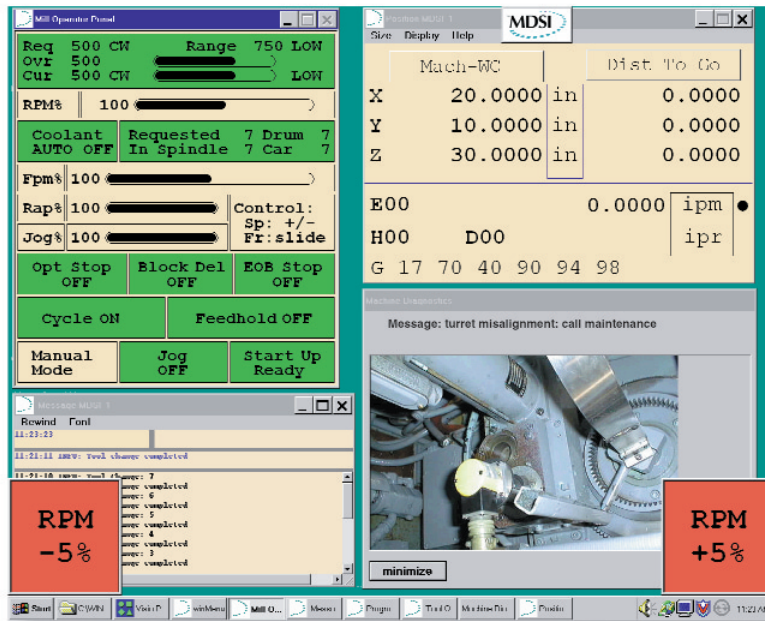# OpenCNC®
Software Developer Kit

Unprecedented design flexibility: software that lets you create the CNC you need, based on your design specifications

OpenCNC® software is a powerful package that enables designers and control engineers to design and develop a CNC running on Microsoft® Windows NT®/Windows 2000®. Combining a soft CNC, soft PLC, and HMI in one product, the all-software, open-architecture OpenCNC® adapts to your machine design, while also giving you the freedom to integrate off-the-shelf hardware and third-party software technologies. It's unprecedented design flexibility: software that lets you create the CNC you need, based on *your* design specs—rather than requiring you to conform to the limitations imposed by proprietary CNCs.

The OpenCNC Software Developer Kit (SDK) includes the OpenCNC Runtime, which lets you install OpenCNC on a machine at your facility. With the OpenCNC SDK, engineers can design, build, test, and simulate the CNC application offline, in software, before installing it on the machine tool. The SDK includes sample mill and lathe applications. The OpenCNC Runtime is the execution kernel that controls the machine tool. Windows NT/2000 real-time determinism is provided by the Venturcom RTX® extension.

FEATURES

- Common control technology across a full range of machine tools: single- and dual-turret lathes, single- and multi-spindle precision drills, routers, mills, grinders, gear hobs, dial index machines, and gantry machines

- Servo loop closed entirely in software running on a standard PC with a single processor and a single operating system. No proprietary hardware. No motion control cards.

- Hard real-time performance on standard Microsoft® Windows NT®/Windows 2000®

- Scaleable technology – up to ten axes, eight spindles, and eight independent job streams

- Microsoft® Visual Basic® or C/C++ for the development of user macros

- Open, published Application Programming Interface (API)

- Soft logic development in all five IEC-61131-3 programming languages, plus flowcharting

- Remote diagnostics using standard networking tools

- Automatic machine tool data collection—including maintenance, production, and quality information— in real time, without specialty hardware

- Support of standards set forth in OMAC, NEMI, and OSACA documents for true open-architecture controls

BENEFITS

- Reduce design cycle and time-to-market

- Reduce support costs by providing a standard CNC toolkit to your development team

- Provide value-added technologies of your own to customers

- Reduce engineering costs and training with standard development environment

- Investment protection and continuous performance improvement with upgradeable software CNC

- Use the latest off-the-shelf PC hardware

OpenCNC® Software Developer Kit

Reduce Design Cycles with a Software CNC

With OpenCNC

With proprietary CNCs
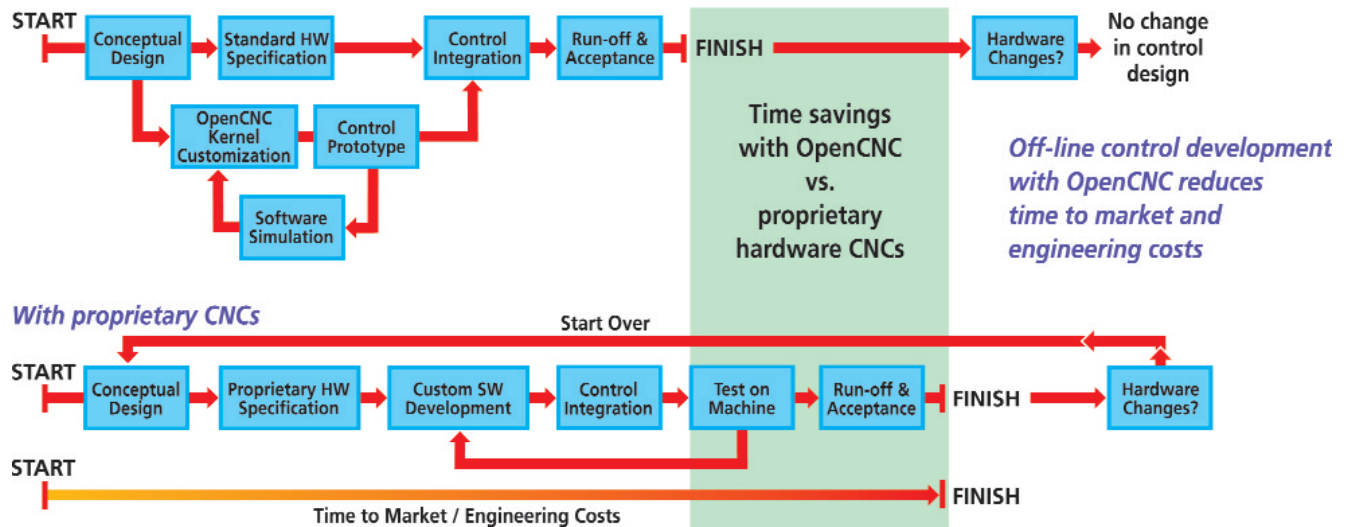
OpenCNC software cuts design cycles by enabling concurrent, non-linear design development.

Software Components

The OpenCNC® Software Developer Kit includes the OpenCNC and ISaGRAF® tools required to build soft logic and test the electrical and mechanical aspects of the target machine. There are two OpenCNC Software Developer Kit packages: Plus and Pro. OpenCNC machine operator and integrator manuals are included with each package.

OpenCNC Plus Software Developer Kit

• OpenCNC development environment for up to four axes, eight job streams, eight spindles, gantry
• OpenCNC Application Programming Interface Level 1
• Sample User Interface code (Visual Basic)
• Sample PLC logic for a lathe and mill
• ISaGRAF 256 Workbench for 256 I/O

OpenCNC Pro Software Developer Kit

• OpenCNC development environment for up to ten axes machine tools, eight job streams, eight spindles, gantry
• OpenCNC Application Programming Interface Level 1
• Sample User Interface code (Visual Basic)
• Sample PLC logic for a lathe and mill
• ISaGRAF 256 Workbench for 256 I/O

About ISaGRAF Workbench®

The Workbench is a Windows-based software development tool used to create soft PLC logic written in any or all of the five IEC-61131-3 languages and flowcharting. It features a complete set of tools providing editing, debugging, code generation, documentation, library management, archiving, on-line monitoring, off-line simulation and on-line change of projects made for execution by the ISaGRAF runtime kernel, which is built into OpenCNC. MDSI provides all the tools required for ISaGRAF to communicate with OpenCNC.

REQUIREMENTS

• 128 MB RAM (256 MB recommended), 5 GB hard drive

• Intel® Pentium® processor 300Mhz

• Windows NT V4/Windows 2000

• Microsoft Visual Basic V5 or V6 – to develop custom machining cycles or to develop user interface screens.

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