Industrial PC Platform

Powerful Performance for automation, control and information

- Powerful performance – maximize output
- Rock-solid build – improve uptime
- Real-time OS inside – reliable machine control
- Full size and compact models
The perfect fusion of rugged reliability and future proof of expandablity

**Powerful, reliable, scalable - and tough as they come**

Our NY Industrial PC has been designed from first principles to be powerful, reliable and scalable, making it ideally suited to visualization, data handling, measuring and controlling. We’ve simplified the design and build to eliminate faults caused by complexity and, with other unique design features, to maximize uptime and reduce costs. The future will be IT driven: Omron’s IPC platform will make you part of it.

**Simplicity improves reliability**

Unnecessary complexity causes problems, so we’ve eliminated it totally, to improve reliability, maximize performance.
- No internal cables
- No complex heatpipes
- Structurally uniform mechanics to enable future expansion
- Reduced assembly, maintenance and labor costs
- Rock-solid architecture. Die-cast aluminum case

**Performance**

- Based on Intel® Atom® to Intel® Xeon® processors
- Up to 32 GB ECC (DDR4 SDRAM) supported
- Intel® Iris™ Pro Graphics or Intel® HD Graphics
- Unique heatsink effectiveness
- RoHS Directive (2002/95/EC), EU Directives, KC Registration, RCM, cULus, EAC
Industrial Panel PC:
Our industrial-quality touchscreen panel PC's and monitors enable operator and maintenance engineer to interact more effectively with the machine. The touchscreen controller can detect non-standard actions such as false touches, palm rejection, water and cleaning - even if the user is wearing gloves.*1

Industrial Monitor
- 12.1, 15.4 & 18.5 Inch industrial display
- Multi-touch, using the latest projected capacitive technology
- False touch detection
- Glove operation*1
- Easy built-in supportive mounting
- Unique customized logo

*1 When using gloves, ensure to use gloves that are functional with this touchscreen.
*2 Industrial Monitor won the iF Design Award 2016. The iF Product design Award, presented by Hannover-based International Forum Design GmbH, is one of the world’s most prestigious design awards.
*3 An optional CFast Card slot is located at the rear side of the base layer.
The perfect union of Industrial control and open flexibility

Perfect fusion: Sysmac machine control and IT technology

Designed specifically for machine usage, making them innovative yet reliable, the IPC Machine Controller combines the precision and utility of the Sysmac platform with the versatility and range of Windows programs.

The two platforms operate simultaneously but separately, so if Windows is down, the machine just keeps on working. As a result, engineers become unstoppable – empowered to explore manufacturing innovation by leveraging big data, NUI (Natural User Interface) and IoT (Internet of Things) initiatives, all without compromising proven PLC reliability and robustness.

**Industrial PC**
- Fourth-generation Intel® Core™ i7; Four core/8 threads
- Windows Embedded Standard 7
- Open operating system enables use of own software
- Ethernet port for access to your IT systems

**Machine Controller**
- Sysmac Machine control inside
- 500 μs system cycle time
- 16 to 64 axes of motion control
- EtherNet/IP port for machine-to-machine, HMI communication
- EtherCAT port for up to 192 synchronized slaves
- Safety over EtherCAT - FSoE

**Sysmac Studio**
Integrated Development Environment
- A single tool for logic sequence, motion, safety, robotics, vision, HMI and Database connection
- Open standard IEC 61131-3
- Sysmac Library to optimize engineering time and machine availability

The beating heart of the IPC Machine Controller

Our challenge was to use Sysmac machine control in combination with an open operating system like Windows. Normally it would be done using full virtualization, but this would influence the machine control, so it wasn’t acceptable to us. Instead, we use partitioning, so that both operating systems can work independently: if Windows is down, the machine is not affected.

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*1. Industrial Box PC was awarded the Red Dot Award 2016 in the category ‘computers’. The Red Dot design award has been presented by the Design Zentrum Nordrhein Westfalen since 1955. It is one of the best-respected design competitions in the world, along with the IF award (Germany) and IDEA (the United States).

*2. Industrial Box PC was awarded the Good Design Award 2017. The Good Design Award has been a sole comprehensive design evaluation and commendation system in Japan since 1957. Many companies and designers from both inside and outside of Japan participate in this activity to enhance their industry or quality of life through design.
Continuous operation: productivity, efficiency, safety

- Vertical integration delivers production data from manufacturing process directly to IT systems.
- Data management enables machine data to be recorded, stored and analyzed to improve productivity.
- EtherCAT connectivity simplifies installation of production modules and safety devices.

**Sysmac Integrated Platform**

![Diagram of Sysmac Integrated Platform](image)

- **Big data** connection to MES/ERP/SQL Database.
- **Horizontal integration** connects Controller and Visualization.
- **Controller** includes IPC Machine Controller and Motion components.
- **Visualization** features Industrial Monitor and IP67 I/O.
- **I/O** includes NX I/O, NX Safety, and IP67 I/O.
- **Safety** with NX Safety.
- **Vision** with FH.
- **Sensing** includes Photoelectric sensor and Proximity sensor.
High-speed, high precision
Motion controller plus PC - in one box

The IPC Programmable Multi-Axes Controller offers exceptionally precise motion control, with proven technology from Omron’s Delta Tau Data Systems, Inc. It was developed to help manufacturers boost both their productivity and their manufacturing quality, delivering world-beating output speeds allied to exceptional precision. It comes equipped with Windows real-time operating systems which, combined with powerful control capability, provides exceptional flexibility. And it’s not just superior motion control: it also enables the creation of high-resolution graphics as well as customized applications for high-end production requirements. The system can perform predictable motion control while running intensive data-handling applications and, uniquely, will continue with motion control tasks even if the OS stops working.

Industrial PC
Operating System
- Windows (Embedded Standard 7)

Hypervisor
Enables the multiple operating system environment

Programmable Multi Axis Controller
Proven motion control technology from Delta Tau Data Systems, Inc.

High-speed, high-precision motion controller plus PC - in one box

- Up to 128 axes of control
- Motion control period 250 µs/16 axes

Flexible function development capability
- G-Code/ANSI C/original programming language
- EtherCAT for flexible system configuration

Reliability
- Multi-tasking of Motion Control and Windows/applications
- Hypervisor™ software for uninterrupted control even if Windows is down
High-speed and high-precision motion controller and PC in one

The Omron IPC Programmable Multi Axis Controller can be integrated into your existing system, even if it uses products from other manufacturers. Consult your Omron representative.

System Configuration

High-speed multi-axis control
Flexibility
Reliability

• Multi-tasking of Motion Control and Windows/applications
• Hypervisor*3 software for uninterrupted control even if Windows is down
• Flexible function development capability
  G-Code/ANSI C/original programming language
• EtherCAT for flexible system configuration
• Up to 128 axes of control
• Motion control period: 250 /unit

The IPC Programmable Multi-Axes Controller offers exceptionally precise motion control, with proven technology from Omron’s Delta Tau Data Systems, Inc. It was developed to help manufacturers boost both their productivity and their manufacturing quality, delivering world-beating*1 output speeds allied to exception precision.

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## Industrial PC platform family

<table>
<thead>
<tr>
<th>INDUSTRIAL PC PLATFORM</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Product name</th>
<th>Industrial PC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Industrial Box PC, Industrial Panel PC</td>
</tr>
<tr>
<td>Model</td>
<td>NYB, NYP</td>
</tr>
<tr>
<td>Description</td>
<td>Compact design that offers flexibility, expandability and easy maintenance for applications in factory automation environments</td>
</tr>
<tr>
<td>Description</td>
<td>Combines the functionality of the Industrial Box PC and Industrial Monitor</td>
</tr>
<tr>
<td>Operating system</td>
<td>No operating system, Windows Embedded Standard 7 - 32 bit, Windows Embedded Standard 7 - 64 bit, Windows 10 IoT Enterprise LTSC - 64 bit</td>
</tr>
<tr>
<td>Function module</td>
<td>—</td>
</tr>
<tr>
<td>Number of axes</td>
<td>—</td>
</tr>
<tr>
<td>CPU type</td>
<td>Intel® Xeon® E3-1515M v5 Processor 6th generation CPU with Fan Unit for active cooling, Intel® Core™ i5-7300U Processor 7th generation CPU with fanless cooling, Intel® Celeron® 3965U Processor 7th generation CPU with fanless cooling, Intel® Core™ i7-4700EQ Processor 4th generation CPU with Fan Unit for active cooling, Intel® Core™ i5-4300U Processor 4th generation CPU with fanless cooling, Intel® Celeron® 2980U Processor 4th generation CPU with fanless cooling, Intel® Atom® x5-E3940 Apollo Lake</td>
</tr>
<tr>
<td>Number of axes</td>
<td>—</td>
</tr>
<tr>
<td>RAM memory</td>
<td>8 GB, 16 GB, 32 GB (ECC supported) *1, 2 GB, 4 GB, 8 GB, 16 GB (non ECC)</td>
</tr>
<tr>
<td>Storage</td>
<td>HDD, SSD, CFast, SD memory card</td>
</tr>
<tr>
<td>Display size</td>
<td>—</td>
</tr>
<tr>
<td>Built-in ports</td>
<td>Ethernet, USB 2.0/3.0, DVI</td>
</tr>
<tr>
<td>Interface option</td>
<td>RS-232C, DVI-D, NY Monitor Link, GigE LAN</td>
</tr>
<tr>
<td>Expansion slots</td>
<td>1 PCIe slot</td>
</tr>
</tbody>
</table>

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*1. Only for models with Intel® Xeon® Processor.
## INDUSTRIAL PC PLATFORM

<table>
<thead>
<tr>
<th>IPC Machine Controller</th>
<th>Industrial Box PC</th>
<th>Industrial Panel PC</th>
<th>IPC Programmable Multi Axis Controller</th>
<th>Industrial Box PC</th>
<th>NY51¨-1</th>
<th>NY53¨-1/NY53¨-5</th>
<th>NY51¨-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two operating systems: Windows and Real-Time OS</td>
<td>Provides flexibility in the creation of high-resolution graphics and applications and the development of motion control for high-end applications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows Embedded Standard 7 - 32 bit *2</td>
<td>Windows Embedded Standard 7 - 32 bit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows Embedded Standard 7 - 64 bit</td>
<td>Windows Embedded Standard 7 - 64 bit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine Automation Control Software or Machine Automation Control Software + NC</td>
<td>Programmable Multi Axis Controller</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16, 32, 64</td>
<td>128</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intel® Core™ i7-4700EQ Processor 4th generation CPU with Fan Unit for active cooling</td>
<td>Intel® Core™ i7-4700EQ 4th generation CPU with Fan module for active cooling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 GB (non-ECC type)</td>
<td>8 GB (non-ECC type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Memory
- 8 GB, 16 GB, 32 GB (ECC supported) *1
- 2 GB, 4 GB, 8 GB, 16 GB (non ECC)
- 8 GB (non-ECC type)

### Storage
- HDD, SSD, CFast, SD memory card
- HDD, SSD, CFast, SD memory card

### Display
- 12.1 inches, 15.4 inches
- 12.1 inches, 15.4 inches

### Built-in Ports
- Ethernet
- USB 2.0/3.0
- DVI
- Ethernet
- EtherCat
- USB 2.0/3.0
- DVI

### Interface Options
- RS-232C, DVI-D, NY Monitor Link
- RS-232C
- RS-232C, DVI-D, NY Monitor Link
- RS-232C

### Expansion Slots
- 1 PCIe slot
- 1 PCIe slot

*2: For the 32 bit version, consult your OMRON sales representative.
## Industrial PC platform family

### INDUSTRIAL PC PLATFORM

<table>
<thead>
<tr>
<th>Product name</th>
<th>Industrial Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>NYM12 NYM15 NYM19</td>
</tr>
<tr>
<td>Description</td>
<td>Display and touch interface for the Industrial PC Platform</td>
</tr>
<tr>
<td>Display device</td>
<td>TFT LCD</td>
</tr>
<tr>
<td>Screen size</td>
<td>12.1 inches 15.4 inches 18.5 inches</td>
</tr>
<tr>
<td>Resolution</td>
<td>Up to 1,280 x 800 pixels at 60 Hz Up to 1920 x 1080 pixels at 60 Hz</td>
</tr>
<tr>
<td>Colors</td>
<td>16,770,000 colors</td>
</tr>
<tr>
<td>Connectors</td>
<td>• 1 Power Connector • 2 USB Type-A Connector • 1 DVI-D Connector • 1 USB Type-B Connector</td>
</tr>
<tr>
<td>Built-in options</td>
<td>NY Monitor Link</td>
</tr>
<tr>
<td>Allowable power supply voltage range</td>
<td>19.2 to 28.8 VDC</td>
</tr>
</tbody>
</table>

### UNINTERRUPTIBLE POWER SUPPLY (UPS)

<table>
<thead>
<tr>
<th>Model</th>
<th>S8BA *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>120 W 240 W</td>
</tr>
<tr>
<td>Input voltage</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>Normal operation Output of input voltage as-is</td>
</tr>
<tr>
<td>Voltage</td>
<td>24VDC±5%</td>
</tr>
<tr>
<td>Backup time (25°C, initial characteristics)</td>
<td>6 min. (120 W) 6 min. (240 W)</td>
</tr>
<tr>
<td>I/O signal</td>
<td>Yes (RJ45)</td>
</tr>
<tr>
<td>Dimensions (W × D × H mm)</td>
<td>94×100×100 148×100×100</td>
</tr>
<tr>
<td>Weight of unit</td>
<td>Approx. 0.8 kg Approx. 1.3 kg</td>
</tr>
</tbody>
</table>

* Revision number 04 or higher.
Authorized Distributor:

Controllers & I/O
- Machine Automation Controllers (MAC) • Motion Controllers
- Programmable Logic Controllers (PLC) • Temperature Controllers • Remote I/O

Robotics
- Industrial Robots • Mobile Robots

Operator Interfaces
- Human Machine Interface (HMI)

Motion & Drives
- Machine Automation Controllers (MAC) • Motion Controllers • Servo Systems
- Frequency Inverters

Vision, Measurement & Identification
- Vision Sensors & Systems • Measurement Sensors • Auto Identification Systems

Sensing
- Photoelectric Sensors • Fiber-Optic Sensors • Proximity Sensors
- Rotary Encoders • Ultrasonic Sensors

Safety
- Safety Light Curtains • Safety Laser Scanners • Programmable Safety Systems
- Safety Mats and Edges • Safety Door Switches • Emergency Stop Devices
- Safety Switches & Operator Controls • Safety Monitoring/Force-guided Relays

Control Components
- Power Supplies • Timers • Counters • Programmable Relays
- Digital Panel Meters • Monitoring Products

Switches & Relays
- Limit Switches • Pushbutton Switches • Electromechanical Relays
- Solid State Relays

Software
- Programming & Configuration • Runtime