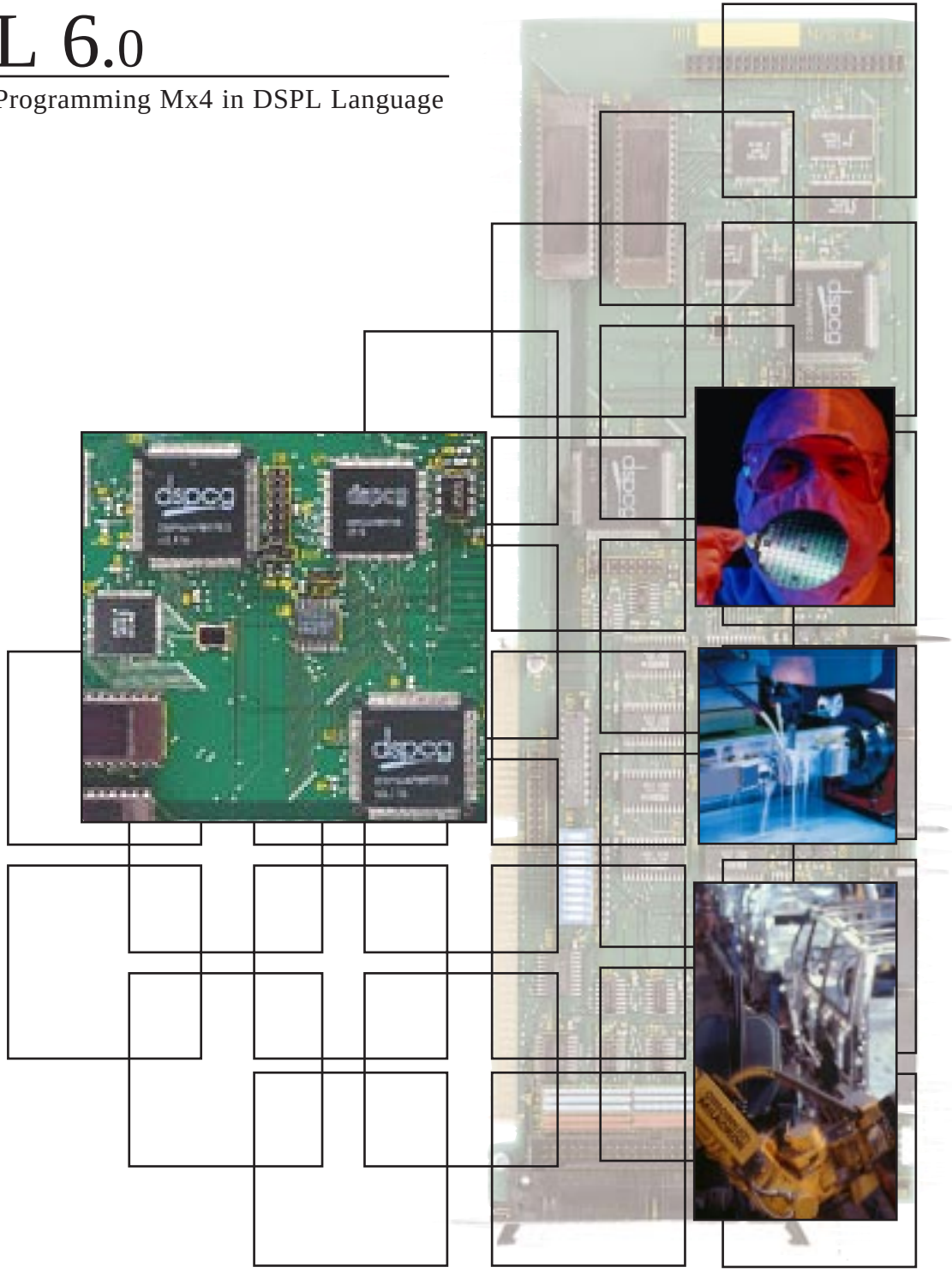
DSPL 6.0

A Guide to Programming Mx4 in DSPL Language



DSP Control Group, Inc.

Turbo DSPL
Programmer's Guide
V6.0

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Use of this product in an electro mechanical system could result in a mechanical motion that could cause harm. DSP Control Group, Inc. is not responsible for any accident resulting from misuse of its products.

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1 Introduction

Congratulations on purchasing a DSP Control Group's high-speed multi-DSP motion controller. You will find DSPL a powerful language with an instruction set suitable for all coordinated motion control applications.

This manual contains additional information specific to Turbo DSPL, a version of DSPL which maximizes instruction throughput for higher performance. Instruction listings in Chapter 8 include instruction timing information.

The DSPL Programmer's Guide supports the 2-axis Mx42, the 4-axis Mx4, and the 8-axis Mx4 Octavia controllers. Unless otherwise noted, descriptions are provided for the 8-axis Mx4 Octavia. When this manual is used in conjunction with the 4-axis Mx4 or the 2-axis Mx42, remember that the axes available are 1-4 for the Mx4 and 1-2 for the Mx42 (rather than 1-8 for the Mx4 Octavia).

Also note that througout this manual, unless otherwise noted, the term Mx4 will be used to refer generically to all three controllers.

In addition to this manual, you may find the following manuals helpful:

Mx42 User's Guide

Mx4 User's Guide

Mx4 Octavia User's Guide

These manuals include comprehensive information on Mx42/Mx4/Mx4 Octavia's hardware, software, system tuning, memory organization, trouble shooting, and more. The *User's Guide* is the focal point in learning the technical details of these products. All other manuals assume that the user has familiarity with these manuals.

Mx4Pro Development Tools

This manual describes Mx4Pro - a testing and tuning software program used with Mx42, Mx4, and Mx4 Octavia. Mx4Pro includes features such as a signal

generator, oscilloscope, and live block diagram which make the program useful for testing and performance optimization.

Vx4++ /vx8 User's Guide

This manual includes information on the add-on drive control option. Vx4++ is DSPCG's multi-DSP based drive controller that provides complete drive signal processing for all industrial DC and AC machines. Vx4++ has capabilities that are normally offered by servo control amplifiers.

Mx4 & Windows

If your motion application operates under the Windows 98, Windows NT or Windows 2000 operating system, you will want to utilize the Mx4 DLL. The *Mx4 & Windows* manual accompanies the DLL, providing information for both Visual Basic and C/C++ programming. The Mx4 DLL includes functionality in all aspects of Mx42 / Mx4 / Mx4 Octavia use, including utilities for DSPL downloading, DSPL execution start and stop, and much more.

2 INSTALLATION

The Mx4Pro Development Tools include DSPL Program Development as an integrated part of the Tools. The Mx4Pro Development Tools provide both first-time and experienced DSPL programmers with easy access to a host of powerful development aids, ranging from simple DSPL tutorials to compensation table download utilities for more advanced applications. As such, it is strongly recommended that the Mx4Pro Development Tools be used for DSPL program development. Within Mx4Pro, the DSPL Program Development environment may be invoked via the DSPL icon on the main Mx4pro Development Tools tool bar. Please refer to the *Mx4Pro Development Tools v5.x* manual for software installation details.

Chapter 6, *DSPL Program Development*, contains helpful information which details the use of the DSPL Program Development environment within the Mx4Pro Development Tools.

DSPL program development may also be integrated into any Windows 98, Windows NT or Windows 2000 application via the DSPL utilities provided in the Mx4 DLL. Refer to the *Mx4 & Windows* manual or contact DSPCG for more information.

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