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370
3031

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PRODUCT DESCRIPTION

The 3031 processor complex is a medium scale computer with virtual storage capabilities designed for both business and scientific applications. It consists of a 3031 processor, a 3036 console and a 3017 power unit.

The processor is basically composed of the following logical units:

- Instruction execution function (IEF)
- Buffer control function (BCF)
- Storage control function (SCF)
- One channel group with channel buffer control (CBC)

This channel group consists of:

- one Byte Multiplexor channel
- five Block Multiplexor channels

COMPATIBILITY

The 3031 is designed to be upward program compatible with current system/360 and system/370, without extensive reprogramming with the following exceptions:

- programs using machine dependent data.
- programs using model dependent features or devices not available on this system
- programs that depend on validity of data after system power has been turned off and restored
- programs using ASC II bit (PSW bit 12)

IBM internal use only

TECHNOLOGY

The 3031 Processor Complex uses the following technology

- MST-1
- MST-2
- MST-2E
- MST-A
- MST-B
- MS-195

The Reloadable Control Storage (RCS) and the High Speed buffer use advanced bi-polar monolithic technology. (SNIPE)

The processor storage employs MOSFET (Metal-oxide Semiconductor Field Effect Transistor)

PERFORMANCE

The basic 3031 is designed to provide significantly improved performance compared to the 3148.

The facilities mainly influencing this improvement are:

- Complete overlapping of Instruction Execution Function and I/O operations
- A 32K high speed buffer storage
- Fetching and storing data via four-way interleaved storage controls
- Enhanced performance of selected instructions
- A processor cycle time of 115 nanoseconds

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MAINTAINABILITY

Maintenance of the 3031 processor is enhanced through the utilization of the following facilities:

- Extensive error checking and indicators
- A console with two stations: one normally for the operator and the other primarily intended for maintenance. If either station experiences a malfunction, other than power, then its functions may be accomplished at the remaining station. The console is also designed to provide an indication of power and power sequencing faults for troubleshooting power problems.
- LOA and LOGOUT for intermittent problem resolution
- Microdiagnostics and other conventional software diagnostics for fault location
- Remote Support Facility (RSF)
- Retain/370 data link and data bank
- System Test/370 which is self-configuring
- Microcode controlled power sequencing
- Online Tests(OLT's) for I/O units are run under OLTEP for concurrent I/O Maintenance
- OLT's are run offline under OLTSEP
- Hierarchical Monitoring System

AVAILABILITY

High availability for the 3031 processor can be achieved through the use of several techniques which enable deferred maintenance

- Error correction capabilities for storage which are designed to detect and correct single bit errors without interruption of the system
- Instruction Retry for most instructions, except Execute, Diagnose, Read Direct (RDD), Write Direct (WRD) and Test and Set (TS), is designed to completely reexecute the instruction following an error condition provided the retry threshold is not exceeded
- Channel recovery can be achieved through repetitive hardware retry and refresh of microcode instructions. Additional retry techniques are provided through software recovery support
- Degraded Operation - Areas of the high-speed buffer storage which are failing are removed from use upon hardware detection of an error, resulting in continued customer operation with slight system degradation



- *Recovery Management Support (RMS) is provided to supplement hardware retry procedures. RMS is designed to assess software condition and may either reconstruct or selectively terminate the task*
- *One megabyte increments of processor storage can be reconfigured off line enabling operation to continue*

STANDARD FEATURES

- *Universal Instruction Set*
- *Extended Precision Floating Point*
- *CPU Time and Clock Comparator*
- *Conditional Swapping*
- *PSW key handling*
- *Dynamic Address Translation (DAT)*
- *Dual Purpose Console with Service Support Facility*
- *32K High speed buffer*
- *Two megabytes of Processor Storage*
- *Six channels*
- *System/370 Extended facility*
- *Byte oriented operands*

OPTIONAL FEATURES

- *Processor storage extension*
It can be extended in 1 megabyte increments up to 6 megabytes
- *Channel to channel adapter*
- *Direct control*

CE CAREER PATH

This is a DP product