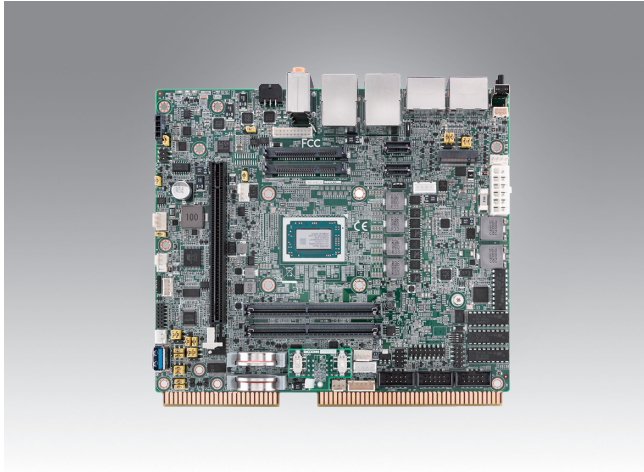


DPX[®]-S451

AMD Ryzen™ Embedded R2000 Gaming Platform



Features

- Very high performance AMD Ryzen™ Embedded R2000 processors
- Quad and dual core APUs up to 3.35 (3.7) GHz
- Radeon™ VEGA GPU with up to 8 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[®]-S451 is the latest addition to the proven DPX-S series of integrated gaming platforms. Based on the AMD Ryzen™ Embedded R2000 Series platform, the DPX-S451 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 1.4 / DP++ ports, and for even higher performance the standard PCI-Express x16 graphics card slot allows the S451 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-S451 an ideal high performance integrated platform for many gaming, amusement and kiosk applications.

Specifications

System	AMD Ryzen Embedded R2000 APUs	LAN	2 x Ethernet Gigabit LAN
	Long life cycle 7 years availability		Full duplex operation
Video (Integrated)	Dual channel RAM up to DDR4-3200, ECC and non-ECC, 2 SODIMMs up to 32GB	Storage	Wake-On-LAN capability
	Integrated – Radeon VEGA graphics engine		2 x C-Fast™ / SATA 3 (jumper select)
Video (Expansion)	Four monitor support from APU	Ports	SATA 3 (up to 6Gb/s) header for HDD, SSD or SATA DOM
	Four DisplayPort DP 1.4/DP++ interfaces		1 x M.2 form factor for 2280 size module, 2 lane PCIe interface. NVME support
Security	Direct X 12, OpenGL 4.6, EGL 1.5, Vulkan, HVEC & VP9 10-bit decode, H.264 8-bit decode	iButton/GPIO	5 x RS232 (2 x fully featured, 3 x Tx/Rx)
	Full speed Gen 3 PCIe graphics expansion slot x16 slot (x8 PCIe)		2 x CCTalk/RS232
Software	Simultaneous operation of integrated and PCIe card graphics	Discrete I/O	1 x TTL/RS232
	TPM security device on board		1 x ID003/TTL/RS232
CPU/Chipset	Intrusion switch inputs (8 dedicated)	Audio (line level)	1 x RS485/RS232
	BIOS customization		11 x USB (8 x USB 2.0, 3 x USB 3.0/2.0)
Memory	iButton [®] connector for external iButton reader support	Audio (amplified)	2 x I ² C ports (one protected)
	Precision secure Real time clock device		Audio out - SPKR (left, right and LF), line out 5.1 channels
BIOS	Protected I ² C port	SRAM (NVRAM)	Two Bi-Directional GPIO headers for iButton, special purpose device, security module
	Edge-to-edge drivers and Software API/SDK supporting Windows and Linux		32 ESD protected inputs
BIOS	Code portability through consistent API with other Innocore boards	TPM	32 OC Outputs (500mA, 50V)
	Range of Advantech-Innocore software products for Gaming		Of which 8 I/O ports can be configured as meter outputs with disconnect detect
BIOS	AMD Ryzen Embedded R2000 series Accelerated Processing Unit (APU)	Watchdog Timer	HD 5.1 audio (line level)
	R2000 series Dual and Quad Core APUs up to 3.35 (3.7) GHz, up to 2MB L2 cache, 54W		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
BIOS	2 x SODIMM sockets	EEPROM	On board 15W + 15W + 15W (FL, FR, LFE) Class D audio amps with bass boost
	Up to 32GB DDR4 3200 MT/s SDRAM system RAM, ECC and non-ECC		8192 KByte fast SRAM (2 banks) on PCIe bus
BIOS	AMI APTIO UEFI BIOS	EEPROM	Battery state software readable
	BIOS can be write protected		TCPA/TPM 2.0 compliant security device on board
BIOS	BIOS expansion ROM module	EEPROM	Programmable time-out
			32kByte user EEPROM (option for larger)

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
System Health Monitoring	EEPROM backup for 10 years retention
	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	I ² C, PCI-Express x16 Graphics card (x8 lanes)

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, UKCA & FCC (Class A)
	RoHS 2, WEEE
Dimensions (excluding golden fingers)	200mm (W) x 170 mm (L) (6.7" x 7.9")

Benefits

Best-in-Class integrated graphics and PCIe 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 PCIe graphics cards
 I/O connector breakout boards
 Edge card connector set

Software Products

Media Validation Toolkit SDK
 DPX Connector SDK
 DPX Diagnostics
 DPX SAS Engine

Front I/O



Front I/O

OEM Customization and Product Development

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



DPX-S2451 Integrated Gaming System



DPX-S2451 w/ vertical connector board