IC MASTER

VOL. I

1983

Engineering design begins with the IC MASTER

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IC MASTER

VOLUME I

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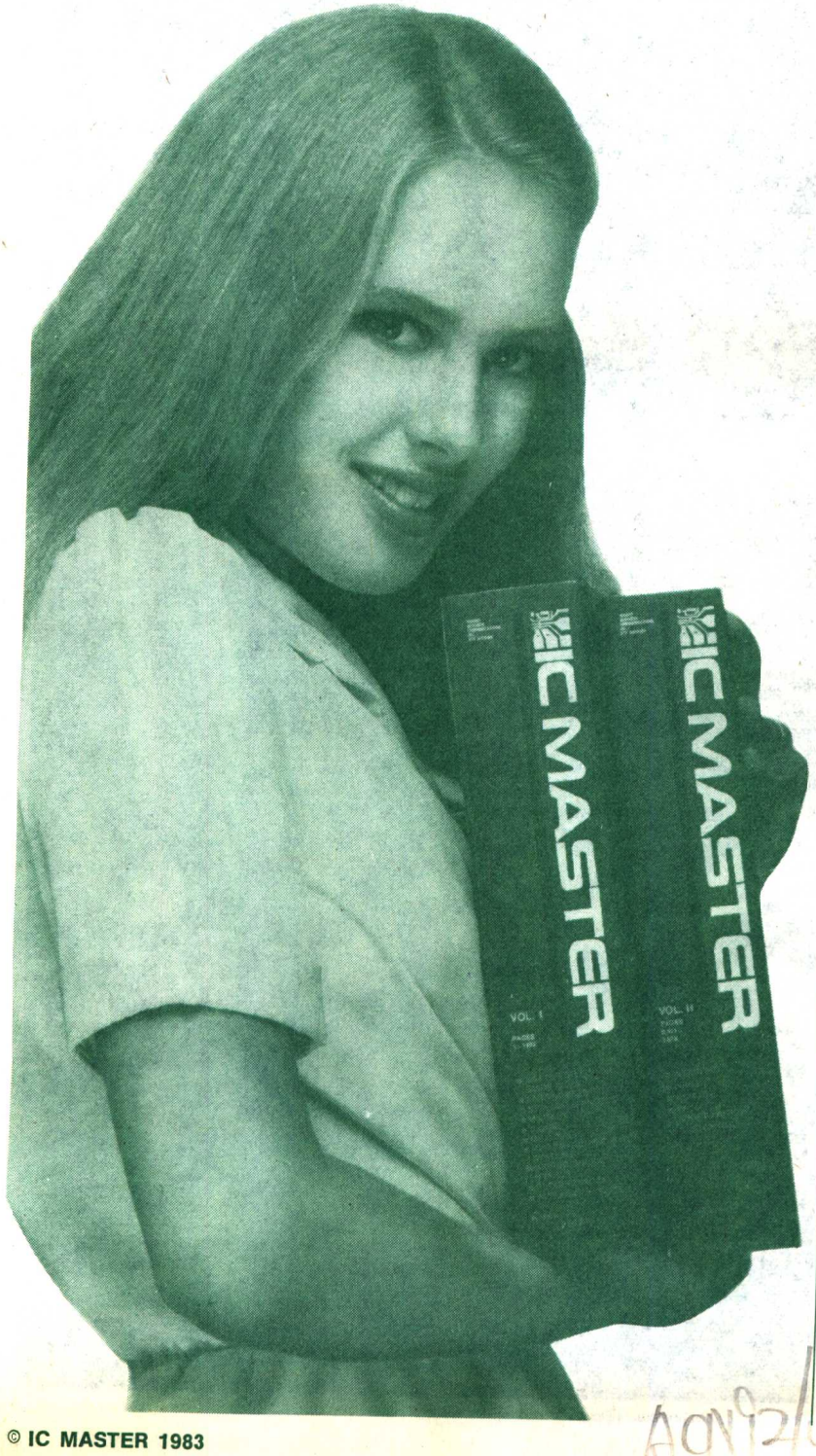

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VOLUME I

Engineering design begins with the IC MASTER

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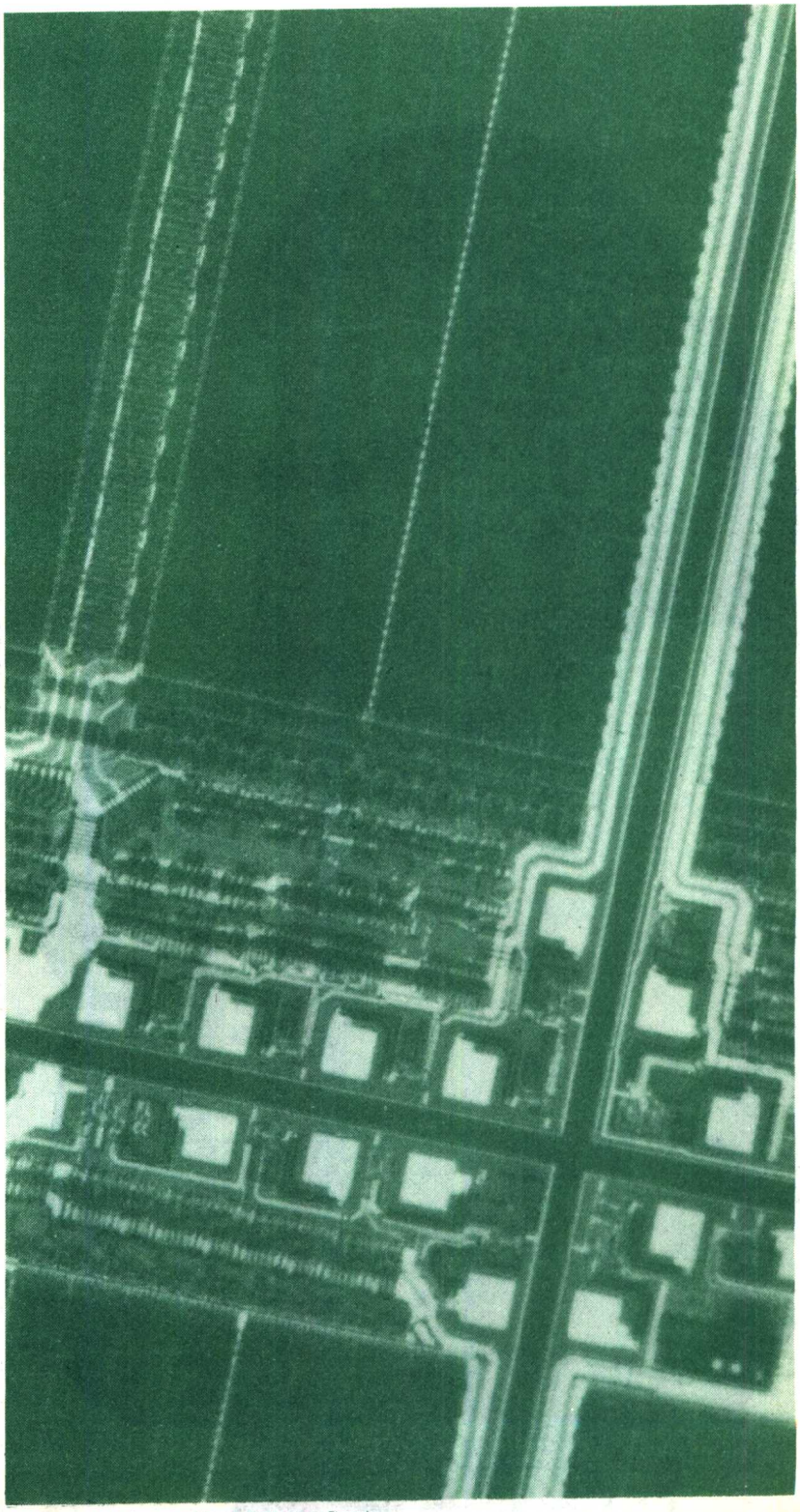

CMOS Static RAM (Integrated Device Technology Photo)

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IMPORTANT FEATURES OF YOUR IC MASTER

ONE COMPLETE SOURCE

IC MASTER is the original and only complete guide to currently available integrated circuits, microcomputer boards, development systems, PROM programmers, gate arrays, and other related components of concern to the design engineer. It has become the first place to look in the critical selection of ICs, boards, systems, and equipment. If only one device can fit the requirements of a new design or if hundreds are available, you can find out in seconds by using the IC MASTER.

EASY TO USE

The IC MASTER saves you time. No longer do you have to spend long, tedious hours and days searching through manufacturers' catalogs and data sheets for information. The MASTER gives you—at your fingertips—an easy way to narrow your IC choices quickly, accurately, and systematically with the knowledge that you have just surveyed the entire industry.

PART NUMBER INDEX

This revolutionary index lists all device types made by over 225 manufacturers in numerical sequence excluding prefixes or suffixes. You can find a device number even though you do not know either the full part number or even the manufacturer. Once a basic device number is located in the index, you can obtain instant identification of all manufacturers making a device by that number, regardless of function, and determine the full part number designation. All page references to data sheet material and any existing application note abstracts are also provided. The Part Number Index should not be used as an alternate source directory because two manufacturers may use the same part number, by coincidence, for totally different devices.

PART NUMBER GUIDE

The information in this guide allows you to break down each company's part numbering system into product temperature ranges, packaging variations, and functions. It is an invaluable tool for the elimination of costly and time-consuming ordering errors caused by lack of standardization from manufacturer to manufacturer in part numbering systems.

APPLICATION NOTE DIRECTORY

Application note descriptions are arranged alphabetically by function and application category. Each note's description identifies the specific device or devices featured, provides a 25 to 30 word abstract, and identifies both the manufacturer that originated the note and the specific application note number. This section provides all the information necessary for you to update your application note files speedily, or thoroughly research the existence of application note material for a specific design problem.

MILITARY PARTS DIRECTORY

Cross reference chart identifies all IC devices having received JAN qualification. This chart includes a cross reference listing of device numbers and corresponding military standard 38510 slash numbers and vice versa.

MILITARY DEVICE TESTING TABLE

This table identifies IC manufacturers who test to military standard 38510 and the screening to military standard 883 that they provide.

MILITARY PARTS INDEX

This guide to JAN qualifed parts makes it possible to search devices by function, and to determine if a JAN qualified part exists for a particular functional need.

ADVERTISERS' PRODUCT INDEX

This index directs the reader to detailed product information for the parts whose manufacturers have included data sheets in IC MASTER. When you are looking for data on a particular manufacturer's products, this index provides the fastest way to find the information you seek.

ALTERNATE SOURCE DIRECTORY

The most comprehensive industry-wide, pin-for-pin, functional equivalent Alternate Source Directory ever compiled. This directory is updated by asking all IC manufacturers to identify each competitive device for which they make a pin-for-pin substitute.

MASTER SELECTION GUIDE

Each guide is organized by specifications and categories to direct the reader easily and quickly to the device most likely to fill the requirements of a particular application. Once the reader finds those devices that are closest to his needs, he sees available sources, and is directed to additional data if provided by advertisers.

MANUFACTURERS AND DISTRIBUTORS DIRECTORY

Locations and phone numbers are given for manufacturers' field sales offices, representatives, and distributors, both domestic and international.

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Typical Problems Solved by IC MASTER

• Find All Products That Meet Desired Specifications
• Obtain Data For A Particular Device • Decode Part Numbers
• Determine Alternate Sources • Plus Much More

An engineer can use IC MASTER to solve a wide variety of problems. Answers provided to engineers by IC MASTER can range from finding the device that best meets a particular set of specifications to helping to determine which family of devices should be used in building a system.

Some of the typical problems that IC MASTER can solve are illustrated in the following examples:

Who makes a TTL 4-bit binary full-adder with look-ahead carry?

All functions are listed, in alphabetical order, in the Master Selection Guide Index. In this case, the engineer looks under adders; in the column adjacent to adders, he sees that all types of adders are listed. The particular adder being sought is covered in the Digital section of IC MASTER.

Now that the engineer knows that the devices he seeks are catalogued in the Digital section, he can turn to the Digital Master Selection Guide and see the page number where information on these devices can be obtained.

When he turns to this page, he will notice that certain device numbers and manufacturers are printed in bold face type while others appear in regular type face. Bold face type is used whenever a part's manufacturer has provided a data sheet for the device in IC MASTER. The page number assigned to the data sheet also appears in bold face type so that the engineer can turn to it directly.

Who Makes a High-Speed 12-Bit, Analog-to-Digital Converter With Guaranteed ± ½ LSB Linearity and 13-μsec or Faster Conversion Time?

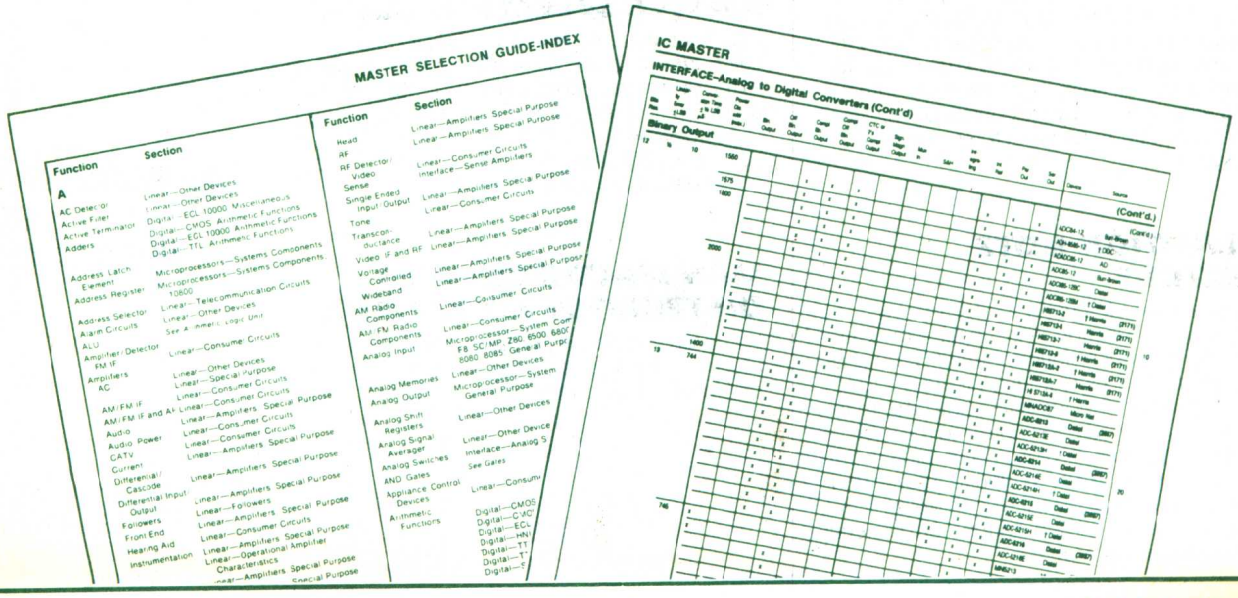
Many manufacturers make devices that meet these specifications including Analog Devices, Burr-Brown, Datel-Intersil, Data Device Corp., Harris, Hybrid Systems, Micro Networks, and Teledyne Philbrick.

The Master Selection Guide for Interface makes it possible for an engineer to find every device that meets the above specifications, regardless of who makes it, in seconds.

The Interface section is organized by product classification; an engineer can turn immediately to the category of interest such as analog switches with drivers, multiplexers, a/d converters with binary output a/d converters with decimal output, d/a converters, display drivers, error checking circuits, keyboard encoder-decoders, line drivers, line transceivers, memory and peripheral drivers, sense amplifiers, etc.

To find every 12-bit analog-to-digital converter with guaranteed ± ½ LSB linearity and 13-μsec or faster conversion time, all an engineer has to do is turn directly to the analog-to-digital converter section of the Interface Master Selection Guide.

In this section, devices are organized by key parameters. Under resolution, the engineer finds 12-bit; next he looks under linearity error for ± ½ LSB and then he looks under conversion time for devices with 13-μsec or faster specifications.



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Ways to Use IC Master

What application notes are available on emulating logic functions with PROMs?

IC MASTER provides the most complete listing of application notes available in print. It is easy to find the right application notes by looking in IC MASTER because the application note directory is organized by function.

There are two ways to look up an application note. An engineer can turn to the index page and find the appropriate function or category such as instrumentation amplifiers, multiplexers, or PROMs.

If he knows the device number, he can look it up in the part number index at the front of IC MASTER and see all of the application notes concerning that device. For example, under 8275, a programmable CRT controller listed in the part number index, the reader is referred to the listing for an Intel application note entitled "CRT Terminal Design Using the 8275 and 8279."

To find an application note concerning the use of PROMs to emulate logic functions, the engineer can turn to the application note section on PROMs and see what notes can be of help.

Each listing in the application note directory provides a detailed descriptive passage for the note, gives its length and identifies the manufacturer who publishes it.

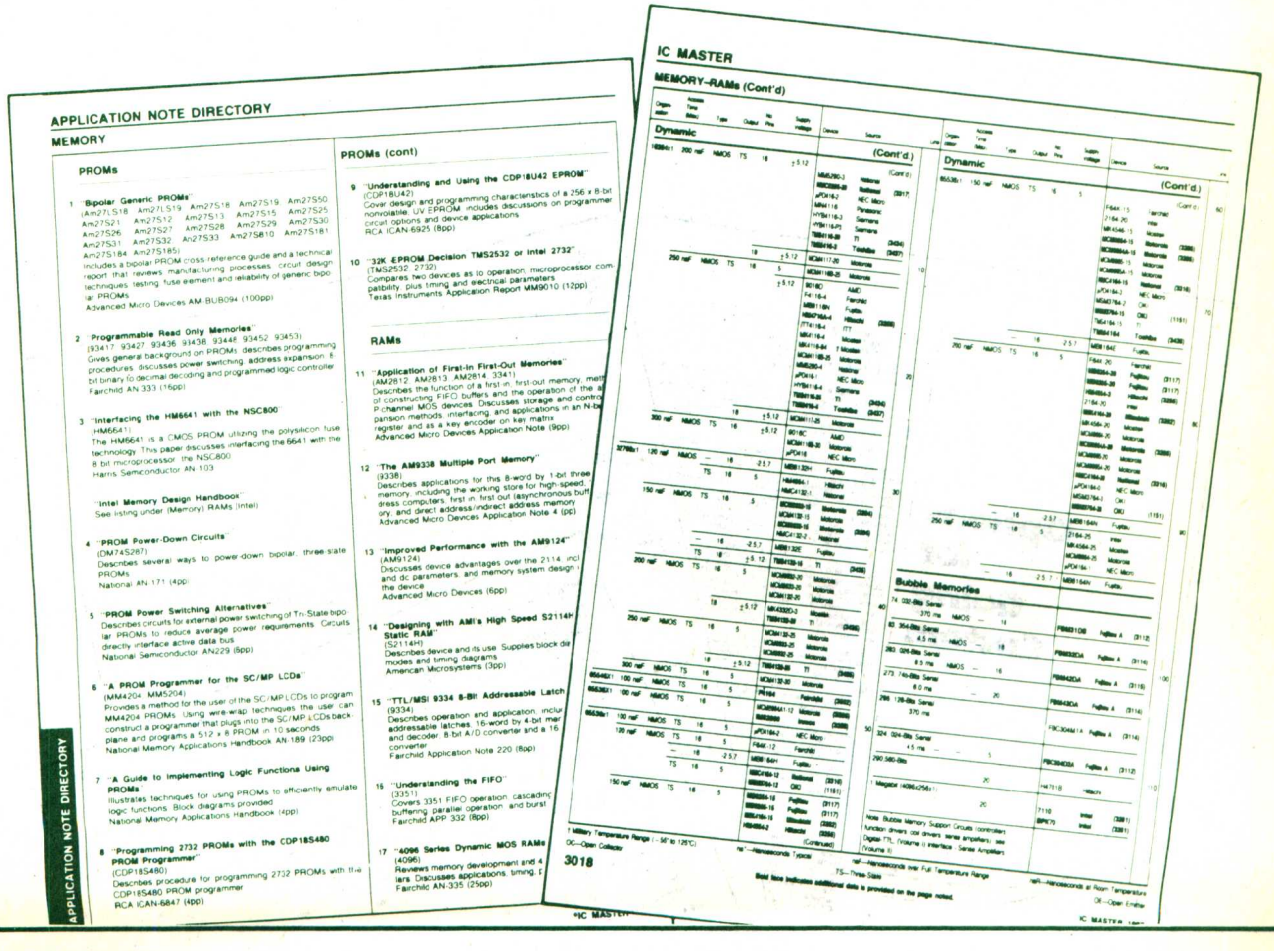
Who makes a 64K dynamic RAM with an access time of 120 ns or faster?

The Memory Section in IC MASTER has a Master Selection Guide which provides initial selection information and data on PROMs, RAMs, ROMs and other types of memories. Each device is characterized by organization (words and bit/word) and access time.

For example, if an engineer was looking for a 64K dynamic RAM, his first step would be to determine organization (words and bit/word). Next, he would locate the desired access time.

When devices are available made by various processes such as NMOS, CMOS, ECL, TTL, etc., the engineer can choose the device that best suits his needs. For further definition, output type, supply voltage and number of pins are listed along with the manufacturer's part number and name.

The engineer's next step in his memory selection process would be to study the applicable data for 64K dynamic RAMs provided by IC manufacturers and pick the most appropriate device. Literally hundreds of pages of engineering data on memories appear in IC MASTER.



Ways to Use IC Master

I need to choose between a full custom or a semi-custom/gate array solution to my design problem.

To help designers weigh custom solutions against semi-custom/gate array approaches, IC MASTER provides a Master Selection Guide on Custom/Semi-Custom and a special section entitled "Options for Going Custom." In this section, the advantages and disadvantages of various custom/semi-custom techniques are covered.

The capabilities of IC manufacturers are tabulated for easy comparison; additional information such as available design aids and testing services is also provided.

My application requires microcomputer boards. How do I start?

Single and multiple board microcomputers are arranged by manufacturer. Under each manufacturer, boards are grouped in sequence according to data word size and, within that grouping, according to the microprocessor on which they are based. Hardware and software support are listed for each board.

A supplementary selection guide is included for microcomputer support boards. The boards are grouped according to supported computer systems.

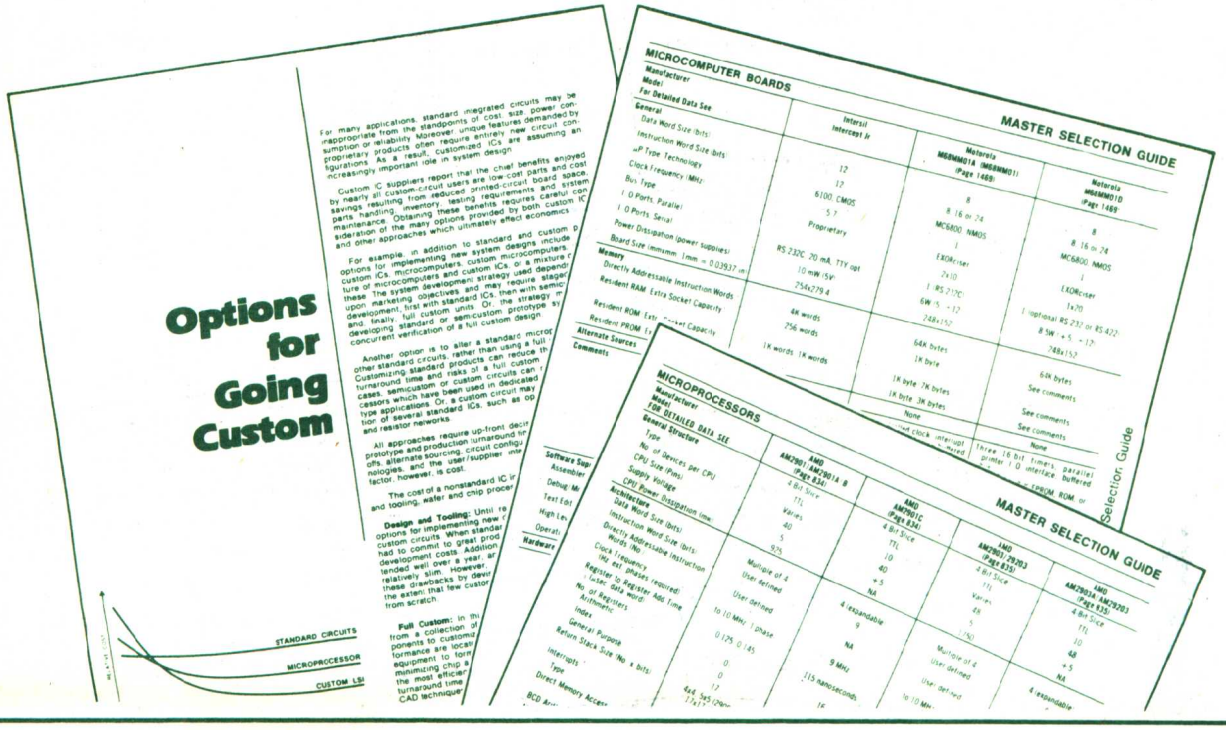
With so many mircoprocessors available, where do I begin?

Simply turn to the Master Selection Guide for Microprocessors. There you will find a listing of all microprocessors currently available and key parameters allowing you to narrow down your selection to a range of products that will meet your major requirements.

Once the microprocessor that best fits the application has been chosen, the next step is to go to the "system components" section. Here all of the available peripheral devices that work with each microprocessor are arranged by function. Thus, if the microprocessor that has been selected is the 8048, system components specifically developed for use with the 8048 are listed, organized by function.

A "general purpose" section follows the "system components" section and describes devices that can be used with more than one microprocessor family.

Finally, hundreds of pages of the latest microprocessor data sheets, provided by IC manufacturers, are presented, arranged in alphabetical order by manufacturer. Each data sheet is easily found thanks to boldfaced page-number references in the Master Selection Guide.



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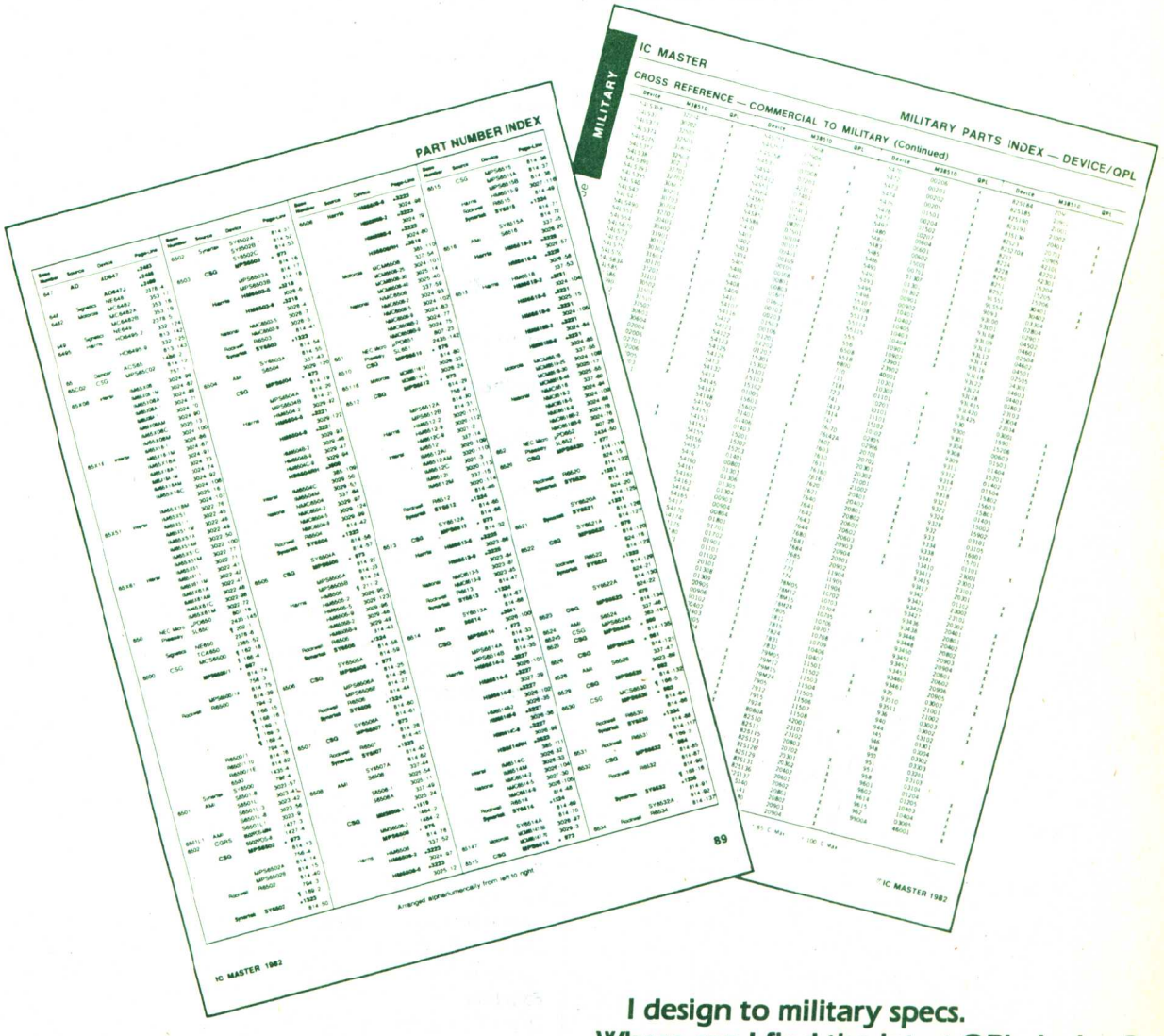
Ways to Use IC Master



If an engineer knows that the basic part number is 6508, where does he look first?

The place to look is the part number index. Here, all of the prefixes and suffixes have been stripped away to leave only the basic number. This makes it possible to see the manufacturer of every part with the same base number at a glance. Parts with the same base number, it should be kept in mind, are not necessarily identical; in fact, one could be a memory while another might be a linear device. (To find replacements, one should look in the alternate source directory, not in the part number index.)

Under 6508, the engineer would see a number of devices listed and the page and line numbers where data is given for each of the devices. If an application note concerning any of the devices is available, the location of its listing is also shown.

I design to military specs. Where can I find the latest QPL devices?

The IC MASTER includes a comprehensive military parts directory. Within this directory, tables and charts are provided to answer virtually every information need of the engineer involved in military or high-reliability equipment design.

All integrated circuits with JAN qualification are listed in IC MASTER. A cross reference table, relating device numbers to mil spec numbers, is arranged according to device number. A second table, arranged by M-38510 number, makes it possible to look up the part number when the mil spec number is known.

In addition, ICs are also organized by product section and function, which allows the user to find the proper IC without having to know either the commercial or the military part number.

This section of IC MASTER also includes a table showing the capability of manufacturers to perform MIL-STD-883 screening and high-reliability testing.

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MASTER SELECTION GUIDE INDEX

(Guide to Product Categories)

When you know the desired function and need specific devices that perform this function, use this index first. Alphabetically, look up the function in which you are interested. For information on appropriate devices that provide this function, you will be directed to one of the following Master Selection Guides:

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Microprocessor	1042
Microprocessor Development Systems	1606
Microcomputer Boards	1748
Microcomputer Support Boards	1900
Interface	2410
Linear	2882
Memory	3448
PROM Programmers	4000
Custom/Semicustom	4108

HOW TO USE THE MASTER SELECTION GUIDES

These guides provide sufficient information to help the engineer make an initial product selection, or to lead him to a group of device numbers and their manufacturers. They make it possible to find the products most likely to satisfy the needs of a particular application. All devices that appear in a selection guide are included in the Part Number Index. If the part number for a device is known by the reader, by referring to the Part Number Index, he can see the page and line number for data on that device. If the manufacturer of the device has included a data sheet in IC MASTER with supplementary data, the location of this data sheet is also listed.

All integrated circuits which are intended for consumer applications (such as calculator chips, TV game chips, and organ frequency dividers) are combined under one heading for the reader's convenience; **Linear**—Consumer Circuits. The TTL major families, TTL, TTL-LS, TTL-H, and TTL-S, have been combined to facilitate function comparisons. The **Microprocessor** section includes, in addition to system selection charts, microprocessor system components grouped under the microprocessor type for which they are suited. The **Microcomputer Board** section groups boards alphabetically by manufacturer, and then in sequence according to data word size and the microprocessor on which they are based.

The **Microprocessor (MPU) Development Systems** and **PROM Programmers** are ordered alphabetically by manufacturer, and then described by specific performance parameters.

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Function	Section
A	
AC Detector	Linear—Other Devices
Active Filter	Linear—Other Devices
Active Terminator	Digital—ECL 10000, Miscellaneous
Adders	Digital—CMOS, Arithmetic Functions Digital—ECL 10000, Arithmetic Functions Digital—TTL, Arithmetic Functions
Address Latch Element	Microprocessors—Systems Components
Address Register	Microprocessors—Systems Components; 10800
Address Selector	Linear—Telecommunication Circuits
Alarm Circuits	Linear—Other Devices
ALU	*See Arithmetic Logic Unit*
Amplifier/Detector FM IF	Linear—Consumer Circuits
Amplifiers	
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AM/FM IF	Linear—Consumer Circuits
AM/FM IF and AF	Linear—Consumer Circuits
Audio	Linear—Amplifiers, Special Purpose
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CMOS	Linear—Arrays, Special Arrays
Custom Digital	Digital—ECL 100K, Miscellaneous Digital—Special Linear—Other Devices

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Transistor	Linear—Arrays, Transistor Arrays
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ASTRO	Interface—Transmitters-Receivers
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Audio Circuits	Linear—Consumer Circuits
Audio Equalizer	Linear—Consumer Circuits
Audio Noise Pop Noise Canceller	Linear—Consumer Circuits
Reduction Dolby	Linear—Consumer Circuits
Audio Signal Delay	Linear—Consumer Circuits
Automotive Circuits	Linear—Consumer Circuits

B

Balanced Modulator/ Demodulator	Linear—Other Devices
Bandpass Filters	Linear—Telecommunication Circuits
Bar Graph Display Driver	Interface—Display Drivers
Baseband Channel Amplifier	Linear—Telecommunication Circuits
Baseband Modem	Linear—Telecommunication Circuits
BASIC Interpreter	Microprocessor—System Components; SC/MP, 8080
Baud Rate Generator	Digital—Special Interface—Serial Transmitters, Receivers
BCD Rate Multiplier	Digital—CMOS, Miscellaneous
Bidirectional Bus Driver	Microprocessor—System Components; 3,000, 8,008, 8048, 8080, 8085
Bidirectional Port	Microprocessor—System Components; 2650
Bidirectional Transceiver	Interface—Line Circuits, Line Transceivers Microprocessor—System Components PACE
Binary Rate Multiplier	Digital—CMOS, Miscellaneous
Bit Programmable I/O	Microprocessor—System Components; SC/MP
Bit Rate Generator	Digital—CMOS, Miscellaneous Interface—Transmitters-Receivers Microprocessor—System Components; Macrologic CMOS, 6100

Function	Section
Blowout Resistant Transistor	Linear—Other Devices
Branch Control Unit	Microprocessor—System Components
Bubble Memories	Memory—Bubble Memories
Bubble Memory Controller	Digital—TTL Interface—Display Drivers, Microprocessor —9900, Peripheral Controllers
Bubble Memory Coil Driver	Linear—Other Devices
Bubble Memory Function Driver	Linear—Other Devices
Bubble Memory Sense Amplifier	Linear—Other Devices
Bucket Brigade Device	Linear—Other Circuits *Also See Analog Shift Registers*
Buffers	Digital—CMOS, Buffers/Inverters Digital—ECL 10000, Buffers Digital—HNIL/HTL, Buffers/Inverters Digital—TTL, Buffers/Inverters Digital—TTL, Drivers Microprocessor—System Components
Bus Interface Circuits	Interface—Line Circuits Microprocessor—System Components
BOART (Bus Oriented ART)	Interface—Transmitters-Receivers
Bus Receiver	Digital—ECL 10000, Miscellaneous Interface—Line Circuits
Bus Switch	Digital—TTL, Miscellaneous
Bus Transceiver	Digital—ECL 10000, Miscellaneous Digital—TTL, Miscellaneous Interface—Line Circuits Microprocessor—System Components; MicroNOVA, 2900, 6800
Bus Translator	Microprocessor—System Components

C

Calculator Circuits	Linear—Consumer Circuits
Calculator, Display Interface	Linear—Consumer Circuits
Calculator, Keyboard Entry Sequence Memory	Linear—Consumer Circuits
Calculator, Printing	Linear—Consumer Circuits
Camera Exposure Control	Linear—Consumer Circuits
Camera, Movie (Sound)	Linear—Amplifiers, Special Purpose; Consumer Circuits
Camera, Strobe Light Control	Linear—Consumer Circuits
Capacitive Input	Microprocessor—System Components; 1000
Cassette Cartridge Data Handler	Microprocessor—Peripheral Controllers
Cassette Controller	Microprocessor—System Components; 8080, 8085A, Peripheral Controllers
CATV Amplifiers	Linear—Consumer Circuits
CB Circuits	Linear—Consumer Circuits Linear—Phase Locked Loop Circuits
CCD Memories	Memories—RAMs, CCD Memories
CCD Memory Driver	Interface—Memory and Peripheral Drivers

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Function	Section
Central Processing Unit	Microprocessor—System Components; F8, MicroNOVA, M380, PACE, PPS-4 SBPO400, TLCS-12, Z80, 1600, 1800, 3000, 4000, 6100, 6500, 6800, 8008, 8080, 8085A, 9440, 14500
Character Generators	Memory—Character Generators
Chronographs/ Watches	Linear—Consumer Circuits
Citizens Band Radio Circuits	*See CB Circuits*
Click Suppressor	Linear—Telecommunication Circuits
Clock	Digital—CMOS, Oscillators/Dividers Linear—Consumer Circuits
Clock Buffer	Interface—Memory and Peripheral Drivers Microprocessor—System Components; 6800
Clock Driver	*See Drivers*
Clock Generator	Microprocessor—System Components; PPS-4, 2900, 4004, 8000, 8080
Clock Generator/ Driver	Digital—TTL, Miscellaneous
Codec	Linear—Telecommunication Circuits
Code Converters	Memory—Code Converters
Code Identification System (Manchester)	Digital—CMOS, Miscellaneous
Coin Box Circuits	Linear—Telecommunication Circuits
Compander	Linear—Telecommunication Circuits
Comparators, Digital	Digital—CMOS, Arithmetic Functions Digital—ECL 10000, Arithmetic Functions Digital—ECL III, Arithmetic Functions Digital—HNIL/HTL, Arithmetic Functions Digital—TTL, Arithmeic Functions
Comparators, Linear	Linear—Comparators, Single Comparators Linear—Comparators, Dual Comparators Linear—Comparators, Quad Comparators Linear—Phase Locked Loop Circuits
Comparator, Voltage (Analog Input-Digital Output)	Digital—TTL, Miscellaneous
Complementary Output Elements	Digital—TTL, Miscellaneous
Complementer	*See Nines Complementer*
Compressor (Compander)	Linear—Telecommunication Circuits
Constant Current Source	Linear—Other Devices
Contact Bounce Eliminator	Digital—CMOS, Miscellaneous Digital—TTL, Miscellaneous
Control Element	Microprocessor—System Components; 4004
Control ROM	Microprocessor—System Components; IMP, 5781
Control Store Sequencer	Microprocessor—System Components; 2900, General Purpose
Converters Analog to Digital	Interface—Analog to Digital Converters, Binary Output Interface—Analog to Digital Converters, Decimal Output Linear—Other Devices
BCD to Binary	Digital—TTL, Miscellaneous
BCD to Binary/ Binary to BCD	Digital—TTL, Miscellaneous
Binary to Phone Pulse	Digital—CMOS, Miscellaneous
Digital to Analog	Interface—Digital to Analog Converters
Frequency to Voltage	Linear—Other Devices
Logic Level	Digital—CMOS, Buffers/Inverters
Serial to Parallel	Digital—Special
Voltage to Frequency	Linear—Other Devices
Correlation	Digital—Special Linear—Other Devices
Counter	Digital—CMOS, Counters, Miscellaneous Digital—ECL III, Counters Digital—HNIL/HTL, Counters Digital—TTL, Counters, Miscellaneous Digital—Special
Binary	Digital—CMOS, Counters, Binary Digital—ECL 10000, Counters, Binary Digital—ECL 95000, Counters Digital—ECL III, Counters Digital—HNIL/HTL, Counters Digital—TTL, Binary Counters Up Digital—TTL, Binary Counters Up/Down Digital—Special
Decade	Digital—CMOS, Counters, Decade Digital—ECL 10000, Counters, Decade Digital—ECL 95000, Counters Digital—ECL III, Counters Digital—HNIL/HTL, Counters Digital—TTL, Decade Counters Up Digital—TTL, Decade Counters Up/Down Digital—TTL, Miscellaneous Digital—Special
Counter Logic Control	Linear—Phase Locked Loop Circuits
Counter Time Base	Digital—Special Microprocessor—System Components; Z80
Count Extender	Linear—Phase Locked Loop Circuits
Counting Register	Digital—ECL 100K, Counters
CPU	*See Central Processing Unit*
CRC Generator/ Checker	Interface—Error Checking Circuits Microprocessor—System Components; Macrologic Bipolar
CROM	*See Control ROM*
Crosspoint Array	Linear—Telecommunications Circuits
Crosspoint Switches	Interface—Analog Switches, Multiplexers
CRT Controller	Microprocessor—System Components; 6500, 6800, 8000, 8048, 8080, 8085, 9900, Peripheral Controllers
CRT Video Timer Controller	Microprocessor—System Components; General Purpose
Crystal Oscillator	*See Oscillators*
Current Booster/ Amplifier	Linear—Amplifiers, Special Purpose
Current Sensing Interface Gate	Digital—TTL, Miscellaneous
Custom Arrays	*See Custom/Semicustom Section*
Custom Circuits	*Custom Section*

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Function	Section
D	
Darlington Switch	Interface—Memory and Peripheral Drivers Linear—Arrays
Data Access Register	Digital—CMOS, Arithmetic Functions Microprocessor—System Components; Macrologic Bipolar, Macrologic CMOS
Data Acquisition Controller	Digital—Special Interface—Memory and Peripheral Drivers Linear—Other Devices
Data Acquisition System	Linear—Other Devices
Data Encryption System	Digital—TTL, Miscellaneous; Other Digital Devices Microprocessor—System Components; Macrologic Bipolar, 6800, 8080
Data Link Controller	Microprocessor—System Components; 6800
Data Path Switch	Digital—CMOS, Arithmetic Functions Linear—Analog Switches Microprocessor—System Components; Macrologic Bipolar, Macrologic CMOS
Data Security Device	Digital—Special Microprocessor—System Components; 6800
Data Selector/ Multiplexer	*See Multiplexers*
Decade Sequencer	Digital—TTL, Miscellaneous
Decoder	Digital—CMOS, Decoders Digital—CMOS, Drivers Digital—ECL 10000, Decoders Digital—ECL 100K, Decoders Digital—TTL, Decoders Digital—CMOS, Drivers Digital—Special Interface—Display Drivers Microprocessor—System Components
FM Stereo	Linear—Consumer Circuits
Keyboard	Interface—Keyboard Encoders, Decoders
Tone	Linear—Phase Locked Loop Circuits
Deglitcher	Linear—Telecommunication Circuits
Delay Line	Linear—Other Devices
Delta Modulation System	Linear—Other Devices Linear—Telecommunication Circuits
Demultiplexer	*See Decoders*
Deskew FIFO	Memory—FIFO Microprocessors—General Purpose
Deskew—Queue Register	Interface—Error Checking Circuits
Detectors	Linear—Consumer Circuits Linear—Other Devices
Development System	Microprocessor—System Components
Dialer Circuits	Linear—Telecommunication Circuits
Digital Filter Switch	Linear—Telecommunication Circuits
Digital Mixer	*See Mixer*
Digital Modulator	Microprocessor—System Components; 6800
Digital to Analog Converters	Interface—Digital to Analog Converters
Diode Arrays	Linear—Arrays
Diode Matrix, Programmable	Digital—Special
Direct Memory Access Controller	*See DMA Controller*
Disk Memory Drivers	Interface—Memory and Peripheral Drivers
Fault Detector	Interface—Memory and Peripheral Drivers
Head Read/Write Circuit	Interface—Memory and Peripheral Drivers
Head Selector	Interface—Memory and Peripheral Drivers
Video Amplifier	Interface—Memory and Peripheral Drivers
Winchester Read/Write Circuit	Interface—Memory and Peripheral Drivers
Display Controller	Microprocessor—System Components; Macrologic Bipolar, PPS-4, 8080, Peripheral Controllers
Display Drivers	Interface—Display Drivers *Also See Drivers*
Dividers	Digital—CMOS, Oscillators/Dividers Digital—TTL, Miscellaneous Digital—Special Linear—Phase Locked Loop Circuits Linear—Other Devices
DMA Address Generator	Microprocessor—System Components
DMA Controller	Microprocessor—System Components; F8, PPS-4, Z80, 1600, 1610, 6800, 8000, 8080, 8085A, 9900, General Purpose
Double Balanced Mixer	Linear—Phase Locked Loop Circuits
DPDT Switches	Interface—Analog Switches
DPST Switches	Interface—Analog Switches
Drivers	Digital—CMOS, Drivers Digital—CMOS, Miscellaneous Digital—ECL 10000, Drivers Digital—ECL 100K, Drivers Digital—HNIL/HTL, Drivers Digital—TTL, Decoders Digital—TTL, Drivers Digital—TTL, Miscellaneous Interface—Analog Switches, Drivers Interface—Display Drivers Interface—Line Circuits Interface—Memory and Peripheral Drivers
Audio	Linear—Consumer Circuits
Counter Display	Digital—Special
DVMs	Digital—Special Interface—Analog to Digital Converters, Decimal Output
Dynamic Memory Interface	Interface—Memory and Peripheral Drivers Microprocessor—System Components; F8
Dynamic Memory Refresh Controller	Digital—TTL, Miscellaneous Interface—Memory and Peripheral Drivers Microprocessor—System Components; 6800, 8080
E	
Encoders	Digital—CMOS, Miscellaneous Digital—ECL 10000, Miscellaneous Digital—ECL 100K, Miscellaneous Digital—TTL, Miscellaneous Digital—Special
Keyboard	Interface—Keyboard Encoder-Decoders

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Function	Section
Keyboard to Binary	Digital—CMOS, Miscellaneous
Tone	Digital—CMOS, Miscellaneous Linear—Telecommunications Circuits
Error Checking Circuits	Digital—ECL10000, Miscellaneous Interface—Error Checking Circuits Microprocessor—System Components 2900
Error Pattern Register	Interface—Error Checking Circuits
Expander	Digital—TTL-Gates, AND-OR/AND-OR Invert Digital—TTL, Miscellaneous
Expander (Compander)	Linear—Telecommunication Circuits
Extender	Digital—TTL-Gates, AND-OR/AND-OR Invert

F

Facsimile, Frequency Generator	Linear—Consumer Circuits
Fast Carry Extender	Digital—TTL, Arithmetic Functions
Fast Fourier Transformer	Linear—Telecommunication Circuits
Fiber Optics Transmitter/ Receiver	Digital—TTL, Miscellaneous Linear—Other Devices Microprocessor—9900
Fiber Optics Data Link	Linear—Other Devices
Field Programmable Array Logic	Digital—TTL, Miscellaneous Memory—PLAs
Field Programmable Logic Array	Memory—PLAs Microprocessor—System Components
First In First Out Memory	Memory—FIFO Microprocessor—System Components
Flasher (LED)	Linear—Other Devices
Flip-Flops	Digital—CMOS, Flip-Flops Digital—ECL 10000, Flip-Flops Digital—ECL 95000, Flip-Flops Digital—ECL 100K, Flip-Flops Digital—ECL III, Flip-Flops Digital—HNIL/HTL, Flip-Flops Digital—TTL, Flip-Flops Digital—Special
Floating Point Arithmetic	Microprocessor—System Components; 8080
Floppy Disc Amplifier System	Linear—Amplifiers - Special Purpose
Floppy Disc Controller	Microprocessor—System Components; PPS-4, 1600, 6800, 8000, 8048, 8080, 8085A, 9900, Peripheral Controllers
Fluid Detector	Linear—Other Devices
Fluorescent Display Drivers	Interface—Display Drivers
FM Muting/Tuning Point System	Linear—Consumer Circuits
FM Radio Circuits	Linear—Consumer Circuits
FM RF/IF Amplifier	Linear—Consumer Circuits
Followers	Linear—Followers
Four Channel Sound	Linear—Consumer Circuits
Fourier Transform Circuit	Microprocessor—Peripheral Controllers
Frequency Divider	Digital—Special Linear—Consumer Circuits
Frequency Sensitive Switch	Linear—Telecommunication Circuits Linear—Other Devices
Frequency to Voltage Converter	Linear—Other Devices
FSK Modulator/ Demodulator	Linear—Phase Locked Loop Circuits
Function Generator	Linear—Phase Locked Loop Circuits

G

Games, Video	Linear—Consumer Circuits
Gas Discharge Display Drivers	Interface—Display Drivers
Gates	Digital—CMOS, Gates, Miscellaneous Digital—HNIL/HTL, Gates, Miscellaneous Digital—TTL, Gates, Miscellaneous
AND/NAND	Digital—CMOS, Gates, AND/NAND Digital—ECL 10000, Gates, AND/NAND Digital—HNIL/HTL, Gates, AND/NAND Digital—TTL, Gates, AND/NAND
AND-OR/AND-OR Invert	Digital—CMOS, Gates, AND-OR/ AND-OR Invert Digital—ECL 10000, Gates, AND-OR/ AND-OR Invert Digital—ECL 100K, Gates, AND-OR/ AND-OR Invert Digital—HNIL/HTL, Gates, AND-OR/ AND-OR Invert Digital—TTL, Gates, AND-OR/ AND-OR Invert
Complex Gate w/ Persistance Detector	Digital—Special
Exclusive OR/NOR	Digital—CMOS, Gates, Exclusive OR/NOR Digital—ECL 10000, Gates, Exclusive OR/NOR Digital—ECL 100K, Gates, Exclusive OR/NOR Digital—ECL III, Gates, Exclusive OR/NOR Digital—HNIL/HTL, Gates, Exclusive OR/NOR Digital—TTL, Gates, Exclusive OR/NOR
Majority Logic	Digital—CMOS, Gates, Miscellaneous Digital—TTL, Gates, Miscellaneous
OR/NOR	Digital—CMOS, Gates, OR/NOR Digital—ECL 10000, Gates, OR/NOR Digital—ECL 95000, Gates, OR/NOR Digital—ECL 100K, Gates, OR/NOR Digital—ECL III, Gates, OR/NOR Digital—TTL, Gates, OR/NOR Digital—Special
Gate Expander	Digital—HNIL/HTL, Gates, Miscellaneous
General Purpose Data Transceiver	Digital—TTL, Miscellaneous

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Function	Section
General Purpose Interface Circuit	Microprocessor—System Components, 6800, General Purpose
General Purpose Input/Output	Microprocessor—System Components PPS-4, TLCS-12, 1600, 4004
General Purpose Interface Bus Controller	Microprocessor—8080, 8085A, 9900
General Purpose Keyboard and Display	Microprocessor—System Components; PPS-4
GPIB Talker Listener Interface	Microprocessor—System Components; 8080, 8085
Ground Fault Interrupter	Linear—Consumer Circuits
Gyrator	Linear—Telecommunications Circuits

H

Hall Effect Devices	Digital—Special Linear—Other Devices
Hammer Driver	Interface—Memory and Peripheral Drivers
Hamming Code Detector and Generator	Digital—TTL, Miscellaneous Interface—Error Checking Circuits

I

Identity Comparator	Digital—TTL, Arithmetic Functions
Image Sensor	Linear—Other Devices
Impedance Converter	Linear—Other Devices
Input/Output Control Unit	Microprocessor—System Components
Interface Latch Element	Microprocessor—System Components; PACE
Interrupt Control Unit	Microprocessor—System Components; 3000
Interrupt Controllers, Programmable	Microprocessor—System Components, Various Families
Interrupt Controller	Microprocessor—General Purpose
Interrupter, Ground Fault	Linear—Consumer Circuits
Interval Timer	Linear—Timers Microprocessor—System Components; PPS-4, 8008, 8048, 8080, 8085
Inverters	Digital—CMOS, Buffers/Inverters Digital—HNIL/HTL, Buffers/Inverters Digital—HNIL/HTL, Gates, Miscellaneous Digital—TTL, Buffers/Inverters Digital—Special
I/O Buffer	Microprocessor—System Components; 1600, 8000
I/O Expander	Microprocessor—System Components 1000, 8048, 8080, 8085
I/O Port	Digital—TTL,Miscellaneous Microprocessor—System Components; SC/MP, 1800, 6100, 8X300, 8008, 8048, 8080,8005
I/O Register Array	Digital—TTL, Miscellaneous
I/O Transceiver	Microprocessor—System Components; MicroNOVA
I/O Transceiver Buffer	Microprocessor—System Components; MicroNOVA
IR Transmitter/ Receiver	Linear—Telecommunication Circuits

K

Keyboard/Display Controller	Microprocessor—System Components; 8008, 8048, 8080, 8085
Keyboard Encoders	Interface—Keyboard Encoders, Decoders
Keyboard Interface, Programmable	Microprocessor—8085A

L

Lamp Driver	Interface—Display Drivers
Last In First Out Memory	Memory—LIFOs
Latches	Digital—CMOS, Latches Digital—CMOS, Drivers Digital—ECL 10000, Latches Digital—ECL 95000, Latches Digital—ECL 100K, Latches Digital—ECL III, Latches Digital—HNIL/HTL, Latches Digital—TTL, Latches Microprocessor—System Components
LCD Display Drivers	Interface—Display Drivers
LED Display Drivers	Interface—Display Drivers
Level Detector	Linear—Other Devices
Level Meter	Linear—Other Devices
Level Shifter	Digital—CMOS, Translators Digital—ECL-10000, Translators Digital—HNIL/HTL, Translators Digital—TTL, Translators Interface—Memory and Peripheral Drivers
Light Activated Switch	Linear—Other Devices
Light Dimmer	Linear—Consumer Circuits
Light Detector	Linear—Other Devices
Light to Current Converter	Linear—Other Devices
Light to Frequency Converter	Linear—Other Devices
Line Drivers	Interface—Line Circuits, Single Ended Interface—Line Circuits, Differential
Line Receivers	Digital—ECL 10000, Miscellaneous Digital—ECL 100K, Miscellaneous Digital—ECL III, Miscellaneous Interface—Line Circuits, Single Ended Interface—Line Circuits, Differential
Line Transceiver	Interface—Line Circuits, Transceivers
Link Controller	Interface—Serial Transmitter-Receivers
Logic Processor	Microprocessor—System Components; 8000
Look Ahead Carry Generator	Digital—CMOS, Arithmetic Functions Digital—ECL 10000, Arithmetic Functions Digital—TTL, Arithmetic Functions Microprocessor—System Components; 2900, 3000

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