

Software Development Tools for



Customized ServoWorks™ CNC Applications

Our Software Development Tools Provide Ultimate Flexibility

Soft Servo Systems provides dynamic CNC solutions designed to meet specific industry needs. All of our products have been tested extensively by end users to ensure that we achieve the highest levels of quality and innovation. Despite all the preparation that goes into our development process, we know there will always be some customers who require something different in their CNC applications. With this in mind, we have made it easy for users to create or customize their own ServoWorks applications in C/C++ and Visual Studio 6.0 for Windows 2000/XP/XPe.

Customers can program their own GUI or text-based ServoWorks application interface in one of two ways:

- By using SWAPI, extensive ServoWorks APIs.
- By modifying the source code of any ServoWorks GUI application.

Users can create a hybrid application of C/C++ and Visual Basic to take advantage of the faster execution time of C/C++ while using Visual Basic to quickly and easily create advanced, professional-looking GUIs.

Soft Servo Systems offers software development tools to facilitate development of customized applications capitalizing on ServoWorks technology: the ServoWorks Simulator and the ServoWorks Development Kit (SDK). We also offer software development services.

SWAPI (ServoWorks APIs)

Customers can easily develop custom applications based on SWAPI – ServoWorks APIs in the Win32 environment. These extensive motion control API functions are provided in the form of Visual Basic 6.0 or C/C++, and form the core part of the ServoWorks Development Kit.

ServoWorks APIs support a real-time kernel for Windows, so developers can create original real-time applications which achieve real-time monitoring of motion and I/O status. APIs are provided for complete and full access to all real-time processes and resources, including device handling, system initialization, parameter settings, NC system control commands, manual operation commands, automated operation commands, testing commands, I/O commands, PLC commands, NC and servo status monitoring, and many more.

Source Code

Soft Servo Systems offers source code in Visual Basic and C/C++ for the HMI applications of all its CNC products. Customers can use this source code as a basis for customizing their own ServoWorks CNC application, which may be the most efficient way to create an application meeting exact specific needs. Developers can fine-tune or modify the interface or functions, to tailor an application to the machine or to the needs or preferences of the operators.

The ServoWorks Simulator

Motion control and hardware are simulated in the ServoWorks Simulator without requiring an adapter board for the host PC. Users can “play” with the software without having hardware or motors connected to a PC. For instance, users can “jog” an axis that doesn’t exist, and see that “movement” reflected in the display of position data, the plot display, etc.

Typically in a ServoWorks CNC system, an adapter board generates the outside signal (interrupt) that starts each servo loop. With the ServoWorks Simulator, a real-time timer function replaces the interrupt service routine of the adapter board. Servo lag is set to a predefined hard-coded value to replace actual feedback from an encoder.

The ServoWorks Simulator has three different purposes:

- 1) **Software Development.** With simulated motion control, developers can quickly test applications under development without the possibility of damaging hardware or machines.
- 2) **Training.** New or potential operators can try out ServoWorks applications without worrying about damaging real (and costly) hardware. The ServoWorks Simulator is the perfect vehicle for training operators to use ServoWorks CNC products.
- 3) **Part Program Verification/Testing.** Programmers can test part programs and view plots created by those part programs.

A simulator package is available for each CNC product offered by Soft Servo Systems, and comes with:

- Windows HMI application
- ServoWorks CNC Engine Simulator
- Real-time kernel for Windows
- ServoWorks G-Code Parser Simulator for the Windows HMI application
- LadderWorks PLC Engine
- ServoWorks RealTime DLL
- ServoWorks MotionLite, Simulation Edition (some HMI applications)

ServoWorks Development Kit (SDK)

The ServoWorks Development Kit is a package for software developers who want to create their own, customized motion control applications based on ServoWorks technology and on SWAPI (ServoWorks motion control APIs in the Win32 environment), which forms the core of SDK.

SDK jump-starts users in developing their own customized ServoWorks applications, while taking full advantage of ServoWorks technology quickly and easily. SDK comes in two packages: Standard and Premium.

SDK Standard Package includes:

- One of the following forms of SWAPI:
 - SWAPI Visual Basic 6.0 Module Package—reusable code modules to include in Visual Basic project to make the ServoWorks API functions part of the application
 - SWAPI C/C++ Interface Package, including header files and a library file to include in C or C++ projects
- Intensive sample source code for simple C/C++ and Visual Basic applications – models how to use SWAPI functions
- An extensive API reference manual – a complete, organized resource clearly explaining the ServoWorks APIs, making them easy to use in building an application
- An intensive and user-friendly programming manual including an explanation of ServoWorks technology, code examples, and more

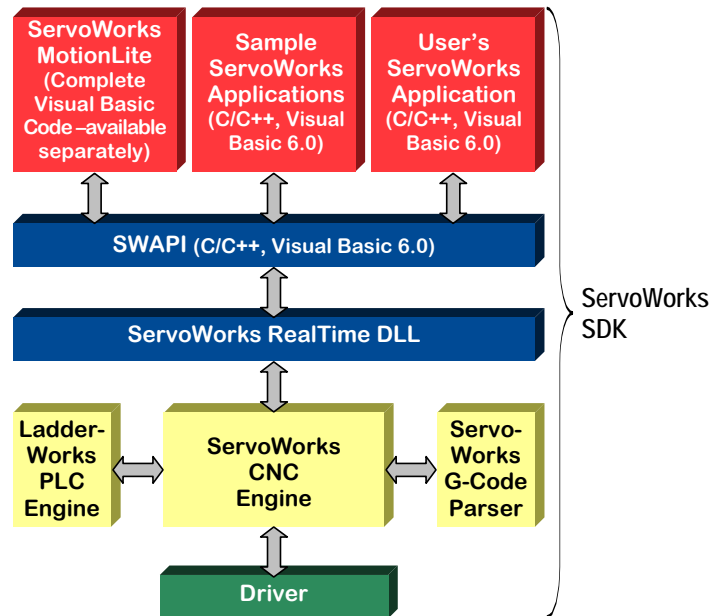
NOTE: Does not include technical support or maintenance.

SDK Premium Package includes:

- All items in the SDK Standard Package
- A ServoWorks Simulator Package for one of Soft Servo Systems' ServoWorks CNC products
- Annual maintenance for the first year
- One-seat technical support (e-mail and phone) for the first year
- One-seat training for SDK programming (two days)

SDK Ordering Information

An SDK is available and different for each CNC product. A ServoWorks application to be developed by an SDK for a product would run on the ServoWorks CNC Engine of that product. For example, an SDK would be ordered such as “SDK for MC-Quad” or “SDK for S-120M,” and would run on the MC-Quad CNC Engine or S-120M CNC Engine, respectively.



ServoWorks RealTime DLL

- ServoWorks RealTime DLL provides the interface between ServoWorks applications in the Win32 subspace and the ServoWorks CNC Engine in the real-time subspace.
- While most developers will create their own top-level applications in the Win32 subspace using ServoWorks APIs, it is also possible to create a driver that operates in the real-time operating system (RTOS) subspace and links with the ServoWorks drivers. (This requires a RealTime DLL license from Soft Servo Systems, Inc.) Creating your own RTOS driver is equivalent to adding an original DSP.

