

Deterministic PCI/ PCIe Data Acquisition Platform for Real-Time Edge Systems



Powered by ADDI-PACK Drivers and Software Suite with optional MSX-AIRIS for advanced data fusion and visualization, the MSX-BOX-IPC-2 is a long-term available industrial platform that unifies high-speed data acquisition, real-time processing, data fusion, and automated decision-making in a single ready-to-use system.

Compatible with any physical signal (analog, IEPE vibration, strain gauges, thermocouples, RTDs, encoders, counters, 24 V digital I/O), it fits your machines and workflows. Combining PCIe and PCI support with optional real-time operating systems and customizable applications, the MSX-BOX-IPC-2 enables OEMs, integrators, and R&D teams to deploy fast, reliable, and scalable data acquisition, measurement and automation intelligence straight out of the box, dramatically reducing development time and simplifying the integration of high-performance industrial machines.

Contact us!

Platform

Computing

- AI-ready industrial platform
- Intel® Core™ i3 / i5 / i7 / i9 processors (10th to 14th gen) and Intel® Xeon® CPUs (10th to 14th gen)
- Up to 64 GB DDR5 / DDR4 RAM
- 3 PCI, PCIe ports
- Optional GPU for AI inference & image processing
- Windows 11 IoT & Linux support
- Real-Time Operating Systems Options (Xenomai, RTX etc...)

DAQ Capabilities (ADDI-DATA Ecosystem)

- Full ADDI-DATA DAQ portfolio support
- Single driver & API : ADDI-PACK
- Hardware abstraction & long-term software stability
- Deterministic, and synchronous
- Hard Real-Time DAQ Drivers

System Monitoring

- Watchdog & supervision boards

Sensor interfaces & Measurement

Analog Sensors

- Voltage & current (± 10 V, 0–10 V, 0/4–20 mA)
- IEPE / ICP® sensors (vibration, acceleration)
- Strain gauges & bridge sensors (full / half / quarter bridge)
- Thermocouples (J, K, T, N, E, R, S, B)
- RTDs (PT100 / PT1000)
- Transducers
- DMS
- LVDT

MSX-BOX-IPC-2

Industrial IPC for Real-Time Edge Data Acquisition and Processing

PCI/PCIe-Based Computing with Custom ADDI-DATA DAQ Cards Configuration

Large Support of sensor interfaces with ADDI-DATA DAQ Ecosystem

AI-Ready Edge Computing

Ready to Measure, Ready to Develop with ADDI-DATA Software Suite

Industrial Reliability & Long-Term Availability

- Knäbel VLDT (Mahr)
- Resistance & potentiometric sensors type

Digital Sensors

- Up to 24 V digital inputs & outputs (optically isolated)
- TTL / CMOS digital I/O
- Event-based & interrupt-driven signals
- Pulse, frequency & duty-cycle measurement
- Digital Transducers

Position, Motion & Counting

- Incremental encoders
- Absolute encoders
 - SSI
 - BiSS (B / C mode)
 - EnDat 2.2
- Sin/Cos encoders
- High-speed counters & timers
- Pulse, frequency, period & speed measurement
- PWM measurement & generation
- Edge time measurement (ETM)
- Position compare
- Parallel position interfaces

Serial & Differential Sensor Interfaces

- RS-422
- RS-485
- RS-232
- TTY
- Proprietary or custom synchronous serial protocols

Smart & Bus-Based Sensors

- Fieldbus-connected sensors via communication cards:
 - PROFINET
 - PROFIBUS
 - EtherCAT
 - CAN / CANopen
 - Modbus (RTU / TCP)

Ethernet Distributed Data Acquisition (MSX-E)

- Distributed analog, digital & counter I/O modules
- Distributed also encoder, counting & motion interfaces
- Deterministic acquisition and real-time triggering at machine level
- Local signal preprocessing close to sensors and actuators
- Rugged IP65 MSX-E DAQ Ecosystem Support

Measurable Physical Quantities

- Temperature (contact & contact-free)
- Pressure & vacuum
- Force, load & torque
- Strain & deformation
- Position & displacement (linear / angular)
- Distance, gap & thickness
- Speed & velocity
- Acceleration & vibration
- Rotation & RPM
- Pulse, frequency & period
- Event, cycle & object counting
- Time & edge timing
- Flow & level (liquid / gas)
- Light intensity & optical detection
- Presence / absence
- Electrical quantities (voltage, current, power)
- Humidity & moisture
- Process & quality indicators (OK/NOK, defects, throughput)

Service and Options

Modules & Add-Ons

- RAID configurations
- SATA / NVMe storage expansion
- PCI/PCIe port expansion

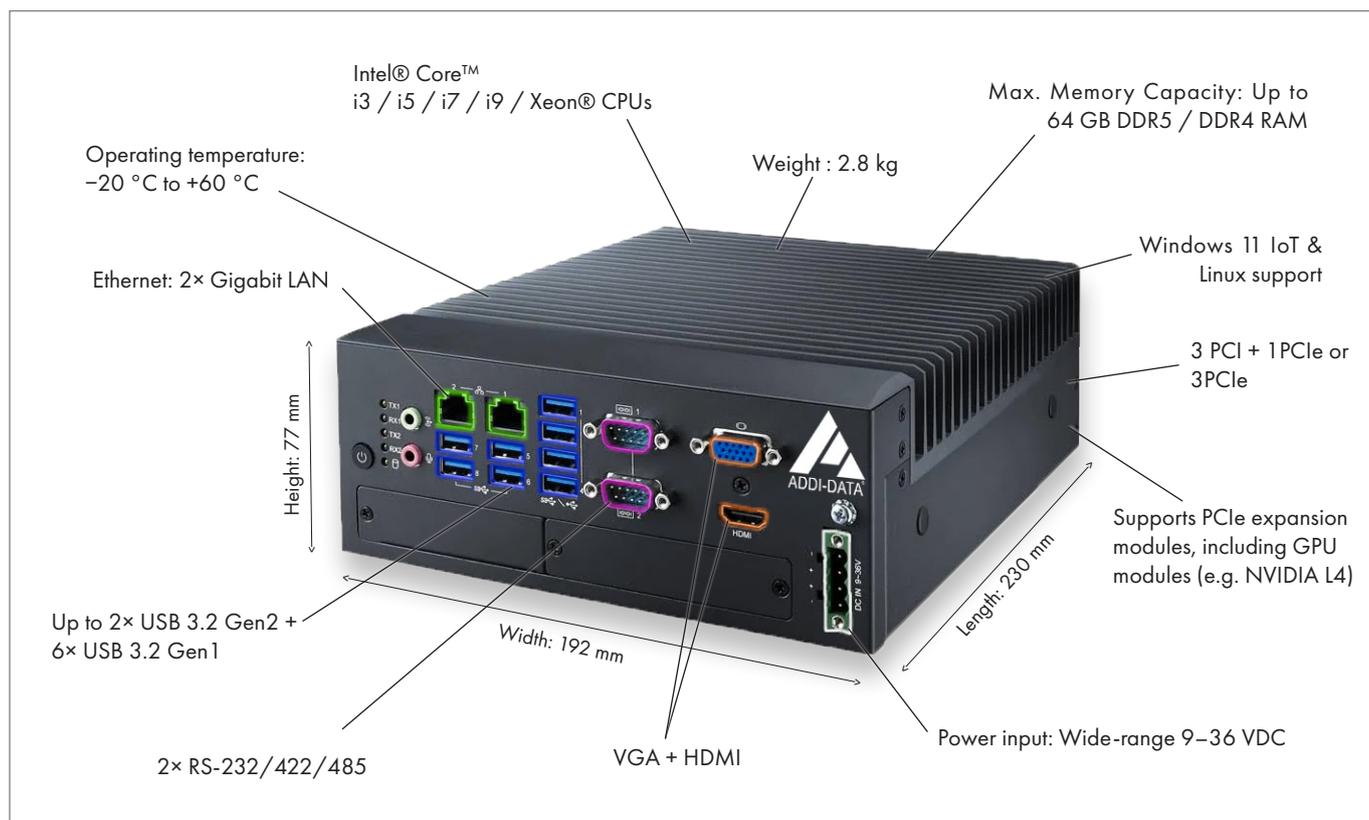
Services

- Long-term availability (20+ years)
- Hardware & software migration support
- Retrofitted code adaptation or functional reimplementation
- Single point of responsibility for IPC, DAQ Cards and Software

On request:

- Extended temperature range
- CPCI/CPCIs
- Custom Software Integration
- External power supply

Key points



Technical specification

| Feature | MSX-BOX-IPC-2 |
|------------------------------------|---|
| CPU Socket / Supported CPUs | Intel® 14th Gen Core™ i (LGA1200) |
| Chipset | Intel® R680E / H610E |
| Memory Type | (14th Gen) DDR5-4800MHz / (10th Gen) DDR4-2933 / 2666 MHz |
| Max. Memory Capacity | Up to 64 GB |
| Memory Slots | (14th Gen) 2× DDR5 SO-DIMM |
| Graphics | Intel® UHD Graphics (CPU-dependent) |
| Ethernet | 2× Gigabit LAN |
| USB Interfaces | Up to 2× USB 3.2 Gen2 + 6× USB 3.2 Gen1 |
| Serial Interfaces | 2× RS-232/422/485 + optional 4× RS-232 |
| Display Outputs | VGA + HDMI (additional optional outputs) |
| Storage Support | 1× 2.5 HDD/SSD, 1× mSATA, 1× NVMe M.2 |
| Expansion Support | Expansion modules, FlexIO, iDoor |
| PCIe / GPU Support | Supports PCIe expansion modules, including GPU modules (e.g. NVIDIA L4) |
| Remote Management | iBMC 1.2 with Out-of-Band (OOB) management, WISE-DeviceOn |
| Security Features | TPM support, Intel® vPro™ / AMT (optional) |
| Operating Temperature | -20 °C to +60 °C/-20 °C to +60 °C |
| Ingress Protection | IP40 |
| Power Input | Wide-range 9–36 VDC |
| Operating System Support | Windows IoT, Linux (e.g. Ubuntu) |
| IoT / Cloud Certification | Not specifically highlighted |
| Form Factor / Dimensions | Approx. 77 × 192 × 230 mm |
| Weight | Approx. 2.8 kg |
| Target Applications | Edge AI, high-performance edge computing, GPU-accelerated workloads |

Module

| Features | PCI Module | PCIe Module |
|-----------------------|-------------------------|---|
| PCIe-Slots | 1 × x16 | 2 × x16 (Signale x8) + 1 × x4 |
| PCI Slots | 3 × PCI (32-Bit/33MHz) | no PCI-Slots |
| GPU-Support | / | (2 × NVIDIA GPUs, bis ~250 W pro Karte) |
| SATA / Storage | 1 × interne SATA (2,5") | 2 × 2,5" Front-Swappable Storagebays |
| Cooling / Fan | Optional 8 cm fan | Integrated cooling for GPUs |
| Power Supply | Standard | Triple 24 VDC inputs, up to ~1,200 W |
| Dimensions | 90 × 192 × 230 mm | 90 × 192 × 230 mm |



Overview of the extension module

Ordering information

MSX-BOX-IPC-2

Deterministic PCI/PCIe Data Acquisition Platform for Real-Time Edge.

Systems

- MSX-BOX-IPC-2-101:** I3 Processor Intel 14th Gen, 32GB RAM DDR5, 1 SATA SSD, Min 3 * PCIe.
- MSX-BOX-IPC-2-201:** I5 Processor Intel 14th Gen, 32GB RAM DDR5, 1 SATA SSD, Min 3 * PCIe.
- MSX-BOX-IPC-2-301:** I7 Processor Intel 14th Gen, 32GB RAM DDR5, 1 SATA SSD, Min 3 * PCIe.
- MSX-BOX-IPC-2-401:** I9 Processor Intel 14th Gen, 32GB RAM DDR5, 1 SATA SSD, Min 3 * PCIe.
- MSX-BOX-IPC-2-501:** Xeon Processor Intel 10th/14th Gen, 32GB RAM DDR4, 1 SATA SSD, Min 3 * PCIe.

Option

- WLAN
- Ethercat
- Profinet
- Profibus

**RAID 0 with NVME SSD Capabilities
HDD and SATA Add-On
PCI/PCIe slot Expansion**

Power supply unit

ADP A/D 100-240V 230W 24V C14 TERMINAL BLOCK 4P

