

ADVANTECH



Elite  
Partner

# EDGE AI

## SOLUTIONS EBOOK



# Edge AI

Empowering Industries with Ubiquitous Edge AI



Comprehensive  
Product  
Selection Guide



Success  
Use Cases



AI partner  
Eco-system

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**ADVANTECH**

Enabling an Intelligent Planet

Est. **1983**

Headquarters: Taipei, Taiwan

**INDUSTRIES SERVED**

Industry 4.0, Industrial IoT,  
Embedded Computing,  
Medical, Retail, Logistics



**\$10.61B** MARKET CAP (USD)  
(Feb., 2024)



**HONORS & AWARDS**

- No.5 in Best Taiwan Global Brands
- No.17 in Top 50 Global Automation Vendors
- No.9 in Top 100 Industrial IoT Companies
- Red Dot Product Design Award
- iF Product Design Award

**Interbrand**

**CONTROL**



**WORLD'S LARGEST IPC COMPANY**

Advantech IPC WW Market Share



● Advantech ● Other IPC Companies

Source: OMDIA – Market Share estimates for Industrial PCs: World, 2022 Edition

**\$2.07B** 2023 REVENUE (USD)

**KEY ECO-SYSTEM PARTNERS**



and more...

**QUALITY SYSTEMS IN PLACE**

- ISO9001
- ISO14001
- ISO13485
- ISO17025
- ISO27001
- ISO45001
- TL9000
- ISO50001
- RoHS
- WEEE
- SONY GP
- REACH

**1.8 MILLION+** sq. ft.

**MANUFACTURING PLANTS**

Linkou, Taiwan



- 9 SMT lines, 16 system lines
- Engineering sample services
- Complex product lines
- Flexible & quick production

Kunshan, China



- 12 SMT lines, 13 system lines, 6 chassis lines
- Chassis design & production
- Mature product lines
- Cost-effective production



Nogata, Japan

- 4 SMT lines, 1 system line
- Japan design center, CTOS service, logistics center, repair center

**WORLDWIDE OFFICES**



- Manufacturing 3
- On-site service 4
- Design centers 11
- CTOS centers 16
- Repair centers 17
- Logistics centers 20

More than 90 offices globally!

**8800+** EMPLOYEES



# Advantech is The Best Partner to Build Industrial AI Solution



## NVIDIA World Wide Elite Partner

Advantech is a worldwide Elite partner with NVIDIA, which enabling the best technology resources and support for our customers.



## Comprehensive AI Product Line

From edge fanless systems, rackmount servers to all-in-one AI cameras, Advantech enables the design of any system form factor to meet diverse industrial needs



## Software Support for AI Acceleration

A dedicated software team to support BSP, drivers, to NVIDIA SDK, e.g. ISSAC ROS, Metropolis Microservices on Jetson, and NVIDIA AI Enterprise.



## Video Integration Expertise

Advantech provides a expert team for video integration design: including GMSL, PoE, USB, SDI, SDVoE, etcto accelerate the video AI integration

## Growing AI Ecosystem to Accelerate Deployment

### AI Sensing Partners



### AI Channel Partners



### AI Software Partners



# Industrial AI Solutions



**AI Vision Sensors & AI Solutions**

**nVIDIA Jetson**  
AI Vision Sensors with Anomaly Detection & OCR

**nVIDIA Jetson**  
AI AOI Solutions

AI Inference Systems Supports  
NVIDIA ISSAC ROS & NVIDIA  
Metropolis Microservices

**Accelerators & Peripherals**

NIC Cards

GPUs & MXMs

**nVIDIA GPU DIRECT FOR VIDEO**  
Video Captures

**nVIDIA Jetson**  
AI Camera

**nVIDIA Jetson**  
Developer Kits & Solution Kits

**nVIDIA Jetson**  
Edge AI Systems

**nVIDIA Jetson**  
Rugged Systems

**nVIDIA Jetson**  
AI NVRs

**IGX Systems**

**nVIDIA RTX**  
Medical-grade AI System

**nVIDIA RTX**  
Transportation AI Systems

**nVIDIA RTX**  
Rackmount IPCs

**nVIDIA RTX**  
Modular IPCs

**nVIDIA CERTIFIED**  
GPU Servers

**nVIDIA CERTIFIED**  
Edge Accelerator Servers

Edge Cloud Solutions Supports  
NVIDIA AI Enterprise

**GPU AI Systems**

**Edge Cloud Solutions**

# NVIDIA® Jetson-based Edge Computer Roadmap

ARM-based, Linux-base, Power consumption under 100w

## Xavier

Xavier  
NX/Nano



**MIC-710AIL Series**  
Edge AI Inference System



**MIC-710AI Series**  
Edge AI Inference System

AGX  
Xavier



**MIC-730AI**  
Edge AI Inference System

## Orin

Orin  
NX/Nano  
(4/8/16GB)



**MIC-711(D)-OX/ON**  
Edge AI Inference System



**MIC-713(S)-OX/ON**  
Edge AI Inference System



**MIC-715-OX**  
In-Vehicle Edge AI Inference System



**ITA-510NX/Nano**  
Edge AI System for Rolling Stock



**ITA-560NX/Nano**  
Edge AI System for Rolling Stock

AGX Orin  
(32GB/64GB)



**MIC-733-AO**  
Edge AI System  
for Robotics



**ITA-560AGX**  
Edge AI System  
for Rolling Stock



**MIC-332**  
3U CPCI-S  
Edge AI System

# NVIDIA® GPU-based Edge Computer Roadmap

X86-based, Windows-base, Power consumption typically 100W+

MXM	 <p><b>MXM Type A</b></p>	 <p><b>UNO-148 V2</b> 13th Gen Intel® Core™ Processor ● x1</p>	 <p><b>ITA-580G</b> Edge AI System for Rolling Stock ● x1</p>	 <p><b>ITA-520G</b> Edge AI System for Rolling Stock ● x1</p>	 <p><b>ITA-460G</b> In-Vehicle Edge AI System ● x1</p>
	 <p><b>MXM Type B+</b></p>	 <p><b>MIC-770 V3 + MIC-75GF10</b> • 14th/13th/12th Gen Intel® Core™ Processors • Fanless Design ● x1</p>			
PCIe	 <p><b>Quadro RTX Small Form Factor GPU</b></p>	 <p><b>MIC-770 V3 + MIC-75M20</b> • 14th/13th/12th Gen Intel® Core™ Processors • Supports 2-slot Expansion ● x1</p>	 <p><b>IPC-220/240</b> • 14th/13th/12th Gen Intel® Core™ Processors • Supports 2/4 PCIe/PCI slots ● x1</p>		
	 <p><b>Quadro Full Height</b></p>	 <p><b>MIC-770 V3+MIC-75G20/G30</b> • 14th/13th/12th Gen Intel® Core™ Processors • Modular design ● x1/2</p>	 <p><b>ACP-4340</b> • 14th/13th/12th Gen Intel® Core™ Processors • 4U Rackmount system ● x1</p>	 <p><b>IPC-730</b> • 14th/13th/12th Gen Intel® Core™ Processors • Wall-mount system ● x1</p>	
		 <p><b>HPC-6240</b> • 5th/4th Intel® Xeon® Scalable processors • 2U Edge AI Server ● x4</p>	 <p><b>HPC-7420</b> • 5th/4th Intel® Xeon® Scalable processors • 4U Edge AI Server ● x5</p>	 <p><b>SKY-602E3</b> • AMD® EPYC™ Embedded 9004 Series Server Processors • Mini Tower Edge AI Server ● x4</p>	

● Quadro GPU cards

# NVIDIA® IGX Series Edge Computer Roadmap

## IGX Series

NVIDIA IGX Orin is a high-performance AI platform with industrial-grade hardware, enterprise software, and long-life support. Specifically designed for industrial and medical environments, IGX offers industry-leading AI performance, security, and functional safety, with a 10-year lifecycle and support.



Ingesting high-resolution, high-bandwidth data streams



Requiring flexible sensor and data IO options



Running AI inference with a low latency budget



Managing long-life and upgradable hardware and software



Industrial

MIC-735I-IO

IGX



248 TOPS

MIC-735E-IO

MIC-735M-IO



Enterprise



Medical



# NVIDIA® Jetson™ Developer Kits

Solution Kits

## Xavier

### Solution Kits

- Integration: comprehensive Jetson SoM pin-outs for high customization and implementation needs
- Interfaces: multiple interfaces and functions support various sensors with PCIE installation
- Development: full NVIDIA SDKs and APIs supports
- Deployment: fully integration for deployment

## Orin

### MIC-713S-OX4A1

- ✓ Orin NX (16GB)
- ✓ 5x LAN, 6x USB
- ✓ 1x iDoor
- ✓ 1x 8bit DIDO



### MIC-713S-ON3A1

- ✓ Orin Nano (8GB)
- ✓ 5x LAN, 6x USB
- ✓ 1x iDoor
- ✓ 1x 8bit DIDO



Orin NX  
Orin Nano

Dev. Kits

### Dev. Kits

- Integration: sufficient functions for essential implementation needs
- Interfaces: basic interfaces and functions support generic sensors
- Development: full NVIDIA SDKs and APIs supports
- Deployment: small form factor for space limited environment

### Xavier NX/Nano

#### MIC-710AIL-DVA

- ✓ NANO
- ✓ 1x LAN
- ✓ 1x miniPCIE



#### MIC-710AILX-DVA

- ✓ Xavier NX
- ✓ 1x LAN
- ✓ 1x miniPCIE



### MIC-711D-OX4A1

- ✓ Orin NX (16GB)
- ✓ 1x LAN, 3x USB



### MIC-711D-ON2A1

- ✓ Orin Nano (8GB)
- ✓ 1x LAN, 3x USB



Orin NX  
Orin Nano

# ICAM-500 series Roadmap

Xavier

Xavier NX



**ICAM-520-10W**  
All-in-one AI camera

Orin

Orin NX



**ICAM-540-3CN**  
C-mount AI camera with flexibility  
on lens and light



**ICAM-540-30W**  
High-end all-in-one  
S-mount AI Camera

## Industrial AI Camera



### ICAM-520-10W

- 1.6MP 60 fps SONY industrial grade sensor
- Programmable variable focus lens, advanced LEDs illumination
- Support Azure, AWS, DeepStream, V4L2 and RTSP



### ICAM-540-3CN

- C-mount lens compatible
- 256 GB NVMe storage
- Featuring CAMNavi SDK, HTML5 web based utility and NVIDIA Deepstream SDK



### ICAM-540-30W

- 8MP 45 fps SONY industrial grade sensor
- Programmable variable focus lens, advanced LEDs illumination
- Support Azure, AWS, DeepStream, V4L2 and RTSP

# ICAM-500 Series

*Integrated Industrial AI Camera equipped with NVIDIA AI system on module.*



## Acceleration of cloud-to-edge vision AI applications

ICAM-500 series places NVIDIA Orin/Xavier NX AI computing module inside a compact industrial camera system. This combines image acquisition and AI inference functionality within the same system while reducing the latency caused by the distance between IP cameras, cloud servers, and AI inference systems.

## An all-in-one solution

ICAM-500 series are integrated industrial AI camera equipped with programmable variable focus lenses, LED illumination, and SONY industrial-grade image sensors. These features reduce the effort required for installation and maintenance.

### Applications

Manufacturing inspection



AI/ AOI



Optical Character Recognition



### Software Support

ICAM-220



AI Vision Sensor with OCR Model

ICAM-240



AI Vision Sensor with Anomaly Detection Model

# MIC-733-AO

Compact fanless edge GenAI systems

NVIDIA Jetson AGX Orin



Learn More



## High AI Performance and Low Power consumption

Deliver up to 275 TOPS of AI computing for multiple concurrent AI inference pipelines with power configurable between 15W and 60W.

## Flexible for Deployment with multiple I/O and Expansion support

Flexile expansion with PoE, USB3.2, GMLS2 for different video input plus high-speed interface support for multiple sensors .

## Edge GenAI System with Compact Design at the Edge

Compact and fanless design with flexible integration for industrial AI usage at the edge

## NVIDIA Software support and Remote Management

Support NVIDIA scalable software, modern AI stack, flexible microservices, SDKs and APIs. As well as Allxon 7/24 remote management support on OTA, OOB.

## Applications

Traffic Monitoring



Machine Vision / AOI



Warehouse/Logistics



## Ordering Information

Part Number	NVIDIA Module	Memory	eMMC
MIC-733-AO5A1	NVIDIA Jetson AGX Orin	32GB	64GB
MIC-733-AO6A1	NVIDIA Jetson AGX Orin	64GB	64GB

# MIC-711-OX/ON

Lite fanless systems and devkit for developers

▶ NVIDIA Jetson Orin NX/Nano



## AI Performance and Low Power consumption

Deliver 40 to 100 TOPS for NX and Nano for AI computing for multiple concurrent AI inference pipelines with power configurable between 7W and 25W.

## Flexible for Deployment with multiple I/O and Expansion support

Flexile expansion with USB3.2, GMLS2 for different video inputs and control, wireless modules.

## Carrier board and Fanless System for AI development and deployment

Provide AI Developer Kit to Developers to test AI model and Fanless Compact Edge AI System for edge applications

## NVIDIA Software support and Remote Management

Support NVIDIA scalable software, modern AI stack, flexible microservices, SDKs and APIs. As well as Allxon 7/24 remote management support on OTA, OOB.

### Applications

Traffic Monitoring



Smart Retail



AGV/AMR



### Ordering Information

Part Number	NVIDIA Module	Memory	NVMe
MIC-711-OX4A1	Orin NX	16GB	128GB
MIC-711-OX3A1	Orin NX	8GB	128GB
MIC-711-ON3A1	Orin Nano	8GB	128GB
MIC-711-ON2A1	Orin Nano	4GB	128GB

# MIC-713-OX/ON

Compact fanless systems and solution kit for developers

▶ NVIDIA Jetson Orin NX/Nano



## AI Performance and Low Power consumption

Deliver 40 to 100 TOPS for NX and Nano for AI computing for multiple concurrent AI inference pipelines with power configurable between 7W and 25W.

## Flexible for Deployment with multiple I/O and Expansion support

Flexile expansion with USB3.2, GMLS2 for different video inputs and control, wireless modules.

### Applications

Traffic Monitoring



Smart Retail



AGV/AMR



## Carrier board and Fanless System for AI development and deployment

Provide AI Solution Kit to test AI deployment environment and afterward to use fanless compact Edge AI System for edge applications

## NVIDIA Software support and Remote Management

Support NVIDIA scalable software, modern AI stack, flexible microservices, SDKs and APIs. As well as Allxon 7/24 remote management support on OTA, OOB.

### Ordering Information

Part Number	NVIDIA Module	Memory	NVMe
MIC-713-OX4A1	Orin NX	16GB	128GB
MIC-713-OX3A1	Orin NX	8GB	128GB
MIC-713-ON3A1	Orin Nano	8GB	128GB
MIC-713-ON2A1	Orin Nano	4GB	128GB

# MIC-715-OX

*Ruggedized IP-67 AI system with ignition power supply*

NVIDIA Jetson Orin NX/Nano



## AI Performance and Low Power consumption

Deliver 100 TOPS for AI computing to handle 4x PoE video inputs with power configurable 25W.

## Flexible for Deployment with multiple I/O and Expansion support

Flexile expansion with CANbus, USB3.2, GMLS2, PCIe, M.2 for different video inputs and control, wireless modules.

## Rugged AI Computing System for in-vehicle AI applications

Ruggedized IP-67 design with programmable ignition power supply for in-vehicle AI applications

## NVIDIA Software support and Remote Management

Support NVIDIA scalable software, modern AI stack, flexible microservices, SDKs and APIs. As well as Allxon 7/24 remote management support on OTA, OOB.

### Applications

In-Vehicle



Traffic Monitoring



Oil & Gas Infra



### Ordering Information

Part Number	NVIDIA Module	Memory	NVMe
MIC-715-OX4A1	Orin NX	16GB	128GB

# ITA-510/560

## AI Inference System for Railway Applications

NVIDIA Jetson Orin NX/Nano



Learn More



### AI Inference System in Rolling Stock Applications

With the NVIDIA Jetson edge AI platform, real-time autonomous decision and diagnostic monitoring is made possible for people counting, intelligent monitoring, and object and pattern recognition solutions.

### High Performance

The Jetson Orin NX/Nano modules deliver up to 100 TOPS of AI performance, which is up to three times the performance of the NVIDIA Jetson AGX Xavier module.

#### Applications

People Counting



Wheel Detection



Rail Track  
Condition Monitoring



### Compliance and Safety Assurance

Complying with EN 50155, EN 50121-3-2, ensures safe and reliable operation under various environmental conditions.



### Wireless Connectivity and Various Peripherals

Incorporate two M.2 interfaces that can be used for optional GNSS, LTE/5G, and Wi-Fi capabilities via additional modules.

#### Ordering Information

Part Number	Form factor	Processor	Memory	Voltage
ITA-510NX-SOA1	Rackmount	Orin NX	16GB	110V <sub>DC</sub>
ITA-510Nano-SOA1	Rackmount	Orin Nano	8GB	110V <sub>DC</sub>
ITA-560NX-LOA1	Box	Orin NX	16GB	24V <sub>DC</sub>
ITA-560Nano-LOA1	Box	Orin Nano	8GB	24V <sub>DC</sub>



# ITA-560 AGX Orin

## Generative Edge AI System for Railway Applications

NVIDIA Jetson AGX Orin



Learn More



### AI Inference System in Rolling Stock Applications

With the NVIDIA Jetson edge AI platform, real-time autonomous decision and diagnostic monitoring is made possible for autonomous driving, intelligent monitoring, and object and pattern recognition solutions.

### High Performance

The Jetson AGX Orin modules deliver up to 275 TOPS of AI performance.

#### Applications

Advance Driver Assistance System



Pantograph Inspection



Track Obstacle Intrusion Inspection



### Easy AI Development with Ubuntu and NVIDIA JetPack

Support NVIDIA JetPack™ 5.X software development kit with the Ubuntu 20.04 Linux operating system, with updated packages of CUDA 11.4, TensorRT 8.4.1 and cuDNN 8.4.1 for deep learning, machine vision, and GPU-accelerated computing.

### Robust I/O Interface

Feature one CAN, one COM, two USB, digital I/O, one HDMI, and three Ethernet interfaces in default configurations.

#### Ordering Information

Part Number	NVIDIA Module	Memory	NVMe
ITA-560AGX-LOA1	NVIDIA Jetson AGX Orin	32GB	24V <sub>DC</sub>
ITA-560AGX-LOA2	NVIDIA Jetson AGX Orin	64GB	24V <sub>DC</sub>

# MIC-332

3U CPCI-S AI System powered by AGX Orin™ module MIC-332

▶ NVIDIA Jetson AGX Orin



## Enhanced AI capabilities

- Easy and quick building dual or three Orin AGX modules in one 3U/4U enclosure by internal GbE and 10GbE signal connecting routed in backplane.
- 1\* PCIe3.0 x8 reserved to achieve add-on cards, offer up to 4\*NVMe M.2 sockets for big data storage
- GbE and GMSL ports options to configure various industrial cameras.

## Open PICMG and railway standard compliance

Design to meet CPCI-Serial standard, EN50155, EN50121-4

## Applications

Railway  
Transportation



Healthcare



Smart  
Manufacturing



## MTTR < 30mins

Hot-swap module design easier to achieve maintenance less than 30mins in mission critical application like rolling stock, IEM and healthcare.

## System Configuration

### MIC-300A Series

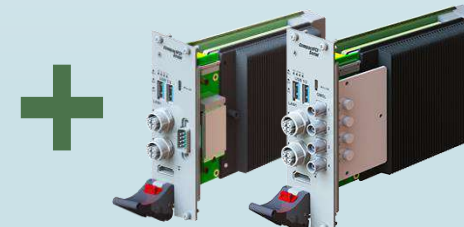
MIC-300A-S1S1



MIC-300A-S1S3



MIC-300A-S1S4



MIC-332

NVIDIA® Jetson AGX Orin™

- ( 32GB ) MIC-332-AOC32
- ( 64GB ) MIC-332-AOC64
- ( 32GB ) MIC-332-AOG32

# UNO-148 V2

Compact DIN-rail IPC with 13th Gen Intel® Core™ CPU, support NVIDIA Quadro® 35W MXM GPU

NVIDIA Quadro MXM



Learn More



## High Computing Power for Real-Time Processing

Leveraging 13th Gen Intel® Core™ CPU with TSN/TCC technology to ensure a synchronized, low latency communication, achieving real-time image processing in a compact form factor.

## Robust Industrial-Grade Design

Cableless design and industrial-grade isolated I/O for ruggedized applications

## Flexible Expansion for Enhanced Functionality

Complete M.2 interface for NVME storage and wireless expansion, yet providing comprehensive expansion options for integrating additional I/O and functionalities

## Boost Edge AI Implementation

Support 35W MXM GPU card with over 5-year longevity extended product life support

## Applications

AGV / AMR



Equipment / Machinery



Factory / Process Automation



## System Configuration



MXM Carrier Stack

UNO-MXM-CB01



NVIDIA Quadro®  
MXM 3.1 Type A

- SKY-MXM-A2000-8SDA
- SKY-MXM-A1000-4SDA
- SKY-MXM-A500-4HSA

# ITA-580G/520G

*Rolling Stock AI System with Intel® Core™ Processors and NVIDIA Quadro MXM GPU; EN 50155 Compliant*

NVIDIA Quadro MXM



## Powered by Intel and NVIDIA Integration

Powerful processing capabilities to manage large datasets and efficient multitasking; ideal for demanding rail applications that require robust data analysis and operational efficiency.

## Flexible GPU Options Enable AI Capability

Support NVIDIA MXM GPUs to execute complex AI algorithms for enhancing the capability of rail systems to perform real-time analytics and decision-making.

## Compliance and Safety Assurance

Complying with multiple standards, including EN 50155, EN 50121-3-2, EN 50121-4, EN 45545-2, and NFPA 130, ensures safe and reliable operation under various environmental conditions.

## Diverse Connectivity and Real-Time Analysis

Support 5G and Wi-Fi 6 for high-speed and stable connectivity, enabling real-time data communication and performance output analysis.

## Applications

Pantograph Monitoring



Level Crossing Monitoring System



Passenger Detection System



## System Configuration

ITA-580G-W7A2



ITA-520G-W7A1



**NVIDIA Quadro®  
MXM 3.1 Type A**

- SKY-MXM-2000A-8SDA
- SKY-MXM-A2000-8SDA
- SKY-MXM-A1000-4SDA
- SKY-MXM-A500-4SHA

# ITA-460G

*Pioneering Rugged AI Solutions for Vehicle with Intel® Core™ Processors and NVIDIA Quadro MXM GPU; E-Mark Compliant*



▶ NVIDIA Quadro MXM

## Rugged Mechanical Construction with Ultimate Performance

Engineered for high-end automotive systems, it offers robust reliability with an IP-65 waterproof and dustproof design to withstand the toughest conditions.

## Integration & Compliance

Compliant with ISO 7637-2 and E-Mark standards, it facilitates seamless integration with vehicle systems and offers scalable expansion for MXM GPU and I/O.

## Optimized for AI Processing

Featuring NVIDIA MXM GPU and supporting up to 16GB memory, it enables efficient AI processing for advanced vehicle functions like autonomous driving and intelligent surveillance.

## Versatile Connectivity

With support for 3 x miniPCIe expansion sockets, it offers flexibility in integrating various communication interfaces and peripherals, enhancing the vehicle system's connectivity and functionality.

## Applications

Automotive



Construction & Mining



Farming Machine



## System Configuration

ITA-460G-LOA1



**NVIDIA Quadro®  
MXM 3.1 Type A**

- SKY-MXM-A2000-8SDA
- SKY-MXM-A500-4SHA

# MIC-770 V3 + MIC-75GF10

Fanless Edge AI Inference System with 12th/13th/14th Gen Intel® Core™ CPU, supporting NVIDIA Quadro MXM GPU

NVIDIA Quadro MXM

Learn More



## Compact & Fanless Design

Compact size (190 x 230 x 192 mm) and whole system fanless design for space-limited, harsh environments

## Expandable I/O Design Suitable for Diverse Applications

The PCIe Gen3 x4 expansion slot can be used for sensing, I/O, communication, graphic, video capture, frame grabber cards

## Applications

AGV / AMR



Equipment / Machinery



Machine Vision / AOI



## Deliver AI Inference & Compute Acceleration with MXM GPU

Collaborate with NVIDIA to provide embedded GPU solution with over 5-year longevity. Compatible with up to 80W NVIDIA Quadro MXM 3.1 Type A/B form factor GPU, supporting up to 2,560 Cuda cores, 8.25 TFLOPS.

## System Configuration



MIC-770V3W-00A1



### NVIDIA Quadro® MXM 3.1 Type A

- SKY-MXM-2000A-8SDA
- SKY-MXM-A2000-8SDA
- SKY-MXM-A1000-4SDA
- SKY-MXM-A500-4SHA
- SKY-MXM-T1000-4HDB



### Expansion Module

MIC-75GF10-00A1



### NVIDIA Quadro® MXM 3.1 Type B

- SKY-MXM-R3000-6SDA

# MIC-770 V3 + MIC-75M20

Modular IPC with 2-slot expansion i-Module to support up to 80W  
NVIDIA Quadro SFF GPU card



NVIDIA Quadro PCIe



## Robust AI Computing

Modular and rugged design tailored for edge AI computing. Supporting built-in AI-driven applications across various vertical markets

## Supports AI Acceleration GPU cards

Compatible with up to 80W NVIDIA Quadro SFF GPU, boasting impressive GPU performance of up to 7,680 CUDA cores and 30.3 TFLOPS.

## Applications

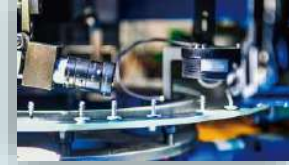
Logistics



Equipment / Machinery



Machine Vision / AOI



## Comprehensive I/O Expansion

PCIe x16/PCIe x4 or 2 x PCIe x8 configurations make them ideal for industrial AI applications at the edge.

## System Configuration



MIC-770V3W-00A1



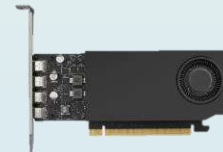
NVIDIA Tesla®

- SKY-TESL-A2-16P
- SKY-TESL-T4-16P
- SKY-TESL-L4-24P



Expansion Module

- MIC-75M20-00C1
- MIC-75M20-01A2



NVIDIA Quadro®

- SKY-QUAD-2000A-16
- SKY-QUAD-A1000-8
- SKY-QUAD-A400-4

# MIC-770 V3 + MIC-75G20/MIC-75G30

Modular IPC with GPU expansion i-Module, supporting 1 to 2 NVIDIA Quadro full-height GPU

NVIDIA Quadro PCIe



## Versatile GPU Support

Compatible with a wide range of NVIDIA GPU cards, including high-end models requiring a 350W power supply.

## Optimized Thermal Design

Enabling optimized thermal management with a powerful PWM system fan and supporting operating temperatures from -10~60°C to meet the growing demand for powerful GPUs in AI and high-end image processing applications

## Flexible GPU Bracket Design

Flexible GPU card holder design allows secure fastening of GPUs from different dimensions, brands, and generations.

## Applications

Automation



Equipment / Machinery



Traffic Flow Analysis



## System Configuration

MIC-770V3W-00A1



Single GPU Expansion Module

- MIC-75G20-10C1



Dual GPU Expansion Module

- MIC-75G30-10C1

## NVIDIA Quadro®



- SKY-QUAD-6000A-48
- SKY-QUAD-5000A-32
- SKY-QUAD-4500A-24
- SKY-QUAD-4000A-24

- SKY-QUAD-A6000B
- SKY-QUAD-A5500-24B
- SKY-QUAD-A5000-B
- SKY-QUAD-A4500-B
- SKY-QUAD-A4000-B



# IPC-220/240 *Compact GPU IPC*

Advantech IPC-220/240 supports entry level PCIe graphic cards(<75W) for lightweight industrial applications

NVIDIA Quadro PCIe



## Compact Design for Space-Limited Applications

Tailored for in-cabinet installations, its compact size allows easy placement in tight spaces while supporting full-height, half-length expansion cards. This offers AI developers flexibility to deploy the IPC across a variety of applications without compromising on space.

## Application-Oriented with Rich I/O and Customization

With flexible chassis and motherboard configurations, this IPC adapts to specific requirements, reducing time to market. The front-rich I/O simplifies cabling and maintenance, enhancing user accessibility and efficiency in AI deployments.

## Enhanced Performance

Achieving high performance with desktop socket-type CPUs, enhancing the overall efficiency and accuracy of image processing and inspection applications.

## System Configuration

### IPC-220-20A1



### IPC-240-20A1



### CPU Board

- PCE-2033/2133



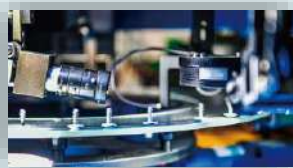
### NVIDIA Quadro® (Support <75W PSU)

- SKY-QUAD-4000SA-20
- SKY-QUAD-2000A-16
- SKY-QUAD-A2000-12B
- SKY-QUAD-A1000-8
- SKY-QUAD-A400-4



## Applications

Manufacturing inspection



Object counting / Dimension measurements



Optical Character Recognition



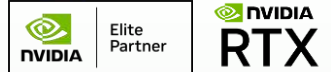
# IPC-730

Wall-mount IPC supports ATX/uATX motherboard & high-end flagship GPU for ultimate performance demanding industrial applications

NVIDIA Quadro PCIe



Learn More



## Hybrid CPU/GPU High-Performance Computing

Supports the latest Intel solution and high-end flagship graphic cards. Offers flexibility to adopt different CPUs/GPUs based on specific needs, ensuring optimized hybrid CPU/GPU computing performance..

## Reliable ATX 3.0 High Wattage Power Supply

Features high-wattage ATX 3.0 power supply (850W & 1200W) to ensure stability and withstand peak current of CPUs and GPUs, delivering ultimate hybrid CPU/GPU computing performance.

## Optimized Mechanical Design for GPU Applications

Enlarged expansion card space accommodates oversized high-end flagship GPUs. Two powerful system fans at the rear side and two optional auxiliary system fans in the front to provide excellent heat dissipation.

## Rich I/O Connectivity

Rich I/O capabilities facilitate edge system integration, while the single-side I/O design simplifies cabling and maintenance, ideal for in-cabinet applications.

## Applications

Manufacturing inspection



AI/ AOI



Intelligent video analytics



## Suggested motherboard

AIMB-788E



ASMB-788



ASMB-831



NVIDIA Quadro®  
(Support > 300W PSU)

• SKY-QUAD-6000A-48

# HPC-7420

4U 18" short-depth Edge Accelerator Server with Dual 5th/4th Gen Intel® Xeon® Scalable Processors

NVIDIA Quadro PCIe



Learn More



## Outstanding Performance

Equipped with dual 5th/4th gen Intel® Xeon® Scalable processors or AMD® EPYC™ Embedded 9004 Series Server processors

## Short Depth Design

4U 18" short-depth design, 450mm, rear-accessible system fan without opening top cover for easy maintenance

## High Density GPU Cards

Up to 11 FHFL expansion slots

## Remote Management

IPMI function support supports remote access to multiple users at different locations for networking

## Applications

AGV / AMR



Machine Vision / AOI



Video Security



## Suggested motherboard

ASMB-977



ASMB-817



ASMB-831



NVIDIA Quadro®

• SKY-QUAD-6000A-48

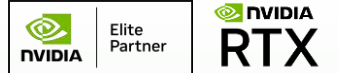
# ACP-4340

4U Rackmount GPU IPC supports ATX/uATX motherboard or SHB/SBC and up to 14 expansion slots

NVIDIA Quadro PCIe



Learn More



## Flexible Configuration for Diverse Application Needs

Comprehensive motherboard/SHB product selections within a 4U standard size, paired with versatile industrial PSU options, including high wattage PSU, DC PSU, and redundant PSU options, optimizing computing workloads.

## Robust Performance & Expandability

Supports high-performance edge computing with full-height, full-length expansion cards and up to 14 expansion slots, ideal for system integration.

## Convenient Maintenance & Security

Features 4 x 3.5" swappable HDD trays, an easy-to-maintain system fan design, and a lockable front door for access authorization management.

### Applications

Manufacturing inspection



AI/ AOI



Industrial Imaging



### Suggested motherboard

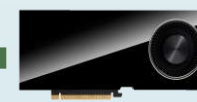
AIMB-788E



ASMB-817



ASMB-830



**NVIDIA Quadro®**  
(Support > 300W PSU)

• SKY-QUAD-6000A-48

# SKY-602E3

Compact Size Mini Tower GPU Server AMD® EPYC™ Embedded  
8004 Series Processor

NVIDIA Quadro PCIe



Learn More



## Outstanding Performance

Equipped with AMD EPYC™ 8004 Series processors

## High Density GPU Cards

Supports 4 x PCIe x16 double-deck FH/10.5" cards or 2 x PCIe x16 double deck FH/10.5" cards + 4 x PCIe x8 single deck FH/10.5" cards

## Installation Flexibility

Table-mounted for easy access, wall-mounted to save space, or use two units that can fit within a 4U rack space

## Remote Management

IPMI function support supports remote access to multiple users at different locations for networking

## Applications

3D Render



Video Processing



AI Inference



## System Configuration

### NVIDIA Tesla®

- SKY-TESL-L4-24P



### NVIDIA Quadro®






















- SKY-QUAD-6000A-48



# Advantech NVIDIA Jetson Solutions

NVIDIA Jetson	Developer kit	AI Camera	AI Inference System	Ruggedized System	AI NVR	Transportation System
<b>AGX Orin™</b> 200-275 TOPs			 MIC-733-AO			 ITA-560AGX
<b>Orin™ NX</b> 70-100 TOPs	  MIC-711D-OX MIC-713S-OX	 ICAM-540	  MIC-713-OX MIC-711-OX	 MIC-715-OX	  MIC-717-OX NVS-960	  ITA-560NX ITA-510NX
<b>Orin™ Nano</b> 20-40 TOPs	  MIC-711D-OX MIC-713S-ON		  MIC-711-ON MIC-713-OX		 MIC-717-ON	  ITA-560Nano ITA-510Nano
<b>AGX Xavier™</b> 30-32 TOPs			 MIC-730AI		 MIC-730IVA	
<b>Xavier™ NX</b> 21 TOPs	 MIC-710AILX-DVA	 ICAM-520	  MIC-710AILX MIC-710AIX	 MIC-715-NX	 MIC-710IVX	
<b>TX2 NX</b> 1.33 TFLOPs			  MIC-710AILT MIC-710AIT			
<b>Nano™</b> 0.472 TFLOPs	 MIC-710AIL-DVA1	 ICAM-500	  MIC-710AIL MIC-710AI		 MIC-710IVA	

# Advantech NVIDIA GPU Solutions

		Intel Core i / Xeon W				Intel Xeon Scalable/ AMD EPYC™ Processors		
NVIDIA GPU		Modular IPC	Desktop/ Rackmount IPC	Transportation System	Server-grade Workstation	Server-grade Workstation	Data Center	
 <b>PCIe GPU</b>		 MIC-770 V3 + MIC-75G30 ● x1   MIC-770 V3 + MIC-75G20 ● x1	 ACP-4340 ● x1   ACP-2020G ● x1   IPC-7130 ● x1		 HPC-6120+ ASMB-610V3 ● x1 ● x4	 HPC-7420+ASMB-977 ● x4 ● x10   HPC-6240+ASMB-622V3 ● x4 ● x8	 SKY-640V2 ● x4 ● x8 ● x4 ● x8	<ul style="list-style-type: none"> <li>● <b>Double Deck Active Fan GPU</b></li> <li>● RTX 6000 Ada (1,457 TOPS)</li> <li>● RTX 5000 Ada (1,044.4 TOPS)</li> <li>● RTX 4500 Ada (634 TOPS)</li> <li>● RTX 4000 SFF Ada (306.8 TOPS)</li> <li>● RTX 2000 Ada (191.9 TOPS)</li> <li>● <b>Double Deck Passive GPU</b></li> <li>● H 100 NVL (3,958 TOPS)</li> <li>● L40S (1,466 TOPS)</li> <li>● L40 (724 TOPS)</li> </ul>
		 MIC-770 V3 + MIC-75M20 ● x1	 IPC-220/240 ● x1   IPC-320 ● x1			 SKY-602E3 ● x4 ● x6 ● x4 ● x6	 SKY-620V3 ● x6 ● x6 ● x6 ● x6	<ul style="list-style-type: none"> <li>● <b>Single Deck Active Fan GPU</b></li> <li>● RTX 4000 Ada (327.6 TOPS)</li> <li>● A1000 (107.6 TOPS)</li> <li>● A400(43.4 TOPS)</li> <li>● <b>Single Deck Passive GPU</b></li> <li>● L4 (485 TOPS)</li> <li>● A40 (72 TOPS)</li> </ul>
 <b>MXM GPU</b>	 UNO-148+UNO- MXM-CB01 ● x1	 MIC-770 V3 +MIC-75GF10 ● x1 ● x1		 ITA-460G ● x1   ITA-580G ● x1   ITA-520G ● x1				<ul style="list-style-type: none"> <li>● <b>Type A</b></li> <li>● SKY-MXM-2000A (207.9 TOPS)</li> <li>● SKY-MXM-A2000 (132.1 TOPS)</li> <li>● SKY-MXM-A1000 (106.4 TOPS)</li> <li>● <b>Type B+</b></li> <li>● SKY-MXM-5000A (658.4 TOPS)</li> <li>● SKY-MXM-3000A (368.6 TOPS)</li> <li>● SKY-MXM-A4500 (282.6 TOPS)</li> </ul>

# Improving Wait Time at Major Intersections



## Overview

AI system identifies pedestrians and vehicles to change traffic light wait times at red lights on arterial roads decreased by 35% and arterial roads green light periods increased by 7 ~ 79%.

## Challenges / Requirements:

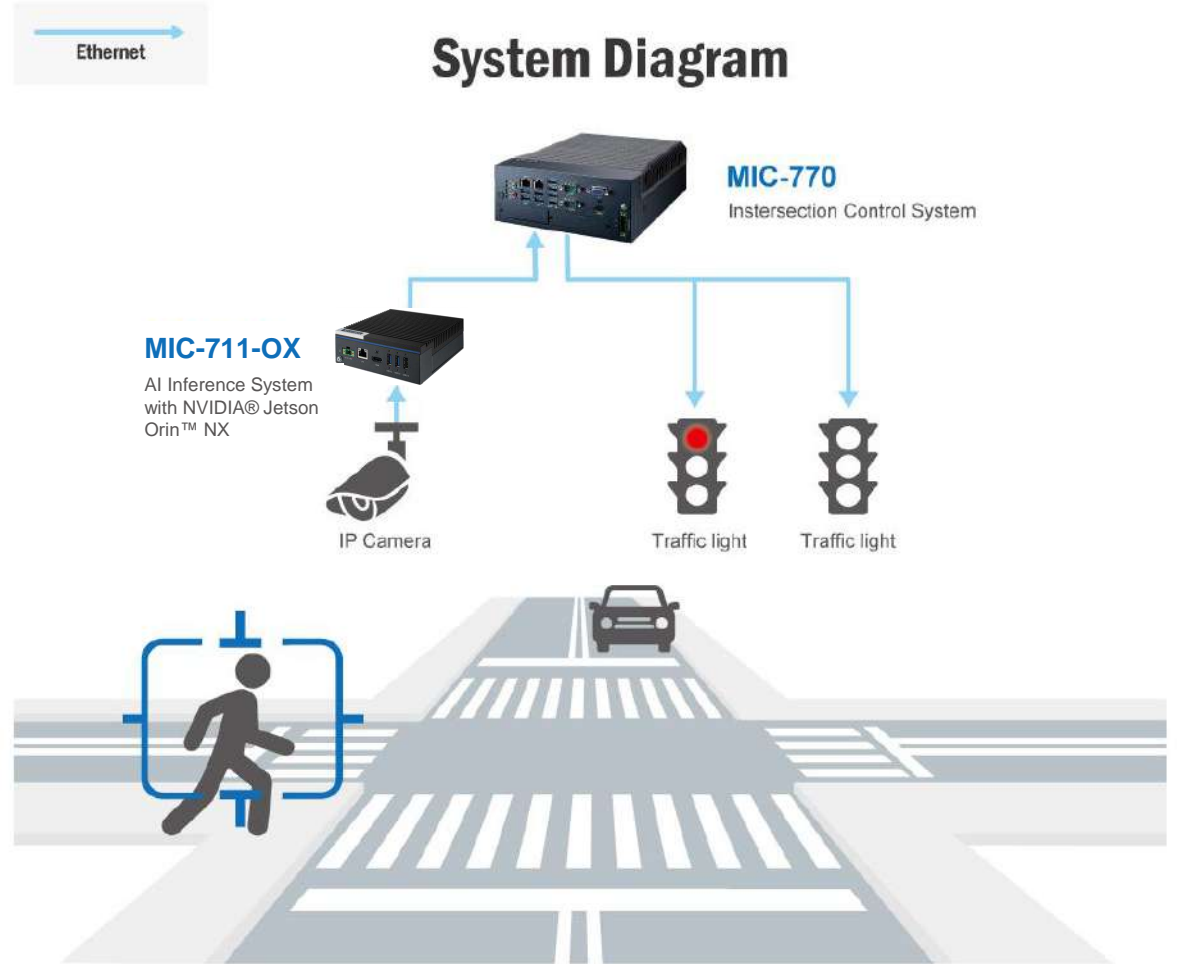
- It must deliver high-performance to conduct stream decoding and image processing
- Image recognition is easily affected by environment changes, this hardware must wield enough processing power to facilitate deep learning and deduction
- It must be capable of withstanding the harsh environmental conditions found on street corners, like high temperatures, precipitation, and humidity

## Solution:

- Its wide range operating temperature makes it ideal for outdoor applications that require AI edge computing. Its fanless design features built-in image recognition modules and supports deep learning models and processes

## Benefits:

- Traffic ran more efficiently with average wait time decreased 15 ~ 78%.
- A reduction in vehicle idle time and gas consumption in an annual economic benefits of around TWD 1.83 million.





# Maximizing the Efficiency of Agricultural Robots



## Overview

The use of agriculture robots addresses the declining capacity of the aging rural population while also increasing efficiency and reducing production costs. Advanced farms have already implemented robots to increase productivity.

## Challenges / Requirements:

- Limited installation space with multiple expansion for sensor, LiDAR and 3D camera
- 24/7 moving device need a low power consumption system

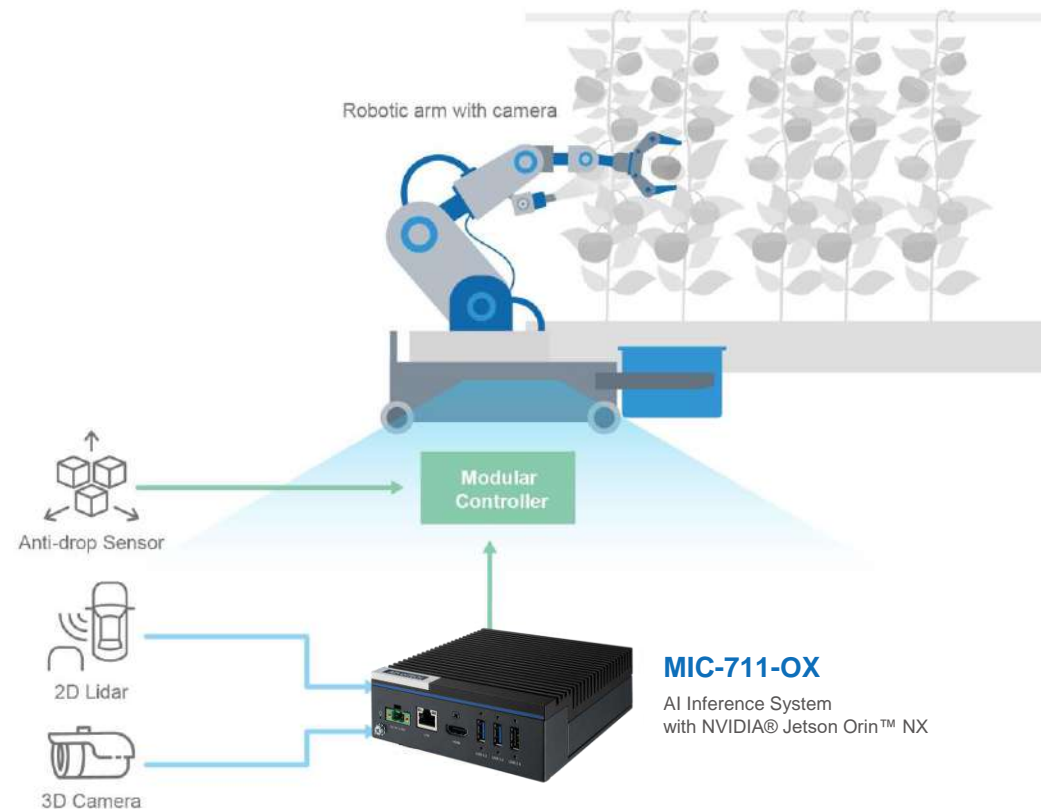
## Solution:

- Ultra-compact AI interface system with flexible expansion for different I/O
- Based on NVIDIA Jetson low-power consumption AI modules

## Benefits:

- Robotics can significantly increase agricultural efficiency
- AI-driven system can improve productivity by identifying mature fruit precisely for efficient picking

## System Diagram



# Surgical Robotic Assisted Bronchoscopy Platform



## Overview

Lung cancer is the leading cause of death in the United States and the five-year survival rate for lung cancer is only 23%, largely attributed to challenges in accurate detection, analysis, and surgical intervention.

## Challenges / Requirements:

- Customer's original surgical riser cards have technical issues preventing GPU card compatibility.
- Ensuring stable operation of two high-performance computing systems in a single OR kart system.

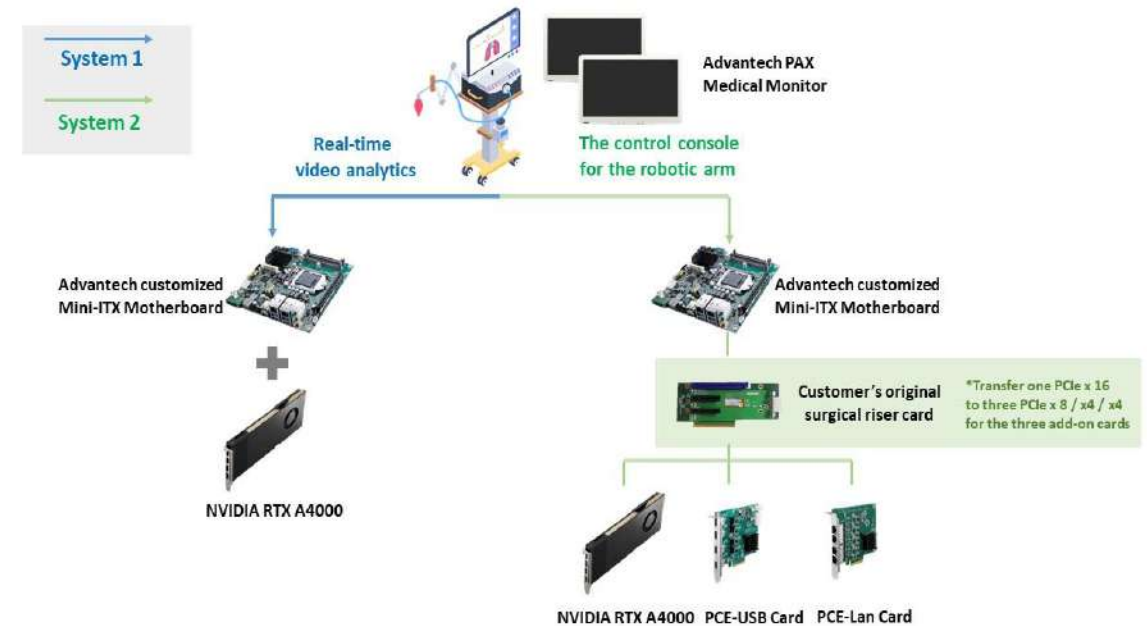
## Solution:

Advantech's premium service solution assists customers in testing their riser cards to ensure compatibility with low-power, high-performance GPU cards, RTX A4000, ultimately enhancing surgical efficiency and improve surgical precision.

## Benefits:

1. Ensuring stable operation of two high-performance computing systems in a single OR kart system.
2. The advantage of the RTX A4000, making it suitable for real-time image processing in confined spaces.

## System Diagram



## Regional Service and Customization Centers

**China** Kunshan 86-512-5777-5666 | **Taiwan** Taipei 886-2-2792-7818

**Netherlands** Eindhoven 31-40-267-7000

**Poland** Warsaw 00800-2426-8080

**USA** Milpitas, CA 1-408-519-3898

## Worldwide Offices

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Taipei & IoT Campus 886-2-2792-7818  
Taichung 886-4-2372-5058  
Kaohsiung 886-7-392-3600

#### Singapore

Singapore 65-6442-1000

#### Malaysia

Kuala Lumpur 60-3-7725-4188  
Penang 60-4-537-9188

#### Thailand

Bangkok 66-02-2488306-9

#### Vietnam

Hanoi 84-24-3399-1155  
Hochiminh 84-28-3836-5856

#### Indonesia

Jakarta 62-21-751-1939

#### Australia

Toll Free 1300-308-531  
Melbourne 61-3-9797-0100

#### India

Bangalore 91-94-4839-7300  
Pune 91-94-2260-2349

#### China Toll Free

Free 800-810-0345  
Beijing 86-10-6298-4346  
Shanghai 86-21-3632-1616  
Shenzhen 86-755-8212-4222  
Chengdu 86-28-8545-0198  
Hong Kong 852-2720-5118

#### Japan

Toll Free 0800-500-1055  
Tokyo 81-3-6802-1021  
Osaka 81-6-6267-1887  
Nagoya 81-0800-500-1055  
Nogata 81-949-22-2890

#### Korea

Toll Free 080-363-9494/5  
Seoul 82-2-3660-9255

### Americas

#### North America

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Milpitas 1-408-519-3898  
Irvine 1-949-420-2500  
Ottawa 1-815-433-5100  
Chicago 1-888-576-9668

#### Brazil

Toll Free 0800-770-5355  
São Paulo 55-11-5592-5367

#### Mexico

Toll Free 1-800-467-2415  
Mexico City 52-55-6275-2777

### Europe

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Eindhoven 31-40-267-7000  
Breda 31-76-523-3100

#### Germany

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Düsseldorf 49-2103-97-855-0

#### France

Paris 33-1-4119-4666

#### Italy

Milan 39-02-9544-961

#### UK

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London 44-0-870-493-1433

#### Spain

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#### Sweden

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#### Poland

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#### Russia

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St. Petersburg 8-812-332-57-27  
8-921-575-13-59

#### Czech Republic

Ústí nad Orlicí 420-465-524-421

#### Ireland

Galway 353-91-792444

### Middle East and Africa

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Turkey 90-212-222-0422  
Turkey-Bursa 90-224-413-3134

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