SPERRY UNIVAC
1100/90 Series:
A Natural Path

SPERRY ✦ UNIVAC

SPERRY UNIVAC 1100/90 CENTRAL COMPLEX CONFIGURATION

| Input/Output Processor | Subsystem Power Control | Input/Output Processor | SPC | Input/Output Processor | SPC | Input/Output Processor | SPC |

| Main Storage Unit | 2MW / 2MW | Main Storage Unit | | Main Storage Unit | | Main Storage Unit |

| 16KW Buffer / Central Processor Unit | Cooling Unit | 16KW Buffer / Central Processor Unit | Cooling Unit | 16KW Buffer / Central Processor Unit | Cooling Unit | 16KW Buffer / Central Processor Unit | Cooling Unit |

| System Support Processor | System Support Processor | System Console(s) | Motor Alternator(s) |

| Subsystem Access Unit | Subsystem Access Unit | Subsystem Access Unit | Subsystem Access Unit |

■ Minimum Configuration

SPERRY UNIVAC 1100/90 vs. 1100/80

As a SPERRY UNIVAC 1100/80 user, you have been accustomed to all the advantages of:

☐ stable, reliable hardware

☐ flexibility in configuring processors and peripherals to fit a variety of workloads

☐ a mature, functionally rich and powerful, yet continually evolving operating system

You have also found that as your organization evolves, so have your data processing requirements. The challenge is to adapt to the growing demands for maximized throughput while optimizing costs and providing investment protection for hardware and software.

The SPERRY UNIVAC 1100/90 range of systems has evolved to meet those challenges with increased speed, capacity, performance, flexibility, cost-effectiveness, and efficiency.

1100/90 CONFIGURATIONS

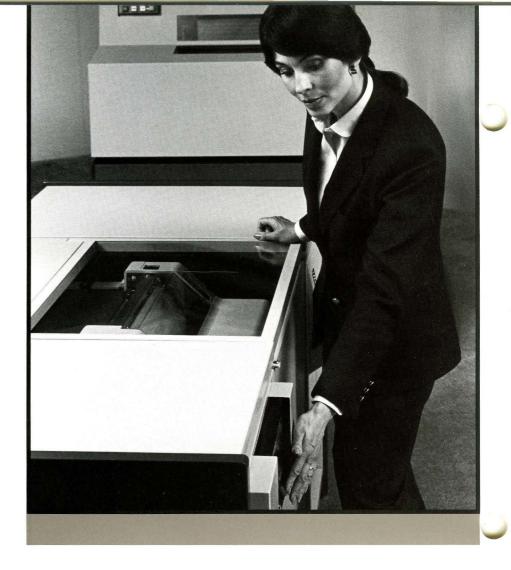|	
Central Processor Unit	1–4
Input/Output Processor	1–4
Main Storage Unit	1–4[1]
System Support Processor	1–2[2]
Subsystem Access Unit	0–4
Cooling Unit	1–4
Console	1–4[3]
Motor Alternator Sets	1–N[4]
Subsystem Power Control	0–4

[1] 2 Mw—4 Mw per MSU
[2] 2 SSps for multiprocessors
[3] One is master console system
[4] Determined by power requirements and redundancy needed

MAXIMIZED THROUGHPUT

- The advanced design of the 1100/90 system provides three to four times the performance of an 1100/80 system (e.g., an 1100/91 vs. an 1100/81 or 1100/94 vs. 1100/84).

  Growth is flexible by simply adding components in the areas required, whether it's memory, peripherals, or communications capability.

- Memory size has been increased to double that of the largest 1100/80— to a maximum of 16 million words. More and larger programs can be held simultaneously in memory, minimizing overhead and reducing swapping activities.

- Input/output performance is also a determining factor in throughput. The 1100/90's I/O processor offers exceptional intelligence, power, and transfer rates—and enough channels to handle the most demanding applications.

OPTIMIZED COST

- State-of-the-art LSI technology and advanced logic packaging provide an outstanding price-performance ratio.

- Peripheral compatibility is extended through the 1100/90, assuring that virtually all 1100/80 peripherals can be used with the 1100/90— protecting your investment and providing a path for expansion.

- Superior performance can help to decrease operating costs by increasing productivity. Users can do more, in less time.

- Contributing to cost-effectiveness is a reduced demand for environmental resources. As an example, the 1100/91—with similar CPU power as a 4-processor 1100/84 system— requires half the floor space, uses about half the electrical power, and needs about half the cooling power.
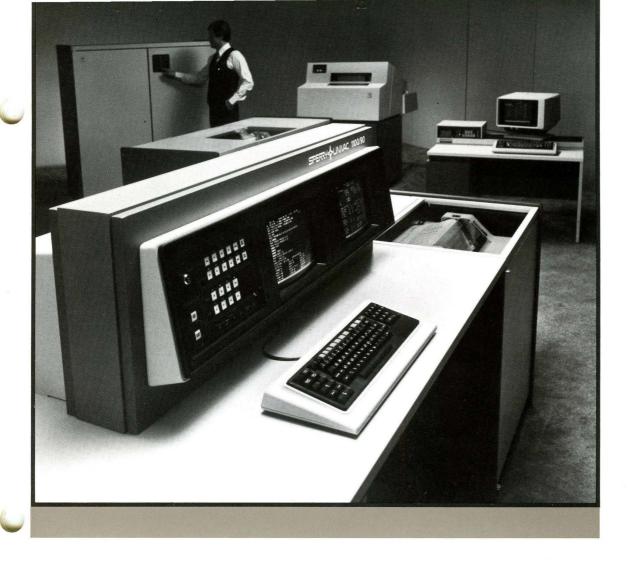
1100/90 vs. 1100/80

Technology Comparison	Improvement
Circuit Switching time	5:1
Logic density per chip	10:1
Logic density per PCB	22:1
PCB number reduction	10:1

TECHNOLOGY USED

	1100/90	1100/80
CPU logic	Gate array ECL .4 nanosec. switch time	ECL 2.2 nanosec. switch time
Logic Packaging	High Performance Packaging	Multi-layer Packaging
Main Storage	65K chip, ECL	16K chip, TTL

INVESTMENT PROTECTION

- The 1100/90 incorporates the latest technology, taking advantage of improvements in size, speed, and capabilities, and passes those benefits along to you.

□ Your investment in hardware and software is secure.

With an assured path for expansion, virtually all 1100/80 peripherals are supported—in fact, most peripherals are usable throughout the 1100 Series. And the compatibility will extend into the future.

While the 1100/90 and OS 1100 include powerful new features to meet additional data processing demands, compatibility with other members of the 1100 Series family is maintained. You can take advantage of the exciting new hardware and software facilities available, while protecting your substantial investment in existing hardware and software.
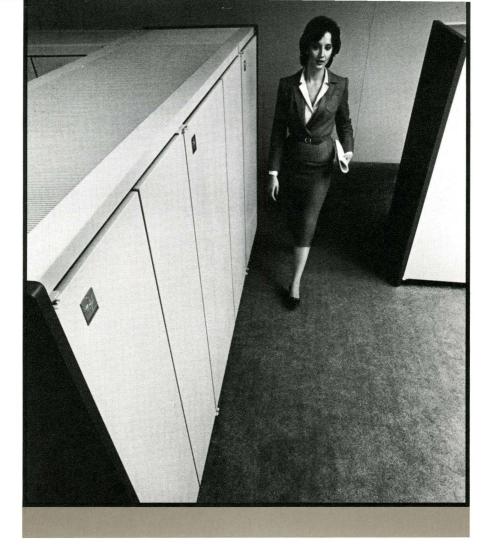
1100/90 CPU FEATURES

□ Integral 16KW high-speed cache memory buffer, 8KW instruction buffer, 8KW operand buffer (system total of 64KW with 1100/94)

□ Extended instruction set for improved commercial program execution time

□ 3-deep instruction pipeline with register conflict avoidance

□ Buffer invalidate logic operates in parallel with normal buffer accesses

□ Overlapped memory writes from buffer with buffer block reads

□ Architectural extensions for:
  • increased user address space
  • additional security and protection
  • improved system interconnection
  • virtual machine support

1100/90 IOP vs. 1100/80 IOU

	1100/90	1100/80
Word channels (max.)	40	24
Transfer rate (per module)	18M BPS	2.2M BPS
Block MUX channels (max.)	24	7
Transfer rate (per module)	17.2M BPS	1.6M BPS
IOP Transfer Rate	37.5M BPS	15M BPS

Additional functionality in block mux
Block mux conforms to U.S. Government FIPS specifications

AVAILABILITY, RELIABILITY, MAINTAINABILITY (ARM)

The 1100 Series systems are renowned for being available, reliable, and maintainable. The 1100/90 system continues this tradition with the most advanced ARM characteristics of any 1100 Series system.

Better than 100% data through checking is achieved because all data paths in the central complex, as well as most control logic, is checked thoroughly. Parity, error correction codes, and duplication with comparison techniques are used to verify data accuracy.

The System Support Processor (SSP) plays a key role in system ARM. It is a dedicated minicomputer, providing a maintenance and control interface to all central complex components. The SSP is a combination of the 1100/80's System Maintenance Unit and System Transition Unit.

Over 250 error detectors in the CPU trap and log error conditions. Additional checking and location are handled by the SSP's "in unit card test" and high speed scan compare.

Because of their modular design, the 1100/90 system can be easily partitioned into smaller systems for maintenance without disrupting the entire system. Remote maintenance using the SSP communicating with SPERRY UNIVAC's TRACE (Total Remote Assistance Center) further adds to system maintainability.
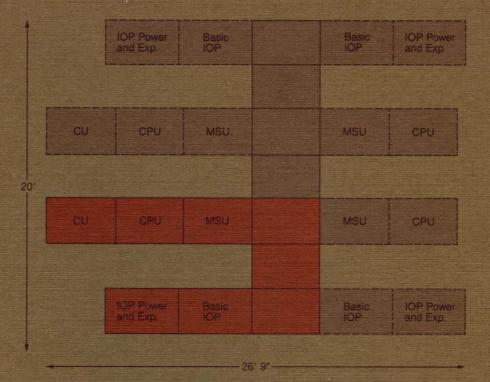
POWER REQUIREMENTS

□ Power is supplied to the central complex from a 400 Hz motor alternator
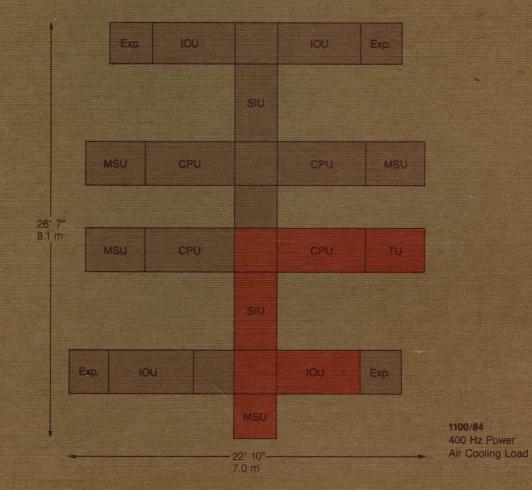
□ 50/60 Hz power is also used

COOLING REQUIREMENTS

□ 10:1 increase in logic density over 1100/80 requires liquid cooling

□ Cooling unit circulates chilled liquid through CPU

□ Each pair of HPP cards is cooled via a coldplate

□ Cooling unit cools 1 or 2 CPUs

□ Includes control of coolant level, temperature, and environmental status

1100/90 CENTRAL COMPLEX LAYOUT

IOP Power and Exp.	Basic IOP		Basic IOP	IOP Power and Exp.

CU	CPU	MSU	MSU	CPU

CU	CPU	MSU	MSU	CPU

IOP Power and Exp.	Basic IOP		Basic IOP	IOP Power and Exp.

20'

26' 9"

1100/91

400 Hz Power	300 KVA
50/60 Hz	7 KVA
Liquid Cooling Load	58K BTU
Air Cooling Load	49K BTU

1100/84 CENTRAL COMPLEX LAYOUT

Exp.	IOU		IOU	Exp.

SIU

MSU	CPU		CPU	MSU

MSU	CPU		CPU	TU

SIU

Exp.	IOU		IOU	Exp.

MSU

26' 7"
8.1 m

22' 10"
7.0 m

1100/84

400 Hz Power	67 KVA
Air Cooling Load	221K BTU

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