

Α

Α

**R M** Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

	Contents		
	Preface	xv	
	CHAPTERONE Digital Logic Circuits	1	
1-1	Digital Computers	1	
1-2	Logic Gates	4	
1.3	Boolean Algebra Complement of a Francian 10	7	
1-4	Map Simplification Product-of-Sums Simplification 14 Don't-Care Conditions 16	11	
1-5	Combinational Circuits Half-Adder 19 Full-Adder 20	18	
1-6		22	
1-7	Sequential Circuits Flip-Flop Input Equations 28 State Table 30 State Diagram 31 Design Example 32 Design Froculture 36	28	

**DOCKET A L A R M** Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

#### iv Contents

CHAPTER TWO				
	Digital Components	41		
2-1 2-2	Integrated Circuits Decoders NAND Gate Decoder 45 Decoder Expansion 46 Encoders 47	41 43		
2-3	Multiplexers	48		
2-4	Registers Register with Parallel Load 51	50		
2-5	Shift Registers Bidirectional Shift Register with Parallel Load 53	53		
2-6	Binary Counters Binary Counter with Parallel Load 58	56		
2-7	Memory Unit Random-Access Memory 60 Read-Only Memory 61 Types of ROMs 62	58		
	Problems	63		
	References	65		
	CHAPTER THREE Data Representation	67		
3-1	Data Types Number Systems 68 Octal and Hexadecimal Numbers 69 Decimal Representation 72 Alphanumeric Representation 73	67		
3-2	Complements (r-1)'s Complement 75 (r's) Complement 75 Subtraction of Unsigned Numbers 76	74		
3-3	Fixed-Point Representation Integer Representation 78 Arithmetic Addition 79 Arithmetic Subtraction 80	77		

**DOCKET A L A R M** Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

		Contents	v
3-4	Floating-Point Representation	83	
3-5	Other Binary Codes	84	
	Gray Code 84		
	Other Decimal Codes 85		
	Other Alphanumeric Codes 86		
3-6	Error Detection Codes	87	
	Problems	89	
	References	91	

#### CHAPTER FOUR

CHAFIERFOUR		
	Register Transfer and Microoperations	93
4-1	Register Transfer Language	93
4-2	Register Transfer	95
4-3	Bus and Memory Transfers Three-State Bus Buffers 100 Memory Transfer 101	97
4-4	Arithmetic Microoperations Binary Adder 103 Binary Adder-Subtractor 104 Binary Incrementer 105 Arithmetic Circuit 106	102
4-5	Logic Microoperations List of Logic Microoperations 109 Hardware Implementation 111 Some Applications 111	108
4-6	Shift Microoperations Hardware Implementation 115	114
4-7	Arithmetic Logic Shift Unit	116
	Problems	119
	References	122

CHAPTER FIVE

#### Basic Computer Organization and Design 123

123

5-1 Instruction Codes

DOCKE

Α

LARM Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

#### vi Contents

5-2	Computer Registers Common Bus System 129	127		
5-3	Computer Instructions Instruction Set Completeness 134	132		
5-4	Timing and Control	135		
5-5	Instruction Cycle	139		
	Fetch and Decode 139			
	Determine the Type of Instruction 141			
	Register-Reference Instructions 143			
5-6	Memory-Reference Instructions	145		
	AND to AC 145			
	ADD to AC 146			
	LDA: Load to AC 146			
	STA: Store AC 147			
	BUN: Branch Unconditionally 147 BSA: Branch and Save Return Address 147			
	ISZ: Increment and Skip If Zero 149			
	Control Flowchart 149			
5-7	Input-Output and Interrupt	150		
	Input-Output Configuration 151			
	Input-Output Instructions 152			
	Program Interrupt 153			
	Interrupt Cycle 156			
5-8	Complete Computer Description	157		
5-9	Design of Basic Computer	157		
	Control Logic Gates 160			
	Control of Registers and Memory 160			
	Control of Single Flip-Flops 162			
	Control of Common Bus 162			
5-10		164		
	Control of AC Register 165 Adder and Logic Circuit 166			
	Problems	167		
	References	107		
	NCICICILCS	171		
	CHAPTER SIX			
Programming the Basic Computer 173				

Intenduction

**DOCKET A L A R M** Find authenticated court documents without watermarks at <u>docketalarm.com</u>.

## DOCKET A L A R M



# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## **Real-Time Litigation Alerts**



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## **Advanced Docket Research**



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## **Analytics At Your Fingertips**



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.