OMRON

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

Active cooling and air-flow isolated from the electronics

Intel® Xeon® Processor

Intel® Core™ i7 Processor

Intel® Core™ i5 Processor

Intel® Celeron® Processor

Intel® Atom® Processor

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

Powerful. Tough. Future proof.

Connections

- Options: RS-232C, extra DVI-D for dual monitor, NY Monitor Link or GigE LAN
- 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
- 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
- I/O connection prepared for UPS connection
- Power supply: 24VDC non-isolated

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

iF DESIGN AWARD 2016 *2

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

Industrial Box PC

*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.

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

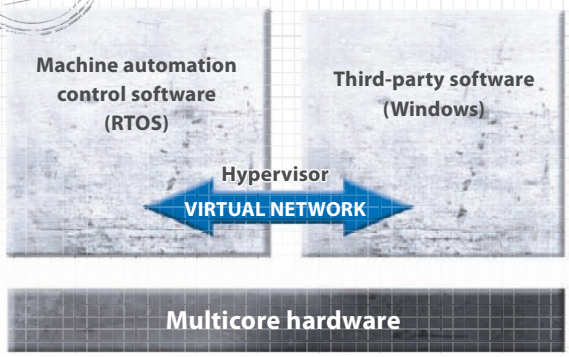
Sysmac Studio

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

reddot award 2016 *1
winner

GOOD DESIGN AWARD 2017 *2



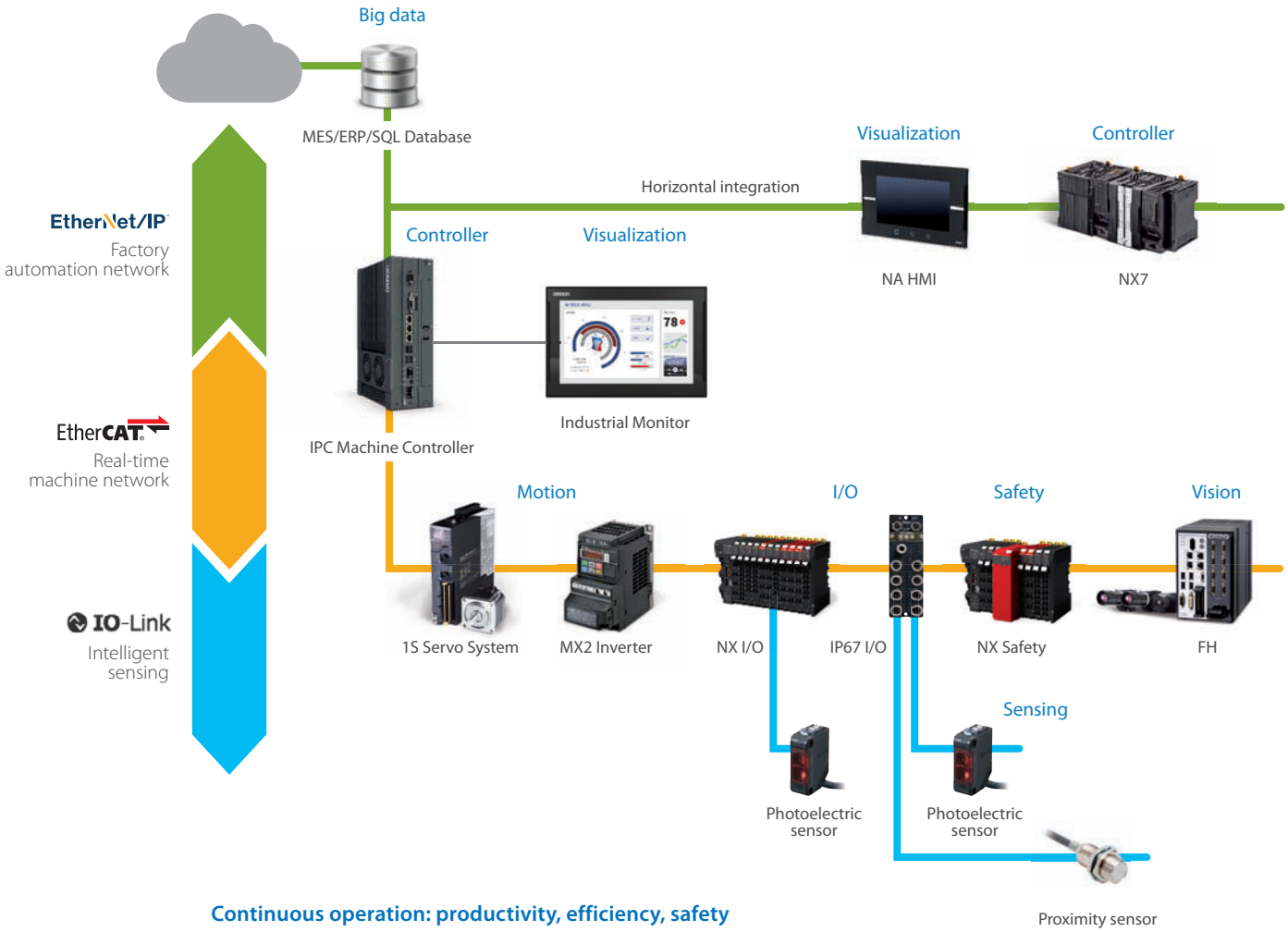
The beating heart of the IPC Machine Controller

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.

Sysmac Integrated Platform



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
always in control

Industrial PC
IPC RTOS Controller

Available in Japan only. Please consult your OMRON representative for details.

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

NYM
Industrial Monitor

NYB
Industrial Box PC

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

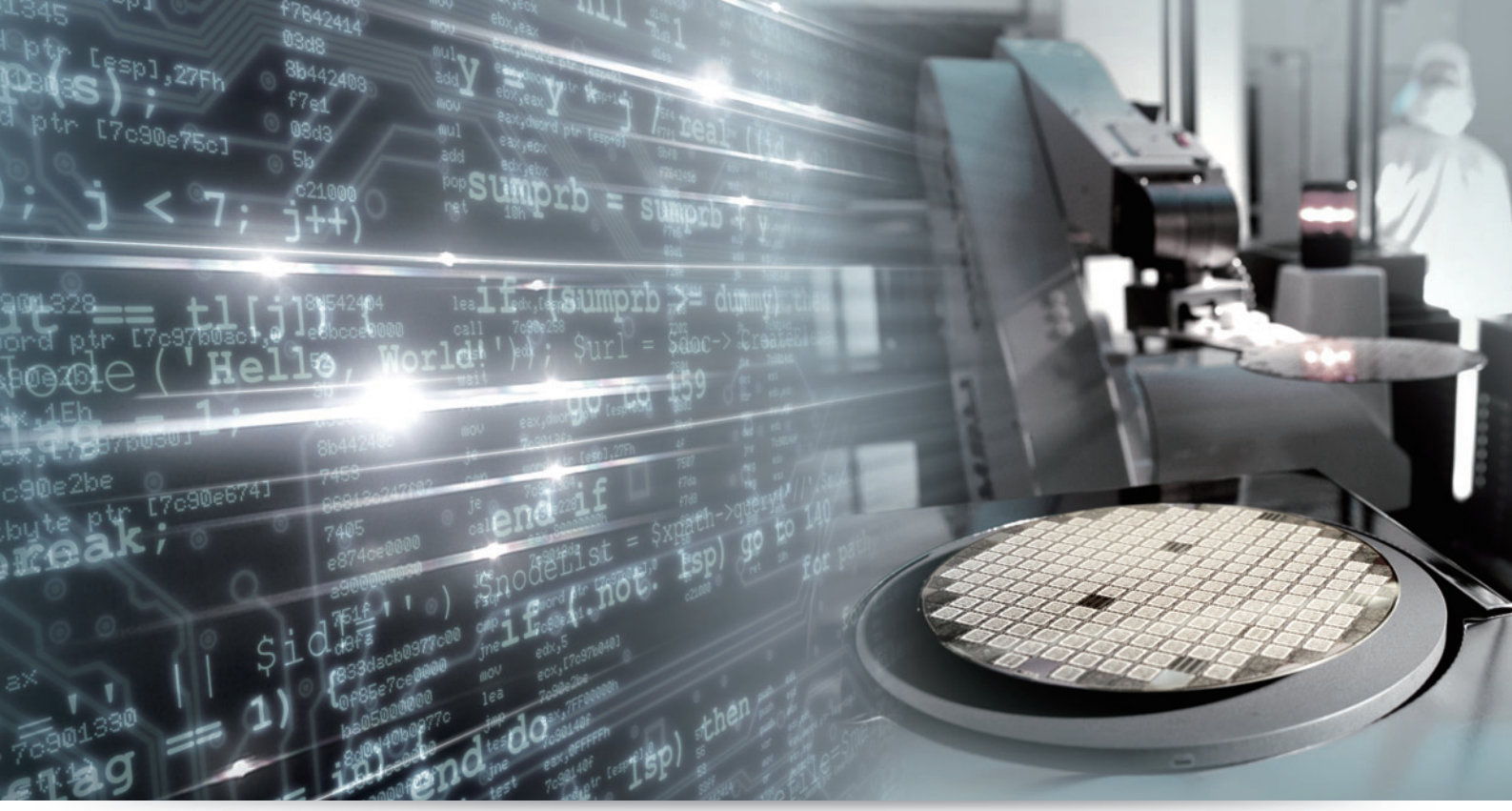
- High-speed and low-jitter event-driven control
- Multitasking control to specify both conditions and orders for execution

High development efficiency

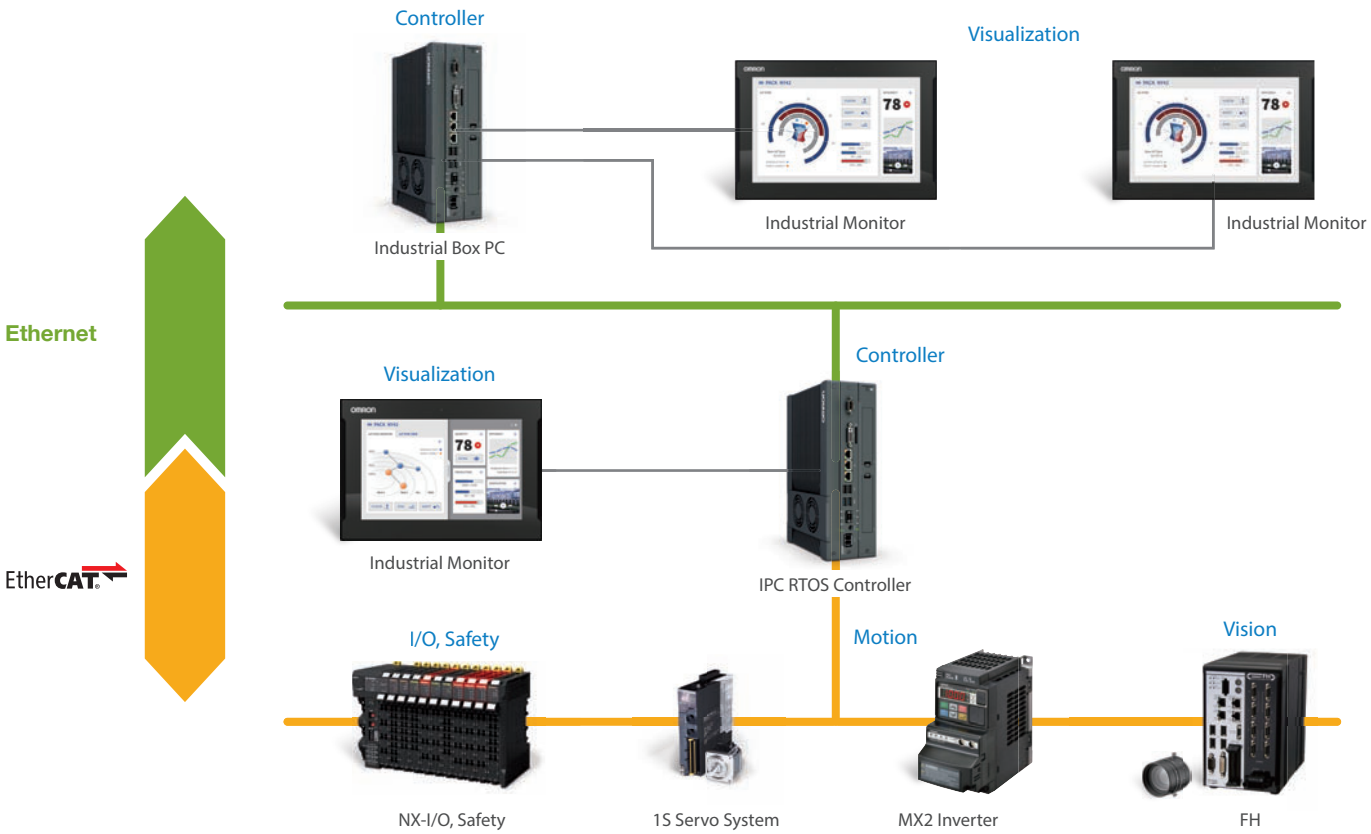
- Familiar C-language (C/C++) enables easy reuse of application assets
- Low switching cost
- Excellent integrated development environment, including debugging and monitoring functions to increase development efficiency
- More than 1,000 OSS applications already available in Linux platform

Execution performance

- Superior execution performance enables improved operational efficiency, even with limited hardware resources.



System Configuration



Industrial PC
IPC Programmable Multi Axis Controller

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[*1] 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[*2]

Flexibility

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

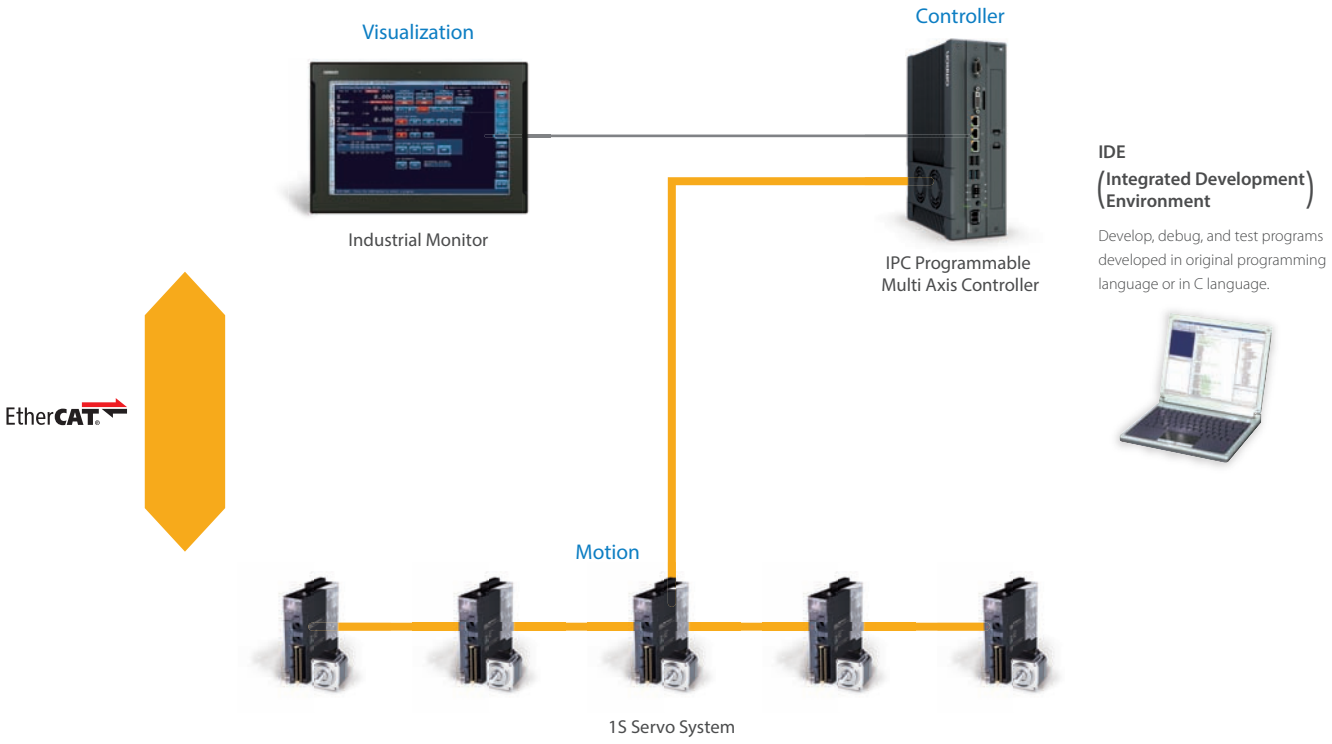
Reliability

- Multi-tasking of Motion Control and Windows/applications
- Hypervisor[*3] 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



*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			
			
Product name	**Industrial PC**		
Type	**Industrial Box PC**	**Industrial Panel PC**	
Model	**NYB**	**NYP**	
Description	Compact design that offers flexibility, expandability and easy maintenance for applications in factory automation environments	Combines the functionality of the Industrial Box PC and Industrial Monitor	
Operating system	No operating system Windows Embedded Standard 7 - 32 bit *3 Windows Embedded Standard 7 - 64 bit *3 Windows 10 IoT Enterprise 2016 LTSB - 64 bit Windows 10 IoT Enterprise 2019 LTSC - 64 bit		
Function module	—		
Number of axes	—		
CPU type	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 *3 Intel® Celeron® 2980U Processor 4th generation CPU with fanless cooling *3 Intel® Atom® Apollo Lake x5-E3940 Processor	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 *3 Intel® Celeron® 2980U Processor 4th generation CPU with fanless cooling *3 Intel® Atom® Apollo Lake x5-E3940 Processor	
RAM memory	8 GB, 16 GB, 32 GB (ECC supported) *1 2 GB, 4 GB, 8 GB, 16 GB (non ECC)		
Storage	HDD, SSD, CFast, SD memory card		
Display size	—	12.1 inches, 15.4 inches, 18.5 inches	
Built-in ports	• Ethernet • DVI • USB 2.0/3.0		
Interface option	RS-232C, DVI-D, NY Monitor Link, GigE LAN	RS-232C, DVI-D, NY Monitor Link	
Expansion slots	1 PCIe slot		

Note:1. Not all combination 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

INDUSTRIAL PC PLATFORM			
			
Product name	**Industrial Monitor**		
Model	**NYM12**	**NYM15**	**NYM19**
Description	Display and touch interface for the Industrial PC Platform		
Display device	TFT LCD		
Screen size	12.1 inches	15.4 inches	18.5 inches (18.5 also available with Nickel Plated front)
Resolution	Up to 1,280 x 800 pixels at 60 Hz		Up to 1,920 x 1,080 pixels at 60 Hz
Colors	16,770,000 colors		
Connectors	• 1 Power Connector • 1 DVI-D Connector • 2 USB Type-A Connector • 1 USB Type-B Connector		
Built-in options	NY Monitor Link		
Allowable power supply voltage range	19.2 to 28.8 VDC		

INDUSTRIAL PC PLATFORM

			
	IPC Machine Controller		**IPC Programmable Multi Axis Controller**
	Industrial Box PC	**Industrial Panel PC**	**Industrial Box PC**
	NY51□-1	**NY53□-1/NY53□-5**	**NY51□-A**
	Two operating systems: Windows and Real-Time OS		Provides flexibility in the creation of high-resolution graphics and applications and the development of motion control for high-end applications
	Windows Embedded Standard 7 - 32 bit *2 Windows Embedded Standard 7 - 64 bit		Windows Embedded Standard 7 - 32 bit Windows Embedded Standard 7 - 64 bit
	Machine Automation Control Software or Machine Automation Control Software + NC		Programmable Multi Axis Controller
	16, 32, 64		128
	Intel® Core™ i7-4700EQ Processor 4th generation CPU with Fan Unit for active cooling		Intel® Core™ i7-4700EQ 4th generation CPU with Fan module for active cooling
	8 GB (non-ECC type)		8 GB (non-ECC type)
	HDD, SSD, CFast, SD memory card		SSD, SD memory card
	—	12.1 inches, 15.4 inches	—
	• Ethernet • EtherCAT • DVI • EtherNet/IP • USB 2.0/3.0		• Ethernet • USB 2.0/3.0 • EtherCAT • xDVI
	RS-232C, DVI-D, NY Monitor Link		RS-232C
	1 PCIe slot		1 PCIe slot

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

UNINTERRUPTIBLE POWER SUPPLY (UPS)

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

* Revision number 04 or higher.

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