

DPX[®]-M280

AMD Ryzen™ Embedded 8000 Series Multi-media Gaming Platform



Features

- Very high-performance AMD multi-core SoC's
- Class leading Radeon RDNA3 Integrated Graphics core
- Four independent monitors (DisplayPort 1.4)
- PCIe x16 graphics card slot
- Modular Expansion Port - Edge connector
- Fully featured driver API for IO and security
- Intrusion detection, hardware monitoring, precision RTC
- Industry leading GPSA (Gaming Platform Security Architecture)



Introduction

The DPX[®]-M280 is the latest addition to the highly successful DPX-M series multi-media gaming platform range. Based on the AMD Ryzen Embedded 8000 'Hawk Point' SoC platform, the DPX-M280 offers the latest high-performance multi-core technology. Four independent DisplayPort 1.4 outputs plus standard PCI-Express x16 graphics interface supporting today's latest graphics cards, allow the M280 to create stunning games. The modular expansion architecture allows cost effective modules to be tailored to the specific application, adding features such as I/O, COMs, NVRAM, security and specialised interfaces. The mainboard includes an ARM TrustZone™ based GPSA security sub-system to ensure a secure operating environment. DPX-M280 is also available with two turn-key enclosure solutions.

Specifications

System	AMD Ryzen Embedded 8000 Series SoC's	BIOS	AMI APTIO UEFI BIOS
	6 and 8-core up to 54W TDP		Expansion ROM Support
Video (Integrated)	Long life cycle 10 years availability	Storage	Fully write protectable / Immutable BIOS customisation
	RAM up to DDR5-5600 MT/s, ECC & Non-ECC, 2 SODIMM up to 64 GB		Two M.2 'M-Key' PCIe NVME ports.
	Radeon RDNA3 Graphics core		1x 2280 (4-lane), 1x 2242 (4-lane)
Video (Expansion)	Four monitor support from SoC	Expansion	I ² C, PCIe, USB, PCI-Express x16
	Four DP++ v1.4a interfaces	Power	12V DC single input
Security	Direct X12	Asset Tag	Unique ID, API readable serial number
	PCIe x16 Gen.4 graphics expansion slot (x16 lanes). Supports simultaneous operation of integrated and PCIe graphics for higher screen count applications	Interfaces	6 x Serial ports: x RS232 (2 x fully featured, 4 x Tx/Rx)
	Gaming Platform Security Architecture (GPSA)		Configurable 1x CCTalk/RS232, 1x ID003/TTL/RS232
Secure Media Transfer and Initialisation Schema (SMITS)	Discrete I/O	Cabinet mounted PWR & RST button header	
TPM2.0 security device on board		10 x USB (8 x USB 2.0, 2 x USB 3.2/2.0)	
Secure Precision Real Time Clock (Optional)	Audio	2 x I ² C ports (one protected)	
Intrusion switch inputs (up to 6) with battery backed logging		PORT80 Debug	
Software	Range of Advantech software products for gaming	Watchdog Timer	5 individually configurable signals. Options are: digital input, digital output or logged intrusion inputs
	Code portability through consistent API with other Advantech gaming boards		7.1 Surround Sound
Memory	Edge-to-edge drivers and Software API/SDK	Battery	Internal connector for: Line level FL/FR/SBL/SBR/RL/RR/CE and LFE. Line In L & R, MIC In, SPDIF In
	2 x SoDIMM socket up to 94GB total		Programmable time-out
System Health Monitoring	DDR5-5600 MT/s, ECC & Non-ECC	Software (OS)	External RCA phono for: SPDIF Out
	Run-time accessible voltage and temperature measurements		Battery state software readable
LAN	PWM fan control for CPU and system fan		Windows 11, Linux
	Configurable thermal response		
	2 x Ethernet Gigabit LAN		
LAN	Full duplex operation		
	Wake-On-LAN capability		

Specifications Cont.

Intrusion Detection	Dedicated logic box intrusion header
	Up to 6x Intrusion detection inputs
	Operates with and without system active
	Logs date/time of last 254 events
	Logs system resets/brownouts as events
	Logged with 10 years+ retention

Benefits

AMD Radeon RDNA3 architecture and PCIe x16 for discrete graphics cards.
Single board integrated solution
Wide expansion capabilities
Backwards compatible with DPX-M series boards
Small size
Low power
Long Lifecycle

Optional Accessories

M.2 modules, M.2 -> SATA adapter (SATA DoM, SSD storage)
Expansion port breakout boards (standard or custom)
Full system Chassis
Range of PCIe graphics cards

DPX Security Architecture

SESI3/PSA ARM TrustZone™ based Gaming Platform Security Architecture (GPSA)
Support for OPAL2.0 media with pre boot authentication
Pre and post boot BIOS integrity checking
Immutable BIOS with secure update capability
Tamper protected GPSA inter-component communications with API support
RSA & AES Secure Media Transfer and Initialisation Schema (SMITS)

Front I/O



Modular Expansion



Environment	Operating Temperature: 0 ~ 60 °C (Typical), -5 ~ 65 °C (Max.)
	Storage Temperature: -20 ~ 85 °C
Approvals	EMC: UKCA, CE, FCC Class A RoHS, WEEE
Dimensions	Extended Mini-ITX: 170 mm (W) x 185mm (L) (6.69" x 7.28")
Embedded Controller	Uptime counters for licensing, event logging, hardware monitoring (system voltages, fans & battery), intrusion detection and logging, secure I/O, RTC, Precision RTC

Software Products

Media Validation SDK
DPX Connector SDK
DPX Diagnostics
DPX SAS Connector
MS Windows Embedded licenses
EC Dashboard

OEM Customization and Product Development

- Advantech Gaming Solutions specialize 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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System Products



DPX-M1280 Gaming System



DPX-M2280 Gaming System