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148

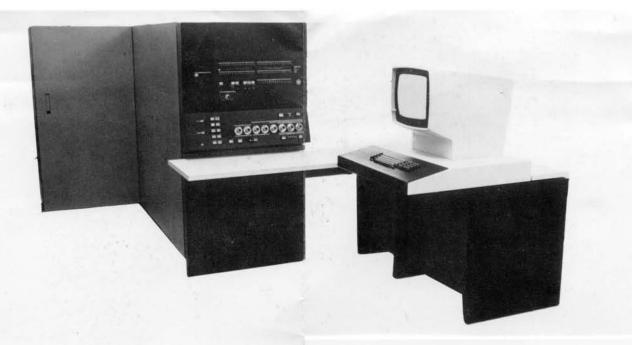## Description

The Model 148 is designed to provide the reliability, high-availability and performance required by both business and scientific users.

Users can achieve performance increases via hardware up to 1.25 times that of a System / 370 Model 145. In addition to that internal performance increase users of VS-1 Rel. 6 and VM 370 Rel. 3.9 and subsequent Releases will experience increased performance due to Extended Control Program Support.

To facilitate various feature mixes requiring different control storage sizes, sufficient control storage for any configuration is provided. Both main and control storage are equipped with Error Correction Code (ECC).

An I/O Controller (IOC) is provided, which controls the function of the following:

- Service Panel
- Console Display with Keyboard
- Console File
- Line Printer (Optional)
- Console Printer (Optional)

Most announced I/O devices are supported for attachment via the byte multiplexer channel or one of 4 buffered block multiplexer channels.
For a complete list of specific I/O devices that are supported, please refer to the DP announcement material.

Main System Features

- **IOC** — The I/O Controller is a processor used to control the function of the:
  - Service Panel — used for diagnostics and off-line maintenance
  - 33FD Console File
  - 3286 Integrated Printer Adapter (optional)
  - 3203 Integrated Printer Attachment (optional) for a new 3203 Mod. 4
  - Console Display with Keyboard

- **Channels** — One byte multiplexer channel with 64 byte multiplexer subchannels, and four buffered block multiplexer channels are provided on all machines. Optional features can add additonal multiplexer sub-channels up to a total of 256, and buffered block multiplexer shared subchannels up to a total of 512.

- **ISC** — The Integrated Storage Control attaches to one of the buffered block multiplexer channels and supports the 3333, 3340, 3344 and 3350 Direct Access Storage devices.

- All machines are provided with:
  - ☐ Clock Comparator and CPU Timer
  - ☐ System/370 Commercial Instruction Set
  - ☐ Extended Control Mode
  - ☐ Dynamic Address Translation
  - ☐ Channel Indirect Data Addressing
  - ☐ Program Event Recording
  - ☐ Interval Timer
  - ☐ Time-of-Day Clock
  - ☐ Error Checking and Correction
  - ☐ Micro Instruction Retry
  - ☐ Channel Command Retry
  - ☐ OS/DOS Compatibility
  - ☐ Extended Control Program Support
  - ☐ Storage Protection (Store and Fetch)
  - ☐ Floating Point (includes Extended) Precision Floating Point)

Storage

The Model 148 uses nondestructive readout storage. Both ABM and FET technologies are utilized. Single bit storage errors are corrected in flight as the data is presented to the processor.

- Control Storage — Reloadable control storage is loaded from the console file. Control Storage size is 128K of Advanced Bipolar Memory (ABM) technology housed on one board.

- Main Storage — The Model 148 offers two storage sizes, 1 MEG and 2 MEG of FET technology, housed on 1 respectively, 2 logic boards.

Maintainability

Maintenance of the Model 148 is enhanced through the utilization of:

- Extensive error checking
- Resident Microdiagnostics
- Fault Locating Microdiagnostics
- CE Power Test Panel
- Comprehensive CE Panel
- Maintenance Analysis Procedures (MAPS) for the IOC and Power
- ST /370 to isolate system failure to the proper unit.
- Keyboard/Alter/Display Function
- Instruction Retry
- System Diagnostic Programs
  - ☐ ST /370
  - ☐ Logout Editing
- Error Correction Code for Storage
- OLT for 3203-Mod. 4.

Technology

- *Advanced Bipolar Monolithic Technology (ABM)*
- *Cathode Ray Tube (CRT)*
- *Field Effect Transistor (FET)*
- *Monolithic System Technology (MST)*
- *Transistor - Transistor Logic (TTL)*
- *400 Hz Power provided by a 3047 Motor Generator*

Compatibility

The Model 148 is program compatible to all System/360 and System /370 programs (except time and model dependent programs).

Emulation for 1401, 1440, 1460, 1410 and 7010 are available as optional features.

Service Highlights

- *Channel Retry - Channel or Channel/CPU errors are retried by microinstruction retry or the System Control Program (SCP). Interface sequence errors, channel data errors, and device errors detected by the channel cannot be retried by microcode. For these errors, or when microprogram retry is unsuccessful, the channel stores a Channel Status Word (CSW) and an Extended Channel Status Word (ECSW) which provides the SCP with all the information needed to retry a channel operation.*

- *Microinstruction Retry - Whenever a machine check occurs, a microprogram retry routine is entered. This routine will retry the failing word using information from backup latches. Up to 256 retries are attempted.*

- *Error Correction Codes (ECC) - The Model 148 will automatically correct all storage single bit errors, as well as detect double bit errors.*

- *Instruction Retry - Whenever a CPU failure is detected during the execution of an instruction, the processor will automatically retry the operation.*

- *Logout - Error data from machine checks and channel checks is logged to an Error Recording Data Set (ERDS). Editing of this logout data is accomplished by means of EREP. For those errors that cannot be successfully logged to the ERDS, SEREP is provided to retrieve the logout from main storage, edit and print this information on a hardcopy output device.*

- *The Model 148 will be supported by extensive microdiagnostics which will provide a high degree of fault location. They will include:*
  - *Resident Microdiagnostics*
  - *Basic FLT Tests*
  - *Extended CPU FLT Tests*
  - *Standalone Microdiagnostic Tests*