JAY CLARK

WOSA/XMC MCAPI and MCSPI
ANALYSIS SPECIFICATION

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Description:	This document describes the summary business plan for the Motion Control WOSA/XMC MCAPI/MCSPI working model and specification.

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	7/15/94 (DB)	- Second Draft: Split analysis off small business plan, incorporated suggestions.

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1.0 Overview

This document describes the WOSA API/SPI software model and specification, otherwise known as the WOSA extension for Motion Control or WOSA/XMC, which is a software model used by software applications to control motion control hardware. The model gives each application a hardware independent motion control solution. In addition to hardware independence, the model is easily extensible for new motion control hardware.

The goal of this document is to create a foundation for a standardized motion control software model. Four main sections, described below, outline the goals of the model, how it is to be implemented, and how it will be introduced to the market. The main sections are the following:

Project Vision - Included in this section are the overall project goal, a high-level description of the software model designed to fulfill that goal, and the planned path to bring the developed software to market.

Development Plan - This section discusses general software design issues. Included in this section are general disscussions of the design goals, target platforms, and the foundation technology used. ~~This section discusses the software design in detail. Included in this section are descriptions of the main objects in the system, how they interact with each other, and the OLE 2.0 interfaces they support, which include specifications for both the motion control application programming interface called MCAPI and the motion control service provider interface called MCSPI.~~

Marketing Plan - In this section, the overall marketing plan is discussed, which includes describing the marketing strategy, the methods of marketing to be used, and the marketing materials needed for each method.

Integration Plan - This section discusses the methods used to integrate the model with both new motion control hardware vendors, and new motion control application developers.

1.1 Definitions

WOSA - Windows Open Service Architecture - this is the Microsoft open service model supported by Microsoft Windows to allow third party vendors a method of consistently extending Microsoft Windows.

WOSA/XMC - WOSA extension for Motion Control - this is the extension for Microsoft Windows used to manipulate and control Motion Control hardware.

MCAPI - Motion Control Application Programming Interface - this is the specific set of functions called by applications using Motion Control. The Motion Component provides the majority of the MCAPI functions, which are all hardware independent. Several functions in the MCAPI, used to access the current driver environment, are provided by the Motion Control Driver Administrator.

MCSPI - Motion Control Service Provider Interface - this is the specific set of functions called by the Motion Component supporting the MCAPI. Each MCSPI software driver is hardware dependent for it directly communicates with a specific hardware implementation using the hardware implementations motion control language and communication registers or ports.

Motion Driver Administrator - The Motion Driver Administrator is an independent Windows application used to install/remove Motion Device Drivers. The user may also toggle API diagnostic logging, for debugging, through the Motion Driver Administrator. In addition to

providing driver management services to the user, the administrator is used by all applications, using the WOSA/XMC software, to access the current Motion Device Driver environment. This environment is later used in conjunction with the Motion Component to control specific motion control hardware. The environment creation functions make up a small subset of the MCAPI mentioned above.

Motion Component - All applications using the WOSA/XMC software model communicate directly with the Motion Component. The Motion Component is a hardware independent implementation of the motion control abstraction specified by the MCAPI. Both the functions supported by the Motion Component and those supported by the Motion Driver Administrator together make up the MCAPI.

Motion Driver - The Motion Driver is the actual hardware dependent software driver that uses the motion control command language to communicate with the motion control hardware that supports it. Every Motion Driver supports a set of functions called core functions. These are primitive functions required by all motion applications. The core functions are a subset of the MCSPI. The remaining set of MCSPI functions are called extended functions and are not required to be implemented.

Motion Driver Stub - The Motion Driver Stub is a secondary Motion Driver supplied to support all MCSPI extended functions not supported by the Motion Driver. A software algorithm is used to implement the functionality that doesn't exist in the underlying motion control hardware.

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