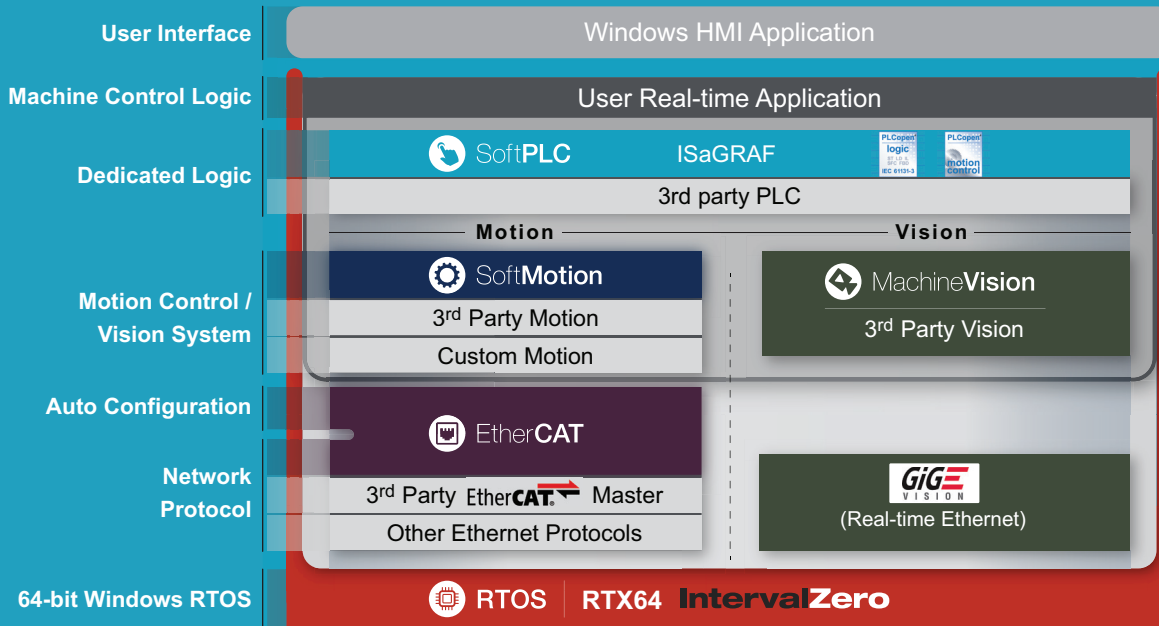# The Complete "Plug-and-Play" Software Platform for Real-Time, PC-Based Motion Control & Machine Vision

The KINGSTAR Soft Motion Platform is an open and standards-based, integrated platform that enables engineers to design, develop, and integrate applications with either KINGSTAR's soft motion library and software PLC or third-party software. Using a single industrial PC enhanced by the power of a real-time operating system (RTOS) for 64-bit Windows, and leveraging the EtherCAT standard, you can deliver software-only motion controllers and machine vision positioning systems quickly and cost effectively.

User Interface	Windows HMI Application
Machine Control Logic	User Real-time Application
Dedicated Logic	SoftPLC ISaGRAF PLCopen logic / PLCopen motion control / 3rd party PLC
	Motion Vision
Motion Control / Vision System	SoftMotion / 3rd Party Motion / Custom Motion MachineVision / 3rd Party Vision
Auto Configuration	EtherCAT
Network Protocol	3rd Party EtherCAT Master / Other Ethernet Protocols GiGE VISION (Real-time Ethernet)
64-bit Windows RTOS	RTOS RTX64 IntervalZero

REDUCE COSTS
Replace hardware with software to reduce machine control costs by 25-50%.

SPEED TIME-TO-MARKET
Improve productivity with pre-integrated motion libraries and EtherCAT auto-configuration.

IMPROVE UX
Build a powerful UI with a world-class Windows Interface (HMI).

ENHANCE PERFORMANCE
Improve performance and control by using the PC NIC, Ethernet cables and EtherCAT infrastructure.

SCALE DYNAMICALLY
Auto-configure an EtherCAT network when swapping any servo drives and I/O devices.

EXTEND EASILY
Add any 3rd party protocols or open-source libraries with no vendor lock-in.

The KINGSTAR Soft Motion Platform provides the most comprehensive set of product options:

KINGSTAR Soft Motion
Deliver superior quality with pre-integrated and tested motion libraries that provide precision motion positioning performance

KINGSTAR EtherCAT
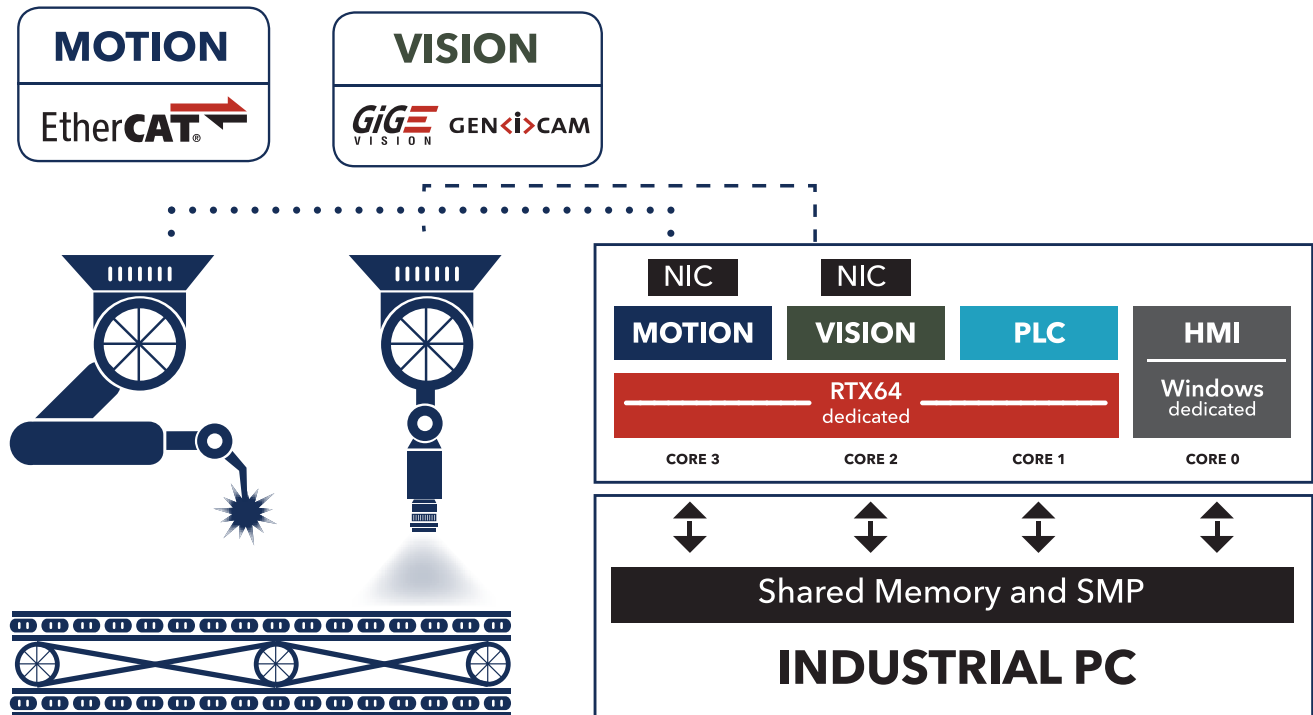Integrate custom motion control on an auto-configured EtherCAT network for any servo or I/O device

KINGSTAR Soft PLC
Powered by ISaGRAF, monitor app management and deployment from an intuitive HMI on an industrial PC

KINGSTAR Machine Vision
Powered by Matrox, run their imaging library (MIL) for real-time image capture and processing on 64-bit Windows

IntervalZero RTX64
Replace hardware FPGAs & DSPs with software that transforms 64-bit Windows into a real-time OS

Rapidly deliver PC-based industrial machine controllers with precision performance and superior quality at half the cost of hardware.

MOTION
EtherCAT

VISION
GiGE VISION GEN<i>CAM

NIC   NIC

MOTION	VISION	PLC	HMI
RTX64 dedicated			Windows dedicated
CORE 3	CORE 2	CORE 1	CORE 0

Shared Memory and SMP

INDUSTRIAL PC

KINGSTAR SoftMotion
- Enables coordinated motion at 125 microsecond intervals
- Up to 3 cores for dedicated motion control
- Machine control API for real-time precision and accessible from Visual Studio

KINGSTAR EtherCAT
- Enables coordinated motion at 125 microsecond intervals
- Up to 3 cores for dedicated motion control
- Integrates any customized motion control software

KINGSTAR SoftPLC
powered by ISaGRAF
- Transform your industrial PC into a PLC with an intuitive HMI
- Handle all motion control and machine vision automation tasks
- Rely on modularity and ruggedness for real-time use

KINGSTAR MachineVision
powered by Matrox
- Perform image capture, processing and analysis using GigE
- Run Matrox Imaging Library (MIL) natively on IntervalZero's RTX64 RTOS
- Partition a MIL app to run on RTX64 and Windows for response-critical parts

KINGSTAR RTOS
IntervalZero
- Conduct real-time application processing up to 63 cores on a PC
- Scale up with x86/x64 to create next-gen products
- Up to 128 priorities for thread scheduling
- Full control over process load balancing
- Double performance every 18 months

KINGSTAR