

**SCC 655/660/670  
DIGITAL COMPUTERS  
1.75  $\mu$ S · 24 BIT**



# The SCC 655/660/670 1.75 $\mu$ s Digital Computers



“Understandable” is the word that best describes the Scientific Control Corporation Computer family. These flexible machines offer powerful instruction repertoires that uniquely simplify computer programming.

The SCC 655/660/670 series computers are 24 bit, fully parallel binary computers. They provide high speed processing by means of features that include:

- Integrated Circuits
- Direct Memory Access (DMA)
- Fully Parallel Operation
- Hardware Multiply/Divide
- Indexing
- Multi-level Indirect Addressing
- Comprehensive Instruction List
- Flexible Input/Output Structure
- Automatic Subroutine Linkages

## CENTRAL PROCESSING UNIT (CPU)

	<u>655</u>	<u>660</u>	<u>670</u>
Word Length (Bits)	24	24	24
Cycle Time (Microseconds)	1.75	1.75	1.75
Parallel Word I/O Channel	Yes	Yes	Yes
Maximum Word Rate (KC)	190	190	190
Priority Interrupt Channels	1-64	2-64	2-64
Hardware Multiply/Divide	Yes	Yes	Yes
Program Protect Feature	Yes	Yes	Yes
Internal Processing	Parallel	Parallel	Parallel
Fortran Compiler (one pass)	Yes	Yes	Yes
Symbolic Assembler (two pass)	Yes	Yes	Yes
Basic Investment for CPU	\$15,900	\$31,000	\$42,750

The **SCC 655** with 38 instructions stands out as the lowest investment for a 24-bit computer.

The **SCC 660** is for the user who needs additional processing capability for a modest investment. It offers 59 instructions including a set of micro-instructions.

The **SCC 670** is the most powerful 24-bit computer offered by the company. It has 71 instructions that also include a comprehensive set of microinstructions for performing data

transfers and logical and arithmetic operations.

The 24 bit series of computers offer high value for investment. They are fully parallel and provide either single or multiple and simultaneous access channels to the memory. The memory systems can be expanded modularly from 4,096 words to 32,768 words. In addition, character oriented I/O buffers and a comprehensive line of peripherals are available.

## INSTRUCTION LISTS

### Data Transfer Instructions

Mnemonic	Instruction Name	Op Code	655	660	670	Cycles
LDA	Load AC	27	X	X	X	2
STA	Store AC	35	X	X	X	2
LDE	Load EA	75	X	X	X	2
STE	Store EA	36	X	X	X	2
LDX	Load Index	71	X	X	X	2
STX	Store Index	37	X	X	X	2
EAX	Effective Address Into Index	77	X	X	X	1
LAC	Load AC Complemented	45		X	X	2
LXC	Load Index Complemented	44		X	X	2
XXM	Exchange Index and Memory	76		X	X	3
SAF	Store Address Field	42		X	X	3
LDD	Load Double	04			X	3
STD	Store Double	05			X	3
XAM	Exchange AC and Memory	62			X	3

### Arithmetic Instructions

ADD	Add	55	X	X	X	2
SUB	Subtract	54	X	X	X	2
MPY	Multiply	64	X	X	X	8
DIV	Divide	65	X	X	X	8
MIN	Memory Increment	61	X	X	X	3
MDC	Memory Decrement	60		X	X	3
ADC	Add with Carry	57			X	2
AAM	Add AC to Memory	63			X	3
SBC	Subtract	56			X	3
ADE	Add to EA	07			X	2
SBE	Subtract from EA	06			X	2

### Logic Instructions

AND	AND to AC	14	X	X	X	2
ORA	OR to AC	16	X	X	X	2
EOR	Exclusive OR to AC	17	X	X	X	2

### Branch Instructions

BRA	Branch	01	X	X	X	1
BIX	Increment Index and Branch	41	X	X	X	1
BSL	Store Location Counter and Branch	43	X	X	X	2
BRT	Return Branch	51	X	X	X	2
BAZ	Branch on AC Zero	25	X	X	X	1
BRI	Return Branch and Clear Interrupt	11	X	X	X	2
BAN	Branch on AC Negative	24		X	X	1
BAP	Branch on AC Positive	26		X	X	1
BEN	Branch on EA Negative	22		X	X	1
BNZ	Branch on AC Non Zero	15			X	1
BEZ	Branch on EA Zero	21			X	1

### Skip Instructions

SNS	Skip if Signal Not Set	40	X	X	X	2
SAG	Skip if AC Greater	73	X	X	X	2
SMN	Skip if Memory Negative	53	X	X	X	2
SAM	Skip if AC and Memory do not compare ones.	72	X	X	X	2
SAE	Skip if AC Equals Memory on EA Mask	70		X	X	3
SEM	Skip if EA and Memory do not compare ones.	52			X	2
SAQ	Skip if AC equals Memory	50			X	2
SDE	Difference Exponents and Skip	74			X	3

## Shift Instructions

Mnemonic	Instruction Name	Op Code	655	660	670	Cycles
LSH	Left Shift	67000XX	X	X	X	2+N/4
LCY	Left Cycle	67200XX	X	X	X	2+N/4
RSH	Right Shift	66000XX	X	X	X	2+N/4
RCY	Right Cycle	66200XX	X	X	X	2+N/4
NDX	Normalize and Decrement Index	67100XX	X	X	X	2+N/4
ALS	AC Left Shift	67040XX		X	X	2+N/4
ELS	EA Left Shift	67020XX		X	X	2+N/4
ALC	AC Left Cycle	67020XX		X	X	2+N/4
ELC	EA Left Cycle	67220XX		X	X	2+N/4
ARS	AC Right Shift	66040XX		X	X	2+N/4
ERS	EA Right Shift	66020XX		X	X	2+N/4
ARC	AC Right Cycle	66240XX		X	X	2+N/4
ERC	EA Right Cycle	66220XX		X	X	2+N/4
SND	Short Normalize and Decrement Index	67140XX		X	X	2+N/4

## Miscellaneous Instructions

HLT	Halt	00	X	X	X	1
NOP	No Operation	20	X	X	X	1
XEC	Execute	23	X	X	X	1*

## Input/Output Instructions

TMB	Transfer Memory to B	12	X	X	X	2+wait
WTP	Write Parallel	13	X	X	X	2+wait
TBM	Transfer B to Memory	32	X	X	X	2+wait
RDP	Read Parallel	33	X	X	X	2+wait
ACT	Activate	02	X	X	X	1
TMC	Transfer Memory to C	10		X	X	2+wait
TCM	Transfer C to Memory	30		X	X	2+wait

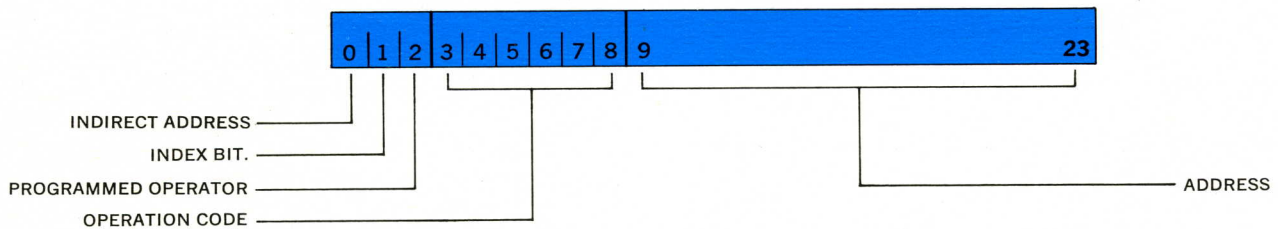
## Microinstructions

MIC	Microinstructions**	46		X	X	1
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\*Plus time of instruction executed.

\*\*Several instructions for performing data transfers, logical and arithmetic operations.

## WORD STRUCTURE



## Peripherals:

A comprehensive line of peripheral devices are available.

## Software

SCC offers a Symbolic Assembler, Utility and Math Subroutines, Fortran, Diagnostic Routines and other software from a library of programs. Custom programming is avail-

able through qualified personnel who are capable of obtaining maximum use of the speed and flexibility of SCC Computers.

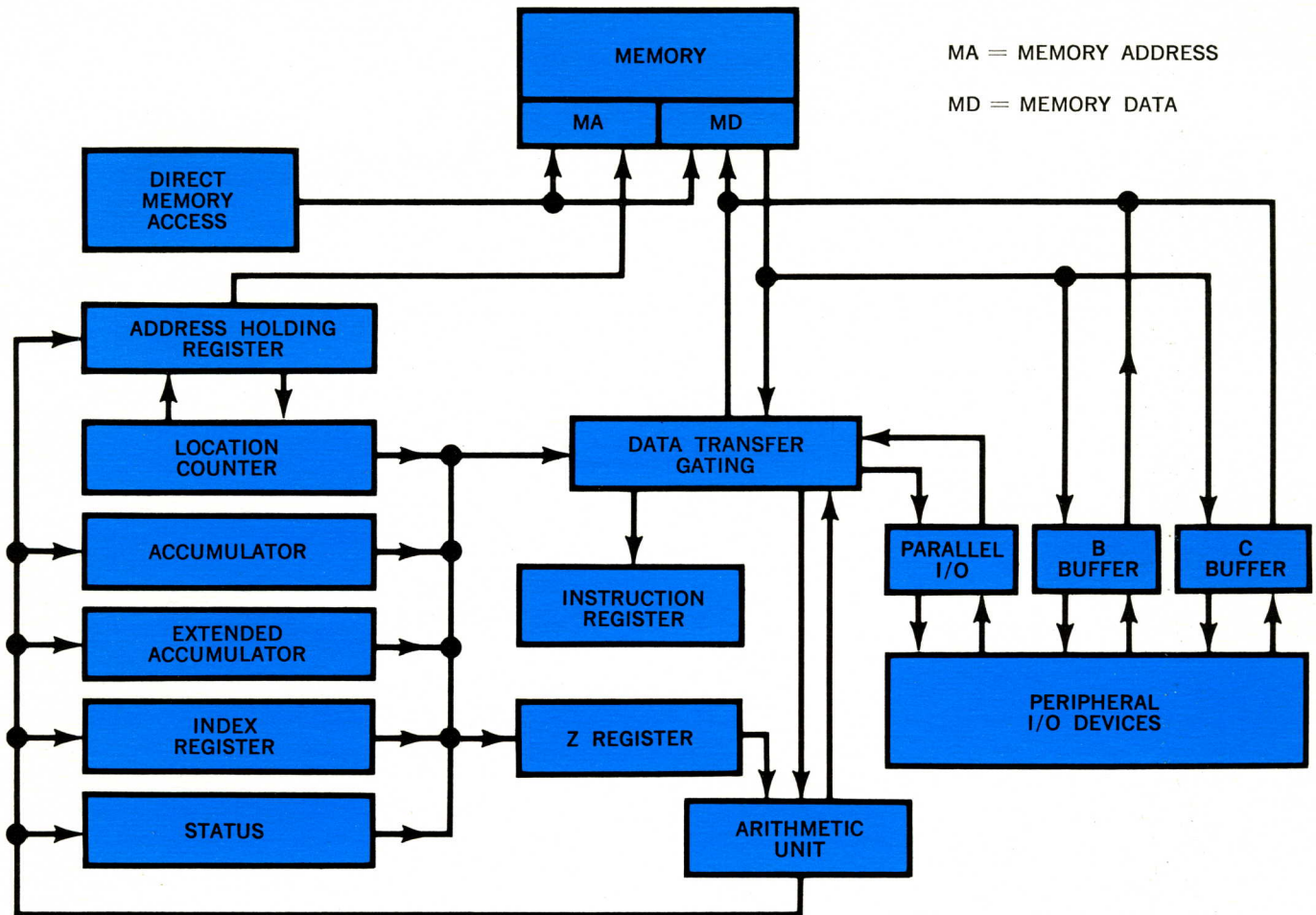
## PHYSICAL CHARACTERISTICS

Standard Desk and Rack models available  
Power: 115 VAC, 60 CPS  
Temperature Range: 0 to 60°C

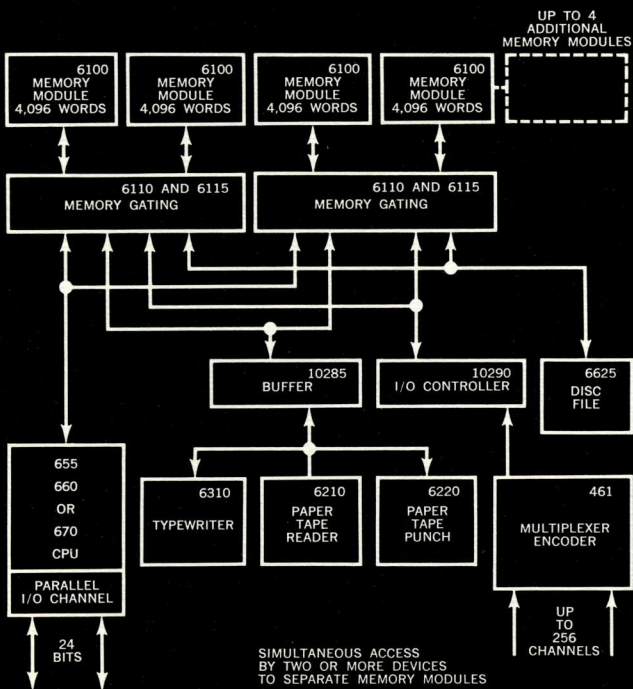
## SERVICES

Installation, warranty maintenance, operator and programmer training as well as complete documentation are offered.

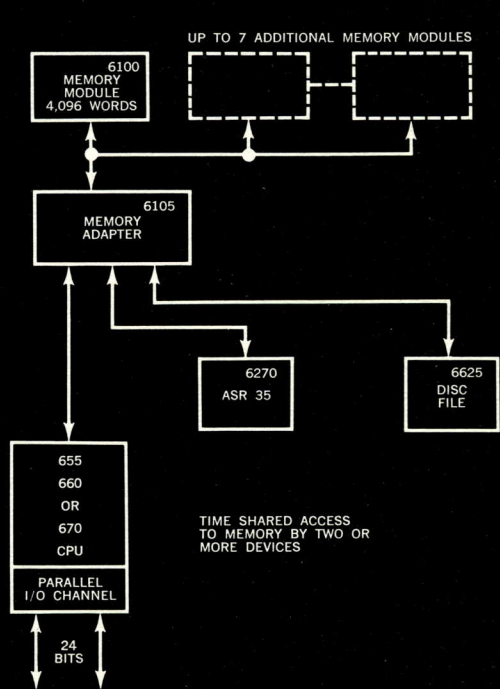
# BASIC MACHINE ORGANIZATION

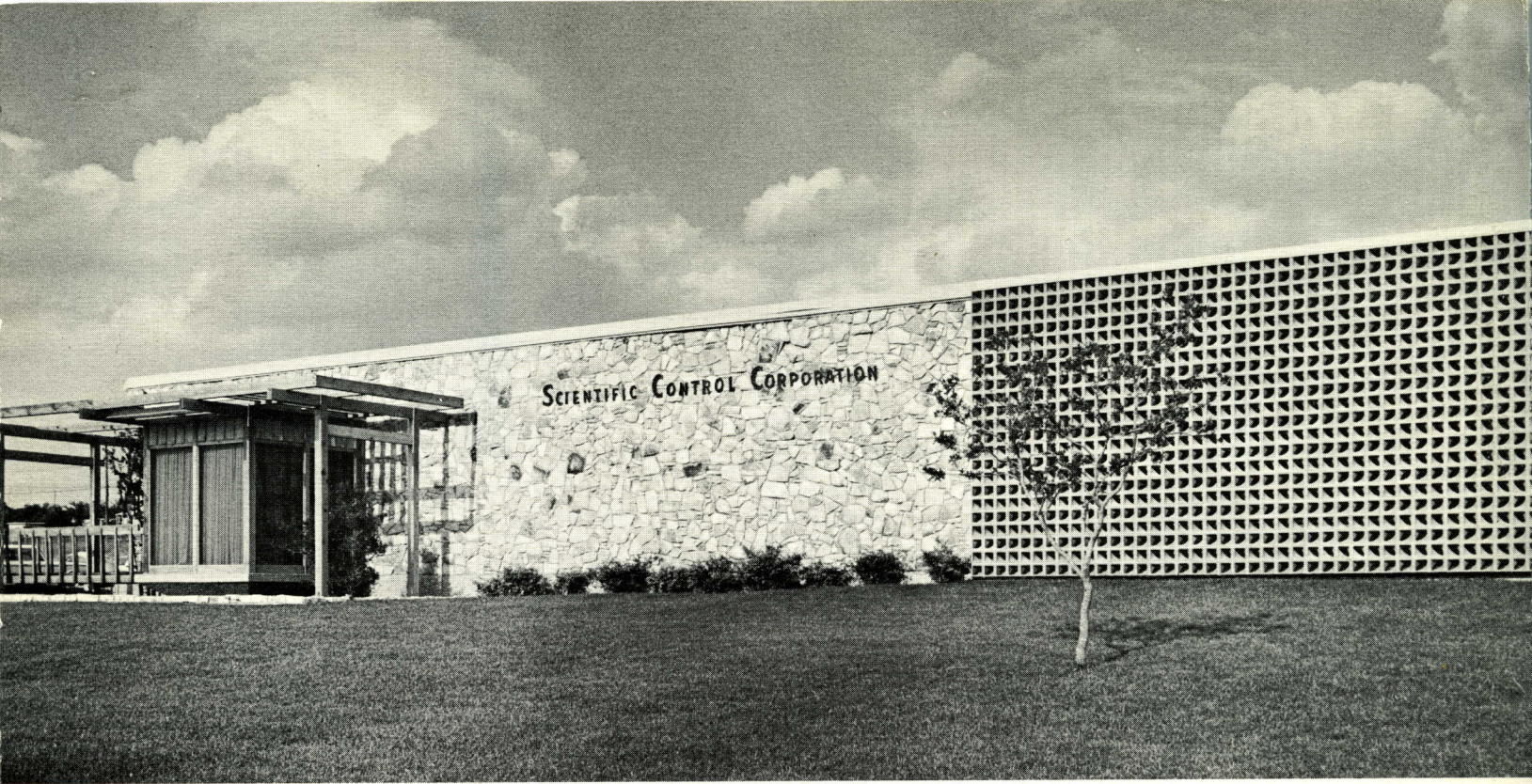


## MULTIPLE PORT SYSTEM



## SINGLE PORT SYSTEM





SCC maintains complete support activities for its users. Installation and maintenance services are available through SCC offices strategically located throughout the United States. For pre-procurement demonstration of hardware and programs in Dallas, contact nearest regional office or the marketing department in Dallas.

**EASTERN REGION**

College Park, Maryland  
(Washington, D.C.)  
301/779-2510

**SOUTHEASTERN REGION**

Huntsville, Alabama  
205/881-8805

**WESTERN REGION**

Los Angeles, California  
213/272-9311

**SOUTHWESTERN REGION**

Dallas, Texas  
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**MIDWESTERN REGION**

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