



2000F Dual Processor Time-Sharing System



The HP 2000F is a powerful, flexible, multi-task, multi-terminal system. The dual processor architecture separates systems tasks for maximum efficiency. The main processor is the HP 2100S Microprogrammable Systems Computer. Input/Output is handled by the HP 2100A communications processor, which provides BASIC language programming for up to 32 simultaneous users. Distinctive system disc options allow the system mass storage to be customized. Each option can be expanded up to eight moving-head drives.

Features

- Dual-processor system architecture, 2100S for the system, 2100A for communications processing
- Up to 32 terminals can be used simultaneously
- Floating point hardware, power fail/automatic restart, and memory parity check
- Hardwired or remote terminals over Bell 103 Data Sets
- ASCII terminals plus the IBM 2741 Selectric terminal
- System disc options allow from 4.9 to 188 million bytes of on-line storage
- Magnetic tape selective load/dump and back-up with either 9 trace NRZI or phase encoded format
- Optional high speed line printer

- Automatic system accounting of user time and storage
- System security hierarchy
- Easy to use HP BASIC language
- Program chaining with in-core common area
- 16 on-line files per user with program capability to transfer additional files on-line
- Random and sequential access file system
- Three levels of libraries: public, group, and private
- String manipulation instructions
- Matrix manipulation instructions
- Operational simplicity
- UL listed and OSHA approved system

HARDWARE

The Computers

The HP 2000F Time-Sharing System employs a dual processor architecture in order to provide maximum performance and flexibility. The central computer is an HP 2100S Microprogrammable Systems Computer with 32K words of memory. High speed computation is assured by microcoded arithmetic routines in the computer firmware. The 2100S handles system control, computation and storage tasks.

The second processor, an HP 2100A with 8K words of memory, communicates with system users through the terminals. Up to 32 terminals can be in operation simultaneously ranging in speeds from 10 to 240 cps. Using this dedicated processor for I/O, the HP 2000F is able to respond to users quickly. Both computers contain power fail/automatic restart and memory parity checks to insure fail-safe operation.

Mass Storage

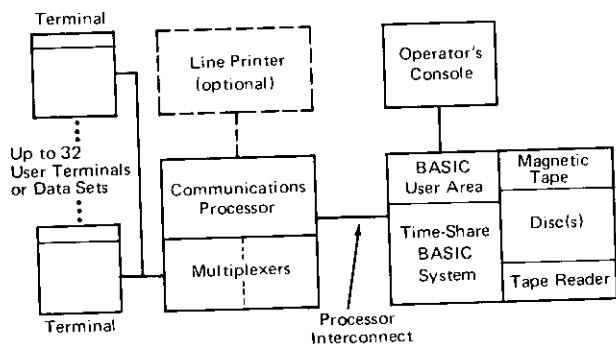
Disc Storage for the system is both flexible and expandable. Two disc options allow the system to be tailored to the precise mass storage requirements of each application.

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One system disc option features the HP 12960A moving head drive. The drive offers a fixed disc plus a removable cartridge for 4.9 million bytes of storage. The second system disc option provides the HP 12965A moving head disc file. This multi-platter drive contains 23.5 million bytes of storage. Either of these options may be expanded up to eight drives.

The HP 2000F also features an industry-compatible magnetic tape unit for system back-up and loading and dumping of programs and files. The tape drive can be either an 800 cpi NRZI or 1600 cpi phase encoded. Magnetic tape can be used to transfer files between another system and the HP 2000F.

Logical Organization of 2000F



System Console

Additional equipment included is the heavy duty system console providing continuous system monitoring, a 500 cps paper tape reader, and complete system cabinetry.

Terminals

ASCII Terminal and the IBM Selectric terminal using PTCC/EBCD code may be attached to the system through the communication multiplexer. Data rates of 10 to 240 cps may be connected locally to the HP 2000F. Terminals may also be operated remotely through Bell 103A modems.

Many standard user terminals are supported on the HP 2000F. Those tested by Hewlett-Packard for compatibility are listed under Product Support. Additional specifications for these are available in the HP 2000F Operator's Guide (02000-90074) and Programmer's Guide (02000-90073). Any terminal not listed should be tested for compatibility.

SYSTEM SOFTWARE

Libraries

The programming language of the HP 2000F is HP BASIC, a derivation of Dartmouth BASIC. The software system contains three levels of libraries for user convenience and security: Private, Group, and Public.

The Private Library is a personal storage area for users programs and files. Only the individual user has access to his own files.

Group library consists of routines accessible to a group of 100 users. The programs and files are stored by the Group Master whose account number ends in 000.

Public library programs and files are available to all users. The System Master, user A000, controls the contents of this library.

Security and Accounting

Each user is assigned an unique account number and password with which he signs on the system. This same number is used by the accounting system that automatically records the time each user spends on the system and the amount of storage used by each.

User Library

The user library, over 800 BASIC programs contributed for users, has been tested and documented by HP. The library is segmented into five categories:

- Data Handling and Programming Utilities
- Scientific and Numerical Analyses
- Operations Research and Business Applications
- Education
- Demonstration Routines

System Specifications

PHYSICAL CHARACTERISTICS

All HP 2000 F Systems are configured in a two-bay cabinet. The two-bay cabinets are wired for either 60 Hz or 50 Hz phase power. The single bay cabinet is wired for either 115V, 60 Hz or 230V, 50 Hz power. The HP Site Preparation Manual should be consulted for additional guidelines concerning electrical and environmental conditions.

Physical Model	Description	Dimensions (Inches)			Weight
		Height	Width	Depth	
2000F-200*	Basic System	67-1/4	42	37-3/4	920 lbs (418 kg)
2000F-205*	Basic System	67-1/4	42	37-3/4	803 lbs (364,6 kg)
2754B	Free standing disc file System console	40	30	24	422 lbs (191,2 kg)
12980A	Optional line printer	37	40	39	225 lbs (102 kg)
12982A	Optional line printer	41-1/4	37-1/4	25	500 lbs (227 kg)
12982A	Optional line printer	46	46	34	900 lbs (409 kg)
12984A	Optional line printer	22-1/4	23-1/2	22	185 lbs (24 kg)

*These figures do not include system console which is listed separately.

Allow 23 inches in front of unit for service. Also line printer should be installed on a table in order to provide proper working height.

POWER

- HP 2000F-200, split phase
Phase 1: 11 amps
Phase 2: 12 amps
HP 2000F-205 Basic System, split phase
Phase 1: 9.1 amps
Phase 2: 6.6 amps
HP 2000F-205, Disc, three phase
Phase 1, 2, 3, starting, 8.3 amps each.
Phase 1, 2, 3, running 1.6 amps each.
HP 2754B: 1.5 amps @ 115 Vac
HP 12980A: 6 amps @ 115 Vac
HP 12982: 10 amps @ 115 Vac
HP 12984A: 4.4 amps @ 115 Vac

System Support

HARDWARE SUPPLIED

- Central computer, including:
32,768 word memory
Direct Memory Access
Extended Arithmetic Instructions
Power-Fail Interrupt with Automatic Restart
Memory Parity Check with Interrupt
Floating Point Hardware
Time Base Generator
Terminal computer, including:
8,192 word memory
Extended Arithmetic Instructions
Power-Fail Interrupt with Automatic Restart
Memory Parity Check with Interrupt
Multi-speed Asynchronous 16-Channel Multiplexer for
Bell 103A Data Sets and Hard-wired Terminals
Processor interconnecting hardware
One system disc storage option.
High-Speed Tape Reader and Interface
Heavy-duty System Console (Modified Teletype
ASR-35) and Interface
9-Channel Mag Tape 800 cpi, 45 ips
Double bay cabinet 115/230V, split phase, with com-
puter and disc rack slides
Paper Tape Reroller
2000F software, installation, checkout and accessories

SOFTWARE SUPPLIED

- HP 2000F Time-Sharing BASIC Operating System
HP 2000F Loader
HP 2000F Communications Processor System
HP 2000F User Library

DOCUMENTATION SUPPLIED

- HP 2000F System Listing
HP 2000F Manual of BASIC language training slides
HP 2000F Operators Guide
HP 2000F Programmer's Guide (5 each)
HP 2000F Quick Reference card for BASIC (20 each)
HP BASIC Program Library Handbooks and Addenda
HP Educational Users Group Library Manuals
All System hardware manuals

SUPPORT AND SERVICE

HP installs and checks out the system and for ninety days provides a complete service contract at no charge. This includes a preventive maintenance visit. Service and preventative maintenance contracts commencing after the ninety days are available for a nominal fee.

On-site training during installation, on-site training for the system operators is provided by HP systems engineers. Further programming and analysis assistance is available.

ORDERING INFORMATION

System Disc Options

Each HP 2000F order must include one and only one system disc option.

HP 2000F-200 Moving-head storage, 4.9M byte disc cartridge, power supply, and interface, 115V, 60 Hz. The disc drive is an HP 12960A disc subsystem.

Transfer rate: 312K bytes per second
Rotation speed: 2400 rpm
Seek time: Track to track, 7 ms
Average, 67 tracks, 30 ms
Maximum, 203 tracks, 55 ms

HP 2000F-205 Moving-head mass storage, 23.5M byte disc file, controller, power supply, and interface, 115V, 60 Hz. Expandable up to 184M characters. The disc drive is an HP 12965.

Transfer rate: 312K bytes per second.
Rotation speed: 2400 rpm
Seek time: Track to track, 10 ms maximum
Average, 32 ms maximum
Maximum, 60 ms

HP 2000F-500 230V, 50Hz version of option 200

HP 2000F-505 230V, 50Hz version of option 205

System Options

HP 2000F-003 32 Terminal Capability, including an additional Multispeed Asynchronous 16 Channel Multiplexer for 103A Type Data Sets and hard-wired terminals

-010 Replace 800 cpi Magnetic tape subsystem with 1600 cpi phase encoded, 45 ips subsystem

-015 230V, 50Hz operation

Line Printer Options

HP 12980A Line Printer Subsystem, 200 lines/minute; 132 columns/line, 64 character set, 115V, 60Hz.

-015 230V, 50Hz operation

-001 150 lines/minute, 96 character set

-016 Same as -001, 230V, 50Hz operation

HP 12982A Line Printer Subsystem, 600 lines/minute, 132 columns/line, 64 character set



HP 12982A-015 230V, 50Hz operation
HP 12982A-001 400 lines/minute, 96 character set,
115V, 60Hz
HP 12982A-016 230V, 50Hz version of 001
HP 12984A Line Printer Subsystem, 300 to 1100
lines/minute. 80 columns/line.
64 character set.
HP 12984A-015 230V, 50Hz

Cables

Multiplexer to data sets: (male-male)

30062-60004	25 ft.
30062-60007	50 ft.
30062-60010	100 ft.

Multiplexer to terminal: (male-female)

30062-60006	25 ft.
30062-60009	50 ft.
30062-60012	100 ft.

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5952-4557(22) Printed in U.S.A. 2/74