Innovations in Gaming Computing

The Widest Range of Solutions for the Gaming Industry

⁄ **Lottery / Casino Machines**

⁄ **Sports Betting**

⁄ **AWPs**

⁄ **VLTs / Class II**

⁄ **Multiplayer Games**

⁄ **Arcade**

⁄ **Pachislot**

Intel® & AMD Core Platforms

4K ULTRAHD 4k Monitors Supported

GLI, NVGCB, etc Regulatory compliance

PCI Express Graphics

ADVANTECH INNOCORE

Innovations in Gaming Computing

AMD Embedded Solutions

Intel partner Titanium IoT Solutions

About Advantech

Advantech is a $2Bn leading technology business that specializes in designing and manufacturing industrial grade hardware and dedicated software tailored to the exact needs of the gaming industry. As the gaming-focused business unit of Advantech, Advantech-Innocore stands alone among hardware suppliers in its capabilities to support customers large and small in all regions of the world. Advantech is a premier member of Intel Internet of Things (IoT) Solutions Alliance, bringing the first-to-the-market IoT solutions to the world. Advantech is also a member of AMD Partner Program presenting a wide range of AMD-based high performance computing platforms. Advantech is an Elite Partner of Nvidia for high performance and long lifecycle graphics solutions.

Gaming team with extensive knowledge and experience

- Experienced management and sales network with over 150 years of combined gaming experience
- Expert engineering, project management and design capabilities for efficient project execution
- Multi-discipline teams - hardware, firmware, FPGA, BIOS, OS, manufacturing and QC engineers
- Software drivers and libraries available to support the majority of gaming peripherals (including bill acceptors, etc)
- On-time design and build of custom hardware and software projects
- Comprehensive package - prototype validation, driver testing, manuals, drawings, design files, manufacturing test procedures, diagnostics
- Worldwide regulatory approvals for all products

International quality standard from design to delivery

The Group Quality system is audited and compliant with ISO 9001. The Quality system covers all aspects of product design, component selection, design verification, manufacturing, quality control and customer satisfaction. Advantech also holds global certifications of ISO 13485, TL 9000, ISO 14001, OHSAS 18001 and IECQ QC 080000.

Advantech - Global Company, Local Services

Newcastle
Breda
Eindhoven
Warsaw
Russia
Amberg
Seoul
London
Düsseldorf
Paris
Munich
Milan
Beijing
Tokyo
Milpitas
Irvine
San Diego
Cincinnati
Kunshan
Osaka
Shanghai
Chengdu
India
Mexico
Bangalore
Bangkok
Hong Kong
Shenzhen
Penang
Kuala Lumpur
Sao Paulo
Singapore
Sydney
Melbourne

D Design Centers
M Manufacturing Centers
C Configure To Order Service Centers
L Logistics Centers
R Repair Centers

Excellence in Design, Manufacture and Service

Advantech-Innocore's products are designed and manufactured using high quality components, and apply the most up-to-date design and production methodologies. In contrast to mass produced commercial grade motherboards, Advantech-Innocore carefully source and choose components for the best results.

Key drivers when designing DPX® motherboards and sourcing components are:

☑ Longevity	☑ Robust, Reliable Operation	☑ Power Supply Design	☑ Quality (UL, CE, FCC, ISO)
☑ Usability	☑ Regulatory Constraints	☑ Cabinet Integration	☑ Thermal Management and Reliability
☑ EMC	☑ Signal Termination	☑ Signal Integrity	☑ 24/7 365 Operational Requirements.

Excellence in Manufacturing & Service

With a global footprint covering all major regions, Advantech-Innocore's organization is unique in its ability to put technical support, configuration and repair services close to its customers, offering:

- Wholly owned manufacturing facilities (>130,000m^2)
- State-of-the-art production equipment
- Highest yield rates
- Best quality
- BGA X-Ray inspection
- Automated test routines
- Elevated temperature burn-in

- Local support, service and repair/RMA
- Local inventory and fulfillment capabilities
- Advantech Care Service Packages: advanced replacements, extended warranty, guaranteed turnaround time

Complete Portfolio of Gaming Solutions

Advantech-Innocore offers the widest range of industrial grade computer products designed specifically for the regulated gaming industry, Providing customers with excellent standard products, customized products and services, employing up-to-date technologies for gaming solutions to meet the requirements for Casino Machines, AWPs, VLTs, Multiplayer Games, Arcade Games, Pachislots, and Sports Betting.

Graphic Cards
• Long lifecycle
• Intel, Nvidia and AMD
• PCIe Graphics

Gaming Monitors
• All sizes with touch 4-55" curved touch with customizable radius
• C, J and other profiles available

Industrial Storage
• SSD, HDD, CF, CFast, M.2
• DDR1-DDR5 SODIMM
• Custom provisioning
• Lifecycle controlled
• Power fail protection
• Comprehensive security features

DPX® LED Controller
• Robust metal cover
• Industrial grade product
• Custom Vibrance FX application for easy detailed content creation

Gaming Platforms & Systems
• Gaming I/O, multiple COM
• Onboard NVRAM
• Security
• Worldwide regulatory approvals

Software
• Microsoft embedded authorized distributor
• BSP for Windows, Linux and more
• Custom, lockable image development
• Custom BIOS

Embedded Platforms & Digital Signage
• Mini-ITX, single board computers, computer on modules RISC computing platforms
• Full ranges of signage

DPX®-S Series

• **Regulated Gaming Machines**   • **Slot Machines**   • **VLTs**   • **GLI Compliant**

The DPX-S Series products provide highly integrated industrial single board computers and systems with an unrivaled performance range, scalability, long lifecycle and low power. Both AMD and Intel platforms are offered and each one features a full set of I/O, COMs, and security, developed specifically to meet the requirements of the regulated gaming industry.

Feature Highlights

Chassis options available

Scalability of CPU and graphics

Full feature set of I/Os COMs, security

AMD and Intel CPU based

DPX®-S455
12th/13th Generation Intel® Core™ Gaming Platform

- Very high-performance Intel Hybrid Multi-core CPUs
- CPUs up to i9 24 Core
- Three independent monitors including 8k & HDR options
- PCIe x16 graphics card slot
- Comprehensive gaming features
- 12V DC single input or ATX power
- Full featured driver API for IO and security

View More

SCAN ME for more information!

Features

Digital I/O 32/32	6 x USB 2.0 3 x USB 3.0	DPX-Software: Embedded OS, DPX Diagnostics, DPX-Connector & DPX-SAS
NVRAM (MRAM) 8 - 12 MB (no battery required)	10 x COMs: ccTalk, RS232, ID003,RS485, TTL	Enclosure Metalwork Optional S2000
3 x DP++	M.2, SATA DOM, HDD, SSD, USB	On-board Mircocontroller PuC
I²C, PCIe x 16 & Golden Fingers	DPX Security Suite: Media Validation Toolkit, TPM Support, DPX Security Features & BIOS Customization	

DPX-S455

DPX®-S451
AMD R2000 Gaming Platform

- High-performance AMD Embedded R2000 SOC APUs
- Quad and dual core APUs up to 3.35 (3.7) GHz
- Radeon VEGA GPU with up to 8 x compute units
- Four independent 4K monitors supported
- Comprehensive gaming features
- 12V DC single input or ATX power
- Full featured driver API for I/O and security

![Microsoft] ![AMD Embedded Solutions] ![AMD RADEON EMBEDDED] ![AMD RYZEN EMBEDDED R] ![nVIDIA Elite Partner] ![Linux] CE FCC

Features

Digital I/O 32/32	Expansion I²C, PCIe x 16 & Golden Fingers	DPX Security Suite: Media Validation Toolkit, TPM Chip Support. DPX Security Features & BIOS Customization
Battery Backed SRAM 8MB	8 x USB2.0 3 x USB3.0	DPX Software: Embedded OS, DPX Diagnostics, DPX–Connector & DPX- SAS
Displays 4 x DP++	10 x COMs: ccTalk, RS232, ID003, RS485, TTL, & 3 x DP++ 1.2	Enclosure S2000
Graphics Cards PCIe x 16 Format	M.2, SATA DOM, HDD, SSD, Cfast, & USB	On-board Microcontroller PuC

DPX®-S450

AMD Ryzen™ Embedded V1000/R1000 Gaming Platform

- Very high performance AMD Embedded V1000/R1000 SOC APUs
- Quad and dual core APUs up to 3.35 (3.8) GHz
- Radeon VEGA GPU with up to 11 compute units
- 4 x independent 4K monitors supported
- Comprehensive gaming features
- 12V DC single input or ATX power
- Full featured driver API for I/O and security

SCAN ME for more information!

Microsoft — AMD Embedded Solutions — AMD RADEON EMBEDDED — AMD RYZEN EMBEDDED V — AMD RYZEN EMBEDDED R — nVIDIA Elite Partner — Linux — CE — FCC

Features

Digital I/O 32/32	**Expansion** I²C, PCIe x 16 & Golden Fingers	**DPX Security Suite:** Media Validation Toolkit, TPM Support, DPX Security Features & BIOS Customization
Battery Backed SRAM 8MB	**8 x USB 2.0** 3 x USB 3.0	**DPX-Software:** Embedded OS, DPX-Diagnostics, DPX-Connector & DPX-SAS
Displays 4 x DP++ (4 simultaneous)	**10 x COMs:** ccTalk, RS232, ID003, RS485, TTL	**Enclosure** S2000
Graphics Cards PCIe x 16 Format	**M.2, SATA DOM, HDD,** SSD, CFast, USB	**On-board** Mircocontroller PuC

DPX®-S445

6th & 7th Generation Intel® Core™ Gaming Platform

- Very high performance Intel platform
- Powered by 6th & 7th Gen Intel Core processors
  (available with Intel Core i3/i5/i7, Intel Celeron & Intel Pentium)
- Comprehensive gaming features
- High performance integrated or PCIe graphics
- Easy integration for gaming applications
- Full featured driver API for I/O and security

Microsoft | Intel partner Titanium IoT Solutions | Intel CORE i7 | Intel CORE i5 | Intel CORE i3 | Intel CELERON | Intel PENTIUM | NVIDIA Elite Partner | Linux | CE FCC

Features

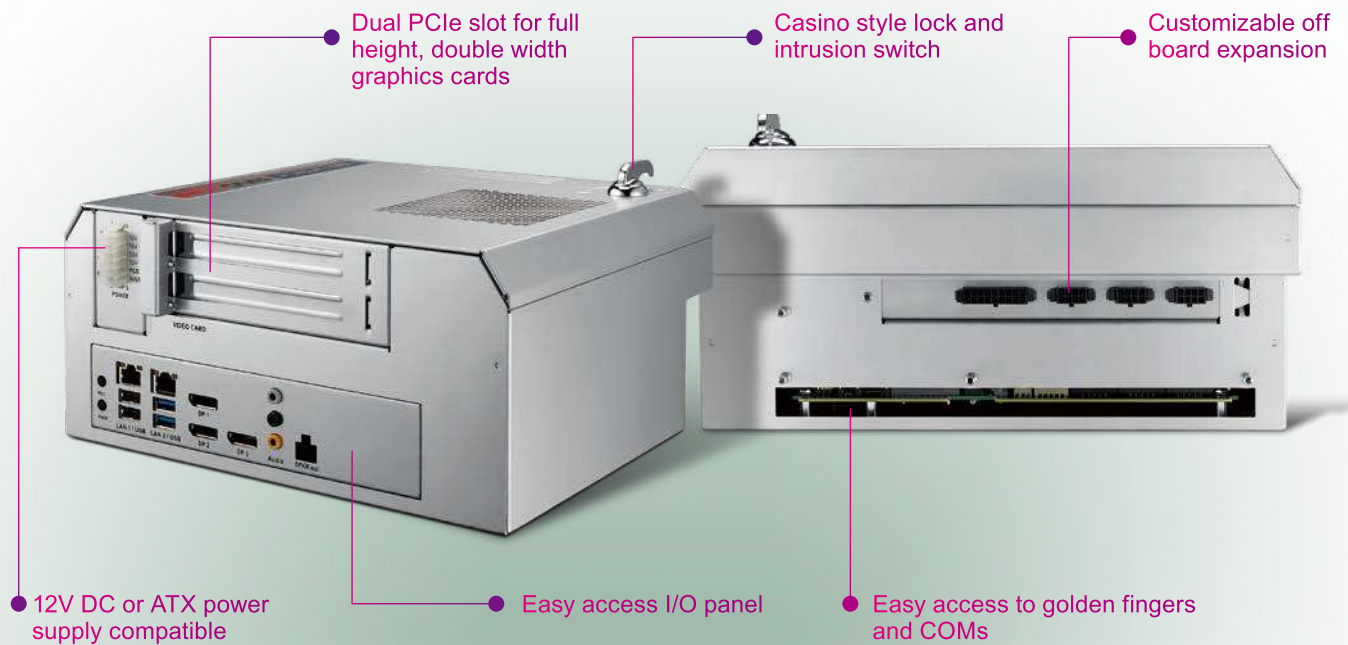|		
Digital I/O 32/32	Expansion I²C, PCIe x 16 & Golden Fingers	DPX Security Suite: Media Validation Toolkit, TPM Support, DPX Security Features & BIOS Customization
Battery Backed SRAM 8MB	8 x USB 2.0 3 x USB 3.0	DPX-Software: Embedded OS, DPX Diagnostics, DPX-Connector & DPX-SAS
3 x DP++	10 x Coms: ccTalk, RS232, ID003, RS485, TTL	Enclosure S2000
Graphics Cards PCIe x 16 Format	SATA DOM, HDD, SSD, USB	On-board Microcontroller PuC

DPX®-S2000

The DPX-S2000 series products are gaming system logic boxes designed to accommodate any of Advantech's DPX-S series motherboards in style and with excellent access to the interior behind a casino grade key-locked lid. The system has a card slot bay for a PCIe graphics card that is wide enough for today's high powered double- width graphics cards.

- Full height, double width graphics card
- Compact design
- Tool free SSD/HDD access
- System fan
- Complete solution

Dimensions of Chassis

	Length	Width	Height
DPX-S2450	214mm	260mm	124mm
DPX-S2445	214mm	260mm	124mm

Dual PCIe slot for full height, double width graphics cards

Casino style lock and intrusion switch

Customizable off board expansion

12V DC or ATX power supply compatible

Easy access I/O panel

Easy access to golden fingers and COMs

DPX®-E Series

• Performance at a very cost-effective price point
• Full feature set of I/Os and COMs
• Ideal integrated platforms for many gaming, amusement, and kiosk applications
• Gaming functions share the same API as the other DPX series boards
• Easy to port application code and leverage the different price and performance points
  across Advantech-Innocore's full range of products

Feature Highlights

Full feature set of I/Os and COMs
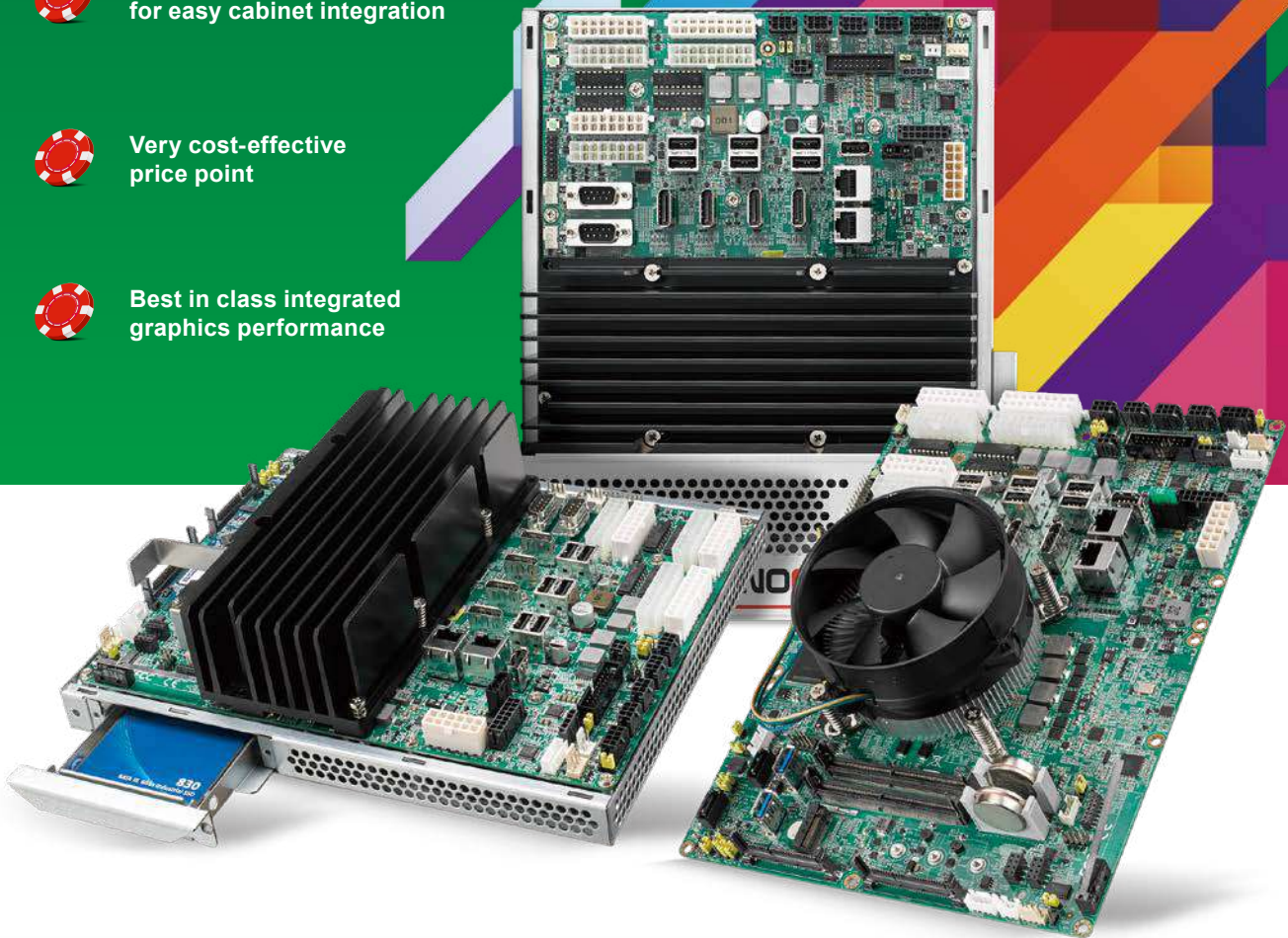
Industry standard connectors for easy cabinet integration

Very cost-effective price point

Best in class integrated graphics performance

Microsoft   AMD Embedded Solutions   Intel partner Titanium IoT Solutions   Linux

DPX®-E145

11th Generation Intel® Core™ Processor Gaming Platform

- Powered by 11th Gen Intel Core i3/i5/i7 processors
- Also available with Intel Celeron processors
- CPUs up to Dual 3.0 (3.9) GHz, Quad core 2.8GHz (4.4) GHz
- Intel Iris Xe Graphics
- 4 x 4K monitor support
- Comprehensive gaming features
- Passive cooled system up to 28W

Microsoft · Intel partner Titanium Solutions · Intel CORE i7 · Intel CORE i5 · Intel CORE i3 · Intel CELERON · Intel iRIS Xe GRAPHICS · Linux · CE FCC

Features

	Digital I/O 32/32		7 x USB 2.0 2 x USB 3.0		DPX-Software: Embedded OS, DPX Diagnostics, DPX-Connector & DPX-SAS
	Battery Backed SRAM 8MB		9 x COMs: ccTalk, RS232, ID003,RS485, TTL		Enclosure Metalwork Optional
	4 x DP++		M.2, SATA DOM, HDD, SSD, CFast, USB		On-board Mircocontroller PuC
	Expansion I²C		DPX Security Suite: Media Validation Toolkit, TPM Support, DPX Security Features & BIOS Customization		

DPX-E145

DPX®-E140
AMD Embedded Gaming System with V1000/R1000 Platform

- AMD Ryzen Embedded V1000/R1000 Processors
- High performance Radeon VEGA series graphics
- 4 x 4K monitor support
- Comprehensive gaming features
- Passive cooled system up to 25W, 54W with fan cooler
- 12V DC single input or ATX power

Features

Digital I/O 32/32	7 x USB 2.0 2 x USB 3.0	DPX-Software: Embedded OS , DPX Diagnostics, DPX-Connector & DPX-SAS
Battery Backed SRAM 8MB	9 x COMs: ccTalk, RS232, ID003,RS485, TTL	Enclosure Metalwork Optional
4 x DP++	M.2, SATA DOM, HDD, SSD, CFast, USB	On-board Microcontroller PuC
Expansion I²C	DPX Security Suite: Media Validation Toolkit, TPM support, DPX Security Features & BIOS Customization	

DPX®-M Series

• Sports betting • Kiosk • Arcade • Gaming

• Based on 8th & 9th Gen Intel Core processors and AMD Ryzen V1000/R2000 series
• These products provide a high performance multi-media engine to the needs of gaming OEMs
• The modular expansion bus allows modules to be added such as I/O, COMs, security and specialized interfaces

Feature Highlights

AMD and Intel CPUs available, Mini ITX mounting holes, up to 4 x 4K screens and development kits.

M1000 (half height) and M2000 chassis options available, M-Series PSU units are available.

Modular Side expansion bus, Advantech-Innocore has a range of standard "add-on cards" for sports betting or gaming Sub system.

DPX®-M266

AMD Ryzen™ Embedded R2000
Multi-media Gaming Board

- High performance AMD Ryzen Embedded R2000 processors
- Quad and dual core APUs up to 3.35 (3.7) GHz
- Supports 4 display outputs (4 x DP v1.2)
- PCIe x16 graphics card slot

- Modular Expansion Port - Edge connector
- Storage 2 x SATA / CFast, 1 x M.2
- Secureboot Media Validation support
- RS232, ccTalk, TTL, ID003, I2C, intrusion and DIs

AMD Embedded Solutions | AMD RADEON EMBEDDED | AMD RYZEN EMBEDDED R | NVIDIA Elite Partner | CE FCC

Features

↔	Digital I/O 32/32	SS⟵	3 x USB 2.0 2 x USB 3.0		DPX-Software: Embedded OS, DPX Diagnostics, DPX-Connector & DPX-SAS
4K ULTRAHD	4 x DP++		6 x COMs: ccTalk, RS232, ID003,RS485, TTL		Enclosure Metalwork Optional
	Expansion I²C	SSD	M.2, SATA DOM, HDD, SSD, CFast, USB	PuC	On-board Mircocontroller PuC
	DPX Security Suite: Media Validation Toolkit, TPM Support, DPX Security Features & BIOS Customization				

DPX®-M270

8th & 9th Generation Intel® Core™ Processor Embedded Multi-Media Gaming Board

SCAN ME for more information!

- Powered by 8th & 9th Gen Intel Core processors (available with Intel Core i3/i5/i7, Intel Pentium & Intel Celeron)
- Two 260-pin SO-DIMM up to 32GB DDR4 2666 MHz SDRAM
- Supports 3 x display outputs (2x DP++, HDMI)
- PCIe x16 Gen 3.0 graphics card slot

- Storage 2 x SATA with 1 x M.2
- Media Validation Toolkit support
- RS232, ccTalk, TTL, ID003, I^2C, intrusion and digital inputs
- Modular expansion port - Edge connector

Microsoft   Intel partner Titanium IoT Solutions   Intel CORE i7   Intel CORE i5   Intel CORE i3   Intel CELERON   Intel PENTIUM   nVIDIA Elite Partner   CE FCC

Features

	Displays 2 x DP++ 1 x HDMI (3 simultaneous for Q370, 2 simultaneous for H310)		Onboard: 8 x USB 2.0 4 x USB 3.1 Via Golden Fingers: 2 x USB 2.0		DPX Security Suite: Media Validation Toolkit, TPM Support, DPX Security Features & BIOS Customization
					DPX-Software: Embedded OS , DPX Diagnostics, DPX-Connector & DPX-SAS
	Graphics Cards PCIe x 16 Format		6 x COMs: ccTalk, RS232, ID003, TTL		Enclosure M1000 & M2000
	Expansion I²C, PCIe x 16 and Sidebus Modular Expansion	SSD	M.2, SATA DOM, HDD, SSD, USB	PuC	On-board Microcontroller PucLite

DPX®-E265

AMD Ryzen™ Embedded V1000 mITX with Four DP++, ECC, PCIe Expansion

- Supports 4 x DP++
- Supports PCIe x8 (PCIe x16 connector, Gen 3.0)
- Two 260-pin SO-DIMM up to 32 GB DDR4 3200 MHz ECC/Non-ECC SDRAM
- Removable gaming BIOS module for field verification

- Side expansion port for application specific expansion modules
- Supports 2 x SATA / 2 x CFast / 1 x M.2
- AMD Ryzen Embedded V1000 processors
- Media Validation Toolkit support

AMD Embedded Solutions   AMD RADEON EMBEDDED   AMD RYZEN EMBEDDED V   AMD RYZEN EMBEDDED R   NVIDIA Elite Partner   CE FCC

Features

| | Digital I/O 2 x DI | | Onboard: 4 x USB 2.0 3 x USB 3.1 | | DPX Security Suite: Media Validation Toolkit, TPM Support, DPX Security Features & BIOS Customization |

SS USB

| | Displays 4x DP++ (4 simultaneous) | | Via Golden Fingers: 2 x USB 2.0 | | DPX-Software: Embedded OS , DPX Diagnostics, DPX-Connector & DPX-SAS |

| | Graphics Cards PCIe x 16 Format | | 6 x COMs: ccTalk, RS232, ID003,RS485, TTL | | Enclosure M1000 & M2000 |

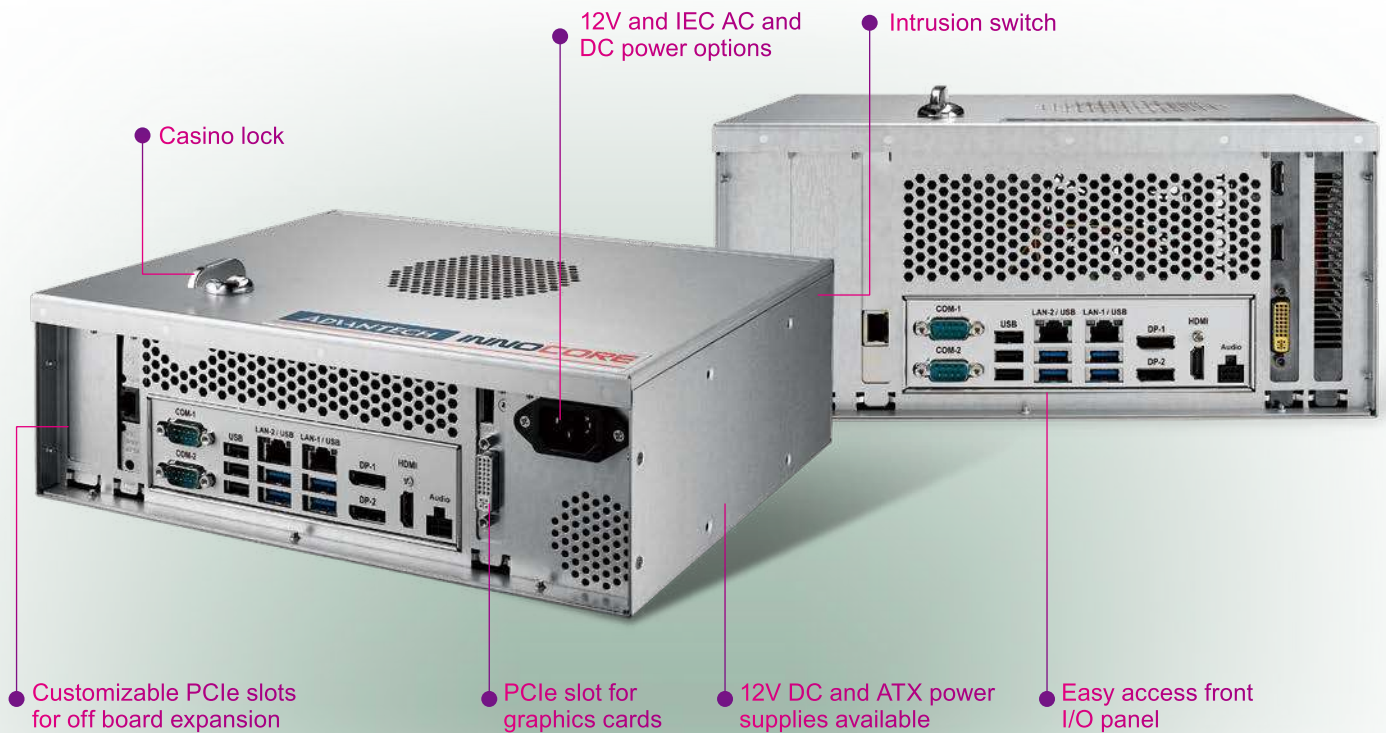| | Expansion I²C, PCIe x 16 and Sidebus Modular Expansion | SSD | M.2, SATA DOM, HDD, SSD, CFast, USB | PuC | On-board Microcontroller PucLite |

DPX®-M1000 and DPX®-M2000

The DPX-M Series of chassis are available in half height and full height options, to accommodate both standard height graphics cards and other 3rd party PCIe expansion cards.

• Up to 200W Power Supply   • Compact Design   • Tool Free SSD/HDD Access   • System Fan   • Complete Solution

Dimensions of Chassis

	Length	Width	Height
DPX-M1000	232mm	295mm	104mm
DPX-M2000	242mm	295mm	134mm

12V and IEC AC and DC power options

Intrusion switch

Casino lock

Customizable PCIe slots for off board expansion

PCIe slot for graphics cards

12V DC and ATX power supplies available

Easy access front I/O panel

DPX®-J Series

The DPX-J100 is the latest addition to the DPX family of integrated gaming platforms. Based on the revolutionary AMD R1000/V1000 Series embedded platform, the DPX-J100 uses AMD's latest cost effective dual and quad core SOC devices with "Discrete-level Graphics" from the best-in-class integrated VEGA graphics core. Three independent monitors can be supported. A full set of I/O, COMs and security features designed specifically for gaming devices is also included, making the DPX-J100 an ideal platform at an economical price point for many gaming, amusement and kiosk applications. Passive cooling for the lower APUs allows for robust, maintenance free operation in the harshest gaming environments.

Feature Highlights

JAMMA Connectors

Passively Cooled (some APUs)

Chassis Available

Full set of I/O's, COMs and Security Features

DPX-J Series

18

DPX®-J100
AMD Ryzen™ Embedded V & R Series Gaming Platform

- High performance AMD Embedded V&R SOC APUs
- Quad and dual core APUs
- Radeon VEGA GPU with up to 8 compute units
- Up to 3 independent monitors supported
- Comprehensive gaming features
- 72 + 20 Pin JAMMA harness connectors
- Optional enclosure

Features

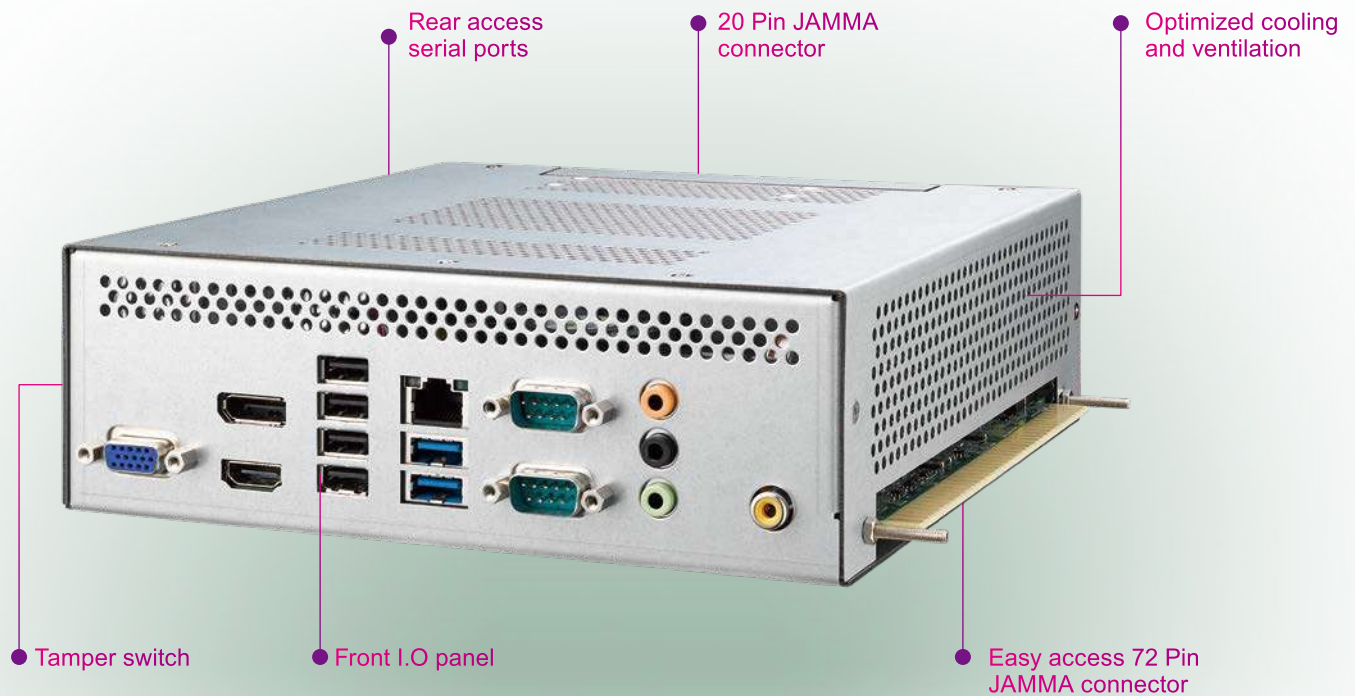|					
⟷	Digital I/O 24/29	▯▯	Expansion I²C, Mini PCI	🖥	DPX Security Suite (as below) +iButton
⚡	Up to 2MB of Battery Backed FRAM	SS⟜	6 x USB: 4 x 2.0 - 2 x 3.1/2.0		DPX-Software: Embedded OS , DPX Diagnostics, DPX-Connector & DPX-SAS
4K ULTRAHD	1 x DP++, 1 x HDMI and 1 x VGA	⊙▭⊙	6 x Coms – RS232/485 Tx/Rx	▥▪▯	Optional Enclosure
🔊	Onboard Audio Amplifier, Line Out, Digital SPDIF Out	SSD	SATA DOM, SSD, HDD, M.2, USB, CFast	PuC	On board Microcontroller

DPX®-J100 System

The DPX-J100 system is a gaming system logic box designed around Advantech's DPX-J Series motherboards.

Easy access to a full set of I/O, COMs and tamper proof switch. Security features designed specifically for gaming devices makes the J100 system ideal for many gaming, amusement and kiosk applications. Optimised cooling with fanless options for certain models, allows for robust, maintenance free operation in the harshest gaming environments.

Dimensions of Chassis

	Length	Width	Height
DPX-J100 system	200mm	200mm	65mm

Rear access serial ports

20 Pin JAMMA connector

Optimized cooling and ventilation

Tamper switch

Front I.O panel

Easy access 72 Pin JAMMA connector

DPX®-Development Kits

All inclusive packages for quick development

With development times becoming shorter in the gaming industry, the range of DPX Developer's kits provides a fast, simple way to get up and running with any of the DPX Series products. It also provides the best possible "out of the box" experience, with everything you need to begin developing on DPX hardware platforms, delivered to you, fully tested and ready to go (with up to date drivers) in one handy box:

- All inclusive kits for each DPX mainboard
- Fast and simple setup to evaluate and start development
- Includes pre-configured operating systems, drivers and utilities

- Demo and reference source code
- I/O development board, power supply and full documentation

The kits are based on a DPX® mainboard, and includes all the other necessary items to set up an evaluation and development station:

- Source code
- DPX chassis
- Demo utilities
- PSU / Dongles
- 128GB Advantech storage

- Demo OS / Linux Image
- Full cable sets
- Motherboard + CPU
- 8GB Advantech RAM
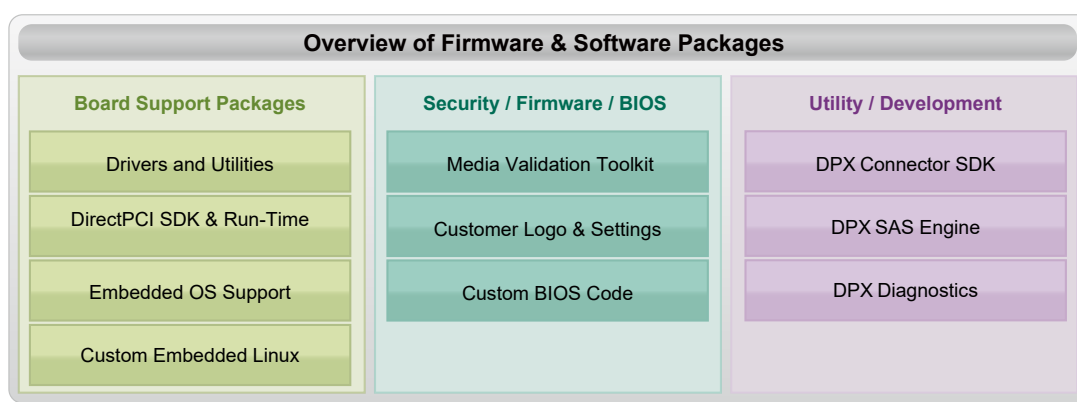- Complete documentation

⊞ View More

SCAN ME for more information!

Gaming Software, Firmware, Integration and Security Support

Software Overview

Advantech-Innocore supplies a wide range of software packages and support to accelerate the customer's development cycle. As well as board support packages with highly robust drivers and edge-to-edge coverage for the hardware platforms, other software products are available including peripheral protocol libraries, security suites, diagnostic and test software designed to help develop the best-balanced gaming solutions.

Overview of Firmware & Software Packages

Board Support Packages	Security / Firmware / BIOS	Utility / Development
Drivers and Utilities	Media Validation Toolkit	DPX Connector SDK
DirectPCI SDK & Run-Time	Customer Logo & Settings	DPX SAS Engine
Embedded OS Support	Custom BIOS Code	DPX Diagnostics
Custom Embedded Linux		

Board Support Package

Board support packages provide software support for Microsoft Windows embedded OS and embedded Linux OS. A full set of drivers and APIs are provided to all standard PC functions as well as all gaming specific hardware features. Direct PCI Software Development Kits are integrated into DPX- Series motherboards to handle gaming critical functions such as SRAM, Digital Inputs Outputs (DIO) Watchdog, as well as intrusion monitoring and other functions. The API is optimized for Embedded Windows and Linux distributions and is common across all DPX- Gaming motherboards.

Security

Advantech-Innocore understands that the protection of gameplay data and machine state are critical considerations. Software and hardware tampering detection, as well as media validation are key requirements set by gaming regulators. The aim is 'Player' and 'Operator' protection, fair games and correct pay-outs.
As such the DPX range of gaming motherboards come with the following security features as standard:

- TPM Chip
- Random Number Generator (FIPS)
- Password protected i2c port
- 88 Bit Unique ID
- EWF/UWF support
- BitLocker support
- Software authentication
- TCG Opal 2.0 SQFlash products available
- Intrusion detection logging processor (IDLP)

OEM Intellectual Property

Encryption of data and applications, strong password, key storage and platform authentication are all key considerations when choosing a gaming platform; as well as prevention of copying or cloning of game data, stopping unauthorized content from being loaded in order to maintain competitive advantage and protection of investment and IP. Advantech-Innocore's software solutions combined with hardware features gives you multiple methods to protect your game content.

Featured Gaming Software

Media Validation Toolkit

The Media Validation Toolkit provides a toolkit for the developer to produce low-cost, low-overhead security mechanisms for gaming machines. The mechanisms security features cover various aspects of security control and ensure:
1) Customers' software applications can only run on designated hardware.
2) Designated systems only run designated software.
3) Compliance with U.S. and international gaming regulations for media validation.

- SDK for customizable pre boot BIOS media validation
- Meets GLI-11 and other regulatory requirements
- SHA-1 Hash and BIOS self-test
- Supports encrypted digest and multiple hash tables
- Comprehensive user manual
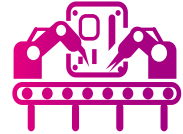
The Trusted Platform Module (TPM)

The TPM chip included on Advantech-Innocore DPX Series main boards is an advanced security co-processor offering a high level of hardware-based security for application development and deployment.

- Unique per-board RSA key generates, stores and protects RSA keys: keys never leave the TPM chip un-protected
- RSA asymmetric encryption and signing SHA-1 hashing
- Generates random numbers to 1-million bit random-ness (as tested by US NSA)
- Chip is physically secure from physical tampering
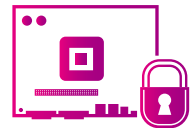
BIOS

Advantech-Innocore provides gaming-specific firmware and software customization services including BIOS and TPM support that deliver superior performance, compatibility and functionality, and also provide information encryption, which is expected by manufacturers of gaming platforms.

- Secure AMI APTIO UEFI BIOS
- Customization
- Field verifiable BIOS
- Field and Laboratory approved
- Immutable BIOS and development versions
- Customization and write protection for security
- Support for security ROM extensions
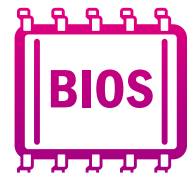
DPX® -Connector SDK

DPX- Connector SDK is a software package developed to address customers' needs to connect third-party hardware peripherals to Advantech-Innocore computer boards. A unified event handler provides an efficient method to handle communications. The SDK supplies a range of hardware and protocol-oriented modules to allow connection of a range of peripherals including:

- Coin Hoppers
- Bill Validators
- Ticket Printers

The DPX-Connector SDK supports ccTalk and JCM ID003 devices, as well as Windows and Linux OS.

Slot Accounting System (SAS)

The DPX-SAS Engine is a complete, ready to use driver and API environment that enables implementation of the SAS protocol with the DPX range of products. Field proven and lab-certified the SAS Engine handles all SAS messaging, register structures and timing protocols.

- Fully featured SAS protocol library
- Mature field-proven product
- Approved in all major jurisdictions
- Supports latest versions

- Multi-game support
- Windows and Linux OS
- Ticket In / Ticket Out (TITO) Advanced funds transfer facilities

- Real-time events
- Supports different currencies
- Progressives and tournament support.

DPX® Diagnostics SDK

The DPX Diagnostics SDK is the perfect pre-deployment hardware verification tool, allowing gaming features and software testing. USB and CD bootable, and comprehensive Windows and Linux OS support. Source code is available.

1-Wire / iButton® SDK

The 1-Wire / iButton SDK provides support for all 1-Wire and iButton devices, comprehensive Windows and Linux OS support. Source code is available.
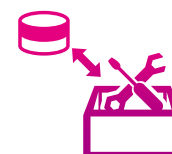
PuC Microcontroller

The PuC embedded Microcontroller (IOC, PuC, MPuc and PuC-Lite depending on the DPX-Model) is an integrated subsystem used across the range of Advantech-Innocore motherboard products and provides a range of user functions suited to the gaming industry.

What is it?

On-board, low cost, low power, 8 bit Microcontroller.

What does it do?

Provides system maintenance, diagnostics, configuration, reliability, security, event logging and manageability functions.

Customer Benefits

Improved system reliability, remote manageability, remote updates, simplified factory set up (jumper-less design, single firmware image), quieter operation, improved security and logging.

Gaming Monitors

Designed exclusively for gaming applications, Advantech's gaming display solutions provide a wide range of gaming monitors to meet the special requirements of applications such as slot machines and casinos. Solutions include both open frame monitors and ultra widescreen displays. These display solutions feature widescreens, reliable touch screens and flexible mechanical designs that can be integrated with Advantech-Innocore gaming platforms for a total gaming solution. Applications include slot machine, lottery terminals, jackpot systems, sports betting terminals, kiosks etc.

HALO Series

Standard, Front LED and Edge LED

Panel Size: 21.5"

Resolution: 1920x1080@60Hz
Brightness: 250 nits
Viewing Angles: 89/89/89/89 LRUD
Video Inputs: HDMI/DP

Panel Size: 23.8"

Resolution: 1920x1080@60Hz
Brightness: 250 nits
Viewing Angles: 89/89/89/89 LRUD
Video Inputs: VGA, DVI, DP

Panel Size: 27"

Resolution: 1920x1080@60Hz
Brightness: 300 nits
Viewing Angles: 89/89/89/89 LRUD
Video Inputs: VGA, DVI, DP

Panel Size: 32"

Resolution:1920 x 1080@60HZ
Brightness:400nits
Viewing Angles: 89/89/89/89 LRUD
Video Inputs:VGA/DP/HDMI

Open Frame / Button Deck Touch

Panel Size: 10.1"

Resolution: 1280 x 800
Brightness: 500
Viewing Angles: 85/85/85/85 LRUD
Video Inputs: VGA, DVI
P-cap Touch
Customizable Buttons

Optional:
Glass Artwork
Integrated Wireless Charger

Panel Size: 12.1"

Resolution: 1280 x 800
Brightness: 400
Viewing Angles: 85/85/85/85 LRUD
Video Inputs: HDMI, USB
P-cap Touch
Customizable Buttons

Optional:
Glass Artwork
Integrated Wireless Charger

CURVED Series

For C and J curved

Panel Size: 32" C Curved/43" in C & J Curved (Non-LED)

Resolution:2560 x 1440@144Hz(32") / 3840 x 2160@60Hz (43")
Brightness: 250nits(32")/500nits(43")
Viewing Angles:89/89/89/89
Video Inputs:HDMI/DVI/DP/USB (Type B)

Panel Size: 43" in C & J Curved

Resolution:3840 x 2160@60Hz
Brightness: 500nits
Viewing Angles:89/89/89/89
Video Inputs:HDMI/DVI/DP/USB (Type B)
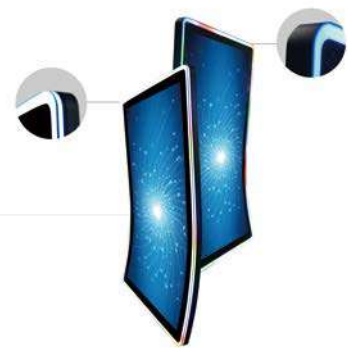
EDGE Series

Zero Bezel

Panel Size: 10.1"

Resolution:1280 x 800@60Hz
Brightness:500nits
Viewing Angles:85/85/85/85
Video Inputs: VGA/DVI/USB (Type B)

Panel Size: 15"

Resolution:1024 x 768@60Hz
Brightness:350nits
Viewing Angles:80/80/80/80
Video Inputs: VGA/DVI/USB (Type B)

Panel Size: 17"

Resolution:1280 x 1024@60Hz
Brightness:250nits
Viewing Angles:85/85/80/80
Video Inputs: HDMI/VGA/USB (Type B)

Panel Size: 19"

Resolution:1280 x 1024@60Hz
Brightness:250nits
Viewing Angles:85/85/80/80
Video Inputs: HDMI/VGA/DVI/DP/USB (Type B)

Panel Size: 21.5"

Resolution:1920 x 1080@60Hz
Brightness:250nits
Viewing Angles:89/89/89/89
Video Inputs: HDMI/VGA/USB (Type B)

Panel Size: 27"

Resolution:1920 x 1080@60Hz
Brightness:300nits
Viewing Angles:89/89/89/89
Video Inputs: HDMI/VGA/DVI/USB (Type B)

Industrial Memory & Storage, Microsoft OS, PCIe Graphics Cards

Advantech gaming peripherals offer specialized, quality components with long lifecycle support for our gaming platforms. All peripherals are fully compatible with Advantech-Innocore gaming boards and systems. We provide:

- Long lifecycle graphic cards
- Storage devices - HDD, CFast, SSD, M.2
- Embedded operating system licenses
- Long lifecycle, reliable RAM modules

- Backplanes and connector boards
- iButtons
- Enclosures

SQFlash Industrial Storage Solutions

SQFlash series supports various interfaces such as SATA, PCIe/NVMe and PATA/IDE with multiple form factors including 2.5" SSD, mSATA, M.2, DOM, CFast, half-slim SSD and more.
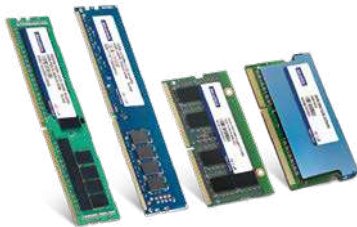
SQRAM Industrial Memory Solutions

SQRAM series offers a comprehensive range of product lines including Unbuffered DIMM ECC DIMM, server DIMM and rugged DIMM with speed of DDR5, DDR4, DDR3, DDR2 and DDR1.

Graphic Cards

Increasingly in embedded systems, more and more demands are made for rich, vibrant graphics and enhanced parallel computing capabilities. Advantech offers a comprehensive product line of graphic card solutions specifically designed for diverse industrial applications needing high processing and imaging technology. Graphics cards feature high performance, rich I/O interface, wide temperature operation, and low power consumption. Advantech supports long lifecycles from 3 to 5 years.

Microsoft OS License

Advantech is a gold worldwide partner and licensed distributor of Microsoft OS and Cloud solutions. Windows 10 IoT is a family of Windows 10 editions targeted towards a wide range of intelligent devices, from small industrial gateways to larger, more complex devices like point of sales terminals and ATMs. Combined with the latest Microsoft development tools and Azure IoT services, partners can gather, store and process data, creating actionable business intelligence that affects business outcomes. Partners building solutions based on Windows 10 IoT will realize expanded opportunities when they harness the full breadth of Microsoft technologies to offer end-to-end solutions.

DPX®-LED Controller

Advantech-Innocore understand that game developers and cabinet makers need to make their product stand out in the crowded casino floor, as well as thinking about the end user and their experience.

The DPX-LED Controller is an key component in the developer's tool box allowing ideas and visions to be transferred from sketch pad to the big screens of the casino floor. With the capability to drive up to 4000 individual LED's, and complimented by an easy to use GUI, (Graphical User Interface) the DPX-LED Controller is the perfect tool to develop, test and control your gaming cabinet lighting.

Features and Functions

- Industrial grade product
- Robust metal cover
- Watchdog timer
- Long term availability
- Custom Vibrance FX application for easy detailed content creation

1-Wire & 2-Wire

uC
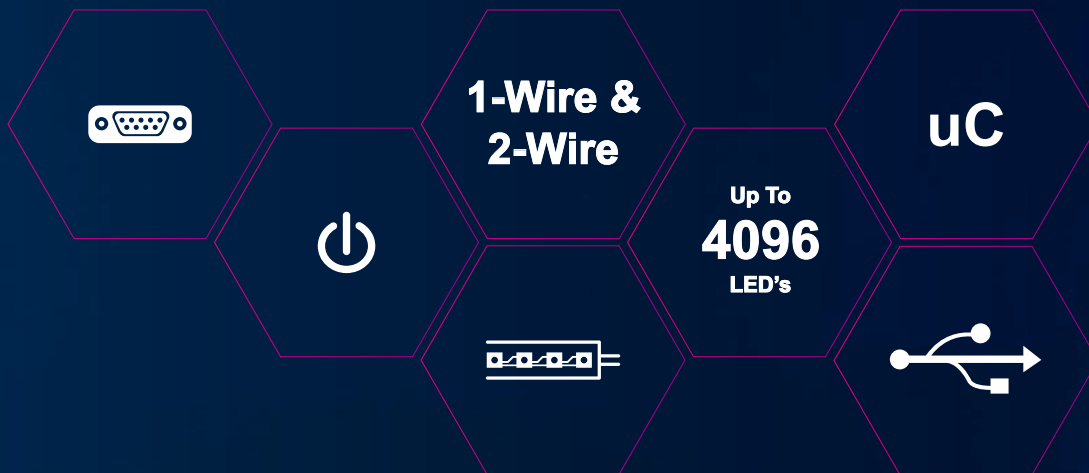
Up To **4096** LED's

Power
- Supports 12V or 5V LED's
- Can be powered by a single 5V or 12V discrete PSU

4096 LEDs
- Up to 4000 LED's can be PWM driven Supports 'tri' or 'quad' colour addressable LEDs

USB Connectivity
- USB connectivity to DPX motherboard or standalone

LED Compatibility
- 16x 1-Wire channels or 8x 2-Wire LED channels – user configurable
- 1-Wire and 2-Wire type supported

Other Features
- Up to 64 discrete pattern sequences
- Up to 4 x layer FX creating depth
- 16 Clock domains
- Pattern sequence position updates
- Drop-in Fadecandy replacement

Gaming Platform and Customization Services

Service Overview

Advantech-Innocore's capability to provide customers with reliable computing solutions is not limited to the wide range of standard products. Custom designs requirements are welcome ranging from small modifications of one of the existing DPX products, to completely new product designs; incorporating new motherboard, chassis, carrier boards, custom firmware and microcontroller design.

- Huge portfolio of reference designs
- 900+ R&D engineers
- In-house CAD design and simulation services
- Intel and AMD select partner

- In-house design validation (EMC, signal integrity, thermal, vibration and HALT)
- Worldwide base of installed hardware and field proven software

- Latest Chipset Solutions
- Vertical Domain Know-how
- Value Added Integration

Leading Technology

Seamless Teamwork

- Embedded Expertise
- Streamlined Design Process
- Customer Oriented Services

ADVANTECH INNOCORE
Innovations in Gaming Computing

Trusted Quality

- Proven Modular Designs
- High Product Reliability
- Solid Quality Assurance

Dedicated Services

- Global Reach, Local Touch
- Dedicated Manufacturing Facility
- One-stop Service

Hardware Design Services	Firmware and OS Design Services	System Design Services
• Custom CPU board designs	• Embedded OS support	• Custom enclosures
• Intel, AMD, and RISC platforms	• OS image development	• Thermal simulation
• GPU design and integration	• FPGA, microcontroller custom firmware	• Peripheral integration
• Custom I/O	• BIOS customization	• System validation (thermal, vibration, EMC, HALT etc)
• Various security solutions	• BIOS Security extension code	• Integration of customer's hardware

Gaming Computing Platforms

Standalone Series

Model Name		DPX-S455	DPX-S2450	DPX-S450	DPX-S2445	DPX-S445	DPX-S2451	DPX-S451
Form Factor		DPX Gaming Board	DPX Gaming System	DPX Gaming Board	DPX Gaming System	DPX Gaming Board	DPX Gaming System	DPX Gaming Board
Processor System	CPU	Intel 12/13th Generation Core	AMD Ryzen Embedded V1000/R1000 APU	AMD Ryzen Embedded V1000/R1000 APU	Intel 6th / 7th Generation Core-i7/i5/i3	Intel 6th / 7th Generation Core-i7/i5/i3	AMD Ryzen Embedded R2000 APU	AMD Ryzen Embedded R2000 APU
	Socket	LGA1700	BGA	BGA	LGA 1151	LGA 1151	BGA	BGA
	max. speed	1.10 (4.80) GHz	3.35 (3.8) GHz	3.35 (3.8) GHz	2.9 GHz (3.8) GHz	2.9 GHz (3.8) GHz	3.35 (3.7) GHz	3.35 (3.7) GHz
	TDP	35W	45W	45W	54W	54W	45W	45W
	Chipset	H610E	SoC	SoC	Q170	Q170	SoC	SoC
	BIOS	AMI APTIO UEFI (Gaming optimised)	AMI APTIO UEFI (Gaming optimised)	AMI APTIO UEFI (Gaming optimised)	AMI APTIO UEFI (Gaming optimised)	AMI APTIO UEFI (Gaming optimised)	AMI APTIO UEFI (Gaming optimised)	AMI APTIO UEFI (Gaming optimised)
Expansion Slot	PCI	-	-	-	-	-	-	-
	MINI PCIe/ mSATA	-	-	-	-	-	-	-
	PCIe	PCIe x 16	PCIe x 16 (x8 signal)	PCIe x 16 (x8 signal)	PCIe x 16	PCIe x 16	PCIe x 16 (x8 signal)	PCIe x 16 (x8 signal)
	MXM	-	-	-	-	-	-	-
Memory	Technology	Single Channel DDR5 4800MHz	Dual Channel DDR4 3200MHz	Dual Channel DDR4 3200MHz	Dual Channel DDR4 2400MHz	Dual Channel DDR4 2400MHz	Dual Channel DDR4 3200MHz	Dual Channel DDR4 3200MHz
	Max. Capacity	32GB	32GB	32GB	32GB	32GB	32GB	32GB
	Socket	1x SODIMM	2x SODIMM	2x SODIMM	2x SODIMM	2x SODIMM	2x SODIMM	2x SODIMM
Graphics	Controller	in CPU (Intel UHD Graphics 770)	in APU (AMD Radeon VEGA series graphics engine)	in APU (AMD Radeon VEGA series graphics engine)	in CPU (Intel GT2-530)	in CPU (Intel GT2-530)	in APU (AMD Radeon VEGA graphics engine)	in APU (AMD Radeon VEGA graphics engine)
	VGA	-	-	-	-	-	-	-
	DVI	-	-	-	-	-	-	-
	DP	3	4	4	3	3	4	4
	HDMI	-	-	-	-	-	-	-
Ethernet	LAN1	GbE	GbE	GbE	GbE	GbE	GbE	GbE
	LAN2	GbE	GbE	GbE	GbE	GbE	GbE	GbE
Storage	SATA	1	2	2	2	2	2	2
	CompactFlash	-	-	-	-	-	-	-
	Cfast	-	2	2	-	-	2	2
	M.2	1	1	1	-	-	1	1
Rear I/O	VGA/ DVI/ HDMI/ DP	0/0/0/3	0/0/0/4	0/0/0/4	0/0/0/3	0/0/0/3	0/0/0/4	0/0/0/4
	Ethernet	2	2	2	2	2	2	2
	USB 2.0	6	8	8	9	9	8	8
	USB 3.0	3	3	3	2	2	3	3
	Audio	1 (ch5.1), SPDIF	1 (ch5.1), SPDIF	1 (ch5.1), SPDIF	1 (ch5.1), SPDIF	1 (ch5.1), SPDIF	1 (ch5.1), SPDIF	1 (ch5.1), SPDIF
	Serial Port	10	10	10	10	10	10	10
	Serial Type RS232/ Cctalk/ TTL/485	10/2/2/1	9/2/2/1	9/2/2/1	10/2/2/1	10/2/2/1	9/2/2/1	9/2/2/1
Gaming Hardware	SRAM	8MB	8MB	8MB	8MB	8MB	8MB	8MB
	ROM Sockets	SPI ROM module	SPI ROM module	SPI ROM module	SPI ROM module	SPI ROM module	SPI ROM module	SPI ROM module
	TPM	TPM 2.0	TPM 2.0/1.2	TPM 2.0/1.2	TPM 2.0/1.2	TPM 2.0/1.2	TPM 2.0/1.2	TPM 2.0/1.2
	Audio Amplifier	-	15W+15W+15W (FL,FR, LFE)	15W+15W+15W (FL,FR, LFE)	15W+15W+15W (FL,FR, LFE)	15W+15W+15W (FL,FR, LFE)	15W+15W+15W (FL,FR, LFE)	15W+15W+15W (FL,FR, LFE)
	Digital Inputs	32 (ESD protected)	32 (ESD protected)	32 (ESD protected)	32 (ESD protected)	32 (ESD protected)	32 (ESD protected)	32 (ESD protected)
	Digital Outputs	32 (OC 500mA 50V)	32 (OC 500mA 50V)	32 (OC 500mA 50V)	32 (OC 500mA 50V)	32 (OC 500mA 50V)	32 (OC 500mA 50V)	32 (OC 500mA 50V)
	Intrusion Inputs	8	8	8	8	8	8	8
	iButton/ GPIO	2	2	2	2	2	2	2
	DPCI Expansion	-	-	-	-	-	-	-
	Watchdog Timer	1	1	1	1	1	1	1
	Dual BIOS	-	-	-	-	-	-	-
Gaming Software	DPCI Advanced Gaming API & Runtime	Standard	Standard	Standard	Standard	Standard	Standard	Standard
	DPX Connector Peripherals Libraries	Standard	Standard	Standard	Standard	Standard	Standard	Standard
	Embedded OS Support	Standard	Standard	Standard	Standard	Standard	Standard	Standard
	BIOS Customization	Optional	Optional	Optional	Optional	Optional	Optional	Optional
	DPX SAS Connector	Optional	Optional	Optional	Optional	Optional	Optional	Optional
	Media Validation Toolkit	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Other Features		I2C, Precision RTC, ATX or 12VDC power	I2C, Precision RTC, ATX or 12VDC power	I2C, Precision RTC, ATX or 12VDC power	I2C, Precision RTC, ATX or 12VDC power	I2C, Precision RTC, ATX or 12VDC power	I2C, Precision RTC, ATX or 12VDC power	I2C, Precision RTC, ATX or 12VDC power

Economy Series

Model Name		DPX-E145	DPX-E140
Form Factor		DPX Gaming System	DPX Gaming System
Processor System	CPU	11th Generation Intel Core SOC CPU	AMD Ryzen Embedded V1000/R1000 APU
	Socket	BGA	BGA
	max. speed	2.8 (4.4) GHz	3.35 (3.8) GHz
	TDP	28W (passive cooled)	15-25W (passive cooled), 54W (fan)
	Chipset	SoC	SoC
	BIOS	AMI APTIO UEFI (Gaming optimised)	AMI APTIO UEFI (Gaming optimised)
Expansion Slot	PCI	-	-
	MINI PCIe/mSATA	-	-
	PCIe	-	-
	MXM	-	-
Memory	Technology	Dual Channel DDR4 3200MHz	Dual Channel DDR4 3200MHz
	Max. Capacity	32GB	32GB
	Socket	2x SODIMM	2x SODIMM
Graphics	Controller	in CPU (Intel Iris Xe integrated graphics engine)	in APU (AMD Radeon VEGA series graphics engine)
	VGA	-	-
	DVI	-	-
	DP	4	4
	HDMI	-	-
Ethernet	LAN1	GbE	GbE
	LAN2	GbE	GbE
Storage	SATA	2	2
	CompactFlash	-	-
	Cfast	2	2
	M.2	1	1
Rear I/O	VGA/DVI/HDMI/DP	0/0/0/4	0/0/0/4
	Ethernet	2	2
	USB 2.0	6	7
	USB 3.0	3	2
	Audio	1 (ch5.1), SPDIF	1 (ch5.1), SPDIF
	Serial Port	9	9
	Serial Type RS232/ Cctalk/TTL/485	4/2/1/1	4/2/1/1
Gaming Hardware	SRAM	8MB	8MB
	ROM Sockets Sockets	SPI ROM module	SPI ROM module
	TPM	TPM 2.0/1.2	TPM 2.0/1.2
	Audio Amplifier	20W+20W (FL, FR)	20W+20W (FL, FR)
	Digital Inputs	32 (ESD protected)	32 (ESD protected)
	Digital Outputs	32 (OC 500mA 50V)	32 (OC 500mA 50V)
	Intrusion Inputs	8	8
	iButton / GPIO	2	2
	DPCI Expansion	-	-
	Watchdog Timer	1	1
	Dual BIOS	-	-
Gaming Software	DPCI Advanced Gaming API & Runtime	Standard	Standard
	DPX Connector Peripherals Libraries	Standard	Standard
	Embedded OS Support	Standard	Standard
	BIOS Customization	Optional	Optional
	DPX SAS Connector	Optional	Optional
	Media Validation Toolkit	Optional	Optional
Other Features		ATX or 12VDC power	ATX or 12VDC power

Jamma Series

Model Name		DPX-J100
Form Factor		Extended Mini-ITX
Processor System	CPU	AMD Ryzen Embedded V1000/R1000 APU
	Socket	BGA
	max. speed	2.6 (3.5) GHz
	TDP	15W
	Chipset	SoC
	BIOS	AMI APTIO UEFI BIOS
Expansion Slot	PCI	-
	MINI PCIe/mSATA	half mini-PCI
	PCIe	-
	MXM	-
Memory	Technology	Dual Channel DDR4 2400MHz
	Max. Capacity	32GB
	Socket	2x SODIMM
Graphics	Controller	in APU (AMD Radeon VEGA series graphics engine)
	VGA	1
	DVI	-
	DP	1
	HDMI	1
Ethernet	LAN1	GbE
	LAN2	GbE
Storage	SATA	1
	CompactFlash	-
	Cfast	1
	M.2	1
Rear I/O	VGA/DVI/HDMI/DP	1/0/1/1
	Ethernet	2
	USB 2.0	4
	USB 3.1	2
	Audio	1 (ch5.1), SPDIF (Option)
	Serial Port	6
	Serial Type RS232/ Cctalk/TTL/485	3/2/0/1
Gaming Hardware	FRAM (NVRAM	Option for FRAM (2 banks) up to 2MB total. (Default is zero FRAM)
	ROM Sockets Sockets	-
	TPM	TPM2.0 (Option)
	Audio Amplifier	6W+6W (FL, FR)
	Digital Inputs	24 (ESD protected)
	Digital Outputs	24 (500mA), 5 (2A)
	Intrusion Inputs	8
	iButton / GPIO	iButton/ one-wire (Option)
	DPCI Expansion	-
	Watchdog Timer	-
	Dual BIOS	-
Gaming Software	DPCI Advanced Gaming API & Runtime	N/A
	DPX Connector Peripherals Libraries	Standard
	Embedded OS Support	Standard
	BIOS Customization	Optional
	DPX SAS Connector	Optional
	Media Validation Toolkit	Optional
Other Features		12VDC for V1605, 5, 12V JAMMA input for R series

Modular Series

Model Name		DPX-M266	DPX-M270	DPX-M1270	DPX-E265	DPX-E1265
Form Factor		Extended Mini-ITX	Extended Mini-ITX	DPX Multimedia Gaming System	Extended Mini-ITX	DPX Gaming System
Processor System	CPU	AMD Ryzen Embedded R2000 APU	Intel 8th & 9th Gen. Core-i7/i5/i3		AMD Ryzen Embedded V1000 APU	
	Socket	BGA	LGA1151		BGA	
	max. speed	3.35 (3.7) GHz	3.2(4.6) GHz		3.35 (3.8) GHz	
	TDP	Up to 54W	65W		54W	
	Chipset	SoC	Q370/H310		SoC	
	BIOS	AMI UEFI SPI with Media validation/ OPROM support	AMI UEFI SPI with Secureboot support		AMI APTIO UEFI (Gaming optimised)	
Expansion Slot	PCI	-	-		-	
	MINI PCIe/ mSATA	-	-		-	
	PCIe x 16	PCIe x16 slot, Gen 3 (x8 electrical, x4 with R2312 APU)	PCIe x16 Gen3		PCIe x16 (x8 signal)	
	Side Expansion Port	2x PCIe x1, 2x USB2.0 ports, 5x intrusion/DI inputs. (R2312 APU supports 1x PCIe, 2 USB)	2 PCIe x1, 2(1) USB, I2C, Control		2 PCI-e x1 (via side expansion)	
	MXM	-	-		-	
Memory	Technology	32GB	Dual Channel DDR4 2666 MHz SDRAM (Non-ECC)		Dual Channel DDR4 3200MHz	
	Max. Capacity	2x SODIMM	32 GB/ 16 GB per SO-DIMM		32GB	
	Socket	2x 260 PIN DDR4 SO-DIMM	2 x 260 PIN DDR4 SO-DIMM		2x SODIMM	
Graphics	Controller	Radeon VEGA GPU with up to 8 compute units	Intel UHD Graphics 630 / Intel HD Graphics 615		in APU (AMD Radeon VEGA series graphics engine)	
	VGA	-	-		-	
	DVI	-	-		-	
	DP	4x DP++ (3 with R2312)	2		4	
	HDMI	-	1		-	
Ethernet	LAN1	GbE	GbE		GbE	
	LAN2	GbE	GbE		GbE	
Storage	SATA	2	2		2	
	CompactFlash	-	-		-	
	Cfast	2	-		2	
	M.2	1	1		1	
Rear I/O	VGA/ DVI/ HDMI/ DP	0/0/0/4	0/0/1/2		0/0/0/4	
	Ethernet	2	2		2	
	USB 2.0	2	10 (Q370. 2 via side expansion) / 6 (H310. 1 via side expansion)		6 (2 via side expansion)	
	USB 3.0	3	4		3	
	Audio	6	6-Way header (Line-out (FL, FR, LFE), SPDIF_Out)		1 (ch2.1)	
	Serial Port	2 x (RS-232 full signal, supports 9 bit data) COM1 & COM2	2 x DB-9 RS-232 full signal, supports 9 bit data)		6	
	Serial Type RS232/ Cctalk/ TTL/485	6/1/1/1	6/1/1/0		6/1/1/1	
Gaming Hardware	SRAM	-	-		-	
	ROM Sockets	SPI ROM module	-		SPI ROM module	
	TPM	TCG TPM 2.0 device (soldered).	TPM2.0		TPM 2.0/1.2	
	Audio Amplifier	-	-		-	
	Digital Inputs	-	-		-	
	Digital Outputs	-	-		-	
	Intrusion Inputs	5 (4 via side expansion)	5 (4 via side expansion)		1	
	iButton/ GPIO	-	-		-	
	DPCI Expansion	-	-		-	
	Watchdog Timer	1	1		1	
	Dual BIOS	-	-		-	
Gaming Software	DPCI Advanced Gaming API & Runtime	N/A	N/A		N/A	
	DPX Connector Peripherals Libraries	Standard	Standard		Standard	
	Embedded OS Support	Standard	Standard		Standard	
	BIOS Customization	Optional	Optional		Optional	
	DPX SAS Connector	Optional	Optional		Optional	
	Media Validation Toolkit	Optional	Optional		Optional	
Other Features		ATX or 12VDC power	12VDC power		ATX or 12VDC power	

Memo

Memo

Legend:
- **D** Design Centers
- **M** Manufacturing Centers
- **C** Configure To Order Service Centers
- **L** Logistics Centers
- **R** Repair Centers

Regional Service & Customization Centers

China	Taiwan	Netherlands	Poland	USA
Kunshan 86-512-5777-5666	Taipei 886-2-7732-3399	Eindhoven 31-40-267-7000	Warsaw 00800-2426-8080	Milpitas, CA 1-408-519-3898

Worldwide Offices

Asia Pacific

Taiwan
Toll Free	0800-777-111
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