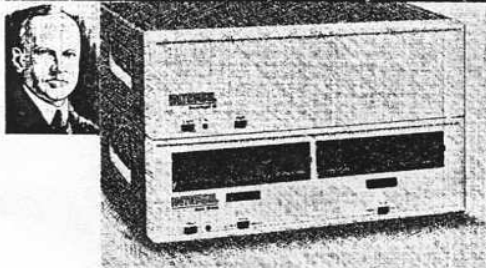


INTERSIL

LSI-8 OEM Microcomputer System



"The most common
commodity
in this country is
unrealized potential."

—Calvin Coolidge, 1872-1933

NEU von INTERSIL »LSI-8« Die Leistungsfähigkeit eines „Minis“ realisiert mit einem „Mikro“

INTERASIL bietet jetzt auch eine LSI-8 in Kartenform an, deren Kernstück der Mikroprozessor IM6100 ist. Von diesem CMOS-Mikroprozessor IM6100, der sich schon seit einigen Jahren auf dem Markt befindet, ist bekannt, daß er den Instruktionssatz der PDP®-8/E verarbeiten kann. Mit den auf der LPU Karte befindlichen Komponenten, wie dem 2Kx12 Monitor-ROM, den beiden als RS232 oder 20mA programmierbaren Schnittstellen, dem Speichererweiterungs-, DMA- und Echtzeit-Baustein sind nur noch wenige externe Zusätze nötig um ein System zu kombinieren, das man berechtigt LSI-8 nennen kann. Bei der Kombination mit dem M4Kx12 (4Kx12 Bit) CMOS-Speicherkarten mit Batterie-Back-Up auf der Karte ist es sogar möglich, diese LSI-8 in leistungssparendem CMOS mit Datenerhalt über Versorgungsspannungsausfälle zu realisieren. Wo es weniger auf Leistungsaufnahme und Datenerhalt sondern mehr auf Platzeinsparung ankommt, bietet sich die Karte M32Kx12 (32Kx12 Bit) mit 16kBit dynamischen NMOS RAM's an. Bis zu 8 Floppy-Disk-Laufwerke können mit einer Floppy-Disk-Controller-Karte betrieben werden. Mit einer Interface Karte kann das INTERASIL-Analogdatenerfassungssystem REMDACS angeschlossen werden. Hier eine Kurzübersicht über die lieferbaren Komponenten:

6912 CPU-Karte

IM6100 CMOS Mikroprozessor, 12 Bit mit 2 seriellen Schnittstellen RS232 oder 20mA Stromschleife (TTY) programmierbar, Speichererweiterungs-, DMA-, Echtzeit-Controller, Monitor ROM (2Kx12), Intercept BUS TTL-gebuffert.

6901 M4Kx12

CMOS-Speicherkarte 4Kx12 Bit mit Batterie-Back-Up auf der Karte.

6915 M32Kx12

Speicherkarte 32Kx12 Bit, dynamische 16K Bit NMOS RAM's

6914 IFDC

Floppy-Disk-Controller für bis zu 8 Laufwerke, Single oder double Density

6916 REMDACS INTERFACE

Parallel-Schnittstelle zum Anschluß und Betrieb von INTERASIL's Analogdatenerfassungssystemen REMDACS.

6961 Chassis II

12 Steckplätze, ohne Stromversorgung

6962 Chassis III

10 Steckplätze, mit Stromversorgung

6975 Dual Floppy D

Doppel Floppy-Disk-Laufwerk.

Weitere Karten befinden sich in der Entwicklung, wie z.B. eine Karte, die den Anschluß Omnibus®-kompatibler Peripheriegeräte an diese LSI-8 erlaubt, ein Interface für Digital- und Audio-Kassettengeräte, Speichererweiterungs-Controller über 32k hinaus und weitere serielle Ein- und Ausgabekanäle.

Dieses LSI-8 System ist vor allem deshalb interessant, weil es sich auf eine der größten Software-Bibliotheken abstützen kann, die es bei Computern gibt, und wovon die Mehrzahl der Programme käuflich zu erwerben sind. Modifikationen sind, falls überhaupt nötig, meist gering und wenig aufwendig.

PDP®-8/E und Omnibus® sind Markenzeichen der Digital Equipment Corporation.

Introduction

Intersil now supplies both hardware and software for the LSI-8. Hardware is available as a complete system, such as the Intercept III, or a chassis with several printed circuit boards. These may also be purchased separately. Software is readily available from three sources:

1. Intersil — for special handlers, utilities, and cross assemblers.
2. DEC — for systems software including OS/8.
3. DECUS — for a large spectrum of applications.

Intersil warrants all boards and systems for a period of 90 days after which equipment will either be factory repair or replace for a flat fee of \$400.00 plus parts. A ten day turnaround from factory receipt is guaranteed.

Options to be offered by Intersil in the future include:

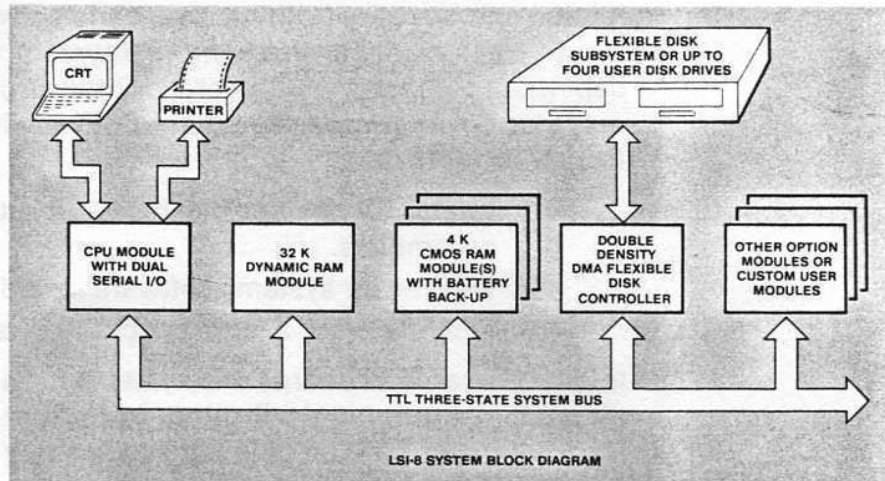
- Parallel floating point processing
- Cassette interface
- Hard disk capability

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LSI-8 OEM Microcomputer System

FEATURES

- Low cost
- Powerful PDP®-8/e compatible processor
- Compact size
- Modular design
- Expandable memory (to 32K words)
- Bus supports easy I/O expansion
- Resident firmware monitor/debugger
- Large available software base
- Low power
- Supports interrupt and DMA operations



GENERAL DESCRIPTION

Intersil's LSI-8 OEM microcomputer system is a general purpose computer which executes PDP®-8/e software. It is ideally suited to applications requiring a powerful, reliable, easily serviced computer system. It's small size, extensive options, and low power requirements allow tailoring to a broad range of uses.

The LSI-8 is a complete system with a feature-packed CPU, many I/O and memory options, and several physical configurations. It is available as a fully configured "turn-key" system (also known as Intercept III) or as a set of modules configurable by the user.

A three-state, multi-slot TTL bus allows system expansion to the full memory and I/O capacity.

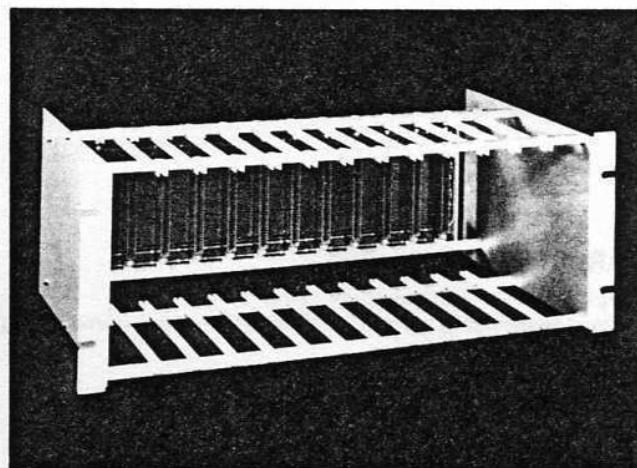
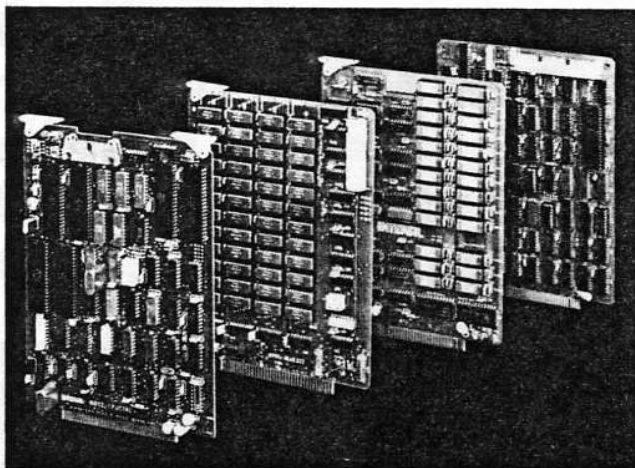
As a complete pre-packaged system, the LSI-8 provides a low-cost solution to medium volume application problems such as

small business computers, office computers, inventory management systems, laboratory systems, etc.

For high volume applications, all LSI-8 components and modules are available separately at very competitive prices. Applications include dedicated process control systems, remote data acquisition systems, instrument control systems, etc.

Regardless of the configuration, Intersil's LSI-8 system provides a flexible and reliable solution to applications requiring low cost, high performance and fast delivery. Many options are available, and all systems and modules are shipped fully tested with documentation and schematics. PDP®-8/e software compatibility means software is available from hundreds of existing sources or easily developed using the mature development tools available.



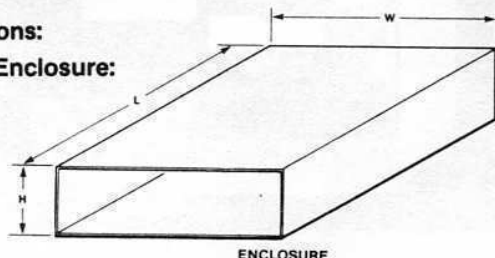


SPECIFICATIONS

PHYSICAL CHARACTERISTICS

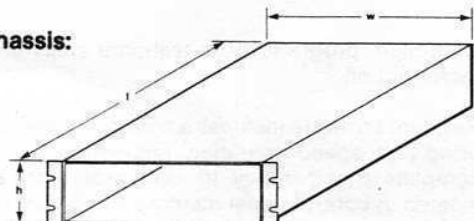
Dimensions:

System Enclosure:

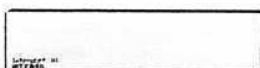


ENCLOSURE

System Chassis:



CHASSIS

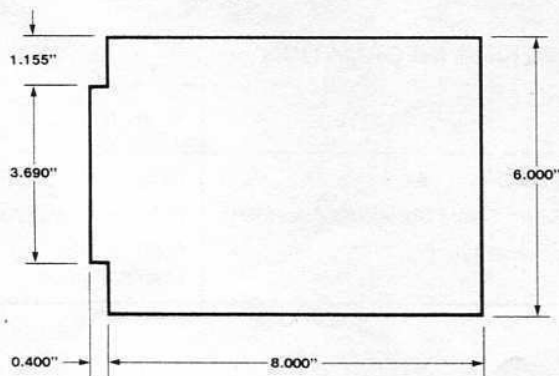


FRONT PANEL

h = 5.25" (1)	5.25" (2)
w = 17.75" (1)	19.06" (2)
l = 21.00" (1)	21.68" (2)
H = 6.06" (3)	6.37" (4)
W = 19.75"	12.68" (5)
L = 21.68"	

- 1 DIMENSIONS BEHIND MOUNTING EARS.
- 2 TOTAL OUTSIDE DIMENSIONS
- 3 ENCLOSURE LESS FEET
- 4 ENCLOSURE STANDING HEIGHT WITH FEET
- 5 STACKING HEIGHT OF TWO ENCLOSURES WITH FEET

Printed Circuit Cards:



ELECTRICAL CHARACTERISTICS

Intercept III

DC Power Supplies: +5V \pm 5% at 12A
 +12V \pm 5% at 1A
 -12V \pm 5% at 1A

AC Power Requirements

Frequency: 50 or 60 Hz
 Voltage: 115 or 230V AC
 Current: 1.5A maximum

Dual Flexible Disk Drives

AC Power Requirements

Frequency: 50 or 60 Hz
 Voltage: 115 or 230V AC
 Current: 3A maximum (60 Hz)
 3.2A maximum (50 Hz)

ENVIRONMENTAL CHARACTERISTICS

Operating Temperature: 0°C to 50°C
 Humidity: 10% to 90% (no condensation)

ORDERING INFORMATION

Order No.

CPU with 32K of memory, enclosed with power supplies, cables, documentation:	6940 Intercept III
Double Density Floppy Disk Controller:	6914-IFDC
Dual Flexible Disk Drives, enclosed with power supplies, cables, documentation:	6975-IFDD
Documentation:	6998 Intercept III User's Manual

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HARDWARE FEATURES

- Powerful PDP®-8/e instruction set
- Two independent serial ports (RS-232 or 20mA current loop)
- 14 selectable baud rates
- Resident memory extension controller
- Real-time clock
- Auto-start vector option
- Single compact board
- Low power
- Reliable

FIRMWARE FEATURES

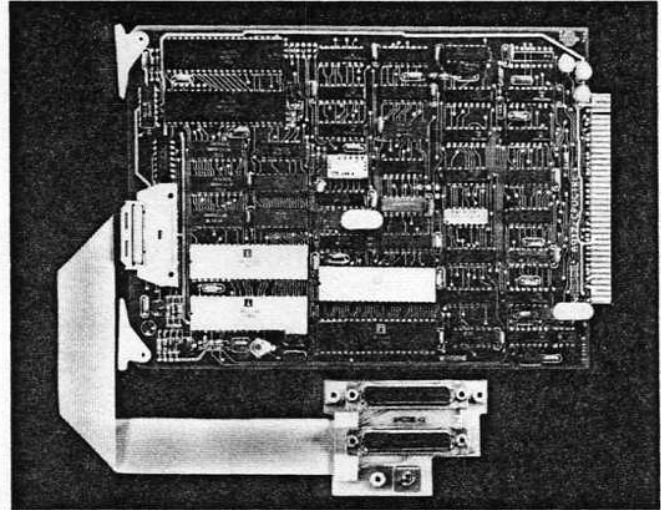
- Resident debugger
- Memory/register examination/modification
- Up to 8 breakpoints
- Single instruction in RAM or ROM
- Single instruction trace in RAM or ROM
- Snapshot mode
- Operating system bootstrap
- Memory search/search and replace
- Paper tape load/punch
- Effective address calculation for memory reference instructions

GENERAL DESCRIPTION

The 6912 CPU module is a powerful, compact central processor for the LSI-8 OEM Microcomputer System. The processor executes the powerful PDP®-8/e instruction set, and addresses up to 32K twelve bit words of memory. Two independent serial ports on board may be used for RS-232 or 20 mA current loop operation and each port may operate at one of 14 rates between 50 and 19,200 baud. The primary port emulates the PDP®-8/e terminal interface. Other hardware features include a crystal-

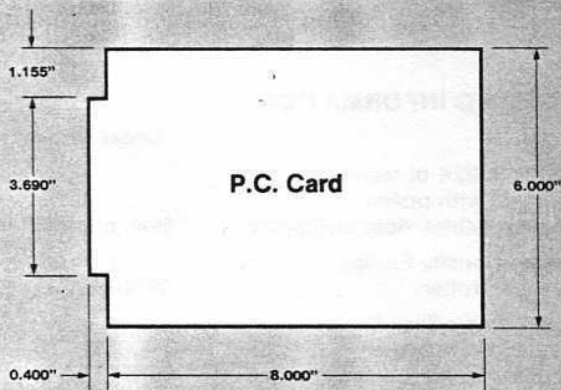
controlled, programmable real-time clock and an auto-start vector option.

Resident firmware includes a concise, powerful debugger featuring high-speed operation, highly interactive structure, and complete transparency to user programs. The firmware is located in control panel memory so no user memory space is used.



SPECIFICATIONS

PHYSICAL CHARACTERISTICS:



ELECTRICAL CHARACTERISTICS

DC Power Requirements:	400mA (typ.) at +5V	1.2A max.
	2mA (typ.) at +12V	4mA max.
	2mA (typ.) at -12V	4mA max.

ENVIRONMENTAL CHARACTERISTICS

Operating Temperature Range:	0°C to 50°C
Operating Humidity Range:	10% to 90% (no condensation)

ORDERING INFORMATION

	Order No.
Module:	6912 Intercept CPU
Ribbon Cable Serial I/O Assembly:	6925 Serial I/O Assy
Documentation:	6998 LSI-8 User's Manual

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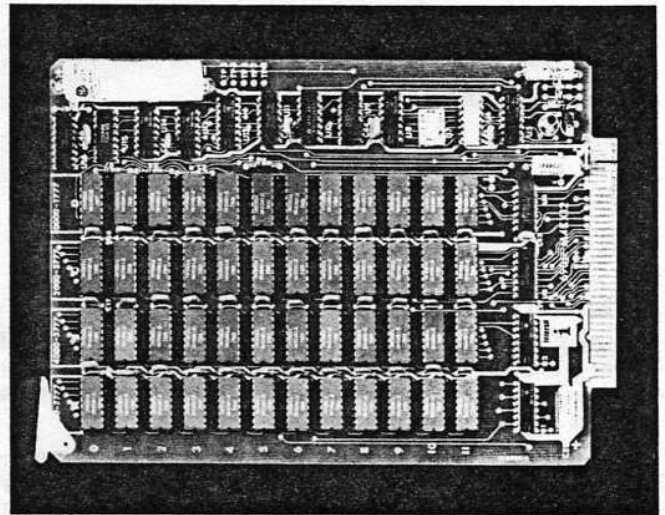
LSI-8 OEM Microcomputer System 6901 4K x 12 CMOS Memory Module with Battery Back-up

FEATURES

- Rechargeable battery back-up
- Data Retention of up to 80 days
- Low power
- Compact size
- Low cost
- Switch selectable field addressing

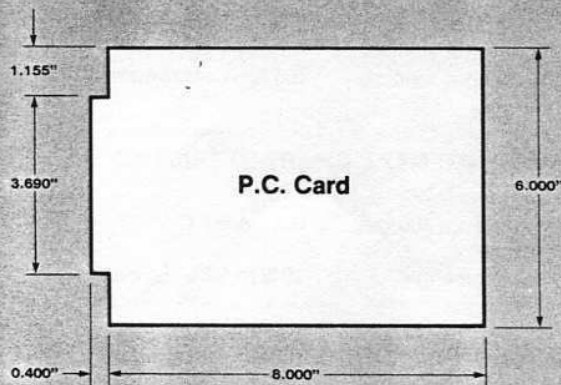
GENERAL DESCRIPTION

The 6901 CMOS memory module provides the LSI-8 System with 4096 twelve-bit words of battery-backed-up memory. The module retains its data when system power is off; an on-board rechargeable NiCad battery insures an uninterrupted power supply to the CMOS RAMs for up to 80 days. When system power is on, the NiCad batteries are recharged for future use. Up to eight 6901 modules may be installed in a system by setting on-board switches so each module responds to a unique memory field.



SPECIFICATIONS

PHYSICAL CHARACTERISTICS



ELECTRICAL CHARACTERISTICS

DC Power Requirements: 150mA at +5V typical, 500mA maximum

ENVIRONMENTAL CHARACTERISTICS

Operating Temperature Range: 0°C to 50°C
Operating Humidity Range: 10% to 90% (no condensation)

ORDERING INFORMATION

	Order No.
Module:	6901-M4KX12
Documentation:	6998 LSI-8 User's Manual

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LSI-8 OEM Microcomputer System 6915 32K x 12 RAM Board

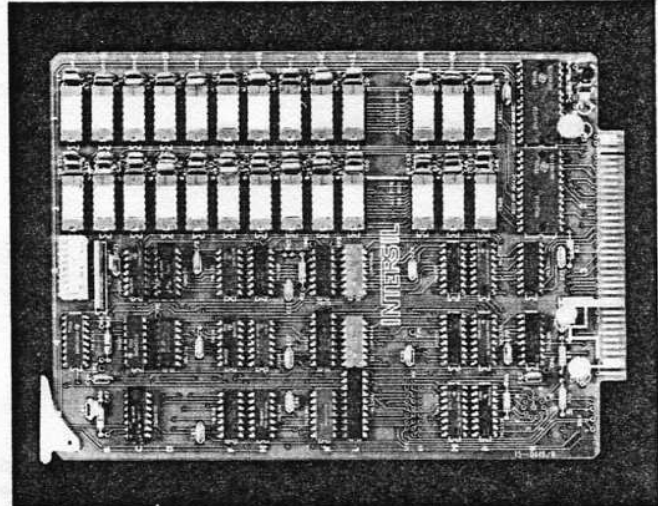
FEATURES

- 32K x 12 full memory complement for the LSI-8
- Many options for custom applications
- Low power
- Small parts count for reliability
- Compact size

GENERAL DESCRIPTION

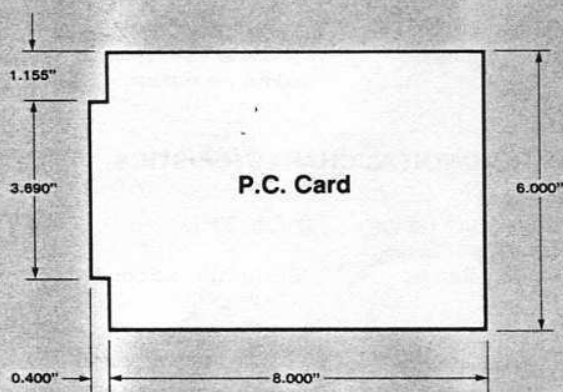
The 6915 memory module provides 32K twelve-bit words of memory for the LSI-8 system, using NMOS dynamic RAMs for low cost and small parts count. All necessary refresh circuitry is resident on the module.

The module has a host of options for custom application flexibility. These include selective 4K field disable for mixed memory (e.g., dynamic and battery-backed) systems, RAM inhibit for shadowing ROM over RAM, and parity storage for off-board error checking.



SPECIFICATIONS

PHYSICAL CHARACTERISTICS



ELECTRICAL CHARACTERISTICS

DC Power Requirements: 560mA (typ.) at +5V, 1.2A max.
160mA (typ.) at +12V, 840A max.
10mA (typ.) at -12V, 12A max.

CPU Crystal Frequency: 3.3 MHz maximum

ENVIRONMENTAL CHARACTERISTICS

Operating Temperature Range: 0°C to 50°C
Operating Humidity Range: 10% to 90% (no condensation)

ORDERING INFORMATION

	Order No.
Module:	6915-M32KX12
Documentation:	6998 LSI-8 User's Manual

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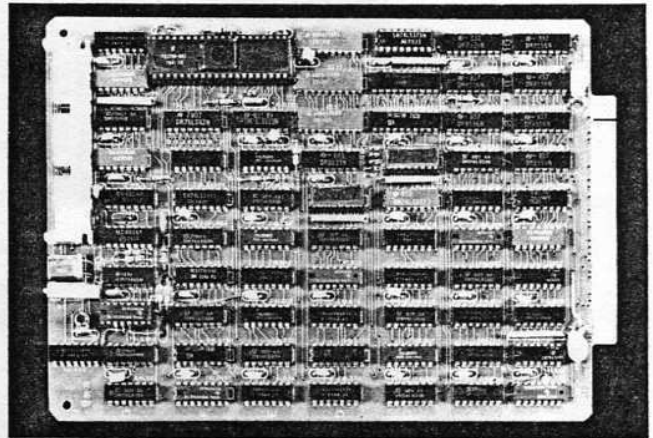
LSI-8 OEM Microcomputer System 6914 IFDC Double Density DMA Flexible Disk Controller

FEATURES

- Single or double density
- Up to 8 industry standard flexible disk drives
- Single or double sided
- Industry standard or non-standard formats for custom applications
- Automatic address verification
- Automatic CRC on address and data
- Variable stepping rates
- DMA transfer of data in 8-bit or 12-bit modes
- Capability to format diskettes
- Full diagnostics

GENERAL DESCRIPTION

The 6914 flexible disk controller board provides inexpensive, reliable, compact mass storage for the LSI-8 system. It uses a single bus slot and controls up to eight diskette drives with a maximum sub-system capacity of 10 megabytes. Many types of drives can be used, including single or double-density and single or double-sided. Data integrity is ensured by employing address verification and cyclic redundancy checking (CRC). Data transfer rate is maximized by using direct memory access.

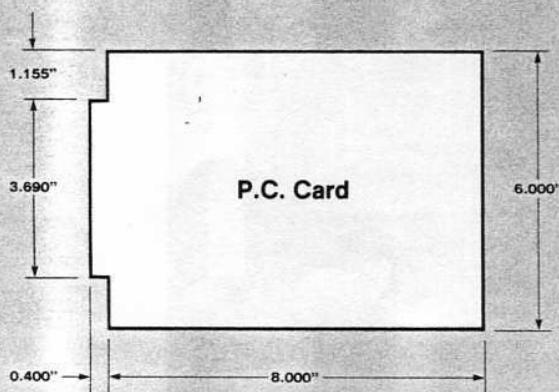


Because the 6914 uses an advanced LSI controller, the user has great flexibility in choosing the drive and/or format best suited to the application. Stepping rates, sector sizes, and sector positions can be varied to increase both data capacity and throughput.

For users wishing pre-packaged disk drive sub-systems, Intersil offers the 6975 Dual Flexible Disk Drives, consisting of two enclosed drives with power supply, cables, and documentation.

SPECIFICATIONS

PHYSICAL CHARACTERISTICS



ELECTRICAL CHARACTERISTICS

DC Power
Requirements
Voltage:

+5V \pm .25V
+12V \pm .6V

Current:

1.3A nominal, 2.2A max.
10mA nominal, 35mA max.

ENVIRONMENTAL CHARACTERISTICS

Operating

Temperature Range: 0°C to 50°C

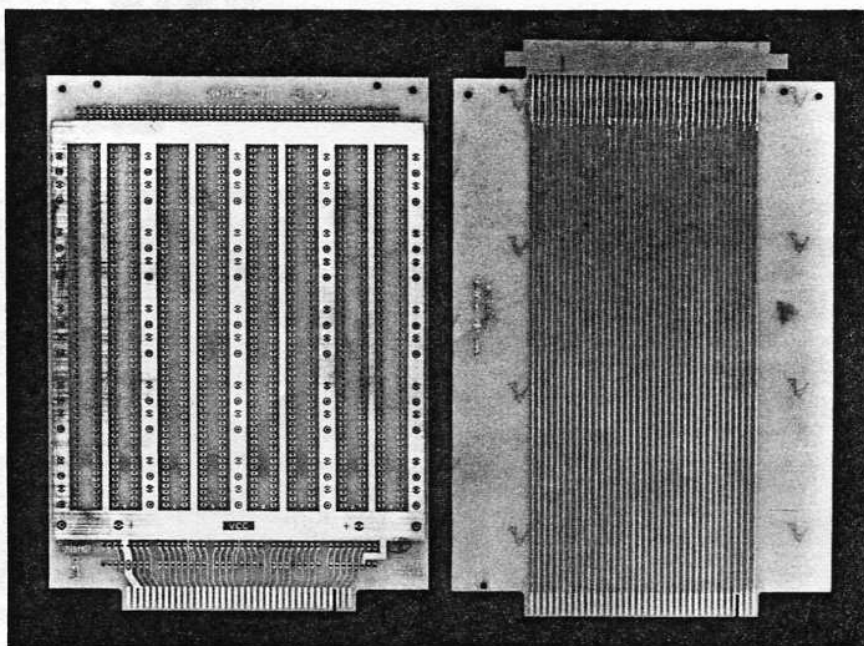
Operating

Humidity Range: 10% to 90% (no condensation)

ORDERING INFORMATION

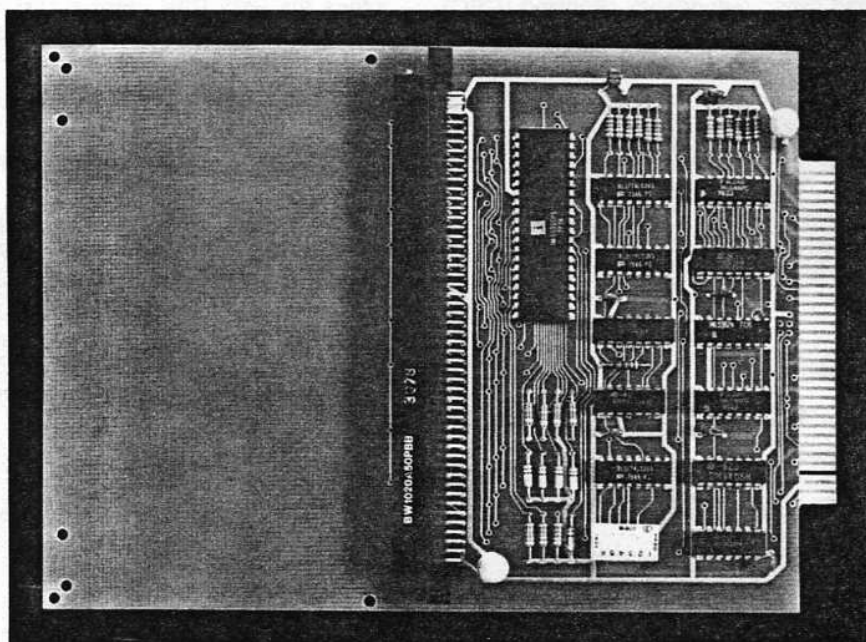
	Order No.
Module:	6914-IFDC
Flexible Disk Drive Cable:	6926- IFDCCABLEASSY
Dual Flexible Disk Drives:	6975-IFDD
Documentation:	6998 LSI-8 User's Manual

ADDITIONAL MODULES



6905 — Wirewrap-Universal Wirewrap Module (Left)

6906 — Extend-Card Extender Module (Right)



6917 — REMDAC-Parallel I/O Module