HEWLETT hp PACKARD

DIGITAL COMPUTERS

2100A computer

POWERFUL HARDWARE

A proven architecture implemented by a microprocessor in the heart of the control section.

EXPANDABLE MAINFRAME MEMORY

Lets you choose from 4K to 32K *all in mainframe.*

STANDARD FEATURES

Includes extended arithmetic instructions, power fail interrupt, memory parity check and memory protect.

FLEXIBLE INPUT/OUTPUT

14 internal I/O channels, externally expandable to 45.

FULL INTERRUPT SYSTEM

Interrupt priority easily established or changed for all devices.

COMPREHENSIVE SOFTWARE

Proven software packages for generating and executing your programs.

The Hewlett-Packard 2100A is a general-purpose digital computer designed for a wide range of small computer applications.

Features built-in to the 2100A include extended arithmetic instructions, power fail interrupt with automatic restart, memory parity check with interrupt and memory protect. Besides the standard built-in features, dual-channel Direct Memory Access (DMA) and Floating Point Hardware are also available. Under DMA control, data can be transferred to or from computer memory at rates greater than one million sixteen-bit words per second. Floating Point Hardware provides a typical ten-fold speed increase for scientific, computer bound algorithms.

A minimum 2100A provides 4096 words of core memory, self-contained power supply and 14 input/output channels. You can select a wide range of memory sizes up to 32K words, all in mainframe. By including an HP 2155A Extender, you add another 31 input/output channels and power supply.

The 2100A automatically inherits a comprehensive range of proven software packages, including assemblers, compilers, operating systems and subroutines. A complete line of standard computer peripherals and I/O interface kits are also available, permitting complete systems to be tailored around the 2100A. Added to these capabilities, you can also depend on the HP reputation for high quality and worldwide customer support. The result is a cost-effective computer that can meet your data processing problems today and continue meeting them as your needs expand.

specifications

MEMORY

Type: Folded planar core
Word Size: 16 bit with 17th parity bit
Page Size: 1024 words
Direct Addressing: 2 pages
Indirect Addressing: All pages
Module Sizes: 4K and 8K word memory modules provide 4, 8, 12, 16, 24 and 32K configurations all in the 2100A mainframe without additional power supply or cabinetry.
Cycle time: 980 nsec.
Loader Protection: Switch protects last 64 words.

REGISTERS

Accumulators: Two (A and B), 16 bits each. Directly addressable.
Memory Control: Three (T, P, M), 16 bits each
Supplementary: Two (Overflow and Extend), one bit each
Manual Data: One 16-bit switch register

INSTRUCTION EXECUTION TIMES

Memory Reference Group (14 total): 1.96 μ sec (ISZ: 2.94 μsec)
Register Reference Group (43 total): 1.96 μ sec
Input/Output Group (13 total): 1.96 μ sec
Extended Arithmetic Group (10 total)
- Multiply: 10.7 μ sec
- Divide: 16.7 μ sec
- Double Load: 5.9 μ sec
- Double Store: 5.9 μ sec
- Shift/Rotate: 2.9 to 7.8 μ sec dependent on type and length

Indirect Addressing: 980 nsec/level (1.96 μ sec/level in Extended Arithmetic Group)

FLOATING POINT HARDWARE EXECUTION TIMES (Optional)

	Minimum	Maximum
Add:	23.5 μsec	59.8 μsec
Subtract:	24.5 μsec	60.8 μsec
Multiply:	33.3 μsec	41.1 μsec
Divide:	51.9 μsec	55.9 μsec
Fix:	5.9 μsec	8.8 μsec
Float:	9.8 μsec	24.5 μsec

INPUT/OUTPUT

Multilevel Automatic Priority Interrupt: Determined by interface location

I/O Channels in 2100A Computer: 14
I/O Channels in 2100A Computer plus 2155A Extender: 45
I/O Compatibility: HP 2114/2115/2116

MULTIPLEXED INPUT/OUTPUT (Optional)

Signals Available: All signals necessary to implement up to 56 levels of priority interrupt external to the mainframe
Standard Interfaces: Up to 13 I/O channels are still available in the mainframe for standard interfaces. Channels used in the mainframe are not available for multiplexed I/O.

DIRECT MEMORY ACCESS (Optional)

Number of Channels: 2
Registers per Channel: Word Count Register, Address Register
Word Size: 16 bits
Maximum Block Size: 32,768 words
Assignable: To any I/O channels
Transfer Rate: Greater than 1 million words per second
Priority: Highest – DMA Channel 1
Middle – DMA Channel 2
Lowest – CPU

POWER FAIL INTERRUPT WITH AUTOMATIC RESTART (Standard)

Priority: Highest priority interrupt
Power Failure: Detects power failure and generates an interrupt to trap cell for user written power failure routine which saves registers, terminates activities and halts the processor. 500 microseconds are available for routine.
Power Restart: Detects resumption of power and generates an interrupt to trap cell for user written restart program.

MEMORY PARITY CHECK WITH INTERRUPT (Standard)

Priority: Second highest priority interrupt (shared with Memory protect)
Operation: Monitors all words read from Memory
Interrupt: To trap cell for user written routine when parity error is detected.
Violation Register: Contains memory address where error occurred.

MEMORY PROTECT (Standard)

Priority: Second highest priority interrupt (shared with Memory Parity)
Operation: Initiated under program control; protects any amount of memory
Fence Register: Set under program control; memory below fence is protected
Interrupt: To trap cell for system routine when user program –
a) attempts to alter a protected location
b) attempts to jump into the protected area
c) attempts to execute an I/O instruction
Violation Register: Contains memory address of violating instruction.

PHYSICAL*

Dimensions
Width: 16-3/4" with adaptors for mounting in 19" rack
Height: 12-1/4" (rack mounted)
Depth: 2100A – 26" (23" behind rack mounting ears)
2155A – 23½" (23" behind rack mounting ears)

Weight
Minimum: 91 pounds (41 kg)
Maximum: 111 pounds (50 kg)

ELECTRICAL*

Power Requirements:
115V/230V ± 10%
47.5 to 66 Hz
800 watts maximum

Current Available to I/O:

	2100A Mainframe	2155A Extender
+4.85V	16.8A	45.8A
-2V	7A	19.5A
+12V	3A	5A
-12V	3A	5A

ENVIRONMENTAL*

Operating temperature: 0° to 55°C (+32° to +131°F)
Relative humidity: to 95% at 40°C (104°F)
Ventilation
Intake: Rear panel
Exhaust: Sides of front panel and cabinet
Heat Dissipation: 2700 BTU/hr. maximum

*Except as noted, applies to both the 2100A Computer and the 2155A I/O Extender.

HEWLETT PACKARD

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