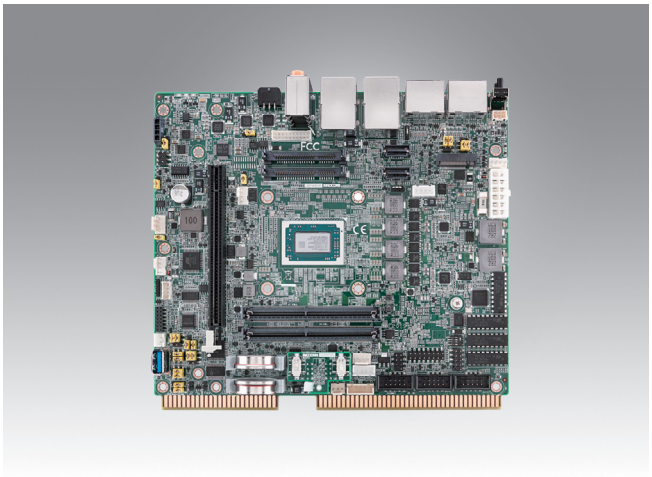
DPX®-S450

AMD Ryzen™ Embedded V1000/R1000 Gaming Platform



Features

- 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
- Four independent 4k monitors supported
- Comprehensive gaming features
- 12V DC single input or ATX power
- Full featured driver API for IO and security

Introduction

The DPX®-S450 is the latest addition to the proven DPX-S series of integrated gaming platforms. Based on the revolutionary AMD V1000 Series embedded platform, the DPX-S450 uses AMD's latest high performance dual and quad core SOC devices with "Discrete-level Graphics" from the best-in-class integrated graphics core. Four independent monitors are supported via DisplayPort 1.2 DP++ ports, and for even higher performance the standard PCI-Express x16 graphics card slot allows the S450 to support today's latest graphics cards for stunning games. A full set of I/O, COMs and security features designed specifically for gaming devices is also included, making the DPX-S450 an ideal high performance integrated platform for many gaming, amusement and kiosk applications.

Specifications

System	AMD Ryzen Embedded V1000/R1000 APUs
	Long life cycle 5 -7 years availability
	Dual channel RAM up to DDR4-3200, ECC and non-ECC, 2 SODIMMs up to 32GB
Video (Integrated)	Integrated – Radeon VEGA graphics engine
	Four monitor support from APU (3 with R1000 APU)
	Four DisplayPort DP++ interfaces (3 with R1000)
	Direct X 12, OpenGL 4.6, EGL 1.4
Video (Expansion)	Full speed Gen 3 PCI-E graphics expansion slot x16 slot (x8 PCI-E with V1000, x4 with R1000) Simultaneous operation of integrated and PCI-E card graphics
Security	TPM security device on board
	Intrusion switch inputs (8 dedicated)
	BIOS customization
	iButton® connector for external iButton reader support
	Precision secure Real time clock device
	Protected I²C port
Software	Edge-to-edge drivers and Software API/SDK.
	Code portability through consistent API with other Innocore boards
	Range of Advantech-Innocore software products for Gaming
CPU/Chipset	AMD Ryzen Embedded V1000/R1000 series Accelerated Processing Unit (APU) V1000 series Dual and Quad Core APUs up to 3.35 (3.8) GHz, up to 2MB L2 cache, 54W R1000 series Dual core up to 2.6(3.5)GHz
Memory	2 x SODIMM sockets
	Up to 32GB DDR4 3200 MT/s SDRAM system RAM, ECC and non-ECC
BIOS	AMI APTIO UEFI BIOS
	BIOS can be write protected
	BIOS expansion ROM module

LAN	2 x Ethernet Gigabit LAN (one LAN with R1000 APU)
	Full duplex operation
	Wake-On-LAN capability
Storage	2 x C-Fast™ / SATA 3 (jumper select)
	SATA 3 (up to 6Gb/s) header for HDD, SSD or SATA DOM
	1x M.2 form factor for 2280 size module, 4 lane PCI-E interface. NVME support (2 lane with R series APU)
Ports	5 x RS232 (2 x fully featured, 3 x Tx/Rx)
	2 x CCTalk/RS232
	1 x TTL/RS232
	1 x ID003/TTL/RS232
	1 x RS485/RS232
	11 x USB (8 x USB 2.0, 3 x USB 3.0/2.0)
	2 x I²C ports (one protected)
	Audio out - SPKR (left, right and LF), line out 5.1 channels
iButton/GPIO	Two Bi-Directional GPIO headers for iButton, special purpose device, security module
Discrete I/O	32 ESD protected inputs
	32 OC Outputs (500mA, 50V)
	Of which 8 I/O ports can be configured as meter outputs with disconnect detect
Audio (line level)	HD 5.1 audio (line level)
	Front I/O panel jack connectors for: FL, FR, CE, LFE, RL, RR. On-board header for: Line In L & R, MIC In, SPDIF In, SPDIF Out (x2), Jack detect. Headphone connector
Audio (amplified)	On board 15W + 15W + 15W (FL, FR, LF) Class D audio amps with bass boost
SRAM (NVRAM)	8192 KByte fast SRAM (2 banks) on PCIe bus
	Battery state software readable
TPM	TCPA/TPM 2.0 compliant security device on board
Watchdog Timer	Programmable time-out
EEPROM	32kByte user EEPROM (option for larger)

See overleaf for continued specification
Last updated: 26-Sep-2019

Specifications Cont.

Asset Tag	Unique, API readable serial number
Intrusion Detection	8x Intrusion detection input lines
	Operates with and without system active
	Logs date/time of last 254 events
	Logs system resets/brownouts as events
	EEPROM backup for 10 years retention
System Health Monitoring	Measurement of CPU core temp. With thermal trip. PWM fan control for system fans.
Power Fail Detect	External sensor input for advanced warning of AC power fail

Expansion	I²C, PCI-Express x16 Graphics card (x8 lanes with V series, x4 with R series APUs)
Power	12V DC single input or ATX12V power supply Intelligent power control
Environment	Operating Temperature: 0 ~ 50 °C
	Storage Temperature: -20 ~ 85 °C
Approvals	CE & FCC (Class A)
	RoHS, WEEE
Dimensions (excluding golden fingers)	200mm (W) x 170 mm (L) (6.7" x 7.9")

Benefits

- Best-in-Class integrated graphics and PCI-E x16 for discrete graphics card
- Single integrated solution
- Designed for the Gaming Industry
- Backwards compatible with DPX-S series boards
- Small size
- Low power
- Long Lifecycle

Optional Accessories

- CFast™ cards, SATA DOM, SSD storage devices
- iButtons®, iButton reader
- Full system chassis
- Range of PCI-E graphics cards
- I/O connector breakout boards
- Edge card connector set

Software Products

- SecureBoot SDK
- DPX Connector SDK
- DPX Diagnostics
- DPX SAS Engine

OEM Customization and Product Development

- Advantech-Innocore is part of the Advantech Co., Ltd. Group of Companies.
- Advantech-Innocore specializes in the fields of PC-based hardware design and software development. Our in-depth knowledge and global resources make us your ideal partner.
- Specifications subject to change. E&OE.
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Front I/O

Rear I/O

DPX-S2450 Integrated Gaming System

DPX-S2450 w/ vertical connector board