sec.
Transfer rate: 1562 KHz.

Operating environment:
Temperature (°C) 16 min. 35 max.
(°F) 60 min. 95 max.
Relative humidity (non-condensing)
20% min. 80% max.

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1500 Software

Data Communications to Non ICL Systems

1500
1500 ICL

Links to wide range of
mainframes

Asynchronous or synchronous
transmission

Choice of speeds and
protocols

Generators make it easy to
set up a 1500 Communications
System

Teletype Generator

The Teletype Generator allows you
to create a teletype simulator to
your individual specifications.
The result is a program that
simulates low speed asynchronous
communications, specifically a
TTY33 or TTY35.



1500 Software

Data Communications to Non ICL Systems

The Teletype Simulator provides the following features:

- ☐ A video display of 4 or 8 lines
- ☐ Auto answer back message
- ☐ Speeds from 75 to 1800 bps
- ☐ Forced echo
- ☐ Odd, even or no parity
- ☐ All unique teletype keyboard characters.

The tape cartridges are used to simulate a paper tape reader and punch. A 'local' mode is also available for off-line preparation of tapes to be transmitted.

Binary Synchronous Communications Generator

The Binary Synchronous Communications (BSC) Generator is a master program that makes it possible for you to produce a tailored communications system, thus eliminating the need to modify your existing communications software. With well defined requirements, each program generation can be accomplished in minutes by a communications specialist.

IBM 2780/3780 Simulator

By simulating an IBM 2780 or 3780, the BSC system allows the 1500 Transaction System to communicate with:

- ☐ Other 1500 Systems equipped with BSC communications
- ☐ IBM computer running under HASP, BTAM, OS/RJE, DOS Power
- ☐ IBM 2780 and 3780
- ☐ Computers capable of communicating with the IBM 2780 or 3780
- ☐ ICL System Ten with Synchronous Communications Adaptor
- ☐ SBM 4300 Magnetic Data Recording System equipped with Synchronous Communications Adaptor.

This variety is available because the BSC System provides the following options without changes to the hardware:

- ☐ Code Set – EBCDIC, USASCII
- ☐ 600, 900, 1200, 1800 bps using internal clock, up to 9600 bps using external clock.

Line discipline

The BSC communications system uses IBM Binary Synchronous Communications protocol. The BSC system makes full use of all timeouts and error checking capabilities in half duplex mode.

- ☐ Line configuration – multipoint, point-to-point, auto answer
- ☐ Peripheral selection – from line or program
- ☐ Assignment of number of transmission retries
- ☐ Assignment of polling ID and security ID
- ☐ Multiple input and output devices with assignment of sequence for overflow
- ☐ Selection of input and output record size – maximum of 136 for cartridge – maximum of 256 for standard tapes
- ☐ Blocking factor – up to 1000 characters per block, with some restrictions as to the device you are communicating with, e.g. 400 characters maximum if communicating with an IBM 2780
- ☐ Data compression, decompression and re-insertion of trailing blanks or all embedded blank fields exceeding 2 characters.

IBM 2968 simulator

For high volume communications it is often desirable to transmit block lengths exceeding the limitations of the IBM 2780. The resulting increased throughput can be realised with the IBM 2968 simulator. Variable length records of up to 2KB in length can be transmitted in a point-to-point environment, utilising the 1500's range of $\frac{1}{2}$ " computer compatible tape drives as input/output devices.

BSC system options

The 4KB BSC option allows you to gain the advantages of data communications with fewer hardware requirements. The 4KB system, in conjunction with a Synchronous Communications Adaptor, allows transmission in EBCDIC or ASCII codes at up to 9600 bps. Both cartridge and standard tapes are supported as input and output devices and a block length of up to 256 characters can be transmitted.

Other simulators

Additionally, the following simulators are available:

IBM 360/20
Honeywell Bull GE100
Univac U1004
CDC UT200

For high speed transmission between ICL 1500 Systems, the SQUIC communications software is available. SQUIC may transmit up to twice as fast as the IBM 2780, thus greatly decreasing transmission cost.

Minimum hardware requirements

1501 8KB System
Asynchronous/Synchronous Communications Adaptor.

This software is issued as ICL 1500 Program Product Sets:

- ☐ TTY : S11000/45
TTY on SIO : S11000/46
TTY, 5 BIT : S11000/47
- ☐ BSC : S11000/53
- ☐ SQUIC : S11000/54
- ☐ IBM 2780 : S11000/51
- ☐ IBM 3280 : S11000/52
- ☐ IBM 2968 : S11000/50
- ☐ IBM 360/20 : S11000/60
- ☐ Honeywell Bull 100 : S11000/61
- ☐ Univac 1004 : S11000/63
- ☐ CDC UT200 : S11000/62.

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