3U CPCI-Serial Smart Solutions

- Application Scenarios
- Blade IPC Product Features
- 3U CPCI-S Product Introduction
- Key Solutions
WORLD'S LARGEST IPC COMPANY
Advantech IPC WW Market Share

Advantech  41%
Other IPC Companies


$2.07B 2023 REVENUE (USD)

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

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

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

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

INTERCONNECTIVITY

KEY ECO-SYSTEM PARTNERS

key partners: intel, Microsoft, NVIDIA, AMD, Generali, Ubuntu, Texas Instruments, arm, NXP, Qualcomm, MediaTek

and more...

QUALITY SYSTEMS IN PLACE

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

WORLDWIDE OFFICES

- Manufacturing 3
- On-site service 4
- Design centers 11
- CTOS centers 10
- Repair centers 17
- Logistics centers 20

More than 90 offices globally!

8800+ EMPLOYEES
Market Segment Trend & Analysis

Customer Pain Points

- Inflexible CPU Computing and I/O Extension Capabilities
- More Computing results from Greater Size
- Complicated Product Lifetime Management
- Limited Reliability in Harsh Environment (-40 ~ 85°C)

Technology Market Trends

- Higher Density Computing
- Harsher User Scenarios
- Lower Latency
- More Data
- Reduced Size
Why BIPC?

What is Blade IPC - Special IPC = Smart IPC (configurable module), Slim IPC (compact size),
Safe IPC (high reliability) Edge Computing

✓ Open PICMG standard
✓ Plug in unit design, no internal cabling

✓ Flexibility of adding I/O expansion
✓ Single or multi-node system building
✓ Longevity support

✓ Hot-swap module design
✓ MTTR < 30 min
Who are the Blade IPC Team?

One of the Advantech IIoT product groups, engaged in CPCI/VPX associated products

- Maintainability
- Ruggedization
- Stability
- Scalability

☑ Reliability  ☑ Modularity  ☑ Compatibility  ☑ Longevity  ☑ Upgradability
Configure to Your Own “Slim Smart System”

- Modularized
- CPU Board
- Power
- BIPC System Solution
- Chassis (with Backplane)
- IO Board
- Compact Size
- Flexible
- Multi-Scalable

- MIC-330 V2
- MIC-3812
- MIC-3860
- MIC-3821
- MIC-3820
- MIC-3840
- MIC-3954F
- MIC-3890
- XMIC330-HAC300s
- MIC-300A-3U
- MIC-300A-4U
AI/Video Solution on Edge Computing

Video & AI HW Solution in Slim, Smart, Scalable and Standard 3U CPCI-Serial Form Factor for Transportation/Automation

Intel X86 + MXM GPU  
NVIDIA Jetson Orin AGX + I/O  
Intel X86 + NVIDIA Jetson Orin AGX + I/O + Switch

Medical Equipment  
Surface Inspection  
Transportation  
Aerospace
Smart Solution on Transportation

The development trend of "next generation" vehicle integrated intelligent monitoring

All System In One Chassis to Save Installation Space

Traditional Solution

Innovative Solution

Distributed (Single System)

All-In-One (Multisystem)
Smart Solution on Surgical Equipment (CT/Endoscope/Robot)

Application:
Robotic assisted surgery, portable surgical system.

Current Solution:
Custom server board + PCIe based graphics card, optimized thermals & size.

Challenges:
Rich communication ports like USB3.0/2.0 and 1/5/10GbE with high resolution. Real time video & image processing need a high-end CPU/DDR and PCIe/USB resources but still remain compact enough for small chassis designs.

Proposal: 3U CPCI-Serial
More compact with optimized thermal system solution, MXM graphics, and modularized design for easier function card upgrading and extension.
3U CompactPCI-Serial

MIC-330 Intel® CPU Blade

iTransportation

iEquipment

Defense

iHealthcare

AI

High Performance

High-Speed Communication

☑ Modular Design
☑ Lightweight
# 3U CPCI-S Family

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Traditional CPCI vs High-Speed CPCI-Serial

The same appearance, not the same "interior", to achieve different IO expansion capabilities (bandwidth/transmission rate)

Traditional CPCI

- Plug in units: PCI Bus
- Backplane: 32-bit or 64-bit / 33MHz or 66MHz
- Power Source: Connector up to 3.125Gbps

High speed CPCI

- Plug in units: Serial Bus
- Backplane: Up to 40 x PCIe, 8 x SATA, 8 x GbE, 8 x USB 2.0/3.0
- Power Source: Connector up to 12/20/25Gbps
Simple, Flexible, Reliable by 3U CPCI-S Technology

Easy, quick configuration, CPU extension, and peripheral I/O board per user request
CPCI Serial System

Up to 9 slot backplane to offer rich I/O resources from system slots to peripheral I/O slots:
- 40 x PCI® Express
- 8 x Gigabit Ethernet
- 8 x SATA
- 8 x USB2.0/3.0

• System Slot J1-6
• Fat Pipe Slots J1-2, Optional J6
• Peripheral Slots J1, Optional J6

Positions not filled: Optional RIO
CompactPCI® Serial System 9 Slot Backplane

The system slot board (CPU) is the root complex (source) for up to 8 x PCIe3.0 links (up to 2 x PCIe x8, 6 x PCIe x4), 8 x SATA/SAS 3.0, 8 x USB2.0/3.2, 8 x GbE/10GbE distributed across a cPCI-S backplane to the peripheral slots. Please note the descending precedence order for SATA channels.

Note: If higher PCIe transfer rate is required, use backplane communication via PCI Express® up to Gen4 by using new AirMax VSe® series connectors (both plug in board and backplane) up to 25Gb/s differential pair.
3U CPCI-S Alternative Bachplane Option

CPCI Serial backplanes for optimum throughput

The CompactPCI® serial system slot is located on either far left or far right
CompactPCI® Serial System Slot Pin Assignments

A system slot card (CPU) provides up to
- 40 x PCI® Express
- 8 x Gigabit Ethernet
- 8 x SATA
- 8 x USB2.0/3.0

CompactPCI® Serial System Slot
up to 40 x PCIe Connectors P1-P6

Gigabit Ethernet star architecture or full mesh

In a CPCI serial system, up to 40 x PCIe lanes can be distributed across the backplane to 2 x fat pipe peripheral slots (8 lanes each) and 6 x standard peripheral slots (up to 4 lanes each)
CompactPCI® Serial Fat Pipe Peripheral I/O Slot Pin Assignments

A fat pipe peripheral slot provides

• 1 x PCIe x8
• 1 x USB2.0/3.0
• 1 x SATA3.0

P1-P2 are mandatory on a fat pipe peripheral card, P3-P6 optionally for GbE and/or rear I/O
CompactPCI® Serial Peripheral I/O Slot Pin Assignments

A CompactPCI® Serial peripheral slot provides up to  • 1 x PCIe x4  • 1 x USB2.0/3.0  • 1 x SATA3.0
P1 is mandatory on a peripheral card, P2-P6 optional for GbE and/or rear I/O

CompactPCI® Serial
Peripheral Card Standard Slot
1 to 4 x PCIe
P1 Connector (P6 Optional)
CPCI System

Build Your Smart Slim System with the BIPC Solution

Build your own size chassis per request
Multi & Diverse storage solution

2.5" SATA drive or PCIe/NVMe storage options

- MIC-300A: 8-slot CPCI-S slot backplane, 1 system slot & 7 I/O slots
- MIC-330/MIC-330V2: 9th or 11th gen Intel® CPU board option
- MIC-3821: Quad M.2 M-Key PCIe 3.0 x4 NVMe carrier
- MIC-3820: 2.5” SATA3.0 carrier
Network Adapter Solution

RJ-45 or M12 X-code Ethernet connector option

- MIC-300A: 8-slot CPCI-S slot backplane, 1 x system slot & 7 x I/O slots
- MIC-330/MIC-330V2: 9th or 11th gen Intel® CPU board option
- MIC-3810: PCIe carrier for low profile PCIe 10GbE Ethernet module
- MIC-3860: Quad port RJ-45 or quad port M12 X-code GbE / 2.5GbE Ethernet card
“Carrier + Module” Concept = Flexible, Cost Effective
## Worldwide Offices

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