

IC MASTER

VOL. I

1983



Engineering design begins with the IC MASTER

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IC MASTER

VOLUME I

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1983

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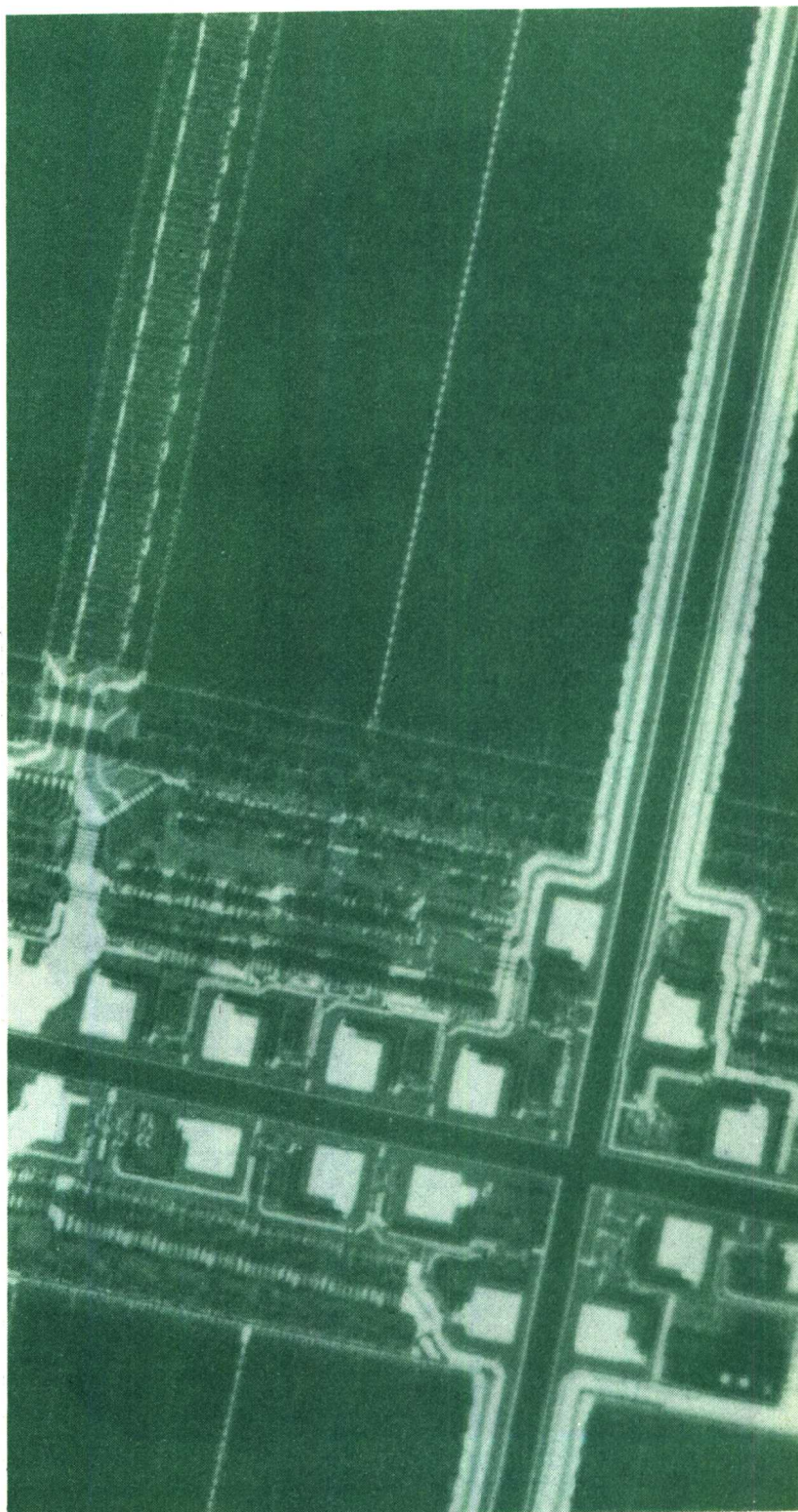
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CMOS Static RAM (Integrated Device Technology Photo)

IMPORTANT FEATURES OF YOUR IC MASTER

MASTER SELECTION GUIDE INDEX

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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 qualified 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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PART NUMBER GUIDE

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APPLICATION NOTE DIRECTORY

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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 $\pm 1/2$ LSB Linearity and 13- μ sec 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 $\pm 1/2$ LSB linearity and 13- μ sec 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 $\pm 1/2$ LSB and then he looks under conversion time for devices with 13- μ sec or faster specifications.

[illegible]

IC MASTER														
INTERFACE--analog to Digital Converters (Cont'd)														
Line	Company	Power	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Pin	Pin	Pin	Pin	Pin	Pin	Pin	Pin	Pin	Pin	Pin	Pin	Pin	Pin	Pin
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195
196	197	198	199	200	201	202	203	204	205	206	207	208	209	210
211	212	213	214	215	216	217	218	219	220	221	222	223	224	225
226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255
256	257	258	259	260	261	262	263	264	265	266	267	268	269	270
271	272	273	274	275	276	277	278	279	280	281	282	283	284	285
286	287	288	289	290	291	292	293	294	295	296	297	298	299	300
301	302	303	304	305	306	307	308	309	310	311	312	313	314	315
316	317	318	319	320	321	322	323	324	325	326	327	328	329	330
331	332	333	334	335	336	337	338	339	340	341	342	343	344	345
346	347	348	349	350	351	352	353	354	355	356	357	358	359	360
361	362	363	364	365	366	367	368	369	370	371	372	373	374	375
376	377	378	379	380	381	382	383	384	385	386	387	388	389	390
391	392	393	394	395	396	397	398	399	400	401	402	403	404	405
406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435
436	437	438	439	440	441	442	443	444	445	446	447	448	449	450
451	452	453	454	455	456	457	458	459	460	461	462	463	464	465
466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495
496	497	498	499	500	501	502	503	504	505	506	507	508	509	510
511	512	513	514	515	516	517	518	519	520	521	522	523	524	525
526	527	528	529	530	531	532	533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548	549	550	551	552	553	554	555
556	557	558	559	560	561	562	563	564	565	566	567	568	569	570
571	572	573	574	575	576	577	578	579	580	581	582	583	584	585
586	587	588	589	590	591	592	593	594	595	596	597	598	599	600
601	602	603	604	605	606	607	608	609	610	611	612	613	614	615
616	617	618	619	620	621	622	623	624	625	626	627	628	629	630
631	632	633	634	635	636	637	638	639	640	641	642	643	644	645
646	647	648	649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672	673	674	675
676	677	678	679	680	681	682	683	684	685	686	687	688	689	690
691	692	693	694	695	696	697	698	699	700	701	702	703	704	705
706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734	735
736	737	738	739	740	741	742	743	744	745	746	747	748	749	750
751	752	753	754	755	756	757	758	759	760	761	762	763	764	765
766	767	768	769	770	771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790	791	792	793	794	795
796	797	798	799	800	801	802	803	804	805	806	807	808	809	810
811	812	813	814	815	816	817	818	819	820	821	822	823	824	825
826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855
856	857	858	859	860	861	862	863	864	865	866	867	868	869	870
871	872	873	874	875	876	877	878	879	880	881	882	883	884	885
886	887	888	889	890	891	892	893	894	895	896	897	898	899	900
901	902	903	904	905	906	907	908	909	910	911	912	913	914	915
916	917	918	919	920	921	922	923	924	925	926	927	928	929	930
931	932	933	934	935	936	937	938	939	940	941	942	943	944	945
946	947	948	949	950	951	952	953	954	955	956	957	958	959	960
961	962	963	964	965	966	967	968	969	970	971	972	973	974	975
976	977	978	979	980	981	982	983	984	985	986	987	988	989	990
991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005
1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020
1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035
1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050
1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065
1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080
1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095
1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110
1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125
1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140
1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155
1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170
1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185
1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200
1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215
1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230
1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245
1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260
1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275
1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290
1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305
1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320
1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335
1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350
1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365
1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380
1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395
1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410
1411	1412	1413	1414	1415	1416	1417	1418	1419	14					

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.

APPLICATION NOTE DIRECTORY

MEMORY

PROMs

- 1. Bipolar Generic PROMs**
(AN27518, AN27519, AN27520, AN27521, AN27522, AN27523, AN27524, AN27525, AN27526, AN27527, AN27528, AN27529, AN27530, AN27531, AN27532, AN27533, AN27534, AN27535, AN27536, AN27537, AN27538, AN27539, AN27540, AN27541, AN27542, AN27543, AN27544, AN27545, AN27546, AN27547, AN27548, AN27549, AN27550, AN27551, AN27552, AN27553, AN27554, AN27555, AN27556, AN27557, AN27558, AN27559, AN27560, AN27561, AN27562, AN27563, AN27564, AN27565, AN27566, AN27567, AN27568, AN27569, AN27570, AN27571, AN27572, AN27573, AN27574, AN27575, AN27576, AN27577, AN27578, AN27579, AN27580, AN27581, AN27582, AN27583, AN27584, AN27585, AN27586, AN27587, AN27588, AN27589, AN27590, AN27591, AN27592, AN27593, AN27594, AN27595, AN27596, AN27597, AN27598, AN27599, AN27600, AN27601, AN27602, AN27603, AN27604, AN27605, AN27606, AN27607, AN27608, AN27609, AN27610, AN27611, AN27612, AN27613, AN27614, AN27615, AN27616, AN27617, AN27618, AN27619, AN27620, AN27621, AN27622, AN27623, AN27624, AN27625, AN27626, AN27627, AN27628, 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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 microprocessors 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 bold-faced page-number references in the Master Selection Guide.

Options for Going Custom

For many applications, standard integrated circuits may be appropriate from the standpoint of cost, size, power consumption or reliability. However, unique features demanded by proprietary products often require entirely new circuit configurations. As a result, customized ICs are assuming an increasingly important role in system design.

Custom IC suppliers report that the chief benefits enjoyed by nearly all custom-circuit users are low-cost parts and cost savings resulting from reduced printed-circuit board space, parts handling, inventory, testing requirements and system maintenance. Obtaining these benefits requires careful consideration of the many options provided by both custom IC and other approaches which ultimately effect economies.

For example, in addition to standard and custom IC options for implementing new system designs, include custom ICs, microcomputers and custom ICs or a mixture of these. The system development strategy used depends upon marketing objectives and may require staggered development, first with standard ICs, then with semi-custom, and finally, full custom units. Or, the strategy of developing standard or semi-custom prototype and concurrent verification of a full custom design.

Another option is to alter a standard microcontroller or other standard products rather than using a full custom. Customizing standard products can reduce the turnaround time and risks of a full custom. Customization of standard products can be done in several ways: semicustom or custom circuits can be used; semicustom or custom circuits can be used; semicustom or custom circuits can be used.

All approaches require up-front design, prototyping and production turnaround in order to offload alternate sourcing, circuit configuration, and the user's supplier, only factor, however, is cost.

The cost of a nonstandard IC is not only the cost of the chip, but also the cost of the design and tooling, and the cost of the chip process.

Design and Tooling: Until recently, options for implementing new custom circuits when standards had to be modified to great profit development costs. Additional development costs are added when a design is altered over a year, or when a design is altered over a year, or when a design is altered over a year.

Full Custom: In the past, full custom ICs have been the only way to get a custom IC. However, from a collection of performance are lower equipment to lower the most efficient CAD techniques.

The graph shows three curves: 'STANDARD CIRCUITS' (highest cost, slowest turnaround), 'MICROPROCESSOR' (medium cost, medium turnaround), and 'CUSTOM IC' (lowest cost, fastest turnaround). The y-axis represents 'Design and Tooling Costs' and the x-axis represents 'Turnaround Time'.

MICROCOMPUTER BOARDS

General		Microprocessors	
Manufacturer	Model	Manufacturer	Model
Intel	8080	Intel	8080
Mos	6800	Mos	6800
Motorola	6800	Motorola	6800
Rockwell	6800	Rockwell	6800
Toshiba	6800	Toshiba	6800
Zilog	6800	Zilog	6800

MICROPROCESSORS

General		Microprocessors	
Manufacturer	Model	Manufacturer	Model
Intel	8080	Intel	8080
Mos	6800	Mos	6800
Motorola	6800	Motorola	6800
Rockwell	6800	Rockwell	6800
Toshiba	6800	Toshiba	6800
Zilog	6800	Zilog	6800

Ways to Use IC Master

PART NUMBER INDEX									
Part Number	Source	Quantity	Part Number	Source	Quantity	Part Number	Source	Quantity	Part Number
101	AD	100000	101	AD	100000	101	AD	100000	101
102	AD	100000	102	AD	100000	102	AD	100000	102
103	AD	100000	103	AD	100000	103	AD	100000	103
104	AD	100000	104	AD	100000	104	AD	100000	104
105	AD	100000	105	AD	100000	105	AD	100000	105
106	AD	100000	106	AD	100000	106	AD	100000	106
107	AD	100000	107	AD	100000	107	AD	100000	107
108	AD	100000	108	AD	100000	108	AD	100000	108
109	AD	100000	109	AD	100000	109	AD	100000	109
110	AD	100000	110	AD	100000	110	AD	100000	110
111	AD	100000	111	AD	100000	111	AD	100000	111
112	AD	100000	112	AD	100000	112	AD	100000	112
113	AD	100000	113	AD	100000	113	AD	100000	113
114	AD	100000	114	AD	100000	114	AD	100000	114
115	AD	100000	115	AD	100000	115	AD	100000	115
116	AD	100000	116	AD	100000	116	AD	100000	116
117	AD	100000	117	AD	100000	117	AD	100000	117
118	AD	100000	118	AD	100000	118	AD	100000	118
119	AD	100000	119	AD	100000	119	AD	100000	119
120	AD	100000	120	AD	100000	120	AD	100000	120
121	AD	100000	121	AD	100000	121	AD	100000	121
122	AD	100000	122	AD	100000	122	AD	100000	122
123	AD	100000	123	AD	100000	123	AD	100000	123
124	AD	100000	124	AD	100000	124	AD	100000	124
125	AD	100000	125	AD	100000	125	AD	100000	125
126	AD	100000	126	AD	100000	126	AD	100000	126
127	AD	100000	127	AD	100000	127	AD	100000	127
128	AD	100000	128	AD	100000	128	AD	100000	128
129	AD	100000	129	AD	100000	129	AD	100000	129
130	AD	100000	130	AD	100000	130	AD	100000	130
131	AD	100000	131	AD	100000	131	AD	100000	131
132	AD	100000	132	AD	100000	132	AD	100000	132
133	AD	100000	133	AD	100000	133	AD	100000	133
134	AD	100000	134	AD	100000	134	AD	100000	134
135	AD	100000	135	AD	100000	135	AD	100000	135
136	AD	100000	136	AD	100000	136	AD	100000	136
137	AD	100000	137	AD	100000	137	AD	100000	137
138	AD	100000	138	AD	100000	138	AD	100000	138
139	AD	100000	139	AD	100000	139	AD	100000	139
140	AD	100000	140	AD	100000	140	AD	100000	140

Arranged alphabetically from left to right

IC MASTER 1983

[illegible]

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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American Automation

Microprocessor Development Systems 1706

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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:

<u>Master Selection Guide</u>	<u>Starts on Page No.</u>
Digital	444
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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.

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	<i>See Arithmetic Logic Unit</i>
Amplifier/Detector FM IF	Linear—Consumer Circuits
Amplifiers	
AC	Linear—Other Devices Linear—Special Purpose
AM/FM IF	Linear—Consumer Circuits
AM/FM IF and AF	Linear—Consumer Circuits
Audio	Linear—Amplifiers, Special Purpose
Audio, Power	Linear—Consumer Circuits
CATV	Linear—Consumer Circuits
Current	Linear—Amplifiers, Special Purpose
Differential/Cascode	Linear—Amplifiers, Special Purpose
Differential Input/Output	Linear—Amplifiers, Special Purpose
Followers	Linear—Followers
Front End	Linear—Amplifiers, Special Purpose
Hearing Aid	Linear—Consumer Circuits
Instrumentation	Linear—Amplifiers, Special Purpose Linear—Operational Amplifier Characteristics
Isolation	Linear—Amplifiers, Special Purpose
Limiting	Linear—Amplifiers, Special Purpose
Linear/Antilog	Linear—Amplifiers, Special Purpose
Log/Antilog	Linear—Amplifiers, Special Purpose
Microphone	Linear—Amplifiers, Special Purpose
Mixer/RF	Linear—Consumer Circuits
Operational	Linear—Operational Amplifier Characteristics Linear—Operational Amplifiers, General Purpose Linear—Operational Amplifiers, High Output Current Linear—Operational Amplifiers, High Voltage Linear—Operational Amplifiers, Low Bias Current Linear—Operational Amplifiers, Low Drift Linear—Operational Amplifiers, Programmable Linear—Operational Amplifiers, Single Supply Linear—Operational Amplifiers, Wide Band
Power	Linear—Amplifiers, Special Purpose
Preamplifier	Linear—Amplifiers, Special Purpose Linear—Consumer Circuits
Programmable Gain	Linear—Amplifiers, Special Purpose

Function	Section
Read	Linear—Amplifiers, Special Purpose
RF	Linear—Amplifiers, Special Purpose
RF Detector/Video Sense	Linear—Consumer Circuits Interface—Sense Amplifiers
Single Ended Input/Output	Linear—Amplifiers, Special Purpose
Tone	Linear—Consumer Circuits
Transconductance	Linear—Amplifiers, Special Purpose
Video, IF and RF	Linear—Amplifiers, Special Purpose
Voltage Controlled	Linear—Amplifiers, Special Purpose
Wideband	Linear—Amplifiers, Special Purpose
AM Radio Components	Linear—Consumer Circuits
AM/FM Radio Components	Linear—Consumer Circuits
Analog Input	Microprocessor—System Components; F8, SC/MP, Z80, 6500, 6800, 8008, 8048, 8080, 8085, General Purpose
Analog Memories	Linear—Other Devices
Analog Output	Microprocessor—System Components; General Purpose
Analog Shift Registers	Linear—Other Devices
Analog Signal Averager	Linear—Other Devices
Analog Switches	Interface—Analog Switches
AND Gates	<i>See Gates</i>
Appliance Control Devices	Linear—Consumer Circuits
Arithmetic Functions	Digital—CMOS, Arithmetic Functions Digital—CMOS, Miscellaneous Digital—ECL, Arithmetic Functions Digital—HNIL/HTL, Arithmetic Functions Digital—TTL, Arithmetic Functions Digital—TTL, Miscellaneous Digital—Special
Arithmetic Generator/Processor	Digital—Special Microprocessor—System Components; 1000, 8080, General Purpose
Arithmetic Logic Element	Digital—TTL, Arithmetic Functions
Arithmetic Logic Register Stack	Digital—CMOS, Arithmetic Functions Microprocessor—System Components; Macrologic Bipolar, Macrologic CMOS
Arithmetic Logic Unit	Digital—CMOS, Arithmetic Functions Digital—ECL 10000, Arithmetic Functions Digital—ECL 100K, Arithmetic Functions Digital—TTL, Arithmetic Functions Microprocessor—System Components; IMP, 10800
Arrays	
Bipolar	Linear—Arrays
CMOS	Linear—Arrays, Special Arrays
Custom Digital	Digital—ECL 100K, Miscellaneous Digital—Special Linear—Other Devices

Function	Section
Thyristor/ Transistor	Linear—Arrays, Special Arrays
Transistor	Linear—Arrays, Transistor Arrays
Transistor/Diode	Linear—Arrays, Special Arrays
ASTRO	Interface—Transmitters-Receivers
Asynchronous Communication Controller	Microprocessors—System Components
Asynchronous Communications Element	Microprocessor—System Components; 8080
Asynchronous Communications Interface Adapter	Interface—Transmitters-Receivers
Asynchronous/ Synchronous Transmitter/ Receiver	See ASTRO
Attenuator	Linear—Consumer Circuits Linear—Other Linear Devices
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

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

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

Function	Section	Function	Section
Keyboard to Binary	Digital—CMOS, Miscellaneous	Four Channel Sound	Linear—Consumer Circuits
Tone	Digital—CMOS, Miscellaneous	Fourier Transform Circuit	Microprocessor—Peripheral Controllers
Error Checking Circuits	Linear—Telecommunications Circuits	Frequency Divider	Digital—Special
	Digital—ECL10000, Miscellaneous	Frequency Sensitive Switch	Linear—Consumer Circuits
Error Pattern Register	Interface—Error Checking Circuits		Linear—Telecommunication Circuits
Expander	Digital—TTL-Gates, AND-OR/AND-OR Invert	Frequency to Voltage Converter	Linear—Other Devices
	Digital—TTL, Miscellaneous	FSK Modulator/Demodulator	Linear—Phase Locked Loop Circuits
Expander (Companion)	Linear—Telecommunication Circuits	Function Generator	Linear—Phase Locked Loop Circuits
Extender	Digital—TTL-Gates, AND-OR/AND-OR Invert		
F		G	
Facsimile, Frequency Generator	Linear—Consumer Circuits	Games, Video	Linear—Consumer Circuits
Fast Carry Extender	Digital—TTL, Arithmetic Functions	Gas Discharge Display Drivers	Interface—Display Drivers
Fast Fourier Transformer	Linear—Telecommunication Circuits	Gates	Digital—CMOS, Gates, Miscellaneous
Fiber Optics Transmitter/Receiver	Digital—TTL, Miscellaneous		Digital—HNIL/HTL, Gates, Miscellaneous
	Linear—Other Devices		Digital—TTL, Gates, Miscellaneous
Fiber Optics Data Link	Linear—Other Devices	AND/NAND	Digital—CMOS, Gates, AND/NAND
Field Programmable Array Logic	Digital—TTL, Miscellaneous		Digital—ECL 10000, Gates, AND/NAND
	Memory—PLAs		Digital—HNIL/HTL, Gates, AND/NAND
Field Programmable Logic Array	Memory—PLAs		Digital—TTL, Gates, AND/NAND
	Microprocessor—System Components	AND-OR/AND-OR Invert	Digital—CMOS, Gates, AND-OR/AND-OR Invert
First In First Out Memory	Memory—FIFO		Digital—ECL 10000, Gates, AND-OR/AND-OR Invert
	Microprocessor—System Components		Digital—ECL 100K, Gates, AND-OR/AND-OR Invert
Flasher (LED)	Linear—Other Devices		Digital—HNIL/HTL, Gates, AND-OR/AND-OR Invert
Flip-Flops	Digital—CMOS, Flip-Flops	Complex Gate w/ Persistence Detector	Digital—TTL, Gates, AND-OR/AND-OR Invert
	Digital—ECL 10000, Flip-Flops	Exclusive OR/NOR	Digital—Special
	Digital—ECL 95000, Flip-Flops		Digital—CMOS, Gates, Exclusive OR/NOR
	Digital—ECL 100K, Flip-Flops		Digital—ECL 10000, Gates, Exclusive OR/NOR
	Digital—ECL III, Flip-Flops		Digital—ECL 100K, Gates, Exclusive OR/NOR
	Digital—HNIL/HTL, Flip-Flops		Digital—ECL III, Gates, Exclusive OR/NOR
	Digital—TTL, Flip-Flops		Digital—HNIL/HTL, Gates, Exclusive OR/NOR
	Digital—Special		Digital—TTL, Gates, Exclusive OR/NOR
Floating Point Arithmetic	Microprocessor—System Components; 8080	Majority Logic	Digital—CMOS, Gates, Miscellaneous
Floppy Disc Amplifier System	Linear—Amplifiers - Special Purpose		Digital—TTL, Gates, Miscellaneous
Floppy Disc Controller	Microprocessor—System Components; PPS-4, 1600, 6800, 8000, 8048, 8080, 8085A, 9900, Peripheral Controllers	OR/NOR	Digital—CMOS, Gates, OR/NOR
Fluid Detector	Linear—Other Devices		Digital—ECL 10000, Gates, OR/NOR
Fluorescent Display Drivers	Interface—Display Drivers		Digital—ECL 95000, Gates, OR/NOR
FM Muting/Tuning Point System	Linear—Consumer Circuits		Digital—ECL 100K, Gates, OR/NOR
FM Radio Circuits	Linear—Consumer Circuits		Digital—ECL III, Gates, OR/NOR
FM RF/IF Amplifier	Linear—Consumer Circuits		Digital—TTL, Gates, OR/NOR
Followers	Linear—Followers		Digital—Special
		Gate Expander	Digital—HNIL/HTL, Gates, Miscellaneous
		General Purpose Data Transceiver	Digital—TTL, Miscellaneous

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

Function	Section
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