

# DISTRIBUTED LOGIC CORP. DIALOG

USER'S GUIDE  
FOR  
DQ202  
DISC CONTROLLER

## TABLE OF CONTENTS

<u>SECTION</u>		<u>PAGE</u>
1	GENERAL DESCRIPTION	
1.0	Introduction . . . . .	1-1
1.1	General Description . . . . .	1-1
1.1.1	LSI - 11 Q Bus Interface . . . . .	1-3
1.1.2	Interrupt . . . . .	1-3
1.1.3	Disc Interface . . . . .	1-3
1.1.4	Disc Data Format . . . . .	1-8
2	INSTALLATION	
2.1	Installation . . . . .	2-1
2.2	Pre-Installation Checks . . . . .	2-1
2.3	Installing . . . . .	2-2
3	OPERATION	
3.0	Introduction . . . . .	3-1
3.1	Precautions and Preoperation Checks . . . . .	3-1
3.2	Bootstrapping . . . . .	3-2
3.2.1	Bootstrap Program . . . . .	3-3
3.3	Test and Format Program . . . . .	3-4
3.3.1	Test and Format Program Details . . . . .	3-5
3.3.1.1	Format the Disc Program Section . . . . .	3-5
3.3.1.2	Sequential Read Test Program Section . . . . .	3-7
3.3.1.3	Selected Read Test Program Section . . . . .	3-7
3.3.1.4	Random Seek/Read Test Program Section . . . . .	3-7
3.3.1.5	Random Seek, Write, Read, and Compare Test Program Section . . . . .	3-8
3.3.2	Alternate Cylinder Assignment . . . . .	3-8
4	PROGRAMMING	
4.1	Programming Definitions . . . . .	4-1
4.2	Disc Controller Functions . . . . .	4-1
4.2.1	Controller Reset . . . . .	4-2
4.2.2	Write Data . . . . .	4-3
4.2.3	Write Headers . . . . .	4-3
4.2.4	Read Data . . . . .	4-4
4.2.5	Read Headers . . . . .	4-4
4.2.6	Write Check . . . . .	4-4
4.2.7	Seek . . . . .	4-5
4.2.8	Write . . . . .	4-5
4.2.9	Write Headers Only . . . . .	4-5
4.2.10	Seek Home . . . . .	4-5
4.2.11	Read . . . . .	4-5

## TABLE OF CONTENTS

<u>SECTION</u>		<u>PAGE</u>
4	PROGRAMMING (continued)	
4.3	Controller Registers . . . . .	4-7
4.3.1	Drive Status Register (RPDS) . . . . .	4-7
4.3.2	Error Register (RPER) . . . . .	4-8
4.3.3	Control Status Register (RPCS) . . . . .	4-10
4.3.4	Word Count Register (RPWC) . . . . .	4-12
4.3.5	Bus Address Register (RPBA) . . . . .	4-12
4.3.6	Cylinder Address Register (RPCA) . . . . .	4-12
4.3.7	Disc Address Register (RPDA) . . . . .	4-13
4.4	Initializing, Formatting a Disc . . . . .	4-13
4.4.1	Flag Byte . . . . .	4-14
4.4.1.1	Last Sector . . . . .	4-14
4.4.1.2	Last Head . . . . .	4-14
4.4.1.3	Last Cylinder. . . . .	4-14
4.4.2	Cylinder Address Word . . . . .	4-15
4.4.3	Head Address Byte . . . . .	4-15
4.4.4	Sector Address Byte . . . . .	4-15
4.4.5	CRC Byte . . . . .	4-15
4.5	Interlacing . . . . .	4-15

## LIST OF TABLES

1-1	Controller/Q Bus Interrace Lines . . . . .	1-4
4-1	Controller Functions . . . . .	4-2

## LIST OF FIGURES

1-1	Disc Controller System Simplified Diagram . . . . .	1-2
1-2a	Controller/Disc I/O Interface . . . . .	1-6
1-2b	Controller/Disc I/O Interface . . . . .	1-7
1-3	DQ202 Sector Format . . . . .	1-9
2-1	Controller Configuration . . . . .	2-4
2-2	Typical Backplane Configuration . . . . .	2-5
4-1	Controller Register Configuration . . . . .	4-6
4-2	Flag Byte Bit Assignment . . . . .	4-14
4-3	Sector Relationships for a 3:1 Interlace . . . . .	4-16