Data Sheet

KINGSTAR Machine Automation Platform

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

The KINGSTAR Machine Automation 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.

<table>
<thead>
<tr>
<th>User Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows HMI Application</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machine Control Logic</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Real-time Application</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dedicated Logic</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motion Control / Vision System</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoftMotion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Auto Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fieldbus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Network Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd Party EtherCAT, Master</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>64-bit Windows RTOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTOS, RTX64, IntervalZero</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REDUCE COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replace hardware with software to reduce machine control costs by 25-50%.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPEED TIME-TO-MARKET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve productivity with pre-integrated motion libraries and EtherCAT auto-configuration.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IMPROVE UX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build a powerful UI with a world-class Windows Interface (HMI).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ENHANCE PERFORMANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve performance and control by using the PC NIC, Ethernet cables and EtherCAT infrastructure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCALE DYNAMICALLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto-configure an EtherCAT network when swapping any servo drives and I/O devices.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXTEND EASILY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add any 3rd party protocols or open-source libraries with no vendor lock-in.</td>
</tr>
</tbody>
</table>

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

**KINGSTAR PLC**
Powered by AXEL, 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
Data Sheet

KINGSTAR Machine Automation Platform

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

- 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

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

- 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

- 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

- 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

Shared Memory and SMP

INDUSTRIAL PC