Industrial PC Platform
Openness meets Automation Control

Powerful performance – maximize output
Rock-solid build – improve uptime
Real-time OS inside – reliable machine control
Industrial PC

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: very stylish…
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

A few details…
- 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.

Connections

Options: RS-232C, extra DVI-D for dual monitor, NY Monitor Link or GigE LAN

PCle Card Slot Half-length (X1 or X4 depending on CPU)

3x RJ45 Gigabit Ethernet ports

CFast card slot *3

2x USB2.0, 2x USB3.0

Choice of storages devices: HDD or SSD (MLC and long-life SLC types)
Second drive option

SD Memory card slot (2.0 spec and up to 32 GB)

DVI

I/O connection prepared for UPS connection

Power supply: 24VDC non-isolated

Industrial Box PC

3 layer size 2 layer size 1 layer size

NYB1E, NYB17, NYB25, NYB1C

NYB35, NYB2C

NYB35, NYB2C, NYB2A
Industrial PC

IPC Machine Controller

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.

*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
Industrial PC
IPC RTOS Controller

Real-time operating systems: freedom at your fingertips
The Omron IPC RTOS Controller enables you to program own real-time control of your machine functionality and at the same time executing advanced data processing tasks. Combine it with ultra-reliable EtherCAT network for seamless connectivity of both Omron and third-party devices. By bringing together the worlds of real-time OS, EtherCAT connectivity and IT, you benefit from high-speed, high-precision and real-time machine control, and secure connectivity to the Internet of Things. You are in control: you are unstoppable.

Industrial PC
- Hardware with proven reliability
- PLC-level environmental resistance
- Long-term supply stability
- Fully scalable

RTOS
- VxWorks 7
  - Real time
  - High-speed operation and superior development efficiency
  - Robust
- Linux 7
  - Extensive library of open source software (OSS)
  - Readily available information via books and websites
  - Robust

Real-time control
- High-speed and low-jitter event-driven control
- Multitasking control to specify both conditions and orders for execution

High development efficiency
- Familiar C-language (C/C++) enables easy reuse of application assets
- Low switching cost
- Excellent integrated development environment, including debugging and monitoring functions to increase development efficiency
- More than 1,000 OSS applications already available in Linux platform

Execution performance
- Superior execution performance enables improved operational efficiency, even with limited hardware resources.
Real-time operating systems: freedom at your fingertips

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- Multitasking control to specify both conditions and orders for execution
- Familiar C-language (C/C++) enables easy reuse of application assets
- Low switching cost
- Excellent integrated development environment, including debugging and monitoring functions to increase development efficiency
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Superior execution performance enables improved operational efficiency, even with limited hardware resources.
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-beating² output speeds allied to 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 Delta Tau Data Systems, Inc.

High-speed multi-axis control
- Up to 128 axes of control
- Motion control period 250 μs/16 axes

Flexibility
- Flexible function development capability (G-Code/ANSI C/originall programming language)
- EtherCAT for flexible system configuration

Reliability
- Multi-tasking of Motion Control and Windows/applications
- Hypervisor² 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**

- **Visualization**
  - Industrial Monitor

- **Controller**
  - IPC Programmable Multi Axis Controller

- **ETHERCAT**
  - EtherCAT for flexible system configuration

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

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*1. Refers to the motion control performance of 16.6 microseconds/1 axes or 50 microseconds/8 axes (Omron survey as of July 2016).

*2. Reference value.

*3. Software avoids mutual interference by appropriately assigning IPC hardware resources (boards, CPU cores, etc.) to OS. Machine control task is not interrupted even if a Windows crashes.
# Industrial PC Platform family

## INDUSTRIAL PC PLATFORM

<table>
<thead>
<tr>
<th>Product name</th>
<th>Industrial Monitor</th>
<th>Industrial Box PC</th>
<th>Industrial Panel PC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>NYM12</td>
<td>NYB</td>
<td>NYP</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Display and touch interface for the Industrial PC Platform</td>
<td>Compact design that offers flexibility, expandability and easy maintenance for applications in factory automation environments</td>
<td>Combines the functionality of the Industrial Box PC and Industrial Monitor</td>
</tr>
<tr>
<td><strong>Operating system</strong></td>
<td>No operating system</td>
<td>Windows Embedded Standard 7 - 32 bit *3</td>
<td>Windows Embedded Standard 7 - 64 bit *3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Windows 10 IoT Enterprise 2016 LTSB - 64 bit</td>
<td>Windows 10 IoT Enterprise 2019 LTSC - 64 bit</td>
</tr>
<tr>
<td><strong>Function module</strong></td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Number of axes</strong></td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>CPU type</strong></td>
<td>Intel® Core™ i5-7400U Processor 7th generation CPU with fanless cooling *3</td>
<td>Intel® Core™ i5-7400U Processor 7th generation CPU with fanless cooling</td>
<td>Intel® Core™ i5-7400U Processor 7th generation CPU with fanless cooling</td>
</tr>
<tr>
<td></td>
<td>Intel® Core™ i3-7100U Processor 7th generation CPU with fanless cooling *3</td>
<td>Intel® Core™ i3-7100U Processor 7th generation CPU with fanless cooling</td>
<td>Intel® Core™ i3-7100U Processor 7th generation CPU with fanless cooling *3</td>
</tr>
<tr>
<td></td>
<td>Intel® Core™ i7-4500U Processor 4th generation CPU with fanless cooling *3</td>
<td>Intel® Core™ i7-4500U Processor 4th generation CPU with fanless cooling</td>
<td>Intel® Core™ i7-4500U Processor 4th generation CPU with fanless cooling *3</td>
</tr>
<tr>
<td><strong>RAM memory</strong></td>
<td>8 GB, 16 GB, 32 GB (ECC supported) *1</td>
<td>2 GB, 4 GB, 8 GB, 16 GB (non ECC)</td>
<td>8 GB (non-ECC type) 8 GB (non-ECC type)</td>
</tr>
<tr>
<td><strong>Storage</strong></td>
<td>HDD, SSD, CFast, SD memory card</td>
<td>HDD, SSD, CFast, SD memory card</td>
<td>SSD, SD memory card</td>
</tr>
<tr>
<td><strong>Display size</strong></td>
<td>12.1 inches, 15.4 inches, 18.5 inches</td>
<td>--</td>
<td>12.1 inches, 15.4 inches</td>
</tr>
<tr>
<td><strong>Built-in ports</strong></td>
<td>Ethernet, USB 2.0/3.0, DVI</td>
<td>Ethernet, USB 2.0/3.0, DVI</td>
<td>Ethernet, USB 2.0/3.0, DVI, GigE LAN</td>
</tr>
<tr>
<td><strong>Interface option</strong></td>
<td>RS-232C, DVI-D, NY Monitor Link, GigE LAN</td>
<td>RS-232C, DVI-D, NY Monitor Link</td>
<td>--</td>
</tr>
<tr>
<td><strong>Expansion slots</strong></td>
<td>1 PCIe slot</td>
<td>1 PCIe slot</td>
<td>1 PCIe slot</td>
</tr>
</tbody>
</table>

Note: 1. Not all combinations are possible, please visit the product selector on the global website to make your selection.

*1. Only for models with Intel® Xeon® Processor.

*3 Not recommended for new projects.

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<tr>
<th>Product name</th>
<th>Industrial Monitor</th>
<th>Industrial Box PC</th>
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</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>NYM12</td>
<td>NYM15</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Display and touch interface for the Industrial PC Platform</td>
<td>--</td>
</tr>
<tr>
<td><strong>Display device</strong></td>
<td>TFT LCD</td>
<td>--</td>
</tr>
<tr>
<td><strong>Screen size</strong></td>
<td>12.1 inches</td>
<td>15.4 inches</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(18.5 inches also available with Nickel Plated front)</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>Up to 1,280 x 800 pixels at 60 Hz</td>
<td>Up to 1,920 x 1,080 pixels at 60 Hz</td>
</tr>
<tr>
<td><strong>Colors</strong></td>
<td>16,770,000 colors</td>
<td>--</td>
</tr>
<tr>
<td><strong>Connectors</strong></td>
<td>1 Power Connector</td>
<td>1 Power Connector</td>
</tr>
<tr>
<td></td>
<td>2 USB Type-A Connector</td>
<td>1 DVI-D Connector</td>
</tr>
<tr>
<td></td>
<td>1 USB Type-B Connector</td>
<td>1 USB Type-B Connector</td>
</tr>
<tr>
<td><strong>Built-in options</strong></td>
<td>NY Monitor Link</td>
<td>--</td>
</tr>
<tr>
<td><strong>Allowable power supply voltage range</strong></td>
<td>19.2 to 28.8 VDC</td>
<td>--</td>
</tr>
</tbody>
</table>
## 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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>NY51□-1</td>
<td>NY53□-1/NY53□-5</td>
<td>NY51□-A</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Compact design that offers flexibility, expandability and easy maintenance for applications in factory automation environments</td>
<td>Combines the functionality of the Industrial Box PC and Industrial Monitor</td>
<td>Provides flexibility in the creation of high-resolution graphics and applications and the development of motion control for high-end applications</td>
</tr>
<tr>
<td><strong>Operating system</strong></td>
<td>Windows Embedded Standard 7 - 32 bit *2</td>
<td>Windows Embedded Standard 7 - 64 bit</td>
<td>Windows Embedded Standard 7 - 32 bit</td>
</tr>
<tr>
<td><strong>CPU</strong></td>
<td>Intel® Core™ i5-7300U Processor 7th generation CPU with fanless cooling</td>
<td>Intel® Core™ i5-7300U Processor 7th generation CPU with fanless cooling</td>
<td>Intel® Core™ i5-7300U Processor 7th generation CPU with fanless cooling</td>
</tr>
<tr>
<td><strong>RAM</strong></td>
<td>8 GB (non-ECC type)</td>
<td>8 GB (non-ECC type)</td>
<td>8 GB (non-ECC type)</td>
</tr>
<tr>
<td><strong>Storage</strong></td>
<td>HDD, SSD, CFast, SD memory card</td>
<td>SSD, SD memory card</td>
<td>SSD, SD memory card</td>
</tr>
<tr>
<td><strong>Display size</strong></td>
<td>12.1 inches, 15.4 inches</td>
<td>12.1 inches, 15.4 inches</td>
<td>12.1 inches, 15.4 inches</td>
</tr>
<tr>
<td><strong>Expansion slots</strong></td>
<td>1 PCIe slot</td>
<td>1 PCIe slot</td>
<td>1 PCIe slot</td>
</tr>
</tbody>
</table>

### UNINTERRUPTIBLE POWER SUPPLY (UPS)

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

* Revision number 04 or higher.

*2 For the 32 bit version, consult your OMRON sales representative.
Several kinds of software combination for solving customer’s problem and making new solutions

Supporting customer’s new challenges by new visualization and digitization technology

**F-Scape**
Easy start of visualization for production line

**i-BELT**

**Soft-NA**
Visualization and maintenance of machine condition

**FHV7 Software**
Integration of image processing and data collection

**Best Match with 3rd party products**
New solution created by the combination with 3rd party software
Refer to the Best Match! Pamphlet (Cat No. P139).
Small start of production data collection and visualization
You can easily utilize data from production sites.
In addition to collecting and visualizing data, this software highlights on-site issues and helps solve problems as an organizational communication tool.

**POINT 1** Easy to install

**POINT 2** Hierarchical display according to purpose

- Drill-down function
  - Factory manager
  - Floor manager
  - Line reader
  - Operator

**POINT 3** Errors at a glance

**POINT 4** Easy data comparison

* Now available only in Japan.
**Soft-NA**

**Visualization and improving maintenance**
Windows HMI software connecting with NJ/NX Controller seamlessly. Realizing visualization or better maintenance.

**System configuration**

- Installing integrated development environment of HMI
- Additional application software available together
- Wide selection of screen size or CPU selectable from IPC product portfolio

**Easy development and operation of control application**

**One Software, Sysmac Studio, manages all program assets**
Seamless connection with NJ/NX Controller is available by sharing PLC data with integrated development environment or simulator.

**Controller troubleshooting**
Trouble shooting feature is embedded in. Quick action for every trouble can be possible by a special video screen to solve the problem.
Software for FHV7

Combine image processing application with data gathering
By tow Items of NY and FHV7: You can build sophisticated image inspection and data collection.

System configuration

Features of FHV7

Flexibly accommodates object changes

Advanced image processing functions
Most frequently used processing items come standard, according to customer usage of the high-spec FH Vision System, enabling advanced image processing.

* A separate unit is required to connect the FHV7 to EtherCAT.