Industrial PC platform
Powerful performance for automation, control and information

- Future proof Industrial PC - rugged and expandable
- Embedded controller available - dedicated machine control plus open flexibility
- High performance motion control options
Industrial PC Platform

The perfect fusion of rugged reliability

Rock-solid Industrial PC design
Our NY series Industrial PC has been designed 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 to maximize uptime while reducing costs. The future will be IT driven: Omron’s IPC platform will make you a part of it.

Designed for the real world
Our projected capacitive touchscreens for panel PCs and monitors ensure effective interaction for all users, including those wearing gloves. The controller can detect non-standard actions such as false touches, palm rejection, water and cleaning.

Key details

Features
- 12.1” and 15.4” industrial displays
- Multi-touch, using the latest projected capacitive technology
- False touch detection
- Glove operation

Performance
- Based on fourth-generation Intel® Celeron® to Intel® Core™ i7 processors
- Up to 8 GB DDR3L RAM
- Intel® HD graphics
- Unique heatsink effectiveness
- RoHS Directive (2002/95/EC), EU directives

Simplicity
- No internal cables
- No complex heatpipes
- Structurally uniform mechanics to enable future expansion
- Reduced assembly, maintenance and labor costs
- Die-cast aluminum case
Connections

- Options: RS-232C or an extra DVI-D for dual monitor
- PCIe card slot half-length (X1 or X4 depending on CPU)
- SD memory card slot (2.0 spec and up to 32 GB)
- DVI
- 3x RJ45 gigabit ethernet ports
- 2x USB 2.0, 2x USB 3.0
- Choice of storage devices: HDD or SSD (MLC and long-life SLC types) Second drive option
- UPS port for I/O connection
- Power supply: 24VDC non-isolated

Versatile installation

Option 1: Book-mount
Option 2: Wall-mount, horizontal
Option 3: Wall-mount, vertical

Award winning design

Industrial Monitor won the iF Design Award 2016 and Industrial Box PC was awarded the Red Dot Award 2016 in the category of computers. These are some of world’s most prestigious recognitions of outstanding design.
The perfect union of
Industrial control and open flexibility

Inside the IPC machine controller

The IPC Machine Controller combines the highly synchronized precision and utility of the Sysmac automation platform with the versatility and range of an open Windows PC. The two platforms operate simultaneously but separately. If Windows fails, the machine keeps working without compromising proven PLC reliability and robustness. The combination empowers engineers to explore manufacturing innovation by leveraging big data, Natural User Interface (NUI) and Industrial Internet of Things (IIoT) initiatives.

Machine control OS never stops:
The beating heart of the IPC machine controller

Our challenge was to allow both machine control and Windows operating systems to work independently, and ensure machine control tasks do not get interrupted if Windows crashes. To solve this, we used partitioning instead of full virtualization, and hypervisor software to create a virtual network and appropriately assigning IPC hardware resources (boards, CPU cores, etc.) to the operating system.

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

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

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 application-specific functions and function blocks optimize engineering time and machine availability
- Programs are fully portable between IPC and Sysmac Nj/NX machine automation controllers
The power of integration
Sysmac integrated platform

- Vertical integration delivers production data from the 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
- Continuous operation: productivity, efficiency, safety
- A single tool for logic sequence, motion, safety, robotics, vision, HMI and database connection
High-speed, high-precision

Motion controller plus PC - in one box

IPC programmable multi-axis controller
The IPC Programmable Multi-Axis Controller offers exceptionally precise motion control with proven technology from Omron’s Delta Tau Data Systems. It was developed to help manufacturers boost both their productivity and manufacturing quality, delivering world-beating output speeds along with exception 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 Omron’s Delta Tau Data Systems.

High-speed multi-axis control
• Up to 128 axes of control
• Motion control period: 250 microseconds/16 axes
  16.6 microseconds/1 axis or
  50 microseconds/8 axes  
  (Reference values: July 2016).

Flexibility
• 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
Easily integrate high-speed, high-precision motion control

Develop, debug, and test programs developed in original programming language or in C language. The Omron IPC programmable multi-axis controller can be integrated into your existing system, even if it uses products from other manufacturers.
### Industrial PC platform family

#### Machine Controller Industrial PC Platform

<table>
<thead>
<tr>
<th>Product name</th>
<th>Industrial PC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Industrial Box PC</td>
</tr>
<tr>
<td>Model</td>
<td>NYB</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>Operating system</td>
<td>Windows Embedded Standard 7 - 32 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® Core™ i7-4700EQ Processor 4th generation CPU with Fan Unit for active cooling</td>
</tr>
<tr>
<td></td>
<td>Intel® Celeron® 2980U Processor 4th generation CPU with fanless cooling</td>
</tr>
<tr>
<td>RAM memory (non-ECC type)</td>
<td>2 GB, 4 GB, 8 GB</td>
</tr>
<tr>
<td>Storage</td>
<td>HDD, SSD, 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</td>
</tr>
<tr>
<td>Expansion slots</td>
<td>1 PCIe slot</td>
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</tbody>
</table>

#### Industrial Monitor

<table>
<thead>
<tr>
<th>Product name</th>
<th>Industrial Monitor</th>
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<tbody>
<tr>
<td>Model</td>
<td>NYM12</td>
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<tr>
<td>Description</td>
<td>Display and touch interface for the Industrial PC Platform</td>
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<tr>
<td>Display device</td>
<td>TFT LCD</td>
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<tr>
<td>Screen size</td>
<td>12.1 inches</td>
</tr>
<tr>
<td>Resolution</td>
<td>Up to 1,280 x 800 pixels at 60 Hz</td>
</tr>
<tr>
<td>Colors</td>
<td>16,770,000 colors</td>
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<tr>
<td>Connectors</td>
<td>1 Power Connector, 1 DVI-D Connector, 2 USB Type-A Connector, 1 USB Type-B Connector</td>
</tr>
<tr>
<td>Allowable power supply voltage range</td>
<td>19.2 to 28.8 VDC</td>
</tr>
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</table>
### Motion Control 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>
</tr>
</thead>
<tbody>
<tr>
<td>(<strong>NY51</strong>-1)</td>
<td><strong>NY51</strong></td>
<td><strong>NY51</strong>-A</td>
<td><strong>NY51</strong></td>
<td><strong>NY51</strong></td>
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<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>
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<tr>
<td>Windows Embedded Standard 7 - 64 bit *</td>
<td>Windows Embedded Standard 7 - 32 bit</td>
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<td></td>
</tr>
<tr>
<td>Windows Embedded Standard 7 - 64 bit</td>
<td>Windows Embedded Standard 7 - 64 bit</td>
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<tr>
<td>Machine Automation Control Software</td>
<td>Programmable Multi Axis Controller</td>
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<tr>
<td><strong>16, 32, 64</strong></td>
<td><strong>128</strong></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>
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<td></td>
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</tr>
<tr>
<td>Intel® Core™ i5-4300U Processor 4th generation CPU with fanless cooling</td>
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<tr>
<td>RAM memory (non-ECC type) 2 GB, 4 GB, 8 GB</td>
<td>RAM memory 8 GB</td>
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<tr>
<td>Storage HDD, SSD, SD memory card</td>
<td>Storage SSD, SD memory card</td>
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</tr>
<tr>
<td>Display size --- 12.1 inches, 15.4 inches</td>
<td>Display size ---</td>
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<tr>
<td>Built-in ports</td>
<td>Built-in ports</td>
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<tr>
<td>• Ethernet</td>
<td>• Ethernet</td>
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</tr>
<tr>
<td>• EtherNet/IP</td>
<td>• EtherCAT</td>
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<td></td>
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</tr>
<tr>
<td>• EtherCAT</td>
<td>• USB 2.0/3.0</td>
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<td></td>
<td></td>
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<tr>
<td>• USB 2.0/3.0</td>
<td>• DVI</td>
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<td>• DVI</td>
<td>• DVI</td>
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</tr>
<tr>
<td>Interface option RS-232C, DVI-D</td>
<td>Interface option RS-232C</td>
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<td></td>
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<tr>
<td>Expansion slots 1 PCIe slot</td>
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</tr>
<tr>
<td>Uninterruptible Power Supply (UPS)</td>
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</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>S8BA</th>
<th>S8BA</th>
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<tbody>
<tr>
<td><strong>Capacity</strong></td>
<td>120 W</td>
<td>240 W</td>
</tr>
<tr>
<td><strong>Input voltage</strong></td>
<td>24 VDC</td>
<td>24 VDC</td>
</tr>
<tr>
<td><strong>Output voltage Normal operation</strong></td>
<td>Output of input voltage as-is</td>
<td>Output of input voltage as-is</td>
</tr>
<tr>
<td><strong>Backup operation</strong></td>
<td>24VDC±5%</td>
<td>24VDC±5%</td>
</tr>
<tr>
<td><strong>Backup time (25°C, initial characteristics)</strong></td>
<td>6 min. (120 W)</td>
<td>6 min. (240 W)</td>
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<tr>
<td><strong>I/O signal</strong></td>
<td>Yes (RS485)</td>
<td>Yes (RS485)</td>
</tr>
<tr>
<td><strong>Dimensions (W × D × H mm)</strong></td>
<td>94×100×100</td>
<td>148×100×100</td>
</tr>
<tr>
<td><strong>Weight of unit</strong></td>
<td>Approx. 0.8 kg</td>
<td>Approx. 1.3 kg</td>
</tr>
</tbody>
</table>

* For the 32 bit version, consult your OMRON sales representative.

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*Revision number 04 or higher.*
Notes
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